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Exhibits

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BEFORE THE
PUBLIC UTILITIES COMMISSION
STATE OF SOUTH DAKOTA

IN THE MATTER OF THE INVESTIGATION
INTO QWEST CORPORATION'S
COMPLIANCE WITH SECTION 271 (C) OF THE
TELECOMMUNICATIONS ACT OF 1996

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QWEST CORPORATION'S

AFFIDAVIT

OF

LYNN M. V. NOTARIANNI

CHECKLIST ITEM 2 – OPERATIONS SUPPORT SYSTEMS (OSS)

OCTOBER 24, 2001

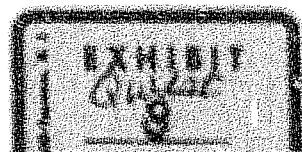


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AFFIDAVIT

OF

LYNN M. V. NOTARIANNI

Checklist Item 2 - Operations Support Systems (OSS)

Lynn M. V. Notarianni states as follows:

My name is Lynn M. V. Notarianni. The purpose of this affidavit is to explain how Qwest satisfies the requirements of section 271 of the federal Telecommunications Act of 1996 (FTA96) pertaining to nondiscriminatory access to Operations Support Systems (OSS). I am employed by Qwest Corporation as a Director in the 271 Third Party Test Regulatory group. A summary of my background and qualifications is attached to my affidavit as Exhibit LVN-OSS-1.

I. EXECUTIVE SUMMARY

Competitive Local Exchange Carriers (CLECs) are successfully using Qwest's OSS to provide competitive alternatives for local exchange telephone customers in South Dakota. Table 1 (below) provides a count of the number of CLECs, as of September 2001, with access to Qwest's primary OSS interfaces in South Dakota. The table also provides a total count for the Qwest's 14-state territory.

Table 1 - Commercial Usage
 CLECs and Carriers¹ with Interface Access as of September 2001

OSS Function	Interface ²	South Dakota	Qwest's 14-state Region
Pre-ordering, Ordering & Provisioning	IMA-GUI	22	227
	IMA-EDI	Not Available	13
	EXACT	Not Available	17
	TELUS-UNIX	Not Available	133
Maintenance & Repair	CEMR	Not Available	98
	EBTA	Not Available	5
Billing	Electronic CRIS Summary Bill	5	92
	IABS Bill	2	14
	Loss and Completion Reports	13	179
	QUP	10	139

In addition to Table 1, this affidavit provides evidence establishing that Qwest meets standards set forth by the Federal Communications Commission (FCC) in its *First Report and Order* and in subsequent orders related to section 271. Specifically, my affidavit demonstrates how Qwest provides no discriminatory access to OSS in support of the three modes of competitive entry into local exchange markets: 1) facilities-based competition, 2) competition using unbundled network elements, and 3) resale.

The FCC's nondiscriminatory access standard is described in Section II of my affidavit. Section III identifies the systems, databases, and personnel deployed by

¹ The term "carriers" refers to Inter-Exchange Carrier (IXCs), to CLECs, and to other Qwest Wholesale customers.

² The Interfaces listed here are further described in section III.B (below).

1 Qwest to provide CLECs access to each OSS function. Section III also explains how
2 Qwest assists CLECs to understand and to implement and use the OSS functions
3 available to them. Section IV shows that the OSS functions deployed by Qwest are
4 operationally ready.

5 Section V provides a review of the Third Party Test conducted by the Regional
6 Oversight Committee (ROC). As an augmentation to commercial usage data, the
7 comprehensive ROC Third Party Test provides valuable insight into how Qwest
8 provides nondiscriminatory access to its OSS. OSS functional areas tested as part of
9 the Third Party Test are summarized in Table 2 - ROC Third Party Test (below) and are
10 described fully in the Master Test Plan, attachment LVN-OSS-2.

1

Table 2 – ROC Third Party Test Structure

OSS FUNCTION	TEST TITLE (Test Numbers refer to MTP chapters)	TEST TYPE
Pre-ordering, Ordering & Provisioning	Test 12 - Evaluation of POP ³ Functionality and Performance Versus Party Standards and Benchmarks	Transaction tests ⁴
	Test 13 - Order Flow-Through Evaluation	
	Test 14 - Provisioning Evaluation	
	Test 15 - POP Volume Performance Test	
Maintenance & Repair	Test 16 - CEMR Trouble Functional Evaluation	
	Test 17 - MEDIACC (EBTA) Maintenance & Repair Trouble Functional and Performance Evaluation	
	Test 18 - Maintenance & Repair End to End Trouble Report Processing	
Billing	Test 19 - Billing Usage Functional Evaluation	
	Test 20 - Carrier Bill Functional Evaluation	
Generally, operational tests are not related to a specific OSS function.	Test 8 - Evaluation of Qwest's Wholesale Performance Measure Process	Operational tests ⁵
	Test 9 - Evaluation of Qwest's Party Standards Calculation Process	
	Test 10 - Evaluation of Qwest's Order and Transaction Creation Documentation	
	Test 22 - CLEC Network Provisioning Test	
	Test 23 - Change Management Test	
	Test 24 - CLEC Support Process & Procedures Review	

³ POP stands for pre-ordering, ordering and provisioning.

⁴ Transaction tests rely on initiation of transactions, tracking of transaction progress, and analysis of transaction completion results to evaluate a system.

⁵ Operational tests focus on the form, structure, and content of the business process under study to evaluate day-to-day operations and management practices.

1 **II. REGULATORY REQUIREMENTS**

2 To obtain approval to offer in-region,⁶ inter-LATA, long distance services, Qwest
3 must prove that it meets each of the requirements of section 271 of FTA96, including
4 the requirement to provide nondiscriminatory access to OSS functions. The FCC uses
5 the term OSS to refer to a variety of systems, databases, and personnel used by a Bell
6 Operating Company (BOC) to provide services to customers.⁷ As described by the
7 FCC, nondiscriminatory access to OSS means a BOC must provide access that
8 sufficiently supports each of the three modes of competitive entry into local exchange
9 markets: 1) facilities-based competition, 2) competition using unbundled network
10 elements, and 3) resale.⁸

11 There are two nondiscrimination standards for OSS. The first standard is for
12 OSS functions analogous to functions provided by a BOC to itself, its customers, or its
13 affiliates. This standard requires a BOC to offer requesting carriers access that is
14 equivalent to the services it provides itself in terms of quality, accuracy, and timeliness.
15 The FCC has indicated that "equivalent access" means a BOC must provide access that

⁶ The term "in-region" refers to those states in which Qwest is designated as the Incumbent Local Exchange Carrier (ILEC): the former 14-state region of U S WEST.

⁷ Application of Verizon Pennsylvania Inc., Verizon Long Distance, Verizon Enterprise Solutions, Verizon Global Networks Inc., and Verizon Select Services Inc. for Authorization To Provide In-Region, InterLATA Services in Pennsylvania, Memorandum Opinion and Order, CC Docket No. 01-138, FCC 01-269, 2001 FCC LEXIS 5009, Appendix C, ¶ 25 (rel. Sept. 19, 2001) ("Verizon Pennsylvania Order").

⁸ Verizon Pennsylvania Order, Appendix C, ¶ 27.

1 permits competing carriers to perform OSS functions in substantially the same time and
2 manner as the BOC.⁹

3 The second standard is for OSS functions with no retail analogue. This standard
4 requires the BOC to offer access sufficient to allow an efficient competitor a meaningful
5 opportunity to compete. In assessing whether this standard is met, the FCC examines
6 whether specific performance standards exist for those functions and, if such
7 performance standards exist, whether the BOC's performance is sufficient to allow an
8 efficient competitor a meaningful opportunity to compete.

9 The FCC uses a two-step approach to determine if a BOC meets these
10 nondiscrimination standards. First, the FCC evaluates whether the BOC has deployed
11 the necessary systems, databases, and personnel to provide sufficient access to each
12 of the necessary OSS functions and whether the BOC is adequately assisting
13 competing carriers to understand how to implement and use all of the OSS functions
14 available to them. This part of the FCC's inquiry includes determining whether the BOC
15 has developed sufficient electronic and manual interfaces, and whether the BOC has
16 provided internal business rules and other formatting information necessary to ensure
17 that a carrier's requests are processed efficiently.

18 Second, the FCC determines if the deployed OSS functions are operationally
19 ready as a practical matter. This part of the FCC's inquiry involves an examination of

⁹ BellSouth Corp., BellSouth Telecommunications, Inc., and BellSouth Long Distance, Inc., for Provision of In-Region, InterLATA Services in Louisiana, Memorandum Opinion and Order, CC-98-121, FCC98-271, 13 FCC Rcd 20599, ¶ 87 (rel. Oct. 13, 1998) ("BellSouth Louisiana II Order").

1 performance measures and other evidence of commercial readiness to determine
2 whether a BOC's OSS is handling current demand and will be able to handle
3 reasonably foreseeable future volumes. According to the FCC, the most probative
4 evidence that OSS functions are operationally ready is actual commercial usage.
5 Absent sufficient and reliable commercial usage data for assessing the operational
6 readiness of a BOC's OSS, the FCC considers the results of carrier-to-carrier testing,
7 independent third party testing, and internal testing.¹⁰

8 **III. DEPLOYMENT OF NECESSARY SYSTEMS, DATABASES, AND**
9 **PERSONNEL**

10 Qwest has deployed systems, databases, and personnel to provide
11 nondiscriminatory access to OSS functions, and Qwest helps CLECs implement and
12 use all of the OSS functions available to them. Qwest has developed electronic
13 interfaces to its OSS and has significantly enhanced its internal systems in order to
14 facilitate CLEC access to OSS functions. Further, Qwest has deployed extensive
15 processes, personnel, and service centers to support the Qwest-CLEC business
16 relationship.

17 **A. Types of Interfaces**

18 When a CLEC provides service to an end-user customer through Qwest facilities,
19 the CLEC and Qwest must perform operational activities together. These activities and

¹⁰ Application of Ameritech Michigan Pursuant to Section 271 of the Communications Act of 1934, as amended, to Provide In-Region, InterLATA Services in Michigan, Memorandum Opinion and Order, CC Docket No. 97-137, FCC 97-298, 12 FCC Rcd 20543, ¶ 138 (rel. Aug. 19, 1997) ("Ameritech Michigan Order"). See also, Verizon Pennsylvania Order, Appendix C, ¶ 31.

1 related exchanges of information can be accomplished through manual processes (e.g.,
2 paper and phone calls), or they can be accomplished through some level of
3 mechanization (e.g., electronic interfaces). They can also be accomplished through a
4 combination of manual and mechanized processes.

5 Some CLECs prefer to use an electronic interface to send electronic Local
6 Service Requests (LSRs)¹¹ to Qwest. When an end-user contacts a CLEC for service,
7 the CLEC employs its defined negotiation and ordering processes. During this process
8 the CLEC can access pre-ordering information using the Qwest electronic interface.
9 Upon successful pre-order negotiations, the CLEC sends Qwest an electronic LSR.
10 When Qwest receives the LSR, the LSR data is converted into Qwest's service order
11 format. Qwest then processes the service order(s) and electronically sends
12 confirmation messages to the CLEC.

13 Alternatively, some CLECs choose to follow a manual process. In the same
14 situation described above, the CLEC submits a paper LSR to Qwest instead of
15 exchanging information electronically. Qwest receives the LSR and creates the service
16 order(s) using LSR data. Qwest then processes the service order(s) and returns the
17 appropriate confirmation messages to the CLEC.

18 The FCC has stated that "there may be a number of smaller competing carriers
19 that prefer to fax or phone in their orders because the number of customers they serve
20 would not support the amount of investment required to build a form of electronic

¹¹ LSRs are transacted in Standard Ordering and Billing Forum (OBF) Local Service Ordering Guidelines (LSOG) format.

1 interface."¹² Qwest continues to support these manual processes for CLECs that
2 choose not to use Qwest's electronic interfaces.

3 **1. Background Discussion of Electronic Interfaces**

4 Qwest uses a variety of OSS – systems, databases, and personnel – to support
5 the operations of its telecommunications business. The systems provide support to
6 Qwest employees and CLEC employees who perform operational duties, such as
7 selling products and services, issuing service orders, testing trunks, and maintaining
8 switching systems. The systems are highly integrated and specialized, meaning that
9 each system provides specific functions and support to overall business processes.
10 Some systems allow for the ordering of products and services for customers, while
11 others record and process trouble tickets. Some provide billing detail and others help
12 provision products and services. Because of the broad range of demands on Qwest's
13 OSS, these systems are complex and sophisticated.

14 Electronic provide two types of access: real-time and batch. A real-time
15 electronic interface processes data in an interactive manner, similar to a conversation.
16 A transaction or query is sent from one computer system to another and a response is
17 returned without waiting for a scheduled transfer time. For example, a CLEC
18 representative submits a request for information (e.g., a Customer Service Record
19 (CSR)), Qwest's system receives the request, makes a query to its databases, and
20 returns the requested information to the CLEC representative immediately.

¹² Ameritech Michigan Order, fn. 333.

1 A batch transfer interface typically processes and electronically transmits large
2 amounts of information on a scheduled basis from one computer system to another.
3 For example, although switches can record call detail messages as calls are made,
4 Qwest's Customer Records and Information System (CRIS) processes call details on a
5 scheduled daily basis.

6 **2. Computer-To-Computer Electronic Interfaces**

7 A computer-to-computer interface is an electronic interface through which a
8 CLEC's OSS communicate directly with Qwest's OSS. With a computer-to-computer
9 interface, CLEC representatives use their own OSS to create requests. These requests
10 are automatically translated into standard formats by the CLEC gateway and
11 transmitted to Qwest. Qwest's OSS then translate and process the requests.
12 Responses are returned to the CLEC in standard format, and the CLEC's gateway
13 translates these responses for display to the CLEC representative.

14 **3. Human-To-Computer Electronic Interfaces**

15 A human-to-computer electronic interface provides a CLEC with another way to
16 interact directly with the Qwest OSS. The interface may be text-based, or it may be a
17 graphical user interface (GUI) that employs text, color, graphics, and point-and-click
18 capabilities. Typically, the human-to-computer interface is accessed with a personal
19 computer, a web-browser, and a connection to the World Wide Web. The advantages
20 of a human-to-computer interface include lower setup costs, faster setup time, and
21 increased ease of use resulting from an integrated set of screens.

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21 increased ease of use resulting from an integrated set of screens.

B. Qwest-Developed Interfaces

Qwest-developed interfaces provide electronic access to the five FCC defined OSS functions: pre-ordering, ordering, provisioning, maintenance and repair, and billing. This section briefly describes these interfaces and also includes a discussion of other data outputs provided by Qwest.

1. Interconnect Mediated Access – Electronic Data Interchange (IMA-EDI)

IMA-EDI is a real-time, computer-to-computer, electronic interface that allows CLECs to access pre-ordering, ordering, and provisioning OSS functions. It enables the electronic submission and processing of LSRs. IMA-EDI provides electronic access directly from CLEC systems to Qwest interfacing systems. As such, IMA-EDI enables CLECs to integrate their own OSS with the Qwest electronic interface. With this integration, a CLEC representative using the IMA-EDI interface interacts directly with CLEC developed software and screens instead of interacting with Qwest developed screens.

CLEC pre-ordering, ordering, and provisioning transactions submitted through the IMA-EDI interface have access to the same information and are processed by the same internal systems that process Qwest retail transactions.

2. Interconnect Mediated Access – Graphical User Interface (IMA-GUI)

IMA-GUI is a real-time, human-to-computer, electronic interface that provides CLECs access to pre-ordering, ordering, and provisioning OSS functions. IMA-GUI facilitates electronic submission and processing of LSRs. CLECs can use the IMA-GUI

1 interface with only a personal computer, a web browser, and a connection to the World
2 Wide Web.

3 CLEC pre-ordering, ordering, and provisioning transactions submitted through
4 the IMA-GUI interface have access to the same information and are processed by the
5 same internal systems that process Qwest retail transactions.

6 **3. CLEC Telephone and Address GUI (CTAG)**

7 CTAG is a human-to-computer application that enables CLECs to query and
8 reserve vanity telephone numbers¹³ and blocks of consecutive telephone numbers.
9 CTAG accesses the same telephone number databases as used by Qwest retail
10 operations.

11 **4. EXchange Access Control Tracking (EXACT)**

12 EXACT is a computer-to-computer interface that allows CLECs to request
13 products that require an Access Service Request (ASR). CLECs can submit ASRs to
14 EXACT either using their own OSS software or using TELEcommunications Information
15 System for UNIX (TELIS-UNIX). TELIS-UNIX is a human-to-computer interface that
16 allows CLECs to submit ASRs using a personal computer and a dial-up connection to
17 Qwest.

¹³ Vanity telephone numbers contain a special pattern of numbers requested by an end-user customer.

1 **5. Loss and Completion Reports**

2 Loss and Completion reports result from the Qwest provisioning process. The
3 Completion Report is sent to the CLEC when a service order resulting from a CLEC
4 request is completed or canceled in the Service Order Processing (SOP) system.¹⁴

5 The Loss Report is sent to the CLEC when a service order, showing outward line
6 activity, is completed (i.e., the CLEC "loses" the customer). The Loss Report can result
7 from a complete or partial disconnect order or from a request to change from one
8 provider to another. Both the Loss and Completion reports are available either through
9 the World Wide Web or through Network Data Mover (NDM) with a dedicated circuit or
10 dial-in.

11 **6. Electronic Bonding – Trouble Administration (EB-TA)**

12 EB-TA is a real-time, computer-to-computer interface that allows CLECs to
13 submit trouble reports, make inquiries, and receive status notifications for trouble
14 reports. CLEC trouble reports entered through EB-TA are processed by the same
15 Qwest systems that process Qwest retail trouble reports.

16 **7. Customer Electronic Maintenance and Repair (CEMR)**

17 CEMR is a real-time, human-to-computer interface that allows CLECs to submit
18 trouble reports, make inquiries, and receive status notifications for trouble reports.
19 CLEC trouble reports entered through CEMR are processed by the same Qwest
20 systems that process Qwest retail trouble reports.

¹⁴ When a service order appears on the completion report, it has been provisioned but has not necessarily posted to the billing system.

1 **8. Daily Usage File (DUF)**

2 The Daily Usage File (DUF) contains usage records and call detail information for
3 usage generating products. For example, the DUF contains the origin, termination, and
4 duration of end-user calls. This data is gathered from the Automatic Message
5 Accounting (AMA) system and then sent to the Qwest Customer Records and
6 Information System (CRIS). The usage information is then provided to CLECs in the
7 DUF. CLECs may then apply their pricing formulas to the usage data to bill their end-
8 user customers.

9 CLECs may request that the DUF be sent to them in one of the following
10 transmission methods:

- 11 • Network Data Mover (NDM) – dedicated circuit or dial-in
12 • File Transfer Protocol (FTP) – dedicated circuit
13 • Web Access

14 **9. CRIS Summary Bill**

15 CRIS is the primary, end-user billing system that generates bills for Qwest's retail
16 operations. CRIS also generates Summary Bills to CLECs for resold products and
17 Unbundled Network Elements (UNEs) including UNE combinations. A Summary Bill is
18 created for each product category in each state. For each CLEC, the Summary Bill
19 provides a summary of charges and a breakdown of individual sub-accounts.

1 The following media options are available to CLECs for transmission and receipt
2 of the CRIS Summary bill:

- 3 • Paper¹⁵
- 4 • EDI format via Network Data Mover (NDM) – dedicated circuit or dial-in
- 5 • EDI format via Value Added Network (VAN)
- 6 • EDI format via File Transfer Protocol (FTP) – dedicated circuit
- 7 • EDI format via Web
- 8 • ASCII format via Web – recently implemented
- 9 • ASCII format via CD ROM or diskette

10 **10. Integrated Access Billing Systems (IABS)**

11 IABS is the Qwest system that creates bills for network and trunk-side products.
12 For CLECs, the primary products billed in IABS include Local Interconnection Service
13 (LIS), Collocation (monthly recurring charges), Unbundled Dedicated Interoffice
14 Transport (UDIT), and Resale Frame Relay. CLECs can choose to receive the entire
15 IABS bill or only certain sections of the bill. CLECs may also choose from the following
16 IABS formats:

- 17 • Paper
- 18 • On-line Billing Service (OBS)/Terminal Access Interexchange Inquiry (TAXI)
- 19 Paper Image – Dial-in

¹⁵ The CRIS Summary Bill is always provided in Paper format. CLECs can also choose from additional electronic delivery options.

- 1 • Floppy Diskette in Paper Image or Bill Data Tape (BDT) – Billing Output
- 2 Specifications (BOS) Guidelines
- 3 • Network Data Mover (NDM) in BDT BOS format
- 4 • Magnetic Tape (Reel to Reel) in BDT BOS format

5 **11. Billing and Receivable Tracking (BART)**

6 BART is the billing system for products, materials, and services which are not
7 billed by CRIS or IABS, such as Unbundled Dark Fiber and Collocation (non-recurring
8 charges).

9 **C. Service Centers and Support Teams**

10 Qwest has deployed numerous Wholesale Customer Service Operations Centers
11 that are also known as Interconnect Service Centers (ISCs). These centers provide
12 CLECs with pre-ordering, ordering, provisioning, and billing support. The centers are
13 geographically dispersed throughout the mid-western and western United States.
14 However, the geographical dispersion is transparent to CLECs. For example, CLECs
15 fax LSRs to a single fax number, and Qwest internally routes the requests to the
16 appropriate centers for processing.

17 Qwest has also deployed the Account Maintenance Support Center (AMSC) and
18 the Repair Call Handling Center (RCHC). These centers provide maintenance and
19 repair support to CLECs by initiating trouble reports on behalf of the CLECs. They are
20 available 24x7 to assist CLECs in providing status, escalations, and subsequent
21 handling of trouble tickets.

D. CLEC Support Processes

Qwest assists CLECs in implementing and using OSS functions available to them by assigning key support personnel to each CLEC, offering training classes, supplying system documentation, and providing help desks and call centers.

This section outlines the process established for CLECs to interface with Qwest. The section also describes the OSS information provided to CLECs and discusses other CLEC support.

1. Wholesale Website

The primary source for CLECs to obtain Qwest specific information is Qwest's Wholesale website. Located at <http://www.qwest.com/wholesale>, this website provides in-depth information on Qwest's wholesale products and services, OSS, and CLEC training. Qwest's Wholesale website is an extensive source of information and resources ranging from technical documentation to interconnection contract templates to industry standard guidelines. The website was designed to guide CLECs through every step of the process of providing telecommunications services in Qwest's 14-state region.

2. Getting Started As a CLEC

CLECs intending to offer telecommunications services in Qwest's 14-state region begin the process of interacting with Qwest by obtaining the "Getting Started As A CLEC" guide from Qwest's Wholesale website. This guide explains the steps CLECs need to follow to resell Qwest's telecommunications services and/or to interconnect with Qwest. Specifically, the guide identifies essential steps for a CLEC to get established in

1 Qwest's region, provides information a CLEC needs to complete each step, and
2 suggests the timeframe during which a CLEC should complete each step.

3 **3. Interconnection Agreements**

4 CLECs interested in interconnection may negotiate a new interconnection
5 agreement with Qwest, opt into a pre-existing interconnection agreement, or use a
6 template agreement "as is." Once an interconnection agreement is finalized, signed
7 originals are retained by the CLEC and Qwest, and are filed with the appropriate State
8 Commission. Subsequently, a CLEC can propose amendments to its existing
9 interconnection agreement with Qwest by contacting the CLEC's Qwest Service
10 Manager.

11 Qwest's wholesale website contains the current version of the template
12 agreement located at <http://www.qwest.com/wholesale/clecs/negotiations.html>. State-
13 specific requirements for interconnection agreements are also available on the website.

14 **4. New Customer Questionnaire**

15 The New Customer Questionnaire is a tool used by the CLEC and Qwest to
16 further facilitate the CLEC set-up process. It can be found on Qwest's Wholesale
17 website at <http://www.qwest.com/wholesale/clecs/newcustquestionnaire.html>. A CLEC
18 representative and a Qwest representative jointly complete the New Customer
19 Questionnaire. The questionnaire is used to document general CLEC information and
20 specific CLEC preferences for conducting business with Qwest. For example, CLECs
21 can use the questionnaire to specify the types of billing outputs they would like to
22 receive.

1 **5. Checklist for Interconnecting with Qwest**

2 When completing both the interconnection agreement and the New Customer
3 Questionnaire, the CLEC may further define its interconnection relationship with Qwest
4 by using the Interconnecting with Qwest checklist and/or the Connecting with Qwest as
5 a Reseller document. These checklists consist of a Systems Checklist, an OSS
6 Connectivity Set-up Checklist, a Center Assignment Checklist, and a Summary Bill
7 Checklist. Each sub-list details certain interconnection activities (e.g., requesting a
8 digital certificate). The sub-lists also contain the results of performing each activity
9 (e.g., having dedicated access to IMA-GUI), directions for completing each activity (e.g.,
10 calling a Service Manager), and the suggested timeframes for when each activity should
11 be conducted.

12 **6. Account Team**

13 The Qwest Account Team is the CLEC's primary point of contact with Qwest. The
14 Account Team assists the CLEC in conducting business with Qwest and consists of a
15 Sales Team and a Service Team.

16 The Qwest Sales Team responds to CLEC questions and inquiries, provides
17 CLECs with wholesale product information, and generates sales proposals to meet
18 CLEC needs. The Sales Team also helps plan individual CLEC network
19 interconnection, negotiates interconnection agreements, and processes special order
20 requests.

21 The Qwest Service Team manages issues related to the acceptance, delay, and
22 cancellation of orders. The Service Team also answers interconnection agreement

1 questions, facilitates escalations, and provides information on major outages. Other
2 tasks performed by the Service Team include performing maintenance and repair root
3 cause analysis, and providing project coordination, providing testing and performance
4 reporting.

5 Qwest assigns a three-person support team to each CLEC. First, a Negotiation
6 Administrator is assigned. Based on information gathered by the Negotiation
7 Administrator, such as the types of services to be offered and the geographic location of
8 the CLEC, an appropriate Sales Executive and Service Manager are assigned.

9 **7. Implementation and Deployment Manager**

10 To further assist in a CLEC's start-up process, Qwest assigns an Implementation
11 and Deployment Manager (I&D Manager). The I&D Manager helps each CLEC
12 establish billing outputs and access to Qwest electronic interfaces. Even after the
13 interfaces are in place, the I&D Manager continues to support the CLEC. When the
14 CLEC and Qwest confirm that all interfaces and outputs are working properly, the I&D
15 Manager transitions CLEC support duties to the Qwest Help Desks.

16 **8. Wholesale Systems Help Desk and ISC Help Desk**

17 Qwest has deployed help desks to support the ongoing CLEC interconnection
18 process. The IT Wholesale Systems Help Desk (WSHD) supports CLECs by providing
19 the first point of contact for system related questions. These include, but are not limited
20 to, connectivity to Qwest systems, system user ID questions and password resets,
21 billing output receipt, and system outages. The ISC Help Desk works with CLECs to

1 address questions or problems that impact the electronic interface functions, LSR form
2 population, and product functions, among others.

3 **9. Wholesale Product Catalogs**

4 Qwest provides Product Catalogs (PCATs) on the Qwest Wholesale website.
5 PCAT documentation is a comprehensive collection of Qwest business processes,
6 ordering forms, and product information. This information is cross-referenced and
7 linked to a broader set of documentation, allowing CLECs to not only find information for
8 a specific product, but also to find related Qwest procedures, interface documentation,
9 frequently asked questions, and related product information. Qwest recently undertook
10 an intensive effort to update the PCAT documentation. As a result, the PCATs are now
11 an improved source of valuable information on ordering and using Qwest products.

12 **10. CLEC Training**

13 Qwest offers CLEC training on a wide range of OSS interfaces, products, and
14 business processes. CLEC training information is posted on the Qwest Wholesale
15 website at the following location: <http://www.qwest.com/wholesale/training/>.

16 Courses are available in instructor-led training, web-based training, and
17 downloadable formats. Examples of instructor-led courses include Qwest 101, IMA
18 "Hands On" training, and Unbundled Loop training. Examples of web-based training
19 include Local Number Portability (LNP), Introduction to Service Requests and Billing for
20 CLECs, and Collocation. Examples of downloadable training include CEMR high-level
21 overview and IMA Facility-Based CLEC Directory Listings User Document.

1 Within the past year, Qwest has enhanced and significantly expanded the
2 training available to CLECs. For example, in the first Quarter of 2001, Qwest added 34
3 instructor-led training classes and six new course offerings to the CLEC training
4 curriculum. CLEC training offered by Qwest will continue to evolve and improve to
5 better meet CLEC needs.

6 **11. Change Management**

7 Qwest and CLECs jointly participate in a forum, known as the Change
8 Management Process (CMP), for managing changes related to Qwest's products,
9 processes, and systems that support the five categories of OSS functions. The change
10 management process is used to communicate changes to Qwest's OSS, such as
11 changes requested by CLECs, changes requested by Qwest, changes in industry
12 standards, changes in regulatory requirements, and emergency changes. To facilitate
13 this communication, collaborative meetings that are open to CLECs are held at least
14 two days per month and written documentation is distributed to CLECs regularly.

15 The FCC uses the following five criteria to evaluate a BOC's change
16 management process:

- 17 • That information relating to the change management process is clearly
18 organized and readily accessible to competing carriers,
- 19 • That competing carriers had substantial input in the design and continued
20 operation of the change management process,
- 21 • That the change management plan defines a procedure for the timely
22 resolution of change management disputes,

- 1 • That a stable testing environment that mirrors production is available, and
- 2 • That documentation the BOC makes available for the purpose of building an
- 3 electronic gateway is effective.

4 The FCC also requires a 'pattern of compliance' with the change management
5 process by a BOC.

6 Qwest's change management process is clearly organized and readily accessible
7 to competing carriers through Qwest's Wholesale website. A complete description of
8 the change management process can be found at
9 <http://www.qwest.com/wholesale/cmp/index.html>.

10 CLECs have had input into the design of the change management process since
11 1999 when the process was initially launched. CLECs continue to have substantial
12 input into design and operation of the change management process through a
13 comprehensive CMP re-design effort that began on July 7, 2001 and is currently
14 scheduled to continue until December 2001. This effort provides an opportunity for
15 CLECs and Qwest to jointly re-design the fundamental structure, scope, and purpose of
16 the change management process. When agreements are reached in this process,
17 Qwest is implementing the changes as soon as practicable. All agreements will be
18 reviewed in total at the end of the re-design effort. The augmented CMP, in its most
19 recent state of development, can be found at the following URL:
20 <http://www.qwest.com/wholesale/cmp/redesign.html>.

21 One key area already covered by the re-design effort is the timely resolution of
22 change management disputes. Qwest and CLECs have developed an escalation

1 process and have also agreed to a dispute resolution process. Ultimately, if a change
2 management dispute cannot be resolved through the change management escalation
3 and dispute resolution processes, the issue may be presented to an appropriate state
4 regulatory agency for resolution.

5 On August 1, 2001, Qwest offered CLECs a stand-alone test environment
6 (SATE) for certifying their system interfaces with Qwest's IMA-EDI system and for
7 testing new releases of IMA-EDI software. Qwest makes test data available to CLECs
8 and provides support teams to assist in testing and certifying CLEC interface software.
9 To the extent possible, the test environment mirrors the production environment and is
10 physically separate from the production environment.

11 Although Qwest went through a period where documentation was occasionally at
12 issue with the third party testers, Qwest initiated a concerted effort to address
13 documentation concerns. As a result, the Qwest documentation for building an
14 electronic gateway to IMA-EDI is complete, clear, and thorough. Such documentation
15 can be found at <http://www.qwest.com/wholesale/ima/edi/document.html>.

16 The change management process has evolved during the past two years, and it
17 will continue to evolve. Qwest has attempted to comply with the process during each
18 phase of its evolution. Qwest will continue to demonstrate compliance with the change
19 management process and will work with CLECs to manage changes in a way that
20 provides Qwest's competitors with a meaningful opportunity to compete.

1 **IV. OPERATIONAL READINESS**

2 The second part of the FCC's two-step approach is to evaluate the operational
3 readiness of the OSS functions deployed by the BOC. As discussed in the Regulatory
4 Requirements section above, the primary evidence for operational readiness is actual
5 commercial usage. Actual commercial usage is presented below and is also referenced
6 in the affidavit of Michael G. Williams, Performance Measures. When sufficient and
7 reliable data on commercial usage are not available, the FCC also considers the results
8 of carrier-to-carrier testing, independent third party testing, and internal testing to
9 assess the commercial readiness of a BOC's OSS.¹⁶

10 The FCC has relied on the results of independent third party testing to determine
11 whether a BOC's OSS are operationally ready. My affidavit introduces the Regional
12 Oversight Committee's (ROC) third party testing of Qwest's OSS as a principal source
13 of evidence for evaluating the operational readiness of Qwest's OSS. The ROC Third
14 Party Test is currently in process and, when completed, will provide the South Dakota
15 Public Utilities Commission with evidence to determine that Qwest's OSS are
16 operationally ready.

17 **A. Pre-ordering**

18 The FCC has determined that "[p]re-ordering and ordering includes the exchange
19 of information between LECs about current or proposed customer products and

¹⁶ Ameritech Michigan Order, ¶ 138; Verizon Pennsylvania Order, Appendix C, ¶ 31.

1 services or unbundled network elements or some combination thereof.”¹⁷ Pre-ordering
2 and ordering functions are closely related. However, in this context, pre-ordering
3 transactions generally refer to requests for information needed to submit a service
4 request. Pre-ordering functions provided by Qwest include the following:

- 5 • **Validate Address.** CLECs use the Validate Address pre-ordering function to
6 determine if a customer address provided to the CLEC matches an address in
7 Qwest's OSS. CLECs also use this function to create a list of validated
8 addresses that can be used to create other pre-ordering and ordering
9 transactions accurately and efficiently.
- 10 • **Review CSR (Customer Service Record).** CLECs use the Review CSR
11 pre-ordering function to review a customer's CSR. The retrieved CSR lists a
12 customer's current product and services, along with listing and account
13 information.
- 14 • **Schedule Appointment.** CLECs use the Schedule Appointment pre-
15 ordering function to reserve a date and time with the Qwest Appointment
16 Scheduler system to dispatch a technician for provisioning work. The
17 appointment process is used when the Facility Availability response indicates
18 that a dispatch is necessary, such as when a CLEC submits an LSR for a

¹⁷ Implementation of the Local Competition Provision in the Telecommunications Act of 1996; Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers, First Report and Order, CC Docket Nos. 96-98 and 95-185, FCC 96-325, 11 FCC Rcd 15499, ¶ 514 n. 1244, ¶ 523 n. 1273 (rel. Aug. 8, 1996) (“Local Competition Order”).

1 new line installation or when other physical work is needed at the customer's
2 premises.

3 • **Reserve Telephone Numbers.** The telephone number reservation process
4 is divided into the following functions: telephone number query, selection,
5 exchange, and return. CLECs use the Reserve Telephone Number pre-
6 ordering function to reserve available telephone numbers from the Qwest
7 OSS. These telephone numbers are then included in subsequent LSRs.

8 • **Service Availability.** CLECs use the Service Availability pre-ordering
9 function to confirm that the products, services, and/or carriers requested by
10 the customer can be supported in the Central Office serving that customer.
11 Using information from the CLEC's contract and the state in which the
12 services are requested, the Service Availability function identifies and
13 displays the USOCs for the products that can be ordered.

14 • **Check Facility Availability.** CLECs use the Check Facility Availability pre-
15 ordering function to determine whether facilities currently exist or whether
16 new facilities and dispatch are required to fulfill an end-user's request.

17 • **Validate CFA (Connecting Facility Assignment).** CLECs use the Validate
18 CFA pre-ordering function to query for a list of valid CFAs. This list contains
19 all available and assigned CFAs from the CLEC's CFA list. CFA information
20 is used by CLECs in the ordering of products that require an interconnection
21 meet point (e.g., unbundled loops).

- 1 • **Raw Loop Data.** The Raw Loop Data pre-ordering query provides CLECs
2 access to detailed loop make-up information by loop segment and sub-
3 segment. The Raw Loop Data query returns to CLECs all data as required by
4 the FCC's UNE Remand, so that a requesting CLEC can make its own
5 judgment about whether a loop is suitable for the services it seeks to offer
6 (i.e., various types of xDSL service).¹⁸ Qwest also provides loop-qualification
7 tools for specific types of xDSL services.
- 8 • **Meet Point Query.** The Meet Point Query provides information to CLECs
9 about their available Meet Points in a Qwest wire center or in the outside
10 plant structure. Meet Points support the provisioning of Qwest's Line Sharing,
11 Line Splitting, and Subloop products in much the same way CFA supports the
12 ordering and provisioning of unbundled loops.

13 Pre-ordering transactions are supported by the following OSS: IMA-EDI, IMA-
14 GUI, CTAG, and Qwest service centers. Raw Loop Data can also be obtained for an
15 entire wire center on a downloadable basis from the Qwest website.

16 Both IMA-EDI and IMA-GUI allow a CLEC to integrate pre-ordering and ordering
17 transactions. For example, using either IMA-GUI or IMA-EDI, a CLEC representative
18 can validate a customer's address and use the parsed address information returned to
19 populate the validated address directly onto an LSR.

¹⁸ Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Third Report And Order And Fourth Further Notice Of Proposed Rulemaking, CC Docket No. 96-98, FCC 99-238, 15 FCC Rcd 3696, ¶¶ 428 - 431 (rel. Nov. 5, 1999) ("UNE Remand Order").

1 As shown in Table 1 – Commercial Usage¹⁹, 227 CLECs have access to the
2 IMA-GUI interface, and 18 CLECs are certified to submit pre-ordering transactions
3 through the IMA-EDI interface. Because Qwest interfaces are designed to support pre-
4 ordering functions across the Qwest region, state-specific data is not available for every
5 interface. However, 22 CLECs have South Dakota specific access to the IMA-GUI. In
6 addition to commercial usage, the ROC Third Party Test includes extensive testing of
7 the pre-ordering functions provided by Qwest.

8 **B. Ordering**

9 As stated above, the FCC has determined that “[p]re-ordering and ordering
10 includes the exchange of information between LECs about current or proposed
11 customer products and services or unbundled network elements or some combination
12 thereof.”²⁰

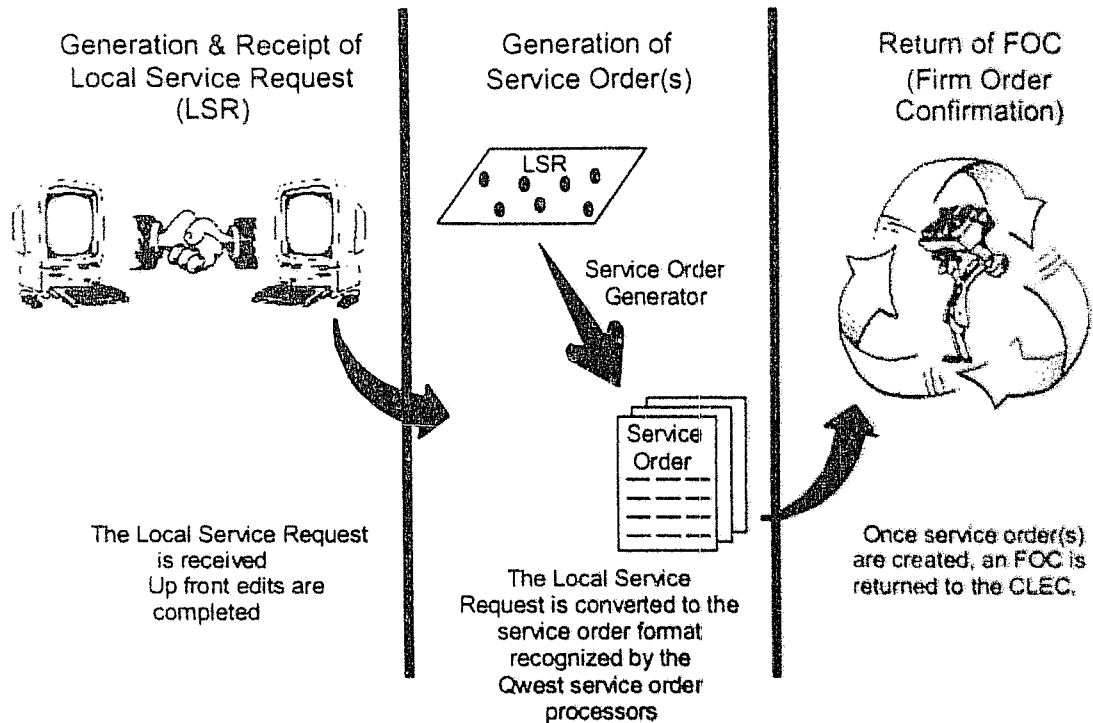
13 The ordering function generally refers to the submission of an LSR and the
14 conversion of that request into service order format. The ordering process is comprised
15 of three major functions depicted in the following figure and explained below.

¹⁹ *Supra*, page 2.

²⁰ Local Competition Order, ¶¶ 514 n. 1244, ¶ 523 n. 1273.

1

Figure 1 – Ordering Process Functions



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- **Service Request Generation and Receipt.** A CLEC generates an LSR, and transmits it to Qwest either through an electronic interface or by facsimile.
- **Service Order Generation.** Qwest converts the LSR into one or more Qwest service orders. The automatic conversion of a service request to service order(s) is called flow-through.
- **Firm Order Confirmation (FOC) Return.** When the necessary service order(s) have been created for an LSR, an FOC is returned to the CLEC, indicating the requested service will then be provisioned.

1 Ordering transactions are supported by the following OSS: IMA-EDI, IMA-GUI,
2 EXACT, and Qwest service centers. As shown in Table 1 – Commercial Usage²¹, 227
3 CLECs have access to the IMA-GUI, and 18 CLECs are certified to submit ordering
4 transactions to the IMA-EDI interface. Seventeen carriers have computer-to-computer
5 access to the EXACT interface, and 233 carriers have access to EXACT via TELIS-
6 UNIX. Because these interfaces are designed to support ordering functions across the
7 Qwest region, state-specific data is not available for every interface. However, 22
8 CLECs have South Dakota specific access to the IMA-GUI. In addition to commercial
9 usage, the ROC Third Party Test will thoroughly test the ordering functions provided by
10 Qwest.

11 C. Provisioning

12 The FCC has determined that "[p]rovisioning involves the exchange of
13 information between LECs where one executes a request for a set of products and
14 services or unbundled network elements or combination thereof from the other with
15 attendant acknowledgments and status reports."²²

16 CLEC orders, like the Qwest retail orders, pass through the Service Order
17 Processors (SOPs). After generating an FOC, a CLEC service order is provisioned to
18 completion and generates a completion notice. Another example of a provisioning
19 notice or status is the jeopardy notice, which is sent when a service order encounters a
20 condition that jeopardizes the timely completion of the request.

²¹ *Supra*, page 2.

²² Local Competition Order Order, ¶ 514 n. 1245, ¶ 523 n. 1273.

1 Other affidavits in this filing contain product specific information and provisioning
2 process details for the wholesale products provided by Qwest (i.e. Unbundled Loops
3 and Resale products). The provisioning information provided by Qwest includes the
4 following:

- 5 • **Proactive Status Notification.** When an LSR status changes, CLECs are
6 notified of the change via the electronic interface used to submit the LSR.
- 7 • **LSR Notices.** LSR notices, such as Jeopardy Notices and Completion
8 Notices, are provided to CLECs for significant LSR events.
- 9 • **LSR Status Inquiry.** CLECs can inquire and obtain the current status of an
10 LSR and its related service orders.
- 11 • **View DLR (Design Layout Record).** When submitting a request for a
12 designed service, CLECs can request that a DLR be created. A DLR
13 contains technical information describing a circuit's facilities and terminations.
14 Once created by Qwest during the design of the circuit, the DLR can be
15 viewed or downloaded by the CLEC.
- 16 • **Loss and Completion Reports.** Qwest provides information on completed
17 service orders in daily batch files. Completion Reports are sent to the
18 requesting CLEC, and Loss Reports are sent to the end-user's previous
19 service provider.

20 As with ordering functions, provisioning functions are supported by the following
21 OSS: IMA-EDI, IMA-GUI, EXACT, and Qwest service centers. The ROC Third Party
22 Test also includes testing of the provisioning functions provided by Qwest.

1 **D. Maintenance and Repair**

2 The FCC defines maintenance and repair (M&R) as "the exchange of information
3 between LECs where one initiates a request for repair of existing products and services
4 or unbundled network elements or combinations thereof from the other with attendant
5 acknowledgements and status reports."²³

6 Trouble reports can be submitted to Qwest either through an M&R electronic
7 interface or by calling either the RCHC or the AMSC. CLEC trouble reports follow the
8 same repair processes and systems as Qwest retail trouble reports. The M&R functions
9 provided by Qwest include the following:

- 10 • **Perform Pre-Validation Activities.** Qwest provides CLECs with the ability to
11 gather certain information about portions of the network before submitting a
12 repair ticket. For example, CLECs can run a Mechanized Loop Test (MLT)
13 and they can review Trouble Report History.
- 14 • **Submit Trouble Report.** When a CLEC determines that maintenance and
15 repair activities are required, the CLEC submits a repair ticket.
- 16 • **Inquiry on Trouble Report Status.** This function enables CLECs to obtain
17 the current status of a repair ticket.
- 18 • **Update or Cancel Trouble Report.** This function enables CLECs to provide
19 additional information to an open ticket or to cancel existing trouble reports.

23 Local Competition Order, ¶ 514 n. 1246, ¶ 523 n. 1273.

1 Maintenance and repair transactions are supported by the following OSS: EB-TA,
2 CEMR, and Qwest Service Centers. As shown in Table 1 – Commercial Usage²⁴,
3 currently 98 CLECs / carriers have access to CEMR. Five CLECs / carriers are certified
4 to submit repair transactions to the EB-TA interface. Because these interfaces are
5 designed to support repair functions across the Qwest region, state-specific data is not
6 available. In addition to commercial usage, the ROC Third Party Test includes
7 extensive testing of the maintenance and repair functions provided by Qwest.

8 **E. Billing**

9 The FCC defined billing as "the provision of appropriate usage data by one LEC
10 to another to facilitate customer billing with attendant acknowledgments and status
11 reports. It also involves exchange of information between LECs to process claims and
12 adjustments."²⁵

13 CLEC billing functions provided by Qwest can be divided into two general
14 categories: billing for services provided to CLECs, and information provided to CLECs
15 for billing their own end-user customers. The bills sent by Qwest to CLECs itemize the
16 wholesale charges for the products and services provided to CLECs. Usage data
17 enables CLECs to bill end-users for usage-based services provided.

18 Access to billing information is provided through the DUF, the CRIS summary bill,
19 the IABS bill, and the BART bill. Billing support and information are also provided by
20 Service Delivery Coordinators (SDCs), who are individually assigned to each CLEC.

²⁴ *Supra*, page 2.

²⁵ Local Competition Order, ¶ 514 n. 1247, ¶ 523 n. 1273.

1 As shown in Table 1 – Commercial Usage²⁶, currently in South Dakota, ten
2 CLECs are setup to receive a DUF, five CLECs are receiving electronic Summary Bills,
3 two CLECs are receiving IABS bills, and 13 CLECs are receiving loss and completion
4 reports. Across the Qwest region, 139 CLECs are setup to receive a DUF, 92 CLECs
5 are receiving electronic Summary Bills, 14 CLECs are receiving IABS bills, and 179
6 CLECs are receiving loss and completion reports. In addition to commercial usage, the
7 ROC Third Party Test includes extensive testing of the billing functions provided by
8 Qwest.

9 **V. ROC THIRD PARTY TEST**

10 The ROC Third Party Test (the ROC Test or the Test) is a primary and credible
11 source of evidence for evaluating Qwest's OSS. The Test provides sufficient evidence
12 to determine that Qwest has deployed the necessary systems, databases, and
13 personnel. The test also provides sufficient evidence that Qwest is adequately assisting
14 CLECs, and that Qwest's OSS are operationally ready.

15 **A. Background and Structure**

16 The ROC is conducting a comprehensive Third Party Test of Qwest's OSS.²⁷
17 The ROC Test is designed to evaluate Qwest's operational readiness, performance, and

²⁶ *Supra*, page 2.

²⁷ Extensive information regarding the ROC Test is publicly available on the Internet at the following URL: <http://www.nrri.ohio-state.edu/oss/oss.htm>.

1 capability to provide access to pre-ordering, ordering, provisioning, maintenance and
2 repair (M&R) and billing functions to CLECs within the 13 participating ROC states.²⁸

3 For purposes of the Test, the ROC created a Steering Committee comprised of
4 representatives from the 13 state commission staffs, and an Executive Committee
5 comprised of five Commissioners from the state regulatory commissions in Qwest's
6 region. The Technical Advisory Group (TAG) was also created to allow input and to
7 gain concurrence on questions related to the Test. The ROC TAG is an open,
8 collaborative forum with representatives from the 13 state commission staffs, ROC Test
9 vendors, CLECs, industry associations, consumer groups, and Qwest. Any interested
10 party with a desire to participate can become a member of the ROC TAG. TAG
11 meetings for the Test are held frequently and regularly. Examples of the different
12 meetings include the following: performance measure (PID) meetings, weekly project
13 manager's meetings, weekly Observation and Exception (O&E) meetings, and regular
14 test-bed meetings.

15 In September 1999, the ROC hired Maxim Telecommunications Consulting
16 Group (MTG) to project manage the Test. With MTG's guidance, the TAG immediately
17 began discussions to set the scope of the Test. Since then, the TAG has met weekly to
18 discuss and decide every issue relating to the scope, implementation, and execution of
19 the Test.

²⁸ The Arizona Corporation Commission chose to conduct its own third party test of Qwest's OSS.

1 In late 1999 and early 2000, the TAG held several face-to-face workshops to
2 discuss and to establish test principles, performance measures, and documents
3 describing the Test: the Test Requirements Document (TRD) and the Master Test Plan
4 (MTP). The TRD is attached in Exhibit LVN-OSS-3, and the MTP is provided in Exhibit
5 LVN-OSS-2. The MTP is the comprehensive plan for evaluating Qwest's OSS. The
6 TRD is a high level document that defines the major aspects of the Test. In addition to
7 the TRD and MTP, the TAG agreed to a comprehensive set of measurement definitions,
8 called the Qwest Service Performance Indicator Definitions (PID) document. The PID
9 defines what is to be measured and how it will be measured.

10 The MTP, TRD, and PID represent a comprehensive collaboration among the
11 CLECs, commission staff members, project managers, and Qwest. TAG members
12 invested substantial resources and effort, including many hours in face-to-face
13 meetings, in order to craft every word and to agree to the final documents. Through
14 these efforts, TAG members resolved hundreds of issues. There were only a handful of
15 issues that the TAG could not resolve. However, the ROC established an impasse
16 resolution process for the few occasions when the TAG might not reach agreement. In
17 these cases, the impasse resolution process escalates issues to the Steering
18 Committee for decision.²⁹ The process also allows a TAG member to further escalate
19 the Steering Committee's decision to the Executive Committee for a final determination.
20 With few exceptions, the MTP, TRD, and PID represent the parties' compromise

²⁹ MTP Section 4.13.

1 positions; the exceptions represent the Steering Committee's and/or the Executive
2 Committee's decision after due consideration of the parties' positions.

3 The TAG developed the TRD first. That document was finalized in March 2000.
4 Having agreed to the broader principles governing the Test, the TAG then turned to the
5 more detailed MTP, which was finalized in October 2000. The TAG's discussion of the
6 PID occurred concurrently with discussions regarding the TRD and MTP. Rather than
7 develop the ROC PID from scratch, the TAG built upon existing performance measures
8 established in the separate collaborative test being conducted by the Arizona
9 Corporation Commission. Because of the dynamic nature of Qwest's systems and
10 product offerings, the PID has undergone many changes. Agreement was reached on
11 the vast majority of the ROC PID in February 2000. The PID contains 48 measures and
12 more than 150 sub-measures.

13 **B. Test Principles and Design**

14 The TRD sets forth the twenty guiding principles that govern the Test. Several of
15 these principles warrant mention. First Principle 4 provides that communications
16 relating to the planning, conduct, and evaluation of the Test must include regular, open
17 TAG meetings.³⁰ Faithful adherence to this principle has resulted in a great deal of
18 participation and collaboration from Commission staff, CLEC representatives, and
19 Qwest. Principle 20 provides that the ROC Test be conducted using the military-style
20 test philosophy, which is a "test until you pass" approach.³¹ This approach ensures that

³⁰ MTP Section 3, Test Principles and Scope, #4.

³¹ MTP Section 3, Test Principles and Scope, #20.

1 all significant exceptions will be tested, modified, and re-tested until the specific success
2 criteria are met. Principle 3 states that the Test is "designed and scaled to represent
3 the environment of the 13 states to ensure their ability to use the results in individual
4 state proceedings."³² Thus, the Test was designed to cover all of Qwest's OSS and
5 wholesale products offered in all of the 13 participating states, including South Dakota.³³

6 Qwest's ILEC operating territory -- and therefore much of its OSS legacy
7 architecture -- is the result of merging three former Bell Operating Companies: Pacific
8 Northwest Bell (covering Washington and Oregon), now referred to as Qwest's Western
9 Region; Mountain Bell (covering Arizona, Colorado, Idaho, Montana, New Mexico, Utah,
10 and Wyoming), now referred to as Qwest's Central Region; and Northwestern Bell
11 (covering Iowa, Minnesota, Nebraska, North Dakota, and South Dakota), now referred
12 to as Qwest's Eastern Region.

13 KPMG Consulting (KPMG) performed a Regional Differences Assessment to
14 ensure that the ROC Test would provide a valid basis upon which each of the 13
15 participating ROC states could base their respective recommendations to the FCC
16 regarding Qwest's section 271 applications. KPMG interviewed Qwest personnel and
17 reviewed Qwest documentation to illuminate any differences in systems and processes
18 throughout the Qwest territory. KPMG's Qwest Corporation Regional Differences
19 Assessment, dated October 5, 2000, found that Qwest's order management,

³² MTP Section 3, Test Principles and Scope, #3.

³³ TRD Figure 6.4, [Qwest] OSSs Across States, at 49, listing OSSs used in South Dakota; Table 6.7, Wholesale Products by State, at 54, listing wholesale products offered in South Dakota.

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³² MTP Section 3, Test Principles and Scope, #3.

³³ TRD Figure 6.4, [Qwest] OSSs Across States, at 49, listing OSSs used in South Dakota; Table 6.7, Wholesale Products by State, at 54, listing wholesale products offered in South Dakota.

1 provisioning, maintenance and repair, and CLEC relationship management and
2 infrastructure are all materially consistent across the three Qwest regions. The
3 Regional Differences Assessment is attached as Exhibit LVN-OSS-4.

4 KPMG found that Qwest's CRIS billing system differs by region, but noted that
5 Qwest has standardized most of its processes across the regions. Therefore, KPMG
6 concluded that most of the differences identified are not critical to the general billing
7 process and KPMG did not find that there are material regional differences. Finally,
8 KPMG determined that Qwest's performance in other respects was not necessarily
9 consistent across regions and then analyzed the impact of these differences on the
10 Test. KPMG concluded that, in spite of regional differences, a "Qwest-wide" test was
11 still appropriate and that the MTP could be designed to accommodate those differences.
12 The Test transaction volumes were set at levels and distributed in such a way as to
13 produce statistically valid results, given the identified differences. The KPMG
14 Assessment of Test Impacts is attached as Exhibit LVN-OSS-5

15 As described in the TRD and detailed in the MTP, the ROC Test includes
16 transactional and operational evaluations, as well as a performance measure audit.
17 Transactional evaluations apply to Qwest's pre-ordering, ordering, provisioning, repair,
18 and billing systems, while operational evaluations apply to Qwest's CLEC support and
19 change management processes and procedures. The ROC Test includes the following
20 comprehensive evaluations:

- 21 • **Pre-ordering, ordering, and provisioning functionality test** -- This test
22 validates the existence, functionality, and behavior of the Qwest interfaces

1 and processes for pre-ordering, ordering, and provisioning. In addition, this
2 test compares actual functionality to Qwest's OSS documentation.

3 * **Order flow-through test** -- This evaluation verifies Qwest's ability to
4 mechanically convert LSRs into service orders without manual intervention for
5 all order types that are designated as flow-through by Qwest. The test also
6 validates that the flow-through capabilities of Qwest's systems are consistent
7 across the three regions.

8 * **Pre-ordering, ordering, and provisioning volume test** -- This test
9 measures Qwest's capacity for processing pre-ordering, ordering, and
10 provisioning transactions. It identifies potential choke points at projected
11 future volumes of the graphical user interfaces, computer-to-computer
12 interfaces, and other systems made available to CLECs.

13 * **M&R functionality and end-to-end trouble report processing tests** --
14 These tests validate the existence and behavior of Qwest's CEMR functional
15 elements as documented. They also evaluate the equivalence of CEMR
16 functionality to Qwest's retail front-end systems and evaluate Qwest's
17 performance in making repairs under the conditions of various wholesale
18 maintenance scenarios.

19 * **Billing usage and carrier bill functionality test** -- These tests evaluate the
20 accuracy and completeness of all usage records types on Qwest's daily
21 usage file ("DUF"), the timeliness of DUF delivery, and the timely delivery and
22 accurate and timely appearance of charges on the appropriate carrier bills.

- 1 • **CLEC support processes and procedures review** -- These tests evaluate
2 the systems, processes, and documentation provided by Qwest for
3 establishing and maintaining CLEC business relationships. The test includes
4 a determination of whether Qwest is adequately assisting CLECs to
5 understand how to implement and use all of the OSS functions available to
6 them.
- 7 • **Change management evaluation** -- This test determines the adequacy and
8 completeness of Qwest's procedures for developing, documenting,
9 conducting, and monitoring change management.
- 10 • **Performance measure audit** -- This test entails a rigorous, scientific
11 validation that Qwest's processes, procedures, business rules, and
12 calculation methods used in measuring wholesale operations are valid and
13 that Qwest personnel adhere to those processes. Additionally, it provides a
14 qualitative assessment of the process for developing measurements. The
15 test also includes a data reconciliation effort to ensure the integrity and
16 validity of test transactions and other test data.

17 To assist with the execution of the Test, the ROC engaged four vendors. As
18 previously stated, the ROC retained MTG to project manage the Third Party Test.
19 MTG's project management personnel play a pivotal role in managing the other
20 vendors, in obtaining approval from the TAG and others on key issues, and in bringing
21 the project to successful closure.

- 1 • **CLEC support processes and procedures review** -- These tests evaluate
2 the systems, processes, and documentation provided by Qwest for
3 establishing and maintaining CLEC business relationships. The test includes
4 a determination of whether Qwest is adequately assisting CLECs to
5 understand how to implement and use all of the OSS functions available to
6 them.
- 7 • **Change management evaluation** -- This test determines the adequacy and
8 completeness of Qwest's procedures for developing, documenting,
9 conducting, and monitoring change management.
- 10 • **Performance measure audit** -- This test entails a rigorous, scientific
11 validation that Qwest's processes, procedures, business rules, and
12 calculation methods used in measuring wholesale operations are valid and
13 that Qwest personnel adhere to those processes. Additionally, it provides a
14 qualitative assessment of the process for developing measurements. The
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18 previously stated, the ROC retained MTG to project manage the Third Party Test.
19 MTG's project management personnel play a pivotal role in managing the other
20 vendors, in obtaining approval from the TAG and others on key issues, and in bringing
21 the project to successful closure.

1 KPMG was hired as the independent third party test administrator. KPMG has
2 extensive experience as a test administrator in other regions where BOCs have
3 obtained approval to offer services pursuant to section 271 of FTA96.

4 Hewlett Packard Consulting (HPC) was hired to perform the pseudo-CLEC role in
5 the ROC Test. The pseudo-CLEC's role is to emulate a CLEC by establishing a
6 business relationship and conducting ongoing business with Qwest. To ensure the
7 pseudo-CLEC obtains unbiased treatment and valid information about Qwest's OSS,
8 Qwest's operations personnel are "blind"³⁴ to the identity of the pseudo-CLEC.³⁵

9 The ROC engaged Liberty Consulting Group (Liberty) to perform an independent
10 audit of Qwest's performance measures. Their audit reviewed processes, procedures,
11 business rules, and calculation methods for determining and reporting performance
12 measures based on the PID. Each PID measurement passed Liberty's audit.

13 **C. Test Execution**

14 The MTP provides that no testing or evaluation could proceed until the
15 associated PID was validated through the performance measure audit (PMA). The
16 audit began in July 2000. The first of the PID-dependent evaluations, the Pre-ordering,

³⁴ As defined in MTP Section 4.10.1, blindness in the Test "extends beyond keeping the identity of the P-CLEC from Qwest. Blindness is the withholding from certain parties to the test of specific test information in order to protect vendor property, to maintain fairness in reporting test results, or to preserve the veracity of the test. This may result in CLECs and/or Qwest being excluded from meetings or other communications."

³⁵ MTP Section 3, Test Principles and Scope, #7.

1 Ordering, and Provisioning Functionality Test, began in April 2001. As of mid-October
2 2001, the PMA was complete and other tests were more than 75% complete.

3 During the ROC Test, each of the test vendors identifies issues that require
4 explanation, clarification, or modification by Qwest. These issues are raised and
5 processed through the Observation/Exception process. An Observation is a means of
6 identifying either of the following: (1) a question regarding an area of a Qwest
7 component being tested that the vendor cannot answer without additional guidance
8 from Qwest, or (2) a potential deficiency in a Qwest component that could contribute to
9 a negative finding. An Exception is a means of identifying a deficiency in a Qwest
10 component that will result in a negative comment if left unresolved. Generally, an
11 Observation represents a concern that has not risen to the level of an Exception.

12 When a vendor identifies an Observation or Exception, the ROC process
13 provides that the vendor will issue a written description of the item, including the
14 relevant background, the impact of the issue, and other relevant information. Qwest
15 responds in writing to Observations and Exceptions. The process allows CLECs to
16 submit written questions and comments regarding both the initial Observation or
17 Exception issued by the vendor and Qwest's response. Many Observations and
18 Exceptions involve supplemental responses and replies from the vendors and Qwest.
19 CLECs can submit written questions and comments according to guidelines agreed to
20 by the ROC TAG. A weekly telephone conference call, in which the CLECs are full and
21 active participants, is held to discuss Observations and Exceptions. Through this
22 process, the vendors have issued more than 100 Observations and 150 Exceptions.

- 1 competition, competition using unbundled network elements, and competition through
- 2 resale. Qwest has deployed the necessary systems, databases, and personnel and is
- 3 adequately assisting CLECs to implement and use the functions available to them. The
- 4 OSS functions deployed by Qwest are operationally ready, as a practical matter.

BEFORE THE
PUBLIC UTILITIES COMMISSION
STATE OF SOUTH DAKOTA

IN THE MATTER OF THE INVESTIGATION)	DOCKET TC 01-
INTO QWEST CORPORATION'S)	
COMPLIANCE WITH SECTION 271 (C) OF THE)	
TELECOMMUNICATIONS ACT OF 1996)	

QWEST CORPORATION'S
EXHIBITS to the AFFIDAVIT
OF
LYNN M. V. NOTARIANNI
CHECKLIST ITEM 2 – OPERATIONS SUPPORT SYSTEMS (OSS)
OCTOBER 24, 2001

INDEX TO EXHIBITS

<u>DESCRIPTION</u>	<u>EXHIBIT</u>
Qualifications	LVN-OSS-1
Master Test Plan.....	LVN-OSS-2
Test Requirements Document	LVN-OSS-3
Regional Differences Assessment	LVN-OSS-4
KPMG Assessment of Test Impacts	LVN-OSS-5

QUALIFICATIONS OF LYNN M. V. NOTARIANNI

My name is Lynn Notarianni. I am employed by Qwest Information Technologies, Inc. ("Qwest") as a Director in the Information Technologies (IT) Wholesale Systems organization. My business address is 1999 Broadway, 10th Floor, Denver, Colorado.

My 17-year telecommunications career began in 1984 when I was hired U S WEST Communications, Inc.¹ During my career, I have had involvement in several U S WEST and Qwest organizations, including Information Technologies, Network, Mass Markets and Advanced Technologies. Within each organization, I held a management position and often had major responsibility for managing persons involved in the development and/or implementation of Operations Support Systems (OSS).

Currently, I am leading Qwest's effort to support Operations Support Systems (OSS) tests being conducted by the Regional Oversight Committee (ROC) and the Arizona Corporation Commission. Additionally, I manage Qwest's response to OSS regulatory issues related to the federal Telecommunications Act of 1996, FCC orders, state commission decisions, and other legal and regulatory matters. I am responsible for testifying before federal and state regulatory agencies in arbitration cases, rulemakings, and complaint proceedings concerning Qwest's conformance with state and federal telecommunications laws and regulations.

My academic credentials include a Bachelor of Science degree in Business Administration (BSBA) from Creighton University and completion of all coursework with a thesis in progress toward a Master of Science degree in Telecommunications at the University of Colorado.

¹ Qwest purchased U S WEST Communications, Inc. in the summer of 2000.

Being first duly sworn upon oath, I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge, information, and belief.

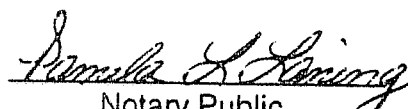
Executed on this 15 day of October, 2001.


LYNN M. V. NOTARIANNI

STATE OF COLORADO

COUNTY OF DENVER

Subscribed and sworn to before me this 15TH day of October, 2001.


Notary Public
1999 Broadway, 10TH Fl.
Denver, CO 80202



PAMELA L. LANING
Notary Public
State of Colorado
My Commission Expires
06-29-2002

Master Test Plan

The Regional Oversight Committee (ROC) 3rd Party Test

Qwest
OSS Evaluation Project
Master Test Plan

Revised Release

Version 4.0

Submitted by:

 **KPMG Consulting**

October 3, 2001

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1. Executive Overview

Execution of a Master Test Plan (MTP) based on the Test Requirements Document (TRD) will evaluate the operational readiness, performance and capability of Qwest to provide pre-ordering, ordering, provisioning, maintenance and repair (M&R) and billing Operation Support Systems (OSS) documentation, interfaces and functionality to competitive local exchange carriers (CLECs) within the 13 participating Regional Oversight Committee (ROC) states. KPMG Consulting, in its role as Test Administrator, used the TRD and its OSS testing experience to develop this formal MTP to review and evaluate Qwest's systems and processes.

The TRD was developed in a collaborative process initiated by the ROC. This process included state commission staff, Qwest, CLECs and other industry participants referred to as the ROC Technical Advisory Group (TAG).

KPMG Consulting further refined the scenarios, and will develop the test transaction mix and volume estimates with input from the TAG. KPMG Consulting developed this MTP to be reviewed by the TAG and approved by the ROC. The overall test is designed to be multi-faceted and provide end-to-end coverage of the systems, interfaces, and processes that will impact the ability of CLECs to enter the market in the Qwest region and provide local service to regional consumers at estimated production volumes.

In constructing the TRD and this MTP many factors were considered. They include the systems and processes to be tested, the measurement points and respective evaluation criteria, and the necessary conditions required to stage a successful, efficient, and objective test.

As Test Administrator, KPMG Consulting will ensure that all tests reflected in this plan are executed. Test results and evaluations will be provided to the ROC and TAG as the test progresses. At least one Interim Report, at approximately the mid-point of the test, possibly other interim reports, and a Final Report at test completion will be produced.

Through the ROC's extensive collaborative testing effort, the TRD and MTP, the following benefits should be realized:

- ROC Commission staff, Qwest and CLECs may eliminate duplicative work across states by determining a complementary set of OSS functionalities, performance measurements and methods to be used in the test.
- Increased administrative efficiency may result in time and cost savings for all participants.

2. Introduction

2.1 Background, Purpose and Objectives

The Telecommunications Act of 1996 (the Act) and related FCC orders require Qwest to provide just, reasonable and nondiscriminatory access to its operations support systems (OSS), to provide the documentation and support necessary for competitive local exchange carriers (CLECs) to access and use these systems, and to demonstrate that Qwest's systems are operationally ready.

Compliance with these requirements should allow competitors to obtain pre-ordering information, submit service orders for resold services, UNE Platform and unbundled network elements (UNEs), submit trouble reports and obtain billing information pursuant to interconnection agreements and regulatory requirements at a level deemed to be nondiscriminatory when compared with Qwest's retail operations.

Qwest offers various systems, including both application-to-application interfaces and terminal-type Web-based systems, which CLECs can use to access Qwest's OSS in order to perform these tasks. The ROC has retained KPMG Consulting to assist it with assessing whether Qwest is meeting these requirements.

The overall objective of this document is to provide a description of a comprehensive plan to test Qwest's OSSs, interfaces and processes. This MTP shall be the basis by which individual tests are developed and executed. The test results should help the ROC to determine whether Qwest's provision of access to OSS functionality enables and supports CLEC entry in the local market. To meet these objectives, KPMG Consulting developed a test plan that is intended to provide adequate breadth and depth to evaluate the entire CLEC/ILEC relationship under real world conditions.

2.2 Principles and Scope

Twenty principles dealing with the 3rd Party OSS Test and its scope were agreed upon in the ROC's Testing and Scoping Principles Workshop held in St. Paul, MN on December 2nd and 3rd, 1999. These principles (which can be found in section 3 of this document) are the guiding principles used to plan, conduct, evaluate and report on the ROC 3rd Party Test of Qwest's OSS. These principles are incorporated into the MTP and the test participants shall be guided by these principles in the development, execution, analysis and report of the test.

Following this philosophy and guided by these principles, this document describes the plan to evaluate Qwest's OSSs, interfaces and processes that enable CLECs to compete with Qwest for customers' local telephone service. In determining the breadth and depth of the test, all stages of the CLEC-ILEC relationship were considered. These include the following:

- Establishing the relationship
- Performing daily operations
- Maintaining the relationship

Further, each of the standard service delivery methods that Qwest makes available to CLECs in the ROC states – resale, interconnection, UNE Platform (UNE-P), and unbundled network elements (UNE) – are included in the scope of the test.

This plan is divided into five key dimensions to organize and facilitate testing: Test Domains, Test Types, Test Processes, Test Scenarios and Evaluation Techniques. Within each of the test types, the methods and processes to be applied to measure Qwest's performance are described along with the specific points in the systems and processes where Qwest performance will be evaluated. The results of the test will be compared against service quality measures identified by the ROC for the purpose of this test, and other measures and criteria as deemed appropriate by the ROC.

This plan also describes the development and application of scenarios used in the test types to evaluate Qwest's OSS and related support services. KPMG Consulting developed these scenarios to test the functionality of Qwest's pre-ordering, ordering and provisioning (POP); maintenance and repair (M&R); and billing systems. The scenarios were designed to depict real world situations that CLECs currently face or may face in the near future. The scenarios will be used to develop test cases that provide a detailed description of the transactions and introduce additional variables such as errors and supplements to further simulate real world transactions.

Military Style Test

This plan will adopt the military-style test philosophy, which suggests a "test until you pass" approach. This is to be in the best interest of all parties seeking an open, competitive market for all local services in the ROC states. An Observation and Exception process will be utilized to identify and manage resolution of potentially negative test findings. Details of these processes are discussed under separate cover.

2.3 Test Administration

Section 4 defines the organization, processes and communication framework that will govern the test activities outlined in this MTP. It describes the ROC approach to the testing effort, organizational entities, and their respective roles and responsibilities. It also outlines the communications processes for written communications, documents and meetings, both open and closed. Scheduling and tracking requirements are specified along with the issue resolution process.

2.4 Test Framework and Test Elements

In order to develop a comprehensive test of Qwest's OSS, interfaces, and processes, the test framework is defined in terms of a set of elements including the following:

- Qwest's OSS System Architecture
- Test Domains
- Parity standards, Benchmarks, Qualitative Evaluations and Comparisons
- Test Data
- Entrance and Exit Criteria
- Test Process Types and Individual Tests
- Inputs, Activities and Outputs for Specific Tests

2.5 OSS System Architecture

Section 6 provides an overview of Qwest's OSS System Architecture throughout the 13-state area covered by this test. By its nature, the ROC test is somewhat unique because it is the first independent 3rd party testing effort initiated by multiple jurisdictions that will oversee the effort from its formative stage through completion. The broad geographical reach of the test expands

the OSS architecture breadth as well. Qwest's current operating territory, and therefore much of its OSS legacy architecture, is the result of the merging of three predecessor Bell Operating Companies into the Qwest Regional Bell Operating Company (RBOC), including:

- Pacific Northwest Bell (PNB) covering Washington and Oregon now referred to as the Western Region
- Mountain Bell (MB) covering Arizona, Colorado, Idaho, Montana, New Mexico, Utah and Wyoming, now the Central Region
- Northwestern Bell (NWB) covering Iowa, Minnesota, Nebraska, North Dakota, and South Dakota, now the Eastern Region

2.6 Performance Measures

The performance measures to be used in the 3rd party OSS test have been collaboratively developed by the TAG. Issue resolution activities resulting from the test may result in changes to the performance measures which will be agreed upon by the TAG.

2.6.1 Performance Measurement Components

OSS performance measurement plans designed to evaluate Incumbent Local Exchange Carrier (ILEC) performance include definitions of performance measures, success criteria, other standards, and reporting requirements. The performance measures quantify the ILEC's performance of wholesale and retail processes. They are defined in terms of purpose, rules used in collecting raw data required, reporting dimensions, calculation formula, etc. Success criteria are defined as either a benchmark or a retail parity standard. A benchmark is established to identify the point at which the ILEC's performance for a wholesale process is deemed adequate for those wholesale processes for which there is no appropriate retail analog. For those wholesale processes for which there is an analogous retail process, parity standards will be used. Parity standards indicate that the wholesale performance of a process should be compared to the ILEC's performance of retail processes. Parity standards require that the ILEC's retail or internal performance is compared to analogous wholesale performance measures to determine if there is nondiscriminatory treatment of wholesale services as required by the Act and orders of state commissions and the FCC.

2.6.2 Performance Measurements in the Context of the ROC's 3rd Party Test

Performance measurements will be a key element of the ROC test of Qwest's OSS. Since the ROC test is the first effort involving multiple state commissions and jurisdictions, it presents some unique challenges. Through a collaborative process, the ROC TAG has developed a comprehensive set of measurement definitions, called the "Qwest Service Performance Indicator Definitions (PID) ROC 271 Working PID" (Appendix B). This collaboration has included an unprecedented breadth and depth of participation from commission staff, CLEC, and Qwest representatives, with the purpose of achieving a beneficial and efficient degree of consistency across Qwest's local exchange operating region. When finalized, this PID will be the document that defines what is measured and how it is to be measured, for purposes of this OSS test.

2.6.3 ROC's Planned Approach to Performance Measurements in its Qwest OSS Test

To support a comprehensive test of Qwest's OSS in a timely manner that includes a pre-determined performance measurement system, the ROC Steering Committee has developed the following consensus:

- The performance measurements, parity comparisons, benchmarks and statistical evaluation methods should be established in advance for use during the ROC test.
- This set of performance measurements and associated parity comparisons and benchmarks has been established for the 3rd party test vendor(s) to test and evaluate the outcomes as required to meet the needs of the ROC states for testing purposes.
- The ROC states will use the test results and evaluation as part of the record in their individual 271 proceedings.
- The ROC states are free to modify the performance measurements (either the set of measurements or the parities/benchmarks) on a going forward basis (irrespective of the 3rd party test) as required to meet their specific needs.
- The ROC has requested and Qwest has agreed that all performance measures agreed upon for the ROC test will be collected not only during the period of the OSS test, but post testing for individual state use until a 271 application for the individual state is submitted to the FCC, or unless otherwise noted in the PID.
- The measurements taken after completion of the ROC test will not be used to re-open military-style testing but may be used to support future filings. This does not preclude looking at such data to help review and/or close exceptions identified during the test.

2.7 Entrance and Exit Criteria

Entrance criteria are those requirements that must be met before individual tests can commence. Exit criteria are those requirements that must be met before the test can be concluded. Global exit criteria apply to every individual test except where noted otherwise. Individual tests each have individual entrance and exit criteria. Entrance and exit criteria link the test plan with Performance Measures. Entrance criteria generally require that Performance Measures are completely defined, available and operational, and audited by Liberty Consulting.

2.8 Test Processes and Test Types

The major test types are Transaction Driven Systems Analysis and Operational Analysis. The first introduces various types of transaction-oriented test data from various sources into Qwest OSS processes and observes the results. Operational analysis assesses aspects of the trading partnership business process that are not transaction driven.

3. Test Principles and Scope

The twenty principles agreed to by the TAG and used as the guide for the development of the MTP are:

1. This test is intended to evaluate whether Qwest provides nondiscriminatory access to its OSS for associated resale, unbundled network elements (UNEs), and interconnection services in order to demonstrate the operational readiness of these OSSs to support sustained commercial operation. As part of nondiscriminatory access, the test will evaluate whether Qwest has deployed the necessary systems and personnel to provide sufficient access to each of the required OSS functions including pre-order, order, provisioning, maintenance and repair, and billing. The test will include an evaluation of Qwest's adherence to telecom industry guidelines for OSS interfaces. It will also evaluate whether Qwest is adequately assisting competitive local exchange carriers (CLECs) to understand how to implement and use all of the OSS functions available to them.
2. An independent test administrator (KPMG Consulting), an independent pseudo-CLEC (Hewlett-Packard [HP]) and a performance measure auditor (Liberty Consulting), performing three separate and distinct roles, under the oversight of the ROC, will conduct this test.
3. The scope of this test will be designed and scaled to represent the environment of the 13 states to ensure their ability to use the results in individual state proceedings. Once regional and state differences in Qwest OSSs are fully understood, a determination will be made on what testing will most appropriately address the impact of the differences. The MTP will be modified as appropriate to address these regional and state differences.
4. The goal of all parties for the ROC test of Qwest's OSS is an open, above-board test environment where all information relating to the test is available to all parties, except information that is commercially sensitive, proprietary, or information that will impact the blindness of the test. To that end, KPMG Consulting will establish procedures concerning communications affecting the planning, execution and evaluation of the test. These procedures will include regular, open meetings between KPMG Consulting, HP, the CLEC community and ROC representatives in a manner similar to the meetings held in the Bell Atlantic-New York test. Issue identification, research, resolution decisions, and other relevant items critical to the transparency of the test will be discussed and documented.
5. The ROC test will use guidelines established by the FCC and DOJ, and will draw on input from the ROC Steering Committee (ROCSC), individual state commissions, CLECs, Qwest, and other TAG members. The CLECs and Qwest should play an active role in developing performance measurements and success criteria. The ROC will ensure that the performance measurements and success criteria are reasonably complete prior to the start of the test.
6. The OSS access that Qwest provides for itself and to CLECs will be evaluated using both qualitative and quantitative methods.
7. This MTP has been developed with input from all ROC participants and will be approved by the ROC prior to any testing activity. The MTP has been designed to maintain adequate blindness with respect to Qwest. The performance measures will be developed in a document separate from this MTP and in a timeframe consistent with principle 5 above.

8. All documentation and assistance made available to HP by Qwest for use by HP in building and/or setting up the required OSS interfaces will be made available to all participants to verify that HP is not being given special treatment.
9. This test will include a thorough and well-documented independent assessment of data collection and calculation processes for performance measurement data – both qualitative verification and against business rules.
10. The test will include an independent review of the Change Management processes and procedures used by Qwest to communicate with CLECs regarding OSS system performance and system updates. This review will include an evaluation of how CLEC suggestions and requests for system corrections, enhancements or new functionalities are handled. The test will evaluate at least one significant software release implementation. Any testing fixes applicable to production will be introduced into the Qwest/CLEC Change Management process, unless otherwise determined by the ROC.
11. This test will include normal, high and stress volume testing using a replicate mix of expected flow through transactions that includes normal transactions and transactions with errors, changes and supplements. Scalability of manual processes and supporting hardware and software is to be evaluated in lieu of volume testing for manual processes.
12. The test will include an evaluation of the adequacy of documentation and assistance provided by Qwest to CLECs for establishing, maintaining and using OSS interfaces. HP will be used to evaluate the ability of building, maintaining and using an EDI interface and setting up, maintaining and using a GUI interface. If a CLEC has built an Electronic Bonding Trouble Administration (EB-TA) interface for M&R and is willing to make it available¹ to HP, that interface can be used to evaluate Maintenance and Repair interface maintenance and use. If no CLEC has built an interface or none is willing to make it available, KPMG Consulting should use a HP-built EB-TA interface to test business rules and ability to process transactions. Regardless of whether a new or existing EB-TA interface will be used, the documentation and assistance provided by Qwest for EB-TA will be evaluated.
13. The test can be conducted using transactions (e.g. pre-orders, orders and trouble reports) from a combination of existing CLECs and HP. Similar test cases will be run by both HP and a production CLEC that has completed interface verification with Qwest in order to validate the process under the oversight of KPMG Consulting.
14. The test process will include a formal, predictable and public mechanism to communicate with CLECs and Qwest on issues related to the test. This mechanism will be managed by KPMG Consulting and overseen by the ROC.
15. The test scope will include functional testing of pre-ordering, ordering, provisioning, maintenance and repair, and billing. The functionalities will include a replicate mix of manual requests, electronic transactions, errors, changes, and supplements in both flow through and non-flow through provisioning, as appropriate, with CLECs consulted on the

¹ MCI WorldCom has built an EB-TA interface for M&R and is willing to make it available to Hewlett-Packard and KPMG Consulting. It is expected that MCI WorldCom's interface will be used for the test.

determination of the mix. Functional testing will be conducted on an end-to-end basis that results in orders actually being provisioned, as applicable, as determined by the ROC.

16. The 3rd party test will test significant volumes of transactions for xDSL-capable loops and include a qualitative evaluation of pre-ordering functions including loop qualification.
17. Where possible, Qwest wholesale performance measurements will be compared with analogous performance measurements of Qwest's retail performance. Where this retail parity comparison is not possible, Qwest wholesale services will be compared to a fixed benchmark.
18. Testing will also include both qualitative and quantitative evaluation of the usability, capability and accessibility of Qwest wholesale OSS interfaces compared to Qwest retail OSS interfaces.
19. As testing progresses, the need to test or evaluate new products/services or delivery methods will be determined on an individual case basis as they are identified. Based on the associated facts, the new products/services or delivery methods will either be incorporated in the test or handled separately.
20. The ROC test will use military-style testing. This approach ensures that all significant exceptions will be tested until they are corrected and the relevant success criteria are met.

4. Test Administration

The audience for this document falls into two main categories:

1. Readers using this document during the testing process
2. Interested parties who have some stake in the result of the Qwest OSS evaluation and wish to have insight into the evaluation effort.

4.1 Organization and Responsibilities

The primary user of this document is KPMG Consulting in its role as test administrator. Others are the ROC state commissions, Qwest, the CLECs, HP, Liberty Consulting, Maxim Telecom Consulting Group (MTG), the Department of Justice (DOJ) and the Federal Communications Commission (FCC).

4.1.1 Regional Oversight Committee

The Regional Oversight Committee (ROC) membership is comprised of the 14 state public utility commissions serving the states in Qwest's operating territory. These include Arizona, Colorado, Iowa, Idaho, Minnesota, Montana, North Dakota, Nebraska, New Mexico, Oregon, South Dakota, Utah, Washington and Wyoming.

State commission participation in the collaborative test will be provided through four organizational entities established for this purpose: the Executive Committee, Steering Committee, Administrative Coordinator and Project Manager, MTG. The ROC is responsible for:

- Providing overall project management of the end-to-end test planning, execution and evaluation effort
- Overseeing the overall test development and testing process
- Determining the overall testing scope and timeline
- Managing and resolving issues escalated from the testing process as required
- Reviewing any interim reports prepared by KPMG Consulting, HP or Liberty Consulting
- Reviewing and approving the Final Report(s) prepared by KPMG Consulting and HP
- Reviewing and approving the final audit report prepared by Liberty Consulting
- Communicating progress, status and issues to all interested parties.

4.1.2 Qwest

Qwest will use the MTP in conjunction with other documents to understand the testing framework in order to prepare its test bed. The MTP describes the requirements Qwest must satisfy to prepare for and execute the tests.

4.1.3 TAG

The ROC Technical Advisory Group (TAG) consists of state commission staff, competitive local exchange carrier (CLEC) representatives, Qwest and other industry members. The Technical Advisory Group will conduct regular meetings, generally weekly, either in-person or via teleconference call to inform all members of testing progress, review current status and identify and resolve issues. Additional special-purpose TAG meetings will also be held as needed to support the test planning, execution and evaluation process. The TAG will initially be chaired by the ROC Project Manager, MTG; however, that may change during the course of the testing effort as deemed appropriate by the ROC Steering Committee and TAG membership. TAG member responsibilities include:

- Providing inputs on order volume, interface usage, product information and test process
- Assisting with scenario definition
- Assisting with issue identification, resolution and, when necessary, escalation to the ROC
- Advising ROC on technical issues

4.1.4 CLECs

The CLECs will use this document to understand the breadth and depth of the test. In addition, this document describes the elements required of the CLECs to prepare for their role in the tests.

4.1.5 Test Administrator – KPMG Consulting

KPMG Consulting has overall responsibility for the management of the testing process described in this document. This document will be used by KPMG Consulting to guide the various parties involved in this testing effort.

4.1.6 Pseudo-CLEC – HP

HP will establish the capabilities, install facilities and connectivity for the EDI, GUI, EB-TA and manual OSS interfaces to Qwest as required to process the volume and mix of transactions for tests specified in the MTP and test specifications prepared by KPMG Consulting. The test activities of HP are primarily delineated in HP Consulting's Statement of Work for the Regional Oversight Committee and Qwest Corporation (see http://www.nrri.ohio-state.edu/oss/newdocs/hp_sow.pdf). Various other documents produced in connection with the ROC's OSS Testing effort support definition of the test activities of HP, in particular the ROC's Request for Proposal, TRD and clarification issued to vendor finalists dated 4-24-00. The descriptions of the testing and evaluation activities of HP as contained in these specified documents are hereby incorporated by reference. In general, the goal is to replicate as realistically as practical the responsibilities, behavior and experiences of a true CLEC attempting to do wholesale business with Qwest in the portion of its operating territory represented by the thirteen participating states of the ROC. HP will attempt to re-create the CLEC experience to the fullest extent feasible as described in the TRD.

4.1.7 Performance Measure Auditor (PMA) – Liberty Consulting

Liberty Consulting will use this document to develop and perform an audit to insure that all aspects of Qwest's wholesale performance measures and retail parity standards are sound and in compliance with the collaboratively developed ROC PID.

4.1.8 Federal Communications Commission (FCC)

The Federal Communications Commission may observe the process of developing, conducting and evaluating the tests.

4.1.9 Department of Justice (DOJ)

The Department of Justice may observe the process of developing, conducting and evaluating the tests.

4.2 Assumptions

This section describes the assumptions made in the development of this Test Plan.

- Qwest, KPMG Consulting, HP and Liberty Consulting will provide suitable resources in sufficient numbers to assist with the evaluation effort.
- Qwest will provide access to appropriate documentation.
- Qwest will provide the necessary resources, facilities and support to set up the work environment and the test bed required to execute the tests (i.e., office space, equipment, IDs, security access, customer accounts and addresses, and appropriate company codes).
- Qwest will process test transactions as part of normal processing including the provisioning of some scenarios/test cases.
- Qwest will provide the test bed facilities required to establish the working lines needed for portions of this test.

- One or more CLECs will volunteer to participate and provide facilities required to execute those scenarios necessitating CLEC participation.
- Qwest and the CLECs will allow KPMG Consulting to observe retail and wholesale processes on-site during the evaluation effort.
- Qwest and the CLECs will give KPMG Consulting access to historical data and current operational reports, as needed, to complete the evaluation.
- Qwest will allow KPMG Consulting to inspect algorithms that may have a bearing on parity access, such as the algorithm used to manage trouble reports.
- KPMG Consulting, HP, Liberty Consulting and any subcontractors will use documentation generally available to the CLECs and support mechanisms to develop its interfaces.
- Regulatory, legal and confidentiality issues or concerns can be resolved without significant impact to either the intent of the tests, the ability to execute the tests, or the schedules for their execution.
- The test will be designed to not impair or impede service to customers during its planning and execution stages.

4.3 Limitations

The purpose of this section is to describe some limitations of the testing effort. These limitations are described in terms of what is to be tested and what conclusions can be drawn from the results.

- In some cases, certain order types, troubles and processes may not be practically tested by submitting transactions during a test of reasonable duration. Examples include orders with very long interval periods (such as the establishment of collocation arrangements) and high volumes of test provisioning transactions. Accordingly, the test may take the form of an interview, inspection, live orders review, review of historical performance or operational reports, or some other method that will capture the performance of Qwest with respect to the order types and processes in question. Detail Test Plans will identify the tests that can be executed live and those that must be executed by other means. Long interval tests that prove to have no alternative test methods that foreshorten the test will be referred, with a recommendation for disposition, to the ROC. The ROC will make the final decision regarding the disposition of such tests.
- Operational, time and resource constraints make it impossible to construct a completely exhaustive test suite. Significant effort has been expended to clearly portray the scope of the proposed suite, and it is believed this suite provides both extensive and sufficient coverage. Provision has been made in the plan to amend or extend the test if, in the judgment of the ROC, an amendment or extension is deemed justifiable.
- It is neither practical, nor desirable to execute certain live tests that would disrupt service to Qwest or CLEC customers. An example would be a Maintenance and Repair test that requires an equipment failure. Qwest performance for these test cases will be evaluated

by other means. The Test Type Evaluation Plans will identify the tests that can be executed live and those that must be executed by other means.

- Limitations to the volume tests as described in section 15.

4.4 Written Communications and Documents

KPMG Consulting shall be responsible for:

- Providing overall communications management within the testing period
- Maintaining daily contact with HP and other participants
- Maintaining close contact with the ROC and the TAG
- Responding to test-related issues and concerns raised by individual state Commissioners or state Staff Members
- Maintaining an electronic contact list (e.g., subject matter experts, escalation) for each test participant, the TAG, and the ROC
- Posting material on the ROC OSS Web site
- Distributing exception reports and soliciting comments on the exceptions from Qwest and the CLECs
- Distributing test management jeopardy reports, as defined in section 4.12, to the appropriate audience as determined by KPMG Consulting
- Maintaining data used to execute the test of Qwest's OSS including the test data base provided at the beginning of the test, the transaction files generated and used during the tests to convey CLEC-to-Qwest and Qwest-to-CLEC transactions over the interfaces, and printed documents related to test processing not otherwise retained in electronic form.

4.5 Principles Governing Written Communications

There are competing forces that must be balanced in determining the principles governing written communications. On one hand, an open communications process is important to maintain both the perception and actuality of a credible test. On the other hand, there are instances where the blindness of Qwest with regard to some aspects of the tests is also critical.

4.6 Formal Documents

Formal documents shall be assumed to be open and available unless:

- They are internal to an entity;
- They contain un-redacted proprietary information; or
- Their distribution would compromise the blindness of the test

Documents that were not made public during the test in order to preserve blindness shall be made available to all participants at the conclusion of the test, and prior to KPMG Consulting's drafting of the Final Report. Documents not made public during the test because they were

external documents or contained proprietary information need not be made available at the conclusion of the test. Disputes regarding whether or not a document should be considered proprietary will be settled by the ROC.

4.7 ROC Web Site

The ROC has established a Web site for this test (<http://www.nrri.ohio-state.edu/oss.htm>). Formal written communications shall be placed on this Web site unless they meet one or more of the previously agreed to criteria. A posting procedure is in place and will be followed by the vendors.

4.8 Informal Communications

Informal communications, such as emails between subject matter experts discussing technical details of an aspect of the test, shall not be posted or otherwise made available unless they become germane to a dispute and are requested by the ROC Executive Committee. KPMG Consulting, Liberty Consulting and HP shall maintain electronic versions of informal communications for a period of one year after the conclusion of the test.

4.9 Management and Administration of the MTP

Once the MTP and PID have been approved by the ROC, the management and administration of the MTP and the PID shall be the responsibility of KPMG Consulting. The ROC Project Manager will work with the TAG and KPMG Consulting to establish a Change Control Process that governs how changes to the MTP are proposed, discussed and implemented. Changes to the MTP and the PID shall be communicated in a timely and open manner to all parties concerned unless the changes contain information that might compromise the blindness of the test. In this case, the changes shall be communicated to all concerned parties except for Qwest. KPMG Consulting shall also establish, publish, and adhere to a rigorous version control process for the MTP, the PID and associated documentation. For relevant documentation, all vendors will use a document control section similar to that shown in Appendix A.

4.10 Meetings

4.10.1 Purpose

Beginning with the 3rd party test of Bell Atlantic-New York's OSS, striking the appropriate balance between an open and transparent testing process and blindness to preserve the realism and integrity of the test has been an important consideration in the conduct of 3rd party tests.

Blindness, for the purpose of this Test, extends beyond keeping the identity of the P-CLEC from Qwest. Blindness is the withholding from certain parties to the test of specific test information in order to protect vendor property, to maintain fairness in reporting test results, or to preserve the veracity of the test. This may result in CLECs and/or Qwest being excluded from meetings or other communications.

The following figure provides a structure that can foster openness except where blindness is required.

Figure 4.10.1.1

	Qwest	CLECs	KPMG Consulting	HP
ROC MTG (May monitor any meeting or call)	Generally Open Announced Open Conference Bridge Notes on Web	Generally Open Announced Open Conference Bridge Notes on Web Closed to Qwest as Appropriate for Blindness Openly Announced Restricted Conference Bridge Notes to ROC Published after Project	Generally Open Announced Open Conference Bridge Notes on Web Closed to Qwest as Appropriate for Blindness Openly Announced Restricted Conference Bridge Notes to ROC Published after Project	Generally Open Announced Open Conference Bridge Notes on Web Closed to Qwest as Appropriate for Blindness Openly Announced Restricted Conference Bridge Notes to ROC Published after Project
Qwest		Generally Open Announced Open Conference Bridge Notes on Web	Generally Open Announced Open Conference Bridge Notes on Web	Generally Open Announced Open Conference Bridge Notes on Web
CLECs			Generally Open Announced Open Conference Bridge Notes on Web Closed to Qwest as Appropriate for Blindness Openly Announced Restricted Conference Bridge Notes to ROC Published after Project	Generally Open Announced Open Conference Bridge Notes on Web Closed to Qwest as Appropriate for Blindness Openly Announced Restricted Conference Bridge Notes to ROC Published after Project
KPMG Consulting				Generally Open Announced Open Conference Bridge Notes on Web Closed to Qwest as Appropriate for Blindness Openly Announced Restricted Conference Bridge Notes to ROC Published after Project

Liberty Consulting is not included in the above table because openness/blindness principles do not apply to Liberty Consulting. Liberty Consulting is required to exercise its independent judgment in conducting its audit of the performance measures and inform the ROC and TAG of progress and findings.

4.10.2 General Principles

Meetings will be open unless specifically closed for purposes of blindness.

4.10.3 Open Meetings

The following guidelines will apply to open meetings:

- A meeting announcement and agenda will be posted on the ROC web site
- An open conference bridge will be made available, with the dial in number and pass code provided in the meeting announcement
- Meeting notes will be posted on the ROC web site

These guidelines are generally intended to apply to all contacts between Qwest and KPMG Consulting, and Qwest and HP. At the same time, it is expected that Qwest will have incidental contact with KPMG Consulting and/or HP before and during the testing process. These guidelines are not intended to be rigidly applied to incidental contacts between Qwest and KPMG Consulting, or Qwest and HP.

4.10.4 Meetings Closed to Qwest to Preserve Blindness

The following guidelines will apply to meetings closed for purposes of blindness:

- A meeting announcement will be posted on the ROC web site
- A restricted conference bridge line will be made available, with the dial in number and pass code provided via email
- Meeting notes will be archived
- ROC/MTG may monitor any meeting
- Meeting notes will be published following the completion of testing and prior to the drafting of the Final Report

4.11 Scheduling and Tracking

The ROC Project Manager, MTG, will maintain a high-level project plan for the ROC's overall 3rd party testing endeavor that covers the initial formation of the ROC 3rd Party Testing Organization through the delivery of KPMG Consulting's Final Report to the ROC.

4.12 Operational Reporting

KPMG Consulting will prepare and deliver operational reports of five types to the ROC Project Manager (MTG) and the TAG. These include:

- **Weekly Operational Report** - Overall progress reports will be provided weekly that describe the status on all major milestones and identify new issues requiring resolution.
- **Daily Report** - Detailed status reports on specific transaction tests including potential areas of concern and technical issues.
- **Issue Tracking Report** – Description of the nature of an issue, issue status, action items, responsibility and schedule for resolution.
- **Jeopardy Reports** – Issued when an event causes impact on the project's goals and expectations (such as the schedule) as defined in this MTP.

- **Observation and Exception Reports** – Description of observation and exceptions to the expected outcomes and other conditions encountered during testing are documented by KPMG Consulting, HP, or Liberty Consulting in exception and observation reports which are posted on the web site.

4.13 Issue Resolution

The Issue Resolution process handles any issues which are not addressed in the Observation and Exception process. The Issue Resolution process consists of five steps designed to embrace the open and collaborative spirit of the test, promote timely and reasonable remedies and provide a final decision on contested issues, as required. The steps are:

1. Test participants refer all testing issues to KPMG Consulting for inclusion in the issue resolution process.
2. KPMG Consulting provides the first level of issue management for all testing related issues including the assignment of accountabilities, action plan, tracking, reporting and escalation. KPMG Consulting will enlist the assistance of Qwest, CLECs, HP, and the TAG as required to resolve the issue.
3. If the issue is not resolved in the collaborative process, it may be decided by MTG on behalf of the ROC Steering Committee.
4. If an issue is of sufficient magnitude and/or contention as to warrant broader debate and decision participation to ensure the results are compatible with ROC goals, it will be referred by MTG to the ROC Steering Committee for consideration. The referral will include a description of the issue, alternative positions regarding the issue and a preliminary recommendation. Other test participants may participate in the discussion/debate as deemed appropriate by the ROC Steering Committee.
5. If the issue is not resolved by a decision at the Steering Committee level, it will be referred to the ROC Executive Committee for final resolution. Once a resolution is determined, it will be communicated to all testing participants, included in the issues report and implemented in the testing process.

5. Test Plan Framework and Test Elements

The overall test of Qwest's OSS is designed to be multi-faceted and provide end-to-end coverage of the systems, interfaces, and processes that fall within the scope of the testing effort. In constructing this MTP, many factors were considered, including the systems and processes to be tested, the measurement points and respective evaluation criteria, and the necessary conditions required to stage a successful, efficient, and objective test.

In order to develop a comprehensive, complete, and thorough test of Qwest's OSS systems, interfaces, and processes, the MTP framework is defined in terms of a set of elements including the following:

- Parity Standards, Benchmarks, Qualitative Evaluations and Comparisons
- Test Domains
- Test Types

- Test Processes
- Evaluation Techniques

The *test domains* provide a functional classification of the systems and processes to be tested. The *test types* organize the types of tests to be performed on the systems and processes. The *test processes* define the techniques, measures, inputs, activities and outputs of each component test. The *test scenarios* provide the contextual basis for testing by defining the transactions, products and other variables that must be considered and included during portions of the testing. *Evaluation techniques* serve as the basis for evaluation by defining the norms against which test results are compared.

The test framework and test elements are introduced at a high level in this section. In the remainder of the document, each test element will be described to the extent required to form a comprehensive and detailed set of testing requirements that will govern the conduct of the test. Based on these requirements, KPMG Consulting will create detailed test specifications.

5.1 Parity Standards, Benchmarks, Qualitative Evaluations and Comparisons

The specific parity standards, benchmarks and other performance indicators used in this test have been developed in detail and agreed upon through a collaborative process including performance measurement workshops. Parity standards and benchmarks have been established consistent with those generally accepted within the Telecom industry and are designed to ensure compliance. When appropriate, actual performance measurement data will be taken during the test and compared to the parity standards and benchmarks.

5.2 Test Domains

The areas subject to testing exist in four domains that correspond to major business functions performed by a telecommunications carrier:

- Pre-order, Order, and Provisioning (POP)
- Maintenance and Repair (M&R)
- Billing
- Relationship Management and Infrastructure

These four domains correspond to four respective business functions that comprise the Qwest/CLEC relationship. The domains are useful in defining the areas to be tested and the specific tests to be conducted.

5.2.1 Pre-order, Order, and Provisioning Domain

This domain is comprised of the systems, processes, and other operational elements associated with Qwest's support for pre-ordering, ordering, and provisioning activities for resale, interconnection, and UNE-Platform services and unbundled network elements. The purposes of the POP tests are to evaluate the functionality and performance of Qwest's wholesale systems and procedures; to evaluate compliance with prescribed performance measures, and to provide a

basis for comparing this operational area to parallel systems and processes supporting Qwest's retail operations.

5.2.2 Maintenance and Repair Domain

This domain is comprised of the systems, processes, and other operational elements associated with Qwest's support for wholesale maintenance and repair activities. Tests associated with this domain provide a basis for comparing this operational area to parallel systems and processes supporting Qwest's retail operations.

5.2.3 Billing Domain

This domain is comprised of the systems, processes and other operational elements associated with Qwest's support for wholesale billing. Tests associated with this domain are designed to evaluate Qwest's compliance to measurement agreements and to ensure adherence to sound management practices.

5.2.4 Relationship Management & Infrastructure Domain

This domain is comprised of the systems, processes and other operational support elements associated with establishing and maintaining business relationships with the CLECs. Included in this domain are the network provisioning activities that must be jointly performed by Qwest and the CLEC in order to build the CLEC network that supports the CLECs business.

5.3 Test Types and Test Processes

5.3.1 Transaction Driven System Analysis

Tests utilizing transaction-driven system analysis rely on initiation of transactions, tracking of transaction progress, and analysis of transaction completion results to evaluate a system under test. Transaction-driven system analysis requires defining several key facets of testing, including the data sources (e.g., CLEC live data, Qwest historical data), the system components under test (e.g., application-to-application interfaces, graphical user interfaces), and volumes (e.g., normal, stress) and related performance measures.

One element of transaction driven systems analysis is a structured assessment of the overall quality of the results of the execution of test scenarios.

The transactions, or test instances, used in each transaction-driven system analysis test will be derived from higher level sets of transaction templates called test cases, which in turn have been developed from test scenarios.

Tests that employ Transaction Driven Systems Analysis as the primary test process include, but are not limited to, the following:

- Section 12: Evaluation of POP Functionality and Performance Versus Parity standards and Benchmarks
- Section 13: Order Flow Through Evaluation
- Section 14: Provisioning Evaluation

- * Section 15: POP Volume Performance Test
- * Section 16: IMA-GUI-M&RCEMR Trouble Functional Evaluation
- * Section 17: MEDIACC (EB-TA) M&R Trouble Functional & Performance Evaluation
- * Section 18: M&R End to End Trouble Report Processing
- * Section 19: Billing Usage Functional Evaluation
- * Section 20: Carrier Bill Functional Evaluation

3.2.2 Operational Analysis

Tests utilizing operational analysis focus on the form, structure, and content of the business process under study. This test method will be used to evaluate day-to-day operations and operational management practices, including procedural development and procedural change management. Operational analysis validates and verifies the results of a process to determine that the process functions correctly according to documentation and expectations. Tests that employ Operational Analysis as the primary test process include, but are not limited to, the following:

- * Section 8: Evaluation of Qwest's Wholesale Performance Measurement Process
- * Section 9: Evaluation of Qwest's Parity Standards Calculation Process
- * Section 10: Evaluation of Qwest's Order and Transaction Creation Documentation
- * Section 22: CLEC Network Provisioning Test
- * Section 23: Change Management Test
- * Section 24: Qwest CLEC Support Processes & Procedures Review

3.2.3 HP Transaction Generator

HP provides the capability to generate the full suite of real world test instances by submitting transactions via Qwest's wholesale transaction interfaces and collecting information about the response times, intervals and other compliance measures.

HP will also generate and submit the required number of transactions to test the expected normal and stress volumes, ensure the processing of the full breadth of transactions during the test period and repeat test cases in the required volumes in a controlled test environment. A work center will be assembled to provide for interactive processing, such as handling errors, exceptions and re-submittals. This work center will also submit manual transactions to Qwest and await responses.

Further, HP will be required to document its ability to build, test and place in operation the functionality required to successfully process transactions utilizing Qwest's documentation, account management, help desk and training support.

3.2.4 CLEC Involvement in Transaction Testing

CLECs operating in the ROC states will be asked to volunteer to participate in certain portions of this test. The inclusion of selected CLEC live transactions provides an alternative test method for transactions which may not be practical to provide through HP, and further facilitates a more

realistic depiction of real world production. CLEC participation will also be solicited to execute real test cases (e.g. EB-TA) during the test period.

Use of CLEC live transactions allows for an element of blind testing and tracking performance in a real world environment. It also provides a means to help control for "test bias." Use of these transactions will require extensive participation by KPMG Consulting to observe the execution of the transactions in order to measure, audit, inspect and monitor progress and report results or otherwise verify and validate the observed results.

Additionally, some of the transaction types submitted by HP can only be properly executed with direct involvement from the CLECs. One category of such tests is those that include complex transactions involving physical CLEC facilities. For example, UNE orders involving LNP require a physical switch and an operational CLEC in order to be fully completed.

Further, there are scenarios where in-progress transactions cannot be obtained, or are not practical to execute, in a test environment. These will be evaluated utilizing observations of CLEC commercial activity where possible.

The successful execution of those portions of the test requiring CLEC participation is dependent on the extent of that participation. KPMG Consulting will meet with those CLECs who volunteer to participate to mutually agree on the nature and extent of the participation.

5.4 Evaluation Techniques

Each test relies on one or more techniques to collect and record measurements and analyze the results. The five types of techniques defined for this test are described in the chart below.

Table 5.4.1 Evaluation Techniques

Technique	Description
Transaction Generation	Transaction generation is the use of live, historical and/or generated data that is executed through the system under review. The results of this test are evaluated for quality.
Report Review	Review and analysis of historical data, reports, metrics and other information in order to assess the effectiveness of a particular system or business function. This includes performance measurement reports and other management reports.
Inspection	Physical review of process activities and products including site visits, walk-throughs, read-throughs and work center observations.
Logging	Monitoring activities and collecting information by logging process events and products as they happen. Logging can be mechanized or manual.
Document Review	Compilation and review of books, manuals and other publications related to the process and system under study.

6. Qwest OSS System Architecture

6.1 Overview

Qwest asserts that it has developed uniform CLEC-facing OSS interfaces in support of its wholesale services business line. These uniform interfaces support Pre-Ordering, Ordering and Maintenance and Repair transactions initiated by CLECs across all of the 13 states participating

in the ROC 3rd Party Test. Behind the uniform CLEC-facing interfaces are downstream OSS applications that may vary somewhat by region and state, depending on the specific application. An overview of the uniform CLEC-facing interfaces, and known regional and state variations in downstream OSS applications, can be found in Appendix F.

7. Global Exit Criteria

Exit criteria are the requirements that must be met before the tests defined in the Test Plan can be concluded. Exit criteria pertaining to specific tests are listed in respective test sections.

1. All required test activities have been completed.

For each test, all fact finding and analysis activities must be completed to the satisfaction of the ROC. All results and test methodologies have been documented.

2. Military testing has been successfully completed.

Tests have met success criteria. Tests not meeting success criteria have been retested in accordance with the Observation and Exception processes detailed in a separate document.

3. All change control, verification and confirmation steps have been completed.

The results of test activities must be documented and reviewed for accuracy. Any results that require clarification or follow-up are confirmed.

4. All specific test issues have been closed/resolved or declared at impasse for referral to the ROC.

Issues that have been recorded and tracked throughout the conduct of a specific test must be closed or resolved with sufficient documentation that describes the means employed to close or resolve each issue. Any issues that are identified as being at impasse between the parties will be referred to the ROC by KPMG Consulting.

In addition to these global exit criteria, test-specific exit criteria, where applicable, are defined within each test. Participants may elect to escalate test issues declared at impasse to the ROC issues resolution process described in Section 4.7.

Table 7.1 Global Exit Criteria

Criteria	Responsible Party
All required test activities have been completed.	KPMG Consulting
Military testing has been completed.	KPMG Consulting
All change control, verification, and confirmation steps have been completed.	KPMG Consulting
All specific test issues have been closed/resolved or declared at impasse.	KPMG Consulting

8. Evaluation of Qwest's Wholesale Performance Measurement Processes

8.1 Description

Performance measurements are the yardsticks or standards to which Qwest OSS *performance* is compared. There are four primary types of quantitative performance measures:

- Parity measurements
- Benchmarks measurements
- Diagnostic measurements
- Parity-by-design measurements

A parity measurement is a yardstick that is calculated through measurement of a particular aspect of access to, functionality and performance of Qwest's OSS in support of its wholesale CLEC and retail operations. Parity measurements are identified in the PID with the word, "parity," in the "standard" box of the definitions of the measurements. Where analogous processes (or agreed-upon proxies) exist between Qwest's retail operations and their wholesale CLEC operations the two processes are compared to the parity of treatment between the two. A typical example where parity measurements are defined is the comparison of performance between Qwest's installation of a new retail customer and Qwest's "installation" of a CLEC's resale customer. The calculation of parity measurements results is accomplished through a formalized and controlled process (See Section 9). Because natural randomness is inherent in any performance, statistical methods (defined in Appendix G) are used to distinguish differences that are significant enough to not be explained merely by randomness. Parity measurements are the only category in which statistical methods are used.

A benchmark measurement is a yardstick that is calculated and compared directly with a fixed level of performance (percentage or interval). In setting the benchmarks, the parties took into account the agreement that statistical methods would not be employed in comparing performance to benchmarks. Generally, benchmark measurements are used where there are no analogous operations that can be compared between Qwest's retail and wholesale operations. For example, there is currently no identifiable retail analog for the Firm Order Confirmation (FOC) interval measurement. In these cases, a quantitative benchmark is used to set a threshold for performance where a numerical range of values is possible.

Quantitative performance measurements, both parity measurements and fixed benchmark measurements, to be used in the 3rd party OSS test have been collaboratively developed. The process began with a straw-man proposal provided to the TAG for comment in December, 1999. The comments were discussed in the ROC's Performance Measurements Workshop held in Salt Lake City, UT on January 19-21, 2000. Issue resolution activities resulting from the workshop along with amendments, additions and deletions to the performance measurement plan continue in subsequent collaborative forums. The primary document that describes quantitative performance measurements, the retail analog (for parity measurements), the numeric value (for fixed benchmarks), the calculation method, scope, restrictions, etc. is the ROC OSS Test PID. (See Appendix B.)

Once quantitative performance measurements are finalized via the collaborative process referenced above, and the quantitative performance measurement process has been validated, the measurements will be used to judge the performance levels resulting from the conduct of the various tests. Quantitative performance measurements are used predominantly, but not exclusively, in judging the results of transaction driven tests. The Qwest systems and processes comprising the validated process will be identified by release and version.

While benchmark and parity measurements both have the same basic function—they are yardsticks to measure the performance of Qwest OSS during the test—they are calculated differently. Fixed benchmarks, as established in the PID, are static throughout the test. Parity measurements use retail operations performance as the standard to be met. In order to provide a valid yardstick for the wholesale operations performance that they are to measure, wholesale and retail performance measurements must be derived contemporaneously.

In addition to parity and benchmark measurements, there are also diagnostic and parity-by-design measurements, for which no standards are set. These are designed primarily for data gathering only. Diagnostic measurements are identified in the PID with the word "diagnostic" in the "standard" box of applicable measurement definitions. Results from diagnostic measurements are used, where useful, in understanding the context of parity or benchmark measurements. Parity-by-design measurements are identified in the "standard" box of applicable measurement definitions with the words, "parity by design." Validation that parity does or does not exist in the processes underlying parity-by-design measurements is one of the objectives of the test, and issues therewith will be handled through the observation and exception processes discussed under separate cover.

Qualitative benchmarks set a threshold for performance where a range of qualitative values is possible. For example, an evaluation of the scalability of a process or evaluation of a support organization is qualitative by nature, and such an evaluation would be based on whether the process or organization contributes to a meaningful opportunity to compete.

Existence criteria are those where only two possible test results exist. For example documentation defining daily billing feeds either exists or does not exist.

8.2 Objectives

Rigorous, scientific measurement of any process, quantity, etc. requires that the measurement processes, standards and yardsticks themselves be validated in a rigorous, scientific manner. The objectives of the Performance Measurement Audit are to:

- Validate that all aspects of Qwest's processes, procedures, business rules, calculation methods, etc. used in measuring wholesale operations processes are valid and that Qwest personnel adhere to those processes
- Provide a qualitative assessment of the process for developing wholesale and retail measurements
- Provide a verification that parity-by-design measurements are indeed at parity due to the design of the data or traffic delivery process – including DB-1, DB-2, DA-1, DA-2, OS-1, OS-2, and others as identified in the final PID agreed upon for use in testing

- Verify that the Interconnect Mediated Access Response Time Measurement (IRTM) application that is used by Qwest to measure pre-order query response times (ROC PID PO-1) for both CLEC and retail queries produces results that are accurate and consistent with results seen by actual CLEC and Qwest customer service representatives.

8.3 Entrance Criteria

Table 8.3.1 Entrance Criteria

<i>Criteria</i>	<i>Responsible Party</i>
<i>No legally effective orders or injunctions preventing the test exist</i>	<i>ROC, Qwest</i>
<i>Pass/retest criteria have been identified</i>	<i>ROC, Liberty Consulting</i>
<i>Performance measurement documentation (PID) has been approved</i>	<i>ROC</i>
<i>Qwest wholesale performance measurement processes, systems and software are complete and available for inspection and testing</i>	<i>Qwest</i>
<i>Product descriptions and business rules for all performance measurements to be evaluated are available</i>	<i>Qwest</i>
<i>Interview guides are available</i>	<i>Liberty Consulting</i>
<i>Qwest subject matter experts to be interviewed are projected to be available</i>	<i>Qwest</i>

8.4 Test Scope

All aspects of the wholesale performance measurement process, and all of the performance measurements described in the PID are within the scope of this test.

8.5 Test Scenarios

None

8.6 Test Approach

8.6.1 Inputs

1. Performance measurement definitions / PID
2. Product descriptions and business rules for all performance measurements to be evaluated
3. Description of wholesale performance measurement architecture, processes, systems, reports, etc.
4. Interview Guides
5. At least two months raw performance data (transaction specific results data before any exceptions or exclusions are applied by Qwest)
6. Qwest performance results reports

8.6.2 Activities

1. Prepare performance measurement process and system evaluation framework and plan
2. Validate framework and plan with TAG
3. Identify subject matter experts and schedule interviews
4. Conduct interviews
5. Evaluate the process design for measurements identified as "parity by design"
6. Conduct the Evaluation, to include:
 - Assess data collection process and system architecture
 - Evaluate data collection operations
 - Review calculation of performance measurements
 - Independently calculate results, using data provided by Qwest
 - Analyze interview results
 - Independently calculate the appropriate statistics for the performance measurement evaluation
 - Comparison with the same statistics as computed by Qwest
7. Identify observations and exceptions in accordance with established guidelines
8. Recommend approach to clearing exceptions
9. Verify that exceptions are cleared
10. Define monitoring plan
11. Write Final Report

8.6.3 Outputs

1. Performance measurement evaluation framework and plan
2. Observation and Exception reports
3. Monitoring plan
4. Final report

8.7 Exit Criteria

Table 8.7.1 Exit Criteria

<i>Criteria</i>	<i>Responsible Party</i>
<i>Global exit criteria satisfied</i>	<i>See Section 7</i>
<i>All Observations and Exceptions cleared</i>	<i>ROC, Liberty Consulting</i>
<i>Monitoring plan is complete</i>	<i>Liberty Consulting, FAG</i>
<i>Final report is complete</i>	<i>Liberty Consulting, FAG</i>

9.0 Evaluation of Qwest's Retail Parity Measurements Calculation Process

9.1 Description

Unlike fixed benchmarks, which are numerical values that are set by collaborative agreement, parity measurements are derived through Qwest's measurement of its own retail processes, for comparison with the same measurement applied to its wholesale processes. This section describes a process whereby Liberty Consulting verifies that the retail analogues established in the PID for parity measurements do, in fact, represent the actual access, functionality and performance characteristics of Qwest's OSS in support of its own retail operation.

9.2 Objectives

Parity standards are measures or yardsticks that are established through Qwest's measurement of its own retail processes. The objective of this test is to validate that all aspects of Qwest's process procedures, business rules, calculation methods, etc. used to establish the numerical values of the retail analogues established for parity measurements, as defined in the PID, are valid and that Qwest personnel are following those processes.

9.3 Entrance Criteria

Table 9.3.1 Entrance Criteria

<i>Criteria</i>	<i>Responsible Party</i>
<i>No legally effective orders or injunctions preventing the test exist</i>	<i>ROC, Qwest</i>
<i>Pass/retest criteria have been identified</i>	<i>ROC, Liberty Consulting</i>
<i>Performance measurement documentation (PID) has been approved</i>	<i>ROC</i>
<i>Qwest retail performance measurement processes, systems and software are complete and available for inspection and testing</i>	<i>Qwest</i>
<i>Product descriptions and business rules for all retail measures to be evaluated are available</i>	<i>Qwest</i>
<i>Interview guides are available</i>	<i>Liberty Consulting</i>
<i>Qwest subject matter experts to be interviewed are projected to be available</i>	<i>Qwest</i>

9.4 Test Scope

All aspects of the retail and wholesale performance measurement process and all of the parity measurements described in the PID are within the scope of this test.

9.5 Scenarios

None.

9.6 Test Approach

9.6.1 Inputs

1. Performance measurements / PID and associated documents
2. Product descriptions and business rules for all parity measurements to be evaluated
3. Description of retail performance measurement architecture, processes, systems, reports, etc.
4. Interview guides
5. Raw performance data (transaction specific results data before any exceptions or exclusions are applied by Qwest)
6. Qwest performance results reports

9.6.2 Activities

1. Prepare parity measurements calculation process and system evaluation framework and plan
2. Validate framework and plan with TAG
3. Identify subject matter experts and schedule interviews
4. Conduct interviews

5. Conduct the Evaluation, to include:
 - Assess data collection process and system architecture
 - Evaluate data collection operations
 - Review the calculation of performance measurements
 - Validate that consistency exists between the business rules for calculation and the actual processes the systems use to perform the calculations
 - Analyze interview results
 - Independently calculate results, using data provided by Qwest
 - Independently calculate the appropriate statistics for parity measurements evaluation
 - Compare with the same statistics as computed by Qwest
6. Identify Observations and Exceptions in accordance with the established guidelines
7. Recommend approach to clearing Exceptions
8. Verify that Observations and Exceptions are cleared
9. Define monitoring plan
10. Write final report

9.6.3 Outputs

1. Parity measurement evaluation framework and plan
2. Observation and Exception reports
3. Monitoring plan
4. Final report

9.7 Exit Criteria

Table 9.7.1 Exit Criteria

<i>Criteria</i>	<i>Responsible Party</i>
<i>Global exit criteria satisfied</i>	<i>See Section 7</i>
<i>All Observations and Exceptions cleared</i>	<i>Liberty Consulting, PMG</i>
<i>Monitoring plan is complete</i>	<i>Liberty Consulting, PMG</i>
<i>Final report is complete</i>	<i>Liberty Consulting, PMG</i>

10. Evaluation of Qwest's Order and Transaction Creation Documentation and Maintenance

10.1 Description

This evaluation is designed to evaluate the guidelines and business rules documentation available to the CLEC community to instruct them on how to prepare the forms and other documents required to submit orders and other transactions to Qwest's OSSs. Principles 8 and 12 will be applied in the evaluation of documentation available to CLECs for the creation of orders and transactions.

This test also evaluates key methods and procedures for developing and maintaining order and transaction creation documentation that enable the Qwest and CLEC relationship. It evaluates the documentation created for manual as well as electronic transactions. This documentation is used by CLECs to prepare the necessary forms and other documents to submit/receive transactions via interfaces such as Qwest's IMA GUI interfaces, application-to-application interfaces and data transfer interfaces for the following activities:

- Pre-ordering
- Ordering
- Provisioning

This test will rely on checklists and inspections.

10.2 Objectives

The objectives of this test are:

- To verify that all orders and transactions to be submitted to Qwest via GUI and EDI interfaces, and those capabilities provided via manual interfaces rather than electronically, can be created using documentation and assistance provided by Qwest.
- To determine the adequacy and completeness of the methods and procedures for developing and maintaining the documentation that describes form fields, content, format and any other information relevant to order and transactions input to Qwest's OSS.

10.3 Entrance Criteria

Table 10.3.1 Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test exist	ROC, Qwest
Pass/retest criteria have been identified	ROC, KPMG Consulting
Pre-ordering, ordering and provisioning transactions and related transaction documentation available	Qwest
Process evaluation checklist is available	HP
Interview guides are available	KPMG Consulting
Interviewees are available and scheduled	Qwest

10.4 Approach

This test will be a qualitative test of methods and procedures, practices, and documentation available to CLECs to develop orders and transactions to be sent to Qwest's OSS across GUI and EDI, as well as manual, interfaces.

10.4.1 Inputs

1. Qwest order and transaction documentation
2. Industry standards documentation
3. Other procedural and technical documentation
4. Evaluation checklists

10.4.2 Activities

1. Determine areas that require validation or retest
2. Gather information
3. Perform interviews and documentation reviews as required for validation or retest
4. Complete evaluation checklists and interview summaries
5. Develop and document findings

10.4.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Comparison of actual versus expected results for order and transaction creation deliverables
3. Observation and Exception reports
4. Final report

10.5 Exit Criteria

Table 10.5.1 Exit Criteria

Criteria	Responsible Party
Global exit criteria satisfied	See Section 7
All Observations and Exceptions cleared	HP
Final report is complete	HP

11. Transaction Processing Test Data

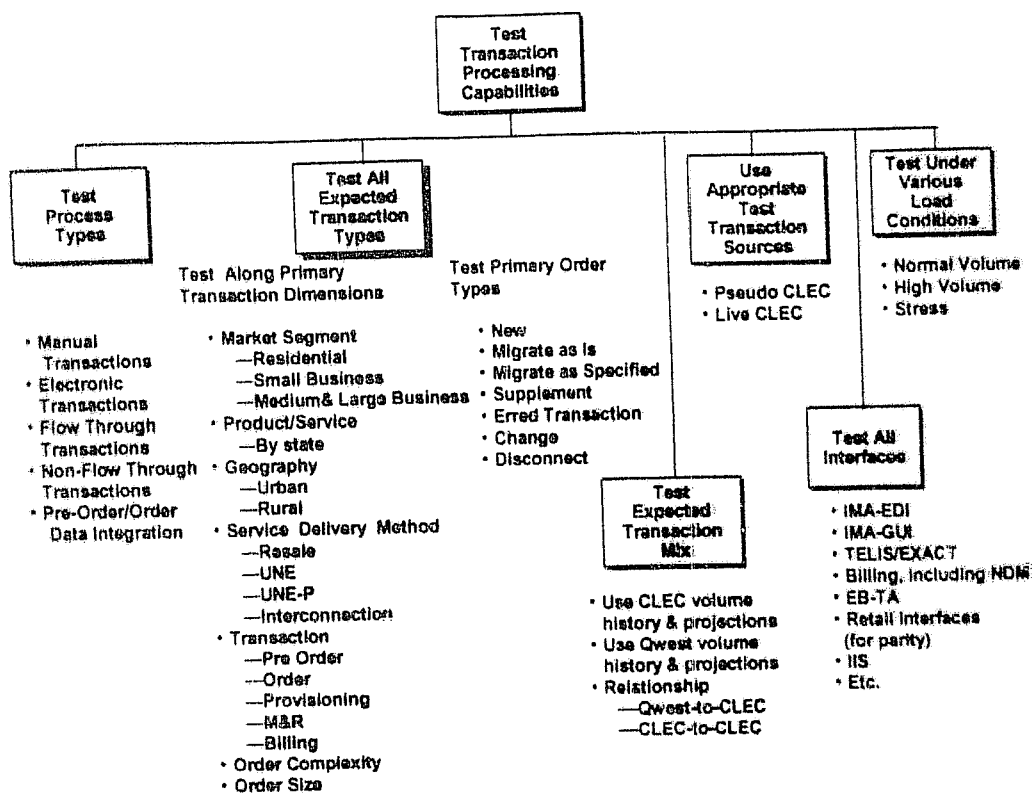
Test data provides the input or stimuli to systems and processes so that functionality and performance can be observed by means of transaction driven system analysis.

Principles numbered 11, 13 and 14 apply to test data.

11.1 Test Data Dimensions

Figure 11.1.1 reflects a testing framework agreed to at the St. Paul workshop that describes the major dimensions and attributes to be incorporated in test data transactions.

Figure 11.1.1 Test Data Dimensions



11.2 Scenarios

Based on industry experience, the knowledge gained from 3rd party testing in other jurisdictions, a review of other OSS tests, as well as a review of the available offerings in the thirteen participating ROC states, KPMG Consulting has developed a representative set of test scenarios. Each test scenario describes a real world situation that will be used to create realistic test cases in which CLECs purchase wholesale services and network elements from Qwest to be resold or repackaged to the CLEC's end-user customer on a retail basis.

Scenarios serve several key purposes. Scenarios help define the products, services, and transactions that should be included for testing. In this regard, test scenarios provide the guidance and framework for developing real world test cases to simulate live production in a controlled test environment. The test cases provide actual detailed instructions required to build individual transaction test instances.

These scenarios will be used to test functionality, performance, and other attributes associated with the ability of CLECs to access information from Qwest business processes and associated systems. Scenarios provide a way to bridge across test domains and families, thereby facilitating both point-specific and end-to-end testing of various systems and processes and providing the breadth and depth of coverage of products and services to be tested.

11.3 Test Cases

Variables will be introduced into the scenarios to create a number of test cases. Types of variables include errors such as invalid USOCs, order entries that "violate" Qwest's business rules (which is a higher class of error than a typographical error), supplements (changes to an order), expedites (end user requested due dates earlier than the standard interval) and Maintenance and Repair (M&R) test situations. Test cases may also vary by the type of features that are requested and the characteristics of the customer. For example, one test case may specify call waiting as a feature but another may use caller ID instead of call waiting. Similarly, for the same scenario, one test case may specify a single-line residence customer and another may specify a five-line business customer. The test cases may also vary the timing and sequence of the transactions.

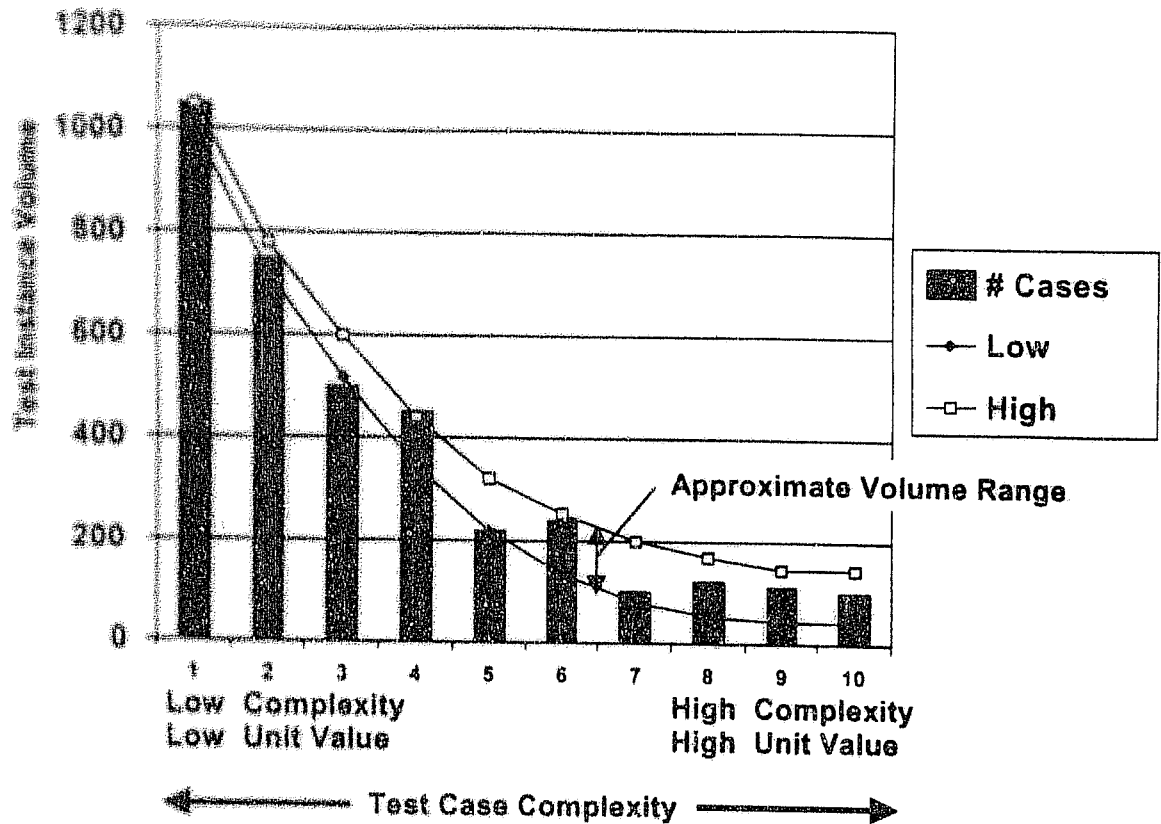
11.4 Detailed Test Instances

Detailed test instances will be generated from these test cases. A test instance represents a set of transactions described by a test case for a specific customer account. For example, a test case might specify "migrate a two-line business customer from Qwest to a CLEC and add call waiting on the primary line". A test instance would perform the necessary pre-ordering inquiries and send an order to accomplish this activity for a specific two-line business customer account.

11.4.1 Functionality Test

For functionality testing, volumes of test instances will be assigned to each of the test cases based, in part, on a determination of the sufficiency of sample sizes to determine compliance with appropriate Performance Measures. However, for practical reasons it is expected that transactions of greater complexity will tend to be executed in smaller volumes. Other considerations that will be taken into account in determining test volumes will be assurance of sufficient samples by customer type (residence vs. business) and by service delivery method. In addition, KPMG Consulting may determine, based on experience in other jurisdictions, and further analysis of CLEC forecasts and experience in the ROC states, to add additional volumes to certain scenarios.

Figure 11.4.1.1 Volume Distribution by Complexity



11.4.2 Volume Test

For volume testing, normal expected volumes will then be assigned to a selected set of the test cases based on expected future real world production. Volume testing conducted as part of this test will be based on level of demand projections that are reasonably foreseeable in a competitive market which may include regional volumes if appropriate. Individual test instances that match the test cases will be generated based on the volume that has been assigned. In addition, for pre-ordering and ordering, a stress volume test will be conducted to test the capacity and identify potential choke points of the interfaces. Peak and Stress volumes will be assigned to a subset of the test case types based on agreed upon multiples of the normal expected volumes.

12. Evaluation of POP Functionality and Performance Versus Parity Standards and Benchmarks

12.1 Overview

The POP Functional Evaluation is a comprehensive review of the functional elements of Pre-Ordering, Ordering, Provisioning, Pre-Order/Order Data Integration; the achievement of the promised resources, and an analysis of performance in comparison to Qwest's Retail systems.

The test will consist of live transactions submitted over the Qwest supported interfaces, both manually via a graphical user interface (IMA GUI) and computer-to-computer interfaces. Current plans call for testing the following Qwest interfaces: IMA GUI and IMA EDI for LSRs, and EXACT/TELLUS for ASRs. The following table depicts the functionality with which each interface will be tested:

Table 12.1.1 Functionality and Interfaces

Functionality	IMA GUI	IMA EDI	EXACT/TELLUS
Pre-order	X	X	
Order	X	X	X
Pre-order/Order Data Integration	X	X	

The system interface list will be finalized during the actual testing to allow for any necessary additions to be made as interfaces change.

The GUI interface will be tested using an interface built by HP according to specifications and processes provided to CLECs by Qwest. The GUI will be tested through transactions entered directly into the appropriate GUI interface. The ASR interface will be tested through transactions entered into TELLUS or an existing LEC's EXACT interface. Where appropriate, manual transactions will be submitted as well.

Data on the POP processes will be collected, analyzed and used to produce the output reports. The POP functional and performance evaluation will examine an end-to-end view of the pre-ordering through provisioning process. It will include a mix of stand-alone pre-ordering and ordering transactions, along with pre-order transactions followed by orders, supplements, and cancellations. KPMG Consulting will collect data provided by HP on transaction submissions and responses, and on Qwest provisioning activities. Where possible and appropriate, this information will be collected and maintained electronically. Both ASR and LSR orders will be tested. Error as well as error free transactions will be tested. Not all orders will go through the physical provisioning process. Some will be future dated, and others will be canceled before provisioning activities commence. Verification and validation of provisioning activities will be performed in Section 14.

As part of the POP Functional Evaluation, KPMG Consulting will also seek both qualitative and quantitative data on the real world experience of CLECs operating in the thirteen participating

ROC notes. CLECs willing to participate in this test will be interviewed and their experiences will be incorporated into the test results after validation by KPMG Consulting. In addition, for some types of transactions, involvement will be sought from willing CLECs to participate in some aspects of the live transaction testing. This will be done for two principal purposes.

First. CLEC participation will be important for complex orders that cannot be simulated adequately in the test environment. Examples include complex facilities-based orders and orders, like those for unbundled loops with LNP, which require an actual CLEC switch to fully complete. **Second.** it is important to attempt to incorporate information to help control for "experiment bias" of the results. Therefore, KPMG Consulting will ask CLECs to execute live orders that replicate those sent over the test systems.

Successful completion of all of these aspects of the test requires active participation of one or more CLECs. However, CLEC participation is voluntary, and the scope of that participation is up to each individual CLEC.

12.2 Objective

The objective of this test is to validate the existence, functionality, and behavior of the interfaces and processes required by Qwest for pre-ordering, ordering, and provisioning transaction requests and responses. The POP functions tested will also be validated against the Qwest documentation that specifies which functions are and are not available within the Qwest OSS.

12.3 Entrance Criteria

Table 12.3.1 Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test exist	Qwest, ROC
The ROC has verified measurements to be used in the test	ROC, Liberty Consulting
All required Qwest interface capabilities must be operationally ready	Qwest, HP
HP is operationally ready	HP
The statistical plan is in place	ROC, TAG, KPMG Consulting
The pass/fail criteria have been identified	ROC, KPMG Consulting
Interfaces are built and tested	KPMG Consulting, HP
EDI interface is "certified" by transaction/product type	Qwest
Inventory of all Qwest relevant (company-wide and regional) systems and interfaces identifying release number and version has been documented	KPMG Consulting, HP, Qwest
Wholesale and retail measurement processes evaluated	ROC, KPMG Consulting, Liberty Consulting
Measurement collection process is defined	KPMG Consulting, HP
Dial-up connectivity to GUI interface established	Qwest, KPMG Consulting, HP

<i>Criteria</i>	<i>Responsible Party</i>
<i>Business rules for all transactions to be tested are available</i>	<i>Qwest</i>
<i>Test bed accounts and facilities in place</i>	<i>Qwest</i>
<i>Test bed provisioned and validated</i>	<i>Qwest, KPMG Consulting</i>
<i>CLEC test volunteers identified</i>	<i>KPMG Consulting</i>
<i>Test cases developed</i>	<i>KPMG Consulting</i>
<i>Specific test cases to test in conjunction with CLEC volunteers have been identified</i>	<i>KPMG Consulting</i>
<i>Specific evaluation techniques developed</i>	<i>KPMG Consulting</i>
<i>Evaluation criteria defined</i>	<i>KPMG Consulting</i>
<i>Help Desk log and contact checklists created</i>	<i>KPMG Consulting, HP</i>

12.4 Test Scope

Ordering transactions consists of three distinct, but related, processes:

- Pre-order Processing—submission of requests for information required to complete orders;
- Order Processing—submission of orders required to add/delete/change a customer's service;
- Provisioning—physical work performed by Qwest as a result of the submitted orders and software changes accomplished via submitted orders into Qwest switches and network elements.

The ordering transactions test suite will be comprised of real life, end-to-end test cases that cover the entire spectrum of pre-order, order, and provisioning. The following order types will be tested:

- Migrate "as is"
- Migrate "as specified"
- New customer
- Feature Change
- Directory Change
- Number Change
- Add lines
- Suspend/Restore
- Disconnect (full/partial)
- Move (inside/outside)
- Number Portability (LNP)

CONTINUATION

[REDACTED] |

- * Change to New Local Service Provider
- * UNE Loop Cut Over
- * Change of service delivery method

The order types identified above will be ordered using the available and applicable Qwest service delivery methods. The following service delivery methods will be tested:

- * Resale
- * Unbundled Loops, including xDSL capable loops
- * UNE Platform, residential and business
- * Other UNE Combinations such as EELs
- * Other Unbundled Network Elements such as UDIT
- * Any other service delivery methods that may become available at the time of the test which are approved by the ROC for inclusion in the test

The orders will be placed using Qwest's existing interfaces: GUI, computer-to-computer, and manual. The following assumptions pertain to ordering interfaces:

- * Qwest electronic interfaces, both GUI and computer-to-computer, will be tested during the Volume Performance Test
- * Orders will be issued using both ASR and LSR forms, as appropriate
- * The GUI will be tested from multiple terminals at the same time
- * If a scenario calls for an order type that can not be submitted electronically, the request will be submitted manually.

Other important aspects of ordering will be tested:

- * Flow through order types, as stated and agreed-to by Qwest, will be tested to ensure that they do not require manual handling. The complete set of identified flow through order types will be evaluated to ensure that they actually do flow through (See Section 13).
- * Integration of pre-order and order data functionality which transfers values from pre-order responses to ordering documents
- * Supplemental orders (changes to orders in process), including cancels, will be tested
- * Multiple products and features will be tested; the tests will cover a broad range of the options available to CLECs and resellers
- * Multiple switch-types, end-offices, states and cities will be included in the test
- * A portion of the orders sent will be physically provisioned (See Section 14). Some orders will be future dated, allowing them to be canceled prior to work scheduling and provisioning

- CLECs will be solicited for involvement in some aspects of the test, especially for assistance in the testing complex services, services with long lead times, and services that require network resources (e.g. loop hot-cuts)
- Timeliness of methods employed by Qwest to process UDIT ASRs
- In addition to normal orders, orders with planned errors will be sent to Qwest to check the accuracy of its system edits and service representatives
- Service locations supported by different Qwest ordering, provisioning, and CO switching and transmission configurations will be tested

As indicated by testing principle number 13, similar test cases may be run by both HP and a production CLEC that has completed interface verification with Qwest in order to validate the processes under the oversight of KPMG Consulting. This validation process is not intended to double-test every scenario by both HP and a production CLEC, and will include no more iterations than are required for validation.

The test will be conducted using the most current release of the Qwest business rules, system releases and versions, interface versions and process/procedure documentation at the time of the test. Should multiple releases be available during the course of the test, KPMG Consulting will work with the ROC to determine which releases to test, and to what extent.

HP will build a pre-order EDI interface using Qwest specifications and evaluate the results for adequacy. The data from this pre-order interface will be integrated with LSRs for ordering on a real time or near real time basis to ensure that the two interfaces can be integrated.

The following chart contains the processes and sub-processes that will be used in evaluating Qwest's pre-ordering, ordering, and provisioning functionality and performance.

Table 12.4.1

Process Area	Sub-Process
Pre-ordering	Retrieve customer CSR
	Validate Customer Address
	Perform Loop Qualification
	Perform Facility Check
	Reserve telephone numbers
	Request information about services, features, and PIC/LPIC choices available to customers
	Determine due date/appointment availability
	<u>Acquire Directory Listing information</u>
Ordering	Submit order for migration of a customer from Qwest to a CLEC "as is"
	Submit order for migration of a customer from Qwest to a customer "as specified"
	Submit order for partial migration of a customer from Qwest to a CLEC
	Submit order for establishing service for a new customer of a CLEC
	Submit order for feature changes to an existing CLEC customer
	Submit order for adding lines/circuits to an existing CLEC customer
	Submit order for a telephone number change for an existing CLEC customer
	Submit order for a directory change for an existing CLEC customer
	Submit order for the outside move of an existing CLEC customer
	Submit order for suspending service of an existing CLEC customer
	Submit order for restoring service to an existing CLEC customer
	Submit order for disconnecting service from an existing CLEC customer
	Submit order for disconnecting some lines/circuits for an existing CLEC customer
	Submit order for migration of a customer from another CLEC
	Submit order for a CLEC to Qwest win-back
	Change service delivery method for an existing CLEC customer
	Order interoffice facilities
	Receive order confirmation
Provisioning	Receive notification of jeopardy or delay
	Receive completion notification

The following table contains the evaluation measures that will be used in evaluating Qwest's pre-ordering and ordering functionality and performance.

Table 12.4.2 Pre-Ordering and Ordering Evaluation Measures

Evaluation Measure	Evaluation Technique	Criteria Type
Clarity, accuracy, and completeness of documentation	Document Review, Transaction Generation	Qualitative
Availability of GUI (excluding Interoffice Facilities)	Transaction Generation	Quantitative
Availability of computer-to-computer interface (excluding Interoffice Facilities)	Transaction Generation	Quantitative
Accuracy and completeness of functionality	Transaction Generation	Quantitative
Timeliness of response	Logging	Quantitative
Completeness of response	Transaction Generation, Inspection	Qualitative Quantitative
Clarity and accuracy of error messages	Transaction Generation, Inspection, Document Review	Qualitative
Accuracy, responsiveness, and completeness of Help Desk support	Transaction Generation, Logging	Qualitative Quantitative
Usability of information	Transaction Generation, Inspection	Qualitative
Consistency with retail capability	Inspection	Qualitative Quantitative

Table 12.4.3 Provisioning Evaluation Measures

Evaluation Measure	Evaluation Technique	Criteria Type
Timeliness of provisioning	Transaction Generation, Inspection, Logging	Quantitative
Frequency of delay or rescheduling of provisioning	Transaction Generation, Inspection, Logging	Quantitative
Accuracy and completeness of provisioning	Transaction Generation, Inspection, Logging	Quantitative
Completeness and consistency of process	Inspection, Document Review	Qualitative

12.5 Scenarios

The specific scenarios to be used in this test can be found in Appendix D.

12.6 Test Approach

12.6.1 Inputs

1. Test scenarios and test cases
2. Validated test bed
3. Certified interfaces
4. Documentation (ordering guides, order/pre-order business rules, etc.)
5. Trained personnel to execute test cases
6. Help Desk log and contact checklists

12.6.2 Activities

1. Use test cases to develop transactions and transaction content based upon instructions provided in the appropriate handbook(s).
2. Interview CLEC volunteers and coordinate joint testing activities.
3. Submit transactions. Submittal date and time and appropriate transaction information logged.
4. Receive transaction responses. Receipt date, time, response transaction type, and response condition (valid vs. reject) logged.
5. Report on missing transactions (e.g. missing confirmations and completion notices).
6. Match transaction response to original transaction.
7. Verify transaction response contains expected data and flags unplanned errors.
8. Verify that pre-order data are integrated into ordering documents/processes as appropriate.
9. Manually review unexpected errors. Identify error source (KPMG Consulting, HP or Qwest). Identify and log reason for the error. Determine if test should be suspended or repeated.
10. Contact help desk for support as indicated in test cases and for unexpected errors following the appropriate resolution procedures. Log response time, availability, and other behavior of functions as identified on the help desk checklist.
11. Correct expected errors and resubmit. Re-submittal date, time, and appropriate information logged.
12. Verify receipt of appropriate responses, where multiple responses are expected for the same request.
13. Identify transactions for which duplicate or multiple responses were received in error.
14. Record missing responses.
15. Review status of pending orders. Verify and record accuracy of response.
16. Generate HP reports.
17. Generate Qwest measurement report for test date range.

18. Obtain from Qwest measurement reports for HP, aggregate CLECs and Qwest retail for the test data range.
19. Compare KPMG Consulting-produced HP measures to Qwest-produced HP measures to ensure there is no problem with the data being collected for test reporting purposes.
20. Report CLEC aggregate measures as a data point to check for consistency.
21. Assess quality of business processes and compare, where information is available, with equivalent retail processes.

12.6.3 Outputs

1. Reports that provide the measures to support the standards of performance defined in Appendix C
2. Variance between actual performance and the standards of performance defined in Appendix C
 3. Unplanned error count by reason code and percentage of total
 4. Reports of missing transactions, e.g., confirmations and completion notices
 5. Rejects received after confirmation notification and percentage of total
 6. Transaction counts, error ratio, response time, etc., by transaction type, product family, and delivery method
 7. Minimum, maximum, mean, average, and aggregate response time/interval per transaction set
 8. Transaction counts per response time/interval range per transaction set
 9. Orders erred after initial confirmation
 10. Completed help desk logs and checklists
 11. Help desk accuracy and timeliness report
 12. HP measurement reports produced both KPMG Consulting and Qwest
 13. KPMG Consulting-produced, HP data to Qwest-HP data comparison
 14. Qwest-produced, HP data to Qwest retail, adjusted² retail or benchmark data comparison
 15. Measure of parity performance between retail and wholesale
 16. Observation and Exception reports
 17. Final report

² Qwest's retail data for 2 wire non-loaded loops, DS-1-capable loops, and UNE-P POTS is normally disaggregated to MSA/non-MSA and interval zone 1/interval zone 2 and compared at this disaggregated level. Because the TAG has decided not to require statistically significant sample sizes at this level of disaggregation, Qwest's retail data must be adjusted in order to provide for an apples to apples comparison to the data generated by the pseudo-CLEC. Accordingly, Qwest will adjust its retail data to reflect the percentage of MSA/non-MSA and zone 1/zone 2 transactions generated by the pseudo-CLEC. For example, if the pseudo-CLEC's UNE-P transactions are spread across 70% MSA and 30% non-MSA wire centers, Qwest's actual retail comparative results will be adjusted so that the MSA results will be weighted 70% and the non-MSA results will be weighted 30% to arrive at the result for comparison.

12.7 Loop Qualification Process "Parity by Design" Evaluation

In addition to the above elements of this POP Functionality test, KPMG Consulting will perform an evaluation of the Loop Qualification process Qwest provides to wholesale customers compared to the Loop Qualification process it provides to its own retail customers to determine if parity exists in the design, implementation and use thereof. This evaluation will examine the wholesale and retail end-to-end processes, the results of the same queries made to the two processes, and all additional avenues of follow-up or recourse available to either wholesale or retail operations or both. This evaluation should answer the following questions:

- Does a wholesale loop qualification transaction result in the same information as a retail transaction for the same loop?
- Does the loop qualification information come from the same database (directly or indirectly) with the same frequency of update?
- Are the wholesale responses returned in accordance with benchmarks set?
- Are any differences in the sub-processes or remedial options available in the retail loop qualification process versus the wholesale process?

12.8 POP Manual Order Processing Evaluation

12.8.1 Description

The POP Manual Order Processing Evaluation is a comprehensive review of the methods and procedures used to handle orders that have been manually submitted or require manual intervention by Qwest during order processing. Operational analysis techniques will be used to conduct this test. This test will include a review of the procedures in place to plan for and manage projected growth in order processing.

12.8.2 Objective

The objective of this test is to validate the processes and procedures used to support manual submission of orders for service and to ensure that these procedures are being uniformly followed by Qwest's personnel across the three regions.

12.8.3 Entrance Criteria

Table 12.8.3.1 Manual Order Process Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test exist.	ROC, Qwest
The ROC has verified measurements to be used in the test	ROC, Liberty Consulting
HP is operationally ready	HP
Entrance criteria have been identified	ROC, KPMG Consulting
Business order procedures and documentation are available	Qwest
Customer guide, questionnaire and process review checklist developed	KPMG Consulting
Obstacles identified and schedule developed.	Qwest, KPMG Consulting

12.8.4 Test Scope

Table 12.8.4.1 Manual Order Processes

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Business Orders for Manual Processing	Order Receipt and Logging	Completeness and consistency of process	Inspection Document review	Qualitative
Process Orders Manually	Entry of Order into SOP	Completeness and consistency of process	Inspection	Qualitative
Send Order Response	Delivery of error messages and queries	Completeness and consistency of reporting process	Inspection Document Review	Qualitative
	Delivery of confirmations, completions and acknowledgements.	Completeness and consistency of reporting process	Inspection Document Review	Qualitative
Status Tracking and Reporting	Status tracking and reporting	Completeness and consistency of reporting process	Inspection Document review	Qualitative
Problem Escalation	User-initiated escalation	Completeness and consistency of process	Inspection Document review	Qualitative
Process Management	General management practices	Adequacy and completeness of processing management practices	Inspection Document review	Qualitative
	Performance measurement process	Adequacy and completeness of and adherence to manual order processing performance management practices	Inspection	Qualitative

Table 12.8.4.1 Manual Order Processes

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Capacity Management	Capacity management processes and procedures	Adequacy and completeness of capacity management process	Inspection Document review Interview	Qualitative

12.8.5 Inputs

1. Order handling procedures
2. System technical documentation
3. Interview checklist
4. Process review checklist
5. Personnel to conduct interviews

12.8.6 Activities

1. Review procedure documents
2. Interview Qwest personnel
3. Complete process reviews
4. Create evaluation summary

12.8.7 Outputs

1. Completed process review checklists
2. Completed interview checklists
3. Evaluation summary

12.9 Exit Criteria

Table 12.9.1 Exit Criteria

Criteria	Responsible Party
Global exit criteria satisfied	See Section 7

13. Order Flow Through Evaluation**13.1 Description**

The Order Flow Through Evaluation tests the Qwest systems capability to flow orders through from the CLIC through the application-to-application interface into the backend Qwest service ordering processing systems without any human intervention. Orders that qualify as flow

through, i.e., orders not needing manual action, will be tested to determine compliance with eligibility to flow through with actual results.

Qwest will update the list of flow through ordering scenarios and USOC flow through indicators eligible during the testing period if changes in the Qwest business rules or systems warrant. Changes to the list will be incorporated into the test and will be noticed to the industry through the Co-Provider Interface Change Management Process ("CICMP").

Flow through orders will be submitted through both the GUI and the computer-to-computer interfaces. Any supplements and cancels that are considered to be flow through will also be submitted. The order transactions will be monitored to verify that they do not "fall out" for manual handling in the Qwest Interconnect Service Center (ISC) and are accepted by Qwest's Service Order Processor (SOP) without manual intervention.

This test will be conducted as a part of the POP functional testing (See Section 12).

13.2 Objective

The objective of the Order Flow Through Test is to verify the ability of Qwest to flow through their front end systems, without manual intervention, all order types that at the time the transactions are to be submitted are designated by Qwest to be flow through. This test will also assess that the flow through capabilities of Qwest's systems are uniform across the three regions.

13.3 Entrance Criteria

Table 13.3.1 Entrance Criteria

<i>Criteria</i>	<i>Responsible Party</i>
<i>All Section 12 entrance criteria satisfied</i>	<i>See Section 12.3</i>
<i>Documentation available specifying which orders are expected to flow through by service delivery type and product including any specific parameters that cause an order to not flow through that should otherwise flow through</i>	<i>Qwest</i>
<i>Test scenarios selected</i>	<i>KPMG Consulting</i>
<i>Specific test cases developed</i>	<i>KPMG Consulting</i>

13.4 Test Scope

Flow through only pertains to the ordering process.

13.5 Test Scenarios

The specific scenarios to be used in this test will be chosen from those that can be found in Appendix D.

13.6 Test Approach

13.6.1 Inputs

1. Test cases and expected results
2. Validated test bed
3. Test case execution schedule
4. Interfaces built and certified
5. Failure reasons
6. Trained personnel to execute test cases

13.6.2 Activities

1. Submit order transactions via computer-to-computer and the GUI interfaces. Log submittal date, time and appropriate transaction information.
2. Receive transaction responses. Log receipt date, time, response transaction type, and response condition (valid vs. reject).
3. Verify transaction response contains expected data and flags unplanned errors.
4. Identify orders that had manual handling. Identify reason for manual handling. Record manual handling and order attributes.
5. If there was an error that caused the order not to flow through, identify error source (HP or Qwest). Identify and log reason for the error. Qwest errors will not be corrected.
6. Correct any HP errors and re-submit. Verify whether order flows through or not based on Qwest systems processing.
7. Verify that all orders submitted are accounted for. Log any orders that are submitted but do not appear as processed or erred by Qwest.
8. Generate reports based on Qwest manual handling report and KPMG Consulting data.

13.6.3 Outputs

1. Percentage and number of orders that flowed through by order type, product family, etc.
2. Percentage and number of orders that did not flow through by order type, product family, etc.
3. Variance between actual performance and the standards of performance defined in the PID
4. Report of expected results versus actual results by reason code
5. Observation and Exception reports
6. Final report

13.7 Exit Criteria

Table 13.7.1 Exit Criteria

<i>Criteria</i>	<i>Responsible Party</i>
<i>Global exit criteria satisfied</i>	<i>See Section 7</i>

14. Provisioning Evaluation

14.1 Description

The Provisioning Evaluation test is a comprehensive review of Qwest's ability to accurately and expeditiously complete the provisioning of CLEC orders. This test will be conducted as a part of the POP functional testing (See Section 12). It will incorporate orders submitted by both the computer-to-computer and GUI interfaces, and manually where appropriate. While most types of orders will be included, the test will concentrate on those orders that require physical provisioning and/or switch software changes.

This test will involve verifying that orders submitted have been properly provisioned and that the provisioning has been completed on time. Included in the test will be orders that have been supplemented and canceled, as well as those submitted with anticipated errors, to test the impact on provisioning.

For some orders, particularly the more complex ones, the involvement of CLECs operating in the thirteen participating ROC states will be solicited to volunteer use of their facilities to enhance the real world nature of the test and to test those transactions that cannot be accomplished in a test environment without access to actual network facilities (e.g. LNP, Line splitting).

14.2 Objective

The objective of this test is to evaluate the ability of Qwest to accurately provision orders submitted by CLECs and to do so on time.

14.3 Entrance Criteria

Table 14.3.1 Provisioning Entrance Criteria

<i>Criteria</i>	<i>Responsible Party</i>
<i>All Section 12 entrance criteria satisfied</i>	<i>See Section 12.3</i>
<i>Test scenarios selected</i>	<i>KPMG Consulting</i>
<i>Specific test cases developed</i>	<i>KPMG Consulting</i>
<i>CLEC volunteers identified</i>	<i>KPMG Consulting</i>
<i>Provisioning log and activity checklists created</i>	<i>KPMG Consulting</i>

14.4 Test Scope

The scope for this test includes the following processes:

1. UNE-Platform and Resale and associated feature provisioning
2. Loop Hot Cuts and Loop Conversions without LNP
3. New unbundled loop installations
4. Local Number Portability provisioning
5. Enhanced Extended Loops (EELs) Installation
6. xDSL Installations
7. Directory Listings provisioning

Table 14.4.1 Provisioning Functional Evaluation

Process	Sub-process	Evaluation measure
Provisioning functional evaluation	Directory Listing Provisioning	Timeliness, accuracy and completeness of provisioning
	Switch Feature Provisioning	Timeliness, accuracy and completeness of provisioning and timeliness of notifications
	Loop hot-cuts	Timeliness of provisioning and notifications. Accuracy and completeness of provisioning
	New service adds	Timeliness, accuracy and completeness of provisioning and notifications
	Local Number Portability	Timeliness, accuracy and completeness of provisioning and notifications
	Inter-office facilities provisioning	Timeliness, accuracy and completeness of provisioning and notifications
	Provisioning completion notices	Timeliness, accuracy and completeness of notices

14.5 Test Scenarios

The specific scenarios to be used in this test will be chosen from those that can be found in Appendix D.

14.6 Test Approach

14.6.1 Inputs

1. Test cases and expected results
2. Provisioning documentation
3. Provisioning log and activity checklists
4. Participation from CLECs through voluntary, coordinated testing

14.6.2 Activities

1. Use test cases to develop transactions and transaction content based upon instructions provided in the appropriate documentation.
2. Submit computer-to-computer transactions.
3. Submit GUI and manual transactions.
4. Receive confirmations of transactions.
5. Log notification of provisioning jeopardies and delays.
6. Perform joint provisioning activities and record provisioning interactions.
7. Perform testing on provisioned services.
8. Test completion of orders. Record results in appropriate provisioning log and activity checklist.
9. Obtain from Qwest measurement reports for HP, aggregate CLECs and Qwest retail for the test date range.
10. Compare KPMG Consulting-produced HP measures with Qwest-produced HP measures.
11. Measure parity performance between retail and wholesale.

14.6.3 Outputs

1. Reports that provide the measurements to support standards of performance listed in Appendix C.
2. Variance between actual performance and standards of performance listed in Appendix C.
3. Report of expected results versus actual test case results.
4. Completed provisioning logs and checklists.
5. Provisioning accuracy and timeliness report.
6. Report CLEC aggregate measures as a data point to check for consistency.
7. KPMG Consulting-produced HP data to Qwest-HP performance results data comparison.
8. Qwest-produced HP data to Qwest retail or benchmark data comparison.
9. Measure of parity performance between Qwest retail and CLEC aggregate results.
10. Observation and Exception reports

14.7 Provisioning Process Parity Evaluation

The evaluation measures for the provisioning processes are consistency and repeatability as compared to retail. The provisioning processes will be inspected and compared to retail.

14.7.1 Description

The Provisioning Process Parity Evaluation is a review of the processes, systems and interfaces that provide provisioning for CLEC and Reseller orders compared to the equivalent Qwest retail processes. The review will focus on these areas:

- Order interfaces
- Workflow definitions
- Workforce scheduling
- Memory administration
- Service activation
- Test and acceptance
- Exception handling
- Completion notices
- Jeopardy notifications
- Capacity management

The focus of the evaluation will be "downstream" interfaces from manual processing and the gateway systems that serves as the interface to all order processing.

As appropriate, provisioning processes for different products and services will be evaluated separately. This will be required in those cases where the process and/or systems used for provisioning are different by product.

14.7.2 Objective

The objective of this evaluation is to determine the degree to which the provisioning environment supporting CLEC orders is at parity with internal Qwest provisioning for its own retail customers.

14.7.3 Entrance Criteria

Table 14.7.3.1 Provisioning Process Parity Evaluation Entrance Criteria

Criteria	Responsible Party
All Section 12 entrance criteria satisfied	See Section 12.3
Detailed Provisioning Process Parity Evaluation Checklist developed	KPMG Consulting
Required system documentation available	Qwest

<i>Criteria</i>	<i>Responsible Party</i>
<i>Provisioning process documentation available</i>	<i>Qwest</i>
<i>Interview guide/questionnaire developed</i>	<i>KPMG Consulting</i>
<i>Interviewees identified and schedule developed</i>	<i>Qwest, KPMG Consulting</i>

14.7.4 Test Scope

The table below outlines the processes and sub-processes involved in evaluating the level of parity provided by the Qwest provisioning systems and processes to the CLECs.

Table 14.7.4.1 Provisioning Process Parity

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Provisioning Process Parity	Workflow management	Consistency and repeatability as compared to Retail	Inspection	Parity
	Workforce management	Consistency and repeatability as compared to Retail	Inspection	Parity
	Jeopardy notification	Consistency and repeatability as compared to Retail	Inspection	Parity
	Service activation process	Consistency and repeatability as compared to Retail	Inspection	Parity
	Service design process	Consistency and repeatability as compared to Retail	Inspection	Parity
	Assignment process	Consistency and repeatability as compared to Retail	Inspection	Parity
	Capacity management	Consistency and repeatability as compared to Retail	Inspection	Parity

14.7.5 Test Scenarios

Not applicable.

14.7.6 Test Approach

14.7.6.1 Inputs

1. Product and Service Process Flow Understanding (provides for understanding of complex versus simple services but does not conflict with traditional Qwest definition of products and services)
2. Applicable Qwest provisioning process documentation
3. Interview guide/questionnaire
4. Interviewees (per process area)

- Provisioning process owners
 - Provisioning process staff
 - User requirements project leader
5. Interview schedule
 6. Detailed Provisioning Process Parity Evaluation Checklist
 7. Appropriate System Documentation
 8. Appropriate Methods and Procedures (determined via interviews)

14.7.6.2 Activities

1. Identify all process documentation needed for review
2. Identify relevant systems and interfaces
3. Identify all system documentation available for review
4. Conduct structured review of documentation using Provisioning Process Parity Evaluation Checklist
5. Conduct interviews using the interview guides and questionnaires
6. Inspect physical systems and communications environments
7. Document findings

14.7.6.3 Outputs

1. Completed Provisioning Process Parity Evaluation Checklist
2. Completed interview questionnaires
3. Interview Summaries
4. Summary Findings, Conclusions

14.8 Provisioning Coordination Process

14.8.1 Description

The POP Provisioning Coordination Process Evaluation is a review of the procedures, processes and operational environment used to support coordinated provisioning with CLECs.

The evaluation will address products and situations that require coordinated provisioning to minimize customer disruption. The requirement for coordination may come from either Qwest policy or a CLEC request. An operational analysis test approach supplemented by case studies will be used to evaluate Qwest's Provisioning Coordination Processes.

14.8.2 Objectives

The objectives of this evaluation are to:

- Determine completeness and consistency of provisioning coordination processes
- Determine whether the provisioning coordination processes are correctly documented, maintained and published

- Determine the accuracy, completeness and functionality of procedures for measuring, tracking, projecting and maintaining provisioning coordination processes performance
- Ensure the provisioning coordination processes have effective management oversight and Qwest's personnel is adhering to the documented process
- Ensure responsibilities for provisioning coordination processes performance improvement are defined and assigned

14.8.3 Entrance Criteria

Table 14.8.3.1 Provisioning Coordination Process Entrance Criteria

Criteria	Responsible Party
<i>No legally effective orders or injunctions preventing the test exist</i>	<i>Qwest, ROC</i>
<i>Pass/retest criteria have been identified</i>	<i>ROC, KPMG Consulting</i>
<i>CLEC Case Study Request completed</i>	<i>KPMG Consulting</i>
<i>CLEC Case Study Monitoring Form completed</i>	<i>KPMG Consulting</i>
<i>Detailed Provisioning Coordination Process Checklist developed</i>	<i>KPMG Consulting</i>
<i>Interview guide/questionnaire developed</i>	<i>KPMG Consulting</i>
<i>Interviewees identified and schedule developed</i>	<i>Qwest, KPMG Consulting</i>

14.8.4 Test Scope

The table below outlines the tests to evaluate the procedures and processes in place to support for joint provisioning of services by the CLEC and Qwest.

Table 14.8.4.1 Provisioning Coordination Process

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Support Provisioning Coordination Process	Provision orders requiring coordination with CLECs	Availability of personnel, procedures and methods	Document Review	Existence
		Completeness and consistency of processes	Document Review, Inspection	Qualitative
	Request coordination	Completeness and consistency of processes	Document Review, Inspection	Qualitative
	Notification of provisioning schedule	Completeness and consistency of processes	Document Review, Inspection	Qualitative
		Timeliness of notification	Document Review, Inspection	Quantitative
	Jeopardy notification	Completeness and consistency of processes	Document Review, Inspection	Qualitative
		Timeliness of notification	Document Review, Inspection	Quantitative

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
	Coordinate provisioning	Completeness and consistency of operating management practice	Inspection	Qualitative
		Controllability, efficiency and reliability of process	Inspection	Qualitative
		Completeness of process improvement practices	Inspection	Qualitative
		Compliance with documented practices	Inspection	Qualitative

14.8.5 Test Scenarios

Not applicable.

14.8.6 Test Approach

14.8.6.1 Inputs

1. CLEC Case Study Request
2. CLEC Case Study Monitoring Form
3. Provisioning Coordination Process Checklist
4. Interview Guide/Questionnaire

14.8.6.2 Activities

1. Send CLEC Case Study Requests to CLECs
2. Receive and compile CLEC case study input suggestions
3. Select and record case studies to monitor
4. Monitor case studies and record results on monitoring form
5. Conduct structured review of documentation using provisioning Coordination Process Checklist.
6. Conduct interviews with key process personnel using interview guide and questionnaire
7. Review coordinated provisioning case studies
8. Document findings

14.8.6.3 Outputs

1. CLEC Case Study submission and selection matrix
2. Completed CLEC Case Study Monitoring Forms
3. Completed Provisioning Coordination Process Checklist
4. Completed Interview Questionnaires
5. Interview Summaries
6. Summary Findings, Conclusions

14.9 Exit Criteria

Table 14.9.1 Exit Criteria

Criteria	Responsible Party
Global exit criteria satisfied	See Section 7

15. POP Volume Performance Test

15.1 Description

The Volume Performance Test will identify the capacity and potential choke points, at projected future transaction volumes, of the Qwest GUI and computer-to-computer interfaces and Qwest front end systems made available to HP at the time of the test. The Volume Performance Test will evaluate the processing of pre-ordering queries and flow through orders. The test will consist of three parts: (1) a "normal volume" test using anticipated transaction volumes during the life cycle of the system interfaces tested, (2) a "peak" test using volumes at 150% of the normal volume test, and (3) a "stress" test using volumes at 250% of the normal volume test. (Note: Per the July MTP Design Workshop, the TAG will collaborate to finalize the normal volumes, percentages and time horizons to be used for the volume test. KPMG Consulting will provide different volume projections based on Qwest and CLEC forecasts.)

The Volume Performance Test will examine the performance of Qwest's production pre-ordering and ordering systems and processes from the submission of queries to the creation of internal service orders and the return of an order confirmation. The orders submitted in the Volume Performance Test will not be physically provisioned. Transactions will be submitted via both the GUI and computer-to-computer interfaces.

The test will include a mix of stand alone pre-ordering and ordering transactions. The mix will include planned business rule errors and flow through orders. The vast majority of transactions submitted to Qwest as part of this test will be designed to flow through; those that fall out to the workcenter will be identified to KPMG Consulting by Qwest but do not need to be worked by a representative in the workcenter.

Volume testing will be conducted on certain days during the POP Functional Evaluation testing period. There will be two 24 hour normal volume tests, one 24 hour peak test and one 4 hour, off-hours non-busy, production hours stress test. The stress test will be run during off-hours non-

busy, production hours to limit the test's impact on real customers. The attributes and activities that apply to the POP Functional Evaluation (see Section 12) for pre-ordering and ordering also apply to this test. The dates of volume testing will be withheld from CLECs and Qwest to promote blindness. The ROC Project Manager and KPMG Consulting will consider the need for additional volume days if Qwest executes major system software changes during the course of the test.

15.2 Objective

The objective of the Volume Performance Test is to measure Qwest's capability and identify potential choke points of the GUI and computer-to-computer interfaces and systems made available to HP to access pre-ordering information and submit orders to Qwest at projected future volumes. The success criteria for normal volumes will be determined by the appropriate PID.

15.3 Entrance Criteria

Table 15.3.1 Entrance Criteria

Criteria	Responsible Party
All Section 12 entrance criteria satisfied	See Section 12.3
Agreement on volumes and distribution by scenario and entry mode	ROC, KPMG Consulting
Test scenarios selected	KPMG Consulting
Specific test cases developed	KPMG Consulting
Performance standards for peak/stress tests developed	TAG

15.4 Test Scope

The scope for this test includes the following test processes:

1. Pre-ordering
2. Order processing

15.5 Test Scenarios

The specific scenarios to be used in this test will be chosen from those found in Appendix D.

15.6 Test Approach

15.6.1 Inputs

1. Test cases
2. Documentation (all ordering documentation, pre-ordering/ordering business rules, etc.)
3. Validated test bed
4. Personnel to execute test cases

5. Certified interfaces

15.6.2 Activities

1. Use test cases to develop transactions and transaction content based upon instructions provided in the appropriate handbook(s).
2. Submit GUI and computer-to-computer transactions. Submittal date, time and appropriate transaction information are logged.
3. Receive transaction responses. Receipt date, time, response transaction type, and response condition (valid vs. reject) are logged.
4. Match transaction response to original transaction. Verify matching transaction can be found and record mismatches.
5. Verify transaction response contains expected data and flag unplanned errors.
6. Manually review unplanned errors. Identify error source (HP or Qwest). Identify and log reason for the error. Determine if test should be discontinued.
7. Identify transactions for which responses have not been received. Where multiple responses are expected for the same request, the receipt of each response will be monitored. Record missing responses.
8. Identify transactions for which duplicate or multiple responses were received in error.
9. Review status of pending orders. Verify and record accuracy of response.
10. Generate HP reports.
11. Report CLEC aggregate measures as a data point to check for consistency.

15.6.3 Outputs

1. Reports that provide performance measurements
2. Variance between actual performance and standards of performance
3. Report of expected results versus actual results
4. Unplanned error count by type and percentage of total
5. Report of unplanned errors as the result of documentation problems
6. Transaction counts, error ratio, response time, etc. by transaction type, product family and delivery method
7. Minimum, maximum, mean, average, and aggregate response time/interval per transaction set
8. Transaction counts per response time/interval range per transaction set
9. Observation and Exception reports
10. Final report

15.7 Exit Criteria

Table 15.7.1 Exit Criteria

Criteria	Responsible Party
All activities completed	KPMG Consulting
Checklists and reports completed	KPMG Consulting
Global exit criteria satisfied	See Section 7

16. IMA GUI M&R CEMR Functional Evaluation

16.1 Description

The IMA GUI M&R Customer Electronic Maintenance and Repair (CEMR) functional evaluation is a comprehensive review of the trouble administration functional elements of the IMA GUI, their conformance to documented specifications, and an analysis of its functionality in comparison to Qwest's Retail front end systems for trouble management. The test has three major phases, Phase 1 — a basic functional evaluation, Phase 2 — a comparative functional evaluation, Phase 3 — a performance evaluation. The performance evaluation is a transaction driven test designed to evaluate the IMA GUI CEMR system used for M&R under load conditions. Transaction sets will be based on the level of demand projections that are reasonably foreseeable during the life cycle of the system being tested.

16.2 Objective

The objective of this test is to validate the existence and behavior of IMA GUI CEMR functional elements as documented in IMA GUI CEMR Training Guides and other applicable documents, and to evaluate, based on both quantitative and qualitative approaches, the equivalence of IMA GUI CEMR functionality to Qwest's Retail front end systems for trouble management. The behavior of IMA GUI CEMR will be evaluated under load conditions to determine system performance in terms of response time and operability, and to identify potential future performance bottlenecks and whether that performance is consistent with specifications.

16.3 Entrance Criteria

Table 16.3.1 Basic Functional (Phases 1 & 2) Evaluation Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test exist	ROC, Qwest
The ROC has verified measurements to be used in the test	ROC, Liberty Consulting
All required Qwest interfaces are operationally ready	Qwest
HP is operationally ready	HP
Pass/retest criteria have been identified	ROC, KPMG Consulting

<i>Criteria</i>	<i>Responsible Party</i>
<i>Detailed test plan completed</i>	<i>KPMG Consulting</i>
<i>Test scenarios selected</i>	<i>KPMG Consulting</i>
<i>Documentation provided</i>	<i>Qwest</i>
<i>Interview guides created</i>	<i>KPMG Consulting</i>
<i>Specific test cases and transaction sets developed</i>	<i>KPMG Consulting</i>
<i>Product descriptions and business rules for all transactions to be tested are available.</i>	<i>Qwest</i>
<i>Basic documentation review completed</i>	<i>KPMG Consulting</i>
<i>Detailed functional checklist created</i>	<i>KPMG Consulting</i>
<i>Test bed provisioned and validated</i>	<i>Qwest, KPMG Consulting</i>
<i>Specific evaluation techniques developed</i>	<i>KPMG Consulting</i>
<i>Physical access to the IMA GUI-CEMR established</i>	<i>Qwest</i>
<i>Security access to IMA GUI-CEMR established</i>	<i>Qwest</i>
<i>Evaluation criteria defined and approved</i>	<i>ROC</i>

Table 16.3.2 IMA GUI-CEMR Performance Evaluation (Phase 3) Entrance Criteria

<i>Criteria</i>	<i>Responsible Party</i>
<i>No legally effective orders or injunctions preventing the test exist</i>	<i>ROC, Qwest</i>
<i>The ROC has verified measurements to be used in the test</i>	<i>ROC, Liberty Consulting</i>
<i>All required Qwest interfaces are operationally ready</i>	<i>Qwest</i>
<i>HP is operationally ready</i>	<i>HP</i>
<i>Pass/retest criteria have been identified</i>	<i>ROC, KPMG Consulting</i>
<i>Test transaction sets have been built and validated</i>	<i>KPMG Consulting</i>
<i>Product descriptions and business rules for all transactions to be tested are available.</i>	<i>Qwest</i>
<i>Test bed provisioned and validated</i>	<i>Qwest, KPMG Consulting</i>
<i>IMA GUI-CEMR test coordination details have been worked out</i>	<i>KPMG Consulting</i>

16.4 Test Scope

IMA GUI-CEMR functionality will be reviewed within the context of specific documentation addressing its use and in comparison to Qwest's Retail front-end systems for trouble management. The following table contains the processes, sub-processes, and methods for evaluating the functionality of Qwest's IMA GUI.

Table 16.4.1 Test Scope: M&R IMA GUI-CEMR Functional Evaluation

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Trouble Reporting	Create/Enter Trouble Report (TR)	Functionality exists as documented	Inspection	Existence Qualitative Parity
	Modify TR	Functionality exists as documented	Inspection	Existence Qualitative Parity
	Close/Cancel TR	Functionality exists as documented	Inspection	Existence Qualitative Parity
	Retrieve TR Status	Functionality exists as documented	Inspection	Existence Qualitative Parity
Trouble History Access	Retrieve Trouble History	Functionality exists as documented	Inspection	Existence Qualitative Parity
Access To Test Capability	Initiate MLT Test	Functionality exists as documented	Inspection	Existence Qualitative Parity
	Receive MLT Test Results	Functionality exists as documented	Inspection	Existence Qualitative Parity

16.5 Test Scenarios

A subset of the Appendix D Table D5 scenarios will be used in this test. Scenarios selected for trouble reporting will include both post provisioning activity and trouble reports on existing HP service.

16.6 Test Approach

This test is broken down into three phases:

- **Phase 1** involves the use of test cases created for this test and observation of processes to evaluate IMA GUI-CEMR functionality and to determine if the system behaves as documented.
- **Phase 2** involves observation of similar retail transactions and interviews of Retail Maintenance Administrators (MA) processing trouble calls and entering trouble reports into Qwest's Retail front end systems to assess functionality in comparison to IMA GUI.
- **Phase 3** involves load testing of IMA GUI-CEMR by sending transaction sets structured to provide a transaction mix consistent with current system usage, projected normal volumes and stress/load volumes. Included in this mix will be planned errors. The quantity of transactions will be known as the "normal volume". A second execution known as "peak" will use a multiple of 125-150% the "normal" volumes. Finally, the

"stress" execution will use transaction volumes that are 150-250% the volumes used for the "normal" test.

The number of observations and period of time over which the observations are taken for both wholesale and retail processes will be sufficient to provide a statistically valid basis for evaluation.

16.6.1 Inputs

1. Test cases
2. Documentation (~~IMA-GUI-CEMR~~ Learning Guide, etc.)
3. Functionality checklists
4. Interview guide
5. ~~IMA-GUI-CEMR~~ systems and validated test bed
6. Personnel to interview Wholesale user and Retail Maintenance Administrators and observe their use of ~~IMA-GUI-CEMR~~ and retail front-end systems for Trouble Management, respectively.

16.6.2 Activities – Phase I

1. Use test cases created for this test and appropriate Qwest documentation to perform each of the functions listed on the checklist provided via the ~~IMA-GUI-CEMR~~ interface. Observe and interview HP as they execute the test cases to determine usability.
2. Verify that each system function behaves as documented.
3. Note any anomalies in the space provided on the checklist.
4. Note any discrepancies between ~~IMA-GUI-CEMR~~ documentation and behavior.
5. Ensure that all trouble reports entered in IMA have been canceled.

16.6.3 Activities – Phase II

1. Use the checklist and interview guide to conduct interviews with MA's selected from the Residence and Business M&R work centers.
2. Observe MA trouble report activities similar to those test cases used in Phase I as identified on the checklist provided.
3. Note the presence and behavior of functions identified on the checklist.
4. Identify any anomalies relative to the functions being observed.
5. Note any additional relevant information from the MA interview (e.g., additional capabilities, performance, etc.).
6. Determine and document any M&R functions that can be performed from a Retail trouble management workstation that are not available in ~~IMA-GUI-CEMR~~ and vice versa.
7. Perform a detailed evaluation of relative functionality and capabilities between ~~IMA-GUI-CEMR~~ and retail front-end systems for trouble management.

16.6.4 Activities – Phase III

1. Feed transaction sets to IMA GUI.
2. Periodically exercise ~~IMA GUI-CEMR~~ functionality manually during test execution.
3. Observe and capture observations from (2) above in terms of performance and operability.
4. Capture transaction performance statistics via data test generator. (automatic)
5. Capture transaction performance statistics via IMA GUI. (automatic)
6. Monitor ~~IMA GUI-CEMR~~ system interfaces to identify any bottleneck conditions. (Qwest personnel)
7. Ensure all generated trouble reports have been canceled/closed.
8. Reset test bed for next test (if required) or clean up production databases. (Qwest)
9. Execute test once with normal, projected transaction volumes and once with peak/stress volumes.
10. Analyze performance reports.
11. Review execution and observation reports.
12. Compare HP vs. performance metric results.

16.6.5 Activities – Common

Document the results and findings from the activities conducted in Phases 1, 2 and 3.

16.6.6 Outputs

1. Completed checklists from Phases 1, 2 and 3 activities
2. Completed interview summaries
3. Summary reports of findings from each phase, including a discussion of anomalies and relevant observations relating to usability and timeliness of each system interface
4. Reports that provide the measurements to support the standards of performance defined in Appendix C
5. Variance between actual performance and the standards of performance defined in Appendix C
6. Test execution and observation reports
7. HP performance reports
8. ~~IMA GUI-CEMR~~ performance reports
9. A Summary report comparing relative functionality in ~~IMA GUI-CEMR~~ and Retail front end systems for Trouble Management highlighting differences and contrasting ease of use of the two systems in performing the functions observed
10. Observation and Exception reports

16.7 Exit Criteria

Table 16.7.1 Exit Criteria

Criteria	Responsible Party
Global exit criteria satisfied	See Section 7
All activities completed	KPMG Consulting
Checklists and reports completed by personnel participating in the test.	KPMG Consulting

17. MEDIACC (EB-TA) M&R Trouble Functional & Performance Evaluation

17.1 Description

The Electronic Bonding Trouble Administration (MEDIACC EB-TA) Functional Evaluation is a comprehensive review of all of the functional elements of the MEDIACC EB-TA System and their conformance to documented interface specifications.

17.2 Objective

The objective of this test is to validate the existence and behavior of MEDIACC EB-TA functional elements as documented for CLEC trouble entry and other applicable documents.

17.3 Entrance Criteria

Table 17.3.1 Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test exist	ROC, Qwest
The ROC has verified measurements to be used in the test.	ROC, Liberty Consulting
All required Qwest interfaces are operationally ready	Qwest
Pass/failure criteria have been identified	ROC, KPMG Consulting
Detailed Test Plan completed	KPMG Consulting
Test Scenarios selected	KPMG Consulting
Specific Test Cases and Transaction Sets developed	KPMG Consulting
Product descriptions and business rules for all transactions to be tested are available	Qwest
Basic documentation review completed	KPMG Consulting
Detailed Functional Checklist created	KPMG Consulting
Test bed provisioned and validated	Qwest, KPMG Consulting
Specific Evaluation techniques developed	KPMG Consulting
Physical access to Qwest Trouble entry site established	Qwest
Security access to MEDBACC EB-TA established	Qwest
Evaluation Criteria defined and approved	ROC
Checklists and Interview Guides created	KPMG Consulting

17.4 Test Scope

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Test Case
Trouble Reporting	Create/Enter Trouble Report (TR)	Functionality exists as documented	Functional Operations Documentation Review	Functional Operations Documentation Review
	Add TR	Functionality exists as documented	Functional Operations Documentation Review	Functional Operations Documentation Review
	Modify TR	Functionality exists as documented	Functional Operations Documentation Review	Functional Operations Documentation Review
	Close/Cancel TR	Functionality exists as documented	Functional Operations Documentation Review	Functional Operations Documentation Review
	Request TR Status	Functionality exists as documented	Functional Operations Documentation Review	Functional Operations Documentation Review

<u>Process Area</u>	<u>Sub-Process</u>	<u>Evaluation Measure</u>	<u>Evaluation Technique</u>	<u>Criteria</u>
	MLT Functionality	Functionality exists as documented	Transaction Documents Documentation Review	Functionality Performance Error

17.4.5 Test Scenarios

A subset of the Appendix D Table D5 scenarios will be used in this test. Scenarios selected for trouble reporting will include both post provisioning activity and trouble reports on existing HP service.

17.5.6 Test Approach

This test will use test cases specifically created for this test to evaluate MEDIACC EB-TA functionality and to determine if the system behaves as documented.

17.56.1 Inputs

1. Test cases
2. Documentation
3. Functionality checklists
4. Validated test bed

17.56.2 Activities

1. Use test cases created for this test and appropriate Qwest documentation to perform each of the functions listed on the checklist provided via the MEDIACC EB-TA interface.
2. Verify that each system function behaves as documented.
3. Note any anomalies in the space provided on the checklist.
4. Note any discrepancies between M&R Trouble Entry documentation and behavior of the MEDIACC EB-TA interface.
5. Ensure that all trouble reports entered via the MEDIACC EB-TA interface have been canceled.

17.56.3 Outputs

1. Completed checklists from activities
2. Summary reports of findings including a discussion of anomalies relating to usability and timeliness of each system function.
3. Observation and Exception reports

17.6-7 Exit Criteria**Table 17.67.1 Exit Criteria**

<i>Criteria</i>	<i>Responsible Party</i>
<i>All global exit criteria satisfied</i>	<i>See Section 7</i>
<i>All activities completed</i>	<i>KPMG Consulting</i>
<i>Checklists and reports completed by personnel participating in the test.</i>	<i>KPMG Consulting</i>

18. M&R End to End Trouble Report Processing**18.1 Description**

This test involves the execution of selected M&R test scenarios to evaluate Qwest's performance in making repairs under the conditions of various wholesale maintenance scenarios.

18.2 Objective

The objective of this test is to evaluate Qwest's performance in making repairs under the conditions of various wholesale maintenance scenarios. The quality of the repair process is to be assessed, and compared with retail operations where the data is available.

18.3 Entrance Criteria

Table 18.3.1 Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test exist	ROC, Qwest
The ROC has verified measurements to be used in the test	ROC, Liberty Consulting
All required Qwest interfaces are operationally ready	Qwest
HP is operationally ready	HP
The statistical plan is in place	TAG, KPMG Consulting
Pass/retest criteria have been identified	ROC, KPMG Consulting
Test scenarios selected	KPMG Consulting
Product descriptions and business rules for all transactions to be tested are available.	Qwest
Techniques & instrumentation available	Qwest, KPMG Consulting
Test bed circuits provisioned and validated	Qwest, KPMG Consulting
Faults inserted into test-bed circuits as required by the test scenarios	Qwest, KPMG Consulting

18.4 Test Scope

Selected M&R test scenarios will be executed to evaluate Qwest's performance in making repairs under the conditions of various wholesale maintenance scenarios. The following chart contains the processes, sub-processes, and methods for evaluating the End-to-End Trouble Report Processing test:

Table 18.4.1 Test Target: Execution of M&R Test Scenarios

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
End-to-End Trouble Report Processing – Resale	M&R Test Scenarios	Accuracy Timeliness	Inspection	Quantitative
End-to-End Trouble Report Processing – UNE/UNE Combinations	M&R Test Scenarios	Accuracy Timeliness	Inspection	Quantitative

18.5 Test Scenarios

This test involves the execution of selected M&R test scenarios.

18.6 Test Approach

18.6.1 Inputs

1. Test-bed circuits with embedded faults

18.6.2 Activities

1. Conduct circuit test if applicable for each test scenario.
2. Note test results.
3. Create and submit trouble ticket via IMA.
4. Periodically monitor each trouble report throughout its life using trouble report status transactions in IMA.
5. Note significant events in the trouble report life cycle (error occurrences, corrections, trouble ticket submission time, time cleared, etc.).
6. Calculate time to repair measurements for each test scenario fault repaired.
7. Document observations.

18.6.3 Outputs

1. Reports that provide performance measurements
2. A time to repair measurement for each fault repaired
3. Summary report of observations
4. Observation and Exception reports
5. Variance between actual performance and standards of performance

18.7 M&R Work Center Support Process Evaluation~~End to end M&R Process Evaluation~~

18.7.1 Description

The M&R work center support evaluation is an operational analysis of the work center/help desk processes developed by Qwest to provide support to CLECs with questions, problems and issues related to wholesale trouble reporting and repair operations.

18.7.2 Objectives

The objective of this test is to evaluate the effectiveness of M&R work center support operations and adherence to common support center/help desk procedures. An additional objective is to analyze the nature and frequency of problems referred to the work center to determine if they indicate potential problems in other M&R Domain.

Specifically, this evaluation is designed to:

- Determine completeness and consistency of work center/help desk processes and procedures

- Determine whether expedite and escalation procedures are correctly documented and work effectively
- Ensure existence of reasonable security measures to ensure integrity of work center/help desk data and the ability to restrict access to parties with specific access permissions
- Determine the timeliness and accuracy in identifying and resolving problems
- Determine the existence and functionality of procedures for measuring, tracking, projecting and maintaining work center/help desk performance
- Determine the existence of a capacity management process which addresses Qwest's ability to scale up for future growth
- Determine the existence of Maintenance and Repair coordination processes and procedures, and other operational elements associated with M&R coordination activities between Qwest and CLEC operations organizations.

18.7.3 Entrance Criteria

Table 18.7.3.1 Work Center Support M&R-Process Evaluation Entrance Criteria

Criteria	Responsible Party
Detailed test plan completed	KPMG Consulting
Techniques and instrumentation developed and approved	KPMG Consulting and Qwest
Process Evaluation Checklist	KPMG Consulting
Interview Guides	KPMG Consulting
Required data and documentation provided	Qwest

18.7.4 Test Scope

Table 18.7.4.1 Work Center Support M&R-Process Evaluation

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Call Processing	Call Answer	Timeliness	Inspections Logging Interviews	Qualitative
	Call Logging	Accuracy Completeness Consistency	Inspections Logging Interviews	Qualitative
	Prioritization	Existence Effectiveness	Inspections Logging Interviews	Qualitative
Problem Tracking and Resolution	Documentation	Clarity Accuracy	Document Review Interviews	Qualitative

Table 18.7.4.1 Work Center Support M&R Process Evaluation

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
	Identify and Resolve	Timeliness Accuracy Completeness Consistency	Inspections Logging Interviews	Qualitative
	Track Problem	Existence Accuracy	Inspections Logging Interviews	Qualitative
	Log Status and Close	Accuracy Completeness Consistency	Inspections Logging Interviews	Qualitative
	Notify Customer	Timeliness	Inspections Logging Interviews	Qualitative
Expedite/ Escalation Procedures	Documentation	Existence Clarity Accuracy	Document Review Interviews	Qualitative
	Call Answer	Accessibility Timeliness	Inspections Logging Interviews	Qualitative
	Escalation Logging	Accuracy	Inspections Logging Interviews	Qualitative
	Identify and Resolve	Timeliness	Inspections Logging Interviews	Qualitative
	Log Status and Close	Accuracy	Inspections Logging Interviews	Qualitative
	Notify Customer	Timeliness	Inspections Logging Interviews	Qualitative
Work Center Procedures		Accuracy Completeness	Inspections Logging Interviews	Qualitative
Joint Meet Procedures	Process Documentation	Accuracy Completeness	Interviews Document Review	Qualitative
	Notification Procedures	Timeliness Accuracy	Interviews	Qualitative
Coordinated Testing	Process Documentation	Accuracy Completeness	Interviews Document Review	Qualitative
	Notification Procedures	Timeliness Accuracy	Interviews	Qualitative

Table 18.7.4.1 Work Center Support M&R-Process Evaluation

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Manual Handling → Resale		Accuracy Timeliness Consistency	Observation Logging Interviews	Qualitative
Manual Handling → UNE/UNE-P		Accuracy Timeliness Consistency	Observation Logging Interviews	Qualitative
Capacity Management	Capacity management processes and procedures	Adequacy and completeness of and adherence to capacity management process	Inspection Document review Interview	Qualitative

18.7.5 Test Scenarios

Not applicable.

18.7.6 Test Approach**18.7.6.1 Inputs**

1. Interview guides
2. Observation checklists
3. Work center/help desk evaluation checklists
4. Work center contact logs
5. Process and procedure documentation
6. Qwest notification procedures for coordinated meets and coordinated testing

18.7.6.2 Test Activities

1. Conduct Maintenance and Repair center visits
2. Conduct work center/help desk evaluations
3. Establish work center contact logs
4. Analyze and collate contacts by type
5. Report negative observations via the Observation/Exception process as appropriate
~~Report negative observations to Help Desk~~

18.7.6.3 Outputs

1. Completed checklists from the work center/help desk evaluations
2. Summary report
3. Contact analysis results report
4. Observation and Exception reports

18.8 End-to-End Maintenance and Repair (M&R) Process Evaluation

18.8.1 Description

The End-to-End M&R Process Evaluation test evaluates the functional equivalence of Qwest's End-to-End M&R Process for retail and wholesale trouble reports. The test encompasses all activities from the moment a trouble ticket is captured in Qwest's systems until the same trouble ticket is closed and the customer is notified of the resolution.

18.8.2 Objectives

The objectives of this test are to evaluate Qwest's wholesale M&R trouble reporting process and the equivalence of Qwest's end-to-end processes for trouble reporting and repair of retail and wholesale services.

Additional objectives are to (1) evaluate the comparability of M&R retail and wholesale work center support operations and adherence to common work center procedures, and (2) analyze the nature and frequency of problems referred to the work centers to assess the level of parity between retail and wholesale trouble reporting activities.

18.8.3 Entrance Criteria

Table 18.8.3.1 M&R Process Evaluation Entrance Criteria

<u>Criteria</u>	<u>Responsible Party</u>
<u>Detailed test plan completed</u>	<u>KPMG Consulting</u>
<u>Techniques and instrumentation developed and approved</u>	<u>KPMG Consulting and Qwest</u>
<u>Process Evaluation Checklist</u>	<u>KPMG Consulting</u>
<u>Interview Guides</u>	<u>KPMG Consulting</u>
<u>Required data and documentation provided</u>	<u>Qwest</u>

18.8.4 Test Scope

Table 18.8.4.1 M&R Process Evaluation

<u>Process Area</u>	<u>Sub-Process</u>	<u>Evaluation Measure</u>	<u>Evaluation Technique</u>	<u>Criteria Type</u>
<u>End-to-End M&R Process: Resale and UNE/UNE-P</u>	<u>Process flow</u>	<u>Comparison with retail Completeness, consistency, and timeliness of the trouble reporting process</u>	<u>Interview Inspection Document review</u>	<u>Parity Qualitative</u>
<u>Document Management</u>	<u>Document management processes</u>	<u>Completeness of document management process</u>	<u>Interview Inspection Document review</u>	<u>Parity Qualitative</u>

Table 18.8.4.1 M&R Process Evaluation

<u>Process Area</u>	<u>Sub-Process</u>	<u>Evaluation Measure</u>	<u>Evaluation Technique</u>	<u>Criteria Type</u>
<u>Capacity Management</u>	<u>Capacity management processes and procedures</u>	<u>Adequacy and completeness of capacity management process</u>	<u>Inspection</u> <u>Document review</u> <u>Interview</u>	<u>Parity</u> <u>Qualitative</u>

18.8.5 Test ScenariosNot applicable.**18.8.6 Test Approach****18.8.6.1 Inputs**

1. Retail and wholesale M&R process flow documentation
2. Other procedural documentation
3. Evaluation checklists
4. Interview Guides
5. Retail analogs (as applicable)

18.8.6.2 Test Activities

1. Conduct M&R center visits
2. Review and compare wholesale and retail process flows
3. Identify differences between the two processes
4. Analyze process
5. Assess the potential impact of each difference (as applicable)
6. Document process flow analysis results

18.8.6.3 Outputs

1. Completed checklists and interview summaries
2. Summary report
3. Contact analysis results report
4. Observation and Exception reports (as applicable)

18.8.9 Exit Criteria**Table 18.89.1 Exit Criteria**

<u>Criteria</u>	<u>Responsible Party</u>
<u>All global exit criteria satisfied</u>	<u>See Section 7</u>
<u>Time to repair measurements for repaired faults</u>	<u>KPMG Consulting</u>
<u>Summary report of observations</u>	<u>KPMG Consulting</u>

19. Billing Usage Functional Evaluation

19.1 Description

The Functional Usage Evaluation is an analysis of Qwest's daily message processing to ensure usage record types including access records (when appropriate), rated records, un-rated records and credit records appear accurately on the Daily Usage Feed (DUF) according to the defined schedule.

19.2 Objective

The objective of this test is to evaluate the following:

- Accuracy and completeness of all usage record types on the DUF including access records that should appear, not receiving records that should not appear, and not receiving empty set files
- Timeliness of the DUF and access records delivery

19.3 Entrance Criteria

Table 19.3.1 Entrance Criteria

<i>Criteria</i>	<i>Responsible Party</i>
<i>No legally effective orders or injunctions preventing the test exist</i>	<i>ROC, Qwest</i>
<i>The ROC has verified measurements to be used in the test</i>	<i>ROC, Liberty Consulting</i>
<i>All required Qwest interfaces are operationally ready</i>	<i>Qwest</i>
<i>Pass/retest criteria have been identified</i>	<i>ROC, KPMG Consulting</i>
<i>Test bed provisioned and validated</i>	<i>Qwest, KPMG Consulting</i>
<i>Product descriptions and business rules for all transactions to be tested are available.</i>	<i>Qwest</i>
<i>Techniques and instrumentation developed</i>	<i>KPMG Consulting</i>
<i>Qwest resources are available to participate in the test</i>	<i>Qwest</i>
<i>Detailed Test Plan completed</i>	<i>KPMG Consulting</i>
<i>All call scripts that reflect the types, durations, terminating numbers, etc. of call that test callers are to make are provided</i>	<i>KPMG Consulting</i>

19.4 Test Scenarios

Test calling is dependent on the provisioning process, which is dependent on scenarios. Test calls and service changes will occur simultaneously.

A subset of the Appendix D scenarios will be used in this test.

19.5 Test Approach

This test will use operational analysis to evaluate the accuracy and completeness of records contained in the DUF. This analysis will also examine the age of calls on the DUF. The evaluations will be accomplished by dispatching testers to various locations within the states participating in the test. These testers will place test calls and will record information about these calls including the "call from" number, "call to" number, "bill to" number, call time and duration. The data contained in these Daily Usage Feeds will then be compared to the call logs and relevant billing media. The Test Team will also record information about the contents of DUFs received by KPMG Consulting.

Test calls will be made using some customer accounts that will migrate during the test period. Migration refers to the conversion of account ownership from one LEC to another. Test calls will be made from migrating accounts before and after the migration date to ensure accurate guiding of data in the Daily Usage Feed.

For example, a Qwest retail customer migrates to a CLEC during the test. Calls made by the customer prior to migration should be guided to Qwest. Calls made by the customer after migration should be guided to the new CLEC.

Test calls should be placed from within the Qwest calling region. Test calls will be made throughout the workday. Test calls will include a variety of call types with the exception of 911, and will be placed from various locations in order to test various switch technologies. Local and toll test calls terminating on the test lines will also be made. These calls will be subject to evaluation.

19.5.1 Inputs

1. Detailed Test Plan
2. Validated test bed, including lines, telephones and facilities

19.5.2 Activities

1. Test Team will develop Test Call Matrices, which include test call logs for each location, on each day, for each originating phone number.
2. Test Team will assemble tester resources, provide instructions and dispatch testers to calling locations.
3. Testers will complete calls and log results.
4. HP will receive DUF files from Qwest and provide to Test Team.
5. Test Team will verify that appropriate data is on the DUF.
6. Test Team will verify that calls that do not belong on the DUF are not on the DUF.
7. Test Team will verify that appropriate calls present in the DUF match the testers call log.
8. Test Team will identify DUF files that contain no billable records.
9. Using records received in the DUF files, Test Team will validate the age of calls by determining the number of business days between the call date and the day the DUF file was created.

10. Test Team will compile results.

19.3.1 Outputs

1. Call Logs Report – A report of the testers logs.
2. DUF Accuracy and Completeness Report – A report showing the validation of calls made during the test.
3. Empty DUF Files Report – A Report showing the number of empty DUF files sent by Qwest
4. Observation and Exception reports
5. Final report

19.6 Daily Usage Feed Returns, Production and Distribution Processes Evaluation

19.6.1 Description

The Daily Usage Feed Returns, Production and Distribution Process Evaluation is an operational analysis of the processes and related documentation used by Qwest to create, transmit and investigate, where necessary, to correct Daily Usage Feed (DUF) return requests from CLECs by issuing adjustments and/or credits. This test also includes an evaluation of Qwest's capacity management process.

The test may also include soliciting CLEC participation to gather data to help with the evaluation of the usage return process. The tester will observe the interactions of Qwest and CLECs submitting returns to verify that the procedures described by Qwest during the process evaluation are followed in practice. Inclusion of this segment of the test will be dependent on the availability of relevant CLEC data and examples.

19.6.2 Objective

The objective of this test is to determine the accuracy, completeness and timeliness of processes used to produce and distribute the DUF and to process and respond to Daily Usage Feed Return requests.

19.6.3 Entrance Criteria

Table 19.6.3.1 DUF Returns, Production and Distribution Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test exist	ROC, Qwest
All required Qwest interfaces are operationally ready	Qwest
HP is operationally ready	HP
Entrance criteria have been identified	ROC, KPMG Consulting
Documentation on DUF Returns, Production and Distribution processes available	Qwest
Interview and walk-through arrangements finalized	Qwest

19.6.4 Test Scope

The scope of this test includes the processes, sub-processes and measurements listed in the Table 19.6.4.1 below.

Table 19.6.4.1 Daily Usage Production and Distribution Process Evaluation

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Produce Daily Usage File	Production of DUF files	Completeness and timeliness	Inspection	Qualitative
	Balancing and reconciliation of Daily Usage feed	Completeness of balancing and reconciliation procedures	Inspection	Qualitative
	Route Daily Usage	Controllability of usage	Inspection	Qualitative
Transmit Daily Usage File	Data transmission and/or cartridge tape delivery to CLEC	Completeness, consistency and timeliness of the process	Inspection	Qualitative Quantitative
Maintain and Re-transmit Usage History	Create Daily Usage backup	Reliability of repeatable process	Inspection	Qualitative
	Retrieve and re-transmit Daily Usage backup data	Availability and timeliness of prior period usage data to CLEC	Inspection	Qualitative Quantitative
Capacity Management	Capacity management process	Adequacy, completeness of, and adherence of the capacity management process	Inspection Document review Interview	Qualitative

19.6.5 Test Scenarios

Not applicable.

19.6.6 Test Approach**19.6.6.1 Inputs**

1. Detailed operational test plan
2. Qwest personnel to review procedures, systems and tools
3. Process documentation
4. Availability of HP DUF re-transmissions

19.6.6.2 Activities

1. Develop Daily Usage Production and Distribution Process Evaluation checklist
2. Prepare CLEC assistance solicitation materials
3. Select CLEC participants and arrange for observations
4. Observe DUF Returns process from CLEC perspective
5. Conduct process walk-throughs and interviews
6. Compile findings

19.6.6.3 Outputs

1. Completed test package for the Daily Usage Feed Returns, Production and Distribution Processes
2. Observation and Exception reports
3. Completed final report from the Daily Usage Feed Returns, Production and Distribution Processes Evaluation

19.7 Exit Criteria**Table 19.7.1 Exit Criteria**

Criteria	Responsible Party
Global exit criteria satisfied	See Section 7

20. Carrier Bill Functional Evaluation**20.1 Description**

The Carrier Bill Functional Evaluation is an analysis of Qwest's ability to accurately bill usage plus monthly recurring charges (MRC), fractional MRCs, and non-recurring charges (NRC) on the appropriate type of bill. An accurately billed item will contain the correct price and correct supporting information, such as start/end dates, duration, standard amounts, and discount amounts. This test will also evaluate the timeliness of bill delivery to the CLECs.

Monthly charges will be examined for both Resale and UNE billing on Integrated Access Billing System (IABS), Billing and Receivable Tracking System (BARTS), and Customer Record

Information System (CRIS) bills. The verification of prices will consider prices charged based on Qwest's Qwest-CLEC Interconnection Agreements and Statements of Generally Available Terms and Conditions (SGATs), as appropriate. End user bills will be produced by Qwest's system and validated by KPMG Consulting in this test. Validation of a sample of the end user bills will help verify that double billing of the end user (by Qwest and CLEC) does not occur. Table 20.1 reflects a number of key characteristics of Resale and UNE billing information that will be used in the design of test cases. Information includes the various charge components and their destination bill.

Table 20.1.1 Key Characteristics of Billing Information for Resale and UNE Customers

	<i>Billing Component</i>	<i>Rating</i>	<i>Usage</i>	<i>Billing</i>
<i>Resale</i>	<i>Usage</i>	<i>CRIS</i>	<i>DUF</i>	<i>CRIS</i>
<i>Resale</i>	<i>MRC/NRC</i>	<i>CRIS</i>	<i>N/A</i>	<i>CRIS</i>
<i>UNE loop</i>	<i>MRC/NRC</i>	<i>CRIS</i>	<i>N/A</i>	<i>CRIS</i>
<i>UNE-P</i>	<i>MRC/NRC; usage</i>	<i>CRIS</i>	<i>DUF</i>	<i>CRIS</i>
<i>UNE-LOFT</i>	<i>MRC/NRC</i>	<i>IABS</i>	<i>N/A</i>	<i>IABS</i>
<i>Directory Listings</i>	<i>MRC/NRC</i>	<i>CRIS</i>	<i>N/A</i>	<i>CRIS</i>
<i>Line Sharing</i>	<i>NRC</i>	<i>CRIS</i>	<i>N/A</i>	<i>IABS</i>
<i>Line Sharing</i>	<i>MRC</i>	<i>CRIS</i>	<i>N/A</i>	<i>CRIS</i>
<i>Line Sharing</i>	<i>NRC</i>	<i>CRIS</i>	<i>N/A</i>	<i>IABS</i>
<i>Line Sharing</i>	<i>MRC</i>	<i>CRIS</i>	<i>N/A</i>	<i>CRIS</i>
<i>Dark Fiber</i>	<i>NRC/MRC</i>	<i>BARTS</i>	<i>N/A</i>	<i>BARTS</i>

20.2 Objectives

This test evaluates the timely delivery of the bill and the accurate and timely appearance of charges on the appropriate bill. Appearance of charges will depend on the type of products ordered and/or class of service changes for resale and UNE. Details to be evaluated include:

- * Fractional charges are accurate.
- * Recurring and non-recurring charges are accurate.
- * Discounts are applied correctly.
- * Totals are accurate.
- * Late charges are applied correctly.
- * Service establishment dates are accurate.
- * Adjustments appear on the bill.
- * Bills are delivered to HP in a timely manner.

- All usage charges are billed accurately.

20.1 Entrance Criteria

Table 20.3.1 Entrance Criteria

Criteria	Responsible Party
No legally enforceable orders or injunctions preventing the test exist	ROC, Qwest
The ROC has verified measurements to be used in the test	ROC, Liberty Consulting
All required Qwest interfaces are operationally ready	Qwest
OLP is operationally ready	HP
Pass/fail criteria have been identified	ROC, KPMG Consulting
All CRIS and IABS baseline bills produced from the initial test bed	Qwest
Test scripts and instrumentation developed	KPMG Consulting
Product descriptions and business rules for all transactions to be tested are available	Qwest
Proving sections of Qwest tariffs, Qwest-CLEC Interconnection Agreement and SGATs are provided	Qwest
Test bed provisioned and validated	Qwest, KPMG Consulting
Costs made during Functional Usage Evaluation processed through to the OLP and available for billing	Qwest
Availability of Qwest resources to test and produce CRIS and IABS bills	Qwest

20.4 Test Scope

Table 20.4.1 Test Scope for Carrier Bill Evaluation

Process Area	Sub-Process	Evaluation Measure	Evaluation Techniques	Criteria Type
Master Bill Review	Carry balance forward	Accuracy of bill balance	Inspection	Quantitative
Verify Billing Accounts	Verify Billing Accounts	Completeness and accuracy of data	Inspection	Quantitative
Verify recurring charges	Verify recurring charges	Completeness and accuracy of data	Inspection	Quantitative
Verify non-recurring charges	Verify non-recurring charges	Completeness and accuracy of data	Inspection	Quantitative
Verify fractional charges	Verify fractional charges	Completeness and accuracy of data	Inspection	Quantitative
Verify Usage Charges	Verify Usage Charges	Completeness and accuracy of data	Inspection	Quantitative
Verify discounts	Verify discounts	Completeness and accuracy of data	Inspection	Quantitative
Verify adjustments (debits and credits)	Verify adjustments (debits and credits)	Completeness and accuracy of data	Inspection	Quantitative
Verify late charges	Verify late charges	Completeness and accuracy of data	Inspection	Quantitative
Receive bill copy	Receive bill copy	Timeliness of media delivery	Logging	Quantitative

As part of this test, a variety of products and services will be ordered. This may result in many variations in billing presentation from the two primary Qwest billing systems (CRIS, BARTS, and IABS). Relevant bill types will be selected for review based upon the product mix and anticipated charges as defined in the expected test results.

20.5 Scenarios

A subset of the Appendix D scenarios will be utilized for billing and usage testing purposes. The set selected will include:

- Test cases for 'migration/conversion' of customers
- Test cases for disconnects, new service (add/delete), and partial disconnects
- Test cases for changes to services (modify)
- Test cases for changes to service delivery method
- All migration situations should be adequately represented, including:
 - Qwest to CLEC
 - CLEC to Qwest
 - CLEC to CLEC

The scenarios utilized for billing and usage testing will be applied across all service delivery methods available in Qwest at the time of the test(s).

20.4 Test Approach

This test will use systems and operational analysis to evaluate the completeness and accuracy of charges that should appear on the bill based on usage information from the Functional Usage Evaluation and selected scenarios. Expected results will be defined for each test case.

Three bill periods will be processed for the same set of customers.

The first bill period consists of the baseline bills where customers created for this test are billed for the first time directly from the initial test bed. These bills are produced prior to the execution of any transaction scenarios that affect selected customers.

The second and third bill periods consist of bills produced after selected scenarios have been executed. The second set of bills will include items such as prorates, disconnects, migrations, adjustments, etc. Some customers will be created during the test execution, and will only receive second or third period bills.

The following list shows inputs, activities and outputs of the process needed to validate the full range of test cases.

20.4.1 Inputs

1. Detailed Test Plan
2. Verified Baseline Bills and CSRs
3. Selected usage from the Billing Functional Usage Evaluation
4. CSRs and completions from relevant orders

20.4.2 Activities

1. Begin first bill period by receiving baseline bills
2. Record invoice bill date and actual date received
3. Develop expected results for each test case
4. Validate test results for each applicable test case
5. Identify and resolve discrepancies on baseline bills
6. Process service order changes
7. Receive CSRs for second bill cycle
8. Receive bills for second bill period
9. Record invoice bill date and actual date received
10. Develop expected results for test cases
11. Validate test results for each applicable test case
12. Identify discrepancies

12. Complete second bill period
14. Repeat 7-12 until third bill period is complete
15. Complete results

16.4.1 Output

1. An analysis of discrepancies to be included in the Final Report
2. Apply applicable performance measures to test data
3. Observation and Exception reports
4. Final report

16.2 Bill Production and Distribution Process Evaluation

16.2.1 Description

The Bill Production Process Evaluation is an operational analysis of the processes employed by Qwest to produce and distribute carrier bills.

This test will use operational analysis techniques. It will rely on the development of various evaluation checklists to facilitate a structured walk-through of the bill production and delivery processes.

16.2.2 Objectives

The objective of this test is to determine whether the processes employed by Qwest to produce and distribute carrier bills result in bills that are accurate and are distributed to CLECs on a timely basis. The processes that enable a CLEC to request and obtain copies of previously received bills are also reviewed.

16.2.3 Entrance Criteria

Table 16.2.3.1 Bill Production and Distribution Process Evaluation Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test	ROC, Qwest
Business criteria have been identified	ROC, KPMG Consulting
Wholesale billing process flow documentation available	Qwest
Process Evaluation Checklist developed	KPMG Consulting
Interview Guide/questionnaire developed	KPMG Consulting
Interviewees identified and scheduled	Qwest, KPMG Consulting

10.7.4 Test Scope

Table 10.7.4.1 Bill Production and Distribution – Process Evaluation

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
General Cycle	Order balancing and reconciliation procedures	Completeness and effectiveness of bill balancing and reconciliation procedures	Inspection	Qualitative
	Process Control Reports	Completeness and accuracy in generation of control elements	Inspection	Qualitative
	Setback cycle	Compliance to balancing and reconciliation procedures	Inspection	Qualitative
General Bill	Delivery of bill media	Timeliness and controls of media delivery	Inspection	Qualitative
General Bill Media	Customer billing information	Timeliness and controllability of billing information	Inspection	Qualitative
	Access billing information	Accessibility and availability of billing information	Inspection	Qualitative
General Report and		Timeliness and accuracy of the delivery	Inspection	Qualitative Quantitative

10.7.5 Test Scenarios

Not applicable.

10.7.6 Test Approach

10.7.6.1 Inputs

1. Detailed operational test plan
2. Qwest personnel to review procedures, systems and tools
3. Process documentation

10.7.6.2 Activities

1. Develop Bill Production and Distribution Process Evaluation checklist
2. Conduct process walk-throughs and interviews
3. Compile findings

10.7.6.3 Outputs

1. Completed test package for the Bill Production and Distribution Process Evaluation
2. Observation and Exception reports
3. Completed final report from the Bill Production and Distribution Process Evaluation

20.8 Exit Criteria**Table 20.8.1 Exit Criteria**

Criteria	Responsible Party
<i>Global exit criteria satisfied</i>	<i>See Section 7</i>

21. Scalability Test

Per agreement reached during the July 18-20 MTP Design Workshop in Salt Lake City, this section has been removed. This test's objective will be covered within the other functional test areas.

22. CLEC Network Provisioning Test**22.1 NDR****22.1.1 Description**

Part of the evaluation of the interaction between Qwest and a CLEC will include a review of the processes for fulfilling network design requests (NDRs). This test evaluates Qwest's methods and procedures and practices for network design requests related to establishing and maintaining a CLEC's ability to access unbundled network elements, including customized routing to Directory Assistance and Operator Services.

This test will not require test scenarios, data generation, or volume testing. This test will rely on, among other things, checklists, interviews, and inspections with both CLEC and Qwest parties. A key element of this test will be observing and evaluating ongoing, in production NDR processes.

22.1.2 Objectives

The objectives of this qualitative test are to:

- * Determine whether CLECs have sufficient information, documentation, and technical support from Qwest to adequately prepare for and implement network designs, including those required for customized routing for Directory Assistance and Operator Services
- * Determine whether network design processes are well-structured and managed to produce the intended results and to evaluate Qwest's compliance with those processes
- * Evaluate the usability and completeness of NDR forecast forms and procedures
- * Assess the quality of the NDR business process

22.1.3 Entrance Criteria

Table 22.1.3.1 Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test	ROC, Qwest
Test criteria have been identified	ROC, KPMG Consulting
Process evaluation checklist developed	KPMG Consulting
Interview guides developed	KPMG Consulting

22.1.4 Test Scope

The evaluation will examine the following issues with respect to network design request-related processes:

Process Area	Sub Process	Evaluation Measure	Evaluation Technique	Criteria Type
Network Design Request	Network Design Planning Process	Adequacy and completeness of the process. Adherence to the planning process	Inspection Document review Report review Interview	Qualitative
	Network Design Request Testing Process	Adequacy and completeness of the process. Adherence to the testing process	Inspection Document review Report review Interview	Qualitative
	Procedures for handling CLEC Network Design Confidential Information	Adequacy and completeness of the process. Adherence to the established process	Document review Report Review Interview	Qualitative
	NDR Provisioning & notification Process	Adequacy and completeness of the process. Adherence to the communications and notification process	Document review Inspection Interview	Qualitative

- The adequacy and completeness of and adherence to the network design planning process
- The adequacy and completeness of and adherence to the network design request testing process
- The adequacy and completeness of and adherence to the procedures for ensuring confidentiality of CLEC provided network design information
- Adequacy and completeness of and adherence to methods employed by Qwest to communicate with the CLEC regarding the NDR provisioning process

22.1.3 Test Scenarios

This test does not rely upon scenarios.

22.1.4 Test Approach

22.1.4.1 Inputs

1. Procedural and technical documentation
2. Qwest instructions to CLECs for planning and implementing network designs, including those required for customized routing for Directory Assistance and Operator Services
3. Evaluation checklists
4. Interview guides
5. CLEC data

22.1.4.2 Activities

1. Gather information
2. Perform interviews and documentation reviews
3. Complete evaluation checklists and interview summaries
4. Develop and document findings

22.1.4.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Observation and Exception reports
3. Final report

22.1.7 Exit Criteria

Table 22.1.7.1 Exit Criteria

Criteria	Responsible Party
Global exit criteria satisfied	See Section 7

22.2 Collocation

22.2.1 Description

Part of the evaluation of the interaction between Qwest and a CLEC will include a review of the processes for fulfilling collocation requests. This test evaluates Qwest's methods and procedures and practices for collocation-related requests for establishing and maintaining a CLEC's ability to access unbundled network elements.

This test will not require test scenarios, data generation, or volume testing. This test will rely on, among other things, checklists, interviews, and inspections with both CLEC and Qwest parties.

A key element of this test will be to observe and to evaluate ongoing, in production, collocation processes.

12.2.2 Objectives

The objectives of this qualitative test are to:

- Determine whether CLECs have sufficient information and technical support from Qwest to adequately prepare for and implement collocation facilities
- Determine whether collocation processes are well-structured and managed to produce the intended results and to evaluate Qwest's compliance with those processes
- Evaluate the usability and completeness of collocation forecast forms and procedures
- Assess the quality of the collocation business process

12.2.3 Entrance Criteria

Table 12.2.3.1 Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test	ROC, Qwest
Potential errors have been identified	ROC, KPMG Consulting
Program evaluation checklist developed	KPMG Consulting
Interview guide developed	KPMG Consulting

12.2.4 Test Scope

The evaluation will examine the following issues with respect to collocation-related processes:

Process Area	Process	Issues to be Examined	Test Methods	Test Type
Collocation	Collocation Planning Process	Adequacy and completeness of the process Adherence to the planning process	Inspection Document review Report review Interview	Qualitative
	Collocation Project Management Processes	Adequacy and completeness of the process Adherence to the project optimization, schedule, cost and authorization procedure and process	Document review Report Review Interview	Qualitative
	Readiness for handling CLEC Collocation Requests	Adequacy and completeness of the process Adherence to the established process	Document review Report Review Interview	Qualitative

Process Area	Sub Process	Evaluation Measure	Evaluation Technique	Criteria Type
	Collocation Planning and Coordination Process	Adequacy and completeness of the process. Adherence to the established procedures and process.	Document review Report Review Interview	Qualitative
	Collocation Project Management Process	Adequacy and completeness of the process. Adherence to the established test structures and action steps.	Document review Report Review Interview	Qualitative
	Collocation Communication & Notification Process	Adequacy and completeness of the process. Adherence to the communications and notification process.	Document review Inspection Interview	Qualitative

- The adequacy and completeness of and adherence to the collocation planning process
- The adequacy and completeness of and adherence to the collocation project management procedures including the processes that deal with the provision of time and cost estimates relative to construction or space conditioning and the timely provision of requests for CLEC authorization of work under those estimates
- The adequacy and completeness of and adherence to the procedures for ensuring confidentiality of CLEC provided collocation information
- The availability and adequacy of resources and qualified technical support to facilitate collocation activities
- The adequacy and completeness of and adherence to the collocation testing process
- Adequacy and completeness of and adherence to methods employed by Qwest to communicate with the CLEC regarding the collocation provisioning process

12.2.3 Test Scenarios

This test does not rely upon scenarios.

12.2.4 Test Approach

12.2.4.1 Inputs

1. Procedural and technical documentation
2. Qwest instructions to CLECs for planning and implementing collocations
3. Evaluation checklists

4. Interview guides

5. CLEC data

22.2.1 Activities

1. Gather information

2. Perform interviews and documentation reviews

3. Complete evaluation checklists and interview summaries

4. Develop and document findings

5. Review production collocation performance data

22.2.1 Outputs

1. Completed evaluation checklists and interview summaries

2. Observation and Exception reports

3. Final report

22.2.7 Exit Criteria

Table 22.2.7.1 Exit Criteria

Criteria	Responsible Party
Exit criteria satisfied	See Section 7

22.1 Interconnection Trunks

22.1.1 Description

Part of the evaluation of the interaction between Qwest and a CLEC will include a review of the processes for providing interconnection trunks. This test evaluates Qwest's methods and procedures and practices for the provision of interconnection trunks related to establishing and maintaining a CLEC's ability to access unbundled network elements.

This test will not require test scenarios, data generation, or volume testing. This test will rely on, among other things, checklists, interviews, and inspections with both CLEC and Qwest parties. (This test is not intended to examine interconnection for other purposes, such as inter-exchange carrier's network to network interconnection.)

22.1.2 Objectives

The objectives of this qualitative test are to:

- Determine whether CLECs have sufficient information and technical support from Qwest to adequately prepare for and implement interconnection trunks.
- Determine whether interconnection processes are well-structured and managed to produce the intended results and to evaluate Qwest's compliance with those processes

- Determine the existence and functionality of procedures for developing, publicizing, conducting, and monitoring trunk forecasting efforts with CLECs
- Verify the integration of trunk forecasting procedures with Qwest's facilities planning procedures
- Ensure the trunk forecasting effort has effective management oversight
- Assess the quality of the interconnection trunk forecasting process

22.3.3 Entrance Criteria

Table 22.3.3.1 Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test	ROC, Qwest
The test has verified assumptions to be used in the test	ROC, Liberty Consulting
All required Qwest interfaces are operationally ready	Qwest
Entrance criteria have been identified	ROC, KPMG Consulting
Process evaluation checklist developed	KPMG Consulting
Test plan policy developed	KPMG Consulting

22.3.4 Test Scope

The evaluation will examine the following issues—with respect to interconnection trunk-related processes:

Process Area	Subprocess	Evaluation Measure	Evaluation Techniques	Criteria
Interconnection Issues	Trunk Forecasting Procedures	Adequacy and completeness of the process. Adherence to the trunk forecasting process	Document review Report Review Interview	Existence
	Procedures for handling CLEC Trunk Forecast Confidential Information	Adequacy and completeness of the process. Adherence to the established process	Document review Report Review Interview	Qualitative
	Integration of Trunk forecasts in facilities planning process	Existence of standard planning process Adherence to the established planning procedures and process	Document review Interview Inspection	Qualitative

Process Area	Sub Process	Evaluation Measure	Evaluation Techniques	Criteria
	Interconnection Trunk Provisioning & Notification Process	Adequacy and completeness of the process. Adherence to the communications and notification process	Document review Interview Inspection	Timeliness
	Process for managing & addressing trunk order due date issues	Adequacy and completeness of the process. Existence of escalation process Adherence to the communications and notification process	Document review Interview Inspection	Timeliness

- The adequacy and completeness of and adherence to the trunk provisioning procedures
- The adequacy and completeness of and adherence to the procedures for ensuring confidentiality of CLEC provided forecast information
- The availability and integration of published interconnection trunk forecasts in Qwest's facilities planning process
- Adequacy and completeness of and adherence to methods employed by Qwest to communicate with the CLEC regarding the interconnection trunk provisioning process
- Timeliness of methods employed by Qwest to process CLEC trunk orders to determine the extent to which the data are processed, if at all

22.3.5 Test Scenarios

This test does not rely upon scenarios.

22.3.6 Test Approach

22.3.6.1 Inputs

1. Procedural and technical documentation
2. Qwest instructions to CLECs for forecasting, planning and implementing interconnection trunks
3. Evaluation checklists
4. Interview guides
5. CLEC data

22.3.6.2 Activities

1. Gather information

2. Perform interviews and documentation reviews
3. Complete evaluation checklists and interview summaries
4. Develop and document findings

22.3.6.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Observation and Exception reports
3. Final report

22.3.7 Exit Criteria

Table 22.3.7.1 Exit Criteria

Criteria	Responsible Party
Global exit criteria satisfied	See Section 7

23. Change Management Test

23.1 Description

This test evaluates Qwest's methods and procedures for managing changes to and change requests for OSS interfaces and business processes utilized by CLECs. This test will review Qwest's co-provided industry change management process (CICMP). The test will rely on inspection and review of Qwest documentation and on CLEC interviews.

23.2 Objective

The objective of this test is to determine the adequacy and completeness of procedures for developing, publicizing, conducting, and monitoring change management.

23.3 Entrance Criteria

Table 23.3.1 Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test exist	ROC, Qwest
Pass/retest criteria have been identified	ROC, KPMG Consulting
Process evaluation checklist developed	KPMG Consulting
Interview guides developed	KPMG Consulting

23.4 Test Scope

Table 23.4.1 Change Management Evaluation Scope

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Change Management	Change Request Implementation	Completeness and consistency of change request process	Inspection Document review Report review Interview	Qualitative
	Prioritization and Escalation Process	Completeness and consistency of prioritization and escalation guidelines and process	Inspection Document review Report review Interview	Qualitative
	Developing Change Proposals	Completeness and consistency of change development process	Inspection Document review Report review Interview	Qualitative
	Evaluating Change Proposals	Completeness and consistency of change evaluation process	Inspection Document review Report review Interview	Qualitative
	Severity levels	Completeness and reasonableness of levels and process	Inspection Document review Report review	Qualitative
	Notification Schedules	Reasonableness of notification schedules and completeness of process	Inspection Document review Report review Interview	Qualitative
	Implementing Change	Completeness and consistency of change implementation process	Inspection Document review Report review Interview	Qualitative
	Intervals	Reasonableness of change interval	Inspection Document review Report review Interview	Qualitative

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
	Documentation	Timeliness of documentation and notification updates	Inspection Document review Report review Interview	Qualitative
	Tracking Change Proposals	Adequacy and completeness of change management tracking process	Inspection Document review Report review Interview	Qualitative

23.5 Scenarios

This test does not rely on scenarios.

23.6 Test Approach

23.6.1 Inputs

1. Qwest change management process documentation
2. Other procedural and technical documentation
3. Qwest instructions to CLECs for interacting with change management functions and interpreting change management activities
4. One significant software release that has been recently implemented
5. Evaluation checklists
6. Interview guides
7. CLEC data
8. Change management process artifacts, such as notifications and updated specifications

23.6.2 Activities

1. Gather documentation and other relevant data
2. Perform interviews and documentation reviews
3. Complete evaluation checklists and interview summaries
4. Develop and document findings

23.6.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Observation and Exception reports
3. Final report

23.7 Exit Criteria

Table 23.7.1 Exit Criteria

Criteria	Responsible Party
Global exit criteria satisfied	See Section 7

24. Qwest CLEC Support Processes and Procedures Review

24.1 Description

These tests are designed to evaluate the systems, processes and documentation provided by Qwest for the establishment and maintenance of business relationships with the CLECs. Areas to be evaluated include a determination of whether Qwest is adequately assisting CLECs to understand how to implement and use all of the OSS functions available to them.

24.2 Objectives

The processes and procedures review includes evaluation of the following areas of support provided by Qwest to CLECs in the establishment and on-going maintenance of their wholesale services business relationship:

- Account Establishment & Management
- CLEC Forecasting
- CLEC Training
- Interface Development
- OSS Interface (IMA) Help Desk Support
- Interconnect Service Center Support
- Account Maintenance Support Center (M&R)
- Network Surveillance and Outage Notification

24.3 Account Establishment & Management Review

24.3.1 Description

This test evaluates Qwest's methods and procedures, processes and practices for establishing and managing CLEC account relationships.

24.3.2 Objectives

The objectives of this test are to determine the adequacy, completeness, and compliance with procedures for developing, publicizing, conducting, and monitoring account management.

24.3.3 Entrance Criteria

Table 24.3.3.1 Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test exist	ROC, Qwest
Pass/retest criteria have been identified	ROC, KPMG Consulting
Process evaluation checklist developed	KPMG Consulting
Interview guides developed	KPMG Consulting
Provision of relevant historical data	Qwest
Access to CLEC account management calls	CLEC

24.3.4 Test Scope

Table 24.3.4.1 Account Establishment & Management Review

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Establishing an Account Relationship	Staffing	Appropriate roles and responsibilities	Inspection Document review	Qualitative
		Capacity, coverage, and account allocation	Inspection Document review	Qualitative
Maintaining an Account Relationship	Customer contact	Adequacy and completeness of procedures for responding to customer requests	Interviews Logging Report Review	Qualitative
	Escalation	Adequacy and completeness of escalation procedures	Inspection Document review Interviews	Qualitative
	Routine and urgent customer communications	Adequacy and completeness of communication and notification procedures	Inspection Document review Interviews	Qualitative
	Customer documentation	Adequacy and completeness of procedures for developing, distributing, and maintaining customer documentation	Inspection Document review Interviews	Qualitative

24.3.5 Scenarios

This test does not rely on scenarios.

24.3.6 Test Approach

24.3.6.1 Inputs

1. Qwest account management procedural documentation

2. Qwest instructions to CLECs for interacting with account managers
3. Other procedural, technical, and customer documentation
4. Evaluation checklists
5. Interview guides
6. CLEC data

24.3.6.2 Activities

1. Gather documentation and other relevant data
2. Perform interviews and documentation reviews
3. Complete evaluation checklists and interview summaries
4. Develop and document findings

24.3.6.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Observation and Exception reports
3. Final report

24.3.7 Exit Criteria

Table 24.3.7.1 Exit Criteria

Criteria	Responsible Party
Global exit criteria satisfied	See Section 7

24.4 CLEC Forecasting Review

24.4.1 Description

This test evaluates Qwest's methods and procedures, processes and practices for requesting and managing CLEC facility and service forecasts for wholesale services.

24.4.2 Objective

The objective of this test is to determine the adequacy, completeness, and compliance with procedures for requesting, receiving, refining and utilizing forecasts from CLECs. The major portion of this test will include an assessment of Qwest's capacity management process for scaling the growth of its systems and staff based on projected demand.

24.4.3 Entrance Criteria

Table 24.4.3.1 Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing	Qwest

Criteria	Responsible Party
the test exist	
Pass/retest criteria have been identified	RDC, KPMG Consulting
Forecast process evaluation checklist developed	KPMG Consulting
Interview guides developed	KPMG Consulting
Provision of relevant historical data	Qwest
Access to CLEC account management calls	CLEC

24.4.4 Test Scope

Table 24.4.4.1 Forecasting Review

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Forecast Procedures	Request process	Existence	Inspection	Existence
		Completeness		Qualitative
	Receipt and Refinement	Existence	Inspection	Existence
		Completeness		Qualitative
Forecast Utilization	Process Documentation	Existence	Inspection	Existence
		Completeness		Qualitative
	Compliance	Timeliness	Inspection	Qualitative
		Accuracy		

24.4.5 Scenarios

This test does not rely on scenarios.

24.4.6 Test Approach

24.4.6.1 Inputs

1. Qwest forecasting procedural documentation
2. Qwest instructions to CLECs for providing forecasts
3. Other procedural, technical, and customer documentation
4. Evaluation checklists
5. Interview guides
6. CLEC forecast data

24.4.6.2 Activities

1. Gather information
2. Perform interviews and documentation review
3. Complete evaluation checklists and interview summaries
4. Develop and document findings

24.4.6.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Observation and Exception reports
3. Final report

24.4.7 Exit Criteria**Table 24.4.7.1 Exit Criteria**

<i>Criteria</i>	<i>Responsible Party</i>
<i>Global exit criteria satisfied</i>	<i>See Section 7</i>

24.5 CLEC Training**24.5.1 Description**

This test evaluates Qwest's training documentation and practices for CLEC representatives engaged in the establishment and maintenance of the Qwest -CLEC business relationship.

24.5.2 Objective

The objective of this test is to determine the existence and adequacy of procedures for developing, announcing, conducting, and monitoring Qwest training for CLECs.

24.5.3 Entrance Criteria**Table 24.5.3.1 Entrance Criteria**

<i>Criteria</i>	<i>Responsible Party</i>
<i>No legally effective orders or injunctions preventing the test exist</i>	<i>ROC, Qwest</i>
<i>Pass/retest criteria have been identified</i>	<i>ROC, KPMG Consulting</i>
<i>Process evaluation checklist developed</i>	<i>KPMG Consulting</i>
<i>Interview guides developed</i>	<i>KPMG Consulting</i>

24.5.4 Test Scope

Table 24.5.4.1 CLEC Training Review

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Training Program Development	Develop curriculum	Completeness of training curriculum and forums	Document review Inspection	Qualitative
		Adequacy of procedures to respond to information about training quality and utilization	Document review Inspection	Qualitative
		Adequacy of procedures to accept CLEC input regarding training curriculum	Document review Inspection	Qualitative
	Publicize training opportunities	Availability of information about training opportunities	Document review Inspection	Qualitative
Training Program Quality Assurance	Attendance/ utilization tracking	Adequacy of process to track utilization and attendance of various training tools and forums	Document review Inspection	Qualitative
	Session effectiveness tracking	Adequacy of process to survey training recipients on effectiveness of training	Document review Inspection	Qualitative
	Instructor oversight	Adequacy of procedures to monitor instructor performance	Document review Inspection	Qualitative
Process Management	Performance measurement process	Controllability, efficiency and reliability of process	Inspection Document review	Qualitative
	Process improvement	Completeness of process improvement practices	Inspection Document review	Qualitative

24.5.5 Scenarios

This test does not rely on scenarios.

24.5.6 Test Approach

24.5.6.1 Inputs

1. Qwest training procedural documentation
2. Qwest instructions to CLECs for participating in training
3. Training material – manuals and handouts
4. Evaluation checklists
5. Interview guides

24.5.6.2 Activities

1. Gather information

2. Perform interviews and documentation review
3. Complete evaluation checklists and interview summaries
4. Develop and document findings

24.5.6.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Observation and Exception reports
3. Final report

24.5.7 Exit Criteria

Table 24.5.7.1 Exit Criteria

<i>Criteria</i>	<i>Responsible Party</i>
<i>Global exit criteria satisfied</i>	<i>See Section 7</i>

24.6 OSS Interface Development Review

24.6.1 Description

This test evaluates Qwest's documentation, specifications and support provided to CLECs in developing, providing, and maintaining OSS interfaces for pre-ordering, ordering, 911 database updates, billing and maintenance & repair. This test also includes an assessment of Qwest's capacity management and growth planning processes.

24.6.2 Objective

The objective of this test is to determine the adequacy, consistency and completeness of Qwest's specifications, documentation and technical assistance provided to the CLECs for developing, testing and operating OSS interfaces for pre-ordering, ordering, 911 database updates, billing and maintenance and repair.

24.6.3 Entrance Criteria

Table 24.6.3.1 Entrance Criteria

<i>Criteria</i>	<i>Responsible Party</i>
<i>No legally effective orders or injunctions preventing the test exist</i>	<i>ROC, Qwest</i>
<i>Pass/retest criteria have been identified</i>	<i>ROC, KPMG Consulting</i>
<i>Process evaluation checklist developed</i>	<i>KPMG Consulting</i>
<i>Interview guides developed</i>	<i>KPMG Consulting</i>

24.6.4 Test Scope

Table 24.6.4.1 OSS Interface Development Review

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Developing Interfaces	Interface development methodology	Adequacy and completeness of interface development methodology	Inspection Document review Report review	Qualitative
	Provision of interface specifications and related documentation	Adequacy and completeness of interface documentation distribution procedures	Inspection Document review Report review	Qualitative
Enabling and Testing Interfaces	Interface enabling and testing methodology	Adequacy and completeness of carrier-to-carrier interface enabling and testing procedures	Inspection Document review Report review	Qualitative
	Availability of test environments and technical support to CLECs	Availability and adequacy of functioning test environments, testing protocols, production cutover protocols and technical support for all supported interfaces	Inspection Document review Report review	Qualitative
	Interface enabling and testing support	Adequacy and completeness of interface enabling and testing procedural documentation	Inspection Document review Report review	Qualitative
Maintaining Interfaces	Release management	Adequacy and completeness of interface enhancement software release management and regression testing protocols	Inspection Document review Report review	Qualitative
	Capacity management	Adequacy and completeness of capacity and growth planning process	Inspection Document review	Qualitative

24.6.5 Scenarios

This test does not rely on scenarios.

24.6.6 Test Approach

24.6.6.1 Inputs

1. Procedural and technical documentation
2. Qwest instructions to CLECs for enabling, testing, and maintaining compatibility with interfaces

3. Evaluation checklists
4. Interview guides
5. CLEC data

24.6.6.2 Activities

1. Gather information
2. Perform interviews and documentation reviews
3. Complete evaluation checklists and interview summaries
4. Develop and document findings

24.6.6.3 Outputs

1. Completed evaluation checklists and interview summaries
2. HP comments on its interface development process
3. Observation and Exception reports
4. Final report

24.6.7 Exit Criteria

Table 24.6.7.1 Exit Criteria

Criteria	Responsible Party
Global exit criteria satisfied	See Section 7

24.7 ~~OSS Interface (IMA)~~ Wholesale Systems Help Desk Review

24.7.1 Description

This review is an evaluation of Qwest's IMA help desk functions that provide technical support for its OSS interfaces.

24.7.2 Objectives

The objectives of this review are to:

- Determine adequacy, completeness and consistency of IMA help desk processes
- Ensure IMA help desk functions have effective management oversight
- Determine whether IMA help desk escalation procedures are correctly maintained, documented and published
- Determine the existence and functionality of procedures for measuring, tracking, projecting and maintaining IMA help desk performance
- Ensure existence of reasonable security measures to ensure integrity of IMA help desk data and the ability to restrict access to parties with specific access permissions

- Determine whether IMA help desk procedures are followed as a matter of routine by Qwest personnel
- Determine whether IMA help desk procedures are subject to periodic review and amendment to assure currency and consistency with product and service deployments and changes in the IMA capabilities

24.7.3 Entrance Criteria

Table 24.7.3.1 Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test exist	ROC, Qwest
Pass/retest criteria have been identified	ROC, KPMG Consulting
Process evaluation checklist developed	KPMG Consulting
Interview guides developed	KPMG Consulting

24.7.4 Test Scope

Figure 24.7.4.1 OSS Interface (IMA) Wholesale Systems Help Desk Review

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Process IMA Help Desk Call	Resolution of user question, problem or issue	Completeness and consistency of process	Inspection Document review	Qualitative
Close IMA Help Desk Call	Closure posting	Completeness and consistency of process	Inspection Document review	Qualitative
Status Tracking and Reporting	Status tracking and reporting	Completeness and consistency of reporting process	Inspection Document review	Qualitative
Problem Escalation	User and Qwest initiated escalation	Completeness and consistency of process	Inspection Document review	Qualitative
Capacity Management	Capacity planning process	Completeness and consistency of and adherence to process	Inspection Document review	Qualitative
Security and Integrity	Data access controls	Security of process	Inspection Document review	Qualitative
Process Management	General management practices	Completeness and consistency of operating management practices	Inspection Document review	Qualitative
	Performance measurement process	Controllability, efficiency and reliability of process	Inspection Document review	Qualitative
	Process improvement	Completeness of process improvement practices	Inspection Document review	Qualitative

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Capacity Management	Capacity management processes and procedures	Adequacy and completeness of and adherence to capacity management process	Inspection Document Review Interview	Qualitative

24.7.5 Scenarios

This test does not rely on scenarios.

24.7.6 Test Approach

24.7.6.1 Inputs

1. Procedural documentation such as internal help desk procedure manuals
2. Qwest instructions to CLECs for interacting with help desk functions
3. Evaluation checklists
4. Interview guides
5. CLEC data

24.7.6.2 Activities

1. Gather information
2. Perform walk-throughs, observations and documentation reviews
3. Complete evaluation checklists
4. Develop and document findings

24.7.6.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Observation and Exception reports
3. Final report

24.7.7 Exit Criteria

Table 24.7.7.1 Exit Criteria

Criteria	Responsible Party
Global exit criteria satisfied	See Section 7

24.8 Interconnect Service Center (ISC) Support Review

24.8.1 Description

The Interconnect Service Center (ISC) Support Review is a comprehensive operational analysis of the service center processes developed by Qwest to support Resellers and CLECs with OSS questions, escalations, problems, and issues related to pre-ordering, ordering, provisioning and

billing of its wholesale services. Basic functionality, performance and escalation procedures will be evaluated.

24.8.2 Objectives

The objectives of this review are to:

- Determine completeness and consistency of ISC processes and responses
- Determine whether the escalation procedure is documented and known to ISC representatives and management
- Determine the accuracy and completeness of procedures for measuring ISC performance

24.8.3 Entrance Criteria

Table 24.8.3.1 Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test exist	ROC, Qwest
Pass/retest criteria have been identified	ROC, KPMG Consulting
Process evaluation checklist developed	KPMG Consulting
CLEC problem feedback survey completed	KPMG Consulting
ISC problem response standard survey completed	KPMG Consulting

24.8.4 Test Scope

Table 24.8.4.1 ISC Support Review

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Respond to ISC Call	Answer call	Completeness and consistency of process Timeliness of answer	Inspection Performance	Qualitative Quantitative
	Interface with user	Availability of user interface	Inspection	Qualitative
	Response to call	Completeness and accuracy of response	Inspection	Qualitative
Process ISC Call	Log call	Completeness of logged information Log is kept in appropriate media for appropriate interval	Document Review Inspection	Qualitative
	Access to systems to observe user problems	Ability to access user records and transactions	Inspection	Qualitative
	Resolve user question, problem or issue	Completeness and consistency of process	Documentation Review	Qualitative
Close ISC Call	Log closure information	Completeness, consistency, and timeliness of process	Inspection	Qualitative

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Monitor Status	Track status	Accuracy and completeness of status tracking capability Availability of jeopardy notification	Inspection Document Review	Qualitative
	Report status	Completeness and consistency of reporting process Accessibility of status report	Inspection Document Review	Qualitative
Request Escalation	Manage escalations	Consistency and completeness of procedure	Document Review Inspection	Qualitative
Manage the ISC Process	Provide management oversight	Completeness and consistency of operating management practices	Inspection	Qualitative
Capacity Management	Capacity management processes and procedures	Adequacy and completeness of and adherence to capacity management process for OSS gateways and interfaces	Inspection Document review Interview	Qualitative

24.8.5 Scenarios

This test does not rely on scenarios.

24.8.6 Test Approach

24.8.6.1 Inputs

1. ISC Evaluation Checklist
2. ISC procedural documentation

24.8.6.2 Activities

1. Gather information
2. Perform ISC walk-throughs, observations and documentation reviews
3. Complete evaluation checklists
4. Develop and document findings

24.8.6.3 Outputs

1. Completed ISC evaluation checklists and interview summaries
2. Observation and Exception reports
3. Final report

24.8.7 Exit Criteria

Table 24.8.7.1 Exit Criteria

Criteria	Responsible Party
Global exit criteria satisfied	See Section 7

24.9 Network Surveillance & Outage Support Review

24.9.1 Description

The network surveillance and outage support evaluation is a review ~~evaluates of~~ the processes, procedures, and other operational elements associated with Qwest's network surveillance ~~as it~~ relates to wholesale and retail operations. Additionally, this evaluation will review Qwest's and network outage notification processes and procedures as they relate to wholesale ~~services~~ operations. It also involves a review of the procedures followed by the Network Management Center (NMC) and/or Network Operations Center (NOC) which are related to GLEC operations.

24.9.2 Objectives

The objective of this test is to ~~determine the functionality of network surveillance and network outage notification procedures and to assess the performance capabilities of network outage notification procedures for wholesale operations~~ assess the functionality of Qwest's network surveillance activities and its application to the wholesale and retail customers they support. Test targets for the evaluation include the network surveillance systems and processes employed by the following Qwest operations centers: 1) Network Management Center (NMC), and 2) Network Operations Center (NOC). In addition, a review of the network blockage and outage notification procedures used by Qwest to alert ~~affected~~ wholesale customers of alarms and outage events will be conducted.

24.9.3 Entrance Criteria

Table 24.9.3.1 Entrance Criteria

Criteria	Responsible Party
No legally effective orders or injunctions preventing the test exist	ROC, Qwest
Pass/retest criteria have been identified	ROC, KPMG Consulting
Network surveillance and outage evaluation checklist developed	KPMG Consulting
NMC/NOC interview guide developed	KPMG Consulting

24.9.4 Test Scope

Table 24.9.4 Network Surveillance & Outage Support Review

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Network Surveillance	Inter Office Facility (IOF) Surveillance Blocking Resolution	Existence Reliability Completeness §	Interview Inspection Document Review	Existence Qualitative
	SS7/Advanced Intelligent Network (AIN) Interconnect Surveillance	Existence Reliability Completeness §	Interview Inspection Document Review Inspection	Existence Qualitative
Outage Notification	Process Documentation	Accuracy Completeness	Interview Inspection Document Review	Existence Qualitative
	Notification Procedures	Timeliness Accuracy Completeness	Interview Inspection Document Review Inspection	Existence Qualitative
	Notification Observations	Accuracy Completeness	Interview Inspection Document Review Inspection	Existence Qualitative

24.9.5 Scenarios

This test does not rely on scenarios.

24.9.6 Test Approach

24.9.6.1 Inputs

1. Network surveillance operational analysis plan and task checklist
2. Network outage operational analysis plan and task checklist
3. Evaluation guides
4. Interview Guides
5. Documentation of all network surveillance and ~~outage notification procedures for wholesale and retail operations~~
6. Documentation of outage notification procedures for wholesale operations
7. Designated NMC/NOC personnel for interviews
- 7.8. Observation schedule

24.9.6.2 Activities

1. Using the operational analysis plan, conduct process analysis at the NMC and NOC
2. Conduct documentation review
3. Conduct procedure interviews
4. Conduct notification observations
5. Develop and document findings

24.9.6.3 Outputs

1. Completed network surveillance and outage evaluation checklists and interview/observation summaries
2. Observation and Exception reports
3. Final report

24.9.7 Exit Criteria**Table 24.9.7.1 Exit Criteria**

Criteria	Responsible Party
Global exit criteria satisfied	See Section 7

24.10 Test 24.10: ISC/Billing and Collection Center Support Review**24.10.1 Description**

The ISC/Billing and Collection Center Support Review is an operational analysis of the processes and documentation developed by Qwest to provide support to Resellers and CLECs with usage (Daily Usage Feed) and/or billing related claims, questions, problems and issues. Basic functionality, performance, escalation procedures, and security will be evaluated.

24.10.2 Objectives

The objectives of this evaluation are to:

- Determine completeness of the Billing Center processes, documentation and responses.
- Determine whether the escalation procedure is documented, maintained, published and followed.
- Determine the completeness, and functionality of procedures for measuring and tracking the Billing Center performance.
- Determine the existence and functionality of procedures for projecting resource needs.
- Determine the existence of reasonable security measures to ensure integrity of the Reseller and CLEC data and the ability to restrict access to parties with specific access permissions.

- Determine the level of management oversight to ensure adequacy of performance results.

24.10.3 Entrance Criteria

<u>Criteria</u>	<u>Responsible Party</u>
<u>No legally effective orders or injunctions preventing the test exist</u>	<u>ROC, Owest</u>
<u>Pass/retest criteria have been identified</u>	<u>ROC, KPMG Consulting</u>
<u>Process evaluation checklist developed</u>	<u>KPMG Consulting</u>

24.10.4 Test Scope

Table 24.10.4.1: ISC/Billing and Collection Center Review

<u>Process Area</u>	<u>Sub-Process</u>	<u>Evaluation Measure</u>	<u>Evaluation Techniques</u>	<u>Criteria Type</u>
<u>Respond to Billing Center Call</u>	<u>Interface with user</u>	<u>Availability of user interface</u>	<u>Inspection</u>	<u>Qualitative</u>
	<u>Log call</u>	<u>Existence of call logs to track call statistics such as call volume, average handling time, speed of answer.</u>	<u>Document Review</u> <u>Inspection</u>	<u>Existence</u>
<u>Process Billing Center Calls</u>	<u>Accessibility of information</u>	<u>Ability to access Reseller and CLEC records and transactions</u>	<u>Inspection</u>	<u>Qualitative</u>
	<u>Resolve user question, problem or issue</u>	<u>Completeness and consistency of process</u>	<u>Inspection</u>	<u>Qualitative</u>
<u>Claims</u>	<u>Resolve claim</u>	<u>Completeness and consistency of process</u>	<u>Document Review</u>	<u>Qualitative</u>
<u>Monitor Status</u>	<u>Track Status</u>	<u>Existence of status tracking capability</u>	<u>Inspection</u> <u>Document Review</u>	<u>Existence</u>
	<u>Report Status</u>	<u>Consistency and accessibility of status reporting</u>	<u>Inspection</u> <u>Document Review</u>	<u>Qualitative</u>
<u>Manage the Billing Center Process</u>	<u>Provide management oversight</u>	<u>Consistency of operating management practices.</u>	<u>Inspection</u>	<u>Qualitative</u>
	<u>Provide security measures to ensure integrity of the Reseller and CLEC data</u>	<u>Existence of security measures to restrict access to Reseller and CLEC data</u>	<u>Inspection</u>	<u>Existence</u>
<u>Capacity Management</u>	<u>Work Force Planning</u>	<u>Existence of work force staffing model</u>	<u>Inspection</u> <u>Document Review</u> <u>Interview</u>	<u>Qualitative</u>

24.10.5 Scenarios

Scenarios are not applicable to this test.

24.10.6 Test Approach**24.10.6.1 Inputs**

1. Evaluation Checklist
2. Applicable documentation
3. Interview guides
4. Data from Test 20 (this data will be the source for the Billing Center calls)

24.10.6.2 Activities

1. Gather information
2. Perform walk-through, observations and documentation reviews
3. Place and log Billing Center calls
4. Complete evaluation checklists and interview summaries
5. Develop and document findings

24.10.6.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Summary report

24.10.7 Exit Criteria

<u>Criteria</u>	<u>Responsible Party</u>
<u>All Global Exit Criteria satisfied</u>	<u>See Section 7</u>

25. Interim and Final Reports***25.1 Interim Report***

KPMG Consulting will develop and submit to the ROC at least one interim report at approximately the mid-point of the test process, and possibly others. This report(s) will describe the test for each major test. Draft interim report(s) will be provided to the TAG for review. The resulting comments will be taken into consideration by KPMG Consulting, HP and ROC in preparing final versions of the report(s).

25.2 Final Report

KPMG Consulting will develop and submit to the ROC a final report at the completion of testing. The final report will be released in draft form to the TAG for review and comment. Changes recommended by the TAG will be reviewed by KPMG Consulting and the ROC Steering Committee prior to submittal of a final report to the ROC Executive Committee.

26. Test Wrap Up

At the conclusion of the test HP shall dismantle all datastores created for the test, return any telephone numbers used, decommission physical facilities used for establishing connectivity, and return CIC and other industry-standard codes used in the establishment of HP.

KPMG Consulting will be responsible for responding to inquiries about the final test report and, possibly, providing testimony or support for testimony in various venues.

Appendix A: Version Control

Version	Date	Revised	Comments
TRD 1.0	January 27, 2000	Initial TRD Draft Release	TAG and web site
TRD 1.1	January 27, 2000	Added Appendix A, D and F Added Section 6.7 Edits and cosmetic changes	TAG and web site
TRD 2.0	February 28, 2000	Name change from MTP to TRD Integrated changes from TAG comments and 2/4-2/17 workshop	TAG and web site
TRD 3.0	March 9, 2000	Integrated changes from TAG comments on 3/13, added appendices E and G	Attachment 1 to TRD TAG and web site
MTP 1.0	July 27, 2000	Initial Draft Release	TAG and web site
MTP 2.0	August 28, 2000	Second Draft Release	TAG and web site
MTP 3.0	October 25, 2000	Draft Final Release	TAG and web site
MTP 3.1	November 17, 2000	Final Release	TAG and web site
MTP 4.0	October 3, 2001	Revised Release	TAG and web site

Appendix B: Qwest Service Performance Indicator Definitions (PID) ROC 271 Working PID v 2.0 dated 9/13/00

Available at www.nrri.ohio-state.edu/oss

Appendix C: Performance Measures

Placeholder

Appendix D: Scenarios

Table D1 - Stand alone Pre-order

	Basic Scenario	Residence/ Business
A	Obtain CSRs	X
B	Validate customer address	X
C	Reserve telephone numbers	X
D	Determine Product and Feature Availability	X
E	Facility check	X
F	Schedule appointment	X
G	Loop qualification information	X
H	CFA Validation	X
I	Obtain directory listing information for an existing LDF-L customer	X

Note: All sub-functions of the above-listed preorder basic scenarios will be included in the test.

CONTINUATION

[0]

Master Test Plan

Table D2 - UNE

Basic Scenario	2-wire. Analog Loop	ADSL Qualified Loop	2-wire non- loaded Loop	ISDN Capable Loop	DS1 Capable Loop	Stand- Alone LNP	UDIT	EEL (see notes)	Dark Fiber	Sub Loop	Line Sharing	Stand- Alone DL
A Migrate lines from Qwest without LNP	X	X	X	X	X			X			X	
B Migrate lines from Qwest with LNP	X		X	X	X			X				
C Migrate from CLEC to CLEC	X	X	X	X								
D Purchase lines for a new customer	X	X	X	X	X			X				
E Add new lines to existing customer	X	X	X	X	X			X				
F Add new interoffice DSI/DS3 facilities							X		X			
G Convert from Resale to UNE loop without LNP	X	X	X	X								
H Convert from Resale to UNE loop with LNP	X			X								
I Convert from UNE-P to UNE loop without LNP	X			X								
J Convert from UNE-P to UNE loop with LNP	X			X								
K Moves (outside)	X		X	X								
L Disconnect (full)	X		X	X	X			X				X
M Add a new directory listing on existing account												
N Convert from line sharing arrangement to UNE-loop		X	X									
O Obtain loop distribution at FDI										X		
P Port number from Qwest to CLEC without facilities							X					

Note 1: For selected test instances, post order LSR status and DLR queries will be conducted.

Note 2: All directory listing offerings will be tested, including complex listings.

Note 3: Currently, Qwest does not have a business process for coordinating EEL migrations with number portability.

Cmt. 2

Table D3 – Resale

Basic Scenario		Res. POTS	Bus. POTS	ISDN PRI only	Centrex* & Centrex Plus	Private Line	PBX
A	Migration from Qwest "as is"	X	X	X	X	X	X
B	Migration from Qwest "as specified"	X	X		X		
C	CLEC to CLEC migration	X	X	X	X		
D	New customer	X	X	X	X	X	
E	Add lines (L)/trunks (T)/ circuits (C)	X L	X L	X L	X L	X C	X T
F	Feature changes to existing customer	X	X		X		
G	Telephone number change	X	X		X		
H	Directory change	X	X	X	X		
I	Migrate customer with voice mail	X	X				
J	Moves	X	X		X		
K	Suspend/restore service	X	X				
L	Disconnect (full and partial)	X	X	X	X	X	X
M	PIC/LPIC changes	X	X		X		X

* Includes 1) Centrex 21 and 2) Centrex as used by McLeod USA (observations).

Note 1: For selected test instances, post order LSR status and DLR queries will be conducted.

Note 2: All directory listing offerings will be tested, including complex listings.

Table D4 – UNE – P

Basic Scenario		Res. POTS	Bus. POTS	ISDN PRI only
A	Migration from Qwest "as is"	X	X	X
BA	Migration from Qwest "as specified"	X	X	X
CB	Migrate from CLEC to CLEC	X	X	
DC	New customer	X	X	X
ED	Add lines (L)/trunks (T)/ circuits (C)	X (L)	X (L)	X (L)
FE	Feature changes to existing customer	X	X	
GE	Telephone number change	X	X	
HG	Directory change	X	X	
IH	Full and partial migration with DL changes	X	X	
JI	Convert from Resale products to UNE-P products	X	X	X
KJ	Migrate an account with Qwest initiated blocking	X	X	
LK	Migrate an account with pending service order	X	X	
ML	Establish new user with vanity TN	X	X	
NM	Moves	X	X	
ON	Suspend/restore service	X	X	
PO	Disconnect (full and partial)	X	X	
QP	Change PIC/LPIC	X	X	
Q	Migrate service to a line splitting arrangement	X	X	
R	Line splitting customer disconnects high speed data but maintains voice service	X	X	

Note 1: For selected test instances, post-order LSR status and DLR queries will be conducted.

Note 2: All directory listing offerings will be tested, including complex listings.

Table D5 – Maintenance and Repair

Conditions to be Tested Across Basic Scenario		Res. Lines	Bus. Lines	UNE loops	Centrex*	Private Line	PBX
A	Short on outside plant facility	X	X	X	X	X	X
B	Open on outside plant facility	X	X	X	X	X	X
C	Short on the line within the central office	X	X	X	X	X	
D	Open on the line within the central office	X	X	X	X	X	X
E	Noise on line	X	X	X			
F	Echo on line	X	X				
G	Customer w/ LNP not receiving incoming calls	X	X				
H	Customer receiving incoming calls intended for another customer's number	X					
I	Call waiting not working	X	X				
J	Repeat dialing not working	X					
K	Customer cannot call 900 numbers	X					
L	Calls do not roll-over for customer w/ multiline hunt group		X		X		
M	Call forwarding not working	X	X				
N	Caller ID not working	X	X				
O	No dial tone on multiple lines				X		
P	DS1 loop MUXed to DS3 IOF not functioning			X			
Q	Submit trouble ticket against new loop	X	X				
R	Conduct MLT on new CLEC service	X	X				

*Includes Centrex 21 only.

Appendix E: Acronyms and Glossary

271 Application		An RBOC's application to offer long distance services submitted to a state or federal regulatory agency. In order to grant this application, the agency must find the applicant is in compliance with the 14 point competitive checklist described in the 1996 Telecommunications Act.
ALI	Automatic Line Information (for 911/E911 systems)	
ASR	Access Service Request	Form used to order interoffice facilities such as dedicated trunk ports
BAN	Billing Account Number	
Benchmark		A benchmark is established for a performance measure to serve as a standard when there is no appropriate retail analog.
Billing Domain		Tests related to creation of correct carrier bills.
BRI	Basic Rate Interface	A type of ISDN service
Capacity Testing		Look for evidence that sound management practices are in place to monitor performance and manage the capacity associated with a resource or pool thereof.
CARE	Customer Account Record Exchange	Industry standard for formatting exchange of subscription information.
Centrex		A business telephone service offered from a local CO that offers PBX-like functionality to the end user without the end user having to purchase CPE.
Change Management		The process by which changes are introduced at Qwest. Important steps include: 1) Advance notification that a change will occur; 2) CLEC input is considered when making changes; and 3) Smooth roll-out of the change.
CLEC	Competitive Local Exchange Carrier	A communications company which sells/re-sells communications services in direct competition with the Incumbent Local Exchange Carrier (ILEC)
CLEC Live Data		Production data delivered through interfaces that are already operational for real CLEC customers.

CLLI	Common Language Location Identifier	An 8 to 11 digit alphanumeric code used as a method of identifying physical locations and equipment.
CO	Central Office	Facility where subscribers' lines connect to switching equipment
Completion Notice		A notification the ILEC provides to the CLEC to inform the CLEC that the requested service activity is complete.
CPE	Customer Premise Equipment	Customer-owned equipment
CSR	Customer Service Record	A record of customer specific information such as name, address, telephone number, telecommunication services subscribed to and certain other data relating to the services provided. The CSR also details a customer's fixed monthly charges billed by the local telephone company
Coordinated customer conversion		Orders that have a due date negotiated between the ILEC, the CLEC, and the customer so that work activities can be performed on a coordinated basis under the direction of the receiving carrier.
DA	Directory Assistance	
DOJ	Department of Justice	
DUF	Daily Usage Feed	A daily download of usage data from the switch which is delivered to Qwest's message processing system and directly to the CLEC
EB-TA	Electronic Bonding – Trouble Administration	
EDI	Electronic Data Interchange	Interface protocol that provides for mechanized order processing. Both the CLECs and Qwest will have systems (EDI Interface) to support the EDI functionality
End-to-End Testing		For the purposes of this test, end-to-end is defined as testing which demonstrates that the pre-order, order, provisioning, billing and M&R life cycle can be executed for a single customer.
Entrance and Exit Criteria		The necessary conditions for starting or completing individual tests described in the Test Plan.
EXACT/TEL US		Interface used by CLECs to order wholesale services requiring Access Service Requests (ASRs).

Existence Criteria Type		These are criteria where only two possible test results can exist (e.g., true/false, presence/absence), such as whether a document exists or does not exist
FCC	Federal Communications Commission	
FID	Field Identifier	A code used when administering usage limits on residence and business end users. Also refers to fields of information used in the service order
Flow through		The term used to describe whether an LSR is passed electronically from the OSS interface to the ILEC legacy system to automatically create a service order. LSRs that do not flow through require manual intervention for the service order to be created in the ILEC legacy system.
FOC	Firm Order Confirmation	Notice the ILEC sends the CLEC to notify the CLEC that it has received the CLEC service order, created a service request, and assigned it a due date.
Functional Testing	Functionality Test	A documented set of instructions designed to test and/or validate specific functions of a process or system.
GUI	Graphical User Interface	A simplified method of accessing programs within a computer by using a mouse to point to icons, which in turn cause the programs to perform a specific function.
IABS	Interconnect Access Billing System	
ILEC	Incumbent Local Exchange Carrier	
IMA	Interconnect Mediated Access	
ISDN	Integrated Services Digital Network	Digital services designed for use with desktop applications, telephone switches, computer telephony and voice processing systems
Jeopardy		With regard to provisioning, a condition experienced in the service provisioning process which results potentially in the inability of a carrier to meet the committed due date on a service order. With regard to the OSS test, a notice that is issued whenever a key project milestone and/or commitment is at risk according to the MTP.

LERG	Local Exchange Routing Guide	
LIDB	Line Information Data Base	Database used primarily for residential customers.
LIS	Local Interconnection Service Trunks	
LNP	Local Number Portability	
Loop		A transmission path that connects an end-user's premises to a Qwest Central Office
LSR	Local Service Request	A form prepared by the CLEC to request Qwest to provide the services as specified in the specific tariffs/contracts agreements. Information required for administration, billing and contact details is provided for in the various fields within the LSR.
M&R	Maintenance and Repair	Ability to provide for requests, status and resolution of potential troubles
M&R Domain		Tests related to processing and management of trouble-related reports.
MDF	Main Distribution Frame	The primary point at which outside plant facilities terminate within a Wire Center for interconnection to other telecommunications facilities within the Wire Center
Migration		Refers to "conversion as is" or "conversion as specified."
MLT	Mechanized Loop Test	A mechanized test used to determine loop situations
MTP	Master Test Plan	
OBFT/TCIF	Ordering and Billing Forum/ Telecommunications Interface Forum	Industry Standards Organizations dedicated to resolving critical issues such as billing format issues between competing local exchange carriers, etc.
OCN	Operating Company Number	A four-digit number assigned to uniquely identify CLECs.
Operational Analysis		Operational analysis focuses on the form, structure, and content of the business process under study. This method is used to evaluate day-to-day operations and operational management practices.
OSS	Operations Support Systems	For purposes of this test OSS refers to systems that provide for processing orders, maintenance and repair activities, and billing activities

Parity Criteria Type		These are criteria that require two measurements to be developed and compared, such as whether external response time is at least as good as internal response time.
Parity measures		Parity measures are compared to analogous wholesale performance measures to determine if there is nondiscriminatory treatment of wholesale services.
PBX	Private Branch Exchange	
Physical Resources		Test bed accounts that have a physical appearance in the central office. These resources are used for unbundled loop test activities.
PIC	Primary Inter-exchange Carrier	Primary inter-exchange carrier selected by end-user.
PID	Performance Indicator Definitions	
PM	Performance Measures	
POTS	Plain Old Telephone Service	
POP	Pre-Ordering, Ordering, and Provisioning Domain	Tests related to CLEC's acquisition of customer information, placing orders, and ensuring correct and timely provision and notification of order status.
Qualitative Criteria Type		These criteria set a threshold for performance where a range of quality values is possible, such as level of customer satisfaction
RMI	Relationship Management and Infrastructure Domain	Tests relating to activities, processes and documents that are focused on the establishment and maintenance of the CLEC/ILEC relationship.
Resale		Service that allows a CLEC to purchase ILEC retail services in order to resell these services to their own end-user.
Scenario		A unique business use of the system, e.g. migrate as-is of single line residential POTS account
SOP	Service Order Processor	

Standard Interval		The interval that the ILEC publishes as a guideline for establishing due dates for provisioning a service request. Typically, due dates will not be assigned with intervals shorter than the standard. These intervals are specified by service type and type of service modification requested. ILECs publish these standard intervals in documents used by their own service representatives as well as ordering instructions provided to CLECs in the Qwest Standard Interval Guidelines
SUPP	Supplement	A change to an order taken after the original order was submitted, but before the order has been executed, such as a date change.
Test Bed		A set of fictitious customer accounts that are designed to assist with testing. The test bed consists of working lines and provisioned products, although the owning customer is fictitious.
Test Call Matrix		A list of call types and the quantity of calls for each type that should be included in a particular test
Test Case		Variation of a Scenario, e.g. migrate as specified with a different feature set
Test Domain		A specific testing area with defined targets, measures, scenarios, evaluation methods, and test processes.
Test Instance		Executing a specific Test Case using the information for a specific customer in the Test Bed
Test Scenario		A specifically defined request and activity as it relates to 3 rd Party Testing. These Test Scenarios include both Functionality Testing and Capacity Testing.
TN	Telephone Number	A number associated with a telephone service
Transaction-Driven System Analysis		Transaction driven system analysis relies upon initiation of transactions, tracking of transaction progress, and analysis of transaction completion results to evaluate the automated system under test.
Transaction Generation		Transaction generation is the use of live, historical, and/or generated data and data processing capability to evaluate an automated and/or manual system under test

TRD	Test Requirements Document	
UDIT	Unbundled Dedicated Interoffice Transport	
UNE	Unbundled Network Elements	
UNE-C	UNE-Combination	A pre-existing combination of legally binding and effective UNEs.
UNE-L	UNE Loop	A transmission path that connects an end-user's premises to a Qwest Central Office
UNE-P	UNE-Platform	UNE Platforms are available as for existing POTS, PBX trunks and ISDN service
USOC	Universal Service Order Codes	
Verification and Validation		Methods used in the evaluation of activities and processes not amenable to transaction-driven testing, but which require verification and validation.
Virtual Resources		Test bed accounts that have no physical appearance. These accounts are used for Resale and UNE-P test activities where provisioning verification can be checking translations in the switch.
Volume Test		Test ability of systems to support expected future workloads.
Working Resources		Test bed accounts that have an appearance outside the central office. These accounts have dial tone and are used for billing usage testing, M&R testing and some provisioning tests.
xDSL	"x" Digital Subscriber Line	A general name for an evolving high speed transmission technology which uses existing copper wire from the telephone company central office to the subscriber's premise and has electronic equipment at the central office and at the subscriber's premises, and transmits and receives high speed digital signals

Appendix F: Qwest OSS System Architecture Overview

1. Interfaces

Qwest provides four uniform interfaces to CLECs for their use in pre-ordering, ordering and maintaining/repairing wholesale services. Other interfaces are provided for billing of wholesale services. A brief description of each follows.

1.1 IMA-GUI

The Interconnect Mediated Access–Graphical User Interface (IMA-GUI) is used by CLECs to perform pre-order inquiries, place orders, report troubles and obtain status via a workstation to Qwest's IMA Gateway. This human-to-computer IMA-GUI is used across all states in Qwest's territory.

1.2 IMA-EDI

The Interconnect Mediated Access – Electronic Data Interchange (IMA-EDI) is used by CLECs to perform pre-order inquiries, place orders and obtain status via a computer-to-computer interface that extends from the CLECs OSS application to the Qwest IMA-EDI Gateway. This IMA-EDI is used across all states in Qwest's territory.

1.3 MEDIACC (or EB-TA)

The Mediated Access (MEDIACC) interface is Qwest's implementation of an Electronic Bonding for Trouble Administration (EB-TA) interface for CLECs to use in maintenance and repair activities for Qwest's wholesale services. It is a computer-to-computer interface that supports trouble ticket administration and status, line record information viewing and mechanized loop testing results viewing. The MEDIACC interface is used across all states in Qwest's territory.

1.4 EXACT

The EXACT interface is used by CLECs to order wholesale services requiring Access Services Requests (ASRs).

1.5 IIS

The Interconnect Image System (IIS) interface is a facsimile receipt and distribution system that facilitates the handling of orders and other transactions faxed from CLECs to Qwest. These faxed, or manual transactions, must be input to Qwest's OSS by personnel at the Interconnect Service Center.

Please refer to Figure F1 for an overview of the Mediated Access Architecture.

2. Initial Transaction Processing

2.1 Pre-Ordering and Ordering

Once the transaction is received by the Qwest gateway, a set of business rules is applied to determine how to process the request. To obtain information from Qwest's OSS or pass information to them, the OSS Access Layer (Data Arbiter, Fetch and Stuff, and MEDIACC) communicates with the downstream OSSs to send or retrieve the data. Regardless of whether a transaction is received by the Qwest gateway through the IMA GUI or EDI, it will be processed through the same set of business rules and travel through the same OSS Access Layer to reach the downstream OSSs.

If the transaction is the submission of an LSR, the LSR is placed in the Common IMA database regardless of whether the LSR is transmitted through the IMA or the EDI gateway. This database is updated with LSR status as the Interconnect Service Center processes the request.

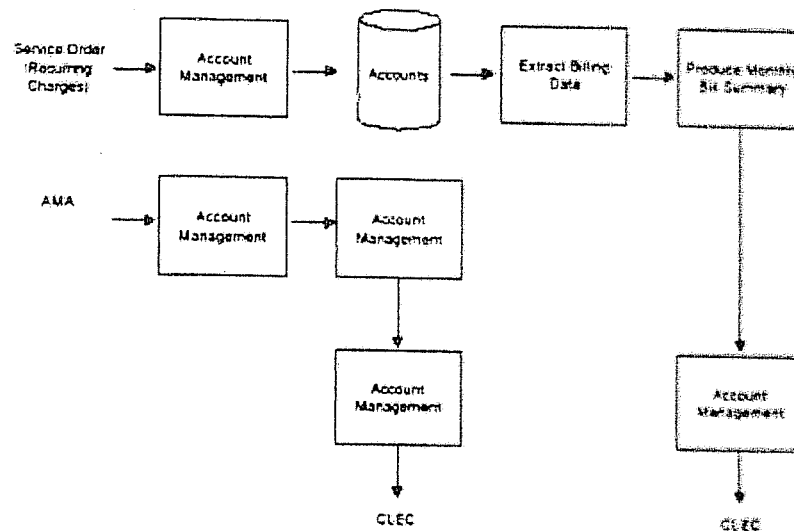
2.2 Maintenance and Repair

Maintenance and repair transactions are processed through IMA and MEDIACC and routed to the appropriate downstream repair OSS.

2.3 Billing

When an end-user customer's account is resold to a CLEC, the resulting service order updates the account to reflect that change. As the end-user customer generates toll usage, it is sent from the AMA system into the CRIS billing system, where it is associated with the CLEC's account. The toll usage is then forwarded to the CLEC in a daily usage feed file. Qwest produces a billing summary file with all recurring and non-recurring charges and sends it to the CLEC on a monthly basis. Figure F2 describes the billing components that produce daily usage and monthly bill information.

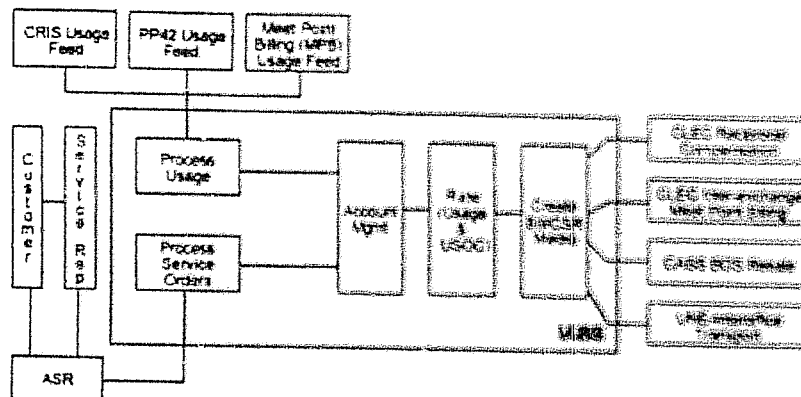
Figure F2 Billing Architecture



2.4 IABS

There are three usage feeds to the usage-processing module. Another entry point is the ASR submitted by the customer service representative. These ASRs go to the service order-processing module. Both usage and service orders are sent to the account management module to associate the usage and service order detail to accounts. After usage and service order details are associated to accounts, the accounts are rated, and bills and CSRs are produced. Outputs for reciprocal compensation, inter-exchange meet point billing, resale and UNEs are then provided to the CLECs. Figure F3 provides an overview of the billing for trunk-side UNEs and interconnection services using IABS.

Figure F3 IABS Billing Architecture



3. Systems

Qwest's downstream OSS can be categorized into four types of systems as follows:

- One OSS that is functionally and physically the same is used across all 14 states such as IMA GUI and Integrated Access Billing Systems (IABS)
- One OSS application that is used across all 14 states via multiple instances of the same application, such as Facilities Assignment and Control System (FACS)
- An OSS with the same name and basic origin that has been implemented differently across different states – for example Customer Records Information System (CRIS) East, West, and Central are all called CRIS but are actually different applications functionally
- Different applications with different names and similar functionality that are used in different states. The service order processors (SOPs) are an example of this type – SOPAD, SOLAR and R-SOLAR in Central, East and West respectively.

Figure F4 provides a summary of the systems and their usage across states.

F4.1 Table F4 Interpretation Notes

1. When an OSS has a -1 suffix it means there is only one version of that application. For example, IMA GUI is the same application across all states.
2. There may be multiple instances of an application that are all identical. For example three instances of FACS serve three different regions but are all the same application.
3. There may be applications of the same name that have different functionality – i.e. CRIS – C (Central), CRIS – E (EAST) and CRIS – W (West)
4. Multiple copies of the same application can be run at different data centers (shown in parentheses in the matrix) to serve different areas that may or may not coincide with a region – i.e. An identical application of BOSS-C is run at 2 data centers to handle the total Central Region.

F4.2 Table F4 List of Abbreviations

IMA GUI – Interconnect Mediated Access Graphical User Interface Gateway

IMA EDI – IMA Electronic Data Interchange

EB-TA – Electronic bonding for Trouble Administration – Qwest's version is MEDIACC, it interacts with LMOS for POTS repair & WFA/C for Designed services repair

BPL-1 – Business Process Layer does edits against State tariffed products and services

IMA LSR DB – Common IMA database for Local Service Requests

FOM – Firm Order Manager

ICADS – Service order constructor that translates order information to the specific service order processor

Data Arbiter – Data access layer application between IMA gateway and downstream OSS

Fetch-N-Stuff – Data access layer application between IMA gateway and downstream OSS

CSR Retrieval – Customer Service Record retrieval

Service Order Processor – Directs/processes service orders

SOAC – Service Order Analysis and Control

Premis – Premises Information System

FACS – Facility Assignment and Control System

LMOS – Loop Maintenance Operations Systems

WFA – Work Force Administration

CRIS – Customer Record Information System

CABS – Carrier Access Billing System

IABS – Integrated Access Billing System

F4.3 Table F4 Data Center Locations

ALB – Albuquerque, NM

BLV – Bellevue, WA

DVR – Denver, CO

OMA – Omaha, NE

SLC – Salt Lake City, UT

4. Regional Differences

Qwest's current operating territory, and therefore much of its OSS legacy architecture, is the result of the merging of three predecessor Bell Operating Companies into the Qwest Regional Bell Operating Company RBOC, including:

- Pacific Northwest Bell (PNB) covering Washington and Oregon, now referred to as the Western Region
- Mountain Bell (MB) covering Arizona, Colorado, Idaho, Montana, New Mexico, Utah and Wyoming, now Central Region
- Northwestern Bell (NWB) covering Iowa, Minnesota, Nebraska, North Dakota, and South Dakota, now Eastern Region

As Table F4 indicates, all CLEC-facing interfaces and most downstream OSSs are the same across the three sub-regions. The three major areas of difference are:

1. Different service order processors are used in each region with SOLAR in the East, R-SOLAR in the West and SOPAD in Central.
2. Customer Service Record (CSR) retrieval is handled by BOSS in East and Central regions and by CARS in Western region.
3. Billing systems across the regions are different. Despite the fact that the three systems are all named CRIS and perform similar processes, they differ functionally.

5. State Differences

State level differences in downstream OSS are generally confined to the use of different instances of the same applications housed at different data center locations. Please see Figure F4.

6. Product Differences

In general, Qwest offers the same products across its 14 state operating area. However, there are a few variations resulting from various factors such as state regulatory requirements. Table F5 provides a high-level overview of these differences. These differences were further investigated by KPMG Consulting with the assistance of the TAG and reflected appropriately in the test scenarios and testing mix. KPMG Consulting issued a Regional Differences Assessment Report summarizing the results of their investigation.

Table F5 Wholesale Products by State

Product	AZ	CO	IA	ID	MN	MT	ND	NE	NM	OR	SD	UT	W A	WY
Residence	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Business	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Features	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PLT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CTX [*]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ACS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DA/OPS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LST	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
OCP	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PAL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VM	NA	NA	Y	NA	Y	Y	Y	NA	NA	Y	NA	NA	NA	NA
WIRE	NA	NA	NA	NA	Y	NA	NA	NA	NA	Y	NA	NA	NA	NA
Lifeline	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA
ISDN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA
UNE-P [*] POTS PBX ISDN BRI ISDN PRI	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
UNE-C PrivateLine	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
UNE-C PrivateLine	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

*Existing combinations only (i.e. not new)

¹In states where Centrex is grandfathered, conversion to resale is only allowed for existing Centrex Customers.

The following provides additional definition for the products shown in the table.

Residence – basic residential line including 911/E911 service and special needs service

Business – Basic business line including 911/E911 service

Features – Central office features such as custom calling, CLASS, etc

MTS – Intra-LATA toll (message toll service)

PLT – Private line, DS1, DS3

CTX – Centrex, which includes Centrex 21, Centrex Plus, Centrex Prime

ACS – Advanced Communications Services which includes Frame Relay, ATM Cell Relay, LAN Switching Service

DA/OPS – Directory Assistance/Operator Services

Listings – Directory Listing, Joint User Listings

OCP – Optional Calling Plans

PAL – Public Access Lines
VM – Voice Messaging, Enhanced Service
Wire – Inside Wire and Wire Maintenance Plan
Lifeline – Services such as Link-up, Telephone Assistance Plan (TAP)
ISDN – Integrated Switched Digital Network – basic and primary
UNE-P – Unbundled Network Elements – Platform
UNE-C – Unbundled Network Elements - Combinations
NA – Not available
Y - Yes

Appendix G: Statistical Approach

1. Introduction and purpose

This appendix describes the statistical approach for designing, implementing and evaluating the ROC transaction test. The statistical analyses described in this appendix assume a set of performance standards, upon which the test will be evaluated. The assumption is also that the test will be a military style test. As such, Qwest failures will be addressed by re-testing until the standards are met or the ROC declares that no further testing is necessary.

There are two types of performance standards which will be used to evaluate the performance of the P-CLEC in the ROC test:

- Parity standards
- Benchmark standards

Parity standards are used where there is a Qwest retail analog to the particular wholesale OSS process being considered. The idea of a parity standard is that the wholesale process should be completed in an equivalent fashion to a retail analog (e.g., in the same amount of time or with the same level of accuracy as the retail analog). A benchmark standard is used when no comparable Qwest retail analog exists. The benchmark is an absolute standard, determined by the ROC, that must be achieved during the test.

The next section describes ROC's policy for defining the sample sizes and evaluating test results. These statistical methods and standards will govern the design and conduct of the test, including establishing a stopping point for the test, and facilitate evaluation of the results. However, states are free to depart from the critical values or benchmarks adopted for the test when they evaluate test results submitted by Qwest as part of state Section 271 applications.

2. Statistical Policy

2.1 The null and alternative hypotheses

In statistical testing it is often convenient to set up two mutually exclusive hypotheses representing possible test outcomes. In the context of the dual null hypothesis testing that will be employed, the hypotheses and related actions will be as follows:

First Test:

- Null Hypothesis: The P-CLEC mean minus the Qwest mean is less than or equal to zero.
- Alternative Hypothesis: The P-CLEC mean minus the Qwest mean is greater than zero.

Second Test:

- Dual Null Hypothesis: The P-CLEC mean minus the Qwest mean, is greater than or equal to a material difference factor of 0.28 Qwest standard deviations.

- Dual Alternative Hypothesis: The P-CLEC mean minus the Qwest mean, is less than a material difference factor of 0.28 Qwest standard deviations.

Table G1 Possible Outcomes and Actions from Dual Testing

	Outcomes	First Test (Null Hypothesis is Parity or better)	
		Fail to Reject	Reject
Second (Dual) Test (Dual Null Hypothesis is Disparity ≥ 0.28 Qwest Standard Deviations)	Fail to Reject	Qwest passes the test conditionally, but the issue is referred to the TAG for final determination. ³	Qwest fails the test and the issue is referred to the TAG for resolution.
	Reject	Qwest passes the test unconditionally.	Significance levels are reduced until the test results move to the cell immediately above or to the left.

2.2 Level of Significance and Error Levels

In making the test comparisons involving parity tests, there are two possible types of error:

- Difference in service quality is detected where none exists (Type I error)
- Difference in service quality exists but is not detected (Type II error)
-

The level of significance is typically defined as the probability of rejecting the null hypothesis, conditioned on the assumption that it is true. It is often called the Type I error level or " α " in statistics. The level of significance is generally set at $\alpha = 0.05$ for the ROC test, and assumes the null hypothesis above.

A Type II error is the chance of failing to reject the null hypothesis when in fact it should be rejected. It is typically referred to as " β ." We use the Type II error to determine sample sizes, as described below. In addition, we test the alternative hypothesis at a 5% significance level, rather than calculate the Type II error after the test.

2.3 Statistical Evaluation Method

In order to evaluate benchmark standards, a "stare and compare" method will be used. This means that if the test result exceeds the standard, Qwest passes. If it does not exceed the standard Qwest fails. No statistical analysis is involved for this evaluation method.

³ The determination will be based on further analysis of the power of the test of the null hypothesis at various levels of material difference and an analysis of the reasonableness of the material difference used for the alternative hypothesis.

In order to evaluate parity standards, permutation tests will be used. In the permutation test, the test P-CLEC average will be compared to all possible averages (permuted means) of the same size, using both Qwest and test P-CLEC data.⁴ The first null hypothesis is rejected if the P-CLEC mean is greater than at least 95% of the permuted means. For the second null hypothesis, the P-CLEC is first transformed using a scale parameter (which will be less than 1) such that, assuming the second null hypothesis is true, the Qwest and P-CLEC data could be considered drawn from the same distribution. Then, the second null hypothesis is rejected if the transformed P-CLEC mean is less than at least 95% of the permuted means.

2.4 *How to account for non-normal distribution*

Since permutation tests will be used, and the permutation test does not require an assumption of a normal distribution for the data, non-normal distributions are less of a concern. Instead, the permutation test assumes that, for the first null hypothesis, labeling of the CLEC and Qwest observations can be considered random. In other words, the time to complete an order, for example, gives no information about whether an order is a Qwest retail order or a P-CLEC wholesale order. Implicitly, the null hypothesis in the permutation test assumes no differences in variability between Qwest and P-CLEC orders. While the permutation test described above has some ability to detect greater variability in the P-CLEC orders, the test is not particularly useful for testing variability differences.⁵

2.5 *Sample size determination*

Sample size is determined using the following proposal by Qwest, given at the ROC Statistical Workshop:

- The sample size for each product/disaggregation level specified in the table below will be 140, on average, for a total sample volume of 1,820 for the test (per 13 product/disaggregation levels shown in the table).⁶ The total sample size will be adjusted proportionately upward or downward if the parties agree to additional or fewer levels, respectively.
- KPMG Consulting will allocate the total sample volume to the individual product/disaggregation levels in a manner that optimizes the “power” of the test. In the context of numerous possible materiality assumptions, the parties have agreed that the following assumptions will be used for this purpose:
 1. Type I error (alpha) and Type II error (Beta) each will be kept at .05 or less.
 2. The materiality assumption applied to each product/disaggregation level will use the greater of the following:
 - a. A “twice as bad” rule calibrated at the 90 percent retail performance level (using the “arc sine square root” transformation) applied to proportions (results reported as percentages); or

⁴ Because of practical considerations, this is done through simulations.

⁵ A separate permutation test could easily be done to test variability, but the parties have agreed this is not necessary.

⁶ For practical reasons, and because the table has changed since the Statistical workshop, the table is not included here.

- b. A ".28 standard deviations" rule applied to means (results reported as intervals or numbers).
3. If KPMG Consulting finds that more than the total sample volume defined above is exceeded to implement materiality assumptions, it will bring the issue before the TAG.

This approach is adopted for the purpose of setting sample sizes. It sets no requirement for, nor constraints on, the analytical approach applied to the data.

The parties have basically agreed upon the determination of sample size, as described above, though some question about the precise wording remains. The null hypothesis used for this purpose is the one above. For the purposes of determining sample sizes for benchmark estimates, the exact Binomial distribution will be used, and a 90% retail performance level will be assumed.⁷ For the purposes of determining sample size for interval estimates, a modified Z test will be used. This avoids the difficulties of determining the sample size for a permutation test, with little or no relevant data available. Further clarification is needed as to what assumptions should be made for the case of percentage or proportion metrics with parity standards.

For $\alpha=\beta=5\%$ for benchmark measures, with the standard at 90% and the alternative at 80% (this is the twice as bad standard above), the sample cell size is 134. The sample cell size for interval estimates, calculated based on assumptions above, is $138n_{ILEC}/(n_{ILEC}-138)$ where n_{ILEC} is the number observations in the ILEC. This means that the sample size is about 140, when ILEC observations are 10,000. It is 138 when ILEC observations are 100,000. For ILEC observations at 1000 and below, the sample cell size grows considerably. When the ILEC observations dip below 138, Qwest's proposal cannot be implemented at any sample size. Below is a table showing sample cell size as a function of ILEC observations:

ILEC Size	Cell Size
150	1,725
200	445
400	211
600	179
800	167
1,200	156
2,000	148
10,000	140

Below are the technical calculations involved in determining these sample sizes. They provide the mathematical support for the numbers given above.

Sample sizes for benchmark standards. Sample sizes for benchmark standards can be identified using standard software, without any formal derivations needed. First consider the case of

⁷ In this case, when an exact test can be done, there is no need for any variance stabilizing transformation.

$\beta = \alpha = 5\%$. We assume the benchmark standard is 90% on-time and the alternative hypothesis is 80% on-time. A sample size of 134 would allow for a test at this level (it should be noted, however, that the benchmark tests are subject to stare and compare only, so that actual type I error depends on the Null hypothesis, and for a Null hypothesis of 90%, it would be close to 50%).

Sample Size calculations for interval standards. As described above, we assume $\beta = \alpha = 5\%$. We assume the null hypothesis described above. For this scenario, we use the modified Z, assume normality, and calculate β at .28 standard deviations from the ILEC mean. The modified Z test statistic is defined as

$$z = \frac{\bar{X}_{CLEC} - \bar{X}_{ILEC}}{\sqrt{\sigma_{ILEC}^2 \left[\frac{1}{n_{CLEC}} + \frac{1}{n_{ILEC}} \right]}}$$

In a one-sided test with $\alpha = 5\%$, we reject when $z > 1.645$ and accept the Null when $z \leq 1.645$. Since we want to find the sample size where $\beta = 5\%$, this translates to finding the sample size where the $P(z \leq 1.645) = .05$.

Thus, we have

$$P_{(\mu_{CLEC} - \mu_{ILEC} - .28\sigma = 0)} \left(\frac{\bar{X}_{CLEC} - \bar{X}_{ILEC}}{\sqrt{\sigma_{ILEC}^2 \left[\frac{1}{n_{CLEC}} + \frac{1}{n_{ILEC}} \right]}} < 1.645 \right) = .05, \text{ where the subscript to the } P$$

indicates the conditioning. Adding and subtracting a term, we get

$$P_{(\mu_{CLEC} - \mu_{ILEC} - .28\sigma_{ILEC} = 0)} \left(\frac{\bar{X}_{CLEC} - \bar{X}_{ILEC} - .28\sigma_{ILEC}}{\sqrt{\sigma_{ILEC}^2 \left[\frac{1}{n_{CLEC}} + \frac{1}{n_{ILEC}} \right]}} + \frac{.28\sigma_{ILEC}}{\sqrt{\sigma_{ILEC}^2 \left[\frac{1}{n_{CLEC}} + \frac{1}{n_{ILEC}} \right]}} < 1.645 \right) = .05$$

Now, the first term is a standard Normal variable, because we have assumed Normality of the data, the Alternative hypothesis, and that the variance is the ILEC variance. Thus, substituting Z for a $N(0,1)$ variable, we get

$$P \left(Z + \frac{.28\sigma_{ILEC}}{\sqrt{\sigma_{ILEC}^2 \left[\frac{1}{n_{CLEC}} + \frac{1}{n_{ILEC}} \right]}} < 1.645 \right) = .05 \quad (1)$$

• More algebra gives us

$$P \left(Z < 1.645 - \frac{.28\sigma_{ILEC}}{\sqrt{\sigma_{ILEC}^2 \left[\frac{1}{n_{CLEC}} + \frac{1}{n_{ILEC}} \right]}} \right) = .05 \quad (2)$$

Now we know (from a standard Normal distribution) that $P(Z < -1.645) = .05$, so we can set the right hand side of the equation equal to -1.645 and solve. The equation becomes

$$3.290 = \frac{.28\sigma_{ILEC}}{\sqrt{\sigma_{ILEC}^2 \left[\frac{1}{n_{CLEC}} + \frac{1}{n_{ILEC}} \right]}} \Rightarrow \quad (3)$$

$$10.8241 \left(\frac{1}{n_{CLEC}} + \frac{1}{n_{ILEC}} \right) = .0784 \Rightarrow$$

$$138 = \frac{n_{ILEC}n_{CLEC}}{n_{ILEC} + n_{CLEC}} \Rightarrow$$

$$n_{CLEC} = \frac{138n_{ILEC}}{n_{ILEC} - 138} \quad (4)$$

Next, consider the case where $\beta = 50\%$ and $\alpha = 5\%$. The calculations are the same as above, except that the right hand side is $.5$. Since $P(Z < 0) = .5$, equation (3) becomes

$$1.645 = \frac{.28\sigma_{ILEC}}{\sqrt{\sigma_{ILEC}^2 \left[\frac{1}{n_{CLEC}} + \frac{1}{n_{ILEC}} \right]}}$$

After some algebra, we get

$$n_{CLEC} = \frac{35n_{ILEC}}{n_{ILEC} - 35}$$

2.6 Other Statistical Issues

Based on a number of factors, including KPMG Consulting's regional differences analysis and decisions made by the Steering Committee, the products reflected on Appendix K will have 140 instances either at a regional level or at a 13 state level. This breakdown is reflected in a document titled "ROC Production Bed Test Mix." The test cases and test bed will be designed based on this document which was the result of direct Steering Committee input.

The following PIDs are only relevant to the Performance Measurements Audit:

- Electronic Gateway Availability GA-4
- Maintenance and Repair MR-10
- Directory Assistance DA-1, DA-2
- Operator Services OS-1, OS-2
- Network Performance NP-1
- Collocation CP-1, CP-2, CP-3, CP-4, CP-5, CP-6
- Databases DB1, DB2
- Billing BI-4B

Appendix K: Product Samples

Products Requiring Statistically Significant Samples

	Statewide	Dispatch MSA	Dispatch non-MSA	No Dispatch
Analog loop	X-R	N/A	N/A	N/A
Business POTS	N/A	X-S	-	X-R
DSL Loop	X-S	N/A	N/A	N/A
Non-loaded 2W loop	X-R	N/A	N/A	N/A
Residential POTS	N/A	X-S	-	X-R
UNE-P	N/A	X-R	X-R	X-R
Loop w/portability	X-R	-	-	-
Centrex resale	N/A	1/2X-S	-	1/2X-S

The table shown above was originally developed during the MTP Design Workshop in Salt Lake City. Products marked with an X are those products that require the minimum of 140 samples for statistical significance across either the 13 states or across each of the three regions. Those products marked with an X-S will receive the 140 samples across the 13 states and those marked with an X-R will have 140 samples per region for each of the three regions. Products with a dash will be tested at a much smaller sample size. The 1/2 X in the Centrex row indicates that the sample size to be used in the two columns involved will add up to the target sample size of 140. However, there is no requirement that the sample in the two different columns be equal.

As part of the test bed construction, KPMG Consulting made a proposal to the TAG and the Steering Committee on the mix of the test bed resources across the states to achieve these test sample objectives. This proposal was modified by the Steering Committee on 10/16/00 and the final test bed mix was approved on 10/19/00. This decision by the Steering Committee was the basis of whether a given product would be tested at a regional level or at a thirteen-state level.

The original table was also modified on 11/13/00 to eliminate the distinction between high and low density for the unbundled loop products. These products are now shown in the column labeled "Statewide." This modification was prompted by Qwest's decision to use the same provisioning intervals statewide for these products regardless of the density zone the customer was located in.

The 140 samples for UNE-P MSA and non-MSA will be split within each region in proportion to data provided by Qwest on the actual commercial split of resale accounts across the MSA and non-MSA areas. Resale data is being used as a surrogate for UNE-P data being there is not enough UNE-P data available yet to make this determination.

Order No. T001-
Guest Corporation
Exhibits to the Affidavit of Lynn M. V. Steinhilber
Checklist Item 2 - OSS
Enrol LYN-OSS-3
October 24, 2001

Test Requirements Document

Regional Oversight Committee (ROC)

*Test Requirements Document (TRD)
for the
3rd Party Test of U S WEST
Operational Support Systems (OSS)*

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Issued by:

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Appendix A: Document Control

Appendix B: ROC OSS Test Performance Indicator Descriptions (PIDs) v 1.0 2/16/00

Appendix C: Performance Measures

Appendix D: Scenarios

Appendix E: Glossary

Appendix F: U S WEST Transaction Distribution Among States

Appendix G: Statistical Approach

Appendix H: Test Overview Matrix

1. EXECUTIVE OVERVIEW

Execution of a master test plan based on this Test Requirements Document (TRD) will evaluate the operational readiness, performance and capability of U S WEST to provide pre-ordering, ordering, provisioning, maintenance and repair (M&R) and billing Operation Support Systems (OSSs) interfaces and functionality to competitive local exchange carriers (CLECs) within the 13 participating Regional Oversight Committee (ROC) states. The test administrator will be expected to use this document and its experience to develop a formal master test plan to review and evaluate U S WEST's systems and processes. This TRD has been developed in a collaborative process initiated by the ROC that includes state commission staff, U S WEST, CLECs and other industry participants.

The collaborative process included four major steps. Step 1 was a Testing Principles and Scoping Workshop resulting in agreement on twenty testing and scoping principles to guide the planning, execution and evaluation of the ROC's testing effort. In Step 2, MTG developed a first draft of the TRD using the twenty principles, test plans developed in other states, FCC and DOJ guidelines and specific ROC requirements for the U S WEST operating territory. In Step 3, ROC TAG members participated in a review and comment process that included a TRD Workshop where the test requirements were further refined. Once a Test Administrator is appointed, Step 4 will include the further refinement of scenarios, development of the test transaction mix and volume estimates with input from TAG members. The Test Administrator will also develop a draft Master Test Plan that will be reviewed by the TAG and approved by the ROC.

The overall test is designed to be multi-faceted and provide end-to-end coverage of the systems, interfaces, and processes that will impact the ability of CLECs to enter the market in the U S WEST region and provide local service to regional consumers at production volumes. In constructing this TRD, many factors were considered, including the systems and processes to be tested, the measurement points and respective evaluation criteria, and the necessary conditions required to stage a successful, efficient, and objective test. The Test Administrator is expected to ensure that all tests listed in this plan are executed.

The Test Administrator will provide test results and evaluations to the ROC and TAG as the test progresses, develop at least one Interim Report at approximately the mid-point of the test, and possibly other interim reports, and develop a Final Report at test completion. The Final Report and all major aspects of the ROC 3rd Party Test of U S WEST will be used by participating state commissions as part of their evaluation of U S WEST's individual state section 271 applications. A significant output of each 271 proceeding will be a recommendation to the FCC by the state commission on U S WEST's OSS compliance with the Telecommunications Act of 1996 (The Act).

Through the ROC's extensive collaborative testing effort, in general, and this TRD specifically, the following benefits should be realized:

- ROC commission staff, US WEST and CLECs will eliminate duplicative work across states by determining a complementary set of OSS functionalities, performance measurements and methods to be used in the test
- Increased administrative efficiency will result in time and cost savings for all participants

For planning purposes, the ROC OSS test execution and evaluation process is currently expected to complete in the 4th quarter of 2000. However, the actual completion date is critically dependent on the completion of military testing and all exit criteria. The concurrent consideration of 271 related matters in the U S WEST region may also impact the ability to meet this target date.

2. INTRODUCTION

This Test Requirements Document (TRD) has been developed collaboratively by participating state commission staff, U S WEST, competitive local exchange carriers (CLECs) and other industry participants under the auspices of the ROC's 3rd party testing organization. It will be used as the basis for a test of U S WEST's OSS to assist the states in determining if the company is in compliance with requirements specified in the Telecommunications Act of 1996 and subsequent Federal Communications Commission (FCC) proceedings.

2.1 Purpose

The purpose of this TRD is to define all major aspects of the ROC 3rd Party Test of U S WEST OSS in line with the testing and scoping principles collaboratively developed by ROC testing participants. The objectives this TRD is designed to meet include:

- Define the framework in which the ROC test will be planned, conducted and evaluated including the testing organization, process requirements and methodology where appropriate
- Specify the scope of the test in sufficient detail to permit vendors to prepare definitive proposals for the roles of 3rd Party Test Administrator, Pseudo-CLEC and Performance Measures Auditor
- Establish test requirements that represent the 13-state environment in which the test is to be conducted for use by the 3rd Party Test Administrator in preparation of the master test plan and detailed testing specifications

- Provide an open testing process that balances the need for full industry participation in all phases with requirements necessary for rigor, such as blindness during the detail test specification and execution phase
- Specify the communications framework to be used throughout the testing effort
- Describe all individual tests included in the scope

2.2 Principles and Scope

Twenty principles dealing with the 3rd party OSS test and its scope were agreed upon in the ROC's Testing and Scoping Principles Workshop held in St. Paul MN on December 2nd and 3rd, 1999.

These principles will be the guiding principles used to plan, conduct, evaluate, and report on the ROC 3rd Party Test of U S WEST's OSS. The vendor(s) shall incorporate these principles into the master test plan and shall be guided by these principles in the development, execution, analysis, and reporting of the plan.

The complete list of principles can be found in Section 3. Where relevant, specific principles will be cited in this document to provide guidance to the vendor(s).

2.3 Test Administration

Section 4 defines the organization, processes and communication framework that will govern the test activities outlined in this TRD. It describes the ROC approach to the testing effort, organizational entities, and their respective roles and responsibilities. It also outlines the communications processes for written communications, documents and meetings, both open and closed. Scheduling and tracking requirements are specified along with the issue resolution process.

2.4 Test Framework and Test Elements

In order to develop a comprehensive test of U S WEST's OSS systems, interfaces, and processes, the test framework is defined in terms of a set of elements including the following:

- U S WEST OSS System Architecture
- Test Domains
- Party standards, Benchmarks, Qualitative Evaluations and Comparisons
- Test Data
- Entrance and Exit Criteria

- Test Process Types and Individual Tests
- Inputs, Activities and Outputs for Specific Tests

2.5 OSS System Architecture

Section 6 provides an overview of U S WEST's OSS System Architecture throughout the 13-state area covered by this test. By its nature, the ROC test is somewhat unique because it is the first independent 3rd party testing effort that has been initiated by multiple jurisdictions that will oversee the effort from its formative stage through completion. The broad geographical reach of the test expands the OSS architecture breadth as well. U S WEST's current operating territory, and therefore much of its OSS legacy architecture, is the result of the merging of three predecessor Bell Operating Companies into the U S WEST Regional Bell Operating Company (RBOC), including:

- Pacific Northwest Bell (PNB) covering Washington and Oregon now referred to as the Western Region
- Mountain Bell (MB) covering Arizona, Colorado, Idaho, Montana, New Mexico, Utah and Wyoming, now Central Region
- Northwestern Bell (NWB) covering Iowa, Minnesota, Nebraska, North Dakota, and South Dakota, now Eastern Region

This heritage has resulted in some OSS architecture variations across the regions. These variations as well as state differences are highlighted in this section.

2.6 Performance Measures

The performance measures to be used in the 3rd party OSS test are being collaboratively developed by the TAG. The process began with a straw-man proposal distributed for review in December 1999. The comments were discussed and the measures further refined in a ROC Performance Measures Workshop held in Salt Lake City, UT on January 19-21, 2000. Issue resolution activities resulting from the workshop along with amendments, additions and deletions to the performance measure plan continue in subsequent collaborative forums.

2.6.1 Performance Measurement Components

OSS performance measurement plans designed to evaluate Incumbent Local Exchange Carrier (ILEC) performance include definitions of performance measures, success criteria, other standards, and reporting requirements. The performance measures quantify the ILEC's performance of wholesale and retail processes. They are defined in terms of purpose, rules used in collecting raw data required, reporting dimensions, calculation formula, etc. Success criteria are defined as either a benchmark or a retail parity standard. A benchmark is established to

identify the point at which the ILEC's performance for a wholesale process is deemed adequate for those wholesale processes for which there is no appropriate retail analog. For those wholesale processes for which there is an analogous retail process, parity standards will be used. Parity standards indicate that the wholesale performance of a process should be compared to the ILEC's performance of retail processes. Parity standards require that the ILEC's retail or internal performance is compared to analogous wholesale performance measures to determine if there is non-discriminatory treatment of wholesale services as required by the Act and orders by the FCC.

2.6.2 Performance Measurements in the Context of the ROC's 3rd Party Test

Performance measurements will be a key element of the ROC test of U S WEST OSS. Since the ROC test is the first effort involving multiple state commissions and jurisdictions, it presents some unique challenges, including:

- No ROC-wide performance measurement system currently exists
- Individual states within ROC have differing regulations, products and services, operating environments, service expectation and norms which will likely impact their performance measurements, parity measure and benchmarks
- It is unwieldy to have 13 views of performance measures for the ROC test
- It is unlikely that all 13 states could develop one long-term umbrella performance measurement system prior to the start of the planned ROC test
- 271 filings by U S WEST will occur at different times and therefore be processed on different schedules

2.6.3 ROC's Planned Approach to Performance Measurements in Its U S WEST OSS Test

To support a comprehensive test of U S WEST's OSS in a timely manner that includes a pre-determined performance measurement system, the ROC Steering Committee has developed the following consensus:

- There should be performance measurements, parity comparisons, benchmarks and statistical evaluation methods established in advance for use during the ROC test
- This set of performance measurements and associated parity comparisons and benchmarks will be established solely for the 3rd Party Test Vendor (s) to test and evaluate the outcomes as required to meet the needs of the ROC states for testing purposes

- ROC states will use the test results and evaluation as part of the record in their individual 271 proceedings
- ROC states are free to modify the performance measurements (either the set of measurements or the parities/benchmarks) on a going forward basis (post third party test) as required to meet their specific needs as they prepare comments for the FCC on a state-specific 271 filing and address backsliding and related issues
- ROC has requested and U S WEST has agreed that all performance measures agreed upon for the ROC test will be collected during the period after third party test completion and before the completion of individual 271 proceedings in the states and the FCC application and review period
- The measurements taken after completion of the ROC test will not be used to re-open military testing but may be used to support future FCC filings. This does not preclude looking at such data to help review and/or close exceptions identified in the test.

The vendor shall develop a test plan and specifications that support these points.

2.7 Entrance and Exit Criteria

Entrance criteria are those requirements that must be met before individual tests can commence. Global entrance criteria must be satisfied prior to commencement of any testing, and apply to every individual test except where noted otherwise. Exit criteria are those requirements that must be met before the test can be concluded. Global exit criteria apply to every individual test except where noted otherwise. Individual tests each have individual entrance and exit criteria.

Entrance and exit criteria link the test plan with Performance Measures. Entrance criteria generally require that Performance Measures are completely defined, available and operational.

2.8 Test Processes and Test Types

The major test types are Transaction Driven Systems Analysis and Operational Analysis. The first introduces various types of transaction-oriented test data, from various sources, into U S WEST OSS processes and observes the results.

Operations analysis assesses aspects of the trading partnership business process that are not transaction driven.

3. TEST PRINCIPLES AND SCOPE

The twenty principles agreed to by the TAG are:

1. This test is intended to evaluate whether U S WEST provides non discriminatory access to an OSS for associated resale, unbundled network elements (UNEs), and interconnection services in order to demonstrate the operational readiness of these OSSs to support sustained commercial operation. As part of non-discriminatory access, the test will evaluate whether U S WEST has deployed the necessary systems and personnel to provide sufficient access to each of the required OSS functions including pre-order, order, provisioning, maintenance and repair, and billing. The test will include an evaluation of U S WEST's adherence to telecom industry guidelines for OSS interfaces. It will also evaluate whether U S WEST is adequately assisting competitive local exchange carriers (CLECs) to understand how to implement and use all of the OSS functions available to them.
2. An independent test administrator (TA), an independent pseudo-CLEC (P-CLEC) and a performance measure auditor (PMA), performing three separate and distinct roles, under the oversight of the ROC, will conduct this test.
3. The scope of this test will be designed and scaled to represent the environment of the 13 states to ensure their ability to use the results in individual state proceedings. Once regional and state differences in U S WEST OSSs are fully understood, a determination will be made on what testing will most appropriately address the impact of the differences. The appropriate testing approach will be designed into the master test plan (MTP) to assess the U S WEST OSS for regional and state differences.
4. The goal of all parties to the ROC test of U S WEST OSS is an open, above-board test environment where all information relating to the test is available to all parties, except that information that is commercially sensitive or proprietary. To that end, the Test Administrator will establish procedures concerning communications affecting the planning, conduct and evaluation of the test. These procedures will include regular, open meetings between the Test Administrator, the P-CLEC, the CLEC community and ROC representatives in a manner similar to the meetings held in the Bell Atlantic-New York test. Issue identification, research, resolution decisions, and other relevant items critical to the transparency of the test will be discussed and documented.
5. The ROC test will use guidelines established by the FCC and DOJ and will draw on input from the ROC Steering Committee (ROCSC), individual state commissions, CLECs, U S WEST, and other TAG members. The CLECs and U S WEST should play an active role in developing performance measurements and success criteria. The ROC will ensure that the performance measurements and success criteria are reasonably complete prior to the start of the test.
6. The OSS access that U S WEST provides to itself and to CLECs will be evaluated using both qualitative and quantitative methods.

7. A Master Test Plan will be developed with input from all ROC participants. The MTP will be developed and approved by the ROC prior to any testing activity. The MTP will be designed to maintain adequate blindness with respect to U S WEST. The performance measures will be developed in a document separate from the MTP and in a timeframe consistent with principle 5 above.

8. All documentation and assistance made available to the P-CLEC by U S WEST for use by the P-CLEC in building and/or setting up the required OSS interfaces will be made available to all participants to verify that the P-CLEC is not being given special treatment.

9. This test will include a thorough and well-documented independent assessment of data collection and calculation processes for performance measurement data both qualitative verification and against business rules.

10. The test will include an independent review of the Change Management processes and procedures used by U S WEST to communicate with CLECs regarding OSS system performance and system updates. This review will include an evaluation of how CLEC suggestions and requests for system corrections, enhancements or new functionalities are handled. The test will evaluate at least one significant software release implementation. Any testing fixes applicable to production will be introduced into the U S WEST/CLEC Change Management process, unless otherwise determined by ROC.

11. This test will include normal, high and stress volume testing using a replicate mix of expected transactions that includes normal transactions, transactions with errors, changes and supplements. Scalability of manual processes and supporting hardware and software is to be evaluated in lieu of volume testing for manual processes.

12. The test will include an evaluation of the adequacy of documentation and assistance provided by U S WEST to CLECs for establishing, maintaining and using OSS interfaces. A P-CLEC will be used to evaluate the ability of building, maintaining and using an EDI interface and setting up, maintaining and using a GUI interface. If a CLEC has built an EB-TA interface for M & R and is willing to make it available¹ to the P-CLEC, that interface can be used to evaluate Maintenance and Repair interface maintenance and use. If no CLEC has built an interface or ~~now is~~ is willing to make it available, the Test Administrator should use a P-CLEC built EB-TA interface to test business rules and ability to process transactions. Regardless of whether a new or existing EB-TA interface will be used, the documentation and assistance provided by US WEST for EB-TA will be evaluated.

13. The test can be conducted using transactions (e.g. pre-orders, orders and trouble reports) from a combination of existing CLECs and a P-CLEC. Similar test cases will be run by both

¹WCT WorldCom has built an EB-TA interface for M&R and is willing to make it available to the P-CLEC. It is expected that WCT WorldCom's interface will be used for the test.

the P-CLEC and a production CLEC that has completed interface verification with U S WEST in order to validate the process under the oversight of the Test Administrator.

14. The test process will include a formal, predictable and public mechanism to communicate with CLECs and U S WEST on issues related to the test. This mechanism will be managed by the Test Administrator and overseen by the ROC.

15. The test scope will include functional testing of preordering, ordering, provisioning, maintenance and repair and billing. The functionalities will include a replicate mix of manual requests, electronic transactions, errors, changes, and supplements in both flow-through and non-flow-through provisioning, as appropriate, with CLECs consulted on the determination of the mix. Functional testing will be conducted on an end-to-end basis that results in orders actually being provisioned, as applicable, as determined by the ROC.

16. The 3rd party test will test significant volumes of transactions for xDSL-capable loops and include a qualitative evaluation of preordering functions including loop qualification.

17. Where possible, U S WEST wholesale performance measurements will be compared with analogous performance measurements of U S WEST's retail performance. Where this retail parity comparison is not possible, U S WEST wholesale services will be compared to a fixed benchmark.

18. Testing will also include both qualitative and quantitative evaluation of the usability, capability and accessibility of U S WEST wholesale OSS interfaces compared to U S WEST Retail OSS interfaces.

19. As testing progresses, the need to test or evaluate new products/services or delivery methods will be determined on an individual case basis as they are identified. Based on the associated facts, the new products/services or delivery methods will either be incorporated in the test or handled separately.

20. The ROC test will use military-style testing. This approach ensures that all significant exceptions will be tested until they are corrected and the relevant success criteria are met.

The vendor(s) shall develop test plans, specifications and procedures whose scope and philosophy incorporate and are guided by these principles.

4. TEST ADMINISTRATION

While several 3rd party OSS tests have been conducted (or are in process), none have involved multiple states working together in a collaborative arena. This section will describe to the vendor(s) the:

- Nature of the thirteen-state Regional Oversight Committee
- The participants in the test and their roles and responsibilities
- Procedures for written communications and documents
- Guidelines for the initiation and conduct of meetings
- Scheduling and tracking testing activities to be performed
- Scheduling and tracking the assignment and status of action items
- Structure and procedures for issues resolution

4.1 Regional Oversight Committee

The Regional Oversight Committee (ROC) membership is comprised of the 14 state public utility commissions serving the states in U S WEST's operating territory. These include Arizona, Colorado, Iowa, Idaho, Minnesota, Montana, North Dakota, Nebraska, New Mexico, Oregon, South Dakota, Utah, Washington and Wyoming. A major objective of the ROC is the cooperative and efficient oversight of U S WEST's operations on behalf of telecommunications customers while promoting consistency where feasible and appropriate.

4.1.1 Overview

In June 1999, 13 of the 14 ROC state commissions proposed a region-wide collaborative test of U S WEST's OSSs. The Arizona Corporation Commission (ACC) elected to pursue a separate test. On August 13, 1999 U S WEST responded to the state commissions indicating its agreement in principle with the proposal for a 13-state collaborative third party test of its OSS.

In September 1999, the ROC selected Frank Darr, of the National Regulatory Research Institute (NRRI), as its Administrative Coordinator responsible for assisting the various ROC entities with their participation and as liaison to the Federal Communications Commission (FCC) and Department of Justice (DOJ). Also in September 1999, the ROC conducted an open selection process for a Project Manager to serve as the primary, day-to-day liaison between the Commissions, the third party vendors, U S WEST, CLECs and all other parties associated with this project. Maxim Telecom Consulting Group (MTG) was selected as the Project Manager and began preliminary work on October 1, pending the execution of contracts that were completed in early December.

The ROC Technical Advisory Group (TAG) consisting of state commission staff, competitive local exchange carrier (CLEC) representatives, U S WEST and other industry members was initiated in late September and has been active in the initial planning of the test. The TAG collaboratively developed the Testing and Scoping Principles previously discussed in Section 3

that will drive the testing effort. The TAG is also collaboratively developing the Performance Measurements for testing purposes and has an extensive role in the development of this Test Requirements Document (TRD).

The ROC 3rd Party Test of U S WEST's OSS represents a somewhat unique effort to date in the independent OSS testing arena. It is the first time that multiple states have joined together to initiate a collaborative effort to plan, execute and evaluate a Regional Bell Operating Company's (RBOC's) OSS at an RBOC-wide level. Each of the ROC's state commissions will eventually consider a request from U S WEST for a favorable recommendation to the FCC on the company's petition for section 271 relief in that state. Such a recommendation must include a verification that the company is in compliance with the requirements of Section 271 (c) of the 1996 Telecommunications Act. The results and evaluation of the ROC 3rd Party Test will be used by the 13 state jurisdictions as part of their individual 271 proceedings and will become part of the overall record in each state.

4.1.2 OSS Testing Objectives

The Act and FCC orders under its authority to implement the Act require U S WEST to:

- Provide just, reasonable and nondiscriminatory access to its OSS for associated resale, unbundled network elements (UNEs) and interconnection services;
- Provide the documentation and support necessary for CLECs to access and use these systems; and
- Demonstrate the operational readiness of these OSSs to support sustained commercial operation and meet prescribed performance standards

The primary objective of this OSS testing effort is for 3rd party vendors to provide information and assist the participating state commissions in their verification that the company is in compliance with the requirements of Section 271 (c) of the Act. This OSS test along with other items in the state record will be used by the state commission to formulate a recommendation to the FCC that will be given considerable weight in the FCC's review of U S WEST Section 271 applications.

Related objectives include:

- Ensure that CLECs have access to OSSs that work through a comprehensive and rigorous testing process
- Promote increased inter-LATA competition if and when it is found that U S WEST has met the specified requirements
- Eliminate duplicative work across states and the company by determining a complementary set of OSS functionalities, performance measurements and methods to be used in the test

- Promote administrative efficiency resulting in time and cost savings for all participants

4.1.3 Joint Authority, Responsibilities and Prerogatives

Participating ROC member commissions have agreed to use independent 3rd party testing to ensure that U S WEST's OSS meet competitive checklist requirements defined by the Act and subsequent FCC rulings. This joint approach, rather than addressing OSS on a state-by-state basis as U S WEST's Section 271 applications are individually filed, offers efficiencies to all parties. To ensure that the efficiencies are realized, the ROC members will act jointly through the ROC testing organization described in Section 4.2 to plan, execute and evaluate the independent 3rd party test. The roles and responsibilities of each entity as it represents the joint authority of the ROC are summarized in Table 4.2.

4.1.4 Separate Authority, Responsibilities and Prerogatives

ROC member state commissions participating in this test retain all existing authority to carry out their statutory responsibilities within their respective states both during this collaborative test and after its completion. Each state commission may choose to include the test results and evaluation in its individual section 271 proceeding as part of the total record and retains the prerogative to make determinations independently from the ROC process. However, each of the 13 ROC member commissions that have agreed to participate in this test accepts the responsibility to make resources available and actively support the discussions and collaborations in good faith to ensure maximum success and applicability of the test.

4.2 Organization and Responsibilities

The ROC has established the following organization to support the 3rd Party Test of U S WEST's OSS and defined the key roles and responsibilities of each as shown below.

4.2.1 ROC

State commission participation in the collaborative test will be through four organizational entities established for this purpose including the Executive Committee, Steering Committee, Administrative Coordinator and Project Manager. See Table 4.2 for a description of the membership, roles and responsibilities of each. The role of the ROC includes:

- Provide overall project management of the end-to-end test planning, execution and evaluation effort
- Oversee the overall test development and testing process to ensure fairness and rigor
- Determine the overall testing scope and timeline

- Acquire, allocate and coordinate resources
- Appoint a Test Administrator to conduct the test activities
- Appoint a Pseudo-CLEC (P-CLEC) to develop the testing interfaces and submit transactions
- Appoint a Performance Measures Auditor (PMA) to audit the wholesale performance measures and retail parity standards
- Provide for an open, inclusive TAG collaborative process
- Provide final approval of baseline documents including the TRD and the MTP
- Manage and resolve issues escalated from the testing process as required
- Review and approve the Final Report (s) prepared by the Test Administrator and P-CLEC
- Review and approve the final audit report prepared by the PMA
- Communicate progress, status and issues to all interested parties

Table 4.2 ROC Testing Organization

Entity	Composition	Members	Role
Executive Committee (EC)	6 Commissioners selected by the ROC	A. Boyle (NE) E. Garvey (MN) S. Mecham (UT) B. Rowe (MT) M. Showalter (WA) A. Thoms (IA)	Ensure project meets ROC expectations Oversee the entire project Provide authority for actions not previously agreed to Resolve issues unresolved at Steering Committee level Meet once per month and as needed
Steering Committee (SC)	State staff; Administrative Coordinator; Project Manager	W Fuller, Chairperson. Technical staff from each of the participating states; F Darr; MTG team	Represent Commissions in collaboratives to develop and implement the test Assist in developing the TRD, evaluations and performance criteria Review and approve the final TRD and final report Oversee test progress and resolve issues Communicate status and results Meets weekly and as needed
Administrative Coordinator (AC)	NRRI	F Darr	Advise EC and SC on process Research, coordinate EC and SC meetings Liaison to FCC and DOJ Communications
Project Manager (PM)	MTG Team	D. Anderson; B. Center; R. Schwartz	Represent Commissions in day-to-day management of testing project Prepare, publish and manage guiding documents in a collaborative manner with other test participants Liaison to Tester, ROC, USWC, CLECs and others and serve as TAG chair Observe testing to ensure fairness and rigor Provide technical assistance in test design, vendor selection, monitoring, performance measurements and evaluation Manage issues to resolution
Technical Advisory Group (TAG)	Collaborative participants	SC, AC, PM, CLECs, U S WEST, Other interested parties	Serves as collaborative forum for test effort

4.2.2 U S WEST

As the party having its interfaces tested, U S WEST is a direct participant in this test with the following roles and responsibilities:

- Provide participation, documentation and subject matter expertise in the TAG collaborative throughout the planning, execution and evaluation effort
- Provide order volume, interface usage, product information and other data as required to the Test Administrator for use in determination of the replicate mix of orders and transactions and the capacity volume forecast (under confidentiality where appropriate)
- Provide the U S WEST OSS production environment to be used for the test
- Establish a CLEC-ILEC relationship with the P-CLEC and provide an Account Management Team and Technical Assistance Team to interface with the P-CLEC
- Provide technical specifications, related documentation and resources for use by the P-CLEC in establishing the P-CLEC entity and for creation of the interface (s) and transaction generator
- Provide for preparation, set-up, and access to the U S WEST production components for the tests as necessary to enable monitoring by the Test Administrator and oversight by the Project Manager
- Provide documentation to the Test Administrator to enable all agreed upon scalability analyses of systems, interfaces, work centers operations and processes
- Provide a test bed data base as required for testing purposes under the direction of the Test Administrator
- Provide for the Test Administrator to observe and the ROC Project Manager to oversee retail and wholesale processes on-site during the test and evaluation effort
- Collect raw data, compute Performance Measurements and provide to the Test Administrator
- Provide system-processing data necessary to understand the resource usage for the test workload
- Provide physical configurations for the US WEST systems used for the tests
- Provide the Test Administrator with access to all historical data, current operational reports and related algorithms needed to complete the test and evaluation
- Maintain a stable operational environment for the duration of the test and evaluation

4.2.2 U S WEST

As the party having its interfaces tested, U S WEST is a direct participant in this test with the following roles and responsibilities:

- Provide participation, documentation and subject matter expertise in the TAG collaborative throughout the planning, execution and evaluation effort
- Provide order volume, interface usage, product information and other data as required to the Test Administrator for use in determination of the replicate mix of orders and transactions and the capacity volume forecast (under confidentiality where appropriate)
- Provide the U S WEST OSS production environment to be used for the test
- Establish a CLEC-ILEC relationship with the P-CLEC and provide an Account Management Team and Technical Assistance Team to interface with the P-CLEC
- Provide technical specifications, related documentation and resources for use by the P-CLEC in establishing the P-CLEC entity and for creation of the interface (s) and transaction generator
- Provide for preparation, set-up, and access to the U S WEST production components for the tests as necessary to enable monitoring by the Test Administrator and oversight by the Project Manager
- Provide documentation to the Test Administrator to enable all agreed upon scalability analyses of systems, interfaces, work centers operations and processes
- Provide a test bed data base as required for testing purposes under the direction of the Test Administrator
- Provide for the Test Administrator to observe and the ROC Project Manager to oversee retail and wholesale processes on-site during the test and evaluation effort
- Collect raw data, compute Performance Measurements and provide to the Test Administrator
- Provide system-processing data necessary to understand the resource usage for the test workload
- Provide physical configurations for the US WEST systems used for the tests
- Provide the Test Administrator with access to all historical data, current operational reports and related algorithms needed to complete the test and evaluation
- Maintain a stable operational environment for the duration of the test and evaluation

- Provide funding for the Test Administrator, P-CLEC, Administrative Coordinator, Project Manager and all other costs except those incurred by the Commissions, CLECs and other interested parties

4.2.3 TAG

The Technical Advisory Group will conduct regular meetings, generally weekly, either in-person or via teleconference call to inform all members of testing progress, review current status and identify and resolve issues. Additional special-purpose TAG meetings will also be held as needed to support the test planning, execution and evaluation process. The TAG will initially be chaired by the ROC Project Manager, MTG, which may change during the course of the testing effort as deemed appropriate by the ROC Steering Committee and TAG membership. TAG member responsibilities include:

- Provide participation, documentation and subject matter expertise in the TAG collaborative throughout the planning, execution and evaluation effort
- Review requests for proposals (RFPs) and vendor proposals, including those for TA, P-CLEC and PMA
- Provide order volume, interface usage, product information and other data as required to the TA for use in determination of the replicate mix of orders and transactions and the capacity volume forecast. All forecast information will be kept confidential by the TA.
- Provide technical assistance in test planning and execution
- Recommend criteria for selection of Test Administrator and P-CLEC
- Assist with scenario definition
- Assist with issue identification, resolution and when necessary escalation to the ROC
- Periodically review test results and offer advice, observations and provide input to the test process

4.2.4 CLECs

CLECs may serve as direct test participants and/or as members of the TAG. A test participant will have an active role in all phases of testing including planning, preparation, execution, and analysis.

- Provide participation, documentation and subject matter expertise in the TAG collaborative throughout the planning, execution and evaluation effort

- Provide order volume, interface usage, product information and other data as required to the Test Administrator for use in determination of the replicate mix of orders and transactions and the capacity volume forecast (under confidentiality where appropriate)
- Provide selected interface production environment (s) such as EDI, EB-TA and EXACT/TELIS to be used for the test as appropriate
- Provide for the Test Administrator to observe and the ROC Project Manager to oversee CLEC testing processes on-site during the test and evaluation effort
- Provide input to detailed test specifications under the direction of the Test Administrator
- Provide input to test execution plans under the direction of the Test Administrator
- Provide test execution under the direction of the Test Administrator
- Provide test results documents, reports and support to the Test Administrator as required
- CLECs that are able to interact with U S WEST during the course of the test in production processing will continue to do so. These interactions can be via IMA-GUI, IMA-EDI, EB-TA, EXACT or other means the CLECs use. The results of live operations can provide meaningful information for the Test Administrator in its evaluation of U S WEST's OSS.

4.2.5 Test Administrator

The Test Administrator has overall responsibility for the management of the testing process described in this TRD including assisting other participants in preparing for and conducting the tests, providing change control throughout the testing cycle and reporting the results and evaluation to the ROC. Specific responsibilities include:

- Create a master test plan and test specifications based on the TRD through collaborative development and validation of:
 - Transaction capability test coverage scenarios, test cases and test instances
 - Parity comparison coverage scenarios, test cases, and test instances
 - Capacity test coverage scenarios, test cases and test instances
- Develop a representative transaction mix for the 13-state area and test cases
 - Estimate of reasonably expected demand levels for the capacity test based on inputs from U S WEST and CLECs
 - Allocation of test transactions across P-CLEC and live data transactions across participating CLECs
- Develop and maintain the detail test schedule, milestones, action items and critical path

- Plan and direct the activities of all testing participants including U S WEST, P-CLEC, CLECS and Friendlies if used
- Provide day-to-day supervision and evaluation of all tests identified in this TRD and guidance to all testing participants, as needed
 - Performance Measurement Evaluation
 - U S WEST Parity Evaluation
 - U S WEST Documentation Evaluation
 - Transaction Processing Capability Test
 - Transaction Processing Capacity Test
 - Transaction Processing Scalability Test
 - CLEC Network Provisioning Test
 - Change Management Process Evaluation
 - U S WEST CLEC Support Infrastructure Test
- Take the lead in coordination of schedules and other activities required amongst the three vendor roles, with the ROC/MTG resolving any conflicts that may arise between vendors
- Ensure that testing processes and execution achieves adequate blindness to U S WEST
- Monitor test sites and testing activities to ensure rigor and fairness
- Facilitate oversight by the ROC Project Manager at test sites for selected testing activities
- Collect testing status from all participants and report to the ROC Project Manager weekly
- Provide and manage a formal, predictable and public mechanism for communication with CLECs, U S WEST and the ROC on issues related to the test
- Provide the first level of issue management for all testing related issues including the assignment of accountabilities, tracking, reporting and escalation
- Compile a daily event log that captures the details of its experiences in dealing with all testing participants
- Collect, measure, evaluate and report test results
- Develop and submit to the ROC at least one interim report at or near the mid-point of the test process, and possibly others, that describes the test results and recommendations for each major test type
- Develop and submit to the ROC a final report that describes the overall test results and recommendations and specific results and recommendations for each major test type.

4.2.6 Pseudo-CLEC

The primary role of the P-CLEC is to emulate a newly established CLEC that will serve as an unbiased vehicle for testing U S WEST OSS, documentation and processes. P-CLEC primary responsibilities include:

- Establish the CLEC-ILEC business and technical assistance relationship with U S WEST
- Acquire appropriate documentation, attend training and build an application-to-application OSS interface (EDI), establish a Web-GUI (IMA) interface, and utilize an existing EB-TA interface (offered by MCI WorldCom) to mirror the activities required for a new CLEC to trade with U S WEST
- Develop a list of the documentation that was used to establish interfaces with U S WEST and post that list on the ROC OSS web site
- Evaluate the adequacy of documentation and assistance provided by U S WEST to CLECs for the establishment, maintenance and use of EDI, GUI, and EB-TA OSS interfaces
- Establish the capabilities, install facilities and connectivity for the EDI, GUI, EB-TA and manual OSS interfaces to U S WEST as required to process the volume and mix of transactions for tests specified in the MTP and test specifications prepared by the TA
- Create and submit test transactions to U S WEST over the appropriate interfaces under the direction of the TA
- Collect, measure and document the results of all transactions
- Compile a daily event log that captures the details of its experiences in dealing with U S WEST
- Prepare at least one, possibly more, interim reports or provide the inputs for one or more interim reports to the TA as directed by the ROC
- Prepare a final report or provide input for a final report to the TA

4.2.7 Performance Measure Auditor (PMA)

The primary role of the PMA is to perform an initial audit to ensure that all aspects of U S WEST's wholesale performance measures and retail parity standards are sound and in compliance with the collaboratively developed ROC Performance Indicator Definitions (PID). PMA primary responsibilities include:

- Prepare the audit plan considering a phased approach if feasible

- Provide the audit schedule for all performance measures for use by the TA in the planning and scheduling of the related OSS tests requiring performance measures
- Conduct an end-to-end process analysis of U S WEST's performance measures process
- Verify system requirement documentation to ensure consistency between system coding and system requirements
- Conduct parity by process design for required measures (DB, DA, OS see PID)
- Audit performance data collection for completeness, timeliness and accuracy
- Verify data retention and the existence of proper security around reporting and archiving the data
- Audit performance measures calculation
- Identify exceptions and recommendations
- Verify fixes implemented by U S WEST to clear exceptions identified in audit
- Define a monitoring plan
- Provide weekly reports to the ROC Project Manager and the TA on the progress of the audit, rate of completion and any conclusive findings on material deficiencies
- Prepare and deliver a final audit report

4.2.8 Federal Communications Commission (FCC)

The FCC staff may observe the process of planning, execution and evaluation of the tests. In addition, the FCC's guidelines and advice on 3rd party testing issued in various vehicles (letters, rulings, etc.) have been used in the definition of this TRD.

4.2.9 Department of Justice (DOJ)

The DOJ staff may observe the process of planning, execution and evaluation of the tests. In addition, the DOJ's briefs that addressed Section 271 applicants' OSS testing have been used in the definition of this TRD.

4.2.10 Contribution and Participation

Table 4.2.10 summarizes the contribution and participation of the active participants in the ROC 3rd party testing of U S WEST's OSS.

Table 4.2.10 Contribution and Participation

	Test plan drafting	Test planning	Test execution	Exceptions and failed criteria	Final report
ROC MTG	<ul style="list-style-type: none"> Establishes the testing principles Establishes the procurement plan Selects the TA, the P-CLEC, and the PMA 	<ul style="list-style-type: none"> Approves the master test plan Contracts with vendors for services Constructs proprietary and non-disclosure agreements 	<ul style="list-style-type: none"> Monitors services Receives daily status logs Reviews exception reports Reviews status report Reviews party comments on exceptions 	<ul style="list-style-type: none"> Reviews exception reports Reviews proposals for remedy Reviews secure reports Reviews agreements Considers party comments on each exception 	<ul style="list-style-type: none"> Revises draft Revises party comments Revises final report Revises security clearance for CLEC
US WEST	<ul style="list-style-type: none"> Directly involved to provide input to the plan 	<ul style="list-style-type: none"> Contracts with vendors for services Generally open meetings with TA. Pre-announced with open conference bridge and notes on web Closed session only for US WEST proprietary information concerning business volumes Develops test milestones with CLECs for test administration Certifies systems readiness to start tests 	<ul style="list-style-type: none"> Provides systems, operations, work centers, and support in routine manner for test Interacts with P-CLEC Corrects any performance data Provides access as required to TA and PMA 	<ul style="list-style-type: none"> Receives notices Revises proposal for remedy Revises test adjustments when necessary and/or done Revises status report Revises secure report Endorses (or withdraws) status through written comments 	<ul style="list-style-type: none"> Revises draft Revises comments on test schedule Revises comments on implementation production schedule
CLECs	<ul style="list-style-type: none"> Directly involved to provide input to the plan 	<ul style="list-style-type: none"> Generally open meetings with TA. Pre-announced with open conference bridge and notes on the web Closed session to ensure blindness to U S WEST of test transactions, volumes and scheduling of volume tests Develops test milestones with US WEST for test administration 	<ul style="list-style-type: none"> Provide resources as committed in MTP including CLEC interfaces for EIS-TA, EXACT 	<ul style="list-style-type: none"> Receives notices Revises US WEST proposals for remedy Revises status report Revises secure reports Endorses (or withdraws) status through written comments 	<ul style="list-style-type: none"> Revises draft Revises comments on test schedule Revises comments on implementation production schedule
TA	<ul style="list-style-type: none"> Authors the plan with input from CLECs and US WEST Documents test scenarios within the plan 	<ul style="list-style-type: none"> Meets with US WEST and CLECs Consolidates CLEC volume forecasts Manages information sharing tasks Maintains e-mail distribution lists Provides web content Authors test scripts 	<ul style="list-style-type: none"> Executes tests Gathers information for evaluation Gathers observations facts Prepares status reports Authors status report 	<ul style="list-style-type: none"> Revises notices of change defect, failed criteria, criteria, or exception Works with US WEST to resolve Revises Prepares status reports 	<ul style="list-style-type: none"> Revises draft Revises comments on test schedule Revises comments on implementation production schedule
P- CLEC	<ul style="list-style-type: none"> No involvement 	<ul style="list-style-type: none"> Develops test cases to coincide with test scripts and variables Creates test datastores 	<ul style="list-style-type: none"> Generates test transactions according to TA schedule Interacts with US WEST Corrects results of test transactions 		<ul style="list-style-type: none"> Revises draft Revises comments on test schedule Revises comments on implementation production schedule
PM Auditor	<ul style="list-style-type: none"> No involvement 	<ul style="list-style-type: none"> Develops audit plan with input from CLECs and US WEST 	<ul style="list-style-type: none"> Conducts audit of PM end-to-end process Conducts audit by design process review Conducts audit of PM documentation & data Verifies system coding vs requirements Defines monitoring plan 	<ul style="list-style-type: none"> Revises draft of conference memorandum Revises Verifies final Prepares audit report 	<ul style="list-style-type: none"> Revises draft Revises comments on test schedule Revises comments on implementation production schedule

	Test plan drafting	Test planning	Test execution	Exceptions and failed criteria	Final report

4.3 Written Communications and Documents

The Test Administrator shall be responsible for:

- Providing overall communications management within the testing period
- Maintaining daily contact with the Pseudo-CLEC and other participants
- Maintaining close contact with the ROC and the TAG
- Responding to test-related issues and concerns raised by individual State PUC Commissioners or Staff Members
- Maintaining an electronic contact list (e.g. subject matter experts, escalation) for each test participant, the TAG, and the ROC
- Posting material on the ROC OSS Web site (See section 4.3.4)
- Distributing exception reports and soliciting comments on the exceptions from U S WEST and the CLECs
- Distributing test management jeopardy reports to the appropriate audience as determined by the Test Administrator
- Maintaining data used to execute the test of U S WEST's OSS including the test data base provided at the beginning of the test, the transaction files generated and used during the tests to convey CLEC-to-U S WEST and U S WEST-to-CLEC transactions over the interfaces, and printed documents related to test processing not otherwise retained in electronic form

4.3.1 Principles Governing Written Communications

There are competing forces that must be balanced in determining the principles governing written communications. On the one hand, an open communications process is important to maintain both the perception and actuality of a credible test. On the other hand, there are instances where the blindness of U S WEST with regard to some aspects of the tests is also critical. Early in the testing process openness may be judged more important than blindness; as the test progresses blindness may become the more important criterion.

4.3.2 Proprietary Documents and Intellectual Property Rights

Intellectual property rights to proprietary documents used in the OSS Test shall remain with the owner. Intellectual property rights to material developed for the test shall be in the public domain. The ROC may withhold public access to some test-related materials until after the test is concluded to maintain blindness.

4.3.3 Formal Documents

Formal documents shall be assumed to be open and available unless:

- They are internal to an entity
- They contain un-redacted proprietary information
- Their distribution would compromise the blindness of the test

Documents that were not made public during the test in order to preserve blindness shall be made available to all participants at the conclusion of the test, and prior to the Test Administrator's drafting of the Final Report. Documents not made public during the test because they were internal documents or contained proprietary information need not be made available at the conclusion of the test.

4.3.4 ROC Web Site

The ROC has established a Web site for this test (<http://www.ari.ohio-state.edu/ost.htm>). Formal written communications shall be placed on this Web site unless they meet one or more of the criteria listed in section 4.3.3.

A posting procedure is in place and is to be followed by the vendor(s).

4.3.5 Informal Communications

Informal communications, such as emails between subject matter experts discussing technical details of an aspect of the test, shall not be posted or otherwise made available unless they become germane to a dispute and are requested by the ROC Executive Committee. The Test Administrator and Pseudo-CLEC shall maintain electronic versions of informal communications for a period of one year after the conclusion of the test.

4.3.6 Management and Administration of the Master Test Plan

Once the master test plan (MTP) has been developed by the TA and approved by the ROC, the management and administration of the MTP shall be the responsibility of the TA. The ROC

Project Manager will work with the TAG and the TA to establish a Change Control Process that governs how changes to the MTP are proposed, discussed and implemented. Changes to the MTP shall be communicated in a timely and open manner to all parties concerned unless the changes contain information that might compromise the blindness of the test. In this case, the changes shall be communicated to all concerned parties except for U S WEST. The vendor(s) shall also establish, publish, and adhere to a rigorous version control process for the MTP and associated documentation. For relevant documentation, vendor(s) will use a document control section similar to that shown in Appendix A.

4.4 Meetings

4.4.1 Purpose

Beginning with New York, striking the appropriate balance between an open and transparent testing process and blindness to preserve the realism and integrity of the test has been an important consideration in the conduct of 3rd party tests. The following figure provides a structure that can foster openness except where blindness is required.

Figure 4.4.1

	U.S. West	CLECs	Test Administrator	Regional CLEC
ROC/MTG (May monitor any meeting or call)	Generally Open • Announced • Open Conference Bridge • Notes on Web	Generally Open • Announced • Open Conference Bridge • Notes on Web Closed to USW for Blindness • Openly Announced • Restricted Conference Bridge • Notes to ROC • Published after Project	Generally Open • Announced • Open Conference Bridge • Notes on Web Closed to USW for Blindness • Openly Announced • Restricted Conference Bridge • Notes to ROC • Published after Project	Generally Open • Announced • Open Conference Bridge • Notes on Web Closed to USW for Blindness • Openly Announced • Restricted Conference Bridge • Notes to ROC • Published after Project
U S West		Generally Open • Announced • Open Conference Bridge • Notes on Web	Generally Open • Announced • Open Conference Bridge • Notes on Web	Generally Open • Announced • Open Conference Bridge • Notes on Web
CLECs			Generally Open • Announced • Open Conference Bridge • Notes on Web Closed to USW for Blindness • Openly Announced • Restricted Conference Bridge • Notes to ROC • Published after Project	Generally Open • Announced • Open Conference Bridge • Notes on Web Closed to USW for Blindness • Openly Announced • Restricted Conference Bridge • Notes to ROC • Published after Project
Test Administrator				Generally Open • Announced • Open Conference Bridge • Notes on Web Closed to USW for Blindness • Openly Announced • Restricted Conference Bridge • Notes to ROC • Published after Project

The PMA is not included in the above table because openness/blindness principles do not apply to the PMA. The PMA is required to exercise its independent judgement in conducting its audit of the performance measures and inform the ROC and TAG of progress and findings.

4.4.2 General Principles

Meetings will be open unless specifically closed for purposes of blindness.

4.4.3 Open Meetings

The following guidelines will apply to open meetings:

- A meeting announcement and agenda will be posted on the ROC web site
- An open conference bridge will be made available, with the dial in number and pass code provided in the meeting announcement

- Meeting notes will be posted on the ROC web site

These guidelines are generally intended to apply to all contacts between U S WEST and the TA, and U S WEST and the P-CLEC. At the same time, it is expected that U S WEST will have incidental contact with the TA and/or the P-CLEC before and during the testing process. These guidelines are not intended to be rigidly applied to incidental contacts between U S WEST and the TA, or U S WEST and the P-CLEC.

4.4.4 Meetings Closed to U S West to preserve Blindness

The following guidelines will apply to meetings closed for purposes of blindness:

- A meeting announcement will be posted on the ROC web site
- A restricted conference bridge line will be made available, with the dial in number and pass code provided via email
- Meeting notes will be archived
- ROC/MTG may monitor any meeting
- Meeting notes will be published following the completion of testing and prior to the drafting of the Final Report

4.5 Scheduling and Tracking

The ROC Project Manager, MTG, will maintain a high-level project plan for ROC's overall 3rd party testing endeavor that covers the initial formation of the ROC 3rd Party Testing Organization through the deliverable of the Test Administrator's Final Report to the ROC. This project plan will be used by MTG to manage and track the various milestones included in the plan to ensure that the project is completed within the ROC's parameters. MTG will work with the TAG to establish the project milestones that will be used to measure the progress of the overall third party testing project.

The Test Administrator will develop its own internal work plan that supports the ROC project plan's timeline and includes the detailed activities required to meet all major milestones. The Test Administrator will assign responsibility for all tasks identified in its internal work plan in line with the test plan responsibilities, contract terms, and TAG agreements. For example, a CLEC that has volunteered within the TAG forum to furnish its EB-TA interface for use in the testing of Maintenance and Repair capabilities may be assigned that responsibility in the work plan. All test participants, including the P-CLEC, U S WEST and CLECs, will operate in accordance with the Test Administrator's detailed work plan. The Test Administrator will track all milestones on its work plan required to ensure the test meets the ROC project plan timeline.

4.6 Operational Reporting

The Test Administrator will prepare and deliver operational reports of six types to the ROC Project Manager (MTG) and the TAG. These include:

Weekly Operational Report - Overall progress reports will be provided weekly that describe the status on all major milestones and identify new issues requiring resolution. This report shall also include summaries of observations and other qualitative activities conducted.

Daily Report - Detailed status reports on specific tests will be provided on a daily basis during test execution including potential areas of concern and technical issues.

Observation Report Provides a summary of the interviews and observations conducted as part of the operational analysis tests.

Issue Tracking Report An Issue Tracking Report will be provided on a weekly basis that describes the nature of the issue; issue status; action items, responsibility and schedule for resolution.

Jeopardy Reports A test management jeopardy will be created when an event causes impact on the project's goals and expectations (such as the schedule) as defined in this TRD. A jeopardy can be identified to the Test Administrator by any team member and will be managed by the Test Administrator with the assistance of the ROC Project Manager (MTG). The objective of jeopardy management is to obtain a timely, reasonable solution that minimizes the impact on testing schedules and does not compromise test results. Test participants will be notified of jeopardies as they arise in accordance with the contact list maintained by the TA.

Exception Reports Exceptions to the expected outcomes and other conditions encountered during testing are documented by the TA in exception reports that are posted to the web and/or distributed to the ROC Project Manager and the TAG for review, comment and/or action. Exception reports are tracked to closure by the TA.

Specific formats for each of the above reports will be proposed by the TA with input from the TAG and approved by the ROC Project Manager (MTG) as part of the start-up activities once the TA begins work.

4.7 Issue Resolution

Issue Resolution for issues emerging from ROC's 3rd party testing effort consists of a five step process designed to embrace the open and collaborative spirit of the test, promote timely and reasonable remedies and provide a final decision on contested issues, as required. The steps are:

1. Test participants refer all testing issues to the Test Administrator for inclusion in the issue resolution process.
2. The Test Administrator provides the first level of issue management for all testing related issues including the assignment of accountabilities, action plan, tracking, reporting and escalation. The Test Administrator will enlist the assistance of U S WEST, CLECs, P-CLEC, and TAG as required to resolve the issue.
3. If the issue is not resolved in the collaborative process, it may be decided by the ROC Project Manager (MTG) on behalf of the ROC Steering Committee.
4. If an issue is of sufficient magnitude and/or contention as to warrant broader debate and decision participation to ensure the results are compatible with ROC goals, it will be referred by the Project Manager (MTG) to the ROC Steering Committee for consideration. The referral will include a description of the issue, alternative positions regarding the issue and a preliminary recommendation. Other test participants may participate in the discussion/debate as deemed appropriate by the ROC Steering Committee.
5. If the issue is not resolved by a decision at the Steering Committee level, it will be referred to the ROC Executive Committee for final resolution. Once a resolution is determined, it will be communicated to all testing participants, included in the issues report and implemented in the testing process.

5. TEST FRAMEWORK AND TEST ELEMENTS

The overall test of U S WEST's OSS is designed to be multi-faceted and provide end-to-end coverage of the systems, interfaces, and processes that fall within the scope of the testing effort. In constructing this TRD, many factors were considered, including the systems and processes to be tested, the measurement points and respective evaluation criteria, and the necessary conditions required to stage a successful, efficient, and objective test. The Test Administrator will be responsible for ensuring that all tests listed in this plan are executed.

In order to develop a comprehensive, complete, and thorough test of U S WEST's OSS systems, interfaces, and processes, the Test Requirements Document framework is defined in terms of a set of elements including the following:

- U S WEST OSS System Architecture
- Parity Standards, Benchmarks, Qualitative Evaluations and Comparisons
- Entrance and Exit Criteria
- Test Domains

- Test Data
- Test Processes and Specific Tests
- Military testing
- Regression testing

The test framework and test elements are introduced at a high level in this section. In the remainder of the document, each test element will be described to the extent required to form a comprehensive and detailed set of testing requirements that will govern the conduct of the test. Based on these requirements, the Test Administrator will create detailed test specifications.

5.1 U S WEST OSS System Architecture

The U S WEST OSS System Architecture described in Section 6 describes the systems and interfaces that are to be tested, including regional and state OSS differences.

5.2 Parity Standards, Benchmarks, Qualitative Evaluations and Comparisons

Parity standards are designed to quantitatively evaluate the degree to which CLEC access to and functionality and performance of U S WEST OSS in support of wholesale services is at parity with analogous access and performance that U S WEST provides to its own organizations in support of retail service. In cases where a retail analog is not available, benchmarks have been established. The ROC's parity standards, benchmarks, and performance indicator descriptions are based on a large body of related work previously done in other jurisdiction. ROC measures have been incrementally developed and improved by building on the FCC's NPRM on Performance Measurements, the work of the LCUG, and various state OSS third-party testing efforts beginning with the BA-NY test up through Texas, California, Florida and the Arizona testing effort currently under way. The specific parity standards, benchmarks and performance indicator descriptions used in this test are being developed in detail and agreed upon through a collaborative process including performance measurement workshops. Parity standards and benchmarks have been established consistent with those generally accepted within the Telecom industry and are designed to ensure compliance. Actual performance measurement data will be taken during the test and compared to the parity standards and benchmarks.

Qualitative evaluations of U S WEST business processes that serve CLECs, and qualitative comparisons of processes serving CLECs with processes serving U S WEST are used in some cases in addition to parity standards and benchmarks in order to augment the information obtained by quantitative means. In other cases, such qualitative evaluations and comparisons are used where there is no practical method available for more quantitative measurements.

5.3 Entrance and Exit Criteria

Entrance criteria are those requirements that must be met before individual tests can commence. Global entrance criteria must be satisfied prior to commencement of any testing, and apply to every individual test (except where noted otherwise). Global entrance criteria are listed and discussed in Section 7. Specific entrance criteria for specific tests are listed in sections describing respective tests.

Exit criteria are the requirements that must be met before the tests defined in the Test Plan can be concluded. Global exit criteria are listed and discussed in Section 7. Exit criteria pertaining to specific tests are listed in respective test sections.

5.4 Test Domains

The areas subject to testing exist in four domains that correspond to major business functions performed by a telecommunications carrier:

- Pre-Order, Order, and Provisioning (POP)
- Maintenance and Repair (M&R)
- Billing
- Relationship Management and Infrastructure

These four domains correspond to four respective business functions that comprise the U S WEST/CLEC relationship. The domains are useful in defining the areas to be tested and the specific tests to be conducted.

5.4.1 Pre-Order, Order, and Provisioning Domain

This domain is comprised of the systems, processes, and other operational elements associated with U S WEST's support for Pre-Ordering, Ordering, and Provisioning activities for wholesale services and unbundled network elements. The purpose of the specified tests is to evaluate functionality and performance, to evaluate compliance with prescribed measurements, and to provide a basis for comparing this operational area to parallel systems and processes supporting U S WEST's Retail Operations.

5.4.2 Maintenance and Repair Domain

This domain is comprised of the systems, processes, and other operational elements associated with U S WEST's support for Wholesale Maintenance and Repair activities. Tests associated with this domain provide a basis for comparing this operational area to parallel systems and processes supporting U S WEST's Retail Operations.

5.4.3 Billing Domain

This domain is comprised of the systems, processes and other operational elements associated with U S WEST's support for Wholesale Billing. Tests associated with this domain are designed to evaluate U S WEST's compliance to measurement agreements and to ensure adherence to sound management practices.

5.4.4 Relationship Management & Infrastructure Domain

This domain is comprised of the systems, processes and other operational support elements associated with U S WEST's establishment and maintenance of business relationships with the CLECs. Included in this domain are the Network Provisioning activities that must be jointly performed by U S WEST and the CLEC in order to build the CLEC network that supports the CLECs business.

5.5 Test Data

Test data provides the input or stimulus to systems and processes so that functionality and performance can be observed by means of transaction driven system analysis. Key concepts driving test data include 1) emulation of real world coverage, mix and types of transactions while 2) balancing the requirement for practical and reasonably executable transactions that would not unduly disrupt normal production or negatively affect customer service. In Section 11, test data is described in terms of:

- Test Data Dimensions
- Test Scenarios
- Test Cases
- Test Transaction Instances
- Test Data Definition
- Test Data Sources
- Test scenarios, each of which describes a real-world situation, are listed in Appendix D.

Using test data dimensions and scenarios as a framework, the Test Administrator will define test cases, test transaction instances, and transaction mix based upon input from the TAG and guided by the ROC Project Manager.

Once test data is defined, test transactions to be observed will have three sources: the P-CLEC, friendlies and operational CLEC transactions.

5.6 Test Processes and Test Type

5.6.1 Transaction Driven System Analysis

Tests utilizing transaction-driven system analysis rely on initiation of transactions, tracking of transaction progress, and analysis of transaction completion results to evaluate a system under test. Transaction-driven system analysis requires defining several key facets of testing, including the data sources (e.g., CLEC live data, U S WEST historical data), the system components under test (e.g., application-to-application interfaces, graphical user interfaces), and volumes (e.g., normal, stress) and related performance measures.

One element of transaction driven systems analysis is a structured assessment of the over-all quality of the results of the execution of test scenarios.

The transactions, or test instances, to be used in each transaction-driven system analysis test will be derived from higher level sets of one or more transactions called test cases, which in turn have been developed from test scenarios. See the Test Data section above and Section 11 for additional discussion.

Tests that employ Transaction Driven Systems Analysis as the primary test process include:

- Section 12: Evaluation of POP Functionality and Performance Versus Parity standards and Benchmarks
- Section 13: Order Flow Through Evaluation
- Section 14: Provisioning Evaluation
- Section 15: POP Volume Performance Test
- Section 16: IMA M&R Trouble Functional Evaluation
- Section 17: MEDIACC (EB-TA) M&R Trouble Functional & Performance Evaluation
- Section 18: M&R End to End Trouble Report Processing
- Section 19: Billing Usage Functional Evaluation
- Section 20: Carrier Bill Functional Evaluation

5.6.2 Operational Analysis

Tests utilizing operational analysis focus on the form, structure, and content of the business process under study. This test method will be used to evaluate day-to-day operations and operational management practices, including policy development, procedural development, and procedural change management. Operational analysis validates and verifies the results of a process to determine that the process functioned correctly and according to documentation and

expectations. Operational analysis also tests compliance by reviewing management practices and operating procedures against legal, statutory, and other requirements.

Tests that employ Operational Analysis as the primary test process include:

- Section 8: Evaluation of U S WEST Wholesale Performance Measurement Process
- Section 9: Evaluation of U S WEST Parity Standards Calculation Process
- Section 10: Evaluation of U S WEST Order and Transaction Creation Documentation
- Section 21: Scalability Test
- Section 22: CLEC Network Provisioning Test
- Section 23: Change Management Test
- Section 24: U S WEST CLEC Support Processes & Procedures Review

5.7 Military Style Testing

Testing principle #20 indicates that the ROC test will use military-style testing to ensure that all significant exceptions will be tested until they are corrected and the relevant success criteria are met. With military-style testing, a mindset of *test until you pass* is generally adopted using the following process:

- A tested interface, system or process does not meet objective success criteria
- The tester (TA, P-CLEC or live CLEC) creates a written Exception Report describing the issue and provides to the TA
- The TA distributes the Exception Report to U S WEST and the TAG
- U S WEST prepares a written response to the exception describing any intended fix or fixes and the TAG comments on both the exception and closure determination as appropriate
- U S WEST advises the TA when the fix has been completed and the TA provides that information to the tester and retesting is initiated
- If the results of the retest meet the objective success criteria, the testing process is complete
- If the results do not meet the success criteria, the exception, fix and retest processes are repeated

The TA may in some situations determine that further retesting is not appropriate and/or productive. U S WEST may also determine that further retesting is not appropriate and/or productive. The resulting exception will be documented, along with the rationale for the decision to abort further military testing, provided to the ROC, U S WEST and the TAG and dealt with

in the final report. Disputes arising from any exceptions handled in this manner may be escalated to the ROC issue resolution process described in Section 4.7.

5.8 Regression Testing

Fixes to interfaces, systems and processes made by U S WEST will be tested under the direction of the TA to ensure that both the original problem has been fixed and that no other problem has been created by the change.

5.9 Data and Database Accuracy

In the course of doing business, U S WEST states that it provides its wholesale and retail operations information directly from the same databases or indirectly from the same source. To the extent that there are errors in the data that both wholesale and retail operations receive and parity exists in the process design and receipt of flawed data, no discrimination exists. However, the information may be inaccurate.

In this test, some of these errors will be detected because they will cause problems with transactions and exception reports will be generated. Root cause analysis and database corrections may be required to clear the exceptions. The TA is required to track and summarize all of the exceptions for which the root cause is traced to database inaccuracy and provide that information to the ROC. However, broad data and database validation activities that go beyond what is needed for the resolution of exceptions on transactions is not part of the ROC OSS test.

6. U S WEST OSS SYSTEM ARCHITECTURE

6.1 Overview

U S WEST states that it has developed uniform CLEC-facing OSS interfaces in support of its wholesale services business line. These uniform interfaces support Pre-Ordering, Ordering and Maintenance and Repair transactions initiated by CLECs across all of the 13 states participating in the ROC 3rd Party Test. Behind the uniform CLEC-facing interfaces are downstream OSS applications that may vary somewhat by region and state, depending on the specific application. Some of these variations may be relevant to the testing process while others are not. To mitigate the potential impacts of any relevant variations that might impact test results from one state to another, the mix of test transactions developed by the Test Administrator in accordance with Section 11 of this TRD, will reflect the appropriate distribution across states. This approach is designed to conduct a test of the downstream OSS applications indirectly while

using the uniform CLEC-facing interfaces. Any significant test impacts due to downstream OSS variations will be detected in the test results.

The purpose of this section is to provide the Test Administrator and test participants with an overview of the uniform CLEC-facing interfaces and known regional and state variations in downstream OSS applications.

6.2 Interfaces

U S WEST provides four uniform interfaces to CLECs for their use in pre-ordering, ordering and maintaining/repairing wholesale services. Other interfaces are provided for billing of wholesale services. A brief description of each follows.

6.2.1 IMA-GUI

The Interconnect Mediated Access Graphical User Interface (IMA-GUI) is used by CLECs to perform pre-order inquiries, place orders, report troubles and obtain status via a workstation to U S WEST's IMA Gateway. This human-to-computer IMA-GUI is used across all states in U S WEST's territory.

6.2.2 IMA-EDI

The Interconnect Mediated Access Electronic Data Interchange (IMA-EDI) is used by CLECs to perform pre-order inquiries, place orders and obtain status via a computer-to-computer interface that extends from the CLECs OSS application to the U S WEST IMA-EDI Gateway. This IMA-EDI is used across all states in U S WEST's territory.

6.2.3 MEDIACC (or EB-TA)

The Mediated Access (MEDIACC) interface is U S WEST's implementation of an Electronic Bonding for Trouble Administration (EB-TA) interface for CLECs to use in maintenance and repair activities for U S WEST's wholesale services. It is a computer-to-computer interface that supports trouble ticket administration and status, line record information viewing and mechanized loop testing results viewing. The MEDIACC interface is used across all states in U S WEST's territory.

6.2.4 EXACT

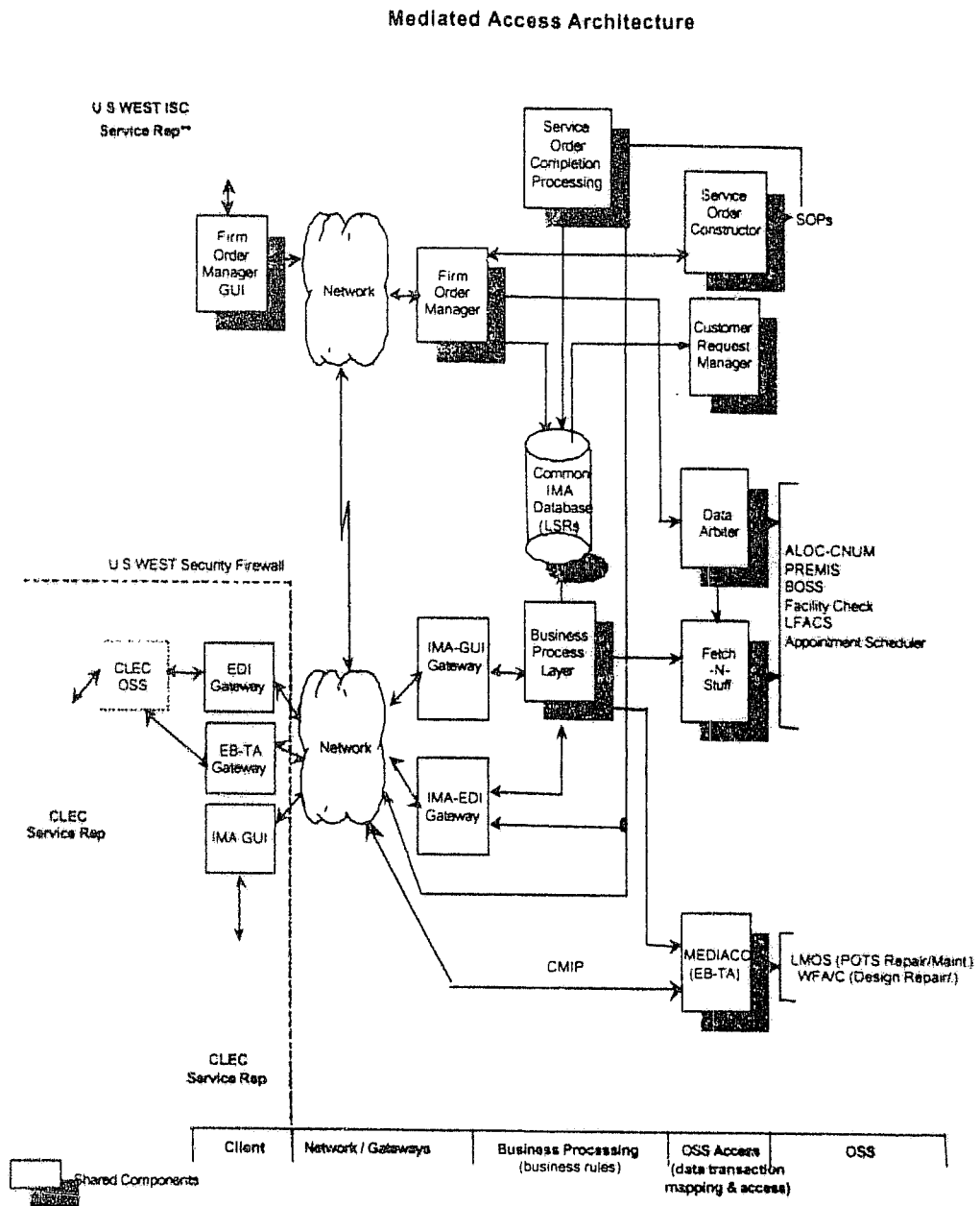
The EXACT interface is used by CLECs to order wholesale services requiring Access Services Requests (ASRs).

6.2.5 IIS

The Interconnect Image System (IIS) interface is a facsimile receipt and distribution system that facilitates the handling of orders and other transactions faxed from CLECs to U S WEST. These faxed, or manual transactions, must be input to U S WEST's OSS by personnel at the Interconnect Service Center.

Please refer to Figure 6.2 for an overview of the Mediated Access Architecture.

Figure 6.2 Mediated Access Architecture



6.3 Initial Transaction Processing

6.3.1 Pre-Ordering and Ordering

Once the transaction is received by the U S WEST gateway, a set of business rules is applied to determine how to process the request. To obtain information from U S WEST's OSS or pass information to them, the OSS Access Layer (Data Arbiter, Fetch and Stuff, and MEDIACC) communicates with the downstream OSSs to send or retrieve the data. Regardless of whether a transaction is received by the U S WEST gateway through the IMA GUI or EDI, it will be processed through the same set of business rules and travel through the same OSS Access Layer to reach the downstream OSSs.

If the transaction is the submission of an LSR, the LSR is placed in the Common IMA database regardless of whether the LSR is transmitted through the IMA or the EDI gateway. This database is updated with LSR status as the Interconnect Service Center processes the request.

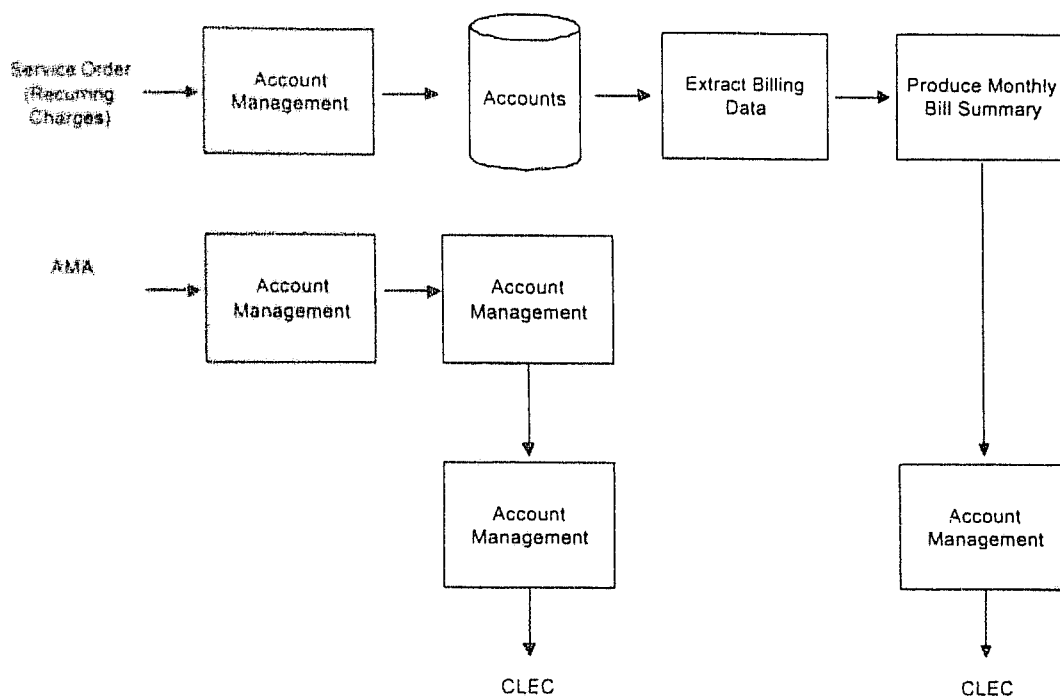
6.3.2 Maintenance and Repair

Maintenance and repair transactions are processed through IMA and MEDIACC and routed to the appropriate downstream repair OSS.

6.3.3 Billing

Figure 6.3.3 describes the billing components that produce daily usage and monthly bill information. When an end-user customer's account is resold to a CLEC, the resulting service order updates the account to reflect that change. As the end-user customer generates toll usage, it is sent from the AMA system into the CRIS billing system, where it is associated with the CLEC's account. The toll usage is then forwarded to the CLEC in a daily usage feed file. U S WEST produces a billing summary file with all recurring and non-recurring charges and sends it to the CLEC on a monthly basis.

Figure 6.3.3 Billing Architecture

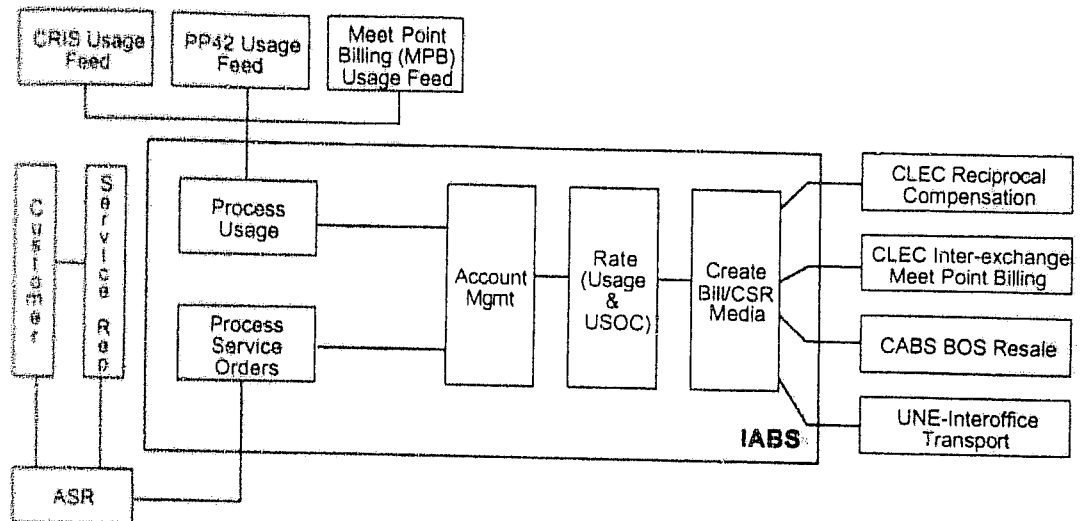


6.3.4 IABS

Figure 6.3.4 provides an overview of the billing for trunk-side UNEs and interconnection services using IABS. There are three usage feeds to the usage-processing module. Another entry point is the ASR submitted by the customer service representative. These ASRs go to the service order-processing module. Both usage and service orders are sent to the account management module to associate the usage and service order detail to accounts.

After usage and service order details are associated to accounts, the accounts are rated, and bills and CSRs are produced. Outputs for reciprocal compensation, interexchange meet point billing, resale and UNEs are then provided to the CLECs.

Figure 6.3.4 IABS Billing Architecture



6.4 Systems

U S WEST's downstream OSS can be categorized into four types of systems as follows:

- One OSS that is functionally and physically the same is used across all 14 states such as IMA GUI and Integrated Access Billing Systems (IABS)
- One OSS application that is used across all 14 states via multiple instances of the same application, such as Facilities Assignment and Control System (FACS)
- An OSS with the same name and basic origin that has been implemented differently across different states for example Customer Records Information System (CRIS) East, West, and Central are all called CRIS but are actually different applications functionally
- Different applications with different names and similar functionality that are used in different states. The service order processors (SOPs) are an example of this type SOPAD, SOLAR and R-SOLAR in Central, East and West respectively.

Figure 6.4 provides a summary of the systems and their usage across states.

Figure 6.4 U.S. WEST OSSs Across States

System	AZ	CO	IA	ID	IN	MT	ND	NE	NM	OR	SD	UT	WA	WY
IMA GUI GW	IMA-1	IMA-1	IMA-1	IMA-1	IMA-1	IMA-1	IMA-1	IMA-1	IMA-1	IMA-1	IMA-1	IMA-1	IMA-1	IMA-1
IMA EDI GW	EDI-1	EDI-1	EDI-1	EDI-1	EDI-1	EDI-1	EDI-1	EDI-1	EDI-1	EDI-1	EDI-1	EDI-1	EDI-1	EDI-1
MedAcc EB-TA	EB-TA1	EB-TA1	EB-TA1	EB-TA1	EB-TA1	EB-TA1	EB-TA1	EB-TA1	EB-TA1	EB-TA1	EB-TA1	EB-TA1	EB-TA1	EB-TA1
BPL-1	BPL-1	BPL-1	BPL-1	BPL-1	BPL-1	BPL-1	BPL-1	BPL-1	BPL-1	BPL-1	BPL-1	BPL-1	BPL-1	BPL-1
IMA LSR DB	IMA LSRDB-1	IMA LSRDB-1	IMA LSRDB-1	IMA LSRDB-1	IMA LSRDB-1	IMA LSRDB-1	IMA LSRDB-1	IMA LSRDB-1	IMA LSRDB-1	IMA LSRDB-1	IMA LSRDB-1	IMA LSRDB-1	IMA LSRDB-1	IMA LSRDB-1
FOM	FOM-1	FOM-1	FOM-1	FOM-1	FOM-1	FOM-1	FOM-1	FOM-1	FOM-1	FOM-1	FOM-1	FOM-1	FOM-1	FOM-1
ICADS	ICADS-1	ICADS-1	ICADS-1	ICADS-1	ICADS-1	ICADS-1	ICADS-1	ICADS-1	ICADS-1	ICADS-1	ICADS-1	ICADS-1	ICADS-1	ICADS-1
Data Arbitr	Data Arbitr-1	Data Arbitr-1	Data Arbitr-1	Data Arbitr-1	Data Arbitr-1	Data Arbitr-1	Data Arbitr-1	Data Arbitr-1	Data Arbitr-1	Data Arbitr-1	Data Arbitr-1	Data Arbitr-1	Data Arbitr-1	Data Arbitr-1
Fetch-N Stuff	Fetch-N Stuff-1	Fetch-N Stuff-1	Fetch-N Stuff-1	Fetch-N Stuff-1	Fetch-N Stuff-1	Fetch-N Stuff-1	Fetch-N Stuff-1	Fetch-N Stuff-1	Fetch-N Stuff-1	Fetch-N Stuff-1	Fetch-N Stuff-1	Fetch-N Stuff-1	Fetch-N Stuff-1	Fetch-N Stuff-1
SOP	SOPAD (SLC)	SOPAD (Denver)	SOLAR (Omaha)	SOPAD (SLC)	SOLAR (Omaha)	SOPAD (SLC)	SOLAR (Omaha)	SOLAR (Omaha)	SOPAD (SLC)	R-SOLAR (Bellevue)	SOLAR (Omaha)	SOPAD (SLC)	R-SOLAR (Bellevue)	SOPAD (Denver)
CSR Retrieval	BOSS-C (SLC)	BOSS-C (Denver)	BOSS-E (Omaha)	BOSS-C (SLC)	BOSS-E (Omaha)	BOSS-C (SLC)	BOSS-E (Omaha)	BOSS-E (Omaha)	BOSS-C (SLC)	CARS (Bellevue)	BOSS-E (Omaha)	BOSS-C (SLC)	CARS (Bellevue)	BOSS-C (Denver)
SOAC	SOAC-1	SOAC-1	SOAC-1	SOAC-1	SOAC-1	SOAC-1	SOAC-1	SOAC-1	SOAC-1	SOAC-1	SOAC-1	SOAC-1	SOAC-1	SOAC-1
Premis	Premis-1 (ALB)	Premis-1 (ALB)	Premis-1 (Omaha)	Premis-1 (ALB)	Premis-1 (Omaha)	Premis-1 (ALB)	Premis-1 (Omaha)	Premis-1 (Omaha)	Premis-1 (ALB)	Premis-1 (ALB)	Premis-1 (Omaha)	Premis-1 (ALB)	Premis-1 (ALB)	Premis-1 (ALB)
FACS	FACS-1 (SLC)	FACS-1 (SLC)	FACS-1 (Omaha)	FACS-1 (SLC)	FACS-1 (Omaha)	FACS-1 (SLC)	FACS-1 (Omaha)	FACS-1 (Omaha)	FACS-1 (SLC)	FACS-1 (Omaha)	FACS-1 (Omaha)	FACS-1 (SLC)	FACS-1 (Omaha)	FACS-1 (SLC)
LMOS	LMOS-1 (SLC)	LMOS-1 (SLC)	LMOS-1 (Omaha)	LMOS-1 (SLC)	LMOS-1 (Omaha)	LMOS-1 (SLC)	LMOS-1 (Omaha)	LMOS-1 (Omaha)	LMOS-1 (SLC)	LMOS-1 (Bellevue)	LMOS-1 (Omaha)	LMOS-1 (SLC)	LMOS-1 (Bellevue)	LMOS-1 (SLC)
WFA	WFA-1 (SLC)	WFA-1 (SLC)	WFA-1 (Omaha)	WFA-1 (SLC)	WFA-1 (Omaha)	WFA-1 (SLC)	WFA-1 (Omaha)	WFA-1 (Omaha)	WFA-1 (SLC)	WFA-1 (Bellevue)	WFA-1 (Omaha)	WFA-1 (SLC)	WFA-1 (Bellevue)	WFA-1 (SLC)
Billing	CRIS-C	CRIS-C	CRIS-C	CRIS-C	CRIS-C	CRIS-C	CRIS-C	CRIS-C	CRIS-C	CRIS-W	CRIS-C	CRIS-C	CRIS-W	CRIS-C
IABS	IABS-1	IABS-1	IABS-1	IABS-1	IABS-1	IABS-1	IABS-1	IABS-1	IABS-1	IABS-1	IABS-1	IABS-1	IABS-1	IABS-1
TIRKS	TIRKS-1 (SLC)	TIRKS-1 (SLC)	TIRKS-1 (Omaha)	TIRKS-1 (SLC)	TIRKS-1 (Omaha)	TIRKS-1 (SLC)	TIRKS-1 (Omaha)	TIRKS-1 (Omaha)	TIRKS-1 (SLC)	TIRKS-1 (Bellevue)	TIRKS-1 (Omaha)	TIRKS-1 (SLC)	TIRKS-1 (Bellevue)	TIRKS-1 (SLC)
Facility Check	FC-1 (SLC, DNVR, Omaha)	FC-1 (SLC, DNVR, Omaha)	FC-1 (SLC, DNVR, Omaha)	FC-1 (SLC, DNVR, Omaha)	FC-1 (SLC, DNVR, Omaha)	FC-1 (SLC, DNVR, Omaha)	FC-1 (SLC, DNVR, Omaha)	FC-1 (SLC, DNVR, Omaha)	FC-1 (SLC, DNVR, Omaha)	FC-1 (SLC, DNVR, Omaha)	FC-1 (SLC, DNVR, Omaha)	FC-1 (SLC, DNVR, Omaha)	FC-1 (SLC, DNVR, Omaha)	FC-1 (SLC, DNVR, Omaha)
Appt. Scheduler	Appt Sched-1	Appt Sched-1	Appt Sched-1	Appt Sched-1	Appt Sched-1	Appt Sched-1	Appt Sched-1	Appt Sched-1	Appt Sched-1	Appt Sched-1	Appt Sched-1	Appt Sched-1	Appt Sched-1	Appt Sched-1

- Facility Check is not differentiated geographically i.e., even though it is run in 2 data centers, each server accesses the same data & can fulfill requests throughout U/S WEST

Table 6.4 Interpretation Notes

1. When an OSS has a 1 suffix it means there is only one version of that application. For example, IMA GUI is the same application across all states.
2. There may be multiple instances of an application that are all identical. For example three instances of FACS serve three different regions but are all the same application.
3. There may be applications of the same name that have different functionality i.e. CRIS C (Central), CRIS E (EAST) and CRIS W (West)
4. Multiple copies of the same application can be run at different data centers (shown in parentheses in the matrix) to serve different areas that may or may not coincide with a region i.e. An identical application of BOSS-C is run at 2 data centers to handle the total Central Region.

List of Abbreviations

IMA GUI Interconnect Mediated Access Graphical User Interface Gateway

IMA EDI IMA Electronic Data Interchange

EB-TA Electronic bonding for Trouble Administration U S WEST's version is MEDIACC, it interacts with LMOS for POTS repair & WFA/C for Designed services repair

BPL-1 Business Process Layer does edits against State tariffed products and services

IMA LSR DB Common IMA database for Local Service Requests

FOM Firm Order Manager

ICADS Service order constructor that translates order information to the specific service order processor

Data Arbiter Data access layer application between IMA gateway and downstream OSS

Fetch-N-Stuff Data access layer application between IMA gateway and downstream OSS

CSR Retrieval Customer Service Record retrieval

Service Order Processor Directs/processes service orders

SOAC Service Order Analysis and Control

Premis Premises Information System

FACS Facility Assignment and Control System

LMOS Loop Maintenance Operations Systems

WFA Work Force Administration

CRIS Customer Record Information System

CABS Carrier Access Billing System

IABS Integrated Access Billing System

Data Center Locations

ALB Albuquerque, NM

BLV Bellevue, WA

DVR Denver, CO

OMA Omaha, NE

SLC Salt Lake City, UT

6.5 Regional Differences

U S WEST's current operating territory, and therefore much of its OSS legacy architecture, is the result of the merging of three predecessor Bell Operating Companies into the U S WEST Regional Bell Operating Company RBOC, including:

- Pacific Northwest Bell (PNB) covering Washington and Oregon now referred to as the Western Region
- Mountain Bell (MB) covering Arizona, Colorado, Idaho, Montana, New Mexico, Utah and Wyoming, now Central Region
- Northwestern Bell (NWB) covering Iowa, Minnesota, Nebraska, North Dakota, and South Dakota, now Eastern Region

As Table 6.4 indicates, all CLEC-facing interfaces and most downstream OSSs are the same across the three sub-regions. The three major areas of difference are:

1. Different service order processors are used in each region with SOLAR in the East, R-SOLAR in the West and SOPAD in Central.
2. Customer Service Record (CSR) retrieval is handled by BOSS in East and Central regions and by CARS in Western region.
3. Billing systems across the regions are different. Despite the fact that the three systems are all named CRIS and perform similar processes, they differ functionally.

6.6 State Differences

State level differences in downstream OSS are generally confined to the use of different instances of the same applications housed at different data center locations. Please see Figure 6.4.

6.7 Product Differences

In general, U S WEST offers the same products across its 14 state operating area. However, there are a few variations resulting from various factors such as state regulatory requirements, market conditions and conditions. Table 6.7 provides a high-level overview of these differences.

These differences will be further investigated by the Test Administrator with the assistance of the TAG and reflected appropriately in the test scenarios and testing mix.

Table 6.7 Wholesale Products by State

Product	AZ	CO	IA	ID	MN	MT	ND	NE	NM	OR	SD	UT	WA	WY
Residence	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Business	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Features	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PLT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CTX ²	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ACS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DA/OPS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LST	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
OCP	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PAL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VM	NA	NA	Y	NA	Y	Y	Y	NA	NA	Y	NA	NA	NA	NA
WIRE	NA	NA	NA	NA	Y	NA	NA	NA	NA	Y	NA	NA	NA	NA
Lifeline	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA
ISDN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA
UNE-P* POTS PBX ISDN BRI ISDN PRI	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
UNE-C PrivateLine	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

* Existing combinations only (i.e. not new)

The following provides additional definition for the products shown in the table.

Residence basic residential line including 911/E911 service and special needs service

Business Basic business line including 911/E911 service

Features Central office features such as custom calling, CLASS, etc

MTS Intra-LATA toll (message toll service)

PLT Private line, DS1, DS3

CTX Centrex, which includes Centrex 21, Centrex Plus, Centrex Prime

ACS Advanced Communications Services which includes Frame Relay, ATM Cell Relay, LAN Switching Service

DA/OPS Directory Assistance/Operator Services

² In states where Centrex is grandfathered, conversion to resale is only allowed for existing Centrex Customers.

Listings Directory Listing, Joint User Listings
OCF Optional Calling Plans
PAL Public Access Lines
VM Voice Messaging, Enhanced Service
Wire Inside Wire and Wire Maintenance Plan
Lifeline Services such as Link-up, Telephone Assistance Plan (TAP)
ISDN Integrated Switched Digital Network basic and primary
UNE-P Unbundled Network Elements Platform
UNE-C Unbundled Network Elements - Combinations
NA Not available **Y** - Yes

6.8 Impact of Differences

The ROC initially views the potential impact of these regional and state differences on the testing process to be minimal. Because the CLEC-facing interfaces are stated by U S WEST to be uniform across states and the IMA-GUI and IMA-EDI gateways are designed to mitigate downstream OSS differences, ROC does not believe that direct testing of downstream OSS is required for a comprehensive test. Instead, the test transaction mix that will be determined by the Test Administrator with input from the TAG should reflect the expected mix across states and products to validate this view.

The state and regional differences will be further investigated by the TA with the assistance of the TAG to validate the ROC's initial view. Differences identified as impacting test results will be reflected appropriately in the test scenarios and testing mix.

7. GLOBAL ENTRANCE AND EXIT CRITERIA

7.1 Entrance Criteria

Entrance criteria are those requirements that must be met before individual tests can commence. Global entrance criteria, which apply to every individual test except where noted otherwise, include the following:

1. *The Test Plan has been approved.*

The Test Plan must be approved by the ROC.

2. *There should be no legally effective orders or injunctions that prevent the commencement of testing or that materially impact the ability to perform the test.*

3. *The ROC has verified measurements to be used in the test.*

The metrics to be used in the test must be agreed to and fully defined. In addition they must be available and validated. No testing or evaluation will proceed for a function, interface or service unless the associated performance measurement and success criteria are developed, implemented and validated for that function, interface or service. Performance measure validation will be accomplished by the Performance Measures Auditor (PMA) as part of the audit once a minimum of 2 months of results are available. Testing may begin for those test scenarios for which performance measurements are available and validated.

4. *All required U S WEST interface capabilities must be operationally ready.*

Electronic interfaces to be used in testing the OSS access functions of Pre-Ordering, Ordering, Provisioning, Maintenance and Repair, and Billing must be fully tested and operational. All GUI interface capabilities to be tested must be operational. This should be done in line with existing routine practices that U S WEST typically uses internally or to certify CLECs and CLEC-used interfaces for use.

5. *For transaction tests to begin, the P-CLEC must be operationally ready.*

The P-CLEC is to be developed through cooperation between the P-CLEC organization and the Test Administrator based on specifications, documentation and technical assistance provided by U S WEST. The successful operation of the P-CLEC will demonstrate the feasibility of developing, testing, and operating the CLEC side of the OSS interface based upon documentation supplied by U S WEST.

6. *The statistical plan will be in place.*

The statistical plan will be developed collaboratively by the ROC, TA, and TAG. See Appendix G for additional information on the planned statistical approach.

7. *The pass and retest criteria have been identified.*

8. *The Test Administrator will review relevant source documentation from other Third Party Testing efforts*

The TA will review interview reports, summaries, and walkthrough reports from other tests where appropriate. This step will provide testers with background information on business functions and testing approaches.

In addition to these global entrance criteria, test-specific entrance criteria, where applicable, are defined within each test.

Table 7.1 Global Entrance Criteria

Criteria	Responsible Party
<i>The Test Plan has been approved.</i>	ROC
<i>No legally effective orders or injunctions preventing the test exist.</i>	U S WEST, ROC
<i>ROC TAG has completed the definition of metrics to be used across the thirteen states and the ROC has verified all relevant measurements to be used in the test.</i>	ROC, PMA
<i>All interfaces required for testing have been tested and certified using existing practices.</i>	U S WEST, P-CLEC, CLECs
<i>The P-CLEC must be operationally ready.</i>	P-CLEC, TA
<i>Statistical Plan in place</i>	ROC, TA and TAG
<i>Pass and retest criteria have been identified</i>	ROC and TA
<i>Test Administrator has reviewed relevant source documentation from other tests.</i>	TA

7.2 Exit Criteria

Exit criteria are the requirements that must be met before the tests defined in the Test Plan can be concluded.

1. All required test activities must be completed.

For each test, all fact finding and analysis activities must be completed. All results and test methodologies have been documented.

2. Military testing has been successfully completed.

Tests have met success criteria. Tests not meeting success criteria have been retested as deemed appropriate by the TA. Tests or retests that have not met success criteria and are deemed not appropriate for further retesting by the TA have been documented.

3. All change control, verification, and confirmation steps have been completed.

The results of test activities must be documented and reviewed for accuracy. Any results that require clarification or follow-up are confirmed.

4. All specific test issues are closed/resolved or declared at impasse for referral to the ROC.

Issues that have been recorded and tracked throughout the conduct of a specific test must be closed or resolved with sufficient documentation that describes the means employed to close or resolve each issue. Any issues that are identified as being at impasse between the parties will be referred to the ROC by the TA.

In addition to these global exit criteria, test-specific exit criteria, where applicable, are defined within each test.

Table 7.2 Exit Criteria

Criteria	Responsible Party
All required test activities must be completed.	TA
Military testing has been completed.	TA
All change control, verification, and confirmation steps have been completed.	TA
All specific test issues are closed/resolved or declared at impasse.	TA

Participants may elect to escalate test issues declared at impasse to the ROC issues resolution process described in Section 4.7.

8. EVALUATION OF U S WEST WHOLESALE PERFORMANCE MEASUREMENT PROCESSES

8.1 Description

Performance measures are the yardsticks or standards to which U S WEST OSS *performance measurements* are compared. There are two primary types of quantitative performance measures:

- Parity standards
- Benchmarks

A parity standard is a yardstick that is calculated through measurement of a particular aspect of access to, functionality and performance of U S WEST's OSS in support of its retail operations. Where analogous processes exist between U S WEST's retail operations and their wholesale CLEC operations the two processes can be evaluated for parity of treatment between the two. A typical example where parity measurements are possible is the comparison of performance between U S WEST's installation of a new retail customer and U S WEST's installation of a CLEC's resale customer. The calculation of parity standards is accomplished through a formalized and controlled process (See Section 9).

There are instances where there are no analogous operations that can be compared between U S WEST's retail and wholesale operations. For example, there is currently no identifiable retail analog for the Firm Order Commitment (FOC) interval measure. In these cases, a quantitative benchmark is used to set a threshold for performance where a numerical range of values is possible.

Quantitative performance measures, both parity standards and fixed benchmarks, to be used in the 3rd party OSS test are being collaboratively developed. The process began with a straw-man proposal provided to the TAG for comment in December. The comments were discussed in the ROC's Performance Measures Workshop held in Salt Lake City, UT on January 19-21, 2000. Issue resolution activities resulting from the workshop along with amendments, additions and deletions to the performance measure plan continue in subsequent collaborative forums. The primary document that describes quantitative performance measures, the retail analog (for parity standards), the numeric value (for fixed benchmarks), the calculation method, scope, restrictions, etc. is the ROC OSS Test Performance Indicator Descriptions (PID). (See Appendix B.)

Once quantitative performance measures have been agreed upon via the collaborative process referenced above and the quantitative performance measurement process has been validated, the measures are used to judge the measurements resulting from the conduct of the various

CONTINUATION

[~~3~~] 3

tests. Quantitative performance measures are used predominantly, but not exclusively, in judging the results of transaction driven tests. The U S WEST systems and processes comprising the validated process will be identified by release and version.

While fixed benchmarks and parity standards both have the same basic function they are yardsticks to measure the performance of U S WEST OSS during the test they are calculated differently. Fixed benchmarks are determined and are, in principle, static throughout the test. Parity standards measure retail operations performance. In order to provide a valid yardstick for the wholesale operations performance that they are to measure, they must be derived contemporaneously.

Qualitative benchmarks set a threshold for performance where a range of qualitative values is possible. For example, an evaluation of the scalability of a system or evaluation of a support organization is qualitative by nature and an evaluation would be based on the experience of the Test Administrator and industry best practices.

Existence criteria are those where only two possible test results exist. For example documentation defining daily billing feeds either exists or does not exist.

8.2 Objective

Rigorous, scientific measurement of any process, quantity, etc. requires that the measurement processes, standards and yardsticks themselves be validated in a rigorous, scientific manner. The objective of this test is:

- To validate that all aspects of U S WEST s processes, procedures, business rules, calculation methods, etc. used in measuring wholesale operations processes are valid.
- To provide a qualitative assessment of the retail operations process for comparison with the wholesale operation
- To provide a verification that certain performance measures are at parity due to the design of the data or traffic delivery process including DB-1, DB-2, DA-1, DA-2, OS-1, OS-2, PO-1 and others as identified in the final PID agreed upon for use in testing

8.3 Entrance Criteria

Table 8.3 Entrance Criteria

Criteria	Responsible Party
<i>All global entrance criteria</i>	<i>See Section 7</i>
<i>Performance measures / PID have been agreed upon</i>	<i>Test Manager, ROC</i>
<i>Performance measurement documentation is approved</i>	<i>Test Manager, ROC</i>
<i>U S WEST wholesale performance measure processes, systems and software are complete and available for inspection and testing</i>	<i>Test Administrator, ROC</i>
<i>Product descriptions and business rules for all performance measures to be evaluated are available</i>	<i>Test Administrator, U S WEST</i>
<i>Interview guides are available</i>	<i>Test Administrator</i>
<i>U S WEST subject matter experts to be interviewed are projected to be available</i>	<i>Test Administrator, U S WEST</i>

8.4 Test Scope

All aspects of the wholesale performance measurement process and all of the performance measures described in the PID are within the scope of this test.

8.5 Test Scenarios

None

8.6 Test Approach

8.6.1 Inputs

1. Performance measures / PID
2. Product descriptions and business rules for all performance measures to be evaluated
3. Description of wholesale performance measurement architecture, processes, systems, reports, etc.
4. Interview Guides

8.6.2 Activities

1. Prepare performance measurement process and system evaluation framework and plan
2. Validate framework and plan with TAG

3. Identify subject matter experts and schedule interviews
4. Conduct interviews
5. Evaluate the process design for measures identified as parity by process design
6. Conduct the Evaluation, to include:
 - Assess data collection process and system architecture
 - Evaluate data collection operations
 - Review of the calculation of performance measurements
 - Independent calculation of results, using data provided by U S WEST
 - Analyze interview results
 - Independent calculation of the appropriate statistics for performance measurement evaluation
 - Comparison with the same statistics as computed by U S WEST
 - Interpret statistics
7. Identify exceptions
8. Recommend approach to clearing exceptions
9. Verify that exceptions are cleared
10. Define monitoring plan
11. Write final report

8.6.3 Outputs

1. Performance measurement evaluation framework and plan
2. Exception report
3. Documentation of any identified material defects in US WEST s systems, operations or documentation
4. Monitoring plan
5. Final report

8.7 Exit Criteria

Table 8.7 Exit Criteria

<i>Criteria</i>	<i>Responsible Party</i>
<i>All exceptions are cleared</i>	<i>Test Administrator, TAG</i>
<i>Monitoring plan is complete</i>	<i>Test Administrator, TAG</i>
<i>Final report is complete</i>	<i>Test Administrator, TAG</i>

9. EVALUATION OF U S WEST'S PARITY STANDARDS CALCULATION PROCESS

9.1 Description

A parity measure is a yardstick or standard that is calculated through measurement of a particular aspect of access to, functionality and performance of U S WEST's OSS in support of its retail operations. Where analogous processes exist between U S WEST's retail operations and their wholesale CLEC operations the two processes can be evaluated for parity of treatment between the two. A typical example where parity measurements are possible is the comparison of performance between U S WEST's installation of a new retail customer and U S WEST's installation of a CLEC's retail customer.

Unlike fixed benchmarks, which are numerical values that are set by collaborative agreement, parity standards are derived through U S WEST's measurement of its own retail processes. This section describes a process whereby the Test Administrator verifies that parity standards do, in fact, represent the actual access, functionality and performance characteristics of U S WEST's OSS in support of its own retail operation.

9.2 Objective

Parity standards are measures or yardsticks that are established through U S WEST's measurement of its own retail processes. The objective of this test is:

- To validate that all aspects of U S WEST's process procedures, business rules, calculation methods, etc. used to establish the numerical values of parity standards are valid
- Assess retail operations for comparison with wholesale operations

9.3 Entrance Criteria

Table 9.3 Entrance Criteria

Criteria	Responsible Party
<i>All global entrance criteria</i>	<i>See Section 7</i>
<i>Performance measures / PID have been agreed upon</i>	<i>Test Manager, ROC</i>
<i>Performance measurement documentation is approved</i>	<i>Test Manager, ROC</i>
<i>U S WEST retail performance measure processes, systems and software are complete and available for inspection and testing</i>	<i>Test Administrator, ROC</i>
<i>Product descriptions and business rules for all retail measures to be evaluated are available</i>	<i>Test Administrator, U S WEST</i>
<i>Interview Guides Available</i>	<i>Test Administrator</i>
<i>U S WEST subject matter experts to be interviewed are projected to be available</i>	<i>Test Administrator, U S WEST</i>

9.4 Test Scope

All aspects of the retail performance measurement process and all of the parity standards described in the PID are within the scope of this test.

9.5 Scenarios

None.

9.6 Test Approach

9.6.1 Inputs

1. Performance measures / PID and associated documents
2. Product descriptions and business rules for all parity standards to be evaluated
3. Description of retail performance measurement architecture, processes, systems, reports, etc.
4. Interview Guides

9.6.2 Activities

1. Prepare parity standards calculation process and system evaluation framework and plan
2. Validate framework and plan with TAG

3. Identify subject matter experts and schedule interviews
4. Conduct interviews
5. Conduct the Evaluation, to include:
 - Assess data collection process and system architecture
 - Evaluate data collection operations
 - Review of the calculation of performance measures
 - Validate that consistency exists between the business rules for calculation and the actual processes the systems use to perform the calculations
 - Analyze interview results
 - Independent calculation of results, using data provided by U S WEST
 - Independent calculation of the appropriate statistics for parity standards evaluation
 - Comparison with the same statistics as computed by U S WEST
 - Interpret statistics
6. Identify exceptions
7. Recommend approach to clearing exceptions
8. Verify that exceptions are cleared
9. Define monitoring plan
10. Write final report

9.6.3 Outputs

1. Parity measure evaluation framework and plan
2. Exception Report
3. Monitoring Plan
4. Documentation of any identified material defects in US WEST's systems, operations or documentation
5. Final Report

9.7 Exit Criteria

Table 9.7 Exit Criteria

Criteria	Responsible Party
<i>All exceptions are cleared</i>	<i>Test Administrator, TAG</i>
<i>Monitoring plan is complete</i>	<i>Test Administrator, TAG</i>
<i>Final report is complete</i>	<i>Test Administrator, TAG</i>

10. EVALUATION OF U S WEST ORDER AND TRANSACTION CREATION DOCUMENTATION

10.1 Description

This evaluation is designed to evaluate the documentation available to the CLEC community to instruct them on how to prepare the necessary forms and other documents to submit orders and other transactions to U S WEST's OSSs. Principles 8 and 12 will be applied in the evaluation of documentation available to CLECs for the creation of orders and transactions.

10.2 Objective

The objective of this test is:

To verify that all orders and transactions to be submitted to U S WEST via GUI and EDI interfaces and those capabilities provided via manual interfaces rather than electronically can be created using documentation and assistance provided by U S WEST.

10.3 Entrance Criteria

Table 10.3 Entrance Criteria

Criteria	Responsible Party
<i>All global entrance criteria</i>	<i>See Section 7</i>
<i>Order and transaction documentation available</i>	<i>U S WEST</i>
<i>Change management procedure documentation available</i>	<i>U S WEST</i>
<i>Process evaluation checklist is available</i>	<i>Test Administrator</i>
<i>Interview guides are available</i>	<i>Test Administrator</i>
<i>Interviewees are available and scheduled</i>	<i>Test Administrator, U S WEST</i>

10.4 Approach

This test will be a qualitative test of policies, practices, procedures, and documentation available to CLECs to develop orders and transactions to be sent to U S WEST's OSS across GUI, EDI, EB-TA, and other interfaces.

10.4.1 Inputs

1. U S WEST Order and transaction documentation
2. U S WEST change management documentation
3. Industry standards documentation
4. Other procedural and technical documentation
5. Evaluation checklists
6. Interface development documentation resulting from change management efforts
7. Interview guides
8. US WEST interface development methodology documentation
9. Relevant and useful data acquired from the AZ test

10.4.2 Activities

1. Determine areas that require validation or retest
2. Gather information

3. Review interface, order, and transaction development processes to assess whether their successful completions were performed as anticipated by the timelines in U S WEST s documentation
4. Perform interviews and documentation reviews as required for validation or retest
5. Complete evaluation checklists and interview summaries
6. Develop and document findings

10.4.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Comparison of actual versus expected results for order and transaction creation deliverables
3. Documentation of any identified material defects in US WEST s systems, operations or documentation
4. Exception report
5. Summary report

10.5 Exit Criteria

- Exceptions cleared
- Final summary report complete

11. TRANSACTION PROCESSING TEST DATA

Test data provides the input or stimuli to systems and processes so that functionality and performance can be observed by means of transaction driven system analysis.

Principle # 11, 13 and 14 apply to test data.

11.1 Purpose

The purpose of this section is to describe test data is described in terms of:

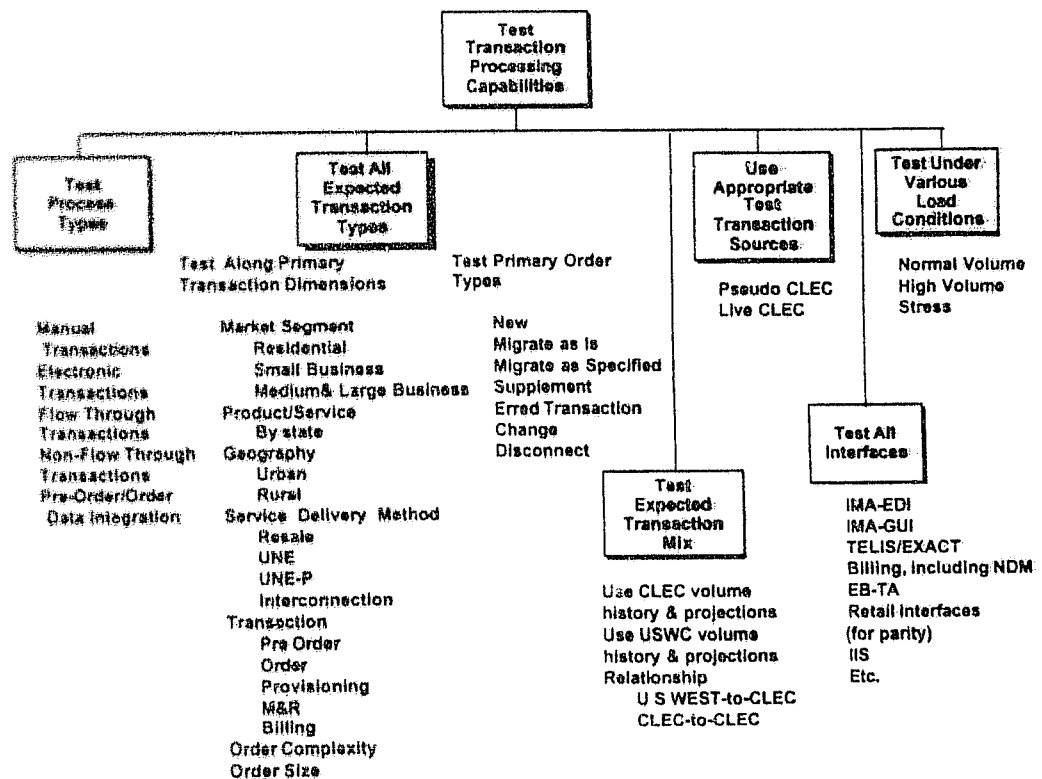
- Test Data Dimensions
- Test Scenarios

- Test Cases
- Test Transaction Instances
- Test Data Definition
- Test Data Sources

11.2 Test Data Dimensions

Figure 11.2 reflects a testing framework agreed to at the St. Paul workshop that describes the major dimensions and attributes to be incorporated in test data transactions.

Figure 11.2 Test Data Dimensions



11.3 Scenarios

Based on MTG's industry experience, the knowledge gained from the New York Public Service Commission Test, a review of other OSS tests, as well as a review of the available offerings in thirteen western states, MTG developed a representative set of test scenarios. At the TRD workshop in Denver, the TAG refined the draft scenarios into a potential set of scenarios reflected in Appendix D that will be used to create the transaction mix. Each test scenario describes a real-world situation that will be used to create realistic test cases in which CLECs purchase wholesale services and network elements from U S WEST to be resold or repackaged to the CLEC's end-user customer on a retail basis.

Scenarios serve several key purposes. Scenarios help define the products, services, and transactions that should be included for testing. In this regard, test scenarios provide the guidance and framework for developing real world test cases to simulate live production in a controlled test environment. The test cases provide the actual detailed instructions required to build individual transaction test instances.

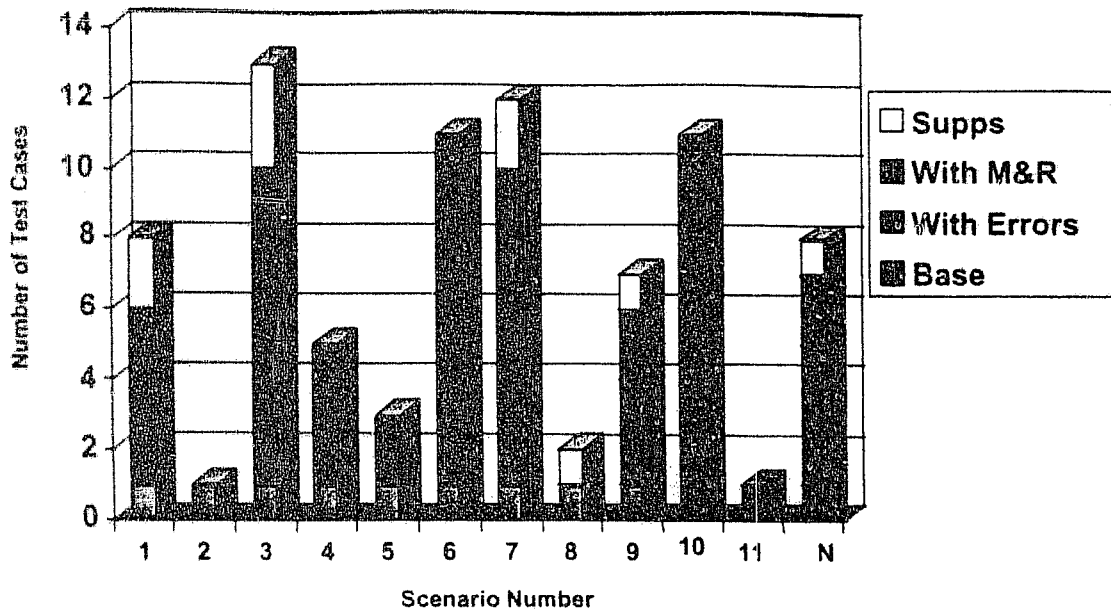
These scenarios will be used to test functionality, performance, and other attributes associated with the ability of CLECs to access information from U S WEST business processes and associated systems. Scenarios provide a way to bridge across test domains and families, thereby facilitating both point-specific and end-to-end testing of various systems and processes and providing the breadth and depth of coverage of products and services to be tested.

11.4 Test Cases

Variables will be introduced into the scenarios to create a number of test cases. Types of variables include errors such as invalid USOCs, order entries that violate U S WEST's business rules (which is a higher class of error than a typographical error), supplements (changes to an order), expedites (end user requested due dates earlier than the standard interval) and Maintenance and Repair (M&R) test situations. Test cases may also vary by the type of features that are requested and the characteristics of the customer. For example, one test case may specify call waiting as a feature but another may use caller ID instead of call waiting. Similarly, for the same scenario, one test case may specify a single-line residence customer and another may specify a five-line business customer. The test cases may also vary the timing and sequence of the transactions.

The following chart depicts several possible variations of test cases for each scenario. In this example, the variables include supplements, M&R, and errors.

Figure 11.4: Scenarios and Test Cases



11.5 Detailed Test Instances

Detailed test instances will be generated from these test cases. Test instances represent a set of transactions described by a test case for a specific customer account. For example, a test case might specify migrate a two-line business customer from U S WEST to a CLEC and add call waiting on the primary line. A test instance would perform the necessary pre-ordering inquiries and send an order to accomplish this activity for a specific two-line business customer account.

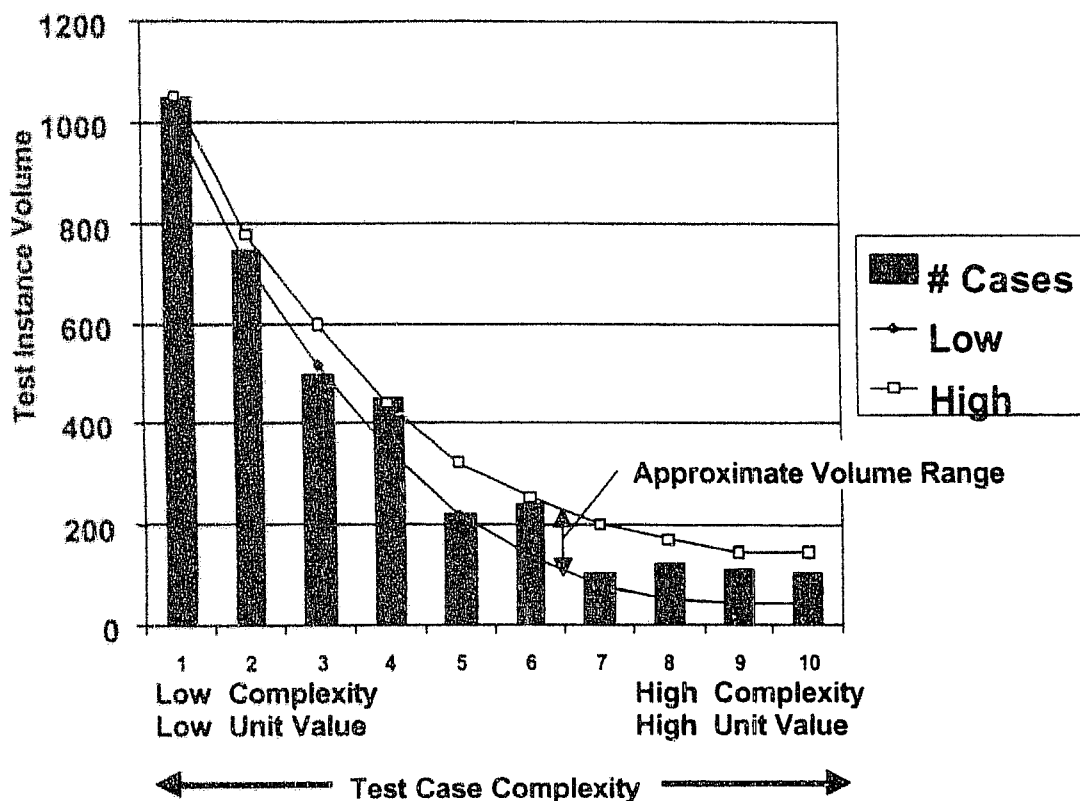
In a manner similar to the creation of multiple test cases from each scenario by varying order dimensions and attributes, multiple test instances can be created from each test case by varying order dimensions and attributes.

11.6 Replicate Mix of Scenarios, Test Cases, and Test Instances

Relative volumes of test cases must be assigned to each scenario, and volumes of test instances must be assigned to each of the test cases based on complexity and expected real world production. This assignment of relative volumes to test scenarios, test cases and test instances results in a mix of test data that takes into account the expected future situation of the real world. While more complex scenarios are expected to occur with less frequency, test instance generation must ensure that the more complex and high value cases do occur in sufficient numbers to obtain adequate coverage. The following chart conceptually depicts the

methodology in determining the appropriate distribution of transactions with simpler transactions occurring more frequently than complex transactions.

Figure 11.6: Volume Distribution by Complexity

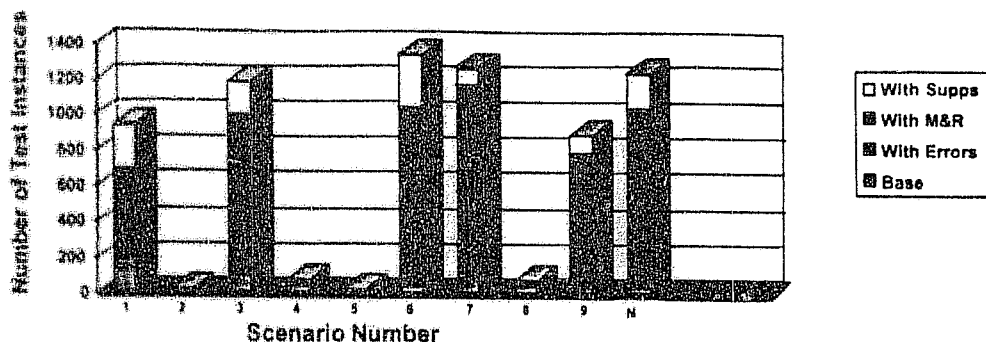


The replicate transaction mix will also include consideration of LIDB (Line Information Data Base) orders (for example, PIC or LPIC changes), 9-1-1 and Directory database updates, 900/976 calling and blocking as appropriate across the various scenarios.

11.7 Reasonably Expected Volumes

After determining the appropriate distribution, statistical techniques will be used to determine the actual number of test instances to be assigned to each of the test cases. Individual test instances that match the test cases will be generated based on the volume that has been assigned. These projected test volumes will be used to measure U S WEST's ability to meet prescribed functionality and measures of service in this timeframe.

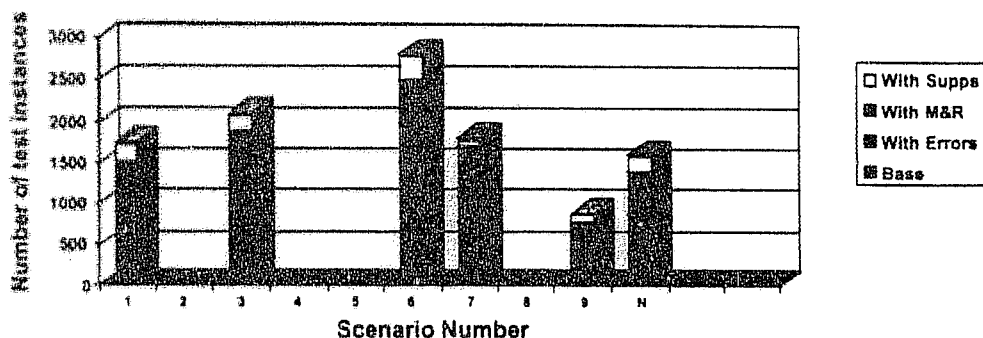
Figure 11.7: Reasonably Expected Volumes



11.8 Stress Volumes

In addition, a stress volume test will be conducted to test the capacity and identify potential choke points of the interfaces. Stress volumes will be assigned to a subset of the test case types based on some multiplier of the normal expected volumes.

Figure 11.8: Stress Volumes



Note: The numerical data used in Figures 11.4, 11.6, 11.7 and 11.8 are for demonstration purposes only and is not intended to represent the testing that will be conducted in this test.

11.9 Testing Hours

OSS functionality testing should be scheduled to take place across the hours of the day that the specific interface being tested is available for CLEC use in a manner that approximates the typical distribution of production transactions. This will increase the likelihood that the P-CLEC experience closely resembles live CLEC experience while also promoting blindness. U S

WEST will provide information on typical transaction distribution by interface to the TA for use in test scheduling.

OSS capacity testing should also be scheduled to take place across the hours of the day that the specific interface being tested is available for CLEC use. The TA, in consultation with the ROC and the TAG, will determine the most appropriate schedule for capacity testing balancing the need for a realistic and rigorous capacity test with protecting the on-going production systems. The TA will determine procedures, and conditions under which the procedures will be used, to abort capacity testing as deemed necessary.

11.10 Specification of Test Data through the Collaborative Process

11.10.1 Description

This section describes the collaborative process whereby the test data requirements defined in this document will be extended to provide a test data specification.

11.10.2 Objective

The objective of the process described in this section is to design test data that provides an agreed-to replicate mix of transactions that represents a reasonably expected transaction mix and reasonably expected transaction volumes.

11.10.3 Entrance Criteria

Because design of test data will take place well before actual testing begins, global entrance criteria, which apply to actual testing processes, need not be met prior to design of test data. Test data design entrance criteria are limited to those listed in the following:

Table 11.10.3 Entrance Criteria

Criteria	Responsible Party
<i>Test Plan is complete</i>	ROC
<i>Scenarios have been defined and approved</i>	ROC
<i>Test Administrator has been selected</i>	ROC, U S WEST
<i>Statistics plan is in place</i>	ROC, TA and TAG

11.10.4 Test Data Specification Creation Approach

11.10.4.1 Inputs

1. Scenarios and cases
2. U S West historical data on aggregate CLEC volumes
3. Draft CLEC Test Data Input Matrix based on Data Dimensions and Scenarios

11.10.4.2 Activities

1. Revise CLEC Test Data Input Matrix
2. Establish consensus on matrix using the St. Paul model
 - Establish confidentiality policies and guidelines
 - Issue RFC to CLECs regarding CLEC Test Data Input Matrix
 - Summarize Comments
 - Resolve Issues
 - Finalize Matrix
3. Obtain input from CLECs in form of filled out CLEC Test Data Input Matrix
4. Analyze and consolidate CLEC input and create test data

11.10.4.3 Outputs

1. Test data reflecting replicate mix of scenarios, test cases and test instances.
2. Test Overview Matrix as shown in Appendix H sample.

11.10.5 Exit Criteria

Table 11.10.5 Exit Criteria

Criteria	Responsible Party
TAG Consensus	ROC, TAG
ROC Approval	ROC

12. EVALUATION OF POP FUNCTIONALITY AND PERFORMANCE VERSUS PARITY STANDARDS AND BENCHMARKS

12.1 Description

The POP Functional Evaluation is a comprehensive review of all of the functional elements of Pre-Ordering, Ordering, Provisioning, Pre-Order/Order Data Integration; the achievement of the prescribed measures; and an analysis of performance in comparison to U S WEST's Retail systems.

The test will consist of live transactions submitted over the U S WEST supported interfaces, both interactively via a graphical user interface (IMA GUI) and computer-computer interfaces. Current plans call for testing the following U S WEST interfaces: IMA GUI, and IMA EDI for LSRs, and TELUS and EXACT for ASRs. The following table depicts the functionality with which each interface will be tested:

Table 12.1 Functionality and Interfaces

Functionality	IMA GUI	IMA EDI	EXACT	TELUS
Pre-Order	X	X		
Order	X	X	X	X
Pre-Order/Order Data Integration	X	X		

The master interface list will be finalized during the actual testing to allow for any corrections/additions to be made as actual testing nears.

The computer-computer interfaces will be tested using interfaces established or built by the P-CLEC for the Test Administrator according to specifications and processes provided to CLECs by U S WEST. The GUI will be tested through transactions entered directly into the appropriate GUI interface. Where appropriate, manual transactions will be submitted as well.

Data on all of the POP processes will be collected and analyzed and used to produce the output reports. The POP functional and performance evaluation will look at an end-to-end view of the pre-ordering through provisioning process. It will include a mix of stand-alone pre-ordering and ordering transactions, along with pre-order transactions followed by orders, supplements, and cancels. The Test Administrator will collect data on transaction submissions and responses, and on provisioning activities. Where possible and appropriate, this information will be collected and maintained electronically. Both ASR and LSR orders will be tested. Erred as well as error free transactions will be tested. Not all orders will go through the physical provisioning process. Some will be future dated, and others will be canceled before provisioning activities commence. The verification and validation of the provisioning activities will be performed in Section 14.

As part of the POP Functional Evaluation, the Test Administrator will also seek qualitative input and quantitative data on the real world experience of CLECs operating in the thirteen ROC states. CLECs willing to participate in this test will be interviewed and their experiences will be incorporated into the test results after validation by the Test Administrator. In addition, for some types of transactions, involvement will be sought from willing CLECs to participate in some aspects of the live transaction testing. This will be done for two principal purposes.

First, CLEC participation will be important for complex orders that cannot be simulated adequately in the test environment. Examples include complex facilities-based orders and orders, like those for unbundled loops with LNP, which require an actual CLEC switch to fully complete. Second, it is important to attempt to incorporate information to help control for experiment bias of the results. Therefore, the Test Administrator will ask CLECs for data that can be validated on live orders that replicate those sent over the test systems. As appropriate, some test orders may be sent over CLEC systems.

Of course, successful completion of all of these aspects of the test requires active participation of one or more CLECs. However, CLEC participation is voluntary and the scope of that participation is up to each individual CLEC.

12.2 Objective

The objective of this test is to validate the existence, functionality, and behavior of the interfaces and processes required by U S WEST for pre-ordering, ordering, and provisioning transaction requests and responses. The POP functions tested will also be validated against the U S WEST documentation that specifies which functions are and are not available within the U S WEST OSS.

12.3 Entrance Criteria

Table 12.3 Entrance Criteria

Criteria	Responsible Party
<i>All global entrance criteria</i>	<i>See Section 7</i>
<i>Interfaces are built and tested</i>	<i>Test Administrator</i>
<i>Interfaces are certified by U S WEST</i>	<i>U S WEST</i>
<i>Inventory documented of all U S WEST relevant (company-wide and regional) systems and interfaces identifying release number and version</i>	<i>TA, U S WEST</i>
<i>Wholesale and retail measurement processes evaluated</i>	<i>Test Administrator, ROC</i>
<i>Measurement collection process is defined</i>	<i>Test Administrator</i>
<i>Dial-up connectivity to GUI interface established</i>	<i>Test Administrator, U S WEST</i>
<i>Business rules for all transactions to be tested are available.</i>	<i>U S WEST</i>
<i>Test bed databases and facilities in place</i>	<i>U S WEST</i>
<i>CLEC test volunteers identified</i>	<i>Test Administrator</i>
<i>Test Scenarios developed</i>	<i>Test Administrator</i>
<i>Test Cases developed</i>	<i>Test Administrator</i>
<i>Specific Test Cases to test in conjunction with CLEC volunteers identified</i>	<i>Test Administrator</i>
<i>Specific Evaluation techniques developed</i>	<i>Test Administrator</i>
<i>Evaluation Criteria defined and approved</i>	<i>Test Administrator</i>
<i>Detailed Go/No Go checklist created</i>	<i>Test Administrator</i>
<i>Help Desk log and contact checklists created</i>	<i>Test Administrator</i>

12.4 Test Scope

Ordering transactions consists of three distinct, but related, processes:

- Pre-Order Processing submission of requests for information required to complete orders;
- Order Processing submission of orders required to add/delete/change a customer's service; and
- Provisioning physical work performed by U S WEST as a result of the submitted orders.

The Ordering Transactions test suite will be comprised of real-life, end-to-end test cases that cover the entire spectrum of pre-order, order, and provisioning. The following order types will be tested:

- Migrate as is
- Migrate as is with changes
- Migrate as specified
- New customer
- Feature Change
- Directory Change
- Number Change
- Add lines
- Suspend/Restore
- Disconnect (full/partial)
- Move (inside/outside)
- Number Portability (LNP/INP)
- Change to New Local Service Provider
- UNE Loop Cut Over

The order types identified above will be ordered using the available and applicable U S WEST service delivery methods. The following service delivery methods will be tested:

- Resale
- Unbundled Loops
- UNE Platforms, residential and business
- Other UNE Combinations such as EELs
- Other Unbundled Network Elements such as UDIT
- Any other service delivery methods that may become available at the time of the test

The orders will be placed using U S WEST's existing interfaces: GUI, computer-computer, and manual. The following assumptions pertain to ordering interfaces:

- U S WEST interfaces, GUI and computer-computer , will be tested, including during the Volume Performance Test,
- Orders will be issued using both ASR and LSR forms, as appropriate,
- The GUI will be tested from multiple terminals at the same time,
- If a scenario calls for an order type that can not be submitted electronically, the request will be submitted manually.

Other important aspects of ordering will be tested:

- Flow through order types, as stated and agreed -to by U S WEST, will be tested to ensure that they do not require manual handling (the complete set of identified flow-through order types will be evaluated to ensure that they actually do flow-through.),
- Integration of pre-order and order data functionality which integrates values from pre-order processes into ordering documents, as desired by the CLEC
- Supplemental orders (changes to orders in process), including cancels, will be tested,
- Multiple products and features will be tested; the tests will cover a broad range of the options available to CLECs and resellers,
- Multiple switch-types, end-offices, states and cities will be included in the test,
- A portion of the orders sent will be physically provisioned. Some orders will be future dated, allowing them to be canceled prior to work scheduling and provisioning.
- CLECs will be solicited for involvement in some aspects of the test, especially for assistance in the testing of complex services and services with long lead times, and
- As indicated by testing principle #13, similar test cases may be run by both the P-CLEC and a production CLEC that has completed interface verification with U S WEST in order to validate the processes under the oversight of the TA. This validation process is not intended to double-test every scenario by both the P-CLEC and a production CLEC and will include no more iterations than are required for validation.

In addition to normal orders, orders with planned errors will be sent to U S WEST to check the accuracy of its system edits and service representatives.

Service locations supported by different U S WEST ordering, provisioning, and CO switching and transmission configurations will be tested.

The test will be conducted using the most current release of the U S WEST business rules at the time of the test.

The P-CLEC will build a pre-order EDI interface using U S WEST specifications and evaluate the results for adequacy. The data from this pre-order interface will be integrated with the LSR for ordering on a real time or near real time basis to ensure that the two interfaces are fully integratable.

The following chart contains the processes and sub-processes that will be used in evaluating U S WEST s pre-ordering, ordering, and provisioning functionality and performance:

Table 12.4-1

Process Area	Sub-Process
Pre-ordering	Retrieve customer CSR
	Validate Customer Address
	Perform Loop Qualification
	Perform Facility Check
	Reserve and release telephone numbers
	Request information about services, features, facilities, and PIC/LPIC choices available to customers
	Determine due date/appointment availability
Ordering	Submit order for migration of a customer from U S WEST to a CLEC as is
	Submit order for migration of a customer from U S WEST to a customer as specified
	Submit order for partial migration of a customer from U S WEST to a CLEC
	Submit order for establishing service for a new customer of a CLEC
	Submit order for feature changes to an existing CLEC customer
	Submit order for adding lines/circuits to an existing CLEC customer.
	Submit order for a telephone number change for an existing CLEC customer
	Submit order for a directory change for an existing CLEC customer
	Submit order for the outside move of an existing CLEC customer
	Submit order for suspending service of an existing CLEC customer
	Submit order for restoring service to an existing CLEC customer
	Submit order for disconnecting service from an existing CLEC customer
	Submit order for disconnecting some lines/circuits for an existing CLEC customer
	Submit order for migration of a customer from another CLEC
	Change service delivery method for an existing CLEC customer
	Order interoffice facilities
	Receive order confirmation
Provisioning	Receive notification of jeopardy or delay
	Receive completion notification

The following table contains the evaluation measures that will be used in evaluating U S WEST's pre-ordering functionality and performance:

Table 12.4-2 POP Evaluation Measures

Evaluation Measure	Evaluation Technique	Criteria Type
Clarity, accuracy and completeness of documentation	Document Review, Transaction Generation	Qualitative Quantitative
Accessibility of GUI (excluding Interoffice facilities)	Transaction Generation	Quantitative
Accessibility of computer-computer interface (excluding Interoffice Facilities)	Transaction Generation	Quantitative
Accuracy and completeness of functionality	Transaction Generation	Quantitative
Timeliness of response	Logging	Quantitative
Completeness of response	Transaction Generation, Inspection	Qualitative Quantitative
Clarity and accuracy of error messages	Transaction Generation, Inspection, Document Review	Qualitative
Accuracy, responsiveness, and completeness of Help Desk support	Transaction Generation, Logging	Qualitative Quantitative
Usability of information	Transaction Generation, Inspection	Qualitative Quantitative
Consistency with retail capability	Inspection	Qualitative Quantitative

The Provisioning process has different measures:

Table 12.4-3 Provisioning Evaluation Measures

Evaluation Measure	Evaluation Technique	Criteria Type
Timeliness of provisioning	Transaction Generation, Inspection, Logging	Quantitative Qualitative
Frequency of delay or rescheduling of provisioning	Transaction Generation, Inspection, Logging	Quantitative Qualitative
Accuracy and completeness of provisioning	Transaction Generation, Inspection, Logging	Quantitative Qualitative

12.5 Scenarios

The specific scenarios to be used in this test can be found in Appendix D.

12.6 Test Approach

12.6.1 Inputs

1. Test scenarios and cases
2. Test case execution schedule
3. Certified interfaces
4. Documentation (Ordering guides, order/pre-order business rules, etc.)
5. Trained personnel to execute test cases
6. Test Go/No Go checklist
7. Help Desk log and contact checklists

12.6.2 Activities

1. Use test cases to develop transactions and transaction content based upon instructions provided in the appropriate handbook(s).
2. Interview CLEC volunteers and coordinate joint testing activities.
3. Submit transactions. Submittal date and time and appropriate transaction information logged.
4. Receive transaction responses. Receipt date, time, response transaction type, and response condition (valid vs. reject) logged.
5. Match transaction response to original transaction.
6. Verify transaction response contains expected data and flags unplanned errors.
7. Verify that pre-order data is integrated into ordering documents/processes as appropriate.
8. Manually review unexpected errors. Identify error source (the Test Administrator, or U S WEST). Identify and log reason for the error. Determine if test should be discontinued.
9. Contact help desk for support as indicated in test cases and for unexpected errors following the appropriate resolution procedures. Log response time, availability, and other behavior of functions as identified on the help desk checklist.
10. Correct expected errors and resubmit. Re-submittal date, time, and appropriate information logged.

11. Identify transactions for which responses have not been received. Where multiple responses are expected for the same request, the receipt of each response will be monitored.
12. Identify transactions for which duplicate or multiple responses were received in error.
13. Record missing responses.
14. Review status of pending orders. Verify and record accuracy of response.
15. Generate P-CLEC reports.
16. Generate U S WEST metrics report for test date range.
17. Compare P-CLEC metrics to U S WEST retail metrics.
18. Assess quality of business processes and compare, where information is available, with equivalent retail processes.

12.6.3 Outputs

1. Reports that provide the metrics to support the standards of performance defined in Appendix C
2. Variance between actual performance and the standards of performance defined in Appendix C
3. Report of expected results versus actual test case results
4. Unplanned error count by type and percentage of total
5. Report of unplanned errors as the result of documentation problems
6. Rejects received after confirmation notification and percentage of total
7. Transaction counts, error ratio, response time, etc., by transaction type, product family, and delivery method
8. Minimum, maximum, mean, average, and aggregate response time/interval per transaction set
9. Transaction counts per response time/interval range per transaction set
10. Orders erred after initial confirmation
11. Flow through orders by order type, product family, etc.
12. Completed help desk logs and checklists
13. Help desk accuracy and timeliness report
14. Perform P-CLEC to other CLEC comparison
15. P-CLEC measurement reports

16. Measure of parity performance between retail and wholesale
17. Documentation on any identified material defects in US WEST's systems, operations or documentation

12.7 Loop Qualification Process Parity by Design Evaluation

In addition to the above elements of this POP Functionality test, the TA will perform an evaluation of the Loop Qualification process U S WEST provides to wholesale customers compared to the Loop Qualification process it provides to its own retail customers to determine if parity exists in the design, implementation and use. This evaluation should examine the wholesale and retail end-to-end processes, the results of the same queries made to the two processes, and all additional avenues of follow-up or recourse available to either wholesale or retail operations or both. This evaluation should answer the following questions:

- Does a wholesale loop qualification transaction result in the same information as a retail transaction for the same loop?
- Does the loop qualification information come from the same database (directly or indirectly) with the same frequency of update?
- Are the wholesale responses returned in approximately the same timeframe as the retail response?
- Are any additional sub-processes or remedial options available in the retail loop qualification process that are not in the wholesale process?

12.8 Exit Criteria

Table 12.7 Exit Criteria

Criteria	Responsible Party
<i>All global exit criteria</i>	<i>See Section 7</i>

13. ORDER FLOW THROUGH EVALUATION

13.1 Description

The Order Flow Through Evaluation tests the ability of orders to flow through from the CLEC through the interface into the U S WEST ordering system without any human intervention.

Prior to specifying the Flow Through test in detail, the BA-NY experience and FCC filings on testing flow through will be assessed. Useful lessons learned and other precedents will be adopted by the ROC as appropriate, and through the customary collaborative process.

Only orders that qualify as flow through, orders not needing manual action, will be tested. The list of flow through types will be updated during the testing period. Additions and deletions to the list will be incorporated into the test.

Flow through orders will be submitted through both the GUI and the computer-computer interfaces. Any supplements and cancels that are considered to be flow through will also be submitted. The order transactions will be monitored to verify that they do not fall out for manual handling in the U S WEST Interconnect Service Center (ISC) and are accepted by U S WEST's Service Order Processor (SOP) without manual intervention. The test will also ensure that all order acknowledgements, rejects, jeopardies, and other notices are issued electronically without manual intervention and that all supplemental orders to these initial orders actually flow through, as appropriate.

This test will be conducted as a part of the POP functional and normal volume testing.

13.2 Objective

The objective of the Order Flow Through Test is to verify the ability of U S WEST to flow through their front end systems, without manual intervention, all order types that at the time the transactions are submitted are designated by U S WEST or otherwise considered to be flow through.

13.3 Entrance Criteria

Table 13.3 Entrance Criteria

Criteria	Responsible Party
<i>All global entrance criteria</i>	<i>See Section 7</i>
<i>All Section 12 Entrance Criteria</i>	<i>See Section 12.3</i>
<i>Documentation available specifying which orders are expected to flow through by service delivery type and product including any specific parameters that cause an order to not flow through that should otherwise flow through</i>	<i>U S WEST</i>
<i>Test Scenarios selected</i>	<i>Test Administrator</i>
<i>Specific Test Cases developed</i>	<i>Test Administrator</i>
<i>Test Case execution schedule developed</i>	<i>Test Administrator</i>

13.4 Test Scope

The scope for this test includes the following test processes:

1. Pre-ordering
2. Ordering

13.5 Test Scenarios

The specific scenarios to be used in this test will be chosen from those that can be found in Appendix D.

13.6 Test Approach

13.6.1 Inputs

1. Test Cases and expected results
2. Test case execution schedule
3. Interview guides
4. Interfaces built and certified
5. Transaction mix
6. Failure reason codes
7. Trained personnel to execute test cases

8. Test Go/No Go checklist

13.6.2 Activities

1. Submit order transactions via computer-computer and the GUI. Log submittal date, time and appropriate transaction information.
2. Receive transaction responses. Log receipt date, time, response transaction type, and response condition (valid vs. reject).
3. Verify transaction response contains expected data and flags unplanned errors.
4. Identify orders that had manual handling. Identify reason for manual handling. Record manual handling and order attributes.
5. If there was an error that caused the order not to flow through, identify error source (Test Administrator or U S WEST). Identify and log reason for the error. U S WEST errors will not be corrected.
6. Correct any Test Administrator errors and re-submit. Verify orders now flow through.
7. Verify that all orders submitted are accounted for. Log any orders that are submitted but do not appear as processed or erred by U S WEST.
8. Generate U S WEST manual handling report.

13.6.3 Outputs

1. Percentage and number of orders that flowed through by order type, product family, etc.
2. Percentage and number of orders that did not flow through by order type, product family, etc.
3. Orders that did not flow through by reason code
6. Variance between actual performance and the standards of performance defined in various arbitrated agreements
4. Report of expected results versus actual results
5. Report of orders not processed
6. U S WEST manual handling report
7. Summary Report
8. Documentation on any identified material defects in US WEST's systems, operations or documentation

13.7 Exit Criteria

Table 13.7 Exit Criteria

Criteria	Responsible Party
All global exit criteria	See Section 7

14. PROVISIONING EVALUATION

14.1 Description

The Provisioning Evaluation test is a comprehensive review of U S WEST's ability to complete accurately and expeditiously the provisioning of CLEC orders. This test will be conducted as a part of the POP functional testing. It will incorporate orders submitted by both the computer-computer and GUI interfaces, and manually where appropriate. While most kinds of orders will be included, the test will concentrate on those types of orders that require physical provisioning.

This test will involve verifying that orders submitted have been properly provisioned and that the provisioning has been completed on time. Included in the test will be orders that have been supplemented and canceled, as well as those submitted with anticipated errors, to test the impact on provisioning.

For some orders, particularly the more complex ones, the involvement of CLECs operating in thirteen western states will be solicited to volunteer use of their facilities to enhance the real world nature of the test. The CLECs will also be asked to provide data on their experiences with provisioning, after verification and validation by Test Administrator.

14.2 Objective

The objective of this test is to evaluate the ability of U S WEST to accurately provision orders submitted by CLECs and to do so on time.

14.3 Entrance Criteria

Table 14.3 Entrance Criteria

Criteria	Responsible Party
<i>All global entrance criteria</i>	<i>See Section 7</i>
<i>All Section 12 entrance criteria</i>	<i>See Section 12.3</i>
<i>Test Scenarios selected</i>	<i>Test Administrator</i>
<i>Specific Test Cases developed</i>	<i>Test Administrator</i>
<i>CLEC volunteers identified</i>	<i>Test Administrator</i>
<i>Provisioning log and activity checklists created</i>	<i>Test Administrator</i>
<i>Test case execution schedule developed</i>	<i>Test Administrator</i>

14.4 Test Scope

The scope for this test includes the following processes:

1. Pre-Ordering
2. Order Processing
3. Provisioning

14.5 Test Scenarios

The specific scenarios to be used in this test will be chosen from those that can be found in Appendix D.

14.6 Test Approach

14.6.1 Inputs

1. Test Cases and expected results
2. Test case execution schedule
3. Provisioning documentation
4. Provisioning log and activity checklists
5. Trained personnel to execute test cases
6. Test Go/No Go checklist

14.6.2 Activities

1. Use test cases to develop transactions and transaction content based upon instructions provided in the appropriate documentation
2. Submit computer-computer transactions.
3. Submit GUI and manual transactions.
4. Receive confirmations of transactions.
5. Log notification of provisioning jeopardies and delays.
6. Perform joint provisioning activities and record provisioning interactions.
7. Perform testing on provisioned services.
8. Test completion of orders. Record results in appropriate provisioning log and activity checklist.
9. Compare P-CLEC metrics with U S WEST retail and other CLECs.
10. Measure parity performance between retail and wholesale

14.6.3 Outputs

1. Reports that provide the metrics to support standards of performance listed in Appendix C.
2. Variance between actual performance and standards of performance listed in Appendix C.
3. Report of expected results versus actual test case results.
4. Completed provisioning logs and checklists
5. Help desk accuracy and timeliness report
6. Provisioning accuracy and timeliness report
7. Perform P-CLEC to other CLEC comparison
8. Measure of parity performance between retail and wholesale
9. Documentation on any identified material defects in US WEST s systems, operations or documentation

14.7 Exit Criteria

Table 14.7 Exit Criteria

Criteria	Responsible Party
All global exit criteria	See Section 7

15. POP VOLUME PERFORMANCE TEST

15.1 Description

The Volume Performance Test will identify the capacity and potential choke points, at projected future transaction volumes, of the U S WEST GUI and computer-computer interfaces and U S WEST systems and processes for responding to pre-ordering queries and for initial processing of orders. There will be three parts to the test: 1) a normal volume test using anticipated transaction volumes for the December 2001 time frame, 2) a peak test using volumes at 150% of the normal volume test, and 3) a stress test using volumes at 250% of the normal volume test. (Note that the ROC Project Manager, Test Administrator and TAG will collaborate to finalize the normal volumes, percentages and time horizons in the preceding.)

The Volume Performance Test will look at the performance of U S WEST's pre-ordering and ordering systems and processes from the submission of queries to the creation of internal service orders and the return of an order confirmation. The orders submitted in the Volume Performance Test will not go through the physical provisioning process. The test will include a mix of stand-alone pre-ordering and ordering transactions. Transactions will be submitted using both the GUI and computer-computer interfaces.

While transactions will be submitted throughout the entire transaction test period as part of the POP Functional Evaluation, the volume tests will only run on certain days during the testing period. There will be two 24-hour normal volume days of testing. There will be one 24-hour peak test. There will be one 4-hour, off-peak stress test. The stress test will be run off-peak to limit the impact of the test on real customers. All the attributes and activities that apply to the POP Functional Evaluation for pre-ordering and ordering also apply to this test. Insofar as possible U S WEST will not be told the exact dates of these tests.

15.2 Objective

The objective of the Volume Performance Test is to measure U S WEST's capability and identify potential choke points of the GUI and computer-computer interfaces and systems put in place to access pre-ordering information and submit orders to U S WEST at projected future volumes.

15.3 Entrance Criteria

Table 15.3 Entrance Criteria

Criteria	Responsible Party
<i>All global entrance criteria</i>	<i>See Section 7</i>
<i>All Section 12 entrance criteria</i>	<i>See Section 12.3</i>
<i>Agreement on volumes and distribution by scenario and entry mode</i>	<i>Test Administrator, ROC</i>
<i>Test Scenarios selected</i>	<i>Test Administrator</i>
<i>Specific Test Cases developed</i>	<i>Test Administrator</i>
<i>Test Case execution schedule developed</i>	<i>Test Administrator</i>

15.4 Test Scope

The scope for this test includes the following test processes:

1. Pre-Ordering
2. Order Processing

15.5 Test Scenarios

The specific scenarios to be used in this test will be chosen from those found in Appendix D.

15.6 Test Approach

15.6.1 Inputs

1. Test cases
2. Test case execution schedule
3. Documentation (all ordering documentation, pre-ordering/ordering business rules, etc.)
4. Personnel to execute test cases
5. Test Go/No Go Checklist
6. Help Desk log and contact checklists
7. Certified interfaces

15.6.2 Activities

1. Use test cases to develop transactions and transaction content based upon instructions provided in the appropriate handbook(s).
2. Submit GUI and computer-computer transactions. Submittal date, time and appropriate transaction information are logged.
3. Receive transaction responses. Receipt date, time, response transaction type, and response condition (valid vs. reject) are logged.
4. Match transaction response to original transaction. Verify matching transaction can be found and record mismatches.
5. Verify transaction response contains expected data and flag unplanned errors.
6. Manually review unplanned errors. Identify error source (Test Administrator or U S WEST). Identify and log reason for the error. Determine if test should be discontinued.
7. Contact help desk for support as indicated in test cases and for unexpected errors following the appropriate resolution procedures. Log response time, availability, and other behavior of functions as identified on the help desk checklist.
8. Identify transactions for which responses have not been received. Where multiple responses are expected for the same request, the receipt of each response will be monitored. Record missing responses.
9. Identify transactions for which duplicate or multiple responses were received in error.
10. Review status of pending orders. Verify and record accuracy of response.
11. Generate P-CLEC reports.
12. Compare P-CLEC metrics to U S WEST retail metrics.
13. Compare P-CLEC to CLEC aggregate. Identify variance in service levels between P-CLEC and live CLEC support.

15.6.3 Outputs

1. Reports that provide performance metrics
2. Variance between actual performance and standards of performance
3. Report of expected results versus actual results
4. Unplanned error count by type and percentage of total
5. Report of Unplanned errors as the result of documentation problems
6. Transaction counts, error ratio, response time, etc. by transaction type, product family and delivery method

7. Minimum, maximum, mean, average, and aggregate response time/interval per transaction set
8. Transaction counts per response time/interval range per transaction set
9. Orders erred after initial confirmation
10. Completed help desk logs and checklists
11. Help desk accuracy and timeliness report
12. P-CLEC to other CLEC comparison
13. Measure of parity performance between retail and wholesale
14. Summary Report
15. Documentation on any identified material defects in US WEST's systems, operations or documentation

15.7 Exit Criteria

Table 15.7 Exit Criteria

Criteria	Responsible Party
<i>All activities completed</i>	<i>Test Administrator</i>
<i>Checklists and reports completed</i>	<i>Test Administrator</i>
<i>All global exit criteria</i>	<i>See Section 7</i>

16. IMA GUI M&R FUNCTIONAL EVALUATION

16.1 Description

The IMA GUI M&R functional evaluation is a comprehensive review of the trouble administration functional elements of the IMA GUI, their conformance to documented specifications, and an analysis of its functionality in comparison to U S WEST's Retail front end systems for trouble management. The test has two major phases, Phase 1 a basic functional evaluation, and Phase 2 a comparative functional evaluation.

16.2 Objective

The objective of this test is to validate the existence and behavior of IMA GUI functional elements as documented in IMA GUI Training Guides and other applicable documents, and to

evaluate, based on both quantitative and qualitative approaches, the equivalence of IMA GUI functionality to U S WEST's Retail front end systems for trouble management.

16.3 Entrance Criteria

Table 16.3 Entrance Criteria

Criteria	Responsible Party
<i>Global Entrance Criteria have been satisfied</i>	<i>See Section 7</i>
<i>Detailed Test Plan completed</i>	<i>Test Administrator</i>
<i>Test Scenarios selected</i>	<i>Test Administrator</i>
<i>Documentation provided</i>	<i>U S WEST</i>
<i>Interview Guides Available</i>	<i>Test Administrator</i>
<i>Specific Test Cases and Transaction Sets developed</i>	<i>Test Administrator</i>
<i>Product descriptions and business rules for all transactions to be tested are available.</i>	<i>U S WEST</i>
<i>Basic documentation review completed</i>	<i>Test Administrator</i>
<i>Detailed Functional Checklist created</i>	<i>Test Administrator</i>
<i>Test bed of working services selected and/or established</i>	<i>U S WEST</i>
<i>Specific Evaluation techniques developed</i>	<i>Test Administrator</i>
<i>Physical access to U S WEST Web site established</i>	<i>U S WEST</i>
<i>Security access to IMA GUI established</i>	<i>U S WEST</i>
<i>Evaluation Criteria defined and approved</i>	<i>ROC</i>
<i>Checklists and Interview Guides created</i>	<i>Test Administrator</i>

16.4 Test Scope

IMA GUI functionality will be reviewed within the context of specific documentation addressing its use and in comparison to U S WEST's Retail front end systems for trouble management. The following chart contains the processes, sub-processes, and methods for evaluating the functionality of U S WEST's IMA GUI:

Table 16.4 Test Scope: M&R IMA GUI Functional Evaluation

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Trouble Reporting	Create/Enter Trouble Report (TR)	Functionality exists as documented	Inspection	Existence Qualitative Parity
	Modify TR	Functionality exists as documented	Inspection	Existence Qualitative Parity
	Close/Cancel TR	Functionality exists as documented	Inspection	Existence Qualitative Parity
	Retrieve TR Status	Functionality exists as documented	Inspection	Existence Qualitative Parity
Trouble History Access	Retrieve Trouble History	Functionality exists as documented	Inspection	Existence Qualitative Parity
Access To Test Capability	Initiate MLT Test	Functionality exists as documented	Inspection	Existence Qualitative Parity
	Receive MLT Test Results	Functionality exists as documented	Inspection	Existence Qualitative Parity

16.5 Test Scenarios

A subset of the Appendix D scenarios will be used in this test.

16.6 Test Approach

This test is broken down into two phases:

- **Phase 1** involves the use of test cases created for this test and observation of processes to evaluate IMA GUI functionality and to determine if the system behaves as documented.
- **Phase 2** involves observation of similar retail transactions and interviews of Retail Maintenance Administrators (MA) processing trouble calls and entering trouble reports into U S West's Retail front end systems to assess functionality in comparison to IMA GUI.

The number of observations and period of time over which the observations are taken for both wholesale and retail processes will be sufficient to provide a statistically valid basis for evaluation.

16.6.1 Inputs

1. Test cases
2. Documentation (IMA GUI Learning Guide, etc.)
3. Functionality checklists
4. Interview guide
5. Personnel to execute test cases
6. Personnel to interview Wholesale user and Retail Maintenance Administrators and observe their use of IMA GUI and retail front end systems for Trouble Management, respectively.

16.6.2 Activities Phase I

1. Use test cases created for this test and appropriate U S WEST documentation to perform each of the functions listed on the checklist provided via the IMA GUI interface. Observe and interview the P-CLEC or CLEC wholesale user as they execute the test cases to determine usability.
2. Verify that each system function behaves as documented.
3. Note any anomalies in the space provided on the checklist.
4. Note any discrepancies between IMA GUI documentation and behavior.
5. Ensure that all trouble reports entered in IMA have been canceled.

16.6.3 Activities Phase II

1. Use the checklist and interview guide to conduct interviews with MA s selected from the Residence and Business M&R work centers.
2. Observe MA trouble report activities similar to those test cases used in Phase I as identified on the checklist provided.
3. Note the presence and behavior of functions identified on the checklist.
4. Identify any anomalies relative to the functions being observed.
5. Note any additional relevant information from the MA interview (e.g., additional capabilities, performance, etc.).
6. Determine and document any M&R functions that can be performed from a Retail trouble management Workstation that are not available in IMA GUI.
7. Perform a detailed evaluation of relative functionality and capabilities between IMA GUI and retail front end systems for trouble management.

16.6.4 Activities Common

Document the results and findings from the activities conducted in Phases 1 and 2.

16.6.5 Outputs

1. Completed checklists from Phases 1 and 2 activities
2. Completed interview summaries
3. Summary reports of findings from each phase, including a discussion of anomalies and relevant observations relating to usability and timeliness of each system interface
4. A Summary report comparing relative functionality in IMA GUI and Retail front end systems for Trouble Management highlighting differences and contrasting ease of use of the two systems in performing the functions observed
5. Documentation on any identified material defects in US WEST's systems, operations or documentation

16.7 Exit Criteria

Table 16.7 Exit Criteria

Criteria	Responsible Party
<i>Global exit criteria have been satisfied</i>	<i>See Section 7</i>
<i>All activities completed</i>	<i>Test Administrator</i>
<i>Checklists and reports completed by personnel participating in the test.</i>	<i>Test Administrator</i>

17. MEDIACC (EB-TA) M&R TROUBLE FUNCTIONAL & PERFORMANCE EVALUATION

17.1 Description

The Electronic Bonding Trouble Administration (MEDIACC EB-TA) Functional Evaluation is a comprehensive review of all of the functional elements of the MEDIACC EB-TA System and their conformance to documented interface specifications.

17.2 Objective

The objective of this test is to validate the existence and behavior of MEDIACC EB-TA functional elements as documented for CLEC trouble entry and other applicable documents.

17.3 Entrance Criteria

Table 17.3 Entrance Criteria

Criteria	Responsible Party
<i>Global Entrance Criteria have been satisfied</i>	<i>See Section 7</i>
<i>Detailed Test Plan completed</i>	<i>Test Administrator</i>
<i>Test Scenarios selected</i>	<i>Test Administrator</i>
<i>Specific Test Cases and Transaction Sets developed</i>	<i>Test Administrator</i>
<i>Product descriptions and business rules for all transactions to be tested are available.</i>	<i>U S WEST</i>
<i>Basic documentation review completed</i>	<i>Test Administrator</i>
<i>Detailed Functional Checklist created</i>	<i>Test Administrator</i>
<i>Test bed of working services selected and/or established</i>	<i>U S WEST</i>
<i>Specific Evaluation techniques developed</i>	<i>Test Administrator</i>
<i>Physical access to U S WEST Trouble entry site established</i>	<i>U S WEST</i>
<i>Security access to MEDIACC EB-TA established</i>	<i>U S WEST</i>
<i>Evaluation Criteria defined and approved</i>	<i>ROC</i>
<i>Checklists and Interview Guides created</i>	<i>Test Administrator</i>

17.4 Test Scenarios

A subset of the Appendix D scenarios will be used in this test.

17.5 Test Approach

This test will use test cases specifically created for this test to evaluate MEDIACC EB-TA functionality and to determine if the system behaves as documented.

17.5.1 Inputs

1. Test cases

2. Documentation
3. Functionality checklists
4. Personnel to execute test cases

17.5.2 Activities

1. Use test cases created for this test and appropriate U S WEST documentation to perform each of the functions listed on the checklist provided via the MEDIACC EB-TA interface.
2. Verify that each system function behaves as documented.
3. Note any anomalies in the space provided on the checklist.
4. Note any discrepancies between M&R Trouble Entry documentation and behavior of the MEDIACC EB-TA interface.
5. Ensure that all trouble reports entered via the MEDIACC EB-TA interface have been canceled.

17.5.3 Outputs

1. Completed checklists from activities
2. Summary reports of findings including a discussion of anomalies relating to usability and timeliness of each system function.
3. Documentation on any identified material defects in U S WEST's system, operations or documentation.

17.6 Exit Criteria

Table 17.6 Exit Criteria

Criteria	Responsible Party
Global exit criteria have been satisfied	See Section 7
All activities completed	Test Administrator
Checklists and reports completed by personnel participating in the test.	Test Administrator

18. M&R END TO END TROUBLE REPORT PROCESSING

18.1 Description

This test involves the execution of selected M&R test scenarios to evaluate U S WEST's performance in making repairs under the conditions of various wholesale maintenance scenarios.

18.2 Objective

The objective of this test is to evaluate U S WEST's performance in making repairs under the conditions of various wholesale maintenance scenarios. The quality of the repair process is to be assessed, and compared with retail operations where the data is available.

18.3 Entrance Criteria

Table 18.3 Entrance Criteria

Criteria	Responsible Party
<i>Global entrance criteria have been satisfied</i>	<i>See Section 7</i>
<i>Test scenarios selected</i>	<i>Test Administrator</i>
<i>Product descriptions and business rules for all transactions to be tested are available.</i>	<i>U S WEST</i>
<i>Techniques & instrumentation available</i>	<i>U S WEST, Test Administrator</i>
<i>Test-bed circuits provisioned</i>	<i>U S WEST</i>
<i>Faults inserted into test-bed circuits as required by the test scenarios</i>	<i>Test Administrator</i>

18.4 Test Scope

Selected M&R test scenarios will be executed to evaluate U S WEST's performance in making repairs under the conditions of various wholesale maintenance scenarios. The following chart contains the processes, sub-processes, and methods for evaluating the End-to-End Trouble Report Processing test:

Table 18.4 Test Target: Execution of M&R Test Scenarios

<i>Process Area</i>	<i>Sub-Process</i>	<i>Evaluation Measure</i>	<i>Evaluation Technique</i>	<i>Criteria Type</i>
<i>End-to-End Trouble Report Processing Resale</i>	<i>M&R Test Scenarios</i>	<i>Accuracy Timeliness</i>	<i>Inspection</i>	<i>Quantitative</i>
<i>End-to-End Trouble Report Processing UNE/UNE Combinations</i>	<i>M&R Test Scenarios</i>	<i>Accuracy Timeliness</i>	<i>Inspection</i>	<i>Quantitative</i>

18.5 Test Scenarios

A subset of the Appendix D scenarios will be used in this test.

18.6 Test Approach

This test involves the execution of selected M&R test scenarios.

18.6.1 Inputs

1. Test-bed circuits with embedded faults
2. Personnel to create trouble tickets and track the trouble ticket status for each scenario.

18.6.2 Activities

1. Conduct circuit test if applicable for each test scenario.
2. Note test results.
3. Create and submit trouble ticket via IMA.
4. Periodically monitor each trouble report throughout its life using trouble report status transactions in IMA.
5. Note significant events in the trouble report life cycle (error occurrences, corrections, trouble ticket submission time, time cleared, etc.).
6. Calculate time to repair measurements for each test scenario fault repaired.
7. Document observations.

18.6.3 Outputs

1. A time to repair measurement for each fault repaired.
2. Summary report of observations.

3. Documentation on any identified material defects in US WEST's systems, operations or documentation.

18.7 Exit Criteria

Table 18.7 Exit Criteria

Criteria	Responsible Party
<i>Global exit criteria have been satisfied</i>	<i>See Section 7</i>
<i>Time to repair measurements for repaired faults</i>	<i>Test Administrator</i>
<i>Summary report of observations</i>	<i>Test Administrator</i>

19. BILLING USAGE FUNCTIONAL EVALUATION

19.1 Description

The Functional Usage Evaluation is an analysis of U S WEST's daily message processing to ensure usage record types including Access records, Rated records, Unrated records and Credit records appear accurately on the Daily Usage Feed (DUF) according to the defined schedule.

19.2 Objective

The objective of this test is to evaluate the following:

- Accuracy and completeness of all usage record types on the DUF including access records that should appear, not receiving records that should not appear, and not receiving empty set files.
- Timeliness of the DUF and access records delivery
- Assess the over-all quality of the process and compare to equivalent retail processes where the data is available.

19.3 Entrance Criteria

Table 19.3 Entrance Criteria

Criteria	Responsible Party
<i>All Global Entrance Criteria satisfied</i>	<i>See Section 7</i>
<i>Test bed completed and ready</i>	<i>U S WEST</i>
<i>Product descriptions and business rules for all transactions to be tested are available.</i>	<i>U S WEST</i>
<i>Techniques and instrumentation developed and approved</i>	<i>Test Administrator</i>
<i>U S WEST resources are available to participate in the test</i>	<i>U S WEST</i>
<i>Detailed Test Plan completed and approved</i>	<i>Test Administrator</i>
<i>All call scripts that reflect the types, durations, terminating numbers, etc of call that test callers are to make are provided</i>	<i>Test Administrator</i>

19.4 Test Scenarios

Test calling is dependent on the provisioning process, which is dependent on scenarios. Some customers are subject to service changes (e.g. migrations from U S WEST retail to a CLEC, feature changes, etc.). Test calls and service changes will occur simultaneously.

A subset of the Appendix D scenarios will be used in this test.

19.5 Test Approach

This test will use operational analysis to evaluate the accuracy and completeness of records contained in the DUF. This analysis will also examine the age of calls on the DUF. The evaluations will be accomplished by dispatching testers to various locations within thirteen western states. These testers will place test calls and will record information about these calls including the call from number, call to number, bill to number, call time and duration. The data contained in these Daily Usage Feeds will then be compared to the call logs and relevant billing media. The Test Team will also record information about the contents of DUFs received by Test Administrator.

Test calls will be made using some customer accounts that will migrate during the test period. Migration refers to the conversion of account ownership from one LEC to another. Test calls will be made from migrating accounts before and after the migration date to ensure accurate guiding of data in the Daily Usage Feed.

For example, a U S WEST retail customer migrates to a CLEC during the test. Calls made by the customer prior to migration should be guided to U S WEST. Calls made by the customer after migration should be guided to the new CLEC.

Test calls should be placed from around the U S WEST calling region. Test calls will be made throughout the workday. Test calls will include a variety of call types with the exception of 911, and will be placed from various locations where in order to test various switch types. Local and toll test calls terminating on the test lines will also be made. These calls will be subject to evaluation.

19.5.1 Inputs

1. Detailed Test Plan
2. Test bed, including lines, telephones and facilities
3. Testers and other personnel

19.5.2 Activities

1. Test Team will develop Test Call Matrices, which include test call logs for each location, on each day, for each originating phone number.
2. Test Team will assemble tester resources, provide instructions and dispatch testers to calling locations.
3. Testers will complete calls and log results.
4. P-CLEC will receive DUF files from U S WEST and provide to Test Team.
5. Test Team will verify that appropriate data is on the DUF.
6. Test Team will verify that calls that do not belong on the DUF are not on the DUF.
7. Test Team will verify that appropriate calls present in the DUF match the testers call log.
8. Test Team will identify DUF files that contain no billable records.
9. Using records received in the DUF files, Test Team will validate the age of calls by determining the number of business days between the call date and the day the DUF file was created.
10. Test Team will compile results.

19.5.3 Outputs

1. Call Logs Report A report of the testers logs.
2. DUF Accuracy and Completeness Report A report showing the validation of calls made during the test.

3. Empty DUF Files Report A Report showing the number of empty DUF files sent by U S WEST.
4. Final report.
5. Documentation on any identified material defects in US WEST s systems, operations or documentation

19.6 Exit Criteria

Table 19.6 Exit Criteria

<i>Criteria</i>	<i>Responsible Party</i>
<i>All Global Exit Criteria satisfied</i>	<i>See Section 7</i>

20. CARRIER BILL FUNCTIONAL EVALUATION

20.1 Description

The Carrier Bill Functional Evaluation is an analysis of U S WEST s ability to accurately bill usage plus monthly recurring charges (MRC), fractional MRCs, and non-recurring charges (NRC) on the appropriate type of bill. An accurately billed item will contain the correct price and correct supporting information, such as start/end dates, duration, standard amounts, and discount amounts. This test will also evaluate the timeliness of bill delivery to the CLECs.

U S WEST will need to run a bill cycle from the initial test bed prior to any POP tests to use as a baseline set of bills.

Monthly charges will be examined for both Resale and UNE billing on IABS and CRIS bills. The verification of prices will consider prices charged based on U S WEST tariffs, U S WEST-CLEC Interconnection Agreements and SGATs. End user bills will be produced by U S WEST s systems and validated by the Test Administrator in this test. Validation of the end user bills will help verify that double billing of the end user (by U S WEST and CLEC) does not occur. Table 20.1 reflects a number of key characteristics of Retail and UNE billing information that will be used in the design of test cases. Information includes the various charge components and their destination bill.

Table 20.1 Key Characteristics of Billing Information
for Resale and UNE Customers

	Billing Component	Rating	Usage	Billing
Resale	Usage	CRIS	DUF	CRIS
Resale	MRC/NRC	CRIS	N/A	CRIS
UNE	UNE loops, usage, MRC/NRC, and Combinations	CRIS	DUF	CRIS
UNE-Other	IOF, collocation	CRIS	DUF	CRIS
UNE-Other	High Cap Loops (DS1/3) MRC/NRC	IABS	N/A	IABS
Other	Directory Listings	CRIS	N/A	CRIS
Retail	Non-unbundled Services MRC/NRC (Ancillary services)	CRIS	N/A	CRIS

20.2 Objective

This test evaluates the timely delivery of the bill and the accurate and timely appearance of charges on the appropriate bill. Appearance of charges will depend on the type of products ordered and/or class of service changes for resale and UNE. Details to be evaluated include:

- Appropriate prorating of charges for new and/or disconnected service.
- Charges are accurate (order matches billing).
- Totals are accurate.
- New/disconnected products appear (or do not appear) on the bill.
- Bill dates are correct and match appropriate date from provisioning process.
- Adjustments appear on the bill.
- Bills are delivered to CLECs and Resellers in a timely manner.
- UNEs billed on a usage basis are billed correctly.

20.3 Entrance Criteria

Table 20.3 Entrance Criteria

Criteria	Responsible Party
<i>All Global Entrance Criteria satisfied</i>	<i>See Section 7</i>
<i>All CRIS and IABS baseline bills produced from the initial test bed</i>	<i>U S WEST</i>
<i>Test bed matches requirements.</i>	<i>U S WEST</i>
<i>Techniques and instrumentation developed and approved</i>	<i>Test Administrator</i>
<i>Product descriptions and business rules for all transactions to be tested are available.</i>	<i>U S WEST</i>
<i>Pricing sections of U S WEST tariffs, U S WEST-CLEC Interconnection Agreements and SGATs are provided</i>	<i>U S WEST</i>
<i>Test bed completed and ready</i>	<i>U S WEST</i>
<i>Calls made during Functional Usage Evaluation processed through to the DUF and available for billing.</i>	<i>U S WEST</i>
<i>Availability of U S WEST resources to test and produce CRIS and IABS bills</i>	<i>U S WEST</i>
<i>Method for viewing bills implemented</i>	<i>U S WEST, Test Administrator</i>

20.4 Test Scope

Table 20-2 Test Scope for Carrier Bill Evaluation

<i>Process Area</i>	<i>Sub Process</i>	<i>Evaluation Measure</i>	<i>Evaluation Techniques</i>	<i>Criteria Type</i>
<i>Maintain Bill Balance</i>	<i>Carry balance forward</i>	<i>Accuracy of bill balance</i>	<i>Inspection</i>	<i>Quantitative</i>
<i>Verify Billing Accounts</i>	<i>Verify Billing Accounts</i>	<i>Completeness and accuracy of extraction</i>	<i>Inspection</i>	<i>Quantitative</i>
<i>Bills and Delivery</i>	<i>Verify normal recurring charges</i>	<i>Completeness and accuracy of data</i>	<i>Inspection</i>	<i>Quantitative</i>
	<i>Verify one-time charges</i>	<i>Completeness and accuracy of data</i>	<i>Inspection</i>	<i>Quantitative</i>
	<i>Verify prorated recurring charges</i>	<i>Completeness and accuracy of data</i>	<i>Inspection</i>	<i>Quantitative</i>
	<i>Verify Usage Charges</i>	<i>Completeness and accuracy of data</i>	<i>Inspection</i>	<i>Quantitative</i>
	<i>Verify discounts</i>	<i>Completeness and accuracy of data</i>	<i>Inspection</i>	<i>Quantitative</i>
	<i>Verify adjustments (debits and credits)</i>	<i>Completeness and accuracy of data</i>	<i>Inspection</i>	<i>Quantitative</i>
	<i>Verify late charges</i>	<i>Completeness and accuracy of data</i>	<i>Inspection</i>	<i>Quantitative</i>
	<i>Receive bill copy</i>	<i>Timeliness of media delivery</i>	<i>Logging</i>	<i>Quantitative</i>

As part of this test, a variety of products and services will be ordered. This may result in many variations in billing presentation from the two primary billing systems (CRIS and LABS). Relevant bill types will be selected for review based upon the product mix and anticipated charges as defined in the expected test results.

20.5 Scenarios

A subset of the Appendix D scenarios will be utilized for billing and usage testing purposes. The set selected will include:

- Test cases for migration/conversion of customers
- Test cases for disconnects, new service (add/delete)
- Test cases for changes to services (modify)

All migration situations should be adequately represented:

- U S WEST to a CLEC
- CLEC to U S WEST
- CLEC to CLEC

The scenarios utilized for billing and usage testing will apply to all service delivery methods (SDM) available in U S WEST at the time of the test(s).

20.6 Test Approach

This test will use systems and operational analysis to evaluate the completeness and accuracy of charges that should appear on the bill based on usage information from the Functional Usage Evaluation and selected scenarios. Expected results will be defined for each test case.

Three bill periods will be processed for the same set of customers.

The first bill period consists of the baseline bills where customers created for this test are billed for the first time directly from the initial test bed. These bills are produced prior to the execution of any transaction scenarios that affect selected customers.

The second and third bill periods consist of bills produced after selected scenarios have been executed. This second set of bills will include items such as prorates, disconnects, migrations, adjustments, etc. Some customers will be created during the test execution, and will only receive second period bills.

The following list shows inputs, activities and outputs of the process needed to validate the full range of test cases.

20.6.1 Inputs

1. Detailed Test Plan
2. Verified Baseline Bills and CSRs
3. Selected usage from the Billing Functional Usage Evaluation
4. CSRs and completions from relevant POP orders

20.6.2 Activities

1. Process service order changes
2. Develop expected results for each test case
3. Begin first bill period by receiving baseline bills

4. Record invoice bill date and actual date received
5. Validate test results for each applicable test case
6. Identify discrepancies
7. Receive Bills for next bill period
8. Receive CSRs for all cycles
9. Record invoice bill date and actual date received
10. Validate test results for each applicable test case
11. Identify discrepancies.
12. Complete second bill period. Repeat 7-11 until third bill period is complete
13. Compile results

20.6.3 Outputs

1. A report showing each test case, expected results, and discrepancies
2. A report showing U S WEST bill delivery dates compared to the expected delivery dates based on the bill cycle date
3. Final report
4. Documentation on any identified material defects in US WEST s systems, operations or documentation

20.7 Exit Criteria

Table 20.7 Exit Criteria

Criteria	Responsible Party
<i>All Global Exit Criteria satisfied</i>	<i>See Section 7</i>

21. SCALABILITY TEST

21.1 Description

The testing described in the POP Volume and Performance Test will test systems and processes at reasonably expected commercial volumes. While it would be desirable to test systems and processes at even higher volumes, such testing could be disruptive to on-going wholesale and retail operations. In addition, scaling up of some elements of processes and

systems, e.g., personnel, is not seen to be feasible for the short time period envisioned. The Scalability Test, which will use operations analysis and will build upon the results of transaction-driven tests, will provide an estimate of process and system performance at volumes greater than planned for the POP Volume and Performance Test.

21.2 Objective

The objectives of the Scalability Tests are to:

- Provide an estimate of the scalability of OSS processes and systems beyond the transaction volumes planned for the POP Volume Performance Test
- Identify potential bottlenecks and choke points

21.3 Entrance Criteria

Table 21.3 Entrance Criteria

Criteria	Responsible Party
<i>Transaction driven testing reasonably complete</i>	<i>ROC</i>
<i>Documentation available</i>	<i>U S WEST</i>
<i>Relevant test results available</i>	<i>Test Administrator</i>

21.4 Test Scope

The Scalability Test will estimate the scalability of all processes and systems in the domains that were tested by Transaction Driven Testing:

- Pre Order, Order and Provisioning
- Maintenance & Repair
- Billing

21.5 Test Scenarios

None

21.6 Test Approach

21.6.1 Inputs

1. Documentation of U S WEST OSS business processes, system and application architecture, and system and interface configuration
2. Test results from transaction driven tests that are relevant to volume carrying capacity

21.6.2 Activities

1. Define Scalability Test analysis framework
2. Validate Scalability Test analysis framework with TAG
3. Analyze business process and systems based upon the analysis framework
4. Identify potential choke points and bottlenecks
5. Revise and refine analysis as necessary based upon final or revised results from transaction driven testing
6. Report findings

21.6.3 Outputs

1. Report on scalability of OSS processes and systems
2. Documentation on any identified material defects in US WEST's systems, operations or documentation

21.7 Exit Criteria

Table 21.7 Exit Criteria

Criteria	Responsible Party
<i>Validated by TAG</i>	<i>TAG</i>
<i>Approved by ROC</i>	<i>ROC</i>
<i>All Global Exit Criteria satisfied</i>	<i>See Section 7</i>

22. CLEC NETWORK PROVISIONING TEST

22.1 NDR

22.1.1 Description

Part of the evaluation of the interaction between U S WEST and a CLEC will include a review of the processes for fulfilling network design requests (NDRs). This test evaluates U S WEST's policies, practices, and procedures for network design requests related to establishing and maintaining a CLEC's ability to access unbundled network elements, including collocation, interconnection and customized routing to Directory Assistance and Operator Services.

This test will not require test scenarios, data generation, or volume testing. This test will rely on, among other things, checklists, interviews, and inspections with both CLEC and U S WEST parties. A key element of this test will be observing and evaluating ongoing, in production NDR processes.

22.1.2 Objectives

The objectives of this qualitative test are to:

- Determine whether CLECs have sufficient information, documentation, and technical support from U S WEST to adequately prepare for and implement network designs, including those required for customized routing for Directory Assistance and Operator Services
- Determine whether network design processes are well-structured and managed to produce the intended results
- Evaluate the usability and completeness of NDR forecast forms and procedures
- Assess the quality of the NDR business process

Table 22.1.3 Entrance Criteria

Criteria	Responsible Party
All global entrance criteria	See Section 7
Process evaluation checklist	Test Administrator
Interview guides	Test Administrator

22.1.3 Test Scope

The evaluation will examine the following issues with respect to network design request-related processes:

- The adequacy and completeness of the network design planning process
- The adequacy and completeness of the network design request testing process
- The adequacy and completeness of the procedures for ensuring confidentiality of CLEC-provided network design information
- Adequacy and completeness of methods employed by U S WEST to communicate with the CLEC regarding the NDR provisioning process

22.1.4 Test Approach

22.1.4.1 Inputs

1. Procedural and technical documentation
2. U S WEST instructions to CLECs for planning and implementing network designs, including those required for customized routing for Directory Assistance and Operator Services
3. Evaluation checklists
4. Interview guides
5. CLEC data

22.1.4.2 Activities

1. Gather information
2. Perform interviews and documentation reviews
3. Complete evaluation checklists and interview summaries
4. Develop and document findings

22.1.4.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Summary report
3. Documentation on any identified material defects in US WEST's systems, operations or documentation

22.1.5 Exit Criteria

Table 22.1.5 Exit Criteria

Criteria	Responsible Party
All global exit criteria	See Section 7

22.2 Collocation

22.2.1 Description

Part of the evaluation of the interaction between U S WEST and a CLEC will include a review of the processes for fulfilling collocation requests. This test evaluates U S WEST's policies, practices, and procedures for collocation-related requests for establishing and maintaining a CLEC's ability to access unbundled network elements.

This test will not require test scenarios, data generation, or volume testing. This test will rely on, among other things, checklists, interviews, and inspections with both CLEC and U S WEST parties. A key element of this test will be observing and evaluating ongoing, in production COLO processes.

22.2.2 Objectives

The objectives of this qualitative test are to:

- Determine whether CLECs have sufficient information and technical support from U S WEST to adequately prepare for and implement collocation facilities
- Determine whether collocation processes are well-structured and managed to produce the intended results
- Evaluate the usability and completeness of collocation forecast forms and procedures
- Assess the quality of the COLO business process

22.2.3 Entrance Criteria

Table 22.2.3 Entrance Criteria

Criteria	Responsible Party
All global entrance criteria	See Section 7
Process evaluation checklist	Test Administrator
Interview guides	Test Administrator

22.2.4 Test Scope

The evaluation will examine the following issues with respect to collocation-related processes:

- The adequacy and completeness of the collocation planning process
- The adequacy and completeness of the collocation project management procedures
- The adequacy and completeness of the procedures for ensuring confidentiality of CLEC-provided collocation information
- The availability and adequacy of resources and qualified technical support to facilitate collocation activities
- The adequacy and completeness of the collocation testing process
- Adequacy and completeness of methods employed by U S WEST to communicate with the CLEC regarding the collocation provisioning process

22.2.5 Test Approach

22.2.5.1 Inputs

1. Procedural and technical documentation
2. U S WEST instructions to CLECs for planning and implementing collocations
3. Evaluation checklists
4. Interview guides
5. CLEC data

22.2.5.2 Activities

1. Gather information

2. Perform interviews and documentation reviews
3. Complete evaluation checklists and interview summaries
4. Develop and document findings
5. Review production collocation performance data

22.2.5.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Summary report
3. Documentation on any identified material defects in US WEST's systems, operations or documentation

22.2.6 Exit Criteria

Table 22.2.6 Exit Criteria

Criteria	Responsible Party
All global exit criteria	See Section 7

22.3 Interconnection Trunks

22.3.1 Description

Part of the evaluation of the interaction between U S WEST and a CLEC will include a review of the processes for providing interconnection trunks. This test evaluates U S WEST's policies, practices, and procedures for the provision of interconnection trunks related to establishing and maintaining a CLEC's ability to access unbundled network elements.

This test will not require test scenarios, data generation, or volume testing. This test will rely on, among other things, checklists, interviews, and inspections with both CLEC and U S WEST parties.

22.3.2 Objectives

The objectives of this qualitative test are to:

- Determine whether CLECs have sufficient information and technical support from U S WEST to adequately prepare for and implement interconnection trunks.
- Determine whether interconnection processes are well-structured and managed to produce the intended results

- Determine the existence and functionality of procedures for developing, publicizing, conducting, and monitoring trunk forecasting efforts with CLECs
- Verify the integration of trunk forecasting procedures with U S WEST's facilities planning procedures
- Ensure the trunk forecasting effort has effective management oversight
- Assess the quality of the interconnection trunk forecasting process

22.3.3 Entrance Criteria

Table 22.3.3 Entrance Criteria

Criteria	Responsible Party
All global entrance criteria	See Section 7
Process evaluation checklist	Test Administrator
Interview guides	Test Administrator

22.3.4 Test Scope

The evaluation will examine the following issues with respect to interconnection trunk-related processes:

- The adequacy and completeness of the trunk forecasting procedures
- The adequacy and completeness of the procedures for ensuring confidentiality of CLEC-provided forecast information
- The availability and integration of published interconnection trunk forecasts in U S WEST's facilities planning process
- Adequacy and completeness of methods employed by U S WEST to communicate with the CLEC regarding the interconnection trunk provisioning process

22.3.5 Test Approach

22.3.5.1 Inputs

1. Procedural and technical documentation
2. USWC instructions to CLECs for forecasting, planning and implementing interconnection trunks

3. Evaluation checklists
4. Interview guides
5. CLEC data

22.3.5.2 Activities

1. Gather information
2. Perform interviews and documentation reviews
3. Complete evaluation checklists and interview summaries
4. Develop and document findings

22.3.5.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Summary report
3. Documentation on any identified material defects in US WEST's systems, operations or documentation

22.3.6 Exit Criteria

Table 22.3.6 Exit Criteria

Criteria	Responsible Party
All global exit criteria	See Section 7

23. CHANGE MANAGEMENT TEST

23.1 Description

This test evaluates U S WEST's policies and procedures for managing changes to and change requests for OSS interfaces and business processes utilized by CLECs.

23.2 Objectives

The objectives of this test are to determine the adequacy and completeness of procedures for developing, publicizing, conducting, and monitoring change management.

23.3 Entrance Criteria

Table 23.3 Entrance Criteria

Criteria	Responsible Party
Global Entrance Criteria requirements	See Table Section 7
Process evaluation checklist	Test Administrator
Interview guides	Test Administrator

23.4 Test Scope

Table 23.4 Change Management Evaluation Scope

Process Area	Sub Process/ Attribute	Evaluation Measure	Evaluation Technique	Criteria Type
Change Management	Change Request Implementation	Completeness and consistency of change request process	Inspection Document review Report review	Qualitative
	Prioritization and Escalation Process	Completeness and consistency of prioritization and escalation guidelines and process	Inspection Document review Report review	Qualitative
	Developing Change Proposals	Completeness and consistency of change development process	Inspection Document review Report review	Qualitative
	Evaluating Change Proposals	Completeness and consistency of change evaluation process	Inspection Document review Report review	Qualitative
	Severity levels	Completeness and reasonableness of levels and process	Inspection Document review Report review	Qualitative
	Notification Schedules	Reasonableness of notification schedules and completeness of process	Inspection Document review Report review	Qualitative
	Implementing Change	Completeness and consistency of change implementation process	Inspection Document review Report review	Qualitative
	Intervals	Reasonableness of change interval	Inspection Document review Report review	Qualitative
	Documentation	Timeliness of documentation and notification updates	Inspection Document review Report review	Qualitative

<i>Process Area</i>	<i>Sub Process/ Attribute</i>	<i>Evaluation Measure</i>	<i>Evaluation Technique</i>	<i>Criteria Type</i>
	<i>Tracking Change Proposals</i>	<i>Adequacy and completeness of change management tracking process</i>	<i>Inspection Document review Report review</i>	<i>Qualitative</i>

23.5 Scenarios

This test does not rely on scenarios.

23.6 Test Approach

23.6.1 Inputs

1. U S WEST change management process documentation
2. Other procedural and technical documentation
3. U S WEST instructions to CLECs for interacting with change management functions and interpreting change management activities
4. Evaluation checklists
5. Interview guides
6. CLEC data
7. Change management process artifacts, such as notifications and updated specifications

23.6.2 Activities

1. Gather documentation and other relevant data
2. Perform interviews and documentation reviews
3. Complete evaluation checklists and interview summaries
4. Develop and document findings

23.6.3 Outputs

1. Completed evaluation checklists and interview summaries
2. Summary Report
3. Documentation on any identified material defects in US WEST s systems, operations or documentation

23.6.3.1 Exit Criteria

Table 23.6.3.1 Exit Criteria

Criteria	Responsible Party
Limited to Global Exit Criteria requirements	See Section 7

24. U S WEST CLEC SUPPORT PROCESSES AND PROCEDURES REVIEW

24.1 Purpose

The purpose of this section is to define the specific tests to be undertaken in evaluating the systems, processes and documentation provided by U S WEST for the establishment and maintenance of business relationships with the CLECs. Areas to be evaluated include the provisioning of on-going operational support to CLECs in a manner both adequate to CLEC business needs and comparable to that provided to U S WEST Retail Operations.

24.2 Scope

The processes and procedures review includes evaluation of the following areas of support provided by U S WEST to CLECs in the establishment and on-going maintenance of their wholesale services business relationship:

- Account Establishment & Management
- CLEC Forecasting
- CLEC Training
- Interface Development
- OSS Interface (IMA) Help Desk Support
- Interconnect Service Center Support
- Account Maintenance Support Center (M&R)
- Network Surveillance and Outage Notification

24.3 Account Establishment & Management Review

24.3.1 Description

This test evaluates U S WEST s policies, processes and practices for establishing and managing CLEC account relationships.

24.3.2 Objectives

The objectives of this test are to determine the adequacy, completeness, and compliance with procedures for developing, publicizing, conducting, and monitoring account management.

24.3.3 Assumptions

Preparation and conduct of this review assumes:

1. No test scenarios are applicable
2. The following inputs will be utilized
 - U S WEST account management procedural documentation
 - U S WEST instructions to CLECs for interacting with account managers
 - Other procedural, technical, and customer documentation
 - Evaluation checklists
 - Interview guides
 - CLEC data
3. The following outputs will result
 - Completed evaluation checklists and interview summaries
 - Summary report
 - Documentation on any identified material defects in US WEST s systems, operations or documentation

24.3.4 Entrance Criteria

The following criteria must be met before the review can commence

- Global entrance criteria requirements are met per Section 7

- Process evaluation checklist is developed
- Interview guides are developed

24.3.5 Review Scope

Table 24.3.5 Account Establishment & Management Review

Process Area	Sub Process/ Attribute	Evaluation Measure	Evaluation Technique	Criteria Type
Establishing an Account Relationship	Staffing	Appropriate roles and responsibilities	Inspection Document review	Qualitative
		Capacity, coverage, and account allocation	Inspection Document review	Qualitative
Maintaining an Account Relationship	Customer contact	Adequacy and completeness of procedures for responding to customer requests	Interviews Logging Report Review	Quantitative
	Escalation	Adequacy and completeness of escalation procedures	Inspection Document review Interviews	Qualitative
	Routine and urgent customer communications	Adequacy and completeness of communication and notification procedures	Inspection Document review Interviews	Qualitative
	Customer documentation	Adequacy and completeness of procedures for developing, distributing, and maintaining customer documentation	Inspection Document review Interviews	Qualitative

24.3.6 Review Activities

1. Gather documentation and other relevant data
2. Perform interviews and documentation reviews
3. Complete evaluation checklists and interview summaries

4. Develop and document findings

24.3.7 Exit Criteria

- All required review activities must be completed
- All change control, verification and confirmation steps have been completed

24.4 CLEC Forecasting Review

24.4.1 Description

This review evaluates U S WEST's policies, processes and practices for requesting and managing CLEC facility and service forecasts for wholesale services.

24.4.2 Objectives

The objectives of this review are to determine the adequacy, completeness, and compliance with procedures for requesting, receiving, refining and utilizing forecasts from CLECs.

24.4.3 Assumptions

1. Preparation and conduct of this review assumes:
 2. No test scenarios are applicable
 3. The following inputs will be utilized
 - U S WEST forecasting procedural documentation
 - U S WEST instructions to CLECs for providing forecasts
 - Other procedural, technical, and customer documentation
 - Evaluation checklists
 - Interview guides
 - CLEC forecast data
 4. The following outputs will result
 - Completed evaluation checklists and interview summaries
 - Summary report
 - Documentation on any identified material defects in US WEST's systems, operations or documentation

24.4.4 Entrance Criteria

The following criteria must be met before the review can commence

- Global entrance criteria requirements are met per Section 2.6
- Forecast process evaluation checklist is developed
- Interview guides are developed

24.4.5 Review Scope

Table 24.4.5 Forecasting Review

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
<i>Forecast Procedures</i>	<i>Request process</i>	<i>Existence Completeness</i>	<i>Inspection</i>	<i>Existence Qualitative</i>
	<i>Receipt and Refinement</i>	<i>Existence Completeness</i>	<i>Inspection</i>	<i>Existence Qualitative</i>
<i>Forecast Utilization</i>	<i>Process Documentation</i>	<i>Existence Completeness</i>	<i>Inspection</i>	<i>Existence Qualitative</i>
	<i>Compliance</i>	<i>Timeliness Accuracy</i>	<i>Inspection</i>	<i>Qualitative</i>

24.4.6 Review Activities

1. Gather information
2. Perform interviews and documentation review
3. Complete evaluation checklists and interview summaries
4. Develop and document findings

24.4.7 Exit Criteria

- All required review activities must be completed
- All change control, verification and confirmation steps have been completed

24.5 CLEC Training

24.5.1 Description

This test evaluates U S WEST's training documentation and practices for CLEC representatives engaged in the establishment and maintenance of the U S WEST-CLEC business relationship.

24.5.2 Objectives

The objectives of this test are to determine the existence and adequacy of procedures for developing, announcing, conducting, and monitoring U S WEST training for CLECs.

24.5.3 Assumptions

Preparation and conduct of this review assumes:

1. No test scenarios are applicable
2. The following inputs will be utilized
 - U S WEST training procedural documentation
 - U S WEST instructions to CLECs for participating in training
 - Training material manuals and handouts
 - Evaluation checklists
 - Interview guides
3. The following outputs will result
 - Completed evaluation checklists and interview summaries
 - Summary report
 - Documentation on any identified material defects in US WEST's systems, operations or documentation

24.5.4 Entrance Criteria

The following criteria must be met before the review can commence

- Global entrance criteria requirements are met per Section 2.6
- Process evaluation checklist is developed
- Interview guides are developed

24.5.5 Review Scope

Table 24.5.5 CLEC Training Review

Process Area	Sub Process/ Attribute	Evaluation Measure	Evaluation Technique	Criteria Type
Training Program Development	Develop curriculum	Completeness of training curriculum and forums	Document review Inspection	Qualitative
		Adequacy of procedures to respond to information about training quality and utilization	Document review Inspection	Qualitative
		Adequacy of procedures to accept CLEC input regarding training curriculum	Document review Inspection	Qualitative
	Publicize training opportunities	Availability of information about training opportunities	Document review Inspection	Qualitative
Training Program Quality Assurance	Attendance/ utilization tracking	Adequacy of process to track utilization and attendance of various training tools and forums	Document review Inspection	Qualitative
	Session effectiveness tracking	Adequacy of process to survey training recipients on effectiveness of training	Document review Inspection	Qualitative
	Instructor oversight	Adequacy of procedures to monitor instructor performance	Document review Inspection	Qualitative
Process Management	Performance measurement process	Controllability, efficiency and reliability of process	Inspection Document review	Qualitative
	Process improvement	Completeness of process improvement practices	Inspection Document review	Qualitative

24.5.6 Review Activities

1. Gather information
2. Perform interviews and documentation review
3. Complete evaluation checklists and interview summaries

4. Develop and document findings

24.5.7 Exit Criteria

- All required review activities must be completed
- All change control, verification and confirmation steps have been completed

24.6 OSS Interface Development Review

24.6.1 Description

This test evaluates U S WEST's methods and procedures for developing, providing, and maintaining OSS interfaces for pre-ordering, ordering, and maintenance & repair.

24.6.2 Objectives

The objectives of this test are to determine the adequacy, consistency and completeness of U S WEST's methods and procedures for developing, providing and maintaining OSS interfaces.

24.6.3 Assumptions

Preparation and conduct of this review assumes:

1. No test scenarios are applicable
2. The following inputs will be utilized
 - Procedural and technical documentation
 - U S WEST instructions to CLECs for enabling, testing, and maintaining compatibility with interfaces
 - Evaluation checklists
 - Interview guides
 - CLEC data
3. The following outputs will result
 - Completed evaluation checklists and interview summaries
 - Summary report
 - P-CLEC comments on its interface development process
 - Documentation on any identified material defects in US WEST's systems, operations or documentation

24.6.4 Entrance Criteria

The following criteria must be met before the review can commence

- Global entrance criteria requirements are met per Section 7
- Process evaluation checklist is developed
- Interview guides are developed

24.6.5 Review Scope

Table 24.6.5 OSS Interface Development Review

Process Area	Sub Process/ Attribute	Evaluation Measure	Evaluation Technique	Criteria Type
Developing Interfaces	Interface development methodology	Adequacy and completeness of interface development methodology	Inspection Document review Report review	Qualitative
	Provision of interface specifications and related documentation	Adequacy and completeness of interface documentation distribution procedures	Inspection Document review Report review	Qualitative
Enabling and Testing Interfaces	Interface enabling and testing methodology	Adequacy and completeness of carrier-to-carrier interface enabling and testing procedures	Inspection Document review Report review	Qualitative
	Availability of test environments and technical support to CLECs	Availability and adequacy of functioning test environments, testing protocols, production cutover protocols and technical support for all supported interfaces	Inspection Document review Report review	Qualitative
	Interface enabling and testing support	Adequacy and completeness of interface enabling and testing procedural documentation	Inspection Document review Report review	Qualitative
Maintaining Interfaces	Release management	Adequacy and completeness of interface enhancement and software release management protocols	Inspection Document review Report review	Qualitative

24.6.6 Review Activities

1. Gather information
2. Perform interviews and documentation reviews
3. Complete evaluation checklists and interview summaries
4. Develop and document findings

24.6.7 Exit Criteria

- All required review activities must be completed
- All change control, verification and confirmation steps have been completed

24.7 OSS Interface (IMA) Help Desk Review

24.7.1 Description

This review is an evaluation of U S WEST s IMA help desk functions that provide technical support for its OSS interfaces.

24.7.2 Objectives

The objectives of this review are to:

- Determine adequacy, completeness and consistency of IMA help desk processes
- Ensure IMA help desk functions have effective management oversight
- Determine whether IMA help desk escalation procedures are correctly maintained, documented and published
- Determine the existence and functionality of procedures for measuring, tracking, projecting and maintaining IMA help desk performance
- Ensure existence of reasonable security measures to ensure integrity of IMA help desk data and the ability to restrict access to parties with specific access permissions

24.7.3 Assumptions

Preparation and conduct of this review assumes:

1. No test scenarios are applicable
 2. The following inputs will be utilized
- Procedural documentation such as internal help desk procedure manuals

- U S WEST instructions to CLECs for interacting with help desk functions
 - Evaluation checklists
 - Interview guides
 - CLEC data
3. The following outputs will result
- Completed evaluation checklists and interview summaries
 - Summary report
 - Documentation on any identified material defects in US WEST s systems, operations or documentation

24.7.4 Entrance Criteria

The following criteria must be met before the review can commence

- Global entrance criteria requirements are met per Section 7
- Process evaluation checklist is developed
- Interview guides are developed

24.7.5 Review Scope

Figure 24.5 OSS Interface (IMA) Help Desk Review

Process Area	Sub Process/ Attribute	Evaluation Measure	Evaluation Technique	Criteria Type
Process IMA Help Desk Call	Resolution of user question, problem or issue	Completeness and consistency of process	Inspection Document review	Qualitative
Close IMA Help Desk Call	Closure posting	Completeness and consistency of process	Inspection Document review	Qualitative
Status Tracking and Reporting	Status tracking and reporting	Completeness and consistency of reporting process	Inspection Document review	Qualitative
Problem Escalation	User and U S WEST initiated escalation	Completeness and consistency of process	Inspection Document review	Qualitative
Capacity Management	Capacity planning process	Completeness and consistency of process	Inspection Document review	Qualitative
Security and Integrity	Data access controls	Security of process	Inspection Document review	Qualitative
Process Management	General management practices	Completeness and consistency of operating management practices	Inspection Document review	Qualitative
	Performance measurement process	Controllability, efficiency and reliability of process	Inspection Document review	Qualitative
	Process improvement	Completeness of process improvement practices	Inspection Document review	Qualitative

24.7.6 Review Activities

1. Gather information
2. Perform walk-throughs, observations and documentation reviews
3. Complete evaluation checklists

4. Develop and document findings

24.7.7 Exit Criteria

- All required review activities must be completed
- All change control, verification and confirmation steps have been completed

24.8 Interconnect Service Center (ISC) Support Review

24.8.1 Description

The Interconnect Service Center (ISC) Support Review is a comprehensive operational analysis of the service center processes developed by U S WEST to support Resellers and CLECs with OSS questions, escalations, problems, and issues related to pre-ordering, ordering, provisioning and billing of its wholesale services. Basic functionality, performance and escalation procedures will be evaluated.

24.8.2 Objectives

The objectives of this review are to:

- Determine completeness and consistency of ISC processes and responses
- Determine whether the escalation procedure is documented and known to ISC representatives and management
- Determine the accuracy and completeness of procedures for measuring ISC performance

24.8.3 Assumptions

Preparation and conduct of this review assumes:

1. No test scenarios are applicable
2. The following inputs will be utilized
 - ISC Evaluation Checklist
 - ISC procedural documentation
3. The following outputs will result
 - Completed ISC evaluation checklists and interview summaries
 - Summary report

4. Develop and document findings

24.7.7 Exit Criteria

- All required review activities must be completed
- All change control, verification and confirmation steps have been completed

24.8 Interconnect Service Center (ISC) Support Review

24.8.1 Description

The Interconnect Service Center (ISC) Support Review is a comprehensive operational analysis of the service center processes developed by U S WEST to support Resellers and CLECs with OSS questions, escalations, problems, and issues related to pre-ordering, ordering, provisioning and billing of its wholesale services. Basic functionality, performance and escalation procedures will be evaluated.

24.8.2 Objectives

The objectives of this review are to:

- Determine completeness and consistency of ISC processes and responses
- Determine whether the escalation procedure is documented and known to ISC representatives and management
- Determine the accuracy and completeness of procedures for measuring ISC performance

24.8.3 Assumptions

Preparation and conduct of this review assumes:

1. No test scenarios are applicable
2. The following inputs will be utilized
 - ISC Evaluation Checklist
 - ISC procedural documentation
3. The following outputs will result
 - Completed ISC evaluation checklists and interview summaries
 - Summary report

- Documentation on any identified material defects in US WEST's systems, operations or documentation

24.8.4 Entrance Criteria

The following criteria must be met before the review can commence

- Global entrance criteria requirements are met per Section 27
- ISC evaluation checklist developed
- CLEC problem feedback survey completed
- ISC problem response standard survey completed

24.8.5 Review Scope

Table 24.8.5 ISC Support Review

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Respond to ISC Call	Answer call	Completeness and consistency of process	Inspection Performance	Qualitative
		Timeliness of answer	Measure OS-2	Quantitative
	Interface with user	Availability of user interface	Inspection	Qualitative
	Response to call	Completeness and accuracy of response	Inspection	Qualitative
Process ISC Call	Log call	Completeness of logged information	Document Review Inspection	Qualitative
		Log is kept in appropriate media for appropriate interval		
	Access to systems to observe user problems	Ability to access user records and transactions	Inspection	Qualitative
Close ISC Call	Resolve user question, problem or issue	Completeness and consistency of process	Documentation Review	Qualitative
	Log closure information	Completeness, consistency, and timeliness of process	Inspection	Qualitative
Monitor Status	Track status	Accuracy and completeness of status tracking capability	Inspection Document Review	Qualitative
		Availability of jeopardy notification		
	Report status	Completeness and consistency of reporting process	Inspection Document Review	Qualitative
Request Escalation	Manage escalations	Accessibility of status report		
		Consistency and completeness of procedure	Document Review Inspection	Qualitative

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Manage the ISC Process	Provide management oversight	Completeness and consistency of operating management practices	Inspection	Qualitative

24.8.6 Review Activities

1. Gather information
2. Perform ISC walk-throughs, observations and documentation reviews
3. Complete evaluation checklists
4. Develop and document findings

24.8.7 Exit Criteria

- All required review activities must be completed
- All change control, verification and confirmation steps have been completed

24.9 M&R Support Center Review

24.9.1 Description

The M&R support center evaluation is an operational analysis of the maintenance and repair (M&R) processes developed by U S WEST to provide support to CLECs with questions, problems, and issues related to wholesale trouble reporting and repair operations. This review includes both the Account Maintenance Support Centers (AMSCs) for designed services and the Repair Call Handling Centers (RCHCs) for non-designed services.

24.9.2 Objectives

The objective of this test is to evaluate the effectiveness of M&R support center operations and adherence to common support center procedures. An additional objective is to analyze the nature and frequency of problems referred to the AMSC/RCHC to determine if they indicate potential problems in other M&R areas. Specifically, this evaluation is designed to:

- Determine completeness and consistency of AMSC/RCHC desk processes and procedures
- Determine whether expedite and escalation procedures are correctly documented and work effectively

- Ensure existence of reasonable security measures to ensure integrity of work AMSC/RCHC data and the ability to restrict access to parties with specific access permissions
- Determine the timeliness and accuracy in identifying and resolving problems
- Determine the existence and functionality of procedures for measuring, tracking, projecting and maintaining AMSC/RCHC performance
- Determine the existence of Maintenance and Repair coordination processes and procedures, and other operational elements associated with M&R coordination activities between U S WEST and CLEC operations organizations

24.9.3 Assumptions

Preparation and conduct of this review assumes:

1. No test scenarios are applicable
2. The following inputs will be utilized
 - Interview guides
 - Observation checklists
 - AMSC/RCHC evaluation checklists
 - AMSC/RCHC center contact logs
 - Process and procedure documentation
 - U S WEST notification procedures for coordinated meets and coordinated testing
3. *The following outputs will result*
 - Completed AMSC/RCHC evaluation checklists and interview summaries
 - Summary report
 - Contact analysis results report
 - Documentation on any identified material defects in US WEST s systems, operations or documentation

24.9.4 Entrance Criteria

The following criteria must be met before the review can commence

- Global entrance criteria requirements are met per Section 7
- AMSC/RCHC evaluation checklist developed
- AMSC/RCHC interview guides developed
- Required documentation provided

24.9.5 Review Scope

Table 24.9.5 M&R Support Center Evaluation

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Call Processing	Call Answer	Completeness of process	Inspections Logging Interviews PM	Qualitative
		Timeliness	MR-2	Quantitative
	Response to call	Completeness and accuracy of response	Inspections Documentation Review	Qualitative
	Call Logging	Accuracy Completeness Consistency	Inspections Logging Interviews	Qualitative
	Prioritization	Existence Effectiveness	Inspections Logging Interviews	Qualitative
Problem Tracking and Resolution	Documentation	Clarity Accuracy	Document Review Interviews	Qualitative
	Identify and Resolve	Timeliness Accuracy Completeness Consistency	Inspections Logging Interviews	Qualitative
	Track Problem	Existence Accuracy	Inspections Logging Interviews	Qualitative
	Log Status and Close	Accuracy Completeness Consistency	Inspections Logging Interviews	Qualitative
	Notify Customer	Timeliness	Inspections Logging Interviews	Qualitative
Expedite/ Escalation Procedures	Documentation	Existence Adequacy Accuracy	Document Review Interviews	Qualitative
	Call Answer	Accessibility Timeliness	Inspections Logging Interviews	Qualitative
	Escalation Logging	Accuracy	Inspections Logging Interviews	Qualitative

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
	Identify and Resolve	Timeliness	Inspections Logging Interviews	Qualitative
	Log Status and Close	Accuracy	Inspections Logging Interviews	Qualitative
	Notify Customer	Timeliness	Inspections Logging Interviews	Qualitative
AMSC/RCHC Center Procedures		Accuracy Completeness	Inspections Logging Interviews	Qualitative
Joint Meet Procedures	Process Documentation	Accuracy Completeness	Interviews Document Review	Qualitative
	Notification Procedures	Timeliness Accuracy	Interviews	Qualitative
Coordinated Testing	Process Documentation	Accuracy Completeness	Interviews Document Review	Qualitative
	Notification Procedures	Timeliness Accuracy	Interviews	Qualitative
Manual Handling Resale		Accuracy Timeliness Consistency	Observation Logging Interviews	Qualitative
Manual Handling UNE/UNE Combinations		Accuracy Timeliness Consistency	Observation Logging Interviews	Qualitative

24.9.6 Review Activities

1. Conduct AMSC/RCHC visits and observations
2. Complete AMSC/RCHC evaluation checklists
3. Complete documentation review
4. Develop and document findings

24.9.7 Exit Criteria

- All required review activities must be completed
- All change control, verification and confirmation steps have been completed

24.10 Network Surveillance & Outage Support Review

24.10.1 Description

The network surveillance support review evaluates the processes and other operational elements associated with U S WEST are network surveillance and network outage notification processes and procedures as they relate to wholesale services. It also involves a review of the procedures followed by the Network Management Center (NMC) and/or Network Operations Center (NOC) which are related to CLEC operations.

24.10.2 Objectives

The objective of this test is to determine the functionality of network surveillance and network outage notification procedures and to assess the performance capabilities of network outage notification procedures for wholesale operations.

24.10.3 Assumptions

Preparation and conduct of this review assumes:

1. No test scenarios are applicable
2. The following inputs will be utilized
 - Network surveillance operational analysis plan and task checklist
 - Network outage operational analysis plan and task checklist
 - Evaluation guides
 - Interview Guides
 - Documentation of all network surveillance and outage notification procedures for wholesale
 - Designated NMC/NOC personnel for interviews
 - Observation schedule
3. *The following outputs will result*
 - Completed network surveillance and outage evaluation checklists and interview/observation summaries
 - Summary report
 - Documentation on any identified material defects in US WEST s systems, operations or documentation

24.10.4 Entrance Criteria

The following criteria must be met before the review can commence

- Global entrance criteria requirements are met per Section 2.6
- Network surveillance and outage evaluation checklist developed
- NMC/NOC documentation available

24.10.5 Review Scope

Table 24.10.5 Network Surveillance & Outage Support Review

Process Area	Sub-Process	Evaluation Measure	Evaluation Technique	Criteria Type
Network Surveillance	IOF Surveillance	Existence Reliability	Inspection	Existence Qualitative
	SS7/AIN Interconnect Surveillance	Existence Reliability	Inspection	Existence Qualitative
Outage Notification	Process Documentation	Accuracy Completeness	Inspection	Qualitative
	Notification Procedures	Timeliness Accuracy Completeness	Inspection	Qualitative
	Notification Observations	Accuracy Completeness	Inspection	Qualitative

24.10.6 Review Activities

1. Using the operational analysis plan, conduct process analysis at the NMC and NOC
2. Conduct documentation review
3. Conduct procedure interviews
4. Conduct notification observations
5. Develop and document findings

24.10.7 Exit Criteria

- All required review activities must be completed

- All change control, verification and confirmation steps have been completed

25. INTERIM AND FINAL REPORTS

25.1 Interim Report

The TA will develop and submit to the ROC at least one interim report at approximately the mid-point of the test process, and possibly others. This report(s) will describe the test results and recommendation for each major test type. Draft interim report(s) will be provided to the TAG for review and comments and the resulting comments will be taken into consideration by the TA, P-CLEC and ROC in preparing final versions of the report(s).

25.2 Final Report

The TA will develop and submit to the ROC a final report at the completion of testing. The final report will be released in draft form to the TAG for review and comment. Changes recommended by the TAG will be reviewed by the TA and the ROC Steering Committee prior to submittal of a final report to the ROC Executive Committee.

26. TEST WRAP UP

At the conclusion of the test the P-CLEC shall dismantle all datastores created for the test, return any telephone numbers used, decommission physical facilities used for establishing connectivity, and return CIC and other industry-standard codes used in the establishment of the P-CLEC.

The TA shall be responsible for responding to inquiries about the final test report and, possibly, providing testimony or support for testimony in various venues.

27. PROPOSED SCHEDULE AND TIMELINE

27.1 Purpose

This section provides a schedule for the overall planning, execution and evaluation of the ROC's collaborative 3rd Party Test of U S WEST OSS. Once the Test Administrator is selected and

begin its work, it will develop a detailed internal work plan that supports the major milestones included in Figure 27.1. All direct participants in the testing effort will also have their own internal work plans that directly support the Test Administrator's detailed schedule and thereby indirectly supports the ROC's schedule shown below.

27.2 Schedule

The milestones in the following schedule focus on the early activities required by the ROC to organize the testing project, specify the scope and select the 3rd party testing vendors. Once the TA has started on the project, the ROC will work with the TA and the TAG to identify additional milestones and target start and complete dates required between vendor selection and test completion. These milestones will be incorporated in the work plan that the TA will build and execute.

Table 27.2 Schedule

Major Milestone	Responsible Party	Start Date	Target Complete Date
1. Develop ROC testing principles and scope	TAG		12/9/99
2. Develop first draft of ROC TRD	ROC/MTG		1/21/00
3. Submit comments on draft TRD to ROC	TAG		2/3/00
4. Issue notice of upcoming RFP to potential vendors	ROC/MTG		2/4/00
5. Develop first draft of RFP	ROC/MTG		2/24/00
6. Conduct workshop to refine TRD	TAG		2/9 to 2/11/00
7. Revise TRD based on workshop results	ROC/MTG		2/28/00
8. Distribute revised TRD to TAG for comment	ROC/MTG		2/29/00
9. Submit comments on revised TRD/RFP	TAG		2/25/00
10. Conduct contingency workshop if required	TAG		3/14 to 3/16/00
11. Revise TRD/RFP per contingency workshop	ROC/MTG		3/6/00
12. Issue RFP with TRD and model contract to vendors	ROC/MTG		3/7/00
13. Proposals from vendors due to ROC	Vendors		3/28/00
14. Complete vendor (s) selection	ROC/TAG		4/18/00
15. Sign MOU(s) in lieu of contract (s)	ROC/U S WEST/Vendor(s)		4/25/00
16. Plan, execute and evaluate test	All parties		4 th Qtr 2000*
17. Submit final report to ROC	Test Administrator		4 th Qtr 2000*

* For planning purposes, the ROC OSS test execution and evaluation process is currently expected to complete in the 4th quarter of 2000. However, the actual completion date is critically dependent on the completion of military testing and all exit criteria. The concurrent consideration of 271 related matters in the U S WEST region may also impact the ability to meet this target date.

27.3 Schedule Maintenance

The above schedule will be maintained by MTG on ROC's behalf and may be changed as required to support a comprehensive, rigorous and fair test of U S WEST's OSS. All proposed changes will be presented to the ROC for review and approval and communicated to the TAG and all other interested parties in a timely fashion. All direct test participants are responsible for maintaining their own internal schedules required to support the ROC's timeline.

Appendix A: Version Control

Version	Date	Reason	Distribution
1.0	January 21, 2000	Initial Draft Release	TAG and web-site
1.1	January 27, 2000	Added Appendix A, D and F Added Section 6.7 Edits and cosmetic changes	TAG and web-site
2.0	February 28, 2000	Name change from MTP to TRD Integrated changes from TAG comments and 2/9-2/11 workshop	TAG and web-site
3.0	March 9, 2000	Integrated changes from TAG comments on V 2.0, added appendices E and G	Attachment 1 to RFP TAG and web-site

Appendix B: ROC OSS Performance Indicator Descriptions (PID) ***v1.0 dated 2/16/00***

Available at www.nrti.ohio-state.edu/oss/newdocs/pidv1.pdf

Appendix C: Performance Measures

This appendix consists of a summary matrix identifying all ROC performance measures and sub-measures and the current status of all issues, availability and applicability to the test. It is undergoing revision associated with on-going resolution of performance measure issues and the workshop scheduled for March 14 to 16. Appendix C will be provided after the workshop. In the meantime, Appendix B is the most current description of the ROC performance measures.

Appendix D: Scenarios

Table D1 Stand alone Preorder

Stand-alone Preorder			
	Basic Scenario	Residence	Business
A	Obtain CSRs	X	X
B	Validate customer address	X	X
C	Reserve telephone numbers	X	X
D	Determine Product Availability	X	X
E	Facility check	X	X
F	Schedule appointment	X	X
G	Loop qualification information	X	X
H	Directory listing inquiry	X	X

Table D2 UNE

UNE								
	Basic Scenario	2-wire, Analog Loop	ADSL Qualified Loop	2-wire non- loaded Loop	ISDN Capable Loop	DS1 Loop	Stand Alone LNP	Inter- office Facility
A	Migrate lines from U.S. WEST w/o number port.	X	X	X	X	X		
B	Migrate lines from U.S. WEST with LNP	X		X	X	X	X	
C	Migrate from CLEC to CLEC	X	X	X	X			
D	Purchase lines for a new customer	X	X	X	X	X		
E	Add new lines to existing customer	X	X	X	X	X		
F	Add new interoffice DS1/DS3 facilities					X		X
G	Convert from Resale to UNE loop	X	X	X	X			
H	Convert from UNE combinations to UNE loop	X		X	X			
I	Moves (inside and outside)	X		X	X			
J	Disconnect (full and partial)	X		X	X	X	X	
K	Add a new directory listing on existing account	X	X	X	X	X		
L	Add new DID service	X	X	X	X	X		

To include Centrex as used by McLeodUSA

Table D3 Resale

Resale

	Basic Scenario	Res. POTS	Res. ISDN	Bus. POTS	Bus. ISDN	Centrex*	Private Line	PBX
A	Migration from U S WEST "as is"	X	X	X	X	X		X
B	Migration from U S WEST "as specified"	X	X	X	X	X		
C	CLEC to CLEC migration	X	X	X	X			
D	New customer	X	X	X	X	X	X	
E	Add lines (L)/trunks (T)/ circuits (C)	XL	XL	XL	XL	XL	XC	XT
F	Feature changes to existing customer	X		X		X		
G	Telephone number change	X	X	X	X			
H	Directory change	X	X	X	X	X		
I	Convert line to ISDN	X		X				
J	Migrate customer with voice mail	X	X	X	X			
K	Moves (Abeyed)							
L	Suspend/restore service	X	X	X	X			
M	Disconnect (full and partial)	X	X	X	X	X	X	X
N	PIC/LPIC changes	X	X	X	X	X		X

* To include Centrex as used by McLeodUSA, see Table D6

Table D4 UNE Combinations with Switch Ports

UNE Combinations Involving Switch Ports

	Basic Scenario	Res. POTS	Res. ISDN	Bus. POTS	Bus. ISDN
A	Migration from U S WEST "as is"	X	X	X	X
B	Migration from U S WEST "as specified"	X	X	X	X
C	Migrate from CLEC to CLEC	X	X	X	X
D	New customer	X	X	X	X
E	Add lines (L)/trunks (T)/ circuits (C)	X (L)	X (L)	X (L)	X (L)
F	Feature changes to existing customer	X		X	
G	Telephone number change	X	X	X	X
H	Directory change	X	X	X	X
I	Full and partial migration with DL changes	X	X	X	X
J	Adds and changes to DID	X	X	X	X
K	Convert line to ISDN	X		X	
L	Convert line to ADSL	X		X	X
M	Add new ADSL loop with line sharing	X	X	X	X
N	Convert from Resale to UNE-Combinations	X	X	X	X
O	Migrate an account with ILEC-initiated blocking	X	X	X	X
P	Migrate an account with pending service order	X	X	X	X
Q	Establish new user with vanity TN	X	X	X	X
R	Migrate ADSL from US WEST retail to UNE-P	X	X	X	X
S	Moves (Abeyed)				
T	Suspend/restore service	X	X	X	X
U	Disconnect (full and partial)	X	X	X	X
V	Change PIC/LPIC	X	X	X	X

Table D5 Maintenance and Repair

Maintenance & Repair*

	Conditions to be Tested Across Basic Scenario	Res. Lines	Res. ISDN	Bus. Lines	Bus. ISDN	Centrex	Private Line	PBX
A	Short on outside plant facility	X	X	X	X	X	X	X
B	Open on outside plant facility	X	X	X	X	X	X	X
C	Short on the line within the central office	X		X		X	X	
D	Open on the line within the central office	X	X	X	X	X	X	X
E	Noise on line	X		X	X			
F	Echo on line	X		X				
G	Customer w/ LNP not receiving incoming calls	X		X				
H	Customer receiving incoming calls intended for another customer's number	X						
I	Call waiting not working	X		X				
J	Repeat dialing not working	X						
K	Customer cannot call 900 numbers	X						
L	Calls do not roll-over for customer w/ multiline hunt group			X		X		
M	Call forwarding not working	X		X				
N	Caller id not working	X		X				
O	Pick-up group order for large centrex customer not functioning properly					X		
P	DS1 loop MUXed to DS3 IOF not functioning							X
Q	Submit electronic TT against new loop. How long before can run MLT?	X	X	X	X			

* See TRD Section 16.4 for an overview of the trouble management processes that will be addressed including: Create a trouble report, Modify a trouble report, close/cancel a trouble report, Retrieve status on a trouble report, Initiate an MLT, Receive MLT test results.

** MLT does not apply to stand alone loops.

Table D6 Centrex

	Basic Scenario	Resale Centrex	Comments
A	Migration from U S WEST as is	X	
B	Migration from U S WEST as specified	X	
C	CLEC to CLEC migration	X	
D	Migrate from CLEC to U S WEST		Not supported. The CLEC can issue a LSR to disconnect, but the retail side would issue the reconnect.
E	New Customer	X	This is done as a change order to existing common block. We don't support the install of a new common block.
F	Add lines/trunks/circuits	X	
G	Feature changes to existing customer	X	
H	Telephone number change	X	
I	Directory change	X	
J	Convert line to ISDN	X	
K	Moves (inside and outside)	X	US WEST supports outside moves only.
L	Suspend/restore service		Do not support
M	Disconnect (full and partial)	X	

In addition, US WEST supports conversion from Centrex to an unbundled loop.

Table D7 - Placeholder until approach determined.

Emerging Services		
Basic Scenario / UNE	Residence	Business
Extended End Link	X	X

Dark Fiber		X
Line Sharing	X	X
Sub Loop Unbundling		X
UNE-P DSS		

APPENDIX E ACRONYMS AND GLOSSARY

271 Application		An application to offer long distance services from an RBOC to a state or federal regulatory agency. In order to grant this application, the agency must find the applicant is in compliance with the 14 point competitive checklist described in the 1996 Telecommunications Act.
ACD	Automatic Call Distributor	
ALI	Automatic Line Information (for 911/E911 systems)	
ASR	Access Service Request..	Form used to order interoffice facilities such as dedicated trunk ports
BAN	Billing Account Number	
Benchmark		A benchmark is established for a performance measure to serve as a standard when there is no appropriate retail analog.
Billing Domain		Tests related to creation of correct carrier bills.
BRI	Basic Rate Interface (type of ISDN service)	
Capacity Testing	Capacity Test	Test ability of new mechanized systems to support expected future workloads.
CARE	Customer Account Record Exchange	Industry standard for formatting exchange of subscription information.
Centrex		A business telephone service offered from a local CO that offers PBX-like functionality to the end user without the end user having to purchase CPE.

<i>Change Management</i>		<i>The process by which changes are introduced at U S WEST. Important steps include: 1) Advance notification that a change will occur; 2) CLEC input is considered when making changes; and 3) Smooth roll-out of the change.</i>
<i>CLEC</i>	<i>Competitive Local Exchange Carrier</i>	<i>A communications company which sells/re-sells communications services in direct competition with the Incumbent Local Exchange Carrier (ILEC)</i>
<i>CLEC Live Data</i>		<i>Production data delivered through interfaces that are already operational for real CLEC customers.</i>
<i>CLLI</i>	<i>Common Language Location Identifier</i>	<i>An 11 digit alphanumeric code used as a method of identifying physical locations and equipment i.e., central offices relay racks etc.</i>
<i>CO</i>	<i>Central Office</i>	<i>Facility where subscribers lines connect to switching equipment</i>
<i>Completion Notice</i>		<i>A notification the ILEC provides to the CLEC to inform the CLEC that the requested service activity is complete.</i>
<i>CPE</i>	<i>Customer Premise Equipment</i>	<i>Customer-owned equipment</i>
<i>CSR</i>	<i>Customer Service Record</i>	<i>A record of customer specific information such as name, address, telephone number, telecommunication services subscribed to and certain other data relating to the services provided. The CSR details a customer's fixed monthly charges billed by the local telephone company</i>
<i>Coordinated customer conversion</i>		<i>Orders that have a due date negotiated between the ILEC, the CLEC, and the customer so that work activities can be performed on a coordinated basis under the direction of the receiving carrier.</i>
<i>DA</i>	<i>Directory Assistance</i>	
<i>DOJ</i>	<i>Department of Justice</i>	

<i>DUF</i>	<i>Daily Usage Feed</i>	<i>A daily download of usage data from the switch which is delivered to U S WEST's message processing system and directly to the CLEC</i>
<i>EB-TA</i>	<i>Electronic Bonding Trouble Administration</i>	
<i>EDI</i>	<i>Electronic Data Interchange</i>	<i>Interface protocol that provides for mechanized order processing. Both the CLECs and U S WEST will have systems (EDI Interface) to support the EDI functionality</i>
<i>End-to-End Testing</i>		<i>For the purposes of this testing end-to-end is defined as testing to demonstrate the flow-through capability of providing local service requests to the CLECs in parity to existing retail.</i>
<i>Entrance and Exit Criteria</i>		<i>The necessary conditions for starting or completing individual tests described in the Test Plan.</i>
<i>Existence Criteria Type</i>		<i>These are criteria where only two possible test results can exist (e.g., true/false, presence/absence), such as whether a document exists or does not exist</i>
<i>FCC</i>	<i>Federal Communications Commission</i>	
<i>FID</i>	<i>Field Identifier</i>	<i>A code used when administering usage limits on residence and business end users. Also refers to fields of information used in the service order</i>
<i>Flow-through</i>		<i>The term used to describe whether an LSR is passed electronically from the OSS interface to the ILEC legacy system to automatically create a service order. LSRs that do not flow through require manual intervention for the service order to be created in the ILEC legacy system.</i>
<i>FOC</i>	<i>Firm Order Confirmation</i>	<i>Notice the ILEC sends the CLEC to notify the CLEC that it has received the CLEC service order, created a service request, and assigned it a due date.</i>

<i>Functional Testing</i>	<i>Functionality Test</i>	<i>A documented set of instructions designed to test and/or validate specific functions of a process or system.</i>
<i>GUI</i>	<i>Graphical User Interface</i>	<i>A simplified method of accessing programs within a computer by using a mouse to point to icons, which in turn cause the programs to perform a specific function.</i>
<i>IABS</i>	<i>Interconnect Access Billing System</i>	
<i>ILEC</i>	<i>Incumbent Local Exchange Carrier</i>	
<i>IMA</i>	<i>Interconnect Mediated Access</i>	
<i>Instantiation</i>		<i>To represent an abstraction or universal by a concrete instance</i>
<i>ISDN</i>	<i>Integrated Services Digital Network</i>	<i>Digital services designed for use with desktop applications, telephone switches, computer telephony and voice processing systems</i>
<i>Jeopardy</i>		<i>With regard to provisioning, a condition experienced in the service provisioning process which results potentially in the inability of a carrier to meet the committed due date on a service order. With regard to the OSS test, a notice that is issued whenever a key project milestone and/or commitment is at risk according to the Master Test Plan.</i>
<i>LERG</i>	<i>Local Exchange Routing Guide</i>	
<i>LIDB</i>	<i>Line Information Data Base</i>	<i>Database used primarily for residential customers.</i>
<i>LIS</i>	<i>Local Interconnection Service Trunks</i>	
<i>LNP</i>	<i>Local Number Portability</i>	
	<i>Loop</i>	<i>A transmission path that connects an end-user's premises to a U S WEST Central Office</i>

LSR	Local Service Request	A form prepared by the CLEC to request U S WEST to provide the services as specified in the specific tariffs/contracts agreements. Information required for administration, billing and contact details is provided for in the various fields within the LSR.
M&R	Maintenance and Repair	Ability to provide for requests, status and resolution of potential troubles
M&R Domain		Tests related to processing and management of trouble-related reports.
MDF	Main Distribution Frame	The primary point at which outside plant facilities terminate within a Wire Center for interconnection to other telecommunications facilities within the Wire Center
Migration		Refers to conversion as is or conversion as specified.
MLT	Mechanized Loop Test	A mechanized test used to determine loop situations
MTP	Master Test Plan	
OBFFTCIF	Ordering and Billing Forum/ Telecommunications Interface Forum	Industry Standards Organizations dedicated to resolving critical issues such as billing format issues between competing local exchange carriers, etc.
OCN	Operating Company Number	A four-digit number assigned to uniquely identify CLECs.
Operational Analysis		Operational analysis focuses on the form, structure, and content of the business process under study. This method is used to evaluate day-to-day operations and operational management practices.
OSS	Operations Support Systems	For purposes of this test OSS refers to systems that provide for processing orders, maintenance and repair activities, and billing activities
Parity Criteria Type		These are criteria that require two measurements to be developed and compared, such as whether external response time is at least as good as internal response time.

CONTINUATION

[21] 4

<i>Parity measures</i>		<i>Parity measures are compared to analogous wholesale performance measures to determine if there is non-discriminatory treatment of wholesale services.</i>
<i>PBX</i>	<i>Private Branch Exchange</i>	
<i>PIC</i>	<i>Primary Inter-exchange Carrier</i>	<i>Primary interexchange carrier selected by end-user.</i>
<i>PM</i>	<i>Performance Measures</i>	
<i>POTS</i>	<i>Plain Old Telephone Service</i>	
<i>Pre-Ordering, Ordering, and Provisioning Domain</i>		<i>Tests related to CLEC's acquisition of customer information, placing orders, and ensuring correct and timely provision and notification of order status.</i>
<i>Qualitative Criteria Type</i>		<i>These criteria set a threshold for performance where a range of quality values is possible, such as level of customer satisfaction</i>
<i>Relationship Management and Infrastructure Domain</i>		<i>Tests relating to activities, processes and documents that are focused on the establishment and maintenance of the CLEC/ILEC relationship.</i>
<i>RFP</i>	<i>Request For Proposal</i>	
<i>Resale</i>		<i>Service that allows a CLEC to purchase ILEC retail services in order to resell these services to their own end-user.</i>
<i>Scalability</i>		<i>The degree to which an application can be scaled to accommodate order of magnitude increases in transaction volumes and users</i>
<i>SOP</i>	<i>Service Order Processor</i>	

<i>Standard Interval</i>		<i>The interval that the ILEC publishes as a guideline for establishing due dates for provisioning a service request. Typically, due dates will not be assigned with intervals shorter than the standard. These intervals are specified by service type and type of service modification requested. ILECs publish these standard intervals in documents used by their own service representatives as well as ordering instructions provided to CLECs in the U S WEST Standard Interval Guidelines</i>
<i>Supplements</i>		<i>A change to an order taken after the original order was submitted, but before the order has been executed, such as a date change.</i>
<i>Test Bed</i>		<i>A set of fictitious customers that are designed to assist with testing. The test bed consists of working lines and provisioned products, although the owning customer is fictitious.</i>
<i>Test Call Matrix</i>		<i>A list of call types and the quantity of calls for each type that should be included in a particular test</i>
<i>Test Case</i>		<i>Test Cases are comprised of Test Scenarios duplicated with different Test End-Users to make up the required number of test cases as they relate to 3rd Party Testing</i>
<i>Test Domain</i>		<i>A specific testing area with defined targets, measures, scenarios, evaluation methods, and test processes.</i>
<i>Test Scenario</i>		<i>A specifically defined request and activity as it relates to 3rd Party Testing. These Test Scenarios include both Functionality Testing and Capacity Testing.</i>
<i>TN</i>	<i>Telephone Number</i>	<i>A number associated with a telephone service</i>
<i>Transaction-Driven System Analysis</i>		<i>Transaction driven system analysis relies upon initiation of transactions, tracking of transaction progress, and analysis of transaction completion results to evaluate the automated system under test.</i>

<i>Transaction Generation</i>		<i>Transaction generation is the use of live, historical, and/or generated data and data processing capability to evaluate an automated and/or manual system under test</i>
<i>TRD</i>	<i>Test Requirements Document</i>	
<i>UDIT</i>	<i>Unbundled Dedicated Interoffice Transport</i>	
<i>UNE</i>	<i>Unbundled Network Elements</i>	
<i>UNE-C</i>	<i>UNE-Combination</i>	<i>A preexisting combination of legally binding and effective UNEs.</i>
	<i>UNE Loop</i>	<i>A transmission path that connects an end-user's premises to a U S WEST Central Office</i>
<i>UNE-P</i>	<i>UNE-Platform</i>	<i>UNE Platforms are available as for existing POTS, PBX trunks and ISDN service</i>
<i>USOC</i>	<i>Universal Service Order Codes</i>	
<i>Verification and Validation</i>		<i>Methods used in the evaluation of activities and processes not amenable to transaction-driven testing, but which require verification and validation.</i>
<i>xDSL</i>	<i>x Digital Subscriber Line</i>	<i>A general name for an evolving high speed transmission technology which uses existing copper wire from the telephone company central office to the subscriber's premise and has electronic equipment at the central office and at the subscriber's premises, and transmits and receives high speed digital signals</i>

Appendix F: US West Transaction Distribution Among States

CLEC to US WEST Order Transactions

Total		1/99-10/99	AZ	CO	IA	ID	IL	IN	MT	ND	NE	NM	OR	SD	TX	UT	WA	WY	Total
Dist		0.2337	0.1419	0.038	0.0056	0.2051	0.0232	0.0118	0.087	0.016	0.0725	0.03	0.0004	0.0326	0.0963	0.006			1
State %		23%	14%	4%	1%	21%	2%	1%	9%	2%	7%	3%	0%	3%	10%	1%			100%
Fax distribution																			
IIS-Cmplx	8	25	6	4															
IIS-INP	179	715	1208	165	353	114	3	245	59	34	8	0	181	541	0				3805
IIS-LNP	5749	3030	3928	52	2381	13	67	8974	763	934	31	53	1254	2844	1				30074
IIS-PAL	5238	3881	1565	922	4589	736	343	680	1575	2224	600	47	1671	3223	640				27934
IIS-Resale	10866	2850	1075	204	1133	792	110	1243	144	6620	694	4	3544	6959	30				36268
IIS-UBL	1953	1124	107	9	6093	220	87	3120	884	243	20	2	1462	1602	0				16926
Total Fax	23985	11600	7883	1352	14549	1875	610	14262	3425	10055	1353	106	8112	15169	671				115007
State %		21%	10%	7%	1%	13%	2%	1%	12%	3%	9%	1%	0%	7%	13%	1%			100%
Electronic (IMA GUI & EDI - but very little or no EDI so far) Distribution																			
IMA-INP	7	11	35	75	419	403	15	5	1	7	117	0	12	55	0				1162
IMA-LNP	4804	1317	118	64	1123	17	17	4323	149	573	7	4	301	1039	0				13856
IMA-PAL	86	19	6	0	19	8	1	3	7	1	0	2	15	2					172
IMA-Resale	31459	22539	1660	41	31810	3613	1549	5296	596	6214	6785	3	183	3975	969				116692
IMA-UBL	4048	3617	734	1	8605	466	1057	88	225	3111	11	9	361	6291	19				28643
Total Elec	40404	27503	2553	181	41976	4507	2639	9715	974	9912	6921	16	859	11375	990				160525
State %		25%	17%	2%	0%	26%	3%	6%	1%	6%	4%	0%	1%	7%	1%				100%
Fax versus Electronic By State																			
Total	64389	39111	10461	1533	56531	6382	3253	23977	4400	19968	8274	122	8971	26544	1661				275577
Fax	23985	11600	7883	1352	14549	1875	610	14262	3425	10055	1353	106	8112	15169	671				115007
Electronic	40404	27503	2553	181	41976	4507	2639	9715	974	9912	6921	16	859	11375	990				160525
% Fax		37%	30%	75%	88%	26%	29%	59%	78%	50%	16%	87%	90%	57%	40%				42%
% Electronic		63%	70%	24%	12%	74%	71%	41%	22%	50%	84%	13%	10%	43%	60%				58%

Appendix G Statistical Approach

1. INTRODUCTION AND PURPOSE

There are two types of performance standards in the ROC test:

- Parity standards
- Benchmark standards

Parity standards are used where there is a U S WEST retail analog to the particular wholesale OSS process being considered. In order to compare U S WEST wholesale performance to a parity standard, a set of performance observations of a wholesale process is compared to a set of performance observations of the analogous retail process. These two sets of observations are compared to one another in order to evaluate whether observed differences between U S WEST's performance toward itself and U S WEST's performance toward CLECs are significant to a specified degree of confidence.

For benchmark testing the ROC must decide whether test evaluation is to be based on simply meeting or not meeting the benchmark, or whether statistical methods (similar to those used for parity testing) are to be used. In the BANY test evaluation, the former approach was taken.

As random variations exist in any type of repeated performance, the purpose of statistical methods is to provide a way to distinguish between differences that may be due to such random variations and differences that may be due to other factors

In comparing two populations by comparing samples drawn from the two it is possible to draw a conclusion in error. In parity testing, there are two possible types of error:

- Difference in service quality is detected where none exists
- Difference in service quality exists but is not detected

Statistical methods provide a means to limit the risk of making these kinds of errors. Additionally, statistical methods provide a framework and language for describing the tests (e.g. confidence level) and test results that are widely accepted and understood among the parties to the test.

Once the acceptable level of risk of making errors is decided, statistical methods can be used to assist in designing the test, analyzing the results (i.e. comparing wholesale and retail samples), and describing the approach and results in commonly understood terms.

The ROC must formulate a position regarding the acceptable level of risk in making the errors described above. A framework for defining the acceptable level of risk of drawing an incorrect conclusion is described in Section 2 in terms of six specific questions. Section 3 describes the process whereby the answers to the six questions will be made definitive for the ROC test.

The adoption by the ROC of particular statistical methods and standards are not binding on individual states for the purpose of evaluating test results. The statistical methods and standards will govern the design and conduct of the test, including establishing a stopping point for the test, and facilitate evaluation of the results. However, states are free to depart from the critical values or benchmarks adopted for the test when they evaluate test results submitted by U S West as part of state Section 271 applications.

2. STATISTICAL POLICY QUESTIONS

2.1 What are the null and alternative hypotheses?

In statistical testing it is often convenient to set up two mutually exclusive hypotheses representing possible test outcomes:

- Null hypothesis: The null hypothesis stands unless rejected by the test
- Alternative Hypothesis: The alternative hypothesis stands if the null hypothesis is rejected

The logical purpose of the test is to evaluate whether the null hypothesis stands

For the ROC test, there are two possible choices for the Null Hypothesis:

- Differences in service quality do not exist
- Differences in service quality exist

2.2 What is the desired Confidence Level / Level of Significance?

The level of significance defines the magnitude of performance differences (cutoff point or critical Z value) greater than which differences are considered statistically significant. Its

complement is identified as α in statistics (i.e., confidence level equals one minus α). Also, α represents the probability of a Type I error, or the chance of incorrectly finding that the alternative hypothesis is true. The significance level that is chosen determines the critical Z value. For the ROC OSS Collaborative the critical Z value will be applied to one-tailed tests. In the BANY 271 application, the level of significance was $\alpha = 0.05$.

2.3 Use Z or Modified Z?

The Z value is determined by a mathematical expression that incorporates the means being compared, the sample size (n) for each population of service provided, and the dispersion of the populations. The dispersion is called the standard deviation, and also is calculated using a commonly recognized mathematical expression. The BANY test used a Modified Z in place of the regular Z familiar to statisticians. The Modified Z uses only the standard deviation from the population of service U S West provides to itself instead of including as well the standard deviation for the population for service provided to CLECs. The motive for this modification is to remove the temptation for a BOC to manipulate service to CLECs to produce an advantageous Z value.

2.4 What is the target Type II error level?

A Type II error is the chance of failing to reject the null hypothesis when in fact it should be rejected. It is typically referred to as β . In the case where the null hypothesis is that *differences in service quality do not exist*, the probability of Type II error may be estimated using an assumption about the true mean of the CLEC population. In the case where the null hypothesis is that *differences in service quality exist*, the probability of a Type II error may be estimated using an assumption about the true mean of the U S WEST population. Then a sample size that produces that Type II error level is determined.

2.5 How to account for non-normal distribution?

The preceding tests and values assume a normal population distribution. The underlying distribution in OSS Performance Measures may not be normal. For example, the distribution of values for some interval tests may have a steep leading edge and a long tail. This type of measure may conform more closely to a χ^2 (Chi-Squared) distribution than to a normal distribution. Other measure may conform more closely to a bi-modal distribution (or yet another distribution) than to a normal distribution. Statistical methods, equivalent to the calculation of the Modified Z for a normal distribution, exist for other distributions. Where the

nature of the distribution of test values is in question, the TA will test the population to determine its underlying distribution. Under the guidance of the ROC, the TA will choose the correct diagnostic tool for testing the null hypothesis.

2.6 How should sample size (n) be determined for each test?

Once the choices described in 2.2, 2.3, and 2.4 are made, the sample size can be selected if the distribution is assumed to be normal. If it is not, then distribution may have to be taken into account as well, or non-parametric statistical methods (e.g., permutation testing) could be used.

3. PROCESS FOR ANSWERING THE STATISTICAL POLICY QUESTIONS

It will be the responsibility of the TA to design and implement the statistical approach, based on the ROC's answers to the statistical policy questions. This section outlines the steps in a collaborative process that will assist the ROC in making those decisions.

During the March 14 workshop there will be a presentation and discussion of statistical methods. The presentation will be a continuation of the presentation given during the February 9 workshop, and will focus on factors that affect the Type II error and considerations in determining sample size.

Subsequent to the March 14 workshop, a Request for Comment regarding the statistical approach will be issued. Comments will be received and summarized in the customary manner, and will form the basis for an initial workshop on the statistical approach. This workshop will be conducted shortly after the selection of the TA.

The workshop will provide the ROC with the detailed information and reasoning required in order to make the six required statistical policy decisions. Once that statistical workshop(s) is completed, and the policy decisions have been made, the TA will provide a design of the statistical methodology. The design will be reviewed by the TAG, approved by the ROC and included in the Master Test Plan.

Appendix H: Test Overview Matrix

Test Name	Scenarios Used	Data Source	Interface Used	Process Area	P M Number	Performance Measure Name	Track for Functional Test	Evaluate for Functional Test	Track for Functional Test	Evaluate for Functional Test
			IMA-GUI	Gateway Availability	GA-1	Gateway Availability IMA GUI	Y	Y	Y	Y
			IMA-EDI	Gateway Availability	GA-2	Gateway Availability IMA EDI				
		Live CLEC	EB-TA	Gateway Availability	GA-3	Gateway Availability EBTA				
		Live CLEC	EXACT	Gateway Availability	GA-4	Gateway Availability EXACT				
POP Pre-Order Section 12		P-CLEC	IMA-GUI IMA-EDI Retail	Pre-Order	PO-1	Pre-Order/Order Response Times				
Flow-Through Section 13		P-CLEC		Pre-Order	PO-2	Electronic Flow-through				
Etc.	Etc.	Etc.	Etc.	Etc.	Etc.	Etc.	Etc.	Etc.	Etc.	Etc.

The TA will collaboratively build this matrix with input from the TAG and the ROC.

Docket No. TC01-____
Qwest Corporation
Exhibits to the Affidavit of Lynn M. V. Notarianni
Checklist Item 2 - OSS
Exhibit LVN-OSS-4
October 24, 2001

Regional Differences Assessment



Qwest Corporation Regional Differences Assessment

October 5, 2000 - REISSUE

'2000 KPMG Consulting, LLC

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I Executive Summary

I.1 Introduction

I.1.1 Background

As a preamble to the third party test of Qwest's Operational Support Systems (OSS), the Regional Oversight Committee (ROC) developed the Test Requirements Document (TRD). Section 6 of the TRD provides an overview of the Qwest OSS architecture used to provide wholesale services to the CLECs and notes any system differences or variations that exist among the states and regions of the Qwest operating territory. Subsections 6.7 and 6.8 of the TRD instruct the Test Administrator (TA) to further investigate these differences and factor their impact, if any, into the development of the test scenarios and test mix.

During the Master Test Plan (MTP) Design Workshop held on July 18-20, 2000, in Salt Lake City, KPMG Consulting (in its role as TA) sought input from the ROC Technical Advisory Group (TAG) regarding this further investigation of Qwest system differences. Based on discussions and feedback received during the MTP Design Workshop, KPMG Consulting developed a regional differences assessment plan proposal that was distributed to the ROC TAG for review and subsequent approval.

I.1.2 Objective and Scope

The Qwest Regional Differences Assessment was conducted to investigate any differences in systems and processes throughout the Qwest territory. KPMG Consulting assumed the following as the null hypothesis of the assessment:

The impact of differences in wholesale systems and processes across the Qwest operating region is insufficient to materially impact a substantial fraction of the transactions that the CLECs are likely to generate with Qwest before the end of 2001.

KPMG Consulting conducted interviews with Qwest and CLEC personnel, analyzed Qwest and CLEC-provided documentation, and performed basic statistical analysis of a few key Qwest service performance indicators to potentially gather sufficient evidence to reject the null hypothesis.

The results are summarized below by domain.

High Level Results

1.1.3 General

This section broadly summarizes the results for each of the functional domains included in the Regional Differences Assessment. The interviews and document reviews conducted by KPMG Consulting focus on identifying regional and state differences. Assessment criteria were developed for this portion of the project by KPMG Consulting, and the information gathered was analyzed in reference to these assessment criteria; however, no actual testing was performed. Qwest practices and transactions will be evaluated as part of the process and transaction tests, and thus were not covered by this assessment.

As stated in Section 1.1.2, KPMG Consulting started with the following null hypothesis:

The impact of differences in wholesale systems and processes across the Qwest operating region is insufficient to materially impact a substantial fraction of the transactions that the CLECs are likely to generate with Qwest before the end of 2001.

The sections below highlight the results of the individual assessments. For assessment criteria, detailed analysis and results, refer to the appropriate sub-section later in this document. Once the test preparation and execution are underway, further differences may be identified. These will be addressed on a case by case base to determine if there needs to be any modification to the test design or test mix.

1.1.4 Order Management

Qwest's CLEC documentation for order and pre-order transactions, and order flow-through eligibility, is consistent across the three regions. The internal documentation Qwest representatives use to support non-flow-through is also consistent across the three regions. Although there are differences evident in flow-through capability across the regions, they are not material enough to warrant rejecting the null hypothesis.

The existence of different Service Order Processor (SOP), Billing, and CSR Retrieval systems creates potential regional inconsistencies in the systems supporting pre-order and order transactions. There are differences in the end-to-end process ISC Help Desk representatives use to handle non-flow-through orders. Additionally, the majority of Qwest organizations administering non-flow-through orders are inconsistent across the three regions.

Minor regional differences have been identified in the pre-order and ordering business rules, the method in which PREMIS manages telephone number reservations, and Interconnect Mediated Access (IMA) edits. In addition, the impact of regional telephone numbers for the facsimile supporting Centrex Resale is undetermined.

1.1.5 Provisioning

Qwest's processes, systems and organizations for Provisioning Infrastructure, Provisioning Coordination and Network Design/Collocation are materially consistent across the three regions.

Qwest's Transaction Provisioning processes vary from region to region.

Qwest's provisioning infrastructure was inconclusive since there are multiple platforms that function independently in some cases.

1.1.6 Maintenance and Repair (M&R)

Qwest's processes, systems, organizations and documentation for M&R Processing, M&R Support Center Review, M&R Infrastructure, M&R Documentation, Capacity Management, and Network Surveillance are materially consistent across the three regions.

For M&R Coordination, Qwest is redesigning the process; consequently, information about those processes is not available. As a result, the assessment criteria for M&R Coordination received ratings of Inconclusive.

1.1.7 Billing

Qwest's billing systems for the bill production and distribution and Daily Usage Feed (DUF) processes are maintained and operated on a regional basis. Although these systems are different, Qwest has standardized most of its processes across the regions. Thus, most of the differences that have been identified are now at a level where they are not critical to the general billing process. Given that regional differences do exist, the related assessment criteria for these systems returned a result of No. However, this result does not imply materially impacting regional differences.

Qwest's Customer Record Information Systems (CRIS) and Message Processing Systems are different across each of the three regions. These different systems represent a potential risk of regional inconsistencies in usage processing and bill content and format.

Qwest Usage processes for Resale and UNE and Carrier Bill processes for CRIS and IABS are materially consistent across the three regions. In addition, Qwest's IABS Billing System is materially consistent across the three regions.

1.1.8 CLEC Relationship Management and Infrastructure

Qwest's processes, systems, organizations and documentation for Account Management, Change Management, CLEC Training, Interface Development, and IMA Help Desk are materially consistent across the Qwest footprint.

Because of the potential differences in the regional Resale Centrex Help Desks, KPMG Consulting cannot conclude that the processes and procedures surrounding the ISC Help Desk are consistent or the same across regions. Without further information, the results of this assessment are inconclusive.

1.1.9 Statistical Analysis

Qwest's timeliness of Firm Order Completions (PO-5), Installation Commitments Met (OP-3), and Installation Intervals (OP-4) is not consistent across regions.

Qwest performance on Business, Centrex 21, Centrex, DS0, DS1 and Residential Repairs (MR-6) is not consistent across regions for high density and metropolitan service areas. In low density and No dispatched areas, Qwest performance was inconsistent for ISDN and Centrex Repairs (MR-6) respectively.

Statistical analyses of the Billing metrics (BI-1) could not be performed and therefore, there is no basis to draw a conclusion.

2 Results Summary Analysis

2.1 Order Management (OM)

2.1.1 Description

The Order Management (OM) domain is composed of the systems, processes, and other operational elements used to support CLEC pre-ordering and ordering activities. The purpose of the assessment was to review functionality and performance in order to provide a basis for comparing this operating area to parallel systems and processes in other jurisdictions and regions in Qwest's territory.

KPMG Consulting reviewed and analyzed Qwest documentation related to pre-ordering and ordering systems and activities and conducted interviews with key Qwest and CLEC representatives in order to obtain the data necessary to conduct the assessment.

2.1.2 Methodology

This section provides a business process description, lists the sources of data used in the assessment and summarizes the assessment methodology.

2.1.2.1 Business Process Description

CLECs can submit transactions to Qwest that establish or change services via an electronic interface called Interconnect Mediated Access (IMA) and a manual interface, Interconnection Imaging System (IIS). The environments are described in more detail below.

IMA allows CLECs to process the following pre-order transaction queries to Qwest's OSS:

- Customer Service Record Inquiry
- Telephone Number Reservation
- Address Validation
- Facility Check
- Appointment Availability
- Service/Feature Availability
- Validate Connecting Facility Assignment (CFA)
- View Design Layout Record (DLR)

IMA and IIS allow CLECs to process the following ordering transactions with Qwest's OSS:

- Submit Local Service Requests (LSRs)
- Receive Functional Acknowledgements (FA)
- Receive Firm Order Confirmations (FOCs)¹
- Receive Completion Notices (CNs)
- Receive Rejects, Clarifications and Service Jeopardies

¹ FOCs are not currently returned via IMA-GUI; they are emailed or faxed to the CLEC. FOCs will be returned via IMA-GUI in IMA Version 6.0.

Interconnect Mediated Access (IMA)

Pre-order queries and orders can be submitted electronically to Qwest through the IMA, using a Graphical User Interface (GUI) or Electronic Data Interchange (EDI) interface. IMA allows for bi-directional flow of information between Qwest's OSS and CLECs. CLECs can access IMA-GUI via a secure dial-up or dedicated circuit.

IMA-EDI is designed to allow Qwest's Operations Support Systems (OSS) to exchange batch files with CLEC OSSs in a standard machine-to-machine format. Qwest defines the information that is needed to successfully submit pre-order and order transactions in business rules format. This information is encoded to fit the standard EDI transaction set for data transmission. EDI is an industry standard for transactions that defines the format and the data content of each business transaction. Qwest determines how and when each data element is transferred (or mapped) into a Qwest pre-order query or service order. The result is then published in the business rules² for use by CLECs.

Interconnect Imaging System (IIS)

IIS is designed to allow CLECs to submit Local Service Requests (LSRs) via facsimile in a standard format. Qwest defines the information that is needed to successfully submit each order type. CLECs submit single or multiple LSRs to a Qwest fax server. Once Qwest receives the LSRs they are electronically logged and distributed to the appropriate Interconnect Service Center (ISC) for input into the regional Service Order Processor (SOP) system. Responses (e.g., clarifications, confirmations) are transmitted from Qwest's OSS to the CLECs via the IIS fax servers.

Pre-ordering Process Flow

After receipt of a pre-order query from a CLEC, the IMA system validates the pre-order query for format and to ensure the required fields are populated. An invalid transaction will receive a standard error message. A valid transaction will be forwarded to Qwest middleware applications to provide or retrieve the requested data from Qwest's OSS. Certain pre-order queries require the submission of multiple transactions, in sequence, to obtain the desired data (e.g., Appointment Availability and Telephone Number Reservations).

Ordering Process Flow

When Qwest receives an Local Service Request (LSR) via IMA, an FA is automatically returned to the CLEC, confirming that the file has been successfully received. As the LSR passes through the Qwest back-end OSS systems, Qwest systems or representatives perform validations to determine if the CLEC's service request is properly formatted, complete, and accurate. In response to an LSR with errors, Qwest transmits an error message.

To successfully process the order, the CLEC must either re-submit the original LSR, correcting any errors, or submit a supplemental service request (Sup) that modifies the original order. The decision to resubmit the original LSR or submit a supplement is dependent on at what stage in the process the error was identified.

Once an LSR passes through the ordering validation process, Qwest service orders are created in one of Qwest's three regional SOP systems. These systems coordinate downstream provisioning activity and monitor the status of the order. The SOP systems trigger IMA to generate a FOC response to the CLEC. This FOC confirms that Qwest has validated the LSR and provides a Due Date (DD) on which Qwest commits to provision the requested service.

² See http://www.uswest.com/wholesale/ima/ima_icharts.html

2.1.2.2 Data Sources

The data collection performed in this assessment was based on interviews with Qwest and CLEC representatives and reviews of documents supplied by Qwest and the CLECs. The interviews and documents are itemized in the tables below.

Table 2.1.2.2.1: Qwest Interviews for Order Management Assessment

Document Number	Document Name	File Name	Source
Q-1	Capacity Management	IMA_Cap_Man.doc	KPMG Consulting
Q-2	Order Transaction Process	Order_Transaction.doc	KPMG Consulting
Q-3	Pre-order Transaction Process	Order_Transaction.doc	KPMG Consulting
Q-4	Products	Products.doc	KPMG Consulting
Q-5	Ordering System and Infrastructure	Order_Sys_Infrastructure.doc	KPMG Consulting
Q-6	Loop Qualification	Loop_Qual.doc	KPMG Consulting
Q-7	Help Desk ISC	Help_Desk_ISC.doc	KPMG Consulting
Q-8	Fax (IIS) Order Process	Fax_Order_Process.doc	KPMG Consulting
Q-9	Flow-through	Flow_Through.doc	KPMG Consulting
Q-10	IMA Help Desk	IMA_Help_Desk.doc	KPMG Consulting

Table 2.1.2.2.2: Qwest Data Sources for Order Management Assessment

Document Number	Document	File Name	Source
E-1	Qwest Flow-through eligibility (OM-13)	FT_Matrix_Ver 1.1.doc	Qwest
E-2	IMA_User_Guide (OM-22)	IMA_User_Guide.zip	Qwest
E-3	EDI-Implementation Guideline (OM-22)	EDI-Implementation Guideline.zip	Qwest
E-4	IMA User's Guide, Release 5.01	IMA User's Guide.zip	Qwest
E-5	IMA Learning Guide ~ Class Companion	IMA_Learning.zip	Qwest
E-6	Facility-Based Directory Listings Guide	Fac_Based_DL_Gde.zip	Qwest
E-7	Pre-Order IMA I-Charts 5.0	Pre-Order IMA I-Charts 5.0.zip	Qwest
E-8	Order IMA I-Charts 5.0	Order IMA I-Charts 5.0.zip	Qwest
I-1	CLEC pre-order training material (OM-1)	KPMG0907.pdf	Qwest
I-2	Pre-ordering business rules (OM-2)	KPMG0907.pdf	Qwest
I-3	Response to data dictionary request (OM-3)	KPMG0907.pdf	Qwest
I-4	CLEC ordering (manual and electronic) training material (OM-4)	KPMG0907.pdf	Qwest
I-5	Ordering business rules (OM-5)	KPMG0907.pdf	Qwest

Document Number	Document	File Name	Source
I-6	Product Training Guides (OM-6)	KPMG0907.pdf	Qwest
I-7	Service provisioning intervals (OM-7)	KPMG0907.pdf	Qwest
I-8	Pre-ordering error resolution guide (OM-8)	KPMG Set 62 091200.pdf	Qwest
I-9	Ordering error resolution guide (OM-9)	KPMG Set 62 091200.pdf	Qwest
I-10	List of available USOCS (OM-10)	KPMG 62-208 ATT A.XLS UDIT Class of Service and USOCs.xls	Qwest
I-11	Scheduled hours of operation (OM-11)	KPMG Set 62 091200.pdf	Qwest
I-12	Description of EDI batching requirements (OM-12)	KPMG Set 62 091200.pdf	Qwest
I-13	ISC representative manual order training/job aids (OM-14)	KPMG 62-212.msg	Qwest
I-14	ISC organization charts (OM-15)	KPMG 62-213.msg	Qwest
I-15	Response to xDSL training request (OM-16)	KPMG0907.pdf	Qwest
I-16	UNE-P.C Presentation (OM-17)	KPMG 78-253 msg	Qwest
I-17	CENTREX availability matrix (OM-18)	KPMG 78-254.msg	Qwest
I-18	Manual Order Routing Matrix (OM-19)	KPMG_Set_77.msg	Qwest
I-19	IMA Business Requirements for Misc. Edits (OM-20)	KPMG_Set_77.msg	Qwest
I-20	ISC representatives Methods and Procedures and Job Aids (OM-21)	OM21 - KPMG 77-251.msg	Qwest
I-21	Qwest server mainframe overview (OM-23)	Main frame overview OM23.xls	Qwest
I-22	IMA Middleware Legacy System overview (OM-24)	KPMG 84-276.msg	Qwest
I-23	Methods and Procedures and Job Aids for the handling of IIS LSRs (OM-25)	KPMG 101-357.msg	Qwest
I-24	Bulk correspondence	OM_Correspondence.zip	Qwest

Table 2.1.2.2.3: CLEC Interviews for Order Management Assessment

Document Number	Document	File Name	Source
C-1	McLeodUSA IFB Products (9-7)	McLeodUSA_IFB_Product.doc	KPMG Consulting
C-2	McLeodUSA Centrex Resale Products (9-7)	McLeodUSA_Centrex_Resale_Products.doc	KPMG Consulting

Table 2.1.2.2.4: CLEC Data Sources for Order Management Assessment

Document Number	Document	File Name	Source
CD-1	IFB Conversion Problems per State	IFB Conversion Problems per State.msg	McLeodUSA

2.1.2.3 Assessment Method

Interviews were conducted in Denver, Colorado with Qwest personnel and included a telephone bridge for offsite participants. Additionally, interviews were conducted with McLeodUSA via conference calls regarding Qwest pre-order and order processes, systems and documentation. Further data was gathered through reviews of information provided by Qwest on its pre-order and order processes, systems and documentation.

Assessment criteria were established by KPMG Consulting to provide a framework and basis for the assessment. The data collected from the interviews and documentation reviews was analyzed in reference to the assessment criteria.

2.1.3 Results

This section identifies the assessment criteria and the results. Each assessment criterion is given one of the three following results:

- Yes - Based on interviews conducted and the documentation reviewed, there is no evidence that the systems, practices and procedures are not consistent across states and regions.
- No - Based on interviews conducted and the documentation reviewed, there are differences in systems, practices and procedures across states and regions.
- Inconclusive - Based on the interviews conducted and the documentation reviewed, there was insufficient evidence to conclude whether or not there are differences in systems, practices, and procedures across states and regions.

Table 2.1.3.1: Assessment Criteria and Results

Assessment Number	Assessment Criteria	Result	Comments
1.0 Pre-ordering			
1.1	The end-to-end processes for pre-order transactions are consistent across all jurisdictions and regions.	No	Based on information provided in interviews and data requests, the majority of the end-to-end processes to access pre-order information is similar, but there are some differences. Minor regional differences were identified based on a review of the pre-order <i>I-Charts Ver 5</i> . There are currently differences in the valid entries for at least one field in three of the eight pre-order queries. These differences include: 1) range of values per region, 2) type of information required by each region. Additional regional difference will emerge in data provided in response to a Customer Service Record (CSR) query. In the scheduled release of IMA 7.0 USOC descriptions will be returned in the Eastern region.
1.2	The systems deployed for pre-order transactions are consistent across all jurisdictions and regions.	No	Based on information provided in interviews and data requests, the majority of systems deployed in supporting pre-order transactions is similar with the exception of the differences outlined in the <i>Test Requirements Document (TRD)</i> . These significant differences include the billing systems

Assessment Number	Assessment Criteria	Result	Comments
			used to support CSR retrieval. Each of the three regions has a unique application: BOSS-C, BOSS-E, and CARS. An additional minor regional difference was identified in the method PREMIS uses to manage TN Reservations (Eastern and Central Regions via NPANXX, Western Region via CLLI).
1.3	The publicly available documentation used by CLECs to complete pre-order transactions is consistent across all jurisdictions and regions.	Yes	Based on information provided in interviews and data requests, CLECs can use information provided in IMA training classes and I-Charts to complete pre-order transactions. As represented by Qwest, this documentation appears to be consistent across all regions and jurisdictions. Specific regional differences are identified in the common documentation.
2.0 Ordering			
2.1	The end-to-end processes for order transactions are consistent across all jurisdictions and regions.	No	Based on information provided in interviews and data requests, the majority of the end-to-end processes to order wholesale services is similar. However, potential minor regional differences were identified based on a review of the order <i>I-Charts Ver. 5</i> and information provided in interviews with Qwest. Minor differences include: 1) business rule differences in the range of valid entries for Hunting Sequence 2) business rule differences in the valid entries due to jurisdictional USOC or product differences, 3) the BAN field in the Eastern Region is not validated by up-front edits for accuracy, and 4) unique fax numbers are used by region for Centrex Resale orders that may indicate some differences in process. ³
2.2	The systems deployed for order transactions are consistent across all jurisdictions and regions.	No	Based on information provided in interviews and data requests, the majority of the systems deployed to order wholesale services is similar aside from the differences outlined in the <i>Test Requirements Document (TRD)</i> . Significant differences include: 1) Billing systems, 2) CSR Retrieval systems, 3) Service Order Processors.
2.3	The publicly available documentation used by CLECs to complete order transactions is consistent across all jurisdictions and regions.	Yes	Based on information provided in interviews and data requests, CLECs can use information provided in IMA training classes and I-Charts to complete order transactions. As represented by Qwest, this documentation appears to be consistent across all regions and jurisdictions. Specific regional differences are identified in the common documentation.
3.0 Flow-through			
3.1	The flow-through capabilities of the Qwest systems are consistent across all jurisdictions and regions.	No	Based on a review of <i>ROC 271 Working PID Version 1.4</i> and Qwest interviews the majority of Qwest's flow-through capabilities is similar. Differences are primarily related to orders for number changes, suspensions, or restoral of service.

³ See <http://www.uswest.com/wholesale/productsServices/irrg/CNTRS1-3.html>

Assessment Number	Assessment Criteria	Result	Comments
3.2	The publicly available documentation used by CLECs to determine the flow-through eligibility of transactions is consistent across all jurisdictions and regions.	Yes	Based on a review of <i>ROC 271 Working PID Version 1.4</i> interviews, Qwest's publicly available documentation to determine the flow-through eligibility of transactions is consistent across all jurisdictions and regions. Specific regional differences are identified in the common documentation.
4.0 Manual Order Process			
4.1	The Qwest processes and systems for administering non-flow-through orders submitted manually or electronically are consistent across all jurisdictions and regions.	No	Based on information provided in interviews and data requests, the majority of the Qwest processes and systems for administering non-flow-through orders submitted manually or electronically is similar across all jurisdictions and regions. The majority of the CLEC-facing processes and systems is similar across regions. However, a significant regional difference exist such that LSRs submitted via IIS or IMA that fall out for manual handling are input into different SOP systems to generate the Qwest internal service orders. Unique fax numbers are used by region for Centrex Resale orders, which may indicate some differences in process and/or load balancing.
4.2	The Qwest organizations administering non-flow-through orders submitted manually or electronically are consistent across all jurisdictions and regions	Inconclusive	Based on information provided in interviews and data requests, the majority of the Qwest organizations administering non-flow-through orders submitted manually or electronically is similar across all jurisdictions and regions. The majority of Qwest ISC is organized by product type with each center typically having a primary and secondary specialty. Some ISCs are further organized by CLEC and process transactions regardless of region or jurisdiction. However, unique fax numbers are used by region for Centrex Resale orders which may indicate some differences in organizational structure.
4.3	The internal documentation that Qwest representatives use to support non-flow-through orders submitted manually or electronically is consistent across all jurisdictions and regions	Yes	Based on information provided in interviews and data requests, the training material and documentation available to Qwest ISC representatives are consistent across regions and jurisdictions. Specific regional differences are identified within the material to address the ISC representatives need to interact with different regional systems (e.g., Billing and SOP system).

2.1.4 Results Summary

Results are functionally grouped in the table below with an indication of whether or not they match the TRD. Each functional group may relate to multiple assessment criteria.

Table 2.1.4.1: Results Summary Table

	Hypothesis			TRD, Section 6		
	Failed to Reject	Reject	Inconclusive	Matches	Does Not Match	Not Addressed
Documentation provided to CLECs to prepare pre-ordering, ordering transactions.	X					X
Documentation provided to CLECs regarding the flow-through eligibility of transactions.	X					X
Pre-order and order business rules. (See Pre-order and order processes evaluation criteria).	X*					X
Qwest's internal ISC documentation to support non-flow-through transactions.	X					X
Systems that support pre-order and order transactions.		X		X		
Flow-through capabilities of the Qwest systems.	X*					X
Qwest processes for handling non-flow-through orders.		X				X
Qwest's organizations supporting non-flow-through orders.			X			X

*Minor differences identified, but not material enough to reject hypothesis.

2.2 Provisioning

2.2.1 Description

The Provisioning domain is composed of the systems, processes, and other operational elements associated with Qwest's support for provisioning activities for wholesale services and unbundled network elements (UNEs). This assessment was designed to compare the functionality and performance of parallel systems and processes supporting Provisioning across the various state jurisdictions and operating regions in Qwest's territory.

KPMG Consulting reviewed and analyzed documentation provided by Qwest related to provisioning activities, and conducted interviews with key Qwest and CLEC representatives in order to obtain the data necessary to conduct the assessment.

2.2.2 Methodology

This section provides a business process description, lists the sources of data used in the assessment and summarizes the assessment methodology.

2.2.2.1 Business Process Description

Network Design and Collocation

A CLEC initiates the network design/collocation process by submitting a collocation application, is available on the Qwest website: <http://www.uswest.com/whole-sale/guide.html>. Three Qwest groups work together to provision these services: the Collocation Project Management Center (CPMC), the Engineering Central Office, and the Technical Selection Group. The CPMC, located in Littleton, Colorado, receives the application and conducts a collocation feasibility study. The study carries an internally mandated 10-day deadline and results in a quote provided directly to the CLEC. The CPMC interfaces with the Engineering Central Office, which manages the installation and construction phase. The build stage lasts between 45-90 days, depending on the contract between Qwest and the CLEC, in all states except Utah. In Utah, the state PSC mandates a 45-day period. The Technical Selection Group maintains a list of approved products and decides if the CLEC's office equipment meets NEBS (Network Equipment Building System) requirements.

Infrastructure

DS1/3 loops for customers are ordered by CLECs via a Local Service Request (LSR), unless they are UDIT (Unbundled Digital Interoffice Transport) or EEL (Extended Enhanced Loop), which are then ordered via Access Service Request (ASR). A CLEC orders switched trunks and interoffice facilities via the ASR process throughout the Qwest footprint. The CLEC sends an ASR via TELIS or NDM (Network Data Manager) to EXACT, a system located in Omaha, to process the request. EXACT transmits them to one of three business offices (Des Moines, Salt Lake City, Minneapolis), depending on the CLEC.

The CLEC can also fax requests to one of three Business Offices (Des Moines, Salt Lake City, Minneapolis), dependent upon which customer submits the request. The OSS application software platforms used for provisioning in each of the three regions include:

- FACS (Facility Assignment and Control System)
- LMOS (Loop Management and Operations System)
- WFA (Work Force Administration)
- TIRKS (Trunk Inventory Record Keeping System)
- Facility Check
- PREMIS ⁴ (Premises Information System) software

FACS is located in Omaha for the East region and in Salt Lake City for the West and Central region. LMOS, WFA and TIRKS are located in Omaha for the East region, Salt Lake City for the Central region, and Bellevue for the West region. Facility Check is located in Omaha, Denver and Salt Lake City with each location serving all regions. The PREMIS system, the TN database, is located in Omaha for the East region and Albuquerque for the West and Central regions. This will continue after PREMIS transitions to the new Customer Number system (CNUM).

Wholesale Provisioning

To submit an order, a CLEC generates a service order activation (SOA) through the facilities portion of Qwest's Interconnect Mediated Access system (IMA/FTS) or the ISC (Interconnect Service Center). The order is subsequently processed through one of three Service Order Processor (SOP) systems, depending on which region the CLEC's customer is located: the East region uses SOLAR, the Central uses SOPAD, and the West uses RSOLAR. The three SOPs package data in a consistent manner so that product requests appear similarly across the Qwest footprint. These requests are distributed to Service Order Analysis Centers depending on the product to be provisioned. Requests that require design services go to SOAC-C (Service Order Analysis Center-Controller), POTS (plain old telephone service) requests go to SOAC-A (assigner), and other product requests go to the appropriate systems (e.g., voicemail request goes to VENUS). There are five Design Service Centers (DSCs). The one in Des Moines supports UNE-Loop provisioning activities. This DSC and four other DSCs (located in Minneapolis, Littleton, Salt Lake City, and Seattle), also support resale and UNE-P. They all perform similar functions.

2.2.2.2 Data Sources

The data collection performed for this assessment relied on interviews with Qwest and CLEC representatives and reviews of documents supplied by Qwest. The interviews and documents are itemized in the tables below.

⁴ PREMIS (Premises Information System), which will be replaced by CNUM (Customer Number), is the telephone number (TN) and address database.

Table 2.2.2.2.1: Qwest Interviews for Provisioning Assessment

Document Number	Document Name	File Name	Source
Q-1	Provisioning Transaction Processing and Coordination	Provisioning Transaction Processing and Coordination.doc	KPMG Consulting
Q-2	Network Design-Collocation	Network Design-Collocation.doc	KPMG Consulting
Q-3	Provisioning Process Parity	Provisioning Process Parity.doc	KPMG Consulting
Q-4	Provisioning Infrastructure	Provisioning Infrastructure.doc	KPMG Consulting
Q-5	Switched Trunks, Interoffice Facilities and ASRs	ASR&IOF&ST.doc	KPMG Consulting

Table 2.2.2.2.2: Qwest Data Sources for Provisioning Assessment

Document Number	Document	File Name	Source
E-1	Interconnection Unbundled Loop (R27)	hard copy	Qwest
E-2	Interconnection and Collocation for Transport and Switched Unbundled Network Elements and Finished Services (R27)	hard copy	Qwest
I-1	Unbundled Loop for OPE (R8)	hard copy	Qwest
I-2	Unbundled Loop CCT MT Job Aid (R21)	hard copy	Qwest
I-3	Unbundled Loop COT Job Aid (R10)	hard copy	Qwest
I-4	Unbundled Loop DS I&M Technician Job Aid (R11)	hard copy	Qwest
I-5	Unbundled Loop M&Ps (R7)	hard copy	Qwest
I-6	72-Hour Pre-Survey (R7)	hard copy	Qwest
I-7	OP-13 Coordinated Cuts on Time (R7)	hard copy	Qwest
I-8	Unbundled Loop CCT D Job Aid (R7)	hard copy	Qwest
I-9	Unbundled Switch Elements (R17)	hard copy	Qwest
I-10	Unbundled Dedicated Interoffice Transport-Technical Publication (R17)	hard copy	Qwest
I-11	Unbundled Dark Fiber (R17)	hard copy	Qwest
I-12	Line Sharing All States Network (R27)	hard copy	Qwest
I-13	Line Sharing for OPE M&Ps (R27)	hard copy	Qwest
I-14	Shared Loop M&Ps (R27)	hard copy	Qwest
I-15	Local Number Portability (R7)	hard copy	Qwest

Document Number	Document	File Name	Source
I-16	LNP Port-In Held Order Process (R7)	hard copy	Qwest
I-17	LNP All States Network (R7)	hard copy	Qwest
I-18	LRAC Two-Wire Analog Unbundled Loop Process (R11)	hard copy	Qwest
I-19	Two-Wire Analog Unbundled Loop Provisioning & Repair (R11)	hard copy	Qwest

Table 2.2.2.2.3: CLEC Interviews for Provisioning Assessment

Document Number	Document	File Name	Source
C-1	McLeodUSA Communications	McLeod Provisioning Interview Summary.doc	KPMG Consulting

There were no CLEC data sources provided for the Provisioning assessment.

2.2.2.3 Assessment Method

Interviews with Qwest personnel were conducted in Denver, Colorado, and included a telephone bridge for offsite participants. An interview was also conducted with McLeodUSA via conference bridge to discuss regional differences in the Qwest provisioning process from a CLEC's perspective. Additional data was gathered through reviews of documentation provided by Qwest on the regional assessment interview topics.

Assessment criteria were established by KPMG Consulting to provide a framework and basis for the assessment. The data collected from the interviews and documentation reviews were analyzed in reference to the assessment criteria.

2.2.3 Results

This section identifies the assessment criteria and the results. Each assessment criterion is given one of the three following results:

- Yes - Based on interviews conducted and the documentation reviewed, there is no evidence that the systems, practices and procedures are not consistent across states and regions.
- No - Based on interviews conducted and the documentation reviewed, there are differences in systems, practices and procedures across states and regions.
- Inconclusive - Based on the interviews conducted and the documentation reviewed, there was insufficient evidence to conclude whether or not there are differences in systems, practices, and procedures across states and regions.

Table 2.2.3.1: Assessment Criteria and Results

Assessment Number	Assessment Criteria ⁵	Result	Comments ⁶
1.0 Provisioning Transaction Processing			
1.1	The end-to-end process for provisioning transactions is consistent across all jurisdictions and regions.	No	Based on interviews, while the provisioning processes vary by product and are processed in three different SOPs, Qwest processes for those products are consistent across the Qwest footprint. The AIN (Advanced Intelligent Network) Lab is responsible for the creation, release and reconciliation of all NPAC subscription records. Hot cut intervals are not consistent across the Qwest footprint. All states now have LNP, but Oregon and Idaho have a limited number of switches that are not LNP capable and must use INP.
1.2	The systems used for provisioning transactions are consistent across all jurisdictions and regions.	No	As stated in the TRD, Section 6, the three regions use different SOPs. Internal service orders distributed from each SOP are consistent across the three regions according to the product request being processed. Error messages produced by the three SOPs, however, are not consistent. There are several systems used for provisioning: FACS, LMOS, WFA, TIRKS, and Facility Check. Each of these applications function independently in each region. In part of southwestern Washington, Qwest uses WFA-DI instead of WFA-DO to convey orders for DS1/3 High-Capacity Circuits to outside plant field forces.
1.3	Internal documentation used to complete provisioning transactions is consistent across all jurisdictions and regions.	Yes	Per Qwest interviews and document reviews of material listed in Table 2.2.2.2 (Qwest Data Sources for Provisioning Assessment), Qwest documentation is consistent across the Qwest footprint.
1.4	Documentation publicly available to the CLECs used to complete provisioning transactions is consistent across all jurisdictions and regions.	Yes	Based on interviews and documents publicly available to the CLECs at http://www.uswest.com/wholesale/guide.html , CLEC provisioning documentation is consistent across the Qwest footprint.
2.0 Provisioning Infrastructure			
2.1	Provisioning system architecture is consistent across all jurisdictions and regions.	Inconclusive	Based on interviews, provisioning varies depending on the product. Additionally, in some cases there are variances within a product. One example is the ordering of switched trunks and interoffice facilities which can be ordered via fax, TELIS or NDM. Another example is the ordering of DS1/3 loops which are ordered with an LSR, unless they are UDIT or EEL, which are ordered using an ASR. The LSS ⁵ (Listing Service System) software platform for the three regions are identical, but function independently within each region. This will continue after Qwest completes their migration to a new OSS application system called Customer Listing Data Service. The PREMIS software platforms for the three regions

⁵ LSS (Listing Service System), which will be replaced by CLDS (Customer Listing Data Service), is the database used for both directory listing (DL) and directory assistance (DA).

Assessment Number	Assessment Criteria	Result	Comments
			are identical, but the East region functions independently of the West and Central regions. This situation will continue after Qwest completes their migration to a new OSS application system called CNUM.
2.2	Organizations supporting Provisioning activities are consistent across all jurisdictions and regions.	Yes	One DSC (Design Service Center) in Des Moines, supports UNE-Loop provisioning activities. This DSC and four separate DSCs (located in Minneapolis, Littleton, Salt Lake City, and Seattle) also support resale and UNE-P and perform consistent processes. Workload for non-UNE Loop is assigned to the DSCs primarily according to geography, with certain exceptions. IOF requests are handled in all five DSCs.
3.0 Provisioning Coordination			
3.1	The end-to-end processes for coordinated provisioning installations are consistent across all jurisdictions and regions.	Yes	One DSC, located in Des Moines, handles all coordinated provisioning installations for UNE-Loop transactions.
3.2	Testing equipment used for coordinated provisioning installations is consistent across all jurisdictions and regions.	Yes	Per Qwest documentation, specific equipment is used consistently across regions for groups of products: For UNE services on copper wires: the 965 DSP is the latest Qwest footprint-wide issued testing equipment. For dark fiber: the TTC 310 package 1, Wandel & Goltermann MK-4 for the Central Office, and the Siecor field fiber test set for outside fiber technicians.
3.3	Internal documentation used to complete coordinated provisioning installations is consistent across all jurisdictions and regions.	Yes	Based on interviews and document reviews of material listed in Table 2.2.2.2.2 (Qwest Data Sources for Provisioning Assessment), Qwest internal documentation for coordinated provisioning installations is consistent across the Qwest footprint.
3.4	Documentation publicly available to the CLECs used to complete coordinated provisioning installations is consistent across all jurisdictions and regions.	Yes	Based on interviews and document reviews of documents available to CLECs at http://www.uswest.com/wholesale/guide.html , Qwest CLEC provisioning documentation for coordinated provisioning installations is consistent across the Qwest footprint.
4.0 Network Design/Collocation			
4.1	The end-to-end processes for provisioning CLEC network design/collocation requests are consistent across all jurisdictions and regions.	Yes	Per Qwest interviews, each of the three groups involved in network design/collocation process performs their respective activities in consistent manner across the Qwest footprint. The three groups are the CPMC, the Engineering group and the Technical Selection Group.
4.2	The systems deployed for provisioning CLEC network design/collocation requests are consistent across all jurisdictions and regions.	Yes	Each of the three groups in network design/collocation use a different system. However, these systems are used consistently across the entire Qwest footprint.
4.3	Internal documentation used to complete provisioning for CLEC network design/ collocation requests is consistent across all jurisdictions and regions.	Yes	Based on interviews and document reviews of material listed in Table 2.2.2.2.2 Qwest Data Sources for Provisioning Assessment, Qwest internal documentation for network design/collocation is consistent across the Qwest footprint.

Assessment Number	Assessment Criteria	Result	Comments
4.4	Documentation publicly available to the CLECs used to complete provisioning for CLEC network design/ collocation requests is consistent across all jurisdictions and regions.	Yes	Based on interviews and document reviews of documents available to CLECs at http://www.uswest.com/wholesale/guide.html , Qwest CLEC network design/collocation documentation is consistent across the Qwest footprint.

2.2.4 Results Summary

Results are functionally grouped in the table below with an indication of whether or not they match the TRD. Each functional group may relate to multiple assessment criteria.

Table 2.2.4.1: Results Summary Table

	Hypothesis			TRD, Section 6		
	Failed to Reject	Reject	Inconclusive	Matches	Does Not Match	Not Addressed
Provisioning Transaction Processing		X		X		
Provisioning Infrastructure Organization	X			X		
Provisioning Coordination	X					X
Network Design/Collocation	X					X
Provisioning Infrastructure Architecture			X	X		

2.3 Maintenance and Repair

2.3.1 Description

The Maintenance and Repair (M&R) domain is comprised of the systems, processes, and other operational elements associated with Qwest's support for Unbundled Network Element (UNE) and Resale maintenance and repair activities. The purpose of the assessment was to review functionality and performance in order to provide a basis for comparing this operational area to parallel systems and processes in other jurisdictions and regions in Qwest's territory.

KPMG Consulting reviewed and analyzed Qwest and CLEC-provided documentation related to maintenance and repair activities and conducted interviews with key Qwest and CLEC representatives in order to obtain the data necessary to conduct the assessment.

2.3.2 Methodology

This section provides a business process description, lists the sources of data used in the assessment and summarizes the assessment methodology.

2.3.2.1 Business Process Description

The input of trouble tickets is an automated process for CLECs in the Qwest footprint. There are two interfaces for CLECs to create their own trouble tickets. The first interface is the Interconnect Mediated Access (IMA) which is a GUI (Graphical User Interface) based application. CLECs also have the option to build a gateway to the EB-TA (Electronic Bonding Trouble Administration) interface. Both of these trouble reporting systems are portals to MEDIACC (Mediated Access System), the engine that generates the trouble tickets in LMOS (Loop Maintenance Operating System) and WFA/C (Work Force Administration/Control). LMOS is used for non-designed loops, while WFA/C processes problems with designed loops.

When CLECs require direct contact with Qwest personnel, they can call a toll free number for the Account Maintenance Service Center (AMSC). This center services all of Qwest's 13 states. The AMSC staff uses the Repair Call Expert (RCE) system to assist with the creation of non-designed loop trouble tickets. Once created, the tickets are automatically sent to the LMOS front end. A parallel interface, known as Control, helps generate designed loop trouble tickets that are sent to the WFA/C front end. Qwest's Repair Call Handling Center (RCHC) accepts a small number of calls from CLECs regarding Resale IFR/IFB troubles only. The vast majority of CLEC wholesale trouble calls are made into the AMSC.

All M&R internal and external documentation is web-based. Qwest has two internal systems that are used to produce documentation (InfoBuddy and Canyon6) and one system for document notification and delivery (Multi-Channel Communicator). The Wholesale Service Delivery Process Toolkit (Process Toolkit), part of InfoBuddy provides templates and guidelines for publication of all documents for non-designed services. Canyon6 is the equivalent system for design services. The MCC is the system that informs Qwest personnel of changes to the documentation and ensures that the necessary updates are made electronically. Semi-annual reviews of Qwest repair and maintenance centers, known as Center Certifications, are performed to ensure that the methods and procedures practiced adhere to those set forth in the documents.

The repair ticket flow from the CLEC to the Qwest legacy systems is depicted in the following chart.

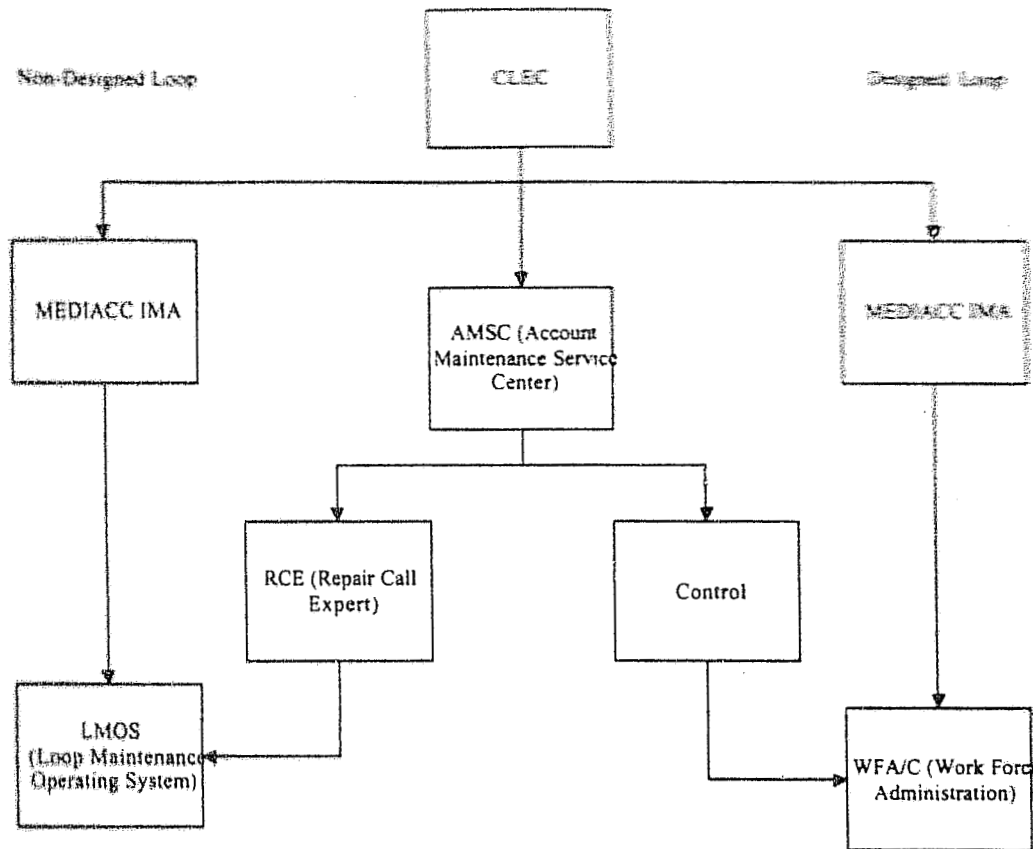


Chart 2.3.2.1.1. Qwest Legacy System Process Flow

2.3.2.2 Data Sources

The data collection performed for this assessment relied on interviews with Qwest and CLEC representatives and reviews of documents supplied by Qwest. The interviews and documents are itemized in the tables below.

Table 2.3.2.2.1: Qwest Interviews for Maintenance and Repair Assessment

Document Number	Document Name	File Name	Source
Q-1	Qwest M&R Capacity Management Interview Summary	Final M&R Capacity Management Interview Summary.doc	KPMG Consulting
Q-2	Qwest M&R Coordination Interview Summary	Final M&R Coordination Interview Summary.doc	KPMG Consulting
Q-3	Qwest M&R Documentation Interview Summary	Final M&R Documentation Interview Summary.doc	KPMG Consulting
Q-4	Qwest M&R Network Surveillance Interview Summary	Final M&R Network Surveillance Interview Summary.doc	KPMG Consulting
Q-5	Qwest M&R Processing Interview Summary	Final M&R Processing Interview Summary.doc	KPMG Consulting
Q-6	Qwest M&R Support Center Review Interview Summary	Final M&R Support Center Interview Summary.doc	KPMG Consulting
Q-7	Qwest M&R Infrastructure Interview Summary	Final Provisioning and M&R Infrastructure Interview Summary.doc	KPMG Consulting

Table 2.3.2.2.2.: Qwest Data Sources for Maintenance and Repair Assessment

Document Number	Document	File Name	Source
I-1	Repair Ticket Flow	hard copy	Qwest
I-2	Joint Meet Process Description/ Flow	hard copy	Qwest
I-3	Maintenance & Repair: External Documentation Available for use by CLECs	hard copy	Qwest
I-4	Unbundled Loop Maintenance Flow	hard copy	Qwest
I-5	Multi Channel Communicator Problem or Error	hard copy	Qwest
E-1	IMA User's Guide	hard copy	Qwest

Table 2.3.2.2.3: CLEC Interviews for Maintenance and Repair Assessment

Document Number	Document	File Name	Source
C-1	Qwest McLeod Interview Summary	Qwest McLeod Interview Summary.doc	KPMG Consulting

There were no CLEC data sources provided for the M&R assessment.

2.3.2.3 Assessment Method

Interviews with Qwest personnel were conducted in Denver, Colorado and included a conference bridge for offsite participants. In addition, KPMG Consulting conducted an interview with McLeodUSA. The goal of this interview was to gather information on Qwest's M&R networks, systems, and methods to determine if they were consistent throughout the operating footprint. Additional data was gathered through reviews of documentation provided by Qwest on M&R Capacity Management, M&R

Coordination, M&R Documentation, M&R Network Surveillance, M&R Processing, M&R Support Center Review, and M&R Infrastructure.

Assessment criteria were established by KPMG Consulting to provide a framework and basis for the assessment. The data collected from the interviews and documentation reviews were analyzed in reference to the assessment criteria.

2.3.3 Results

This section identifies the assessment criteria and the results. Each assessment criterion is given one of the three following results:

- **Yes** - Based on interviews conducted and the documentation reviewed, there is no evidence that the systems, practices and procedures are not consistent across states and regions.
- **No** - Based on interviews conducted and the documentation reviewed, there are differences in systems, practices and procedures across states and regions.
- **Inconclusive** - Based on the interviews conducted and the documentation reviewed, there was insufficient evidence to conclude whether or not there are differences in systems, practices, and procedures across states and regions.

Table 2.3.3.1: Assessment Criteria and Results

Assessment Number	Assessment Criteria	Result	Comments
1.0	Maintenance and Repair Processing		
1.1	The end-to-end CLEC trouble ticket process is consistent across all jurisdictions and regions.	Yes	Interviews with Qwest personnel and document reviews revealed that trouble tickets are processed in a consistent manner across the Qwest footprint. This includes collection of trouble reports from CLECs via IMA or EB-TA, and the creation and processing of trouble tickets within Qwest (via LMOS for non-designed and or WFA/C for designed loops).
1.2	The systems deployed for supporting CLEC M&R processes are consistent across all jurisdictions and regions.	Yes	Although CLECs have a choice between IMA and EB-TA for entering trouble tickets, each of these systems is consistent throughout the Qwest footprint.
1.3	Internal documentation used to complete CLEC M&R processes is consistent across all jurisdictions and regions.	Yes	Per Qwest interviews, Qwest described the standard processes and systems for creating and distributing documentation across the Qwest footprint (InfoBuddy, Canyon6 and MCC). These systems are used for all internal documentation, including their internal web.
1.4	Documentation publicly available to CLECs for M&R processes is consistent across all jurisdictions and regions.	Yes	Based on interviews, document reviews, and documentation for CLECs regarding the use of the wholesale trouble reporting systems is consistent across the Qwest footprint. CLECs access Qwest Wholesale Markets web site (www.uswest.com/wholesale/guide.html) on policies, procedures, systems, and emergency procedures. Additional data on training, use, and access to these systems can be found on a checklist provided to all CLECs. This website covers the entire Qwest footprint.
2.0	Maintenance and Repair Support Center Review		

Assessment Number	Assessment Criteria	Result	Comments
2.1	M&R CLEC Help Desk resource management is consistent across all jurisdictions and regions.	No	M&R Help Desk resource management is not administered consistently throughout the Qwest footprint. The Account Maintenance Service Center (AMSC) located in Denver is the primary support center available to CLECs throughout the 13 Qwest states. The Repair Call Help Center (RCHC) accepts a small volume of calls from CLECs for Resale IFR and IFB services only. The RCHC role is being transitioned to the AMSC in a phased approach, but no target date for completion was given.
2.2	M&R CLEC Help Desk processes are consistent across all jurisdictions and regions.	Yes	During interviews with Qwest personnel, Qwest representatives identified that Repair Service Technicians are trained to handle both wholesale and resale customer troubles. CLEC calls are delivered to the first available repair service technician for processing.
2.3	Internal Method and Procedure documentation used by M&R Help Desk personnel is consistent across all jurisdictions and regions.	Yes	Qwest representatives stated during interviews that their internal documentation is web-based and can be found in InfoBuddy. InfoBuddy contains templates and requirements found in the Wholesale Service Delivery Process Toolkit (Process Toolkit). Canyon6 is the parallel system for design services documentation. The Multi-Channel Communicator (MCC) is used to inform personnel of changes to the documentation and ensure that the necessary updates are made electronically. One centralized staff group controls document content and electronic posting and updates.
2.4	Documentation publicly available to CLECs interfacing with M&R Help Desks is consistent across all jurisdictions and regions.	Yes	Qwest representatives stated during interviews that their external documentation is web-based. Information on training or the use of systems is available electronically through a Wholesale Markets web-site (www.uswest.com/wholesale/guide.html). This site also contains information on policies, products, systems, and emergencies. In addition, there is a checklist provided to all new CLECs with consistent information. The Account Managers are responsible for training the CLECs on the use of IMA and MEDIACC, as well as providing contact information for the AMSC and doing some root cause analysis on troubles.
3.0 Maintenance and Repair Infrastructure			
3.1	M&R system architecture is consistent across all jurisdictions and regions.	Yes	Review of Qwest documentation and interviews with Qwest personnel revealed that there are two interfaces for CLECs to create their own trouble tickets. These are the Interconnect Mediated Access (IMA) and the EB-TA (Electronic Bonding Trouble Administration). MEDIACC (Mediated Access System) is the engine that generates tickets through LMOS (Loop Maintenance Operating System) and WFA/C (Work Force Administration/Control).
3.2	Organizations supporting M&R activities are consistent across all jurisdictions and regions.	No	The AMSC in Denver is the primary center in the Qwest region for CLEC wholesale or resale trouble resolution. Qwest indicated through the interview process that the RCHC also handles a small volume of calls for IFR/IFB Resale. The RCHC's involvement with the trouble administration reporting for IFR/IFB Resale is not handled consistently across the footprint. Qwest is currently transitioning these responsibilities to the AMSC, but no completion date was given.

Assessment Number	Assessment Criteria	Result	Comments
			Qwest also has five Design Service Centers (DSCs) that handle design services within the footprint. All of these centers are subject to consistent methods and procedures, which can be found in Canyon6.
4.3 Maintenance and Repair Documentation			
4.1	M&R document development, publication and distribution of materials made publicly available to CLECs is consistent across all jurisdictions and regions.	Yes	Each specialization group creates their own documentation based on templates and guidelines found in the Wholesale Service Delivery Process Toolkit (Process Toolkit), in InfoBuddy, or the Canyon6 toolkit, for design services. Information on policies, products, systems and emergencies is available to CLECs on the Qwest Wholesale Markets (www.uswest.com/wholesale/guide.html) website.
4.2	M&R document development, publication and distribution of materials for Qwest internal documents is consistent across all jurisdictions and regions.	Yes	The Process Toolkit in InfoBuddy ensures uniformity of documentation through publication rules and templates. The MCC electronically notifies the appropriate personnel of changes and updates the information found on Qwest's web site. There is only one web site for the entire region.
5.0 Capacity Management			
5.1	The end-to-end process for M&R work center capacity management is consistent across all jurisdictions and regions.	Yes	The M&R work center end-to-end capacity management process is administered consistently throughout Qwest's footprint by both the AMSC and RCHC centers.
5.2	The systems deployed for supporting M&R work center capacity management are consistent across all jurisdictions and regions.	Yes	The tools used to ensure proper use of resources within the AMSC and RCHC are the Management Information System (MIS), for queue-management and notification of a call backlog, and an Automatic Call Distributor (ACD) for call answering.
5.3	Internal documentation used to complete M&R work center capacity management processes is consistent across all jurisdictions and regions.	Yes	Internal documentation utilized by both the AMSC and RCHC to complete M&R work center capacity management is consistent throughout Qwest's footprint.
6.0 Network Surveillance			
6.0	The end-to-end process for M&R work center network surveillance is consistent across all jurisdictions and regions.	Yes	Qwest depends on its five Design Service Centers (DSCs) to conduct network surveillance. The five DSCs also adhere to consistent internal Method and Procedure documents found in Canyon6. All personnel in the DSCs attend consistent new employee training courses.
6.1	The systems deployed for supporting M&R work center network surveillance is consistent across all jurisdictions and regions.	Yes	Qwest representatives identified during interviews that there is a single application to provide surveillance of the designed transport products: Network Manager Assistant (NMA).
6.2	Internal documentation used to complete M&R work center network surveillance is consistent across all jurisdictions and regions.	Yes	There is only one set of web-based documents across the Qwest footprint. Internal documentation can be found in InfoBuddy, which also provides the documentation templates. The MCC electronically updates the documentation to insure that it is consistent across the operating region.

Assessment Number	Assessment Criteria	Result	Comments
6.4	M&R work center disaster planning is consistent across all jurisdictions and regions.	Yes	There is only one disaster plan for the entire Qwest footprint. It can be found on Qwest's Disaster Preparedness & National Security Home Page (http://saw31/NROC/DR/) and the center can be reached via a single toll-free number (1-800-204-6540).
7.0 M&R Coordination			
7.1	The end-to-end process for M&R wholesale coordinated/joint meetings (vendor meet) is consistent across all jurisdictions and regions.	Inconclusive	During interviews, Qwest representatives stated that the methods and procedures for coordinated/joint meets (for both designed and non-designed loops) are being gathered to create a standard set of processes for interaction with CLECs.
7.2	The systems deployed for supporting M&R wholesale coordinated/joint meetings (vendor meet) are consistent across all jurisdictions and regions.	Inconclusive	During interviews, Qwest representatives stated that the methods and procedures for coordinated/joint meets (for both designed and non-designed) are being redesigned. Therefore, no standard systems are defined.
7.3	Internal documentation used to address procedures for wholesale coordinated/joint meetings (vendor meet) are consistent across all jurisdictions and regions.	Inconclusive	During interviews, Qwest representatives stated that the methods and procedures for coordinated/joint meets (for both designed and non-designed) are being redesigned, so no standard set of Qwest internal documentation exists.
7.4	Documentation publicly available to CLECs detailing procedures for wholesale coordinated/joint meetings (vendor meets) is consistent across all jurisdictions and regions.	Inconclusive	During interviews, Qwest representatives stated that the methods and procedures for coordinated/joint meets (for both designed and non-designed) are being redesigned, so no standard set of Qwest wide documentation exists.

7.3.4 Results Summary

Results are functionally grouped in the table below with an indication of whether or not they match the TRD. Each functional group may relate to multiple assessment criteria.

Table 2.3.4.1: Results Summary Table

	Hypothesis			TRD, Section 6		
	Failed to Reject	Reject	Inconclusive	Matches	Does Not Match	Not Addressed
Maintenance and Repair Processing	X			X		
Maintenance and Repair Support Center Review	X					X
Maintenance and Repair Infrastructure*	X			X		
Maintenance and Repair Documentation*	X					X
Capacity Management	X					X
Network Surveillance	X					X
M&R Coordination			X			X

*Due to the small volume of CLEC calls addressed by the RCHC, and the fact that Qwest has plans to move the CLEC workload to the AMSC, KPMG Consulting did not reject the null hypothesis.

2.4 Billing

2.4.1 Description

The Billing domain is comprised of the systems, processes and other operational elements associated with Qwest's support for Wholesale billing. The purpose of the assessment was to review functionality and performance in order to provide a basis for comparing this operational area to parallel systems and processes in other jurisdictions and regions in Qwest's territory.

KPMG Consulting reviewed and analyzed Qwest and CLEC provided documentation related to billing activities and conducted interviews with key Qwest and participating CLEC representatives in order to obtain the data necessary to conduct the assessment.

2.4.2 Methodology

This section provides a business process description, lists the sources of data used in the assessment, and summarizes the assessment methodology.

2.4.2.1 Business Process Description

One of the remaining legacies of the original merger that created US WEST is the continuing use of three Customer Record Information Systems (CRIS). These billing systems, which are used for billing retail, resale, and in the Qwest territory, most of the UNE products, are maintained and operated separately in the Western, Central and Eastern regions.

The Integrated Access Billing System (IABS) is another billing system used in the billing of Access products. It was developed after the merger and is standard across all states.

CRIS Billing Systems

The CRIS systems receive the Service Order information from Service Order Processing Systems (SOPs). Once this information is available, the Universal Service Order Codes (USOCs) are rated and the customer account is updated. An updated Customer Service Record (CSR) is issued and made available to the CLEC. This CSR summarizes all services, equipments and features requested by an end-user.

The usage events are first collected at the switch in Automatic Message Accounting (AMA) format and sent to the Message Processing Systems. The messages are identified, formatted, rated, and stored by Billing Telephone Number (BTN) until the bill period ends.

Daily Usage Feeds (DUFs) are produced out of the Message Processing System and sent to the CLEC daily as requested.

Bill calculations are performed in the CRIS systems, including monthly recurring charges, usage charges, proration, taxes, balance carry-forwards, and payment applications, then forwarded on to formatting by media type (such as paper or CDROM).

IABS Billing System

The IABS system is used to bill specific interconnect, collocation, unbundled products and resale frame relay products. Service order processing, unlike the CRIS process, is initiated with an Access Service Request (ASR). In CRIS, the service order process is initiated with a Local Service Request (LSR).

The IABS system receives service order information daily. This information is used to update the customer account and to ensure usage is accurately guided. The CSR is updated in a Billing CSR and the USOCs are rated on the bill date.

Usage events are collected through the CRIS systems using a similar process, then forwarded to the IABS system for editing, formatting, and storage until the bill period ends.

On the bill date, IABS performs the bill calculations which include calculating charges, taxes (or tax exemptions), adjustments, payments, and credits. The file, along with the Billing CSR, is formatted and sent to the CLEC in the requested medium.

2.4.2.2 Data Sources

The data collection performed for this assessment relied on interviews with Qwest and participating CLEC representatives and reviews of documents supplied by Qwest and the CLECs. The interviews and documents are itemized in the tables below.

Table 2.4.2.2.1: Qwest Interviews for Billing Assessment

Document Number	Document Name	File Name	Source
Q-1	Carrier Bill Processing	8-22 Carrier Bill Interview Summary_Final.doc 8-22 Carrier Bill Interview Summary comments.doc	KPMG Consulting
Q-2	Daily Usage Feed (DUF)	8-22 DUF Interview Summary_Final.doc 8-22 DUF Interview Summary comments.doc	KPMG Consulting

Table 2.4.2.2.2: Qwest Data Sources for Billing Assessment

Document Number	Document	File Name	Source
E-1	Carrier Bill Processing Business Rules	e-mail	Qwest
E-2	Usage Processing Business Rules	e-mail	Qwest
E-3	Qwest internal training material for billing (including DUF)	CD-ROM	Qwest
E-4	CLEC Training Material for Billing (including DUF)	CLEC Billing and Usage Guide http://www.uswest.com/who_sale/productServices/irrg/TA/BL1-0.html	Qwest

Document Number	Document	File Name	Source
E-5	Qwest Internal Procedures for Usage Processing, carrier Bill Processing, Billing Change Management, and systems and Infrastructure	Summary Bill Trouble Shooting Procedures CRIS/IABS Wholesale Summary Billing validation (Resale) Wholesale Usage Production Support Process Wholesale (hard copy)	Qwest
E-6	Examples of bills from different states/regions	two Adobe portable documents	Qwest
E-7	Examples of DUF files from different states/regions	hard copy	Qwest
E-8	EMI Specification versions used by different states/regions	e-mail attachment	Qwest
E-9	Business rules for automated recycling of usage due to errors	e-mail attachment	Qwest
E-10	Business rules for aging records	Central MCR c990908-06	Qwest
E-11	Usage return process rules	Co-Carrier Usage Return	Qwest
E-12	Examples of completion notices from the three regions	http://uswest.com:80/wholesale/productsServices/irrg/billUsage.html	Qwest

Table 2.4.2.2.3: CLEC Interviews for Billing Assessment

Document Number	Document	File Name	Source
C-1	McLeodUSA Interview	9-08 McLeodUSA Billing Interview Summary_Final.doc	KPMG Consulting
C-2	WorldCom difference assessment e-mail	RE: CLEC Interview Topics (E-mail)	WorldCom

Table 2.4.2.2.4: CLEC Data Sources for Billing Assessment

Document Number	Document	File Name	Source
CD-1	Examples of CSRs from the three regions	hard copy	McLeod USA
CD-2	Examples of invoices from the three regions	hard copy	McLeod USA

2.4.2.3 Assessment Method

Qwest Interviews were conducted in Denver, Colorado and included a conference bridge for offsite participants. The purpose of these interviews was to obtain information on usage processing, carrier bill processing, billing change management, and systems and infrastructure. Further data was gathered through reviews of documentation provided by Qwest. In addition, an interview was conducted with McLeodUSA via a conference bridge. The purpose of this interview was to obtain information on a CLEC's perceptions of the differences that might exist in the billing systems and processes between

Qwest's three regions. Further data was gathered through reviews of documentation provided by the CLEC.

In addition, WorldCom participated in the assessment through a written report.

Assessment criteria were established by KPMG Consulting to provide a framework and basis for the assessment. The data collected from the interviews and documentation reviews were analyzed in reference to the assessment criteria.

2.4.3 Results

This section identifies the assessment criteria and the results. Each assessment criterion is given one of the three following results:

- **Yes** - Based on interviews conducted and the documentation reviewed, there is no evidence that the systems, practices and procedures are not consistent across states and regions.
- **No** - Based on interviews conducted and the documentation reviewed, there are differences in systems, practices and procedures across states and regions.
- **Inconclusive** - Based on the interviews conducted and the documentation reviewed, there was insufficient evidence to conclude whether or not there are differences in systems, practices, and procedures across states and regions.

Table 2.4.3.1: Assessment Criteria and Results

Assessment Number	Assessment Criteria	Result	Comments
1.0 Usage Processing (Resale and UNE-P)			
1.1	The DUF production and distribution Process is consistent across regions.	No	According to the information provided during the DUF Interview as well as the process descriptions available in the CLEC Billing and Usage Documentation, usage events are produced by each switch, collected by the message processing systems (one per region), rated then formatted in each CRIS system (one per region). Therefore, even though the process is similar across regions, the actual production of DUF may vary from region to region because of the different systems used.
1.2	The message processing systems are consistent across regions.	No	According to the information provided during the DUF Interview, there are three distinct message processing systems in each region. AMDOCS (PP42) is the standard message processing front-end deployed in each region. The systems are maintained by three different groups.
1.3	Exchange Message Interface (EMI) specifications and Qwest variations are consistent across regions.	No	According to the information provided during the DUF Interview, EMI translation is done in each region, and the processes are maintained separately. EMI standards are consistent across the Western and Central regions but not in the Eastern Region. The example that was given during the DUF interview is the following: all five states in the Eastern Region send two records for operator handled local measured calls and Directory Assistance (100132 and 100131 records sent) due to the tariffs. The other regions only send one.

Assessment Number	Assessment Criteria	Result	Comments
1.4	DUF-specific business rules are consistent across regions.	Yes	Rated and unrated rules are consistent throughout all regions: there is no user specificity involved. As mentioned during the DUF interview, usage ownership issues are materially similar across all three regions. DUF transmissions are similar across all regions. Qwest believes that no usage files are sent unless there was usage on that day. KPMG Consulting was not able to verify this information during the timeframe of the assessment.
1.5	Similar Qwest organizations are involved in the process across regions	Yes	According to the DUF Interview, similar organizations with central management are involved in the DUF process. Usage return process rules are consistent across the three regions. The DUF file must be returned via NDM in the EMI format with an EMI return reason code. Billed usage disputes are also handled in writing via e-mail or fax. Usage returns and disputes are similar across regions.
1.6	The operator services switch variations are consistent across regions.	Inconclusive	According to the information provided during the DUF Interview, both Traffic Operator Position System (TOPS) and Operator Service Position System (OSPS) operator switches are used across all regions. Qwest believes the DUFs for operator-handled calls are consistent between the two switches. KPMG Consulting was not able to verify this information during the timeframe of the assessment, and therefore it was not possible to draw a conclusion.
2.0 Carrier Bill Processing			
2.1	The bill production business rules are consistent across regions.	Inconclusive	Based on both Qwest and CLEC interviews, bill calculations are consistent across the Qwest territory. On the other hand, discounts (both rates and discountable charges) are state-specific, and bill formats will vary from one region to another (possibly by state). As a result it was not possible for KPMG Consulting to draw a conclusion as to the consistency of bill production business rules across regions.
2.2	The process for establishing rates is consistent across each state.	No	Local regulatory requirements create differences between states and/or regions. In addition, based on the information provided during the Bill Validation interview, rates for resale services are established through tariffs. For UNE products, some states have published tariffs, while most require interconnection agreements.
2.3	Resale and UNE bills provide consistent content across regions.	No	Rates are state specific and driven by individual tariffs and/or interconnection agreements. In addition, business rules on rate applications are jurisdictionally driven. While according to the Bill Validation Interview, the three CRIS systems have been standardized to fit company-wide requirements, systems specifications and rate table maintenance may vary from region to region.

Assessment Number	Assessment Criteria	Result	Comments
2.4	The bill production process is consistent across regions.	No	Based on information provided during the interviews, IABS is a consistent system across all regions and therefore, the IABS bill production process is consistent across regions. The three CRIS systems follow similar business rules and the process steps are standard across the Qwest territory. On the other hand, the three CRIS systems initial programs were different as they pertained to three different companies. These differences are the basis for potential regional inconsistencies.
2.5	Training materials (internal and CLEC) are consistent across regions.	Yes	Interviews support that the company is organized by product line, media and systems rather than by regions. As a result, training materials are similar across regions. Potential regional differences are highlighted in the course of training.
3.0 Billing Change Management (for DUF, CRIS, IABS)			
3.1	The process for introducing a new product is consistent across regions.	Inconclusive	According to the Qwest Interviews, time constraints and state-specific requirements impact the process and can differ across regions. Qwest believes procedures for introducing a new product are materially similar across the three regions, however, KPMG consulting was not able to draw a conclusion as to the consistency of the process to introduce a new product across regions.
3.2	The process for updating rates and tariffs is consistent across region.	No	According to the Qwest interviews, tariff updates are made through table releases, unless hard-coding is required. Although the process is similar across the three regions, the rates are updated in three different CRIS systems, which may induce regional differences. In addition to this systems difference, state disparities also introduce a level of inconsistencies as some states have tariffs while others require interconnection agreements.
3.3	The switch translation process is consistent across regions.	Yes	According to the information provided during the DUF Interview, the switch translation process (using AMDOCS(PP42) as a front-end) is similar across the three regions.
3.4	The management tools used to monitor the change management process are consistent across regions.	Inconclusive	According to the Qwest interviews, most tools are system driven, and therefore vary by region. For those that impact the structure of the Billing Domain, the organizations are centralized around products rather than geographical criteria and therefore procedures are similar across the regions. Based on the above, KPMG Consulting was not able to draw a conclusion as to the consistency of the management tools across the regions.
4.0 Systems and Infrastructure (for Resale and UNE)			
4.1	The inputs and outputs of each system (CRIS, IABS, DUF) are consistent across regions.	No	Inputs and Outputs for CRIS, IABS and DUF are materially similar to the extent of the exceptions noted above. However, these exceptions provide a degree of inconsistency across regions.

Assessment Number	Assessment Criteria	Result	Comments
4.2	The exit point of the DUF from the Qwest system is consistent across regions.	Yes	CLEC ownership is determined for each record. CLEC-owned usage records are converted from an internal format to EMI and distributed on the DUF. According to the DUF Interview, this process is consistent across all three regions.
4.3	The CRIS systems upgrades and their functional impacts are consistent across regions.	Inconclusive	<p>According to the Qwest interviews, the Company's policy is to release usage process upgrades and production fixes across the footprint on consistent day. If this is not possible, then all states in consistent region have consistent release day.</p> <p>Both the CRIS systems and the Message Processing Systems are different between regions. The releases and upgrades, which are system specific, are tailored to each system and therefore may vary from one region to the next, although the functionalities implemented will be similar.</p>
4.4	The Bill Processing centers (systems and operational processes) are consistent across regions.	Yes	<p>According to the information provided during the Qwest interviews, all three regions have consistent type of centers.</p> <p>Bill production is organized by media type, and bills for all regions are produced in one location.</p> <p>Customer Care is organized by customer accounts, for example, each CLEC has only one contact, regardless of its presence across multiple regions.</p> <p>Payment centers are organized by State, but can be centralized in order to meet the CLEC's payment process needs.</p>
4.5	The products and media options are consistent across regions.	Inconclusive	<p>It was not possible to draw a conclusion based on the interviews nor the documentation provided during the assessment process.</p> <p>DUF files are sent to the CLEC via NDM, FTP, Web access, tape, or cartridge. This is similar across the three regions.</p> <p>On the other hand, the network facilities and regulatory requirements have created State differences in some of the products offered through the Qwest territory.</p>

2.4.4 Results Summary

Results are functionally grouped in the table below with an indication of whether or not they match the TRD. Each functional group may relate to multiple assessment criteria.

Table 2.4.4.1: Results Summary Table

	Hypothesis			TRD, Section 6		
	Failed to Reject	Reject	Inconclusive	Matches	Does Not Match	Not Addressed
Usage Processes (Resale and UNE) ⁽¹⁾	X					X
Carrier Bill Processes (CRIS and IABS) ⁽¹⁾	X					X
CRIS Billing Systems		X		X		
IABS Billing Systems	X			X		
Usage Processing Systems ⁽²⁾		X		X		

1 Qwest's CRIS billing systems, which include both the bill production and distribution process and the Daily Usage Feed (DUF) process, are maintained and operated on a regional basis. These regional differences are the source of the inconsistencies and inconclusive statements identified through the analysis performed by KPMG Consulting.

Although these systems are different, Qwest has been streamlining and standardizing most of its processes across the regions, and most of the state or regional differences that have been identified are now at a level where they are not critical to the general billing process. As a result, most of the processes identified above, although they are not consistent across regions, are considered materially similar across the footprint and the impact of the differences is insufficient to materially impact the running of the test. As a result, they are not material to warrant rejecting the null hypothesis.

2 Usage Processing System is a part of the CRIS systems, but is identified here for purposes of matching with the MTP sections and criteria sections above.

2.5 CLEC Relationship Management and Infrastructure

This section includes the following subtopics:

- Interface Development
- Account Management
- Change Management
- CLEC Training
- ISC Help Desk
- IMA Help Desk

2.5.1 Interface Development

2.5.1.1 Description

The Interface Development domain is comprised of the systems, processes, and other operational elements associated with Qwest's support for developing, publicizing, conducting, managing, and monitoring interface development or interface development support for CLECs. The purpose of the assessment was to review functionality and performance in order to provide a basis for comparing this operational area to parallel systems and processes in other jurisdictions and regions in Qwest's territory.

KPMG Consulting reviewed and analyzed Qwest and CLEC-provided documentation related to interface development and conducted interviews with key Qwest and CLEC representatives in order to obtain the data necessary to conduct the assessment.

2.5.1.2 Methodology

This section provides a business process description, lists the sources of data used in the assessment, and summarizes the assessment methodology.

2.5.1.2.1 Business Process Description

Competitive Local Exchange Carriers (CLECs) may access Qwest's systems for Order, Pre-Order, Maintenance & Repair, and other services using the Qwest Intermediated Access (IMA) system. This system includes Electronic Data Interchange (EDI) interface and a Web Graphical User Interface (GUI). Maintenance & Repair can also be accessed through IMA or an Electronic Bonding Interface (EB-TA) developed by the CLEC. CLECs that intend to build an interface with Qwest are instructed to initiate their efforts through their Qwest Account Manager.

For EDI, a new entrant testing process is required of each CLEC who wishes to connect to Qwest via IMA-EDI for the first time. As part of this process, the CLEC develops and builds its interface based on Qwest's specifications. The new entrant CLEC will interface to the production environment in a testing mode.

When a CLEC wants to access the Qwest Web GUI, Qwest's initial preparation steps include providing access to training and documentation, as well as providing necessary security hardware and passwords.

CLECs can also access the Maintenance and Trouble Administration functions through an Electronic Bonding Interface (EB-TA). EB-TA requires a CLEC interface process similar to the one for EDI including consistent steps.

2.5.1.2.2 Data Sources

The data collection performed for this assessment relied on interviews with Qwest and CLEC representatives and reviews of documents supplied by Qwest and the CLECs. The interviews and documents are itemized in the tables below.

Table 2.5.1.2.2.1: Qwest Interviews for Interface Development Assessment

Document Number	Document Name	File Name	Source
Q-1	Interview Questions for Regional Assessment Test Interface	Interface Dev RDA.doc	KPMG Consulting
Q-2	Interview Summary for Interface EB-TA for Qwest	Interview Summary Qwest EB-TA.doc	KPMG Consulting
Q-3	Interview Summary for Interface EDI for Qwest	Interview Summary Qwest EDI.doc	KPMG Consulting
Q-4	Interview Summary for Interface GUI for Qwest	Interview Summary Qwest GUI.doc	KPMG Consulting
Q-5	Interview Summary for Interface GUI Middleware	Interview Summary Qwest Middleware.doc	KPMG Consulting
Q-6	Interview Summary for Interface MEDIACC for Qwest	Interview Summary Qwest MEDIACC.doc	KPMG Consulting

Table 2.5.1.2.2.2: Qwest Data Sources for Interface Development Assessment

Document Number	Document Name	File Name	Source
E-1	Comments on Interview Summary for Interface EXACT	EXACT Interface Summary Qwest comments.doc	Qwest
E-2	Comments on Interview Summary for Interface MEDIACC	MEDIACC Interview Summary Qwest comments.doc	Qwest
E-3	Comments on Interview Summary for Interface EDI	EDI Interview Summary Qwest comments.doc	Qwest
E-4	Comments on EDI Interview Summary Qwest	EB-TA Interview Summary Qwest comments.doc	Qwest
E-5	Comments on GUI Interview Summary Qwest	GUI Training Qwest comments.doc	Qwest
I-1	Qwest House of Operation for Interface Testing	KPMG 62-209	Qwest
I-2	IMA Organizational Chart	Interconnect COE Organizational Chart.ppe	Qwest
I-3	IMA Middleware Legacy System Overview	Systems Diagram I.doc	Qwest
I-4	CLEC Facing Forecasting Documentation	KPMG 62-197 and 0900 Form Directions.xls	Qwest

There were no CLEC interviews or data sources provided for the Interface Development assessment.

2.5.1.2.3 Assessment Method

Interviews were conducted with Qwest personnel in Denver, Colorado, and included a conference bridge for offsite participants. The purpose of these interviews was to obtain information on Qwest's interface development systems and processes. In addition, a CLEC interview was conducted via a conference bridge to gain a CLEC's perspective on perceived regional differences in Qwest's interface development systems and processes. Further data was gathered through reviews of documentation provided by Qwest.

Assessment criteria were established by KPMG Consulting to provide a framework and basis for the assessment. The data collected from the interviews and documentation reviews were analyzed in reference to the assessment criteria.

2.5.1.3 Results

This section identifies the assessment criteria and the results. Each assessment criterion is given one of the three following results:

- **Yes** - Based on interviews conducted and the documentation reviewed, there is no evidence that the systems, practices and procedures are not consistent across states and regions.
- **No** - Based on interviews conducted and the documentation reviewed, there are differences in systems, practices and procedures across states and regions.
- **Inconclusive** - Based on the interviews conducted and the documentation reviewed, there was insufficient evidence to conclude whether or not there are differences in systems, practices, and procedures across states and regions.

Table 2.5.1.3.1: Assessment Criteria and Results

Assessment Number	Assessment Criteria	Result	Comments
1	Qwest has a software/interface development methodology that addresses requirements and specifications definition, design, development, testing, and implementation, which is consistent across all Qwest Regions.	Yes	CLECs connect through the IMA interface for Pre-Order, Order, and Provisioning. A single methodology is used to connect to IMA, regardless of a CLEC's location or areas served. CLECs can use the IMA-GUI to connect to the Qwest Trouble Administration (TA) system or a CLEC can build its own Electronic Bonding interface to MEDIACC.
2	Interface specifications, which define applicable business rules, data formats and definitions, and transmission protocols are made available to customers and are similar across the Qwest footprint.	Yes	IMA access information and Business Rules (I-Charts), is not region specific and is available on the Qwest website. Data formats and transmission protocols are made available through the account establishment team after a CLEC has selected an interface method.
3	Responsibilities and procedures for developing and updating interface specification document(s) are defined and shared consistently across the Qwest footprint.	Yes	IMA information is not region specific. All information is updated by the internal Qwest IMA team.

2.5.1.4 Results Summary

Results are functionally grouped in the table below with an indication of whether or not they match the TRD. Each functional group may relate to multiple assessment criteria.

Table 2.5.1.4: Results Summary Table

	Hypothesis			TRD, Section 6		
	Failed to Reject	Reject	Inconclusive	Matches	Does Not Match	Not Addressed
Interface Development Process	X					X

2.5.2 Account Management

2.5.2.1 Description

The Account Establishment and Management domain is comprised of the systems, processes, and other operational elements associated with Qwest's support for establishing and managing account relationships with CLECs who order Unbundled Network Elements (UNE) and Combinations and Resale services. The purpose of the assessment was to review functionality and performance in order to provide a basis for comparing this operational area to parallel systems and processes in other jurisdictions and regions in Qwest's territory.

KPMG Consulting reviewed and analyzed Qwest and CLEC-provided documentation related to account establishment and management and conducted interviews with key Qwest and CLEC representatives in order to obtain the data necessary to conduct the assessment.

2.5.2.2 Methodology

This section provides a business description, lists the sources of data used in the assessment and summarizes the assessment methodology.

2.5.2.2.1 Business Process Description

The Qwest Account Management teams serve as the primary points of contact within Qwest for wholesale customers. Their responsibilities include introducing new CLECs to Qwest products and services, distributing appropriate documentation and contact lists, communicating routine notifications to customers, scheduling and leading network planning meetings, and interfacing with other Qwest units.

2.5.2.2.2 Data Sources

The data collection performed for this assessment relied on interviews and reviews of documents supplied by Qwest at the assessment manager's request. The interviews and documents are itemized in the tables below.

Table 2.5.2.2.2.1: Qwest Interviews for Account Management Assessment

Document Number	Document Name	File Name	Source
Q-1	Interview Summary for Qwest	Interview Summary Qwest Account Management.doc	KPMG Consulting

Table 2.5.2.2.2.2: Qwest Data Sources for Account Management Assessment

Document Number	Document Name	File Name	Source
E-1	Loss & Completion Report Samples and Report Delivery Options	KPMG 52-103 Sup 1 Att D.doc	Qwest
E-2	NDM Connectivity and Application DSNs	KPMG 52-103 Sup 1 Att E.doc	Qwest
E-3	Letter from Qwest to Trading Partner	KPMG 52-103 Sup 1 Att A.doc	Qwest
E-4	New Customer Questionnaire	Version 12 questionnaire.doc	Qwest

Document Number	Document Name	File Name	Source
I-1	Usage Feed Record Matrix	KPMG 52-103 Sup 1 Att B.doc	KPMG Consulting
I-2	Co-Carrier Usage Return	KPMG 52-103 Sup 1 Att C.doc	Qwest
I-3	Email regarding CLEC and Qwest disputes	Qwest/CLEC TUG-O-WAR round 1	Qwest
I-4	Account Establishment Job Descriptions	Version 12 questionnaire.doc	Qwest

Table 2.5.2.2.3: CLEC Interviews for Account Management Assessment

Document Number	Document	Document Name	Source
C-1	Interview Summary for McLeod	Interview Summary McLeod Acct.Mgmt..doc	KPMG

There were no CLEC data sources provided for the Account Management assessment.

2.5.2.2.3 Assessment Method

Interviews were conducted with Qwest personnel in Denver, Colorado, and included a conference bridge for offsite participants. The purpose of these interviews was to obtain information on Qwest's account establishment and management systems, processes, and procedures. In addition, a CLEC interview was conducted via a conference bridge to gain a CLEC's perspective on perceived regional differences in Qwest's account establishment and management systems, processes, and procedures. Further data was gathered through reviews of documentation provided by Qwest.

Assessment criteria were established by KPMG Consulting to provide a framework and basis for the assessment. The data collected from the interviews and documentation reviews were analyzed in reference to the assessment criteria.

2.5.2.3 Results

This section identifies the assessment criteria and results. Each assessment criterion is given one of the three following results:

- Yes - Based on interviews conducted and the documentation reviewed, there is no evidence that the systems, practices and procedures are not consistent across states and regions.
- No - Based on interviews conducted and the documentation reviewed, there are differences in systems, practices and procedures across states and regions.
- Inconclusive - Based on the interviews conducted and the documentation reviewed, there was insufficient evidence to conclude whether or not there are differences in systems, practices, and procedures across states and regions.

Table 2.5.2.3.1: Assessment Criteria and Results

Assessment Number	Assessment Criteria	Result	Comments
1	Account establishment and management responsibilities and activities are consistent across the entire Qwest footprint.	Yes	<p>CLECs can access the Interconnect Resale and Resource Guide (IRRG) through the Qwest website. This guide provides A checklist of all steps the CLEC needs to Take to establish a relationship with Qwest. There are no differences in the account establishment process across the Qwest footprint.</p> <p>Account Management teams are divided into two type types of personnel: Account Managers who are responsible for maintaining every aspect of the CLEC relationship, and Service Managers who provide technical support to Account Managers. In the central region, Account Managers play both roles.</p> <p>In addition, some Account Managers specialize in specific products and are subject matter experts in that area.</p> <p>According to the Qwest personnel interviewed, account managers are regionally based. The information they provide is applicable across the Qwest footprint. Each Account Manager provides consistent type and standard of information to CLECs.</p>
2	Procedures for receiving, managing and resolving customer inquiries are consistent across the entire Qwest footprint.	Yes	Per the interview, account managers are regionally based, but the processes and information they provide is applicable footprint wide.

2.5.2.4 Results Summary

Results are functionally grouped in the table below with an indication of whether or not they match the TRD. Each functional group may relate to multiple assessment criteria.

Table 2.5.2.4.1: Results Summary Table

	Hypothesis			TRD, Section 6		
	Failed to Reject	Reject	Inconclusive	Matches	Does Not Match	Not Addressed
Account Management Process	X					X

2.5.3 Change Management

2.5.3.1 Description

Qwest's Co-Provider Industry Change Management Process (CICMP) is comprised of the systems, processes, and other operational elements associated with Qwest's support for managing changes to and change requests for OSS interfaces and business processes utilized by CLECs. The purpose of the assessment was to review functionality and performance in order to provide a basis for comparing this operational area to parallel systems and processes in other jurisdictions and regions in Qwest's territory.

KPMG Consulting reviewed and analyzed Qwest and CLEC-provided documentation related to change management and conducted interviews with key Qwest and CLEC representatives in order to obtain the data necessary to conduct the assessment.

2.5.3.2 Methodology

This section provides a business description, lists the sources of data used in the assessment and summarizes the assessment methodology.

2.5.3.2.1 Business Process Description

The change management process provides the framework by which interested parties can communicate their desired changes, and through which Qwest is able to communicate subsequent alterations to its systems and processes. Change management policies assign changes into categories or types. The change management process governs all aspects of the CLEC/Qwest relationship. All changes to documentation, interfaces, business rules, and other functions are subject to time frames, tracking, logging and coding managed via the change management process.

2.5.3.2.2 Data Sources

The data collection performed for this assessment relied on interviews and reviews of documents supplied by Qwest at the assessment manager's request. The interviews and documents are itemized in the tables below.

Table 2.5.3.2.2.1: Qwest Interviews for Change Management Assessment

Document Number	Document Name	File Name	Source
Q-1	Interview Questions for Regional Assessment Test-Change Management	Change Mgt RDA.doc	KPMG Consulting
Q-2	Interview Summary for Qwest	Interview Summary Qwest Change Mgmt(bulleted).doc	KPMG Consulting

Table 2.5.3.2.2.2: Qwest Data Sources for Change Management Assessment

Document Number	Document	File Name	Source
E-1	Comments on Interview Summary for Change Management	Change Management Qwest comments.doc	Qwest
E-2	Qwest/ROC Letters	Qwest/ROC Letters enclosed	Qwest
E-3	Re: Feedback from CLEC Forum Regarding CICMP	AUGltr.doc	Qwest
E-4	Change Management Escalation Process	hard copy	Qwest
E-5	Change Management Process Documented	hard copy	Qwest
E-6	How to Create a Change Request Document	hard copy	Qwest
E-7	Change Request Form	hard copy	Qwest
E-8	CR Form Instructions	hard copy	Qwest
E-9	CLEC Change Request Log	hard copy	Qwest
E-10	Team Meeting Documentation	hard copy	Qwest
E-11	Release Notification Documentation	hard copy	Qwest
E-12	Release Notification Form	hard copy	Qwest
E-13	Release Notification Form Instructions	hard copy	Qwest
E-14	Release Notifications Log	hard copy	Qwest
I-1	Re: CLEC Industry Change Management Process	ROCltr.doc	Qwest
I-1	Comments from Qwest on Change Management Interview Summary	FW: interview comments Change Management	Qwest

Table 2.5.3.2.2.3: CLEC Interviews for Change Management Assessment

Document Number	Document	File Name	Source
C-1	Interview Summary for McLeod	Interview Summary McLeod Change Mgmt. doc	KPMG Consulting

There were no CLEC data sources provided for the Change Management assessment.

2.5.3.2.3 Assessment Method

Interviews were conducted with Qwest personnel in Denver, Colorado, and included a conference bridge for offsite participants. The purpose of these interviews was to obtain information on the Qwest CICMP. In addition, a CLEC interview was conducted via a conference bridge to gain a CLEC's perspective on perceived regional differences in Qwest's CICMP. Further data was gathered through reviews of documentation provided by Qwest.

Assessment criteria were established by KPMG Consulting to provide a framework and basis for the assessment. The data collected from the interviews and documentation reviews were analyzed in reference to the assessment criteria.

2.5.3.3 Results

This section identifies the assessment criteria and the results. Each assessment criterion is given one of the three following results:

- Yes - Based on interviews conducted and the documentation reviewed, there is no evidence that the systems, practices and procedures are not consistent across states and regions.
- No - Based on interviews conducted and the documentation reviewed, there are differences in systems, practices and procedures across states and regions.
- Inconclusive - Based on the interviews conducted and the documentation reviewed, there was insufficient evidence to conclude whether or not there are differences in systems, practices, and procedures across states and regions.

Table 2.5.3.3.1: Assessment Criteria and Results

Assessment Number	Assessment Criteria	Result	Comments
1	Change management process responsibilities and activities are consistent across the Qwest footprint.	Yes	The Change Management responsibilities and activities are defined in documents available on the Qwest wholesale web site.
2	The change management process is in place and is consistent across the Qwest footprint.	Yes	Per the interview, the Change Management process has been in place since September 1999. Qwest has internal process documentation.
3	Change management process has a framework to evaluate, categorize, and prioritize proposed changes and is consistent across the Qwest footprint	Yes	Qwest's framework provides information to CLECs via documentation available on the Qwest web site.

2.5.3.4 Results Summary

Results are functionally grouped in the table below with an indication of whether or not they match the TRD. Each functional group may relate to multiple assessment criteria.

Table 2.5.3.4.1: Results Summary Table

	Hypothesis			TRD, Section 6		
	Failed to Reject	Reject	Inconclusive	Matches	Does Not Match	Not Addressed
Change Management Process	X					X

2.5.4 CLEC Training

2.5.4.1 Description

Qwest's CLEC Training domain is comprised of the systems, processes and other operational elements associated with Qwest's support for developing, publicizing, conducting, managing and monitoring CLEC training. The purpose of the assessment was to review functionality and performance in order to provide a basis for comparing this operational area to parallel systems and processes in other jurisdictions and regions in Qwest's territory.

KPMG Consulting reviewed and analyzed Qwest and CLEC-provided documentation related to CLEC training and conducted interviews with key Qwest and CLEC representatives in order to obtain the data necessary to conduct the assessment.

2.5.4.2 Methodology

This section provides a business description, lists the sources of data used in the assessment and summarizes the assessment methodology.

2.5.4.2.1 Business Process Description

The CLEC training program offers training courses in various products and services available to CLECs. CLECs can request on-site and customized training of Qwest. Qwest's CLEC training function is responsible for providing information across the Qwest footprint.

2.5.4.2.2 Data Sources

The data collection performed for this assessment relied on interviews and reviews of documents supplied by Qwest at the assessment manager's request. The interviews and documents are itemized in the tables below.

Table 2.5.4.2.2.1: Qwest Interviews for CLEC Training Assessment

Document Number	Document Name	File Name	Source
Q-1	Interview Summary for Qwest	Interview Summary Qwest Account Management.doc	KPMG Consulting

Table 2.5.4.2.2.2: Qwest Data Sources for CLEC Training Assessment

Document Number	Document Name	File Name	Source
E-1	List of Qwest's Students involved with CLEC Training	Student Spreadsheet.xls	Qwest
E-2	Comments on Interview Summary for CLEC Training	CLEC Training Qwest comments.doc	Qwest
E-3	IMA Training Documentation	hard copy	Qwest

There were no CLEC interviews or data sources provided for the CLEC Training assessment.

2.5.4.2.3 Assessment Method

Interviews were conducted with Qwest personnel in Denver, Colorado, and included a conference bridge for offsite participants. The purpose of these interviews was to obtain information on Qwest's CLEC Training systems, processes and procedures. Further data was gathered through reviews of documentation provided by Qwest.

Assessment criteria were established by KPMG Consulting to provide a framework and basis for the assessment. The data collected from the interviews and documentation reviews were analyzed in reference to the assessment criteria.

2.5.4.3 Results

This section identifies the assessment criteria and the results. Each assessment criterion is given one of the three following results:

- Yes - Based on interviews conducted and the documentation reviewed, there is no evidence that the systems, practices and procedures are not consistent across states and regions.
- No - Based on interviews conducted and the documentation reviewed, there are differences in systems, practices and procedures across states and regions.
- Inconclusive - Based on the interviews conducted and the documentation reviewed, there was insufficient evidence to conclude whether or not there are differences in systems, practices, and procedures across states and regions.

Table 2.5.4.3.1: Assessment Criteria and Results

Assessment Number	Assessment Criteria	Result	Comments
1	Training process responsibilities and activities are consistent across the Qwest footprint.	Yes	Several different groups (IMA training, Wholesale services, and training consultants) provide training at Qwest, depending on the type of training requested. Qwest also provides multiple forms of training: web-based, computerized training, instructor lead courses, and individual training. Training may be different based on product and system (IMA-EDI or IMA-GUI). Training methods employed are consistent across the Qwest footprint.
2	Scope and objectives of training process are documented and are consistent across the entire Qwest footprint.	Yes	Training is broken out by product and system. Per the interviews, there are no differences in training methods by region.
3	Published information about training opportunities is consistent across the entire Qwest footprint.	Yes	Instructor lead training schedules are available on the Qwest website. In addition, there are web-based and downloadable training courses available on the website.

2.5.4.4 Results Summary

Results are functionally grouped in the table below with an indication of whether or not they match the TRD. Each functional group may relate to multiple assessment criteria.

Table 2.5.4.4.1: Results Summary Table

	<i>Hypothesis</i>			<i>TRD, Section 6</i>		
	Failed to Reject	Reject	Inconclusive	Matches	Does Not Match	Not Addressed
CLEC Training Process	X					X

2.5.5 ISC Help Desk

2.5.5.1 Description

Qwest's Interconnection Service Center (ISC) Help Desk is available to CLECs with OSS questions, escalations, problems and issues related to pre-ordering, ordering and provisioning. The purpose of the assessment was to review functionality and performance in order to provide a basis for comparing this operational area to parallel systems and processes in other jurisdictions and regions in Qwest's territory.

KPMG Consulting conducted interviews with key Qwest representatives in order to obtain the data necessary to conduct the assessment.

2.5.5.2 Methodology

This section provides a business description, lists the sources of data used in the assessment, and summarizes the assessment methodology.

2.5.5.2.1 Business Process Description

The Qwest ISC Help Desk records and responds to CLEC questions or problems regarding pre-order, provisioning, and ordering transactions through the CLEC's interface with Qwest. The Qwest ISC Help Desk is the primary point of contact for CLECs experiencing transaction difficulties. Each call generates a unique trouble ticket number in a database. The date the call was received, the time the ticket was opened, along with relevant customer information and description of the problem and its resolution, are logged.

2.5.5.2.2 Data Sources

The data collection performed for this assessment relied on interviews and reviews of documents supplied by Qwest at the assessment manager's request. The interviews and documents are itemized in the tables below.

Table 2.5.5.2.2.1: Qwest Interviews for ISC Help Desk Assessment

Document Number	Document Name	File Name	Source
Q-1	Interview Summary for Help Desk ISC for Qwest	Interview Summary Qwest Help Desk ISC.doc	KPMG Consulting

There were no Qwest data sources or CLEC interviews or data sources provided for the ISC Help Desk assessment.

2.5.5.2.3 Assessment Method

Interviews were conducted with Qwest personnel in Denver, Colorado, and included a conference bridge for offsite participants. The purpose of these interviews was to obtain information on Qwest's ISC Help Desk systems, processes and procedures.

Assessment criteria were established by KPMG Consulting to provide a framework and basis for the assessment. The data collected from the interviews and documentation reviews were analyzed in reference to the assessment criteria.

2.5.5.3 Results

This section identifies the assessment criteria and the results. Each assessment criterion is given one of the three following results:

- Yes - Based on interviews conducted and the documentation reviewed, there is no evidence that the systems, practices and procedures are not consistent across states and regions.
- No - Based on interviews conducted and the documentation reviewed, there are differences in systems, practices and procedures across states and regions.
- Inconclusive - Based on the interviews conducted and the documentation reviewed, there was insufficient evidence to conclude whether or not there are differences in systems, practices, and procedures across states and regions.

Table 2.5.5.3.1: Assessment Criteria and Results

Assessment Number	Assessment Criteria	Result	Comments
1	ISC responsibilities and activities are documented and consistent across entire Qwest footprint.	Inconclusive	Because of potential differences in the Regional Resale Centrex Help Desks, KPMG can not conclude that the processes and procedures that surround the ISC help desk are consistent or the same across regions. Until further information gathering can be done the results of this assessment are inconclusive.
2	The process includes consistent procedures for status tracking and management reporting that is consistent across the entire Qwest footprint	Inconclusive	Because of potential differences in the Regional Resale Centrex Help Desks, KPMG can not conclude that the processes and procedures that surround the ISC help desk are consistent or the same across regions. Until further information gathering can be done the results of this assessment are inconclusive.

2.5.5.4 Results Summary

Results are functionally grouped in the table below with an indication of whether or not they match the TRD. Each functional group may relate to multiple assessment criteria.

Table 2.5.5.4.1: Results Summary Table

	Hypothesis			TRD, Section 6		
	Failed to Reject	Reject	Inconclusive	Matches	Does Not Match	Not Addressed
ISC Help Desk Process			X			X

CONTINUATION

[~~3~~] 5

2.5.6 IMA Help Desk

2.5.6.1 Description

Qwest's Intermediated Access (IMA) System Administration Help Desk is available to CLECs with questions or problems regarding connectivity and administration of their interface with Qwest. The purpose of the assessment was to review functionality and performance in order to provide a basis for comparing this operational area to parallel systems and processes in other jurisdictions and regions in Qwest's territory.

KPMG Consulting reviewed and analyzed Qwest and CLEC-provided documentation related to the IMA Help Desk and conducted interviews with key Qwest and CLEC representatives in order to obtain the data necessary to conduct the assessment.

2.5.6.2 Methodology

This section provides a business description, lists the sources of data used in the assessment and summarizes the assessment methodology.

2.5.6.2.1 Business Process Description

The Qwest IMA Help Desk records and responds to CLEC questions or problems regarding connectivity and administration of their interface with Qwest. The Qwest IMA Help Desk is the primary point of contact for CLEC's experiencing system access difficulties. Each call generates a unique trouble ticket number in a database. The date the call was received, time the ticket was opened, relevant customer information, description of the problem and its resolution are logged.

2.5.6.2.2 Data Sources

The data collection performed for this assessment relied on interviews and reviews of documents supplied by Qwest at the assessment manager's request. The interviews are itemized in the tables below.

Table 2.5.6.2.2.1: Qwest Interviews for IMA Help Desk Assessment

Document Number	Document Name	File Name	Source
Q-1	Interview Summary for Help Desk IMA for Qwest	Interview Summary Qwest Help Desk IMA.doc	KPMG Consulting

Table 2.5.6.2.2.2: Qwest Data Sources for IMA Help Desk Assessment

Document Number	Document Name	File Name	Source
E-1	Comments on Interview Summary for Help Desk IMA	Help Desk IMA Qwest comments.doc	KPMG Consulting
E-2	Comments from Qwest on IMA Help Desk Interview Summary	FW: interview comments Help Desk IMA	KPMG Consulting

There were no CLEC interviews or data sources provided for the RMI IMA Help Desk assessment.

2.5.6.2.3 Assessment Method

Interviews were conducted with Qwest personnel in Denver, Colorado, and included a conference bridge for offsite participants. The purpose of these interviews was to obtain information on Qwest's IMA Help Desk systems, processes, and procedures. Further data was gathered through reviews of documentation provided by Qwest.

Assessment criteria were established by KPMG Consulting to provide a framework and basis for the assessment. The data collected from the interviews and documentation reviews were analyzed in reference to the assessment criteria.

2.5.6.3 Results

This section identifies the assessment criteria and the results. Each assessment criterion is given one of the three following results:

- Yes - Based on interviews conducted and the documentation reviewed, there is no evidence that the systems, practices and procedures are not consistent across states and regions.
- No - Based on interviews conducted and the documentation reviewed, there are differences in systems, practices and procedures across states and regions.
- Inconclusive - Based on the interviews conducted and the documentation reviewed, there was insufficient evidence to conclude whether or not there are differences in systems, practices, and procedures across states and regions.

Table 2.5.6.3.1: Assessment Criteria and Results

Assessment Number	Assessment Criteria	Result	Comments
1	IMA Help Desk responsibilities and activities are consistent across the Qwest Footprint.	Yes	The IMA help desk is responsible for answering questions and resolving problems concerning connectivity to Qwest IMA network and systems. The defined responsibilities of the IMA Help Desk were provided during the course of the interviews. The IMA help desk is located in Denver, Colorado and is responsible for the entire Qwest footprint.
2	The processes and procedures for status tracking and management reporting are consistent across the Qwest Footprint	Yes	The IMA call center has software which tracks when all calls are received, wait times, call and times and other information. This information is used by management for capacity planning and quality assurance. A separate system is used by help desk personnel to collect and track detailed information about specific problems called in by CLECs.

2.5.6.4 Results Summary

Results are functionally grouped in the table below with an indication of whether or not they match the TRD. Each functional group may relate to multiple assessment criteria.

Table 2.5.6.4.1: Results Summary Table

	Hypothesis			TRD, Section 6		
	Failed to Reject	Reject	Inconclusive	Matches	Does Not Match	Not Addressed
IMA Help Desk Process	X					X

2.6 Statistical Analysis

2.6.1 Background

KPMG Consulting evaluated the following activities for the purpose of identifying regional and state-within-region variation of CLEC performance:

- Pre-Ordering and Ordering confirmations (PO-5),
- Provisioning installations (OP-3 and OP-4),
- Maintenance and Repair tickets (MR-6), and
- Billing invoices (BI-1).

The evaluation employed statistical analyses using standard methods and controlling for differences in metric performance resulting from month to month variation.⁶ In the results below, we considered differences among regions and states within region statistically significant if the results indicated performance differences with at least 95% confidence.⁷ We used standard statistical tests, described in the Assessment Methods section, to determine these differences.

2.6.2 Methodology

The test methodology used to conduct the Regional Difference Assessment for performance metrics was to obtain performance data from Qwest for the months of January through April 2000 and to perform standard statistical analysis as outlined in each of the following sections.

2.6.2.1 Data Sources

The data collection performed for this assessment relied on metric performance data supplied by Qwest at our request. These included the following:

Table 2.6.2.1.1: Data Sources for Metrics Assessment

Document Number	Document	File Name	Source
1-1	U S WEST Performance Results: Colorado	Colorado_271_Exhibit.pdf	Qwest
1-2	U S WEST Performance Results: South Dakota	SD_271_Exhibit.pdf	Qwest
1-3	U S WEST Performance Results: Oregon	OR_271_Exhibit.pdf	Qwest
1-4	U S WEST Performance Results: New Mexico	NM_271_Exhibit.pdf	Qwest
1-5	U S WEST Performance Results: Nebraska	NE_271_Exhibit.pdf	Qwest
1-6	U S WEST Performance Results: North Dakota	ND_271_Exhibit.pdf	Qwest
1-7	U S WEST Performance Results: Montana	MO_271_Exhibit.pdf	Qwest

⁶ Standard methods of logistic regression were used for the statistical analysis of the PO-5 metric.

⁷ This criterion corresponds to a standard statistical hypothesis test at the 0.05 level of significance ($\alpha=0.05$).

Document Number	Document	File Name	Source
1-4	U S WEST Performance Results: Minnesota	MN_271_Exhibit.pdf	Qwest
1-5	U S WEST Performance Results: Idaho	ID_271_Exhibit.pdf	Qwest
1-10	U S WEST Performance Results: Iowa	IA_271_Exhibit.pdf	Qwest
1-11	U S WEST Performance Results: Utah	UT_271_Exhibit.pdf	Qwest
1-12	U S WEST Performance Results: Washington	WA_271_Exhibit.pdf	Qwest
1-13	U S WEST Performance Results: Wyoming	WY_271_Exhibit.pdf	Qwest

2.6.2.2 Assessment Methods

Assessment criteria were established by KPMG Consulting to provide a framework and basis for the assessment. All evaluations were based on statistical methods when the data provided by Qwest provided sufficient information to do so. However, because transaction level data was not provided with the data, not all assumptions of the tests could be verified. Specifically, we were unable to verify that factors not contained in the Qwest data could have caused the regional variation of some performance metrics. Also, we could not examine the distribution of the data to verify that it met the assumptions of the tests. Lastly, accuracy of the tests relied on the correctness of the calculations performed by Qwest, which we could not verify.

2.6.2.3 Pre-Ordering and Ordering

KPMG Consulting investigated regional and state-within-region performance variation of Firm Order Confirmations (FOCs) On Time (percent) based on CLEC PO-5 state metric performance data provided by Qwest. A standard method of statistical analyses, logistic regression, was applied to the percentage data using common statistical packages to ascertain hypothesis test results. The following two separate hypotheses were considered for this test:

- Timeliness of FOCs is consistent across Qwest regions.
- Within Qwest regions, timeliness of FOCs is consistent across Qwest states.

The statistical tests were designed to allow for no more than a 5% error rate when declaring a statistically significant difference.⁸ The month-to-month variations in PO-5 performance were controlled for before the statistical tests.⁹ One state, New Mexico, was not included in the analyses because no FOCs were processed during the study period.

2.6.2.4 Provisioning

KPMG Consulting investigated regional and state-within-region CLEC performance variation of Installation Commitments Met (percent) and Installation Intervals (average) based on CLEC OP-3 and OP-4 state metric performance data provided by Qwest. Standard methods of statistical analyses, logistic

⁸ All hypothesis tests were designed to have a 0.05 probability of a Type I error ($\alpha=0.05$).

⁹ Standard methods of logistic regression were used to control for the possibly confounding effect of month.

regression and ANOVA, were applied to the metrics. For each type of installation metric and density, the following two separate hypotheses were considered for this test:

- Installation commitments met and installation intervals are consistent across Qwest regions.
- Within Qwest regions, installation commitments met and installation intervals are consistent across Qwest states.

The month-to-month variations in OP-3 performance were controlled for before the statistical tests.¹⁰ Analyses of the OP-4 family of metrics could not be controlled for the varying effect of month due to the high level of aggregation present in the data provided by Qwest.¹¹ Some hypotheses tests were not performed due to a lack of provisions in the particular strata or the level of aggregation present in the data provided by Qwest.

2.6.2.5 Maintenance and Repair

KPMG Consulting investigated regional and state-within-region CLEC performance variation of repairs based on MR-6 state metric performance data provided by Qwest. Standard methods of statistical analyses, ANOVA, were applied to the metrics data. For each type of installation metric and density, the following two separate hypotheses were considered for this test:

- Mean time to restore is consistent across Qwest regions.
- Within Qwest regions, mean time to restore is consistent across Qwest states.

The statistical tests were designed to allow for no more than a 5% error rate when declaring a statistically significant difference¹². Analyses of the Maintenance and Repair metrics could not be controlled for the varying effect of month due to the high level of aggregation present in the data provided by Qwest.¹³ Some hypotheses tests were not performed due to a lack of repairs in the particular strata.

2.6.2.6 Billing

KPMG Consulting was not able to conduct a statistical evaluation of Qwest performance variation regarding the provisioning of Recorded Usage Records (average days) to CLECs because of the high level of aggregation in the BI-1 data provided by Qwest.

¹⁰ Standard methods of logistic regression were used to control for the possibly confounding effect of month.

¹¹ State metric data provided by Qwest for the Metric PMA did not contain transaction level data.

¹² All hypothesis test were designed to have a 0.05 probability of a Type I error ($\alpha=0.05$).

¹³ State metric data provided by Qwest for the Metric PMA did not contain transaction level data.

2.6.3 Results Summary

For the statistical analysis section, the default of yes, no, and inconclusive have been modified to the following:

- **Yes** - Based on the metric performance data received from Qwest, there is no evidence that the metrics are not the same across states and regions.
- **No** - Based on the metric performance data received from Qwest, there are differences in the metrics across states and regions.
- **Inconclusive** - The metric performance data received from Qwest was insufficient to conduct a statistical test of whether or not there are differences in the metrics across states and regions.

2.6.4.1 Pre-Ordering and Ordering Regional and State Analyses Evaluation Criteria and Results

PO-5 Regional and State Results

KPMG Consulting evaluated the PO-5 family of metrics for regional performance differences and state performance differences within regions. The average percent FOCs to CLECs on time for the three Qwest regions is presented in the following table.

Table 2.6.4.1.1: Regional Difference for PO-5

Description	Average (%)			Number of Confirmations to CLECs		
	Central	East	West	Central	East	West
Firm Order Confirmations On Time	71	80	69	400	250	261

Tests for the significance of these observed regional differences and state-within-region differences are presented in the following table. A small p-value indicates that there was evidence of a performance difference that could not be accounted for by random variation in the data. The conclusion from both hypotheses tests is that aggregate timeliness of FOCs was not consistent across regions and or between states within regions since both p-values were less than 0.05. Since transaction level data was not provided to KPMG Consulting, it was not possible to determine whether these differences are attributable to differences in systems and processes across the regions and states or whether they result from variations in the mix of transactions or other systematic differences among the regions and states.

Table 2.6.4.1.2: PO-5 Regional Analyses

Checklist	Description	Number of CLEC Confirmations	Is there a statistically significant difference among regions? (p-value, df ¹⁴)	Within regions, is there a statistically significant difference among states? (p-value, df ¹⁵)
2	Firm Order Confirmations LIS	911	Yes (p < 0.001, df=2)	Yes (P = 0.004, df=8)

2.6.3.2 Pre-Ordering and Ordering Evaluation Results

KPMG Consulting statistical tests rejected the hypothesized assumption of equality across regions of aggregate timeliness of FOCs, as measured by PO-5, based on analysis of PO-5 performance data from January through April 2000. It is not possible to determine based on this analysis alone whether the differences observed are due to differences in Qwest systems and processes or whether they are due to variations in order mix or other systematic differences among the regions.

KPMG Consulting statistical tests rejected the hypothesized assumption of equality across states within regions of aggregate timeliness of FOCs, as measured by PO-5, based upon performance data from January through April 2000. It is not possible to determine based on this analysis alone whether the differences observed are due to differences in Qwest systems and processes or whether they are due to variations in order mix or other systematic differences among the states.

2.6.3.3 Provisioning Regional and State Analyses Evaluation Criteria and Results

OP-3 Regional and State Analyses

KPMG Consulting evaluated the OP-3 family of metrics for regional performance differences and state performance differences with regions. The average percent of Installation Commitments Met to CLECs are presented in the following table.

Table 2.6.4.3.1: Regional Difference for OP-3

Description	Average (%)			Number of CLEC Installations		
	Central	East	West	Central	East	West
Checklist 4 Non-Loaded (2-Wire) Installation						
High Density	85	75	83	2268	1244	2040
Low Density	83	91	84	292	237	263
Checklist 4 Unbundled Loop Non-Loaded (4-Wire) Installation						
High Density	69	NA	93	45	0	58
Low Density	100	83	NA	2	6	0

¹⁴ Degrees of freedom (df) reflect the number of regions available for comparison. In certain cases, one of the regions did not have any data, and so that region could not be used in the analysis. The number of regions with testable data equals the degrees of freedom plus 1. Thus, when all 3 regions were tested, the degrees of freedom were 2.

¹⁵ Degrees of freedom (df) reflect the number of states available for comparison. In some cases, certain states had no available data, and thus those states could not be used in the analysis. The number of states tested is equal to the degrees of freedom plus the degrees of freedom for the regional test, plus 1. Thus, for this test, 11 states were tested.

Description	Average (%)			Number of CLEC Installations		
	Central	East	West	Central	East	West
Checklist 4 Unbundled Loop Analog Installation						
High Density	92	87	94	3189	7498	5267
Low Density	85	85	99	272	3426	89
Checklist 14 Resale Business Installation						
Not Dispatched	94	96	95	2092	4520	796
Outside MSAs	88	85	92	42	502	59
Within MSAs	76	85	79	391	584	247
Checklist 14 Resale Centrex Installation						
Not Dispatched	98	99	100	4071	10724	1973
Outside MSAs	89	87	86	70	774	132
Within MSAs	81	86	100	727	2013	879
Checklist 14 Resale Centrex 21 Installation						
Not Dispatched	1.00	0.98	0.99	410	955	136
Outside MSAs	1.00	0.95	1.00	4	62	1
Within MSAs	0.81	0.86	1.00	48	130	56
Checklist 4 Unbundled Loop DSL Capable Installation						
High Density	NA	57	94	0	7	127
Low Density	NA	75	NA	0	4	0
Checklist 7 E911/911 Trunk Installation						
High Density	6	40	54	17	10	46
Low Density	NA	67	64	0	12	11
Checklist 4 Unbundled Loop ISDN Capable Installation						
High Density	70	54	60	550	581	613
Low Density	78	100	56	76	12	59
Checklist 4 Unbundled Loop ADSL Qualified Installation						
High Density	NA	100	89	0	5	98
Low Density	NA	100	100	0	1	4
Checklist 1 Local Interconnection LIS Installation						
High Density	73	80	58	204	98	139
Low Density	78	84	87	59	62	15
Checklist 14 Resale ADSL Installation						
Not Dispatched	NA	NA	100	0	0	1
Outside MSAs	NA	NA	NA	0	0	0
Within MSAs	NA	NA	100	0	0	1
Checklist 14 Resale Basic ISDN Installation						
Not Dispatched	100	100	NA	1	1	0
Outside MSAs	NA	100	100	0	1	1
Within MSAs	100	NA	100	1	0	1
Checklist 14 Resale DS0 Installation						
High Density	91	96	100	22	28	5
Low Density	83	83	83	18	102	18
Checklist 14 Resale DSL Installation						
High Density	NA	100	50	0	4	2

Description	Average (%)			Number of CLEC Installations		
	Central	East	West	Central	East	West
Low Density	0	86	100	1	7	11
Checklist 14 - Resale Installation for DS3 and Higher						
High Density	NA	NA	NA	0	0	0
Low Density	NA	NA	NA	0	0	0
Checklist 14 - Resale PBX Installation						
Not Dispatched	97	98	100	37	257	32
Outside MSAs	NA	82	0	0	11	2
Within MSAs	75	85	86	4	13	14
Checklist 14 - Resale Primary ISDN Installation						
High Density	NA	2	NA	0	2	0
Low Density	NA	2	1	0	2	1
Checklist 14 - Residence Installation						
Not Dispatched	95	98	95	9720	7160	5245
Outside MSAs	84	84	82	183	443	119
Within MSAs	84	88	83	1339	684	738
Checklist 5 UDIT Installation						
High Density	81	80	75	31	15	28
Low Density	95	100	100	20	2	4

Tests for the significance of these observed regional and state-within-region differences are presented in the following table. A small p-value indicates that there was evidence of a performance difference that could not be accounted for by random variation in the data. A shaded box indicates strata for which hypothesis test could not be performed due to lack of sufficient installations to perform valid statistical tests. Since transaction level data was not provided to KPMG Consulting, it was not possible to determine whether these differences are attributable to differences in systems and processes across the regions and states or whether they result from variations in the mix of transactions or other systematic differences among the regions and states.

Table 2.6.4.3.2: OP-3 Regional Analyses

Checklist	Description	Number of CLEC Installations	Is there a statistically significant difference among regions? (p-value, df ¹⁶)	Within regions, is there a statistically significant difference among states? (p-value, df ¹⁷)
4	Non-Loaded (2-Wire) Installation High Density	5552	Yes (p < 0.001, df=2)	Yes (p = < 0.001, df=4)
4	Non-Loaded (2-Wire) Installation Low Density	792	Yes (p = 0.025, df=2)	No (p = 0.087, df=6)
4	Unbundled Loop Non-Loaded (4-Wire) Installation High Density	103	Yes (p = 0.005, df=1)	

¹⁶ Degrees of freedom (df) reflect the number of comparisons made among the regions. Metrics that were present in three regions were tested with two degrees of freedom.

¹⁷ Degrees of freedom (df) reflect the number of comparisons made among states. Metrics that were present in all states were tested with ten degrees of freedom.

Checklist	Description	Number of CLEC Installations	Is there a statistically significant difference among regions? (p-value, df ¹⁶)	Within regions, is there a statistically significant difference among states? (p-value, df ¹⁷)
4	Unbundled Loop Non-Loaded (4-Wire) Installation Low Density	8		
4	Unbundled Loop Analog Installation High Density	15594	Yes (p < 0.001, df=2)	Yes (p < 0.001, df=5)
4	Unbundled Loop Analog Installation Low Density	3787	Yes (p < 0.001, df=2)	Yes (p < 0.001, df=7)
14	Resale Business Installation Not Dispatched	7408	Yes (p < 0.001, df=2)	No (p = 0.075, df=9)
14	Resale Business Installation Outside MSAs	603	No (p < 0.368, df=2)	No (p = 0.095, df=8)
14	Resale Business Installation Within MSAs	1222	Yes (p = 0.001, df=2)	Yes (p < 0.001, df=8)
14	Resale Centrex 21 Installation Not Dispatched	1501	No (p = 0.265, df=2)	No (p = 0.252, df=2)
14	Resale Centrex 21 Installation Outside MSAs	67		
14	Resale Centrex 21 Installation Within MSAs	234	Yes (p < 0.001, df=1)	No (p = 0.415, df=3)
14	Resale Centrex Installation Not Dispatched	16768	Yes (p < 0.001, df=2)	Yes (p = 0.001, df=5)
14	Resale Centrex Installation Outside MSAs	976	No (p = 0.821, df=2)	No (p = 0.130, df=3)
14	Resale Centrex Installation Within MSAs	3619	Yes (p < 0.001, df=2)	No (p = 0.878, df=5)
4	Unbundled Loop DS1 Capable Installation High Density	134		
4	Unbundled Loop DS1 Capable Installation Low Density	4		
7	E911/911 trunk Installation High Density	73	No (p = 0.252, df=2)	
7	E911/911 trunk Installation Low Density	23		
4	Unbundled Loop ISDN Capable Installation High Density	1744	Yes (p < 0.001, df=2)	No (p = 0.280, df=5)
4	Unbundled Loop ISDN Capable Installation Low Density	147	Yes (p < 0.001, df=1)	No (p = 0.623, df=3)
4	Unbundled Loop ADSL Qualified Installation High Density	103		
4	Unbundled Loop ADSL Qualified Installation Low Density	5		
10	Local Interconnection LIS Installation High Density	441	Yes (p = 0.001, df=2)	Yes (p = 0.008, df=3)

Checklist	Description	Number of CLEC Installations	Is there a statistically significant difference among regions? (p-value, df ¹⁶)	Within regions, is there a statistically significant difference among states? (p-value, df ¹⁷)
1	Local Interconnection LIS Installation Low Density	136	No (p = 0.552, df=2)	Yes (p < 0.001, df=3)
14	Resale ADSL Installation Not Dispatched	1		
14	Resale ADSL Installation Outside MSAs	0		
14	Resale ADSL Installation Within MSAs	1		
14	Resale Basic ISDN Installation Not Dispatched	2		
14	Resale Basic ISDN Installation Outside MSAs	2		
14	Resale Basic ISDN Installation Within MSAs	2		
14	Resale DS0 Installation High Density	55		
14	Resale DS0 Installation Low Density	138	No (p=0.995, df=2)	Yes (p = 0.001, df=2)
14	Resale DS1 Installation High Density	6		
14	Resale DS1 Installation Low Density	19		
14	Resale Installation for DS3 and Higher High Density	0		
14	Resale Installation for DS3 and Higher Low Density	0		
14	Resale PBX Installation Not Dispatched	326	No (p = 0.187, df=1)	
14	Resale PBX Installation Outside MSAs	13		
14	Resale PBX Installation Within MSAs	31		
14	Resale Primary ISDN Installation High Density	2		
14	Resale Primary ISDN Installation Low Density	3		
14	Residence Installation Not Dispatched	22125	Yes (p < 0.001, df=2)	Yes (p < 0.001, df=9)
14	Residence Installation Outside MSAs	745	No (p = 0.735, df=2)	No (p = 0.189, df=8)
14	Residence Installation Within MSAs	2761	No (p = 0.275, df=2)	Yes (p < 0.001, df=8)
5	UDIT Installation High Density	74		

Checklist	Description	Number of CLEC Installations	Is there a statistically significant difference among regions? (p-value, df ¹⁶)	Within regions, is there a statistically significant difference among states? (p-value, df ¹⁷)
5	UDIT Installation Low Density	26		

OP-4 Regional and State Analyses

KPMG Consulting evaluated the OP-4 family of metrics for regional performance differences and state performance differences with regions. The average Installation Interval to CLECs for the three Qwest regions is presented in the following table.

Table 2.6.4.3.3: Regional Difference for OP-4

Description	Average (Days)			Number of CLEC Installations		
	Central	East	West	Central	East	West
Checklist 4 (2-Wire) Installation						
High Density	8.31	9.56	10.33	1253	480	668
Low Density	9.47	7.06	7.95	219	131	203
Checklist 4 (4-Wire) Installation						
High Density	5.74	NA	5.44	43	0	54
Low Density	5.00	10.50	NA	1	4	0
Checklist 4 Analog Installation						
High Density	8.40	7.88	6.86	1192	2801	2686
Low Density	9.49	8.45	5.78	164	1592	65
Checklist 14 Business Installation						
Not Dispatched	3.10	2.99	2.29	2092	4520	796
Outside MSAs	6.35	5.43	3.55	42	502	59
Within MSAs	7.93	6.55	6.56	391	584	247
Checklist 14 Centrex 21 Installation						
Not Dispatched	2.26	3.56	1.72	410	955	136
Outside MSAs	5.00	5.28	4.00	4	62	1
Within MSAs	4.79	6.39	2.92	48	130	56
Checklist 14 Centrex Installation						
Not Dispatched	3.93	4.83	1.21	4071	10724	1973

Description	Average (Days)			Number of CLEC Installations		
	Central	East	West	Central	East	West
Outside MSAs	8.48	7.38	2.73	70	774	132
Within MSAs	6.38	6.38	2.59	727	2013	879
Checklist 4 DSI Capable Installation						
High Density	NA	19.6	25.24	0	5	91
Low Density	NA	7.66	NA	0	3	0
Checklist 7 E911/911 Trunk Installation						
High Density	40.12	11.80	48.19	17	10	46
Low Density	NA	21.75	61.45	0	12	11
Checklist 4 ISDN Capable Installation						
High Density	12.75	18.71	19.21	290	202	281
Low Density	9.70	7.25	17.21	51	4	38
Checklist 4 Unbundled Loop ADSL Qualified Installation						
High Density	NA	5.00	5.48	0	5	56
Low Density	NA	5.00	6.66	0	1	3
Checklist 1 LIS Installation						
High Density	18.29	20.67	22.31	204	98	139
Low Density	17.74	16.46	17.66	59	62	15
Checklist 14 Resale - ADSL Installation						
Not Dispatched	NA	NA	1.00	0	0	1
Outside MSAs	NA	NA	NA	0	0	0
Within MSAs	NA	NA	10	0	0	1
Checklist 14 Resale Basic ISDN Installation						
Not Dispatched	4.00	1.81	NA	1	11	0
Outside MSAs	NA	13.00	3	0	1	1
Within MSAs	14.00	NA	4	1	0	1
Checklist 14 Resale DS0 Installation						

Description	Average (Days)			Number of CLEC Installations		
	Central	East	West	Central	East	West
High Density	5.85	5.60	2.00	21	28	5
Low Density	14.58	13.85	10.94	17	100	18
Checklist 14 Resale DSL Installation						
High Density	NA	14.5	10.50	0	4	2
Low Density	82.00	7.71	3.00	1	7	11
Checklist 14 Resale PBX Installation						
Not Dispatched	6.13	3.33	1.71	37	257	32
Outside MSAs	NA	4.18	7.50	0	11	2
Within MSAs	6.25	6.30	7.42	4	13	14
Checklist 14 Resale Primary ISDN Installation						
High Density	NA	5.00	NA	0	2	0
Low Density	NA	4.50	36.00	0	2	1
Checklist 14 Residence Installation						
Not Dispatched	2.19	2.19	1.97	9720	7160	5245
Outside MSAs	5.32	5.05	2.92	183	443	119
Within MSAs	5.52	4.64	3.71	1339	684	738
Checklist 5 UDIT Installation						
High Density	12.38	16.33	7.28	31	15	28
Low Density	8.44	6.00	8.50	20	2	4

Tests for the significance of these observed regional performance differences and state-within-region differences are presented in the following table. A small p-value indicates that there was evidence of a difference that could not be accounted for by random variation in the data. A shaded box indicates strata for which hypothesis test could not be performed due to the level of aggregation present in the data provided by Qwest. Since transaction level data was not provided to KPMG Consulting, it was not possible to determine whether these differences are attributable to differences in systems and processes across the regions and states or whether they result from variations in the mix of transactions or other systematic differences among the regions and states.

Table 2.6.4.3.4: OP-4 Regional Analyses

Checklist	Description	Number of CLEC Installations	Is there a statistically significant difference among regions? (p-value, df ¹⁸)	Within regions, is there a statistically significant difference among states? (p-value, df ¹⁹)
4	(2-Wire) Installation High Density	2401		
4	(2-Wire) Installation Low Density	553		
4	(4-Wire) Installation High Density	97		
4	(4-Wire) Installation Low Density	5		
4	Unbundled Loop Analog Installation High Density	6679		
4	Unbundled Loop Analog Installation Low Density	1821		
14	Resale Business Installation Not Dispatched	7408	Yes (p < 0.001, 2)	
14	Resale Business Installation Outside MSAs	603	Yes (p = 0.045, 2)	
14	Resale Business Installation Within MSAs	1222	No (p = 0.101, 2)	
14	Centrex 21 Installation Not Dispatched	1501	No (p = 0.999, 2)	
14	Centrex 21 Installation Outside MSAs	67	No (p = 0.73, 2)	
14	Centrex 21 Installation Within MSAs	234	No (p = 1.000, 2)	
14	Centrex Installation Not Dispatched	16768	Yes (p < 0.001, 2)	
14	Centrex Installation Outside MSAs	976	Yes (p < 0.001, 2)	
14	Centrex Installation Within MSAs	3619	Yes (p < 0.001, 2)	
4	DSL Capable Installation High Density	96		
4	DSL Capable Installation - Low Density	3	No (p = 0.998, 2)	

¹⁸ Degrees of freedom (df) reflect the number of comparisons made among the regions. Metrics that were present in three regions were tested with two degrees of freedom.

¹⁹ Degrees of freedom (df) reflect the number of comparisons made among states. Metrics that were present in all states were tested with ten degrees of freedom.

Checklist	Description	Number of CLEC Installations	Is there a statistically significant difference among regions? (p-value, df ¹⁸)	Within regions, is there a statistically significant difference among states? (p-value, df ¹⁹)
7	E911/911 Trunk Installation High Density	73	Yes (p < 0.001, 2)	
7	E911/911 Trunk Installation Low Density	23		
4	ISDN Capable Installation High Density	773	Yes (p = 0.001, 2)	
4	ISDN Capable Installation Low Density	93	Yes (p = 0.029, 2)	
4	Unbundled Loop ADSL Qualified Installation High Density	61		
4	Unbundled Loop ADSL Qualified Installation Low Density	4		
1	LIS Installation High Density	441	Yes (p = 0.005, 2)	
1	LIS Installation Low Density	136	No (p = 1.000, 2)	
14	Resale ADSL Installation Not Dispatched	1		
14	Resale ADSL Installation Outside MSAs	0		
14	Resale ADSL Installation Within MSAs	1		
14	Resale Basic ISDN Installation Not Dispatched	12		
14	Resale Basic ISDN Installation Outside MSAs	2		
14	Resale Basic ISDN Installation Within MSAs	2		
14	Resale DS0 Installation High Density	54	No (p = 0.0764, 2)	
14	Resale DS0 Installation Low Density	135	No (p = 0.999, 2)	
14	Resale DS1 Installation High Density	6		
14	Resale DS1 Installation Low Density	19	No (p = 0.998, 2)	
14	Resale PBX Installation Not Dispatched	326	Yes (p < 0.001, 2)	
14	Resale PBX Installation Outside MSAs	13		
14	Resale PBX Installation Within MSAs	31	No (p = 0.880, 2)	

Checklist	Description	Number of CLEC Installations	Is there a statistically significant difference among regions? (p-value, df ¹⁸)	Within regions, is there a statistically significant difference among states? (p-value, df ¹⁹)
14	Resale Primary ISDN Installation High Density	2		
14	Resale Primary ISDN Installation Low Density	3		
14	Residence Installation Not Dispatched	22125	Yes (p < 0.001, 2)	
14	Residence Installation Outside MSAs	745	Yes (p = 0.003, 2)	
14	Residence Installation Within MSAs	2761	No (p = 0.994, 2)	
5	UDIT Installation High Density	74	No (p = 0.061, 2)	
5	UDIT Installation Low Density	26	No (p = 0.905, 2)	

2.6.3.4 Provisioning Regional and State Evaluation Results

KPMG Consulting statistical tests rejected the hypothesized assumption of consistency across regions for 13 out of the 43 metrics tested in the OP-3 family of metrics, and 12 out of 45 metrics tested in the OP-4 family of metrics, based on analysis of metric performance data from January through April 2000. It is not possible to determine based on this analysis alone whether the differences observed are due to differences in Qwest systems and processes, or whether they are due to variations in transaction mix or other systematic differences among the regions.

KPMG Consulting statistical tests rejected the hypothesized assumption of consistency within Qwest regions for 10 out of the 43 metrics tested in the OP-3 family of metrics based on analysis of metric performance data from January through April 2000. It is not possible to determine based on this analysis alone whether the differences observed are due to differences in Qwest systems and processes, or whether they are due to variations in transaction mix or other systematic differences among the regions.

For the OP-4 family of metrics, KPMG Consulting was not able to perform statistical tests of the hypothesized assumption of consistency within Qwest regions due to the level of aggregation present in the data provided by Qwest.

2.6.3.5 Maintenance and Repair State Analyses Evaluation Criteria and Results

MR-6 Regional and State Analyses

KPMG Consulting evaluated the MR-6 family of metrics for regional performance differences and state performance differences with regions. Results of the analyses are presented in the following table.

Table 2.6.4.5.1: Regional Difference for MR-6

Description	Average (Hours:Minutes)			Number of CLEC Repairs		
	Central	East	West	Central	East	West
Checklist 1 Analog Repair						
High Density	9:45	12:09	10:45	669	615	529
Low Density	10:39	10:46	7:31	41	462	5
Checklist 4 ISDN Capable Repair						
High Density	16:02	26:19	17:11	544	256	271
Low Density	8:25	5:04	11:55	50	12	45
Checklist 7 E911/911 Trunk Repair						
High Density	2:43	2:41	4:44	20	11	5
Low Density	1:54	0:51	3:20	27	30	22
Checklist 1 LIS Repair						
High Density	4:41	3:60	7:07	198	87	191
High and Low Density	5:50	4:04	7:04	259	115	204
Low Density	9:34	4:18	6:17	61	28	13
Checklist 14 Resale Business Repair						
Not Dispatched	7:26	8:20	10:13	1019	1034	479
Outside MSAs	24:39	20:39	22:33	340	535	229
Within MSAs	29:55	26:22	22:46	970	730	554
Checklist 14 Resale Centrex 21 Repair						
Not Dispatched	8:29	9:07	12:10	396	408	96
Outside MSAs	20:19	26:51	23:29	266	123	102
Within MSAs	23:02	24:58	21:59	603	433	94
Checklist 14 - Resale Centrex Repair						
Not Dispatched	11:48	13:16	19:03	1173	2512	902
Outside MSAs	23:55	27:20	29:41	286	1473	86
Within MSAs	24:09	28:35	25:33	1465	3501	1048
Checklist 14 Resale DS0 Repair						

Description	Average (Hours:Minutes)			Number of CLEC Repairs		
	Central	East	West	Central	East	West
High Density	4:25	3:21	2:26	1198	1211	987
Low Density	3:28	3:38	3:18	944	1003	528
Checklist 14 - Resale DSI Capable Repair						
High Density	2:51	1:50	4:35	508	283	415
Low Density	3:08	2:34	3:47	383	243	340
Checklist 14 - Resale PBX Repair						
Not Dispatched	10:54	7:28	5:47	142	117	113
Outside MSAs	25:44	29:31	30:04	22	27	1
Within MSAs	25:52	29:38	27:52	80	55	18
Checklist 14 - Resale Repair for DS3 and Higher						
High Density	2:42	2:05	2:26	124	49	59
Low Density	4:10	2:13	2:07	49	16	8
Checklist 14 - Resale Residence Repair						
Not Dispatched	6:41	5:21	6:20	885	943	466
Outside MSAs	17:49	21:11	21:27	1088	677	56
Within MSAs	20:57	25:03	19:55	4235	998	461

Tests for the significance of these observed regional performance differences and state-within-region performance differences are presented in the following table. A small p-value indicates that there was evidence of a difference that could not be accounted for by random variation in the data. A shaded box indicates strata for which hypothesis test could not be performed due to the level of aggregation present in the data provided by Qwest. Since transaction level data was not provided to KPMG Consulting, it was not possible to determine whether these differences are attributable to differences in systems and processes across the regions and states or whether they result from variations in the mix of transactions or other systematic differences among the regions and states.

Table 2.6.4.5.2: MR-6 Regional Analyses

Checklist	Description	Number of CLEC Repairs	Is there a statistically significant difference among regions? (p-value, df ²⁰)	Within Regions, Is there a statistically significant difference among States? (p-value, df ²¹)
4	Unbundled Loop Analog Repair High Density	1813		
4	Unbundled Loop Analog Repair Low Density	508		
4	ISDN Capable Repair High Density	1071	No (p = 0.325, 2)	
4	ISDN Capable Repair Low Density	107	Yes (p = 0.040, 2)	
7	E911/911 Trunk Repair High Density	36		
7	E911/911 Trunk Repair Low Density	79		
1	LIS Repair - High Density	476	No (p = 0.093, 2)	
1	LIS Repair High and Low Density	578	No (p = 0.182, 2)	
1	LIS Repair Low Density	102	No (p = 0.379, 2)	
14	Resale Business Repair Not Dispatched	2532	No (p = 0.054, 2)	
14	Resale Business Repair Outside MSAs	1104	No (p = 0.134, 2)	
14	Resale Business Repair Within MSAs	2254	Yes (p < 0.001, 2)	

²⁰ Degrees of freedom (df) reflect the number of comparisons made among the regions. Metrics that were present in three regions were tested with two degrees of freedom.

²¹ Degrees of freedom (df) reflect the number of comparisons made among states. Metrics that were present in all states were tested with ten degrees of freedom.

Checklist	Description	Number of CLEC Repairs	Is there a statistically significant difference among regions? (p-value, df ²⁰)	Within Regions, Is there a statistically significant difference among States? (p-value, df ²¹)
14	Centrex 21 Repair Not Dispatched	900	No (p = 0.823, 2)	
14	Centrex 21 Repair Outside MSAs	491	No (p = 0.184, 2)	
14	Centrex 21 Repair Within MSAs	1130	Yes (p = 0.025, 2)	
14	Centrex Repair Not Dispatched	4587	Yes (p < 0.001, 2)	
14	Centrex Repair Outside MSAs	1845	No (p = 0.105, 2)	
14	Centrex Repair Within MSAs	6014	Yes (p < 0.001, 2)	
14	DS0 Repair High Density	3396	Yes (p < 0.001, 2)	
14	DS0 Repair Low Density	2475	No (p = 0.744, 2)	
4	DS1 Capable Repair High Density	1206	Yes (p < 0.001, 2)	
4	DS1 Capable Repair Low Density	966	No (p = 0.315, 2)	
14	Resale PBX Repair Not Dispatched	372	No (p = 0.555, 2)	
14	Resale PBX Repair Outside MSAs	50	No (p = 0.291, 2)	
14	Resale PBX Repair Within MSAs	153	No (p = 0.331, 2)	
14	Resale Repair for DS3 and Higher High Density	232	No (p = 0.101, 2)	
14	Resale Repair for DS3 and Higher Low Density	73		
14	Residence Repair Not Dispatched	2294	No (p = 0.148, 2)	
14	Residence Repair Outside MSAs	1821	No (p = 0.922, 2)	
14	Residence Repair Within MSAs	5694	Yes (p < 0.001, 2)	

2.6.3.6 Maintenance and Repair State Evaluation Results

KPMG Consulting statistical tests of metric performance data from January through April 2000 rejected the hypothesized assumption of consistency across regions for the following metrics tested in the MR-6 family of metrics:

Within MSAs and high density areas, repairs for

Business

- Centrex 21
- Centrex
- DS0
- DS1

Residential services

- For low density areas ISDN
- For not dispatched areas Centrex

It is not possible to determine based on this analysis alone whether the differences observed are due to differences in Qwest systems and processes, or whether they are due to variations in transaction mix or other systematic differences among the regions.

KPMG Consulting statistical tests of metric performance data from January through April 2000 failed to reject the hypothesized assumption of consistency across regions for the other types of metrics tested in the MR-6 family of metrics.

Statistical analyses of state differences within Qwest regions could not be performed for the MR-6 family of metrics due to the level of aggregation present in the data provided by Qwest for the period from January through April 2000.

2.6.3.7 Billing State Analyses Evaluation Criteria and Results

BI-1 Regional and State Analyses

KPMG Consulting was unable to evaluate the BI-1 metric for regional performance differences and state performance differences within regions using standard statistical methods. The level of aggregation present in the data provided by Qwest lacked the information necessary to carry out the tests.

2.6.3.8 Billing Regional and State Evaluation Results

Not applicable.

2.6.4 Results

These results are shown in the table below with an indication of whether or not they match the TRD.

Table 2.6.5.1: Statistical Analysis Summary

	<i>Hypothesis</i>		
	Failed to reject	Reject	Inconclusive
Aggregate timeliness of FOCs as measured by PO-5 is the same across Qwest regions.		X	
Within Qwest regions, aggregate timeliness of FOCs as measured by PO-5 is the same across Qwest states.		X	
Installation commitments met and installation intervals are the same across Qwest regions.		X	
Within Qwest regions, installation commitments met and installation intervals are the same across Qwest states.		X	
Timeliness of repairs as measured by MR-6 is the same across regions.		X	
Within Qwest regions, timeliness of repairs as measured by MR-6 is the same across states.			X
Mean time to provide recorded usage Records is the same across regions.			X
Within Qwest regions, mean time to provide recorded usage records is the same across Qwest states.			X

Docket No. TC01-____
Qwest Corporation
Exhibits to the Affidavit of Lynn M. V. Notarianni
Checklist Item 2 - OSS
Exhibit LVN-OSS-5
October 24, 2001

KPMG Assessment of Test Impacts

ROC OSS Test
Impact of the Regional Differences Assessment

The ROC TAG requested that KPMG Consulting summarize the impacts of the Qwest Regional Differences Assessment (the Assessment) on the ROC OSS Test. Based on the results of the assessment, KPMG Consulting believes a Qwest-wide test is still appropriate for many aspects of the test. However, KPMG Consulting also believes that, due to the differences in systems and processes highlighted in the TRD and the Assessment, the MTP test approach should explicitly recognize, and give effect to, the differences between and among said systems and processes.

KPMG Consulting proposes that the test be conducted using the production test bed quantities shown in Table 1.

Table 1: Proposed Account Volume to be Distributed Equally Across the Regions

Product/resource type	Number of Accounts
Analog loops	140
Working lines:	
Business POTS accounts	140
Residential POTS accounts	140
UNE-P accounts	280
Resale Centrex accounts	70
Total working lines	630
Virtual lines:	
Business POTS	140
Residential POTS	140
UNE-P	140
Centrex resale	70
Total virtual lines	490
DS1 loops	280
Non-loaded 2W loops	280
Loops w/number portability	140
Total accounts requiring statistically significant samples (X in App. K)	1,960
Accounts required for non-statistically significant samples	500
Total order account requirements	2,460
M&R and Billing accounts	400
Total accounts	2,860

KPMG Consulting also recommends that, because regional differences appear to exist in the various regional systems and procedures for pre-ordering, ordering, provisioning and billing, the account volumes from Table 1 be distributed evenly across each of the three regions as reflected in Table 2.

ROC OSS Test
Impact of the Regional Differences Assessment

Table 2: Proposed Volume for Each Region

Product/resource type	Number of Accounts
Analog loops	47
Working lines:	
Business POTS accounts	47
Residential POTS accounts	47
UNE-P accounts	93
Resale Centrex accounts	23
Total working lines	210
Virtual lines:	
Business POTS	47
Residential POTS	47
UNE-P	47
Centrex resale	23
Total virtual lines	164
DS1 loops	93
Non-loaded 2W loops	93
Loops w/number portability	47
Total accounts requiring statistically significant samples	654
Accounts required for non-statistically significant samples	166
Total order account requirements	820
M&R and Billing accounts	135
Total accounts	955

Tables 1 and 2 do not reflect KPMG Consulting's recommendations in the areas of total number of working lines and DS1 loops. To date, this issue has not been resolved.

Appendices G and K were silent on the issue of whether or not the ROC sampling principles should apply to any test of regional differences. If the test to examine the impact (if any) of regional differences were to include the principles of Appendices G and K, then the test bed size would effectively be three times the quantities shown in Table 1. We have reflected these multiplied quantities in Table 3.

ROC OSS Test
Impact of the Regional Differences Assessment

Table 3: Volumes When Applying Appendices G and K to Each Region

Product/resource type	Number of Accounts
Analog loops	420
Working lines:	
Business POTS accounts	420
Residential POTS accounts	420
UNE-P accounts	840
Resale Centrex accounts	210
Total working lines	1,890
Virtual lines:	
Business POTS	420
Residential POTS	420
UNE-P	420
Centrex resale	210
Total virtual lines	1,470
DS1 loops	840
Non-loaded 2W loops	840
Loops w/number portability	420
Total accounts requiring statistically significant samples	5,880
Accounts required for non-statistically significant samples	1,500
Total order account requirements	7,380
MSR and Billing accounts	1,200
Total accounts	8,580

Adopting the numbers in Table 3 would further exacerbate the working line and DS1 loop problem. The DS1s and working lines become more problematic not only by increasing the numbers to 1,890 working lines for the production test and 840 DS1 loops, but by requiring that the additional quantities be provisioned in a smaller geographic area. For example, in the Western Region, Qwest would be required to provision 630 working lines and 280 DS1 loops for the test in just two states, Washington and Oregon.

In our opinion, distributing the test bed across the three regions as shown in Table 2 retains the statistical sample principles outlined in Appendices G & K, and still assures a reasonable sample from each of the regions to test for regional differences.

Order Management

Pre-order

KPMG Consulting proposes to process a minimum of 140 of the following standalone pre-order inquiries across the three Qwest regions:

ROC OSS Test
Impact of the Regional Differences Assessment

- Customer Service Record Inquiry
- Telephone Number Reservation
- Address Validation
- Facility Check
- Appointment Availability
- Service/Feature Availability
- Validate Connecting Facility Assignment
- View Design Layout Record

In addition to the standalone pre-order activity shown above, several additional inquiries will be processed in conjunction with order transactions.

Ordering

KPMG Consulting proposes to conduct Ordering testing using the volumes shown in Table 2.

Provisioning

KPMG Consulting proposes to validate provisioning of completed orders on a regional basis based on a subset of the quantities of transactions reflected in Table 2.

Maintenance and Repair

The ROC TAG has previously agreed to a sampling plan for Maintenance and Repair transactions that does not depend on the product breakdown of Appendix K. This sample (140 dispatch trouble tickets and 140 non-dispatch trouble tickets) will also be spread evenly across the three regions.

Billing

KPMG Consulting proposes to conduct regional billing tests based on a equal spread of the billing accounts across the regions.

CLEC Relationship Management and Infrastructure

KPMG Consulting proposes to conduct a Qwest-wide test of the processes encompassed within the CLEC relationship management and infrastructure domain.

Questions

1. It is important to note that a number of PIDs depend on imperfections in Qwest's systems to generate data. For example, unless there are late orders, OP-6 (Delayed Days) will not be populated. Aside from the Maintenance and Repair domain, test transactions can only produce the potential for problems to occur and not the certainty of such problems. Therefore, for PIDs outside of the Maintenance and Repair domain that depend on Qwest imperfections in order to be populated, it will not be possible to assure a sample size consistent with the principles of Appendix G, unless one makes some assumption about the rate of imperfection before the test begins. Furthermore, if the imperfection rate is small (which is to be hoped), then the number of transactions required to generate a sample size consistent with Appendix G will be extremely large. For example, if the fraction of late orders is 1%, then 14,000 orders will need to be transmitted in order to target a sample of 140 for OP-6. Even then the exact sample will depend critically on the actual imperfection rate at the time of the transactions.

Given these considerations, is KPMG Consulting correct in assuming that the sampling principles included in Appendices G and K do not apply to PIDs outside of the Maintenance and Repair domain for which the sample size depends on Qwest imperfections?

2. Since separate wholesale bills and DUF tapes are not generated by product type and, indeed, the Billing PIDs require, at most, high-level aggregate product reporting, the product breakdown considerations in Appendix K should not apply. Furthermore, since for many of the Billing PIDs the bill reporting period is the unit of sampling, the principles stated in Appendix G would seem to imply that a large number (around 140) of reporting periods would be needed to meet the sampling criteria. Assuming a single billing cycle per month, this would require a wholesale billing test lasting about 12 years. With accounts assigned to several billing cycles per month, this length of time could be reduced, but would still be quite long. In addition, these considerations ignore the inherent problem of trying to combine data taken over long periods of time, given the potentiality of systematic changes that could be taking place over that time.

Is KPMG Consulting correct in assuming that the sampling principles included in Appendices G and K do not apply to the Billing tests? As a point of comparison, the TAG has already agreed to a sampling plan for Maintenance and Repair transactions that does not depend on the product breakdown of Appendix K. Thus, if the answer to this question is yes, then the detailed sampling requirements in Appendices G and K will only apply to the Pre-ordering, Ordering, and Provisioning tests.

ROC OSS Test
Impact of the Regional Differences Assessment

3. Historically, KPMG Consulting has not validated provisioning on 100% of the completed orders. Is KPMG Consulting correct in assuming that Appendix K should not be applied to provisioning validation of completed orders?

BEFORE THE
PUBLIC UTILITIES COMMISSION
STATE OF SOUTH DAKOTA

IN THE MATTER OF THE INVESTIGATION)
INTO QWEST CORPORATION'S)
COMPLIANCE WITH SECTION 271 (C) OF THE)
TELECOMMUNICATIONS ACT OF 1996)

DOCKET TC 01-165

QWEST CORPORATION'S

REBUTTAL AFFIDAVIT

OF

LYNN M. V. NOTARIANNI

CHECKLIST ITEM 2 – OPERATIONS SUPPORT SYSTEMS (OSS)

APRIL 2, 2002

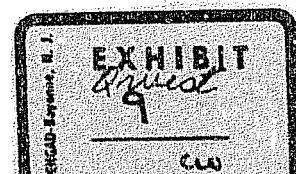


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REBUTTAL AFFIDAVIT

OF

LYNN M. V. NOTARIANNI

Checklist Item 2 – Operations Support Systems (OSS)

Lynn M. V. Notarianni states as follows:

My name is Lynn M. V. Notarianni. My business address is 930 15th Street, 10th floor, Denver, Colorado 80202. I am the same Lynn M. V. Notarianni who filed an affidavit on October 23, 2001. I submit this rebuttal affidavit in support of Qwest's application for authority to provide interLATA services originating in South Dakota and as further evidence that Qwest provides nondiscriminatory access to Operations Support Systems (OSS). My rebuttal affidavit today specifically addresses the testimony of Kenneth L. Wilson, AT&T; the testimony of Michelle Merchen, Black Hills FiberCom; AT&T's Verified Comments on Checklist Items 2, 5, and 6; and the testimony of Michael Hydock, AT&T.

I. QWEST'S RESPONSE TO AT&T'S REQUEST FOR ACCESS TO LFACS

AT&T witness Mr. Wilson claims that Qwest is required under the UNE Remand Order to provide access to loop information including the LFACS database.¹ Qwest does provide access to the loop information. Qwest satisfies the requirements of the UNE Remand Order by providing appropriate access to the data in the LFACS database. AT&T's claims to the contrary are unfounded. Qwest provides appropriate access to LFACS and other databases. AT&T's claims that other ILECs provide direct access to LFACS are not correct. Qwest provides the data required by competitive local exchange carriers (CLECs). Qwest does not discriminate by providing its employees greater access to LFACS as claimed by AT&T. Because Qwest provides the data that AT&T and other CLECs require, there is no need to change the SGAT as requested by Mr. Wilson.²

A. Mediating Access to Back Office Systems is Necessary and Useful

AT&T claims that "Qwest has refused to provide access to LFACS or to any other source of loop information available to its employees."³ That is not correct. Qwest provides access to the data in LFACS and other back office systems necessary to give CLECs a meaningful opportunity to compete. AT&T appears to believe that because

¹ See *In the Matter of the Investigation Into Qwest Corporation's Compliance with Section 271(c) Of The Telecommunications Act of 1996*, Docket No. TC 01-165, Before the Public Utilities Commission of the State of South Dakota, Affidavit of Kenneth L. Wilson Regarding Checklist Item 4 – Unbundled Loops And Checklist Item 11 – Local Number Portability On Behalf of AT&T ("AT&T Affidavit of Wilson"), at 17.

² *Id.* at 29.

1 Qwest will not grant AT&T leave to enter the database directly, Qwest is prohibiting all
2 access to that data. That is also not correct. AT&T suggests that Qwest employees
3 have direct access to LFACS.⁴ That is misleading and not entirely accurate. For the
4 most part, Qwest employees requiring data from LFACS have mediated access as well.

5 There are a number of reasons to mediate access to back office systems both for
6 in-house users as well as for those outside a company that require access to certain
7 data. AT&T is correct that one reason access is mediated is to protect proprietary
8 information.⁵ Some customer proprietary network information (CPNI) is stored on the
9 LFACS database, such as working telephone number and address. Mediated access
10 protects this data by limiting access to the service provider for a given customer.
11 Therefore one CLEC may not access the CPNI data for customers of another CLEC.
12 Likewise Qwest retail representatives may not access CPNI data for customers of
13 CLECs. Direct access essentially eliminates Qwest's ability to provide security and
14 ensure only authorized use of its systems. In fact, Qwest retail representatives may not
15 access LFACS directly. Qwest retail representatives use an interface called QServ to
16 qualify loops for Qwest DSL. The only Qwest employees who have direct access to
17 LFACS are employees in the Information Technologies organization who provide
18 technical support for LFACS and network engineers who are engaged in provisioning
19 activities for Qwest AND for CLECs.

³ *Id.* at 21.

⁴ *Id.* at 24.

⁵ *Id.*

1 There is another reason for creating mediated access to back office systems that
2 is of significant benefit to CLECs: standardized interfaces. The industry recognized that
3 any CLEC that wished to engage in the business of providing local telephone service in
4 more than one jurisdiction could encounter a variety of different systems at each
5 incumbent local exchange carrier (ILEC) the CLEC does business with. The Alliance for
6 Telecommunications Industry Solutions (ATIS) through its Ordering and Billing Forum
7 (OBF) recognized the need for standardization in systems access. The Local Services
8 Ordering and Provisioning committee of the OBF addresses and resolves "issues
9 focused on the ordering and/or provisioning of local telecommunications services using
10 the Local Service Ordering Guidelines (LSOG)."⁶ The intent of these guidelines is to
11 provide standards for the various interfaces that CLECs which operate nationally, like
12 AT&T, will encounter with the various ILECs.

13 There are differences between Qwest's Retail systems and the interfaces Qwest
14 provides to CLECs to access its OSS. These differences exist because the interfaces
15 through which CLECs access Qwest's OSS are relatively new and were designed to
16 follow the industry guidelines applicable to provider-to-provider arrangements as
17 discussed above.

18 In contrast, Qwest's downstream systems are proprietary and were developed
19 over a period of many years for internal employee access to support service provided to
20 end-user customers. These systems were not developed within the OBF guidelines.
21 Moreover, many of these systems are not at all user friendly. As a result, the design of

⁶ See <<http://www.atis.org/atis/clc/obf/LSOP/Lsophome.htm>>.

1 the electronic interfaces through which CLECs access Qwest's OSS and the design of
2 the Qwest Retail systems themselves are, by their very nature, different.

3 Direct access means that a user interacts directly with an OSS. The user must
4 use the specific commands known to the particular OSS, and interface with the specific
5 screens and data contained on those screens. Qwest service representatives have
6 direct access in many cases, for pre-ordering, ordering, and repair functionality. In the
7 course of establishing a customer service request, they access several different OSS.

8 It would not be reasonable to expect each CLEC sales representative, taking
9 orders in multiple jurisdictions, to learn all the back office ordering systems used by
10 each ILEC. It is much more logical for each CLEC sales representative to use one
11 ordering interface for each ILEC. The interfaces take the data submitted by the CLEC
12 representative and send it into the back office systems of the ILEC. While there may
13 still be some variation from one ILEC ordering interface to the next, that variation is
14 minimized because all of the ordering interfaces follow the same set of rules defined by
15 the OBF.

16 **B. Other ILECs Provide Mediated Access to LFACS**

17 AT&T witness, Mr. Wilson, claims that SBC and Verizon provide direct access to
18 LFACS.⁷ Mr. Wilson misinterprets the information provided in the FCC orders cited in
19 his testimony. The FCC states that "SWBT provides competitors access to actual loop
20 make-up information contained in SWBT's back-end system Loop Facilities Assignment
21 and Control System (LFACS) through the preordering interfaces Verigate, Datagate and

1 EDI/CORBA."⁸ This statement confirms that access to the data in SBC's LFACS
2 database is mediated, just as it is for Qwest's LFACS database. SBC provides
3 mediated access through interfaces, as does Qwest. Qwest provides mediated access
4 to LFACS data through Interconnect Mediated Access (IMA) both via a graphical user
5 interface (GUI) and an electronic data interchange (EDI) interface. Within IMA-GUI and
6 IMA-EDI, the Facility Check feature accesses data in LFACS. LFACS data is also a
7 component of the IMA Raw Loop Data tool.

8 Verizon also provides mediated access to the data in its LFACS database.
9 Verizon's LiveWire database contains LFACS data used for qualification of loops for
10 Verizon's ADSL Product.⁹ Verizon gives CLECs mediated access to this data with GUI
11 and EDI interfaces.¹⁰ Qwest's Resale DSL Loop Qualification tool provides the same
12 function for CLECs who, for example, wish to resell Qwest's DSL product. Verizon also
13 provides LFACS data via an interim pre-order process that has a 24-hour turnaround.¹¹
14 This is also not an example of direct access. On the contrary, it is a request for data
15 that must be processed by Verizon personnel. The FCC notes that Verizon is in the

⁷ AT&T Affidavit of Wilson at 26.

⁸ *In the Matter of Joint Application by SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance for Provision of In-Region, InterLATA Services in Kansas and Oklahoma*, Memorandum Opinion and Order, CC Docket No. 00-217, FCC 01-29, ¶ 121 (released January 22, 2001) ("SBC Kansas/Oklahoma 271 Order").

⁹ *In the Matter of Application of Verizon New England Inc., Bell Atlantic Communications, Inc. (d/b/a Verizon Long Distance), NYNEX Long Distance Company (d/b/a Verizon Enterprise Solutions) and Verizon Global Networks Inc., For Authorization to Provide In-Region, interLATA Services in Massachusetts*, Memorandum Opinion and Order, CC Docket No. 01-8, FCC 01-130 ("Verizon Massachusetts 271 Order") ¶ 56.

¹⁰ *Id.*

1 process of automating this pre-order function through its electronic interfaces.¹² Qwest
2 has already automated these functions in the various IMA-GUI and IMA-EDI loop data
3 and loop qualification tools.

4 Mr. Wilson asserts that Qwest's Raw Loop Data tool does not provide information
5 on loop fragments.¹³ Mr. Wilson does not define loop fragments, but if he refers to loop
6 segments, such as distribution and feed, then Mr. Wilson's assertion is not correct. In
7 fact, Qwest's Raw Loop Data tool provides output formatted based on loop segments.
8 CLECs do receive data regarding feeder (F1) and distribution (F2-Fn) segments in a
9 loop. Each segment is identified as either copper or IDLC (Integrated Digital Loop
10 Carrier). A loop status field indicates whether loops are working or non-working. The
11 Raw Loop Data tool also provides information on each segment regarding load coils,
12 bridge taps, cable gauges and the length of each gauge, all of which Mr. Wilson
13 identified as data that AT&T requires.¹⁴

14 AT&T claims that Qwest does not provide access to data regarding spare
15 facilities.¹⁵ Again, Mr. Wilson's claim is unfounded. The Raw Loop Data tool was
16 enhanced in release 8.0 of IMA-GUI and IMA-EDI to include data for spare facilities.
17 Release 8.0 was implemented on August 18, 2001. Spare facility information is also
18 available via the Facility Check pre-order function in IMA GUI and IMA EDI on an

¹¹ *Id.* ¶ 57.

¹² *Id.*

¹³ *AT&T Affidavit of Wilson* at 22.

¹⁴ *Id.* at 28.

¹⁵ *Id.* at 22.

1 individual facility basis. Spare facility information is also provided in the Qwest ADSL
2 Qualification tool.

3 Finally, AT&T witness Mr. Wilson claims that the FCC requires Qwest to provide
4 "any loop plant information that any Qwest employee has access to."¹⁶ That claim is
5 without merit. A closer reading of the UNE Remand Order shows that the FCC's
6 requirement is not as expansive as Mr. Wilson's. The FCC's requirement that the ILEC
7 provide access to loop information falls under the umbrella of information necessary to
8 qualify a loop for xDSL services. The FCC clarified "that pursuant to our existing rules,
9 an incumbent LEC must provide the requesting carrier with nondiscriminatory access to
10 the same detailed information about the loop that is available to the incumbent, *so that*
11 *the requesting carrier can make an independent judgment about whether the loop is*
12 *capable of supporting the advanced services equipment the requesting carrier intends*
13 *to install.*"¹⁷ That is the information Qwest provides through its loop data and loop
14 qualification tools.

15 Documentation regarding the fields and data contained in the output to the Raw
16 Loop Data tool is available to all CLECs on Qwest's wholesale Web site¹⁸ at
17 <<http://www.qwest.com/wholesale/training/coursecatalog.html>> in the Loop Data - CLEC
18 Job Aid document. Information about using the IMA GUI to retrieve raw loop data is

¹⁶ *Id.* at 20.

¹⁷ *In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, FCC 99-238, released November 5, 1999, ¶ 427.

1 available in the IMA-GUI End User Guide at page 121. The guide may be downloaded
2 from the Qwest wholesale Web site at
3 <<http://www.qwest.com/wholesale/downloads/2002/020322/901UGPreorder032202.pdf>>
4 . The same information is provided for IMA-EDI in the disclosure and data documents
5 located on the Qwest wholesale Web site at
6 <<http://www.qwest.com/wholesale/ima/edi/document.html>>.

7 Qwest provides a suite of tools for obtaining loop information and loop
8 qualification. CLECs may obtain raw loop data for an individual facility or for an entire
9 wire center. Qwest also provides CLECs with access to its ADSL qualification tool, its
10 POTS Conversion to Unbundled Loop Tool, and its Qwest DSL Qualification Tool. In
11 short, Qwest gives CLECs multiple avenues for obtaining loop information, and Qwest
12 provides documentation regarding the data contained in this suite of tools.

13 If AT&T requires data in addition to that which is already provided by Qwest,
14 rather than make allegations in a regulatory proceeding, there is a more appropriate
15 forum at which to make such requests. Qwest's Change Management Process (CMP)
16 is the forum where CLECs bring their requests for additional functionality. AT&T
17 participates in CMP. If AT&T would like to define its additional data needs in the form of

¹⁸ When Qwest refers to documents or other information posted to a Web site by providing the Web site address (URL), Qwest incorporates such documents or other information by reference as if fully set forth herein.

1 a CLEC-initiated change request (CR), it can be placed before the CLEC membership
2 for discussion and prioritization according to CMP procedures.¹⁹

3 **C. Mediated Access Is Not Discriminatory**

4 As discussed above, the FCC described the access to LFACS data that SBC
5 provides in Kansas and Oklahoma as mediated access. The FCC determined that SBC
6 provides the data from LFACS that CLECs need, and they do so in a non-discriminatory
7 manner.²⁰ The FCC made the same determination for Verizon in Massachusetts.²¹
8 Qwest provides the same kind of data from LFACS using the same types of mediated
9 access methods. Qwest does not give its retail sales representatives direct access to
10 LFACS. Those Qwest employees who do have direct access, do so in order to support
11 the database, or because they perform provisioning functions for Qwest and CLEC
12 orders. Therefore, it follows that Qwest's mediated access is not discriminatory.

13 **D. The Multi-State Facilitator Determined Qwest Provides Non-**
14 **Discriminatory Access to LFACS data**

15 The facilitator in the multi-state workshop process that included the states of
16 Idaho, Iowa, Montana, North Dakota, Wyoming, New Mexico and Utah addressed this

¹⁹ Information and documentation regarding the CMP may be found at
<<http://www.qwest.com/wholesale/cmp/index.html>>.

²⁰ "We find that SWBT provides these mechanized and manual processes to competing carriers in a nondiscriminatory fashion and allows access to loop qualification functionality as a pre-ordering function in substantially the same manner as it does for itself. Where loop make-up information resides in an electronic format within SWBT's systems, SWBT enables competing carriers access to this information.", *SBC Kansas/Oklahoma 271 Order* ¶ 122.

²¹ "We conclude that Verizon demonstrates that it offers nondiscriminatory access to OSS pre-ordering functions associated with determining whether a loop is capable of supporting xDSL advanced technologies." *Verizon Massachusetts 271 Order* ¶ 60.

1 question regarding access to LFACS data.²² The facilitator stated, "We can first
2 conclude that the evidence shows that LFACS does not have the capability to provide
3 the information that AT&T seeks, but that it does contain a very broad range of
4 information that is both very sensitive and hard to exclude from unmediated access."²³
5 The facilitator also found that "Qwest has cited a number of other available Raw Loop
6 Data tools that appear better suited to AT&T's needs. Given the potential, the
7 preferable course at this time is to assure AT&T has access to them."²⁴ Qwest has
8 made the Raw Loop Data tool and the loop qualification tools available to AT&T and all
9 other CLECs.

10 **E. South Dakota Commission Staff Agrees with the Multi-State**
11 **Resolution**

12 South Dakota Commission Staff Witness, Dr. Griffing, cited the report of the
13 Multi-State facilitator, noting "the report finds that it is not unreasonable for Qwest to
14 want to mediate the access to allow for proprietary or confidential concerns."²⁵ Staff
15 concludes that the Commission should ensure that Facility Check is available and

²² See *Facilitator's Report on Checklist Item 2 (Unbundled Network Elements), Checklist Item 4 (Access to Unbundled Loops), Checklist Item 5 (Access to Unbundled Local Transport), and Checklist Item 6 (Access to Unbundled Local Switching)*, available at http://www.libertyconsultinggroup.com/workshop_number_3.htm.

²³ *Id.* at 66.

²⁴ *Id.*

²⁵ See *In the Matter of the Investigation Into Qwest Corporation's Compliance with Section 271(c) Of The Telecommunications Act of 1996*, Docket No. TC 01-165, Before the Public Utilities Commission of the State of South Dakota, Direct Testimony of Marlon Griffing, Ph.D. on behalf of The Staff of the Public Utilities Commission of South Dakota, ("Testimony of SD Commission Staff"), at 86.

1 should adopt the findings of the Multi-state facilitator.²⁶ As noted above, Facility Check
2 and numerous other Raw Loop Data tools for obtaining loop information are available to
3 AT&T and all other CLECs.

4 **F. Conclusion**

5 Qwest provides the loop information that AT&T needs via mediated access to
6 LFACS data. Qwest has created a number of tools in IMA-GUI and IMA-EDI that
7 provide this information, including the Raw Loop Data tool, facility check and the loop
8 qualification tools. The FCC has determined that mediated access is not discriminatory,
9 and is an appropriate means for giving CLECs access to ILEC back office systems.
10 Therefore, it is not appropriate to give AT&T direct access to Qwest's LFACS database.

11 **II. QWEST'S RESPONSE TO AT&T'S REQUEST FOR PRE-ORDER**
12 **MECHANIZED LOOP TESTING (MLT)**

13 AT&T's Witness, Mr. Wilson, argues that Qwest must allow CLECs to perform or
14 request a pre-order MLT (mechanized loop test) in order to verify that a loop can
15 support the services the CLEC intends to offer. He claims that this is necessary
16 because an MLT provides additional information that is not available through the Raw
17 Loop Data tool (RLD).²⁷

18 Mr. Wilson appears to confuse the capabilities of MLT and the Qwest loop
19 qualification processes. The RLD tool available via IMA is a more comprehensive and
20 accurate tool to verify that the loop can support the services the CLEC intends to
21 provide over that loop facility than MLT.

²⁶ *Id.* at 87.

1 Qwest's version of MLT is mainly used to identify faults. To do this the loop must
2 be connected to the switch and have a telephone number. The repair system, CEMR,
3 enables the CLECs to test any loop (service) that they own. If the service has not yet
4 been provisioned (i.e., it is not connected to the switch or does not have a telephone
5 number), MLT is not possible. During the trouble isolation process or identification of a
6 fault, MLT does provide an estimated loop length for loops without faults. However, it
7 will not provide loop length for loops with faults. At that point, the loop length is
8 estimated because the customer provided equipment (CPE) has an effect on the
9 measurements. As a result, the accuracy of loop length data through the use of an MLT
10 is questionable and should only be utilized when the data is missing from the cable
11 records. When the loop length identified in the cable records, it is available through the
12 RLD tool. Only when it is not available in the cable record, does Qwest place the loop
13 length from the MLT batch process described in Ms. Liston's Rebuttal Affidavit filed
14 coincident with this one.

15 Mr. Wilson asserts that more information can be derived from an MLT than loop
16 distance, and that an MLT can determine whether there are electronics or equipment on
17 the loop that would interfere with DSL service.²⁸

18 Again, Mr. Wilson has misunderstood the capabilities of the version of MLT that
19 Qwest is using. Qwest's version of MLT does not identify bridge taps or load coils,
20 which are necessary to identify what services the loop can support. MLT will provide an

²⁷ AT&T Affidavit of Wilson at 29.

²⁸ *Id.* at 31.

1 indication that digital carrier equipment is present but does not provide details of that
2 equipment. That detail is provided by the cable records and is reflected in the data
3 returned by the RLD tool.

4 Contrary to Mr. Wilson's assertions,²⁹ MLT tests do have an impact on Qwest's
5 network. Any additional load on the MLT system would raise system capacity issues,
6 and may entail not only purchasing MLT equipment but would likely require a possible
7 switch expansion. However, due to engineering limitations, expansion may be limited or
8 cost-prohibitive for some switch types. Additional load on the MLT system would likely
9 create response time problems or time out issues for both the CLECs and Qwest Repair
10 Operations. This is due to MLT test head or port contention. If numerous pre-order
11 MLT tests are being run, it could cause contention with and actually preclude Qwest
12 repair technicians from performing MLT tests for repair purposes. There are only a few
13 ports available per wire center, with manual and automated tests contending for the
14 same MLT ports. This would likely result in a degradation of repair quality for both
15 timeliness and quality of repairs.

16 Raw Loop Data and other Qwest Loop Qualification Tools provide more detailed
17 and accurate information than MLT. The information can be requested in a variety of
18 ways, based on the need of the CLEC. Information in the database is provided primarily
19 from the cable records from the network construction groups. This information includes

²⁹ *Id.* at 30 (disputing Qwest's assertion that the MLT is invasive).

1 local loop segment length, wire gauge and raw loop data (loop makeup); including,
2 bridge taps and specific equipment type; i.e. digital loop carrier type.³⁰

3 If all local loop segment information is not available from the cable records,
4 Qwest will then use theoretical data and in some instances loop length data from MLT
5 to update the RLD information for both CLEC access and Qwest Loop Qualification
6 tools. This information is gathered via the following process. Missing data is identified
7 in the loop qualification systems and if theoretical (GIS, Planned or Wire Center
8 Characteristic) data is available it is used in lieu of the actual data. In some instances,
9 MLT is used in conjunction with the theoretical data. For MLT determination, telephone
10 numbers are batch tested (during off-hours). These loop-information-updating steps are
11 repeated in an ongoing process to ensure database quality.

12 In addition, the retail Qwest DSL pre-qualification process does not include live
13 MLT testing. Up front employees are neither trained on nor do they have access to
14 MLT. Qwest employees use the Qserv tool that informs them if DSL is available at a
15 specific address. This differs from the information provided to CLECs as the CLECs get
16 specific detailed information on loop makeup and length of the loop. With this
17 information, CLECs can do what Mr. Wilson wants - make their own determination if the
18 loop is qualified to support their services.

³⁰ For more information regarding the contents of the RLD tool, please see Jean Liston's Affidavit, Section "Loop 9 – Access to Loop Facilities and Assignment Control System (LFACS).

1 In summary, the Loop Qualification Database Tool available to the CLECs via
2 IMA is a more accurate and complete record to determine if a loop is qualified for CLEC
3 services.

4 **III. QWEST'S RESPONSE TO BLACK HILLS FIBERCOM'S DISCUSSION OF**
5 **EEL ORDERING**

6 Black Hills FiberCom witness, Ms. Michelle Merchen, claims that she has
7 experienced some problems when ordering Enhanced Extended Loops (EELs). In
8 response to the question, "Do you have any examples of Qwest's deficient OSS?", Ms.
9 Merchen cited examples of the problems experienced when the decision was made to
10 begin ordering Enhance Extended Loops (EELs). In response to her described
11 experience in ordering EELs, Qwest provides the following explanation.

12 Ms. Merchen states that FiberCom was required to amend its interconnection
13 agreement when it decided to order EELs. It is part of the normal process for a CLEC
14 to amend its interconnection agreement when it decides to begin ordering a product that
15 is not covered in its existing agreement. Information specific to EELs is available to
16 CLECs on the Qwest Wholesale Web site:
17 <http://www.qwest.com/wholesale/pcat/eel.html>. In addition to citing the need to amend
18 an existing interconnection agreement, this Web site also provides other ordering
19 information for EELs.

1 The SGAT³¹ further explains the general ordering process in the following steps
2 (Section 9.23.5.1.3-6):

- 3 • 9.23.5.1.3 Step 1: Complete product questionnaire with account team
4 representative.
- 5 • 9.23.5.1.4 Step 2: Obtain Billing Account Number (BAN) through account
6 team representative.
- 7 • 9.23.5.1.5 Step 3: Allow 2-3³² weeks from Qwest's receipt of a completed
8 questionnaire for accurate loading of UNE Combination rates to the Qwest
9 Billing system.
- 10 • 9.23.5.1.6 Step 4: After account team notification, place UNE Combination
11 orders via an LSR or ASR as appropriate.

12 As referenced in the ordering steps above, once a CLEC's interconnection
13 agreement has been amended, Qwest must then establish a Billing Account Number
14 (BAN) for that particular product -- in this case for EELs. A CLEC should not attempt to

³¹ The Interconnection Agreement between KMC Telecom V, Inc. and Qwest is attached to the Affidavit of Larry Brotherson on behalf of Qwest Corporation, dated April 2, 2002, as Exhibit LBB-GTC-1. Qwest relies on the KMC interconnection agreement and the other interconnection agreements filed with this Commission, in addition to the SGAT. For better readability, I may not always mention the KMC agreement, but Qwest relies on that agreement and its language just as if the KMC agreement was mentioned every time I mention the SGAT. Everywhere I mention the SGAT in my direct affidavit, and in this rebuttal affidavit, I also incorporate and rely on the KMC agreement, which has the same section numbers and same language as the October 2001 SGAT filed in South Dakota.

³² To meet the needs of the CLECs this interval was reduced from 35-45 days. The reduced interval is reflected in the October 24, 2001 version of the South Dakota SGAT.

1 submit LSRs until after notification has been received from its account team that EEL
2 LSRs can be submitted.

3 Qwest received the completed questionnaire from FiberCom on October 9, 2001
4 and, in accordance with the process as it existed at that time, had 35-45³³ days to
5 prepare for receipt of EEL LSRs from FiberCom.

6 On November 29, 2001, day 38, Qwest had established the EEL BAN and was
7 ready to accept and process FiberCom's EEL LSRs. On November 28, 2001, the
8 Qwest Service Manager notified Black Hills FiberCom that it could begin submitting
9 LSRs for EELs after November 29, 2001. Based on the successful completion of EEL
10 BAN setup, this step in the ordering process did not prevent or delay Black Hills
11 FiberCom from submitting EEL LSRs.

12 Ms. Merchen also states that between December 5, 2001 and January 14, 2002,
13 she experienced problems when attempting to submit orders for EELs.³⁴ Qwest records
14 show that Qwest only received one LSR from FiberCom for EELs during the time period
15 referenced. Two additional versions of this order were submitted to correct information
16 for primary location on connecting facility assignment (CFA) and FCC option information
17 until the order successfully issued on January 14, 2002. After January 14th, FiberCom
18 submitted only two additional EEL orders – both on March 5, 2002. The first order was
19 submitted only once and successfully completed on the desired due date. The second
20 order contained errors and Qwest is working with FiberCom to resolve those issues.

³³ The Black Hills FiberCom completed questionnaire was submitted prior to the reduction in interval.

1 Ms. Merchen was correctly informed that a "ticket" should be opened in order for
2 FiberCom to receive assistance with LSR ordering concerns. However, in Qwest terms
3 a "trouble ticket" as referenced by Ms. Merchen is opened to address a maintenance
4 and repair issue, while an LSR order issue would be addressed by opening an
5 Escalation Ticket with the Qwest Interconnect Service Center or Qwest Wholesale
6 Systems Help Desk depending upon the nature of the problem.³⁵ However, Ms.
7 Merchen claims that "[w]hen I tried to open a trouble ticket with Qwest, however,
8 Qwest's system would not accept it because an LSR had not been submitted."³⁶
9 Qwest's internal records do not agree with that claim as Qwest's escalation ticket
10 records reflect that FiberCom successfully opened seven escalation tickets to report
11 EELs ordering issues during the December 1, 2001 to January 15, 2002 period prior to
12 an LSR being successfully submitted to Qwest on January 14, 2002.

13 Ms. Merchen claimed that she had been directed to several Qwest
14 representatives, many of whom could not help her.³⁷ It is Qwest's policy to try to
15 provide CLECs with the most appropriate and capable resources to assist them for their
16 given problem. Given the abundance of products offered in IMA and the sometime
17 complex nature of these products, Qwest provides a central point of contact for CLECs

³⁴ Direct Testimony of Michelle Merchen at 2-3.

³⁵ To discuss order processing or status, the Qwest Interconnect Service Center is available to support CLECs. While not responsible for supporting functional "how to" questions concerning systems or applications, the Qwest Wholesale Systems Help Desk is the CLEC's single point of contact for system related questions regarding connectivity issues, outputs and system outages.

³⁶ Direct Testimony of Michelle Merchen at 3.

³⁷ *Id.*

1 in the Interconnect Service Center that, in turn, directs issues to, for example, Service
2 Delivery Coordinators, Service Managers, or subject matter experts, as appropriate.

3 Additionally, Qwest provides an escalation process whereby a CLEC may initiate
4 an escalation of a service request at any time during the ordering by calling the
5 appropriate center.³⁸ An escalation is a request for status or intervention relating to a
6 missed critical date. Qwest escalation roles and responsibilities can be summarized as:

7 Service Delivery Coordinators- Local Service Request (LSR) or Access Service
8 Request (ASR) escalations related to Rejects/Delayed orders, critical dates and
9 Firm Order Confirmations (FOC).

10 Service Manager - Involved only after normal processes fail to resolve the
11 escalation to CLEC satisfaction. Evaluates the situation based on commitments
12 managing associated resolution activities.

13 Senior Service Manager/Director - Involved only if the efforts of the Service
14 Manager are unsuccessful. Provides direction to those working the issue,
15 partnering with Center Coaches and Team leaders.

16 Senior Director/Vice President - Contacted for direction and/or assistance for
17 those working the escalation, providing timely status updates back to the prior
18 level and the CLEC directly.

19 Furthermore, the role of the Qwest Service Manager is to assist a CLEC with
20 handling order acceptance, delayed orders, or cancelled orders and answering CLEC
21 questions delivery of an order, investigation and explanation of the reason an order is
22 delayed or cancelled to resolve and communicate issues to the CLEC in a timely,
23 thorough manner. The Qwest Service Manager has contacts within other Qwest
24 departments who are responsible for the actual ordering and delivery of products.

³⁸ Qwest Wholesale Web site, Expedites & Escalations Overview,
<<http://www.qwest.com/wholesale/clecs/exesclover.html>>.

1 Through these contacts they negotiate the best resolution, and interval to the problem
2 that is practical for both the CLEC and Qwest based on the individual situation.³⁹
3 However, it is incumbent upon the CLEC to report such issues to their assigned Qwest
4 Service Manager for resolution.

5 Lastly, FiberCom complains that "Qwest referred us to several instructional Web
6 sites, but these were only marginally useful in completing the EEL ordering process."⁴⁰
7 Without the specific web site references from FiberCom, Qwest cannot provide specific
8 comments on this statement. However, Qwest does makes significant efforts to provide
9 CLECs with the necessary and appropriate information to successfully process
10 wholesale order requests and to overall ensure that CLECs have available the tools
11 necessary to navigate the Wholesale experience successfully.⁴¹

12 **IV. QWEST'S RESPONSE TO AT&T'S REQUEST FOR TESTING LANGUAGE**
13 **AND TESTING ENVIRONMENT**

14 AT&T seeks a change in Qwest's Statement of Generally Available Terms
15 (SGAT) to allow for additional testing of Qwest's electronic interfaces.⁴² While Qwest

³⁹ Qwest Wholesale Web site, Account Team/Sales Executives & Service Managers,
<<http://www.qwest.com/wholesale/clecs/accountmanagers.html>>.

⁴⁰ Direct Testimony of Michelle Merchen at 3.

⁴¹ As mentioned above, information specific to EELs can be found at the following Web site:
<http://www.qwest.com/wholesale/pcat/eel.html>. Escalation information is also found on the
Qwest Wholesale Web site at the following address:
<http://www.qwest.com/wholesale/clecs/exesclover.html>.

⁴² *In the Matter of the Investigation Into Qwest Corporation's Compliance With Section 271(c) of
the Telecommunications Act of 1996*, Before the Public Utilities Commission of the State of
South Dakota, Docket No. TC 01-165, AT&T's Verified Comments on Checklist Items 2, 5 and
6.

1 agrees that CLECs should have the opportunity to do additional testing, Qwest does not
2 agree with the SGAT language proposed by AT&T.⁴³

3 **A. Qwest has already agreed to testing language in other states**

4 During the multi-state workshop process, AT&T raised the issue of additional
5 testing of electronic interfaces above and beyond the thorough testing that Qwest
6 already offers to CLECs. The Facilitator of the multi-state process proposed a
7 compromise, accepting that some CLECs might want to do additional testing, but that
8 not all CLECs would want to do the same level of testing that AT&T proposed. The
9 facilitator suggested compromise language be added to the SGAT to allow CLECs to
10 negotiate with Qwest for additional electronic interface testing.⁴⁴ Qwest agreed to the
11 language the facilitator proposed and has placed this language in the SGATs for the
12 seven states involved in the multi-state process⁴⁵ and the state of Nebraska. The
13 facilitator proposed the language be added as a new section 12.2.9.3 of the SGAT.
14 Because that section number was already used as a result of other SGAT changes, an
15 additional section was created for this language.

16 The new SGAT language reads as follows:

17 12.2.9.8 In addition to the testing set forth in other sections of Section
18 12.2.9, upon request by CLEC, Qwest shall enter into negotiations for
19 comprehensive production test procedures. In the event that agreement is not

⁴³ See *Multistate Exhibit WS3-ATT-MFH-2*. Because the electronic file included in AT&T's filed testimony appears to be a different document, AT&T's proposed SGAT language from the Multistate proceeding is attached as Exhibit LVN-1 below.

⁴⁴ *Facilitator's Report on Checklist Item 2 (Unbundled Network Elements), Checklist Item 4 (Access to Unbundled Loops), Checklist Item 5 (Access to Unbundled Local Transport) and Checklist Item 6 (Access to Unbundled Local Switching)* at 31 ("Facilitator's Report"), available at <http://www.libertyconsultinggroup.com/workshop_number_3.htm>.

⁴⁵ Idaho, Iowa, Montana, North Dakota, New Mexico, Wyoming, and Utah.

1 reached. CLEC shall be entitled to employ, at its choice, the dispute resolution
2 procedures of this Agreement or expedited resolution through request to the
3 state Commission to resolve any differences. In such cases, CLEC shall be
4 entitled to testing that is reasonably necessary to accommodate identified
5 business plans or operations needs, accounting for any other testing relevant to
6 those plans or needs. As part of the resolution of such dispute, there shall be
7 considered the issue of assigning responsibility for the costs of such testing.
8 Absent a finding that the test scope and activities address issues of common
9 interest to the CLEC community, the costs shall be assigned to the CLEC
10 requesting the test procedures.

11 **B. Qwest's language is reasonable**

12 Qwest believes that the testing already provided in its SGAT is comprehensive
13 and sufficient to allow a CLEC to determine that its electronic systems will communicate
14 effectively with Qwest's OSS. Qwest is willing to negotiate a specific test procedure
15 with any CLEC that requires more testing than is already provided by Qwest. The new
16 language proposed by the Multi-state facilitator and implemented by Qwest in those
17 states allows for this testing.

18 **C. AT&T's language is not reasonable**

19 As an initial matter, AT&T's proposed testing language identifies specific
20 applications and interfaces, such as CORBA, that are not available to Qwest. The
21 Qwest proposed language allows for testing of whatever electronic interfaces exist
22 when the testing is requested.

23 In addition, AT&T's language places obligations on Qwest to provide any and all
24 materials, systems, test facilities and staff requested by the CLEC without limitation, at
25 the CLEC's request. This is patently unreasonable. The Multi-state facilitator agrees
26 with Qwest's assessment of AT&T's proposal. "AT&T's proposed language ...would
27 adopt a prescriptive approach to comprehensive testing that would not allow for

1 negotiation between Qwest and CLECs with respect to test scope, conditions, or
2 payment responsibility. It also contains no provision for dealing with requested tests
3 that duplicate other test activities."⁴⁶

4 **D. South Dakota Commission Staff Agrees with Qwest's Proposal**

5 The South Dakota Commission cites the Multi-state report on this issue, and
6 restates the findings of the facilitator very well.⁴⁷ Per Commission staff,

7 the language proposed by the facilitator "provides for a negotiation process.
8 Among other things, CLECs can state their concerns and Qwest can suggest that
9 previous testing addressed the issues. If the parties cannot reconcile their
10 testing concerns in the negotiations, CLECs can resort to either the dispute
11 resolution procedures of the SGAT or state commission expedited resolution if
12 they do not feel the negotiation process is satisfying their needs. The costs of
13 the testing shall be assigned in either resolution process, with the requesting
14 CLEC bearing them unless it is shown other CLECs should share them because
15 they also share the benefits."⁴⁸

16 **E. Qwest agrees to add the same language in South Dakota**

17 Qwest determined that the facilitator's recommendation in the multi-state process
18 was reasonable. Therefore, Qwest is willing to add the same new language to its SGAT
19 in South Dakota, allowing CLECs to negotiate additional testing of electronic interfaces,
20 as section 12.2.9.8.

⁴⁶ *Facilitator's Report* at 30.

⁴⁷ *See Testimony of SD Commission Staff* at 77.

⁴⁸ *Id.*

**V. QWEST'S RESPONSE TO AT&T'S COMMENTS ON CHANGE
MANAGEMENT PROCESS (CMP) – SGAT § 12**

AT&T's Witness, Mr. Hydock states that with respect to evaluating change management processes, the FCC has developed the following five factors for adequacy:

(1) that information relating to the change management process is clearly organized and readily accessible to competing carriers; (2) that competing carriers had substantial input in the design and continued operation of the change management process; (3) that the change management plan defines a procedure for the timely resolution of change management disputes; (4) the availability of a stable testing environment that mirrors production; and (5) the efficacy of the documentation the BOC makes available for the purpose of building an electronic gateway.⁴⁹

He then goes on to claim that Qwest has failed those standards.⁵⁰

His claim is unfounded. Qwest has made substantial progress in CMP Redesign effort, both in augmenting its processes with the agreement of the CLECs and in the deployment of those augmented processes as soon as agreement is reached. I will respond to each factor individually.

*** In the Matter of Application by SBC Communications Inc., Southwestern Bell Telephone Company and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance Pursuant to Section 271 of the Telecommunications Act of 1996 To Provide In-Region, InterLATA Services In Texas, Memorandum Opinion and Order, CC Docket No. 00-65, FCC 00-238 (Rel. June 30, 2000) ¶ 108.*

⁴⁹ Hydock Affidavit on GT&C at 31-32.

A. FCC Evaluation Criteria 1: Information relating to the change management process is clearly organized and readily accessible to competing carriers.

Qwest provides easily accessible and well-organized information regarding its change management process ("CMP"). Qwest maintains a Web site that sets forth the current change management process, including, in part, the method for proposing and processing CLEC-originated and Qwest-originated OSS interface change requests and CLEC-originated product and process change requests. Those procedures are set forth in the Qwest Wholesale Change Management Process Document ("QWCMP"), which can be found in an updated form on the Qwest Wholesale Web site.⁵¹ This document contains agreements reached through extensive negotiations between the CLEC community and Qwest regarding the redesign of Qwest's change management process. The document containing the interim procedures that CLECs agreed to for Qwest-initiated product and process changes is also included on the Web site. The CLECs had substantial input, during the redesign process, into the organization and clarification of change management related materials on the Web site, particularly on the manner changes would be identified, displayed and logged on document change logs.

The Web site also serves as a repository of information that is useful to CLEC participation in the change request process. For example, change requests that are to be presented to the CLEC community for discussion and refinement at monthly CMP meetings are posted on the Web site. (CLECs participating in the CMP also are notified

1 of new change requests by e-mail.) CLEC change requests are posted to the Web site,
2 and Qwest-initiated change requests have been posted to the Web site since October
3 2001. The change management Web site includes a link to a form that allows
4 CLECs/Qwest to submit change requests to Qwest electronically.⁵² Qwest updates and
5 maintains a database that tracks the progress of each change request, reports changes
6 systematically using change request numbers, and uses these same numbers in
7 communications with CLECs to identify specific changes.

8 The Qwest Wholesale Web site also includes other information about the change
9 management process, the redesign process, pending change requests and change
10 management issues. For example, the Web site (1) contains a listing of the change
11 requests, their status, and a complete history of the action taken on each request,
12 including minutes of meetings between the CLEC originator and Qwest; (2) sets forth
13 the schedule for systems and product/process change management meetings; (3)
14 provides a link to OSS documentation and a list of release notifications that are related
15 to that documentation; and (4) provides a link to the SATE Data Documents which
16 contain SATE test case scenarios.⁵³ It also includes the minutes from CMP meetings,
17 past and future meeting schedules, the Release Calendar, release notifications, change
18 requests, CMP contact information, information about how to make a change request,
19 and more.

⁵² See the following Web site address: <www.qwest.com/wholesale/cmp/whatiscmp.html>.

⁵³ See Product/Process and Systems links listed under Change Requests at the following URL:
<<http://www.qwest.com/wholesale/cmp/index.html>>.

**B. FCC Evaluation Criteria 2: Competing carriers had substantial
input in the design and continued operation of the change
management process.**

CLECs have had and continue to have substantial opportunities for input into the design and continued operation of the change management process.

Qwest and the CLECs have met regularly, generally four days per month, since July 2001, to collaboratively redesign Qwest's change management procedures. The majority of the elements of the redesigned CMP have already been implemented. In sum, Qwest's current change management process provides for substantial CLEC input into both the design and the continued operation of the process. The redesign effort has provided an opportunity for CLECs and Qwest to jointly redesign the CMP by expanding its scope, developing and documenting more detailed processes, improving notification intervals, and establishing meeting standards. The QWCMP document goes beyond the OBF 2233 CMP document, which was used as the base document in the redesign effort. For example, the CLECs requested and then worked with Qwest to design a more robust process for prioritization of change requests, which includes the Special Change Request Process (SCRCP). The SCRCP will allow any participant (Qwest or any CLEC) to fund, itself, any change it wants to make in the next major release that otherwise would not have been included due to the prioritization process.

⁵³ The CMP Web site has links to the IMA-EDI page that specifies for CLECs how to use the EDI environment.

1 The redesign process operates on a parallel track with Qwest's ongoing change
2 management forum. The schedules, agendas, and minutes of the monthly CMP
3 meetings and CMP redesign meetings are posted on the Qwest CMP Web site.

4 Significantly, the parties to the redesign process have already agreed that even
5 after negotiations are completed, there will be provisions under the CMP to manage
6 changes to the CMP.⁵⁴ The parties understand that the CMP is a dynamic process that
7 will be subject to ongoing improvements. Now and in the future, procedures are in
8 place to ensure that CLECs will have substantial input into the design and operation of
9 the CMP.

10 CLECs also have substantial opportunities for input into the continued operation
11 of the change management process. As discussed above, Qwest and CLECs jointly
12 participate in a forum (the CMP forum) for managing changes related to Qwest's OSS
13 interfaces, products, and processes that support the five categories of OSS functions
14 (pre-ordering, ordering, provisioning, maintenance and repair, and billing). Key
15 elements of the monthly CMP meeting were jointly developed by the CLECs and Qwest
16 during the redesign process. These include: 1) the frequency and duration of the
17 meeting, 2) the purpose of the meeting, 3) meeting protocol, 4) the content and
18 distribution of meeting materials, 5) non-standard and "walk-on" agenda items, 6) the
19 content and distribution of meeting minutes, and 7) provisions for ad hoc CMP
20 meetings.

1 Qwest's current change management process, which is primarily comprised of
2 processes that have already been implemented as a result of the CLEC-Qwest CMP
3 redesign effort, provides opportunities for CLEC input throughout the lifecycle of a
4 CLEC or Qwest initiated change request. For example, the process expressly provides
5 for CLEC input regarding CLEC or Qwest initiated change requests at clarification
6 meetings and/or at monthly CMP meetings. In addition, CLEC input regarding Qwest's
7 proposed solutions and/or draft responses is solicited at monthly CMP meetings.
8 Additionally, for those changes that result in Product Catalog (PCAT) or technical
9 publication (TechPub) changes, CLECs have the opportunity to provide written
10 comments concerning the proposed changes via a web-based customer comment tool.

11 The prioritization process also provides a significant opportunity for the CLECs to
12 have input into which OSS Interface changes are implemented and into which OSS
13 release they are implemented. Additionally, Qwest's change management processes
14 for the introduction and retirement of OSS interfaces and changes to existing OSS
15 interfaces provide for CLEC input throughout the development lifecycle. For example,
16 the process for changes to an existing application-to-application OSS Interface provides
17 three distinct opportunities for CLEC input. First, CLECs may submit written questions
18 and comments on the draft technical specifications. Second, Qwest hosts a "walk-
19 through" which affords the opportunity for Qwest and CLEC technical subject matter
20 experts to discuss the upcoming changes. CLECs are encouraged to invite their

⁵⁴ Interim Draft Master Red-lined CLEC-Qwest CMP Redesign Framework Section 7. See also discussion of the dispute resolution process, *infra*.
(Footnote continued on next page.)

1 technical experts, systems architects, and designers, to attend the walk through. Third,
2 following the walk-through, the CLECs have an opportunity to submit written comments
3 and questions to Qwest.

4 Qwest's change management process is successful in providing opportunities to
5 CLECs for substantial input. In Arizona, CGE&Y expressed confidence in the integrity
6 and value of the change management redesign process, and was able to close all of the
7 IWOs on change management as a result of Qwest's performance since its August
8 2001 report on relationship management was issued. CGE&Y's closure of the IWOs
9 were based on CGE&Y's conclusions that "In summary, CGE&Y feels that with the
10 collaborative nature of the re-design process, whatever agreement is reached on the
11 subject of types of change requests and the process by which these requests are
12 prioritized and voted upon will be satisfactory to the majority of the CLECs with
13 representation at the Qwest CMP."

14 **C. FCC Evaluation Criteria 3: The change management plan defines**
15 **a procedure for the timely resolution of change management**
16 **disputes**

17 One factor the FCC examines in its 271 evaluation is a BOC's procedures for
18 escalation and resolution of disputes between the CLEC and the BOC regarding OSS
19 issues. The parties to the redesign process agreed on escalation and dispute resolution
20 procedures, and Qwest has implemented them. The procedures are set forth in the

1 QWCMP.⁵⁵ As of February 14, 2002 the escalation procedures have been invoked on
2 one occasion with regard to systems changes, and on four occasions with regard to
3 product and process changes. The dispute resolution procedures have not yet been
4 invoked.

5 Qwest and the CLECs in the redesign process jointly developed the change
6 management escalation and dispute resolution procedures. The escalation procedures
7 apply to all items that are within the scope of the CMP, including issues surrounding
8 the CMP itself and its administration.⁵⁶ The escalation procedures contain specific
9 instructions for communicating to Qwest the escalated issue, including a statement of
10 the CLEC's desired resolution and a request for interim action, if applicable. At the
11 CLECs' request, the escalation process has been streamlined, and now offers CLECs a
12 single point of contact for a given issue. The Qwest single point of contact is
13 responsible for providing a final binding position regarding the escalated issue within
14 seven days for a disputed change request and within 14 days for other escalations.
15 Escalation requests and Qwest and CLEC responses are posted to the Web site.

16 Either a CLEC or Qwest may bypass the escalation process and immediately
17 invoke the dispute resolution process. Like the escalation process, the CMP contains
18 specific requirements for describing and documenting the dispute. If the parties agree,
19 the dispute can be resolved externally through an alternative dispute resolution process;

⁵⁵ Qwest Wholesale Change Management Process at Section at 13.0 (escalation) and 14.0 (dispute resolution), See <<http://www.qwest.com/wholesale/cmp/whatiscmp.html>>.

⁵⁶ Escalations are internal, meaning that an issue is escalated within Qwest's management ranks. In contrast, dispute resolution involves external resources.

1 alternatively, a CLEC or Qwest may submit the issue to an appropriate regulatory
2 agency.

3 As of March 27, 2002, only one issue has reached an impasse in the redesign
4 process, as the parties have been successful in negotiating solutions within the
5 framework of the redesign sessions. The parties agreed that impasse issues will be
6 resolved as follows: (1) Qwest will identify the impasse issues in its monthly CMP
7 redesign status reports to the state commissions, and the issues can be treated as
8 impasse issues in the Section 271 proceedings in those states; or (2) if a commission
9 no longer accepts impasse issues in a 271 proceeding, Qwest or any CLEC may submit
10 the issue following the procedures of the appropriate regulatory agency. Finally, if the
11 parties agree, a third party may be hired to resolve the dispute. As of March 27 2002,
12 only one issue has been declared an impasse. The impasse issue is whether OBF
13 language that treats changes to meet performance measurements as regulatory
14 changes should be included in the Qwest CMP definition of Regulatory Changes.⁵⁷

15 In sum, if Qwest and the CLECs cannot reach agreement, either in the redesign
16 process or in the change management forum itself, the escalation and dispute
17 resolution procedures agreed to by the parties are used to resolve issues and produce a
18 solution that Qwest and CLECs will accept and implement. Thus, even though the
19 redesign process is not yet completed, the procedures already in place ensure that the

⁵⁷ The Colorado PUC recently issued an oral decision that the OBF language should not be included. A written order will be issued.

1 redesign process will conclude successfully with a collaborative result, and not one
2 dictated by Qwest.⁵⁸

3 **D. FCC Evaluation Criteria 4: The availability of a stable testing**
4 **environment that mirrors production**

5 Effective August 1, 2001, Qwest began offering CLECs a stand-alone test
6 environment as part of certification that CLEC systems will interface with Qwest's IMA-
7 EDI systems and for subsequent testing of new releases of IMA-EDI software. SATE
8 provides CLECs with the ability to learn how Qwest's IMA-EDI functions work and the
9 ability to test their skills in a test environment that returns test responses to pre-defined
10 test scenarios that mimic production responses. Qwest provides the account data and
11 scenario information to users through the IMA EDI Data Document for SATE. Scenario
12 submissions do not leave SATE during testing. By providing CLECs with a self-
13 contained, production-like environment for sending transactions, CLECs have the
14 opportunity to experience an environment that acts as production IMA – the gateway to
15 Qwest's OSS – would without interfacing with the actual production environment. SATE
16 uses test account data and requests that are subjected to the same IMA-EDI edits as
17 those used in production.⁵⁹

18 In connection with SATE, Qwest makes available the same support teams to
19 CLECs to assist in testing and certifying CLEC interface software, as it does with

⁵⁸ Processes already implemented from the Revised CMP may be viewed: Change Management Process Improvements Rev. 2-15-02.
<<http://www.qwest.com/wholesale/cmp/redesign.html>>

1 progression testing in the Interoperability environment. Qwest's IMA-EDI
2 Implementation Team works directly with CLECs in implementing and utilizing SATE. In
3 addition, as discussed below, a SATE Users' Group meets regularly under the aegis of
4 the Change Management Process to discuss SATE-related issues and to recommend,
5 as appropriate, changes to SATE. Qwest also provides CLECs with the IMA EDI
6 Implementation Guide and other documentation to aid in the utilization of SATE.⁵⁹
7 Beginning with version 9.0, the IMA EDI Implementation Guide has included a staffing
8 plan which details Qwest's CLEC testing organizational structure and the roles and
9 responsibilities of all resources that directly support SATE, as well as diagrams that
10 describe the process flows of SATE.

11 **1. SATE and the Change Management Process**

12 Qwest built SATE to provide products and transactions that are currently being
13 ordered by CLECs through IMA-EDI.⁶¹ Qwest continues to monitor the products that
14 CLECs express interest in and has proactively added products or created CMP change
15 requests ("CRs") to add products to SATE. For example, Qwest agreed to add
16 Unbundled Distribution Loop and Unbundled Distribution Loop with Number Portability
17 to SATE for HP's new product evaluation, as Qwest anticipated future EDI

⁵⁹ See EDI Disclosure Document, Developer Worksheets, available at
<<http://www.uswest.com/disclosures/netdisclosure409.html>>.

⁶⁰ See Wholesale Web site, available at
<<http://www.qwest.com/wholesale/ima/edi/document.html>>.

⁶¹ The list of products can be found in the EDI Implementation Guidelines, available at
<<http://www.qwest.com/wholesale/ima/edi/document.html>>.

1 implementation of these products. Qwest created a CR to add Facility Based Directory
2 Listings to SATE, a product that was added to IMA-EDI in January 2002.⁶²

3 In addition, to ensure that CLECs have the functionality available in SATE that
4 they require, CLECs may request through the CMP that Qwest include additional
5 products and functionality in its suite of SATE transactions.⁶³

6 The SATE Users' Group was formed in November 2001 as part of CMP and
7 includes representatives from HP, KPMG, Qwest, and the CLEC community. The
8 purpose of the SATE Users' Group is to give Qwest and CLECs an opportunity to
9 communicate their current plans and needs, respectively, as well as to jointly present a
10 list of change requests to CMP that ensures that those future SATE enhancements
11 meet the needs of CLECs.⁶⁴ Qwest's EDI Implementation team relies upon the SATE
12 Users' Group to provide feedback to Qwest about SATE. The SATE Users' Group
13 currently meets on a monthly basis. As of December 31, 2001, Qwest has recorded six
14 new SATE functionality CRs based on CLEC requirements. These CRs were presented
15 to the CMP forum in the January 17, 2002 CMP meeting and prioritized in March.
16 SATE CRs are managed by CMP just as IMA CRs are managed.

⁶² CLECs have the ability to prioritize SATE CRs; thus the timing of the addition of new products to SATE is not entirely within Qwest's control.

⁶³ See EDI Implementation Guidelines, available at <http://www.qwest.com/wholesale/ima/edi/document.html>. The process states that "additional functionality can be agreed upon and added in later releases. Requests for transactions not currently supported may be requested via CMP." See *id.*

⁶⁴ See SATE Users' Group Meeting Minutes, November 13, 2001. In addition to the SATE Users' Group, individual CLEC's can request changes to SATE.

1 **E. FCC Evaluation Criteria 5: The efficacy of the documentation the**
2 **BOC makes available to CLECs for the purpose of building an**
3 **electronic gateway**

4 One factor that the FCC examines in evaluating a BOC's compliance with
5 Section 271 is the efficacy of the BOC's EDI documentation in helping CLECs build an
6 electronic gateway.⁶⁵ Qwest provides sufficiently detailed interface design
7 specifications to enable competing carriers to modify or design their systems in a
8 manner that will enable them to communicate with Qwest's systems and any relevant
9 interfaces. The fact that twenty CLECs are certified to use EDI and that Hewlett-
10 Packard successfully utilized Qwest's documentation to build its own EDI interface as
11 part of third party OSS testing are both strong indicators of the efficacy of Qwest's
12 documentation. CLECs comments contained in the CGE&Y *Final Report* assert that
13 Qwest's EDI development process "should become the model that all other RBOCs
14 follow."⁶⁶ Finally, the third party test results confirm the sufficiency of Qwest's EDI
15 development and documentation processes. CGE&Y specifically concluded in its *Final*
16 *Report* that "no major problems were noted with Qwest's EDI-related documentation
17 since the re-design of the Web site during the summer of 2000."⁶⁷

⁶⁵ See *In the Matter of Joint Application by SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance Pursuant to Section 271 of the Telecommunications Act of 1996 To Provide In-Region, InterLATA Services in Arkansas and Missouri*, CC Docket No. 01-194, 16 FCC Rcd at 20866 ("Arkansas/Missouri 271 Order") (App. D, ¶ 42).

⁶⁶ See *Draft Final Report* <<http://www.cc.state.az.us/utility/telephon/Qwest271.htm>>

⁶⁷ *Id.*

1 **F. Qwest's Pattern of Compliance**

2 AT&T Witness, Mr. Hydock, argues that Qwest has failed to demonstrated a
3 pattern of compliance with the change management process.

4 Again, Mr. Hydock's argument has no merit. Qwest has demonstrated a pattern
5 of compliance with the change management process.⁶⁸ Qwest has complied with the
6 agreed-upon scope of the CMP. As of March 27, 2002, Qwest has only rejected one
7 CR on the grounds that it was not within the scope of the CMP.

8 In Qwest's processing of change requests, it has met its obligations with regard
9 to the following agreed-upon process milestones: 1) sending acknowledgements to the
10 CR originator; 2) posting CRs to Qwest's CMP Web site; 3) contacting customers to
11 schedule clarification meetings; 4) conducting meetings to clarify CLEC CRs; 5)
12 providing initial responses to CLEC CRs; 6) posting initial responses to Qwest's CMP
13 Web site; 7) presenting CRs; 8) providing final responses to CLEC CRs (if applicable);
14 and 9) posting final responses to Qwest's CMP Web site (if applicable.) Between
15 November 1, 2001 and February 2002, Qwest processed 58 new OSS interface CRs.
16 Of a possible 347 milestones, Qwest was responsible for missing two milestones. This
17 equates to a 99.42% compliance rate with the CLEC/Qwest Initiated OSS Interface CR
18 Process. During this same time, Qwest processed 32 new CLEC initiated Product and
19 Process CRs. Of a possible 126 milestones, Qwest was responsible for missing seven
20 milestones. This equates to a 94.44% compliance rate with the CLEC Initiated Product

⁶⁸ One of the PIDs [established by the ROC and adopted in Arizona] will measure timeliness of Qwest's release notifications (PO-16).

1 and Process CR Process. Significantly, the compliance rate for this process in January
2 and February 2002 was 100%. Qwest also has met its obligations to: 1) track and
3 document the status of change requests; 2) to hold regular CMP meetings; 3) to provide
4 meeting materials in advance of the meetings; and 4) to record meeting discussion
5 action items, and issues. This information may be found at Qwest's CMP Web site.⁶⁹

6 In Qwest's processing of escalations, it has met its obligations with regard to the
7 following agreed-upon process milestones: 1) acknowledging receipt of escalation; 2)
8 posting escalation on Qwest's CMP Web site; 3) issuing notice to CLECs; and 4)
9 providing Qwest's binding response. As of February 2002, Qwest processed one OSS
10 Interface escalation and four Product/Process escalations. Of a possible 16 milestones,
11 Qwest was responsible for missing one milestone. This equates to a 93.75%
12 compliance rate with the Escalation Process. Qwest also met its obligations regarding
13 the development and implementation of a web-based tool for escalation requests.

14 Qwest made a commitment to provide green highlighting of all changes
15 published in the PCAT and to red-line all changes published in the TechPubs beginning
16 January 2, 2002. Since then, Qwest has published 102 PCAT and ten TechPub
17 changes. All of these documents contained the agreed-upon highlighting/red-lining web
18 notification forms, history logs, and customer notification forms.

19 Qwest has demonstrated compliance with the Prioritization Process. In February
20 2002, CLECs and Qwest jointly prioritized CLEC-Originated CRs, Qwest-Originated
21 CRs, and Industry Guideline CRs for the IMA 11.0 Release. At that time, there were

⁶⁹ See <<http://www.qwest.com/wholesale/cmp/index.html>>

1 only nine outstanding CLEC-initiated CRs. In addition to demonstrating a pattern of
2 compliance with its change management procedures, Qwest also established a pattern
3 of quickly implementing agreements reached in the redesign process. Qwest also
4 demonstrated a pattern of compliance with its release notification and documentation
5 changes requirements.

6 Mr. Hydock claims that Qwest has not followed through on its promise to update
7 its technical publications and its product catalog (PCAT) to ensure that those
8 documents were consistent with the SGAT.

9 Again, Mr. Hydock is mistaken – for two reasons. First, Qwest has a long-
10 standing procedure that links the Product Managers to those that manage the contents
11 of the SGAT. During negotiation for modifications to the SGAT working meetings are
12 routinely held with the Product Managers affected by the SGAT change. Once the
13 Change has been negotiated the Product Team has 45 days to implement the change
14 in the PCAT so that the information in the PCAT and SGAT are aligned. During this
15 time the Product Manager works with the manager of the impacted Technical
16 Publication to assure that document is aligned with the PCAT. Second, the publications
17 listed in Mr. Hydock's testimony have been reviewed. Qwest met each commitment for
18 these documents within 45 days and all commitments were met by August 2001. The
19 publications are current and aligned with the SGAT.

1 Mr. Hydock asserts that the CMP redesign process is not complete and implies
2 that it should have to complete with KPMG's approval before it is considered
3 compliant.⁷⁰

4 The change management process is dynamic, as all processes are dynamic.
5 Qwest launched a redesign effort to ensure the change management process
6 framework had full and meaningful input by the CLECs. Throughout the negotiation of
7 the redesigned process the CLECs have underscored the need for the process to be
8 flexible. The QWCMP specifically provides for the process to be flexible. "A standing
9 agenda item at the regular change management meetings will provide an opportunity for
10 Qwest and CLECs to assess the effectiveness of the CMP. Both the CLECs and Qwest
11 will use this opportunity to provide feedback of instances of non-compliance and commit
12 to taking appropriate action(s)."⁷¹

13 Each time a process is approved for implementation and inserted into the
14 redesigned framework, Qwest has employed the process at the next available
15 opportunity. This can be verified by review of the Web documentation, the OSS
16 Calendar, the document controls and more as listed previously. Moreover, the CLECs
17 had substantial input in setting the agenda items for each CMP redesign session and
18 were never precluded from raising any issue at any point in the process. KPMG has
19 observed that Qwest used the agreed upon processes when the opportunity became
20 available. "KPMG Consulting reviewed the IMA 11.0 CR Prioritization form that Qwest

⁷⁰ Hydock Affidavit at 33.

1 distributed on February 25, 2002, in which Qwest disclosed release capacity and LOE
2 for both Qwest and CLEC initiated CRs in terms of person hours.⁷² The dynamic to
3 implement processes in the re-designed CMP as the opportunity to do so becomes
4 available will continue.

5 Mr. Hydock appears to suggest that the Commission should wait until Qwest
6 "run[s] a major OSS change through the redesigned CMP process to ensure that it is
7 actually functioning in the manner it is suppose to" before assessing Qwest's pattern of
8 compliance.⁷³ No such delay is warranted because Qwest has already established a
9 sufficient track record of compliance.

10 Qwest has implemented each process upon agreement of that process within the
11 CMP redesign work with the CLECs. The processes that document CR initiation,
12 prioritization and implementation (Release Management) have been agreed upon. The
13 Release for 9.0 was well into the timeline for implementation, yet agreed upon
14 processes that could be implemented were used for that release. For example, SATE
15 was available approximately 30 days in advance of implementation. In addition, Qwest

⁷¹ Qwest Wholesale Change Management Process Section 7. See also discussion of the dispute resolution process, *infra*. <<http://www.qwest.com/wholesale/cmp/whatscmp.html>>

⁷² KPMG, Exception 3111.

⁷³ Hydock Affidavit at 33.

- 1 publishes a Release calendar to the CMP Web site with the agreed to milestones for
- 2 each Release including the projected meeting date. The calendar is complete through
- 3 Release 11.0.⁷⁴ Qwest has demonstrated a pattern of compliance by meeting the dates
- 4 and completing the work associated with each specific milestone.

⁷⁴ See <<http://www.qwest.com/wholesale/cmp/oss/calendar.html>>

BEFORE THE
PUBLIC UTILITIES COMMISSION
STATE OF SOUTH DAKOTA

IN THE MATTER OF THE INVESTIGATION)
INTO QWEST CORPORATION'S)
COMPLIANCE WITH SECTION 271 (C) OF THE)
TELECOMMUNICATIONS ACT OF 1996)

DOCKET TC 01-165

QWEST CORPORATION'S

EXHIBITS

OF

LYNN M. V. NOTARIANNI

CHECKLIST ITEM 2 – OPERATIONS SUPPORT SYSTEMS (OSS)

APRIL 2, 2002

INDEX TO EXHIBITS

<u>DESCRIPTION</u>	<u>EXHIBIT</u>
Multistate Exhibit WS3-ATT-MFH-2.....	LVN-1

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF
SOUTH DAKOTA

In the Matter of the Investigation)
into Qwest Corporation's)
Compliance with Section 271(c) of the)
Telecommunications Act of 1996)
_____)

Docket No. TC01-165

I declare under penalty of perjury under the laws of the United States of America
that the foregoing is true and correct to the best of my knowledge, information, and
belief.

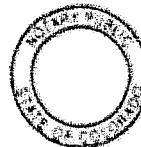
Executed this 26th day of March, 2002.

[Signature]

STATE OF Colorado)
)ss.
COUNTY OF Denver)

Subscribed and sworn before me this 26th day of March, 2002.

[Signature]
Notary Public



PAMELA L. LANING
Notary Public
State of Colorado
My Commission Expires
06-29-2002

Docket No. TC 01-165
Qwest Corporation
Rebuttal Affidavit of Lynn M. V. Notaranni
Exhibit LVN-1
April 2, 2002

Multistate Exhibit WS3-ATT-MFH-2

CONTINUATION

[A] 6

12.2.9.3 Qwest will provide CLEC with access to a stable testing environment to certify that its OSS will be capable of interacting smoothly and efficiently with Qwest's OSS. Qwest has established the following test processes to assure the implementation of a solid interface between Qwest and CLEC:

12.2.9.3.1 Connectivity Testing – CLEC and Qwest will conduct connectivity testing calls. This test will establish the ability of the trading partners to send and receive EDI data, EDI, CORBA and other application-to-application interface messages effectively. This test verifies the communications between the trading partners. Connectivity is established during each phase of the implementation cycle. This test is also conducted prior to Certification Testing and before going live in the production environment if CLEC has implemented environment changes when moving into production.

Connectivity testing will also be conducted prior to the implementation of changes that Qwest makes to the means by which CLEC interconnects with Qwest for application-to-application interfaces.

12.2.9.3.2 Stand-Alone Testing Environment – Qwest is developing a will conduct stand-alone testing environment to take pre-order and order requests, pass them to the stand-alone database process them within its OSS and legacy systems and databases, and return responses to CLEC, consistent with Qwest business rules during its CLEC development and implementation of EDI/CORBA and other application-EDI-to-application interfaces. The Stand-Alone Testing Environment provides CLEC the opportunity to validate its technical development efforts. The Stand-Alone Testing Environment will be separate from the production environment. While separate from the production environment, the Stand-Alone Testing Environment will be designed such that the results of testing in the Stand-Alone Testing Environment will be identical to the results produced in the production environment. When CLEC is testing its interface with a new Qwest release, the test systems are migrated into production at the conclusion of Qwest-CLEC joint testing ensuring consistency of results. In the testing with an existing Qwest release, the test environment is to be a mirror of the existing Qwest production environment.

This testing verifies CLEC's ability to send correctly formatted EDI, CORBA and other application-to-application interface transactions through the EDI/IMA Qwest interface and system edits successfully both for new and existing releases. Stand Alone Testing uses test account data and may use test engineering data. Qwest will provide a test bed of test accounts and test engineering data as requested by CLEC for loop-related testing that can be used to submit stand alone test transactions. Qwest will make additions to the test beds to introduce new OSS capabilities, new products and services, new interface features, and functionalities, that are to be used by CLECs to ensure that their systems work with Qwest's systems. All stand alone test pre-order queries and orders are subjected to the same edits as production orders. This testing phase is optional.

12.2.9.3.3 Interoperability Testing – CLEC has the option of participating with Qwest in interoperability testing to provide CLEC with the opportunity to validate technical development efforts and to quantify processing results. The Interoperability Testing Environment will be separate from the production environment. While separate from the production environment, the Interoperability Testing Environment will be designed such that the results of testing in the Interoperability Testing Environment will be identical to

the results produced in the production environment. When CLEC is testing its interface with a new Qwest release, the test systems are migrated into production at the conclusion of Qwest-CLEC joint testing ensuring consistency of results. In the testing with an existing Qwest release, the test environment is to be a mirror of the existing Qwest production environment.

Interoperability testing verifies CLEC's ability to send correct EDI, CORBA and other application-to-application interface transactions through the EDI/MAQwest interface and system edits successfully. Interoperability testing requires the use of valid Qwest data. Qwest will provide a test bed of test accounts and test engineering data as requested by CLEC for the loop-related testing that can be used to submit interoperability test transactions. All interoperability pre-orders and orders are subjected to the same edits as production orders. This testing phase is optional when CLEC has conducted Stand-Alone Testing successfully.

12.2.9.3.4 Controlled Production Testing – Qwest and CLEC will perform controlled production. The controlled production process is designed to validate the ability of CLEC to transmit EDI, CORBA and other application-to-application interface messages and data that completely meets meet ANSI X12 standards definitions and complies with all Qwest business rules. When Qwest migrates its OSS interfaces to more advanced industry standards consistent with its CICMP, Controlled Production Testing will validate CLEC systems compliance with those standards as adopted by Qwest and published as Qwest interface specifications. Controlled production consists of the controlled submission of actual CLEC production requests to the Qwest production environment. Qwest treats these pre-order queries and orders as production orders transactions. Qwest and CLEC use controlled production results to determine operational readiness. Controlled production requires the use of valid account and order data. All certification orders are considered to be live orders and will be provisioned.

12.2.9.3.5 Comprehensive Production Testing — Comprehensive Production Testing provides a CLEC with a stable test environment that permits a comprehensive testing of the totality of Qwest's operational interfaces and processes in conjunction with the actual preordering, ordering, provisioning, billing and maintenance of Network Elements, Ancillary Services and Combinations, including, without limitation, UNE-P, prior to or contemporaneously with the offering by CLEC of any CLEC product or service incorporating Qwest's Network Elements, Combinations or Ancillary Services. Such Comprehensive Production Testing shall be designed to permit an individual CLEC to test its own operational interfaces and processes in conjunction with Qwest's and shall be in addition to any testing processes engaged in by Qwest per testing conducted by, for, or under the auspices of the Regional Oversight Committee. Comprehensive Production Testing is distinguishable from Controlled Production testing in that Comprehensive Production Testing provides testing of Qwest's operational interfaces and processes without reference to "controlled" production results.

12.2.9.3.5.1 Comprehensive Production Testing means that Qwest shall cooperate with CLEC upon request or as needed to: (a) ensure that the Network Elements, Combinations, Ancillary Functions and additional requirements that are or may be provided to CLEC by Qwest are in compliance with the requirements of this Agreement. (b) test the overall functionality of various Network Elements, Combinations and Ancillary Functions provided by Qwest to CLEC in combination with each

other or in combination with other equipment and facilities provided by CLEC or third parties; and (c) ensure that all operational interfaces and processes, including EDI, CORBA, IMA and other application-to-application interfaces, are in place and functioning properly and efficiently (i) for all ordering and preordering functions of Network Elements and Ancillary Functions, (ii) for the provisioning and maintenance of Network Elements and Ancillary Functions, and (iii) so that all appropriate billing data can be provided to CLEC.

12.2.9.3.5.2 Comprehensive Production Testing may be conducted at the option of CLEC, at any time during the term of this Agreement, including, but not limited to, prior to actual deployment to end users of any CLEC product or service incorporating Qwest's Network Elements, Combinations or Ancillary Services. Comprehensive Production Testing may be conducted by CLEC for any purpose including, but not limited to, determining whether any product or service CLEC desires to offer to any end user incorporating Qwest's Network Elements, Combinations or Ancillary Services can be actually deployed by CLEC.

12.2.9.3.5.3 Qwest shall participate in Comprehensive Production Testing upon CLEC's request to test any operational interface or process used to provide Network Elements, Ancillary Functions or services to CLEC. CLEC and Qwest shall commence and complete Comprehensive Production Testing promptly.

12.2.9.3.5.4 Within ten (10) business days after CLEC's written notice to Qwest of its intent to conduct Comprehensive Production Testing, CLEC and Qwest shall meet and continue meeting no less frequently than once per week thereafter to agree upon a process to resolve technical issues relating to Comprehensive Production Testing. Within thirty (30) business days after CLEC's written notice to Qwest of its intent to conduct Comprehensive Production Testing, CLEC and Qwest shall have agreed on processes and procedures for implementing Comprehensive Production Testing as intended by CLEC. The agreed upon process shall include procedures for escalating disputes and unresolved issues up through higher levels of each company's management. If (a) CLEC and Qwest do not reach agreement on such a process within thirty (30) days after notice to Qwest of CLEC's intent to conduct Comprehensive Production Testing, or (b) Qwest has failed to meet or continue meeting with CLEC or otherwise indicated its intention not to conduct Comprehensive Production Testing, or (c) during any Comprehensive Production Testing Qwest fails to satisfy any of the requirements set forth in this Section 12.2.9.3.5, any issues that have not been resolved by the parties with respect to such process or Qwest's failure to satisfy any of the requirements of this Section 12.2.9.3.5 shall be submitted, at the sole discretion of CLEC, to either (i) the Dispute Resolution procedures set forth in Section 5.18 of this Agreement or (ii) any expedited dispute resolution or complaint process available or permitted by or before the Commission.

12.2.9.3.5.5 Qwest shall provide CLEC, for testing purposes, access at any interface between a Qwest Network Element or Combination and CLEC equipment or facilities. Such test access shall be sufficient to ensure that the applicable requirements can be tested by CLEC. This access shall be available seven (7) days per week, twenty-four (24) hours per day. CLEC may test any Network Elements, Ancillary

Functions or additional requirements provided by Qwest pursuant to this Agreement.

12.2.9.3.5.6 CLEC may test any OSS, including EDI, CORBA, IMA, and other application-to-application interfaces provided by Qwest pursuant to this Agreement. Qwest shall provide a test environment for CLECs to test and interact with new versions of Qwest's gateway systems and software.

12.2.9.3.5.7 Qwest shall provide engineering data as requested by CLEC for the loop components that CLEC may desire to test. Such data shall include equipment engineering and cable specifications, signaling and transmission path data.

12.2.9.3.5.8 Upon CLEC's request, Qwest shall provide CLEC any office records, central office layout and design records and drawings, system engineering and other applicable documentation pertaining to a Network Element or Ancillary Function or the underlying equipment that is then providing a Network Element or Ancillary Function to CLEC.

12.2.9.3.5.9 Qwest shall provide CLEC upon request any applicable test results from Qwest testing activities on a Network Element, Ancillary Function, Additional Requirement or the underlying equipment providing CLEC a Network Element, Ancillary Function or additional requirement. CLEC may review such testing results and may ask Qwest to rectify any deficiencies that are detected.

12.2.9.3.5.10 For the purposes of Comprehensive Production Testing, Qwest shall temporarily provision selected Local Switching features for testing. Within sixty (60) days of the Effective Date of this Agreement, CLEC and Qwest shall mutually agree on the procedures to be established between Qwest and CLEC to expedite such provisioning processes for feature testing.

12.2.9.3.5.11 For the purposes of Comprehensive Production Testing, Qwest shall provision, whether singly or as part of a Combination, any kind of Unbundled Loops designated by CLEC in such quantities and to any location or locations reasonably requested by CLEC. For example, Qwest shall provision, either singly or as part of a Combination, a "residential" loop to a commercial facility, such as an office building. In such cases, Qwest shall not assert that tariff limitations restrict such provisioning.

12.2.9.3.5.12 Upon CLEC's request, Qwest shall provide technical staff to meet with CLEC representatives to provide required support for Comprehensive Production Testing.

12.2.9.3.5.13 Dedicated Transport and Loop Feeder may experience alarm conditions due to in-progress tests. Qwest shall not remove such facilities from service without obtaining CLEC's prior approval.

12.2.9.3.5.14 Qwest may conduct tests or maintenance procedures on Network Elements of Ancillary Functions (or the underlying equipment that is then providing a Network Element or Ancillary Function) that cause a service interruption or degradation if such tests and procedures are conducted at a time that is mutually acceptable to CLEC and Qwest.

12.2.9.3.5.15 Qwest shall provide CLEC a single point of contact that is available seven (7) days per week, twenty-four (24) hours per day for trouble status, sectionalization, resolution, escalation and closure. Such staff shall be adequately skilled to facilitate expeditious problem resolution.

12.2.9.3.5.16 Qwest shall provide CLEC electronic access to 105 responders, 100-type test lines, or 102-type test lines associated with any circuits under test.

12.2.9.3.5.17 During Comprehensive Production Testing, Qwest provisioning processes shall be enhanced to deliver CLEC Network Elements, Ancillary Functions and any additional requirements in shorter intervals than during subsequent normal service periods.

12.2.9.3.5.18 Qwest shall participate in Comprehensive Production Testing whenever it is deemed necessary by CLEC to ensure service performance, reliability and customer serviceability.

12.2.9.3.5.19 CLEC may accept or reject the Network Element ordered by CLEC if upon completion of cooperative acceptance testing, the tested Network Element does not meet the requirements stated herein.

12.2.9.3.5.19 Either party may supply information about the Comprehensive Production Testing conducted pursuant this section to regulatory agencies including the Federal Communications Commission and the Commission so long as any confidential obligation is protected pursuant to the terms of Section 5.16.

12.2.9.3.5 If CLEC is using EDI, CORBA, or another application-to-application interface, Qwest shall provide CLEC with a pre-allotted amount of time to complete certification of its business scenarios. It is the sole responsibility of CLEC to schedule an appointment with Qwest for certification of its business scenarios. CLEC must comply with the agreed upon dates and times scheduled for the certification of its business scenarios. If the certification of business scenarios is delayed due to CLEC, it is the sole responsibility of CLEC to schedule new appointments for certification of its business scenarios. Conflicts in the schedule could result in certification being delayed. If a delay is due to Qwest, Qwest will honor CLEC's schedule through the use of alternative hours.

12.2.9.4 If CLEC is using the EDI, CORBA or another application-to-application interface, CLEC must work with QWEST to certify the business scenarios that CLEC will be using in order to ensure successful transaction processing. Qwest and CLEC shall mutually agree to the business scenarios for which CLEC is required to be certified. Certification is granted only for a specific release of EDI-Qwest's EDI and CORBA interfaces.

12.2.9.4.1 For new a new software release or upgrade, Qwest will provide CLEC a testing environment that mirrors the production environment in order for CLEC to test the new release. For software releases and upgrades, Qwest has

implemented the testing processes set forth in Section 12.2.9.3.2, 12.2.9.3.3 and 12.2.9.3.4.