verizon business

Washington Interagency Telecommunications System WITS 3

Volume 1 - Technical

Still the **Mission Critical** Choice for the NCR

August 24, 2007

Solicitation No: WTOC6RCN0001

Submitted To: **General Services Administration**
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Date: **August 24, 2007**

Verizon Business Network Services Inc., on behalf of MCI Communication Services Inc., d/b/a Verizon Business Services, and, for local regulated services, on behalf of Verizon DC Inc., Verizon Maryland Inc., Verizon Virginia Inc., Verizon West Virginia Inc., Verizon South Inc. and Verizon Pennsylvania Inc. (hereinafter collectively Verizon) hereby submit this proposal.

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1.0 EXECUTIVE SUMMARY (L.30.2.1)

1.1 Overview

WITS 3 continues GSA's role as leader and innovator in the delivery of mission-critical network infrastructure services to the Federal Government in the National Capital Region (NCR). As GSA's only full-service WITS2001 provider, Verizon currently delivers a comprehensive suite of **Mission Critical Network Infrastructure** services throughout the NCR and beyond. Our successful partnership with GSA over the past [redacted] has resulted in a dynamic evolution of cost-effective, leading edge technology solutions that address diverse agency needs.

As demonstrated by our long-time continuous service to GSA and its customers, Verizon uniquely understands the crucial need for service continuity to ensure agencies are able to fulfill their ongoing missions. ***Choosing Verizon as GSA's partner for WITS 3 means ensuring the Federal Government's core mission critical network infrastructure services will continue on uninterrupted.*** For nearly two decades, [redacted].

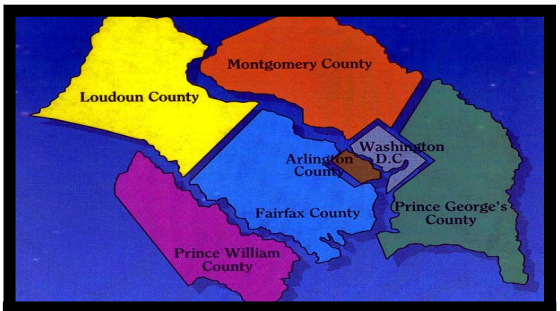
Verizon remains committed to delivering **"360° of Service"** for GSA and all Federal agencies with operations throughout the NCR. ***This 360° commitment means Verizon will continue to deliver full service continuity, coverage and solutions throughout the NCR.*** It means that Verizon will not selectively serve only a few large customers within the NCR, but will provide WITS 3

Full Service Continuity
Full Service Coverage
Full Service Solutions

services to all, with the unwavering spirit of service we have always delivered to our most important customer – the Federal Government.

Verizon is uniquely positioned to deliver a WITS 3 **"Day One" Transition**. With our unparalleled experience transitioning from the original WITS contract to WITS2001 as well as subsequent agency transitions to WITS2001 (e.g., [redacted]), our experienced WITS2001 personnel and customized support systems do offer a truly seamless transition to WITS 3. Since [redacted], Verizon has implemented WITS2001 capabilities in [redacted] and has transitioned over [redacted] end users, representing a greater than [redacted]% increase in users over the past seven years. Verizon has also added a vast array of new products and services [redacted]. We believe these collective experiences will serve GSA and customer agencies well in migrating to WITS 3.

On **"Day One"**, Verizon will deliver a fully capable and compliant WITS 3 support environment and customers will already be trained and familiar with our systems. ***A Verizon WITS 3 Transition means "business as usual" for customers accustomed to using Verizon's fully integrated Service@once™ and Bill@once™ support systems.*** These systems will enable a rapid, risk-free transition to WITS 3, with all services and capabilities our customers have come to expect.



NCR Service Continuity = Transition from:

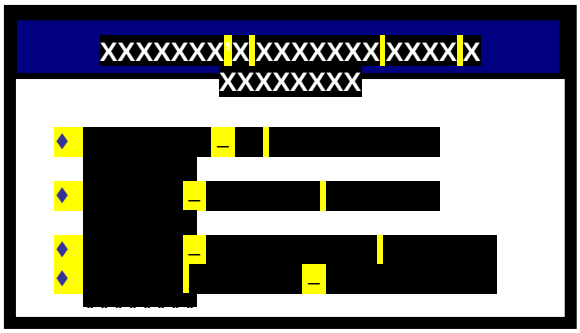
- WITS2001 contract to WITS 3 contract
- Service provider to service provider
- Technology platform to technology platform

Verizon delivers a proven, risk-free transition with no disruption to service

1.2 GSA's WITS 3 Objectives

Service Continuity **–** Given the mission-critical nature of telecommunications services and the fact that a vast majority of Federal agencies in the NCR use WITS2001 to procure them, Verizon understands that Service Continuity is GSA's primary objective for WITS 3.

Competition **–** To ensure the best mix of competitive capabilities, Verizon has built a WITS 3 Team with unmatched experience in full life-cycle management of network infrastructure services.



Verizon believes, given the critical nature of the NCR to the Federal government, that competitors – whether they are a long-time WITS incumbent or a new entrant – should deliver uninterrupted service continuity, fully compliant support systems, and fully redundant network services to ensure Federal business continuity. This Verizon WITS 3 Team will deliver.

Full Service Solutions **–** Verizon's fully integrated WITS 3 solutions include voice, data and video network services, equipment, installation, maintenance and professional services. As technology needs evolve, Verizon continues to invest in the underlying network infrastructure necessary to support and secure Federal Government communications. Verizon will also deliver comprehensive WITS 3 solutions to address agencies' convergence, continuity of operations, and other mission critical needs.

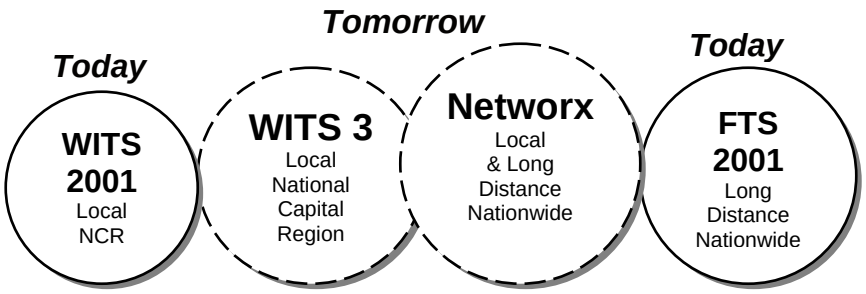
Alternative Sources **–** In addition to the teaming partners named above, Verizon's WITS 3 Team includes [redacted] equipment manufacturers and professional services companies. To meet ongoing, agency-specific needs, Verizon will continue to provide WITS2001 customers

with access to competing equipment and professional services vendors under WITS 3.

Modern Support Systems – Verizon's [redacted] Service@once and Bill@once Business and Operating Support Systems provide on-line access to integrated ordering, billing, provisioning, trouble reporting, and inventory systems. Verizon believes such integration is necessary to ensure customer service continuity and functionality from WITS2001 to WITS 3.

Convergence – Verizon views migration to a converged environment – through access to emerging technologies with continuous technology refreshment – as an important WITS 3 objective. [redacted]. Verizon offers diverse paths to convergence which can be implemented at the customer's own pace.

Verizon also understands GSA's strategy to eventually migrate all local services to Networx. Since full-scale convergence of voice and data networks onto IP may not take place for *all* NCR agencies within the WITS 3 base period, Verizon believes that WITS 3 will remain a vital, mission-critical GSA contract ensuring telecommunications service continuity for many years to come. At such time agencies are ready to converge to IP nationwide, Verizon, as a Networx



contractor, will migrate customers to Networx based on individual agency needs and timeframes.

Small Business Opportunities – Under WITS2001, Verizon has [redacted] "[redacted]% of all subcontracted labor to small business" goal. For WITS 3, we have assembled a proven team of small businesses and two key small business partners ([redacted]) that have extensive experience serving GSA and DoD.

1.3 Technical Approach

Verizon will provide WITS 3 technical solutions for all Mandatory Voice and Optional Data Services, Customer Premises Equipment and Technical Support requested by GSA and more.

Verizon's WITS 3 Voice Services	Verizon's WITS 3 Data Services
• Centrex Analog & ISDN BRI • Analog Trunking, Digital Hand-off & ISDN PRI for TDM PBXs • IP Trunking for IP PBXs • Hosted IP Centrex (HIPC) • Fully-managed VoIP solutions based on agency-specific requirements	• Circuit Switched Data Service (CSDS) • Dedicated Transmission Service (DTS) including SONET & DWDM • Audio & Video Teleconferencing Service (TS) • Frame Relay Service (FRS) • Asynchronous Transfer Mode (ATM) • Internet Access Service (IAS) including Digital Subscriber Line (DSL) • Gigabit Ethernet Service (GES) • Dark Fiber Service (DFS)

Verizon offers a complete range of WITS 3 traditional TDM to IP-based voice services. Verizon will also provide all WITS 3 "optional" data services requested by GSA *throughout* the NCR. It is our experience that customers require uniform, "universal service" coverage to serve multiple locations that vary in size and scope of operations. For example, many Federal agencies rely on advanced data services – like IP, ATM, Frame Relay, Ethernet, SONET and DWDM – to connect multiple sites together in a Metropolitan Area Network (MAN). A comprehensive network services provider like Verizon is required to ensure these types of data networks will reach all NCR customer locations. With Verizon there is no "digital divide" that leaves smaller and more remote sites isolated from larger government sites.

Additional Services – Verizon is proposing [redacted] services to ensure continuity of service. As a direct result of Verizon's acquisition of industry leader MCI, several new WITS 3 solutions (in addition to new IP solutions being proposed under voice services) are also being proposed.

Customer Premises Equipment (CPE) – Verizon offers multiple CPE solutions for WITS 3. Verizon is a [redacted] voice, data and video equipment manufacturers (e.g., [redacted]). Verizon's strategic partnerships and buying power ensure customers receive cost effective solutions compatible with their agency's enterprise architecture.

Technical Support – Verizon has assembled an impressive team of both small and large business partners to provide technical support under WITS 3. Verizon will continue to offer all professional services included in the RFP, along with new job titles in the Security field.

Communities of Interest/COOP – To ensure federally-mandated Continuity of Operations Planning (COOP) requirements and the primary WITS 3 objective of Service Continuity are met, Verizon will continue to serve [redacted] the NCR.

1.4 Management and Operations Approach

Key Personnel – Verizon's WITS 3 Key Personnel are [redacted]

[redacted]

Customer Service Center – A dedicated 24x7 WITS 3 Verizon Customer Service Center (VCSC) will serve as the Single Point of Contact (SPOC) for all WITS 3 service ordering and billing support, as well as trouble reporting and maintenance functions.

Business Development – From a WITS 3 Sales perspective, Verizon will continue to foster a close working partnership with GSA's Customer Relationship Management Center (CRMC).

Business and Operating Support Systems – Verizon's existing Service@once and Bill@once support systems were [redacted] to meet the ordering, billing, trouble reporting, and other interface requirements of GSA and its WITS2001 customers. [redacted]

Transition – Verizon has unparalleled experience transitioning mission-critical telecommunications services in the NCR. We have dedicated two long-time WITS operations and systems experts to the WITS 3 Transition. [redacted] will serve as overall WITS 3 [redacted] will provide support as WITS 3 Systems Transition Manager. [redacted]

Verizon's fully compliant Service@once and Bill@once support systems are already in place and will be ready to transition customers and services to WITS 3 on "Day One."

1.5 Summary

Verizon looks forward to continuing our mutually successful partnership with GSA as a WITS 3 NCR full services provider to the Federal Government.

- **Verizon is the unmatched leader for mission-critical network infrastructure in the National Capital Region (NCR) and beyond.**
- **Verizon delivers 360° of service, coverage and integrated end-to-end solutions *throughout* the NCR.**
- **Verizon delivers a "Day One" No Risk Transition.**

The Nation depends on your performance; you can continue to depend on ours.

2.0 Technical Cross-Reference Tables

Verizon has responded to the conformance and compliance checklists as specified in *RFP Section 15 of the WITS Hosting Center (WHC) User Instructions*. For each record in the Technical Requirements Checklists, Verizon has indicated its compliance with the specification. [redacted].

3.0 WITS Technical Approach

Verizon is the unmatched leader for mission critical network infrastructure in the National Capital Region (NCR). Managing the current [redacted] WITS network gives Verizon the ability to far exceed the standard level of customer service provided by any other telecommunications provider. [redacted] Verizon has continuously invested in this infrastructure, providing both a solid foundation and a platform for innovation to meet evolving Federal telecommunications needs. For WITS 3, Verizon is bringing together the combined capabilities of the current WITS2001 offered by Verizon and the new services that result from the merger with MCI Communications.

Given the mission-critical nature of telecommunications services and the fact that a vast majority of Federal agencies in the NCR use WITS2001 to procure them, Verizon understands the importance of service continuity for WITS 3. Choosing Verizon as GSA's partner for WITS 3 helps ensure the Federal Government's core mission critical network infrastructure services will continue uninterrupted.

The following sections describe Verizon's network architecture and infrastructure supporting the delivery of an unmatched offering of voice and data services to WITS 3 customers. ***From today's Central Office Exchange Service (Centrex) and Private Branch Exchange (PBX)-dependent environment to the Internet Protocol (IP)-Based architecture of the future that will converge communications, information, and entertainment services, Verizon's 360° of Service means total service coverage and continuity throughout the NCR and comprehensive integrated end-to-end solutions to all WITS 3 customers.***

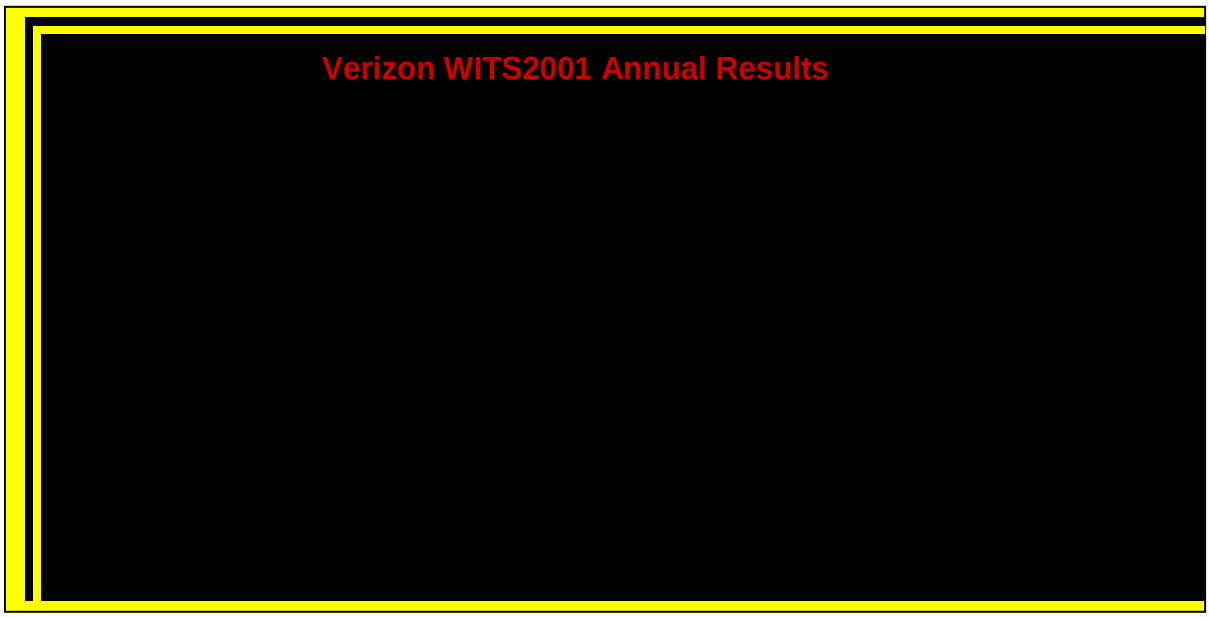
To provide supplemental information to Verizon's WITS 3 Technical Approach, three appendices have been included at the end of this volume of the

proposal: [redacted]

3.1 Verizon's Network Architecture and Services (L.30.1.3.1)

Verizon's WITS 3 architecture is in place and [redacted] in the NCR. The current WITS network, designed by Verizon in partnership with the Government, offers Government users optimized local service functionality using the most advanced and cost-effective networks available today. *Figure 3.1-1: WITS2001 Operations* demonstrates Verizon's successful performance in operations and maintenance of the existing WITS2001 network.

[redacted]



The experienced personnel and proven procedures that currently provide these services are in place to make certain that the same level of quality performance metrics will continue without interruption to the WITS 3 network.

This infrastructure will provide WITS 3 customers unmatched service offerings. The WITS 3 service offerings and interfaces available will include Voice Services (VS; 3.2.1), Circuit Switched Data Service (CSD; 3.2.2.1), Dedicated Transmission Service (DTS; 3.2.2.2), Teleconferencing Service (TS; 3.2.2.3), Frame

Relay Service (FRS; 3.2.2.4), Asynchronous Transfer Mode Service (ATMS; 3.2.2.5), Dark Fiber Service (DFS; 3.2.2.6), Internet Access Service (IAS; 3.2.2.7), and Gigabit Ethernet Service (GES; 3.2.2.8). All of these service offerings are currently available and being successfully delivered using the existing Verizon network. *Figure 3.1-2: Verizon WITS 3 Service Offerings* displays Verizon's service offerings which are discussed in detail in Proposal Section 3.2 Voice Services.

Figure 3.1-2: Verizon WITS 3 Service Offerings

Verizon will provide WITS 3 technical solutions for all Mandatory Voice and Optional Data Services, Customer Premises Equipment and Technical Support requested by GSA and more.	
Verizon's WITS 3 Voice Services	**Verizon's WITS 3 Data Services**
▸ Analog Trunking, Digital Hand-off & ISDN PRI for TDM PBXs ▸ Centrex Analog & ISDN BRI ▸ IP Trunking for IP PBXs ▸ Hosted IP Centrex (HIPC) ▸ Fully-managed VoIP solutions based on agency-specific requirements	▸ Circuit Switched Data Service (CSDS) ▸ Dedicated Transmission Service (DTS) including SONET & DWDM ▸ Audio & Video Teleconferencing (TS) ▸ Frame Relay Service (FRS) ▸ Asynchronous Transfer Mode Service (ATMS) ▸ Dark Fiber Services (DFS) ▸ Internet Access Service (IAS) including Digital Subscriber Line (DSL) access ▸ Gigabit Ethernet Service (GES)

Verizon, as the NCR's Incumbent Local Exchange Carrier (ILEC), delivers service coverage and integrated end-to-end solutions throughout the NCR. As a facility-based provider, Verizon has invested in the infrastructure and provides services directly on its voice and data switches, interoffice facilities (e.g., multiplexers, copper, and fiber cables), and optical transport services. Verizon's NCR ILEC status and WITS2001 incumbency ensures direct control over the quality, security, and reliability of the mission-critical network infrastructure and associated services. As the local provider of the Public Switched Telephone Network (PSTN) NCR infrastructure, Verizon delivers a "day one" no risk transition.

Interoperability of next-generation IP/Multi-Protocol Label Switching (MPLS) networks with the PSTN is essential since traditional voice systems will remain in operation for years to come. Verizon has defined a network architecture supporting full interoperability not only among its various internal IP and Time Division

Multiplexing (TDM) networks, but also with the public networks and the private networks of partners and other providers. Verizon is fully committed to using standards-based approaches for address translation and secure interoperability with Networx and Defense Switched Network (DSN).

Current WITS2001 Architecture - The Network-Hosted Voice Solution

Verizon Centrex is a managed network-hosted communications service that the majority of enterprise customers use today. Centrex provides mission-critical network infrastructure in the NCR and serves the Government by providing quality service on demand. Voice customers have come to expect this high-quality Centrex service.

As WITS 3 services evolve, Government agencies that use Centrex do not have to worry about large capital outlays for technology that could soon become obsolete. Centrex is a network-based, feature-rich technology. Verizon takes care of implementing new technologies throughout the network. Centrex is one of Verizon's many voice solutions that help the agencies keep focused on their mission.

Choosing Centrex enables the Government to better manage its communications budget while continuing to advance its enterprise goals. WITS 3 Centrex provides the following assurances:

- A gateway to the powerful Verizon network
- Service@once and Bill@once
- Freedom from the costs of maintenance and technology upgrades
- 24x7 monitoring at Verizon Network Operation Centers (NOCs)
- Ease of integration at multiple locations
- Cost-effective, scalable solution that evolves as needed.

Centrex's open, standards-based platform lets customers take advantage of the power of Verizon's public switched network, and Centrex's comprehensive menu

of standard and optional features makes it easy to create a tailored communications system to meet each Government agency's needs.

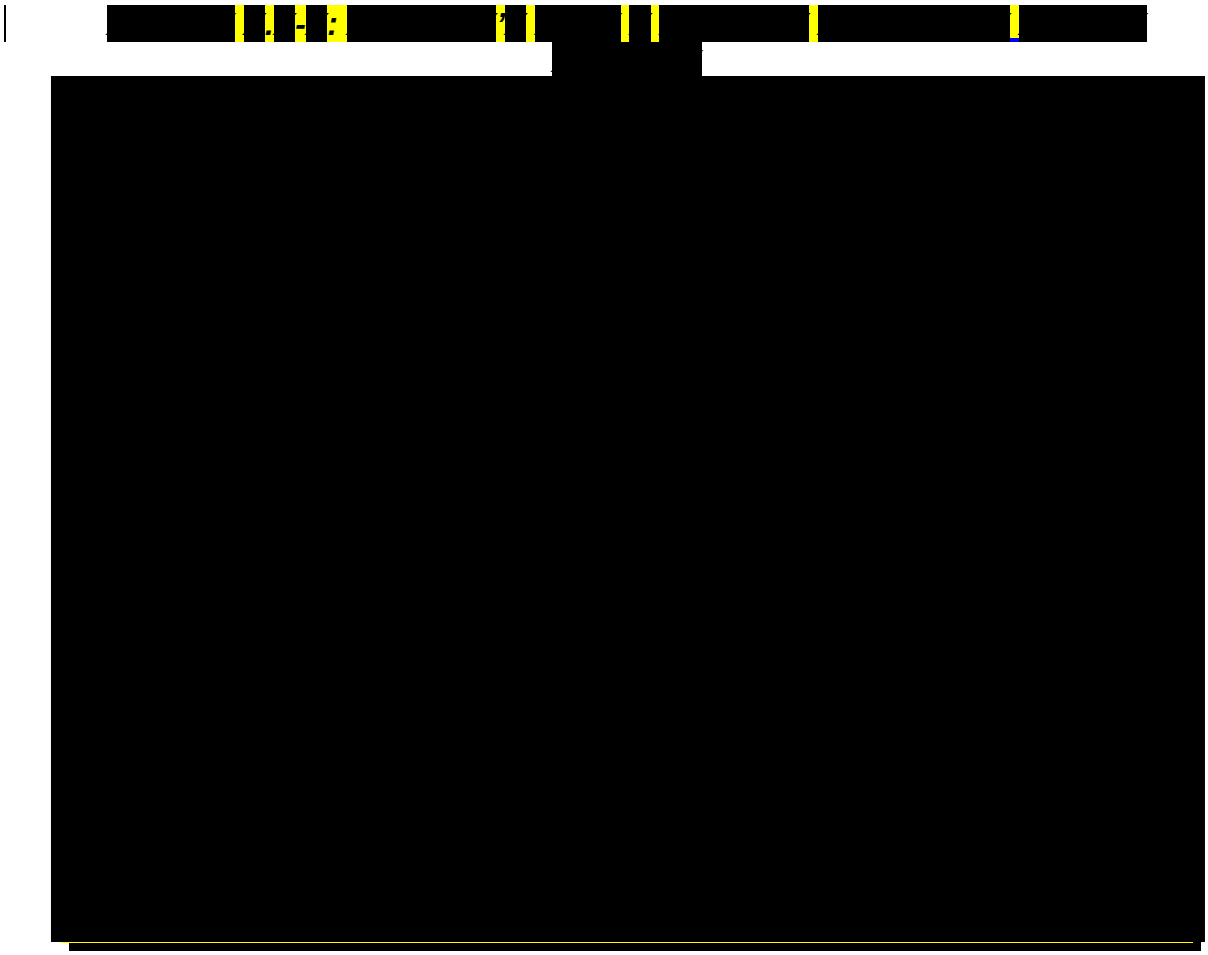
Complementing the Centrex offerings are Verizon's local access portfolio of services including Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) and analog/digital PBX trunks, which provide communications circuits between the local end office and the Government's PBX. ISDN PRI local access offers a high-speed, intelligent connection to the Verizon network and supports voice, data, video, and applications such as Internet access, remote LAN access, call centers, disaster recovery, and file transfer.

Evolving WITS Architecture – Toward Convergence

Verizon recognizes the need for integrating existing customer solutions with interconnected convergence elements. Converged solutions mean more than just putting voice and data over the same network. It also means putting traditional and next-generation solutions and services together to meet enterprise business needs.

Verizon is implementing a Converged IP Core Network – one that is based upon an IP/MPLS meshed network fabric utilizing emerging technologies to build value for customers at the Multi-Service Edge. Verizon is developing applications that enable efficiencies, provide rapid service introduction, and offer the most advanced integrated wireless and wire-line functionality in the world. Verizon's Multi-Service Edge continues to maintain backward integration to the PSTN while enabling advanced functionality, interoperability, and much greater transport effectiveness. Because of these strategic initiatives, Verizon's enterprise customers reap the benefits of both PSTN and IP worlds. End users can have seamless voice, video, and data experiences across both environments.

Figure 3.1-3 Verizon's WITS 3 Network Evolution displays Verizon's vision for moving toward a future converged network.

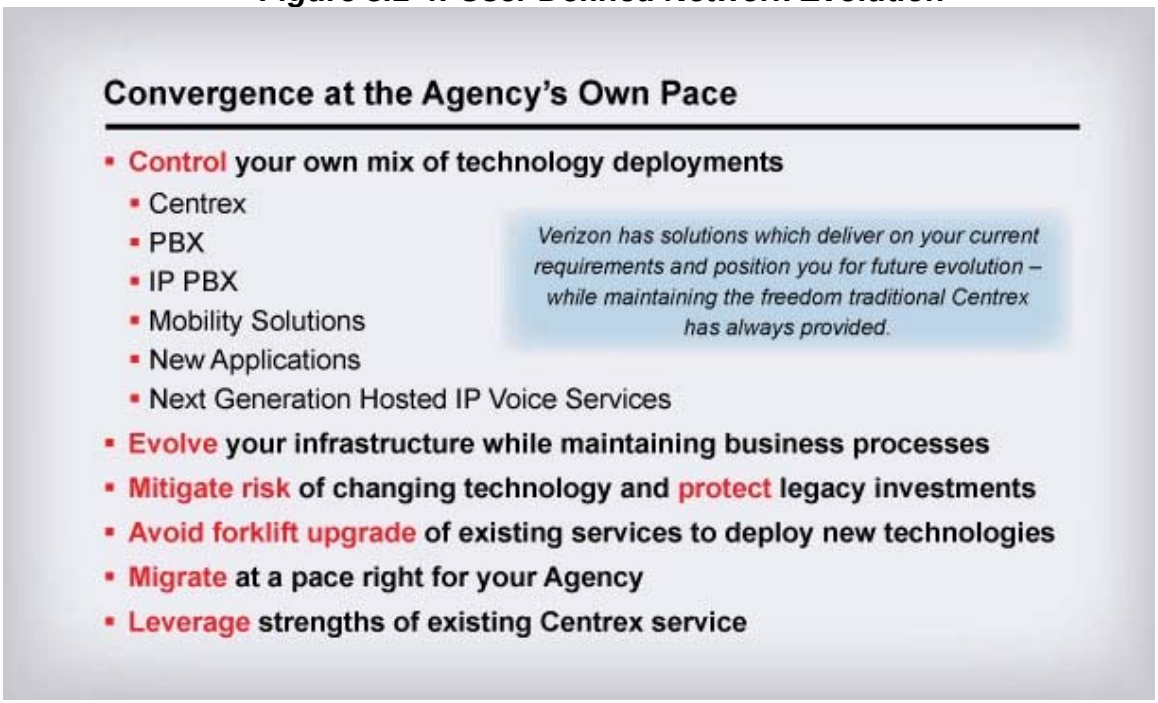


As the traditional voice telephone network becomes increasingly more integrated with the Internet, Verizon has developed technology to bridge these two worlds by enabling Internet access and the control of telephony features. The Verizon WITS 3 architecture and services provide the end user with the ability to be in charge of such features as station-level call control with call routing, scheduling, and alerting based on individually-defined rules.

A migration from TDM to IP requires leveraging existing assets as much as possible and that TDM and IP communications be interoperable. Verizon supports hybrid environments to enable Government agencies to leverage their existing investments while continually upgrading their services.

A voice transformation toward convergence can involve many interconnected components. Government agencies will want to put voice, data, and multimedia elements together in a way that best supports their needs. Each agency has a unique mission and operating environment and distinct architectural challenges and performance objectives. This diversity demands a unique approach to the planning, selection, implementation, and management of network services. Verizon will work with WITS 3 customers to define network performance requirements in the context of their enterprise objectives and to craft a migration path to next-generation services. While some agencies may choose a phased migration path to next-generation network services and applications, others could implement a major operational and managerial communications restructuring. As shown in Figure 3.1-4, User-Defined Network Evolution, Verizon's infrastructure and architecture supports each agency's ability to converge at their own pace.

Figure 3.1-4: User Defined Network Evolution



Verizon will provide Government agencies expertise in managing the evolutionary changes that will come with convergence and will deliver the network architecture to support them. Verizon offers the broadest portfolio of Voice over IP (VoIP) services, including hosted VoIP, managed IP-PBX, SIP trunking, IP conferencing, and hosted IP contact center services. Significantly, Verizon can support SIP trunking on multiple vendor products through diverse access methods such as IP-Trunking, IP-Integrated Access, and IP-Flexible T1. In addition, Verizon is one of the few providers to offer VoIP services that are fully integrated with an IP/MPLS network. Customers will recognize the strength of Verizon's convergence strategy as they look to deploy converged VoIP solutions throughout the enterprise.

As the current WITS2001 provider, Verizon continues to invest in the underlying network infrastructure, wires, fibers, switches, and power upon which government agencies rely for their mission critical NCR services. This infrastructure is the underpinning for next generation convergence services; it is this infrastructure

investment that will make convergence services widely available across the entire NCR to customers and locations of all sizes. It is this high density, high diversity infrastructure—the only one of its kind in the NCR—which will support disaster recovery and COOP services for NCR agencies. ***More specifically, Verizon's network-based IP services provide the next-generation of mission-critical network infrastructure to transport applications across a high-speed, unified, multi-service, IP-enabled backbone infrastructure.***

3.1.1 Interconnecting the WITS 3 Network (L.30.1.3.1 (1.a))

The Verizon WITS 3 solution uses Verizon's local exchange network infrastructure, and therefore by its very nature, is interconnected, interoperable and diverse. XXXXXXX XXXX XXXXXXX XXXX-XXXXXXX, XXXXXX, XXX XXXXXXX XXXX X XXXXXXX XX XXXXXX XXXXXXXXX XXXXXXXXXX XXXXXXXX (x.x. XXXXXXX, XXXXXXX, XXX).

As the ILEC for the NCR, Verizon currently provides standards-based network interoperability that includes local exchange service, intra-LATA toll, and connections to Inter-Exchange Carriers (IXC) for Inter-LATA access and transport.

Verizon is aware of the critical nature of the Government's communications and provides support today for interoperability between [redacted].

The required interoperability includes software translations and interconnection of physical interfaces with the associated service providers. Verizon has a standards-based network that effectively and efficiently transfers all information and control data within its own network and between its own network and those of any other service providers so that a given service offering operates transparently and without performance degradation for users.

3.1.2 Compatibility with Existing WITS2001 Interfaces (L.30.1.3.1 (1.b))

The Verizon WITS 3 solution, like WITS2001, is based on the same ILEC infrastructure, and therefore by its very nature, is compatible with all prior WITS2001 interfaces.

Verizon will effectively and efficiently transfer all information and control data within its network and between its network and those of any other service providers so that a given service offering operates transparently and without performance degradation for users. The Signaling System 7 (SS7) network that functions as part of the Verizon public switched network provides interoperability with all IXCs that operate within the Verizon local exchange area. This will provide the most advantageous arrangement for provisioning SS7 functionality for WITS 3 customers.

Verizon's voice customers can be assured of reliable, high-quality, cost-effective and innovative services that meet their mission-critical needs.

[redacted]

Verizon is a leader in the development of new standards and complies with them once they are commercially adopted by the telecommunications industry. Verizon is heavily involved with and well represented on [redacted] of the major telecommunications forums, some of which are listed in Table 3.1.1.1.1-2, Verizon's Position on Standards and Standards-Related Forums.

XXXXX	XXXXXXXXXX	XXXXXXX XXXXXXXXXX XXXXXXXX

TSC - Technical Subcommittee*

This involvement helps assure Verizon's customers that the company will continue to provide high quality services in this fast paced evolution of the telecommunications world.

3.1.3 Meeting DOD MLPP Requirements (L.30.1.3.1 (1.c); C.2.2.2.1)

Verizon will meet the DoD specified Multi-Level Precedence and Preemption (MLPP) requirements as identified in the Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01B and DOD Instruction 8100.3, Department of Defense (DoD) Voice Networks and *Section C.2.2.1 of the WITS 3 RFP* by implementing the MLPP features [redacted]

3.1.4 Ensuring Local Number Portability (LNP) (L.30.1.3.1 (1.d))

The Federal Communications Commission (FCC) has identified Metropolitan Statistical Areas (MSAs) in which Service Provider Portability (SPP) and Location Portability (LP) will be implemented. The telecommunications industry has developed architectures and systems to provide SPP/LP, which rely on the existing SS7 network and an interconnecting arrangement of rate and route databases. This capability provides users who remain at the same location the ability to change local service providers or locations. Verizon has completed all hardware and software installations to provide SPP/LP.

The Verizon Service@once system is capable of supporting LNP, both SPP and LP, within the WITS 3 network upon implementation. If legally and technically

possible, as specified in the RFP, Verizon will provide customers migrating to the WITS 3 network the option of retaining their current telephone number.

3.1.5 WITS 3 Evolution (L.30.1.3.1 (2))

Verizon's network infrastructure is managed to support traffic growth, evolution in service requirements, advances in technology, and changes in the regulatory environment. When advances in technology have been fully tested and certified in Verizon's laboratories and first office application trials, Verizon systematically plans and transitions to new technology that continues to support legacy and next-generation customer services. This methodology effectively eliminates the discontinuance of network elements until such time as new technology becomes standard. Just as the Verizon network evolved from analog/digital technologies and Time Division Multiplex (TDM) to packet switching, the company consistently keeps on top of the best, most beneficial technologies.

[redacted]

Verizon is changing the customer user experience by providing consistent features and availability across the country. Today, a Centrex solution in one area may have a different feature set than that offer in another part of the country and that can impact the efficiency and training of end users. The Verizon hosted VoIP offering will include Web-enabled access to a uniform feature set in addition to access codes from remote locations. It will be easier to manage features with the use of a robust administrator Graphical User Interface (GUI). Because of these improvements, end users will have greater control over their features.

Choosing Centrex enables the Government to better manage its communications budget while continuing to advance its enterprise goals.

Verizon has emerged as one of the leading communications companies in the country. By virtue of its scale, scope, and network management experience, Verizon has broken through the traditional barriers to become a true national carrier. It has spent a long time preparing for this opportunity building the networks, the support structures, and the product sets required to successfully compete in this complex market.

[redacted]

[redacted]

If an enterprise subscribes to network-based products, such as Centrex and other hosted services, they gain the full benefit of the network advancement without worrying about technology, administration, maintenance, or key software upgrades. Verizon takes care of the basics of communications technology to free enterprises to gain the maximum value from their business. Verizon continues to respond to a rapidly changing regulatory environment. [redacted] Verizon will continue to respond, as needed, to regulatory changes.

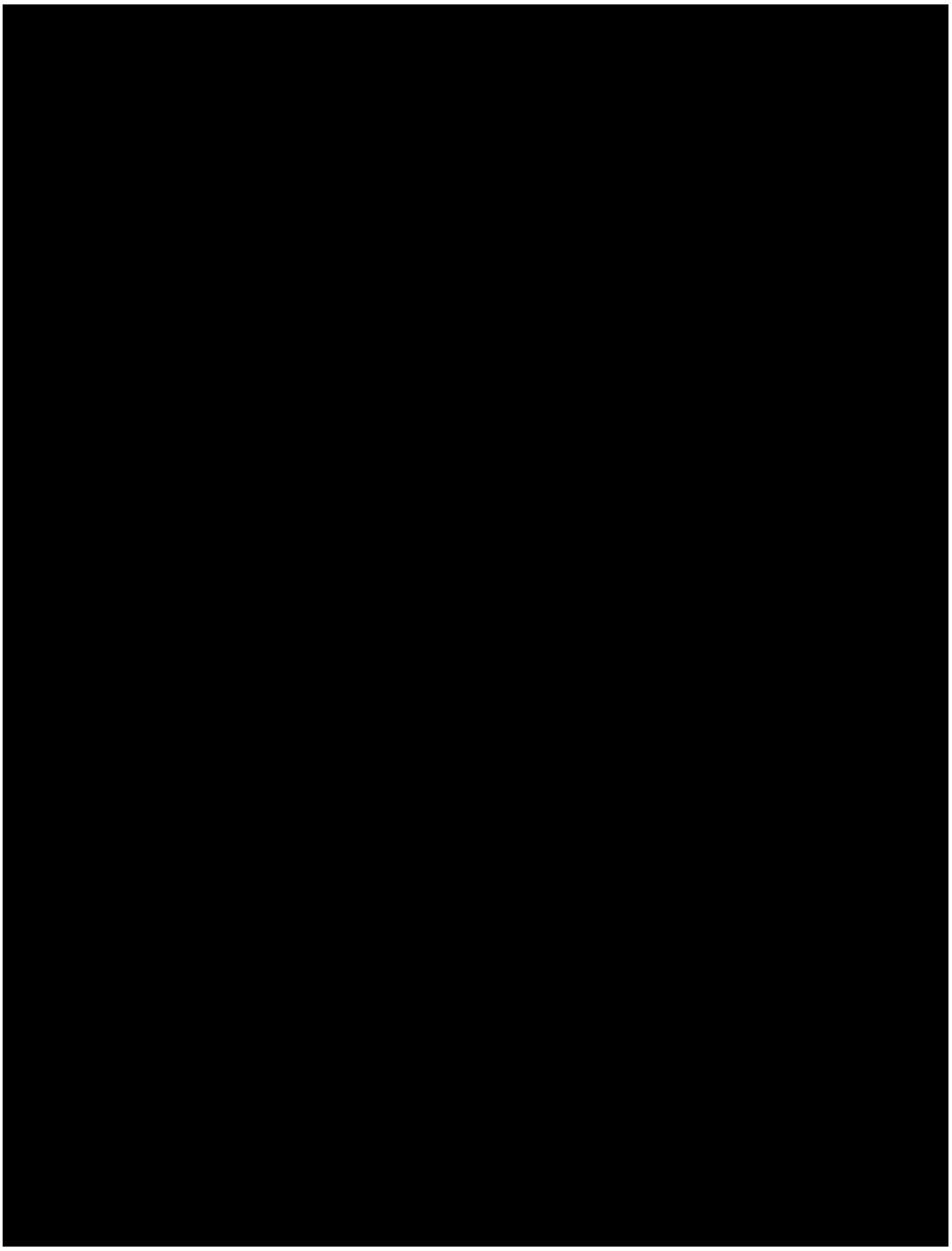
3.1.6 WITS 3 Service Coverage Footprint (L.30.1.3.1 (3))

No other WITS 3 service provider can offer the service coverage of Verizon. In addition to covering the [redacted]

No other service provider can provide the density and reach of Verizon throughout the NCR, ensuring that there is no "digital divide" in serving both large and small agency offices.

[redacted]

[redacted]



3.2 Voice Services (C.2.2)

Verizon offers an unmatched portfolio of voice services in the NCR ranging from traditional Centrex to the most advanced VoIP services. Verizon's voice customers can be assured of reliable, high-quality, cost-effective and innovative services that meet their mission-critical needs. No other service provider can provide the density and reach of Verizon in the NCR.

3.2.1 Voice Access Services

Verizon's local access portfolio of services includes Centrex, ISDN BRI, PRI, and analog/digital trunking. Verizon also provides local voice access through IP Trunking, which is addressed in *Section 3.2.3.2 VoIP – Internet Protocol Trunking – Service Overview*.

The Verizon WITS 3 solution uses Verizon's local exchange network infrastructure, and therefore by its very nature, is interconnected, interoperable and diverse.

3.2.1.1 Analog Line - Service Overview

Analog line— the basis for residential and small business service connections to the telephone network—is a voice-grade telephone service. Analog service is the precursor to more advanced forms of telephony such as Integrated Services Digital Network (ISDN), mobile phones, and Voice over Internet Protocol (VoIP). Verizon's analog line services include the following functions:

- Bi-directional, or full duplex, voice path with limited frequency range of 300 to 3400 Hz (a signal to carry the sound of the human voice both ways at once)
- Call-progress tones such as dial tone and ringing signal
- Subscriber dialing
- Operator services, such as directory assistance, long distance, and conference calling assistance

- Standards compliant analog telephone interface

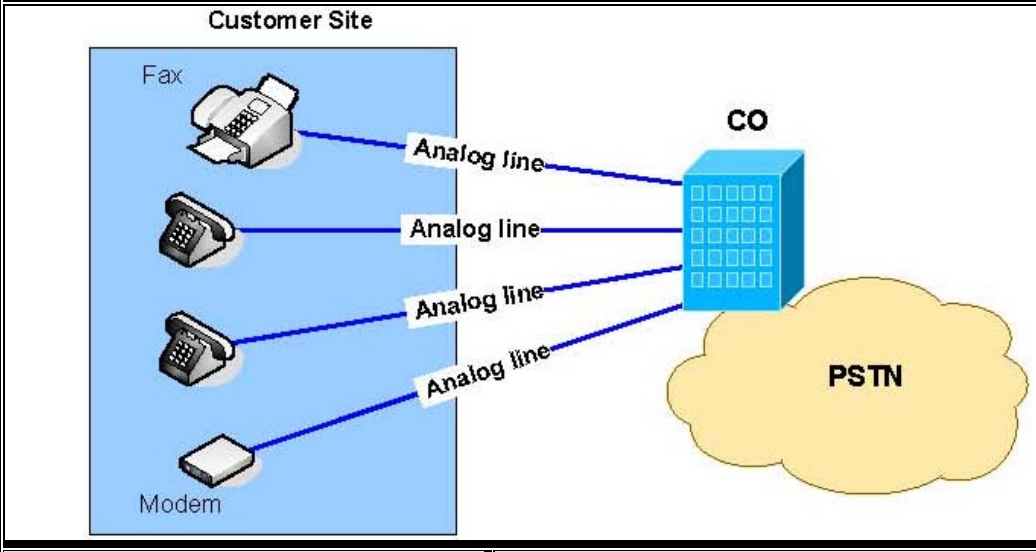
Verizon offers the following features and services with its analog line:

- Voice mail
- Caller identification
- Call waiting
- Speed dialing
- Conference call (three-way calling)
- Enhanced 911

Verizon provides its analog Centrex line with the following standard features:

- Call transfer-all calls
- Consultation hold
- Three-way calling
- Touch tone
- Intercom
- Direct inward and outward dialing
- Access codes

ANALOG LINE



Product Description

Analog lines are often referred to as plain old telephone service (POTS) lines. Analog lines provide a single analog communications circuit between the local end office (Class 5 switch) and the customer's telephone, key system, fax machine, or modem. The Analog line offers a reliable solution for a customer's routine business telecommunications applications.

Service-Specific Architecture

Verizon's supports two-wire analog lines with loop signaling at 4000 Hz bandwidth per the specifications in *Telcordia Pub SR-TSV-002275, Section 13.2.2*.

- Connects homes/businesses over copper wires (copper wires wound around each other are called "twisted pair")
- Traditionally used for voice communications using an analog signal
- Support data by utilizing a modem at a maximum rate of 56 Kbps
- Typically provisioned with "loop start signaling"

Benefits to the Customer

- *Primarily geared towards small- to medium-sized business prospects (i.e., less than 99 employees using less than 15 circuits).*
- **Feature-rich & Flexible**—Verizon offers an impressive array of local features that define and enhance its business line offering.
  - Caller ID
  - Call waiting
  - Speed dialing
  - Conference call (three-way calling)
- **No oversubscription available**—Comprised of one phone number per line (1:1 ratio).
- **Connection to multiple telephones**—Although there may be several extensions on one line, there can only be one call in progress at any given time.
- **Practical**—A large government office may provision business lines to use as a disaster recovery back up to a local PBX solution.
- **Versatile**—Using a PBX, customers may provision a business line as personal lines for key executives.
- **Customer Service**—Verizon is the single point of contact.
- **Widespread Availability**—Verizon's nationwide footprint provides large service areas.

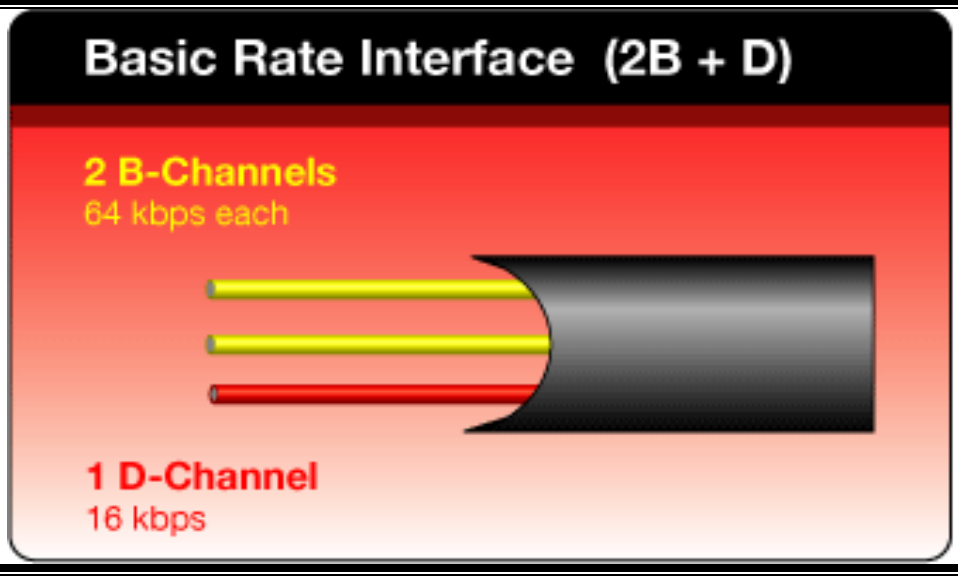
3.2.1.2 Integrated Services Digital Network Basic Rate Interface - Service Overview

ISDN provides high performance, fully digital access to the worldwide telecommunications network through standard copper telephone lines. This fast, digital transmission service is available virtually everywhere within the National Capitol Region (NCR). From offices, homes, and remote locations, ISDN allows employees to access resources and new business applications. Video images, data flow, fax transmissions, and phone conversations can occur simultaneously with ISDN.

ISDN Basic Rate Interface (BRI) supports a wide range of applications and emerging technologies by enabling a seamless exchange of information in any medium—voice, data, or video—at high speeds. The service is designed to meet immediate challenges by performing tasks more quickly using fewer resources. Using ISDN BRI enables customers to benefit from technologies shaping the workplace, including the support of teleworkers, dispersed project teams, and remote customer service. In addition, ISDN BRI enables customers to handle resource sharing and online connectivity more effectively.

ISDN BRI sends clear digital signals at high speeds over existing facilities. Without the need for a major network investment, ISDN BRI uses existing phone lines to carry voice, data, and video traffic at speeds more than four times faster than the fastest analog line. Voice calls can be made more quickly and with superior call quality because ISDN is digital. Combining ISDN BRI with Centrex provides additional power and improves productivity. Centrex ISDN BRI gives users control over allocating the bandwidth across desktops to take advantage of the classic benefit of Centrex with the enhanced call handling features of ISDN BRI. ISDN is available from all four major network switch types 5ESS, DMS, GTD5, and Siemens.

INTEGRATED SERVICES DIGITAL NETWORK (ISDN) BASIC RATE INTERFACE (BRI)



Product Description

ISDN BRI integrates service by allowing users to perform several digital functions at one time. ISDN BRI customers can research pertinent data on the Internet while participating in a conference call; fax important documents while e-mailing the recipients; and send large digital files (graphics or text) in a quarter of the time it would take with regular dial-up. All of this is accomplished with ordinary copper phone lines and an ISDN BRI card. A minimal investment compared with other services.

Service-Specific Architecture

ISDN BRI is a telecommunications standard specified by the International Telecommunication Union (ITU) that provides an all-digital, switched connection to support voice and data services.

ISDN BRI is a two-wire digital subscriber line that provides the following features:

- Two 64 Kbps bearer (B) channels used for voice, data, and video; both B channels can be bonded providing a 128Kbps circuit
- One 16 Kbps data (D) channel used as the signaling channel for call set-up and call-completion messages to support enhanced features such as caller ID and to carry low-bandwidth, packet-switched data

Verizon supports both national (standard) and custom ISDN, though national is promoted and preferred. National ISDN is standards-based and supported by all switch suppliers to ensure switch interoperability.

ISDN BRI lines are supported per the specifications found in ANSI/EIA T1.607 and 610. ISDN BRI lines can consist of one or two B channels of 64 Kbps each and one D channel of 16 Kbps.

Benefits to the Customer

- Increase productivity using ISDN BRI's higher speeds—ISDN BRI utilizes two separate 64 Kbps channels, which can be combined into one 128 Kbps channel.
- Faster data transmission speeds can result in shorter connection times and lower usage costs.
- Avoid the costs and inflexibility of dedicated lines—the same ISDN line can be used to carry both voice and data, so there's no need to wait for a fax to finish before making a call.
- Take advantage of productivity enhancing applications such as remote Local Area Network (LAN) access, videoconferencing, pre-press graphics, postproduction editing, and digital broadcasting that can reduce travel costs and product development time.
- Enjoy clear, digital transmission that results in fewer errors and re-transmissions and greater network reliability – all of which saves time and increases productivity.
- ISDN can also be used to back up overflow-dedicated services, such as frame relay, to ensure against outages or to provide cost effective insurance against high-volume congestion for mission critical information.
- In a large government office, ISDN may be provisioned for use as a disaster recovery backup.

3.2.1.3 Integrated Services Digital Network Primary Rate Interface - Service Overview

ISDN PRI is a local exchange access service that creates a direct digital connection to a Verizon central office to provide voice, data, image, and video services on a single circuit or line. ISDN PRI provides fast, flexible access to services such as direct inward and outward dialing, toll-free service, and circuit switched data. The call-by-call service selection and individual calling line identification capabilities offer a cost-effective, feature-rich method of local access for applications such as Private Branch Exchange (PBX) trunking, host computer access, Local Area Network (LAN)-to-LAN connections, and video-conferencing. ISDN PRI transmits large volumes of data, video, and enhanced voice communications requiring higher transmission capabilities such as videoconferencing, imaging, digital audio, and Computer-Aided Design (CAD)/Computer-Aided Manufacturing (CAM).

The Verizon WITS 3 solution uses Verizon's local exchange network infrastructure, and therefore by its very nature, is interconnected, interoperable and diverse.

ISDN PRI is comprised of a central office trunk port connection via a T1 (1.5 Mbps) facility. Its 24 channels are arranged into twenty-three 64 Kbps B channels for user information and one 64 Kbps D-channel for signaling and control functions. Out-of-band signaling from ISDN offers clear 64 Kbps channels for data communications. The 64 Kbps channels can be bundled to provide speeds up to 1.5 Mbps per line. PRI uses the ISDN architecture and has a bandwidth of 1.536 Mbps for communication from a Central Office (CO) to the customer's premises. Similar to ISDN-BRI, there are two types of channels in ISDN-PRI:

1. B Channels: full 64 Kbps, free of call set-up signaling, for use in voice and switched data transmission
2. D Channel: control signaling functions.

Based on agency requirements, users may select an appropriate PRI arrangement from the following options:

- 23 B Channels + 1 D Channel
- 23 B Channels + 1 Back-up D Channel
- 24 B Channels

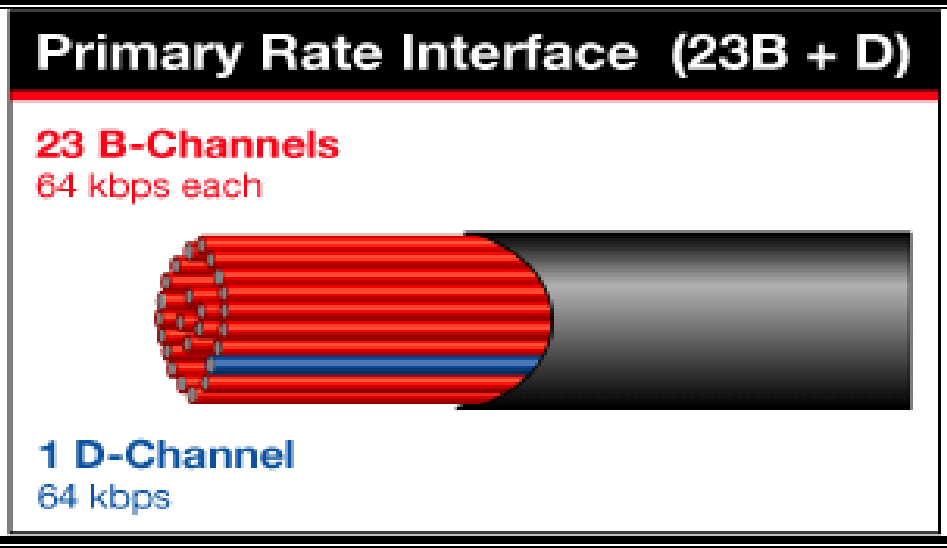
Backup D Channel. This feature allows a D channel on a second interface at the same premises to be designated "standby" to carry signaling information for all the B channels on the first and subsequent interfaces. In the event of a failure of the ISDN primary service D channel (due to interface or equipment malfunction), the backup D channel assumes the signaling and control functions of the out of service D channel.

Shared D Channel. This feature allows the D channel of one ISDN primary rate service interface to provide signaling for the B channels of another interface, provided that they terminate on the same premises. One D channel can control up to twenty interfaces (up to 479 B channels).

The channels can carry several different services, depending on the Government's requirements and equipment capabilities.

- Calling party default directory number
- Circuit switched data
- Circuit switched voice
- Dedicated B channel configuration
- Dedicated T1 line elimination
- Disaster recovery
- Host computer access
- LAN-to-LAN connection
- PBX trunking efficiency
- 23 B+D channel arrangements
- 23 B+ back-up D channel arrangements
- 24 B channel arrangements
- Video-conferencing

INTEGRATED SERVICES DIGITAL NETWORK (ISDN) PRIMARY RATE INTERFACE (PRI)



Product Description

ISDN PRI is a local exchange access service that creates a direct digital connection to a Verizon central office to provide voice, data, image, and video services on a single circuit or line.

Service-Specific Architecture

ISDN PRI (23B+D) is supported at an information payload data rate of 1.472 Mbps and ITU-TSS Q.931 signaling type. The D-channel cannot be shared by another ISDN PRI trunk. The following standards apply:

- ANSI/EIA T1.607
- 610/ NIUF National ISDN-1 (Telcordia Pub SR-NWT-001937)
- NIUF National ISDN-2 (Telcordia Pub SR-NWT-002120)
- NIUF National ISDN-3 (Telcordia Publication SR-NWT 002457)

ISDN PRI (24B+0D) is supported at an information payload data rate of 1.536 Mbps and ITU-TSS Q.931 signaling type and shares a D-channel with another ISDN PRI trunk. The following standards apply:

- ANSI/EIA T1.607
- 610/ NIUF National ISDN-1 (Telcordia Pub SR-NWT-001937)
- NIUF National ISDN-2 (Telcordia Pub SR-NWT-002120)
- NIUF National ISDN-3 (Telcordia Publication SR-NWT 002457)

Benefits to the Customer

- Digitally delivers Direct Inward Dialing (DID), Direct Outward Dialing (DOD), and toll-free service to the Government and allows a generous number of standard and optional features to work with the service (most compelling feature is caller ID, which allows information about the calling party to be passed to the called number)
- Flexible call-by-call service greatly increases trunking efficiency
- Eliminates cost of individual dedicated circuits
- Increased call handling efficiency associated with calling line identification
- Back-up configuration provides added protection and communications reliability
- Clear digital transmission of voice and data communications
- Rapid call set-up
- Ability to provision bandwidth on demand (with compatible Customer Premises Equipment (CPE))
- Enhanced security for dial up connecting with call number configuration
- Restricted number acceptance
- Advanced call routing and call handling features
- Widely available service
- Video conferencing—large bandwidth increases video resolution, allows for faster screen refresh, and provides a sharper picture
- Disaster recovery—circuit switched capability can provide alternate paths in the event of an emergency

3.2.1.4 Analog Trunking - Service Overview

The Verizon network supports analog trunks for incoming, outgoing, and two-way traffic and direct inward and outward dialing. Verizon's unbundled analog two-wire and four-wire loops provide four signaling options that are determined by point-of-termination characteristics. A two-wire analog loop will support loop-start, ground-start, loop reverse-battery, or customer-provided in-band signaling. A four-wire analog loop will support loop-start, ground-start, loop reverse-battery, customer-provided in-band, or duplex signaling.

Types of Analog Trunks

DID Trunks can only receive calls. A group of telephone numbers (DID numbers) are associated with a given trunk group; however, there is no one-to-one correspondence between the individual channels and these numbers. The PBX uses the DID number provided by the phone company to route the channel to the correct DID extension within the PBX extension. This allows some or all PBX stations to receive calls directly without going through an attendant (or auto attendant).

DOD Trunks are set up for outbound calling only.

Direct Inward/Direct Outward Dialing (DID/DOD) Trunks are two-way analog central-office trunks offering both inward (trunk-side) and outward (line-side dial tone) calling. DID/DOD trunks can replace a customer's existing DID and DOD trunks. DID/DOD trunks will cost the Government less because they distribute the calling load over fewer actual trunks, have fewer trunk termination requirements, and analyze high volumes and alter PBX trunks to fit traffic patterns more easily due to basic in-and-out calling being in one trunk group.

Types of Signaling for Analog Trunks

Loop-Start (LS) Signaling is a type of switch line signaling in which the network provides a battery source. To initiate a call, the end user's premises equipment provides a loop closure that causes Direct Current (DC) to flow, which the network detects.

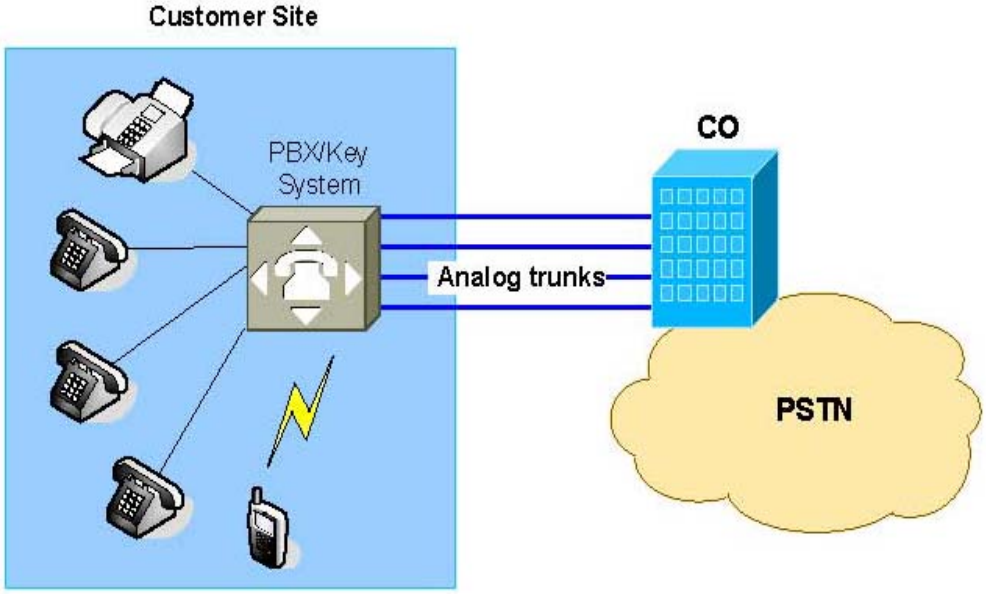
Ground-Start Signaling is a type of signaling in which one side of the two-wire loop is momentarily grounded to instantaneously obtain dial tone. Ground-start signaling is often used with PBXs.

Loop Reverse-Battery Signaling is a type of switch line DC signaling that uses loop-open and loop-closure signals to indicate on-hook and off-hook signals in one direction and normal battery polarity and reverse battery polarity to indicate on-hook and off-hook signals in the other direction. The originating end is the end of the service that generates loop-open and loop-closure signals. The other end—which generates the normal-battery polarity and reverse-battery polarity signals—is called the terminating end.

Duplex Signaling is a type of DC signaling that employs symmetrical and balanced signaling equipment at each end of the loop. One simplex conductor of the four-wire loop is used for signaling and the other simplex conductor is used for ground potential compensation. The open end is the end of a switch service that transmits ringing and dial tone and receives address signaling. The closed end is the end of a switch service that receives ringing and dial tone and transmits address signals.

Customer Specified Signaling provides an analog facility between a Verizon CO and an end user location that is capable of supporting specified signaling at the time the service is ordered.

ANALOG TRUNK



Product Description

Analog trunks are supported in the Verizon network for incoming, outgoing, and two-way traffic and direct inward and outward dialing.

Benefits to the Customer

- **Two-way calling:** DIOD trunks offer inward and outward calling.
- **One trunk group:** Traffic studies are easier to evaluate in terms of traffic capacity/requirements.
- **Direct station dialing:** Incoming calls are automatically directed to the station's user without attendant assistance. This feature reduces the requirement for attendant positions, reducing or eliminating attendant labor costs.
- **Traffic efficiency:** There is only one trunk group needed for in- and out-dialing, so fewer trunks are needed to process the same number of calls. Fewer trunks and less trunk-termination equipment saves the customer money.
- **Analog trunking:** No additional equipment is needed to replace existing DID trunks.

Service-Specific Architecture

Analog trunks are supported in the Verizon network for incoming, outgoing, and two-way traffic and direct inward and outward dialing. Verizon adheres to the ANSI standards for the analog trunks found in T1.102 and T1.403.

Two-wire and four-wire access circuits are available from Verizon with DP/DTMF pulsing as specified in Telcordia *BOC Notes on the LEC Networks,* SR-TSV-0002275.

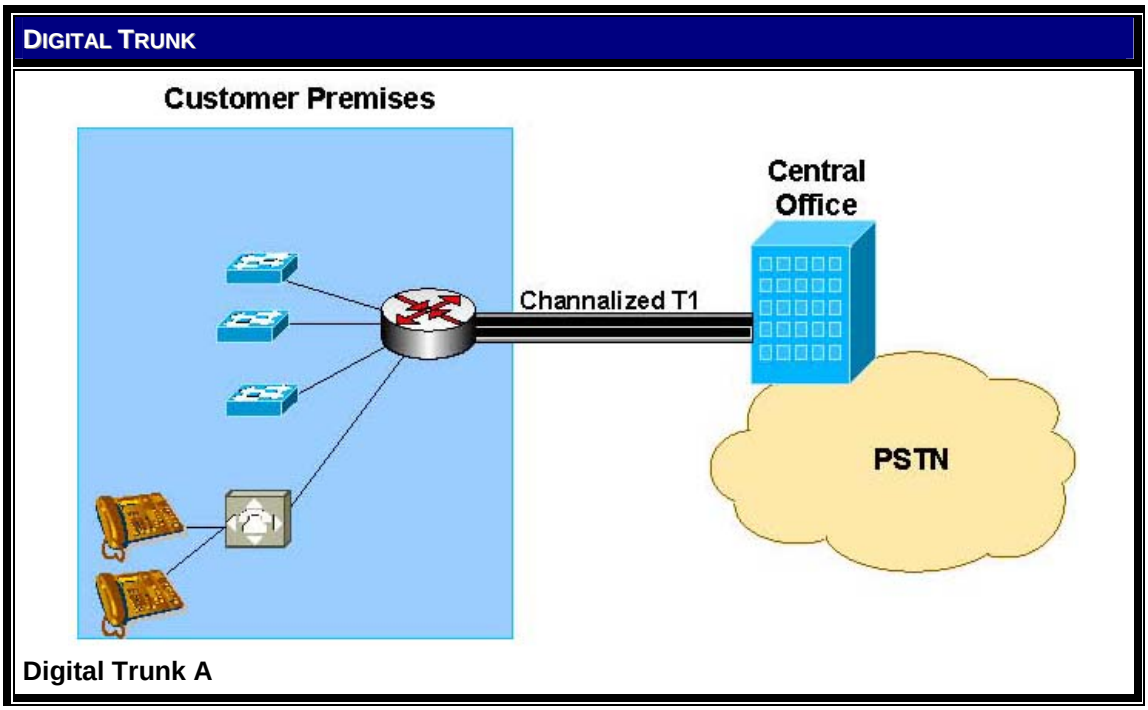
The following signaling/supervision types are available:

- Immediate start
- Ground start
- Loop start
- Wink start
- Delay dial with integrity check
- E&M types II, III, and IV

3.2.1.5 Digital Trunking - Service Overview

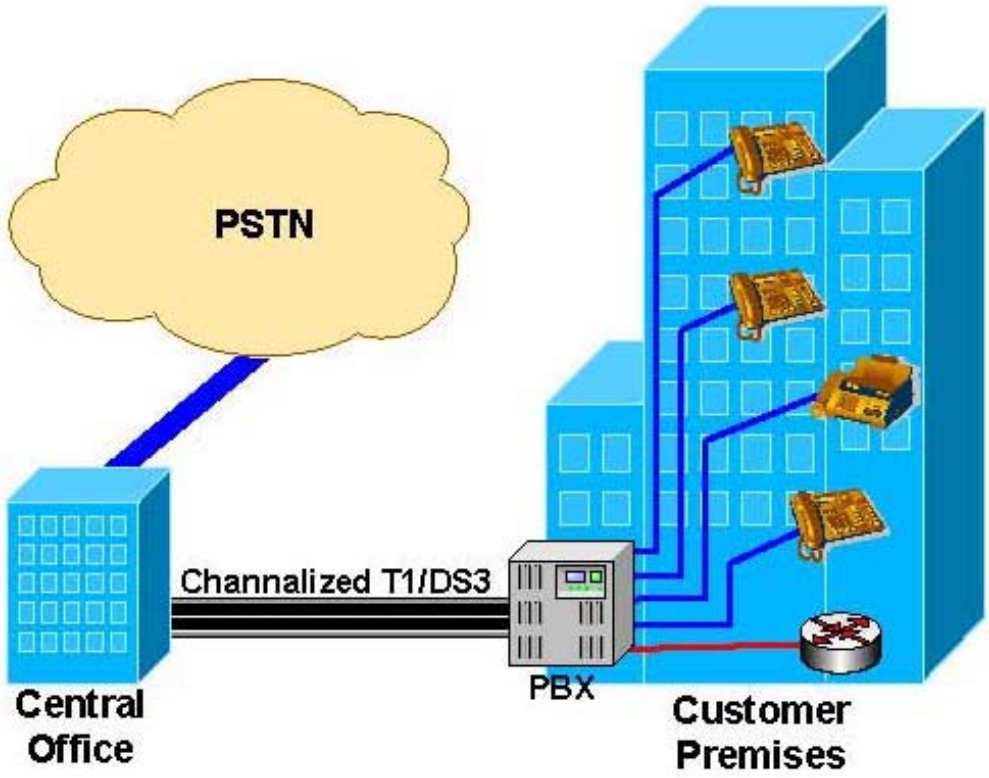
Digital trunks are a Verizon service offering that provides connectivity between the local end office and customer switch. Digital trunks provide digital connectivity from the local end office to the customer's PBX and are available as one-way in, one-way out, or two-way channelized service.

Verizon's digital T1 data service provides 1.5 Mbps of transmission speed. Digital T3 data service uses the high-performance, reliable circuitry of fiber optic transmission facilities to provide the equivalent of 28 T1 channels or 672 regular voice grade channels in a 45 Mbps connection.



Digital Trunk A

DIGITAL TRUNK



Digital Trunk B

Product Description

DS1s and DS3s are a high-capacity channels that carry voice grade local exchange and channel service between the customer's serving central office and the customer's compatible premises equipment.

Service-Specific Architecture

Digital trunks are supported at the Service Delivery Point (SDP) for incoming, outgoing, and two-way traffic and direct inward an outward dialing. Channelized T1 is supported for 24 separate DS0 channels where the ability to assign telephone numbers to the individual DS0s is available with the T1. Verizon's channelized T1 service meets the specifications in the ANSI standards T1.102/107/403.

Benefits to the Customer

- High volumes of information can be transmitted at high speeds
- High-capacity digital data services can be economical alternatives to using multiple lower-speed channels to transmit the same information
- Meetings can be held by videoconferencing, which reduces travel time and expense
- Increased security access reduces unauthorized network access
- Allows 24 voice grade lines to be digitally delivered to the customer premises (the customer only needs one line card in their equipment instead of 24 line cards)
- Applications include fax servers and voice messaging services; Internet Services Providers (ISPs) will also use digital truck as a substitute service for ISDN PRI

3.2.2 Voice Service Features

This section describes voice service features that can be procured in conjunction with the voice access services described in Section 3.2.1. The following voice features are described below:

The Verizon WITS 3 solution choosing Centex enables the Government to better-manage its communications budget while continuing to advance its entperrise goals.

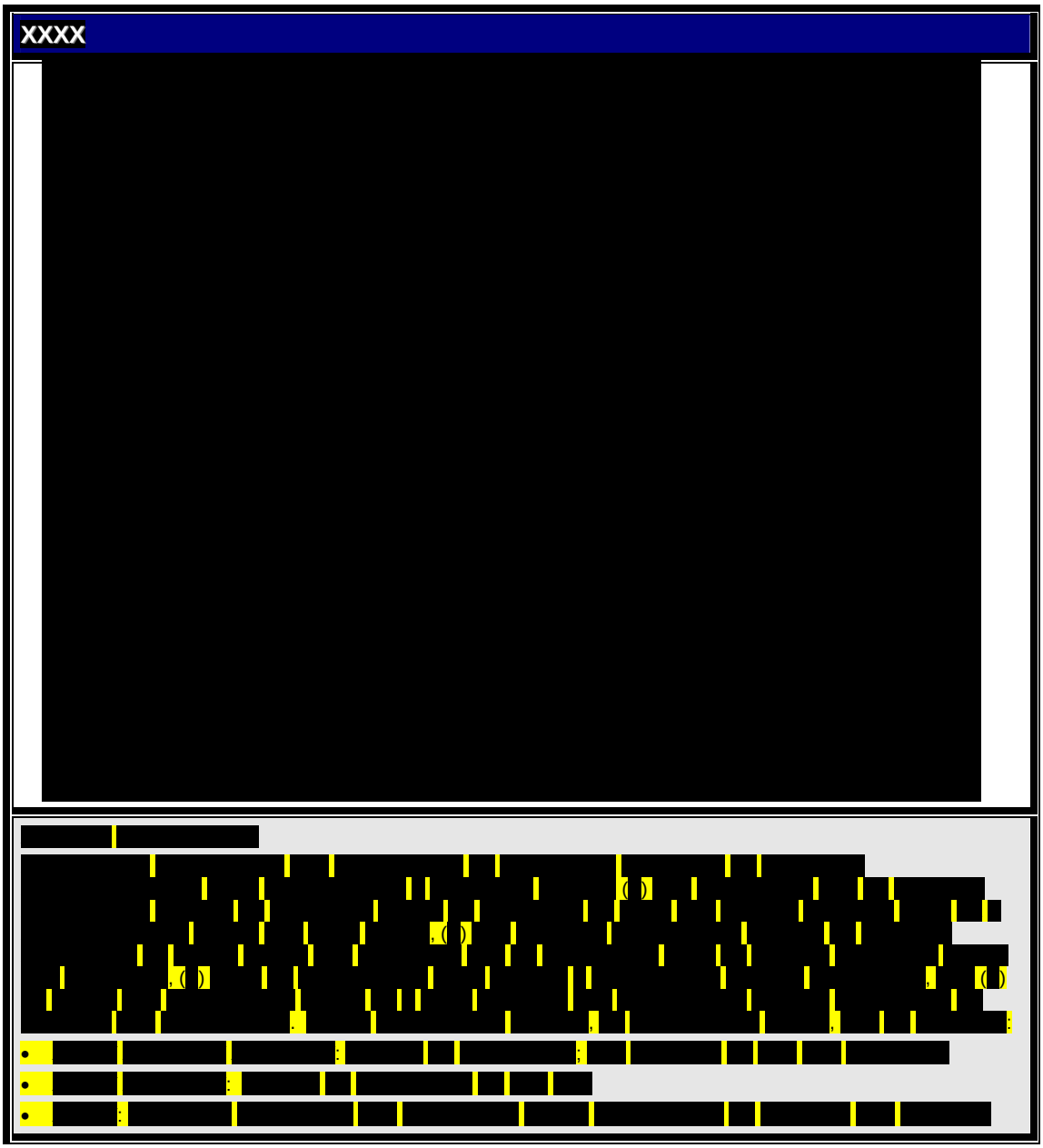
- Time Division Multiplexed (TDM) Multi-level Precedence and Preemption
- Centrex Basic Features
- Custom Redirect Service
- Voice Mail

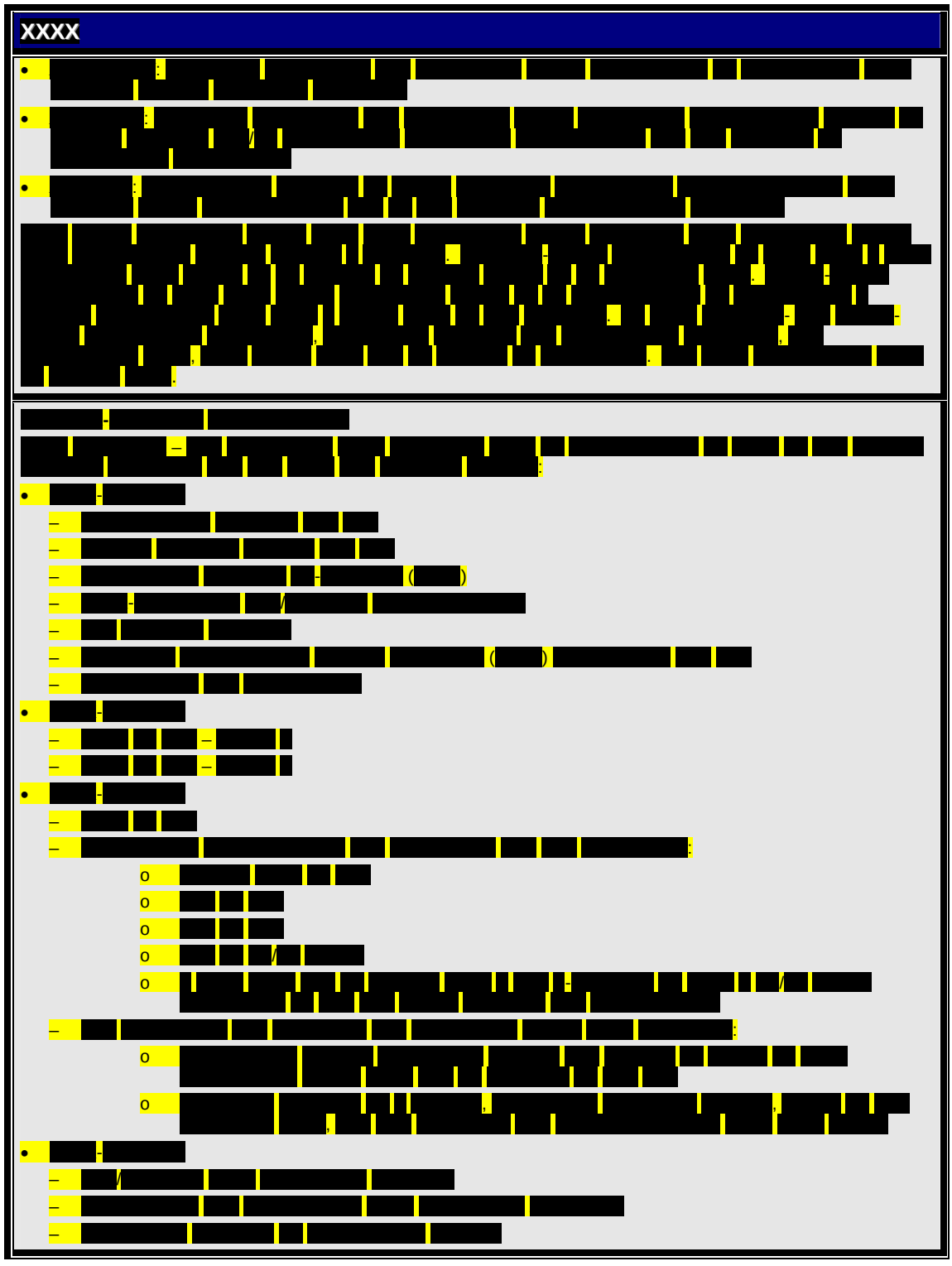
3.2.2.1 TDM Multi-level Precedence and Preemption (L.30.1.3.1(c)) - Service Overview

Verizon will meet the Department of Defense (DoD)-specified Multi-level Precedence and Preemption (MLPP) requirements as identified in the Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01B and DOD Instruction 8100.3, Department of Defense Voice Networks by implementing the MLPP features on the [redacted]. Verizon will implement MLPP functionality in accordance with requirements and specifications identified in the DoD Voice Networks Generic Switching Center Requirements (GSCR) Section 3 – Multi-Level Precedence and Preemption.

All switches supporting the DSN in the NCR [redacted].

Upon receipt of a Government order, the MLPP functionality will be implemented on the WITS 3 [redacted].

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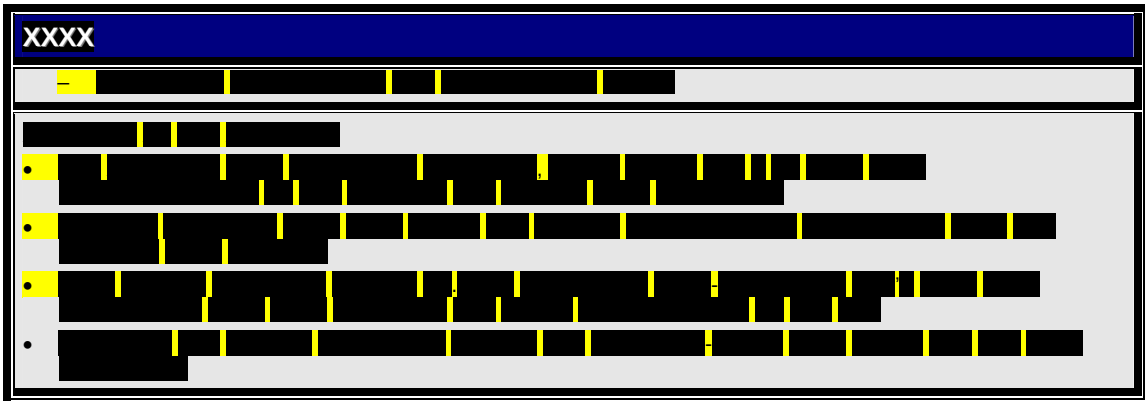
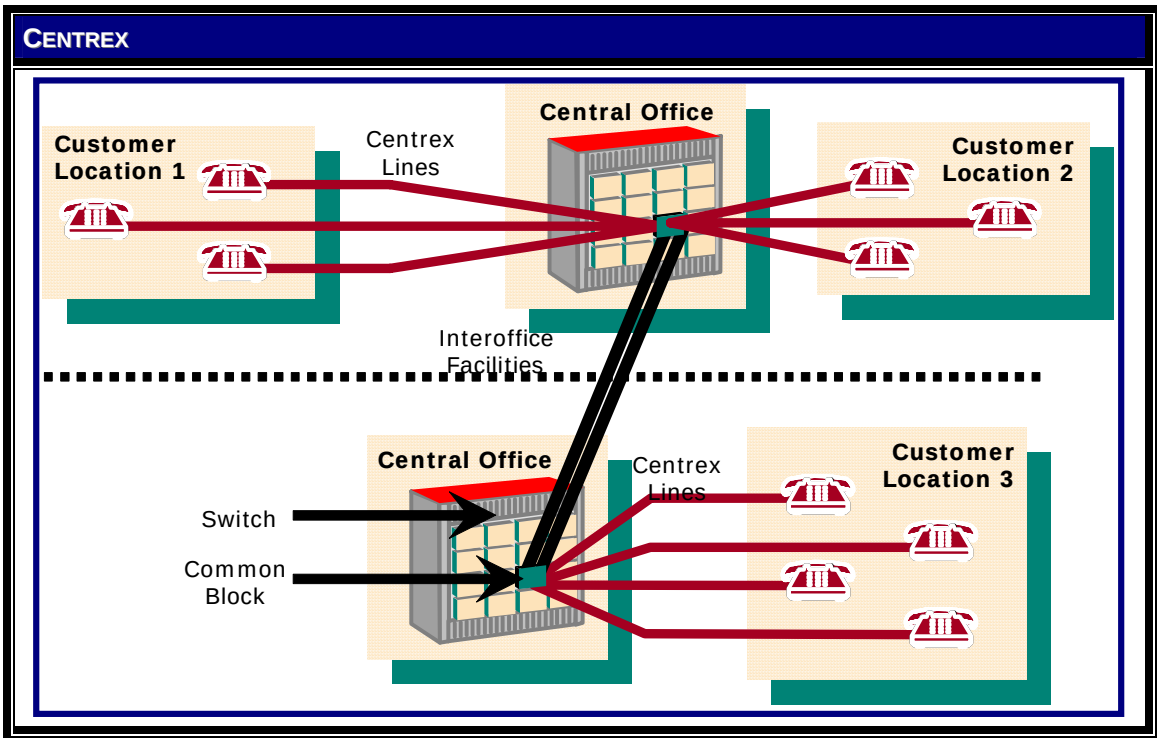


3.2.2.2 Centrex - Service Overview

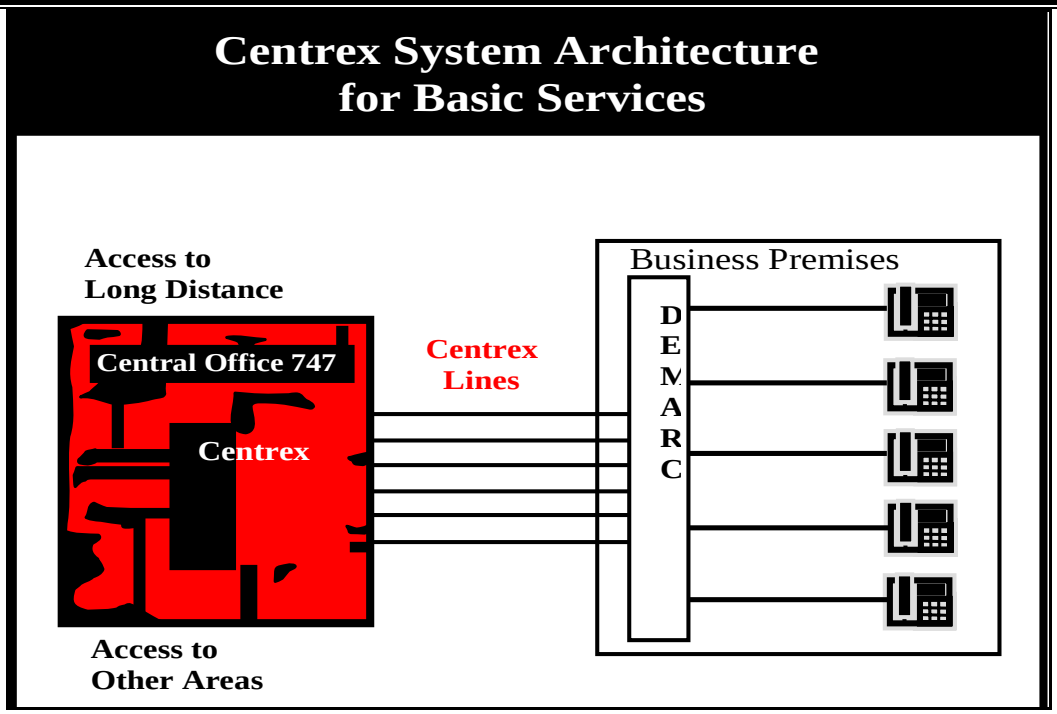
Centrex is a fully-managed, network-hosted phone service that replicates most of the functionalities of an on-site PBX system. With Centrex, Verizon has mastered the most utilized, day-to-day voice features that customers use on a regular basis. Centrex technology is kept current, as it is a dedicated part of the embedded CO switch. The CO switch is updated regularly as an on-going natural evolution of Verizon's network. Centrex is a network-hosted voice solution allowing customers to broaden their internal communications access and distribution. Centrex products have the following advantages:

- Reliability consistent with a service provider network, engineered to support 99.99 percent availability—a benchmark in the industry
- Serves more than
- Monitored 24x7 from the CO
- Reliability through the use of back-up architectures, spare inventories, and redundancy
- Low customer implementation costs
- Uses COs with dual back-up power grids (diesel and battery)

- Operates seamlessly with optional features like custom redirect which provide access to important incoming calls in the event of a power outage or disaster



CENTREX



Product Description

Centrex is a managed network-hosted communications service. Customers can outsource all the network maintenance and technology upgrades to Verizon, while receiving all the benefits of a world-class network. Centrex gives the customer the feature-rich service required for their business requirements today and provides the option to migrate to an integrated voice and data network that enables network flexibility and cost savings when the customer is ready to move forward.

Benefits to the Customer

- Feature-rich platform designed for ease of use and enhanced productivity
- Flexible network access in numerous transport modes to accommodate a host of applications
- Scaleable and flexible solution
- Infinite number of lines support business efforts to grow and change
- Ability to manage features for more control
- Predictable pricing structure
- Access to Verizon AIN features, which allow businesses to tailor their communications network
- Connect to remote locations, teleworkers, suppliers, and customers through the Verizon public telephone network
- Consistent standards and quality across the entire system
- Access and ability to take advantage of powerful technology quickly and cost effectively
- Local/long-distance access for connectivity to the Public Switched Telephone Network (PSTN)
- Management systems to monitor system performance and make changes
- Call accounting to track usage, near real-time, or monthly with rated detail
- Multi-site networks over virtual connections that simplify use and aggregate volume
- ISDN for greater bandwidth and functionality using inexpensive wiring

CENTREX

- Customer-Premises Equipment (CPE) with several telephones to suit any need
- Disaster planning that keep customers operational even when the power is out
- Inside wiring or premises-based wiring that will
- Voice mail to answer calls when a line is busy or there is no answer
- Business drivers
  - Financial flexibility and predictability
  - Minimal capital outlay
  - Scalability
  - Consistent monthly expense
  - Reduced operation costs
  - Reduced risk
  - Avoid technology obsolescence
  - Buy and keep only the features required
  - Reliability
    - Verizon reliability and availability
    - [redacted]
  - CO management and redundancy

Service-Specific Architecture

- A portion of the CO is reserved for Centrex use—the combination of the common block, the outside facilities, and the demarcation comprise the customer's Centrex.
- The customer or Verizon can provide CPE.

A network-based product like Centrex is ideal for customers who have multiple locations within the same or different central office serving areas. The Centrex common block provides a common telephone system for all locations. To make a call between locations, employees can use a three or four digit extension number. There is no charge for these extension to extension calls.

Centrex also works as a unified telephone system even when multiple Verizon central offices are involved. In the scenario diagram (top figure), the top two locations (customer locations 1 and 2) are served by the same central office. For communications to customer location 3 (served out of a different Verizon central office), interoffice facilities are used. Interoffice tie lines allow these two central office systems to function as one.

Denial rate or blocked calls are a measurement of the number of calls per 100 attempts that will get a busy tone. It is also referred to as P grade of service. [redacted]

3.2.2.3 Custom Redirect Service - Service Overview

Custom Redirect Service (CRS) is a group-based call routing service that utilizes Verizon's Advanced Intelligent Network (AIN). CRS provides subscribers the capability to immediately redirect incoming calls as needed without a service order. Customers customize the redirection routing of incoming calls for one or more Directory Numbers (DNs) by grouping their DNs and then defining redirection options that will affect all DNs within each group. The customer uses Dual-Tone Multi-Frequency (DTMF) update

capabilities via an intelligent peripheral device to activate the redirection options. The customer can redirect voice calls to pre-selected numbers based on customer defined criteria which may include, but are not limited to:

- Call destination selection based on time of day, day of week, or day of year
- Routing through an auto attendant
- Call destination may be split on a percentage basis between destination numbers
- Calling party's number may be reviewed for special redirection based on the NXX or the ten digit telephone number of the caller
- Super-group based redirect
- Single destination option
- Enhanced configurable table look-ups

The customer may predefine up to nine calling patterns for redirection. The customer may change the active option on a demand basis by using "play and collect" prompts. CRS enables customers to control where incoming calls are handled. This will allow the customer to continue handling incoming calls in the event of a communications failure (not a total terminating central office failure), cable cut, fire, flood, loss of DID trunk group, or other business affecting event. CRS may be used as a business enhancement tool and can improve service to end customers as well as provide efficiency enhancements.

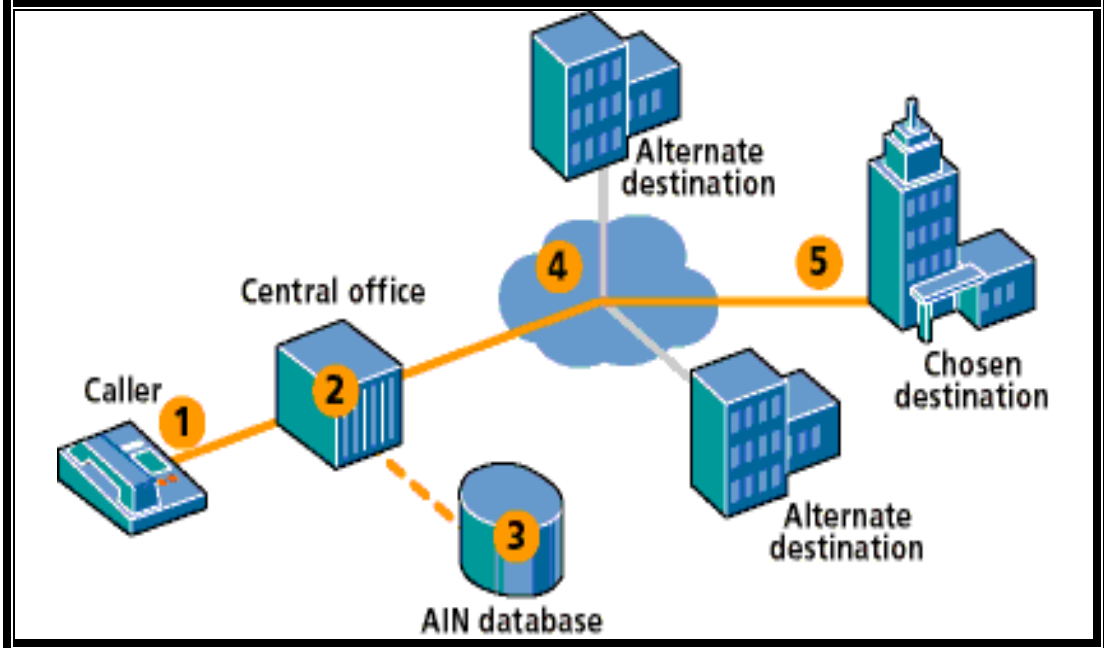
CRS allows customers to redirect incoming calls to alternative pre-selected locations in seconds. This service is especially critical in light of the many natural disasters seen over the past years such as ice storms, hurricanes, tornadoes, and floods. Compounding the disaster is the loss of revenues and productivity. CRS is a crucial component of the Government's COOP planning by redirecting calls in the event of an emergency. It can also

be used by customers who need to reroute calls on a more permanent basis such as nights, weekends, and holidays.

The figure below displays the following CRS operational steps:

- CO receives a call
- Ten-digit trigger is detected within the CO
- Each incoming call into a CRS-equipped number results in an inquiry to the AIN to determine how the call is completed
- Routing criteria are applied to the number (The customer determines this information in advance. Up to three sets of criteria can be programmed but only one set is active at a time. The customer may modify the criteria by requesting a change with the AIN center.)
- Call is forwarded to the number(s) specified

CUSTOM REDIRECT SERVICE



Product Description

CRS is a voice communications service that allows customers to route their inbound calls to alternate locations. CRS is ideal for customers who want to reroute calls due to time of day, excess call volume, or who wish to reroute calls based on the specific inbound phone number. CRS also provides an ideal solution for customers who need to support continuity planning. CRS transfers incoming calls to a predetermined alternate location.

CUSTOM REDIRECT SERVICE
The desired number is identified using criteria determined by the customer. Up to three sets of calling criteria can be preprogrammed and the customer may change between the three criteria by requesting a change with Verizon.
Benefits to the Customer • Almost instantaneous redirection. • Virtual 24X7 access to customer database for redirection instructions. • 24X7 AIN single point of contact. • Redirection to any dial-able number in the world. • Fully customizable to customer traffic and business continuity needs. • Uniform pricing and feature set throughout the Verizon footprint. • Minimize/eliminate call loss in any type of service effecting/building access emergency. *Application Drivers* • Disaster recovery sites • Business continuity • Call centers • Facility control • Traffic control • Multi-location customers with critical inbound traffic • Need to disseminate information during a service *Value Proposition* • Disaster recovery/income protection • Improved customer service • Improve cost-effectiveness of call centers • Supports flexible work arrangements, such as telecommuting • Reduces risk of liability • Changes routing criteria as your needs change
Service-Specific Architecture CRS uses AIN triggers in the central office to intercept calls to identified telephone numbers and then uses call processing information in the AIN network to determine where the calls should be delivered. The service is placed on telephone numbers, not facilities. There are no restrictions regarding type of service required to order CRS. In fact, with redirecting telephone numbers, a number may be provisioned with CRS yet not have any additional services associated with it. AIN is a telephone network architecture that adds advanced computer intelligence to the phone system for processing and tailoring advanced features to customers' needs.

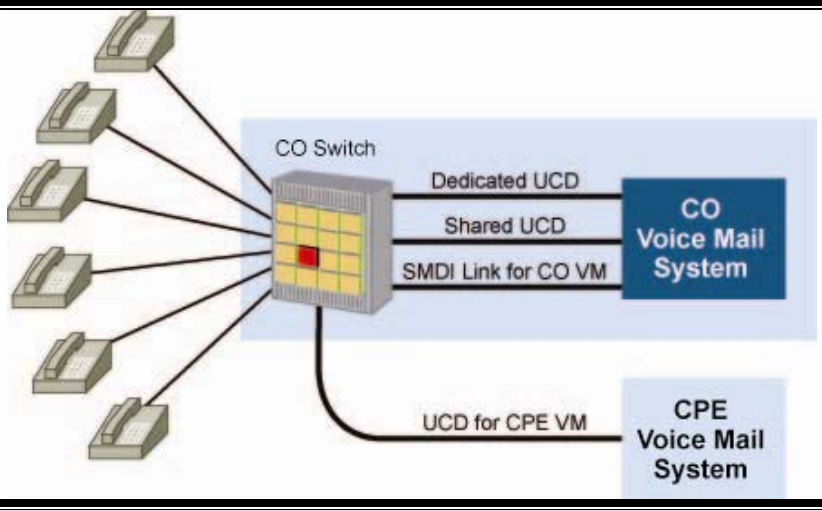
3.2.2.4 Voice Mail - Service Overview

Verizon's voice mail service is a Verizon network feature that provides customers individual mailboxes. Voice mail service allows users to tailor individual announcements to alert callers when they are not available to answer their phone. Voice mail allows callers to leave detailed messages to inform the user of the information that is required by the caller, which

increases productivity and eliminates "telephone tag." The service is accessible from any telephone with a standard push button tone pad.

Customers can use voice mail while out of the office, in meetings, or on travel to interact with colleagues and customers. Voice mail can also electronically store documents using the fax feature, which allows users to print faxes at a remote location. Voice mail allows users to accomplish more in less time. Verizon offers voice mail for Centrex and non-Centrex lines.

VOICE MAIL



Product Description

Voice mail is a central office-based voice messaging service that provides automated 24-hour answering service when combined with a call forwarding arrangement. Multiple, simultaneous calls forward to the mailbox when the line is busy or unanswered.

Benefits to the Customer

- Work remotely and stay in communications contact with co-workers and customers
- Receive important faxed documents anywhere
- Send important group messages by using the voice broadcast feature
- Increase productivity by eliminating "telephone tag"
- Decrease long distance expenses when traveling by sending messages through the voice mail network
- Provides personalized announcements that notifies callers of absence from the office for travel or vacation
- Answers calls when the phone is in use or the call cannot be answered
- Most economical mailbox for customers who want call answering capability and expect higher volume of mailbox messaging (T-Mail) than with answer call
- Mailbox can be accessed from any touch tone or tone-signaling telephone anywhere
- Mailbox messaging (T-Mail) capability to other Verizon mailboxes within the regional calling area

VOICE MAIL

Service-Specific Architecture

Voice messaging is an off-premises-based solution located within Verizon's central office

- With dedicated access, the customer is restricted to the number of lines in the hunt group they ordered
- With shared access, the users share a larger hunt group with other business and residential subscribers
- With shared access, the customer pays for usage on all calls forwarded to their mailboxes and for users' calls to the access number to retrieve messages
- Available with 30 or 45 minutes of storage. A combination voice and fax mailbox - voice mail w/fax - is also available.
- Voice mail can be provisioned as a messaging only mailbox if the customer does not have a telephone number to associate with the mailbox.

3.2.3 Voice over Internet Protocol (VoIP)

In addition to traditional Centrex-based hosted voice services, Verizon provides a suite of advanced VoIP services that will meet agencies' evolving needs for convergence at their own pace.

Verizon's VoIP solutions are scalable and flexible, so government agencies can migrate to a total VoIP environment, while providing their investments and meeting agency mandates.

3.2.3.1 VoIP - Hosted IP Centrex - Service Overview

Hosted IP Centrex (HIPC) is Verizon's fully managed VoIP solution. HIPC provides a migration path from traditional solutions, such as Centrex to advanced IP capabilities. HIPC is the service offering for Government agencies that want all the features of a PBX or key system without the associated capital, lease, or maintenance costs. HIPC provides unlimited local calling, domestic long distance calling, and full Internet access, making better use of the Government's resources, controlling costs, and leveraging leading-edge business applications. HIPC uses a standards-based, quality-of-service

During the first quarter of 2007, Forrester Research's "Forrester Wave: US Enterprise-Class VoIP Services Study" ranked Verizon #1 and best in class on overall VoIP strategy, leading the competition on technology, strategy, planned performance enhancements, customer service enhancements, and price.

scheme based on the Institute of Electrical and Electronic Engineers (IEEE) 802.1 p/q standards to ensure a high-quality of service while mitigating call quality issues. Verizon guarantees the quality of service by offering a leading-edge performance Service Level Agreement (SLA). Along with an availability of [redacted], Verizon provides SLA on mean opinion score, jitter, and packet delivery. HIPC also provides Government agencies a number of security safeguards to minimize susceptibility to security threats and to prevent unauthorized access. This includes an [redacted]. Web-based administrative tools can reduce expenses for moves, changes, and user administration. HIPC is an ideal choice for Government agencies that are moving to or establishing a new location, or simply looking to replace an outdated PBX, key, or TDM Centrex system. As a complete turnkey solution, the HIPC package includes design, installation, and ongoing maintenance. Subscriber can successfully establish and receive telephone calls between on-net locations and establish and receive calls between on-net and off-net locations by interoperating with the Public Switched Telephone Network (PSTN) as required. Verizon's HIPC will bring the Government's voice and data together. [redacted].

VoIP – Hosted IP Centrex

[redacted]

Benefits to the Customer

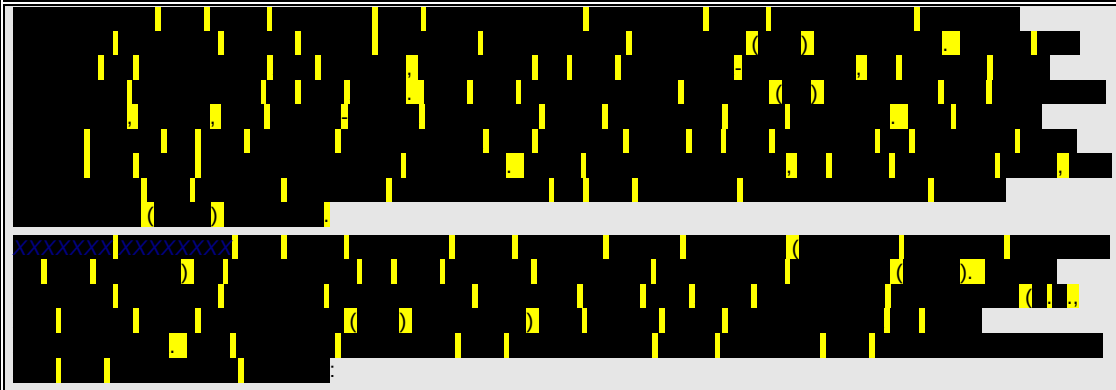
- Enables the government to take full advantage of their existing investment in telephony equipment and Centrex service capabilities, while also delivering a platform for new productivity enhancing applications hosted by Verizon
- Eliminates the need for infrastructure investments or monthly maintenance costs
- Delivers a high quality, highly reliable, yet easy to manage and use telephony system
- Provides telecom managers with a desktop interface (Web browser) to manage everyday functions such as Moves, Adds, Changes, and Deletes (MACDs) as well as network applications

Product Description

Verizon's HIPC solution is the winner of a 2006 Internet Telephony Excellence Award. The award, from Technology Marketing Corp.'s Internet Telephony Magazine, honors IP communications solutions that deliver innovation to customers. Verizon's converged VoIP network allows customers to streamline voice, data, and Internet connections over one network, making it an ideal solution for Government agencies in improving productivity. Verizon's HIPC offers Government agencies flexibility, efficiency, and affordability in an IP environment. In addition, HIPC delivers seamless and real-time telephony services and business continuity capabilities. HIPC also offers all of the features of a PBX or key system without the associated capital, lease, or maintenance costs. Like traditional Centrex, all PBX functionality resides within the Verizon network, eliminating the need for PBX infrastructure investments. In addition, this converged access, coupled with the dynamic bandwidth allocation feature, provides the capability to accommodate high-traffic periods—without the expense associated with excess capacity during non-peak times making it an ideal solution for seasonal, dynamic operations.

[redacted]

VoIP – Hosted IP Centrex



Symmetrical Digital Subscriber Line (SDSL) at the following speeds:

- 384 Kbps
- 768Kbps

Internet Dedicated Access (IDA) at the following speeds:

- T1
- T3
- Shadow (redundant) T1
- Shadow(redundant) T3

Private IP at the following speeds:

- 384 Kbps
- 512 Kbps
- 768 Kbps
- T1
- MLPP/NxT1
- T3

Verizon is developing support for additional HIPC interfaces in the future to allow the Government additional options and flexibility.

3.2.3.2 VoIP – Internet Protocol Trunking - Service Overview

Verizon's IP trunking technology delivers on the promise of convergence by merging Government agencies' voice and data together onto a single network. Verizon's state-of-the-art approach provides unlimited local calling, domestic long distance calling, and full Internet access making better use of the Government's resources and controlling costs. IP trunking is primarily designed for Government agencies with deployed IP PBX and Session Initiation Protocol (SIP) phones. Service is delivered via a standards-based SIP trunk directly to the agencies IP PBX. This streamlined approach eliminates the need for expensive TDM enterprise gateways or TDM cards and the associated maintenance costs. Locations using the IP trunking service have the benefit of end-to-end network-based Quality of Service (QoS). IP trunking uses Multi-Protocol Label Switching (MPLS) technology to provide a simple network configuration and the ability to prioritize network traffic. IP trunking offers various levels of QoS and provides a single standard IP interface for each location. [redacted]. Verizon's network availability [redacted] of the time as measured on a monthly basis by trouble ticket time. Verizon's VoIP data centers use industry-leading session border controller technology and follows "best practices" management to ensure Verizon network integrity. For security

Verizon's VoIP solutions are scalable and flexible, so Government agencies can migrate to a total VoIP environment at their own pace.

reasons and customer protection, Verizon does not publish any details pertaining to the IP trunking network design. [redacted]

VoIP – IP Trunking

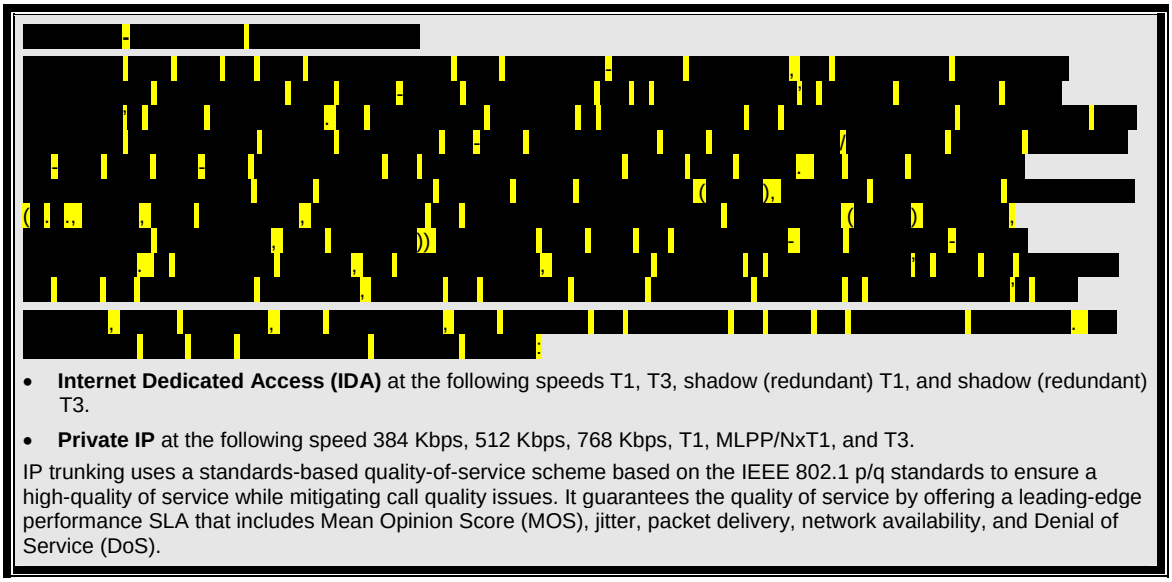
[redacted]

Benefits to the Customer

- Leverages Verizon's private IP or Internet backbone to route calls to and from the Public Switched Telephone Network (PSTN) via the SIP trunk(s)
- Supports a network-based private dial plan for enterprise on-net calls
- Provides Government agencies with the option to gradually replace TDM voice circuits and fully optimize their converged WAN network
- Retains all the current IP PBX features
- No need to retrain employees on any of the calling features or functions
- No need for equipment changeover or disruption to services

Product Description

Verizon's IP trunking is a standards-based SIP interface trunk designed to work with any IP PBX that supports SIP-based trunking. However, given variations in vendor implementation and the possible effects on quality and performance, Verizon requires successful completion of certification testing of an IP PBX platform. This involves careful analysis to identify and resolve potential interoperability/support issues prior to attesting that the platform works with Verizon's VoIP IP trunking service. Verizon is the only carrier that can support SIP trunking on multiple providers through access methods such as IP trunking. No other carrier offers the flexibility and breadth of Verizon's VoIP services.



- **Internet Dedicated Access (IDA)** at the following speeds T1, T3, shadow (redundant) T1, and shadow (redundant) T3.
- **Private IP** at the following speed 384 Kbps, 512 Kbps, 768 Kbps, T1, MLPP/NxT1, and T3.

IP trunking uses a standards-based quality-of-service scheme based on the IEEE 802.1 p/q standards to ensure a high-quality of service while mitigating call quality issues. It guarantees the quality of service by offering a leading-edge performance SLA that includes Mean Opinion Score (MOS), jitter, packet delivery, network availability, and Denial of Service (DoS).

3.2.3.3 VoIP - Managed Internet Protocol Private Branch Exchange - Service Overview

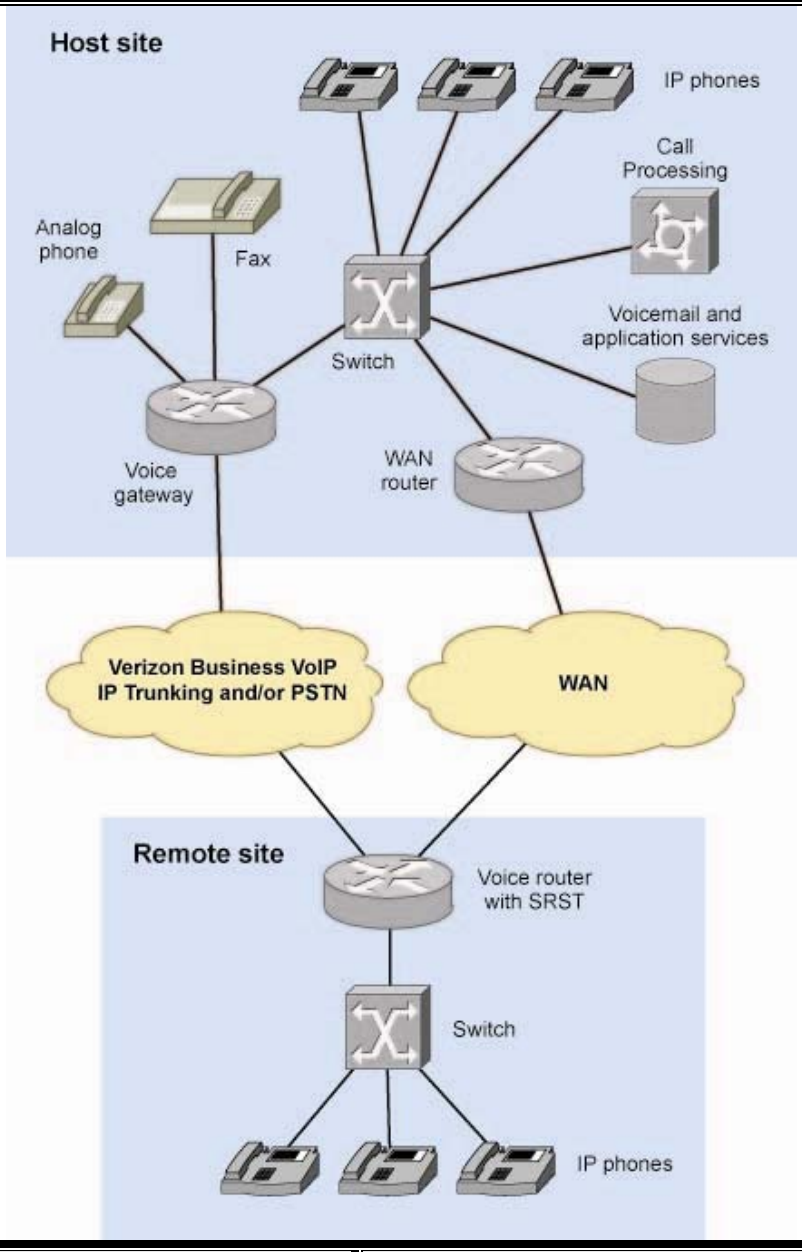
Verizon's managed Internet Protocol (IP) PBX service provides Government agencies support and management of their IP communications infrastructure. It is designed for agencies that demand advanced PBX features and are ready to transition to IP facilities at their own pace. Utilizing Verizon as a managed service provider, Government agencies can reduce productivity losses and have guaranteed response times. Managed IP PBX service provides reliability to the Government with the following optional features:

- **Fault management:** detection, correlation, isolation, recovery, and reporting
- **Configuration management:** provision, changes management, backup/restore, and asset
- **Account management:** usage tracking and service cost allocation
- **Performance management:** collection, reporting, analysis, and capacity planning

- **Security management:** access control, policy, audit, and breach detection

When a Government agency purchases managed IP PBX with Verizon's optional Local Area Network (LAN) and Wide Area Network (WAN) management service, the Government receives [redacted]. When additional redundancy is built into the solution, Verizon quickly approaches the reliability found in today's PSTN network. As an optional add-on, [redacted]. Verizon will help Government agencies evaluate and analyze existing network infrastructure to determine the best approach for successful deployment. Verizon's managed IP PBX service is available to the Government throughout the NCR and communities of interest served by WITS today. *As the incumbent, Verizon is currently positioned to provide the Government a seamless transition to an IP-based infrastructure in the future.*

VoIP – Managed IP PBX



Benefits to the Customer

- Managed IP PBX architecture improves system availability and scalability
- Government agencies will benefit from operating efficiencies through one point of accountability – streamlining the number of vendors and points of accountability and

Product Description

Verizon's managed IP PBX provides Government agencies a premises-based, managed IP telephony solution. Verizon's solution provides the Government with the following IP Communications (IPC) service packages:

- IPC Assessment

VoIP – Managed IP PBX

potential failure

- Lowering infrastructure cost and the expense of bandwidth
- Provides feature-rich data and voice services such as unified messaging, conferencing, and contact centers interact through open telephony Application Program Interface (API)
- Managed voice Quality of Service (QoS) across links
- Automatic diversions to alternate PSTN routes or trunks when WAN bandwidth is not available

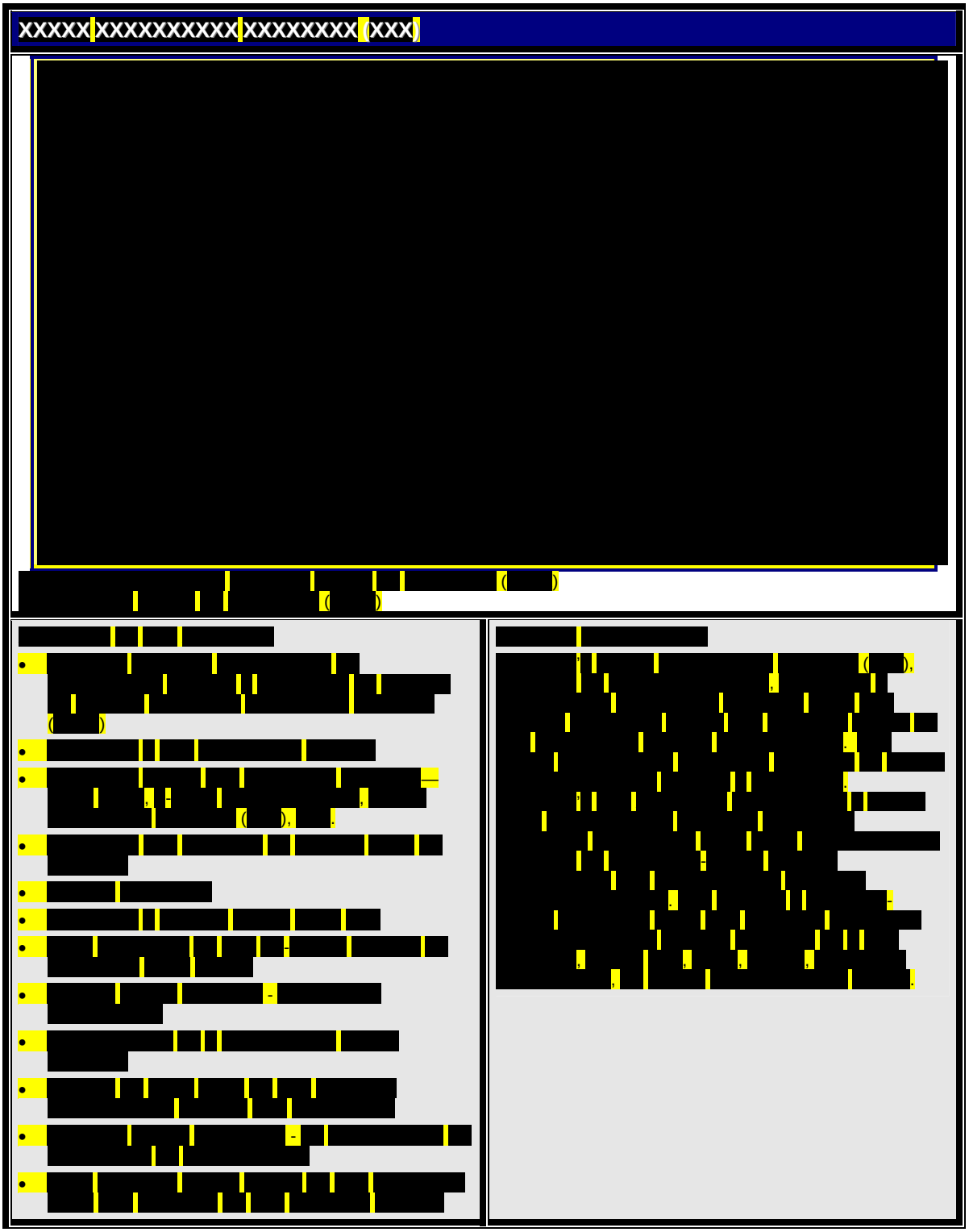
- IPC Planning
- IPC Implementation
- IPC Management

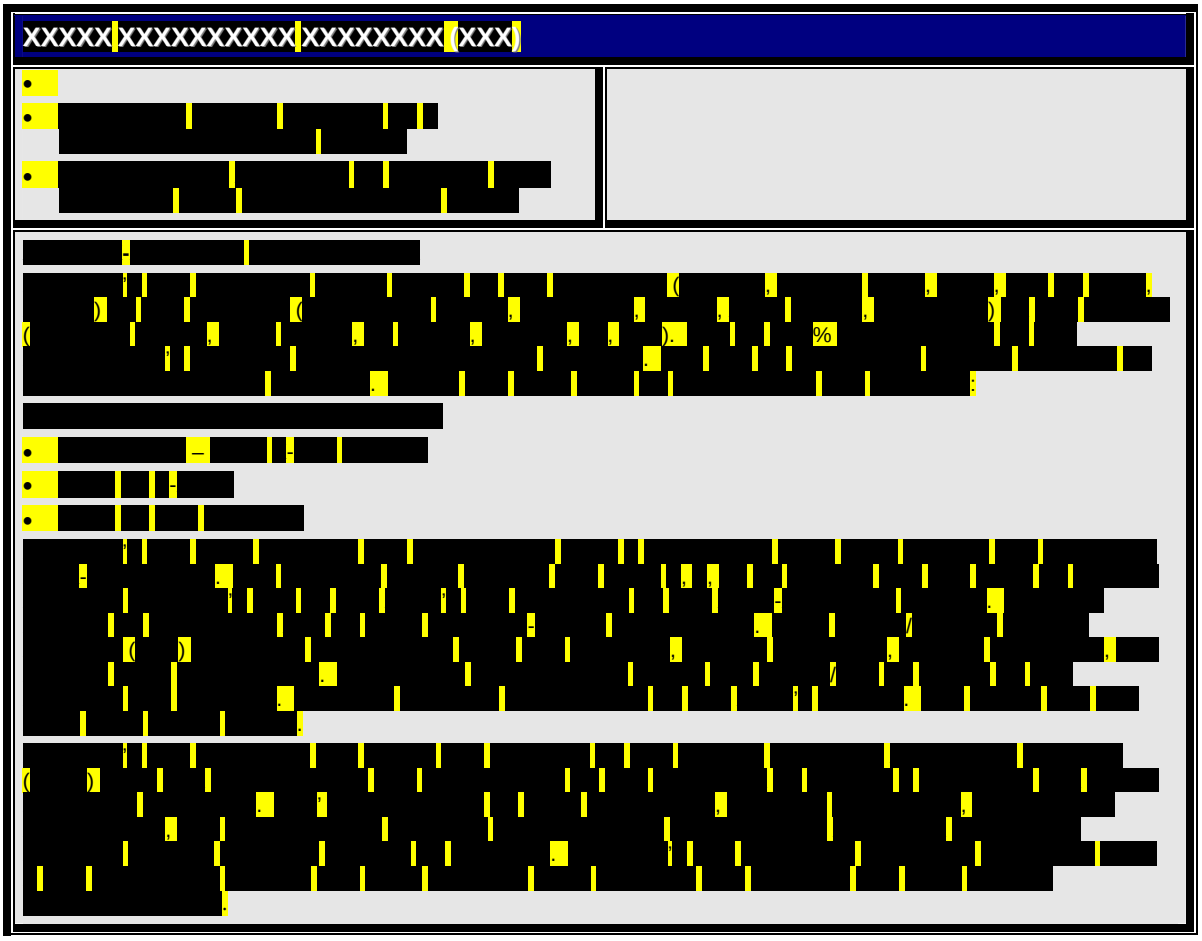
Verizon's managed software-based, call-processing components extends telephony features and functions to packet telephony network devices such as IP phones, media processing devices, and VoIP gateways. Productivity features such as unified messaging interact through Verizon's CPE-based hardware platforms and open telephony API. Distribution of call processing servers, IP phones, gateways, and applications across an IP network provides customers with a distributed, virtual telephony network. This architecture improves system availability and scalability. Call admission control ensures that voice QoS is maintained across a constricted WAN link and automatically diverts calls to alternate PSTN routes or SIP trunks/gateways when WAN bandwidth is not available.

[redacted]

- *User Interface.* The user community interfaces to the IP PBX network via IP-phones or soft phones. Traditional analog sets are also supported through analog gateways. Managed IP PBX does not support Basic Rate Interface (BRI) sets.
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]





XXXXXXXXXXXXXXXXXXXX

[redacted]

[redacted]

Verizon chose EnvoyWorldwide as the recommended notification services vendor. EnvoyWorldWide, a PAR3 company, provides Government agencies with proven and reliable notification applications for the delivery of time-sensitive and proactive notifications. For unplanned events of varying urgency, notification services for continuity of operations facilitate response team activation, employee roll call and more, while communications-enabling existing continuity of operations processes and drills. Capable of automating and processing high-volume requests for message routing, status information, and various other interactive functions, EnvoyWorldWide's patented enterprise notification and message delivery services provide the communications tool that is critical for any continuity of operations plan.

Verizon notification services is a hosted solution for continuity of operations and facilitates personalized, fully interactive voice and text broadcasts to landline phones, faxes, e-mail, pagers, Short Message Service (SMS), and Wireless Application Protocol (WAP) phones, PDAs, BlackBerrys, and other wireless devices. This service has consistently delivered services throughout the United States and more than 125 countries worldwide – with more than 200 million messages delivered in 2005 with 99.99% network availability.

[redacted]

[redacted]

Every organization needs to communicate personally and proactively with its customers, partners, employees, and suppliers. Verizon notification services will help Government agencies reach these audiences with automated notifications that deliver time savings, cost savings, and resource efficiencies. The applications of notification services are virtually unlimited. This solution will provide optimized services in the following areas:

- **Continuity of Operations** - Government agencies can create notifications dynamically and deliver them instantly, personally, and simultaneously to employees, first responders, and customers. Seamless administration, rapid delivery, maximum availability, and unparalleled experience guarantee message delivery within collapsed timeframes as short as five minutes.
- [redacted]

XXXXXXXXXXXXXXXXXXXX

[redacted].

- **Network Events** - Agencies can prevent and mitigate network interruptions in the face of increasing network threats. This solution ensures that agencies can reach key audiences with time-sensitive alerts and corrective instructions, minimizing productivity loss due to unplanned network events. Agencies can communicate with response teams, management, employees, customers, and suppliers through interactive voice or text notifications, regardless of internal network status.
- **Command & Control** – Agencies can communicate with first responders and key personnel during a crisis. The Verizon notification services high availability, carrier-class communications platform provides maximum reliability, extensibility, and security to guarantee seamless real-time communication during unplanned events. Timely, effective communications are pivotal to ensuring quick response and mitigating public risk as the U.S. government ramps up preparedness in multiple areas, including:
  - [redacted]
  - [redacted]
  - [redacted]

[redacted]:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

3.3 Data Services

Verizon provides an ever-growing array of advanced data services across the entire NCR for the Federal Government.

3.3.1 Circuit Switched Data Service (C.2.3) - Service Overview

Circuit Switched Data Service (CSDS) is a robust and reliable switched data solution that provides Government agencies high-quality switched data services, such as videoconferencing solutions. CSDS provides the Government with circuit-switched data speeds of up to 1.5 Mbps (T1). Verizon offers the following CSDS products:

- Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) Access Trunk
- Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) Access Trunk
- Channelized T1 Trunk

Integrated Services Digital Network Basic Rate Interface. ISDN BRI supports up to three simultaneous transmission paths on a digital subscriber loop or line. ISDN BRI is an all-digital service:

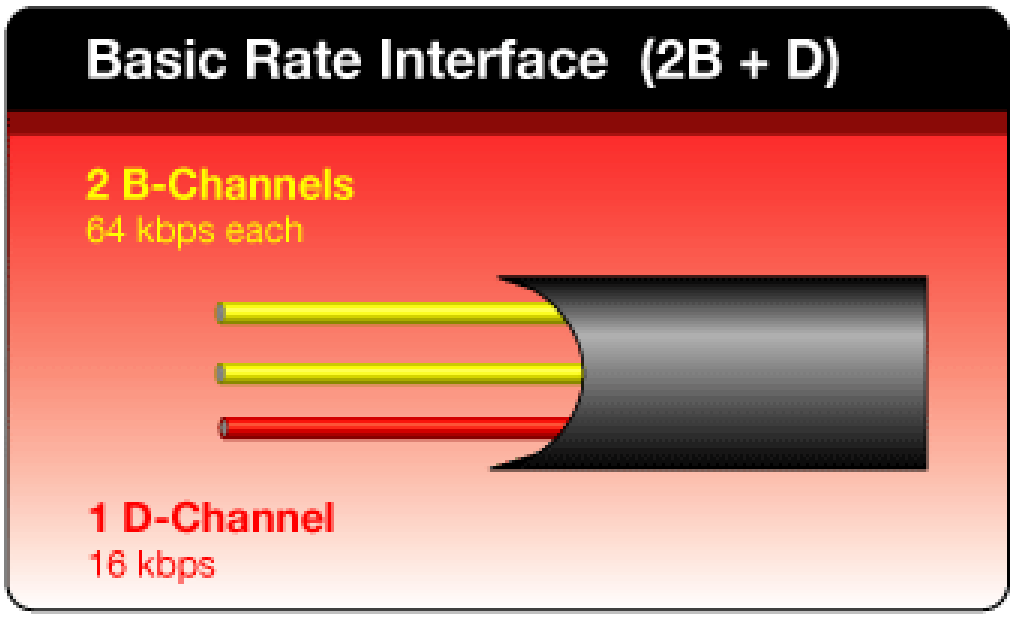
- There are no conversions from or to analog. For customers transmitting data, ISDN BRI provides superior transmission with a significantly lower error rate.
- The ultimate value of ISDN BRI is the single integrated link it provides from the workstation to all network services. It eliminates the need for multiple networks and protocols, which can be expensive and time consuming to install, maintain, and administer.

ISDN BRI provides high performance, fully-digital access to the worldwide telecommunications network through standard copper telephone lines. This digital transmission service is available virtually everywhere within

the NCR. From offices, homes, and remote locations, ISDN BRI allows employees to tap into resources and use new business applications where video images and data flow simultaneously along with fax transmissions and phone conversations.

ISDN BRI supports a wide range of applications by enabling a seamless exchange of information in any medium—voice, data, or video. ISDN BRI sends clear digital signals over regular facilities. ISDN-BRI service requires that the customer specify a pipe configuration—2B+D, 1B+D, or 0B+D (for packet only).

CSDS - ISDN BASIC RATE INTERFACE (BRI)



Product Description

ISDN BRI integrates service by letting users perform several digital functions at one time. ISDN BRI customers can research pertinent data on the Internet while participating in a conference call; fax important documents while e-mailing the recipients; and send large digital files (graphics or text) in a quarter of the time it would take with an ordinary dial-up connection. All of this is accomplished with ordinary copper phone lines and an ISDN card.

Benefits to the Customer

- Convenience
- Increased employee productivity efficiencies
- Cost savings resulting from allowing multiple desktop devices to share one loop, integrating multiple networks into one, and reducing onsite wiring

CSDS - ISDN BASIC RATE INTERFACE (BRI)
• User does not need to purchase multiple lines to meet multiple needs • Reduced network complexity -- much easier network management • Flexibility • Data connectivity from anywhere to anywhere • Instantaneous connections • Increased throughput • Reduced error rate • Disaster recovery backup circuit
Service-Specific Architecture ISDN BRI describes an end-to-end digital telecommunications network architecture. This means the entire network including all facilities and equipment must be digital. The ISDN network architecture supports simultaneous transmission of voice, data, and image/video. The customer's ISDN line is a channelized "pipe" that supports simultaneous access to multiple service capabilities. ISDN BRI is a two-wire digital subscriber line that provides the following capabilities: • Two 64 Kbps Bearer (B) channels that can be used for voice, data, and video. Both B channels can be bonded providing a 128Kbps circuit • One 16 Kbps Data (D) channel that is used as the signaling channel for call set-up and call-completion messages to support enhanced features such as caller ID and to carry low-bandwidth, packet-switched data. Verizon supports both national (standard) and custom ISDN. National is promoted and preferred. National ISDN is standards-based and is supported by all switch suppliers to ensure switch interoperability. ISDN BRI lines are supported per the specifications found in ANSI/EIA T1.607 and 610.

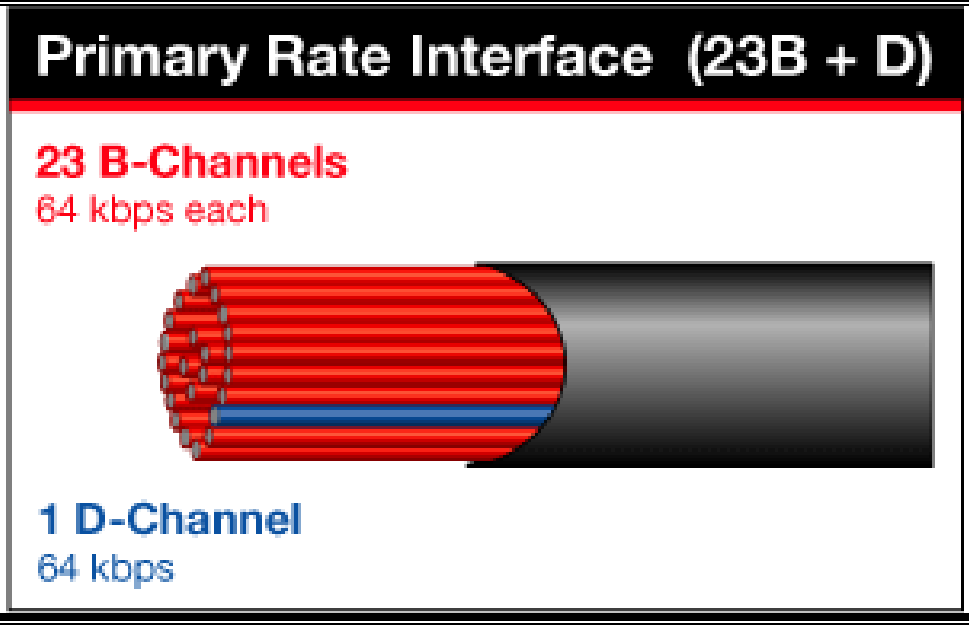
Integrated Services Digital Network Primary Rate Interface. ISDN PRI is a Central Office (CO)-based service arrangement that utilizes ISDN architecture to provide network offerings. ISDN PRI is provisioned on a clear channel 1.5 Mbps facility (T1) and uses the ISDN architecture of 23 B channels and one D channel or 24 B channels to provide the customer simultaneous access, transmission, and switching of voice, data, and imaging services via channelized transport.

ISDN PRI service provides intra-exchange access for integrated services between the customer premises and the serving office via a 1.5 Mbps facility. ISDN PRI denotes an end-to-end digital network capable of supporting a combination of public and private network access services. ISDN PRI's 24 channels are arranged into twenty-three 64 Kbps B channels for user information and one 64 Kbps D channel for signaling and control functions. "Out-of-band" signaling from ISDN offers clear 64 Kbps channels for data communications. The 64 Kbps channels can be bundled to provide

speeds up to 1.5 Mbps per line. The channel arrangements can carry several different services, depending on the customer's needs and the capabilities of their equipment.

- Circuit switched data
- Dedicated B channel configuration
- Dedicated T1 line elimination
- Disaster recovery
- Host computer access
- LAN-to-LAN connection
- PBX trunking efficiency
- 23 B+D channel arrangements
- 23 B+ back-up D channel arrangements
- 24 B channel arrangements
- Video conferencing

CSDS - ISDN PRIMARY RATE INTERFACE (PRI)



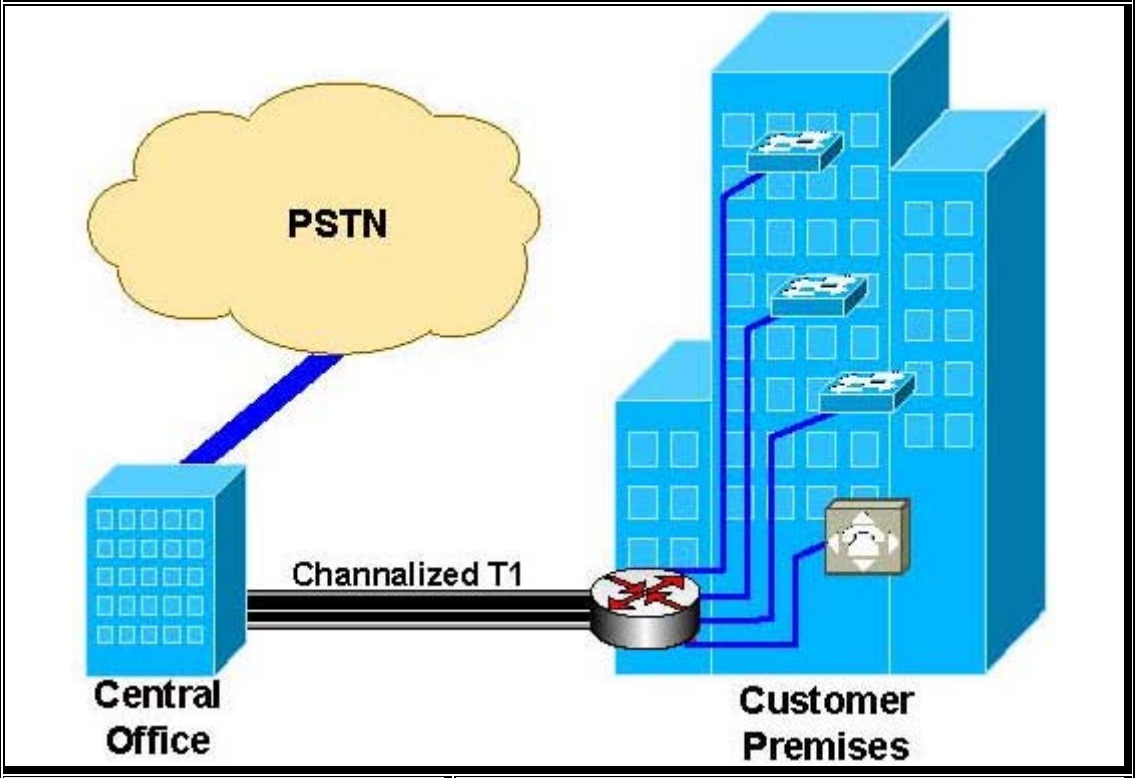
Product Description
ISDN PRI is a local exchange access service that creates a direct digital connection to a Verizon central office to

CSDS - ISDN PRIMARY RATE INTERFACE (PRI)
provide voice, data, image, and video services on a single circuit or line.
Benefits to the Customer • *Dedicated T1 line elimination:* If a dedicated T1 is being underutilized, it may be cost effective to replace it with a PRI and route those calls over the network rather than pay the entire cost of the T1. • *Disaster recovery:* Circuit switched capability can provide alternate paths in the event of an emergency • *Host computer access:* Large bandwidth for high speed data communications • *Local Area Network (LAN)-to-LAN connection:* Large bandwidth essential for heavy graphics and data intensive applications (i.e., Computer-Aided Design (CAD)/Computer-Aided Manufacturing (CAM)) • *Video conferencing:* Large bandwidth increases video resolution, allows for faster screen refresh, and provides a sharper picture • *PBX trunking efficiency:* Call-By-Call (CBC) service selection can reduce the customer's trunking requirements and allow customized time-of-day selection of service
Service-Specific Architecture PRI uses the ISDN architecture and has a bandwidth of 1.536 Mbps for communication from a CO to the customer premises. There are two kinds of channels in ISDN-PRI. • B Channels full 64 Kbps, free of call set-up signaling, for use in voice and switched data transmission • D Channel control signaling functions Based on the equipment and needs, the Government may select an appropriate PRI arrangement from the following options: • 23 B Channels + 1 D Channel • 23 B Channels + 1 Back-up D Channel • 24 B Channels ISDN PRI (23B+D) is supported at an information payload data rate of 1.472 Mbps and ITU-TSS Q.931 signaling type. The D channel cannot be shared by another ISDN PRI trunk. The applicable standards are *ANSI/EIA T1.607* and *610/ NIUF National ISDN-1 (Telcordia Pub SR-NWT-001937)*, *NIUF National ISDN-2 (Telcordia Pub SR-NWT-002120)*, and *NIUF National ISDN-3 (Telcordia Publication SR-NWT 002457)*. ISDN PRI (24B+0D) is supported at an information payload data rate of 1.536 Mbps and ITU-TSS Q.931 signaling type and shares a D channel with another ISDN PRI trunk. The applicable standards are *ANSI/EIA T1.607* and *610/ NIUF National ISDN-1 (Telcordia Pub SR-NWT-001937), NIUF National ISDN-2 (Telcordia Pub SR-NWT-002120)*, and *NIUF National ISDN-3 (Telcordia Publication SR-NWT 002457).*

Channelized T1 Trunk. A channelized T1 trunk contains 24 individual channels, each capable of carrying voice or data. The full set of channels has the same speed as a full T1, but the individual channels may be split into voice or data lines using a Channel Service Unit (CSU)/Data Service Unit (DSU). The CSU/DSU is used to split the voice and data channels, allowing the voice channels to be connected to a phone system or PBX and the data channels to a router serial interface. Data channels are often used to provide Internet connectivity.

High capacity digital data services transmit heavy volumes of digital information and support applications that demand high bandwidth such as LAN-to-LAN connectivity and teleconferencing. Customers can connect directly to an Internet Service Provider (ISP) for unrestricted access to the Internet and faster download times. Government agencies would be able to exchange large files and process high volumes of on-line transactions such as payroll and inventory management.

CSDS – CHANNELIZED T1 TRUNK



Product Description	Service-Specific Architecture
Channelized T1 trunk service is a high-capacity digital channel that carries voice grade local exchange and channel service between the customer's serving central office and the customer's compatible premises equipment.	Channelized T1 is supported for 24 separate DS0 channels. The Channelized T1 service provided by Verizon meets the specifications in the ANSI standards T1.102/107/403.

Benefits to the Customer

- Transmits large amounts of information at high speeds

CSDS – CHANNELIZED T1 TRUNK

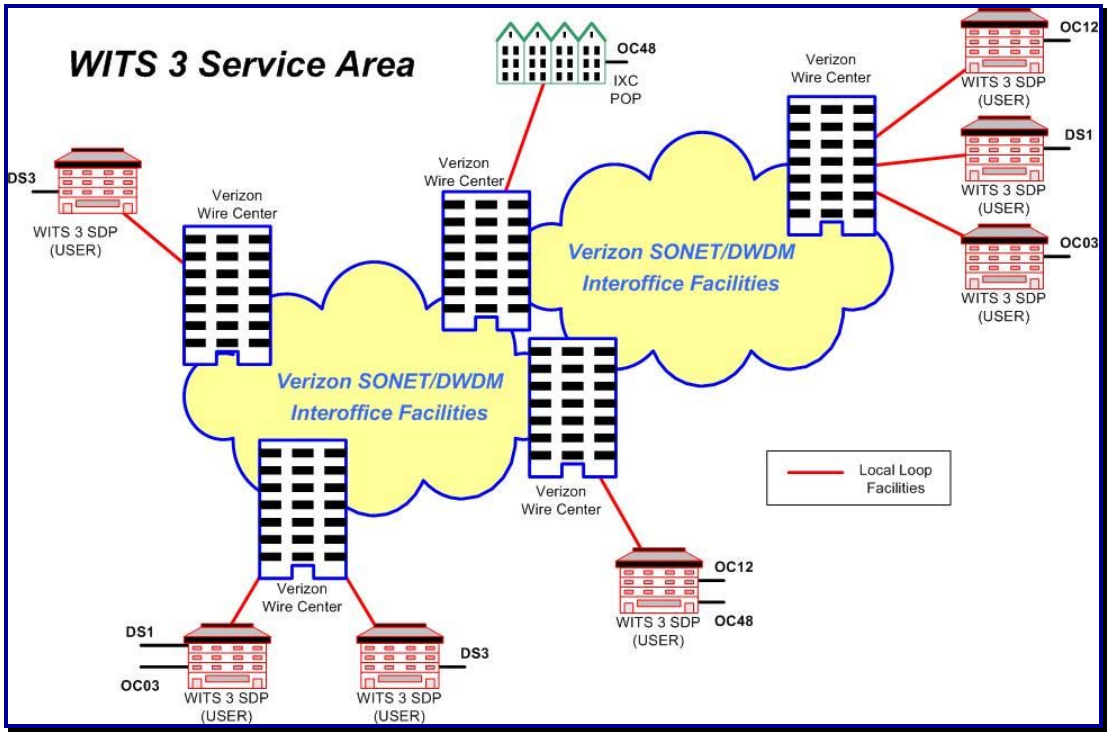
- Using high-capacity digital data services is an economical alternative to using multiple lower-speed channels to transmit the same information
- Guaranteed transmission capacity is not subject to network congestion or delays
- Meetings can be held by videoconferencing, reducing travel time and expense
- Increased security access reduces unauthorized network access
- Gain versatility to allocate a changing number of lines (up to a total of 24) to data transport, Internet access, local or long distance calling and rearrange them as needed
- Dedicated Internet access prevents delays on the Web
- Digital-quality data and voice connections plus additional cost savings by consolidating voice and data services onto a single high-capacity digital circuit.
- High-speed, secure point-to-point communications between the Government agencies and the Internet with a 99.9 percent uptime guarantee.

3.3.2 Dedicated Transmission Service (C.2.4) - Service Overview

Verizon's proposed network architecture and infrastructure will ensure the delivery of high-quality, secure, and reliable Dedicated Transmission Service (DTS). Verizon will provide DTS by deploying a dedicated point-to-point circuit using its existing fiber-based or copper-based facilities (up to T1 level) or a Synchronous Optical Network (SONET) and Dense Wave Division Multiplexing (DWDM) network using a self-healing platform of fiber-optic facilities already servicing WITS2001 customers to interconnect the WITS 3 network with other specified Government networks.

Verizon's mission-critical DTS infrastructure extends throughout the NCR. Verizon has continuously deployed advanced technologies such as SONET and DWDM. Figure 3.3.2-1, WITS 3 DTS Network depicts the Verizon network that will support WITS 3 DTS.

Figure 3.3.2-1: WITS 3 DTS Network



The DTS performance parameters for originating or terminating connections will meet the following specifications:

- All analog transmission parameters will satisfy the values and ranges set forth in *Telcordia Pub GR-335-CORE* and *Sections 7.4 and 7.5, Transmission, BOC Notes on the LEC Networks (Telcordia Pub SR-TSV-2275)*. Verizon has been a member of the standards body, helped to develop these requirements, and is in compliance.
- All Verizon digital transmission parameters will satisfy the standards set forth in the *High-Capacity Digital Special Access Service - Transmission Parameter Limits and Interface Combinations* (Standard: Telcordia Pub GR-342-CORE); ANSI/EIA T1.503/510 for T1, Telcordia Pub TR-499 for T3, and ANSI/EIA Standards T1.105 for SONET OC3, OC12, OC48, and OC192 service).

Verizon's DTS solution is based primarily upon SONET technology that has inherently high-quality service features. SONET technology will provide the Government with near 100 percent uptime, extreme reliability, and relatively error-free transmission. The DTS services will be routed over Verizon-owned SONET networks. Circuits will also be diversely routed when possible to maintain a high degree of survivability. In situations where DTS circuits are routed over copper, Verizon will work with the Government to design the circuits in a way to achieve maximum survivability and diversity. Verizon SONET [redacted] rings installed. This infrastructure will ensure that Verizon will be able to meet all of the WITS 3 DTS requirements throughout the contract life.

Verizon dedicated transmission service at the T1, T3, and SONET digital rates is monitored around the clock by [redacted], which supports rapid response and proactive trouble reporting to network alarms. [redacted]. The objective of performance monitoring in maintenance is to allow timely detection of performance degradation or related troubles in various network elements, preferably before the end user is adversely affected. The Verizon NOC provides 24x7 provisioning, surveillance, maintenance, trouble resolution, and network management functions. [redacted]

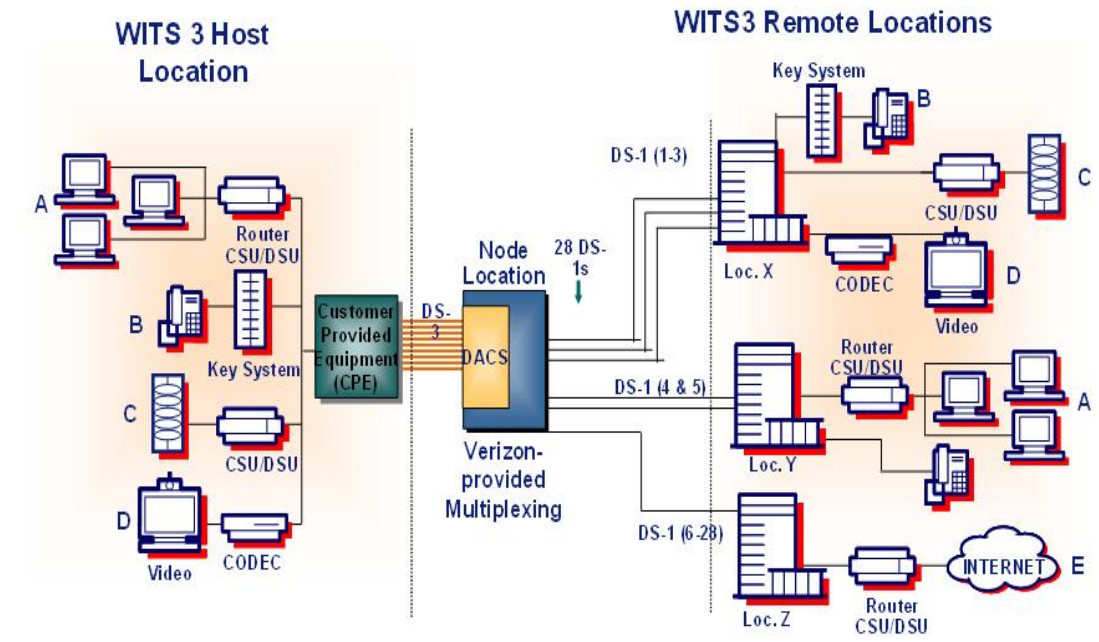
[redacted]. WITS 3 customers will receive the added service assurance that come with this configuration.

Verizon's approach will accommodate traffic growth, evolution requirements, and technology advancement for dedicated transmission bandwidth between Service Delivery Points (SDPs) at user sites within the WITS 3 service area using existing local access to the WITS 3 SDP and interoffice network. Verizon will also provide private customer ring using dedicated SONET and dedicated DWDM technology for dedicated services between multiple SDP user sites within the WITS 3 service area. Dedicated SONET and dedicated DWDM rings are designed with complete diversity (no single points of failure) so no single fiber or node failure causes a ring failure. Verizon fiber design has complete diversity. The fiber cannot share common cables, conduits, or intermediate COs such that a single event can damage both fiber routes and isolate a node on the ring. This provides the Government with the highest possible level of survivability in the event of a facility or equipment failure.

The following DTS products are described below:

- Private Line
- Dedicated SONET Ring/Nodes
- Dedicated DWDM Ring/Nodes
- TV-1

DTS – PRIVATE LINE



Product Description

DTS provides low, medium, and high speed point-to-point or multi-point circuits from alarm, voice grade, and data circuits; Digital Data Services (DDS) - T1, T3; and SONET-based services - OC-3, OC12, OC48, and OC192. Verizon will utilize its technical resources to help customers design service to allow aggregation of bandwidth. Such designs make it possible for voice and data to converge for transmission between two WITS2001 sites using point-to-point circuits.

Benefits to the Customer

- Provide a secure transmission medium for mission-critical data versus shared bandwidth on the public data network
- Provide performance superior to switched services with less latency
- Configured to an individual customer's needs

Service-Specific Architecture

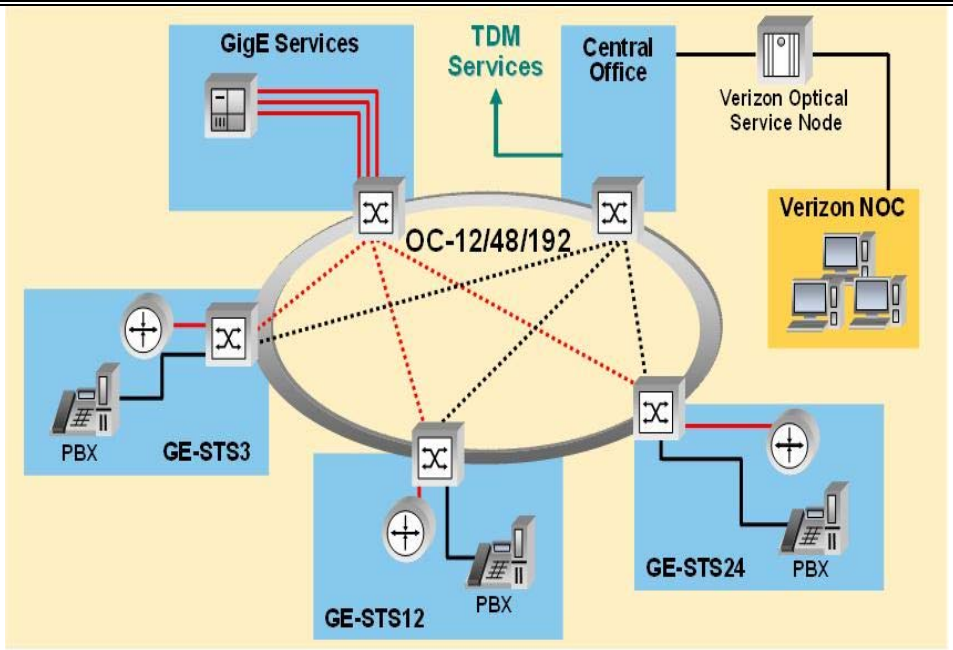
For digital DTS using T1 rates and below provided by Verizon, the network will provide network-derived clocking to the connected Dedicated Transmission Equipment (DTE), digital PBX, intelligent multiplexers, or Local Area Network (LAN) bridge/router. The service will also provide data transport and will be transparent to any commercially supported protocol used by the DTE or bridge/router. All bit sequences transmitted by the DTE through the SDP will be data transparent. The following categories of DTS will be supported by the Verizon network, except where noted:

- *Analog:* 4 kHz nominal bandwidth
- *Subrate DS0:* Information payload data rates of 4.8, 9.6, and 19.2 Kbps
- *DS0:* Information payload data rates of 56 and 64 Kbps
- *T1:* Line rate of 1.5 Mbps, which will be used to provide channelized or unchannelized T1 service as follows:
  - *Channelized T1:* 24 separate DS0 channels of 64 Kbps where each DS0 channel may be either a clear channel or contain multiple sub-rate DS0 payloads
  - *Unchannelized T1:* A single 1.536 Mbps information payload

DTS – PRIVATE LINE

- *Fractional T1:* Verizon will provision up to 24 separate DS0 channels where each DS0 may be either clear channel 64 Kbps or contain multiple sub-rate DS0 payloads. Verizon will provide fractional T1 by deploying a T1 circuit between the two WITS2001 SDPs. Verizon will interface this circuit with a CSU/DSU installed at both ends. The number of DS0s will be provisioned by configuring the CSU/DSU based on the customer's designation, and upon notification to the WITS 3 CSC, can be reconfigured within eight hours to provide a different number of channels. As an option, if the customer wishes this reconfiguration to be automated, on-demand, or remote, Verizon can design the appropriate equipment configuration for this implementation.
- *Channelized T3:* A line rate of 44.736 Mbps, 28 separate T1 channels of 1.536 Mbps information payload rate
- *Unchannelized T3:* A single 43.008 Mbps payload
- *Fractional T3:* A line rate of 44.736 Mbps, Verizon will provision up to 28 separate T1 channels at 1.5 Mbps where each T1 may be either a channelized or unchannelized T1 payload.
- *Channelized OC3:* In this mode, line rate of 155.520 Mbps, three separate T3 or STS-1 channels, each with an information payload data rate of 45 Mbps or 49.536 Mbps respectively, will be supported.
- *Concatenated OC3c:* In this mode, line rate of 155.520 Mbps, a single channel having an information payload data rate of 148.608 Mbps, will be supported.
- *Channelized OC12:* In this mode line rate of 622.080 Mbps, four separate OC3c channels, each with an information payload data rate of 148.608 Mbps, will be supported.
- *Concatenated OC12c.* In this mode line rate of 622.080 Mbps, a single channel having an information payload data rate of 594.432 Mbps will be supported.
- *SONET OC48:* In this category of DTS service, Verizon proposes to offer the Government OC48 SONET rings and DWDM ring with interfaces at the bandwidth rate of 2.488 Gbps. These SONET rings and DWDM rings offer the Government a survivable and robust platform with which to serve their customers OC-48 and sub-OC48 rates.
- *SONET OC192:* In this category of DTS service, Verizon proposes to offer the Government DWDM ring with interfaces at the bandwidth rate of 9.9532 Gbps. These DWDM rings offer the Government a survivable and robust platform with which to serve their customers single SONET OC-192 Channel.
- *Dark Fiber.* Dark fiber may be required on Government agency campuses and between point-to-point locations within the WITS 3 service area. Agencies acquiring dark fiber should have the option of either providing their own optoelectronics equipment or leasing optoelectronics equipment from the contractor.

DTS – DEDICATED SONET RING



Product Description

Dedicated SONET Ring (DSR) is a SONET-based multi-node self-healing ring architecture that includes Gigabit Ethernet and Fibre Channel/Fiber Connectivity (FICON) over SONET functionality in addition to the existing T1, T3, OC3/3c, OC12/12c, and OC48/48c interfaces. Both the facilities and Add/Drop Multiplexer (ADM) nodes are fully dedicated. The service is designed as a self-healing SONET ring or partial ring by diversely routing the fiber paths where available.

The DSR service is an optical high-capacity service provided using SONET-based technology. DSR is provided on SONET facilities except where a service is extended on an "off-net" facility. DSR will provide the Government a dedicated high-capacity customized network. The network is in a ring architecture or topology that assures greater survivability and can be arranged as a full ring or as a partial ring that provides connectivity to multiple locations. The rate elements of the DSR service are rated discretely. Discrete rate elements include ports, nodes, mileage, and high-speed interfaces (certain partial ring configurations only). The node rate elements for the DSR service consist of OC3, OC12, OC48, and OC192 nodes on a ring. Generally, the ring capacity determines the highest node rate element at each location.

The port rate elements on the DSR service are charges for the interface at which a channelized or lower speed service terminates or originates at a DSR node.

Service-Specific Architecture

Built on a self-healing architecture that provides a highly reliable network, DSR can be used to construct network backbones over which high-speed, high-volume voice, video, data, and storage area networking applications can travel. Supported technologies include Time Division Multiplexing (TDM), Asynchronous Transfer Mode (ATM), frame relay, OC-N, Ethernet, FICON, and fibre channel.

SONET-based services have the following features:

- *Survivability:* DSR is installed over a resilient, dual-fiber ring architecture
- *Reliability:* DSR provides highly available and reliable service
- *Fully managed Verizon solution:* DSR service is proactively monitored 24x7
- *Fully dedicated service:* Both the facilities and ADM nodes are fully dedicated
- *Multi-service platform:* DSR facilitates network convergence by providing the ability to bundle a variety of

DTS – DEDICATED SONET RING

interfaces on one fiber backbone (IP and TDM)

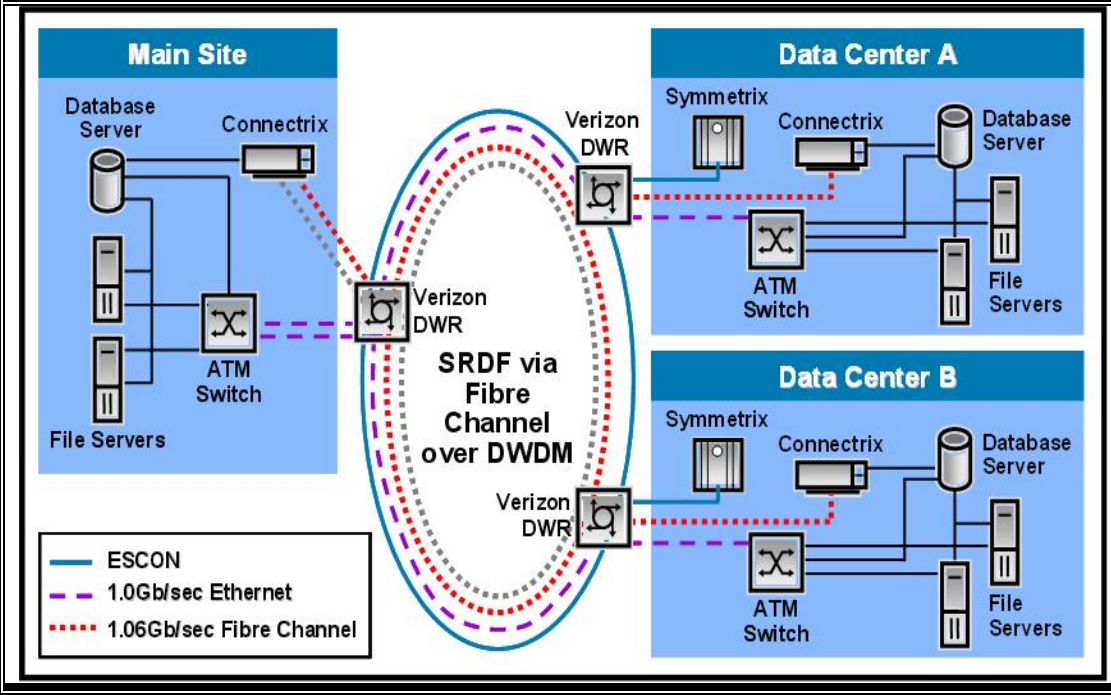
- *Integrated Ethernet multi-point capability:* The Ethernet switching capability of Ethernet Packet Ring Service (EPRS) enables multi-point connectivity via bandwidth allocated between locations on the DSR
- *Cost-effectiveness:* Verizon offers flexible bandwidth and pricing options with term discount plans
- *Scalability:* DSR can meet current and future bandwidth requirements with no forklift upgrades required

Verizon DSR is available at OC-3, OC-12, OC-48, and OC-192 bandwidths. Available TDM interfaces include T1/T3, OC-3/3c, OC-12/12c, and OC-48/48c. DSR for GigE interfaces available include GigE1 (50 Mbps), GigE3 (150 Mbps), GigE6 (300 Mbps), GigE9 (450 Mbps), GigE12 (600 Mbps), and GigE24 (1000 Mbps). Storage interfaces, where available, include FICON and Fibre Channel at 1 Gbps. EPRS is available on OC-12, OC-48 and OC-192 DSRs and can be provisioned with bandwidths of 50 Mbps, 150 Mbps, 300 Mbps, 450 Mbps, 600 Mbps, and 1000 Mbps. EPRS interfaces include 10M, 100M, and 1000M Ethernet.

Benefits to the Customer

- Able to run TDM, Ethernet Private Line (EPL), and switched Ethernet services over the same DSR backbone
- Flexible native Ethernet connections to Ethernet Customer Premises Equipment (CPE)
- Sub-50ms resiliency for native Ethernet Layer 2 connectivity
- Able to reach multiple endpoints from a single UNI (E-LAN)
- Support of 802.1Q IEEE Virtual LAN (VLAN) tagging specification used to define communities of interest
- EPRS Ethernet service creates an optical WAN/LAN within the customer's DSR
- Better bandwidth utilization (the same Synchronous Transport Signal (STS) paths are used around the ring and the SONET protection path is disabled for increased data transmission)

DTS – DEDICATED WAVELENGTH RING (DWR)



DTS – DEDICATED WAVELENGTH RING (DWR)

Product Description

DWR is an advanced data networking service that uses Dense Wave Division Multiplexing (DWDM) technology. DWDM uses the properties of refracted light to combine and separate optical signals based on their wavelengths within the optical spectrum. Therefore, DWDM allows for a more efficient use of existing fiber by providing multiple optical paths along a single pair of fibers.

Verizon DWR solutions utilize a ring or point-to-point architecture. DWDM is a Layer 1 transport technology that combines multiple optical data interfaces onto one optical fiber pair with each signal carried on its own separate light wavelength. DWDM allows for a greater range of protocol transmission better suited than legacy network for data-centric applications (e.g., GigE, ESCON, Fibre Channel, D1 Video, and ISC). The Government can consolidate multiple networks supporting these technologies along with SONET-based data networks thereby increasing network efficiency and centralizing network management.

Benefits to the Customer

Verizon DWR was developed to meet WITS 3 requirements:

- Network security
  - Protecting the network
  - Maintaining application availability
- Scalability
  - Offering more bandwidth
  - Adding more locations
  - Networking more applications
- Reliability
  - Ensuring application performance
  - Providing faster recovery

Service-Specific Architecture

DWR is a dedicated customer ring network service using DWDM technology. DWRs consist of WITS 3 customer and Verizon Optical Add/Drop Multiplexer (OADM) nodes built in closed ring architecture with complete fiber and node diversity. One of the major drivers for DWDM is the WITS 3 customers growing need to optically extend their enterprise storage networks. The following applications meet this need:

- Consolidation of server and storage farms
- Business continuance/disaster avoidance
- Remote disk mirroring
- Secure data sharing
- Video on demand
- Vertical specific applications

These applications are referred to as storage area networking solutions. Through Verizon's co-marketing agreement with EMC^2, RFP assistance and joint sales engagements are available to support customers' storage area networking requirements.

DTS - TV-1 Service

Verizon in an effort to provide continuity of service is proposing TV-1 service, which provides for point-to-point circuits used for video transmission. This service is currently used by several agencies within the National Capital Region (NCR).

Basic Service Capability. The Government can utilize the TV-1 service to transmit broadcast quality audio and video between locations. TV-1 service will provide a basic video channel with one-way transmission capability for a standard 525-line/60-field monochrome or National Television Systems Committee color, video signal, and one or two associated 5 or 15kHz audio signal(s). Video channels will be provided between the customer-designated premises and a Verizon hub. The following two service levels are available:

- TV - 15 Video Basic Service
- TV Video Basic Service

If fiber is already in place, the standard interval for implementing TV-1 service is five business days. If fiber is not in place, a site survey will be required and the interval may be up to 90 business days for fiber implementation.

Interfaces. The termination rate element for TV-1 service will include the use of up to twenty-five feet of coaxial cable from the point of entry into the customer's building to the channel interface. In the event that the customer requests that Verizon extend the location of the channel interface beyond 25 feet, the Inside Wiring and Technical Supports Services portion of this proposal response will provide for extended channel interfaces. The extended communications path is subject to distance limitations, which are specific to the communications paths being extended. Verizon will provide TV-1 service in accordance with F.C.C. Tariff No. 1, Sections 7.2.5 and 7.5.5.

3.3.3 Teleconferencing Service (C.2.5) - Service Overview

Verizon Teleconferencing Service (TS) offers the Government the ability to conduct a point-to-point or point-to-multipoint conference using the Public Switched Telephone Network (PSTN), a Government agency private

intranet, or the public Internet. The Government can use TS to conference with other users in the NCR, the United States, Europe, the Middle East, and Africa (EMEA), and Asia. TS conferences may be scheduled by telephone, fax, or online via the Consolidated Conferencing Reservation System (CCRS). CCRS operates on a high-end DEC alpha computer with full disaster recovery capabilities and currently [redacted].

TS dial-up analog or Integrated Services Digital Network (ISDN) access uses Verizon's reliable PSTN network. IP access to TS is individually designed on a case-by-case basis. When a WITS 3 user registers IP sites, requesting access to TS, Verizon will assign an engineering team to design network access from each customer IP node to a TS access point.

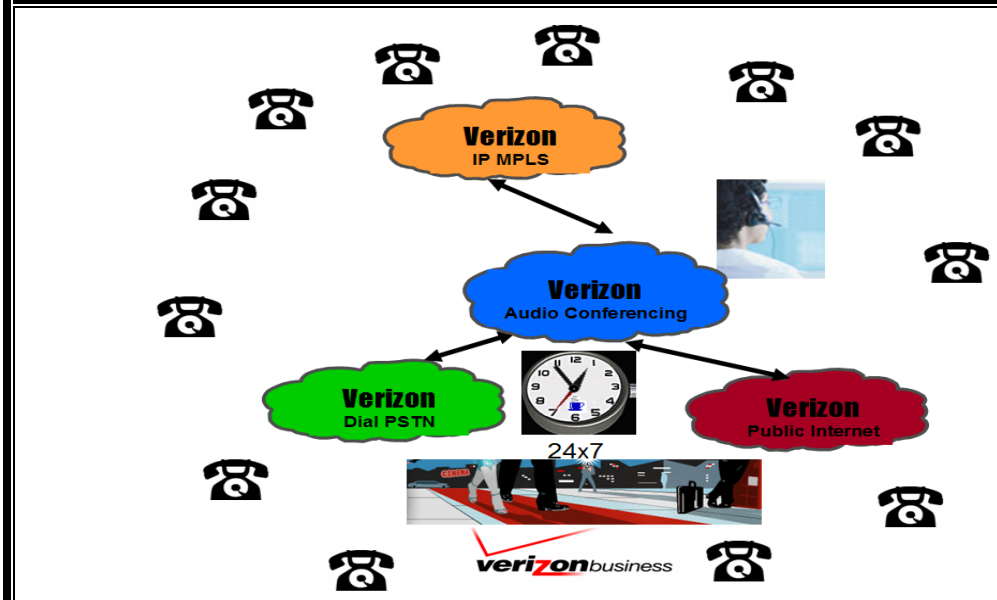
TS video uses Polycom MGC100 and Voyant bridges. TS audio uses Polycom MGC100 and Compunetix bridges. All TS bridges are ITU-T H.320, H.323, T.120, and H.239 compliant and fully meet the requirements of FTR-1080 [redacted].

TS has a comprehensive security policy based on the ISO 17799 – Information Technology – Code of Practice for Information Security Management, the Generally Accepted Information Security Principles (GAISP), and the National Institute of Standards and Technology (NIST). Verizon's security groups include (1) Network & Information Security (NIS), (2) Government Network Security Operations Center (GNSOC), and (3) Enterprise Security Task Force (ESTF).

Verizon conferencing uses the Consolidated Conferencing Tracking System (CcTS) to measure the quality of TS processes and procedures. CcTS runs on a Clarity-based platform and a case is opened for each affected conference. The data that CcTS provides gives TS an invaluable

tool for trending and analysis on the types of calls handled and the problems associated with them. CcTS is designed to enable TS to continue to provide Verizon's customers with the highest level of quality control and exceptional customer service.

VERIZON AUDIO CONFERENCING



Product Description

Verizon Audio Teleconferencing Service supports more than 334,000 hours of audio conferences per month and is scalable as to accommodate additional capacity as needed. Audio conferencing provides a multipoint local and long distance telecommunications service between a single calling station and two or more called stations. Audio Conferencing requires a teleconferencing bridge port for each called station. Verizon Audio Conferencing Centers provide the necessary bridge ports. This service is not available for collect calling.

Access Methods (1) *Dial-out access*: conference coordinator sets up dial-out conference calls; (2) *Toll-free meet-me access*: reserve a toll-free number for a pre-arranged date and time; (3) *Toll meet-me access*: reserve a direct long distance dial number for a pre-arranged date and time; (4) *Voice services dial-out access*: reserve an attendant-assisted direct long distance dial-out conference call for a pre-arranged date and time

Four levels of service (1) *Premier service*: provides a conference coordinator to greet and announce each participating caller into the conference call, take roll call, and monitor the call until it ends (2) *Standard service*: reserved in advance and is an attended service that provides two entry methods – a) a coordinator greets and announces participants as they dial in or a) the call leader and participants are given a numeric pass code to automatically enter the conference; (3) *Unattended service*: provides a coordinator for technical assistance only, conference call participants enter the call by entering a pre-assigned pass code; and (4) *Instant meeting service*: provides 24x7 conference calling availability supported by pre-assigned bridge ports. Verizon will issue two pass codes to the customer for use with instant meeting service at the time enrollment. One pass code is assigned for the customer's use to activate the subscribed ports for a conference call. A second pass code is provided to the customer to be made available to the participants on any instant meeting conference call that the customer initiates. Conferences maybe scheduled via telephone, fax, or on-line.

VERIZON AUDIO CONFERENCING

Benefits to the Customer

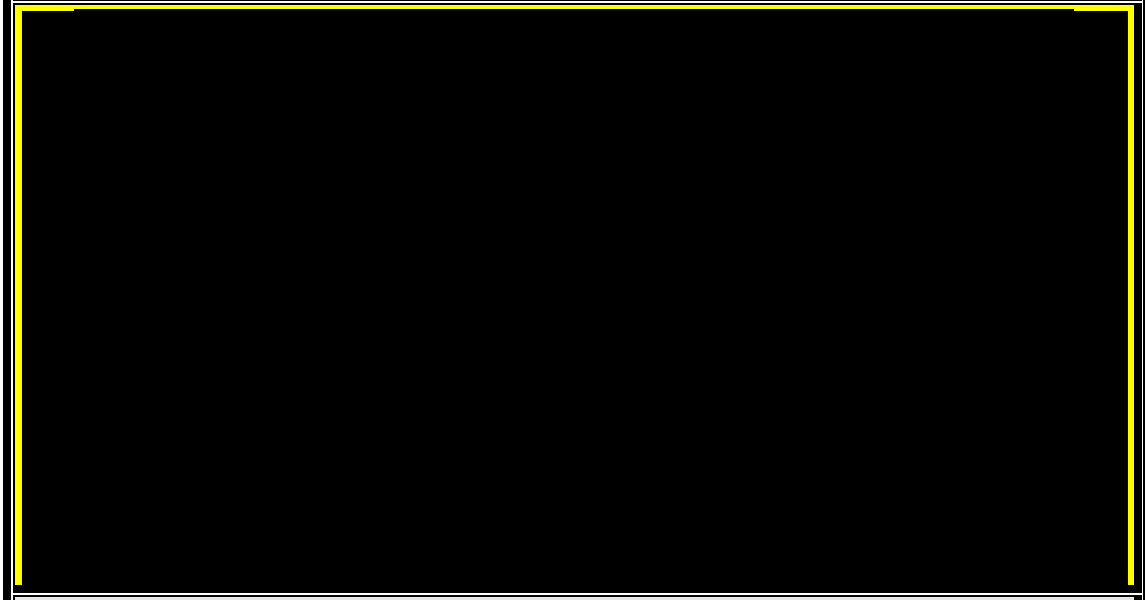
- Reaches people quickly enabling them to make important decisions faster
- Reduces cost and travel time
- Brings dispersed groups together despite time and location limitations
- Improves communications and broadens meeting participation
- Allows users to tailor meetings and collaborate using value-added features designed to meet specific needs
- Gives users the ability to select their service level on a call-by-call basis, allowing them to customize meetings

Service-Specific Architecture

The primary means of accessing Verizon's audio conferencing resource is over the PSTN, but IP access over the customer's private extranet and the public Internet is also available. When the user registers IP audio conferencing sites, a Verizon engineering team will be assigned to design audio conferencing access (video conferencing as well if required) on a case-by-case basis. Verizon Very-high-performance Backbone Network Service (vBNS) is well suited for transporting IP audio and video traffic to the TS access point. Private IP is based on Multi-Protocol Label Switching (MPLS) technology, which integrates the performance and traffic management capabilities of Layer 2 with the scalability and flexibility of Layer 3 routing. In addition, Verizon MPLS enables PIP to separate customer traffic through a VPN. The result is the security and Quality of Service (QoS) of Layer 2 switching with the scalability and any-to-any connectivity of PIP. PIP vBNS is not required, but Verizon T1, DS3, and ATM-T1 services with QoS activated on a voice, video, and share transport is required.

- *PSTN TS Access* – The user accesses TS service by dialing or is dialed from the TS center via the PSTN. The ISDN call is not routed directly to the affected TS center. It is routed to one of three geographically diverse data centers in the United States. The data centers are connected in an interlocking grid to every Verizon switch and to each other. In the event of an emergency, one data center can control the entire network. The reservation system has direct diverse data center connections that allow real-time scheduling changes. Therefore, routing around failed equipment or traffic congestion is easily accomplished. Call center facilities can operate any bridge in the TS network around the world. Connectivity to the facilities and bridges is based on the vast and redundant Verizon digital and fiber optic networks. The switched network is based on a self-healing architecture that automatically routes around service-affected areas.
- *IP TS Access* – When the customer indicates to the account team that there is an interest in establishing PIP network access to the TS the following steps will be taken: (1) The account teams begins by documenting the Verizon Extranet features for MPLS; (2) After collecting as much extranet information as possible, the account team will arrange a meeting with the engineering team; (3) The account team will confirm the design after the meeting with the engineering team; (4) When the IP service circuit IDs are ready, the account team will submit the TS extranet forms; (5) The account team will assist the customer with registering the video conferencing end-points; (6) The customer receives a confirming e-mail; (8) The engineering team confirms the number of video end-points, the maximum required bandwidth per site, and the endpoints are part of the customer's intranet or on a separate network segment; (12) The engineering team will confirm the PIP addresses, implement the customers video IP options, gather the firewall or application proxy vendor and model information, establish WAN port speed, circuit ID site location registration, PIP car selection, register CPE router information, open video ports in the firewall, and determine if NAT is used, extranet provisioning, establish Layer 23 network connectivity date, gatekeeper registration, and H.323 start date, verify network pipe bandwidth, set circuit SLAs, and turn up service.
- *e-Scheduling* – When TS registration is complete, a user profile has been issued and the software has been loaded on the user's computer. The customer is ready to start managing and administering the TS resource.

VERIZON VIDEO CONFERENCING



Product Description

Verizon Video Conferencing is live, interactive image and voice communication between two or more locations. It provides businesses with all the advantages of face-to-face interaction while helping to save money on travel expenses. Verizon Video Conferencing allows companies to conduct remote meetings with locations virtually anywhere in the world via state-of-the-art conferencing centers in the United States, the United Kingdom, and Hong Kong, China.

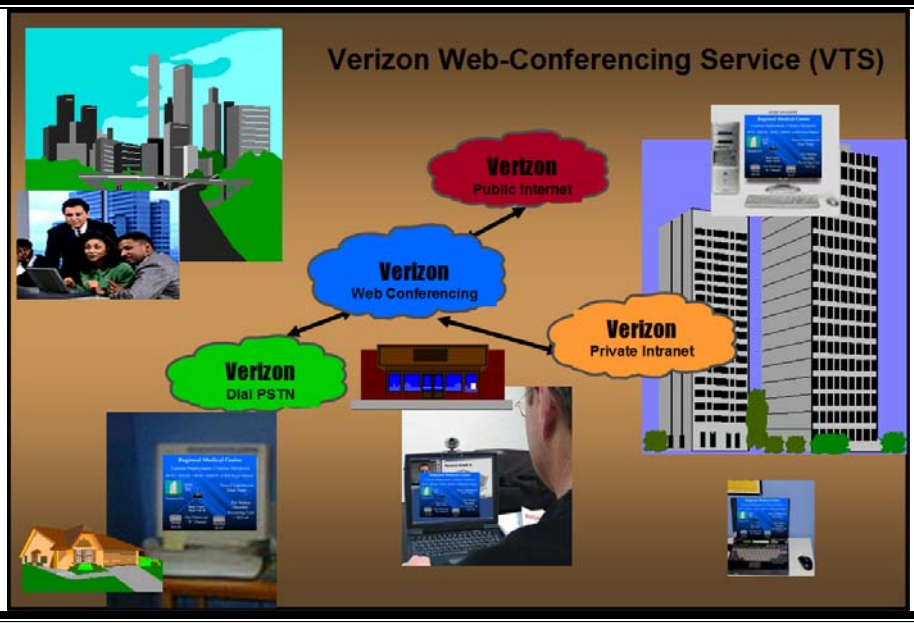
Flexible reservations

- *Phone.* Users can make video reservations via the phone through any of Verizon's global centers where a conferencing specialist will be able to advise about Verizon's video conferencing services.
- *Website.* Online reservations are enabled through e-scheduling on Verizon's Web site. Upon registering for a login name and password on Verizon's Web site, the user can reserve video conferences at their company's registered sites and see which rooms are available in real time.
- *Bridging.* Verizon Conferencing can easily connect a user to a single video location or multiple video locations worldwide. Verizon offers professional conferencing with numerous specialized features.
- *Gateway and Transcoding.* Verizon Conferencing provides the flexibility to support the interconnection of video endpoints using different transport protocols (ISDN or H323/IP) and speeds on Verizon's video bridges. IP connectivity is supported either over the public Internet or through connection to Verizon's Private IP MPLS-based network.
- *Point-to-Point Video Connect.* Many companies prefer to have their video provider connect all of their calls. Verizon offers point-to-point connection through its video bridges. This enables a conferencing specialist to quality check the call and to assist with setup. Support is provided at any time during the call on request.
- *Standard and Premier Services.* With Standard Service, a conferencing specialist assists with the setup and quality check on all video conferences. With Premier Service, a conferencing specialist will monitor the call for the entire duration for quality assurance and technical assistance.
- *Instant Video.* Verizon Conferencing also provides the flexibility for customers to conduct an instant video conference call for up to six participants, in any combination of video and audio participants, at any time. This is a subscription-based reservation-less video conferencing service with a unique dial-in number, host and participant passcodes, which can be used over and over again. Instant video enables participants to connect at speeds up to 384 Kbps via ISDN or IP.

Conferencing Applications

VERIZON VIDEO CONFERENCING
Sales and Marketing • Sales Training • Meetings - internal and external • Management and Administration • Board Meetings • Meetings - internal and external Staff Meetings • Remote Location Management • Corporate Training • Consultation • Technical Training • Continuing Education Human Resources • Employee Recruitment • Policy and Procedures Training and Implementation • Research, Development and Engineering Product Development • Product Issues • Vendor Meetings • Finance and Accounting • Fiscal Reporting • Budget Planning Management Information Systems • Project Management • PC Training • Crisis Management • Purchasing

VERIZON WEB CONFERENCING



Product Description

Verizon Web conferencing provides a multipoint Web-based service that allows a WITS 3 Customer to conduct a document conference call allowing text, documents, data or images (collectively "data") to be transmitted via the Internet either with a reserved session or on demand. Web conferencing may be used to provide data on a one-way, one-to-many, view-only basis or on a multipoint, many-to-many, collaborative basis. To initiate a session, a Web conferencing leader and participants must have browser access to the Internet. The Web conferencing leader and participants may also access an accompanying audio conferencing call. Each participant is allotted an individual server connection on the Web conferencing server. Verizon provides Web conferencing powered by either Microsoft Live Meeting or WebEx Meeting Center platforms.

Verizon Web conferencing offers the following four options, which will allow the Government to choose the right solution for its needs:

1. Reserved Net Conference is an interactive Internet-based service used to connect widely-dispersed individuals or groups to view information and/or edit documents while holding a simultaneous discussion. Reserved Net conference offers operator-assisted support to help leaders troubleshoot, join, or conduct formal Q&A sessions and collaborate on documents in real time. Reserved Net conference, powered by Live Meeting Professional, is perfect for large or small highly-visible events.

Net Replay, a feature of Reserved Net Conference, can be ordered at the time the conference is reserved. During the presentation, Verizon will record and synchronize both the data and audio portions of the call. Verizon will host the Net Replay. Those who missed the live event can still get the full impact of the presentation from their PCs. Additionally, time is saved because the presentation does not have to be repeated for those who missed it. To view the Net Replay, simply enter a Web address and pass code. To access Net Replay, participants will need the following:

- Internet access
- Audio sound card and speakers
- Microsoft Windows Media® Player 9.0 or later
- 128 Kbps connection or faster

WITS 3 customers can set up Net Replays in 30-day increments for up to 360 days. Net Replays can be extended in additional 30 day increments for up to one year. Web conferencing leaders may also choose to have a copy of the Net Replay by adding the FTP Download feature to the meeting.

2. Instant Net Conference is a subscription-based service that allows leaders to create Web conferences within

VERIZON WEB CONFERENCING

seconds to be used as a personal, on-demand meeting place. Each Instant Net conference subscription provides a consistent, personal meeting ID and password, which leaders are able to communicate to participants at a moment's notice. Leaders may select either Microsoft Live Meeting or WebEx Meeting Center platforms.

3. Customized Net Conference provides customers with a full spectrum of scheduling and registration tools at a unique Web site branded with their name and logo. A customer can further customize the offering by disabling certain features such as desktop sharing. Customized Net conference can utilize either Microsoft Live Meeting or WebEx Meeting Center platforms.

4. Advanced Net Conference offers customers an easy and effective way to communicate and collaborate over the Internet. Advanced Net conference enables organizations to work more productively in nearly every aspect of their business by providing them with the option to choose from two conferencing platforms – Microsoft Live Meeting and WebEx. By utilizing these popular platform features, customers can benefit from virtually all native vendor features including audio and Outlook integration.

The majority of Verizon web conferencing customers combine Web conferencing with Verizon audio conference to deliver a complete communications solution. In these cases, no Web conferencing network bandwidth is consumed by the audio conference. The audio portion of the call is conducted over the existing telephone network.

Web Conferencing Security

Conference ID names for Web conferences are randomly assigned. Pass codes can be randomly assigned or the leader can choose the pass code. The leader pass code for a reserved net conference has a limit of 16 alphanumeric characters. The participant pass code for a reserved net conference is the same as the audio conferencing pass code, which has a limit of 12 alphanumeric characters.

All reserved net conferences offer enhanced security, which encrypts slides while they are on the server. The slide presentation is encrypted using strong-128-bit Advanced Encryption Standard (AES) encryption protocol and transmitted as encrypted Portable Network Graphics (ePNG) files to each participant. This security encrypts the host's presentation as it is uploaded and distributed. It offers additional layers of security for Web conferencing and helps protect the user's content. For additional security, a leader may use Secure Socket Layer (SSL) encryption as well. SSL encryption is an industry standard security protocol that is used by the financial and government sectors, as well as all sectors requiring secure environments to conduct virtual meetings. SSL may be used over a customer's secure VPN. SSL encryption is available at no additional charge.

Benefits to the Customer

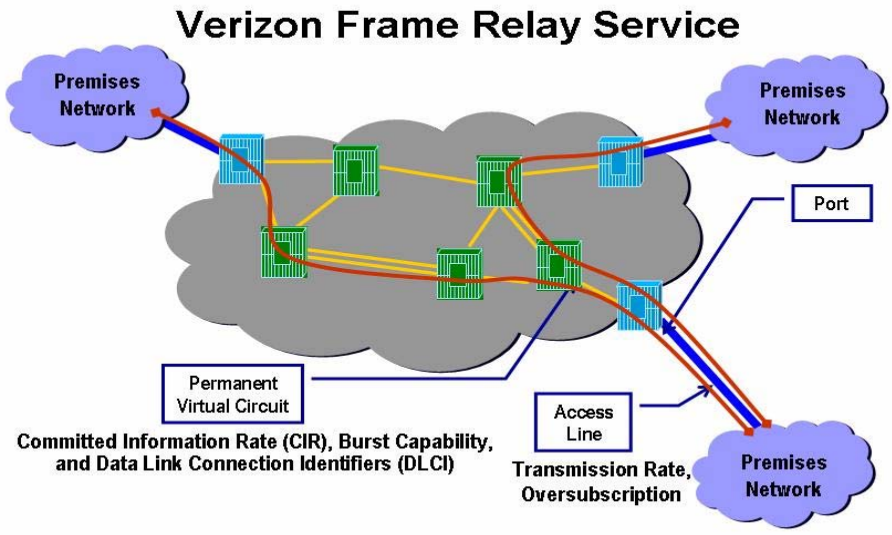
- WITS 3 customers can use existing Internet access (LAN, dial-up, Verizon DSL, etc.) and view shared information without specific software and customers do not have to budget for high capital outlay. Available 24x7.
- Collaboration allows real-time editing and replaces document distribution, editing, collection, integration, and redistribution. It saves tedium, time, and resources.
- Maintains document security and privacy through multiple levels of password access for Web conference leaders and Web conference participants. Recurring meetings can be scheduled using the same meeting information and passwords.
- Provides easy access for WITS 3 users. It improves efficiency and productivity and facilitates decision making by promoting all team member contributions and experts can be consulted easily.
- Reduces processing costs by eliminating courier costs and overnight deliver service through on screen document creation, editing and delivery.
- Web conference leaders can coordinate participation in meetings or events quickly and easily.
- Web conference leader can better gauge meeting or event attendance by collecting and viewing participant information on line and for 30 days after the event.

3.3.4 Frame Relay Service (FRS) (C.2.6) - Service Overview

Verizon's Frame Relay Service (FRS) is a virtual private data service that uses virtual connectivity to give users the look and feel of a private network with the flexibility and economies of a public network. FRS reduces

network and equipment expenditures and management and administrative costs. It increases network performance through greater connectivity, availability, and throughput. FRS improves overall price and performance for data networks and provides strategic mission advantages that will enhance Government productivity and collaboration.

FRAME RELAY SERVICE (FRS)



Product Description

Verizon offers a variety of dedicated and remote IP access options that enable Government organizations to create a single enterprise network. In addition, Verizon's dedicated access options include 56 Kbps, fractional T1, T1's, and T3's. For maximum efficiency, FRS supports Verizon's digital gateway options. T1 digital gateway enables customers to allocate any part of the access T1 bandwidth in DS0 increments to different Verizon services. The DS0s may be configured in channelized (56 Kbps) or clear channel (64 Kbps) formats. Government organizations may access FRS at port speeds ranging from 56 Kbps to 45 Mbps. FRS may be accessed at the following port speeds:

Port Speed	PVC (CIR)
64 Kbps	16 Kbps, 32 Kbps, 64 Kbps
1.5 Mbps	128 Kbps, 256 Kbps, 384 Kbps, 512 Kbps, 768 Kbps, 1024 Kbps
45 Mbps	3.072 Mbps, 4.608 Mbps

Verizon currently supports low-speed ports of 56 and 64 Kbps and Committed Information Rates (CIRs) of 16 and 32

FRAME RELAY SERVICE (FRS)

Kbps for narrowband Subscriber Network Access Lines (SNALs). Verizon also currently supports a wideband SNAL of 1.536 Mbps and CIRs of 128, 192, 256, 384, 512, and 768 Kbps. Verizon supports the requirement for one Permanent Virtual Circuit (PVC) per SNAL. The customer may select the CIR from Verizon for the PVC. Data can be transmitted only between pre-established PVCs identified by Data Link Connection Identifier (DLCI) markers that appear in the frame headers. Each customer may specify the DLCIs to use for each direction of a PVC, or request Verizon to assign the DLCIs. Once the DLCI is assigned to an access port, the Verizon switch sends a response message to the customer's User-to-Network Interface (UNI)/AAF Customer Premises Equipment (CPE), indicating its existence. The customer's UNI/AAF CPE pulls the assigned DLCI for the new PVC into its routing table, goes through the remote address discovery protocol, and sets up a relationship in the UNI/AAF CPE tables between the DLCI and the customer's internal address. This entire process ensures proper end-to-end data routing. Once Verizon Frame Relay Service (FRS) is provisioned, the service provides unlimited usage within the WITS 3 service area.

Benefits to the Customer

- Support for "bursty" Local Area Network (LAN) interconnection and connectivity to both small and large locations
- Multi-protocol support to transport Ethernet, token ring, Transmission Control Protocol/Internet Protocol (TCP/IP, Systems Network Architecture (SNA), and Internetwork Packet Exchange (IPX)
- Use of a common infrastructure offers process efficiencies that improve the speed of service delivery
- Allows Government agencies to share data across a common network
- Government departments are no longer burdened by disparate infrastructures that perpetuate operational inefficiencies and slow responses
- Provides support for eGovernment collaboration initiatives that cross agency boundaries
- Systems are added or expanded in advance of traffic need in a manner that is transparent to customers

Service-Specific Architecture

The Verizon FRS network backbone architecture employs high-speed, digital switching, and fiber-optic transmission. Verizon's FRS switches are designed with redundant processors and power to provide no fault service. Verizon's FRS switches are also designed with hot, changeable line cards to minimize down time if ever there is a failure. FRS provides coverage across the entire NCR. Verizon has FRS Points-of-Presence (POPs) uniformly scattered across the National Capital Region (NCR). The Verizon footprint will be able to support all WITS 3 customers. The Network Interface Device (NID) and switch availability currently measure 99.99%.

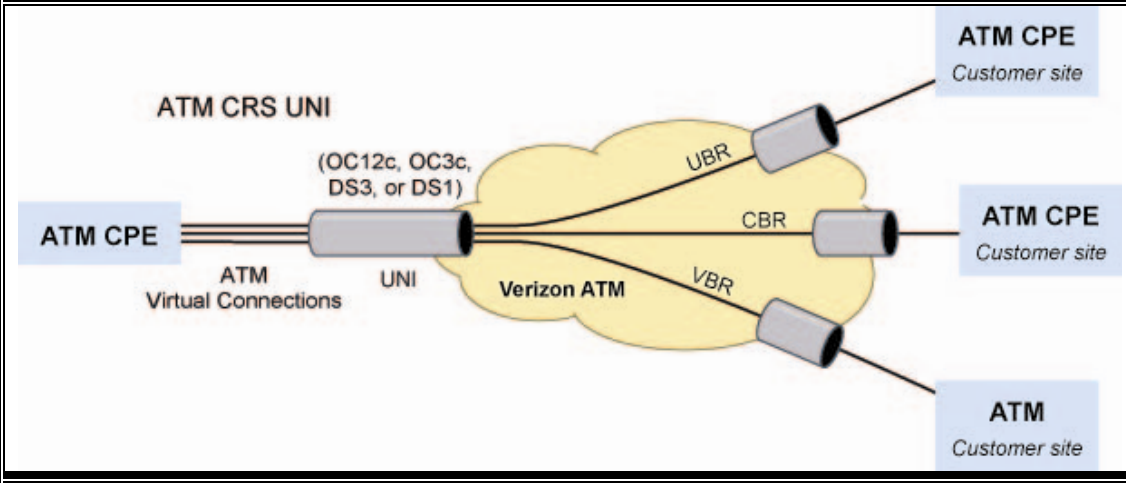
In addition, Frame Relay ATM Service Internetworking (FRASI) allows FRS PVCs to be built across an ATM backbone. Government agencies with large applications benefit with high-speed access and FRASI interconnectivity between agencies using ATM as a hub location and FRS for their remote sites. Currently a significant number of Verizon FRS and ATM customers have begun utilizing an MPLS-based service either in conjunction with their existing frame relay and/or ATM network(s) or as an alternative solution. While momentum for migrating to MPLS-based solutions is growing, many frame relay and ATM customers plan to leverage their existing investment in frame relay and ATM until their business needs necessitate migrating to an MPLS- or IP-based solution. Verizon is pleased to offer technical and management assistance in establishing plans for migration, transition support, and/or hybrid technology environments.

3.3.5 Asynchronous Transfer Mode (ATM) Service (C.2.7) - Service Overview

Verizon's ATM Service (ATMS) is based on up-to-date standards and technology that make it possible to run all needed applications over one network. ATM will enable the Government to eliminate the expense of deploying, operating, and maintaining separate networks for voice, data, video, and frame relay. ATM is a high-speed transport technology that

simplifies network complexity by handling different traffic types, interface speeds, and user applications.

ASYNCHRONOUS TRANSFER MODE SERVICE (ATMS)



Product Description

Verizon is a proven leader in all aspects of ATMS testing, deployment, and operations. Since 1991, when Verizon became the first telecommunications company to purchase and test ATM switches, Verizon has been an industry leader in ATM services and architecture. Verizon ATMS gives Federal customers security and control similar to that of a private network with the flexibility and economies of a public network. Competitive access charges, fully scalable service, and advanced technology all make it easy for customers to take advantage of multiple applications without multiple networks.

Verizon ATM service's standard features include nationwide availability, multiple interface rates ranging from 1.5 Mbps (T1) to 622 Mbps (OC-12), and multiple service classes including constant, unspecified, variable (both real time and non real time) bit rates and permanent virtual circuits and switched virtual connection.

Verizon ATMS provides two levels of address and connection identification in the ATM technology platform for Permanent Virtual Circuits (PVCs): Virtual Channel Connections (VCCs) and Virtual Path Connections (VPCs). An ATM virtual channel is a single logical connection between ATM devices located at two different customer premises. An ATM virtual path is a collection of ATM virtual channels routed together throughout ATM Cell Relay Service (CRS) as a single unit. The customer has control of all VCCs on the VPCs.

Virtual Channel Connections (VCC): Require a Virtual Path Identifier (VPI), which is always equal to 1, and Virtual Channel Identifier (VCI) with a range of 32 to 1023.

Virtual Path Connections (VPC): Require only VPIs which range from 5 through 255 (The numbers are customer-selected within the range.)

There are two types of logical connection provisioning for the ATM platform:

- ***Permanent Virtual Circuits (PVCs)*** are logical data paths extending from the ATM Customer Premises Equipment (CPE) at one end point of a customer network to the CPE at another end point. ATM CRS uses PVCs to connect multiple customer locations. The customer explicitly defines each PVC by choosing the User-to-Network Interfaces (UNIs) to be connected. Verizon provides the logical channels within the bandwidth purchased by the customer. A logical channel is a data path on the UNI from the CPE to the ATM switch — essentially a segment of the end-to-end PVC. Verizon completes the end-to-end PVC by associating a logical channel on one UNI with a logical channel on another UNI.
- ***Switched Virtual Connections (SVCs)*** are ATM connections that are created and taken down dynamically via signaling messages from CPE. SVC service supports multiple Quality of Service (QoS) classes. Signaling must be enabled on the UNI for SVC service to take effect. The CPE must initiate all switched virtual connections. Peak and sustained cell rates are customer-specified in increments of 64 Kbps up to port speed.

Verizon does not provide any usage restrictions for ATM services within the WITS 3 serving area. PVCs and SVCs

ASYNCHRONOUS TRANSFER MODE SERVICE (ATMS)

may be bi-directional point-point or unidirectional point-multipoint. Bi-directional Virtual Connections (VC) may be either symmetric or asymmetric. This is true of all UNIs in the Verizon network, regardless of port speed and conforms to af-uni-0010.002, the UNI 3.1 specification. Verizon will support additional Constant Bit Rate (CBR) and Variable Bit Rate (VBR) bandwidths in multiples of 5Mbps. Peak and sustained cell rates are customer-specified in increments of 64 Kbps up to port speed.

Benefits to the Customer

- ***Cost effective*** – multiple logical connections can be established over a single physical access line
- ***Port flexibility*** – additional logical connections can be added to an existing ATMS location with the need for additional access facilities or customer equipment
- ***High performance*** – support of delay-sensitive applications such as real-time video, multimedia, file-transfers, and distributed computing
- ***Bandwidth flexibility*** – support for CBR, VBR, and unspecified bit rate (UBR)

Service-Specific Architecture

Verizon ATM services provide coverage across the entire WITS 3 service area. The Verizon footprint will be able to support all existing and future WITS customers. The WITS 3 ATM network is one component of Verizon's broadband network infrastructure. Verizon's fully redundant network architecture includes physically-diverse network trunking at speeds up to OC48. These trunk facilities interconnect Verizon ATM switches to create a fully redundant fast packet network to support full and automatic network restoration.

The figure above describes a typical ATM access configuration where a Government agency can access Verizon's ATM network at various PVC speeds. The PVCs for speeds aggregating below OC-12 typically terminate at a Verizon ATM edge switch, whereas, higher speed PVCs (i.e., OC-12) will terminate directly at a Verizon ATM backbone switch. There can be numerous end devices behind the customer's ATM switch including PBX, PCs, etc., with different QoS traffic requirements.

Verizon's current network contains sufficient excess traffic capacity today such that incremental infrastructure additions for the WITS 3 contract are minimal at most. Verizon has shown since the beginning of WITS2001 that it can manage the continuous expansion of network resources to meet future capacity demands. Systems are added or expanded in advance of traffic need in a manner that is transparent to customers. As a general objective, Verizon's network capacity engineering organization maintains [redacted] above the committed requirement necessary for additional growth and burst capabilities. This alone would handle any additional ATM port or PVC requirements incremental to the Verizon ATM utilization already supported. Forecasts from marketing are also factored for growth. [redacted]

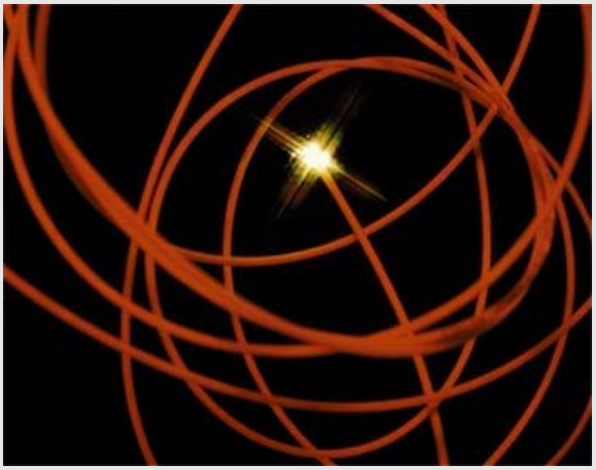
3.3.6 Dark Fiber Service (DFS) (C.2.8) - Service Overview

To ensure the delivery of high quality, secure, and reliable WITS 3 Dark Fiber Services (DFS), Verizon has agreed to team with several leading Dark Fiber Service providers in the NCR. This allows Verizon the widest range of potential diverse dark fiber networks in the area. The Verizon Partners, in conjunction with the Verizon WITS 3 PMO will support DFS.

DARK FIBER SERVICE (DFS) (C.2.8)

Benefits to the Customer

- Cost-effective, scalable, high-quality fiber-optic networks
- Network designs based on individual or group agency requirements
- Diversely-routed, dedicated fiber ensure security and survivability of transport
- Wide variety of standard service options including: custom network engineering and design, network construction, fiber maintenance, 24x7 fiber monitoring, and emergency restoration



Product Description

Network Maintenance. Verizon performs regular routine maintenance on shared network systems and custom applications including inspections, maintenance on the general infrastructure, relocations, and general upkeep. Verizon has integrated numerous advanced technologies into its daily operations to improve accuracy, minimize response time, and reduce potentially hazardous situations:

- Remote network monitoring and testing
- Records management
- Street-level mapping and network overlays
- Design and engineering with AutoCAD®
- Technologically advanced locating and Web-enabled ticket management applications

Locate Services. Verizon marks the cable system for utility development, general construction, and landscaping in the area and coordinates and executes routine and emergency locates utilizing a proprietary frequency. Verizon locators also provide the following array of other services as they perform their normal duties:

- Routine ride out of the network path to spot activity that could cause harm to Verizon facilities.
- Stand-by services during pre-identified construction activities.

Verizon maintains contact with local utility companies and economic development planners to obtain accurate and current information about street widening and pole change-out projects. Verizon's compliance with local, state, and federal authorities and its response to and cooperation with utility locate services help to protect the network.

The following are a few of the useful Verizon fiber monitoring features:

- *On Demand Testing Mode*: Quick-and-easy performance testing
- *Local and Remote Alarms:* Reduces duration of outages and speeds identification of failures
- *Electronic and Hard Copy Documentation*: Ensures up-to-date, accurate records and information flow

Fiber Monitoring. The primary objective of fiber monitoring is to facilitate a quick response to identified faults or to stabilize network troubles with variable maintenance routines. Verizon uses comprehensive optical cable plant management systems encompassing configuration, fault management, performance monitoring, and data management. These systems continuously evaluate fiber condition, observe degradations and breaks, and transmit alarms to the appropriate personnel center. All fiber information is transmitted instantaneously. The system is operational 24x7.

Emergency Restoration. Upon detection that the network is damaged or not functioning properly, Verizon immediately investigates the situation and expedites emergency restoration, if necessary. Verizon has made specific preparations to ensure the readiness and accessibility of personnel and equipment required for response to emergency conditions.

DARK FIBER SERVICE (DFS) (C.2.8)

- Emergency restoration contractors in place and on stand by in each market

Network Planning, Design and Engineering

Network Planning. Verizon helps WITS 3 customers prepare for successful network operations by tailoring each project to the specific customer. Verizon is experienced in meeting the unique challenges of network planning by helping customers strategically design a fiber-optic network. All potential issues that affect a network development project are examined, and Verizon performs market analysis including regional right-of-way and franchise assessments, identification of carriers, and sizing and evaluating the market through business and residential line research.

Design and Engineering. Based on the Government's network objectives, Verizon develops a preliminary route design and recommendations for potential network paths. Once a preliminary route design is completed, the Verizon engineering group can provide the Government with detailed engineering plans designed to promote success in a given market. Capacity requirements and expansion opportunities are identified and considered in the engineering phase.

Network Project Management & Construction Services. Verizon provides a full range of project management and construction services that ensure network development projects are completed on time and within budget. Verizon develops innovative and effective solutions to challenges inherent in network development. Verizon's extensive experience in managing and constructing large network implementation guarantees its customers the ability to partner with a successful provider of network infrastructure.

Project Management. Verizon provides customers with all-inclusive project management services for implementation of a quality telecommunications network. Experienced technical support managers are assigned to streamline operations and provide customers a single point of contact. Working with the Government, a detailed project schedule will be developed for effective and efficient execution of the network development project. The following project management services are included:

- Timetable and schedule coordination
- Accounting and invoice management
- Quality control assurance
- Onsite management and inspection

Construction and Fiber Deployment. Verizon has developed an extensive network of suppliers to provide the highest quality equipment at the lowest cost. Whether the network is aerial, underground, or a combination of both, Verizon has the experience to deliver quality communications networks that exceed expectations. Each contractor is screened and pre-qualified to ensure quality then required to follow a rigid assurance plan to maintain their qualified status.

Verizon's construction services include:

- Deploy fiber using the latest standards to ensure slack points are strategically placed for fast network restoration due to potential fiber cuts and to allow access for future customer tie-ins
- Provide enhanced fiber testing using a state-of-the-art Optical Time Domain Reflectometer (OTDR) capable of long range and high resolution testing

Service-Specific Architecture

Verizon's DFS solution will accommodate evolution in service requirements, advances in technology, and changes in the regulatory environment. Dark fiber (fiber optics) provides large bandwidth capabilities, exceeding wireless, copper, and microwave in terms of traffic growth potential. By adjusting the equipment's size and speed capabilities, the Government can take advantage of bandwidth with dark fiber. In addition, Verizon can install and provide multiple numbers of fibers for use. The current dark fiber backbones installed today have an average of 350 fibers per market, which more than exceed the requirements necessary to light and support all voice and data traffic in the NCR.

Evolution in Service and Technology Advances: Except for some improvements in wireless, fiber remains the primary choice of carriers today for transmitting traffic. Currently, dark fibers' advances are centered on the new equipment that can send a signal further without loss. The expectation is this equipment will continue to evolve and improve the dark fiber delivery. Today's regulatory environment is favorable to DFS. The need for bandwidth has encouraged the franchisees and right of way owners to work with dark fiber providers to ensure delivery.

3.3.7 Internet Access Services (C.2.9) - Service Overview

Internet Access Services (IAS) consist of a suite of high-speed and high-performance access solutions that typically offer full-time dedicated access to the Internet. Verizon IAS are comprised of basic Local Area Network (LAN)/Wide Area Network (WAN) applications, high-bandwidth access up to 2,488 Mbps (OC-48), end-to-end public Virtual Private Networks (VPN), and Private IP networks. Verizon provides IAS on its wholly-owned access and network facilities in multiple locations around the world. By maintaining an end-to-end solution, Verizon can offer competitive Service Level Agreements (SLAs).

More and more applications are becoming Web-based. These applications are increasingly involving voice, video, and data-in applications such as streaming video, Web browsing (online shopping using high-resolution images), e-mail, MP3 files, and VoIP. These applications require high-speed and high-performance Internet access. Verizon provides comprehensive, facilities-based IP solutions to help Government agencies maximize Internet opportunities. Verizon offers a vast selection of access choices for Internet services.

Access Type	Description
Dial-up	Using voice analog line to dial up for Internet Access
Broadband	Residential/home-office and small business using digital subscriber line services
Dedicated	Dedicated Internet Ports at the following Port Speeds - 56/64 Kbps, 128 Kbps, 256 Kbps, 512 Kbps, 768 Kbps, 1.536 Mbps, 4 Mbps, 10 Mbps, 16 Mbps, 34 Mbps, 100 Mbps, 155 Mbps, and 45 Mbps. Access for the dedicated service can be DTS, Frame Relay, ATM or GES.

Integrated access with Verizon's line of Internet products feature an array of customer benefits that are built on Verizon's industry-recognized global IP Network. Verizon's Internet network architecture has been designed with redundancy and automatic failover of systems. Verizon's IP network is monitored 24x7 at both network and service levels and offers

customers high-quality performance as well as multiple levels of data security. To protect its network, Verizon uses a combination of traditional "defense in depth" approaches and perimeter security approaches. Verizon implements many layers of security including physical, perimeter, host-based, personnel, and procedural security. Verizon IAS includes Domain Name Service (DNS), news, e-mail, IP address assignment and management.

Verizon delivers reliable IP solutions to [redacted] U.S. Federal customers and a variety of commercial customers. Verizon operates an expansive IP network based on a backbone that provides connectivity in more than [redacted] countries and operates at speeds up to OC-192—the fastest available. Verizon has more than [redacted] throughout the world and its network spans more than [redacted].

- **Comprehensive Coverage & Access.** With the world's largest global IP network and an extended access footprint, Verizon's IAS solution is unique in the market today. The access footprint consists of dialup 56K and ISDN, broadband DSL, FR/ATM, PLS, Ethernet, and dedicated access for the following speeds: 56/64 Kbps, 128 Kbps, 256 Kbps, 512 Kbps, 768 Kbps, 1.536 Mbps, 4 Mbps, 10 Mbps, 16 Mbps, 34 Mbps, 100 Mbps, 155 Mbps, and 45 Mbps—all of which adds up to the flexibility, availability, and capacity to handle any application and file transfer needs, large or small.
- **Converged Service.** Secure Gateway (SG) provides customers with a way to integrate all service suites—IAS, FRS, ATMS, NBIP-VPNS, PBIP-VPNS, and VoIP—into a single secure WAN architecture.
- **Internet Dedicated Access.** Verizon provides customer Internet dedicated-access connections ranging in speeds from 56/64 Kbps, 128 Kbps, 256 Kbps, 512 Kbps, 768 Kbps, 1.536 Mbps, 4 Mbps, 10 Mbps, 16

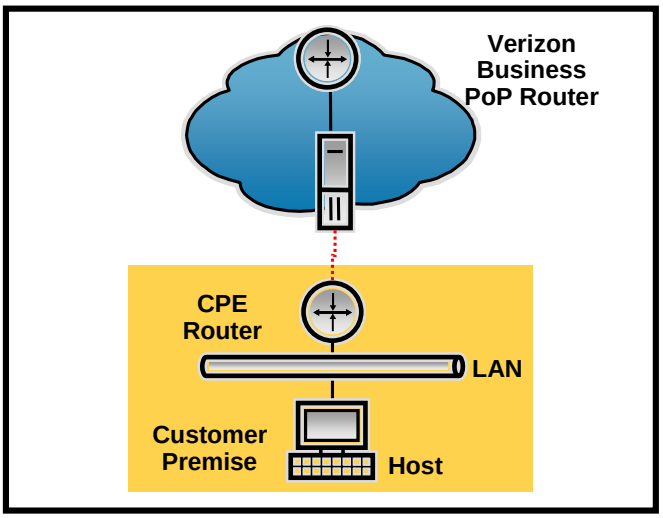
Mbps, 34 Mbps, 100 Mbps, 155 Mbps, and 45 Mbps (including 10/100 fast and gigabit Ethernet access), dial-access connections at speeds up to 56 Kbps (analog) and 128 Kbps (ISDN), and DSL services.

- **Ubiquitous IP Presence.** For public peering, Verizon [redacted]

- **Customer Service.** Verizon's customer service provides 24x7 support from circuit provisioning and equipment testing to proactive NOC monitoring and IP address allocation. The following Internet access services are described in the tables below:
  - Dedicated Access
  - Broadband Access
  - Managed Security
  - Web Hosting
  - Web-based Directory

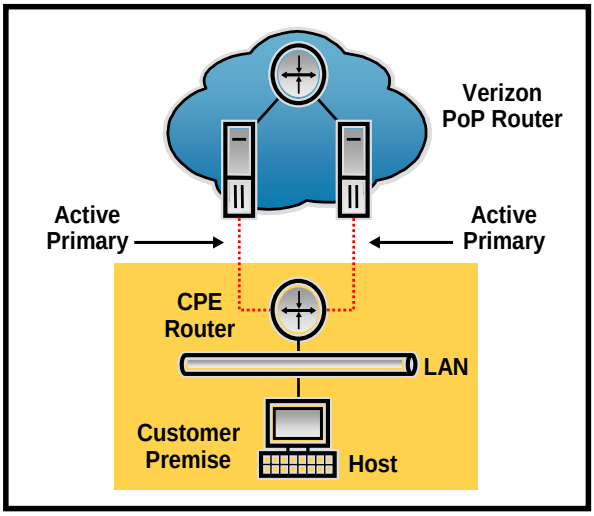
DEDICATED INTERNET ACCESS

Dedicated Access Standard Offer Architecture:



Dedicated Access with Redundancy:

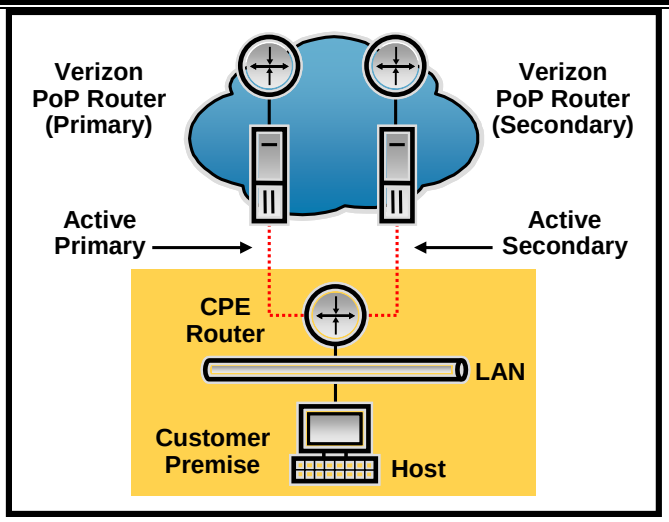
Option 1: Double



- Option 1 provides two circuits of equivalent bandwidth to the network. (The access for this service is procured through the Dedicated Transmission Services described in Section 3.3.2 of this document. The service assurance CLIN includes a second Internet port.)
- Option 1 service terminating both circuits at the same PoP/same edge router to enable load sharing across the connections.
- Service is port only and available speeds are for 56/64 Kbps, 128 Kbps, 256 Kbps, 512 Kbps, 768 Kbps, 1.536 Mbps, 4 Mbps, 10 Mbps, 16 Mbps, 34 Mbps, 100 Mbps, 155 Mbps, and 45 Mbps.
- Port access can be Frame Relay (FR), Asynchronous Transfer Mode (ATM), and Gigabit Ethernet Services (GES).

Option 2: Diverse

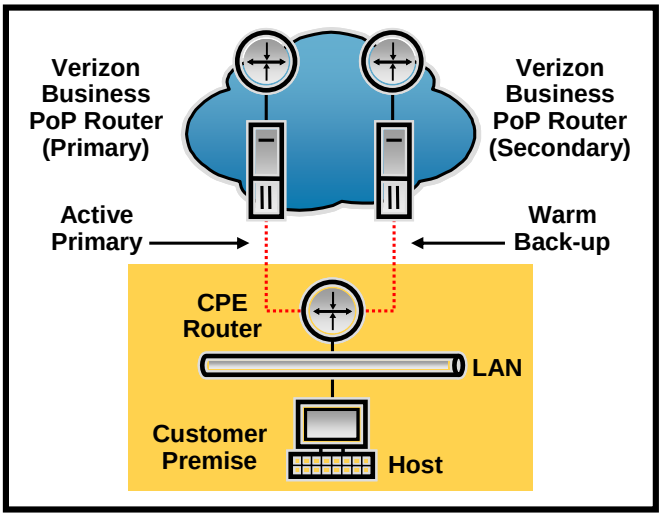
DEDICATED INTERNET ACCESS



- Option 2 provides two circuits of equivalent bandwidth to the IP network. (The access for this service is procured through the Dedicated Transmission Services described in Section 3.3.2 of this document. The service assurance CLIN includes a second Internet port.)
- Circuit terminates into different Verizon PoP routers.
- Both circuits are active at all times.
- Service is available for T1, T3, OC-3c, OC-12c, OC-48c, and Gig-E Port Only.
- POP diversity

Verizon will ensure that diverse IP connections are provisioned to IP edge routers that are on different maintenance windows to ensure that one of the connections is available during scheduled maintenance.

Option 3: Shadow



- Option 3 services provide a second circuit of equivalent bandwidth to the IP network.
- Circuit terminates into different Verizon PoP routers.
- Primary circuit is active with “warm” stand-by secondary circuit.

DEDICATED INTERNET ACCESS

- Service is available for T1, T3, OC-3c, OC-12c, OC-48c, and Gig-E port only.
- Disaster recovery model

Verizon will ensure that the Shadow IP Connection is provisioned to the IP Edge Router that is on a different maintenance window to help ensure that one of the connections is available during scheduled maintenance.

Product Description

Verizon's dedicated access products offer the Government high-performance, full-time dedicated Internet access. This product suite offers a range of options to suit access needs and support all mission-critical communications.

Internet Dedicated Access Port Only offers permanently open, high-bandwidth, dedicated ports for connection to Verizon's global IP network via access circuits from 56/64 Kbps, 128 Kbps, 256 Kbps, 512 Kbps, 768 Kbps, 1.536 Mbps, 4 Mbps, 10 Mbps, 16 Mbps, 34 Mbps, 100 Mbps, 155 Mbps, and 45 Mbps in the NCR. Standard Internet dedicated access includes IP services with domain name, DNS, news, IP addresses, and SLAs as well as 24x7 monitoring.

Benefits to the Customer

- Verizon's global IP network is one of the highest-quality, most-scalable, and rigorously-engineered Internet networks in the world, spanning six continents.
- Verizon has more than 3,000 global POPs making it the most expansive IP network in the world.
- The OC-48/OC-192 network carries traffic flow at a high transmission rate of 10 gigabits per second and is domestically protected against fiber cuts by true optical switches that restore traffic in less than 50 milliseconds.
- Verizon was first-to-market with an OC-192 backbone network.
- In a survey of more than 1,000 Information Technology (IT) professionals, Verizon was ranked the highest at being able to offer customers a comprehensive set of Internet products and services.
- No other IP network provider is cited more consistently for offering sufficient network capacity to its customers than Verizon.
- Verizon provides 100% availability, always-on connectivity to its customers.
- Verizon delivers full service coverage, and comprehensive, customized, agency-specific, end-to-end integrated solutions to customers throughout the NCR with single point of accountability.

Service-Specific Architecture

Redundancy: Verizon Internet network architecture has been designed with redundancy and automatic failover of systems as a guiding design principle. Verizon's backbone hubs and Network Operations Center (NOC) uses uninterruptible power supplies, batteries and diesel generators that provide additional protection from would-be disasters caused by local power failures. On Verizon's IP backbone, multiple circuits connect each backbone hub to at least two others, providing both high performance and redundancy. Further, the nature of IP routing and Verizon's implementation of an Multi-Protocol Label Switching (MPLS) and Asynchronous Transfer Mode (ATM)-based network are designed to minimize the network impact due to the failure of any piece of equipment or backbone circuit. The Verizon IP backbone is segmented at a routing level into separate, independently-survivable regions with multiple exits from each region. The network is configured in a "dual plane" architecture that uses redundant sets of routing devices from edge to edge. Verizon has made significant efforts to provide a highly reliable, redundant, and rigorously-engineered platform for the deployment of business-critical applications.

Peering: Verizon [redacted]

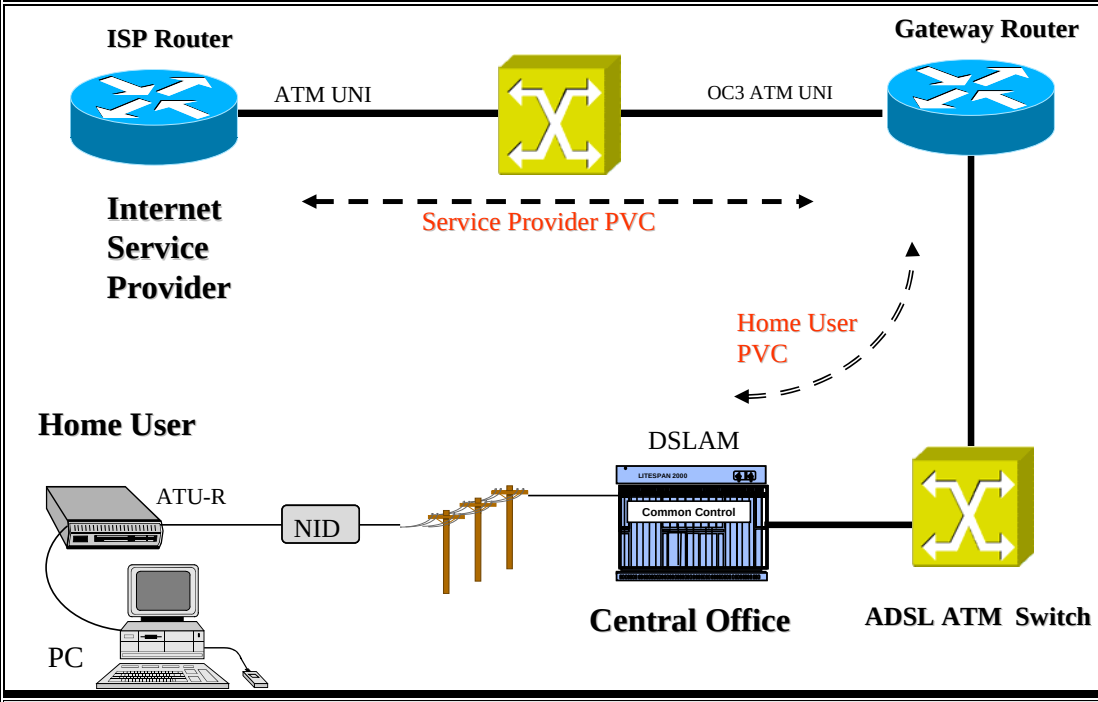
Domain Name Service (DNS) and IP Address: Verizon will provide customers with IP addresses and domain name service. There are two main types of name servers: authoritative and caching. Authoritative name servers are, as the name implies, the authority on a particular domain name. Caching servers store frequently-requested addresses so there's no need to do an extensive search each time someone requests a particular site. Verizon offers both authoritative and caching name service for its customers. Both authoritative and caching servers are deployed in geographically diverse locations.

DEDICATED INTERNET ACCESS

Quality of Service (QoS) and SLA: Verizon also offers the following QoS and SLAs for IAS. Network availability is calculated based on the ability of all network nodes to be reached via all network paths on a five minute cycle around the clock from the viewpoint of a single monitoring system. This metric, by its nature, is very conservative since multiple paths exist to each node in the network; thus, the actual availability experienced by Verizon customers will be higher. These metrics are supplemented by ongoing diagnostic monitors, which track link bandwidth utilization, link errors, nodal processor utilization, packet loss, and path latency. Network Operations and Capacity Planning personnel review this monitoring data on a regular basis and initiate action accordingly. As more customers look to push their voice, video, and key business applications onto a converged IP network, the ability to ensure acceptable performance levels becomes more and more critical. Internet dedicated QoS can help ensure that key applications or network traffic is prioritized by allowing customers to assign various degrees of importance to different types of network traffic. Verizon Internet dedicated QoS allows four traffic priority classes:

- Real-time
- Mission-critical
- Business-critical
- Best effort

BROADBAND ACCESS



Product Description

To provide residential/small-office users with broadband access services, Verizon has deployed DSL access technology extensively within its 28-state serving area. Verizon has consistently improved its DSL services, Verizon-on-line (VOL), to meet residential/small-office user requirements for greater download speeds. Recent upgrades to the DSL network now provide download speeds up to 7.1 Mbps. Coupled with local and long distance voice services, Verizon believes DSL provides the foundation to a compelling package of voice and data services. VOL service offers multiple speeds: up to 768K/128K, 3.0M/768K, 7.1M/768K, supports both dynamic IP and static IP, e-mail boxes for up to three domain names, personal Web space up to 20M, mobile dial-up access, Verizon Internet

BROADBAND ACCESS

security suite, one year of domain name registration, modem and gateway, self installation package, and 30-day satisfaction guarantee.

Progress has been made over the past decade to deliver high-quality, cost-effective broadband access services to residential, business, and mobile users. Verizon has been at the forefront of providing these services to its residential, enterprise, and mobile customers.

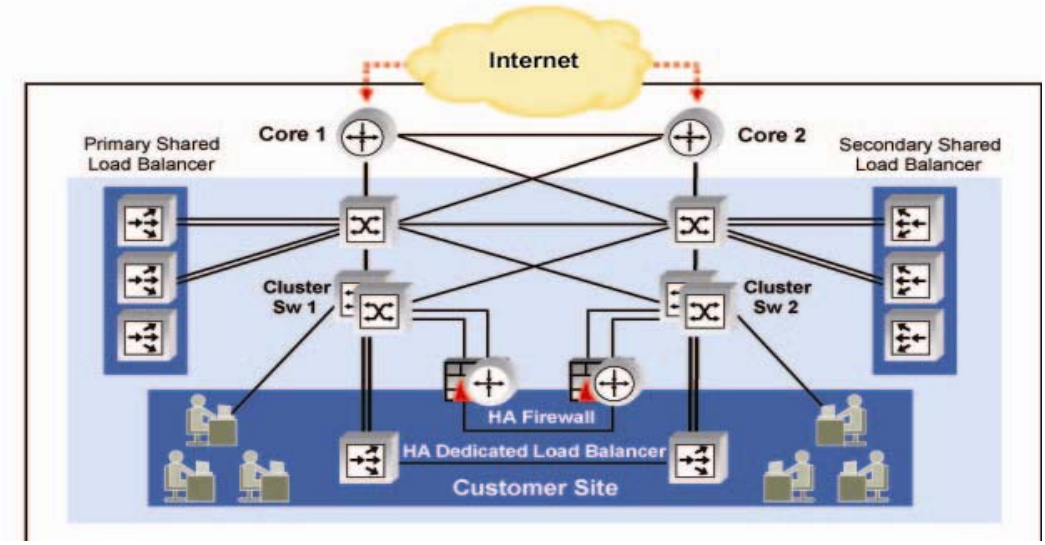
Benefits to the Customer

- Extensive coverage capability enables Verizon to draw upon a broad array of access options to provide customers a complete network solution.
- Supports multiple speed options to match customers' application and price requirements.
- Verizon provides a consistent, limited set of CPE models across all providers. This enables Verizon to provide uniform installations across a customer's network. This consistent service model is the key to reliable service support and distinguishes Verizon from many providers where the implementation varies by service provider.
- VOL support static IP in its standard package. Static IP addresses are essential to an IT administrator for security and logging purposes. Each site can be identified uniquely.
- Verizon VOL is provided using static ATM Permanent Virtual Circuits (PVCs) throughout the network. This design allows for a "connectionless" service. There is no logon software required to activate sessions.
- Low backbone network oversubscription. Verizon designs the network to avoid slowdown during busy usage times.

Service-Specific Architecture

Whenever the threshold is crossed, additional bandwidth is added to the backbone network. Where DSL is available, Verizon will activate business DSL service with static IP within 20 business days and Verizon Business DSL with dynamic IP within 20 business days from Verizon's acceptance date of order and/or an approved contract. Verizon Internet security suite service helps protect against most intrusions and Internet viruses, with the understanding that no security service can provide absolute protection.

WEB HOSTING SERVICE



High Availability (HA)

WEB HOSTING SERVICE

Product Description

Verizon Web hosting service can be delivered as either a dedicated or a shared/collocation hosting service. The pricing will be according to Table B.9-3, which reflects the following items.

- Web Hosting – Shared Server(s)
  - Per MB of Storage
  - Per Mbs of Bandwidth
- Web Hosting – Dedicated Server(s)
  - Per MB of Storage
  - Per Mbs of Bandwidth

Dedicated Hosting Services (DHS): Verizon's approach to delivering DHS is to provide a fully-compliant response to all DHS service requirements based on Verizon's industry-leading enterprise hosting service. Verizon's enterprise hosting solution includes Verizon enterprise hosting services (the core of Verizon's enterprise hosting services) and capabilities from Totality, an industry leading remote managed services provider. This solution provides a comprehensive set of DHS, including both simple and complex services from Verizon's industry-leading and high-security smart centers, as well as infrastructure and application management services at Government agency or other third-party data centers. These solutions include fully-managed servers, network infrastructure, storage infrastructure, and firewalls; fully-redundant, high-availability hosting solutions; 24x7 physical, logical, and network security; and comprehensive authentication services. Verizon offers unsurpassed reliability with state-of-the-art smart center data centers, high-speed connectivity, and ultra secure private networking. These data centers make up the heart of Verizon's DHS offering. Their fully redundant network infrastructure drives Verizon's smart services, managed applications, and professional services.

Shared/Collocation Hosting Services (CHS): Verizon's CHS solution will provide the Government secure, carrier-grade space to collocate their equipment in a managed environment to ensure quality, reliability, and redundancy of mission-critical operations and applications. Verizon currently [redacted] are designed to provide enhanced security and redundancy for critical facility systems. Verizon also provides professional service, in an hourly rate, to assist the Government in the development of Web pages and services.

Benefits to the Customer

- By leveraging Verizon's IP network, customers are directly connected to one of the most rigorously engineered networks in the industry. Additionally, their Web traffic flow has the ability to travel at optimal speeds with redundant, diversely routed bandwidth out of the data center facility via numerous paths so there is no single point of failure and information can be sent from point-to-point in the most efficient manner.
- Verizon managed platforms offer a strong foundation designed to maximize an application's reliability and availability. As the only vendor who offers five of the most popular operating platforms tuned specifically for Web-based applications, enterprises can outsource full management of their Web sites, portals, e-commerce, and business applications to Verizon.
  - Internet-ready version of software
  - Performance tuned for Web
  - Security hardened for Web
  - Server, storage, operating system combination tested for interoperability, serviceability, and performance
- Verizon managed hosting services allows customers to outsource their Web-enabled business sites in a secure environment with 24x7 support and fast, reliable, and scalable bandwidth resources.
- Verizon delivers these managed services in four state-of-the art data centers connected to Verizon's global IP network. The services offer customers a lower total cost of ownership, higher SLA, and enhanced levels of security, scalability, and performance. Full continuum of secure and dependable hosting service.
- Smart center networking services optimize the network layer standing between customer servers and their end-users (or customers). These services ensure continuous availability, optimal routing, and secure delivery of rich graphical interfaces that are personalized to end-users. From managed firewalls that protect the network to advanced load balancing solutions that optimize load, Verizon uses industry-leading technologies for all solutions.

WEB HOSTING SERVICE

- High availability solutions offer a more resilient platform for mission-critical applications. Verizon's high availability services provide options that help ensure continuous operation of its customer's e-business. From standby databases to dynamic fail-over options for databases and applications, Verizon has designed these services giving the customer assurance that spikes in traffic, or a hardware or database problem, will not result in lost revenue or a business failure.
- Verizon strategically combines its shared, dedicated, and collocation hosting technologies with the custom-managed Web and application hosting expertise of Verizon to offer businesses of all sizes the full continuum of secure, dependable hosting services.
- Verizon hosting professional services provide a suite of value-added services designed specifically to aid in extracting maximum capacity and performance out of a customer's infrastructure components. Hosting professional services provide customers with the additional security, assurance, and information necessary to meet their business goals.

Service-Specific Architecture

IP Application Hosting Infrastructure

Smart Centers. Smart Centers are the data Centers that provide smart services to Verizon customers. These services include all of the essential services designed to keep customer applications available, including administration, monitoring, reporting, security, and back-up. Each smart center data center features biometric physical security, highly-redundant power infrastructure, fire suppression systems, and state-of-the-art environmental support systems. [redacted]

Verizon's Global IP Network. Verizon's global IP network is fully meshed and redundant, and it delivers comprehensive authentication, firewalls, and security. Verizon offers unsurpassed reliability with state-of-the-art data centers and a fully redundant network infrastructure.

Ultra-Secure Farm. The ultra-secure farm is a special room within the data center, designed for the highest levels of physical security required by Federal Government agencies and financial firms. The ultra-secure farm features anti-tailgating mechanisms, anti-pass back measures, and redundant video surveillance systems. Each customer's infrastructure is completely enclosed in secure cages.

Smart Center Private Network. Verizon maintains an inter-data center network between its U.S. smart centers. Shared, networking segments are available for data replication and systems administration.

Managed Platforms

- Microsoft Windows
- Sun Solaris
- Red Hat Linux
- IBM AIX
- HP UX
- Managed storage

Smart Services

- Smart security
- Smart back-up
- Smart monitoring
- Smart reporting
- Smart administration

Smart Center Networking Services

- Load balancing
- Managed firewalls
- Virtual Private Networks (VPNs)
- Private networking
- PIP smart center inter-connect services
- Data networking services (includes private line, frame relay, and ATM services)

High Availability Services

WEB HOSTING SERVICE

- Dynamic fail over
- Standby database
- Enterprise fail over
- Application clusters

Load Balancing. Verizon offers intelligent networking services to clients with multiple servers. These services include options for geographical distribution of network traffic between data centers (global load balancing) and server load balancing within a single data center (local load balancing). Local load balancing may be used individually or in tandem with the global load balancing service to meet customers' requirements.

Restoration. Backup and restore is offered as a standard part of the service and will be automatically provided to the Government after an incident to meet the performance measure.

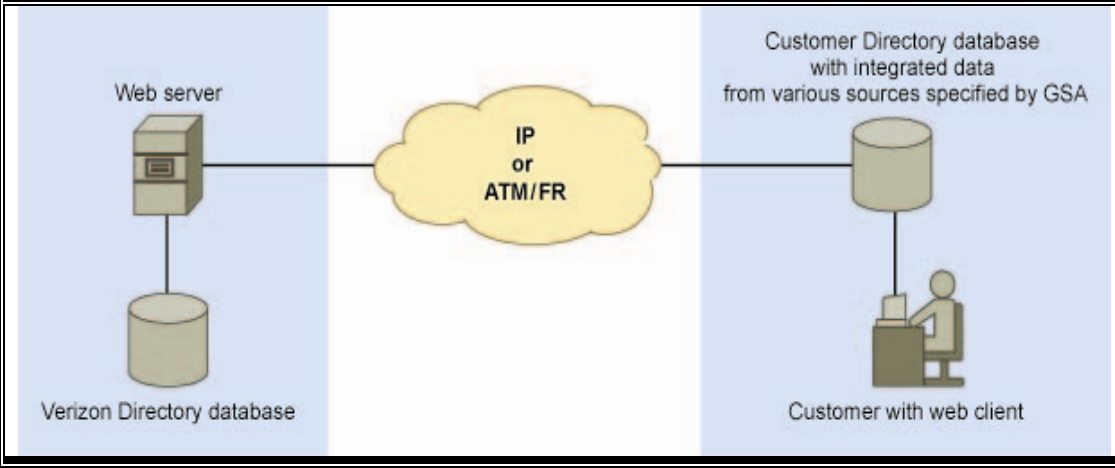
Web Server Traffic Analyses. This provides standard reports which will be available to the Government as they are bundled into the server management tools. The Verizon solutions include full management of the underlying infrastructure that supports these applications. Verizon currently manages [redacted] of Microsoft SQL server and a wide variety of other database applications. Customers have direct and unlimited access to any database systems managed on their behalf to run planned and ad hoc queries.

Availability. Verizon Web Hosting Services are currently available in the United States and internationally.

Credibility. Verizon is a premier world class hosting and e-commerce solutions provider with the following qualifications:

- Pioneer - first managed hosting, [redacted]
- Explosive market with approximately [redacted]
- More than [redacted] implemented and under management.
- [redacted]
- [redacted] state-of-the-art data hosting smart centers (each smart center is a back up to the other smart centers, so if one smart center fails, the other [redacted] can provide backup)
  - [redacted]
  - [redacted]
  - [redacted]
  - [redacted]
- Scalable infrastructure and operations model
- Well-defined and engineered product solution

WEB-BASED DIRECTORY SERVICE



WEB-BASED DIRECTORY SERVICE
Product Description Web-based Directory Services (WBDS) is a browser-based application that provides customers with a Web-based Directory Assistance (DA) mechanism. This service is available to retrieve directory assisted information via Verizon's frame relay, ATM, and IP data services. As a Web-based application, WBDS is more dynamic than traditional telephony-based directory assistance services. Verizon WBDS performs comprehensive searches to retrieve business and residential names, phone numbers, and addresses by providing a Web-based service interface to access Verizon's high-quality DA information. Additionally, WBDS provides its directory assistance service at a lower cost than any competitor's standard dial-up connections. Customers who typically dial long distance (XXX) 555-1212 or 411 on a local connection to access national listings from AT&T, Sprint, or the regional bells can have a less expensive and more intuitive interface alternative via a Verizon data network connection to the WBDS capabilities. Verizon also offers a Web services interface to the WBDS database. Verizon's Directory Assistance Web Services (DAWS) provides programmatic access through the use of a standards-based Extensible Markup Language (XML)/Simple Object Access Protocol (SOAP) interface. With this service, once a customer completes the existing registration process for Web-based directory assistance, they receive an additional access method to integrate applications to the WBDS data.
Benefits to the Customer WBDS will provide customers the following benefits: • Reduce the cost on directory assistance • Improve productivity by integrating directory information database and improving data consistency and accuracy • Reduce the maintenance cost by integrating various databases
Service-Specific Architecture Customers connect to WBDS by utilizing Verizon's Internet Protocol (IP) and Frame Relay (FR) data services. If the customer uses (Asynchronous Transfer Mode) ATM, this connection is established with a FRASI interface to convert the ATM service into frame relay Private Virtual Circuits (PVC). The correct PVC size can be determined by using the bandwidth calculator provided by Verizon. Although, WBDS is an application and does not actually require equipment, it does require the customer to order a bi-directional PVC for their frame port. In addition, WBDS requires the customer to have a browser-based environment to connect with the WBDS servers. The customers intranet is connected through their data services to Verizon. Since the customers' intranet interfaces with a public network, an IP router and server table controls are required to assure that the customers' connectivity is private. An extensive firewall implemented at both the Verizon and customer premises guarantees this privacy. Any customization work needed to interface existing directory services or databases will be done through Verizon professional service, Customized Engineering and Design Service, base on mutual agreed Statement of Work (SOW).

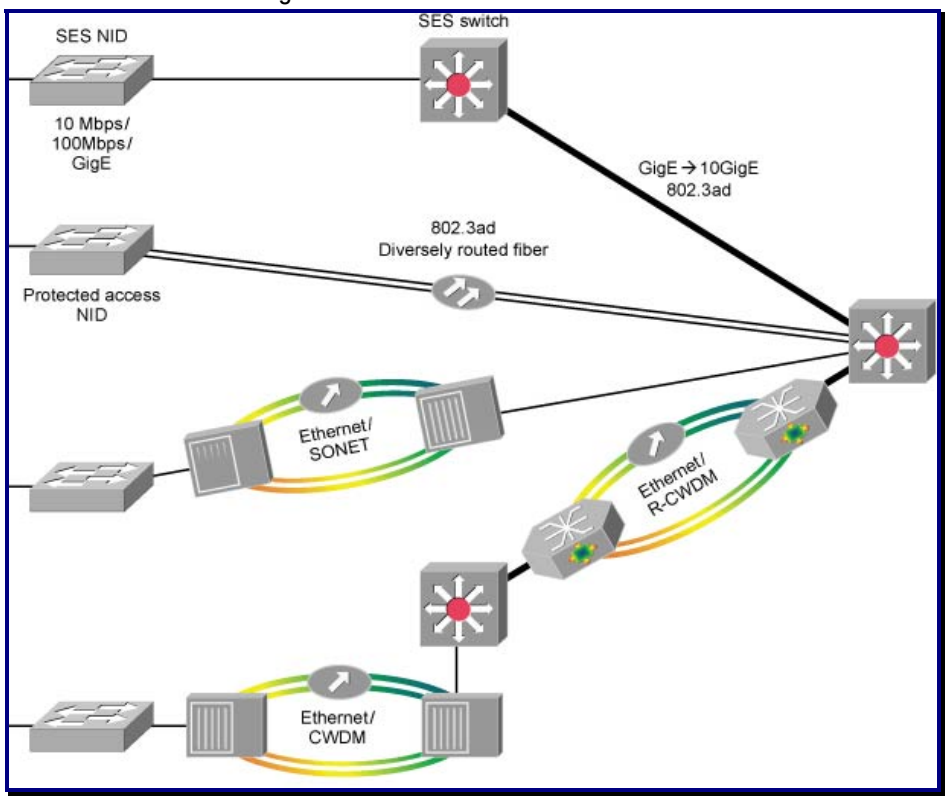
3.3.8 Gigabit Ethernet Service (GES) (C.2.10) - Service Overview

Verizon's rich history of providing Ethernet services has grown from supporting only "best effort" transport to enhanced capabilities such as point-to-point and multipoint-to-multipoint service types, class of service support, and performance SLAs. Verizon's GES is a high-throughput, low delay data service that uses dedicated fiber access to a shared Layer 2 switching platform that allows for the interconnection of Local Area Networks (LANs).

Verizon offers two flavors of GES: Ethernet virtual private line (EVPL) and Ethernet LAN (ELAN). Verizon offers three native Ethernet connection interfaces—10, 100, and 1,000 Mbps. Verizon is currently active in various standards groups that have been developing specifications for supporting carrier-class Ethernet services including Metro Ethernet Forum (MEF), IEEE 802.1, and IETF L2VPN. As a result, Verizon's GES services are closely aligned with the standard service definitions specified by the MEF. *On April 26, 2006, Verizon was awarded the Ethernet Service Provider Certification from the MEF.*

EVPL and ELAN share the same components of Verizon's GES network architecture. The architecture consists of switches in the central office and Network Interface Devices (NID) at the customer premises. The service intelligence resides in the GES switch, while the NID provides the customer interface, a test access point, and performance measurement capabilities. Dedicated fiber is predominantly used today between the GES switches and the NID; however, Coarse Wavelength Division Multiplexing (CWDM) and next-generation SONET transport are used in specific situations. Backbone links connecting GES switches primarily consists of redundant Gigabit Ethernet links using standard IEEE link aggregation. Verizon is phasing 10G Gigabit Ethernet and Dense Wave Division Multiplexing (DWDM) transport into the GES backbone to meet traffic demand. Figure 3.3.8-1: GES Network Architecture displays the GES architecture setup.

Figure 3.3.8-1: GES Network Architecture



The Verizon switched Ethernet network has been built for reliability, performance, and cost effectiveness. Verizon has [redacted] Ethernet switches in the WITS 3 service area. This distribution gives Verizon a wide service area and significantly reduces instances of backhauling facilities to a hub office.

Verizon switches have been configured to be highly reliable by using redundant common equipment. This includes dual supervisor engines working in an active/standby mode. If the primary engine should fail, a switchover will occur within 1 to 2 seconds. Dual power supplies load share and ensures operation in the event of a failure until the defective power supply can be replaced. Dual [redacted] offer customers high performance and additional reliability.

Verizon delivers network availability of [redacted] GES includes SLAs that cover operational and performance metrics. Operational metrics include Mean Time To Repair (MTTR), Network Availability (NA), and On-Time Provisioning (OTP). The operational performance objectives are summarized in the following table for the three enhanced classes of service (EVPL-RT, EVPL-PD, and E-LAN RT).

	On Time Provisioning (OTP) (Service Level Objective)	Network Availability (NA)	Mean Time To Repair (MTTR)
Switched Ethernet Services	[redacted]	[redacted]	[redacted]

Performance metrics include data delivery, delay, and jitter. The service performance objectives are summarized in the following table for the three enhanced classes of service EVPL-RT, EVPL-PD, and E-LAN RT.

Service Performance Attribute	Parameters	Class of Service Offering		
		EVPL-RT	EVPL-PD	E-LAN RT – SLO ONLY
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]
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	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

E-LAN RT will offer performance objectives. GES switches and premises network interface devices are continuously monitored for

operational status. GES Network Management Systems (NMS) use Simple Network Management Protocol (SNMP) to monitor all network elements, which in turn monitor the facilities for faults and error conditions. HP OpenView, a generic SNMP management package, is currently used for GES network management. SNMP provides proactive, real-time fault monitoring:

- NMS periodically pings CO switches and NIDs at demarcations s to ensure availability
- Alarms are sent from CO elements in real time to the NMS

Verizon has engineered the GES backbone design based on the actual daily average utilization and not on the aggregate bandwidth that is competing for the backbone usage. Verizon's Data Traffic Engineering (DTE) group monitors the GES backbone utilization. Simple Network Management Protocol (SNMP) is used to collect port counters every 15 minutes. When an inter-switch trunk reaches [redacted], Verizon begins the process of adding additional capacity. This process helps assure a user will not experience decreased performance, which can be possible in shared switching environments. There are two optional features for this service that can enhance a user's experience:

- Protected Access Line (PAL) diversifies the fiber that runs from the Government agency location to the Ethernet switch. This diversity offers protection from a fiber cable cut between the two locations.
- Customer Service Management (CSM) is an optional feature that provides Government agencies with Web-based service reports. The reports give the customer the ability to extract read-only network traffic information, enabling them to monitor and manage network performance. CSM is provided per customer domain.

GIGABIT ETHERNET SERVICE – ELAN XXXXXXXXXXXXXX

Product Description

Ethernet LAN (E-LAN) Service. E-LAN service offers a transparent, multipoint-to-multipoint service designed for LAN interconnect over a metro area. The basic E-LAN service can be used for agencies with best-effort data applications. The enhanced option of E-LAN, called E-LAN Real-Time (E-LAN RT), allows agencies to add a small amount of bandwidth in a real-time Class of Service (CoS) designed for packet voice applications. Agencies can run basic and packet voice applications over the same multi-point-to-multi-point Ethernet Virtual Connection (EVC). The key characteristics of Verizon E-LAN service are as follows:

- *Multipoint-to-multipoint connectivity.* Agencies can connect any number of sites into a single multipoint-to-multipoint EVC, allowing them to build large networks (potentially having hundreds of sites). Standard MAC address learning is used to efficiently switch a customer's traffic to the intended destination site or sites. Connectivity is simple for customers to use.
- *Transparency.* Government agencies can send and receive "untagged" or "VLAN-tagged" Ethernet frames. The service guarantees preservation of the customer's VLAN tag, which allows customers to administer VLAN domains among their sites. In addition, customer Layer 2 control protocols (i.e., spanning tree) are tunneled through Verizon's E-LAN service, allowing customers to manage their Layer 2 networks independently of Verizon's network.
- *Enhanced CoS option.* Government agencies can choose to add real-time CoS capability at one or more sites in their network. This enables agencies who want to run packet voice applications among sites to do so on the same network with their basic LAN interconnect traffic.

Benefits to the Customer

- Port speeds ranging from 10Mbps to 1000Mbps (GigE) offers scalability; agencies can tailor speed to requirements and grow as necessary
- Native Ethernet handoff for minimal custom training/CPE (no protocol conversion required)
- Connectionless any-to-any switching supports any number of sites/configurations
- Unique VLANs assigned per customer provides security by segmenting customer's traffic over the shared network.
- Full-service monitoring 24x7 to the NID on customer premises
- Customer confidence in network reliability

XXX – XXXXXXXX|XXXXXXX|XXXXXXX|XXXX|XXXX|XXXXXX|XXXXXXX

[redacted]

Product Description

Verizon EVPL service offers a virtual point-to-point service, similar to frame relay, designed for customer networks requiring a point-to-point service model. Examples of typical applications well suited for Verizon EVPL are Internet access, IP-VPN access, data center hub-and-spoke networks, and aggregating Ethernet traffic.

The key characteristics of Verizon EVPL service include:

- *Point-to-point connectivity:* Customers can connect numerous sites by using multiple point-to-point EVCs, just like they do with frame relay and ATM services today.
- *Granular bandwidth:* Customers can customize the exact amount of bandwidth they need in each CoS for a given EVC, using the options listed below.
  - Low speed: 1 to 9 Mbps, in 1 Mbps steps
  - Medium speed: 10 to 90 Mbps, in 10 Mbps steps
  - High speed: 100 to 1000 Mbps, in 100 Mbps steps
- *Multiple CoS:* Support for more than one CoS per EVC greatly simplifies the customer router configuration and provides a streamlined solution for enterprise applications and customer access to IP-VPN services.

EVPL service offers customers three CoS options, described below. Customers can order any combination of these CoS on a given Ethernet Virtual Connection (EVC).

- *EVPL-real-time (EVPL-RT)* is designed for packet voice, video, and other customer applications requiring tight guarantees of frame delay, frame jitter, and frame delivery performance. Continuous service Performance Monitoring (PM) of EVPL-RT on each EVC is planned to ensure guarantees of delay, loss, and jitter are met.
- *EVPL-Priority Data (EVPL-PD)* is designed for customer data applications requiring guarantees of frame delivery performance, with looser requirements for frame delay. Continuous service PM of EVPL-PD on each EVC is planned to ensure guarantees of delay and loss are met.
- *EVPL-Basic (EVPL-B)* is designed for customer data applications that require no guarantees of performance, and where cost per megabit per second is the key requirement. Performance monitoring is not planned for EVPL-B.

Benefits to the Customer:

- Port speeds ranging from 10Mbps to 1000Mbps (GigE) offer scalability; Government agencies can tailor speed to requirements and grow as necessary.
- Native Ethernet handoff for minimal custom training/CPE (no protocol conversion required)
- Connectionless, any-to-any switching supports numerous sites and configurations
- Unique VLANs assigned per customer provides security by segmenting customer's traffic over the shared network
- Full-service monitoring (24x7) to the NID on customer premises
- Customer confidence in network reliability

3.4 Service Office Locations (L.30.1.3.1(4))

[redacted]

Table 3.4-1: Serving Office Quantities

Switch Location Summary	
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[redacted]	
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Table 3.4-2: Serving Office Locations

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3.5 Service Ordering Intervals (L.30.1.3.1 (5))

Verizon's Service@once and Bill@once solution provides automated provisioning, inventory, reporting, billing, and trouble reporting capabilities in one integrated solution. For [redacted], the system has evolved from a CPE ordering and billing system, to full flow-through provisioning for Centrex Analog and ISDN services, to a one-stop-shop for all voice, video, data, equipment, and professional services for WITS2001. Table 3.5-1 defines the service intervals and Table 3.5-2 outlines the service intervals by access type. These service intervals will be updated as new intervals and services become available.

Verizon's fully compliant Service@once and Bill@once operating and business support systems are already in place supporting WITS2001 customers, therefore Verizon will be ready to transition customers and services to the WITS 3 systems environment on "Day One".

Table 3.5-1: Verizon WITS 3 Service Intervals

ROUTINE	The routine time interval required for completion after receipt of an order; time intervals vary depending on the size and type of the service order.
EXPEDITE	To expedite an order for a fee, contact the WITS 3 Customer Service Center or check the appropriate box on the service order form – negotiation with the WITS 3 Customer Service Center may be necessary.
EMERGENCY	In emergency situations it will be necessary to negotiate service intervals with the WITS 3 Customer Service Center.

Verizon will be a strong partner with the Government to protect, prevent, respond to, and otherwise address threats to the network, and to protect the confidentiality, integrity, and availability of the critical information assets that are under the control and protection of Verizon.

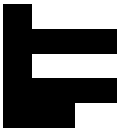
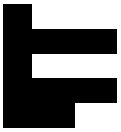
Table 3.5-2: Verizon WITS 3 Service Intervals by Access Type

ACTION	REQUIRED COMPLETION TIME AFTER RECEIPT OF ORDER		
	ALL ACCESS		
	ROUTINE	EXPEDITE	EMERGENCY
Install Analog or BRI WITS3 Lines SVS (Standard Agency Business Location)			
10 or less per BAC per building	[redacted]	[redacted]	[redacted]
11 to 25 per BAC per building	[redacted]	[redacted]	[redacted]
26 to 50 per BAC per building	[redacted]	[redacted]	[redacted]
More than 50 per BAC per building	[redacted]	[redacted]	[redacted]
Install Analog or BRI WITS3 Lines SVS (Residential or Remote Agency Location)	[redacted]	[redacted]	[redacted]
10 or less per BAC per building	[redacted]	[redacted]	[redacted]
More than 10 per BAC per building	[redacted]	[redacted]	[redacted]
Install Voice Mail Services/Features			
Any quantity	[redacted]	[redacted]	[redacted]
Reset Password on Existing Voice Mailbox			
Any quantity (must be only item on order)	[redacted]	[redacted]	[redacted]
Install WITS3 Trunks/DID			
24 or less per BAC per building	[redacted]	[redacted]	[redacted]
25-96 per BAC per building	[redacted]	[redacted]	[redacted]
More than 96 per BAC per building	[redacted]	[redacted]	[redacted]
Install CSDS			
23 or less per BAC per building	[redacted]	[redacted]	[redacted]
24 or more per BAC per building	[redacted]	[redacted]	[redacted]
Install DTS note due date for trunks riding DS1/PRI must be 2 business days after the Pipe			
DS1 Pipe			
8 or less per BAC per building	[redacted]	[redacted]	[redacted]

ACTION	REQUIRED COMPLETION TIME AFTER RECEIPT OF ORDER		
	ALL ACCESS		
	ROUTINE	EXPEDITE	EMERGENCY
9 or more per BAC per building	[redacted]	[redacted]	[redacted]
DS1 Digital Hand-Off Dedicated			
8 or less per BAC per building	[redacted]	[redacted]	[redacted]
9 or more per BAC per building	[redacted]	[redacted]	[redacted]
DS1 Digital Hand-Off Multiplexed			
8 or less per BAC per building	[redacted]	[redacted]	[redacted]
9 or more per BAC per building	[redacted]	[redacted]	[redacted]
PRI			
8 or less per BAC per building	[redacted]	[redacted]	[redacted]
9 or more per BAC per building	[redacted]	[redacted]	[redacted]
DS3			
8 or less per BAC per building	[redacted]	[redacted]	[redacted]
9 or more per BAC per building	[redacted]	[redacted]	[redacted]
Install Synchronous Optical Network (SONET) Services			
Any quantity	[redacted]	[redacted]	[redacted]
Install Dedicated SONET Ring (DSR)			
Any quantity	[redacted]	[redacted]	[redacted]
Install Dedicated DWDM Ring			
Any quantity	[redacted]	[redacted]	[redacted]
VTS			
Reservation (non recurring teleconference)	[redacted]	[redacted]	[redacted]
ATS			
Reservation (non recurring teleconference)	[redacted]	[redacted]	[redacted]
FRS Add DS1			
4 or less per BAC per building	[redacted]	[redacted]	[redacted]
5 or more per BAC per building	[redacted]	[redacted]	[redacted]
FRS Add DS3			
4 or less per BAC per building	[redacted]	[redacted]	[redacted]

ACTION	REQUIRED COMPLETION TIME AFTER RECEIPT OF ORDER		
	ALL ACCESS		
	ROUTINE	EXPEDITE	EMERGENCY
5 or more per BAC per building	[redacted]	[redacted]	[redacted]
ATMS			
Any quantity	[redacted]	[redacted]	[redacted]
Dark Fiber Services			
Any quantity	[redacted]	[redacted]	[redacted]
IAS			
Any quantity	[redacted]	[redacted]	[redacted]
Install Digital Subscriber Line (DSL)			
Any quantity	[redacted]	[redacted]	[redacted]
Install Ethernet LAN Service (ELAN)			
Any quantity	[redacted]	[redacted]	[redacted]
VoIP Services			
Any quantity	[redacted]	[redacted]	[redacted]
Custom Redirect Service			
Any quantity	[redacted]	[redacted]	[redacted]
Managed Security Services			
Any quantity	[redacted]	[redacted]	[redacted]
VSAT Services			
Any quantity	[redacted]	[redacted]	[redacted]
Dedicated Hosting Services			
Any quantity	[redacted]	[redacted]	[redacted]
Wireless LAN Services			
Any quantity	[redacted]	[redacted]	[redacted]
Voice Continuity Service			
Any quantity	[redacted]	[redacted]	[redacted]
IP VPN Service			
Any quantity	[redacted]	[redacted]	[redacted]
Premises-based IP VPN			
Any quantity	[redacted]	[redacted]	[redacted]
Managed Network Solutions			
Any quantity	[redacted]	[redacted]	[redacted]
Technical Support Services			

ACTION	REQUIRED COMPLETION TIME AFTER RECEIPT OF ORDER		
	ALL ACCESS		
	ROUTINE	EXPEDITE	EMERGENCY
Any quantity	[redacted]	[redacted]	[redacted]
Install TV-1 Video Service (TVS)			
Any quantity	[redacted]	[redacted]	[redacted]
Service Intervals for Adds/Moves/Change			
Add/Move/Remove CPE			
10 or less per BAC per building per due date	[redacted]	[redacted]	[redacted]
More than 10 per BAC per building per due date	[redacted]	[redacted]	[redacted]
Add/Move/Remove Local Area Network Interface			
5 or less per BAC per building per due date	[redacted]	[redacted]	[redacted]
6-10 per BAC per building per due date	[redacted]	[redacted]	[redacted]
More than 10 per BAC per building per due date	[redacted]	[redacted]	[redacted]
Add/Move/Remove Attendant Console			
5 or less per BAC per building per due date	[redacted]	[redacted]	[redacted]
6-10 per BAC per building per due date	[redacted]	[redacted]	[redacted]

ACTION	REQUIRED COMPLETION TIME AFTER RECEIPT OF ORDER		
	ALL ACCESS		
	ROUTINE	EXPEDITE	EMERGENCY
More than 10 per BAC per building per due date			
Add/Move/Remove Subscriber Feature or Class of Service			

3.6 Verizon's WITS 3 Technical Support Services (L.30.1.3.2)

Verizon's approach to technical support services is to provide as wide and broad an offering as possible. To fully support the needs of the Federal Government, Verizon proposes all of the labor categories currently utilized in the current WITS2001 contract, which includes all of the labor categories in RFP Table C.3-2: Representative WITS3 Labor Categories. In addition, Verizon is proposing additional security, engineering, and management CLINs to support the evolving needs of the Federal Government.

Verizon has assembled an extensive and impressive team to provide technical support under WITS 3. As shown below, this team includes personnel from a wide range of Verizon-owned companies, which serve various IT markets and a select group of both small and large business partners.

VERIZON'S PRIMARY TECHNOLOGY SUPPORT SERVICE PROVIDERS

- ACCENTURE
- BECHTEL
- COMTECH
- GENERAL DYNAMICS
- ROBBINS GIOIA
- TCS
- VERIZON LOCAL EXCHANGE COMPANIES
- VERIZON FEDERAL NETWORK SERVICES, LLC

The following section identifies and describes the duties and qualifications of Verizon's proposed labor categories. The section is divided into three parts. The first part provides all of the labor categories found in RFP Table C.3-2: Representative WITS 3 Labor Categories. The second part includes the other WITS2001 labor categories currently provided by Verizon and not found in RFP Table C.3-2. The last part provides the additional, new labor categories proposed by Verizon for WITS 3.

3.6.1 Verizon's Technical Support Services Value Add

Verizon's technical support services proposal provides a number of value added benefits to the Federal Government.

- Verizon and its partners provide and are ready to continue to provide the wide range of technical support services required by the WITS 3 RFP. This allows for continuity of those services from WITS2001 and access by the Federal Government to the same experienced personnel already in place.
- To provide the greatest level of continuity and access to experienced personnel, Verizon has not only proposed the labor categories listed in the WITS 3 RFP, but also has all of the existing WITS2001 labor categories.
- The additional capabilities proposed by the new labor categories demonstrate Verizon's ability to meet the Federal Government's evolving telecommunication needs. The new labor categories make available personnel in areas such as security, Internet engineering, and management.

Verizon has successfully partnered with GSA to provide the experienced personnel needed by the Federal Government under WITS2001 and will continue to provide the required personnel under WITS 3. Verizon is providing a new level of technical support to meet the evolving needs of the Government.

3.6.2 Labor Categories and Qualifications

CATEGORY	LAN/WAN INTEGRATOR
QUALIFICATIONS	A Bachelor's degree in Electrical Engineering, Computer Science, or Information Science from accredited college or university and a minimum of four (4) years experience in the planning, design, installation, maintenance, and architecture management of LANs/WANs.
DUTIES	Responsible for overall integration of WITS 3 service delivery arrangements involving LANs and WANs including: the planning, design, installation, maintenance, management and coordination of agency LAN/WAN interfaces with the WITS 3 network (may include local, metropolitan, and wide area networks). Has responsibility for technical architecture and recommendations related to customer LANs/WANs. Maintains technical currency and studies vendor products to determine those which best meet agency needs. Presents

	information to management which may result in purchase and installation of hardware, software, and telecommunication equipment. Contributes technically to complex problems in the area of local and wide area networking, communications, and related hardware/software (e.g., bridges, gateways, routers, multiplexers, hubs). Recommends network security procedures and policies. Works with many network topologies and protocols (e.g., IP, MPLS, Frame Relay) as well as with multiple operating system environments (e.g., Desktop, Server, NOS).
CATEGORY	**SENIOR DATABASE/ANALYST PROGRAMMER**
QUALIFICATIONS	Must have a Bachelor of Science degree in Math, Computer Science, or Information Systems from an accredited college or university and have a minimum of six (6) years experience in the design, implementation, and maintenance of databases.
DUTIES	Under general direction, designs, implements, and maintains complex databases, access methods, device allocations, validation checks, organization, protection and security, documentation, guidelines, and statistical methods. Includes maintenance of database dictionaries, overall monitoring of standards and procedures, and integration of systems through database design. Works at the highest level of all phases of database management.
CATEGORY	**DATABASE/ANALYST PROGRAMMER**
QUALIFICATIONS	Must have a Bachelor of Science degree in Math, Computer Science, or Information Science from an accredited college or university and have a minimum of four (4) years experience in the design, implementation, and maintenance of database.
DUTIES	Under general supervision, design, implement, and maintain moderately complex databases, access methods, device allocations, validation checks, organization, protection and security, documentation, guidelines, and statistical methods. Includes maintenance of database dictionaries and integration of systems through database design. Work will be performed in most phases of database management
CATEGORY	**SENIOR APPLICATIONS SYSTEMS ANALYST**
QUALIFICATIONS	A Bachelor's degree in Math or Computer Science from an accredited college or university and a minimum of nine (9) years experience in the design and development of complex ADP systems. Broad knowledge of database, data communications, and networking theory and concepts as applied to mainframe, minicomputer, and microcomputer platforms. Must be capable of conversing with technical and managerial personnel to determine applicable programs, agency plans, and other factors affecting systems design requirements.
DUTIES	Formulates and defines system scope and objectives. Devises or modifies procedures to solve complex problems involving computer equipment capacity and limitations, operating time, and form of desired results. Prepares detailed specifications from which programs will be written. Analyzes and revise existing system logic difficulties and documentation as necessary. Has full technical knowledge of all phases of applications systems analysis. Also has duties instructing, directing, and checking the work of other systems analysis personnel. Responsible for quality assurance review. Functions as project leader. Communicates with technical and managerial personnel to determine applicable programs, agency plans, and other factors affecting systems design requirements.
CATEGORY	**APPLICATIONS SYSTEMS ANALYST**
QUALIFICATIONS	Must have a Bachelor's degree in Math or Computer Science from an accredited college or university and a minimum of six (6) to eight (8) years of progressively more difficult analytical and/or technical experience performing systems analysis on telecommunications systems. Must possess substantive knowledge of analytical techniques, be skilled in collecting and manipulating data from various sources, and be skilled in using structured analytical methods. In addition, the Applications Systems Analyst must possess a knowledge of telecommunications technologies and of computer-based modeling tools.
DUTIES	Under general direction, formulates and defines system scope and objectives. Devises or modify procedures to solve complex problems involving computer equipment capacity and limitations, operating time, and form of desired results. Prepares detailed specifications from which programs will be written. Analyze and revise existing system logic problems as

	required and document as necessary. Works at the highest technical level of all phases of applications systems analysis activities. Works with various telecommunications technologies and computer-based modeling tools.
CATEGORY	**SYSTEMS ENGINEER**
QUALIFICATIONS	A bachelor's degree from an accredited college or university in engineering, computer science, or information systems. Must have at least seven years of experience in design, development, optimization, or implementation of software, hardware, and business systems. Must have experience in designing, implementing, or operating network management systems that support telecommunications operations. The breadth of experience must include information technology assessment and optimization, and business process analyses that cross organizational boundaries. Must be current in information technology and information structures to support organizational goals. Must have experience working at the corporate level in the development of strategic and enterprise plans.
DUTIES	Performs engineering functions which include studies, analyses, and implementation. Identify, evaluate, and implement information technology to integrate organizations systems and interface with customers and suppliers; enable users to access and manipulate information across a wide variety of technology platforms and organizational boundaries. Evaluates functions from an enterprise and strategic perspective. Designs, implements, and operates network management systems that support telecommunications operations. Works at the corporate level in the development of strategic and enterprise plans.
CATEGORY	**VOICE COMMUNICATIONS SPECIALIST – PLANNING AND IMPLEMENTATION**
QUALIFICATIONS	Must be a high school graduate with a minimum of eight (8) years experience in software/hardware voice network design and analysis.
DUTIES	Ensures that adequate and appropriate planning is provided for hardware and communications facilities. Develops and implement methodologies for analysis, installation and support of voice communications systems. Provides coordination in the analysis, acquisition, and installation of hardware and software. Interfaces with internal/external customers and vendors to determine system needs. Manages the training and activities of a staff responsible for system and network planning and analysis activities. Performs tasks involving billing/chargeback as required.
CATEGORY	**DATA COMMUNICATIONS SPECIALIST – PLANNING AND IMPLEMENTATION**
QUALIFICATIONS	Must be a high school graduate with a minimum of eight (8) years experience in software/hardware LAN and WAN network design and analysis.
DUTIES	Ensures that adequate and appropriate planning is provided for hardware and communications facilities to develop and implement methodologies for analysis, installation and support of distributed processing systems. Provides coordination in the analysis, acquisition, and installation of hardware, software, and facilities. Manages the training and efforts of a staff engaged in system and network planning, analysis, and monitoring activities.
CATEGORY	**ORGANIZATIONAL DEVELOPMENT MANAGER**
QUALIFICATIONS	A Master's degree with a concentration in organizational development, and at least five (5) years experience in organization development, including analysis of organizational functions, development of performance criteria and measurements, designing training plans and curriculums, and conducting training. At least two (2) years of this experience shall have been spent in the telecommunications field. In addition, the Organization Development Manager shall have two (2) years experience managing an organization development function in an organization of five hundred (500) or more people.
DUTIES	Responsible for assisting agencies in organizing and managing their telecommunications and other related services in a multi-vendor environment. Duties include directing tasks related to organization analysis, performance criteria and measurements, task analysis, and development and presentation of training curricula for large organizations.

CATEGORY	ORGANIZATIONAL DEVELOPMENT SPECIALIST
QUALIFICATIONS	A Bachelor's degree with a concentration in organizational development. In addition, at least three (3) years experience in the analysis of organizational functions, development of operating procedures, development of performance criteria and measurements, developing training curriculums and conducting training. At least one (1) years of this experience shall have been spent in the telecommunications field.
DUTIES	Supports tasks related to organization analysis, development of operating procedures, and training. Analyzes organizational functions, develops operating procedures, develops performance criteria and measurements, develops training curricula and conducts training in a telecommunications organization.
CATEGORY	**COMMUNICATIONS ANALYST**
QUALIFICATIONS	Must be a high school graduate with a minimum of five (5) years experience in telecommunications, with emphasis in network design, traffic engineering, equipment, and telecommunications carrier practices and procedures. Knowledge of traffic flow and client requirements, operating procedures, and traffic study techniques are essential. Desirable to have experience in performing technical and economic studies of existing telephone systems. Must be capable of conversing with technical and managerial personnel to determine applicable programs, agency plans, and other factors affecting telecommunications systems design requirements.
DUTIES	Under general direction, assists in the planning, design, and implementation of communications networks. Responsible primarily for the assessment and optimization of network design through review and assessment of user needs, conduct feasibility studies for large projects, develop requests for proposals, evaluate vendor products, and make recommendations on selection. Analyzes traffic flow, client requirements, operating procedures, and traffic study techniques. Performs technical and economic studies of existing telephone systems. Communicates with technical and managerial personnel to determine applicable programs, agency plans, and other factors affecting telecommunications systems design requirements.
CATEGORY	**SENIOR COMMUNICATIONS ANALYST**
QUALIFICATIONS	Must be a high school graduate and have a minimum of eight (8) years experience in installation, repair, and maintenance of electronic computer based systems with four (4) years experience in the areas of voice and/or data transmission facilities. Must have direct work experience with various transmission media including two and four wire transmission, microwave, fiber optics, satellite, and other. Four (4) years of the required experience must be in the direct testing, evaluation, and quality assurance of voice or data networks.
DUTIES	This position is similar to a senior telecommunications technician in that the Senior Communications Analyst must be familiar with all aspects of voice and data telecommunications services. This individual will interact with end users and determine the most appropriate way to resolve their telecommunications issues. Specific functions, include processing service requests and inquiries; negotiating service orders, assigning and tracking telephone numbers; verification of programming and cable facilities, building voice mail boxes/application; tracking and preparing billing media, and dispatchingtechnicians. The Senior communications Analyst will also perform test, analysis, and record-correction functions; prepare cut sheets and floor plans; and provide end user training.
CATEGORY	**CABLE INSTALLER**
QUALIFICATIONS	Must be a high school graduate and have at least four (4) years experience in installing, modifying, and troubleshooting aerial and underground copper and fiber optic cable.
DUTIES	Performs installation of telephone, coaxial, and fiber optic cables, including vertical and horizontal cable pairs to the desktop. Locates and diagnoses signal transmission defects using various test equipment and visual inspection. Uses tools and related test equipment, ground power equipment, and pressure equipment. Prepares necessary written reports. Communicates effectively with technical and management personnel, as required.

CATEGORY	CABLE SPLICER
QUALIFICATIONS	Must be a high school graduate and certified for splicing of copper and fiber optic cable. Must have at least four (4) years experience in splicing, installing, modifying, and troubleshooting aerial and underground copper and fiber optic cable.
DUTIES	Performs splicing, inspecting, maintaining, overhauling, repairing, and installing splice cases for telephone, coaxial, fiber optic, and outside plant cable. Locates and diagnoses signal transmission defects using various test equipment and visual inspection. Uses cable splicing and lineman's tools and related test equipment, ground power equipment, and pressure equipment. Communicates effectively with technical and management personnel, as required.
CATEGORY	**TRAINING SPECIALIST**
QUALIFICATIONS	This position requires a minimum of five (5) years experience, two (2) years of which must be specialized. Specialized experience includes experience in developing and providing end-user training on voice/data telecommunications services and/or hardware and system operation.
DUTIES	Using course material, provides training to customers as specified in the task order. Develops and provide end-user training on voice/data telecommunications services and/or hardware and system operation. Prepares student materials, including handouts, completion certificates, and course critique forms. Conducts formal classroom courses, workshops, and seminars, as needed.
CATEGORY	**TECHNICAL DRAFTSMAN**
QUALIFICATIONS	Must be a high school graduate and have at least two (2) additional years of education or technical training, to include computer-aided drafting. Must have a minimum of four (4) years experience in technical drafting, with an emphasis on telecommunications wiring documentation and outside plant facilities. Must be knowledgeable, capable, and experienced in the use of computer based drafting tools.
DUTIES	Provides drafting support, both manual and computer aided, for other skill categories in documenting current or existing systems, proposed systems, technical job drawings, etc., as required, with an emphasis on telecommunications documentation and outside plant facilities wiring. Communicates effectively in writing and orally with all levels of technical and management personnel
CATEGORY	**TECHNICAL WRITER/EDITOR**
QUALIFICATIONS	Must have a Bachelor's degree from an accredited college or university and at least three (3) years of technical writing and editing support in system development, automated office support systems, telecommunications documentation, and other technical material as required. A minimum of one (1) year editing experience in the technical publication field involving engineering, scientific or academic discipline is required.
DUTIES	Prepares and edits telecommunications documentation incorporating information provided by the client, specialists, analysts, engineers, and operations personnel. Documentation emphasizes telecommunications and data systems and associated terminology. Duties include the writing, editing, and graphic presentation of technical information for both technical and non-technical personnel. Interprets technical documentation standards and prepares documentation according to defined standards. Communicates effectively in writing and orally with all levels of technical and management personnel, as required.
CATEGORY	**DATA ENTRY OPERATOR**
QUALIFICATIONS	Must be a high school graduate and have at least one (1) year experience in data entry and verification using contemporary data entry devices.
DUTIES	Applies experience and judgment in selecting procedures to be followed and in searching for, interpreting, selecting, and coding items to be entered into a machine-readable format from a variety of source documents.

CATEGORY	TELECOMMUNICATIONS TECHNICIAN
QUALIFICATIONS	Must be a high school graduate and have a minimum of four (4) years experience in installation, repair, and maintenance of electronic computer based systems and four (4) years experience in the areas of voice and/or data transmission facilities. Must have direct work experience with various transmission media including two and four wire transmission, microwave, fiber optics, satellite, and other. Two (2) years of the required experience must be in the direct testing, evaluation, and quality assurance of voice or data networks.
DUTIES	Monitors vendors' installation of equipment, and performing system testing and evaluation activities. Inspects and review hardware installation, wiring, power, grounding, system database validation, and other activities to ensure quality installation of services for the client. Performs adjunct installation, deinstallation, and relocation activities including, but not limited to, site preparation and installation and/or removal of cabling and wiring systems, terminal equipment, automated data processing services, and associated hardware and software. Tests quality assurance of voice and data switching equipment. Installs and/or maintain LAN/WAN equipment or networks of LANs/WANs. Communicates effectively in writing and verbally with all levels of technical and management personnel, as required. Performs network testing, analysis, and optimization. Applies transmission engineering principles to existing networks to ensure receipt of quality voice and data telecommunications services.
CATEGORY	SENIOR TELECOMMUNICATIONS TECHNICIAN
QUALIFICATIONS	Must be a high school graduate and have a minimum of eight (8) years experience in installation, repair, and maintenance of electronic computer based systems with four (4) years experience in the areas of voice and/or data transmission facilities. Must have direct work experience with various transmission media including two and four wire transmission, microwave, fiber optics, satellite, and other. Four (4) years of the required experience must be in the direct testing, evaluation, and quality assurance of voice or data networks.
DUTIES	Provides in-depth analysis of trouble conditions and facilitate repair efforts. Works independently or coordinate a team of technicians as necessary. Monotors vendors' installation of equipment, and perform/coordinate system testing and evaluation activities. Inspects and reviews hardware installation, wiring, power, grounding, system database validation, and other activities to ensure quality installation of services for the client. May perform adjunct installation, deinstallation, and relocation activities including, but not limited to, site preparation and installation and/or removal of cabling and wiring systems, terminal equipment, automated data processing services, and associated hardware and software. May be assigned to tasks requiring quality assurance testing of voice and data switching equipment. May install and/or maintain LAN/WAN equipment or networks of LANs/WANs. Is expected to communicate effectively in writing and verbally with all levels of technical, engineering, and management personnel, as required. Coordinates the repair of large or complex troubles. Performs in the area of network testing, analysis, and optimization. Able to apply transmission-engineering principles to existing networks to ensure receipt of quality voice and data telecommunications services.
CATEGORY	PROGRAM MANAGER
QUALIFICATIONS	Must have a minimum of ten (10) years of general telecommunications experience and a bachelor's degree in a technical discipline relating to the required service, with at least eight (8) years specialized experience in the management of voice and data telecommunications systems. Specialized experience includes: substantial telecommunications project development and management from inception of deployment; proven expertise in the management and control of funds and resources; and demonstrated capability in managing multiple tasks in telecommunications support.
DUTIES	Responsible for all phases of contract management, work flow, and resource management; and for the quality of the program and deliverables, timeliness, minimization of problems, risk assessment and program performance.
CATEGORY	PROJECT MANAGER

QUALIFICATIONS	Bachelor's degree required. One year of relevant professional experience may be substituted for each year of college education required (4). Must have a minimum of eight (8) years business experience in the fields of computer systems, communications or systems integration related fields. A minimum of three (3) years Project Management experience is required.
DUTIES	Overall responsibility for company performance on specific programs or projects. Functions as the leader, manager, and coordinator of all contributing disciplines and resources in the completion of projects or management of the program. Engage in: assigning tasks; establishing and maintaining task schedules; maintaining liaison between appropriate engineering personnel and the customer to ensure effective coordination of all projects or program efforts; preparing and adhering to project cost and staffing plans; preparing plans, proposals, and briefings. Also provide management of contract negotiations and company representation with customers and subcontractors as required.
CATEGORY	**SENIOR DEVELOPER**
QUALIFICATIONS	The Senior Developer is a seasoned professional with a thorough and well-rounded knowledge of advanced html, java scripting, site and database architecture and integration and modification of Active Server Page scripts. The Senior Developer will also have a basic understanding of graphic design, including Macromedia Flash and multimedia integration. He/she will also have project management/team supervision skills, be well-versed in content writing and Internet communications strategy and have sufficient programming knowledge to supervise senior programmers.
DUTIES	Responsible for the design and engineering of the Web site and be the customer interface for all technical Web development issues.
CATEGORY	**SENIOR PROGRAMMER**
QUALIFICATIONS	He/she has advanced-level knowledge of Active Server Page, visual basic and cgi programming. The Senior Programmer will have the ability to program in C++ and Visual Interdev and to write javascripts and java applets.
DUTIES	Perform all advanced programming associated with the development or modification of a Web page and will also be responsible for database development and management (SQL and MS Access) as it applies to the Internet.
CATEGORY	**APPLICATIONS PROJECT MANAGER**
QUALIFICATIONS	He/she is a professional project manager with expertise in software and web-authoring type projects.
DUTIES	Coordinate all tasks associated with the Web-authoring project and will ensure that all tasks are completed on time and meet the customer requirements.
CATEGORY	**SENIOR GRAPHIC DESIGNER**
QUALIFICATIONS	The Graphic designer is a unique individual with advanced level knowledge and considerable talent/flair in graphic design. He/she will be efficient in the use of Adobe PhotoShop, Illustrator and various desktop publishing and draw programs. He/she will be advanced in the production of animations, both through gifs and Macromedia Flash. The Graphic Designer will be proficiency in optimizing graphic file size for quick download. This person will also be proficient in HTML.
DUTIES	Efficient in the use of Adobe PhotoShop, Illustrator and various desktop publishing and draw programs. Advanced in the production of animations, both through gifs and Macromedia Flash. Proficient in HTML and optimizing graphic file size for quick download.
CATEGORY	**MID-LEVEL DEVELOPER**
QUALIFICATIONS	The Mid-Level Developer will possess a Bachelor of Arts degree or have five years applicable experience. The Mid-level programmer will have a strong knowledge of HTML and the broad functionality and capabilities of data driven, dynamic content sites and of database structure and management. He/she will have the ability to customize ASP pages

	and java scripts, basic level proficiency in graphic design and possess good supervisory and training skills in working with junior developers.
DUTIES	Customize ASP pages and java scripts, basic level proficiency in graphic design and possess good supervisory and training skills in working with junior developers.
CATEGORY	**JUNIOR DEVELOPER**
QUALIFICATIONS	The Junior Developer is an entry-level developer who has good overall computer literacy. Junior Developers work under the supervision of the Mid- level Developer to ensure the quality of their work. He/she must have some basic knowledge of html, theory and structure of websites, ability to upload and download using FTP without error, and the ability to use web-based forms.
DUTIES	The Junior Developer is an entry-level developer who has good overall computer literacy. Junior Developers work under the supervision of the Mid-Level Developer to ensure the quality of their work.
CATEGORY	**ASBESTOS HAZARDOUS MATERIALS SYSTEMS TECHNICIAN**
QUALIFICATIONS	• State certified • Trained and equipped to perform all installation and maintenance in connection with potentially Hazardous Environments, such as working in ceilings with asbestos wrapped pipes or Lead painted walls • Equipped with the consumables needed to work in this environment, but are not equipped with vehicles. • Is required by OSHA to have Class III certification for competent persons, where the potential for less than 25 square feet of ACM may be disturbed. Is trained to manage his/her actions so as not to disturb asbestos. Is not trained to abate, handle, wear breathing mask, or come in contact with asbestos in any way. If asbestos is detected in the air, he/she is required to leave the area until abatement is completed (by another vendor) and the air quality proves to be clean by the air particle monitor tests (performed by the abatement organization).
DUTIES	Works on Customer Premises on the customer's side of the Rate Demarcation Point. Performs work in connection with placement, rearrangement, and removal of wire and cable, and associated equipment in or on customers' buildings. In connection with these duties: • Connects wire and cable to terminals and attaches various kinds of hardware to wires, cables or buildings. • Performs verification tests for basic line status. • Erects and removes framework. • Transports, uncrates and inventories equipment. • Provides assistance to other personnel as they perform their required tasks. • State certified. • Trained and equipped to perform all installation and maintenance in connection with potentially Hazardous Environments, such as working in ceilings with asbestos wrapped pipes or Lead painted walls. • Equipped with the consumables needed to work in this environment, but are not equipped with vehicles. • Installs, erects and removes framework, conduit, tubing, core drills and makes penetrations within an environment where he may disturb asbestos containing materials (ACM). • Performs work including installation, rearrangement, and maintenance for products and services such as copper, fiber optics, broadband video services and CAT 5.
CATEGORY	**SENIOR ASBESTOS HAZARDOUS MATERIALS SYSTEMS TECHNICIAN**
QUALIFICATIONS	In addition to the qualifications described in the Asbestos Hazardous Materials Systems

	Technician Job Description, Senior Asbestos Hazardous Materials Systems Technicians are— Trained and equipped to perform all activities needed for the installation and maintenance of basic analog and digital services on customer premises or in the Network, with the following exceptions: • Protocol Analysis of digital facilities • Services that require end-to-end measurement and adjustment of transmission levels • Multiplexed installation and maintenance, copper or fiber optic based • Installation, rearrangement, or maintenance on common equipment associated with key or electronic key equipment The Senior Asbestos Hazardous Materials Systems Technicians are qualified to work aloft in Outside Plant and drive vehicles; the CLIN rates include the services of the technician and the use of a vehicle. Technicians are equipped with common tools and test equipment routinely required for the installation and maintenance of basic telephone service on customer premises when over copper facilities.
DUTIES	In addition to the duties described in the Asbestos Hazardous Materials Systems Technician Job Description, Senior Asbestos Hazardous Materials Systems Technicians are trained and equipped to perform all activities needed for the installation and maintenance of basic analog and digital services on customer premises or in the Network, with the following exceptions: • Protocol Analysis of digital facilities. • Services that require end-to-end measurement and adjustment of transmission levels. • Multiplexed installation and maintenance, copper or fiber optic based. • Installation, rearrangement, or maintenance on common equipment associated with key or electronic key equipment.
CATEGORY	**DOCUMENTATION SPECIALIST**
QUALIFICATIONS	• 3–5 years minimum as a technical and/or technical training documentation writer. • Has thorough understanding of configuration management practices. • Has thorough knowledge of desktop publishing software package(s).
DUTIES	Responsible for the creation and maintenance updating of required technical documentation (both hardware and software) and technical training materials. Works with project and staff managers and engineers on content and format of documentation. Works with little guidance. Provides documentation project planning and direction. Reports to Project Manager.
CATEGORY	**SENIOR NETWORK SYSTEMS ENGINEER**
QUALIFICATIONS	• Bachelor's degree required. • Certified Network Engineer for one or more network systems. • Five(5) years minimum experience in network engineering field.
DUTIES	Participates in engineering projects and network implementations involving the extension and application of highly advanced engineering and networking principles and concepts. Capable of networking design implementation. Performs work that may include a variety of complex features and requires multi- or interdisciplinary approaches. Conducts advanced and state-of-the-art assignments under general supervision. Provides technical information for, and final technical editing of, all documents and proposals. Provides diagnosis of, and resolution for, complex networking and engineering problems.
CATEGORY	**SENIOR SPECIAL APPLICATIONS SYSTEMS ENGINEER**
QUALIFICATIONS	• Install system hardware, maintenance and administration terminals, modems and any associated PC ancillary equipment. • Connect all equipment requiring power to power source provided. • Run cables to main distributing frame or cross-connect field. Connect modems for

	remote access by offsite engineers. • Assemble and install specially designed furniture as required to support the application, including but not limited to other adjunct devices such as remote recorders, telephone jacks, hand/headsets, clocks, special button strips, radio circuit interface equipment, etc. • Perform system translations and administrative tasks, coordinating with customers or responsible project managers. • Test and troubleshoot using remote engineering support, product developers and designers prior to cutover to ensure equipment and design integrity. • Provide support during cutover. • Perform software and hardware upgrades. • Must have a Bachelor's degree in Math or Computer Science from an accredited college or university and a minimum of six (6) to eight (8) years of progressively more difficult analytical and/or technical experience performing systems analysis on telecommunications systems. Must possess substantive knowledge of analytical techniques, be skilled in collecting and manipulating data from various sources, and be skilled in using structured analytical methods. In addition, the Special Applications Systems Engineer must possess a knowledge of telecommunications technologies.
DUTIES	Communicates during installation with TIER III and IV engineers and product designers as well as with customers to coordinate administration and troubleshooting of systems being installed. Responsible for test of all installed equipment and is capable of operating and understanding test devices such as frequency and data signal generators, oscilloscopes, transmission measuring equipment, volt-ohm meters. Responsible for documenting installation work activities and coordinating those activities with customers. • Installs system hardware, maintenance and administration terminals, • Modems and any associated PC ancillary equipment. • Connects all equipment requiring power-to-power source provided. • Runs cables to main distributing frame or cross-connect field. Connect modems for remote access by offsite engineers. • Assembles and installs specially designed furniture as required to support the application, including but not limited to other adjunct devices such as remote recorders telephone jacks, hand/headsets, clocks, special button strips, radio circuit interface equipment, etc. • Performs system translations and administrative tasks, coordinating with customers or responsible project managers. • Tests and troubleshoots using remote engineering support, product developers and designers prior to cutover to ensure equipment and design integrity. • Provides support during cutover. • Performs software and hardware upgrades.
CATEGORY	**ENGINEERING ASSISTANT**
QUALIFICATIONS	• Normally assigned daytime hours but must accommodate exceptions to meet customer needs. Overtime may be required. May be assigned to work extended tours (one week or more) away from home. • Ability to present technical subject matter in English, both orally and in writing. • Ability and willingness to spend the day in outdoor activities, traverse rough terrain on foot, carry range rods, drive stakes, and occasionally use a brush axe in rural areas. (Outside Plant only). • Willingness to work primarily in an office environment. • Where driving is required, a valid state driver's license with a satisfactory driving record is required. Must have ability to drive vehicle with manual gearshift.
DUTIES	Uses standard design techniques (including computerized tools), planning documents and other records to perform work (other than that of a clerical nature) required to:

	• Analyze service and trunk orders. • Design and lay out trunk and special service circuits (including the calculation of transmission levels and the specification of equipment settings). Prepares or directs the preparation of Circuit Orders and Circuit Layout Records for field forces. Provides technical consultation with field forces in connection with trunk and special circuit design matters. May use computer terminal to obtain records information. Uses standard design techniques (including computerized tools), planning documents and other records and self-prepared field notes to perform work (other than that of a clerical nature) required to design and prepare complete outside plant engineering work plans and to prepare data (including detail and facing sheets and memoranda) for approval by management in connection with cost estimates for specific estimates and work orders. Negotiates and coordinates on outside plant engineering matters, including rights of way, with field forces, private owners, customers and third party representatives in the building industry, other utilities and government agencies. May use computer terminal to obtain records information.
CATEGORY	**CALL CENTER PROJECT MANAGER**
QUALIFICATIONS	• Minimum of 5 years of experience supporting complex and critical applications, preferably in the telecommunications or computer industry • Project management experience and proven team leadership skills • Strong communication and customer interaction skills • Education in TCP/IP with a general knowledge of LAN and WAN architecture implementing applications across TCP/IP networks • Education in UNIX and Windows Client/Server operating systems, PC applications (design and integration), with an understanding of relational databases • Knowledge of ISDN, POTS, and T1 network services as well as PBX, IVR, and ACD or voicemail systems
DUTIES	Provides project management services to oversee the entire call center implementation. • Oversees all project tasks • Provides and maintain a master plan • Coordinates efforts with customer and vendor project managers and personnel
CATEGORY	**CALL CENTER FIELD ENGINEER**
QUALIFICATIONS	• AS, BS or equivalent technical experience and three or more years of experience in a customer support role supporting complex and critical applications • Education in TCP/IP with a general knowledge of LAN and WAN architecture implementing applications across TCP/IP networks • Education in UNIX and Windows Client/Server operating systems, PC applications (design and integration), and have an understanding of relational databases. Able to perform installation of Operating Systems and databases • Knowledge of ISDN, POTS, and T1 network services as well as PBX, IVR, and ACD or Voicemail systems
DUTIES	Installs call center applications, including on-site pre-installation planning; remote pre-installation support (telecommunications service coordination, etc.) on-site support for installation, and on-site support for system cutover, as follows: • Cut over remote agents and supervisors • Create or configure new agents, nodes, applications, views and skill groups • Build or load normal, holiday, or emergency routing • Add or move agents or major components such as a server, supervisor station, or contact server • Perform upgrades, moves, changes, and adds • Create customized reports

	• Provide recommendations on back-up procedures
CATEGORY	**CALL CENTER APPLICATION DESIGN ENGINEER**
QUALIFICATIONS	• BA/BS degree or equivalent experience in Engineering or Computer Science • One to three years of telecommunications and software industry experience • Web Development – Java, HTML • C, C++, Windows NT, Visual Basic, relational databases • ACD, IVR and CTI experience desired • Strong customer interaction skills • Excellent communication skills
DUTIES	Designs, integrates, and supports comprehensive communications solutions featuring voice, data, and mixed-media applications. Documents the requirements and the functional design specification. Defines acceptance criteria for implementation. Develops, tests and installs the solution.
CATEGORY	**WIRE TECHNICIAN**
QUALIFICATIONS	High school graduate or GED with a minimum of 3 years experience in installation of cable and wire systems. Certification with Cat 5 and/or CAT 6 cabling systems.
DUTIES	Performs installation of various telephone, coaxial, and fiber optic cables, which may include vertical and horizontal cables. Performs installation, deinstallation, and relocation activities including but not limited to site preparation and installation and/or remove of cable and wire systems. Performs installation of voice and LAN cabling to meet specific requirements of the manufacturer and BICSI with regard to the requirements of category 5 and 6 voice and LAN cable. Uses complex test equipment to perform quality assurance of voice and LAN wire to meet BICSI specifications. Keeps and provides detailed records and drawings of cable and wiring plants. Communicates effectively in writing and verbally with all levels of technical and management personnel, as required.
CATEGORY	**REPAIR SERVICE CLERK**
QUALIFICATIONS	Minimum of 2 years of experience in telecommunications. Experienced using personal computers and the Microsoft Office Suite products
DUTIES	Under general direction, receives service problems from customers and/or computer systems and then refers them to the appropriate work groups. Analyzes telecommunications troubles, test line conditions and advises customers of status of the trouble report. Maintains thorough computer systems line records. Interacts with other service centers to resolve troubles. Operates computer terminals and other office machines such duplicating equipment.
CATEGORY	**VOICE MAIL ADMINISTRATOR**
QUALIFICATIONS	Have certification in administration and maintenance of the Octel platforms. Have excellent customer service skills. Experienced using personal computers and the Microsoft Office Suite products.
DUTIES	Under general direction, receives and processes requests for Octel Voice Mail services. Performs analysis on troubles to accomplish resolution. Maintains database and hardware on the Octel 350 platform systems. Demonstrates good oral communications with the customer and other work groups involved in providing telecommunications services. Maintains thorough computer systems line records. Interacts with other service centers to resolve troubles. Operates computer terminals and other office machines such as duplicating equipment.
CATEGORY	**VOICE MAIL CLERK**
QUALIFICATIONS	Minimum of 3 years experience in Octel voice messaging system or certification in the Octel platforms. Excellent customer service skills. Experienced using personal computers

	and the Microsoft Office Suite products.
DUTIES	Under general direction, receives and processes requests for Octel Voice Mail services. Performs analysis on troubles to accomplish resolution. Demonstrates good oral communications with the customer and other work groups involved in providing telecommunications services. Maintains thorough computer systems line records. Interacts with other service centers to resolve troubles. Operates computer terminals and other office machines such duplicating equipment.
CATEGORY	**SPECIAL CLERK**
QUALIFICATIONS	High School graduate or equivalent. Eight (8) years minimum business experience in clerical fields, desirable. Must be literate in personal computers to include Microsoft Word, Excel, Power Point and other data base systems.
DUTIES	Under general direction prepares reports with emphasis on accuracy; analyze and summarize data. Has the experience to operate various office machines such as computer terminals and reproducing machines. Is proficient in the use of Microsoft Word, Microsoft Excel, Microsoft Power Point and other related office suite products. Can communicate with customers and outside business firms to accomplish job tasks.
CATEGORY	**REPAIR CENTER TEAM LEADER**
QUALIFICATIONS	Business experience in telecommunications field. Must be literate in personal computers to include Microsoft Word, Excel, Power Point and other database systems.
DUTIES	This is a management supervisory position. The Team Leader is responsible for the "single point of contact" center that receives trouble reports from customers, receives and dispatched orders from the customer and functions as central point for customer issues. The team leader is responsible for the repair clerks, maintenance administrators, voice mail clerks and the voice mail administrator. The team leader may also function as the project manager for customer projects.
CATEGORY	**CENTRAL OFFICE TECHNICIAN**
QUALIFICATIONS	Excellent customer service skills. Certification in routine and maintenance of switching systems, Lucent 5E or DMS200. Experienced using personal computers and the Microsoft Office Suite products. Able to complete 6 or more weeks of classroom training.
DUTIES	Under general direction, monitors, analyzes, and repairs switching related equipment. Assists with or performs system and equipment installations, acceptance testing, and initialization. Extracts routine system and customer reports as required. Maintains accurate and complete records. Performs distribution frame wiring as required. Performs testing, analyzes data, and interprets manuals and wiring diagram to locate and clear trouble conditions in switching equipment, computer systems, data networks, and associated peripherals. Demonstrates good oral communications with the customer and other work groups involved in providing telecommunications services. Maintains thorough computer systems line records. Interacts with other service centers to resolve troubles. Operates computer terminals and other office machines such as duplicating equipment.
CATEGORY	**STOREKEEPER**
QUALIFICATIONS	Minimum 5 years experience in storeroom administration and operations is desirable. Experience using personal computers and the Microsoft Office Suite products is desirable.
DUTIES	Under general direction, orders, receives, and takes inventory of supplies, cable, materials, and tools. Selects, addresses (labels), and stages supplies for distribution. Performs general office functions, including verifying shipments for accuracy, documenting discrepancies, and issuing claims. Communicates clearly and effectively with suppliers and customers.
CATEGORY	**MAINTENANCE ADMINISTRATOR**
QUALIFICATIONS	High School graduate or equivalent. Knowledge and experience in telecommunications functions. Strong communications skills. Able to overlap functions. Ability to negotiate with

	customers and interact with other work groups. Experienced using personal computers and the Microsoft Office Suite products.
DUTIES	Receives trouble reports via computer terminals or directly from customers. Screens and tests customer reported problems to facilitate repair efforts. Contacts customers to negotiate dates and times; accesses arrangements as necessary to facilitate trouble resolution. Maintains customer records, prepares technician dispatch activity logs, functions as the customer's representative to other work groups. Monitors repair and installation workloads to meet commitment times.

Additional WITS2001 Labor Categories

CATEGORY	**SERVICE VISIT PERSONNEL**
QUALIFICATIONS	Qualifications will vary depending on the nature of the customer's request/service visit. Must have the appropriate education, training, and direct work experience needed to coincide with the work to be performed for each visit.
DUTIES	In response to a customer's request, will be assigned tasks that are not part of the basic service (go beyond the service delivery point) and dispatched to the customer's premises. Tasks include but are not limited to wire repair work not covered by a maintenance plan; customer-caused damage repairs to CPE or wire under a maintenance plan; specific troubles or uncoordinated immediate requests that are not part of a planned project or conversion; and end-user on-site digital subscriber line support. Is expected to communicate effectively in writing and verbally with all levels of technical, engineering, and management personnel, as required. Will be expected to work independently or coordinate a team as necessary. This labor category permits the contractor to recover costs in the event the contractor responds to a customer requested trouble call and no problems are found or when no one is available to allow entry or when a dispatch date and time are arranged but the customer isn't available to receive a delivery.
CATEGORY	**AVAYA PROJECT MANAGER**
QUALIFICATIONS	• Avaya Certified Associate Communications Networking (ACACN) Certification • Master's Certificate in Project Management • Completion of Analyze the Design and Plan the Implementation Avaya University Course and Assessment (AVA00111AEN) • Completion of MultiVantage Overview Course and Assessment (BTT153W2A).
DUTIES	• Coordinates the installation of Avaya products and/or systems at customer sites • Schedules and may perform pre-installation site review/evaluation for adequate infrastructure • Ensures that the proper materials and manpower arrive at the customer site on a timely basis for the installation of Avaya equipment • Manages installation problem resolution with assigned customer accounts • Coordinates interactions between the customer, systems engineering, field process engineering, field service engineering, manufacturing, logistics and third-party vendors • If necessary, escalates installation issues to the appropriate organization • Provides solutions to a diverse range of moderately complex problems.
CATEGORY	**AVAYA PROGRAM MANAGER**
QUALIFICATIONS	• ACACN Certification • Project Management Professional (PMP) Certification (Awarded by Project Management Institute) • Avaya Certified Specialist Communications Implementation (ACSCI) Certification • Master's Certificate in Project Management • Completion of Analyze the Design and Plan the Implementation Avaya University

	Course & Assessment (AVA00111AEN) • Completion of MultiVantage Overview Course & Assessment (BTT153W2A) • One other industry recognized certification, i.e. Microsoft, Cisco, Nortel, etc.
DUTIES	• Oversees very large and complex provisioning projects including installations or systems additions • Provides total project leadership and is directly accountable for the project team's performance • Defines milestones, reserves resources, coordinates with multiple vendors/services providers • Coordinates project activities, resource scheduling, contractual compliance, customer satisfaction • Maximizes profitability of project.
CATEGORY	**AVAYA SOFTWARE ASSOCIATE**
QUALIFICATIONS	• ACACN Certification • Completion of MultiVantage Overview Assessment (BTT153W2A) • Completion of MultiVantage Advanced Admin for SIS assessment (BTP068A) and supporting courses • Completion of Modular Messaging Overview assessment and course (AVA00029WEN) • Completion of Modular Messaging for System Admin assessment and course (AVA00032WEN).
DUTIES	• Assists with providing on-site and remote implementation support of software, systems, subsystems and/or applications for customers or field personnel utilizing telephone and remote diagnostic capabilities • Supports Software Specialist with end-user installations, configurations, upgrades and migrations through problem isolation, verification, resolution and documentation.
CATEGORY	**AVAYA SOFTWARE SPECIALIST**
QUALIFICATIONS	• ACACN Certification • ACSCI Certification • Avaya Certified Specialist Communications Design (ACSCD) Certification • One other industry recognized certification, i.e. Microsoft, Cisco, Nortel, etc. • Completion of MultiVantage Overview Assessment (BTT153W2A) • Completion of MultiVantage Basic Admin for SIS assessment (BTP060W2A) and supporting courses • Completion of MultiVantage Intermediate Admin for SIS assessment (BTP069A) and supporting courses • Completion of MultiVantage Advanced Admin for SIS assessment (BTP068A) and supporting courses • Completion of MultiVantage Expert Admin for SIS Assessment (BTP070A) and supporting courses • Completion of Modular Messaging Overview assessment and course (AVA00029WEN) • Completion of Modular Messaging for System Admin assessment and course (AVA00032WEN).
DUTIES	• Responsible for and manages the on-site and remote implementation support of software, systems, subsystems and/or applications for customers or field personnel utilizing telephone and remote diagnostic capabilities • Supports the highly complex end-user installations, configurations, upgrades and

	migrations through problem isolation, verification, resolution and documentation.
CATEGORY	**AVAYA CALL CENTER CONSULTANT**
QUALIFICATIONS	• ACACN Certification; Completion of CMS Supervisor Administration with EAS BTC155H (or equivalent) • Completion of CMS Supervisor Administration BTC447M (or equivalent) • Completion of Definity BCMS View BTT331H2-C (or equivalent) • Completion of CMS Administration BTC112H (or equivalent) • Completion of Definity System Administration for Call Centers BTC188W2 (or equivalent) • Completion of Definity System Call Vectoring BTC197H2 (or equivalent) • Completion of MultiVantage Basic Admin for SIS assessment (BTP060W2A) and supporting courses (or equivalent).
DUTIES	• Integrates MultiVantage Call Center Software (Deluxe and Elite), CMS, CMS Supervisor, and BCMR • Consults with the customer to understand the needs of the business, customers and associates • Works with the customer to design a contact center that utilizes the Avaya technology to best meet those needs • Provides administrator and supervisor training in the use of Avaya reporting.
CATEGORY	**AVAYA NETWORK INTEGRATION TECHNICAL CONSULTANT**
QUALIFICATIONS	• ACACN Certification • ACSCI Certification • ACSCD Certification • ACE Certification • One other industry recognized certification, i.e. Microsoft, Cisco, Nortel, etc. • Completion of MultiVantage Overview Assessment (BTT153W2A) • Completion of MultiVantage Basic Admin for SIS Assessment (BTP060W2A) and supporting courses • Completion of MultiVantage Intermediate Admin for SIS assessment (BTP069A) and supporting courses • Completion of MultiVantage Advanced Admin for SIS assessment (BTP068A) and supporting courses • Completion of MultiVantage Expert Admin for SIS assessment (BTP070A) and supporting courses • Completion of Modular Messaging Overview assessment and course (AVA00029WEN) • Completion of Modular Messaging for System Admin Assessment and course (AVA00032WEN).
DUTIES	• Designs, develops, and implements networking solutions for customers or field personnel utilizing telephone and remote diagnostic capabilities • Supports end-user installations, configurations, upgrades and migrations through problem isolation, verification, resolution and documentation • Participates/is a member on Avaya Core Team Labs, R&D.
CATEGORY	**AVAYA SENIOR CALL CENTER CONSULTANT**
QUALIFICATIONS	• ACACN Certification • Completion of CMS Supervisor Administration with EAS BTC155H (or equivalent) • Completion of CMS Supervisor Administration BTC447M (or equivalent)

	• Completion of Definity BCMS View BTT331H2-C (or equivalent) • Completion of CMS Administration BTC112H (or equivalent) • Completion of Definity System Administration for Call Centers BTC188W2 (or equivalent) • Completion of Definity System Call Vectoring BTC197H2 (or equivalent) • Completion of MultiVantage Basic Admin for SIS assessment (BTP060W2A) and supporting courses (or equivalent) • Completion of MultiVantage Intermediate Admin for SIS assessment (BTP069A) and supporting courses (or equivalent) • Completion of Avaya Business Advocate/Dynamic Advocate BTH100H2 (or equivalent) • Completion of Avaya Virtual Routing BTH102H2 (or equivalent) • Completion of CentreVu Reports Designer BTC202H (or equivalent) • Completion of CentreVu CMS Custom Reports BTC115H (or equivalent) • Completion of CentreVu CMS Design and Configuration BSG217R2 (or equivalent) • Completion of Computer Telephony Integration I and M BTE019H2 (or equivalent).
DUTIES	• Integrates Avaya Business Advocate, Avaya Virtual Routing, Avaya Network Routing and complex multisite contact centers • Consults with the customer to understand the needs of the business, customers and associates • Works with the customer to design a contact center that utilizes the Avaya technology to best meet those needs • Provides consultative administrator and supervisor training in the use of Avaya reporting (BCMS, BCMR, CMS, Avaya Supervisor).
CATEGORY	**AVAYA TECHNICIAN**
QUALIFICATIONS	• ACACN Certification • Completion of Avaya MultiVantage Solutions Overview (BTT153W2) • Completion of Media Gateways, Cabinets, Chassis and Circuit Packs (BTT155W2) • Completion of Avaya MultiVantage Maintenance Strategy and Procedures (BTT157W2) • Completion of Voice Terminal and Attendant Console Installation (BTT154W2) • Completion of IP Telephony Installation and Configuration (BTT156W2) • Completion of MultiVantage Software Administration (BTC273W2) • Completion of Introduction to Avaya S8700 Media Server Configuration (BTT168W2) • Completion of Avaya S8300 Media Server Configurations and installation (BTT 163W2) • Completion of Avaya S8700 Media Server for Multi-Connect Configurations (BTT169W2) • Completion of Avaya S8700 Media Server for IP-Connect Configurations (BTT170W2) • Completion of S8300 and/or S8700 Hands On training (BTT321A/BTT322A).
DUTIES	• Installs customer premises PBX, IP Telephony, call center, messaging and data equipment • Troubleshoots problems on the customer site using vast experience in telecommunications/data equipment • Installs new equipment for customer and also installs replacement parts when required.

CATEGORY	AVAYA TRAINING INSTRUCTOR END USER
QUALIFICATIONS	• Completion of MultiVantage Overview assessment (BTT153W2A) • Completion of Modular Messaging Overview assessment and course (AVA00029WEN) • Completion of Modular Messaging for System Admin assessment and course (AVA00032WEN).
DUTIES	• Prepares syllabus and handouts for end user training • Schedules end user training • Delivers knowledge transfer of products and services depending on set products.
CATEGORY	**AVAYA NETWORK INTEGRATION DESIGN CONSULTANT**
QUALIFICATIONS	• ACACN Certification • Completion of MultiVantage Overview Assessment (BTT153W2A) • Completion of Modular Messaging Overview assessment and course (AVA00029WEN).
DUTIES	• Assists in remote implementation support and design of Avaya networking products and solutions • Ensures customer satisfaction by advising customers on preventive maintenance and configurations that may impact product performance.
CATEGORY	**AVAYA NETWORK INTEGRATION ENGINEER**
QUALIFICATIONS	• ACACN Certification • ACSCI Certification • ACSCD Certification • One other industry recognized certification, i.e. Microsoft, Cisco, Nortel, etc. • Completion of MultiVantage Overview Assessment (BTT153W2A) • Completion of MultiVantage Basic Admin for SIS assessment (BTP060W2A) and supporting courses • Completion of MultiVantage Intermediate Admin for SIS assessment (BTP069A) and supporting courses • Completion of MultiVantage Advanced Admin for SIS assessment (BTP068A) and supporting courses • Completion of MultiVantage Expert Admin for SIS assessment (BTP070A) and supporting courses • Completion of Modular Messaging Overview assessment and course (AVA00029WEN) • Completion of Modular Messaging for System Admin assessment and course (AVA00032WEN).
DUTIES	• Responsible for providing remote implementation support of networking solutions for customers or field personnel utilizing telephone and remote diagnostic capabilities • Supports end-user installations, configurations, upgrades and migrations through problem isolation, verification, resolution and documentation • Provides solutions to a diverse range of moderately complex problems.
CATEGORY	**AVAYA PROVISIONING ENGINEER**
QUALIFICATIONS	• ACACN Certification • ACSCI Certification • ACSCD Certification • One other industry recognized certification, i.e. SUN Microsystems

	• Completion of MultiVantage Overview Assessment (BTT153W2A) • Completion of MultiVantage Basic Admin for SIS assessment (BTP060W2A) and supporting courses.
DUTIES	• Responsible for providing remote implementation support of hardware systems, sub-systems and/or applications for customers or field personnel utilizing telephone and remote diagnostic capabilities • Supports end-user installations, configurations, upgrades and migrations through problem isolation, verification, resolution and documentation • Participates/is a member on Avaya Core Team Labs, R&D.
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CATEGORY	**CALL CENTER OPERATOR**
QUALIFICATIONS	High school graduate or equivalency. Experienced in fundamental telephone techniques and etiquette. Experienced and skilled in the use of the following equipment, as required: personal computers, facsimile machines, specialized equipment for audio teleconferencing bridges, telecommunications devices for the deaf (TDD), ISDN telephone instruments. Able to type using word processing software. Experienced in using reference tools such as telephone directories, personnel locator files, and organization charts. Able to read, understand, and speak the English language with clear, understandable enunciation. Courteous, professional, and knowledgeable of job-specific information requirements; when required, shows empathy with the callers' concerns.
DUTIES	Duties may require telephone, voice paging, electronic signal, information and trouble reporting, and ordering services. Responsibilities are not limited to and may include the following: • Serves as sole operator on a workstation. Handles incoming and outgoing calls, including long distance and conference calls, in a prompt, courteous manner. • Obtains proper billing information for toll calls, and rejects unauthorized calls or refers caller to prescribed authorizing official. • Adheres to directives given by Supervisors and Program Manager regarding handling heavy volume of traffic pertaining to Government and other related agencies, restricted lines, and other procedures. • Obtains information by utilizing a teledirectory network and personal computer. Responds to calls from the public by directing them to the appropriate agency office. • May be required to respond to calls that relate to a potential or actual agency-related emergency by connecting them to the appropriate party, as designated by standard operating procedures. • May be required to serve as an Information Operator for a Government agency, supplying numbers, extensions, names, etc., and performing locator services as required. In complex situations, questions callers as necessary to determine the appropriate organizational referral. • May be required to operate call center equipment, personal computers, facsimile machines, specialized equipment for audio teleconferencing bridges, telecommunications devices for the deaf (TDD), ISDN telephone instruments, and office furniture necessary for performance of the position. • May be required to perform directory and record keeping, including forms, logs, and other records necessary to perform the call center services. May be required to update call center and backup console telephone directory databases. May be required to maintain logs and records of communication activities in accordance with call center standard operating procedures.

CATEGORY	CALL CENTER LEAD OPERATOR
QUALIFICATIONS	High school graduate or equivalency. Minimum 2 to 5 years experience as an Operator. Experienced in fundamental telephone techniques and etiquette. Experienced and skilled in the use of the following equipment, as required: personal computers, facsimile machines, specialized equipment for audio teleconferencing bridges, telecommunications devices for the deaf (TDD), ISDN telephone instruments. Able to type using word processing software. Experienced in using reference tools such as telephone directories, personnel locator files, and organization charts. Good communication skills; able to read, understand, and speak English with clear, understandable enunciation. Courteous, professional, and knowledgeable of job-specific information requirements; when required, shows empathy with the caller's concern(s). The Lead Operator will be capable of supervising the Call Center as required and serving as the primary point of contact for scheduling and establishing call center conference calls.
DUTIES	Duties may require telephone, voice paging, electronic signal and information, trouble reporting, and ordering services. Assists the Operator Supervisor in administrative and monitoring tasks. Possesses the skills to perform Supervisory functions whenever necessary. May be the primary point of contact for scheduling and establishing call center conference calls in addition to performing telephone operator functions. Actively performs the duties of a telephone operator. Responsibilities are not limited to and may include the following: • Serves as sole operator on a workstation. Handles incoming and outgoing calls, including long distance and conference calls, in a prompt courteous manner. Responsible for obtaining billing information for toll calls, and rejects unauthorized calls or refer caller to prescribed authorizing official. • Responsible for operating any of the positions assigned to an Operator, including answering all incoming calls and processing outgoing calls on a teledirectory network communication telephone console system. Follows instructions given by Supervisors and Program Manager regarding handling heavy volume of traffic pertaining to government and other related agencies, restricted lines and other procedures. • Ensures that staff is able to log on and off the scheduling system. Ensure shift schedules are properly staffed and maintains strict adherence to scheduling requirements including holidays. Responds to calls from the public by directing them to the appropriate agency office. • May be required to respond to calls that relate to a potential or actual agency-related emergency) by connecting them to the appropriate party, as designated by standard operating procedures. • May be required to serve as an Information Operator for a Government agency, supplying numbers, extensions, names, etc., and performing locator services as required. In complex situations, questions callers as necessary to determine the appropriate organizational referral. • May be required to operate call center equipment, personal computers, facsimile machines, specialized equipment for audio teleconferencing bridges, telecommunications devices for the deaf (TDD), ISDN telephone instruments, and office furniture necessary for performance of the position. • May be required to perform directory and record keeping, including forms, logs, and other records necessary to perform the call center services. May be required to update call center and backup console telephone directory databases. May be required to maintain logs and records of communication activities in accordance with call center standard operating procedures.
CATEGORY	CALL CENTER OPERATOR SUPERVISOR
QUALIFICATIONS	High School Diploma or equivalency. Minimum 1 to 2 years experience in a Lead Operator position. Thorough understanding of call center management operations. Qualified to supervise the Call Center and to serve as the primary point of contact for scheduling and establishing call center conference calls. Courteous, professional, and

	experienced in fundamental telephone techniques and etiquette; when required, shows empathy with the callers' or staff's concerns. Good verbal and written communication skills; including good command of English with clear, understandable enunciation. Experienced and skilled in the use of the following equipment, as required: facsimile machines, specialized equipment for audio teleconferencing bridges, telecommunications devices for the deaf (TDD), ISDN telephone instruments. Thorough knowledge of personal computer operations and word processing or desktop publishing software package(s). Able to type using word processing software, and experienced in the use of desktop publishing software if required. Experienced in using reference tools such as telephone directories, personnel locator files, and organization charts.
DUTIES	Responsible for managing day-to-day operations of the call center during his or her shift. Manages the Operators' weekly work schedules and communicates and trains to any changes in policies and procedures that impact the Operators' duties and tasks. Coaches, trains, and monitors the Operators and is instrumental in building morale and promoting a winning team spirit. Supervisors maintain expertise of all operator functions. The Call Center Site Supervisor is both a working supervisor and actively performs the duties of a telephone operator when necessary in order to meet performance metrics. The Operator Supervisor generally is designated the primary point of contact for scheduling and establishing call center conference calls in addition to performing telephone operator functions. Generally is required to perform supervision and conference attendant duties during high volume traffic periods or as otherwise required. May be required to participate in development, production, distribution, and maintenance of call center standard operating procedures (SOPs). May be required to perform periodic review of the SOPs with staff members as a refresher and when there are changes to the SOPs. May be required to establish work schedules, oversee staffing requirements, monitor the call center environment, and participate in staff training activities. May be required to work with the Project Manager to ensure that the call center is in a constant state of readiness in accordance with facility availability requirements and that telecommunications are maintained in an operable mode. Promptly reports equipment malfunctions to the Project Manager. Provides weekly status report, as required, summarizing operational status, staffing levels, and unusual events (i.e., equipment outages and emergencies). In the event of an emergency, may be required to execute emergency closing procedures for the center, in accordance with standard operating procedure and Emergency Evacuation Procedures. May be required to notify all operators at the call center if they are to report to a backup call center location. The Call Center Operator Supervisor's responsibilities are not limited to and may include the following: • *Weekly Schedules:* Coordinates weekly schedules with the Program Manager and keeps the Program Manager apprised of any alteration made to the schedule to accommodate vacations, doctor appointments, or shift trades. Ensures shift schedules are properly staffed, and maintains strict adherence to scheduling requirements, including holidays. Assures that staff is able to clock on and off of the scheduling system. • *Attendance Records:* Keeps track of all absences and tardiness. Responsible for issuing all verbal and written warnings for any attendance issues. • *Training:* May be required to train operators for various functions such as teledirectory, signal page, conferencing, telegrams, and facsimiles. Administers tests and coordinates with the Program Manager regarding trainees' progress; issues written evaluations on trainees' progress. Recommends ongoing refresher training as needed, and schedules accordingly. Assures that operators are adhering to the client-required Call Statistic Performance Metrics. • *Monitoring, Counseling and Evaluations:* Monitors operator performance and assures that Operators are adhering to all procedures on a daily basis; records any counseling that may be required. Determines which Operators require additional

	training and provides training if an operator is weak in an area. Issues yearly evaluations for all actively scheduled operators. • *Seating Arrangements:* Provides seating arrangements on a daily basis and monitors the floor to assure that all consoles are appropriately staffed at all times in accordance with the seating arrangements. Reschedules lunches and breaks as required to maintain necessary coverage. • *Faxes, Telegrams, Conference Calls, Signal Pages, etc.:* Monitors all requirements related to conference calls, faxes, and telegrams. • *Customer Complaints and Trouble Reports:* Handles any grievances encountered during the shift. Provides a written report of any incident and requests a written report from any employee concerned.
CATEGORY	**NORTEL TECHNICIAN**
QUALIFICATIONS	Must have successfully completed Nortel Product training for technicians and have a minimum of 1 year experience in installation, repair, and maintenance of electronic computer-based systems, and 1 year experience in the areas of voice and/or data transmission facilities. Must have direct work experience with various transmission media including two- and four-wire transmission, microwave, fiber optics, satellite, and others, dependent on services ordered by the customer. One year of the required experience must be in the direct testing, evaluation, and quality assurance or installation of voice or data networks.
DUTIES	Will be tasked to monitor vendors' installation of Nortel equipment, and perform system testing and evaluation activities. Will inspect and review hardware installation, wiring, power, grounding, system database validation, and perform other activities to ensure quality installation of services for the customer. May be tasked to perform adjunct installation, de-installation, and relocation activities including, but not limited to, site preparation and installation and/or removal of cabling and wiring systems, terminal equipment, automated data processing services, and associated hardware and software. May be assigned to tasks requiring quality assurance testing of voice and data switching equipment. Is expected to communicate effectively in writing and verbally with all levels of technical and management personnel, as required. Will perform in the area of network testing, analysis, and optimization. Must be able to apply transmission-engineering principles to existing networks to ensure receipt of quality voice and data telecommunications services.
CATEGORY	**SENIOR NORTEL TECHNICIAN**
QUALIFICATIONS	Must have successfully completed Nortel Product training for technicians and have a minimum of 3 years experience in installation, repair, and maintenance of electronic computer based systems with 2 years experience in the areas of voice and/or data transmission facilities. Must have direct work experience with various transmission media including two- and four-wire transmission, microwave, fiber optics, satellite, and others, depended on services ordered by the customer. Two years of the required experience must be in the direct testing, evaluation, and quality assurance or installation of voice or data networks.
DUTIES	Provide in-depth analysis of trouble conditions and facilitate repair efforts. Work independently or coordinate a team of Nortel technicians as necessary. Will be tasked to monitor vendors' installation of Nortel equipment, and perform/coordinate system testing and evaluation activities. Will inspect and review hardware installation, wiring, power, grounding, system database validation, and perform other activities to ensure quality installation of services for the customer. May be tasked to perform adjunct installation, de-installation, and relocation activities including, but not limited to, site preparation and installation and/or removal of cabling and wiring systems, terminal equipment, automated data processing services, and associated hardware and software. May be assigned to tasks requiring quality assurance testing of voice and data switching equipment. Is expected to communicate effectively in writing and verbally with all levels of technical, engineering, and management personnel, as required. Will be expected to coordinate the repair of large or complex troubles. Will perform in the area of network testing, analysis, and optimization. Must be able to

	apply transmission-engineering principles to existing networks to ensure receipt of quality voice and data telecommunications services.
CATEGORY	**TECHNICAL CONSULTANT ON SITE**
QUALIFICATIONS	A Bachelor's degree in engineering or telecommunications preferable, but not necessary. At the minimum, must be a high school graduate with a minimum of 4 years experience in installation, repair and maintenance of electronic computer based systems and 4 years experience in the areas of voice and/or data transmission facilities. Experience as a Central Office Technician is helpful. Must have direct work experience with various transmission media including two- and four-wire transmission, microwave, fiber optics, satellite, etc. Experience in the area of direct testing, evaluation, and quality assurance of voice/data networks is a plus.
DUTIES	In response to customer request, will be assigned tasks that are not part of the basic service (which go beyond the service delivery point) and dispatched to the customer's premises. In addition to some uses noted in Section C.3.3.3, tasks include but are not limited to wire repair work not covered by a maintenance plan; repairs of customer-caused damage to CPE or wire under a maintenance plan; specific troubles or uncoordinated immediate requests that are not part of a planned project or conversion; and end-user on-site digital subscriber line support. Is expected to communicate effectively in writing and verbally with all levels of technical, engineering, and management personnel, as required. Will be expected to work independently or coordinate a team as necessary. This labor category permits the contractor to recover costs in the event the contractor responds to a customer requested trouble call and no problems are found or when no one is available to allow entry or when a dispatch date and time are arranged but the customer isn't available to receive a delivery.

Additional Labor Categories

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Business Continuity Management

CATEGORY	BUSINESS CONTINUITY PLANNER I

QUALIFICATIONS	Requires five (5) to ten (10) years experience in the field or related area. Requires a Bachelors degree, applicable certificates, or its equivalent.
DUTIES	Functional Responsibility: Position covers all areas of the business continuity planning cycle. Works with high-level organizational personnel and provides analysis and recommendations to organizations to ensure the continuation of core, mission-essential functions should personnel, facilities, inventory, IT/communications and/or infrastructure experience a natural or man-made debilitative event. Maintains schedules to meet all deadlines and objectives. Designs and administers programs that include policies, standards, guidelines, training programs, and quality assurance processes for viable continuity planning. Oversees the development of Continuity of Operations (COOP) plans. Provides leadership to other business continuity professionals.
CATEGORY	**BUSINESS CONTINUITY PLANNER II**
QUALIFICATIONS	Requires two (2) to five (5) years experience in the field or related area. Requires an Associates or Bachelors degree, applicable certificates, or its equivalent.
DUTIES	Position covers all areas of the business continuity planning cycle. Under minimal supervision, provides research and analysis to organizations to ensure the continuation of core, mission-essential functions should personnel, facilities, inventory, IT/communications and/or infrastructure experience a natural or man-made debilitative event. Participates in the design and administration of programs which include, but are not limited to, policies, standards, guidelines, training, and quality assurance processes for viable continuity planning. Participates in the development of Continuity of Operations (COOP) plans.
CATEGORY	**BUSINESS CONTINUITY PLANNER III**
QUALIFICATIONS	Requires zero (0) to two (2) years experience in the field or related area. Requires an Associates degree, applicable certificates, or its equivalent.
DUTIES	Position covers all areas of the business continuity planning cycle. Using established procedures and under close supervision, helps support an organizations continuation of core, mission-essential functions should personnel, facilities, inventory, IT/communications and/or infrastructure experience a natural or man-made debilitative event. Conducts the research and analysis necessary for the design and administration of programs which include, but are not limited to, policies, standards, guidelines, training, and quality assurance processes for viable continuity planning. Supports the development of Continuity of Operations (COOP) plans.
CATEGORY	**SUBJECT MATTER SPECIALIST I**
QUALIFICATIONS	Requires fifteen (15) years in the field or related area._ Requires a PhD, or its equivalent.
DUTIES	Recognized at the industry level in a technical field or specialized engineering or technology area and is proficient in relevant engineering principles and practices. Applies experience, skills, and expert knowledge within an engineering discipline to complex assignments. Generates unique concepts as evidenced by synthesis of new products or processes. Creates or uses engineering/scientific tools to solve technical problems. Utilizes and develops tools, techniques, processes and/or facilities such as state-of-the-art simulation environments, laboratories, and test facilities. Provides leadership for engineering activities in a specialized engineering or technology subject area. Serves as a major contributor to technical planning process and for providing technical management and guidance.
CATEGORY	**SUBJECT MATTER SPECIALIST II**
QUALIFICATIONS	Requires ten (10) years in the field or related area. Requires Masters Degree, or its equivalent.
DUTIES	Recognized at the industry level in a technical field or specialized engineering or technology area and is proficient in relevant engineering principles and practices. Applies experience, skills, and expert knowledge within an engineering discipline to complex assignments. Generates unique concepts as evidenced by synthesis of new products or processes. Creates or uses engineering/scientific tools to solve technical problems. Utilizes and

	develops tools, techniques, processes and/or facilities such as state-of-the-art simulation environments, laboratories, and test facilities. Provides leadership for engineering activities in a specialized engineering or technology subject area. Serves as a major contributor to technical planning process and for providing technical management and guidance.

Security and Internet/Intranet Management

CATEGORY	SENIOR SECURITY ENGINEER
QUALIFICATIONS	Two years applied experience in security engineering and two years experience in a project management or team leadership position. Skills shall include three or more of the areas, above. Bachelor's degree in a technical field of study or demonstrable equivalent job experience.
DUTIES	• Ability to lead a team of engineers and technicians in the design, implementation, and installation of network security solutions, including but not limited to filtering policies, access control lists, virtual private networks, and secure access and authentication mechanisms. • Ability to review compiled and/or interpreted code for conditions that could generate security vulnerabilities. • Broad knowledge and integration of commercially available and public domain security products and solutions. • Detailed understanding of network protocols and communications. • Custom design and implementation of network and system security solutions appropriate to the customer's needs and culture. • Translation of customer requirements into a system architecture that meets security and functional requirements. • Ability to coordinate with customer engineers or administrators to integrate industry standard security engineering principles and practices with the customer's engineering and development processes. • Execution of projects using defined system engineering methodologies and ability to guide engineers and technicians in those methodologies.
CATEGORY	**SENIOR SECURITY ANALYST**
QUALIFICATIONS	Two years experience in project management or team leadership position required; plus two years applied security engineering experience with degree, or six or more years applied experience without degree, in at least three of the functional responsibility areas, above. Bachelor's degree in a technical field of study, or six or more years applied experience in at least three of the functional responsibility areas.
DUTIES	• Ability to lead team of analysts and engineers in security assessment of developmental or operational networks and systems for a variety of government or commercial clients. • Ability to apply defined security analysis methodologies to a variety of government or commercial client networks. • Ability to work with customer personnel to develop mission, functional and security requirements, security policies, architecture, and operational procedures. • Analysis of existing functional and security requirements, security policies, architecture, and operational procedures for security flaws. • Ability to identify countermeasure options and support customers in choosing best options to satisfy cost, functional, security, and other critical requirements. • Working knowledge of industry standard government and commercial security evaluation criteria.
CATEGORY	**SECURITY ENGINEER**
QUALIFICATIONS	Two years of applied experience are required in at least three of the above functional areas. Bachelor's degree in a technical field of study or demonstrable equivalent job experience.
DUTIES	• Broad understanding of network and communication protocols.

	• Broad knowledge of commercially available and public domain security solutions. • Ability to integrate commercial or custom security products and solutions into the customer's network architecture using industry standard system engineering methodologies. • Ability to work in team environment with the customer's engineers or administrators to integrate security engineering principles and practices into the customer's engineering and development processes. • Design or implementation of filtering policies, access control lists, virtual private network solutions, secure access, strong authentication, and other security mechanisms.
CATEGORY	**SECURITY ANALYST**
QUALIFICATIONS	Two years applied experience in at least three of the above skills. Bachelor's degree in a technical field of study or demonstrable equivalent job experience.
DUTIES	• Ability to apply defined security analysis methodologies to government or commercial networks or systems. • Ability to develop customer security requirements, functional requirements, mission, operations, architecture, and policies and then analyze for security flaws. • Ability to identify countermeasure options and support customers in choosing the best solution to satisfy budget, functional, security, and other critical requirements. • Working knowledge of widely accepted security evaluation criteria.
CATEGORY	**SECURITY POLICY DEVELOPER**
QUALIFICATIONS	At least two years applied experience in at least three of the above skills. Bachelor's degree in a technical field or equivalent job experience.
DUTIES	• Broad familiarity with government or commercial security regulations and evaluation criteria. • Broad familiarity with government certification and accreditation processes. • Working knowledge of industry standard network and system security policy statements and requirements, including, but not limited to, network security, host security, procedural security, physical security, and personnel security. • Ability to tailor security policies to fit the organization's individual needs and culture as well as to address the organization's threat profile. • Ability to develop and implement detailed processes to implement approved security policies.
CATEGORY	**NETWORK PENETRATION ENGINEER**
QUALIFICATIONS	Two years or more applied experience in network vulnerability discovery and exploitation. Skills shall include the areas, above. Bachelor's degree in computer science (or computer- or network-related studies) or demonstrable job experience.
DUTIES	• Ability to apply known exploits to customer networks to identify weaknesses and vulnerabilities. • "Command-line" ability to manipulate and apply exploits to customer networks. • Programming skills to modify known network attacks for application to customer network architectures and applications when necessary. • Ability to install, configure, and apply third-party vulnerability discovery tools. • Detailed understanding of network protocols, network devices, and operating systems. • Detailed understanding of common network topologies and advanced network management methodologies. • Excellent analytical and problem solving skills for network discovery and analysis. • Understanding of current security technologies for use as countermeasures to vulnerabilities.

CATEGORY	SECURITY SPECIALIST
QUALIFICATIONS	Three years minimum and general experience analyzing and defining Network and/or application security requirements. Bachelors degree in Computer Science, Information Systems, Engineering or Business or equivalent experience.
DUTIES	Performs risk analyses which also includes risk assessment and intrusion testing. Must be able to communicate effectively in writing and orally with all levels of technical and management personnel, as required. Designs, develops, engineers, implements operates and maintains the systems that meet desired protection. Develops and implements solutions in support of Presidential Directive PDD-63 Gathers and organizes technical information about an agencies mission goals and needs, existing security products, and ongoing programs in the Multilevel Security (MLS) arena.
CATEGORY	INTERNET/INTRANET WEBMASTER
QUALIFICATIONS	Three years experience in providing oversight for all web activities that include managing, designing and implementing web enable capabilities and resources. Bachelors degree in Computer Science, Information Systems, or Engineering or equivalent experience.
DUTIES	Identifies skills and complexity of development efforts. Provides oversight and quality assurance for adherence to standards, style guides, and web security and administration documentation. Develops and delivers technical briefings to senior management. Directly interfaces with external and internal customers to refine requirements and establishes timelines and milestones.
CATEGORY	INTERNET/INTRANET SECURITY SPECIALIST
QUALIFICATIONS	Three years in providing technical expertise for the design and protection of data that traverses Internet and/or Intranet connections. Bachelors degree in Computer Science, Information Systems, or Engineering and experience in Network Security Management.
DUTIES	Develops security measures that enforces and/or enhances security goals and policy. Manages systems that include Firewalls, virus protection, email relays and Domain Name Servers. Develops measurements of quality of service standards and delivers technical briefings to senior management.
CATEGORY	NEW MEDIA SPECIALIST
QUALIFICATIONS	One year experience in deploying Internet / Intranet content to meet established style guides and quality procedures. Has skill sets that includes the incorporation of graphics into text based documents. Has HyperText Mark-up Language (HTML) integration and conversion skills. Bachelors degree in Communication, Information Systems, or Business, and experience with various HTML Editors and web utilities, Adobe illustrators, and various Window platforms
DUTIES	Develops HyperText links to associated content pages that enhance the information presented.
CATEGORY	SENIOR MEDIA SPECIALIST
QUALIFICATIONS	Two years minimum experience deploying complex Internet / Intranet content to meet established style guides and quality procedures. Has skill sets that includes the incorporation of graphics into text based documents. Has strong HyperText Mark-up Language (HTML) integration and conversion skills. Bachelors degree in Communication, Information Systems, or Business, and experience with various HTML Editors and web utilities, Adobe illustrators, and various Window platforms.
DUTIES	Provides oversight to New Media Specialists and Graphics designers in conversion and development of HyperText links for integrating graphics generated with automated tools.
CATEGORY	INTERNET/INTRANET WEB ARCHITECT
QUALIFICATIONS	Two years experience in developing technical solutions for interactive resources that are implemented on a web based architecture. Bachelors degree in Computer Science,

	Information Systems, or Engineering, Business and experience with various web servers, or equivalent experience.
DUTIES	Evaluates and recommends leading marketplace technologies to enhance delivery and quality of web based content. Audits adherence of style guides and standards that include data dictionary libraries. Updates workflow plans and web documentation. Evaluates usage statistics to assure design layouts are optimized for customers.
CATEGORY	**FIELD COMMUNICATIONS ANALYST**
QUALIFICATIONS	• Four years experience in sales and direct customer contact. • Previous experience in telecommunications.
DUTIES	The Analyst is responsible for handling servicing activities on all sales, when required. This includes, but is not limited to pre-sale contract preparation, usage review, station reviews, presentation of recommendations, preparation of proposals, and sales implementation. The Analyst assists with pre-sale functions and post-sale implementation activities associated with complex sales, under the direction of a management salesperson. • Responds to client sales and service demands in cases assigned. • Provides pre- and post-sales support. • Provides post-installation servicing support activity on marketing assigned accounts. • Routinely interfaces with client premises. • Responsible for ensuring client satisfaction for the provision of data, networking, and voice communications systems.

3.7 WITS 3 Customer Premises Equipment (L.30.1.3.3)

Verizon provides an objective, vendor-independent approach to delivering CPE that meets the Government's specific requirements. As an integrated communications provider, Verizon offers a broad portfolio of voice and data products to give customers comprehensive solutions to meet their current and future business needs. Verizon provides a one-stop shop for all Federal customers, saving agencies time, money, and hassles. In addition, Verizon's strength and experience in the current WITS2001 contract proves customers can rely on the company to deliver and maintain solutions for the long term. Verizon's trained maintenance staff and variety of maintenance plans can be tailored to meet WITS 3 customers' specific needs and further protect their CPE investments.

- Verizon's CPE offerings include most equipment required for voice, data, and video communications including PBXs, Voice-over-IP (VoIP) hardware and software, handsets, video- and audio-conferencing hardware and software, data communications devices, storage, free space optics, and satellite networks devices. Thousands of individual CLINs are represented in the Verizon CPE electronic WITS catalog.
- Verizon provides multiple choices of equipment for each CPE classification. Best in class vendor partners are represented in the Verizon CPE offering.
- Verizon provides optional staging, configuration, installation, de-installation, and software and hardware maintenance of CPE for customers.
- Verizon has a large group of support personnel across the WITS 3 NCR to provide CPE maintenance 24x7. Many personnel have security clearances, as required.

Verizon's CPE offering provides the following customer benefits:

Breadth of Offerings	A full range of solutions, best-in-class vendors, and next-generation technologies supported by a single point of accountability.
Consultative Approach	Assistance in selecting offerings from a wide range of vendors helps ensure the Government's unique business needs are met.
Flexibility	Hardware, installation, maintenance, and management options to meet the Government's specific requirements.
Ongoing Support and Expertise	Single point of contact for all CPE orders, requests, and tickets. All action items are funneled through a single organization and tracked to ensure corresponding SLAs are met. All needs are handled by experienced and certified CPE personnel from Verizon and its partners.
Network Operation Center (NOC)	24x7 national NOC support for customer CPE.

3.7.1 Equipment (C.4)

Verizon has proposed a large group of vendors to provide network equipment for WITS 3. Each vendor and their product sets are presented in the following sections. CPE CLIN lists are provided in the pricing volume of this proposal. Verizon will continually refresh CPE offerings throughout the life of the contract.

3.7.1.1 General Requirements (C.4.1)

Verizon will meet all general requirements in acquiring, provisioning, operating, administering, and maintaining required equipment. All Verizon proposed equipment will be commercially available "off the shelf" items that require no further development and have been fully tested. The breadth and depth of Verizon's vendor relationships allows it to provide the best solutions to meet the Government's critical needs. Verizon will ensure that all Verizon-provided CPE is compatible with the existing WITS network. Verizon agrees to handle the ordering of all CPE via service orders in accordance with *RFP Section C.3.2: Service Ordering*. Except for drop-shipped equipment, Verizon agrees to work with all applicable national and local codes and to permanently mark all equipment purchased by the Government with the

maintenance contractor's name and local repair number, the date of acceptance, and the date that the warranty ends.

3.7.1.2 Representative Equipment (C.4.2)

Table 3.7.1.2-1: CPE Matrix displays the variety of vendors and product sets Verizon has selected to satisfy the government's CPE requirements.

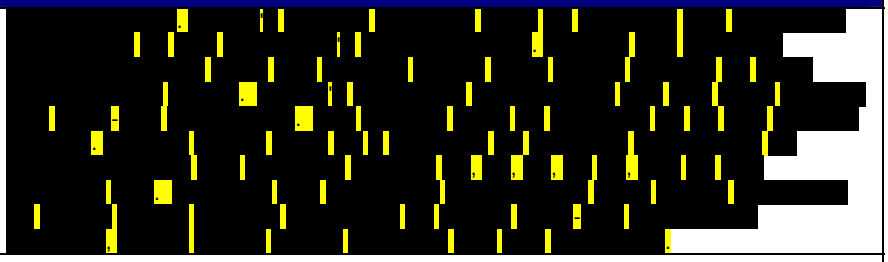
Table 3.7.1.2-1: CPE Matrix

Vendor	CPE																							
	Handsets	Key Systems	PBXs	Multiplexers	ACDs	IVRs	Messaging Systems	Gateways	Wireless Equipment Systems	Cable Modems	CSU & DSU	Servers	Switches	Routers	Storage Network Systems	Free Space Optics Systems	Power and Battery Systems	Circuit Termination Equipment	Ancillary Equipment	Broadband over Powerline Systems	LAN Systems	Voice & Video Conferencing Systems	Satellite Networks
Aastra	X																						
Adtran				X							X		X	X			X	X	X				
Avaya, Inc	X	X	X		X	X	X	X											X				
AVST Captaris							X																
Cisco Systems, Inc	X		X			X	X	X	X		X	X	X	X	X							X	
Compunetix																						X	
Conveyant					X		X												X				
Dialogic																			X				
Extreme Networks, Inc													X	X									
fSONA																X							
Fujitsu Network Communications				X																			
GN Netcom	X																						
Hughes Network Systems																							X
Juniper Networks, Inc													X	X					X				
Kentrox											X												
Mutare						X	X																
Nortel	X	X	X	X	X	X	X	X					X	X				X	X				
Plantronics, Inc	X																	X					
Polycom, Inc																						X	
SEI																	X						
Syntellect/Teloquint						X																	
Tandberg																						X	
Tellabs				X										X									
Tone Commander Systems	X																						

Table 3.7.1.2-2: Vendor Descriptions displays an alphabetical list of the vendors and the proposed equipment to be offered under WITS 3.

Table 3.7.1.2-2: Vendor Descriptions

Company	Description
Aastra	Aastra is a worldwide leading manufacturer of digital and analog telephones providing solutions for Federal Agencies of all sizes including large mission-critical enterprise environments. Proven technology and superior reliability are hallmarks of Aastra's M5000, M8000, M9000, Business Series and Power Touch telephones. Their phones offer feature-rich performance and high reliability for any WITS3 office environment. Aastra has over twenty (20) years of market presence, and their products are .favored by governments, institutions, call centers and Fortune 500 companies.
Adtran	Adtran is a leading global supplier of networking and communications equipment for service providers and enterprises. It's the number 1 Market share leader in TDM and packet/cell-based Integrated Access Devices, T1 DSU/CSUs, Sub-rate DSU/CSUs, HDSL loop deployment, and license-free Wireless. Adtran has a large suite of access and routing products for use by WITS customers. These products include: The ATLAS Series of Integrated Access Devices (IADs) offer the highest capacity and most advanced set of networking services. From a single platform, ATLAS can support multiple technologies including T1, T3, and ISDN. ATLAS provides ISDN conversion and oversubscription features, ISDN PRI/BRI switching, multiple T1/PRI DACSing and grooming, T3 applications, and videoconferencing. The M, C, and E-Series deliver carrier Ethernet services across an RPR network. They support redundant, field-replaceable power supplies and accept Gigabit Ethernet and T1/E1 plug-in modules. ADTRAN's MX Series of M13 multiplexers provide carrier-class service in space saving configurations and a cost effective bandwidth consolidation solution. The NetVanta portfolio includes managed Layer 2 Fast Ethernet switches, integrated switch-routers, T1/multi-T1/T3 routers, and Internet security/firewall appliances. The feature set, small footprint, low cost, and diverse deployment options of the OPTI-6100 make it a powerful tool for optical delivery of DS1, DS3/EC-1 (STS-1 electrical interface), OC-3, OC-12, OC-48 and Gigabit Ethernet. The Total Access Series are Carrier Class multi-service access platforms, integrated access devices (IADs), and concentrators, along with system management and services. The Total Reach products incorporate the latest in loop technology to extend deployment ranges and eliminate the need for costly repeaters. With 2-wire SC PAM based technology, Total Reach utilizes the existing copper plant more efficiently while saving costly labor expenses and reducing service order delivery times.
[redacted]	[redacted]

Company	Description
	
Avaya	Avaya communication solutions are designed to meet the most demanding needs of the US Federal Government. From JITC Certified solutions for the US Department of Defense to the most advanced contact center solutions to deliver service to citizens, businesses and government employees, Avaya products and service can help the government achieve their communications objectives. Avaya has achieved Joint Interoperability Test Command (JITC) certification for Avaya Communication Manager systems for Small End Office (SMEO) use. Avaya has continually pursued JITC certification and has many of its DEFINITY Enterprise Communication Systems in operation today serving the US Department of Defense for their Command and Control operations. A notable distinction is that Avaya was the first company to certify a PBX1 and PBX2 IP Telephony solution, and the first to certify the more rigorous SMEO category. With JITC certification, the US defense departments as well as certain government contractors are assured that the Avaya communication system will interoperate within their network and support the MLPP feature set. JITC certification also attests to the system's ability to meet certain "Information Assurance" requirements which cover security and survivability capabilities. *Communication Manager* Communication Manager is the facilitator of Intelligent Communications and is the next generation of Avaya call processing software. Designed as an open, scalable, and highly reliable telephony solution, Communication Manager (CM) effectively scales from under 100 users to as many as 36,000 on a single system and to more than one million users on a single network allowing WITS3 customers ultimately flexibility and value. *Enterprise Survivable Server (ESS)* The Avaya Enterprise Survivable Server (ESS) solution allows WITS3 Agencies that are using an Avaya CM 3.0 driven solution to have greater flexibility of consolidation by providing new survivability options that provides maximum up time to WITS3 users as well as supporting the goals of many Federal COOP initiatives. *Modular Messaging* Modular Messaging is a powerful IP- and standards-based voice and fax messaging platform designed for single- or multi-site global enterprises. This strong compliment to the CM platform offers exceptional scalability and a superior feature package of call answering and voice messaging capabilities. Messages are accessible any time, anywhere from a wide array of access devices including telephones, fax machines, or PC graphical user interfaces. *Unified Communications Center* Unified Communication Center (UCC) lets mobile, remote and office workers easily access important communications tools and information via any telephone using simple and intuitive speech commands. UCC helps WITS3 users respond to their customers faster and with higher quality, stay connected to enterprise associates, make better and faster decisions, and to build a competitive advantage through superior customer service and increased productivity. Avaya Unified Communication Center (UCC) provides mobile, collaborative and management associates with a unified interface to their most important information and communications tools and enables them to turn downtime into productive time.
AVST	AVST's CallXpress multimedia messaging systems are installed in more than 35,000 organizations worldwide ranging from small businesses to multi-site enterprises. With

Company	Description
	scalable solutions that support thousands of users on a single platform with matching networking capabilities, the CallXpress is positioned to handle every WITS3 Agency's messaging needs today and in the future. CallXpress is a modular and scaleable multimedia messaging system. CallXpress supports hundreds of features and is easy to configure. New features and enhancements have been added with every new release of software. Rather than a turnkey voice mail system, CallXpress is a highly programmable call processing platform that can help Federal Agency's manage their voice messages, incoming calls and other informational requests. The proposed CallXpress solution can be broken into three major components: CallXpress Advanced Messaging, CallXpress Unified Messaging and CallXpress Speech. An added value of the CallXpress is the capability to provide a Telephone User Interface (TUI) that mimics the Octel Aria® user interface; a prevalent TUI in current WITS users. Other TUIs are available on a user-by-user basis controlled by the system administrator.
Cisco Systems	As Cisco's Gold Partner, Verizon was Cisco's top service provider in 2006. Cisco has a large suite of products for use by WITS customers. These products include: **Routers** The Cisco Integrated Services Routers (ISRs) (800, 1800, 2800, 3800, 7200, and 7600 series) enable organizations to take advantage of numerous built-in technologies such as voice, wireless, and advanced security systems while ensuring the quality of service (QoS) prioritization their network applications demand. Because the network services are built in or can be easily added to the integrated services network router, customer can install one sophisticated device rather than purchase separate products to provide each individual function. An integrated services network router allows companies to transfer responsibility for security and reliability from individual computers and users to the network itself. This helps protect companies from the influx of viruses, malicious code, and other infections that end users' laptops might unknowingly acquire. **Switches** Cisco Catalyst switches (500, 2960, 3560, 3750, 4500, and 6500 series) are used at the core of networks, providing high-speed connectivity among users, applications, and communication systems. Catalyst switches support demands for more network switch capacity to support bandwidth-hungry applications, converged services including IP telephony, voice over WLANs, and video services, high availability and uninterrupted access to information assets enterprise wide, greater protection against internal and external security threats, and more manageable solutions as IT administrators seek to reduce cost and complexity of network switches. *Storage Networking* Cisco® MDS 9000 Family IP Storage devices offer the following features: • Flexible IP Storage Services-4-port and 8-port configurations deliver both Fibre Channel over IP (FCIP) and Small Computer System Interface over IP (iSCSI) storage services. • Simplified business continuance and storage consolidation-Use widely known IP to cost-effectively connect to more servers and more locations over greater distances than previously possible. • Simplified management-Provide unified management environment independent of whether servers use Fibre Channel or IP to connect to the storage network. • Comprehensive security-Combine ubiquitous IP security infrastructure with Cisco Virtual SANs (VSANs), hardware-based zoning, and hardware-based access control lists (ACLs) to provide robust security. FCIP for remote SAN extension: • Simplifies data protection and business continuance strategies by enabling backup, remote replication, and other disaster recovery services over WAN distances using open-standard FCIP tunneling. • Optimizes utilization of WAN resources for backup and replication by tunneling up to three virtual Inter Switch Links (ISLs) on a single Gigabit Ethernet port, and enabling

Company	Description
	compression, FCIP Write Acceleration and FCIP Tape Acceleration. • Reduces SAN complexity by eliminating the need to deploy and manage a separate remote connectivity platform. • Preserves Cisco MDS 9000 Family enhanced capabilities including VSANs, advanced traffic management, and security across remote connections. iSCSI for extension of SAN to Ethernet attached servers: • Extends the benefits of Fibre Channel SAN-based storage to Ethernet attached servers at a lower cost than possible using Fibre Channel interconnect alone. • Increases storage utilization and availability through consolidation of IP and Fibre Channel block storage. • Transparent operation preserves the functionality of existing management storage applications. *Security and VPN* The Cisco® ASA 5500 Series SSL / IPsec VPN Edition enables organizations to gain the connectivity and cost benefits of Internet transport without compromising the integrity of corporate security policies. By converging Secure Socket Layer (SSL) and IP Security (IPsec) VPN services with comprehensive threat defense technologies, the Cisco ASA 5500 Series delivers highly customizable network access tailored to meet the requirements of diverse deployment environments while providing advanced endpoint and network-level security. The PIX security appliances provide advanced security services including firewalling capabilities. Cisco VPN 3000 Series Concentrators provide cost savings through flexible, reliable, and high-performance remote-access solutions. The Cisco VPN 3000 Series offers solutions for the most diverse remote-access deployments by offering both IP Security (IPsec) and Secure Sockets Layer (SSL) VPN connectivity on a single platform. *Wireless* Cisco has the most complete WLAN solution encompassing the Client, APs, outdoor bridging and Mesh, as well as location tracking, all under the same unified management. Cisco currently is the market leader across all markets at over 60% market share, and is the only WLAN provider that Gartner rated as having the ability to execute and the completeness of Vision. For Federal deployments Cisco has Clients, Access points and Wireless LAN controllers that have received FIPS approval, have been submitted for Common Criteria in complete line with OSD's 8100.2 Secure Wireless LAN Policy. Cisco has a range Wireless Products depending on user density. Indoor Access Points include 1130AG, 1000, 1240AG, 1230AG. The Cisco 1300, 1400, and 1500 are outdoor Access Points. Cisco manages these "thin" Access Points with their controllers. Cisco's uses the 4402 and the 4404 in various configurations to support up to 300 simultaneous Access Points. *Voice and Unified Communications.* The Cisco MCS 7800 Series Media Convergence Servers (MCS 7800) to support call processing and VM. The MCS 7800 Series is a high-availability server platform for Cisco Unified Communications solutions and is an integral part of the scalable architecture to meet a new generation of high-quality IP PBX solutions. The MCS 7800 Series is easy to deploy, and delivers the high performance and availability demanded by the Agency's enterprise networks. The MCS 7800 Series runs a variety of Cisco IP communications applications, such as Cisco CallManager for Call Processing, Unity Voicemail as a voicemail and auto-attendant application, IP communications manager for ACD services, Emergency Responder for Enhanced 911 (E-911), and music-on-hold. The modularity of the 7800 Series allows for future growth by the Agency. An integral part of a complete, scalable architecture for a new generation of high-quality IP voice solutions that run on enterprise data networks, the MCS 7800 series delivers the high performance and availability demanded by the Governments next generation enterprise IP networks. Both the VG224 analog gateway and the ATA 180 series gateway provide line side functionality for existing Agency analog sets. VG224 is a 24-port analog gateway that

Company	Description
	provides a foreign exchange service (FXS) dial-tone directly out of each port. The ATA 180 series provides a two-port analog FXS dial-tone directly out of each port. Both gateways enable the Agency to terminate a regular analog telephone, an analog conferencing unit, a modem, or a fax machine directly into each port to provide dial-tone for the analog set. The analog connection enables the legacy phone sets to interface with the VOIP network and utilize the Managed IP PBX system for call services. The Cisco IP phone 7900 Series IP Phone sets. Cisco IP phones provide communication devices designed to take full advantage of converged voice and data networks, while offering the convenience and user-friendliness found in a standard third party PBX business phone. The IP phone systems can help improve productivity by meeting the needs of different users throughout Government Agencies.
Compunetix	Compunetix develops state-of-the-art multimedia multipoint telecommunications systems for audioconferencing, videoconferencing, and mission-critical applications. Compunetix manufactures MCU Video bridges scaleable from eight ports to hundreds of video ports. They manufacture and support the Vituoso supporting from one (1) PRI to Eight PRI (approximately 32 ports), the Mini-Contex which will support up to about 72 ports and the Contex which supports ports beyond 72.
Conveyant	Conveyant Systems, an industry-leading provider of PC Based Attendant Consoles, Paging and Notification Solutions, offers the TeleDirectory Network System™ as a powerful attendant console solution for WITS3 customers. The TeleDirectory Network System™ is a high performance, multi-user, advanced PC-based directory and attendant position applications package that may be used with various telephony interfaces including Centrex, Centrex IP, ISDN, TAPI, and multiple PBX and Call Center solutions. This PC-based platform consists of Conveyant's TeleDirectory Network System application operating in a multi-tasking, open Microsoft Windows environment. TeleDirectory combines user configurable directories and information access applications with integrated call processing. Conveyant's products have been designed to simplify and increase the speed of telephone operations as several current WITS customers are already aware. The TeleDirectory Network System is designed with value added application software packages such as multiple on-line directories, integrated messaging and paging, comprehensive statistics, web-based directories and more. Conveyant's Notifications Solutions deliver real-time alerting of significant events via wireless notification technologies such as pagers, cell phones, electronic mail, LED boards and more. Either installed as a standalone event and disaster notification system, or used in conjunction with the TeleDirectory consoles, Conveyant Notification Solutions greatly improve the speed and efficiency of notifying groups and individuals in a timely fashion. All of Conveyant's products have been developed with reliability, network compatibility, ease of use and advanced features to provide WITS3 customers with benefits including improved customer service, lower labors costs and increased employee productivity.
Dialogic	Dialogic is a leading provider of open systems platforms for the converged communications market. Dialogic's Emergency Notification Service offering is a crucial component to any agency's continuity of operations plan. Their product, The Communicator, can be purchased as a turnkey offering or as customer premises equipment managed by agency personnel. A geographic component can be added to alert people in specific sections of a city, state or country. The Dialogic Communicator delivers the following capabilities: • Automates any manual notification process • Contacts personnel through all communications media available • Delivers incident-specific information or potentially life-saving instruction • Qualifies individuals available for response efforts • Accepts recipient feedback • Provides comprehensive reports via e-mail or fax Depending on the system size selected, calls can be made from a minimum of 100 numbers to a maximum of 800 numbers within 5 minutes. The system will contact a wide

Company	Description
	variety of devices until the user acknowledges that the message is received. Devices includes phone, cell phones, pagers, PDAs and fax machines, all predefined by the system administrator. Benefits of this service include: • Rapid exchange of information • Appropriate and timely response • More efficient use of existing communications technologies • Improved Communication at All Levels of Government • Faster Deployment of First Responders, Military personnel, emergency response teams, etc. • Broader-reaching solution for warning communities-at-risk • Free to focus on situation at hand versus coordination of message delivery • Immediate proof of notification for complete audit trail
Extreme Networks	The Summit and Black Diamond switches provide a high bandwidth, non-blocking architecture for demanding edge applications, high density gigabit ports with optional 10 gigabit uplinks that provide high-performance aggregation, support for advanced routing protocols such OSPF, BGP and multicast for an efficient and productive small network core, and exceptional Quality of Service (QoS) with advanced traffic management capabilities for triple play services in metro Ethernet networks.
fSONA	fSONA is a premier provider of free space optics (FSO) solutions. The SONAbeam products transmit through the atmosphere to provide point-to-point communications over the air. SONAbeam is immune to electro-magnetic (EM) and radio-frequency (RF) interference, as well as offering the benefit of eliminating the requirement for costly spectrum licenses. The SONAbeam's narrow, highly directional transmission all but eliminates eavesdropping or interception. The ability to rapidly and cost-effectively extend your agency's network will allow you to fulfill the growing need to share information through data networking. As well, the SONAbeam™ product family is ideal for physical diversity and redundancy programs initiated to protect networks from failure due to disaster or attack. SONAbeam™ products are available in various bandwidths from 1.5 Mbps up to 1.5 Gbps allowing you to extend your agency's network using familiar protocols and maximize investments made in existing data infrastructure. The SONAbeam™ 1250 series is rate adaptive so your agency can seamlessly ramp up capacity as needed. SONAbeam™ systems are designed, engineered and tested to ensure exceptional reliability. Building on their extensive experience in laser communications systems for military and space applications, their design engineers have ensured that critical sub-systems are manufactured using high-reliability components. These products offer long-term investment protection and allow you to meet reduced telecommunications budget requirements with: • Secure wireless communications • Scalability that accommodates your agency's growth • Reliable operation and minimal downtime • Rapid deployment • Rugged, environmentally sealed outdoor/indoor equipment
Fujitsu Network Communications	Fujitsu FLASHWAVE® portfolio of voice, data, and video optical solutions deliver industry-leading flexibility, reliability and performance. Powerful functionality and carrier-grade features optimize networks and bring best value to the Federal customer. Whether LAN or WAN or wireless mobility, Fujitsu's strategic alliance with Verizon, has one objective, to provide the best solution to the Federal customer. The FLASHWAVE solutions are field-proven with more than 320,000 telecommunications systems in the network infrastructure of North America serving the RBOC, Enterprise and

Company	Description
	Federal markets. Along with Verizon, Fujitsu forge strong bonds of trust with the various Federal agencies they serve. This highly scalable and flexible platform will help create a next-generation optical transport network that supports a wide variety of innovative services, while delivering CAPEX and OPEX savings. The FLASHWAVE 4000 product family is our suite of next-generation optical transport solutions. The FLASHWAVE 4100 offers traditional private line advanced Ethernet with Resilient Packet Ring (RPR) efficiencies and storage services in a single SONET platform that can scale from OC-3 to OC-48. The carrier-class FLASHWAVE 4500 platform provides a quantum leap in network efficiency by delivering a carrier-class, multiservice optical transport solution for telecom, Multiple System Operator and wireless network service providers The Flashwave 4500 functionality can provide support for TDM, Ethernet and DWDM transport over a broad range of network architectures on a single platform. The FLASHWAVE® 7500 Reconfigurable Optical Add/Drop Multiplexer (ROADM) is our next-generation Dense Wavelength Division Multiplexing (DWDM) system. The optical core of the FLASHWAVE 7500 platform is based on an advanced Wavelength Selective Switch (WSS), which delivers the most flexible wavelength routing and topology available today. Remote software provisioning and sophisticated self-tuning features allow rapid service activation. Advanced optical line cards provide efficient on-ramps to customers' photonic backbone. Service providers use our integrated management solution NETSMART 1500 software to quickly and efficiently monitor and manage Ethernet, Dense Wavelength Division Multiplexing (DWDM), SONET, Synchronous Digital Hierarchy (SDH) and ATM services. This software includes a full suite of network and element management features that grow with the network as complex services are introduced.
GN Netcom	GN Netcom is a leading supplier of hands-free communications solutions. The GN 9120 series provides wireless headsets allowing complete wireless freedom in the office. The GN 2000 and 2100 series provide wired headsets with exceptional sound quality in busy and noisy environments.
Juniper Networks	Juniper Networks provides network solutions from Layer 1 up to Layer 7. Juniper has a large suite of products for use by WITS customers. These products include: The Juniper Networks Steel-Belted Radius is a complete family of AAA/RADIUS and policy management servers and appliances for enterprises and service providers, available in a variety of form factors. Juniper Networks Odyssey is a complete family of secure 802.1X access clients for the enterprise and government markets. The DX and WX/WXC application acceleration platforms provide secure and assured application delivery by improving the performance of client-server and web-enabled business applications for central sites, branch offices, and remote and mobile users. The Netscreen line of firewall/VPN solutions provides strong firewall security for access control, user authentication, and network and application-level attack protection; lower capital investment, support, deployment, and operations costs for overall lower TCO; and predictable performance for a highly reliable, available, and secure network. The Networks Intrusion Detection and Prevention products (Juniper Networks IDP) integrate application and network visibility with incident investigation and remediation to help customers quickly and confidently deploy inline attack prevention. Juniper Networks offers a comprehensive portfolio of routing and security solutions to meet the demands of widely-distributed enterprises that are deploying business-critical applications across the LAN and WAN. Juniper Networks enterprise routing solutions include: • M-series routers designed for head offices, campuses and corporate backbones • J-series routers designed for regional, branch and remote office locations • Secure Services Gateway designed to consolidate security and routing into a single

Company	Description
	platform in regional or branch office locations and medium businesses The SSL VPN products provide a single platform for employee and partner remote access. They provide clientless access to enterprise applications and resources, best-in-class endpoint security, granular access control and threat prevention, coordinated threat control with Juniper Networks IDP, and scalability to meet the remote and extranet access requirements of companies of all sizes.
Kentrox	Kentrox is a leading supplier of reliable and feature-rich network access equipment, Data Service Units (DSUs) and Channel Service Units (CSUs). The Q-Series™ family of QoS Access Routers, providing all-in-one networking solutions to small and medium offices. With the Q-Series, customers get the functions of an IP router, Quality-of-Service (QoS) appliance, Virtual Private Network (VPN) appliance, firewall, WAN access device and Ethernet switch - all in a single, affordable device. Integrating six devices into a single unit significantly reduces capital outlay and management and maintenance expenses over the life of the product. Kentrox Data Service Unit/Channel Service Units (DSU/CSUs) are high-performance, reliable WAN access devices that combine the data formatting of a DSU with the FCC-mandated line protection and diagnostic capabilities of a CSU.
Mutare Software	Mutare Software is a leading developer of interactive voice & internet response (IVIR) applications with over 1,000 successfully deployed applications throughout the world. Mutare Software's applications fall into 3 categories: enhancement of voice mail systems, emergency notification and custom applications. Enhancement of voice mail systems: Enabled Voice Mail (EVM) - is a unified messaging application that works with Avaya voice mail systems – Octel, Intuity and Modular Messaging. EVM adds value for WITS3 customers by providing a uniform web interface for users to determine text message addresses and email addresses for notification and delivery of voice mail messages to emails. In addition, EVM works with any email system and can work with Blackberry, Treo and other PDA's. The application resides on a dedicated Windows2003 server in the customer's LAN. Message Mirror - is a software product that will mirror voice messages from a primary voice mail system to either another voice mail system or to a client server and is designed to support business continuity in the Federal customer's environment. The real value of this application to a WITS3 Agency is that a message is created in the primary voice mail system is "mirrored" to another server thereby providing one of the keys in continuity of operations. Emergency/Event Notification - the EEN application was specifically designed to support continuity of operations (COOP). EEN's value lies in its ability to quickly disseminate information to groups of people using 5 points of contact for each person: phones, emails, text messages, and SNPP pagers. It is a web based application that resides in the customer's network and broadcasts can be initiated via phone or through the web. Custom Interactive Voice and Web Response applications -Mutare Software develops applications designed to meet specific needs of WITS3 Agencies and their callers or customers. It can be as simple as speaking back data from a database to gathering data from the caller to put into a database.
Nortel	Nortel is a global leader in networking technology providing the Federal Government with secure, end-to-end network solutions supporting mission critical communications. Nortel's portfolio of traditional telephony as well as converged IP telephony solutions deliver seamless, scalable real-time communications with the flexibility and reliability that enable WITS3 customers to cost-effectively serve the demanding telecom requirements of their user communities. Many WITS3 Agencies have the added value of leveraging their existing investments in Nortel's portfolio by considering a cost-effective migration to packet-based networks providing value to an increasingly mobile and geographically disperse Federal work force. **Nortel OPTera Metro Optical Networking** The Nortel Networks OPTera Metro family of products delivers one of the industry's most powerful non-blocking bandwidth management switching architectures, based on one of

Company	Description
	the smallest, most flexible transport platforms available on the market today. Multi-rate, multi-service optical transport platform series addresses a broad range of application needs in metropolitan fiber-optic networks, including new generation Optical Ethernet services. Optical Ethernet unlocks new capabilities by allowing customers to optimize their networks through new types of service. Government customers can take advantage of vast amounts of Wide Area Network (WAN) bandwidth offering converged services and streamlined operations, while staying within LAN-related formats and protocols. Nortel's OPTera products leverage leading technologies to offer optical switching, photonic systems, SONET/SDH systems, open management, and control platforms to foster next-generation data networking solutions. **The Communication Servers** The Communication Server 1000 and 2100, the Multimedia Communication Server 5100 and Business Communications Manager all allow WITS3 Agencies to manage the strategic transformation and convergence of their network at a pace that makes sense for each Agency while eliminating business disruption. The CS1000 and CS2100 are both available in JITC certified configurations. Communication Server (CS) 1000 - a server-based, full-featured IP PBX, providing the benefits of a converged network plus advanced applications and over 450 world-class telephony features. CS 1000 supports business-critical applications, including unified messaging, customer contact center, IVR, wireless VoIP and IP phones and soft clients The Communication Server (CS) 2100 - a large-scale Enterprise converged solution based the Communication Server 2000, deployed in the worlds leading Service Providers networks. The CS 2100 addresses the needs of demanding large enterprises with a highly scalable converged solution. The CS 2100 incorporates Nortel's leading Enterprise features, applications and client support, with the carrier attributes of scalability, reliability and networking typically only found in carrier solutions • *The Multimedia Communication Server (MCS) 5100* - a network-based, SIP application server solution that seamlessly integrates IP Telephony, multimedia conferencing, instant messaging (IM), presence and other end user collaboration tools improving the effectiveness of communications and reducing communication costs. **Business Communications Manager** Business Communications Manager (BCM) delivers small/medium-sized businesses and branch offices the only converged voice/data solution in the industry, providing a choice of IP-enabled or pure-IP strategy. **Meridian** Nortel's broad product spectrum also includes the more traditional TDM-based Meridian Communications Portfolio. From remote and branch office solutions to large campus networks with 60 to 80,000 lines, Federal Agencies have come to trust and depend on Meridian's profit-building advanced applications and features for their mission-critical voice communications. The Meridian product is available in a JITC certified configuration. **Call Pilot** As a complement to the CS and Meridian platforms, Nortel's CallPilot Unified Messaging systems combine voicemail, fax and e-mail into a single location that can be accessed from anywhere, whether over the Internet or by telephone. Nortel's CallPilot Unified Messaging allows government employees to be more productive and stay connected with customers and business affiliates, while reducing operating expenses. The Call Pilot is available in a JITC certified configuration. **Contact Center** For added value built on the voice platforms described above, Nortel's Contact Center portfolio of products provide the means for customers or clients to do business with WITS3 Agencies consistently and seamlessly. By providing blended multimedia capability and outbound calling campaigns that utilize existing TDM investments or powerful converged IP infrastructures, Nortel's Contact Center portfolio allows WITS3 Agencies to choose their optimum deployment approach. For added value, Nortel's voice platforms can give WITS3 users wireless mobile voice and multimedia applications over a secure Wireless LAN infrastructure with Nortel's leading

Company	Description
	WLAN portfolio. The broad portfolio includes the right solution for any Federal application from reliable wireless voice and multimedia services to cost-effective indoor/outdoor coverage and point solutions.
Plantronics	Plantronics manufactures and distributes a product line of full function headsets. There are many styles to choose from, single ear piece, dual ear piece, monaural and binaural, behind the head and over the head. The technologies provided are wired, wireless and they have recently introduced a Bluetooth enabled headset. Many of the units have Echo-Cancellation. The Plantronics headset may include a capability to manage 'Off-Hook Control" on the telephone instrument. The amplified handsets with a separate audio control make Plantronics Headset and Handsets an important player in Section 508 Compliance. In most cases installation consists of unplugging the existing handset and replacing it with the Plantronics Hand or Headset.
Polycom	Polycom delivers end-to-end collaborative applications for voice, video, data, and the Web Polycom manufactures ITU-T compliant video equipment and has been the innovator of the most recent addition to the T.120 ITU-T sanctioned collaboration protocol suite. They manufacture and distribute one of the industry's leading MCU Bridges in the MGC-25, MGC-50 and the MGC-100. Polycom manufactures and supports a total IP Video Solution.
SEI	SEI Power, headquartered in Fredrick, MD, is a telecommunications products and power company that manufacture a full line of ISDN Power Supplies, Battery Back-up and NT1s. SEI also manufactures and distributes uninterruptible power for VoIP and wireless applications as well.
Syntellect	Syntellect is a leading provider of self-service speech and advanced call center solutions. Syntellect's Customer Interaction Management solutions enable contact centers to empower employees, leverage current investments, provide a flexible communication platform, enable intelligent business decisions, control costs and maximize profitability, and consistently support all customer interactions.
Tandberg	Tandberg manufactures ITU-T compliant H.320 (ISDN) and H.323 (IP Networking) teleconferencing equipment and services. They are the innovator of the Tandberg Expressway ™ witch allow easier Firewall and NAT transversal. All Tandberg VTC equipment and bridges are SIP and SCCP (Skinny Client Control Protocol) compliant. Tandberg products were a part of TEMPO and WITS2001 CLIN items. According to the Wainhouse Research Bulletin for Q1 2006 Polycom held 21% of the market.
Tellabs	Tellabs designs, develops, deploys, and supports solutions for telecom service providers worldwide. Tellabs's customers include wireline, wireless, cable TV companies, and government agencies. Tellabs is focused on fiber access for "triple play" services, optical and data networking for true service convergence, and mobile solutions for moving networks to 3G and beyond. Tellabs product solutions include Access Networking, Digital Cross-Connects, Transport Switching, Managed Access, Data Networking, Optical Transport, Network Management, and Voice-Quality Enhancement. Included in the WITS catalog are the Tellabs 7100 Optical Transport Platform and the Tellabs 8800 Multi-Service Router. Additional product lines may be added as required. Tellabs 7100 Optical Transport System (OTS) combines the most advanced optical networking and services layer technologies on one seamless platform. Designed to support current Add/Drop Multiplexer (ADM) and Wavelength Division Multiplexing (WDM) ring capabilities, the Tellabs 7100 OTS ensures a smooth migration to future packet-based services over mesh networks. Unique and multi-patented system technologies enable true next generation multi-service delivery. An integrated dynamic optical core combined with an intelligent services interface delivers ADM cross-connect and Layer 2 switching capability on a single blade. The Tellabs 7100 OTS not only addresses current network requirements in a cost-effective, efficient manner, but supports strategic deployment of future native packet-based solutions. The optical core meets today's network needs while supporting the ability to effortlessly deploy additional nodes for future expansion via a multi-degree Reconfigurable Optical Add/Drop Multiplexer (ROADM). Expanded ROADM capabilities offer 44 wavelengths of

Company	Description
	bandwidth in each direction to economically transport the full triple play of voice, data and video. Each one of the 44 wavelengths gives service providers fully integrated ADM functionality on a single blade. An intelligent services interface mimics currently installed ADM rings and Layer 2 aggregation with a simple pair of modules, eliminating the costly implementation of stacked rings, back-to-back boxes between rings and multiple rows of supporting equipment. The Tellabs 8800 series supports any-to-any Layer 2 and Layer 3 network and/or service inter-working reliably and concurrently. It provides converged MPLS-enabled IPnetworking and enables connection-oriented network characteristics such as Quality of Service (QoS) and security with powerful MPLS traffic engineering capabilities, while maintaining the superior scalability and flexibility of pure IP networks. Customer Benefits include: Enhanced Service Level Agreements (SLAs), Superior traffic management, Enabled new revenue streams, Evolutionary migration of legacy networks, High availability and reliability, Investment protection, Opex reduction, and Capex reduction. Major Features include: Comprehensive Signaling and Routing Support, Any-to-Any True Service Interworking, Any Service-Any Port-Any Flow, Per-Flow Guaranteed QoS, Carrier-Class Reliability, and Next Generation Ethernet Support.
Tone Commander	Tone Commander manufactures a complete line of ISDN Telephones, standalone and rack-mount NT1 ISDN Network Terminations and Centrex Attendant Consoles. Tone Commander's products are designed and manufactured in the USA. With universal compatibility and "best in class" performance, every Tone Commander ISDN phone provides easy installation, automatic setup, and user friendly operation. Just select the interface type, style, and number of buttons that best meets your needs. ISDN Telephones Tone Commander 8810, 8610, and 6210 10-button sets, and 8620 and 6220 20-button sets provide full service compatibility for all ISDN applications. These phones automatically configure for Lucent, Siemens, Nortel and AG Communication Central Office environments and line provisioning, and are also compatible with Lucent Definity PABX systems. These station sets are available with "U" or "S/T" interfaces (the "U" models have a built in NT1). They can be expanded to 40 or 50 buttons with the addition of a Button Expansion Module. VoIP Telephones Tone Commander 7310 10-button sets and 7320 20-button sets use Voice over Internet Protocol to transparently provide high quality ISDN Centrex service on a managed data network. ISDN service from any Class 5 Central Office (5ESS, DMS-100, EWSD, or GTD-5) is transported through an AG Communication Systems iMergeTM Centrex Feature Gateway and over a wide-area network to the phone. These phones are also expandable to 40 or 50 buttons with the addition of a 6030X Button Expansion Module and have a built-in 10/100BaseT repeater to allow daisy-chain connection of a PC workstation without additional equipment. NT1 ISDN Network Terminations NT1 ISDN Network Terminations connect 4-wire (S/T interface) ISDN voice and data equipment to the 2-wire (U interface) telco network. Tone Commander NT1 models include desktop, wall mount, and open card versions, with several powering options. Racks and battery backup are available for high-density applications. All Tone Commander NT1 models are compatible with any telco Central Office that supports the ANSI standard 2B1Q U-interface, and are also compatible with both National and Custom ISDN. ISDN Centrex Attendant Consoles Tone Commander ISDN attendant consoles integrate Centrex services into a complete solution by providing central answering, Direct Station Selection (DSS) and monitoring for all stations, regardless of location. In addition, the consoles are specifically designed for efficient call processing in high-traffic environments. Station status for up to 120 stations can be provided over a single Basic Rate line. Calling number and call type identifiers are provided for each incoming call so that comprehensive call information may be presented to the attendant.

Company	Description
	The Tone Commander 40d120 is an advanced attendant console system that takes full advantage of the cost efficiency and features available with ISDN technology. One to four 120d consoles may be added to provide Direct Station Selection and Busy Lamps for up to 480 stations. Each console uses one ISDN BRI line. Designed for small business or departmental answering applications, the Tone Commander 2260d provides the same console operation as the 40d but incorporates 60 Direct Station Selection and Busy Lamps on a single console using one ISDN BRI line.

3.7.1.3 CPE Requirements

Verizon has proposed a comprehensive set of CPE that supports and complements the voice and data services. For most services, Verizon has proposed multiple vendors to support the service categories and satisfy user requirements as appropriate.

3.7.1.3.1 Provisioning Process

Verizon understands that the equipment acquired under this contract will be provisioned in accordance with the process described in *RFP Section C.3.2 Service Ordering*. The WITS 3 service ordering process will support the following functions and requirements to interface with the Government's ordering and billing system.

- Provide service price quotes
- Initiate service orders
- Track service orders
- Change service orders
- Accept service orders
- Disconnect service orders

Verizon will provide a single, toll-free point of contact in the WITS 3 Customer Service Center and will maintain a Web page for agencies and GSA to obtain price quotes, place service orders, track service orders, and change them using information from the Client's Guide.

Drop Ship Benefits

- Eliminates cataloging, warehousing, and staging expenses

- Fast delivery and low prices through multiple direct agreements with market leading manufacturers and distributors
- Delivered directly to Government agency location(s)

Staging Benefits

- Eliminates need for multiple vendors
- Provides configuration and testing by trained experts for the Government's specific applications
- Offers warehousing options for longer implementation cycles
- Delivered directly to Government agency location(s)

3.7.1.3.2 Installation and Site Services

Verizon will furnish, install, and make operational all equipment in the design ordered by the customer through the WITS 3 procurement vehicle. Verizon will also provide all required installation hardware, supplies, and tools necessary to install, move, program, test, maintain, and repair Verizon-provided equipment purchased under WITS 3. The equipment installation will be done using commercial best practices and in accordance with the manufacturer's recommendations and with applicable codes. All Verizon-performed work under this contract will conform to accepted voice and data installation and repair practices and the equipment manufacturers' recommended practices.

Benefits:

- One source for network deployment
- Easy and efficient network preparation
- Streamlined implementation and change management
- On-site expertise through Verizon's experienced engineering team
- 24X7 coverage in contiguous 48 states
- Customization available for any size Government agency

3.7.1.3.3 De-installation

The de-installation of equipment proposed by Verizon will include all labor, tools, incidental parts, and material necessary to accomplish equipment removal, including equipment cabling, when requested by the Government. The proposed de-installation will also include the storage and packaging for shipment or transportation. Verizon understands that the Government can order de-installation of any equipment purchased from Verizon under the WITS 3 contract via a service order in accordance with *RFP Section C.3.2 Service Ordering*.

Cabling and Wiring Benefits

- Offers complete design services by experienced professionals
- Provides remediation services on existing locations and certifications for new applications
- Delivered from a single source as an extension of Government network services

Manage Network Services Benefits

- End-to-end network and equipment management enables the Government to focus on its core mission
- Expertise in managing customer networks
- Reduces total cost of network ownership
- Industry-leading time to repair SLA
- Award-winning management systems

3.7.1.3.4 CPE Maintenance

Verizon will maintain Verizon-provided CPE during the warranty period and afterward when the customer orders post warranty maintenance. Verizon will also provide support for discontinued products as long as parts are available from the after market suppliers.

Benefits:

- Multi-vendor equipment support and expertise
- Remote monitoring, diagnostics, and repair
- Skilled local technicians with optional, dedicated onsite support
- Flexible coverage options to meet the Government's specific needs

Project Management Benefits

- Offers trained, certified teams to fully manage implementation
- Supplements internal resources
- Provides accountability through a single point of contact for management and maintenance