Regional Oversight Committee (ROC)

Test Requirements Document (TRD) for the 3rd Party Test of U S WEST Operational Support Systems (OSS)

Issued to:
Interested Vendors

Issued by:
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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
- 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 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 if 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 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 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, US 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 available[1] 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 none 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

[1] *MCI 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 MCI 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

- 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	• Establishes the testing principles • Establishes the procurement plan • Selects the TA, the P-CLEC, and the PMA	• Approves the master test plan • Contracts with vendors for services • Constructs proprietary and non-disclosure agreements	• Monitors activities • Receives daily issues logs • Reviews exception reports • Reviews interim report • Reviews party comments on exceptions	• Reviews exception reports • Reviews proposals for remedy • Reviews closure reports • Reviews endorsements • Collects party comments on each exception	• Receives draft • Reviews party comments • Receives final report • Prepares advisory package for SC/EC
US WEST	• Directly involved to provide input to the plan	• 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	• Provides systems, operations, work centers, and support in routine manner for test • Interacts with P-CLEC • Collects raw performance data • Provides access as required to TA and PMA	• Receives notices • Prepares proposal for remedy • Advises test administrator when retesting can be done • Receives retest report • Receives closure report • Endorses (or withholds) closure through written comments	• Receives draft • Provides comments on test outcome • Provides comments on complementary production experience
CLECs	• Directly involved to provide input to the plan	• 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	• Provide resources as committed in MTP Including CLEC interfaces for EB-TA, EXACT	• Receives notices • Receives US WEST proposals for remedies • Receives retest report • Receives closure reports • Endorses (or withholds) closure through written comments	• Receives draft • Provides comments on test outcome • Provides comments on complementary production experience
TA	• Authors the plan with input from CLECs and US WEST • Documents test scenarios within the plan	• 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	• Executes tests • Gathers information for evaluations • Gathers observation facts • Prepares status reports • Authors interim report	• Issues notices of material defect, failed success criteria, or exception • Works with US WEST to resolve • Re-tests • Prepares closure reports	• Prepares draft • Collects party comments • Prepares final report
P- CLEC	• No involvement	• Develops test cases to coincide with test scripts and variables • Creates test datastores	• Generates test transactions according to TA schedule • Interacts with US WEST • Collects results of test transactions		• Provides input for final report • Reviews draft for accuracy • Provides comments to TA
PM Auditor	• No involvement	• Develops audit plan with input from CLECs and US WEST	• Conducts audit of PM end-to-end process • Conducts parity by design process reviews • Conducts audit of PM documentation & calcs. • Verifies system coding vs requirements • Defines monitoring plan	• Issues notices of performance measurement deficiencies and exceptions • Verifies fixes • Prepares audit report	• Audit report may be excerpted or appended to final report • Reviews draft of final report for accuracy on PM audit, if required

	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.nrri.ohio-state.edu/oss.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	Pseudo 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

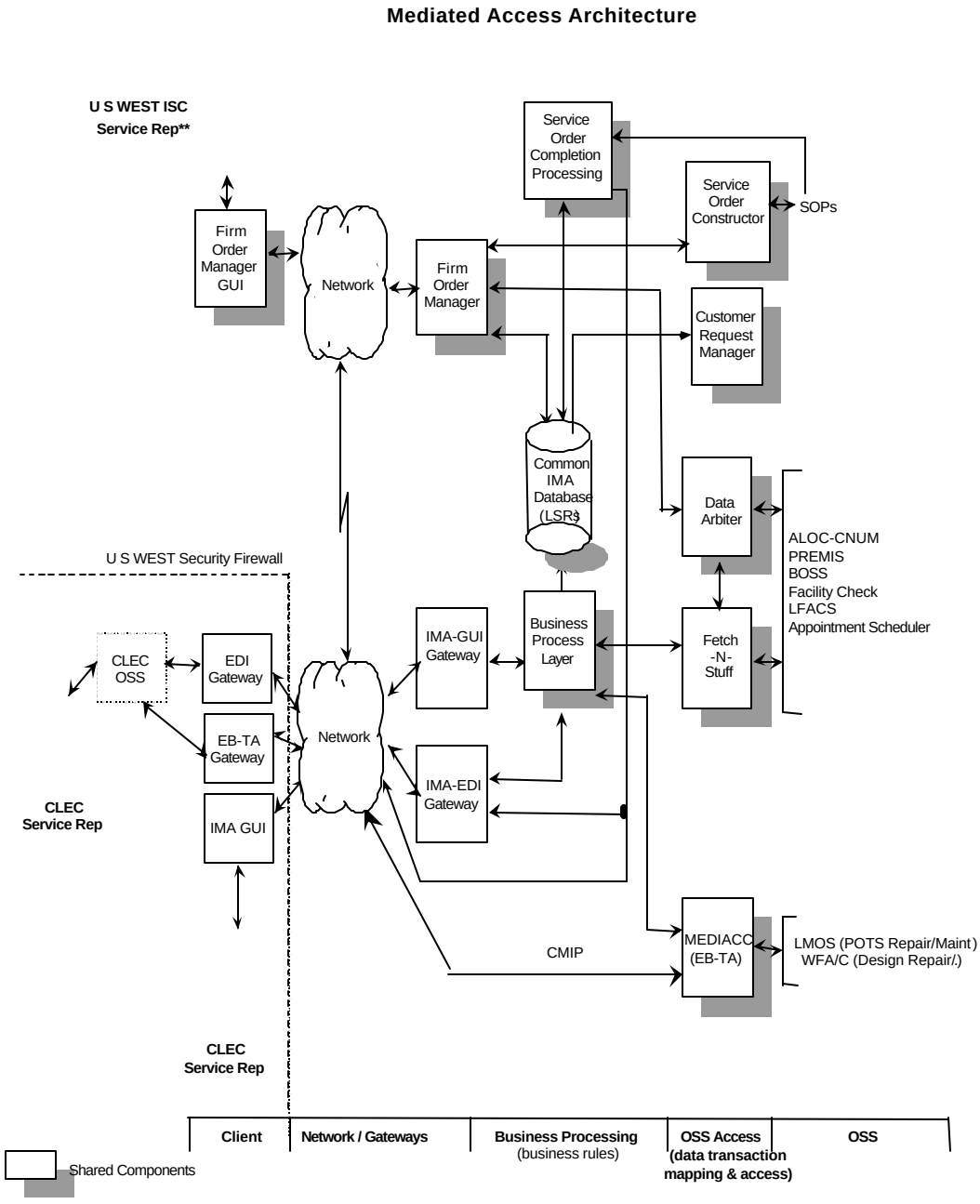
The EXACT interface is used by CLECs to order wholesale services requiring Access Services Requests (ASRs).

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.

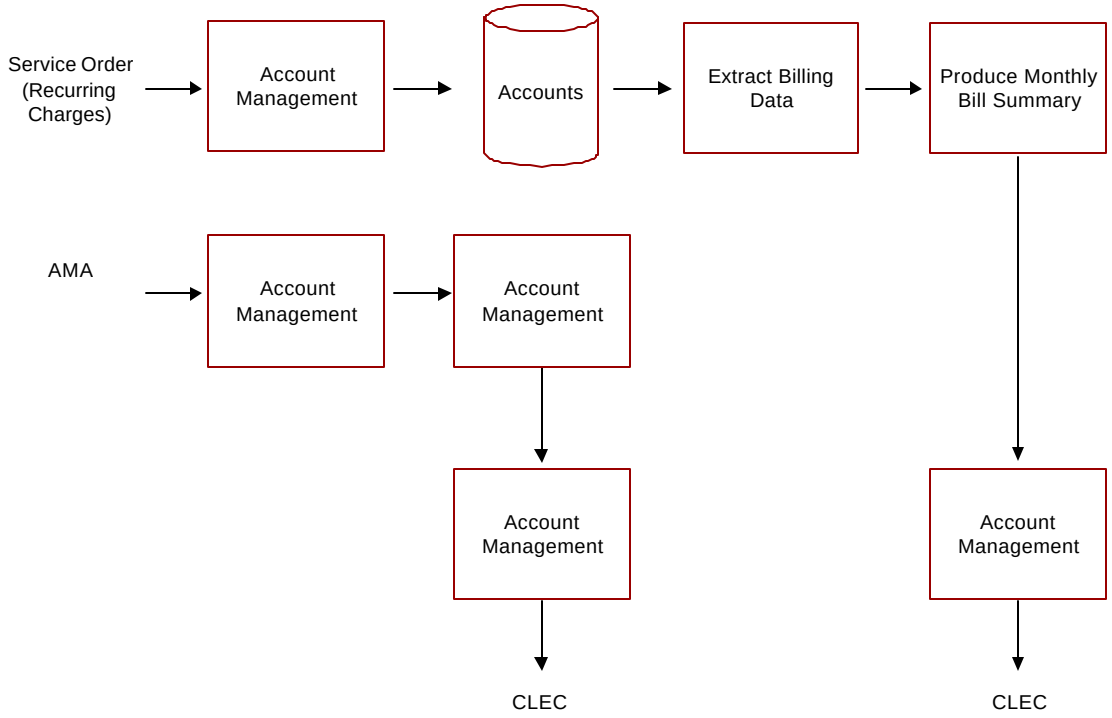
6.3.2 Maintenance and Repair

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

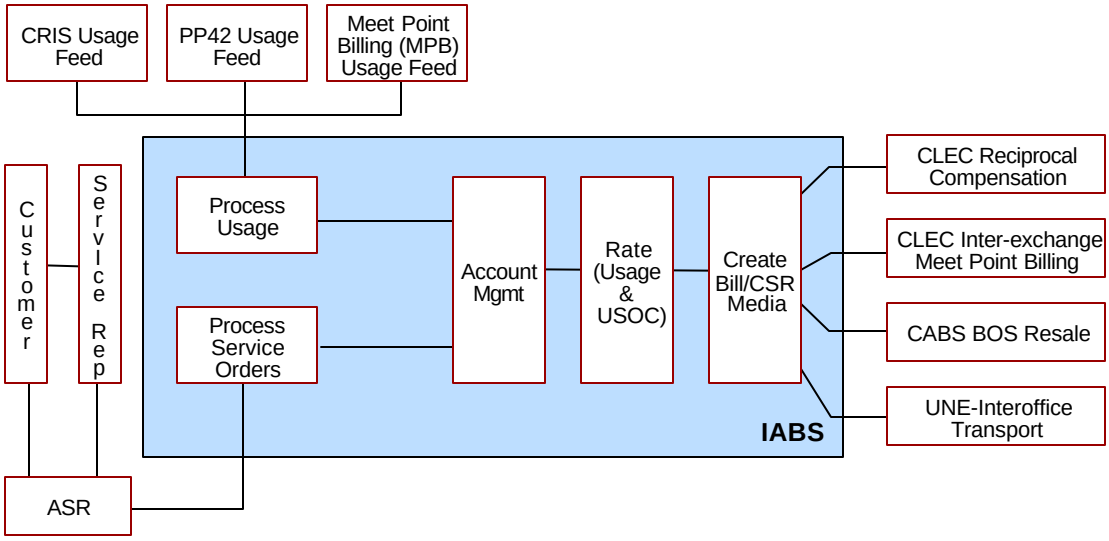


6.3.4 IABS

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	MN	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
MediAcc 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 Arbiter	Data Arbiter-1	Data Arbiter-1	Data Arbiter-1	Data Arbiter-1	Data Arbiter-1	Data Arbiter-1	Data Arbiter-1	Data Arbiter-1	Data Arbiter-1	Data Arbiter-1	Data Arbiter-1	Data Arbiter-1	Data Arbiter-1	Data Arbiter-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-E	CRIS-C	CRIS-E	CRIS-C	CRIS-E	CRIS-E	CRIS-C	CRIS-W	CRIS-E	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 tarriffed 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 if 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

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

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***
The Test Plan has been approved.	*ROC*
No legally effective orders or injunctions preventing the test exist.	*U S WEST, ROC*
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.	*ROC, PMA*
All interfaces required for testing have been tested and certified using existing practices.	*U S WEST, P-CLEC, CLECs*
The P-CLEC must be operationally ready.	*P-CLEC, TA*
Statistical Plan in place	*ROC, TA and TAG*
Pass and retest criteria have been identified	*ROC and TA*
Test Administrator has reviewed relevant source documentation from other tests.	*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 define 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 US 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

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***
All global entrance criteria	*See Section 7*
Performance measures / PID have been agreed upon	*Test Manager, ROC*
Performance measurement documentation is approved	*Test Manager, ROC*
U S WEST wholesale performance measure processes, systems and software are complete and available for inspection and testing	*Test Administrator, ROC*
Product descriptions and business rules for all performance measures to be evaluated are available	*Test Administrator, U S WEST*
Interview guides are available	*Test Administrator*
U S WEST subject matter experts to be interviewed are projected to be available	*Test Administrator, U S WEST*

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

Criteria	*Responsible Party*
All exceptions are cleared	*Test Administrator, TAG*
Monitoring plan is complete	*Test Administrator, TAG*
Final report is complete	*Test Administrator, TAG*

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 resale 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*
All global entrance criteria	*See Section 7*
Performance measures / PID have been agreed upon	*Test Manager, ROC*
Performance measurement documentation is approved	*Test Manager, ROC*
U S WEST retail performance measure processes, systems and software are complete and available for inspection and testing	*Test Administrator, ROC*
Product descriptions and business rules for all retail measures to be evaluated are available	*Test Administrator, U S WEST*
Interview Guides Available	*Test Administrator*
U S WEST subject matter experts to be interviewed are projected to be available	*Test Administrator, U S WEST*

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*
All exceptions are cleared	*Test Administrator, TAG*
Monitoring plan is complete	*Test Administrator, TAG*
Final report is complete	*Test Administrator, TAG*

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*
All global entrance criteria	*See Section 7*
Order and transaction documentation available	*U S WEST*
Change management procedure documentation available	*U S WEST*
Process evaluation checklist is available	*Test Administrator*
Interview guides are available	*Test Administrator*
Interviewees are available and scheduled	*Test Administrator, U S WEST*

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:

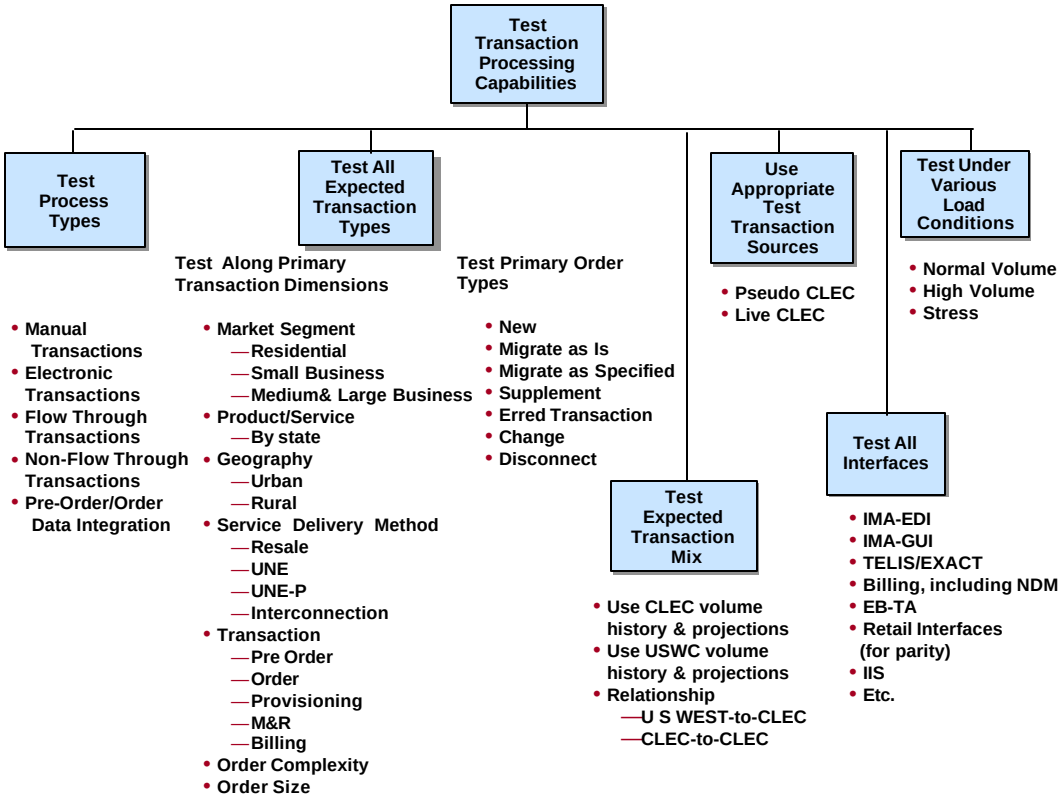
- Test Data Dimensions
- Test Scenarios

- 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 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.

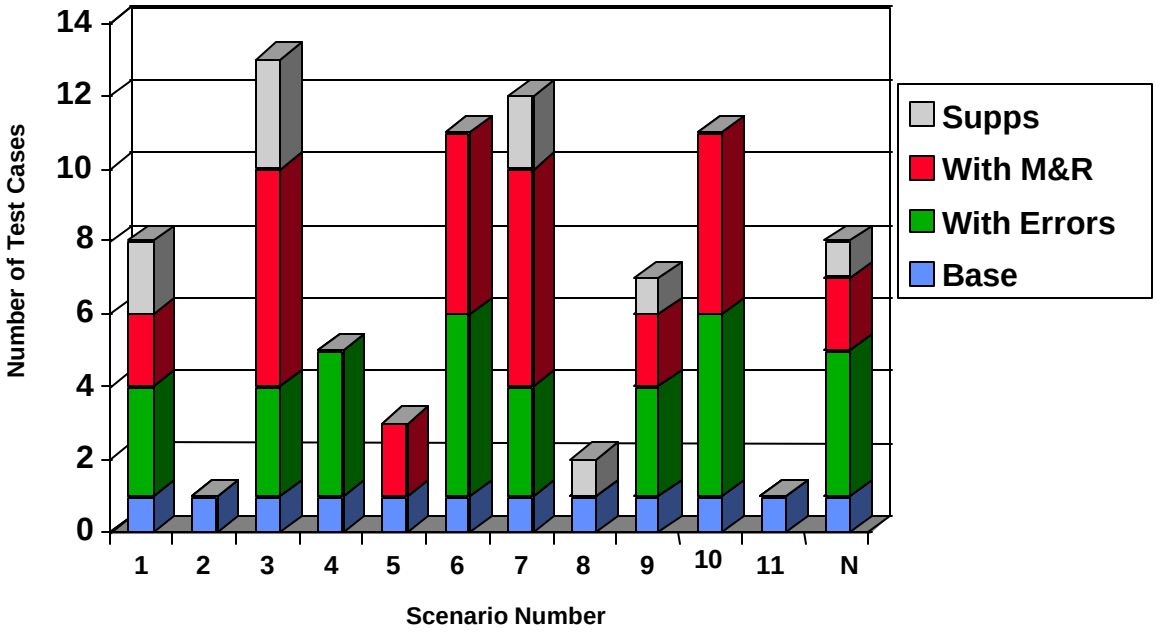
These scenarios will be used to test functionality, performance, and other attributes associated with the ability of CLECs to access information from U S WEST business processes and associated systems. Scenarios provide a way to bridge across test domains and families, thereby facilitating both point-specific 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.

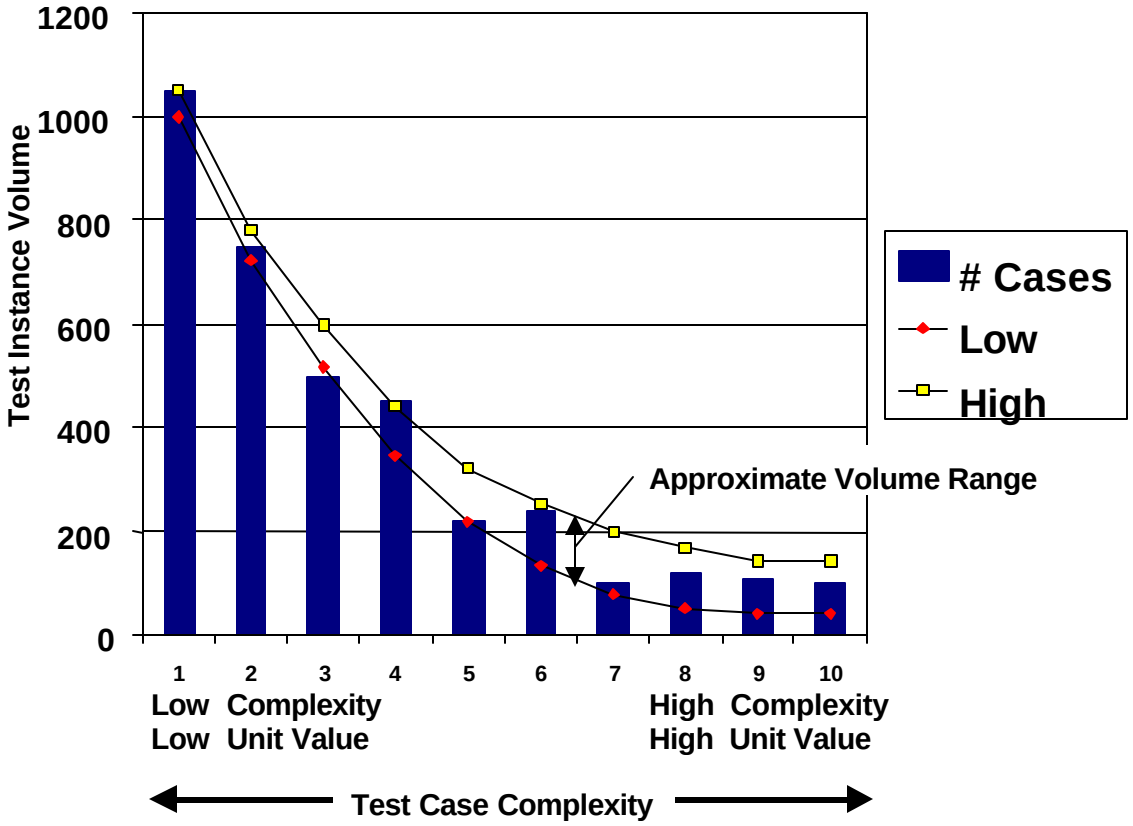
In a manner similar to the creation of multiple test cases from each scenario by varying order dimensions and attributes, multiple test instances can be created from each test case by varying order dimensions and attributes.

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

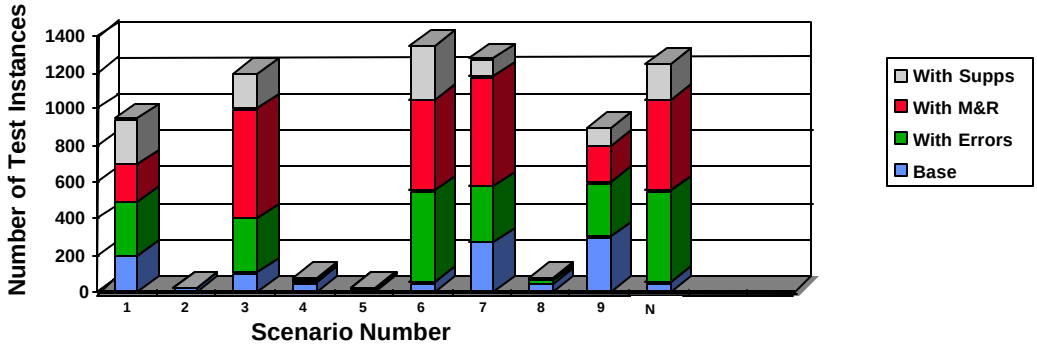


The replicate transaction mix will also include consideration of LIDB (Line Information Data Base) orders (for example, PIC or LPIC changes), 9-1-1 and Directory database updates, 900/976 calling and blocking as appropriate across the various scenarios.

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.

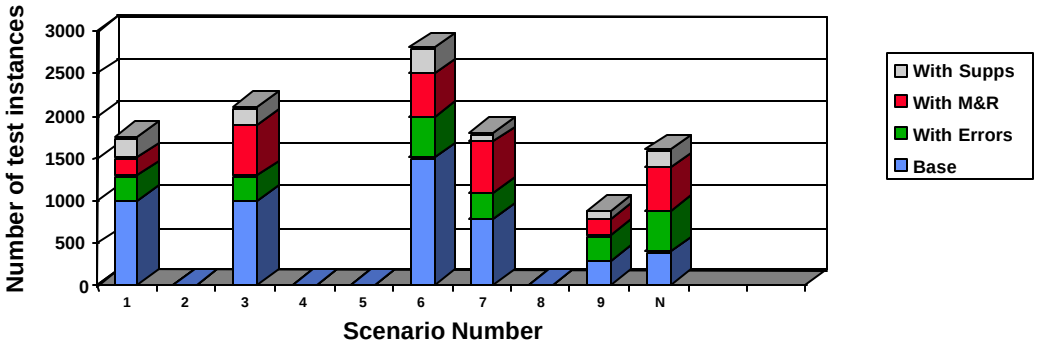
Figure 11.7: Reasonably Expected Volumes



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

11.10.1Description

This section describes the collaborative process whereby the test data requirements defined in this document will be extended to provide a test data specification.

11.10.2Objective

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.

11.10.3Entrance 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*
Test Plan is complete	*ROC*
Scenarios have been defined and approved	*ROC*
Test Administrator has been selected	*ROC, U S WEST*
Statistics plan is in place	*ROC, TA and TAG*

11.10.4Test 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.

11.10.5Exit 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*
All global entrance criteria	*See Section 7*
Interfaces are built and tested	*Test Administrator*
Interfaces are "certified" by U S WEST	*U S WEST*
Inventory documented of all U S WEST relevant (company-wide and regional) systems and interfaces identifying release number and version	*TA, U S WEST*
Wholesale and retail measurement processes evaluated	*Test Administrator, ROC*
Measurement collection process is defined	*Test Administrator*
Dial-up connectivity to GUI interface established	*Test Administrator, U S WEST*
Business rules for all transactions to be tested are available.	*U S WEST*
Test bed databases and facilities in place	*U S WEST*
CLEC test volunteers identified	*Test Administrator*
Test Scenarios developed	*Test Administrator*
Test Cases developed	*Test Administrator*
Specific Test Cases to test in conjunction with CLEC volunteers identified	*Test Administrator*
Specific Evaluation techniques developed	*Test Administrator*
Evaluation Criteria defined and approved	*Test Administrator*
Detailed "Go/No Go" checklist created	*Test Administrator*
Help Desk log and contact checklists created	*Test Administrator*

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***
All global exit criteria	*See Section 7*

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*
All global entrance criteria	*See Section 7*
All Section 12 Entrance Criteria	*See Section 12.3*
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	*U S WEST*
Test Scenarios selected	*Test Administrator*
Specific Test Cases developed	*Test Administrator*
Test Case execution schedule developed	*Test Administrator*

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*
All global entrance criteria	*See Section 7*
All Section 12 entrance criteria	*See Section 12.3*
Test Scenarios selected	*Test Administrator*
Specific Test Cases developed	*Test Administrator*
CLEC volunteers identified	*Test Administrator*
Provisioning log and activity checklists created	*Test Administrator*
Test case execution schedule developed	*Test Administrator*

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*
All global entrance criteria	*See Section 7*
All Section 12 entrance criteria	*See Section 12.3*
Agreement on volumes and distribution by scenario and entry mode	*Test Administrator, ROC*
Test Scenarios selected	*Test Administrator*
Specific Test Cases developed	*Test Administrator*
Test Case execution schedule developed	*Test Administrator*

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***
All activities completed	*Test Administrator*
Checklists and reports completed	*Test Administrator*
All global exit criteria	*See Section 7*

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***
Global Entrance Criteria have been satisfied	*See Section 7*
Detailed Test Plan completed	*Test Administrator*
Test Scenarios selected	*Test Administrator*
Documentation provided	*U S WEST*
Interview Guides Available	*Test Administrator*
Specific Test Cases and Transaction Sets developed	*Test Administrator*
Product descriptions and business rules for all transactions to be tested are available.	*U S WEST*
Basic documentation review completed	*Test Administrator*
Detailed Functional Checklist created	*Test Administrator*
Test bed of working services selected and/or established	*U S WEST*
Specific Evaluation techniques developed	*Test Administrator*
Physical access to U S WEST Web site established	*U S WEST*
Security access to IMA GUI established	*U S WEST*
Evaluation Criteria defined and approved	*ROC*
Checklists and Interview Guides created	*Test Administrator*

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***
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*

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***
Global Entrance Criteria have been satisfied	*See Section 7*
Detailed Test Plan completed	*Test Administrator*
Test Scenarios selected	*Test Administrator*
Specific Test Cases and Transaction Sets developed	*Test Administrator*
Product descriptions and business rules for all transactions to be tested are available.	*U S WEST*
Basic documentation review completed	*Test Administrator*
Detailed Functional Checklist created	*Test Administrator*
Test bed of working services selected and/or established	*U S WEST*
Specific Evaluation techniques developed	*Test Administrator*
Physical access to U S WEST Trouble entry site established	*U S WEST*
Security access to MEDIACC EB-TA established	*U S WEST*
Evaluation Criteria defined and approved	*ROC*
Checklists and Interview Guides created	*Test Administrator*

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 US WEST's systems, 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***
Global entrance criteria have been satisfied	*See Section 7*
Test scenarios selected	*Test Administrator*
Product descriptions and business rules for all transactions to be tested are available.	*U S WEST*
Techniques & instrumentation available	*U S WEST, Test Administrator*
Test-bed circuits provisioned	*U S WEST*
Faults inserted into test-bed circuits as required by the test scenarios	*Test Administrator*

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

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

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*
Global exit criteria have been satisfied	*See Section 7*
Time to repair measurements for repaired faults	*Test Administrator*
Summary report of observations	*Test Administrator*

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*
All Global Entrance Criteria satisfied	*See Section 7*
Test bed completed and ready	*U S WEST*
Product descriptions and business rules for all transactions to be tested are available.	*U S WEST*
Techniques and instrumentation developed and approved	*Test Administrator*
U S WEST resources are available to participate in the test	*U S WEST*
Detailed Test Plan completed and approved	*Test Administrator*
All call scripts that reflect the types, durations, terminating numbers, etc of call that test callers are to make are provided	*Test Administrator*

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

Criteria	*Responsible Party*
All Global Exit Criteria satisfied	*See Section 7*

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***
All Global Entrance Criteria satisfied	*See Section 7*
All CRIS and IABS baseline bills produced from the initial test bed	*U S WEST*
Test bed matches requirements.	*U S WEST*
Techniques and instrumentation developed and approved	*Test Administrator*
Product descriptions and business rules for all transactions to be tested are available.	*U S WEST*
Pricing sections of U S WEST tariffs, U S WEST-CLEC Interconnection Agreements and SGATs are provided	*U S WEST*
Test bed completed and ready	*U S WEST*
Calls made during Functional Usage Evaluation processed through to the DUF and available for billing.	*U S WEST*
Availability of U S WEST resources to test and produce CRIS and IABS bills	*U S WEST*
Method for viewing bills implemented	*U S WEST, Test Administrator*

20.4 Test Scope

Table 20-2 Test Scope for Carrier Bill Evaluation

Process Area	*Sub Process*	*Evaluation Measure*	*Evaluation Techniques*	*Criteria Type*
Maintain Bill Balance	*Carry balance forward*	*Accuracy of bill balance*	*Inspection*	*Quantitative*
Verify Billing Accounts	*Verify Billing Accounts*	*Completeness and accuracy of extraction*	*Inspection*	*Quantitative*
Bills and Delivery	*Verify normal recurring charges*	*Completeness and accuracy of data*	*Inspection*	*Quantitative*
	Verify one-time charges	*Completeness and accuracy of data*	*Inspection*	*Quantitative*
	Verify prorated recurring charges	*Completeness and accuracy of data*	*Inspection*	*Quantitative*
	Verify Usage Charges	*Completeness and accuracy of data*	*Inspection*	*Quantitative*
	Verify discounts	*Completeness and accuracy of data*	*Inspection*	*Quantitative*
	Verify adjustments (debits and credits)	*Completeness and accuracy of data*	*Inspection*	*Quantitative*
	Verify late charges	*Completeness and accuracy of data*	*Inspection*	*Quantitative*
	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 billing systems (CRIS 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)
- 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*
All Global Exit Criteria satisfied	*See Section 7*

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***
Transaction driven testing reasonably complete	*ROC*
Documentation available	*U S WEST*
Relevant test results available	*Test Administrator*

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*
Validated by TAG	*TAG*
Approved by ROC	*ROC*
All Global Exit Criteria satisfied	*See Section 7*

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*

Process Area	*Sub Process/ Attribute*	*Evaluation Measure*	*Evaluation Technique*	*Criteria Type*
	Tracking Change Proposals	*Adequacy and completeness of change management tracking process*	*Inspection Document review Report review*	*Qualitative*

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
Forecast Procedures	*Request process*	*Existence* *Completeness*	*Inspection*	*Existence* *Qualitative*
	Receipt and Refinement	*Existence* *Completeness*	*Inspection*	*Existence* *Qualitative*
Forecast Utilization	*Process Documentation*	*Existence* *Completeness*	*Inspection*	*Existence* *Qualitative*
	Compliance	*Timeliness* *Accuracy*	*Inspection*	*Qualitative*

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

- 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* *Timeliness of answer*	*Inspection* *Performance Measure OS-2*	*Qualitative* *Quantitative*
	Interface with user	*Availability of user interface*	*Inspection*	*Qualitative*
	Response to call	*Completeness and accuracy of response*	*Inspection*	*Qualitative*
	Log call	*Completeness of logged information* *Log is kept in appropriate media for appropriate interval*	*Document Review* *Inspection*	*Qualitative*
Process ISC Call	*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*
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*

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 Timeliness	Inspections Logging Interviews PM MR-2	Qualitative 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	Accessability 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.

24.10.2Objectives

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

24.10.4Entrance 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

begins 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*		*4th Qtr 2000**
17. Submit final report to ROC	*Test Administrator*		*4th 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 changefrom 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.nrri.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 to16. 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 Facilility
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)*	***X L***	***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***	***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.*

Change Management		*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.*
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 11 digit alphanumeric code used as a method of identifying physical locations and equipment i.e., central offices relay racks etc.*
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 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 U S WEST'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 U S WEST will have systems (EDI Interface) to support the EDI functionality*
End-to-End Testing		*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.*
Entrance and Exit Criteria		*The necessary conditions for starting or completing individual tests described in the Test Plan.*
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*	
Instantiation		*To represent an abstraction or universal by a concrete instance*
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 Master Test Plan.*
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 U S WEST Central Office*

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*	
OBF/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 non-discriminatory treatment of wholesale services.*
PBX	*Private Branch Exchange*	
PIC	*Primary Inter-exchange Carrier*	*Primary interexchange carrier selected by end-user.*
PM	*Performance Measures*	
POTS	*Plain Old Telephone Service*	
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*
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.*
RFP	*Request For Proposal*	
Resale		*Service that allows a CLEC to purchase ILEC retail services in order to resell these services to their own end-user.*
Scalability		*The degree to which an application can be scaled to accommodate order of magnitude increases in transaction volumes and users*
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 that 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*
Supplements		*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 customers 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		*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*
Test Domain		*A specific testing area with defined targets, measures, scenarios, evaluation methods, and test processes.*
Test Scenario		*A specifically defined request and activity as it relates to 3rd 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 preexisting combination of legally binding and effective UNEs.*
	UNE Loop	*A transmission path that connects an end-user's premises to a U S WEST 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.*
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: US West Transaction Distribution Among States

Total						**CLEC to US WEST Order Transactions**										
1/99-10/99	AZ	CO	IA	ID	MN	MT	ND	NE	NM	OR	SD	UNK	UT	WA	WY	Total
	64389	39111	10461	1533	56531	6382	3253	23977	4400	19968	8274	122	8971	26544	1661	275577
Distr	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		1	1						45
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	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%	2%	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%	19%	59%	78%	50%	16%	87%	90%	57%	40%	42%
% Electronic	63%	70%	24%	12%	74%	71%	81%	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 κ^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 chose 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*	*PM 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.