VI. Maintenance and Repair Domain Results and Analysis Section

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A.   Test Results: End-to-End M&R Process Evaluation (PPR15)

1.0   Description

The End-to-End M&R Process Evaluation (PPR15) evaluated the functional equivalence of Verizon Virginia's (Verizon VA) Maintenance and Repair (M&R) processing for wholesale[73] and retail trouble reports. The end-to-end M&R process includes all activities from the moment a trouble repair call is received by the repair receipt bureau or a trouble ticket is captured in Verizon VA's systems until the same trouble is closed and the customer is notified of the resolution.

Additionally, this test reviewed wholesale and retail process flows and related methods and procedures (M&P) adhered to by the various Verizon VA M&R work centers involved in the end-to-end M&R process. These activities were performed to assess whether there are substantive differences between Verizon VA retail and wholesale M&R processes and to identify any differences between the processes practiced in the related work centers.

2.0   Methodology

This section summarizes the test methodology.

2.1   Business Process Description

The following sections describe the end-to-end M&R process for wholesale and retail Verizon VA services.

2.1.1   M&R End-to-End Business Process Description -- Wholesale

Verizon VA wholesale customers, specifically Competitive Local Exchange Carriers (CLEC), contact the Verizon Regional CLEC Maintenance Center (RCMC) with M&R troubles. The RCMC serves as the single point of contact for CLECs verbally reporting troubles. The RCMC has three locations: (i) Richmond, Virginia, (ii) Bridgewater, New Jersey, and (iii) East Brunswick, New Jersey. Additionally, CLECs may initiate trouble reports electronically through the Repair Trouble Administration System (RETAS) Web Graphical User Interface (GUI).

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[73] For the purposes of M&R reporting, wholesale refers to both CLECs and Resellers.

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When a CLEC contacts the RCMC by telephone, it is prompted to enter the type of trouble in question. The call is then routed, based on trouble type, to a Maintenance Administrator (MA)[74] at one of the RCMCs. MAs are responsible for (i) handling incoming maintenance trouble calls, (ii) identifying the type of trouble and affected network element, (iii) creating a trouble ticket and ensuring that all information is entered correctly, (iv) initiating a Mechanized Loop Test (MLT), if appropriate, (v) providing the customer with a commitment time for the completion of the repair, and (vi) managing the repair process to closure. Commitment times are based on pre-set clocks in trouble entry systems.

Trouble tickets are created in different systems depending on whether they are for Plain Old Telephone Service (POTS) or Special Service type troubles. POTS, excluding Unbundled Network Elements-Loop (UNE-Loop), trouble tickets are entered into the Loop Maintenance Operations System (LMOS). Special Service trouble tickets for problems affecting Inter-Office Facilities (IOF), UNE-Loop, Digital Signal – 1 (DS1), and Digital Signal – 3 (DS3) circuits are entered into the Workforce Administration/Control (WFA/C) system. Troubles entered into either system are designated by handle codes that determine where the trouble ticket is to be routed. Troubles for resold special circuits are routed to the Regional Resold Services Center (RRSC) for dispatch and management. MAs perform a Front End Closeout when a trouble can be resolved and closed without being referred to another work group. If an MA cannot perform a Front End Closeout, the trouble must be properly routed as either a Dispatch In (DI) or a Dispatch Out (DO) trouble based on the location of the trouble within the network. DI troubles refer to troubles that exist within the Central Office (CO) and DO troubles refer to any trouble that exists outside the CO.

DI troubles are routed via LMOS or WFA/C through Workforce Administration/Dispatch In (WFA/DI) to the Network Test Center (NTC) or the Network Operations Center/Dispatch In (NOC/DI). Troubles that are evaluated as DI by the RCMC are sent directly to the NOC/DI for trouble isolation and closeout, while troubles that require further testing are sent first to the NTC, then to the NOC/DI when the trouble is identified.

DI handle codes route trouble tickets to the following organizations:

♦ Frame – handles basic troubles such as jumper problems, open heat coils, etc.;
♦ Switching – handles switch troubles other than line translations (e.g., Direct Inward Dialing (DID) and Centrex issues); and
♦ Recent Change Memory Administration Center (RCMAC) – handles troubles such as line translation issues.

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[74] Maintenance Administrator (MA) and Repair Service Clerk (RSC) are interchangeable terms.   RSC is the term used at the East Brunswick, New Jersey and Bridgewater, New Jersey RCMCs while the Richmond, Virginia RCMC uses the term MA.

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DO trouble reports are electronically delivered from LMOS or WFA/C via Workforce Administration/Dispatch Out (WFA/DO) to the Verizon Dispatch Resource Center (DRC) or the Wholesale Dispatch Resource Center (WDRC).[75] The WDRC handles wholesale special circuit troubles, while the DRC handles wholesale POTS and Unbundled Network Elements-Platform (UNE-P) troubles, as well as all types of retail troubles. Both the WDRC and DRC screen troubles for complete and correct information, then dispatch troubles to an outside technician for resolution.

Wholesale customers have the ability to request expedites in out-of-service or other special needs situations as well as escalate trouble tickets verbally with the RCMC. An expedite occurs when the MA who answers the call promises an earlier commitment time than that provided by the system clocks, while an escalation takes place when a customer requests a faster repair on a ticket that is already open.

When technicians clear wholesale trouble tickets, they contact the CLEC to alert it of ticket closure and close the ticket using handheld devices called Intelligent Field Access System (IFAS) terminals. These devices allow technicians to connect to the necessary trouble administration systems remotely. Alternatively, technicians can contact the MA at the RCMC that opened the ticket and ask him or her to contact the CLEC and close the ticket. It is then the CLEC's responsibility to notify its end-user of the ticket's closure. The closed ticket includes a final status narrative with information such as the trouble reported and trouble found, date and time of ticket closure, disposition and cause codes, and whether or not the wholesale customer was notified that the ticket was closed.

2.1.2   M&R End-to-End Business Process Description -- Retail

Verizon VA residential and small business retail customers report trouble calls to the Verizon Repair Resolution Center (VRRC).[76] Tier One retail customers, Verizon's largest business accounts, report all trouble calls to the Premium Care Center (PCC), while Tier Two and Tier Three customers, large business customers, report POTS troubles to the VRRC and special circuit troubles to the Special Services Center (SSC). The MA at the appropriate center creates a ticket in either LMOS or the WFA/C system, depending on trouble type as described above.
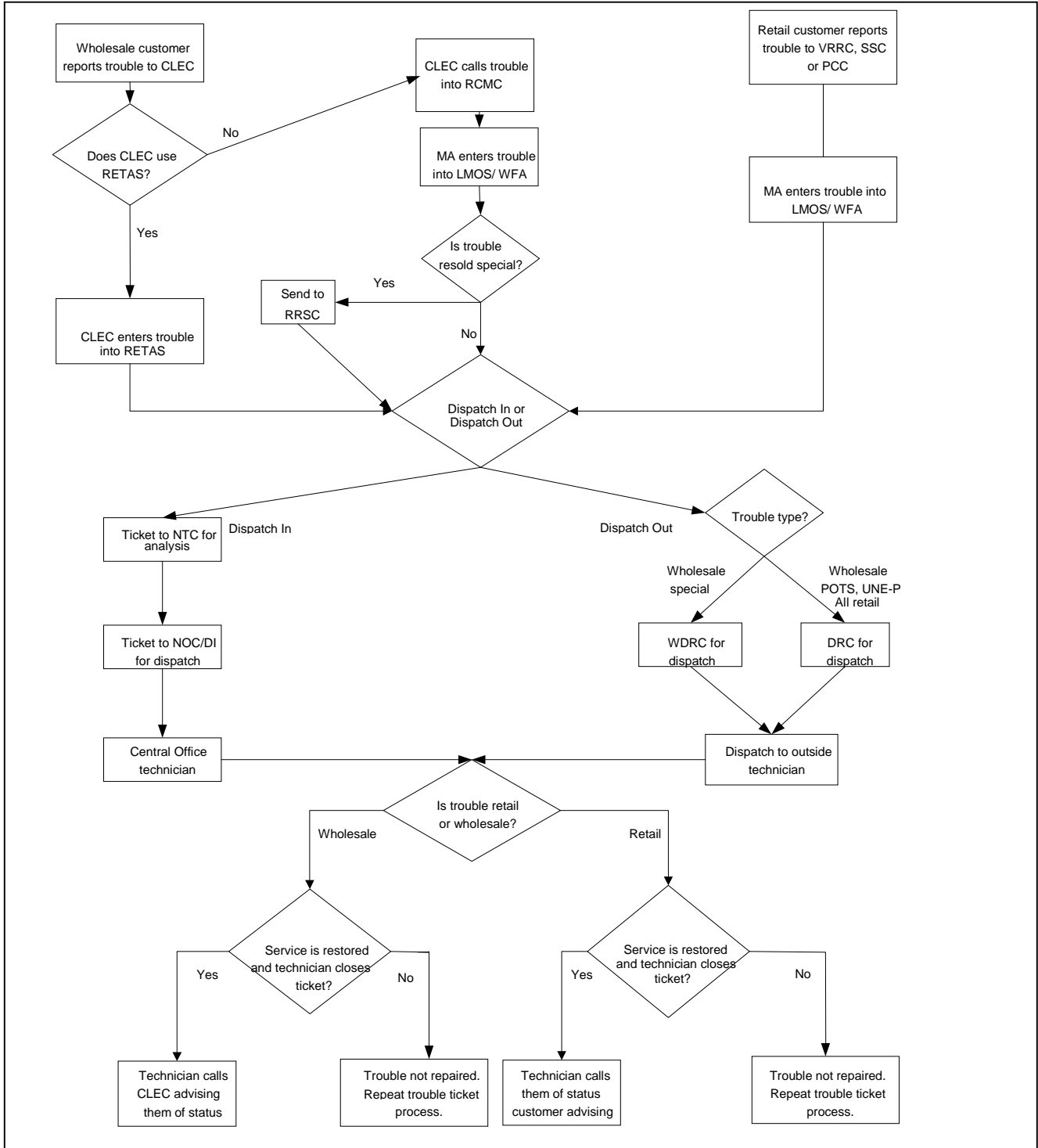
Once a retail trouble report is entered, the ticket follows the same resolution process as described above for CLEC faults until the matter is resolved. Additionally, the retail business process flow is consistent with the wholesale process flow with regard to escalating and expediting trouble tickets. The closure reporting procedure differs from a CLEC trouble in that the Verizon VA technician directly notifies the retail customer for ticket closure confirmation upon completing the closure, whereas in the wholesale process the Verizon VA technician notifies the CLEC for ticket closure confirmation, which then notifies its customer, or end-user.

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[75] The WDRC was formerly known as the Wholesale Customer Service Center (WCSC). The DRC was formerly known as the National Dispatch Resource Center (NDRC) and, prior to that, as the Customer Service Center (CSC).

[76] Please note that the VRRC was formerly called the Customer Repair Service Center (CRSC).

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The process for wholesale and retail business M&R trouble reporting activity is summarized below in Figure 15-1.

Figure 15-1: Wholesale and Retail Business Process Flow

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2.2   Scenarios
Scenarios were not applicable to this test.

2.3   Test Targets & Measures
The test target was Verizon VA's End-to-End M&R Process Evaluation for retail and wholesale, which included reviews of the following processes:

♦   End-to-End M&R Process Flow: Resale;
♦   End-to-End M&R Process Flow: UNE/UNE Combinations; and
♦   Capacity Management Processes and Procedures.

2.4   Data Sources
The data collection performed for this test centered on (i) interviews with and observations of Verizon VA personnel at the RCMC, VRRC, DRC, WDRC, RRSC, NTC, SSC, and NOC/DI with direct responsibility and knowledge of processes and procedures targeted for review and (ii) reviews of documentation supplied by Verizon VA at the request of KPMG Consulting. Primary sources of documentation include the following:

♦   CLEC Handbook (Volume III);
♦   Reseller Handbook (Volume III);
♦   RCMC Training Manual;
♦   VRRC New Employee Training – Footprint;
♦   Escalation Policy – Maintenance RCMC;
♦   RCMC Trouble Reporting Requirements for CLECs;
♦   Dispatch Priority Matrix;
♦   RCMC Force Model;
♦   Resource Management Team Forecast Process;
♦   WFA/C Maintenance Appointments for the RCMC;
♦   Wholesale Services – Escalation List;
♦   Escalation List – VRRC;
♦   RCMC Call Receipt – Unbundled Analog Loops;
♦   Trouble Closeout Process;
♦   Front End Closeout – South;
♦   VRRC New Employee Training;
♦   Network Operations Records Database (NORD) Parity Analysis Summary Report; and
♦   Major System Failure Procedures.

This test did not rely on data generation or volume testing.

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2.5   Evaluation Methods
Verizon VA end-to-end M&R procedures were reviewed and evaluated according to targets established by KPMG Consulting. The following provides additional detail on the testing methods used to conduct the evaluation:

♦ Interviews – KPMG Consulting conducted on-site interviews with Verizon management and staff with direct responsibility and knowledge of targeted processes at retail and wholesale M&R work centers.
♦ Observations – KPMG Consulting performed observations of retail and wholesale personnel in M&R work centers handling trouble-processing activities. These observations were conducted in order to identify substantive differences between the processes practiced in the work centers and those processes defined in Verizon M&Ps.
♦ Documentation Review – KPMG Consulting conducted a review of process flow documentation, M&Ps, and performance data related to Verizon VA's retail and wholesale end-to-end M&R business operations.

2.6   Analysis Methods
The End-to-End M&R Process Evaluation included a checklist of evaluation criteria developed by KPMG Consulting during the initial phase of the Verizon Virginia, Inc. OSS Evaluation Project. These evaluation criteria provided the framework of norms, standards, and guidelines for the End-to-End M&R Process Evaluation.

The data collected were analyzed employing the evaluation criteria detailed in Section 3.0 below.

3.0   Results
This section identifies the evaluation criteria and test results. The results of this test are presented in the table below.

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Table 15-1: PPR15 Evaluation Criteria and Results

Test Reference	Evaluation Criterion	Result	Comments
End to End M&R Process: Resale and UNE/UNE-P			
PPR15-1	The M&R trouble-handling process is comparably administered for wholesale and retail services.	Satisfied	The M&R trouble-handling process is comparably administered for wholesale and retail services. Once a trouble ticket is submitted into Verizon's M&R operations support systems (OSS), the M&R trouble-handling process is consistent for retail and wholesale services until the matter is resolved. Both wholesale and retail customer trouble tickets are analyzed, processed, and dispatched by the same automated systems. Additionally, Verizon VA retail and wholesale work centers handle trouble reports in accordance with the same M&Ps that emphasize parity between wholesale and retail service.
PPR15-2	The process for trouble diagnosis and appointment scheduling is comparable between wholesale and retail customers.	Satisfied	The process for trouble diagnosis and appointment scheduling is comparably administered for wholesale and retail customers. For both wholesale and retail trouble tickets, MAs attempt to diagnose the cause of a trouble through automated testing, when applicable. If the diagnosis is successful, and the trouble is identified, WFA/C or LMOS dispatches the ticket to a dispatch center via WFA/DO or, alternatively, to the CO via WFA/DI for repair within the CO. If the trouble diagnosis is unsuccessful, the MA sends the ticket to a network test center for further analysis and retesting. For both wholesale and retail trouble tickets, WFA/C and LMOS assign a committed due time and date for repair based on technician schedules and workload.

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Test Reference	Evaluation Criterion	Result	Comments
PPR15-3	Customer dispute resolution procedures are comparably administered between wholesale and retail services.	Satisfied	Customer dispute resolution procedures are comparably administered between wholesale and retail services. The process followed when a retail or wholesale customer escalates a trouble is defined. Both wholesale and retail centers successively escalate troubles to higher levels of management until the customer is satisfied with the results. Troubles can also be escalated internally by Verizon VA personnel, at which time the customer is notified of the escalation. Verizon VA retail and wholesale work center personnel have the ability to expedite a trouble repair commitment when a customer is unsatisfied with the original commitment time provided.
PPR15-4	The trouble ticket closing process is comparable between wholesale and retail.	Satisfied	The trouble ticket closing process is comparably administered between wholesale and retail customers. Upon completion, if dispatched in to a CO, a technician will code the ticket with the proper disposition and cause codes, and a narrative as to the cause and repair of the trouble. If the ticket is dispatched out to the field, the technician completes the ticket with the proper disposition and cause codes and adds a narrative explaining the repair. The WFA/C or LMOS ticket is then closed in its respective system and returned to the dispatching office for final closeout of the repair.
PPR15-5	Procedures for staff training at M&R work centers are comparable between M&R work centers servicing wholesale and retail customers.	Satisfied	Procedures for staff training at M&R work centers are comparable between M&R work centers servicing wholesale and retail customers. The content of the training received by retail and wholesale work center employees is equivalent. In both cases, the training includes an introduction to workstations and online tools, telephone basics, customer contact skills, call center metrics and quality control, trouble ticket handling processes, and special, digital, and high capacity circuits. Training for retail and wholesale work centers is provided through the Training Education Development (TED) group. Ongoing training takes place at both wholesale and retail work centers.

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Test Reference	Evaluation Criterion	Result	Comments
PPR15-6	Procedures for staff performance monitoring at M&R work centers are comparable between M&R work centers servicing wholesale and retail customers.	Satisfied	Procedures for staff performance monitoring at M&R work centers are comparable between M&R work centers servicing wholesale and retail customers. At both retail and wholesale work centers, team leaders conduct weekly or bi-weekly staff observations and qualitatively evaluate staff performance. The observation forms used in retail and wholesale work centers contain the same general criteria, including (i) greeting and identification, (ii) understanding of customer needs, (iii) development of trouble reports, (iv) closure, (v) overall concern for the customer, (vi) trouble report quality, and (vii) trouble report systems handling. The results of the observations are reviewed with employees regularly.
PPR15-7	The process for collection and review of performance data is comparable between M&R work centers servicing wholesale and retail customers.	Satisfied	The process for collection and review of performance data is comparable between M&R work centers servicing wholesale and retail customers. Retail and wholesale work centers have both quantitative and qualitative performance objectives relating to the number of calls answered, call times, employee efficiency, and employee observations. Each work center has a metrics group responsible for collecting and reviewing quantitative performance data. These groups monitor center performance to ensure that the work center is achieving set metrics. In both retail and wholesale work centers, quantitative performance data is collected from information systems such as the Pinnacle Automatic Call Distributor (ACD) and from work center staff. Center performance data and employee work center observation results are distributed to team leaders and center managers. In addition to internal performance monitoring, both wholesale and retail work centers have access to customer feedback. The Customer Care Index (CCI), a survey conducted by an outside customer service group, is used to obtain customer feedback on retail work center customer service satisfaction. Wholesale work center management receives feedback during scheduled and impromptu meetings with CLEC customers.

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Test Reference	Evaluation Criterion	Result	Comments
**Capacity Management**			
PPR15-8	Contingency action plans for business functions in the event of extended office outages are comparable between M&R work centers servicing wholesale and retail customers.	Satisfied	Contingency action plans for business functions in the event of extended office outages are comparable between M&R work centers servicing wholesale and retail customers. The RCMC Major System Failure Procedure, a document in the RCMC Training Manual, establishes procedures for MAs to follow in the case of a major system outage. The document instructs MAs on how to operate in manual mode until the systems are restored and troubles can be entered electronically. Additionally, the RCMC Contingency Plan explains procedures for transferring work between work centers and rerouting employees in the case of an environmental failure or emergency office outage. With regard to retail work centers, the Major System Failure Procedures document outlines contingency plans for system failures. Additionally, some retail centers have site-specific evacuation procedures Both the RCMCs and the VRRCs can transfer work between the three centers in the event of an extended outage.

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Test Reference	Evaluation Criterion	Result	Comments
PPR15-9	Established processes for evaluating and adjusting resource and office space utilization are comparable between M&R work centers servicing wholesale and retail customers.	Satisfied	Processes for evaluating and adjusting resource and office space utilization are comparable between M&R work centers servicing wholesale and retail customers. The Verizon Resource Management Team (RMT) in Lansdowne, Pennsylvania adjusts resources and issues requirements for the number of MAs needed to receive calls in retail work centers in the Potomac region. The adjustment is based on call volume and Average Handling Time (AHT) forecasts, which are estimated from a combination of historical and current call data. The forcing group in each retail center is responsible for staffing the center according to the RMT's line requirements. This group constantly monitors call volume to verify that there is a sufficient number of MAs taking calls. If MAs are occupied less than 80%, the forcing group lowers line requirements. Because the three VRRCs work off of the same Pinnacle ACD, calls are automatically distributed to the first VRRC available to take an incoming call. In wholesale work centers, a manager appointed by the Executive Director produces a quarterly capacity forecast based on the Anderson Force Model method. Inputs for the model come from the Pinnacle ACD and an estimation of call volume required by new product lines. The model is then used to forecast incoming trouble reports by product type and estimate the headcount according to call volume. Managers review the model, provide additional input, and assign work tours accordingly. If one of the RCMCs experiences an overwhelming workload, it can distribute work to either of the two remaining RCMCs.

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B.   Test Results: M&R Work Center Support Evaluation (PPR16)

1.0   Description
The M&R Work Center Support Evaluation (PPR16) was a comprehensive operational analysis of the work center processes and procedures developed by Verizon Virginia (Verizon VA). These processes and procedures provide support to Competitive Local Exchange Carriers (CLEC) with questions, problems, and issues related to wholesale[77] trouble reporting and repair operations. Work center processes include creating trouble tickets, managing and monitoring open trouble tickets, resolving troubles, closing trouble tickets, and providing trouble ticket status information. Basic functionality, performance, and escalation procedures were evaluated. In addition, this evaluation included a review of the activities associated with the Repair Trouble Administration System (RETAS) Help Desk that is also supported by the work center.

2.0   Methodology
This section summarizes the test methodology.

2.1   Business Process Description
The Verizon work center responsible for conducting trouble administration tasks for wholesale customers is the Regional CLEC Maintenance Center (RCMC). This section summarizes the RCMC business process description.

2.1.1   Work Center Business Process Description
The CLECs operating in Virginia are provided Maintenance and Repair (M&R) support by Verizon VA through the RCMC. The RCMC records and responds to CLEC questions regarding trouble tickets for all states in the Verizon operating area. The RCMC is the primary point of contact for CLEC-reported troubles regardless of the type of service being reported, including Unbundled Network Elements (UNE), Resale or UNE-Platform (UNE-P), and Inter-Office Facilities (IOF). The RCMC is accessible to CLECs 24 hours a day, seven days a week, 365 days a year.

The RCMC operates as a virtual center comprised of the following locations: (i) Richmond, Virginia; (ii) East Brunswick, New Jersey; and (iii) Bridgewater, New Jersey. The same business process exists for the three offices and all operate according to the same methods and procedures; however, each center has a different product line that it covers for the entire Verizon footprint. Additionally, to improve caller response times the RCMCs can transfer calls between locations in case of unexpected call volumes and service interruptions.

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[77] For the purposes of M&R reporting, wholesale refers to both CLECs and Resellers.

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2.1.2   Call Processing

The process flow for a trouble ticket that is called into the RCMC begins when a CLEC calls 888-270-1800. This is the only telephone number for all incoming calls to the RCMC, excluding escalations. Three menu options are offered to the caller when contacting the RCMC via telephone: (i) option #1 if the trouble pertains to line sharing, collocation, or high capacity circuits; (ii) option #2 for problems using RETAS; and (iii) option #3 to report a Plain Old Telephone Service (POTS)-related or any other trouble. Based on the trouble type option menu selected by the caller, the call will be routed through the Pinnacle Automatic Call Distributor (ACD) to the appropriate RCMC office described below. Calls are handled on a first in, first out basis.

Richmond, Virginia RCMC: The Richmond, Virginia RCMC serves as the primary call receipt center for the region and deals mainly with POTS troubles. This center is responsible for opening trouble tickets pertaining to any type of trouble except for high capacity circuits (specials) and line sharing, managing POTS tickets during the repair process, and closing UNE-Loop tickets after being cleared by technicians.

East Brunswick, New Jersey RCMC: The East Brunswick, New Jersey RCMC opens, manages, and closes troubles relating to line sharing, high capacity circuits, and collocation. This center also manages escalations pertaining to line sharing troubles. In addition, the RETAS Help Desk resides in the East Brunswick, New Jersey RCMC when the Bridgewater, New Jersey RCMC is closed.

Bridgewater, New Jersey RCMC: The Bridgewater, New Jersey RCMC is responsible for (i) managing, screening, and closing troubles pertaining to Digital Subscriber Line (DSL) stand-alone loops; (ii) handling escalations for DSL and line sharing troubles; and (iii) managing the RETAS Help Desk. Center personnel rarely open trouble reports. Twenty-eight Network Technicians, who assist Verizon field technicians with troubles pertaining to high capacity circuits, also work in the Bridgewater, New Jersey RCMC. Most of the calls received by Network Technicians are internal and involve cooperative testing.

Maintenance Administrators (MA)[78] at the Richmond, Virginia and East Brunswick, New Jersey RCMCs handle incoming calls, open trouble tickets, and log each trouble report into the appropriate internal Verizon system. Trouble tickets are created in different systems depending on whether they are for POTS or Special Service type troubles. POTS, excluding Unbundled Network Elements-Loop (UNE-Loop), trouble tickets are entered into the Loop Maintenance Operations System (LMOS). Special Service trouble tickets for problems affecting IOF, UNE-Loops, Digital Signal – 1 (DS1), and Digital Signal – 3 (DS3) circuits are entered into the Workforce Administration/Control (WFA/C) system. Both systems assign tracking numbers to trouble tickets. Relevant customer information and a description of the problem are captured and the MAs provide a commitment date and time for the trouble to be fixed.
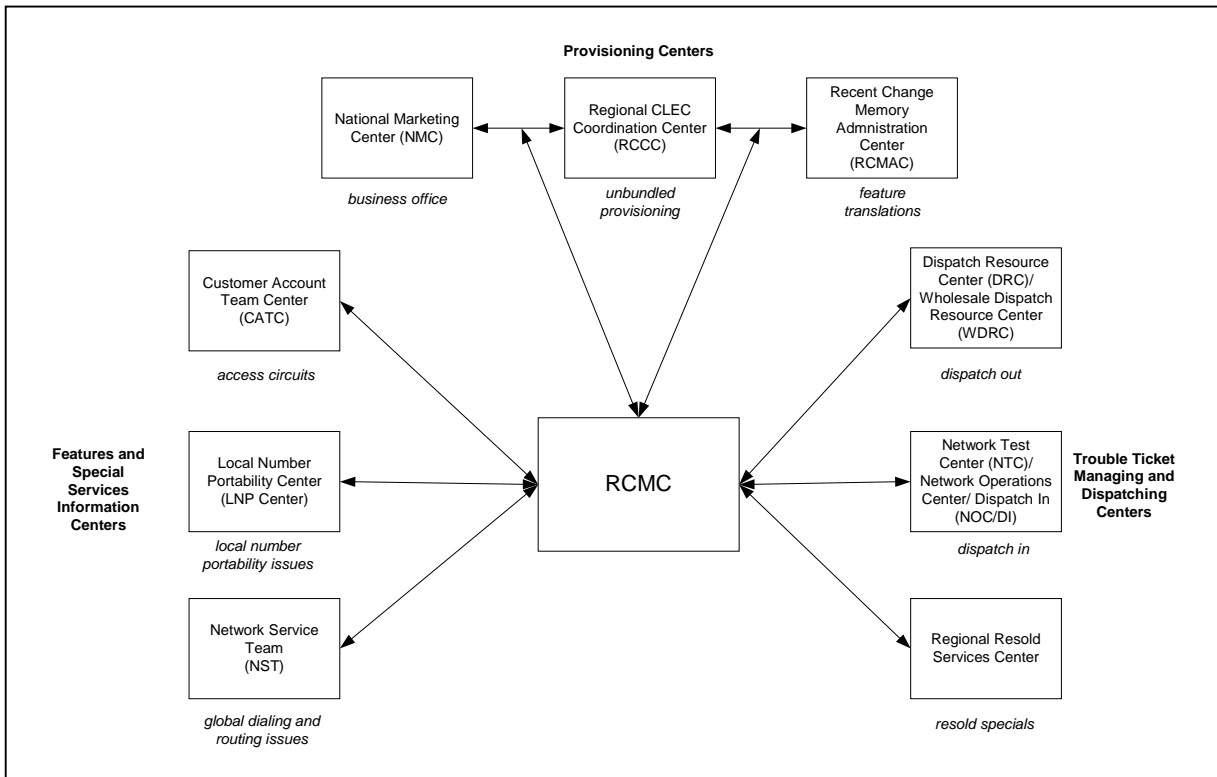
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[78] Maintenance Administrator (MA) and Repair Service Clerk (RSC) are interchangeable terms. RSC is the term used at the East Brunswick, New Jersey and Bridgewater, New Jersey RCMCs while the Richmond, Virginia RCMC uses the term MA.

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Troubles entered into either LMOS or WFA/C are designated by handle codes that determine where the trouble ticket is to be routed.[79]

Figure 16-1 depicts the relationships between the RCMC and other Verizon VA organizations. The single or bi-directional arrows illustrate the information flow between the various centers. The diagram also identifies the functional areas covered by the relationships.

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[79] Please see the End-to-End M&R Process Evaluation (PPR15) for a detailed overview of the routing of wholesale trouble tickets within the various Verizon VA organizations.

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Figure 16-1: RCMC Relationships[80]

2.1.3   Problem Tracking and Resolution

Screeners at all RCMC locations are responsible for reviewing tickets in WFA/C and LMOS that were cleared by technicians, contain errors, and are approaching their commitment time.

A Front End Closeout occurs when an MA resolves a trouble with the CLEC immediately, for instance as a result of performing a Mechanized Loop Test (MLT) on a trouble. In this case, the MA closes the ticket and includes a final status narrative without dispatching it to a technician or another work center. Approximately five percent of all initial trouble reporting calls result in a Front End Closeout.

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[80] The DRC was formerly known as the National Dispatch Resource Center (NDRC) and, prior to that, as the Customer Service Center (CSC), and the WDRC was formerly known as the Wholesale Customer Service Center (WCSC).

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When a field technician or Central Office Technician (COT) closes a ticket, he/she can attempt to notify the CLEC of the closure themselves and close the ticket in the system in which it was opened. Alternatively, technicians can contact the RCMC to perform the close. When Verizon VA technicians contact the RCMC to close the ticket, they provide the MA with a circuit ID and/or Verizon ticket number. The MA can then confirm the account information, notify the CLEC that the ticket is being closed, and close the ticket in the appropriate system. Ticket closure time and date are entered into a trouble ticket narrative, as well as a notation of the contact with the CLEC.

2.1.4   Expedite/Escalation Procedures

Wholesale customers have the ability to request an expedite or escalation in out-of-service or other special-needs situations. An expedite occurs when the MA handling an incoming call promises an earlier commitment time than that provided by the system clock. An escalation to higher levels of RCMC management typically occurs when a CLEC customer is unsatisfied with the results of trouble handling.

A customer care group at each RCMC office is dedicated to handling escalations and maintains details regarding each escalation handled in an Escalation Database in Lotus Notes. The Richmond, Virginia RCMC handles POTS-related escalations, the Bridgewater, New Jersey RCMC handles DSL-related escalations, and the East Brunswick, New Jersey RCMC handles escalations for line sharing. There is an escalation telephone number available for the Richmond, Virginia RCMC and a separate telephone number shared by the Bridgewater, New Jersey and East Brunswick, New Jersey RCMCs.

Commitment times for escalations are generally negotiated with the CLEC when the escalation is verbally initiated by the CLEC; however, an escalation may also be initiated internally. For example, if a screener within the RCMC were searching for missed commitments, he/she would escalate a ticket if the associated resolution time had exceeded its commitment. As the escalation level increases, the ticket is given a correspondingly higher priority.

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2.1.5   RETAS Help Desk Process Description

The RETAS Help Desk is located within the RCMC and serves as the single point of contact for CLECs needing assistance with RETAS. RETAS is a web-based Graphical User Interface (GUI) used by CLECs to communicate their maintenance requests to Verizon VA.[81] RETAS accepts both POTS and special circuit troubles for electronic entry into WFA/C and LMOS for repair. CLECs experiencing issues with RETAS transactions, including data entry problems or user error messages, call the RETAS Help Desk via a toll free number. The RETAS Help Desk is accessible to CLECs 24 hours a day, seven days a week, 365 days a year. The Bridgewater, New Jersey RCMC manages the RETAS help desk between 7 a.m. and 12 a.m.; the East Brunswick, New Jersey RCMC is responsible for coverage between 12 a.m. and 7 a.m.

2.2   Scenarios

Scenarios were not applicable to this test.

2.3   Test Targets & Measures

The test target was Verizon VA's work center support functions, which included reviews of the following process areas and sub-processes:

- Call Processing;
  - Call Answer;
  - Call logging; and
  - Prioritization.
- Problem Tracking and Resolution;
  - Documentation;
  - Identify and Resolve;
  - Track Problem;
  - Log status and close; and
  - Notify Customer.
- Expedite Escalation Procedures;
  - Documentation;
  - Call answer;
  - Escalation logging;
  - Identify and resolve;
  - Log status and close; and
  - Notify customer.

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[81] A detailed evaluation of the functionality of RETAS was performed as part of the M&R RETAS Functional Evaluation (TVV5).

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♦ Work Center Procedures;

♦ Manual handling – Resale;

♦ Manual handling UNE/UNE-P Combinations;

♦ Capacity Management; and

♦ Dark Fiber.

2.4   Data Sources

The data collection performed for this test entailed (i) interviews with and observations of Verizon VA personnel in the RCMCs (including the RETAS Help Desk), as well as other centers associated with the wholesale M&R process, including the Falls Church, Virginia Dispatch Resource Center (DRC) and the Silver Spring, Maryland Wholesale Dispatch Resource Center (WDRC) and (ii) reviews of documentation supplied by Verizon VA at the request of KPMG Consulting. Primary sources of data include the following:

♦ CLEC and Resale Handbook (Volume III);

♦ RCMC Training Manual;

♦ Regional CLEC Operations Contact List & Escalation Flow;

♦ Various RCMC Call Performance Metric Reports based on call statistics captured from the ACD system;

♦ RCMC Quality Assurance Plan and associated completed quality review forms; and

♦ RCMC Force Model.

This test did not rely on data generation or volume testing.

2.5   Evaluation Methods

Verizon VA M&R work center procedures were reviewed and evaluated according to targets established by KPMG Consulting. The following provides additional detail on the testing methods used to conduct the M&R Work Center Support Evaluation:

♦ Interviews – KPMG Consulting conducted on-site interviews with management and staff with direct responsibility and knowledge of targeted processes in the wholesale M&R work centers, as well as other centers associated with the wholesale M&R process.

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♦ Observations – KPMG Consulting performed observations of wholesale personnel in the M&R work centers and associated centers handling trouble-processing activities. These observations were conducted in order to identify substantive differences between the processes practiced in these centers and those processes defined in Verizon Methods and Procedures (M&P).

♦ Documentation Review – KPMG Consulting conducted a review of process flow documentation, M&Ps, and performance data related to M&R work center business operations.

2.6   Analysis Methods

The M&R Work Center Support Evaluation included evaluation criteria developed by KPMG Consulting during the initial phase of the Verizon Virginia, Inc. OSS Evaluation Project. These evaluation criteria provided the framework of norms, standards, and guidelines for the M&R Work Center Support Evaluation.

The data collected from interviews, observations, and documentation reviews were analyzed employing the evaluation criteria detailed in Section 3.0 below

3.0   Results Summary

This section identifies the evaluation criteria and test results. The results of this test are presented in the table below.

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Table 16-1: Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Results	Comments
Call Processing			
PPR16-1-1	M&R work center call intake and processing procedures are operationally complete and adhered to by Verizon VA work center personnel.	Satisfied	M&R work center call intake and processing procedures are operationally complete and adhered to by Verizon VA work center personnel.
			The RCMC call intake and processing procedures are defined and documented in the RCMC Training Manual. Additionally, the Pinnacle ACD records a variety of RCMC call answering data, which is used to ensure that RCMC adheres to call intake and processing procedures. The most significant call taking standard for Verizon VA is to answer 85% of incoming calls within 20 seconds or less. This standard applies to all three RCMCs.
			RCMC Service Results, a document that combines call taking data from all three centers, verifies that the RCMCs consistently meet this standard with service levels of 85% and higher.
Problem Tracking and Resolution			
PPR16-2-1	M&R work center procedures for trouble ticket status tracking are operationally complete.	Satisfied	M&R work center procedures for trouble ticket status tracking are operationally complete.
			Trouble tickets are assigned a tracking number and maintained in the LMOS or WFA/C systems. The ticket number is given to the CLEC at the time it reports a trouble to the RCMC. At any time, CLECs can call the RCMC and submit a ticket number to receive trouble ticket status information about that trouble ticket. If the trouble report was submitted electronically, a CLEC can track the status of the ticket by accessing RETAS at any time.
			An MA at the RCMC can inform the CLEC as to whether the ticket is in the Screening, Pending Assignment, Assigned, or Dispatched stage. The MA can also access different systems to provide the CLEC with more detailed information from the dispatch groups or technicians in the field.
			In addition, Verizon generates Open Query Systems (OQS) reports for the CLECs, which detail missed and completed trouble tickets.

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Test Reference	Evaluation Criteria	Results	Comments
PPR16-2-2	M&R work center procedures for trouble ticket closure and customer notification are operationally complete.	Satisfied	KPMG Consulting verified that trouble ticket closure and customer notification procedures are operationally complete. For special service type troubles, the inside or outside technician repairs the trouble and contacts the RCMC. The RCMC MA retests the trouble and authorizes the technician to close the ticket in WFA/DI or WFA/DO. The MA is responsible for restoring the ticket in WFA/C by assigning trouble and analysis codes, and for notifying the CLEC. When the ticket has been restored, the MA reviews the ticket for completeness and process adherence before closing the ticket. For POTS services, the inside or outside technician is responsible for restoring the ticket in WFA/DI or WFA/DO respectively by assigning disposition and cause codes, and for notifying the CLEC. Alternatively, the technician may call the RCMC and request that the MA complete the closing procedure. Troubles must be restored within the commitment time provided to the CLEC. The tickets may not be closed prior to CLEC acceptance unless the CLEC is unable to be contacted. In the event that a CLEC disagrees with closure of a trouble ticket, a new ticket must be opened, which is only given higher priority if the CLEC chooses to escalate the ticket.

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Test Reference	Evaluation Criteria	Results	Comments
		Expedite/Escalation Procedures	
PPR16-3-1	M&R work center trouble ticket escalation procedures are operationally complete.	Satisfied	M&R work center trouble ticket escalation procedures are operationally complete. RCMC personnel have the ability to expedite a trouble repair commitment when a CLEC is unsatisfied with the original commitment time provided. Additionally, the RCMC successively escalates CLEC customer troubles to higher levels of management until the CLEC is satisfied with the results. Troubles can also be escalated internally by Verizon VA personnel, at which time the CLEC is notified of the escalation. The following layers of escalation exist within the RCMC: ♦ Escalation Level 1: Customer Care; ♦ Escalation Level 2: Customer Care Supervisors; ♦ Escalation Level 3: Center Managers; ♦ Escalation Level 4: Executive Director – CLEC Operations; and ♦ Escalation Level 5: Vice President – CLEC Operations. An RCMC escalation list is available to CLECs on the Verizon Wholesale website at http://www22.verizon.com/wholesale/frames/generic_frame_east/0,2656,con_clec,00.html. This escalation list is updated immediately if any contact information changes.

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Test Reference	Evaluation Criteria	Results	Comments
			Work Center Procedures
PPR16-4-1	M&R work center responsibilities and activities for serving CLEC customers are defined and documented.	Satisfied	M&R work center responsibilities and activities for serving CLEC customers are defined and documented. Verizon VA established the RCMC as the single point of contact to handle trouble receipt for all CLEC reported problems. RCMC responsibilities include (i) to be available 24 hours a day, seven days a week, 365 days a year, (ii) to maintain a RETAS Help Desk, (iii) to establish reported troubles in the correct support system, (iv) if applicable, to perform a test to help isolate the fault during trouble receipt, (v) to forward the trouble to the work group responsible for making repairs or doing additional testing, (vi) to escalate troubles on behalf of the CLEC when a process breakdown is observed, (vii) to provide commitment times, (viii) to expedite a trouble ticket if the CLEC requests an earlier commitment time, (ix) to contact the CLEC after trouble resolution, (x) to maintain current contact information for Verizon centers, and (xi) to be prepared to represent CLEC concerns to Verizon organizations.
PPR16-4-2	The M&R work center RETAS Help Desk is made available to assist users with the RETAS application.	Satisfied	The M&R work center RETAS Help Desk is available via a toll free number to assist CLECs experiencing problems entering troubles via RETAS. As part of transaction testing activities for End-to-End Trouble Report Processing (TVV7), KPMG Consulting accessed the RETAS Help Desk on several occasions during peak business hours (7 a.m. and 7 p.m.). Additionally, KPMG Consulting made test calls between the hours of 7 p.m. and 7 a.m. and verified that the RETAS Help Desk was also available during non-peak hours.
PPR16-4-3	M&R work center processes for staff training are operationally complete.	Satisfied	M&R work center processes for staff training are operationally complete. Wholesale work centers have an internal organization that provides training for new employees and retraining for existing employees on policy and procedural changes. The initial training lasts between four and six weeks and is mostly instructor-led in a classroom environment. Ongoing training takes place at the work center when new products are introduced and is offered to employees who require additional assistance in a particular area.

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Test Reference	Evaluation Criteria	Results	Comments
PPR16-4-4	M&R work center processes for staff performance monitoring are operationally complete.	Satisfied	M&R work center procedures for staff performance monitoring are operationally complete. Team leaders at wholesale work centers conduct staff observations and evaluate staff performance. Observation forms include (i) greeting and identification; (ii) understanding of customer needs; (iii) development of trouble reports; (iv) closing; (v) overall concern for the customer; (vi) trouble report quality; and (vii) trouble report systems handling. Team leaders are expected to make one observation per week per employee. Team leaders consolidate observation forms in a weekly summary, which is forwarded to the Training Manager. The results of the observations are reviewed with each employee on a regular basis. The RCMC Training Manager and the RCMC Metrics Group produce several reports for the director, managers, and team leaders. These include daily, weekly, and monthly office performance reports; group reports based on the call intake menu located within the ACD; and individual MA monthly performance reports. Calls coming into the RCMC are routed through the Pinnacle ACD, which captures call metrics, including the time and duration of calls. The Pinnacle ACD is linked to the Total View system, which is a tool that compiles ACD call metrics in real-time. Total View is employed by Verizon VA to develop call volume forecasts and workforce schedules as required. Call metrics captured in the ACD are viewed and reported through the Looking Glass system, which allows management to review call metrics in real-time in order to evaluate employees and manage the center. Additionally, Verizon VA has a documented RCMC Quality Assurance Plan designed to ensure customer satisfaction by (i) evaluating process effectiveness, (ii) identifying group training needs, (iii) assessing individual employee training needs, (iv) measuring the quality of individual and group performance, and (v) allowing individuals and groups to see their contribution to the center performance indicator.

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Test Reference	Evaluation Criteria	Results	Comments
PPR16-4-5	M&R work center processes for staffing are operationally complete.	Satisfied	M&R work center processes for staffing are operationally complete. The wholesale M&R work center quarterly capacity forecast is based on the "Anderson Force Model." For each trouble type, the model estimates the number of troubles reported per month. This monthly number of troubles reported along with the calls-to-report ratio, the average work time per call, and the desired quality of service are used to predict the required headcount. The model assumes a personnel occupancy rate of 75% and a productivity rate of 80%. The ratio of supervisors to employees and the number of troubles per staff member vary between wholesale work centers because each center is responsible for different trouble types.
PPR16-4-6	M&R work centers have procedures for maintaining security and integrity of data access controls.	Satisfied	M&R work centers have procedures for maintaining security and integrity of data access controls. Every individual is required to enter a user identification and password in order to gain entry to the systems at the wholesale work centers. Passwords expire every 30 to 60 days. Employees possess an electronic card that allows them access to the work center, which is protected by electronic scanners on each of the doors. When a CLEC contacts the RCMC, an MA is required to verify the caller's identification as well as the CLEC customer's name and address before a trouble ticket is processed.

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Test Reference	Evaluation Criteria	Results	Comments
Manual Handling – Resale/UNE-P			
PPR16-5-1	M&R Work center call handling processes include assistance with Resale and UNE-P service and trouble fault identification, specifically conducting line testing activities and dispatch hand-offs.	Satisfied	M&R work center call handling processes include assistance with Resale and UNE-P services and trouble fault identification, specifically conducting line testing activities and dispatch hand-offs. When a customer calls the RCMC with a Resale or UNE-P trouble, the call-taking MA will first gather information from the customer about the nature of the trouble. The MA will then perform an MLT on the line in question. According to the MLT Module of the RCMC Training Manual, an MLT is used to associate the reported trouble with the trouble fault. The MLT returns a Verification Code about the trouble, which the MA inserts into WFA/C or LMOS, which routes the trouble to the correct center. Once a ticket has been submitted for a Resale or UNE-P trouble, the Screening Group will hand the ticket off to the appropriate dispatch center for Dispatch In (DI) or Dispatch Out (DO). Resold special service troubles are sent to the Regional Resold Services Center (RRSC) for further testing and management.
Manual Handling – UNE			
PPR16-6-1	M&R work center processes include assistance with trouble fault identification for UNE services specifically, dispatch hand-offs.	Satisfied	KPMG Consulting verified that M&R work center call handling processes include assistance with trouble fault identification for UNE services. When a CLEC customer calls the RCMC with a UNE trouble, the call-taking MA will first gather information from the customer about the nature of the trouble. The MA will then enter the trouble and contact information and create a ticket in WFA/C or LMOS. Once a ticket has been submitted for a UNE trouble, a Screener within the RCMC will designate whether the trouble should be sent to a Central Office (CO), Network Operations Center/Dispatch In (NOC/DI), or to an outside dispatch center, based on the information submitted by the CLEC. The Screener then hands the ticket off to the appropriate dispatch center for DI or DO.

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Test Reference	Evaluation Criteria	Results	Comments
center: **Capacity Management**			
PPR16-7-1	M&R work center contingency action plans for business functions in the event of extended office outages are operationally complete.	Satisfied	M&R work center contingency action plans for business functions in the event of extended office outages are operationally complete. The RCMC Major System Failure Procedure establishes procedures for MAs to follow in the case of a major system outage at the RCMC. The document instructs MAs how to operate in manual mode until the systems are restored and troubles can be entered electronically. The Regional CLEC Web Backup and System Outage Procedures document discusses steps to be followed in the event of planned or unexpected web server outages. The RCMC Contingency Plan explains procedures for switching work between centers and rerouting employees in the case of an environmental failure, emergency office outage, or unexpected work load increase.
PPR16-7-2	Procedures for evaluating and adjusting resource utilization are operationally complete.	Satisfied	Processes for evaluating and adjusting resource utilization are operationally complete. In wholesale M&R work centers, a manager appointed by the Executive Director produces a quarterly capacity forecast based on the "Anderson Force Model." Input for the model comes from the ACD and anticipated call volume required by new product lines. The model is then used to forecast incoming trouble reports by product type, estimate headcount according to call volume, inform the human resources department of future needs, and determine the budget of the work center. Managers review the model, provide additional input, and assign tours accordingly.

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Test Reference	Evaluation Criteria	Results	Comments
PPR16-7-3	Processes for evaluating and adjusting office space utilization are operationally complete.	Satisfied	Processes for evaluating and adjusting office space utilization are operationally complete. Forecasting is done on a quarterly basis to estimate future personnel, space, and equipment requirements. The M&R work center quarterly capacity forecast is based on the "Anderson Force Model." Capacity plans are based on the RCMC's ability to meet service level objectives of answering 85% of the center's calls within 20 seconds. Additional resources are deployed when service levels do not meet objectives. For example, the decision to move the RETAS Help Desk to Bridgewater, New Jersey was based on the forecast of lower call volume, stagnant DSL activity, and an increase in line sharing trouble activity.
PPR16-7-4	There are established processes for incorporating capacity management into the business plan.	Satisfied	Established processes exist for incorporating capacity management plans into the business plan. The RCMC Force Model is used for long range capacity management forecasting. This model estimates the number of employees required to satisfy year over year needs. Verizon allocates the budget for the M&R work center based on this headcount forecast. If significant out of trend changes are necessary, a separate document, such as the RCMC Operations Plan for 4Q99 and 2000, will be implemented. This plan projected increases in call volumes that resulted in establishing the Richmond, Virginia RCMC in 2000.
Dark Fiber			
PPR16-8-1	Documented methods and procedures exist for the handling of M&R activities for Dark Fiber circuit troubles.	Satisfied	Documented M&Ps exist for the handling of wholesale M&R activities for Dark Fiber circuit troubles. The CLEC is responsible for isolating the trouble and reporting only the item that is causing the Dark Fiber trouble. CLECs report Dark Fiber troubles directly to the RCMC or electronically through RETAS. The RCMC then hands off Dark Fiber troubles to the NOC/DI to be dispatched to a COT. Verizon VA's contractual obligation regarding Dark Fiber troubles is limited to COTs performing continuity tests on Dark Fiber circuits.

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C.   Test Results: M&R Coordination Process Evaluation (PPR17)

1.0   Description
The M&R Coordination Process Evaluation (PPR17) was a review of the systems, processes, procedures, and other operational elements associated with Maintenance and Repair (M&R) coordination activities between Verizon Virginia (Verizon VA) and Competitive Local Exchange Carriers (CLEC), including third party vendors.

2.0   Methodology
This section summarizes the test methodology.

2.1   Business Process Description
Included in M&R coordination activities is the participation in vendor meets by Verizon VA and CLECs. The Regional CLEC Maintenance Center (RCMC) is the single point of contact responsible for receiving and handling CLEC vendor meet requests.

A vendor meet is generally requested by a CLEC after both its technician and a Verizon VA technician have failed in their individual attempts to repair a trouble. Only the CLEC is authorized to request a wholesale vendor meet. The information obtained from a CLEC by a Maintenance Administrator (MA) in the RCMC is to include the circuit number in question, the specific location for the vendor meet, the contact and access information, and the dates and times the CLEC is available during the next business day. In addition, the Verizon MA notifies the CLEC they will be billed for a Maintenance Service Charge (MSC) if the cause of the trouble is not related to Verizon VA facilities or equipment. The MA then schedules the vendor meet and advises the CLEC of the scheduled meeting time.

After the request is made and the CLEC acknowledges the scheduled meeting time of the vendor meet, the following information is provided to technicians to ensure that vendor meet appointments are met:

♦   Time;
♦   Customer premises contact name and number;
♦   Contact name and number of customer requesting vendor meet; and
♦   Vendor contact name and number, if applicable.

The location of a vendor meet may vary, but is typically held at a mutually agreed-upon location (such as the origination point of the reported trouble or at the demarcation point of each company's testing capabilities for the reported circuit).

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Verizon classifies a vendor meet as either Dispatch Out (DO) or Dispatch In (DI). DO refers to a vendor meet that takes place outside a Verizon VA Central Office (CO), such as a customer premise. DI refers to a vendor meet that takes places inside a Verizon VA CO. After a vendor meet request is received by the RCMC, a ticket is generated and it is the responsibility of an RCMC MA to determine which dispatch center should receive the trouble ticket. The Wholesale Dispatch Resource Center (WDRC) receives DO trouble tickets and the Network Operations Center/Dispatch In (NOC/DI) receives DI trouble tickets. It is the responsibility of the WDRC and NOC/DI employees to dispatch the vendor meet trouble ticket to the appropriate Verizon VA technician.
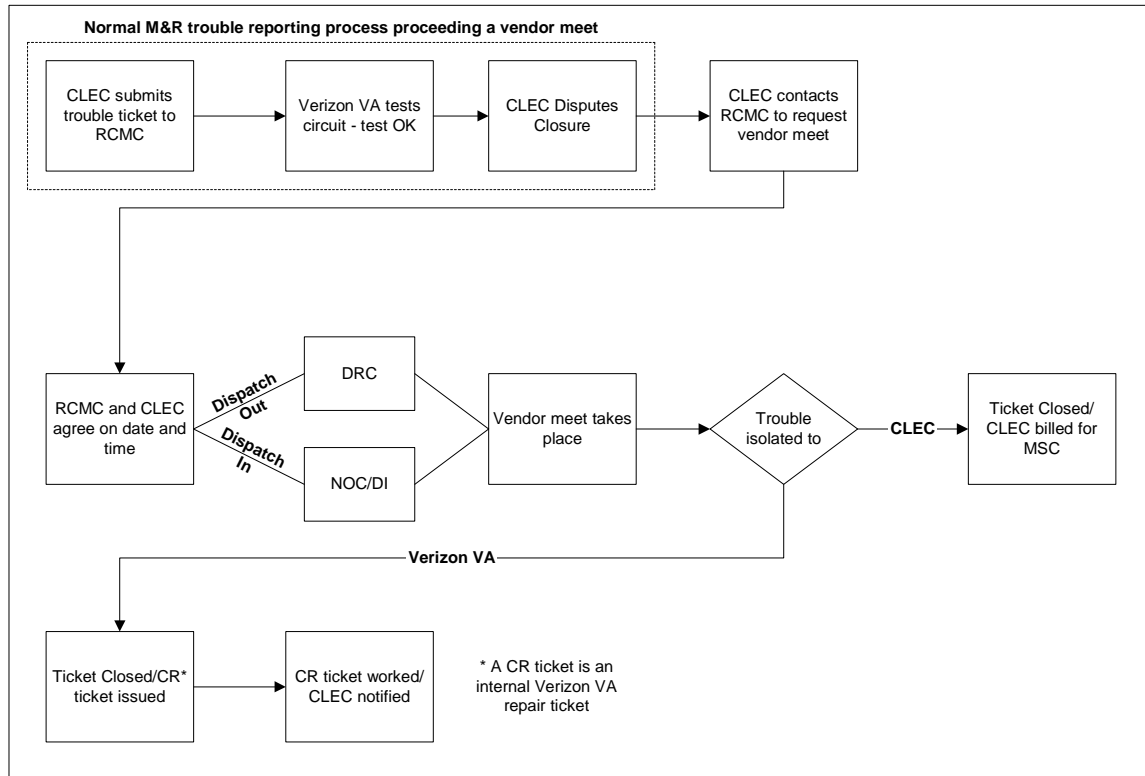
Verizon VA technicians, CLEC technicians, and, where appropriate, third-party vendors meet to attempt to resolve chronic troubles. When attempting to jointly resolve these chronic troubles, the technicians may conduct coordinated analysis on switch circuits; isolate hard-to-find faults; verify existing troubles; diagnose causes; and take the proper action to resolve the faults. Once the vendor meet is successful and both parties agree the trouble has been repaired, the Verizon VA technician closes out the trouble ticket by either using a hand-held Intelligent Field Access System (IFAS) terminal or contacting a member of the WDRC personnel and requesting that the trouble ticket be closed directly in Verizon's internal systems. Trouble tickets for Specials circuits are processed in the Workforce Administration/Control (WFA/C) System and trouble tickets for POTS circuits are processed in the Loop Maintenance Operations System (LMOS). In order for a trouble ticket to be properly closed, the correct disposition and cause codes must be used and the affected CLEC must be notified.

If the CLEC technician fails to arrive at the predetermined meet time, the Verizon VA technician must wait 10 minutes. After 10 minutes, the Verizon VA technician must call the CLEC contact number to inquire about the status of the CLEC technician. If the CLEC technician is able to arrive within the next 10 minutes, the Verizon VA technician must wait. If the CLEC technician does not show up within 20 minutes of the scheduled meet time, the Verizon VA technician must determine if the Verizon VA facilities are in working order up to the demarcation point. If it is determined that the Verizon VA facilities are in service, the Verizon VA technician closes the trouble ticket and the CLEC is billed for time and materials for an increment of 30 minutes. Any future requests to reschedule a missed vendor meet must be made through the RCMC as a new request.

If the Verizon VA technician is not able to arrive at the scheduled meet time, he/she must contact the CLEC directly and must also contact the WDRC so that an entry into Verizon's internal systems can be made indicating the CLEC was advised of the delay. When necessary, the WDRC will contact the CLEC to reschedule the vendor meet.

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Figure 17-1 illustrates the vendor meet process.

Figure 17-1: Vendor Meet Process

2.2   Scenarios
Scenarios were not applicable to this test.

2.3   Test Targets & Measures
The test targets were the vendor meet procedures and coordinated testing efforts between Verizon VA and the participating CLECs, including the following processes and sub-processes:

♦ Meet Procedures; and
  ♦ Process Documentation; and
  ♦ Notification Procedures.
♦ Coordinated Testing.
  ♦ Process Documentation; and
  ♦ Notification Procedures.

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2.4   Data Sources
The data collected for this test relied on (i) interviews conducted with Verizon VA personnel in the RCMCs in East Brunswick, New Jersey, Bridgewater, New Jersey, and Richmond, New Jersey, the NOC/DI in Clarksburg, West Virginia, and the DRC in Falls Church, Virginia; (ii) observations of live CLEC vendor meets; and (iii) reviews of internal vendor meet Methods and Procedures (M&P) documentation supplied by Verizon VA at KPMG Consulting's request. Primary sources of data include the following:

- Vendor Meet Process 8:30PM;
- Vendor Meet observation results;
- Vendor Meet trouble ticket history and closeout information;
- Field Technician – DRC Associate Status Notification to CLECs;
- Vendor Meet Process for UNE Loops-Dispatch Out-Maintenance;
- Unbundled 2 Wire Digital Loop – ADSL Qualified;
- Verizon Technician Guide Book; and
- Disposition and Cause Code Table.

This test did not rely on data generation or volume testing.

2.5   Evaluation Methods
Verizon vendor meet procedures were reviewed and evaluated according to targets established by KPMG Consulting. The following provides additional detail on the testing methods used to conduct the M&R Coordination Process Evaluation:

- Interviews – KPMG Consulting conducted interviews with the management and staff of centers that support Verizon VA and have direct responsibility and knowledge of targeted vendor meet processes.
- Observations – KPMG Consulting attended vendor meets to observe and document the interaction between Verizon VA and CLEC technicians while they attempted to clear unresolved trouble reports. These observations were performed to assess the compliance of Verizon VA personnel handling vendor meets as compared to processes outlined in M&Ps supplied by Verizon.
- Documentation Review – KPMG Consulting conducted a review of internal documentation provided by Verizon related to the vendor meet process. Additionally, a review was conducted of the trouble ticket history and closeout information associated with the vendor meets observed. Particular focus was placed on verifying that proper disposition codes and cause codes were used when closing out the trouble tickets. A disposition code identifies defects in telephone

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company equipment or facilities; it may also indicate customer error or misuse of telephone
company or customer equipment. A cause code defines the immediate cause of a trouble.

2.6   Analysis Methods
The M&R Coordination Process Evaluation included a checklist of evaluation criteria developed by
KPMG Consulting KPMG Consulting. These evaluation criteria provided the framework of norms,
standards, and guidelines for the M&R Coordination Process Evaluation.

The data collected from interviews, observations, and documentation reviews were analyzed
employing the evaluation criteria detailed in Section 3.0 below.

3.0   Results
This section identifies the evaluation criteria and test results. The results of this test are presented in
the table below.

Table 17-1: PPR17 Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Result	Comments
PPR17-1	Methods and procedures for CLEC vendor meets are defined and documented.	Satisfied	Methods and procedures for CLEC vendor meets are defined and documented. Vendor meet-specific M&Ps define the scope and objectives of CLEC vendor meets. These documents are distributed and explained to Verizon VA technicians and work center personnel during training and small internal meetings to ensure that the scope and objectives are thoroughly understood.

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Test Reference	Evaluation Criteria	Result	Comments
PPR17-2	The process for requesting and scheduling vendor meets is operationally complete and communicated to CLECs and third-party vendors (if applicable).	Satisfied	The process for requesting and scheduling vendor meets is operationally complete and communicated to CLECs and third-party vendors. Vendor meet-specific M&Ps define Verizon's responsibilities for scheduling CLEC vendor meets. The documentation also defines the process for the timely notification of joint meets, as well as the process for verifying pertinent information with the CLEC by the RCMC MAs. Verizon communicates updates and revisions of vendor meet procedures to CLECs via industry letters. These industry letters can be found on the Verizon Wholesale website at http://www22.verizon.com/wholesale/frames/generic_frame_east/0,2656,industry_letters,00.html.
PPR17-3	Verizon VA M&R network technicians conduct CLEC vendor meets in accordance with documented methods and procedures.	Satisfied	Verizon VA M&R network technicians conduct CLEC vendor meets in accordance with documented M&Ps. Between July 10, 2001 and October 8, 2001, KPMG Consulting observed 12 live vendor meets between Verizon VA and various CLECs. During these vendor meets, Verizon VA Network Technicians arrived at the vendor meets prior to the scheduled meet time as required by Verizon M&Ps. Verizon VA Network Technicians conducted testing activities on Verizon VA network circuits in accordance with the M&P Verizon Unbundled 2 Wire Digital Loop ADSL Qualified Method and Procedure Release. In one instance, the CLEC technician did not attend the scheduled vendor meet. The Verizon VA technician acted in accordance with the Vendor Does Not Show procedures outlined in the Method and Procedure Release titled: Vendor Meet Process 8:30 PM.

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Test Reference	Evaluation Criteria	Result	Comments
PPR17-4	Vendor meet trouble ticket closeout procedures are conducted in accordance with documented methods and procedures.	Satisfied	Vendor meet trouble ticket closeout procedures are conducted in accordance with documented M&Ps. Between July 10, 2001 and October 8, 2001, KPMG Consulting observed 12 live vendor meets between Verizon VA and various CLECs. KPMG Consulting reviewed the associated trouble ticket history and closeout information for each of these vendor meets; proper disposition and cause codes were used to close the trouble tickets.

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D.   Test Results: Network Surveillance Support Evaluation (PPR18)

1.0   Description

The Network Surveillance Support Evaluation (PPR18) analyzed the processes, procedures, and responsibilities associated with Verizon Virginia's (Verizon VA) Maintenance and Repair (M&R) network surveillance and network event notification as it relates to wholesale operations. Where applicable, KPMG Consulting examined network surveillance processes for both retail and wholesale operations to assess completeness. Additionally, the evaluation focused on activities within the Network Services Assurance Center (NSAC), Network Control Center (NCC), and Network Administration Center (NAC). These centers are responsible for overseeing, monitoring, and assisting in maintaining the Verizon VA network.

2.0   Methodology

This section summarizes the test methodology.

2.1   Business Process Description

The Verizon centers responsible for ensuring the integrity, reliability, availability, and overall quality of service within the Verizon VA network are the (i) Newark, New Jersey NSAC, (ii) Falls Church, Virginia NCC, and (iii) Falls Church, Virginia NAC. These tasks are achieved through a combination of the following activities:

♦ Coordinated network monitoring and warning;

♦ Proactive and reactive M&R; and

♦ Internal communications across Verizon organizations, as well as external communications to impacted customers and third-party organizations (i.e., the Federal Communications Commission (FCC), Federal Aviation Administration (FAA), Emergency 911 Services, and others).

2.1.1   NSAC and NCC: Shared Responsibilities:

The NSAC and the NCC both monitor abnormal events that affect the service capability of the Verizon VA network. In the Verizon Guide to Inputting Bell Atlantic Lotus Notes Abnormal Events, abnormal events are defined as "unusual events, conditions, or situations that affect, or might be expected to affect, telephone company personnel, telephone service, equipment, or property."

The network elements for which the NCC and NSAC have surveillance and outage notification responsibilities are defined by Verizon VA as follows:

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♦ Inter-Office Facilities (IOF) – A high capacity digital transmission path that is dedicated for the transport of local, toll, and/or access traffic between central offices (CO). IOF can be dedicated to Verizon VA, a Competitive Local Exchange Carrier (CLEC), or a combination of both. The CLEC can purchase IOF in Digital Signal – 1 (DS1) through Digital Signal – 3 (DS3) transport levels.

♦ IOF Dedicated Trunk Port – A dedicated high capacity termination on a Verizon VA switch (i.e., tandem or end office) that provides signaling and transport options for moving local, toll, and/or access traffic between Verizon VA unbundled switches or CLECs' collocated or non-collocated switches.

♦ Advanced Intelligent Network (AIN) – A network architecture that includes three basic call processing elements: (i) Service Control Points (SCP), (ii) Service Switching Points (SSP), and (iii) Signal Transfer Points (STP). An AIN SCP is a database that executes service application logic in response to queries sent to it by an SSP equipped with AIN functionality. AIN SSPs are digital phone switches that may query an SCP for customer-specific instructions on how to process a call (e.g., routing, blocking). AIN STPs are packet switches that shuttle messages between an SSP and SCP or between an SSP and SSP. All three communicate via out-of-band signaling using the Signaling System 7 (SS7) protocol as detailed below.

♦ Signal System 7 (SS7) – SS7 is a system used by network elements to exchange information over an out-of-band channel called an SS7 link. There are two distinct protocols used: (i) Integrated Services Digital Network User Part (ISUP) and (ii) Transaction Capabilities Application Part (TCAP). ISUP messaging allows an SSP to communicate with another SSP through an STP. Examples of information exchange include trunk reservation, trunk setup, and call teardown requests. SSPs may need additional information on how to route or treat a specific call request; this data may be found in an SCP. TCAP messaging allows an SSP to communicate with an SCP (or an SCP with another SCP) through an STP. Examples of information exchange include Local Number Portability (LNP) related data queries and responses regarding Location Routing Numbers and Line Information Database addresses.

The responsibilities of the NCC differ from those of the NSAC in that the NCC observes network elements for all errors whereas the NSAC is concerned with reportable abnormal events. The difference arises from the fact that the NCC coordinates repair and service restoration activities and the NSAC's primary duty is to coordinate the communication of the occurrence of reportable network events (FCC defined). Thus, the NCC surveillance systems' alarm settings are set at lower thresholds than those of the NSAC.

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2.1.2   NCC: Comprehensive M&R Surveillance Responsibilities
The primary responsibilities of the Verizon NCC are the maintenance, repair, and provisioning of the switches, transport facilities, and trunking facilities that are located within the Verizon VA network or connect the Verizon VA network to an alternative carrier's (i.e., CLEC or Inter-Exchange Carrier (IXC)) network. In support of these responsibilities, the NCC monitors the functionality and performance of all network elements within the Verizon VA network. This monitoring provides the NCC with the ability to proactively and reactively coordinate its primary responsibilities.

2.1.3   NSAC: Reportable Event Surveillance and Notification Responsibilities
The Verizon NSAC is responsible for monitoring the Verizon VA network for service-affecting network events, coordinating non-technical status communications during such events, and providing notification of these events to CLECs as well as Verizon VA internal and external organizations. The NSAC monitors severe network events classified by Verizon VA as abnormal events. The NSAC emails information regarding these abnormal events to CLECs and regulatory agencies in the form of initial notifications, status updates, resolution reports, and after-action root cause analyses.

2.1.4   NAC: Trunk Blockage Notification Responsibilities
The NAC is responsible for monitoring the capacity of network trunking equipment. Functionally, the NAC is responsible for identifying trunk blockage events and communicating them to the appropriate Verizon centers for resolution, including the Trunk Capacity Management (TCM) and the Carrier Account Team Center (CATC).

Upon recognizing a trunk blockage event or receiving notification of a blockage event from the NSAC, the NAC's first responsibility is to ensure that the trunks are in service. If the trunks are not in service, the NAC must contact the trunk maintenance group within the NCC by creating a trouble ticket via Workforce Administration/Control (WFA/C). If the trunks are in service, the details of the blockage event are recorded in a Trunk Trouble Notification Report, which is then forwarded via email to the general mailbox of the TCM group located in Baltimore, Maryland. The TCM has 72 hours to respond to a Trunk Trouble Notification Report by indicating the action that will be taken and the date on which the action will occur.

The TCM Group is responsible for determining if a blockage event is part of an increasing trend in call volume or an isolated event that does not warrant additional facilities. If it is determined to be the former, the TCM group estimates the number of additional trunks required and prepares a CLEC Access Notification Form, which is sent to the Verizon CATC. The CATC Project Management Interconnect Trunking Team is responsible for communicating with the TCM to verify that the CLEC Access Notification Form is completed in full.

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The CATC Switch Access Provisioning Team receives the CLEC Access Notification Form and formally notifies the CLEC via e-mail of the blockage issue. The CATC and the CLEC then discuss the blockage situation and once the two parties agree how to best resolve the problem, the CLEC places an order to provision new trunk groups or augment existing groups.

2.1.5   Network Monitoring Systems:
The NSAC, NCC, and NAC monitor and analyze the Verizon VA network through the use of the surveillance, analysis, and warning systems detailed below. All systems are online 24 hours per day, 365 days per year. The NSAC and NCC network surveillance functions are ensured by redundancy, meaning that in the event of either center going offline, the other has the ability to assume all of the offline center's surveillance duties.

♦ Netminder Network Traffic Management [NSAC] – The Netminder Network Traffic Management (NTM) monitors the Public Switched Telephone Network (PSTN) (or "logical network") for traffic flow conditions and call completion, identifying occurrences of blockages and traffic overflows. Netminder consists of a "family" of the following three supporting applications: (i) Network Traffic Management (NTM), (ii) Network Traffic Patterning (NTP), and (iii) Signaling Traffic Management (STM).

♦ Network Traffic Manager [NSAC] – The NTM system provides the NSAC with data on trunk groups, switch volumes, and congestion in the network. This system allows the re-routing of traffic, the insertion of call gaps,[82] or other types of controls that are utilized in the network.

♦ Network Traffic Patterns [NSAC] – The NTP system displays call irregularity messages that originate from switches. These messages provide information on occurrences of service-affecting levels of network traffic, network congestion, and detailed data on trunk group troubles. NTP is a passive system that provides information to the technicians. There are no network controls administered through this system.

♦ Signaling Traffic Management [NSAC] – The STM system monitors flow patterns and volumes of traffic data from the SS7 system. The STM analyzes this data and if certain trouble event risk thresholds are met, the system provides a real-time electronic notification to the NSAC.

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[82] Call-gapping is a feature of SS7 that enables the automatic rerouting of a specified percentage of calls that are made to a specified range of addresses. During periods of network congestion, call-gapping is used to reroute calls to reorder (attempt connection again) or an announcement circuit.

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♦ Network Monitoring and Analysis [NSAC and NCC] – The Network Monitoring and Analysis (NMA) system provides the NSAC and NCC with transport trouble alarm information. This system provides additional details about the type and severity of a trouble and identifies the transport facilities affected by the trouble. NMA generates alarms when transport conditions breach preset performance thresholds. The alarms are categorized by severity. These categories are Critical (outage), Major (service-affecting), and Minor (non-service-affecting). A Critical alarm requires immediate repair or other resolution. A Major alarm also requires immediate resolution as service to customers may be affected. A Minor alarm is non-service-affecting and can be repaired during the next safe time hours. Safe time, which is between 11:00 p.m. and 7:00 a.m., is the period during the day with the least amount of network traffic and CO activity. In addition to providing alarms, NMA can be used to test network elements for localizing and diagnosing troubles. NMA also provides some repair functionality, which allows the Virginia NCC to execute various remote electronic repairs. NMA also generates and submits a repair ticket to WFA when a fault is detected. NMA will issue a ticket to the "highest" entity involved in a trouble. For example, if NMA detects a trouble in two DS1 lines and both of the DS1s are sub-elements of a DS3, NMA will issue the ticket on the DS3.

♦ Network Fault Management [NSAC and NCC] – The Network Fault Management (NFM) system is used for the monitoring and analysis of switches. The NFM system features awareness screens that provide alarm condition descriptions for switch and facility alarms. The NFM system receives alarms from CO switches and sorts the alarms based upon preset thresholds.

The switch components for which NFM provides monitoring and alarms are switch processors, peripheral equipment, power, and miscellaneous. Switch processor modules that are monitored include the switching modules, communications modules, and administrative modules. Alarms reported by NFM are categorized according to severity. These alarms range from most to least severe. The most severe is designated P1AB (service-affecting, requires abnormal event report). This indicates a trouble that must be fixed immediately. The alarm is also reported to the NCC Single Point of Contact (SPOC) and, if it occurs during off-hours, the closest CO Technician (COT) with the appropriate training is dispatched to repair the trouble. The next level of severity is a P1 (service-affecting). This indicates a trouble that Verizon VA determines can be fixed during the next CO safe time opportunity. Alarm conditions of P2 (potentially service-affecting) and P3 (non-optimal performance but not potentially service-affecting) are of lower priority and are scheduled into the workload at the most convenient times.

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♦ TIM Awareness [NCC] – Total Network Management (TNM) Integration Module (TIM) Awareness is a supporting application for NFM that provides high-level details of alarm conditions via an alarm screen, which is monitored by NCC COTs.

♦ Total Surveillance Management [NCC] – Total Surveillance Management (TSM) is a supporting application for NFM, which works in conjunction with the TIM Awareness system to register alarms out of the switch using information recorded off of the switch. TSM is capable of accessing network switches, performing tests to isolate the trouble, and potentially resolving the issue that generated the alarm.

♦ Trouble Ticketing System [NCC] – Trouble Ticketing System (TTS) is a program that links NFM to WFA/C. It allows NCC COTs to generate trouble tickets in WFA/C directly from the NFM alarm screen.

♦ Workforce Administration/Control [NSAC, NCC, and NAC] – WFA/C serves as the control module for the WFA system. WFA/C is used to create trouble tickets and route them to the appropriate Verizon VA centers. Based upon a system of "handle codes," the WFA/C system will direct outage reports to either WFA/DI or WFA/DO.
WFA/C is also used by the NSAC for informational purposes. To gain information on open tickets, which have been sent to the NSAC for analysis, the center uses WFA/C to obtain event status updates.

♦ Workforce Administration/Dispatch In [NCC] – Work Force Administration/Dispatch In (WFA/DI) receives reports from WFA/C that are determined to require a Dispatch In (DI). The NCC Transport and Trunk Surveillance Groups can receive trouble tickets via WFA/DI from the RCMC, the Specials Service Center (SSC), or the Major Customer Center (MCC). If customers call in with complaints about their Verizon VA service and the problem is a result of a transport or trunk facility failure that has already been recognized by the NCC, the trouble ticket is routed to either the NCC Transport or Trunk Surveillance Group.

♦ Workforce Administration/Dispatch Out [NCC] – Workforce Administration/Dispatch Out (WFA/DO) is the application used by all COTs to dispatch troubles requiring a Dispatch Out (DO). A DO is a dispatch of a case or trouble outside of the CO.

♦ Trunk Integrated Record Keeping System [NSAC and NCC] – The Trunk Integrated Record Keeping System (TIRKS) is a database that provides inventory information specific to the network's existing trunking equipment. In providing this information, TIRKS provides the ability to locate and identify the type of equipment during an outage situation as well as the ability to determine what type of technology support is necessary to respond to the situation.

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♦ Traffic Data Management System [NAC] – Traffic Data Management System (TDMS) is the application used to monitor and store trunking patterns and conditions. TDMS is capable of storing data pertaining to trunking capacity and overflow for up to eight days. TDMS provides indication of trunking conditions, which may require further investigation, maintenance, and repair.

♦ Network Traffic Data Collection & Analysis [NAC] – Network Traffic Data Collection & Analysis (NTDCA) is used to warehouse data collected by TDMS; NTDCA allows for long term data storage of trunk capacity and overflow information. Through NTDCA, it is estimated that data can be retrieved for up to two years.

2.2   Scenarios

Scenarios were not applicable to this test.

2.3   Test Targets & Measures

The test targets were Verizon VA's network surveillance and outage notification processes, which included the following sub-processes:

♦ IOF Surveillance;

♦ AIN Interconnect Surveillance;

♦ SS7 Network Surveillance;

♦ Process Documentation; and

♦ Notification Procedures.

2.4   Data Sources

The data collection performed for this test included (i) interviews with and observations of Verizon VA NSAC, NCC, and NAC personnel with direct responsibility and knowledge of the targeted processes and procedures and (ii) detailed reviews of documentation supplied by Verizon VA at the request of KPMG Consulting. Primary sources of data include the following:

♦ NCC Abnormal Event Process;

♦ Restoration Practice for a Major Service Affecting Event;

♦ Guide to Inputting Verizon Lotus Notes Abnormal Events;

♦ Reportable Abnormal Conditions;

♦ CLEC Handbook (Volume III, Section 8.3.7);

♦ Verizon Abnormal Event Reporting Guidelines;

♦ Traffic Data Method & Procedure;

♦ Trunk Trouble Notification Process;

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♦ CLEC Process – Augmentation Process Flow; and
♦ Trunk Trouble Notification Process.

This test did not rely on data generation or volume testing.

2.5   Evaluation Methods
Verizon VA network surveillance and outage notification procedures were reviewed and evaluated according to targets established by KPMG Consulting. The following provides additional detail on the testing methods used to conduct the Network Surveillance Support Evaluation:

♦ Interviews – KPMG Consulting conducted interviews of center personnel with direct responsibility and knowledge of the targeted processes.
♦ Observations – KPMG Consulting performed observations of NSAC, NCC, and NAC personnel monitoring the Verizon VA network. This was done in order to identify the presence of any substantive differences between the processes practiced in the NSAC, NCC, and NAC and those processes as detailed in the reviewed Verizon VA methods and procedures documentation.
♦ Documentation Review – KPMG Consulting conducted a detailed review of process flow and methods and procedures documentation related to network surveillance and outage and blockage notification.

2.6   Analysis Methods
The Network Surveillance Support Evaluation used evaluation criteria developed by KPMG Consulting during the initial phase of the Verizon Virginia, Inc. OSS Evaluation Project. These evaluation criteria provided the framework of norms, standards, and guidelines for the Network Surveillance Support Evaluation.

The data collected were analyzed employing the evaluation criteria detailed in Section 3.0 below.

3.0   Results
This section identifies the evaluation criteria and test results. The results of this test are presented in the table below.

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Table 18-1: PPR18 Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Result	Comments
Network Surveillance			
PPR18-1-1	IOF surveillance exists for CLEC IOFs that are part of Verizon VA's network.	Satisfied	Verizon VA and CLEC IOF, such as trunk groups and transports, are monitored through the use of the NTM, NTP, NMA, and TNM systems.
PPR18-1-2	Service-affecting events involving IOF are logged, categorized, and tracked and this information is made available to requesting CLECs.	Satisfied	Information regarding events affecting IOF is logged, categorized, and tracked in an Abnormal Event form located within the Verizon Lotus Notes Abnormal Event database. This form is used to record initial, intermediate, restoration, and resolution service-affecting event information. Once the initial form is created, the same form and serial number is used for all updates. CLECs may make a written request to their designated Verizon Account Manager (AM) to receive notifications via email of service-affecting events. KPMG Consulting subscribed to and received IOF service-affecting event notifications.
PPR18-1-3	AIN interconnection surveillance exists for Verizon VA AIN interconnections that service CLECs.	Satisfied	Verizon VA AIN connectivity is monitored by the use of the NMA, NFM, TIM Awareness, and TSM systems.
PPR18-1-4	Service-affecting events involving AIN interconnection are logged, categorized, and tracked and this information is made available to requesting CLECs.	Satisfied	Information regarding events affecting CLEC AIN is logged, categorized, and tracked in an Abnormal Event form located within the Verizon Lotus Notes Abnormal Event database. This form is used to record initial, intermediate, restoration, and resolution service-affecting event information. Once the initial report is created, the same form and serial number is used for all updates. CLECs may make a written request to their designated Verizon AM to receive notifications via email of service-affecting events. KPMG Consulting subscribed to and received AIN service-affecting event notifications.

Test Reference	Evaluation Criteria	Result	Comments
PPR18-1-5	SS7 network surveillance exists for CLEC SS7 interconnections that are part of the Verizon VA network.	Satisfied	Verizon VA Network Technicians and COTs use STM, NMA, and NFM to monitor and analyze the performance of CLEC SS7 connectivity.
PPR18-1-6	Service-affecting events involving the SS7 network are logged, categorized, and tracked and this information is made available to requesting CLECs.	Satisfied	Information regarding events affecting the SS7 network is logged, categorized, and tracked in an Abnormal Event form located within the Verizon Lotus Notes Abnormal Event database. This form is used to record initial, intermediate, restoration, and resolution service-affecting event information. Once the initial report is created, the same form and serial number is used for all updates.

CLECs may make a written request to their designated Verizon AM to receive notifications via email of service-affecting events. KPMG Consulting subscribed to and received SS7 service-affecting event notifications. |

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Test Reference	Evaluation Criteria	Result	Comments
PPR18-1-7	Major service-affecting events involving network elements that service CLECs are logged, categorized, and tracked and this information is made available to requesting CLECs.	Satisfied	Verizon VA defines major service-affecting events as any network event meeting the following criteria: ♦ Switch failure affecting 5,000 or more lines for more than 15 minutes; ♦ Central Office SS7 Isolation affecting 5,000 or more lines for more than 15 minutes; ♦ Transport outage of greater than or equal to 8 DS3 systems for more than 30 minutes; and ♦ Power Outage - CO Equipment on CO Batteries greater than or equal to 30 minutes. Information regarding major service-affecting events is logged, categorized, and tracked in an Abnormal Event form located within a Lotus Notes Abnormal Event database. CLECs may make a written request to their designated Verizon AM to receive notifications via email of major service-affecting events. KPMG Consulting subscribed to and received major service-affecting event notifications involving network elements.

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Test Reference	Evaluation Criteria	Result	Comments
Network Event Notification			
PPR18-2-1	An operationally complete process exists for network event notification.	Satisfied	An operationally complete process exists to notify CLECs that are potentially impacted by network blockage or outage events.
			CLECs may make a written request to their designated Verizon AM to receive notifications via email of service-affecting abnormal events. A Lotus Notes Abnormal Event database contains contact information for all CLECs that have made this request. These CLECs are notified via email. KPMG Consulting subscribed to and received network event notification.
			The following are activities, policies, and procedures for notifying CLECs of network outages:
			♦ Define reporting responsibilities, reportable conditions, and when and whom to notify in Verizon VA organizations;
			♦ Define specific notification requirements for the NCC in its Tier I surveillance role and the NSAC in its Tier II role;
			♦ Define outage notification time triggers and the process for CLECs to establish outage notification; and
			♦ Check for consistency with FCC Guidelines as set forth in the Code of Federal Regulations, Title 47, Volume 3, Part 63, Section 63.100, Notification of Service Outage.
			Network trunk blockage events refer to instances where trunks reach or exceed their capacity and are not considered to be abnormal events. Therefore, they are reported by Verizon VA to CLECs in a different manner.

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E.   Test Results: M&R RETAS Functional Evaluation (TVV5)

1.0   Description
The M&R RETAS Functional Evaluation (TVV5) evaluated Verizon's Repair Trouble Administration System's (RETAS) ability to perform as documented in the RETAS Student Guide. RETAS is Verizon's trouble administration system that is available to wholesale[83] customers. As part of this evaluation, the general usability of both the RETAS web interface and the RETAS Student Guides were considered. In addition, a review was performed of Verizon's ability to execute trouble ticket create functions, both manually and via RETAS within 24 hours of the service order due date of newly migrated lines.

Verizon's RETAS is a front-end tool that allows its wholesale customers to interface with Verizon's backend Maintenance and Repair (M&R) systems. Wholesale customers use RETAS to manage instances of troubles with a line or service and to enter M&R transactions. M&R transactions are entered into RETAS using a web-based Graphical User Interface (GUI). The current RETAS application is accessible from the Verizon Web GUI – Phase III.

2.0   Methodology
This section summarizes the test methodology.

2.1   Business Process Description
RETAS provides wholesale customers access to Verizon's backend M&R systems as illustrated in Figure 5-1.

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[83] For the purposes of M&R reporting, wholesale refers to both Competitive Local Exchange Carriers (CLEC) and Resellers.

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Figure 5-1: Verizon- VA Trouble Administration Systems Used by Wholesale Customers
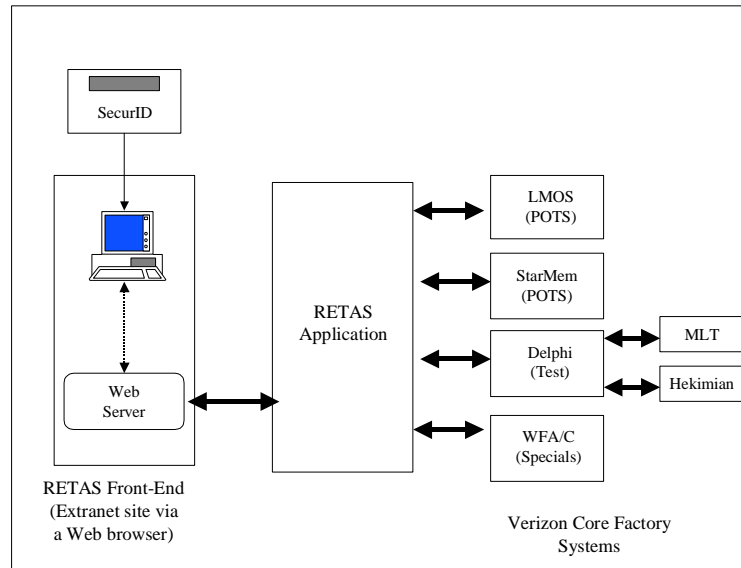
Verizon's M&R backend systems support the following four categories of activities:

- Trouble administration for Plain Old Telephone Service (POTS);
- Trouble administration for special circuits (Specials);
- Test systems for fault identification for Resale POTS and Unbundled Network Elements-Platform (UNE-P); and
- The switch features interface to verify and add paid for, but not provisioned, vertical features.

In Verizon terminology, the following are considered POTS:

- Integrated Services Digital Network (ISDN);
- Centrex;
- Private Branch Exchange (PBX);
- Unbundled Network Element–Switch (UNE-Port);
- UNE-Platform; and
- Local Number Portability (LNP).

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In Verizon terminology, the following are considered as Specials:

♦ UNE-Loops;[84]
♦ Complex UNE;
♦ Inter-Office Facilities (IOF);
♦ High Capacity Circuits;
♦ Private Lines; and
♦ Unbundled Signaling System 7 (SS7).

POTS-related trouble administration activities are processed through the Loop Maintenance Operations System (LMOS) and the StarMem system. LMOS provides overall maintenance, tracking, and dispatch functionality. StarMem is a specialized application that allows Automatic Feature Updates (AFU) to switches. Switches are updated when a feature (e.g., call waiting, call forwarding, etc.) paid for by the end-user customer is not active. For Specials trouble administration activities, the Work Force Administration/Control (WFA/C) system is the counterpart application to LMOS.

The Delphi system provides connectivity to Verizon test systems. In the case of POTS circuits, the Delphi system routes the test request to the Mechanized Loop Test (MLT) system. In the case of Specials circuits, the Delphi system routes the test request to the Delphi/Hekimian test system, which performs an analysis on special circuits such as multi-point private line circuits.

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[84] Basic UNE-Loops, which are POTS lines, are classified as Specials and are therefore maintained in WFA/C for trouble administration.

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Table 5-1 lists the different line types, M&R activity, and the associated backend systems.

Table 5-1: Verizon VA Backend Systems

Circuit Type	M&R Activity	Verizon VA Backend System
POTS: Resale, ISDN, PBX, Centrex, UNE-P, UNE-Port, and LNP	Trouble administration	LMOS/StarMem
	Test	Delphi, MLT
Specials: Complex UNE, UNE-L, IOF, Unbundled SS7, High Capacity Circuits, and Private Lines	Trouble administration	WFA/C
	Test (Designed Circuits only)	Delphi, Delphi/Hekimian

Wholesale customers access RETAS through a web-based GUI. The GUI presents screens for entering the following types of M&R transactions:

- Mechanized Loop Test
- Special Service test
- Create trouble ticket
- Create trouble ticket using new service order ID
- Modify trouble ticket
- Automatic Feature Update

- Status Inquiry
- Close trouble ticket
- Service recovery
- Trouble ticket history
- Trouble ticket extended history

RETAS is a routing tool that accepts trouble administration messages, routes requests to the appropriate Verizon backend systems for processing, and returns electronic responses. While RETAS manages the transactional aspect of M&R by steering troubles to the backend systems, it does not perform any of the physical M&R functions. These functions are administered by the backend systems.

Verizon has implemented several layers of security to prevent unauthorized use and preserve data confidentiality. At the customer level, RETAS limits access to persons with a valid user ID and password. An additional level of security validates each RETAS transaction by authenticating circuit ownership prior to the execution of a user-initiated transaction.

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For newly provisioned lines, RETAS provides the option of adding new service order information, which enables the system to access the new service order information in order to validate ownership and allows the creation of trouble tickets on accounts prior to the establishment of the LMOS circuit maintenance record.

Figure 5-2 highlights the functional components of RETAS.

Figure 5-2: RETAS Architecture[85]
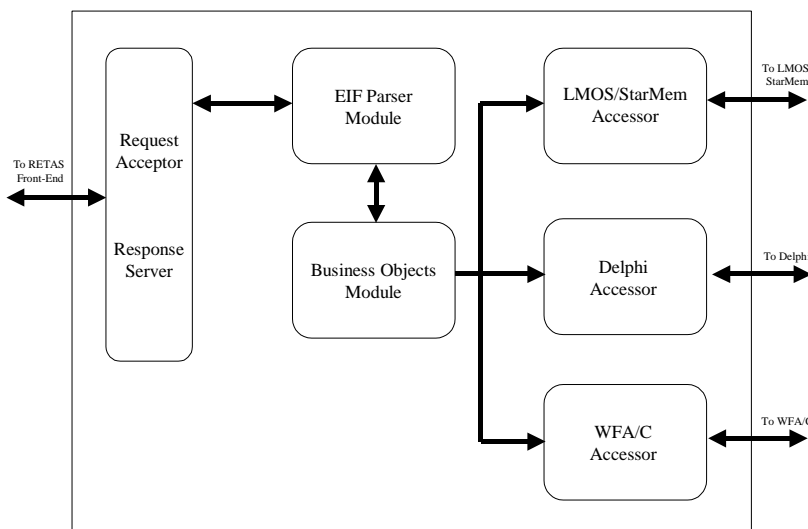
Trouble administration messages enter RETAS via the Request Acceptor module. The Electronic Interface (EIF) parser performs field-level validation by checking for the presence of required/conditional inputs and ensures that data was provided in the correct format. The business objects module contains the routing intelligence needed to interact with Verizon backend systems via the three accessor modules (LMOS/StarMem, Delphi, and WFA/C).

RETAS interacts with Verizon backend systems in a two-step process: a security/validation procedure followed by the submission of data. In the security/validation step, the user's right to access the circuit is verified. Once the validation step has been completed, the data is submitted to the appropriate backend systems.

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[85] The source for this information is the Verizon RETAS Business Events Flow, Version I.

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Upon request, Verizon provides trouble administration training to wholesale customers and holds classes at the venue of the wholesale customer's choosing. Copies of the RETAS Student Guide are provided during the training session. An electronic version of the RETAS Student Guide is also hosted on Verizon's wholesale website.[86]

2.2   Scenarios
Scenarios were not applicable to this test; however, RETAS transactions were conducted for a variety of line types. Table 5-2 below summarizes the transaction mix for the line types used for the test.

Table 5-2: Transaction Mix

Line Type	Create	Modify	Close	Status Inquiry	History	Ext. History	MLT	Special Service Test	Service Recovery	Feature Update
Resale POTS	X	X	X	X	X	X	X		X	X
UNE-P	X	X	X	X	X	X	X		X	X
UNE-Loop	X	X	X	X	X	X				
Private Line	X	X	X	X	X	X				
DS1	X	X	X	X	X	X		X		
EEL	X	X	X	X	X	X		X		

2.3   Test Targets & Measures
The test target was the accessibility and functionality of the RETAS M&R GUI, which included reviews of the following processes and sub-processes:

♦   Trouble Reporting;
     ♦   Create and Enter Trouble Report (TR);
     ♦   Modify TR;
     ♦   Close TR; and
     ♦   Retrieve TR Status.
♦   Trouble Report Creation for Newly Migrated Circuits.

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[86] The RETAS Student Guide can be found online at http://128.11.40.241/east/business_rules/business_rules.htm.

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♦ Trouble History Access;
  ♦ Retrieve Trouble History; and
  ♦ Retrieve Extended Trouble History.
♦ Access to Test Capability; and
  ♦ Initiate MLT Test;
  ♦ Receive MLT Test Results;
  ♦ Initiate Special Service Test; and
  ♦ Receive Special Service Test Results.
♦ Line Treatment Capability.
  ♦ Create Service Recovery Request; and
  ♦ Automatically Update Features.

2.4   Data Sources
The data source reviewed for this test was the RETAS Student Guide.

This test did not rely on data generation or volume testing.

2.5   Evaluation Methods
The following 11 functions available in RETAS were used in the M&R RETAS Functional Evaluation:

♦ Mechanized Loop Test;
♦ Special Service test;
♦ Create trouble ticket;
♦ Create trouble ticket using new service order ID;
♦ Modify trouble ticket;
♦ Status inquiry;
♦ Close trouble ticket;
♦ Service recovery;
♦ Trouble ticket history;
♦ Trouble ticket extended history; and
♦ Automatic Feature Update.

The test consisted of the following steps:

1. The RETAS Student Guide was reviewed to understand how each functional request is processed using RETAS.
2. Test scripts for each RETAS transaction were designed using the RETAS Student Guide.

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3. The test scripts from Step 2 were entered into RETAS and submitted. RETAS transaction requests and responses were documented and screen prints maintained for each transaction request and response. Error responses were analyzed to determine underlying causes such as unclear documentation, RETAS functional deficiency, or user error (e.g., data entry mistakes). Transactions with user errors were corrected and resubmitted.

4. During the data-entry process outlined in Step 3, edit rules for required, conditional, and optional fields were validated. These fields were tested to ensure that they were required and that invalid entries were flagged correctly.

5. Manually reporting troubles is documented as the back-up process to electronically entering troubles; therefore, test scripts for trouble reporting transactions to be called into the Regional CLEC Maintenance Center (RCMC) were designed.

6. KPMG Consulting attempted to open trouble tickets on newly migrated lines within 24 hours of the service order due date. This necessitated calls to the RCMC that handles wholesale trouble reports. Service Order ID information was provided as necessary. All requests and subsequent responses were documented.

7. Following the review of RETAS functions in Step 3 and the RCMC's role in Step 5, the KPMG Consulting test team closed the trouble tickets.

RETAS was also employed during the M&R End-to-End Trouble Report Processing (TVV7) test. Transactions conducted during this test were incorporated into the M&R RETAS Functional Evaluation test results.

2.6   Analysis Methods
The M&R RETAS Functional Evaluation included a checklist of evaluation criteria developed by KPMG Consulting during the initial phase of the Verizon Virginia, Inc. OSS Evaluation Project. These evaluation criteria provided the framework of norms, standards, and guidelines for the M&R RETAS Functional Evaluation.

The data collected was analyzed employing the evaluation criteria referenced in Section 3.0 below.

3.0   Results
This section identifies the evaluation criteria and test results.

A total of 444 M&R transactions using RETAS were submitted for Phase I. For newly provisioned lines within 24 hours of migration, a total of 57 M&R transactions using RETAS were submitted and an additional 62 trouble reports were called into the RCMC within the same time frame. The results of this test are presented in Table 5-3 below.

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Table 5-3: TVV5 Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Result	Comments
Phase I Functional Test			
TVV5-1-1	The user is able to enter a trouble report on an established account using RETAS and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student Guide, RETAS was used to process 165 create requests and 165 (100%) satisfactory responses were received.
TVV5-1-2	The user is able to modify a trouble report using RETAS and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student Guide, RETAS was used to modify 37 trouble reports and 37 (100%) satisfactory responses were received.
TVV5-1-3	The user is able to close a trouble report using RETAS and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student Guide, RETAS was used to request closure on 42 trouble tickets and 42 (100%) satisfactory responses were received.
TVV5-1-4	The user is able to check the status of a trouble report using RETAS and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student Guide, RETAS was used to retrieve the status of 37 trouble tickets and 37 (100%) satisfactory responses were received.
TVV5-1-5	The user is able to access historical trouble information using RETAS and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student Guide, RETAS was used to retrieve 48 trouble ticket histories and 48 (100%) satisfactory responses were received.
TVV5-1-6	The user is able to access extended historical trouble information using RETAS and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student Guide, RETAS was used to request 56 extended trouble histories and 56 (100%) satisfactory responses were received.
TVV5-1-7	The user is able to initiate a Mechanized Loop Test (MLT) using RETAS.	Satisfied	Following the steps outlined in the RETAS Student Guide, RETAS was used to initiate and conduct 21 MLT tests and 21 (100%) transactions were completed.

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Test Reference	Evaluation Criteria	Result	Comments
TVV5-1-8	The user is able to receive MLT test results using RETAS.	Satisfied	Following the steps outlined in the RETAS Student Guide, 21 MLTs were conducted and 21 (100%) satisfactory responses were received.
TVV5-1-9	The user is able to initiate a Special Service test using RETAS.	Satisfied	Following the steps outlined in the RETAS Student Guide, RETAS was used to initiate and conduct 12 Special Service tests and 12 (100%) responses were successfully received.
TVV5-1-10	The user is able to receive Special Service test results using RETAS.	Satisfied	Following the steps outlined in the RETAS Student Guide, 12 Special Service tests were conducted and 12 (100%) satisfactory responses were received.
TVV5-1-11	The user is able to implement Service Recovery using RETAS and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student Guide, RETAS was used to implement six service recoveries and six (100%) satisfactory responses were received. The service recovery function is available when the trouble is in either a Pending Dispatch or Dispatched Out state.
TVV5-1-12	The user is able to automatically update specific features using the Automatic Feature Update (AFU) process and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student Guide, RETAS was used to initiate 20 AFUs and 20 (100%) satisfactory responses were received. The AFU function is only capable of updating specific features on circuits associated with 5ESS and DMS100 switching facilities.

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Test Reference	Evaluation Criteria	Result	Comments
Phase II Newly Provisioned Service Test			
TVV5-2-1	KPMG Consulting is able to enter a Resale trouble report using RETAS within 24 hours of the service order due date and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student Guide, RETAS was used to process 15 Create requests and 15 (100%) satisfactory responses were received. Zero test cases provided satisfactory responses before midnight on the service order due date. Ten (10) satisfactory responses were obtained before noon on the day following the service order due date. Five additional satisfactory responses were obtained before 5 p.m. on the day following the service order due date.
TVV5-2-2	KPMG Consulting is able to enter a Resale trouble report by calling the RCMC immediately following the receipt of the Provisioning Completion Message (PCM) and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student Guide, 10 trouble reports were called in to the RCMC and 10 (100%) satisfactory responses were received. Five test cases provided satisfactory responses before 8 p.m. on the service order due date. Five additional satisfactory responses were obtained before 11 p.m. on the service order due date.
TVV5-2-3	KPMG Consulting is able to enter a UNE-P trouble report using RETAS within 24 hours of the service order due date and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student Guide, RETAS was used to process 31 Create requests and 30 (96.8%) satisfactory responses were received. One test case provided a satisfactory response before midnight on the service order due date. Twenty-nine (29) additional satisfactory responses were obtained before noon on the day following the service order due date.

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Test Reference	Evaluation Criteria	Result	Comments
TVV5-2-4	KPMG Consulting is able to enter a UNE-P trouble report by calling the RCMC immediately following the receipt of the Provisioning Completion Message (PCM) and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student User Guide, 33 trouble reports were manually called in to the RCMC and 32 (97%) satisfactory responses were received. Twenty-five (25) test cases provided satisfactory responses before 8 p.m. on the service order due date. Seven additional satisfactory responses were obtained before 11 p.m. on the service order due date.
TVV5-2-5	KPMG Consulting is able to enter a UNE-Loop trouble report using RETAS within 24 hours of the service order due date and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student Guide, RETAS was used to process 11 create requests and 11 (100%) satisfactory responses were received. Nine of the 11 test cases provided satisfactory responses before 8 p.m. on the service order due date. Two additional satisfactory responses were obtained before noon on the day following the service order due date.
TVV5-2-6	KPMG Consulting is able to enter a UNE-Loop trouble report by calling the RCMC immediately following the receipt of the Provisioning Completion Message (PCM) and receive a satisfactory response.	Satisfied	Following the steps outlined in the RETAS Student Guide, 19 trouble reports were manually called in to the RCMC and 19 (100%) satisfactory responses were received. Seventeen (17) test cases provided satisfactory responses before 8 p.m. on the service order due date. Two additional satisfactory responses were obtained before 11 p.m. on the service order due date.

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F.   *Test Results: M&R RETAS Performance Evaluation (TVV6)*

1.0   Description
The M&R RETAS Performance Evaluation (TVV6) was a transaction-driven test designed to evaluate the responsiveness and behavior of Verizon's trouble administration system and its interfaces under load conditions. This test was executed under normal, peak, and stress load conditions.

The M&R RETAS Performance Evaluation was conducted in three phases. In Phase I, the Repair Trouble Administration System (RETAS) responsiveness was measured for normal hour load. In Phases II and III, RETAS responsiveness was measured for peak and stress loads. Phase I used transaction sets established to simulate projected June 2002 volumes for normal day operations. Phase II and III simulated progressively more aggressive, transaction sets.

2.0   Methodology
This section summarizes the test methodology.

2.1   Business Process Description
For a description of the RETAS Business Process, refer to M&R RETAS Functional Evaluation (TVV5), Section 2.1.

2.2   Scenarios
Scenarios were not applicable to the M&R RETAS Performance Evaluation. However, the transaction sets included a mix of the following Maintenance and Repair (M&R) transactions consistent with current system usage:[87]

- ♦ Execute Trouble Ticket Test (Mechanized Loop Test);
- ♦ Execute Special Service Test (Hekimian Test);
- ♦ Trouble Ticket Create Request;[88]
- ♦ Trouble Ticket Modify Request;
- ♦ Status Inquiry Request;
- ♦ Trouble Ticket Close Request;
- ♦ Trouble History Request; and
- ♦ Extended Trouble History Request.

2.3   Test Targets & Measures
The test targets were RETAS system response times. RETAS performance was evaluated under projected normal, peak, and stress loads.

2.4   Data Sources

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[87] Service Recovery transactions were not included in the transaction mix for the volume test to avoid Verizon technicians from being dispatched.

[88] A special Override Handle Code (OHC) was used for all *create* transactions. The OHC is an optional field in the RETAS Trouble Ticket Create Request screen that is used as a mechanism to prevent Verizon VA technicians from being dispatched on these troubles.

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Data used to support this test consisted of historical M&R data and line growth projections supplied by Verizon, the RETAS Student Guide,[89] the November 2001 CLEC Aggregate Carrier-to-Carrier report, and the Virginia Carrier-to-Carrier Guidelines Performance Standards and Reports (Carrier-to-Carrier Guidelines), dated August 11, 2000.

2.4.1 Data Generation

Transaction data generated for this test was calculated by analyzing and extrapolating historical data provided by Verizon. RETAS is the front-end for Verizon's regional trouble administration system that provides connectivity to several backend systems. The forecasted transaction volumes were calculated for load conditions defined in Table 6-1.

Table 6-1: RETAS Load Conditions

Load Condition	Definition for TVV6
Normal hour load	Forecasted load based on June 2002 normal hour
Peak hour load	Load defined as 1.5 X June 2002 normal hour
Stress hour load	Load defined as 2.25 X June 2002 normal hour

The term "regional," as used in this document, comprises all states in the former Bell Atlantic region, also known as Verizon East. Forcasted transaction volumes were calculated for the entire Verizon East region and separately for the states of Maryland, District of Columbia, Virginia, and West Virginia (MDVW). KPMG Consulting submitted MDVW transaction volumes using Virginia test bed accounts provided by Verizon.

2.4.1.1 June 2002 Normal Hour Load Calculation

Transaction volumes to test RETAS were calculated applying the methodology described in the following sections.

This test was conducted using forecasted transaction volumes for June 2002. The regional forecasted June 2002 installed base of wholesale Non-Design and Design circuits was based on projections calculated from August 2000 to July 2001 historical data.[90]

The forecasted June 2002 Virginia installed base of wholesale Non-Design and Design circuits was also based on projections calculated from historical data, from August 2000 to July 2001. Table 6-2 below exhibits the projected June 2002 lines in service for the entire Verizon region and for the state of Virginia.

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[89] The RETAS Student Guide can be found online at the Verizon wholesale website at

http://128.11.40.241/east/business_rules/business_rules.htm.

[90] Historical lines in service data provided by Verizon were used for forecasting purposes.

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Table 6-2: Projected June 2002 Installed Base

Line Type	Projected June 2002 Lines in Service	
	Region	**Virginia**
Non-Design	6,663,949	644,498
Design	143,391	11,611
Total	**6,807,340**	**656,109**

Monthly wholesale trouble report rates[91] were applied to the total Design and Non-Design lines in service presented in Table 6-2. The application of the regional and Virginia-specific monthly wholesale trouble report rates resulted in the following number of trouble reports exhibited in Table 6-3.[92]

Table 6-3: Calculated Monthly Trouble Reports (June 2002)

Line Type	Calculated Monthly Wholesale Trouble Reports	
	Region	**Virginia**
Non-Design Trouble Reports	159,186	13,772
Design Trouble Reorts	1,923	84
Total	**161,109**	**13,856**

To determine the number of electronic trouble reports per month, an electronic trouble report rate[93] was applied to the total Design and Non-Design troubles exhibited in Table 6-3. The results of the application of an electronic trouble report rate are shown in Table 6-4.

Table 6-4: Calculated Monthly Electronic Trouble Reports (June 2002)

Regional/Virginia	Calculated Monthly Wholesale Electronic Trouble Reports
Regional Electronic Trouble Reports	53,645
Virginia Trouble Reports	4,614

---

[91] Monthly wholesale trouble report rates were calculated based on historical data provided by Verizon.

[92] The regional wholesale Non-Design trouble report rate was calculated as 2.38876% and the regional wholesale Design trouble report rate was calculated as 1.34096%. Similarly, the Virginia-specific Non-Design trouble report rate was calculated as 2.13692% and the Virginia-specific Design trouble report rate was calculated as 0.72678%.

[93] The electronic trouble report rate is defined as the number of troubles reported via RETAS as a percentage of the total troubles reported in any given time frame. A regional electronic trouble report of 33.29754% was calculated based on historical data provided by Verizon.

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The number of electronic trouble reports per hour was calculated by assuming that approximately 90% of all transactions occur between 7 a.m. and 7 p.m., that 85% of all trouble reports occur during the 22 weekdays in an average month, and that a 12-hour day consists of 12.5 normal hours (11 normal hours plus 1 peak hour where 1 peak hour equals 1.5 normal hours).

Since testing was conducted in a live environment, assumptions were made to account for the calculated number of transactions already flowing through RETAS during the test days. Application of the assumptions described above to the historical data yielded the number of troubles being reported via RETAS for July 2001. The difference between the projected June 2002 hourly troubles (149) and the July 2001 troubles (102) was submitted as the normal hour load. Table 6-5 exhibits the number of Virginia and non-Virginia transactions submitted to simulate a normal hour load.

Table 6-5: Trouble Reports Per Normal Hour

Geographical Area	Number of Trouble Reports Per Hour
Virginia	7
Maryland	6
District of Columbia	2
West Virginia	1
Remainder of Verizon East	31
Total Regional Trouble Reports	**47**

Note:
1. The analysis described in Section 2.4.1.1 was applied to the historical data for MDVW independently to arrive at the troubles per normal hour outlined in Table 6-5.

2.4.1.2 Transaction-Mix Generation – Maryland, District of Columbia, Virginia, and West Virginia Normal Hour
Transaction-mix ratios were determined using historical data provided by Verizon. These ratios were applied on a state-by-state basis to the number of trouble reports per hour presented in Table 6-5. An electronic trouble report is generated by a "Trouble Ticket Create Request" transaction in RETAS.

The application of the transaction-mix ratios (exhibited in Table 6-6) resulted in the troubles per normal hour outlined in Tables 6-7, trouble per peak hour displayed in Table 6-8, and the troubles per stress hour displayed in Table 6-9.

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Table 6-6: M&R Transaction Mix – Percentage of Total

Transaction Type	Ratio to Create Transaction[94]
Trouble Ticket Create Request	1.00
Status Inquiry Request	0.12
Trouble Ticket Modify Request	0.01
Trouble Ticket Close Request	0.02
Trouble Ticket Test	7.63
Special Service Test	0.01
Trouble History	2.22
Extended Trouble History Request	0.17

2.4.2 Data Volumes

The baseline volume for each test day consisted of the sum of 11 normal hours and one peak hour. The volume for a peak hour is defined as 1.5 times that of a normal hour and the volume for a stress hour is defined as 2.25 times that of a normal hour.

2.4.2.1 Normal Volume Load
Based on historical data provided by Verizon,[95] the transactions per normal hour for Design and Non-Design tickets in the MDVW states are shown in Table 6-7.

Table 6-7: Calculated June 2002 Normal Hour Load

Transaction Type	Non-Design	Design	All
Trouble Ticket Create Request	12	4	16
Status Inquiry Request	3	1	4[96]
Trouble Ticket Modify Request	3	1	4[97]
Trouble Ticket Close Request	3	1	4[98]

---

[94] Ratios derived from historical RETAS transaction mixes provided by Verizon.

[95] Historical data provided by Verizon states that 72.93% of troubles are processed by Loop Maintenance Operations System (LMOS) and the remaining troubles are processed by the Workforce Administration (WFA) system.

[96] Since the percentage of all *Status Inquiry Request* transactions was less than one, the calculated number of transactions was less than one per hour.   An adjustment was made to include one of these transactions per hour for each of the four states (MDVW).

[97] Since the percentage of all *Trouble Ticket Modify Request* transactions was less than one, the calculated number of transactions was less than one per hour.   An adjustment was made to include one of these transactions per hour for each of the four states (MDVW).

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Transaction Type	Non-Design	Design	All
Trouble Ticket Test	124	0	124
Special Service Test	0	4	4[99]
Trouble History	28	10	38
Extended Trouble History Request	4	2	6
Total	**177**	**23**	**200**

2.4.2.2 Peak Volume Load

The peak hour was conducted at a load of 1.5 times the normal volume. Table 6-8 exhibits the numbers with the increased volume.

Table 6-8: Calculated June 2002 Peak Hour Load (Per Hour)

Transaction Type	Non-Design	Design	All
Trouble Ticket Create Request	23	9	32
Status Inquiry Request	4	2	6[100]
Trouble Ticket Modify Request	3	1	4[101]
Trouble Ticket Close Request	3	1	4[102]
Trouble Ticket Test	243	0	243
Special Service Test	0	4	4[103]

---

[98] Since the percentage of all *Trouble Ticket Close Request* transactions was less than one, the calculated number of transactions was less than one per hour.   An adjustment was made to include one of these transactions per hour for each of the four states (MDVW).

[99] Since the percentage of all *Special Service Test* transactions was less than one, the calculated number of transactions was less than one per hour. An adjustment was made to include one of these transactions per hour for each of the four states (MDVW).

[100] Since the percentage of all *Status Inquiry Request* transactions was less than one, in certain instances, the calculated number of transactions was less than one per hour.   An adjustment was made to include one of these transactions per hour for each of the MDVW states where the calculated number of transactions was less than one per hour.

[101] Since the percentage of all *Trouble Ticket Modify Request* transactions was less than one, the calculated number of transactions was less than one per hour.   An adjustment was made to include one of these transactions per hour for each of the four states (MDVW).

[102] Since the percentage of all *Trouble Ticket Close Request* transactions was less than one, the calculated number of transactions was less than one per hour.   An adjustment was made to include one of these transactions per hour for each of the four states (MDVW).

[103] Since the percentage of all *Special Service Test* transactions was less than one, the calculated number of transactions was less than one per hour. An adjustment was made to include one of these transactions per hour for each of the four states (MDVW)

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Transaction Type	Non-Design	Design	All
Trouble History	52	19	71
Extended Trouble History Request	6	2	8
Total	**334**	**38**	**372**

Notes:

1. A peak hour load is defined as 1.5 times the normal hour load. However, the factor of 1.5 was applied to the projected trouble reports per hour in June 2002 from which the constant July 2001 (base-line) trouble reports per hour were subtracted. This calculation was applied individually for each of the MDVW states.

2.4.2.3 Stress Volume Load

The stress test was a four-hour test with an increase in volume by hour at levels of 1.5, 1.75, 2.25, and 2.25 times the normal volume. The stress hour is defined as 2.25 times the normal hour volume. Table 6-9 exhibits the numbers at the stress hour.

Table 6-9: Calculated June 2002 Stress Hour Load (Per Hour)

Transaction Type	Non-Design	Design	All
Trouble Ticket Create Request	41	15	56
Status Inquiry Request	6	2	8[104]
Trouble Ticket Modify Request	3	1	4[105]
Trouble Ticket Close Request	3	1	4[106]
Trouble Ticket Test	420	0	420
Special Service Test	0	4	4[107]

---

[104] Since the percentage of all *Status Inquiry Request* transactions was less than one, in certain instances, the calculated number of transactions was less than one per hour. An adjustment was made to include one of these transactions per hour for each of the MDVW states where the calculated number of transactions was less than one per hour.

[105] Since the percentage of all *Trouble Ticket Modify Request* transactions was less than one, the calculated number of transactions was less than one per hour. An adjustment was made to include one of these transactions per hour for each of the four states (MDVW).

[106] Since the percentage of all *Trouble Ticket Close Request* transactions was less than one, the calculated number of transactions was less than one per hour. An adjustment was made to include one of these transactions per hour for each of the four states (MDVW).

[107] Since the percentage of all *Special Service Test* transactions was less than one, the calculated number of transactions was less than one per hour. An adjustment was made to include one of these transactions per hour for each of the four states (MDVW).

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Transaction Type	Non-Design	Design	All
Trouble History	88	33	121
Extended Trouble History Request	9	4	13
Total	**570**	**60**	**630**

Notes:

1. A stress hour load is defined as 2.25 times the normal hour load. However, the factor of 2.25 was applied to the projected trouble reports per hour in June 2002 from which the constant July 2001 (base-line) trouble reports per hour were subtracted. This calculation was applied individually for each of the MDVW states.
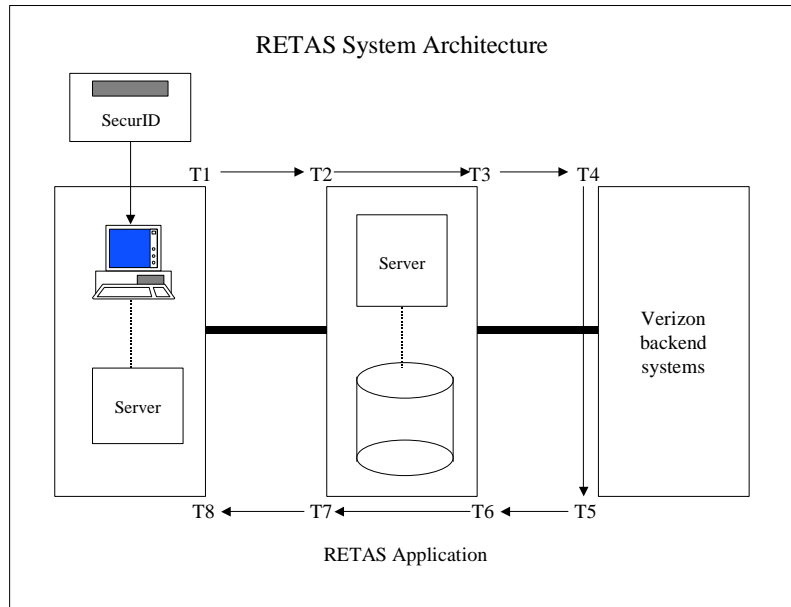
2.5   *Evaluation Methods*

An automated scripting tool was used to submit transactions to RETAS at a pre-determined rate. RETAS was evaluated on the basis of performance under varying load conditions (see Table 6-1).

2.5.1   *RETAS Processing and Response Time Intervals*

RETAS processing involved two steps. In the first step, transactions were submitted to the Verizon backend systems using the RETAS application as demonstrated by the time interval T1-T4 in Figure 6-1 below. In the second step, a response was returned to the RETAS application from the Verizon backend systems. This is demonstrated by the time interval T5-T8 in Figure 6-1 below.

Figure 6-1: Time Intervals Associated with RETAS Transaction Processing

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2.5.2   Time Intervals Associated with RETAS Transaction Processing
The combined responsiveness of the RETAS and Verizon backend systems is represented by the time interval T1-T8, as illustrated in Figure 6-1 above. Time T2-T7, which was the interval from receipt of an instruction by RETAS to exit of a response from RETAS, was used to calculate metrics that are publicly reported by Verizon.

RETAS system performance was measured under the following assumptions:

♦   The scripting tool was used to submit transactions at June 2002 normal, peak, and stress loads. KPMG Consulting collected submission data from the scripting tool.
♦   Verizon collected and provided response data from their internal transaction logs.
♦   This test simulated total Verizon volumes entering RETAS but only Verizon MDVW transactions entering the Virginia and West Virginia front-end systems, all of which were submitted as Virginia transactions. This approach, as illustrated in Figure 6-2 below, was used to include the potential impact of transactions submitted by other states on RETAS performance for the MDVW region.

Figure 6-2: RETAS Volume Processing
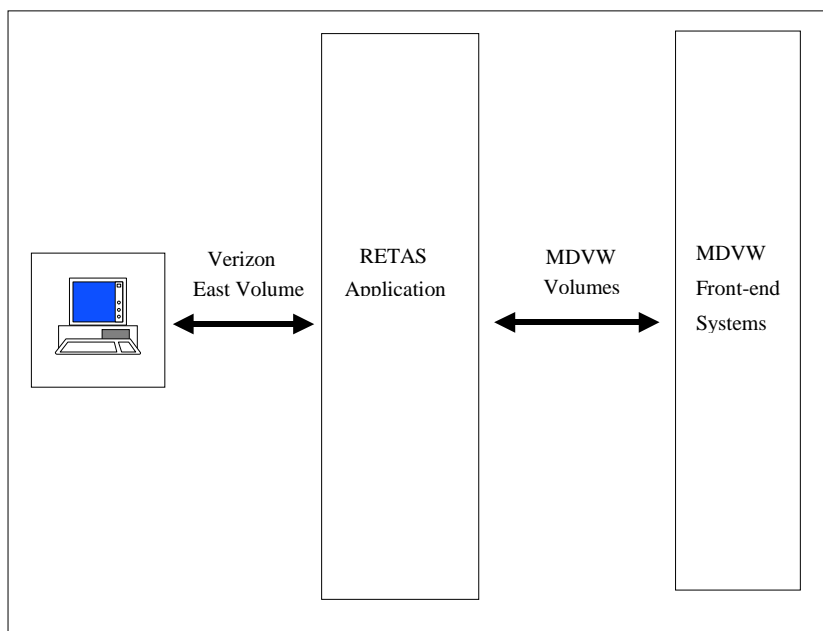
Notes:
1. Non-MDVW volumes were designed to fail in RETAS in order to simulate
Verizon East volumes, while not impacting the MDVW performance.

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2.6   Analysis Methods

The M&R RETAS Performance Evaluation included a checklist of evaluation criteria developed by KPMG Consulting during the initial phase of the Verizon Virginia, Inc. OSS Evaluation Project. These evaluation criteria provided the framework of norms, standards, and guidelines for the M&R RETAS Performance Evaluation.

The data collected were analyzed employing the evaluation criteria detailed in Section 3.0 below.

3.0   Results

This section identifies the evaluation criteria and test results. The results of this test are presented in the table below.

Table 6-10: TVV6 Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Result	Comments
TVV6-1	Normal load transaction volumes are satisfactorily submitted and returned through the RETAS gateway.	Satisfied	Normal load transaction volumes were satisfactorily submitted and returned through the RETAS gateway. 4,337[108] normal hour transactions were submitted over two 12-hour days. Of the 4,337 transactions, 4,194 (96.7%) resulted in a successful response as defined in the RETAS Student Guide.
TVV6-2	Peak load transaction volumes are satisfactorily submitted and returned through the RETAS gateway.	Satisfied	Peak load transaction volumes were satisfactorily submitted and returned through the RETAS gateway. 4,227[109] peak hour transactions were submitted over 12 hours. Of the 4,227 transactions, 4,160 (98.0%) resulted in a successful response as defined by the RETAS Student Guide.

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[108] KPMG Consulting received processing failures for 90 of the 92 attempted Extended Trouble Ticket History requests. During the course of volume testing, Verizon experienced an internal security issue that blocked transaction execution causing Extended Trouble Ticket History errors. This condition was corrected on December 10, 2001. As this appeared to be an isolated incident, KPMG Consulting removed Extended Trouble Ticket History transactions attempted from November 19, 2001 to December 10, 2001 when analyzing normal load transaction accuracy. Including Extended Trouble Ticket History transactions from November 17, 2001 to December 10, 2001 in the analysis, 95% of the 4,427 normal hour transactions resulted in a successful response.

[109] KPMG Consulting received processing failures for 72 of the 72 attempted Extended Trouble Ticket History requests. During the course of volume testing, Verizon experienced an internal security issue that blocked transaction execution causing Extended Trouble Ticket History errors. This condition was corrected on December 10, 2001. As this appeared to be an isolated incident, KPMG Consulting removed Extended Trouble Ticket History transactions attempted from November 19, 2001 to December 10, 2001 when analyzing peak load transaction accuracy. Including Extended Trouble Ticket History transactions from November 17, 2001 to December 10, 2001 in the analysis, 97% of the 4,299 peak hour transactions resulted in a successful response.

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Test Reference	Evaluation Criteria	Result	Comments
TVV6-3	Stress load transaction volumes are satisfactorily submitted and returned through the RETAS gateway.	Satisfied	Stress load transaction volumes were satisfactorily submitted and returned through the RETAS gateway.

2,227[110] stress hour transactions were submitted over four hours. The stress hours were increased at a rate of 1.75, 2.0, 2.25, and 2.25 times the normal hour load. Of the 2,227 transactions 2,208 (99%) resulted in a successful response as defined by the RETAS Student Guide. |
| TVV6-4 | The Trouble Ticket Create Request transaction response time is in parity with Verizon retail plus not more than seven seconds. | Satisfied | The Trouble Ticket Create Request transaction response time was in parity with retail plus not more than seven seconds.

The Verizon VA retail average response time for Trouble Ticket Create Request transactions according to the November 2001 Carrier-to-Carrier reports was 9.79 seconds per transaction.   Verizon's retail average plus seven seconds indicates that the Carrier-to-Carrier parity measure was 16.79 seconds or less.

Based on 559 transactions, the average response time for Trouble Ticket Create Request transactions was 6.89 seconds per transaction.

Based on 173 stress load transactions, the average response time for Trouble Ticket Create Request transactions was 9.18 seconds per transaction. |

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[110] KPMG Consulting received processing failures for 31 of the 31 attempted Extended Trouble Ticket History requests. During the course of volume testing, Verizon experienced an internal security issue that blocked transaction execution causing Extended Trouble Ticket History errors. This condition was corrected on December 10, 2001. As this appeared to be an isolated incident, KPMG Consulting removed Extended Trouble Ticket History transactions attempted from November 19, 2001 to December 10, 2001 when analyzing stress load transaction accuracy. Including Extended Trouble Ticket History transactions from November 17, 2001 to December 10, 2001 in the analysis, 98% of the 2,258 stress hour transactions resulted in a successful response.

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Test Reference	Evaluation Criteria	Result	Comments
TVV6-5	The Status Inquiry Request transaction response time is in parity with Verizon retail plus not more than seven seconds.	Satisfied	The Status Inquiry Request transaction response time was in parity with retail plus not more than seven seconds. The Verizon VA retail average response time for Status Inquiry Request transactions according to the November 2001 Carrier-to-Carrier reports was 1.08 seconds per transaction. Verizon's retail average plus seven seconds indicates that the Carrier-to-Carrier parity measure was 8.08 seconds or less. Based on 100 transactions, the average response time for Status Inquiry Request transactions was 7.32 seconds per transaction. Based on 22 stress load transactions, the average response time for Status Inquiry Request transactions was 10.46 seconds per transaction.

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Test Reference	Evaluation Criteria	Result	Comments
TVV6-6	The Trouble Ticket Modify Request transaction response time is in parity with Verizon retail plus not more than seven seconds.	Satisfied	The Trouble Ticket Modify Request transaction response time was in parity with retail plus not more than seven seconds. The Verizon VA retail average response time for Trouble Ticket Modify Request transactions according to the November 2001 Carrier-to-Carrier reports was 9.79 seconds per transaction. Verizon's retail average plus seven seconds indicates that the Carrier-to-Carrier parity measure was 16.79 seconds or less. Based on 124 transactions, the average response time for Trouble Ticket Modify Request transactions was 6.12 seconds per transaction. Based on 12 stress load transactions, the average response time for Trouble Ticket Modify Request transactions was 9.76 seconds per transaction.
TVV6-7	The Trouble Ticket Close Request transaction response time is in parity with Verizon retail plus not more than seven seconds.	Satisfied	The Trouble Ticket Close Request transaction response time was in parity with retail plus not more than seven seconds. The Verizon VA retail average response time for Trouble Ticket Cancel[111] Request transactions according to the November 2001 Carrier-to-Carrier reports was 11.62 seconds per transaction. Verizon's retail average plus seven seconds indicates that the Carrier-to-Carrier parity measure was 18.62 seconds or less. Based on 26 transactions, the average response time for Trouble Ticket Close Request transactions was 4.36 seconds per transaction. Based on two stress load transactions, the average response time for Trouble Ticket Close Request transactions was 3.76 seconds per transaction.

[111] Trouble Ticket Cancel is used in the Carrier-to-Carrier report and Trouble Ticket Close is used in the online RETAS documentation. Cancel and close are considered to be synonymous.

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Test Reference	Evaluation Criteria	Result	Comments
TVV6-8	The Trouble History Request transaction response time is in parity with Verizon retail plus not more than seven seconds.	Satisfied	The Trouble History Request transaction response time was in parity with retail plus not more than seven seconds. The Verizon VA retail average response time for Trouble History Request transactions according to the November 2001 Carrier-to-Carrier report was 0.63 seconds per transaction. Verizon's retail average plus seven seconds indicates that the Carrier-to-Carrier parity measure was 7.63 seconds or less. Based on 1,439 transactions, the average response time for Trouble History Request transactions was 1.06 seconds per transaction. Based on 440 stress load transactions, the average response time for Trouble History Request transactions was 0.99 seconds per transaction.

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Test Reference	Evaluation Criteria	Result	Comments
TVV6-9	The Trouble Ticket Test transaction (POTS only) time is in parity with Verizon retail plus not more than seven seconds.	Satisfied	The Trouble Ticket Test transaction response time was in parity with retail plus not more than seven seconds. An accurate comparison between KPMG Consulting's volume test results and the retail Carrier-to-Carrier metric could not be made because KPMG Consulting received 17 unique response types compared to 120 unique response types received by retail. To make a valid comparison, response type proportions received by KPMG Consulting were applied to the retail data to calculate an adjusted retail average response time for Trouble Ticket Tests. The Verizon VA adjusted retail average response time was 67.39 seconds. Verizon's retail average plus seven seconds indicates that the parity measure was 74.39 seconds or less. Based on 5,990 transactions submitted by KPMG Consulting, the Trouble Ticket Test transaction average response time was 73.50 seconds. Based on 1,571 stress load transactions, the Trouble Ticket Test average response time was 89.25 seconds per transaction.

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G.   Test Results: End-to-End Trouble Report Processing (TVV7)

1.0   Description
The End-to-End Trouble Report Processing (TVV7) test evaluated the timeliness and accuracy of Verizon Virginia's (Verizon VA) performance in conducting end-to-end Maintenance and Repair (M&R) for wholesale customers, including Resellers and Competitive Local Exchange Carriers (CLEC).

2.0   Methodology
This section summarizes the test methodology.

2.1   Business Process Description
The steps in the wholesale M&R process are as follows:

The wholesale customer trouble reporting process is supported two ways, electronically and manually, giving the CLEC the following choices in the trouble reporting process:

♦ Wholesale customers call the Regional CLEC Maintenance Center (RCMC) to report M&R trouble conditions. The RCMC serves as the wholesale customers' single point of contact for reporting troubles verbally to Verizon. Additionally, wholesale customers may initiate trouble reports through the Repair Trouble Administration System (RETAS).

♦ Troubles reported through the RCMC are verified by Repair Service Clerks (RSC). RSCs (i) obtain the necessary trouble and access information; (ii) initiate tests, if appropriate, to assist in the identification of fault and trouble type as well as affected network elements; (iii) check the trouble ticket to ensure that it has been correctly entered; and (iv) provide the commitment time and assigned trouble ticket number to the CLEC. CLECs entering troubles using RETAS have the ability to test and sectionalize trouble faults and RETAS will, through the use of edits, ensure that all required data has been provided and return the trouble ticket number and commitment time to the sender of the transaction.

Plain Old Telephone Service (POTS) Trouble Ticket Handling:

♦ Trouble tickets for POTS, which include resale and Unbundled Network Elements-Platform (UNE-P), are entered into the Loop Maintenance Operations System (LMOS) and dispatched in to the Central Office (CO) or dispatched out to a field technician based on the type of fault to be repaired. Handle codes are used by both Verizon and wholesale customers to route troubles to the frame/CO or the outside technician.

♦ POTS troubles, whether created manually or through RETAS, are prioritized based on system-generated repair commitment date and time intervals as provided by Verizon.

♦ The RSCs can escalate a repair by requesting an earlier appointment time in response to a justifiable request and a wholesale customer entering a trouble via the RETAS system has the ability to request an earlier appointment.

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Specials Trouble Ticket Handling:

♦ Troubles may be entered using RETAS or called into the RCMC for designed service (Specials) and Unbundled Network Element-Loops (UNE-Loop). Whether created by RETAS or manually called to the RCMC, they are entered into the Workforce Administration/Control (WFA/C) system where, at the wholesale customer's direction, the RCMC will perform a hand-off to the CO or field technicians using WFA/Dispatch In (DI) or WFA/Dispatch Out (DO).

♦ Special services troubles normally receive shorter repair intervals than POTS and are handled according to the type of service on a first in, first out basis. The higher the capacity of the circuit, the shorter the repair interval.

♦ Whether the troubles are called into the RCMC or entered through RETAS, the CLEC can, for a justifiable situation, escalate a repair be requesting that the repair priority be increased.

2.2   Scenarios
Table 7-1 shows the scenarios from Appendix A of the Master Test Plan (MTP) that were tested.

Table 7-1: Stand Alone Maintenance & Repair

Activity	Res. POTS	Bus. POTS	Res. ADSL	Bus. ADSL	Centrex	Private Line	PBX
Short on outside plant facility	X	X				X	X
Open on outside plant facility	X	X		X			
Short on the line within the CO	X	X			X	X	
Open on the line within the CO	X	X	X	X	X	X	X
Noise on line	X	X		X			
Echo on line	X	X					
Customer w/LNP not receiving incoming calls	X	X					
Customer receiving incoming calls intended for another customer's number.	X						
Call Waiting not working	X	X					
Repeat Dialing not working	X						
Customer cannot call 900 numbers	X						
Calls do not roll-over for customer w/ multi-line hunt group		X			X		
Call Forwarding not working		X					
Caller ID not working	X	X					
Pick-up group order for large Centrex customer not functioning					X		

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Activity	Res. POTS	Bus. POTS	Res. ADSL	Bus. ADSL	Centrex	Private Line	PBX
Centrex customer not functioning properly							
DS1 loop MUXed to DS3 - IOF with short circuit on outside facility.						**X**	

2.3 Test Targets & Measures

The test targets were the working Resale and UNE circuits, which were evaluated for timeliness and accuracy of the M&R activities performed on them.

2.4 Data Sources

Information on the retail metrics used for comparison was gathered from the August, September, and October 2001 Virginia Aggregate Carrier-to-Carrier report along with the Virginia Carrier-to-Carrier Guidelines Performance Standards and Reports, dated August 11, 2000. Additionally, Verizon provided detailed trouble histories on all of the trouble tickets created for this test.

This test did not rely on data generation or volume testing.

The following table details the faults evaluated at different Verizon VA locations.

Table 7-2: TVV7 Types of Faults Observed

	Dispatch In			Dispatch Out			Total
	Resale POTS	UNE POTS	Specials	Resale POTS	UNE POTS	Specials	
KPMG Consulting CLEC Faults	53	33	0	38	43	4	**171**
Commercial CLEC Faults					16		**16**
Totals	**53**	**33**	**0**	**38**	**59**	**4**	**187**

2.5 Evaluation Methods

For this test, Verizon VA provisioned a test bed of circuits specified by KPMG Consulting. The test bed contained circuit types and features representative of those provisioned by Verizon VA for its wholesale customers. The test bed was designed to introduce faults based on Appendix A of the MTP mentioned in Section 2.2.

The initial phase of this test was conducted by field teams that inserted faults into working test bed lines according to the M&R test scenarios. Each field team consisted of at least one KPMG Consulting team member and one Verizon VA representative; the Verizon VA representative inserted the faults under the direction of the KPMG Consulting testers. The faults were placed on circuits in Virginia COs including Arlington, Blacksburg, Chesapeake, Forest, Midlothian, Pulaski, Richmond, and Virginia Beach.

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KPMG Consulting reported troubles caused by these faults to Verizon either using RETAS or the RCMC toll-free number. KPMG Consulting tracked Verizon responses to reported troubles and gathered data for analysis. Specifically, data was collected relating to timeliness of repair (e.g., met appointments, Mean Time to Repair (MTTR), and Out Of Service greater than 24 hours (OSS > 24 hours)) and accuracy in diagnosing and resolving troubles. Once Verizon closed out a trouble ticket, KPMG Consulting printed a trouble history from RETAS and physically checked the circuits to confirm that the repair had been made.

In addition to inserting its own faults, KPMG Consulting worked with a CLEC to further evaluate Verizon's response to actual troubles during the months of September 2001 and October 2001. KPMG Consulting conducted observations at a CLEC's repair call center as end-users called in actual troubles and the CLEC reported these troubles to Verizon either over the phone or via RETAS. The description of the trouble as well as the Verizon-provided appointment and closeout times were recorded. Upon repair completion, these trouble tickets were reviewed for timeliness and to determine whether the trouble was successfully identified and repaired within the stated appointment period. However, the accuracy of the closeout codes provided for these CLEC-initiated trouble reports was not assessed as KPMG Consulting could not validate the exact nature of the fault.

2.6   Analysis Methods

The End-to-End Trouble Report Processing test included a checklist of evaluation criteria developed by KPMG Consulting during the initial phase of the Verizon Virginia, Inc. OSS Evaluation Project. These evaluation criteria provided the framework of norms, standards, and guidelines for End-to-End Trouble Report Processing.

The data collected was analyzed using the evaluation criteria defined in Section 3.0 below.

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3.0   Results
This section identifies the evaluation criteria and test results.

Table 7-3: TVV7 Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Result	Comments
TVV7-1	Resale end-to-end trouble reports are processed in accordance with stated timing intervals with an on-time success rate (met appointments), based on Carrier-to-Carrier metrics, at least equal to that of retail.	Satisfied	Resale end-to-end trouble reports were processed in accordance with stated timing intervals with a success rate at least equal to that of retail. The Verizon VA successful retail completion rate for test troubles according to the VA Carrier-to-Carrier Metric[112] MR-3-01, % Missed Repair Appointment – Loop,[113] was 85.84%. Of the 91 troubles evaluated, 83 (91.2%) of the troubles were successfully completed within the Verizon provided appointment time.
TVV7-2	Resale end-to-end trouble reports are processed within timing intervals (Mean Time to Repair), based on Carrier-to-Carrier metrics, equal to or less than that of retail.	Satisfied	Resale end-to-end trouble reports were processed timely. The Verizon VA retail mean time to repair test troubles according to the VA Carrier-to-Carrier Metric MR-4-01 was 23 hours 19 minutes. Of the 91 troubles evaluated, the mean time to repair was 18 hours 25 minutes.
TVV7-3	Resale end-to-end trouble reports are processed in accordance with timing intervals with a success rate (% Out Of Service (OOS) > 24 hours), based on Carrier-to-Carrier metrics, equal to or less than that of retail.	Satisfied	Resale end-to-end trouble reports were processed timely. The Verizon VA retail completion rate for test troubles according to the VA Carrier-to-Carrier Metric MR-4-08 was 29.58% OOS > 24 hours. Of the 91 troubles evaluated, 12 (13.2%) of the troubles were OOS > 24 hours.

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[112] Carrier-to-Carrier metrics are calculated by averaging the results from the August, September, and October 2001 Virginia Carrier-to-Carrier reports.

[113] The Virginia Carrier-to-Carrier Guidelines Performance Standards and Reports, dated August 11, 2000, defined % Missed Repair Appointment – Loop in MR-3-01 as "Parity with BA Retail."

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Test Reference	Evaluation Criteria	Result	Comments
TVV7-4	Resale end-to-end trouble faults are accurately identified and repaired by Verizon VA.	Satisfied	Resale end-to-end trouble faults were accurately identified and repaired. 87 out of 91 resale troubles were identified and repaired. This produced a 95.6% success rate for accuracy.
TVV7-5	Resale end-to-end trouble reports contain accurate entries in the required fields.	Satisfied	Resale end-to-end trouble reports contained accurate entries in the required fields. Of the 228 codes reviewed, 213 were accurate. This produced a 93.4% success rate for accuracy, which is lower than the KPMG Consulting applied benchmark of 95%. According to KPMG Consulting's analysis, 93.4% is not statistically significantly different (p-value = 0.17) from the benchmark of 95% with 95% confidence.
TVV7-6	UNE-L/UNE-P end-to-end trouble reports are processed in accordance with stated timing intervals with an on-time success rate (met appointments), based on Carrier-to-Carrier metrics, at least equal to that of retail.	Satisfied	UNE-L/UNE-P end-to-end trouble reports were processed timely. The Verizon VA retail completion rate for test troubles according to the VA Carrier-to-Carrier Metric MR-3-01 was 85.84%. Of the 92 troubles evaluated, 82 (89.1%) of the troubles were successfully completed within the Verizon VA-provided appointment timeframe.

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Test Reference	Evaluation Criteria	Result	Comments
TVV7-7	UNE-L/UNE-P end-to-end trouble reports are processed within timing intervals (Mean Time to Repair), based on Carrier-to-Carrier metrics, equal to or less than that of retail.	Satisfied	UNE-L/UNE-P end-to-end trouble reports were processed timely. The Verizon VA retail mean time to repair test troubles according to the VA Carrier-to-Carrier Metric MR-4-01 was 24 hours 09 minutes. Of the 92 troubles evaluated, the mean time to repair was 23 hours 55 minutes.
TVV7-8	UNE-L/UNE-P end-to-end trouble reports are processed in accordance with timing intervals with a success rate (% OOS > 24 hours), based on Carrier-to-Carrier metrics, equal to or less than that of retail.	Satisfied	UNE-L/UNE-P end-to-end trouble reports were processed timely. The Verizon VA retail completion rate for test troubles according to metric MR-4-08, % Out of Service > 24 Hours,[114] was 29.58% OOS > 24 hours. Of the 84 OOS troubles evaluated, 25 (29.8%) of the troubles were OOS > 24 hours. According to KPMG Consulting's analysis, 29.8% is not statistically significantly different (p-value = 0.67) from the retail standard of 29.58% with 95% confidence.
TVV7-9	UNE-L/UNE-P end-to-end trouble faults were accurately identified and repaired by Verizon VA.	Satisfied	UNE-L/UNE-P end-to-end trouble faults were accurately identified and repaired. 87 out of 92 UNE-L/UNE-P troubles were identified and successfully repaired. This produced a 94.6% success rate for accuracy, which is lower than the KPMG Consulting applied benchmark of 95%. According to KPMG Consulting's analysis, 94.6% is not statistically significantly different (p-value = 0.49) from the benchmark of 95% with 95% confidence.

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[114] The Virginia Carrier-to-Carrier Guidelines Performance Standards and Reports, dated August 11, 2000, defined % Out of Service > 24 Hours in MR-4-08 as "Parity with BA Retail."

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Test Reference	Evaluation Criteria	Result	Comments
TVV7-10	UNE-L/UNE-P end-to-end trouble reports contain accurate entries to the required fields.	Satisfied	UNE-L/UNE-P end-to-end trouble reports contained accurate entries. Of the 193 codes reviewed, 183 were accurate. This produced a 94.8% success rate for accuracy, which is lower than the KPMG Consulting applied benchmark of 95%. According to KPMG Consulting's analysis, 94.8% is not statistically significantly different (p-value = 0.50) from the benchmark of 95% with 95% confidence.
TVV7-11	Special Circuit end-to-end trouble reports are processed in accordance with stated timing intervals.	Inconclusive	Four Special Circuit troubles located in CO facilities and outside plant facilities were evaluated. Of the Special Circuit troubles evaluated, two of the troubles were successfully completed in accordance with the stated timing intervals. This produced a 50% success rate, which is lower than the KPMG Consulting applied benchmark of 95%. Based upon the small sample size, KPMG Consulting could not draw any conclusions.
TVV7-12	Special Circuits end-to-end trouble reports contain accurate entries to the required fields.	Inconclusive	Four Special Circuit troubles located in CO facilities and outside plant facilities were evaluated. Of the four closeout codes reviewed, all four were accurately coded. This produced a 100 % success rate for accuracy. Based upon the small sample size, KPMG Consulting could not draw any conclusions.

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