2.1.6 Internet Protocol Service [C.2.1.7]

MetTel
Internet as a Commodity

- Access and bandwidth to meet Agency growing needs to serve customers
- Global reach
- [redacted]
- Award winning customer support (CSO)

MetTel Internet Protocol Service (IPS) provides support for the full range of connection requirements for Agencies to the Internet. MetTel and our premier Internet providers have extensive reach, connection options, and interface types to meet Agency requirements for connections using TCP/IP protocol suit.

2.1.6.1 Compliance with Evaluation Criteria [L.29.2.1]

The MetTel IPS solution fulfills the mandatory service requirements for IPS defined in SOW paragraph C.2.1.7. The following section presents a technical description of our offering, demonstrating our capabilities in the following areas: Standards, Connectivity, Technical Capabilities, Features, Interfaces, Performance Metrics, and Security. **Exhibit 2.1.6-1** highlights some key strengths and benefits of our IPS solution in relation to RFP Section M.2.1 evaluation criteria.

Exhibit 2.1.6-1. Features and Benefits of Approach to IPS

Evaluation Criteria	Features and Benefits of MetTel's Approach
Understanding (M.2.1(1))	• 20 years of experience providing IPS to industry and Government • IPS provides a single solution for Agency-level, reliable connections that complement existing services, such as security, Virtual Private Networks (VPNs), Voice over Internet-Protocol (IPVS), private networking, and Managed Services (MNS). • IPS supports both IPv4 and IPv6 [redacted] • IPS provides strong KPIs and performance options to support mission-critical communications
Quality of Services (M.2.1(2))	• Full compliance with all SOW performance metrics (see Section 2.1.7.4) [redacted] • 24x7 live customer support and proactive service monitoring • IPS provides high availability from rigorously engineered backbone networks designed for high performance
Service Coverage (M.2.1(3))	• Global and scalable enterprise-level IP network connectivity that offers multiple, full-duplex bandwidth options [redacted] • Support for hybrid networking and dual-stack (IPv4 and IPv6) options within the U.S., EMEA, and Asia-Pacific regions. • [redacted]
Security (M.2.1(4))	• MetTel's network architecture ensures that Agency traffic is properly identified, routed (redirected), scanned and monitored (via DHS EINSTEIN Enclaves), and delivered to the

Evaluation Criteria	Features and Benefits of MetTel's Approach
	appropriate agency's network. It also enables MetTel and the Raytheon SOC to identify any traffic that has been inadvertently directed through the DHS EINSTEIN Enclave and notify DHS. Additionally, metrics (SLA KPI's) shall be measured in accordance with the EIS RFP. • MetTel supports the proper safeguards for handling of traffic should failures occur with the DHS GFP. Additionally, all DHS EINSTEIN Enclaves will be housed within a planned ANSI/TIA-942 and ICD 705 certified facility in Northern Virginia. • IPS supports BGP sessions protected with MD5 signature option as defined in NIST SP 800-54.

2.1.6.1.1 Service and Functional Description [L.29.2.1, C.2.1.7.1, C.2.1.7.1.1]

Internet users expect Internet access to be consistently available with robust performance. MetTel IPS provides the integration of the top Internet networks with the right access to provide the Internet to Agency users and customers. IPS supports a wide range of connectivity options that enable the Government user to access the Internet, Government-wide Intranets, and Extranets. IPS uses the TCP/IP (IPv4 and IPv6) protocol suite to transport IP packets and interconnect GFP and SRE with other Government networks and the public Internet Service Provider (ISP) networks.

MetTel meets all the requirements of Section C.2.1.7, IPS. MetTel combines the strength of global wholesale partnerships with the flexibility of the best local access provider to meet the customer's Internet connectivity requirements. Our IPS is a mature offering with proven technology and capabilities that ensure low risk in terms of outages, Denial of Service (DoS) attacks, and performance on an IPS link. Customer support provides timely and proactive operation to address service issues that can severely affect day-to-day operations. [redacted]

IPS is supported by the appropriate Service Related Equipment (SREs) with the appropriate interfaces as required by service/speed type to deliver maximum efficiency and cost effectiveness. IPS has multiple SREs options available, based on service type, speed, etc. [redacted]

IPS provides flexible access methods that connect and traverse the MetTel IPS

network and provide Internet, Intranet, and Extranet services. For Internet access, Agencies can connect directly or indirectly using any of the access methods listed above. Service delivery of the access includes installation, configuration, maintenance, support, project management, and testing. Additionally, MetTel has various wholesale providers for off-net access to offer greater availability with extended access footprint consisting of DSL, Cable, Wireless, and Satellite. [redacted] MetTel selects the best provider based on facilities (i.e., lit buildings), ability to meet the service requirement, cost, and best overall value. Strategic partner selection enhances the coverage needed to meet and exceed the mandatory CBSA requirements of the EIS RFP. **Exhibit 2.1.6-2** shows the reach achieved by MetTel through our preferred partners for IPS.

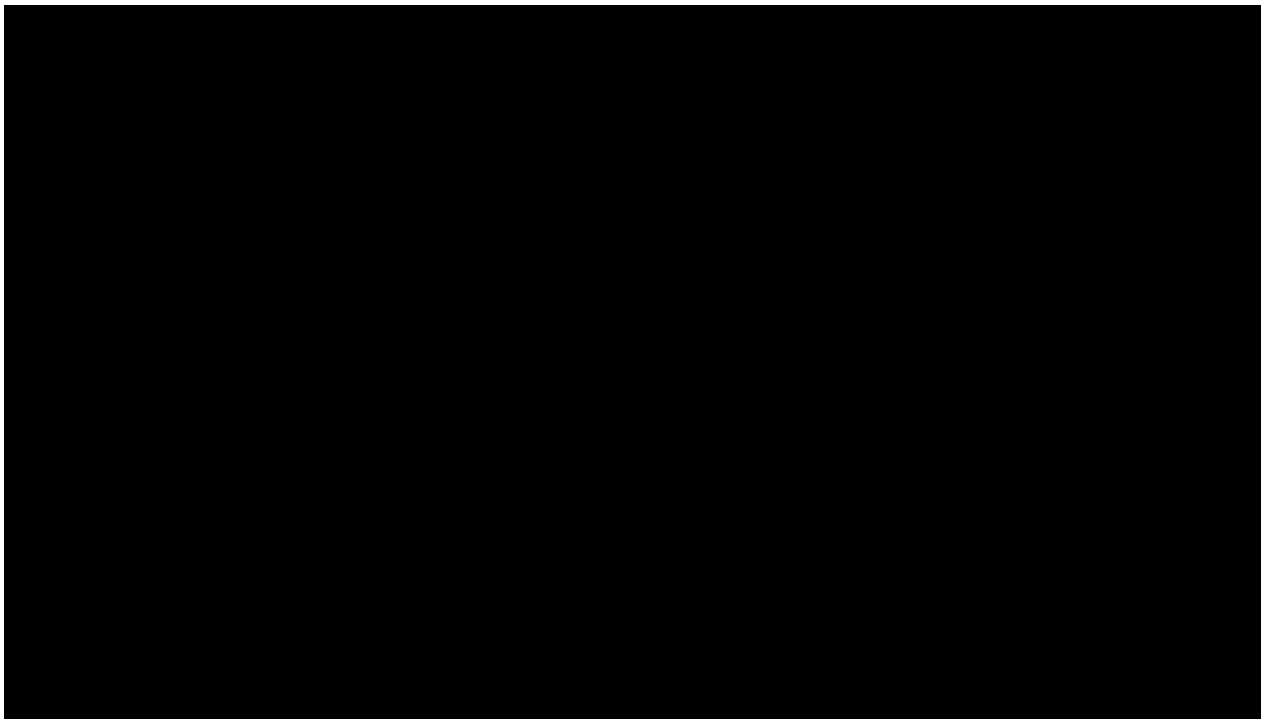

Exhibit 2.1.6-2. Preferred Partner Reach for IPS

MetTel and our wholesale partners' IPS offering meets all the requirements defined in the EIS RFP Section C.2.1.6. Our IPS solution features reliable, technically advanced IP capabilities and feature sets. MetTel wholesale partners are established leaders in IP network technology and provide a global Internet backbone that spans six continents and more than 140 countries.

2.1.6.1.2 Standards [L.29.2.1, C.2.1.7.1.2]

MetTel as an integrator of networks relies on standards to ensure proper and compliant service is delivered to MetTel customers. We comply with the standards listed in EIS RFP Section C.2.1.7.1.2 and all new versions, amendments, and modifications of these standards.

2.1.6.1.3 Connectivity [L.29.2.1, C.2.1.7.1.3]

MetTel IPS connects Government locations including mobile and remote users and SDP devices such as customer routers, switches, firewalls, and SRE to the internet. The Internet's wide use as a preferred communication media means it must be accessible from a wide range of equipment such as tablets, notebook PCs, PDAs, and mobile phones. The appropriate combinations of EIS services to the internet provide connections through IPS. MetTel IPS connects Government locations to other networks including those of other EIS contractors. MetTel IPS provides seamless connectivity to the largest set of ISPs to provide universal connectivity to all the required components.

2.1.6.1.4 Technical Capabilities [L.29.2.1, C.2.1.7.1.4]

MetTel IPS provides all the technical capabilities required by the EIS RFP Section C.2.1.7.1.4. **Exhibit 2.1.6-3** provides the MetTel response to these technical capabilities.

Exhibit 2.1.6-3. MetTel IPS Capabilities

Capability	MetTel Response
1. Section C.1.8.8 Security	MetTel's network architecture ensures that Agency traffic is properly identified, routed (redirected), scanned and monitored (via EINSTEIN enclaves), and delivered to the appropriate agencies network. It also enables MetTel to identify any traffic that has been inadvertently directed through the EINSTEIN enclave and notify DHS. Additionally, metrics (SLA KPI's) shall be measured in accordance with the EIS RFP.
2. IPS Ports	MetTel provides full throughput at peak data rates specified by the Agency in the Task Order.
3. Appropriate access service	[redacted]
4. Peering, IP Addresses, DNS	a) MetTel provides public peering arrangements to the Internet. The combination of all our wholesale ISP partners has the largest public peering capacity in the market today. b) MetTel provides direct/private peering to exchange Internet traffic over multiple dedicated interconnects; the cost is shared between peers. Private interconnections enable MetTel and peers to determine the precise speed, location, and terms through which the two carriers meet. Direct peering also provides greater control over the quality of service at each interconnection point, because ISP is not relying on a third party to maintain equipment.

Capability	MetTel Response
	c) MetTel supports Government-assigned and InterNIC-registered IP addresses and domain names. IP address allocation is in conformance with InterNIC requirements and may require the submission of an IP address Justification Form to comply with IP address allocation policies. d) MetTel provides Primary and Secondary Domain Name Service (DNS) to provide authoritative name server for Agencies in accordance with NIST SP 800-81-2 recommendations for Secure DNS deployments.
5. Border Gateway Protocol (BGP)	MetTel provides and supports the BGP (BGPv4) for EIS customers with registered Autonomous System (AS) numbers.
6. Authenticated Protocols	MetTel validates routing protocol information using authenticated protocols. BGP sessions are configured in accordance with, but not limited to, the NIST SP 800-54 recommendation that BGP sessions be protected with the MD5 signature option.

2.1.6.1.5 Features [L.29.2.1, C.2.1.7.2]

MetTel accommodates and optimizes an Agency's applications to enable the network to accurately and consistently allow for traffic prioritization and cost-efficiencies.

[redacted] Based on the traffic priorities set by the Agency, the various traffic flows are provided a portion of bandwidth that favors higher priority traffic over lower priority traffic during times of congestion.

Exhibit 2.1.6-4 defines the IPS QoS traffic priority classes.

Exhibit 2.1.6-4. IPS QoS Traffic Priority Classes

Class of Service	Name of Priority Class	Characteristics
Premium	Expedited Forwarding (EF)	• Highest forwarding priority • Low latency, low jitter • Strict forwarding priority • Can access 100% of port bandwidth
Enhanced	[redacted]	• Next highest forwarding priority • Class-based weighted fair queuing [redacted] • Can access unused bandwidth not assigned to EF
Standard	Best Effort (BE)	• Lowest priority • Class-based weighted fair queuing • Can access unused bandwidth not assigned to EF

2.1.6.1.6 Interfaces [L.29.2.1, C.2.1.7.3]

Exhibit 2.1.6-5 defines all the interfaces supported by MetTel. Listed are SRE

components that satisfy the interface, bandwidth, and connectivity options. SRE pricing is in the SRE Catalog. Each interface type will reside in the appropriate router.

Exhibit 2.1.6-5. IPS Supported Interface Types (UNI)

UNI Type	Interface	Network-Side Interface	Protocol Type	SRE Interface
1	Cable High Speed Access	320 Kbps up to 150 Mbps	Point-to-Point Protocol, IPv4/v6	[redacted]
2	Ethernet Interface	1. 1 MB up to 1 GbE (Gigabit Ethernet) 2. 10 GbE (Optional) 3. Burstable	IPv4/v6 over Ethernet	1. IPS-2 (1) 2. IPS-2 (2) 3. All Ethernet Interfaces
3	IP over SONET Service	1. OC-3c 2. OC-12c 3. OC-48c 4. OC-192c	IP/PPP over SONET	1. IPS-3(1) 2. IPS-3(2) 3. IPS-3(3) 4. IPS-3(4)
4	Private Line Service	1. DS0 2. T1 3. T3 4. OC-3c 5. OC-12c 6. OC-48c 7. OC-192c	IPv4/v6 over PLS	1. IPS-4(1) 2. IPS-4(2) 3. IPS-4(3) 4. IPS-4(4) 5. IPS-4(5) 6. IPS-4(6) 7. IPS-4(7)
5	DSL Service (optional)	xDSL access at 1.5 to 8 Mbps downlink, and 384 kbps to 1.5 uplink	Point-to-Point Protocol, IPv4/v6	[redacted]
6	FTTP (optional)		Point-to-Point Protocol, IPv4/v6	[redacted]
7	Wireless Access (optional)	1. LTE 2. Satellite	Point-to-Point Protocol, IPv4/v6	[redacted]

2.1.6.1.7 Performance Metrics [L.29.2.1]

MetTel complies with the requirements for KPI measurement for IPS. MetTel will monitor port availability end to end. [redacted]

Port availability (Av), Latency (CONUS), and GOS (Data Delivery Rate) are all measured and reported historically and in near real time. The Trouble Ticket system maintains Time to Restore (TTR), and MetTel reports TTR on a per-incident basis. All information is available 24x7 to Agencies in the MetTel EIS Portal.