

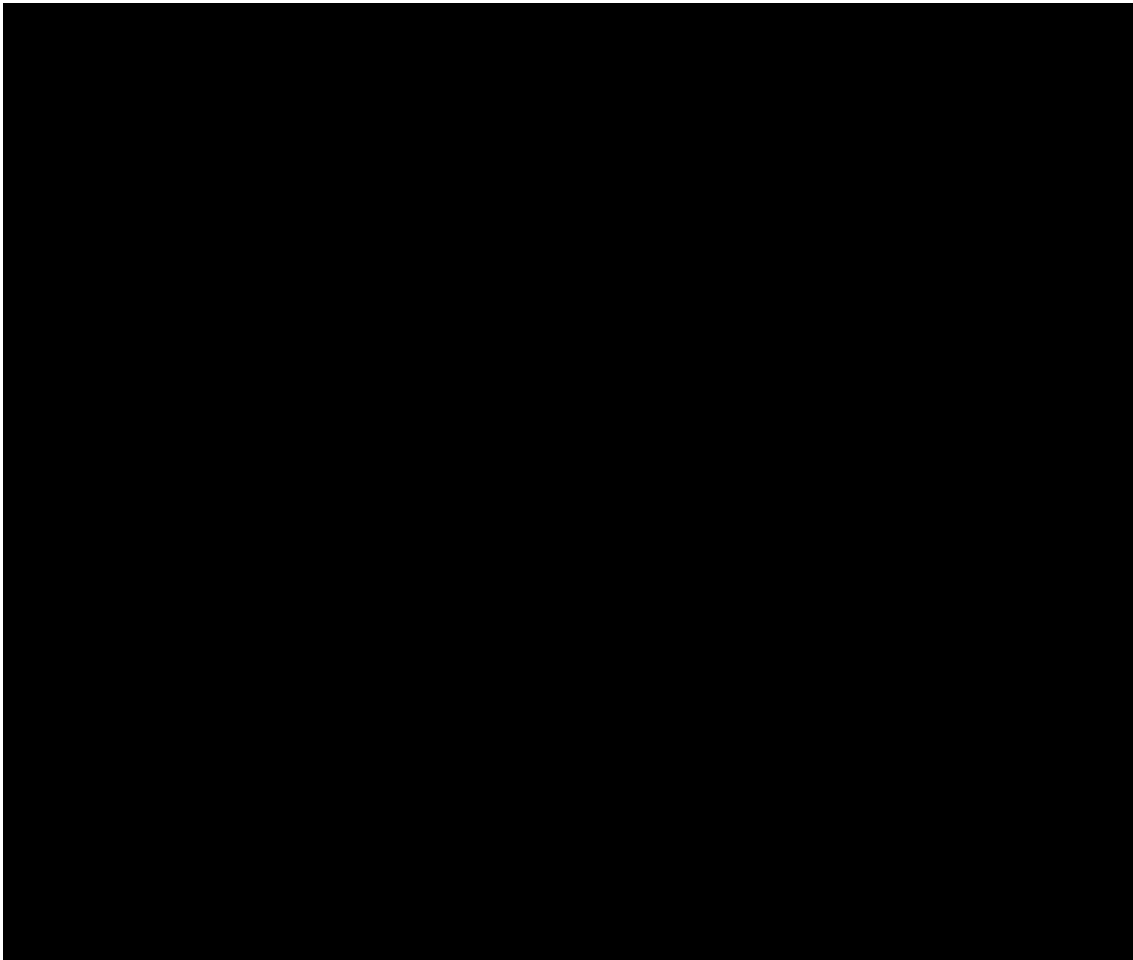
### 3.2 NETWORK MANAGEMENT (L.34.2.3.2, M.3.3)

*GSA and Agency users expect a contractor who can provide continuous high quality service, reliable performance, and operational support. Qwest's management is committed to providing the highest levels of service via a world class network by hosting a suite of products and services supported by state-of-the-art tools and systems. This commitment extends from our highest levels of management to each employee involved in the day-to-day support of our customers and their networks.*


#### 3.2.1 Understanding of the Requirements

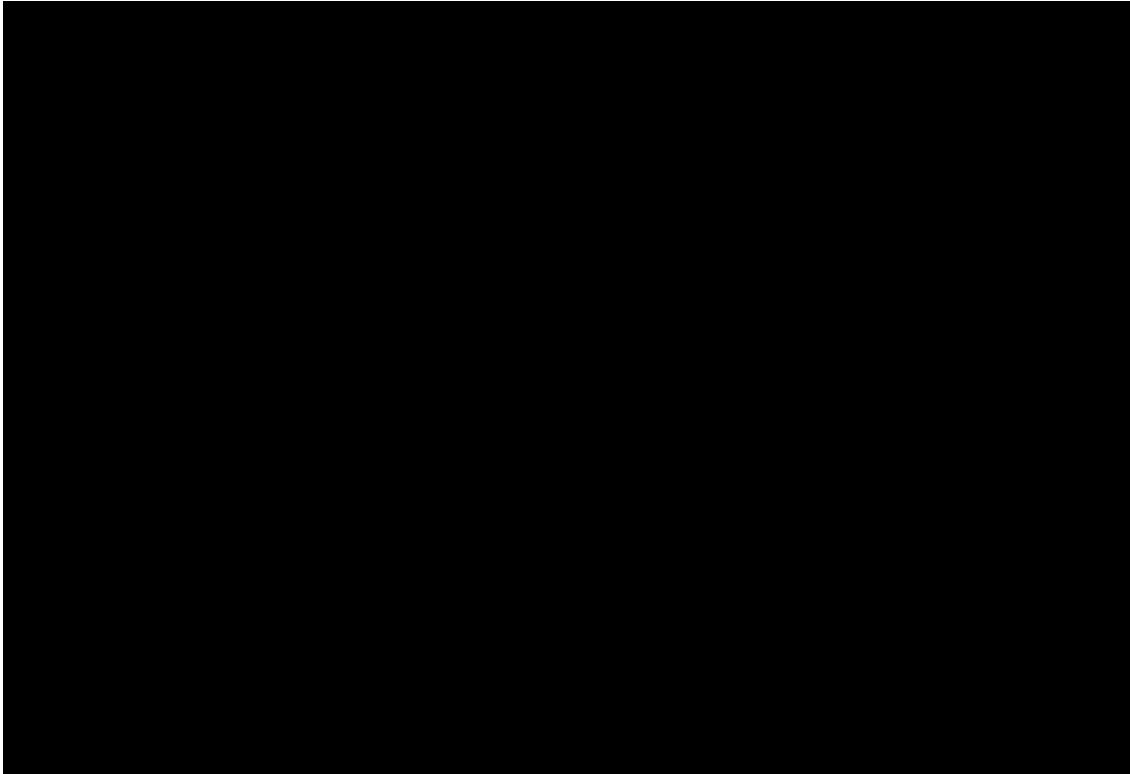
Qwest understands GSA's need to ensure network quality and visibility at a variety of levels. By building on our existing network management organizations, processes and procedures, we have designed a network management approach that meets the requirements of the Networkx program and will consistently exceed the expectations of both the GSA Networkx Program Management Office (PMO) and the Agencies.

The Qwest Team recognizes the importance of having established, proven network management policies and procedures. To this end, our policies address all five (5) areas of the International Organization for Standardization (ISO) network management model: 1) Fault Management; 2) Configuration Management; 3) Accounting Management; 4) Performance Management; and 5) Security Management - (FCAPS) (**Figure 3.2.1-1**). Our process framework begins with security management to ensure the integrity of all network services, meet the needs of a large, heterogeneous, and geographically distributed user community, and consistently improve the quality of service.



Qwest will support the Networkx program with a comprehensive and secure Operational Support System (OSS) that performs a wide range of integrated functions including billing, service ordering, customer support, network management, trouble management, inventory management, and program management. The full integration of all Networkx OSS (see **Figure 3.2.1-1a**) is the foundation for the development and delivery of all Networkx related data; ordering, provisioning, inventory, billing, reporting, etc. which meets all Networkx system requirements.

Qwest's OSS consists of tightly integrated systems that support  Government customers today. Qwest's embedded systems

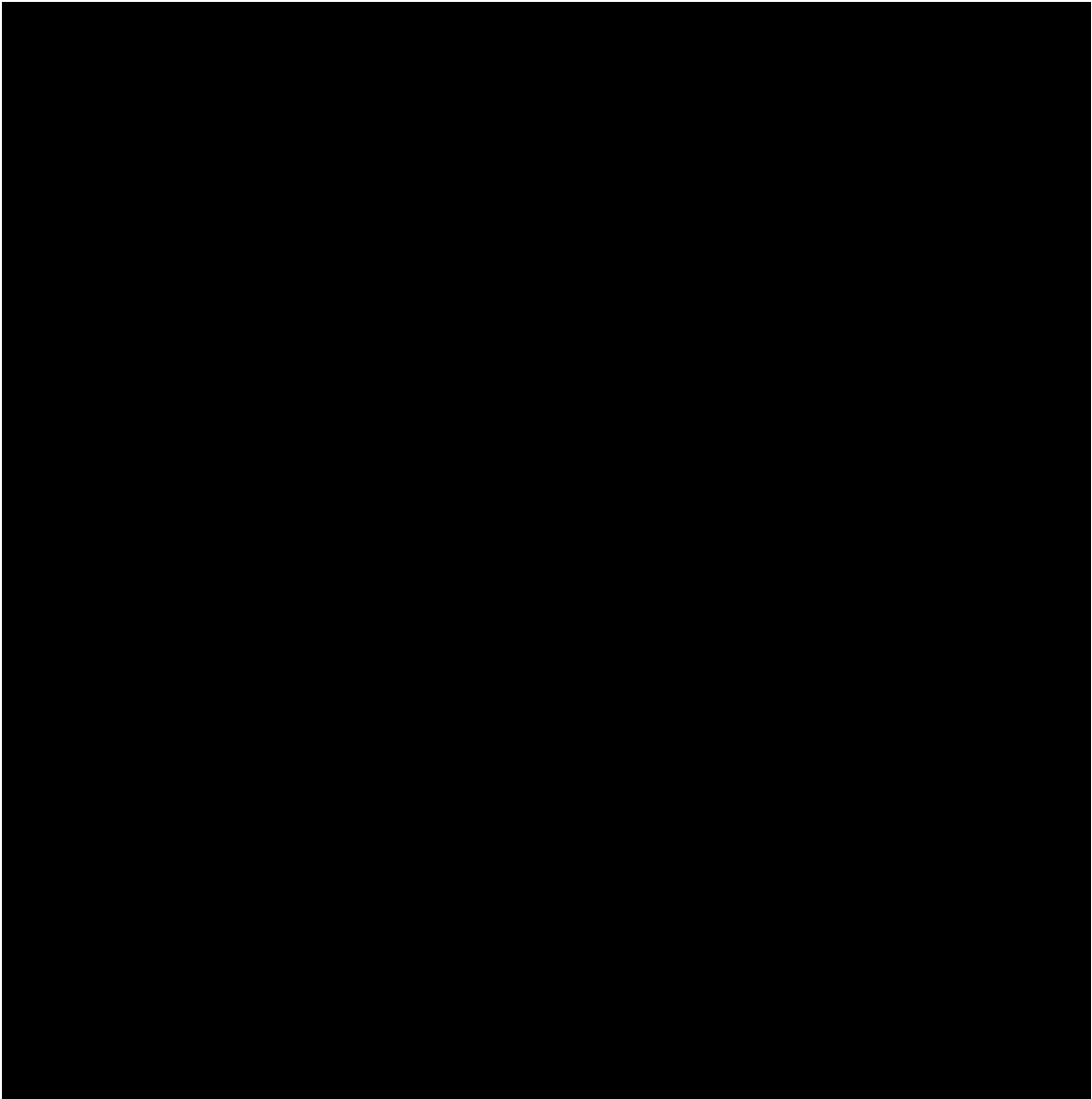


use a component-based architecture that facilitates building interfaces to subcontractor and other vendor systems. The Qwest Control Networx Portal provides access to the back-end OSS. All Networx products and services can be ordered via the Portal through a series of Web forms and flow through interfaces. Qwest continues to design process flows that will generate efficiencies for the customer and Qwest.

Qwest has deployed a complete set of controls including access controls which manage users access to specific systems based on identification and authorization, managed OSS security services which protects the systems from outside attacks, software configuration and patch management which ensures system applications are protected, and a robust monitoring system for managing the infrastructure.

Through our systems and technology platforms, Qwest can deliver the dynamic information the Networx program requires to address a number of critical operational objectives – from fraud and abuse detection through

appropriate service billing and network optimization. A Network Management link is available through the Portal where a variety of reporting tools and metrics, along with customer support, are at the Agency's disposal. An overview of key functionality and accessibility is shown in **Figure 3.2.1-2**.




### **3.2.1.1 Network Management Narrative Responses**

The following table identifies RFP requirements and associated proposal response locations.

<u>comp req_id</u>	<u>RFP Section</u>	<u>RFP Requirement</u>	
1082	C.3.3.1.2.1	(1) The contractor shall provide network security and fraud prevention, detection, and reporting as specified in Section C.3.3.2, Security Management.	
1053	C.3.3.1.2.2	(4) The contractor shall perform configuration changes in a standard maintenance window as stated in the contract to minimize service impact to the Government.	
1045	C.3.3.1.2.2	(6) This database shall enable the Government to assess how network changes may impact services to Agencies.	
1044	C.3.3.1.2.2	(7) This database shall enable the Government to perform impact analyses on services during outages.	
1018	C.3.3.1.2.3	(3) The contractor shall provide at a minimum Voice Traffic and Data Traffic reports. See Sections C.3.3.1.4.1.3, Voice Traffic Report and C.3.3.1.4.1.4, Data Traffic Report for report requirements.	
990	C.3.3.1.2.4	(4) The contractor shall implement a process for Government-driven escalations as well as contractor-driven escalations to succeeding levels of management when a fault is not resolved within the required performance target or when the Government has indicated dissatisfaction with the way the contractor has handled the issue.	
960	C.3.3.1.2.6	(3) The contractor shall provide additional hardware, software, and other means of access as determined by the contractor to provide this capability.	
1040	C.3.3.1.2.3	(1) The contractor's network accounting management system shall provide for the generation and distribution of usage data to support the contractor's detection, resolution, and reporting of network fraud, and abuse as well as optimization activity defined in Section C.3.4, Customer Service.	
1029	C.3.3.1.2.3	(2) The contractor shall provide the Government with ad hoc traffic and usage reports to support the Government's telecommunications planning and avoidance of fraud, waste, and abuse.	
962	C.3.3.1.2.6	(2) The contractor shall provide a Network Services Monitoring and Management capability to provide real-time information regarding the health of the contractor's network as it applies specifically to the services the Agency has selected for this option.	
961	C.3.3.1.2.6	(1) The contractor shall provide a Network Services Monitoring and Management capability to provide real time informational updates of the status of problem resolution efforts within the contractor's Trouble Management System as it applies specifically to the services for which the Agency has selected this option.	



### 3.2.2 General Approach to Network Management

Qwest is an industry leader (see **Figure 3.2.2-1**). Our Spirit of Service™ has enabled our network team to go above and beyond the call to meet customer needs during critical times.



The foundation of Qwest's approach to network management is the



 The processes and tools Qwest uses for each function integrate to provide a cohesive platform for maximizing the availability and security of Networx services. Qwest has integrated systems that support all aspects of network management including 



Qwest will effectively manage network configuration changes to avoid interruptions in service or downtime. We will conduct configuration changes during a scheduled and agreeable maintenance window to minimize impact to customer services. Qwest will provide data and analyses along with assistance for optimizing configurations to ensure maximum utilization of bandwidth and potential cost savings to the Government. To support the Government's required tracking and reporting requirements, we will provide the Government with effective administration support that reduces the burden of tracking, reporting, and billing. In addition, Qwest will provide operational support to maintain the suite of products and services offered under the Networx program.

### **3.2.3 Accounting Management (L.34.2.3.2 (b), M.3.3(a), comp\_req\_id 1053, comp\_req\_id 1029)**

Qwest's Accounting Management focuses on gathering statistics, managing quotas and usage, and providing an accurate base of data for billing. It also allows the network to better control and analyze system utilization of the Agencies, while helping Qwest make better use of the resources we manage. Network accounting allows Qwest to make forward looking assumptions and decisions regarding the network and to monitor trends. The Portal will give the Agencies access to usage data, statistics, and analyses provided by our Accounting Management systems. Qwest understands and complies with the Networx requirements for reporting usage data, fraud, optimization, and abuse and makes those items available via the Portal. Upon request, our accounting management system allows us to provide the Government with ad hoc traffic and usage reports to support the Government's telecommunications planning, and avoidance of fraud, waste and abuse. Qwest currently provides a variety of reports for many of our commercial customers; we will sample the data link utilization a minimum of twice per hour to meet Networx requirements for data traffic reports. Qwest will also provide reporting for all network service components deployed to provide service to any Service Delivery Point (SDP), [REDACTED]

#### **3.2.3.1 Accounting Management - Management Capabilities**

Qwest's Accounting Management capabilities focus on managing network usage levels and applying solutions [REDACTED]. Reports are also generated on an ad hoc basis, [REDACTED] to help identify and resolve issues quickly. Our accounting management goal is to

find statistics that point to a potential problem area in our network. If and when a problem occurs, the statistics are used in our analysis so we can detect, prioritize, and make immediate and informed decisions about our course of action. Qwest monitors performance thresholds and manages network alarms for corrective action.

Qwest's Network Management teams employ various tools to poll network elements and collect usage statistics in order to detect fraud and abuse [REDACTED]

[REDACTED] Our security teams, working closely with the network operations centers, continually check for enhancements and improved tools to monitor the network and reduce the threat upon it from outside sources.

As part of our Spirit of Service™, Qwest has an existing process [REDACTED]

[REDACTED] The optimization identifies opportunities to save the Agency money or can be used to identify new means of meeting the Agency's needs. Qwest began this practice more than 10 years ago, and it is well received by our customers.

Qwest can tailor a solution to benchmark typical utilization and identify when actual utilization deviates from predefined thresholds. Fraud and abuse tools can be tailored to include the capability to track applications that are being run at a given site for the purpose of assisting the identification of fraud and abuse. Qwest has a proven track record in service continuity and effectiveness in transferring the Spirit of Service™ transparently to the customer in a way that minimizes our customers' exposure to serious service affecting faults. Qwest maintains multiple operating platforms to achieve the goal of service continuity.

Qwest will work with Agencies to meet specific requirements encompassing network management of systems and services. Qwest will

meet the expectations and service level agreements (SLAs) of Networx. Qwest will continue to maintain high standards of service delivery and service management for GSA and the Agencies. Qwest will partner with the Agencies to manage day-to-day needs, and expectations related to mission activities, tracking, facility issues, and order and trouble management.

**3.2.3.2 Accounting Management - Technical Capabilities (comp\_req\_id 1040)**

Qwest has deployed a number of industry leading tools and systems to collect and analyze utilization data from our network. These tools enable Qwest to perform network planning functions and identify and manage instances of fraud, waste, and abuse. Qwest uses performance management tools to gauge, monitor, and detect network faults that will allow us to meet or exceed Networx service level agreements.

Examples of Qwest integrating best-in-class software tools in our accounting management arsenal include:

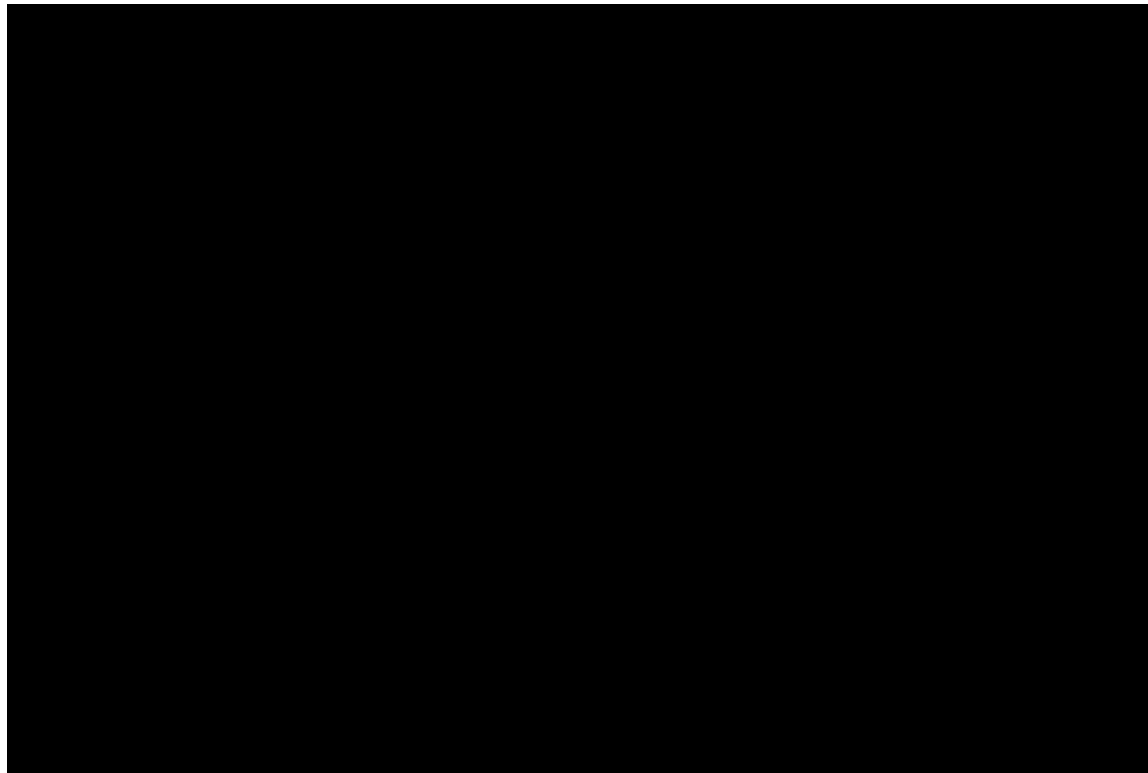
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[REDACTED]

- Qwest [REDACTED] to provide internal Operations Staff and authorized customers with the information that is required to manage bandwidth and utilization [REDACTED]  
[REDACTED]
- Qwest’s engineering team uses reports from the accounting management system to identify potential opportunities for optimization and service consolidation to address situations where under utilization or over utilization occur.
- Qwest’s [REDACTED] analyzes calling patterns to identify abnormal usage based on the customer’s historical profile of daily calls and minutes, as well as Calling Card usage. The generation and distribution of usage data reports from the accounting management system is instrumental to the detection, resolution, and reporting of network fraud.

Qwest’s network application tools are geared toward effective management of our network components and interoperating systems. Qwest has a strong toolset to manage routine and critical service issues and minimize customer impact. The chart below lists some of the application tools used by Qwest in our network management system (**Figure 3.2.3-1**).





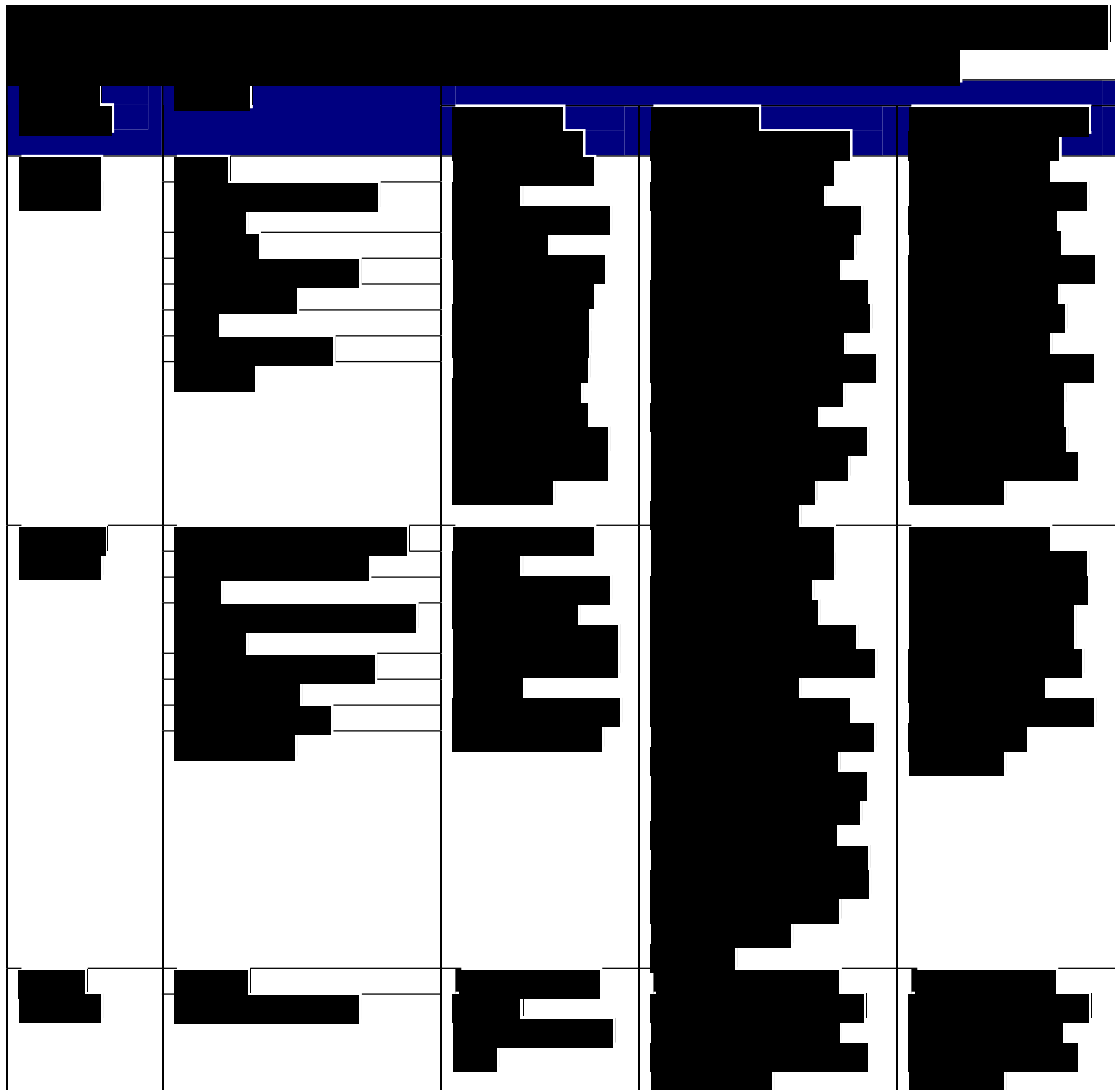
such as the Grade of Service (Call Blockage) for Voice, Circuit Switched Data, and Toll Free services as well as the Data Delivery Rate for Frame Relay services. For example, [REDACTED]



Qwest operates a fraud operational center [REDACTED] staffed with analysts that are trained to detect suspected fraud or abuse on all voice services and data services as identified in **Figure 3.2.3-3** below.

Qwest fraud services include continuous real time call analysis based on unique rules and thresholds designed to identify fraud or abuse. Qwest fraud systems offer call pattern analysis for [REDACTED]

[REDACTED] identify and review with the Government possible usage anomalies or trends that may indicate fraud or abuse requiring action by the Government. The Government may need to make necessary changes or corrections within their premise equipment to safeguard their network. Qwest will partner with the Government, to implement necessary network solutions that will address any fraud exposure. Figure 3.2.3-3 denotes how Qwest performs accounting management functions for all Networx services proposed.



[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	Multimode Wireless	[REDACTED]	[REDACTED]	[REDACTED]

Qwest will maintain and provide the GSA Networx PMO and Agency Network Management contacts access [REDACTED]

[REDACTED] This database will enable the Government to assess how network changes may impact services to the Agencies [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Qwest will also provide the Agencies network configuration information applicable to their voice and data network through the Portal.

[REDACTED]

### **3.2.4 Configuration Management (L.34.2.3.2 (a), M.3.3(b), comp\_req-id 1053)**

Qwest understands that our execution of the Spirit of Service™ requires a state-of-the-art Configuration Management process and dedicated configuration management group. To this end, Qwest has a rigorous and standardized Configuration Management process across all of our network services support functions. The process includes notification to the impacted customers in a manner that meets the requirements set forth by the U.S. Government. Within Qwest, the Configuration Management process includes a requirement to notify and/or obtain approval from impacted areas of Qwest and key customer accounts. Because we focus on the customers' needs before, during, and after the change event, Qwest minimizes risk of service impact throughout the change event.

Qwest will schedule activities with a minimum lead time of [REDACTED] and understands the Government's right to reschedule within a [REDACTED] window. Qwest will work with GSA and the Agencies [REDACTED]. Qwest will also work with and notify [REDACTED].

the Government customer of any large scale changes in the Network that may have an impact on the network. Those changes might include major upgrades, software releases, or replacement of equipment. Qwest will identify and schedule maintenance windows as we do today during pre-determined times and windows to minimize any impacts to the Agencies. Qwest will submit any planned changes to the Networx PMO and/or affected Agencies by the required means of notification. [REDACTED]

[REDACTED]

Qwest's maintenance windows are scheduled based on local time at the location where the work is performed. Qwest will work with the Agency in coordinating and scheduling maintenance activity. [REDACTED]

[REDACTED]

[REDACTED] The Qwest Configuration Management process is flexible enough to handle international services that span multiple time zones:

- Planned maintenance is typically scheduled between [REDACTED] in the time zone in which the work is to occur

- Qwest will take proactive steps to work with customers to find an appropriate time to work on international circuits when there are known scheduling issues. [REDACTED]

#### **3.2.4.1 Configuration Management - Management Capabilities (comp\_req\_id 1053)**

Qwest has a dedicated Configuration Management group that manages all network change activities within Qwest. This group is responsible for the following:

- Acts as the control point to ensure that required internal organizations are involved and change tickets contain the most updated information and documentation
- Serves as the interface between Qwest and our customers. The Configuration Management group notifies customers of network events that are potentially service impacting
- Evaluates all planned maintenance activities
- Incorporates all customer contacts into the process
- Designates appropriate approval levels
- Governs process for all levels, to ensure that the process for each change is followed
- Ensures that fundamental technical and safety requirements are met

Qwest performs all of our network changes and configuration management activities during a designated maintenance window to minimize the impact to the customer. Maintenance activities are pre-planned and

tracked via Qwest's [REDACTED] which has an approval process to ensure that proper resources will be available, tools and equipment will be available, an approved Method of Procedure (MOP) has been developed, a back out plan has been prepared, and the technician has the required training to complete the work. Network operations and field technicians also are engaged in the change management process so both are aware of and have resources available during the maintenance window.

**3.2.4.2 Configuration Management - Technical Capabilities**

Underlying the standard process for controlling configuration change at Qwest is the technology strength we bring to the table. Whether it is the discipline we bring to the deployment of assets into our network or the system we use to manage and monitor the actual configuration change event, we use technology to ensure Qwest continually performs at or above the expectations of our customers.

Qwest manages configuration change requests [REDACTED] [REDACTED] which is specifically designed for effective change management. Qwest already has this system in place and uses it successfully and effectively in our commercial and Government market units. By standardizing the change management process [REDACTED] [REDACTED] Qwest has been able to manage changes to our network in a manner that minimizes risk to our customers.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



reviewed, and approved weeks in advance of the scheduled change activity. If the MOP is lacking a back-out plan or is missing relevant steps, the Change Activity is not approved and changes are made to the MOP.

Significant change activities routinely include an audio conference bridge that is maintained throughout the duration of the change activity. The purpose of the audio bridge is to facilitate communication with all participants that need to be part of the change activity. [REDACTED]

[REDACTED] If, during the change, additional resources are required, the Operations Center pages the required staff who are summoned to the audio conference bridge.

Our operational experience dealing with the required changes in the Qwest network to accommodate the growth and customer requirements is an integral part of how we deliver the Spirit of Service™ to our customers. We are confident that this process will go far to provide GSA and the Agencies with new levels of insight and confidence in the reliability and scalability of Qwest's networks.

To meet the specific requirements set forth by the customer with respect to optional Network Monitoring and Management Services, Qwest will provide the additional hardware and software to access said services. Qwest has demonstrated experience in developing Network Monitoring and Management solutions using our Portal capabilities; we can deploy additional functionality, on an individual case basis, any additional hardware or software.

### **3.2.5 Fault Management (L.34.2.3.2(c), M.3.3(c))**

Qwest's Network Management organization is focused on network reliability and performance to reduce the frequency, severity, and duration of fault events. Qwest proactively manages our network, using state-of-the-art

tools and operational processes that make us a leading provider of telecommunications and data services. GSA and the Agencies will have real-time access through the Portal to obtain the latest information regarding network faults. Qwest will manage the reliability of our network and other carriers used to provide end-to-end service in real-time, with customer controlled access to fault management data through the Portal.

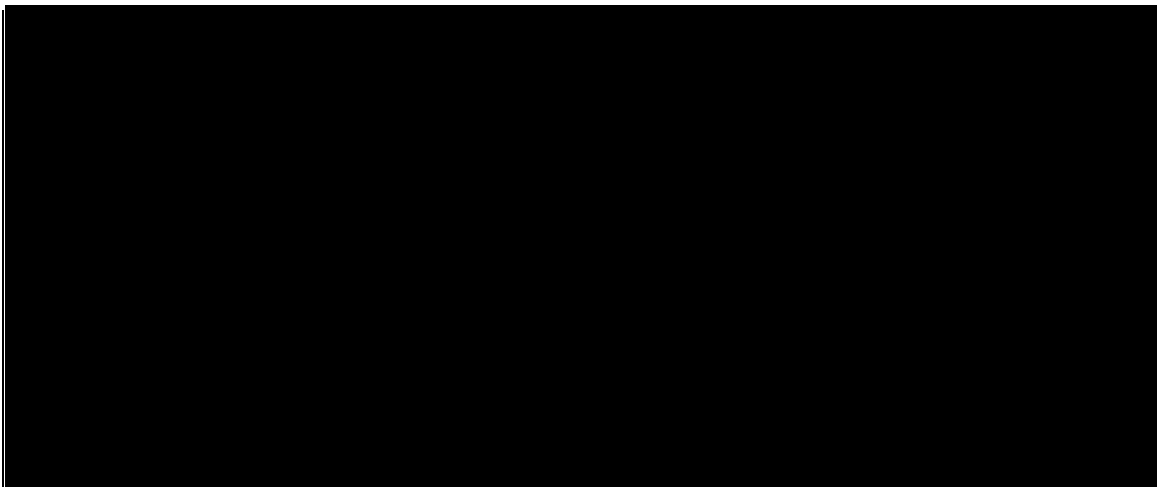
In addition, Qwest uses state-of-the-art communication tracking and development tools for [REDACTED] monitoring of events, traps, and alarms to ensure network integrity. Qwest's goal is to minimize any downtime, service dispatches, or repair issues. Through our inherent systems and our Networx team members, Qwest will isolate and resolve issues before they impact service. Our goal is simple; Qwest will work toward ensuring our network is always at optimal operating levels.

Qwest's state-of-the-art network is monitored continually to track, analyze, report, and record faults to meet specifications for our Government customers. Qwest already has both a Government and internal escalation policy for Government business activities, including pertinent contact information that is available through the Portal. Qwest will notify GSA and affected Agencies of faults, restoration updates, [REDACTED] and include in our report outages of the Qwest network switches or facilities, or isolations impacting full service. Qwest will include in this report any issues and concerns about catastrophic events (i.e., fires in a transport site) and any service affecting concerns that may be from a Qwest team member or vendor. Qwest will provide a tracking number, fault description report, date and detected time, Agencies that are affected along with locations, and any peripheral information regarding faults and/or locations. Qwest will provide an estimated time to repair when possible and the circuit Telecommunication Service Priority (TSP) status. Qwest already manages our network in this

manner and reports to customers [REDACTED] [REDACTED] and will do so for our Government customer with proper notification going out to the Agency. Updates and status will be posted on the Portal Web site, with viewing capability to affected Agencies for their services only and a total Networx view for GSA.

The GSA PMO will have access to view all disruptions, updates, and status reports. Updates will be generated [REDACTED] and Qwest will keep the final status update of a service-affecting fault on the Portal [REDACTED] [REDACTED] after the trouble incident was closed. Access to fault management data and reports is available real-time through the Portal on a [REDACTED] basis. Qwest is committed to resolve [REDACTED] percent of all service affecting faults that do not require dispatch within [REDACTED] hours, as measured at the [REDACTED] level. Qwest will resolve [REDACTED] percent of all service affecting faults that require a dispatch within [REDACTED] hours, as measured at the [REDACTED] level. The total time to restore (TTR) is calculated as the elapsed time between reporting the trouble and the restored time less the time related to conditions such as planned configuration changes, access issues, security clearances, or long distances relating to travel time to arrive at a site.

**3.2.5.1 Fault Management - Management Capabilities**



Qwest has deployed a robust network management strategy [REDACTED] [REDACTED] for our core services that is designed to minimize risk for our customers. As a result, Qwest is able to identify problems and commence restoration activities [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Qwest takes an active approach in managing our network deliverables to all customers. We understand the importance of fault-free

[REDACTED]

delivery systems and continuous operability relating to voice and data services. Qwest will take a hands-on active management approach in promoting and proactively delivering services under the Networx contract. Our service delivery and network management sometimes puts Qwest into a combined effort with other teammates in delivering those services. Qwest will drive and manage our team members to the same expectation level and commitment to network management in a manner which will be transparent to GSA and the Agencies. Qwest will provide the same expected level of service on a day-by-day basis, every day of the year.

For those cases where the customer has performance issues they wish to report, Qwest has established a Customer Support Office (CSO) for the purpose of providing a single point of contact for the Networx Program. This enables the customer to reach the full breadth of Qwest's capabilities by making one call and not needing multiple contact points. This enhances the customer's repair experience and has led to consistently high customer satisfaction survey results. At Qwest, trouble tickets are not closed until the customer agrees that the issue is satisfactorily resolved.

For situations that require additional resources or management attention, Qwest provides customers with a thorough escalation process that includes access to higher levels of management. This process includes both customer-initiated and internal escalation on network events.

[REDACTED]

The benefit that [REDACTED] process provides the Agency is that the

appropriate level of technical and management support personnel are immediately engaged whenever a given [redacted] level is met or exceeded. [redacted]

[redacted]

[redacted] Qwest monitors network alarm status on a continuous basis [redacted] in the Network Operations Centers.

[redacted]

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted]

### 3.2.5.2 Fault Management - Technical Capabilities

The key to effective fault management is state-of-the-art tools and systems to sectionalize, isolate, and restore services. [REDACTED]

[REDACTED]

[REDACTED] Qwest has deployed redundant, state-of-the-art fault management systems that are geographically diverse. Qwest's toolbox includes the following:

#### Key Toolsets and Applications Provisioning

- Qwest uses an engineering order database containing initial and current service configuration information to effectively map critical service delivery points, equipment, and transport mediums.
- The Qwest [REDACTED] database allows a real-time look-up of customer circuits to find related Local Exchange Carrier (LEC) and circuit layout information.
- Qwest Web-based application interface systems tie directly into the provisioning database to provide additional information, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**Trouble Ticketing**

- Qwest integrates easy-to-use trouble ticketing systems for creating and maintaining service trouble tickets, [REDACTED]  
[REDACTED]  
[REDACTED] These systems will be populated with data required for the Agencies.

**Troubleshooting**

- Qwest trouble ticketing systems assist in physical layer testing of customer circuits and help to isolate problems as LEC- or customer-related. These systems are critical and integral to performance management. They will provide Qwest a quick and real-time view into network management.
- [REDACTED] Primary configuration platform for the Networkx Virtual Private Network (VPN) service
- [REDACTED]  
[REDACTED] Bulk statistics and configuration tool to trend performance and isolate chronic issues
- [REDACTED] Provide critical performance data to isolate packet loss, latency, jitter, and voice Quality of Service (QoS) conditions on the network
- [REDACTED] Provides two-factor authentication for secure access to Qwest equipment

The tools listed enable Qwest to manage our network and differentiate faults that are service impacting from those that are non-service impacting. This enables Qwest to focus our resources on events that are service impacting. The combination of the tools and systems previously listed and the resiliency of the Qwest network results in world-class service for Qwest's

customers. Qwest will accomplish a procedural step of fault management through a commercial application, [REDACTED]

[REDACTED]

In a continual effort to ensure that the Agency can be fully engaged in the ongoing management of provisioned telecommunications transport services, Qwest will provide Web access to the Portal that supports the service assurance and delivery requirements of the Networx program. This Portal includes a trouble management interface that will allow the users to electronically input trouble tickets and check their status.

This Portal is part of an ongoing evolution of Qwest's current systems that have been in place for many years, such as our provisioning system, order entry, billing, and trouble ticketing. [REDACTED]

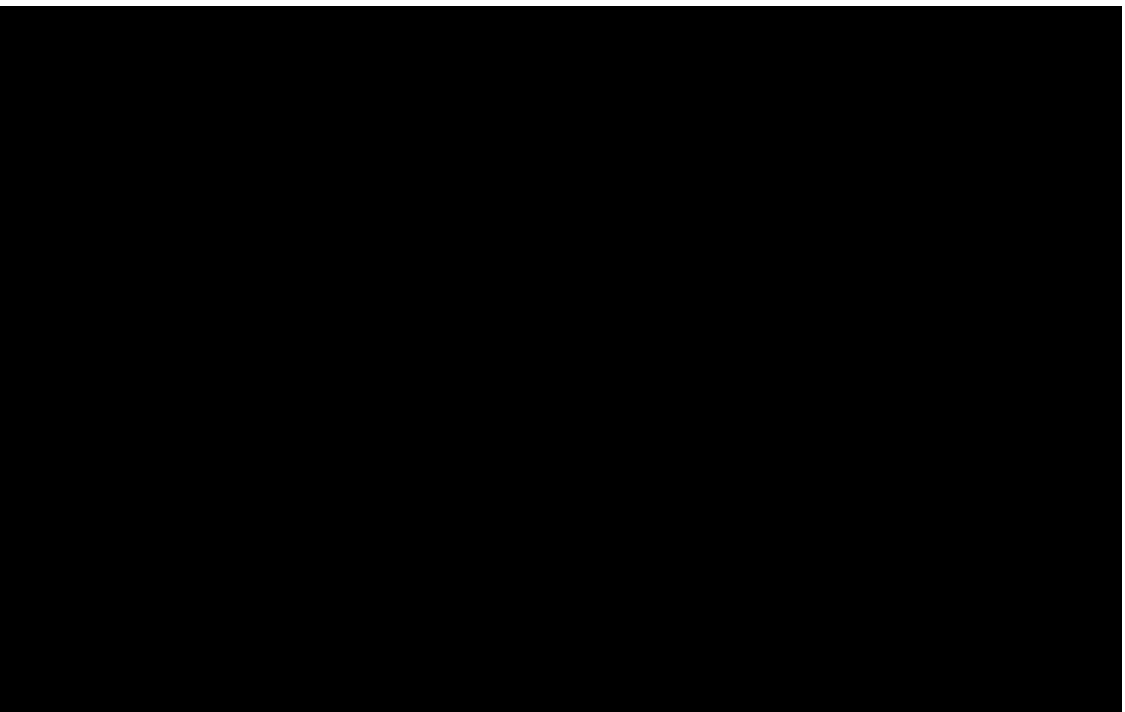
[REDACTED]

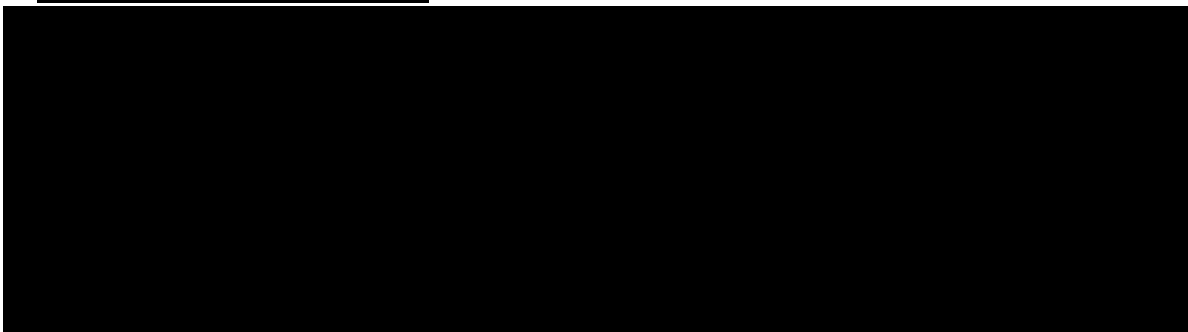
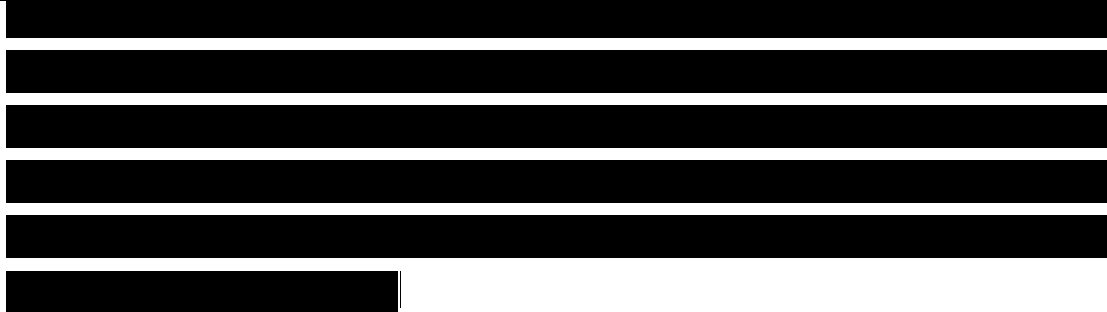
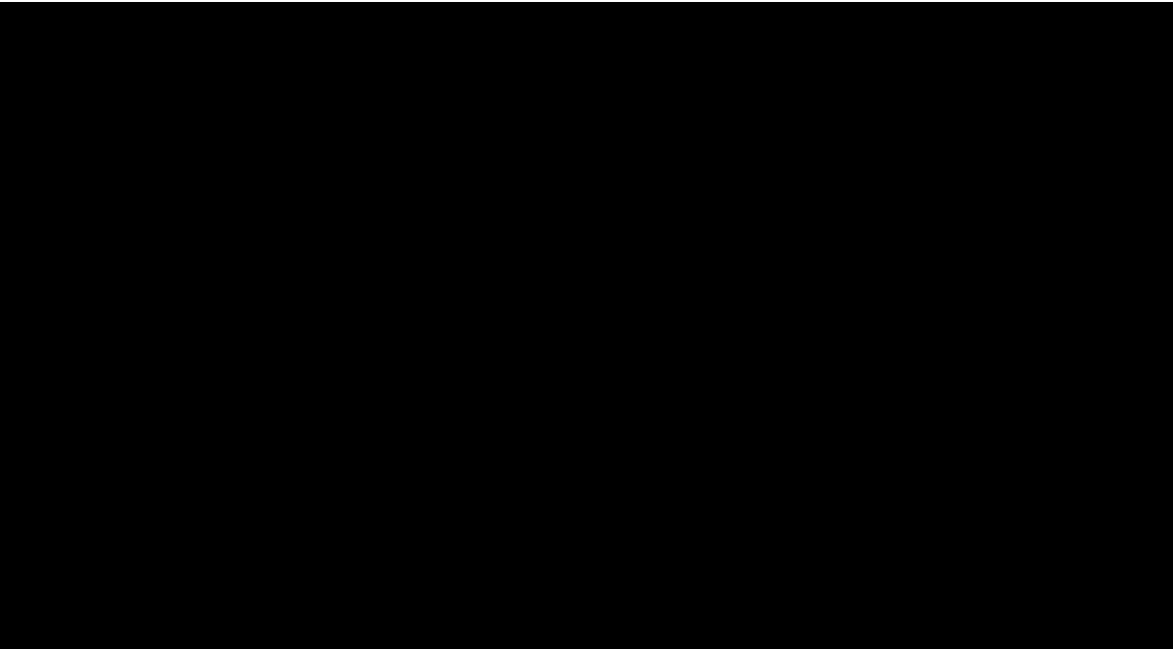
### **3.2.5.3 Fault Management - Operational Capabilities**


By using the network management tools and strategies outlined in this section, Qwest personnel are able to manage our network in a way that results in performance that is above industry standards. The NOC personnel are trained in specific areas of expertise to provide handling and resolution of network events. Qwest has established NOCs that operate [REDACTED] [REDACTED] This ensures continuous management across the different platforms that comprise the Qwest network.

Qwest's Network Management processes are centered around [REDACTED] [REDACTED] This enables Qwest to prioritize events and assign work to the events that are service impacting. [REDACTED] [REDACTED]

Qwest's Network Management strategy has resulted in consistent performance that is best-in-class. [REDACTED] [REDACTED]





Additionally, when Qwest fixes a fault, we fix it right the first time. We verify that the customer is back in service before closing the trouble ticket. Qwest's repeat-repair percentage 

#### **3.2.5.4 Security Management (comp\_req\_id 1082)**

Qwest has a longstanding, robust security program with a proven history of providing industry-leading security services to protect Qwest's infrastructure including information assurance processes applicable to databases and OSS and information processing systems upon which Networkx services will depend. Qwest is committed to protect its customers against threats, attacks or failures of systems, in accordance with best commercial practices. Qwest employs a mature, process-based risk assessment approach to ensuring logical and physical security controls are in place and appropriate for our computer centers, network operations centers, secure operations centers, cyber centers and other Qwest facilities. Qwest's security-related services are intended to ensure the integrity, confidentiality and availability of information and network assets and to support Qwest resources and its wide range of customers and geographical locations.

Qwest provides services as an integrated network secure solutions team. The Qwest Team will assist with the identification of waste, fraud, and abuse. As described in Section 3.3.2.2, the Qwest Network Fraud Operations Center operates as a functional group [REDACTED] and owns the responsibility of fraud prevention, detection, and reporting. Using a state-of-the art fraud detection system, the Fraud Operations group analyzes an Agency's daily calling and usage patterns for variations in the normalized traffic for the Agency. The group also monitors the network [REDACTED] for potential threats related to customer premise equipment. Within [REDACTED] identifying an unusual or suspicious outage, blockage, or other service-affecting or fraud-related event, [REDACTED]

The Qwest integrated Networkx security team's commitment to Networkx is to provide reliable security services to the Government that meet or exceed

the requirements set forth in the Networx RFP, specifically C.3.3.2 Security Management. The Qwest integrated Networx security team will ensure that all incidents are reported within the required time frame, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**3.2.6 Network Service Monitoring (L.34.2.3.2(d), M.3.3(d))**

Network monitoring is the linchpin for all aspects of Qwest’s network management scheme. We currently monitor more than [REDACTED] network elements globally to provide statistics and data for accounting, performance and fault management, ensure environmental stability, and monitor remotely the progress of change management activities.

**3.2.6.1 Network Monitoring - Management Capabilities**

At Qwest, we [REDACTED] optimize our network and fix potential network issues before they become service-impacting events. To assist in managing our Network Monitoring capabilities, we constantly analyze results and [REDACTED] update our monitoring capabilities with emerging technologies. We have stringent requirements and network report cards to help determine our progress internally. Our self-checking strategies help define future goals and implementation procedures to ensure that we are prepared to exceed the expectations of our customers.

Signaling and voice operations are supported by the Switch Management center. This center is located in [REDACTED] and is fully staffed [REDACTED]. In the event of a catastrophic center failure, a back-up center is located in [REDACTED] failover exercises are performed to ensure proper operations continuity.

Switch Management utilizes various network management systems (NMS) to deliver alert/log status for operator review and action. [REDACTED] [REDACTED] system is used to monitor Time Division Multiplexing (TDM) alarms, as well as Signaling System 7 (SS7) alarms. [REDACTED] is used to monitor SNMP alarms for the Advanced Intelligent Networks and the Next Generation Voice over IP (VoIP) softswitch technologies. [REDACTED] currently monitors the Calling Card Platform, the Qwest Hosted Web Contact Center, and the Operator Services Platform. [REDACTED]

[REDACTED] technicians in Switch Management maintain command and control of alarms and outages reported through the NMS. They diagnose and repair troubles, then document actions taken to mitigate the alarm condition. [REDACTED] technicians also coordinate additional resources needed for repair and restoration with Field Operations and [REDACTED]

[REDACTED] team manages and coordinates Configuration Management [REDACTED] resources are used within engineering to regression test any change to production. Any problems identified during testing are addressed by the team before implementation into production is allowed. Once an optimal configuration is established, the templates are stored and used as the golden configurations for the network deployment and implementations to the production environment.

[REDACTED] establishes provisioning guidelines that are based on the engineering limits of the product and the results from capacity testing in the lab. These guidelines are turned into procedural documents for workgroup use. This prevents load balance issues from occurring at installation.

[REDACTED] there is an internal process used by Switch Management for

engaging the provisioning workgroups to [REDACTED]  
[REDACTED]

Performance Management includes [REDACTED] notifications that deliver measurement reports to various database systems. This allows individual workgroups to monitor the resource limits that are the threshold for each configuration. Thresholds are intentionally established at low values to provide early alerts to capacity issues. [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]

[REDACTED]

Security Management maintains control and access to switching elements. Switch level commands are established based on user responsibilities; access is limited to those with a specific business need. Each user in a workgroup is assigned an individual user identification or access mechanism to allow access to the level required to perform their functions. Activity logs are recorded and maintained for all switch access and command level entry. These logs are viewed daily by the security group for invalid access attempts. [REDACTED]

[REDACTED] This minimizes the opportunity for any denial of service attack from entering the production network.

The [REDACTED] center, which includes expertise in the areas of fiber protection, transport network management, and switch network management, monitors Qwest's backbone network to ensure the highest levels of network reliability. [REDACTED]

[REDACTED] These functional areas combine to form a full service Network Operations Center that ensures network quality and reliability.

- Network technicians provide [REDACTED] customer and network support. These technicians are the first line of customer contact, providing immediate customer ticket awareness/status and issue escalation (within the first hour) to network engineers or the exchange carrier as warranted by each specific issue condition.

[REDACTED]

[REDACTED]

[REDACTED]

### 3.2.6.2 Network Monitoring - Technical Capabilities

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Prior to rolling out new services, we test these new tools to ensure that all aspects of [REDACTED] Network Monitoring capabilities are addressed. Specifically, we develop and test the rules that we will employ to ensure that we capture what is most important to our customers and that new services are integrated seamlessly into our existing suite of product offerings.

To round out the suite of systems and tools that Qwest uses for Network Management, [REDACTED]

[REDACTED] The tools that we use for network monitoring have the capability to interface with our fault, accounting, and configuration management systems and tools. **Figure 3.2.6-2** lists our current major network monitoring systems.

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

These Network Monitoring systems afford us the capability to identify and resolve network events [REDACTED]

**3.2.6.3 Network Monitoring – Operational Capabilities**

Network Monitoring and Fault Management go hand-in-hand. The [REDACTED] NOCs referenced under Fault Management are the same centers that monitor our network. Qwest has implemented an electronic automated [REDACTED] throughout the nationwide backbone infrastructure to monitor the physical protection of the fiber and assist in locating any disturbances. [REDACTED]

**3.2.7 Network Management Overview (L34.2.3.2)**

Qwest is a full service telecommunications and data networking provider with demonstrated reliability delivering a dependable suite of products to our customers around the world. Qwest is uniquely able to provide the broad list of products and services with a host of features and benefits that meet or exceed the requirements requested in the Networx RFP. To deliver outstanding network reliability, [REDACTED]

[REDACTED] Our model for Network Management follows the International Standards Organization’s (ISO) framework for network management and will provide the Government with best-in-class reliability of our network and services.

**3.2.7.1 Organization**

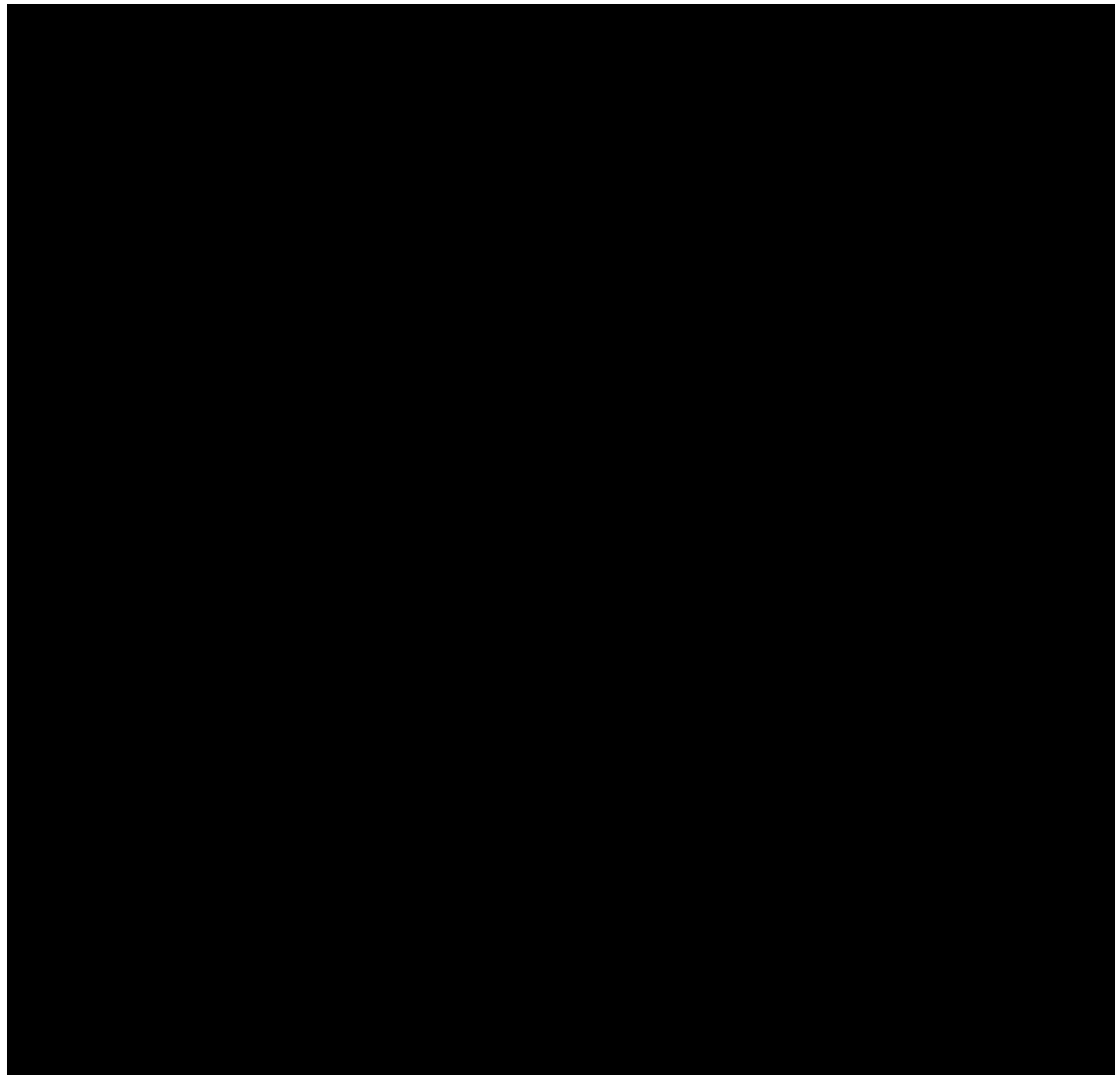
The responsibility for the execution and management of the Networx Program resides with the [REDACTED]



This reporting structure gives expedited access to Qwest's highest level executives to escalate and resolve any issues. Should a problem arise that requires executive attention, they are available via telephone, e-mail, Instant Messaging (IM), fax, or page.

**3.2.7.2 Resources**

Qwest senior management has committed the full support of the corporation to be available for the needs of Networx. This commitment



specifically means that the resources required for transition, installation, and on-going maintenance for a successful Networx program will be made available to the GSA PMO whenever a need exists. Each Qwest team member has made the same commitment.

To deal with evolving resource requirements, the Qwest Networx CPO Director will have regularly scheduled meetings with key management organizations to ensure that an appropriate number of skilled resources are available to fulfill the program's requirements.

Additional resources in the form of systems, tools, and facilities will be made available to the program to ensure the quality of Qwest's network management. In the end, however, Qwest recognizes it is all about the people. Therefore, Qwest employs highly qualified specialists across the many disciplines required to operate Qwest's modern networks. To maintain the knowledge and skills of our employees with the evolving services that Qwest develops and employs, our employees are continually trained and certified. [REDACTED]

[REDACTED] Qwest technical training occurs in one of the labs at the [REDACTED] center, where employees will spend one to five days in group training environments working with the very same equipment that is installed out in the field.

Qwest encourages management and line staff to pursue educational opportunities through tuition reimbursement programs and through our own network training and development programs, which are augmented with external training organizations. With a commitment to regular training and accessible on-site learning facilities, Qwest ensures that staff resources are properly equipped to perform all of the work required to support GSA and the Agencies.

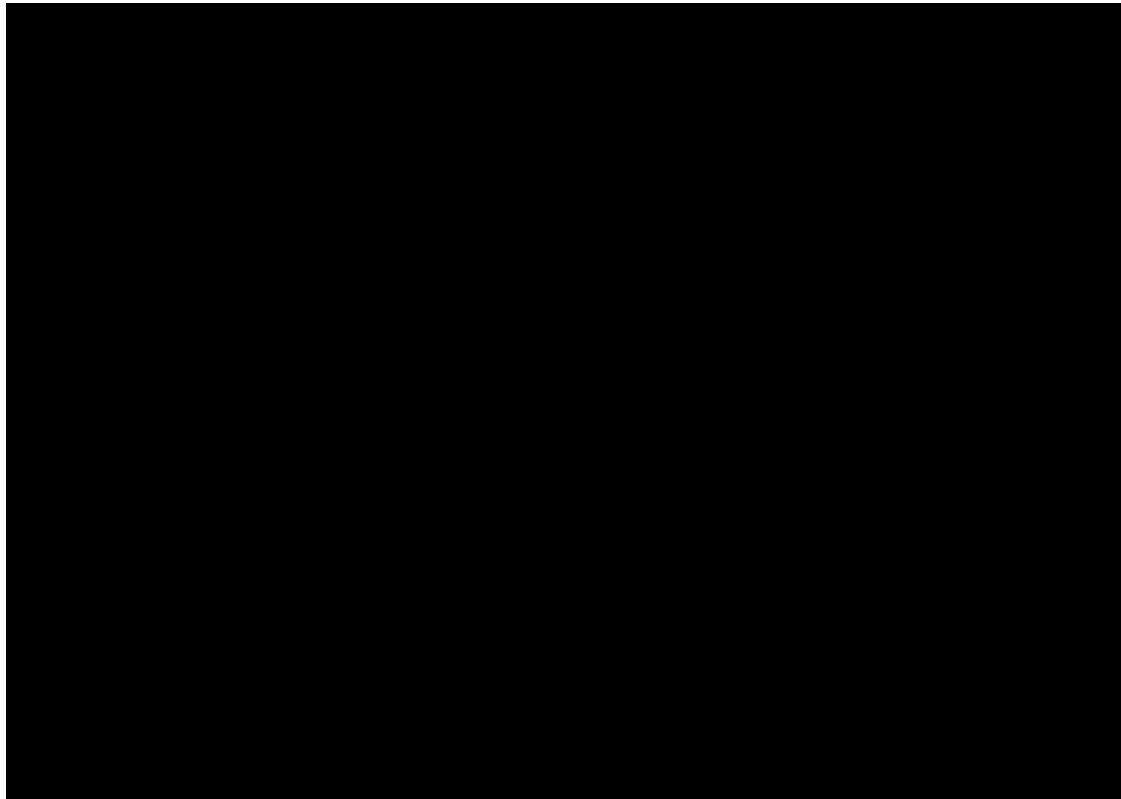
### 3.2.7.2.1 Qwest's Network Management Teams and Centers

In direct support of Networx, the following existing teams and centers will provide the required services to GSA and the Agencies. [REDACTED]

[REDACTED] The Qwest Federal Network Operations Center has designed capacity and capability to ensure secured operational support, with the capability to provide Networx Managed Network Service. This fully staffed center is the primary network interface monitoring Service Enabling Devices (SEDs) and providing quick resolution of alarms and jeopardy conditions.

[REDACTED]

[REDACTED] This team is tasked to drive resolution of trouble tickets and act as an advocate for the customer subscribing to services managed by the Qwest National Network Services organization.



[REDACTED]

[REDACTED]

[REDACTED] Technicians are equipped and trained to quickly diagnose issues, engage additional resources, and expedite repairs. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The [REDACTED] provides [REDACTED] support for customers subscribing to Digital Signal Level 3 (DS-3) or greater access for Voice, IP, Data, and Broadband and Private Line Carrier services. Technicians are equipped and trained to quickly diagnose issues, engage additional resources as necessary, and expedite any repair actions required to recover the underlying transport facility.

The Customer Support Center (CSC), [REDACTED], is a premier trouble management team designed to provide [REDACTED] one-call resolution for customers' post-installation service issues. Technicians are equipped and trained to quickly diagnose issues, engage additional resources as necessary and expedite any repair actions required to support Qwest's voice, narrowband, and private line services.

The iQ (IP/MPLS) Service Assurance [REDACTED] [REDACTED] drives trouble resolution support and acts as an

advocate for the customer within the Qwest National Network Services organization. The iQ Service Assurance Team provides support for iQ, Asynchronous Transfer Mode/Frame Relay (ATM/FR), dial, digital subscriber line (DSL), and customer premises equipment (CPE), and is clustered by technology to provide real-time expertise.

The iQ Networking Services [REDACTED] is a premier trouble management team designed to provide one-call resolution for customers' post-installation service issues. Technicians are equipped and trained to quickly diagnose issues, engage additional resources as necessary and expedite any repair actions required to support Qwest's array of IP-based technologies (Internet, ATM/FR, Private Routed Networks, Managed Services, and Managed Firewall), and CPE.

The Consumer Access group, [REDACTED] provides top-of-the-line [REDACTED] support for Dial Access and DSL customers, including the industries largest wholesale customers. Often recognized for superior performance and support, this team is equipped and trained to quickly diagnose issues, engage additional resources as necessary, and expedite any repair actions required.

The [REDACTED] group is an industry-recognized team of experts. The security staff utilizes IDS, scan, and firewall tools to proactively survey and protect our network infrastructure from unauthorized access and attack. This staff is solely dedicated to security infrastructure management and maintenance. [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] These functions work within a

policy and compliance assurance framework [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The key functional tasks include:

- Surveillance of all network elements, trunks, and facilities
- Management of outages across all platforms, including escalation, dispatch, and restoration on proactive issues
- Maintenance, scheduled and unscheduled

The Switch Management Center, [REDACTED] supports Qwest's Signaling and Voice Operations and is fully staffed [REDACTED]

[REDACTED]

[REDACTED] failover exercises are performed to ensure that proper operations and support functions are maintained.

The Fiber Protection Center manages the "Call Before You Dig" tickets to ensure that construction activities do not jeopardize Qwest cable.

### **3.2.7.2.2 The Qwest Team**

The Qwest Team is experienced in delivering the services required for the Networx delivery model. As such, Qwest has brought together a top-notch team that mirrors our attitude and Spirit of Service™ in making this a successful venture. Our team members are held to the same high expectations and service delivery models and performance that Qwest delivers. Qwest has worked diligently to bring together the most highly credentialed service providers to meet the expectations we have in delivering quality of service to GSA.

In addition to the depth of resources listed previously, Qwest has engaged the finest team members and subcontractors. Each of our team members is accountable to the same level of Qwest quality assurance that is



objectives and are rigorously held to standards [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

Having navigated the complex process of integrating US West and Qwest into a streamlined network services provider, our network management strategy has been and remains focused on ensuring the continued high reliability and service deployment that characterizes the Qwest customer experience. With a rigorous quality management process as the core of this objective, Qwest employs a continuous improvement process that utilizes the tools and systems in the network to deliver industry-leading performance to our customers. Several elements of this process include:

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

**3.2.7.4 Practices, Policies, Processes and Procedures**

The Network Management organization at Qwest is committed to following industry best practices to deliver the best network quality available in the market today. We follow a rigorous process of documenting Policies and Procedures within the network management function. For example, specific documentation is created for the major elements of network management including:

[REDACTED]  
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] which details the items that must be satisfied prior to actions being taken. Details of this process are presented above in Section 3.2.2. In addition to these internally derived processes, Qwest follows several industry guidelines and standards methodologies, including:

- ISO standards: Qwest conforms to ISO standards for documentation
- Network Reliability and Interoperability Council (NRIC) and other industry forums and standards groups: Qwest is an active member in NRIC and other forum/standards bodies
- National Security/Emergency Preparedness (NS/EP): Qwest has adapted network management processes for the needs of the NS/EP programs such as Telecommunications Service Priority (TSP) and other Government restoration requirements

**3.2.7.5 Tools, Systems, and Reports (comp\_req\_id 1029)**

At the core of Qwest’s capabilities to deliver world-class network management performance to our customers are our best tools, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Our fundamental design principle is to ensure that Qwest will be able to grow the network for both capacity and new service capabilities while maintaining the network performance our customers have come to expect.

Qwest employs tools, systems, and reports across a diverse section of network management functions. For information about any of the specific tools, systems, or reports relating to the major network management functions, please see the technology discussion in Sections 3.2.3 through 3.2.6 above.

[REDACTED]

Qwest uses these tools to provide a suite of ad hoc query and reporting capabilities. We apply the power of analysis and data integration to create an easy-to-use [REDACTED] [REDACTED] capability to analyze summary data. These tools integrate the full breadth of statistical analysis and make results available to all users in the form of results, charts, graphs, and geographic maps. With these tools, we are able to deliver results in various formats including Microsoft Office applications, Web portal interfaces, text files, portable document format (PDF), .csv files, and flat file formats.

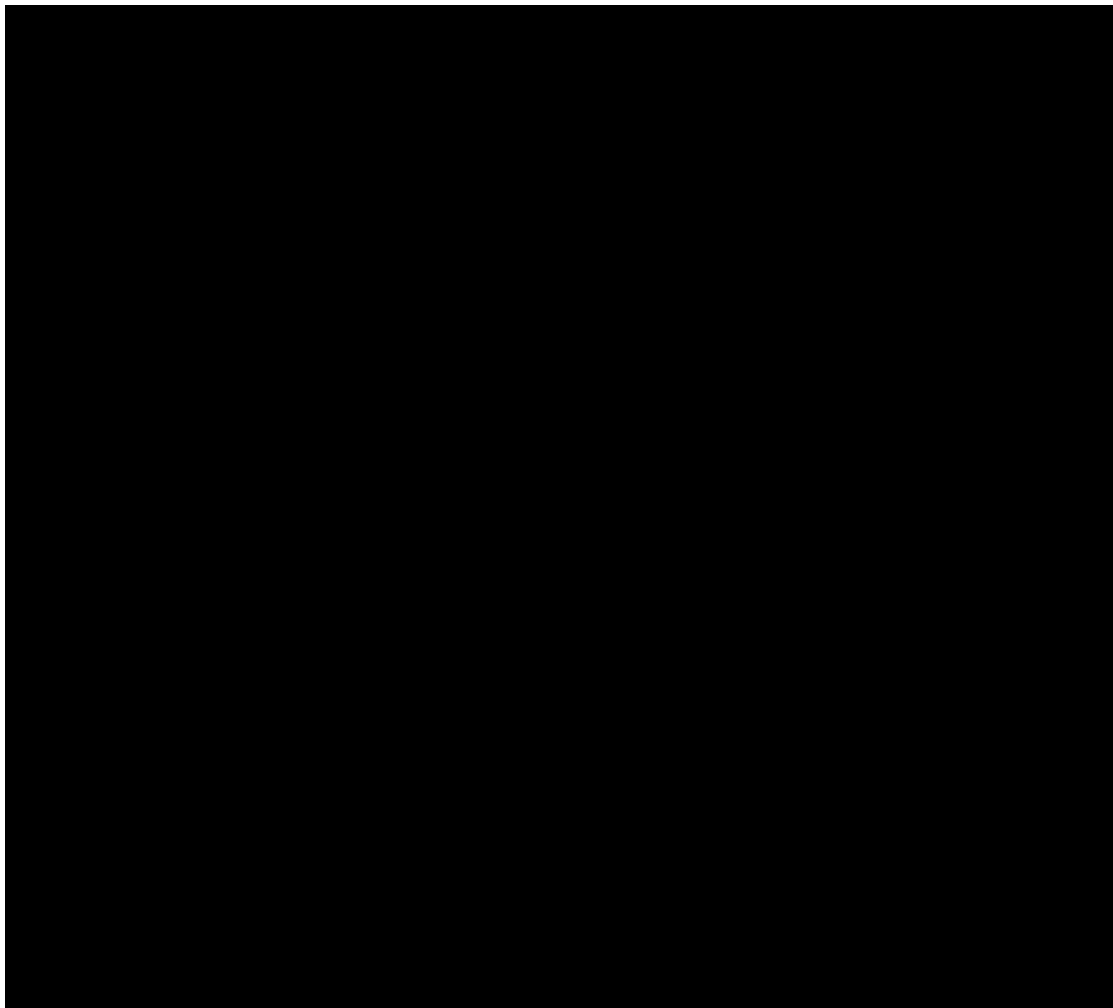
Specifically, we will provide the Government with ad hoc traffic and usage reports. The same ad hoc reports that support telecommunications planning can also be used [REDACTED] [REDACTED] to help the user identify suspicious patterns.

We employ a reports team as a part of the support organization [REDACTED] [REDACTED] Network Management. Their function is to maintain the processes and business rules [REDACTED] [REDACTED]. To ensure that results are

accurate, business rules are approved by upper level management and can only be changed by following a documented process.

[REDACTED] It displays key performance metrics and results. With this scorecard, we are able to view on a daily basis, dozens of performance metrics on virtually every product that Qwest provides. It is one of the tools that Qwest will use in reporting metrics for GSA.

To ensure that reports and scorecards are always available, [REDACTED] [REDACTED] All data for reports and scorecards comes from reporting databases or data warehouses built for the sole purpose of reporting. These reports databases are redundant to the



production databases, have restricted access for protection of the data, and are updated throughout the day. If the reporting database were to become unavailable, data can be pulled from the production database for reporting. Qwest protects and safeguards the information flow and repository of information required for Networx.

During the life of the Networx contract, [REDACTED]

[REDACTED]

[REDACTED] Qwest's growth plan/strategy is to expand the enhancements we have already introduced in the following areas:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Qwest will continue to reduce the complexity of the Network Management Systems. We will achieve this through:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

In addition [REDACTED] Qwest will continue to develop new ways for our customers to obtain service and support.

[REDACTED]

### **3.2.8 Network Services Monitoring and Management**

#### **3.2.8.1 Network Services Monitoring and Management Overview (comp\_req\_id 960, 962)**

As Qwest has done for other customers that required a Network Services Monitoring and Management (NMM) solution, Qwest will provide Government Agencies with a NMM solution that meets the specific needs of the Agencies that choose to subscribe to this capability. Recognizing that one NMM solution can not be applied to the wide variety of network deployments, Qwest has worked with other customers to ensure that each NMM solution is specific to the unique requirements of each customer. Qwest will work with requesting Agencies, perform a needs and requirements assessment and determine the best solution that meets the needs of the Government Agencies.

Qwest will provide subscribing Agencies access to its NMS via a secure web browser or other means, enabling authorized users at subscribing Agencies to have access to Qwest’s robust event management and service assurance capabilities. Qwest’s NMM solution is flexible and customizable

[REDACTED]

[REDACTED] Qwest’s NMS collects network event data from [REDACTED] heterogeneous environments. The events are

analyzed, filtered and only the events that are germane to the subscribing Agency or Agencies will be accessible.

The Qwest NMM solution is secure and is configured to restrict access to only authorized users. Furthermore, access for authorized users is restricted to only the information that applies to the Agency's own selected services.

The Qwest NMM architecture features an event server, which is at the core of Qwest's NMM solution. The event server manages the requests for NMS data and publishes the requests to authorized users using standard HTTP and HTTPS web protocols. Users have the ability to filter and sort at their own discretion, which enables the Agencies to quickly ascertain information about network events that are germane to the users' immediate needs.

Qwest will also provide [REDACTED] updates on the status of any problem resolution efforts in which Qwest is engaged. These updates will be available for all services through our designated Portal. They will contain [REDACTED] that we may need to contact in the process of restoring service.

[REDACTED]

Qwest will support the implementation of the NMM solution from ideation through deployment and on-going life-cycle support. As Qwest has done with other customer NMM solutions, Qwest will support the Government with installation, configuration, administration and operation of the Qwest NMM solution. Qwest will also provide training and user guides to NMM users.

To meet the specific requirements set forth by the customer with respect to optional Network Services Monitoring and Management Services, Qwest will provide the additional hardware and software to access said services. Qwest has demonstrated experience in developing Network Services Monitoring and Management solutions using our Portal capabilities; we can deploy on an individual case basis any additional functionality and additional hardware or software.

### **3.2.8.2 Architecture, Features, and Functions**

As Qwest has done for other customers that required a network monitoring and management solution, Qwest will work with individual Agencies on a case-by-case basis to implement a Monitoring and Management capability that provides Agencies requested performance information related to the services to which they subscribe. Qwest will work with requesting Agencies to identify needs, determine the best method for the delivery of data, and negotiate a time-table for the delivery of the data. Qwest will also provide real-time informational updates on the status of any problem resolution efforts in which Qwest is engaged. These updates will be available for all services, available through our designated Portal. They will contain status, test results, log notes, and details from [REDACTED] that we may need to contact in the process of restoring service.

[REDACTED]

[REDACTED]

[REDACTED]

### 3.2.8.2.1 Architecture

Qwest currently has the capability to [REDACTED] results to our customers. We will utilize current processes to acquire the data from various network surveillance systems and the trouble management system and then store the data in the data warehouse. We then will customize a delivery method in common file formats that best meets the needs of the requesting Agency. For data and reporting, the Portal will provide access to Agency specific information. We will make [REDACTED] performance information available via the Portal.

### 3.2.8.2.2 Features and Functions

To access both [REDACTED] data that Agencies have subscribed to for conducting their own measurement of KPIs and to obtain [REDACTED] updates on the status of any problem resolution efforts that Qwest is working, the Government and the Agencies will access such information via the Portal. The Portal, which is a Qwest-designed and developed Web tool, is packed full of features to provide Government secure access to their information.

**Secure:** The Portal is password protected so that only the GSA and the Agencies will have access to their data. By setting up password authentication and making use of Agency Codes, we can control access to data on a user-by-user and Agency-by-Agency basis. In no case will Agencies have access to data for another Agency unless they are so authorized. Additionally, by requiring specific user logins, we will be able to track and report on [REDACTED]

**Flexible:** Accessing the Portal requires a user to have an account with a username and password and the appropriate browser connected to the Internet. No specialized software or tools are required.

**Real-time data:** Data is made available real-time for both performance information that Agencies subscribe to for conducting their own measurement of KPIs and for getting status on problem resolution efforts that Qwest is working. Network performance data will be made available from the multiple network monitoring tools that Qwest uses to monitor our network; the problems resolution efforts will come from our Trouble Management System. Qwest's Trouble Management System tracks status and status changes, who is working the issue, log notes, test results, and escalation and carrier referral data all in one trouble ticket. This makes it very easy and convenient to provide meaningful real-time status updates to the Government.

**Simple to navigate:** The Portal is extremely intuitive and easy to navigate. With simple point and click menus, even first-time users can easily find their way around the site. Additionally, the reporting tool on the Portal is an industry-leading Business Intelligence application that is flexible, reliable, secure, and intuitive.

**Multiple delivery methods:** Reports that are delivered from the Portal can be downloaded in multiple file formats, including PDF and Excel. When the Agencies request different reporting formats, we can accommodate by delivering in other formats, such as .txt, .csv, via FTP, or directly to a relational database.

### **3.2.8.2.3 Security Features**

Monitoring and Management capabilities will be made available only through either our secured Web Portal where Agencies will have to log-in to access, or through secure protocols from our servers to the Agency if the Agency requests data be FTP'd or delivered via a flat file or directly into a

relational database. Agencies only will have access to data relevant to them, except GSA who will have access to all Networx related data.

#### **3.2.8.2.4 Support to the Government to Install, Configure, Administer, and Operate the Solution**

As the Government and Qwest are negotiating the scope of the solution being requested, Qwest will provide appropriate support for Government requests regarding the installation, configuration, administration, and training of the desired solution.

Qwest's Network Management team will work with any Agency that requests real-time information regarding the health of their network. We anticipate that the majority of requests for access to [REDACTED] data will be handled through our Portal. To ensure the solution is properly administered and Agencies only have access to their information and data, we will secure the access via validation of Agency codes. If requested, we will maintain access authentication down to a user level with individual user ID and password combinations. To effectively maintain this service, we will utilize our existing processes that follow the [REDACTED] model described in the beginning of this proposal Section.

Qwest will work with the Agencies requesting optional monitoring and management capability to configure the solution to meet reporting requirements. Since the solution utilizes common file formats and data delivery methods, we will ensure that the configuration of the support is effective so that the Agency can use existing technology whenever possible to reduce costs.

To ensure that only Agencies that have requested this optional capability [REDACTED], we will tie the design and installation process to our service ordering process that assigns the billing to the proper Agency code. [REDACTED]

██████████ If fulfillment of this service requires pushing data from Qwest servers to the Agencies, we will use secure transmission methods through our firewall into the Agencies' secured servers.

So that ongoing performance and maintenance of monitoring and management capability remains high, this service will have the same maintenance and support process in place that we use for all of our services. Agencies will be able to contact our CSO for resolution of any problems they are experiencing with the service.

#### **3.2.8.2.5 Services for Which Solution is Provided**

As NMM solutions are highly customizable, the specific Networx NMM solution will be tailored based on the specific needs of the Agencies.

#### **3.2.9 Network Management Capabilities**

Qwest offers GSA and the Agencies outstanding solutions for configuration management, accounting management, fault management, and network services monitoring and management. On the FTS2001 and other major programs, we have demonstrated an understanding of the challenges that our customers face. In the following paragraphs, we describe the specific capabilities that will provide the Government with a high degree of confidence that Qwest will continue to be a strong partner.

##### **3.2.9.1 Managing Networx Services (L.34.2.3.2(a))**

Qwest has the capacity and proven capability to manage a wide range of services on a large scale. While other carriers may face the challenge of performing network management over multiple platforms, Qwest built our services over a next-generation Multi-protocol Label Switching (MPLS) core enabling the addition of a full range of services capabilities, including network management functions, more quickly and effectively. We view scalability as a cornerstone of the Qwest network architecture.

While many Networkx service requirements are currently part of the Qwest standard suite of service offerings, [REDACTED] have been assembled within the Qwest Team to comply with the complete set of required services. Qwest is delivering these types of service requirements in both the commercial and Government markets today. We understand the challenges of delivering multiple services to large customers and have developed a robust subcontractor management capability to support the provision and service delivery of these [REDACTED] to the Agencies.

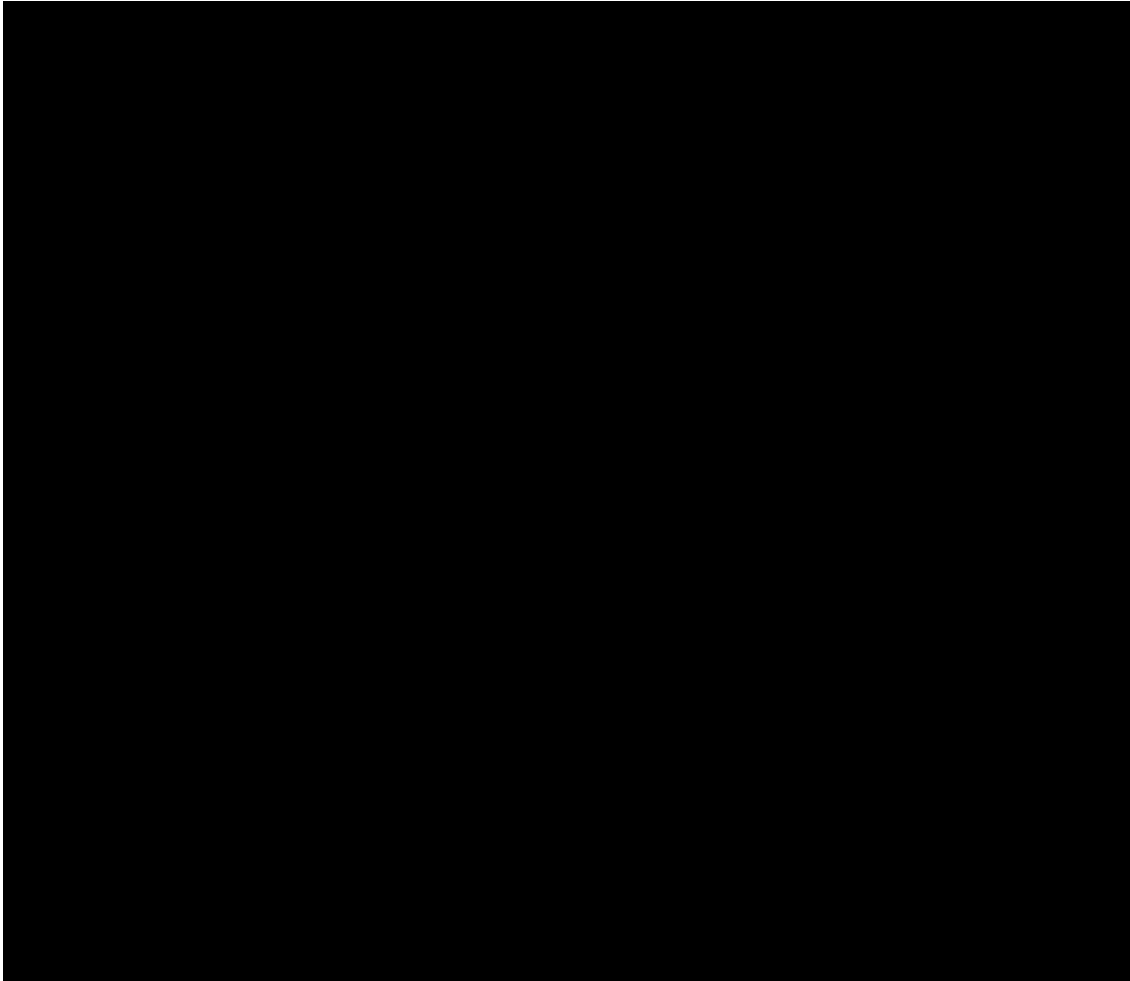
Linkages to Qwest's network management functions are required from all of our team members. We will ensure that Qwest has processes in place with each third-party provider to ensure that the network management functionality exists across the spectrum of services being contracted through Networkx. Qwest has integrated systems that support all aspects of network management [REDACTED]

### **3.2.9.2 Meeting Needs of User Community (L.34.2.3.2(b))**

Networkx demands a provider that can comfortably serve a wide range of customer requirements. Qwest is already there. [REDACTED]  
[REDACTED] Qwest spans the globe with voice and data services connecting the world with our fault resistant fiber backbone. Qwest will provide Networkx services to all [REDACTED] included in the Networkx Traffic Model, Tables J.2.2-1 thru J.2.2-9 (which include Voice, Toll Free Service, Circuit Switched Data Service, Frame Relay, IP Service, Private Line and Network Based IP Virtual Private Network Service), Wireless services (specifically C/PCS and Multimode Wireless LAN) as identified in J.2.4, and where offered commercially by Qwest. Additionally, for Frame Relay, IP Service, Private Line and Network Based IP Virtual Private Network Service, Qwest will provide Networkx service to other non-

mandatory, [REDACTED]  
[REDACTED] and other countries. Qwest will be able to deliver service to the Agencies located in each of the required countries upon award.

[REDACTED]  
[REDACTED]  
[REDACTED] located in-country, are licensed as facilities-based or resale carriers and provide voice and data services in country [REDACTED]. Qwest International Operations provides network and field support across all subsidiaries. Qwest Subsidiaries provide a local presence in country for business planning and forecasting, service delivery, pricing, and operations.



Another key component of Qwest's international service strategy is based on direct investment in transoceanic and non-domestic transport facilities to provide voice and data services [REDACTED]

[REDACTED]

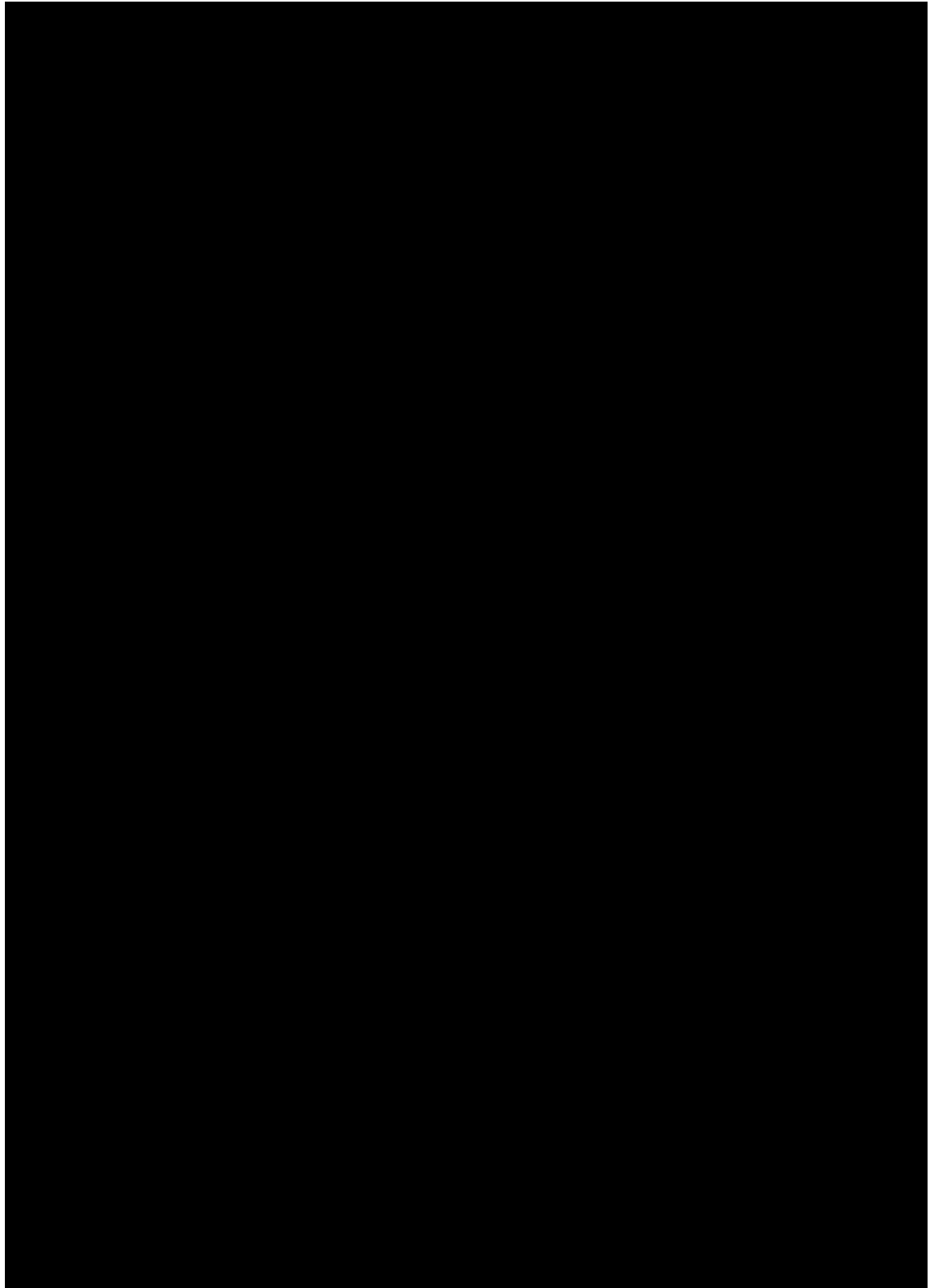
Additionally, Qwest has forged strategic alliances with Tier 1 carriers to meet Networx requirements. [REDACTED]

[REDACTED]

Qwest has also negotiated long term agreements that have a direct correlation to the Networx effort. Qwest's vendors will be supplying services, maintenance and customer support during the term of this effort. [REDACTED]

[REDACTED]

All of our team members have undergone a rigorous evaluation process that rates their network architecture, quality, coverage, product set, pricing, customer care, and brand recognition. Only best-of-breed team members are selected to service our [REDACTED] Future Qwest-selected carriers will undergo this same evaluation process.



All Qwest international service will be provided to Agencies in the context of a consistent service delivery and assurance environment. Qwest will be responsible for all service delivery, including service ordering, notifications, acknowledgements, and service assurance functions like repair, configuration management, and trouble handling. [REDACTED]

[REDACTED]

[REDACTED]

Our capabilities have enabled us to be a continuing provider of bandwidth [REDACTED] and many other customers that require connectivity that extends beyond the continental U.S.. Our network was built with a keen eye to the future. This translates into significant additional capacity that allows us to scale our operations globally and serve the increasing bandwidth demands of customers around the world.

**3.2.9.3 Ensuring Service Quality (L.34.2.3.2(c), comp\_req\_id 990)**

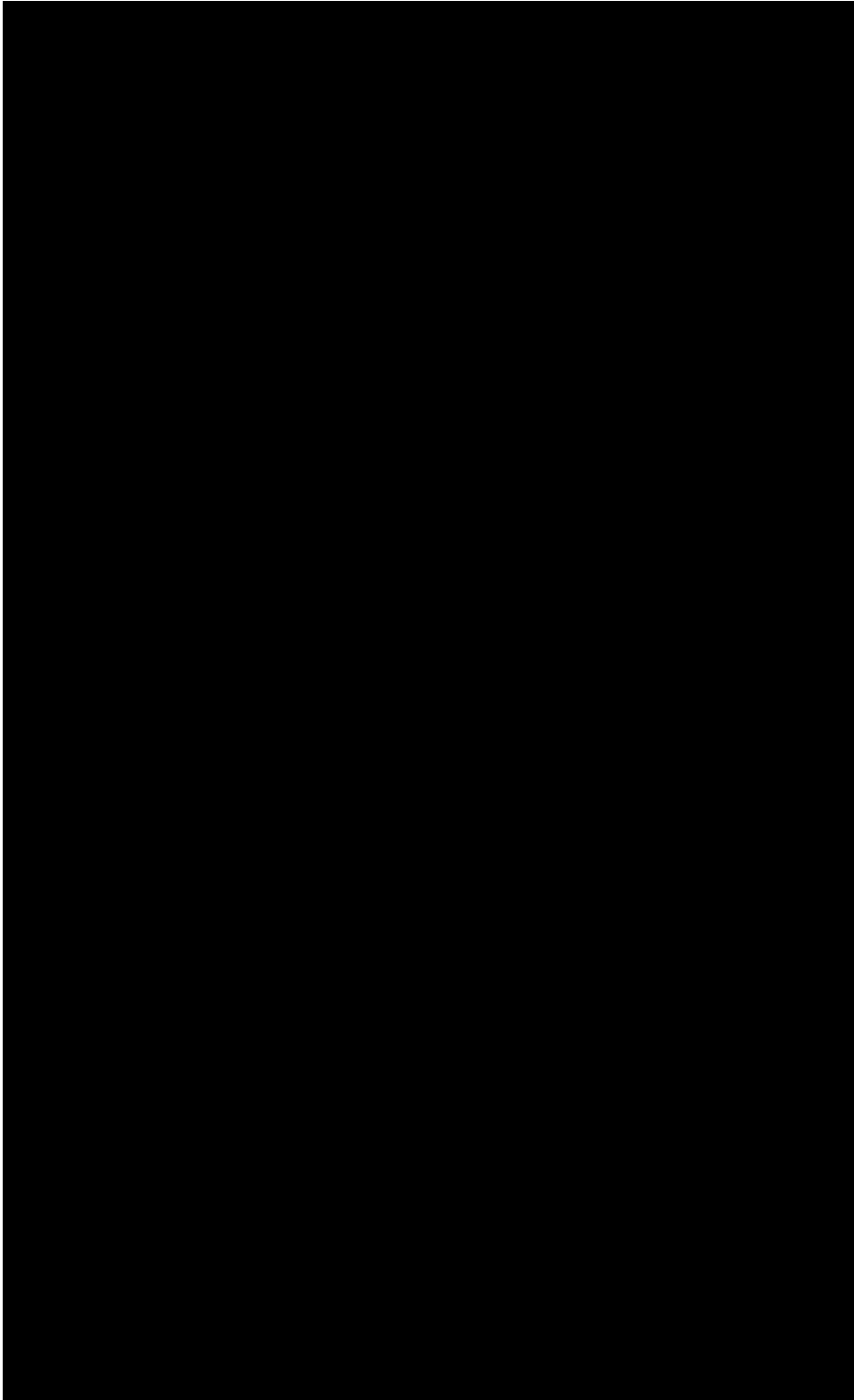
As a part of our Spirit of Service™, Qwest maintains a continuous focus on the health and maintenance of our network. This focus is in place to ensure the quality of the services delivered over the Qwest network is consistently at or above industry best-in-class performance. The mechanism by which this standard is held is seen throughout all network management functions from fault management through network planning. We maintain a policy that ensures that additional capacity is supplied to the network ahead of demand preventing service spikes from affecting our customers' service.

[REDACTED]

[REDACTED] Through our regular network monitoring, we identify areas where traffic is growing and apply additional network assets to these areas to stay ahead of the demands of our customers. [REDACTED]

[REDACTED]

[REDACTED] As detailed earlier, whenever we are altering the configuration of our



network to accommodate incremental customer demand or to reconfigure the network to more closely match the overall traffic patterns, we ensure that any customer affecting action we may take passes a strict set of conditions before proceeding. This approach is in place to ensure overall network quality as well as take into consideration the effects of our actions on our customers.

Qwest has established escalation procedures for both our customers as well as internally-driven escalation procedures. Internally, Qwest uses escalations to engage the appropriate resources to drive the progress of repair efforts. Externally, customers can choose to escalate an issue when they believe it is not being resolved in a timely manner. **(Figure 3.2.9-2)**.

Qwest has established the CSO as our single point of contact for customer-initiated escalations. The CSO will manage the escalation throughout the Networx contract's lifecycle. The CSO provides updates [REDACTED] [REDACTED] for non-TSP services to customers unless another timeframe has been negotiated that is commensurate with the event.



Qwest adheres to the [REDACTED] as stated previously to provide management direction and effectiveness in overseeing a network management operation.

- [REDACTED] network problems are found and corrected. Potential problems are identified and steps are taken to prevent them from recurring. In this way, the network is kept operational and downtime is minimized.
- [REDACTED] network operation is monitored and controlled. Hardware and programming changes, including the addition of new equipment and programs, modification of existing systems, and removal of obsolete systems and programs, are coordinated. An inventory of equipment and programs is kept and updated regularly.
- [REDACTED] is devoted to distributing resources optimally and fairly among network subscribers. This makes the most effective use of the systems available, minimizing the cost of operation. This level also is responsible for ensuring that users are billed appropriately.
- [REDACTED] Throughput is maximized, bottlenecks are avoided, and potential problems are identified. A major part of the effort is to identify which improvements will yield the greatest overall performance enhancement.
- [REDACTED] the network is protected against hackers, unauthorized users, and physical or electronic sabotage. Confidentiality of user information is maintained where necessary or warranted. The security systems also allow network administrators to control what each individual authorized user can (and cannot) do with the system.

#### **3.2.9.4 Improving Service Quality (L.34.2.3.2(d))**

Improving quality is a never ending process of testing and validating emerging network technology to improve quality and performance of the network. [REDACTED]

[REDACTED] This process promotes continuous improvement in our service delivery. It includes all partners and customers as a part of the process [REDACTED]

[REDACTED] The Action Register drives and tracks the quality improvements that are being pursued. Typically this will include quality reviews and changes in Service Levels from Qwest's suppliers. Qwest strives to maximize service optimization and performance at all levels of our network, and is constantly applying and adapting to emerging technologies.

#### **3.2.9.5 Network Services Changes (L.34.2.3.2(e), comp\_req\_id 1045 comp\_req\_id 1053)**

As indicated in Section 3.2.4 of this document, Qwest has existing Change Management and Configuration Management processes that minimize the risk of service impact to our customers. For network services, we use the same processes, approval authorities, and notifications, [REDACTED]

[REDACTED] Qwest performs all of our network change and configuration management activities during a designated maintenance window. Change Management activities are pre-planned and tracked via [REDACTED] which has an approval process to ensure proper resources will be available, tools and equipment will be available, an approved MOP has been developed, a back out plan has been prepared, and the technician has the required training to complete the work.

The GSA PMO will have access through the Qwest Networx CPO to the resources responsible for managing changes in the Qwest network. As the contract progresses, changes to the services may come from a number of

directions. Should the Government desire the addition of new next generation services to the contract, this organization will be ready to work with the GSA PMO to assess any impact to existing customers. Where change to existing services may occur, the same group of dedicated technical talent will be there to ensure the customer service is impacted as little as possible, through our certification and change management process.

[REDACTED]

Our best-in-class configuration management process is well positioned to adapt to these and other changes. With the dedicated Qwest CPO and streamlined communication processes for the Agencies, we will bring our track record of successful performance to the Networx program.

#### **3.2.9.6 Future Growth (L.34.2.3.2(f))**

Qwest continues to strategically invest in our network. Whether this investment takes the form of introducing tested new technology to derive additional performance improvements out of existing network assets or upgrading existing facilities to provide the latest in telecommunication service offerings, Qwest is ready to meet the demands of the changing market. We continue to turn up hundreds of incremental network elements every year to ensure that our network does not constrain the demands of our customers.

The Agencies will enjoy the benefits of having their traffic ride over one of the most advanced networks in the market today. Built with the future in mind, we are ready to leverage the advanced MPLS backbone of the Qwest long-haul network to provide the services of tomorrow as well as meeting today's requirements with a platform that allows us to operate more

efficiently. The network management capabilities of this advanced network allow us to provide industry leading insight into where our network will most benefit from incremental investment.

**3.2.9.7 Changes in Needs (L.34.2.3.2(g))**

During the process of integrating the US West operations into Qwest, we have gained a unique insight into the changing needs of a large, diverse customer base. From small to large customers, we recognize the magnitude of effort required to change with the evolving needs of our customers. At Qwest, service change and evolution is what we are all about. Delivering excellence in the form of adapting to the changing environments of our customers is the essence of the Spirit of Service™.

With our existing Government and Agency relationships, we are accustomed to dealing with the many changes required by a dynamic Government environment. Our strengths in change management on the network side are well positioned to deal with the impacts customer changes can bring. Whether changing from one provider to another or dealing with the day-to-day changes that accompany requirements of the magnitude encompassed by Networx, Qwest is ready to deliver.

**3.2.9.8 Real-time Access to Mission-Critical Services Information (L.34.2.3.2(h))**

Qwest recognizes the demand within Networx for access to real-time mission-critical services information. When providing telecommunications services to the Government, Qwest has been asked to provide information regarding the health and performance of our services. We understand this need and have set up processes and systems to respond to it for the Networx program.

From an access to information perspective, we are prepared to provide this data primarily through the Portal – a real-time access window into the

various tools and systems Qwest uses to monitor and report on the performance of various elements within the Qwest network. Coupled with information fed from our Qwest Networx team members, we will provide the information the Agency customers will need to confidently manage mission-critical services.

In addition to this automated tool, Qwest is prepared to respond to ad hoc requests for data that are not typically contained in this medium. The Qwest CPO will respond to such ad hoc requests in a timely and accurate manner.

### **3.2.10 Summary**

Qwest's network management approach for the Networx program will address [REDACTED]

[REDACTED] Through our systems and technology platforms, Qwest will deliver dynamic information that the Networx program requires to address crucial operational objectives.