

VOLUME 1, SECTION 3.6: PREMISES-BASED IP VPN SERVICE



3.6 PREMISES-BASED IP VPN SERVICE [C.2.7.2, M.6.1(B)]

This section of our proposal volume addresses the Level 3 Team’s offering to provide Premises-Based IP VPN Service (PBIP-VPNS) to Government agency customers through the Networx Program. Our service meets or exceeds the requirements for PBIP-VPNS as contained in Section C.2.7.2 of the RFP.

A description of our PBIP-VPNS is provided below, followed by responses to the requirements in RFP Section L.34.1.4.6 as they apply to this service.

The Level 3 PBIP-VPNS enables agencies to provide secure remote access to their internal networks, securely communicate with branch offices, and establish encrypted communications with external organizations such as customers, business partners, and suppliers. The services are seamlessly integrated into the enterprise’s Local Area Network (LAN) environment by the industry’s most experienced and professional installation, network operations, field service, and technical support staff. Level 3’s PBIP-VPNS leverages Level 3’s long-standing Internet delivery and operational expertise and combines it with years of experience in providing managed security services to deliver the highest quality managed VPN services to the Government.

As necessary to support the Government’s remote and broadband access requirements for PBIP-VPNS, Level 3 will draw upon the capabilities of

[REDACTED]

3.6.1 Stipulated Responses to Table J.9.1.1.2 (b)

In accordance with Networx Enterprise RFP Amendment 0005, Level 3's responses to the requirements in Table J.9.1.1.2 (b) Technical Stipulated Requirements for Optional IP-Based Services have been submitted to GSA via the Networx Hosting Center.

3.6.2 Narrative Responses to Table J.9.1.1.3 (b)







In accordance with Networx Enterprise RFP Amendment 0005, Level 3's responses to the requirements in Table J.9.1.1.3 (b) Technical Narrative Requirements for Optional IP-Based Services have been submitted to GSA via the Networx Hosting Center.

3.6.3 Technical Description of PBIP-VPNS

The Level 3 Premises-Based IP VPN Service offering fulfills the mandatory service requirements for PBIP-VPNS contained in RFP Section C.2.7.2.1. A technical description of our offering is provided below. This is followed by a description of our capabilities in the following areas:

- Standards
- Connectivity
- Technical capabilities
- Features
- Interfaces

3.6.3.1 FUNCTIONAL DESCRIPTION OF SERVICE

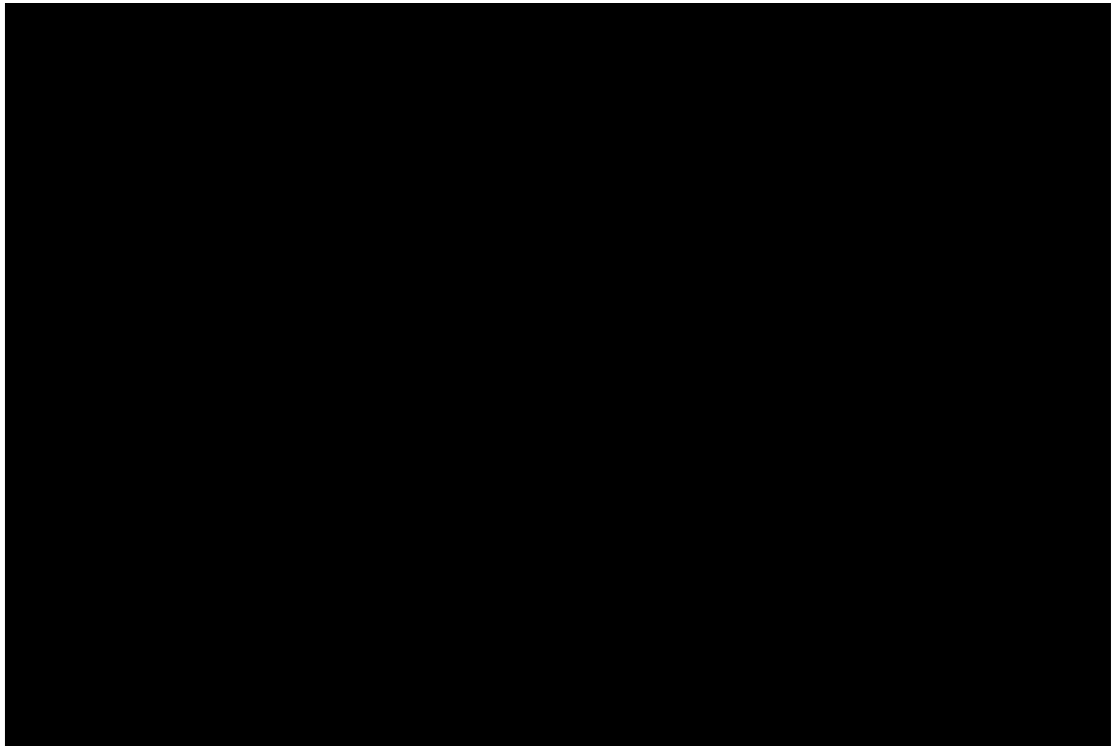

 This service is fully described in Section 3.1 of this response. Our IPS provides  access for Government agencies. Our world-class Tier 1 peering  provide a platform that Government agencies can feel secure using to build a VPN. Level 3's customer premises equipment (CPE) service enabling devices (SEDs) will provide  



[Redacted text block]

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[Redacted text block]



[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

Intranet: Level 3 PBIP-VPNS offers [REDACTED] connectivity with the agency's Internet traffic. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[Redacted text block]

Extranet: Agency extranets enable trusted business partners to connect securely to an agency's intranet via [redacted] using broadband or dedicated access. [redacted]

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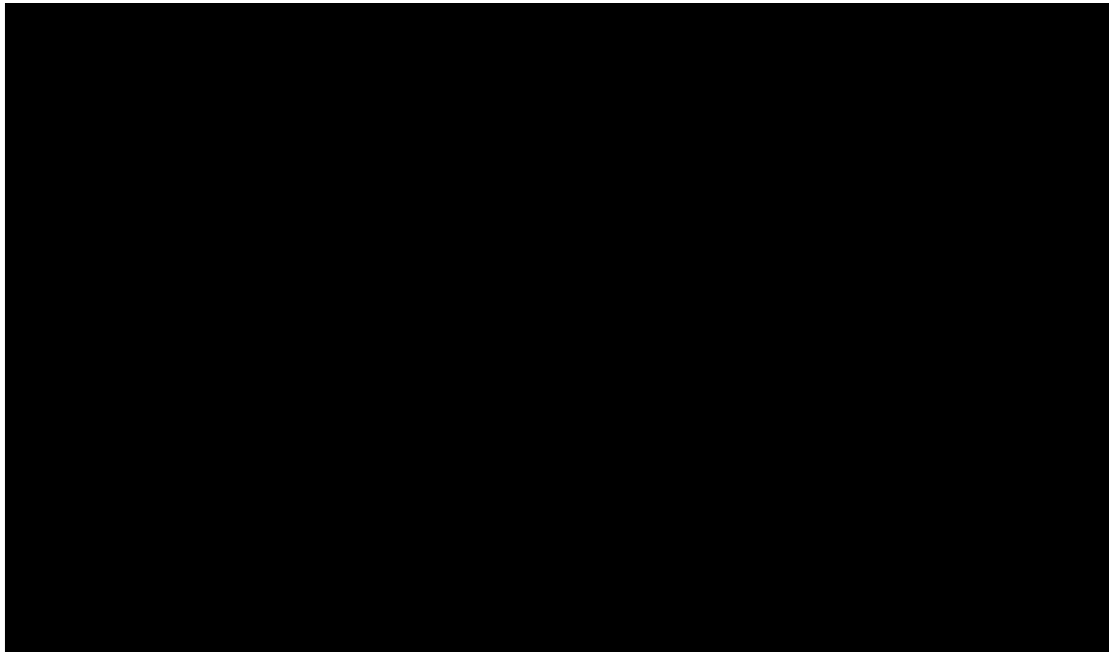
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Remote Access:

[Redacted text block]



[Redacted line]

[Redacted line]

[Redacted line]

[Redacted line]

[Redacted line]

[Redacted line]

[Redacted line]

[Redacted line]

[Redacted line]

The Level 3 remote access solution is flexible, allowing the Government to achieve its goals of seamless access to teleworkers, small offices, and TDY remote users. [Redacted line]

[Redacted line]

3.6.3.2 STANDARDS [C.2.7.2.1.2]

The Level 3 PBIP-VPNS offering complies with the required standards as delineated in RFP Section C.2.7.2.1.2. Level 3 continues to be involved with IETF standards, particularly around the issues associated with inter-provider VPNs. Level 3 is committed to implementing future standards as technologies are developed and standards are defined and become commercially available.

3.6.3.3 CONNECTIVITY [C.2.7.2.1.3]

Our PBIP-VPNS offering provides Networkx customers with multiple access options, as specified in RFP Section C.2.7.2.1.3. The PBIP-VPNS connects Government locations and trusted business partners via [REDACTED]

[REDACTED] Our PBIP-VPNS offering also supports fast dial-up access. The PBIP-VPNS connects Government locations and trusted business partners via leased lines for site-to-site access.

3.6.3.4 TECHNICAL CAPABILITIES [C.2.7.2.1.4]

Our PBIP-VPNS complies with the mandatory requirements listed in RFP Section C.2.7.2.1.4, as described below.

3.6.3.5 TUNNELING AND ENCRYPTION

Secure communications are established [REDACTED] that originates and terminates at an agency site. [REDACTED] is also supported. PBIP-VPNS supports various encryption methods, as required by the governing FIPS publications.

3.6.3.6 AUTHENTICATION SERVICES

[REDACTED]

3.6.3.7 ACCESS METHODS

[REDACTED]

3.6.3.8 LAYERED SECURITY

All of the Level 3 Team’s Networx offerings are proposed with multiple layers of security beginning with our standard commercial service security and progressing to FISMA-compliant services. Section 2.1 of this proposal volume discusses our proposed security infrastructure. Section 5 of this proposal volume provides detail on our managed security services offerings.

3.6.3.9 PRO-ACTIVE MONITORING

[REDACTED] will be responsible for all facilities and network management, monitoring, and repair for all services offered under the Networx Program. The [REDACTED] is staffed by highly trained operations managers and network technicians at regional monitoring centers located in [REDACTED]

[REDACTED] provides proactive monitoring of customer traffic across the Level 3 Network. It identifies potential problems and provides resolution

before our customers even know there is an issue. [REDACTED] performs regular network connectivity performance reviews. If an irregularity is detected, the organization follows documented procedures to restore service.

[REDACTED]

[REDACTED] will be available 24x7 to the agency via the dedicated agency help desk, which is described in Section 5.1.3.1.3.4 of this proposal.

An extension of the help desk, [REDACTED] will provide agencies access to an entire host of business performance metrics that empower an agency to manage its network. As such:

[REDACTED]

3.6.3.9.1 Design and Engineering Services

Level 3 will provide presales design and engineering services, as part of the standard PBIP-VPNS [REDACTED] [REDACTED] Engineering services above and beyond would be offered as part of

the Customer-Specific Design and Engineering Services (CSDES) described in Section 4.2 of this proposal volume or the Design and Engineering Services portion of Managed Network Services (MNS) discussed in Section 4.1 of this proposal volume.

3.6.3.9.2 Secure Routing

[Redacted]

3.6.3.9.3 Traffic Management

[Redacted]

3.6.3.9.4 Features

Level 3’s ability to meet the Government’s features requirements for PBIP-VPNS listed in RFP Section C.2.7.2.2 is demonstrated below.

The Government relies on the Internet for its business-critical processes and Web and application services. Secure, around-the-clock access to information resources is essential for conducting e-business. Recognizing this need, Level 3 offers a full range of robust High Availability options. This offering significantly reduces the risk of costly downtime and protects against disruptions due to hardware or software failure.

3.6.3.9.5 High Availability Option

The High Availability option provides seamless fail-over capability for all VPN connections between [Redacted]

[Redacted]

3.6.3.9.6 Internet Gateway Option

[Redacted]

[Redacted] Agencies can use this feature to access the Internet over the same physical circuit [Redacted]

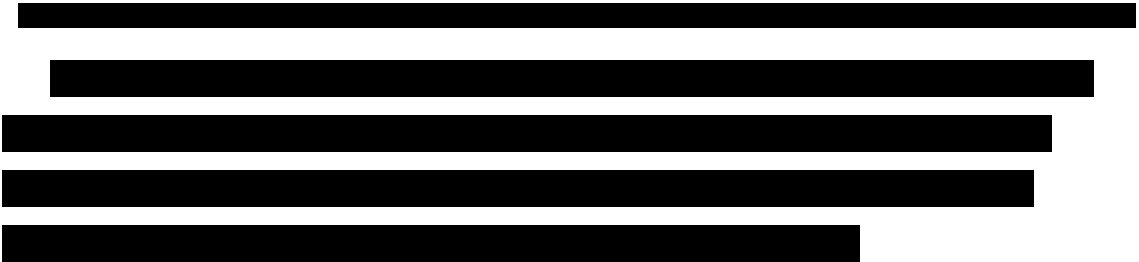
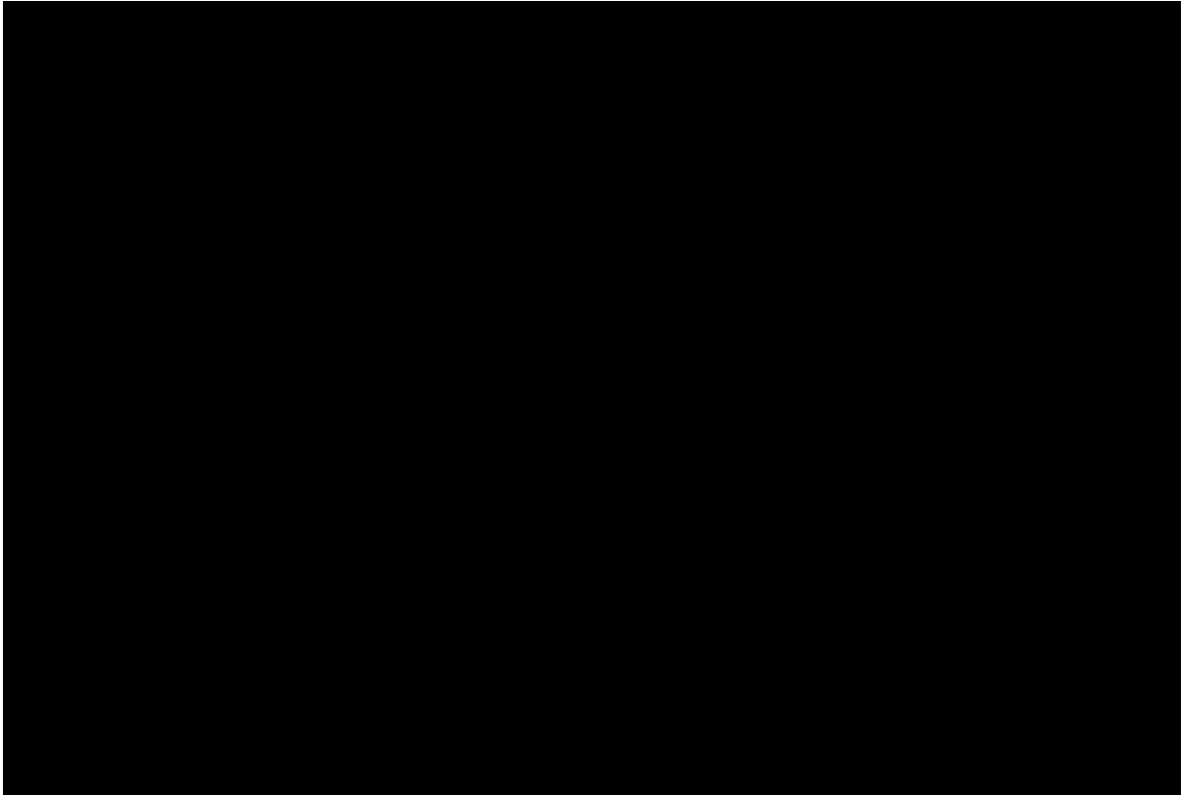
[Redacted] Internet access could be gained from each of the agency locations or through a central hub site.

[Redacted]

[Redacted]

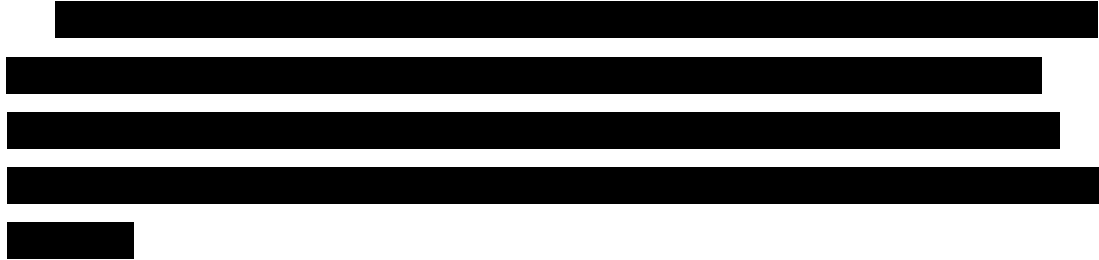
[Redacted]

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3.6.3.9.7 Interworking Services



3.6.3.9.8 Key Management

The premises-based IP VPN service will provide the capability to set up VPN meshes and manage encryption keys owned by both Level 3 and the Government agency.

3.6.3.9.9 Security

Managed Security Services from the Level 3 Managed Security Service portfolio described in Section 5, Security Services, can be offered as add-on features to the premises-based IP VPN service. The following capabilities are provided:

[REDACTED]

3.6.3.9.10 INTERFACES [C.2.7.2.3]

In compliance with RFP Section C.2.7.2.3, Level 3's Premises-based IP VPN service supports the following commercially available network interfaces:

Interface for Intranet and Extranet Premises-based IP VPNs [C.2.7.2.3.1]

[REDACTED]

Interface for Remote Access premises-based IP VPNs [C.2.7.2.3.2]

Level 3's PBIP-VPNS offering will support the mandatory interfaces for Remote Access as listed below, as well as two optional interface.

[REDACTED]



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3.6.4 [Redacted section header]

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[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]

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3.6.4.1 VPN PORT AVAILABILITY

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3.6.4.1.1 Latency Continental United States [CONUS]

Latency is an important metric for data services due to the growing bandwidth demand to support converged applications. Applications that formerly ran over separate networks are now being consolidated to one. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

3.6.4.1.2 Time to Restore

Unlike many service providers, Level 3 measures the Time to Restore (TTR) as [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

3.6.5 Proposed Service Enhancements

Level 3 does not intend to exceed the AQLs in the KPIs at this time but would like to reserve the ability to do so with performance improvements that may be attained through the introduction of new technology. Level 3 believes in continuous improvement and will always strive to provide the highest-quality available services.

[Redacted text block]

3.6.7.2 ON-NET ACCESS OPTIONS

3.6.7.2.1 Level 3 Metro Transport

[Redacted text block]

3.6.7.2.2 Level 3 National Transport

While PBIP-VPNS is available in most major North American markets, agencies may need to access the Level 3 PBIP-VPNS backbone from markets in which no [Redacted text block]

3.6.7.2.3 Level 3 Metro Extension

Level 3's facilities-based metro networks can be utilized as an alternative access method for agencies that are not located in either an [Redacted text block] [Redacted text block] In its simplest variation, agencies that are physically connected to the Level 3 fiber network can establish an [Redacted text block]



[Redacted text block]

3.6.7.3 OFF-NET ACCESS OPTIONS:

3.6.7.3.1 Off-Net Local Loop Access Via The ILEC Or CLEC, Where Available

For those agencies that are located within a market where there exists a

[Redacted text block]

3.6.7.3.2 Private Line Backhaul

While PBIP-VPNS is available in most major North American markets, customers may need to access the Level 3 IP backbone from markets in which no [Redacted text]

[Redacted text block]

3.6.7.3.3 Agency-Provided Access and Agency-Provided Fiber

Level 3's Gateway facilities are “carrier-neutral.” As a result, customers can directly access the PBIP-VPNS network using a preferred alternative carrier (ILEC, CLEC) solution. Level 3's Gateways typically have more than

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]

	<p>[Redacted content]</p>	

[Redacted content]

3.6.8 Monitoring and Measuring KPIs and AQLs

The PBIP-VPNS offering has specific Key Performance Indicators (KPI) and Acceptable Quality Levels (AQL) with which Level 3 will comply: Availability, Latency, and Time to Restore. In addition to collecting performance data, Level 3 must be able to illustrate to the Government that we are, in fact, performing within the specified KPIs and AQLs.

[REDACTED]

3.6.9 Handling Time-Sensitive Traffic

Level 3's Network is designed for fully integrated service delivery. All services provided are delivered over the same world-wide IP-based network.

[REDACTED]

[REDACTED] Section 2.2.4 of this proposal volume addresses this topic in detail.

3.6.10 Integrated Access for Different Performance Requirements

Our services are all based on [REDACTED]

[REDACTED] Section 2.3.1 of this volume discusses this topic in detail.

3.6.11 Infrastructure Enhancements and Emerging Services

A detailed response to this requirement is provided in Section 3.4.11 of this volume.

3.6.12 Network Convergence

Level 3 maintains high traffic flow and quality over our network while handling multiple types of service including data, voice, and video. This is possible because of the [REDACTED]

Section 2.3 of this volume discuss network convergence from a Level 3 perspective in detail.

3.6.13 IP and PSTN Interoperability

Level 3 is a large national CLEC. We have close to [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

3.6.14 IPv4-to-IPv6 Migration

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



3.6.15 NS/EP Functional Requirements

Section 2.5 of this volume addresses how NS/EP requirements will be met for Network services.

3.6.16 Protection of SS7 Signaling

Security of our network and data is significant to both Level 3 and our customers. Section 2.5.3 of this volume discusses protection of SS7 signaling systems in detail.

3.6.17 National Capital Region Service

Section 2.5.4 of this volume discusses this topic in detail for all of Level 3's proposed services.

3.6.18 Meeting Section 508 Provisions

Section 508 provisions do not apply to PBIP-VPNS.

3.6.19 Optional Service Impact on Network Architecture

PB IP VPN services are part of Level 3's standard commercial offerings. Providing this service to the Government under Network will have no adverse impacts on network architecture or performance.

3.6.20 Optimizing Engineering



3.6.21 Service Internetworking

This topic is discussed in section 3.1.5.4 of this proposal volume.

3.6.22 Traffic Model

All Level 3 services use a common network. Therefore, traffic on the Level 3 Network considers all of our proposed services. Traffic related to the Government traffic model and Level 3 is discussed in detail in Section 3.1.4.1 of this volume.