4.1.2 CIRCUIT SWITCHED DATA SERVICES (L.34.1.4)

> *Qwest Circuit Switched Data Services (CSDS) provides Agencies with end-to-end, digital circuit-switched communications. The Qwest Team's CSDS allows end users to dial up in 56 Kbps or 64 Kbps increments of digital bandwidth, up to a full switched T-1 (equivalent to 1.536 Mbps). This service allows access through switched or dedicated facilities, providing flexibility and an increased service coverage area.*

Qwest Circuit Switched Data Services is available throughout the U.S. for domestic-to-domestic calls (Continental United States and Outside Continental United States) and domestic-to-non-domestic calls. Our CSDS also provides call coverage to other locations as required based on the traffic model. The Qwest Team's CSDS is integrated with the Qwest Toll-Free Services platform on common switching devices, enabling an alternative access method. The Qwest Team's CSDS provides Agencies with a proven and flexible solution to meet current and future needs.

4.1.2.1 Qwest's Technical Approach to CSDS Delivery (L.34.1.4.1)

Qwest's CSDS service delivery approach builds upon a set of processes and resources that work together to provide a robust solution for Agencies. We have the business market personnel, network elements, operational groups, access methods, and partner arrangements to deliver CSDS as specified within the Networx requirements. This section describes the various components of CSDS service delivery and explains the benefits of Qwest's approach.

4.1.2.1.1 Approach to CSDS Delivery (L.34.1.4.1(a))

The Qwest Team's CSDS provides Agencies with end-to-end, digital circuit-switched DS-0, DS-1, and NxDS-1 communications. Qwest's delivery approach is designed to provide a highly efficient, flexible service that supports all functional requirements.

CSDS network elements are based on well tested ███████████ switch technology capable of accommodating different bandwidths based on receipt of an appropriate dialing sequence from the originating caller. Once a call has been established, all data bit sequences are transmitted transparently. Each ████████████ feature switch (supporting services such as Toll-Free Services) has Inter Machine Trunks (IMTs) to every other switch. These IMTs are provisioned using 50/50 physical route diversity. CSDS calls pass between switches to complete calls and optimally only traverse two switches due to the fully meshed topology.

The Qwest Team's CSDS supports security measures through the use of authorization codes. CSDS will route the call to a███████████ switch that, in turn, will connect the user to the access authorization system for proper authorization.

Qwest provides CSDS access arrangements to satisfy the diverse requirements of Agencies. User Network Interface (UNI)/Service Enabling Devices (SEDs) connect to Circuit Switched, Wireless, and Broadband Wireless access. The Qwest Team's CSDS is available domestically for switched and dedicated access (with the full required set of non-domestic terminations).

When CSDS is provided via switched access, Qwest will support a uniform numbering plan for all on-net Agency locations. Each station receiving service will be identified by a unique directory number that CSDS

users will use for calling each other. The calling capability will be spontaneous and will not require scheduling.

The Qwest Team's CSDS switched access is provided off-net through alliances with Local Exchange Carriers (LECs). The Qwest Team's CSDS has interconnect arrangements with all major carriers in the U.S. If LEC switched access is not available in a certain region, Qwest will make arrangements to establish the required access. Depending on LEC availability, switched access will be configured via switched 56 Kbps, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) or ISDN Primary Rate Interface (PRI). A Digital Cross-Connect System (DCCS) grooms both switched and dedicated access arrangements at speeds from 64 Kbps up to 1.544 Mbps (T-1). The Qwest Team's CSDS is connected in a flat (non-hierarchical) network topology.

4.1.2.1.2 Benefits of CSDS Technical Approach (L.34.1.4.1(b))

The Qwest Team's CSDS provides Agencies benefits such as cost efficiencies, cost management, inexpensive access, and maximum application flexibility, as summarized in *Figure 4.1.2-1*.

Figure 4.1.2-1. Qwest Team's CSDS Features and Benefits

Features	Benefits	Substantiation
██████████	████████████	██████████████
██████	████████████	██████████████
		████████████
████████	██████████	██████████
██████	██████████	██████████

The Qwest Team's CSDS supports the objectives of the Federal Enterprise Architecture (FEA), as shown in *Figure 4.1.2-2*.

Figure 4.1.2-2. Qwest Team's CSDS Support to FEA Objectives

FEA Objective	Qwest Team's CSDS Solutions
Improve utilization of government information resources to focus on core agency mission and service delivery to citizens by using the FEA.	███████████████████████
Enhance cost savings and cost avoidance through a mature FEA government-wide.	███████████████████████
Increase cross-agency and inter-government collaboration.	███████████████████████

4.1.2.1.3 Solutions to CSDS Problems (L.34.1.4.1(c))

The Qwest Team has extensive experience in the delivery of CSDS services. We apply this experience to ensure the delivery of high quality CSDS to Agencies. Extensive pre-deployment laboratory system and integration testing identifies the majority of problems, and the Team's proactive network and configuration management/fault management systems and methods are leveraged to quickly resolve unforeseeable operational issues. The Qwest Team has deployed a 24x7x365 Network Operations Center to monitor CSDS. In addition, the Team has network technicians available to work with Agencies to resolve problems that may arise. *Figure 4.1.2-3* summarizes the potential problems that could be encountered in meeting individual service requirements for CSDS.

Figure 4.1.2-3. Qwest Team's Approach to Common CSDS Delivery Challenges

Problem	Solution
Hardware and software incompatibilities	Qwest Team technicians will work with Agencies to identify technical incompatibilities related to any hardware/software. Qwest supports and maintains a lab environment for all major network components including validation capabilities of SED Coder-Decoder s. These systems are used for hardware/software certification and interoperability testing.
Unable to establish switched connectivity between two locations	Proactive trouble management with feedback loops to our engineering and testing processes.

4.1.2.1.4 Synchronization Network Architecture (L.34.1.4.1(d))

The Qwest Team's CSDS uses an advanced Loran-C based master reference frequency distribution system to provide highly accurate, stable timing synchronization throughout the network. Each Loran-C transmitter is equipped with quadruplicate cesium (atomic) clocks. The system is maintained by the United States Naval Observatory headquarters in Washington, D.C. The Qwest Team has Loran-C receivers throughout the United States providing Stratum 1 timing (the highest level of timing) to the network.

4.1.2.2 Satisfaction of CSDS Performance Requirements (L.34.1.4.2)

Qwest meets all of the Networx program's performance requirements for CSDS. Qwest has proven systems, methods, and procedures for the continuous monitoring, measurement, and evaluation of CSDS performance and quality.

4.1.2.2.1 CSDS Quality of Service (L.34.1.4.2(a))

The Qwest Team engineers CSDS in an efficient and redundant fashion, enabling the performance to meet Key Performance Indicator (KPI) metrics, as shown in *Figure 4.1.2-4*. All common components of the digital switching equipment, including the centralized processor units, are fully duplicated. If a hardware or software failure occurs, the system automatically switches from active to hot standby components.

Figure 4.1.2-4. Qwest Team's Compliance with Government CSDS Performance Metrics

Key Performance Indicator (KPI)	User Type	Performance Standard (threshold)	Acceptable Quality Level (AQL)	██████████
Availability (Point of Presence-to-Point of Presence) (POP-to-POP)	Routine	99.95 %	≥ 99.95 %	██████
Availability (Service Delivery Point-to-Service Delivery Point)	Routine	99.5 %	≥ 99.5 %	██████
	Critical	99.95 %	≥ 99.95 %	

Key Performance Indicator (KPI)	User Type	Performance Standard (threshold)	Acceptable Quality Level (AQL)	████████		
(SDP-to-SDP)						
Time to restore	Without dispatch	4 hours	4 hours			
	With dispatch	8 hours	8 hours			
Grade of Service (Call Blockage)	Routine	0.07 (SDP-to-SDP)	≤ 0.07 (SDP-to-SDP)			
		0.01 (POP-to-POP)	≤ 0.01 (POP-to-POP)			
	Critical	0.01 (SDP-to-SDP and POP-to-POP)	≤ 0.01 (SDP-to-SDP & POP-to-POP)			

Through redundant design engineering and configuration, Qwest's CSDS benefits from established 24x7x365 streamlined surveillance, maintenance, and call routing procedures and automated processes. For Agencies, this means greater network agility and efficiency and less potential for error.

The Qwest Team's CSDS network is built on a resilient fiber backbone, which provides multiple diverse routes into, out of, and between our switches.

The Qwest Team's CSDS network will provide Agencies with virtually non-blocking, P.01 Grade of Service (GoS) and network availability of 99.95 percent, 24x7x365. The Qwest Team's CSDS maintains these standards through strict adherence to internal operations standards, frequent testing, and a highly fault-tolerant hierarchical switched network design.

The P.01 GoS means that government Agencies will experience less than one percent call blockage during the busiest hours (excluding holidays, which have abnormally high traffic). Our service has historically exceeded this objective. Our traffic engineering groups monitor blockage at our Regional and National Network Management Centers. (Blockage is based on the busiest hour of the busiest day of each month—with no averaging.) We record statistics from a network analysis system based on call detail records and online switch statistics. If abnormally high traffic causes blockage rates

greater than one percent, The Qwest Team's CSDS engineers can re-allocate routing over less congested network paths.

4.1.2.2.2 Approach for Monitoring and Measuring CSDS KPIs & AQLs (L.34.1.4.2(b))

The Qwest Team monitors and measures the KPIs and AQLs SDP-to-SDP, using automated processes that pull data from the root source, summarize it, and display it using Web tools. These Web tools display actual results and provide a color-coded visual indicating whether performance goals have been achieved. Our approach is to completely automate the Web display of results from data collection. This ensures that the focus is on responding to performance issues, rather than on performance report generation. The automated reporting process eliminates any question of manipulating the performance data.

For network KPIs, we use Statistical Analysis System to display the Network Reliability Scorecard. This includes the KPIs, the objectives, and clear graphical representation of objectives met or missed for each reporting period. The scorecard is our tool to show both upper management and network management teams the current health of the network. The scorecard is reviewed daily at the executive level to ensure proper attention and focus, and again by our network management teams to ensure that Service Quality Levels are consistently met.

For all services that Qwest offers, we use the Remedy® trouble ticketing system. Remedy is a trouble ticketing system that is an industry-leading off-the-shelf commercial application that we have customized to make more effective for our needs. From this system, we collect many useful metrics that we use internally to evaluate and improve our processes, including Time to Restore (TTR). The calculation for TTR uses the same business rules as the Government requires for its services.

Qwest's approach for delivering AQLs meeting Networx performance requirements includes using a variety of techniques for monitoring and measuring KPIs and AQLs. Our approach goes beyond monitoring and measuring data; it includes reporting results, analyzing the results, mitigating risk events, resolving issues rapidly, and continuously improving processes and procedures to ensure ongoing optimal network performance. Our approach to delivering consistent CSDS performance consists of Close Monitoring and Scheduled Maintenance as described below.

Close Monitoring

The Qwest Team's CSDS is monitored 24 hours a day from geographically redundant service centers. The network control system is designed with distributed alarm processing and redundant backup to ensure real time status, performance, and control capabilities. The service centers use a proprietary telecommunication network supervisory system developed specifically for The Qwest Team's CSDS.

Our proprietary system puts the power of network control in the hands of the service center technicians. This integrated database and control system provides the service center technician with immediate access to an array of information, which can accelerate the restoral process. This information includes:

- Network and alarm status information
- Trouble ticket status information
- Circuit performance histories
- Field technician locations
- Equipment inventories
- Detailed computerized network diagrams
- A list of customers affected by each DS-3 system

Scheduled Maintenance

Maintenance Windows and Network Grooming are designated within The Qwest Team's CSDS as a Planned Service Work Period (PSWP). Notification is handled through contact with the Agency's maintenance operations personnel via fax and telephone. If an emergency or unplanned PSWP is required, every effort will be made to provide as much advance notice as possible. We perform maintenance on the network on an ongoing basis. This maintenance is necessary to ensure that the network is operating at peak efficiency and that new technologies are added as they are proven. Scheduled windows occur every month on approximately the third week of the month. These scheduled events are referred to as a Digital Data Network Window.

4.1.2.2.3 CSDS Performance Improvements (L.34.1.4.2(c))

Qwest Team will meet all the required KPIs and AQLs for CSDS. In the event an Agency has a specific business need or application problem, Qwest will discuss service enhancements. Qwest will operate in good faith to engineer a CSDS solution to serve unique Agency needs. Qwest is able to leverage our vast CSDS product portfolio, which includes a variety of SED providers and specific CSDS solutions. Through a special combination of vendor solutions and talented engineering capabilities, Qwest is able to serve an Agency's business needs.

4.1.2.2.4 Additional CSDS Performance Metrics (L.34.1.4.2(d))

Qwest is not proposing any additional performance metrics.

4.1.2.3 Satisfaction of CSDS Specifications (L.34.1.4.3)

The following sections show how Qwest satisfies the CSDS requirements and discusses proposed service enhancements for Networx CSDS, Networx modifications for CSDS, and Qwest's experience with CSDS delivery.

4.1.2.3.1 Satisfaction of CSDS Requirements (L.34.1.4.3(a))

Qwest's CSDS nationwide service infrastructure satisfies all CSDS service requirements, including the capabilities, features, and interfaces required for Networx CSDS. ████████████████████████████

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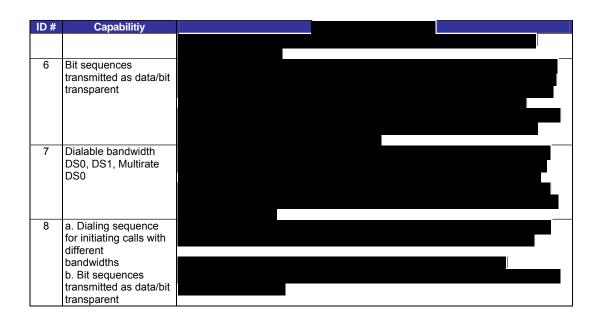### 4.1.2.3.1.1 Satisfaction of CSDS Capabilities Requirements (L.34.1.4.3(a); C.2.2.2.1.4)

The flexibility of the Qwest Team's homogeneous ███████████ switched architecture, combined with the experience and knowledge of the Qwest Team, enables Qwest to offer a wide array of service capabilities, as shown in *Figure 4.1.2-5*. Qwest fully complies with all mandatory stipulated and narrative features, capabilities, and interface requirements for CSDS. The following figure summarizes Qwest's response to the CSDS capabilities listed in RFP C.2.2.2.1.4 and is intended to provide the technical description required per L.34.1.4.3(a), and does not limit or caveat Qwest's compliance in any way.

Figure 4.1.2-5. Qwest Team's Technical Approach to CSDS Capabilities

ID #	Capabilitiy		
1	Uniform numbering plan	█████████████████████
2	Authorization Codes	█████████████████████
3	Bandwidth limitations	█████████████████████
4	Calling capability that does not require scheduling	█████████████████████
5	Network-derived clocking	█████████████████████

ID #	Capabilitiy		
6	Bit sequences transmitted as data/bit transparent		
7	Dialable bandwidth DS0, DS1, Multirate DS0		
8	a. Dialing sequence for initiating calls with different bandwidths b. Bit sequences transmitted as data/bit transparent		

The Qwest Team's CSDS is compliant with Telcordia, ANSI T-1 and ITU-TSS standards for ISDN and SS7 and complies with all Networx connectivity and transport requirements. Qwest's CSDS will connect to and interoperate with a variety of switched data compatible equipment, including PBX and Video Codec gear, in addition to the PSTN and all other Agency networks.

4.1.2.3.1.2 Satisfaction of CSDS Feature Requirements (L.34.1.4.3(a); C.2.2.2.2)

The Qwest Team's CSDS provides dial-in and user-to-user signaling features to Agencies. *Figure 4.1.2-6* summarizes the feature support. Qwest fully complies with all mandatory stipulated and narrative features, capabilities, and interface requirements for CSDS. The following figure summarizes Qwest's response to the CSDS features listed in RFP C.2.2.2.2 and is intended to provide the technical description required per L.34.1.4.3(a), and does not limit or caveat Qwest's compliance in any way.

Figure 4.1.2-6. The Qwest Team's Technical Approach to CSDS Features

ID #	Feature			
1	Dial-In			
2	User-to-User Signaling Via ISDN D-Channel (Optional)			

4.1.2.3.1.3 Satisfaction of CSDS Interfaces Requirements (L.34.1.4.3(a); C.2.2.2.3)

The Qwest Team's CSDS satisfies the interface requirements, as shown in *Figure 4.1.2-7*. Through various collaborative vendor partner arrangements, Qwest is able to offer a complete set of SDP types for CSDS network access. CSDS SEDs are customized depending on access method or selected feature, such as the CSDS required support for RS366 signaling. RS366 capable SEDs have two physical ports for Agency connections (one port for data traffic and one port for signaling).

Qwest fully complies with all mandatory stipulated and narrative features, capabilities, and interface requirements for CSDS. The following figure summarizes Qwest's response to the CSDS interfaces listed in RFP C.2.2.2.3 and is intended to provide the technical description required per L.34.1.4.3(a), and does not limit or caveat Qwest's compliance in any way.

Figure 4.1.2-7. Qwest Team's Provided CSDS Interfaces at the SDP

UNI Type	Interface Type and Standard	Payload Data Rate or Bandwidth		
1	ITU-TSS V.35	Up to 1.536 Mbps		
2	EIA RS-449	Up to 1.536 Mbps		
3	EIA RS-530	Up to 1.536 Mbps		

UNI Type	Interface Type and Standard	Payload Data Rate or Bandwidth	███████
4	ISDN PRI (Multirate) (T Reference Point) (Standard: ANSI T1.607 and 610)	Up to 1.536 Mbps	███████
5	T-1 (with ESF) (Std: SR-TSV-002275, and ANSI T1.102/107/403)	Up to 1.536 Mbps	███████

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The Qwest Team's CSDS UNI/SDP is delivered via an appropriate SED. Qwest maintains all CSDS SEDs as part of the basic service delivery under the Networx program. SEDs provided as part of CSDS may change during the product lifecycle in an effort to enhance CSDS capabilities and features.

4.1.2.3.2 Proposed Enhancements for CSDS (L.34.1.4.3(b))

Qwest proposes to meet the specified service requirements.

4.1.2.3.3 Network Modifications Required for CSDS Delivery (L.34.1.4.3(c))

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4.1.2.3.4 Experience with CSDS Delivery (L.34.1.4.3(d))

Qwest has decades of experience providing local, long distance, and operator services. Qwest has significant experience focusing on the Federal Government customer and understands the unique mission requirements, processes, and applications.

Qwest has provided CSDS for years in both Government and commercial best practice installation for our customers. Initial features of CSDS included support for legacy type applications, with recent enhancements including support 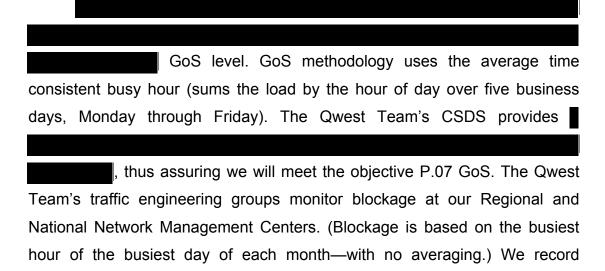for toll-free dial-in. Qwest provisioned over ██ ██ and capabilities for various Government and educational accounts
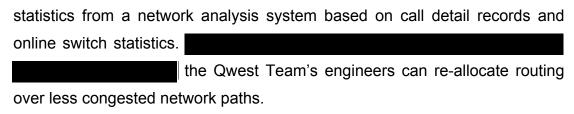
4.1.2.4 Robust Delivery of CSDS (L.34.1.4.4)

The Qwest Team's CSDS is built upon a high capacity, fiber-based, advanced switch backbone network, enabling flexible and cost-effective service delivery for the Government's changing network needs. The Qwest Team's CSDS is engineered to provide robust capabilities through the use of many design elements, including a wide scope of CSDS service POPs, scalable switching elements, redundant trunk connectivity, and continuous capacity and performance analysis. The Qwest Team's CSDS network combines leading-edge network technology with knowledgeable technical personnel to provide a well-tuned service optimized for today and the future.

4.1.2.4.1 Support for Government CSDS Traffic (L.34.1.4.4(a))

██ ██ ████████████████ GoS level. GoS methodology uses the average time consistent busy hour (sums the load by the hour of day over five business days, Monday through Friday). The Qwest Team's CSDS provides █ ██ ████████████, thus assuring we will meet the objective P.07 GoS. The Qwest Team's traffic engineering groups monitor blockage at our Regional and National Network Management Centers. (Blockage is based on the busiest hour of the busiest day of each month—with no averaging.) We record

statistics from a network analysis system based on call detail records and online switch statistics. ████████████████████████████████ ████████████████ the Qwest Team's engineers can re-allocate routing over less congested network paths.

4.1.2.4.2 CSDS Measures and Engineering Practices (L.34.1.4.4(b))

The Qwest Team's CSDS provides robust access capabilities through the use of diverse routing capabilities, including Switch and Local Access Diversity:

- **Switch Diversity:** For outbound services, Switched Diversity will be provided for a specific location, splitting Agency dedicated access trunks over two switches. ████████████████████████████████ Qwest will research the possibility of implementing switch diversity for outbound services for specific Agency locations, if requested. Such diversity is accomplished by establishing separate trunk groups from the Agency's PBX, through the LEC, to different Qwest Teams' CSDS switches.

- **Local Access Diversity:** Local Access Diversity can be provided by the LEC, Competitive Local Exchange Carriers or Alternate Access Providers. Where the Qwest Team's CSDS has multiple POPs, circuits can be ordered to different POPs, where available, on a case-by-case basis.

The Qwest Team's CSDS backbone transport and signaling infrastructure is engineered in a diverse and redundant fashion designed to provide a robust service for Agencies. The Qwest Team's CSDS switching elements have redundant hardware and software components, enabling CSDS systems to automatically switch from the active to hot standby components without service interruption.

The Qwest Team's CSDS physical route diversity provides redundancy in the network for IMT. ████████████████████████████████

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The Qwest Team's CSDS uses SS7—the latest industry standard for transmitting signaling information in a switched network. Using a flexible database retrieval system, SS7 provides resilient, faster call set-up times, more customized features, and network management flexibility.

The Qwest Team's CSDS capacity planning and engineering team continuously reviews the capacity and traffic of CSDS to ensure performance is meeting engineering guidelines. In addition, Qwest's centralized engineering team applies a consistent capacity management model to all data services. This kind of approach is usually portrayed by measures of "blocking" or call completion rates for linkages established with switched connections. Extensive measurements of this kind for calls placed by machines over a large number of routes show, for example, that average call completion rates for fully switched services ███████████

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4.1.2.5 CSDS Optimization and Interoperability (L.34.1.4.5)

Qwest's approach to service delivery for Networx is comprehensive and Agency-focused. We will continually monitor CSDS for optimization opportunities. Qwest engineers are available to engineer Agency solutions that optimize and aggregate all types of Agency traffic.

4.1.2.5.1 Optimizing the Engineering of CSDS (L.34.1.4.5(a))

The Qwest Team's CSDS Capacity Optimization is achieved by reviewing node stats daily for traffic increases, decreases, and overflows. The Qwest Team's traffic engineering groups monitor blockage at our Regional and National Network Management Centers. (Blockage is based on the busiest hour of the busiest day of each month—with no averaging.) We record statistics from a network analysis system based on call detail records and online switch statistics. ██████████████████████████

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4.1.2.5.2 Methods Applied to Optimize the Network Architecture (L.34.1.4.5(b))

Qwest's CSDS is optimized via remote concentration and high bandwidth transmission facilities on both the metro and national levels. ██████

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Qwest uses DCCSs to optimize access into the various CSDS switched elements. The DCCS provides a method of remote concentration. The DCCS connects to the ████████████████ systems at higher speeds than those actually delivered to the customer. This allows the Qwest Team's CSDS to efficiently size CSDS elements and improve scalability. Normally, DCCS to Nortel DMS interface speeds are at a DS-3 speed, where CSDS speeds at the customer SDP are at Nx64 levels.

There are several types of DCCS platforms currently in use in the network—Narrowband, Wideband, Broadband, and 4/1 International DCCS. The Qwest Team's CSDS is primarily concerned with Narrowband and Wideband systems.

The matrix of narrowband DCCS grooms at the low-speed bandwidth of DS0 or 64 Kbps. There are 215 total narrowband DCCSs. One hundred forty-five of these were manufactured by Alcatel (formerly Digital Switch Corporation) and 70 by Tellabs. The narrowband DCCS grooms traffic at the DS0 level and are used to mux and demux various services into common T-1s and DS-3s. The international narrowband DCCS is used to mux and demux DS0s into E-1s or T-1s and is also used to perform a conversion from E-1 and T-1. Both types of narrowband (U.S. and global) also provide test access and monitoring points for the services that traverse them.

The matrix of wideband DCCS grooms at the T-1 speed bandwidth or 1.544 Mbps. The Qwest Team's CSDS network currently has 48 systems ████████████████████████ These systems are used to provide T-1 monitoring, T-1 timing, and grooming of T-1s from higher bandwidth interfaces of DS-3, OC-3, and OC-12 speeds. Primary services on this platform include DS-1 interface ████████████████ and interface to narrowband DCCS.

4.1.2.5.3 Access Optimization for CSDS (L.34.1.4.5(c))

Qwest implements legacy and next-generation traffic aggregation and convergence technologies that offer Agencies technical and economic benefits. Legacy access convergence methods use Time Division Multiplexing (TDM) technology and provide a proven way to optimize access for services such as the Qwest Team's CSDS ████████████████████ ██ ██

Through the use of proven TDM methods, Qwest can provide converged Agency access to several Qwest services, including CSDS, Private Line Services, and Internet to list a few. TDM capabilities allow Qwest to provide high-speed access to the Agency premise and divide the capacity into Nx64Kbps increments up to a full DS-3. For example, an Agency may wish to procure three services at a single location: Switched T-1 (the Qwest Team's CSDS), Qwest Private Line, and Qwest Internet Port. Without a converged access solution, the Agency would install three individual access circuits. Using a Qwest solution optimized for access, Qwest will install a channelized DS-3 and a M13/multiservice multiplexer capable of delivering bandwidth and interfaces in increments as low as 64Kbps. These services would be provided through the shared DS3. Through converged access, the Agency realizes cost savings and capacity for future growth.

4.1.2.5.4 Vision for CSDS Internetworking (L.34.1.4.5(d))

The Qwest network has the capacity and advanced capabilities to support today's mission-critical applications. This includes bandwidth-intensive Layer 2 and 3 packetized business applications as well as legacy TDM and switched services. For years, Qwest's state-of-the-art IP network has been transferring voice, video, and data across the globe for today's leading enterprise businesses. These business applications require a network

that is flexible and tuned to the customer's exact specifications for reliability, performance, and service.

The Qwest Team's CSDS infrastructure supports traditional CSDS over a PSTN Inter-Exchange Carrier network. To meet the emerging technological demands of Agencies, Qwest offers any-to-any connectivity on its converged network infrastructure. Our ability to provide the network technology to support legacy technologies and services—and the next wave of application-focused networking needs—makes Qwest a solutions provider of choice. To facilitate access into their network, Agencies have the option to order from Qwest networking ports with a variety of port speeds, ranging from 56Kbps to 10Gbps. For each Qwest networking port, Qwest provides associated local loop access.

Qwest is a leader in IP-centric architectures, with extensive deployment of IP for voice and data services. In voice services, Qwest leads the industry with deployment of the ███████████████ VoIP trunking platform.

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