

II. Executive Summary

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A. Introduction

1.0 Background

On February 17, 2000, the Virginia State Corporation Commission (Commission) initiated third-party testing of the Bell Atlantic-Virginia Inc., now Verizon Virginia (Verizon VA), in Case No. PUC000035. The Commission initiated third-party testing as a vehicle to help clear alleged ordering and provisioning obstacles, and as a means of determining Verizon VA's compliance with the requirements of Section 271 of the Telecommunications Act of 1996 (TA-96). Specifically, the Commission has opened Case No. PUC0200XX to consider whether Verizon VA has met the 14-point checklist in Section 271. The TA-96, together with the Federal Communications Commission (FCC) interpretations, requires Verizon VA to do the following:

- ◆ Provide non-discriminatory access to its Operations Support Systems (OSS) on appropriate terms and conditions;
- ◆ Provide the documentation and support necessary for Competitive Local Exchange Carriers (CLECs) to access and use these systems; and
- ◆ Demonstrate that its systems are operationally ready and provide an appropriate level of performance.

Compliance with these requirements is intended to allow competitors to obtain pre-ordering information; execute service orders for resold services, unbundled network elements (UNE), and UNE-Platform (UNE-P); manage troubles; and obtain billing information in a way deemed non-discriminatory when compared with Verizon VA's retail operations.

The Commission retained KPMG Consulting to conduct an independent, third-party test of the readiness of Verizon VA's OSSs, interfaces, documentation, and processes to support local market entry by the CLECs.

The following report reflects the findings of our evaluation.

2.0 Objective

The objectives of this Executive Summary are to provide the following:

- ◆ A high-level description of the process KPMG Consulting followed to evaluate Verizon VA's policies, procedures, documentation, interfaces, and systems; and
- ◆ A summary of the results of testing activities.

3.0 Audience

We anticipate the audience for this document will fall into two main categories:

- ◆ Readers who will use this document during an evaluation process (i.e., the Commission, the Federal Communications Commission (FCC), and U.S. Department of Justice (DOJ)); and
- ◆ Other interested parties who have some stake in the result of Verizon VA's OSS evaluation and wish to have insight into the test results (e.g., Verizon VA, CLECs, and other ILECs).

While many of the above parties have stated an interest in the test and its results, only the Commission and Verizon VA are actual parties to this evaluation. Third-party reliance on this report is not intended and is explicitly prohibited. It is expected that the Commission will review this report in forming its own assessment of Verizon VA's compliance with the requirements of TA-96.

4.0 Scope

The scope of the test is documented in the Commonwealth of Virginia State Corporation Commission, Bell Atlantic OSS Evaluation Project – Master Test Plan (MTP) as amended.

The initial MTP was developed by KPMG Consulting and submitted to the Commission on March 29, 2000. Significant input from the Commission, Verizon VA, and various CLECs was solicited, received, and considered during the MTP development period. Verizon VA and CLEC business plans and projections were also reviewed during construction of the MTP.

In determining the breadth of the test, all stages of the CLEC-ILEC relationship were considered. These include the following:

- ◆ Establishing the relationship;
- ◆ Performing daily operations; and
- ◆ Maintaining the relationship.

Furthermore, the current service delivery methods (i.e. resale, UNE, and UNE-P) were included in the scope of the test (See Limitations below.)

KPMG Consulting proposed to test different interface types for transactions including: the application-to-application electronic data interchange (EDI) and the terminal-type, web-based graphical user interface (GUI).

Non-transaction testing included evaluations of policies, procedures, guidelines, training, documentation, and work center activities associated with the CLEC/ILEC relationship management process.

Finally, the proposed test included procedures designed to evaluate Verizon VA's ability to accommodate increased CLEC business volumes based on demand projections determined at the start of the test.

On March 31, 2000, the Commission's Project Leader entered a ruling seeking additional comments on the proposed MTP. After considering the additional comments of Verizon VA and other interested parties, on May 31, 2000, the Commission's Project Leader adopted the MTP.

The Commission's Project Leader revised the scope of the MTP on November 28, 2000, April 6, 2001, and on November 30, 2001. The Commission's Project Leader made these changes in response to evolution in the industry, experience gained in preceding state tests or regulatory emphasis by the DOJ and FCC. For example, the scope of the MTP was expanded to include tests related to Line Splitting and Line Loss Reporting.

5.0 Approach

The test approach is described below.

5.1 Test Families/Domains

To organize and facilitate testing, the MTP was divided into the following three test families:

- ◆ Transaction Validation and Verification (TVV);
- ◆ Policies and Procedures Review (PPR); and
- ◆ Performance Metrics Reporting (PMR).

These three tests families were useful in organizing the areas to be tested and the specific tests to be conducted. More specifically, transaction-based tests conducted through KPMG Consulting's pseudo-CLEC comprised the TVV test family. The PPR test family included KPMG Consulting's review of Verizon VA's wholesale business rules and management practices.

Tests in the PPR and TVV test families were divided into the five following functional domains:

- ◆ Relationship Management and Infrastructure;
- ◆ Pre-Order and Order;
- ◆ Provisioning;
- ◆ Maintenance and Repair (M&R); and
- ◆ Billing.

Finally, the third test family, PMR, included review of the metrics business rules and review of the data collection and reporting functions performed by Verizon VA to measure the performance of their wholesale operations in comparison to retail operations or other benchmarks.

Within each test family and domain, evaluation criteria were applied to evaluate Verizon VA's performance for specific test targets.

5.2 Test Types

In formulating our approach to testing, KPMG Consulting solicited input from both the Commission and the CLECs. It was important to understand the types of activities that had either previously presented problems or were currently the greatest concern. KPMG Consulting combined this input with our own experience and included it in two fundamental types of tests: transaction-driven and operational. The TVV tests are in the transaction-driven test category and the PPR and PMR tests are in the operational test category.

5.2.1 Transaction-driven Tests

One of the goals of transaction-driven testing was to live the CLEC experience. The fundamental idea was to establish a pseudo-CLEC, and to build and submit both pre-order and order transactions using Verizon VA's electronic interfaces – much like a real CLEC would do. Transaction-driven system testing was used extensively in the Pre-Order and Order, Provisioning, M&R, and Billing domains.

KPMG Consulting and Hewlett-Packard Company (HP) combined efforts to accomplish the transaction-driven tests. KPMG Consulting's role was that of a CLEC operations group – including understanding business rules, creating and tracking orders, monitoring Verizon VA performance, logging trouble tickets, and evaluating carrier-to-carrier bills. HP's role was that of a CLEC Information Technology group – establishing electronic bonding with Verizon VA, translating between business and EDI rule formats, and aiding KPMG Consulting in resolving problems with missing orders and responses.

Most of the Pre-Order and Order, Provisioning, and many of the Billing transaction-driven tests used the EDI interface that was built by HP based on publicly available Verizon VA specifications. The GUI was also used to submit selected transactions. Most of the M&R trouble tickets were submitted using the Repair Trouble Administration System (RETAS) GUI.

Live CLEC test cases provided an alternative test method for transactions that were not practical in our test environment (see Limitations below). Moreover, live CLEC test cases facilitated a different perspective on actual production. Live CLEC production was also monitored during the test period to assess the performance and service levels experienced by CLECs during the test.

Different scenarios were used to structure transaction testing of Verizon VA's OSS and related support services. An example of a scenario might be "migration as-is of a single line residence customer from Verizon VA to the pseudo-CLEC." Some scenarios were specific to a particular domain, while others spanned multiple domains providing an end-to-end test of Verizon VA's systems and processes. Variations of each scenario were executed to test a range of feature/function combinations, and to reach desired transaction volume levels.

5.2.2 Operational Tests

Operational tests focused on the form, structure, and content of the business process under evaluation. This test method was used to evaluate Verizon VA's day-to-day operations and operational management practices, including policy development, procedural development, and procedural change management.

In many cases operational analysis methods were used to evaluate the results of a process to determine if the process was followed and functioned in accordance with documentation and expectations. KPMG Consulting also reviewed management practices and operating procedures, comparing the results against legal, statutory, and other written requirements.

5.3 Military-style Test Philosophy

This test was conducted with a military-style test philosophy. The concept was to report problems discovered during the test, providing Verizon VA an opportunity to correct those problems and, where feasible, for KPMG Consulting to conduct a retest or follow-on assessment. Two channels for reporting those problems were the Observations and Exceptions, which are defined below:

- ◆ If a problem was encountered during the test, KPMG Consulting informed the Commission and Verizon VA by creating written Observations or Exceptions describing the problem and providing an assessment.
- ◆ An Observation was created if KPMG Consulting determined that a test revealed one of Verizon VA's practices, policies, or systems characteristics might result in a negative finding in the final report.
- ◆ An Exception was created if KPMG Consulting determined that a test reveals one of Verizon VA's practices, policies, or systems characteristics was not expected to satisfy one or more of the evaluation criteria, and thus, without corrective action, would result in a negative finding in the final report. As a general rule, exceptions were limited to one specific issue.
- ◆ Observations and Exceptions status were discussed weekly by the Commission, KPMG Consulting, and Verizon VA. CLECs were able to monitor the calls as observers, as well as ask clarifying questions.
- ◆ CLECs were able to view Observations and Exceptions on the Commission website as well as provide input informally to the Commission.

- ◆ Some Observations became Exceptions. Some Exceptions were not initially identified as Observations.
- ◆ Verizon VA responded to Observations verbally and to Exceptions in writing. These responses described either a clarification of the issue or Verizon VA's intended fix(es) to the problem(s). The Commission posted Verizon VA's responses to its website.
- ◆ KPMG Consulting was responsible for determining if an Exception was resolved. If in responding to an Exception, Verizon VA made a change to a process, system, or document, KPMG Consulting retested as appropriate.
- ◆ If an Exception was not resolved, the cycle continued to: i) iterate until closure was reached; ii) indicate that no further action was warranted; or iii) disclose if the Commission specifically exempted the Exception from further testing.

Because of the extended time involved in these activities, it was not always possible or practical to retest all activities within the scope of this test. At the conclusion of this test, one Exception remained open. The Commission will consider the disposition of such item during the course of its 271 proceeding.

Where retesting was conducted, the results in this report reflect only the outcome of the retest activity and not from any earlier testing.

5.4 *Blindness*

As previously stated, one of the objectives of the test was for KPMG Consulting to live the CLEC experience. Yet it is impossible for any CLEC to totally avoid being recognized by Verizon VA. For example, transactions arrive on dedicated telephone circuits, the owners of which are known by Verizon VA. Each CLEC has a unique set of IDs assigned by Verizon VA that must be included in every transaction.

To partially offset this, we instituted certain procedures to help ensure that KPMG Consulting and HP would not receive treatment from Verizon VA that was different from that received by a real CLEC. For example, we required that all documents given to us be generally available to all CLECs. In addition, the timing and detailed nature of transactions and test calls were not announced in advance to Verizon VA. When visits to Verizon VA facilities were required, minimal advance notice was given. We also reported problems using the same Help Desk mechanisms used by the CLECs.

As a further measure, the Commission randomly monitored telephone calls between KPMG Consulting/HP and Verizon VA. A weekly conference call, which included the CLECs, the Commission, and KPMG Consulting, was established to allow the CLECs to obtain information concerning test progress and for them to communicate issues of concern about the test.

5.5 Evaluation Criteria

Measures and their corresponding evaluation criteria provided the basis for conducting tests. Evaluation criteria were the norms, benchmarks, standards, and guidelines used to evaluate measures identified for testing. Evaluation criteria provided a framework for identification of the scope of tests, the types of measures that must be made during testing, and the approach necessary to analyze results.

In many cases, the test results were compared against measures and criteria identified by the Commission, such as the Virginia Carrier-to-Carrier Guidelines Performance Standards and Reports, dated August 11, 2000. In other cases, results were evaluated using the professional judgment of KPMG Consulting. Each evaluation criterion was analyzed individually and has its own associated result and comment. The results fell into the following categories:

- ◆ Satisfied – the evaluation criterion was satisfied.
- ◆ Not Satisfied – the evaluation criterion was not satisfied. Some issues were identified that would have a significant business impact to CLECs. Observations and exceptions may have been raised regarding these issues.
- ◆ Inconclusive – the evaluation criterion was inconclusive. There was not sufficient information to determine the definitive result of the criterion.

5.6 Test Bed

In order to accomplish the transaction testing, Verizon VA provisioned a test bed of initial accounts that represented Verizon VA or other CLEC accounts that would be lost to our pseudo-CLEC and, in some cases, subsequently modified to affect customer products and/or services. The test accounts were created in Verizon VA's production systems, in actual central offices (COs) spread across the state, not in a separate test system. KPMG Consulting, the Commission, and Verizon VA cooperated to define the test bed.

6.0 Limitations

The test, representative of an entire CLEC marketplace, was much broader than that likely to be experienced in the near future by any single CLEC. However, the test was not intended to be exhaustive because it is neither feasible nor desirable to test all possible permutations and combinations of all features and functions across all offered products.

In some cases it was not practical to simulate certain order types, troubles, and processes in a test situation. Examples include orders with very long interval periods; provisioning of large volumes of test transactions that would exceed the manual capacity of Verizon VA's Work Centers; or, the complex, time consuming, Network Design Review (NDR) process. In these cases we attempted alternative test procedures such as conducting interviews with Verizon VA and CLEC personnel; inspection of live orders in process; review of historical performance or operational reports; or another method that captured the performance of Verizon VA with respect to the order types and processes in question.

It was neither practical nor desirable to execute certain live tests that would disrupt service to Verizon VA or CLEC customers. Verizon VA performance for these test cases was evaluated by other means. The test reports in each domain section identify the tests that were executed using KPMG Consulting transactions and those that were executed by other means.

B. High-level Test Results**1.0 General**

The following general observations span several domains and have been collected here for brevity.

1.1 Results Summary

KPMG Consulting evaluated 545 test points during the testing period. One evaluation criteria is Not Satisfied, two are Inconclusive, and three are Not Applicable at the end of this test.

1.2 Service Quality

KPMG Consulting believes that the quality of the service received during the test was comparable to that generally received by CLECs.

1.3 New Entrant Certification

Verizon has a separate systems environment for the dual purpose of new entrant certification and pre-production, new release testing called the CLEC Test Environment (CTE). As part of KPMG Consulting's new release testing, quality assurance (QA) and systems readiness test (SRT) processes, the Verizon CTE was evaluated for functionality and compliance with published documentation and procedures. KPMG Consulting tested business rule releases for LSOG4 pre-order and order. Each new release required that KPMG Consulting update its test scripts and orders to reflect the new business rules and interfaces.

2.0 Relationship Management and Infrastructure

The RMI domain evaluated Verizon VA's processes that support establishing and maintaining relationships between Verizon VA and CLECs. The test examined change management, account establishment and management, help desks, CLEC training, interface development, and forecasting. RMI consisted of six tests, which contained 85 test points. All 85 test points were satisfied.

3.0 Pre-Ordering and Ordering

The Pre-Order and Order domain evaluation was developed to test the systems, processes, and other operational elements associated with Verizon VA's support for Pre-Order and Order activities for wholesale operations. The test examined functionality, compliance with measurement agreements, and comparable systems supporting Verizon VA retail operations. Pre-Order and Order consisted of five tests, of which three were transaction-oriented. KPMG Consulting evaluated 102 test points. All 102 test points were satisfied.

4.0 Provisioning

The Provisioning domain evaluation was designed to review the systems, processes, and other operational elements associated with Verizon VA's provisioning activities used for wholesale markets. The test examined functionality, compliance with measurement agreements, and comparable systems supporting Verizon VA retail operations. Provisioning consisted of four tests, of which one was transaction-oriented. KPMG Consulting evaluated 80 test points. 79 test points were satisfied. One (1) test point was Not Satisfied.

5.0 Maintenance and Repair

The primary objective of the M&R domain test was to determine whether adequate procedures, documentation and systems exist to allow a CLEC to identify, report, manage, and resolve troubles encountered with Verizon VA supplied network elements. M&R consisted of seven tests, of which three were transaction-oriented. KPMG Consulting evaluated 77 test points. 75 test points were satisfied. Two (2) were Inconclusive.

6.0 Billing

The Billing domain included tests of both billing procedures and actual bills generated by the Carrier Access Billing System (CABS) and expressTrak system. Billing consisted of five tests, of which two were transaction-oriented. KPMG Consulting evaluated 75 test points. All 75 test points were satisfied.

7.0 Performance Metrics Reporting

The PMR test family evaluated the processes and systems used to capture Verizon VA retail and wholesale metrics for all domains, including Pre-Order, Order, Provisioning, Maintenance and Repair, Billing, Operator Services, and General. These tests also included a review of the metrics change management and notification processes.

PMR relied on operational and statistical analyses to facilitate a structured review of Verizon VA's information processing, metric calculation and reporting procedures. PMR consisted of five tests, which contained 126 test points. 123 test points were satisfied. Three (3) were Not Applicable.

C. Document Structure

This section describes the structure of the document and includes a list of each section number along with a brief description.

Table II-1: Document Overview

Section Number	Section	Content
I	Document Control	Identifies document distribution and necessary approvals.
II	Executive Summary	Describes the test and provides an overview of the results.
III	Relationship Management and Infrastructure Domain Results and Analysis Section	Describes the relationship management and infrastructure test domain. Provides the detailed test reports related to RMI.
IV	Pre-Order/Order Domain Results and Analysis Section	Describes the pre-ordering and ordering domain. Provides the detailed test reports related to the pre-ordering and ordering.
V	Provisioning Domain Results and Analysis Section	Describes the provisioning domain. Provides the detailed test reports related to provisioning.
VI	Maintenance and Repair Domain Results and Analysis Section	Describes the maintenance and repair domain. Provides the detailed test reports related to M&R.
VII	Billing Domain Results and Analysis Section	Describes the billing domain. Provides the detailed test reports related to billing.
VIII	Performance Metrics Domain Results and Analysis Section	Describes the process performance test section. Provides the detailed test reports related to Metrics.
Appendix A	Statistical Analysis	Statistical analysis for Performance Metrics.
Appendix B	Test Cross-Reference of the Master Test Plan to the Draft Final Report	Matrix cross-referencing tests in the Master Test Plan to their location in the Draft Final Report.
Appendix C	Glossary	Testing terms and definitions used in this document.

Section Number	Section	Content
Appendix D	Acronym Dictionary	Primary acronyms and definitions used in the report.
Appendix E	Summary of Changes From Verision 1.0	Summary of changes made to Draft Final Report Version 1.0.

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