

### 1.1 Network Architecture [L.29.1, C.1.6]

The Level 3 Team delivers [REDACTED] specified EIS services to include the [REDACTED] mandatory and [REDACTED] optional services, and looks forward to building on our [REDACTED] partnership with GSA. We provide our EIS solution through a robust and well-integrated network architecture based upon the Level 3 capacious, flexible, and adaptable global network. We support our Level 3 architecture with our [REDACTED]

**Level 3's Forward-Looking Network Architecture**  
**Realizes EIS Program and Service Goals**

- Flexible, layered architecture accommodates partner services to enable our support of [REDACTED] EIS services.
- Network and security architectures satisfy [REDACTED] complex security requirements
- Level 3's vision of [REDACTED] yields scalability, security, and innovation platform whose advances now include [REDACTED].
- Redundant, dedicated [REDACTED] and [REDACTED] provide focused support for Government.

[REDACTED] and [REDACTED], as well as our Team's experienced personnel and processes. The Level 3 network architecture includes seamless integration of Level 3 and our partner's network elements functioning like a single entity to provide EIS services to the Government. We strategically select team partner companies to provide "best in class" EIS network service elements to complement those provided by Level 3. Our highly capable partner specialists possess extensive experience delivering EIS service elements to Government and industry.

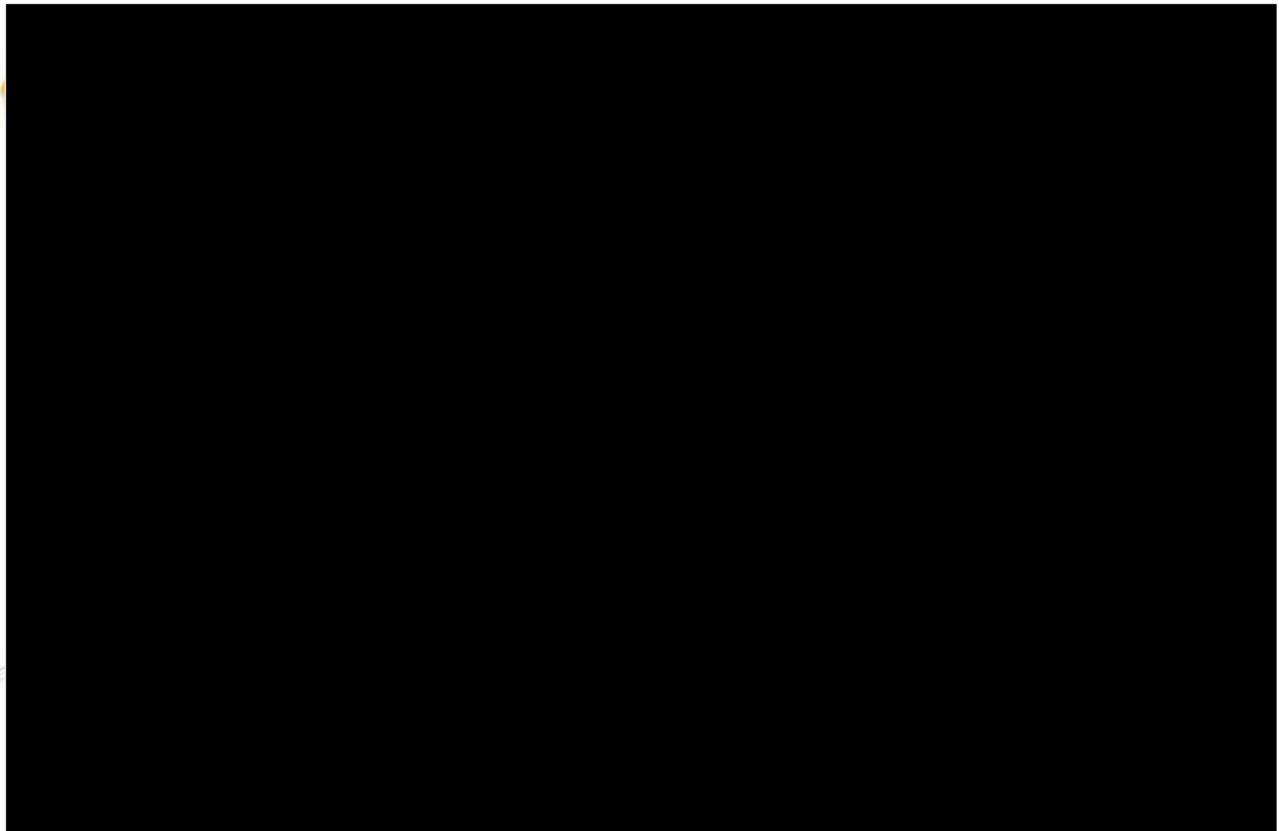
The Level 3 network architecture supports the GSA goal to provide flexible and agile capabilities to satisfy a broad spectrum of global communications services extending over the next decade and beyond. The Level 3 portfolio of service solutions in conjunction with our team's collective capabilities deliver innovative, hybrid solutions that combine secure access and transport for the smallest remote sites, to the largest enterprises. We provide an [REDACTED] EIS solution on a [REDACTED] all the way to agency [REDACTED] users.

As a relative newcomer from a historical perspective to the telecommunications industry; legacy technologies and infrastructure reaching end of life do not encumber Level 3 like those experienced by companies founded on traditional Local Exchange Carrier architectures. Although we built [REDACTED] technologies to integrate with [REDACTED], we designed and implemented our infrastructure for the [REDACTED] with the capability to rapidly create, innovate and adopt new

technology. For example, in [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

**Figure 1.1-1** presents an overview of the Level 3 network architecture. It highlights:

- The network's [REDACTED] for EIS services
- [REDACTED]
- Our [REDACTED]  
[REDACTED]
- Agency support by dedicated Level 3 personnel



**Figure 1.1-1. Overview of Level 3 Network Architecture.** *The network platform delivers EIS services worldwide with quality, scalability and security.*

Large scale networks require physical assets, and Level 3 provides our fundamental network layer with [REDACTED]

[REDACTED]

**Figure 1.1-1** shows the importance of the [REDACTED]. The Level 3 Team members and carrier partners confidently rely on [REDACTED]. In the Level 3 network, the [REDACTED].

[REDACTED] We harness these capabilities to satisfy applicable EIS [REDACTED]. The integral [REDACTED]. The figure also highlights the [REDACTED].

**Figure 1.1-1** also illustrates the [REDACTED]. As such, the network readily accommodates them and provides their requisite [REDACTED]. The [REDACTED] driving these [REDACTED], not shown in the figure, in order to [REDACTED]. The Level 3 architecture provides a robust platform with [REDACTED] to provision their industry leading services.

**Figure 1.1-1** depicts [REDACTED]. They provide the [REDACTED]. The [REDACTED]. Our [REDACTED].

[REDACTED]

and is based on our previous experience as an incumbent on Networx.

We based the Level 3 network architecture [REDACTED]

[REDACTED] This section describes how we considered and applied each of these [REDACTED] in our network architecture. [REDACTED] and how these [REDACTED] satisfy the delivery of each service solution.

#### **Understanding [L.29.1, M.2.1.1]**

Our [REDACTED] incumbency supporting GSA provides Level 3 with an enterprise-wide understanding of EIS requirements and what is required for successful service delivery. Level 3 has demonstrated its ability to understand the unique challenges that Agencies face in a changing communications environment. Working together with customers such as [REDACTED] we have developed solutions that provide innovative approaches to [REDACTED]; all built on our Level 3 Network. We bring a continued understanding to EIS and have aligned our service offerings on EIS to meet the agencies communications needs. Our Team has been assembled to provide a breadth and depth of proven customer service with partners such as [REDACTED] to deliver innovation and cost savings. We applied our comprehensive understanding of Government needs and requirements for EIS services in the design of our EIS network architecture. We align our comprehensive Level 3 Team infrastructure and overlying services with the proposed network architecture and services being provided for EIS. The proposed Level 3 EIS services meet the program goals identified within the GSA RFP. Our highly competitive service portfolio provides GSA and the departments and agencies using EIS a strong value for the contract dollars spent.

We honed the Level 3 network architecture to meet service requirements across our global customer base to include serving the unique needs of the Government and Commercial customers. Demonstrating our clear understanding of all Government requirements, our network architecture includes [REDACTED],

and a [REDACTED], while providing the fully compliant capability to deliver [REDACTED] EIS services.

### Quality of Service [L.29.1, M.2.1.2]

We developed our EIS network architecture with high quality of service as a key parameter. Our network architecture applies years of experience in providing services like those required to agencies and other Government entities, along with commercial customers. We offer [REDACTED] to the commercial customer base providing mission critical services to Government and commercial customers. Our scalable, responsive, and reliable network architecture delivers consistently compliant EIS services wherever required.

We staff the [REDACTED] with seasoned technicians who possess years of experience in providing support to GSA, agencies, other Government users, and industry. Our [REDACTED] [REDACTED] to help ensure that we consistently meet EIS performance requirements. The Level 3 Team's extensive past performance experience with similar scope contracts results in the development of mature reporting services required for EIS.

### Service Coverage [L.29.1, M.2.1.3]

Our network architecture supports global service coverage that significantly exceeds the [REDACTED]. For many of the CBSA-dependent services we cover [REDACTED] and *we far exceed the coverage minimum for all such services* [REDACTED].

The Level 3 network based upon our EIS network architecture not only covers the [REDACTED]. Our position as a wholesale carrier and our interconnections with [REDACTED] significantly expands our reach.

### Security [L.29.1, L.29.2.3, M.2.1.4]

We created the Level 3 EIS network architecture with security as a foundational and all-encompassing element. Our distinct, executive level security organization provides focus on the importance of security in Level 3. The Level 3 security

organization possesses deep understanding of the Government's unique security needs. Drawing from our extensive Government security experience along with our commercial industry best practices, we created [REDACTED] specifically to provide agency and other Government users focused security support.

In providing consistent and reliable security coverage, Level 3 monitors more than a [REDACTED]

[REDACTED] As necessary, we [REDACTED] to do the same. Building on our [REDACTED]

The Level 3 [REDACTED].

[REDACTED], [REDACTED], [REDACTED], which we address in Section 2.1 of this Technical Volume. Section 1.4.13 addresses in more detail the operational aspects of our security architecture, in reference to RFP Section L.29.2.3, External Traffic Routing Requirements. The requirements of L.29.2.3 largely stem from OMB Memorandum M-15-01 which stipulates that any EIS service transporting Internet, Extranet, and Inter-agency traffic, such as traffic crossing a Trusted Domain boundary, must identify and route this traffic through a secure [REDACTED]

**Figure 1.1-2** shows the [REDACTED] and shows the [REDACTED] of all traffic crossing the [REDACTED] boundary. An [REDACTED]. Therefore the [REDACTED] in the [REDACTED] can also be the [REDACTED] as if that traffic crossed the [REDACTED]. [REDACTED]

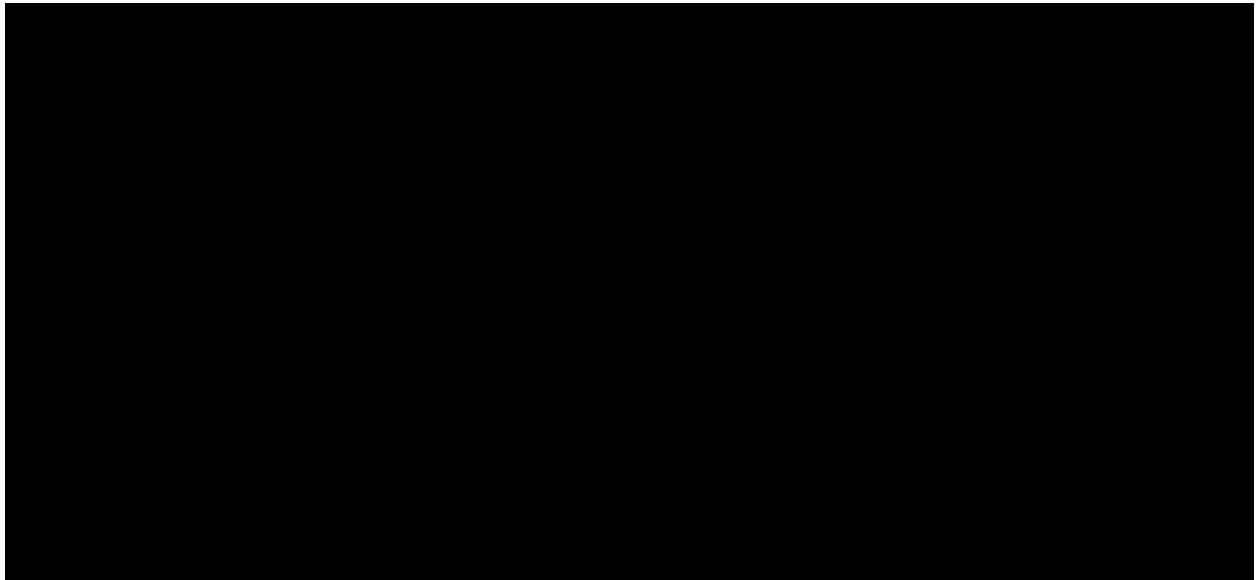


Figure 1.1-2. [REDACTED] View of [REDACTED]. [REDACTED]  
[REDACTED]

The Level 3 EIS network architecture satisfies the following eight external traffic routing requirements described in SOW C.1.8.8, and L.29.2.3, and M.2.1:

1. **Traffic Identification.** As part of the bid, design and ordering process, the agency specifies elements of connectivity subject to inspection. For [REDACTED]

[REDACTED]  
[REDACTED] the Level 3 design team defines the [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

2. **Directing Traffic.** [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED] or

[REDACTED]

3. **Non-Participating Agency Traffic.** [REDACTED]

[REDACTED]

4. **Control Mechanisms against Bypass.** [REDACTED]

[REDACTED]

5. **No Service Disruption on Failure of GFP.** [REDACTED]

[REDACTED]



6. **ANSI/TIA 942 and ICD 705-Certified Facilities.** Level 3 provides and supports multiple ANSI/TIA 942 and ICD 705-Certified facilities. [REDACTED]  
[REDACTED]  
[REDACTED]
7. **Cleared Personnel.** A feature of the Level 3 ICD 705-Certified facilities is [REDACTED]  
[REDACTED]  
[REDACTED]
8. **Transport Measurement Instrumentation.** The Level 3 network provides performance measuring equipment and techniques to [REDACTED]. This instrumentation measures [REDACTED]  
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]  
[REDACTED]

### **1.2 Technical Response [L.29.2; C.2; C.1.8.6; C.1.8.9]**

For EIS, the Level 3 Team provides GSA and agencies with global services delivered through our high-capacity U.S.-owned network. Our global network supports current and future service requirements at [REDACTED]. Level 3 EIS support includes [REDACTED]  
[REDACTED], in full compliance with SOW requirements. We also provide [REDACTED] as required for each of the EIS services.

For EIS, we provide [REDACTED]  
[REDACTED] Services we provide include the provision and support of [REDACTED]  
[REDACTED], from existing to new technology services. We also provide secure and reliable [REDACTED], and [REDACTED] for all transmission services. Our EIS services include [REDACTED] in keeping with SOW requirements. We also satisfy all of the interoperability requirements of the SOW C.1.8.6, addressing interoperability for specific EIS services in this volume. Assisting Level 3 in delivering and supporting our solutions are a number of capable and proven carriers, field operations companies, and systems solutions providers.

Level 3 meets all Section 508 requirements of SOW C.4. Ensuring that Federal content is equally accessible and usable by all EIS users, including those with

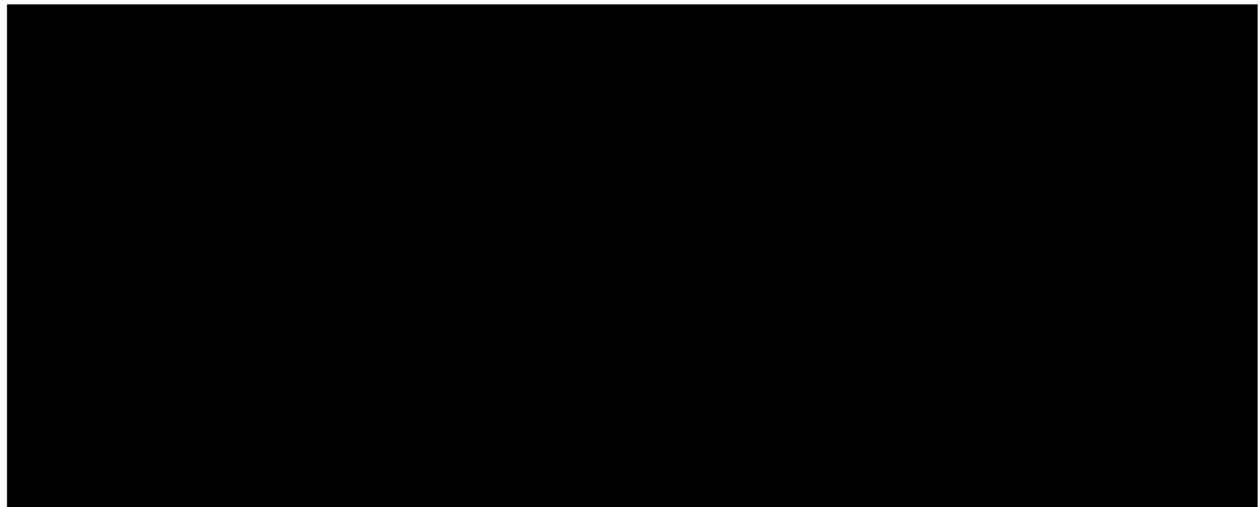
disabilities – as section 508 of the Rehabilitation Act requires – is an essential aspect of our EIS solution. As specified in SOW C.4, we comply with 508 requirements as follows:

- **Voluntary Product Accessibility Template (VPAT) [C.4.2]:** We will post the VPAT for services as identified in SOW C.4.4
- **Section 508 Applicability and Provisions Applicable to Technical Requirements [C.4.3, C.4.4]:** We comply with all of the requirements of SOW C.4.3 and C.4.4
- **Section 508 Provisions Applicable to Reporting and Training [C.4.5]:** We comply with all of the requirements of SOW C.4.5

### **1.2.1 EIS Services [L.29.2.1; M.4; C.1.2]**

Level 3 provides ■ specified EIS mandatory and optional services. Our proposed mandatory and optional services are shown in **Figure 1.2.1-1**. A full description of each mandatory and optional service is proposed, including how features and capabilities are architecturally and technically provided, is provided in the following sections of this volume. As applicable for each mandatory and optional service, we address the following service aspects: Service and Functional Description, Standards, Connectivity, Technical Capabilities, Features, Interfaces, and Performance Metrics.

We understand that our proposal for EIS services will be evaluated by the Government for understanding, quality of service, service coverage, and security, as indicated in RFP M.2.1. To illustrate and emphasize how our solution meets these evaluation criteria, these four evaluation factors are discussed in Sections 1.2.1.1 – 1.2.1.4. Further details of how we satisfy the evaluation factors are provided in our responses for the specific services proposed.



**Figure 1.2.1-1. Services Proposed by Level 3.** *The Level 3 Team has the network, facilities, processes, and experienced staff to provide the EIS services.*

**1.2.1.1 Understanding [L.29.2.1.A; M.2.1.1]**

GSA clearly identified the goals of the EIS contract in SOW C.1.1 and the hallmarks of our offering are aligned with all of those goals, reflected in this volume as our themes. We have coupled our EIS proposed themes with the EIS goals, using the icons addressed below to highlight this connection. The themes of our EIS solution are:



**Broad Range of Communication Services** – Our proposal includes [REDACTED], provided under EIS. Level 3 has grown and developed its capabilities to provide a full range of communications services through [REDACTED]

[REDACTED] The Level 3 Team has highly experienced staff, and advanced and flexible equipment and facilities enabling us to provide all of the services called for by the EIS RFP.



**Global Reach of Our Network** – Our EIS proposal reflects our [REDACTED]

[REDACTED] The reach of Level 3 network capabilities is enhanced through our access to [REDACTED]; giving us the ability to readily provide EIS services wherever they are required in the world.



**Leadership in Innovation** – We exert technical leadership through standards organizations such as the [REDACTED]

[REDACTED] Our innovation is exemplified by our more than [REDACTED]

[REDACTED] in the U.S. and around the world.



**Experienced Management Team** – Our management team leverages years of experience from Networx and WITS, as well as other Government and commercial contract efforts supplying services such as those required for EIS. Our comprehensive understanding of EIS service requirements is further demonstrated through many of the service descriptions in following sections of this volume.

**Compliance** – The Level 3 Team takes [REDACTED]

[REDACTED] The descriptions of the services we offer which are provided in the following sections help demonstrate compliance with EIS requirements; assisted by RFP references which correlate with the requirements of the SOW and RFP. The service architecture shown in **Figure 1-1** and described in Section 1.1 illustrates our support of [REDACTED]

[REDACTED]. This accommodates growth and technology advances over the life of the contract.

Throughout this volume we have referenced applicable standards. Where specific versions and dates of standards are listed in the SOW of the RFP, we are compliant with that version. Otherwise, we are compliant with the latest version of the SOW standards. Level 3 is standards-based in our service operations, with resulting lower risk to the Government through our provision of reliable and compatible service.

**Flexibility** – Flexibility within our network has been built in from the ground up, literally. Level 3's backbone includes [REDACTED]

[REDACTED] Throughout much of our [REDACTED]

[REDACTED] as required. Using this [REDACTED]

[REDACTED] we can install [REDACTED] at a lower cost and faster than would be the case for installing a completely new [REDACTED]. We also reserve some of our [REDACTED]

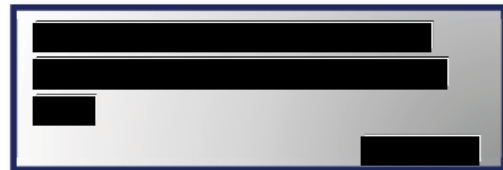
[REDACTED] to accommodate our growth and give us flexibility to respond to the evolution in service requirements.

Level 3 selects innovative and proven equipment vendors for our backbone equipment. We insist on demanding criteria to introduce cost-effective conversion between [REDACTED] which provides full [REDACTED]

[REDACTED] Such equipment selection provides greater opportunities for leveraging other technology advances in network management and operation support infrastructure.

**1.2.1.2 Quality of Services [L.29.2.1.B; M.2.1.2]**

The delivery of high-quality, reliable EIS services is ensured by the Level 3 Team's experience in building and maintaining world-class services, continuous monitoring against the



[REDACTED] We ensure that EIS Quality of Service (QoS) is maintained through the Level 3 Team's skilled technicians monitoring and responding 24/7. The high quality of our network services continues to be recognized by independent rating services. **We have carefully selected our EIS partner companies for their high quality performance for services they provide.** Each of our teammates and access partners apply reliable design principals and operations which conform to industry standards, resulting in excellent quality performance.

The EIS [REDACTED] will be routinely monitored by our [REDACTED] As we are currently doing in providing Networkx and WITS services, Level 3 meets the

[REDACTED] The Level 3 [REDACTED] integrates [REDACTED]

[REDACTED] Throughout, Level 3 has deployed a number of [REDACTED] to monitor the [REDACTED] [REDACTED] network to ensure that it meets [REDACTED] In addition, Level 3

operations staff has in-house expertise that runs **one of the** [REDACTED]  
[REDACTED] Combined, our people and their tool-sets provide a management environment that ensures meeting the Government's requirements. Level 3 operates the network using a cross-functional team that works together closely to ensure meeting required performance levels. Within the individual EIS service delivery descriptions in this Technical Volume, we include service-specific details of how we consistently deliver high-quality EIS services that meet or exceed [REDACTED]

**1.2.1.3 Service Coverage [L.29.2.1.C; M.2.1.3; C.1.3; C.1.8.5; J.1]**

The service coverage of the Level 3 Team extends well beyond the minimum requirements of the [REDACTED]. A listing of the [REDACTED] where we propose services is contained in the AcquiServe portal [REDACTED] tool in accordance with RFP L.29.2.1. As many of our services are offered commercially in [REDACTED] with active relationships with global carriers for local and long haul circuits, the Level 3 Team is well positioned to support future [REDACTED] expansion.

**1.2.1.4 Security [L.29.2; M.2.1.4; C.1.8.7]**

Level 3 ensures that all Level 3 services provided comply with [REDACTED]  
[REDACTED]  
requirements where applicable. We meet the applicable [REDACTED] [REDACTED]  
[REDACTED], integrity, and availability. We incorporate these principles when developing our information security program and policies for EIS and applicable TOs. Level 3 currently uses the [REDACTED]  
[REDACTED] as our security policy framework.

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