

A Network and Telecommunications Solution

Prepared Exclusively for

State of Hawaii RFP-12-006-SW BAFO Response

June 12, 2012

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tw telecom inc.
10475 Park Meadows Drive
Littleton, CO80124

Transmittal Letter

March 28, 2012

Ruth E. Yamaguchi
Procurement Officer
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813

RE: RFP-12-006-SW

Dear Ms. Yamaguchi,

tw telecom holdings inc. (tw telecom) thanks you for the opportunity to provide a solution that presents our networking services in regards to State of Hawaii's Request for Proposal. We believe our response offers you an exceptional combination of experience and resources to meet your needs cost-effectively.

tw telecom's powerful fiber networks, operational excellence and the ultimate in customer care deliver value unsurpassed by most current providers. In the enclosed proposal, you will find further information related to our networking services.

The person authorized by **tw telecom** to contractually obligate our organization is:

- Cliff Miyake
Vice President and General Manager – Hawaii
550 Paiea St, Suite 238
Honolulu, HI 96819
(808) 441-8537
cliff.miyake@twtelecom.com

The **tw telecom** Point of Contact for this solicitation is:

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Thank you for considering **tw telecom** and we look forward to the next step in your selection process. Please do not hesitate to contact me if there is any additional information needed in your evaluation. We look forward to doing business with State of Hawaii.

Sincerely,

Cliff Miyake
Vice President and General Manager

Executive Summary

tw telecom is excited about the opportunity to provide the State of Hawaii (State) with a scalable, robust and cost-effective telecommunications network to meet your current and future needs. We are certain you will be pleased with the technical and financial aspects of this offering.

The State of Hawaii Challenge

tw telecom understands the challenges that government entities such as State of Hawaii face every day. From resource and management challenges, to continued efforts to create a government that is more efficient, effective and focused on the needs of the agency and citizens alike, a cost-effective, easy-to-manage, feature rich solution is critical. Organizations must also find a way to integrate and consolidate disparate and distant locations into existing networks as quickly and efficiently as possible. Managing these demands, meeting the requirement for additional bandwidth and protecting and maintaining mission critical networks is a formidable challenge.

The tw telecom Solution

tw telecom's services provide the State with the tools to adjust to an ever-changing environment and the flexibility to take advantage of new technology as your agency moves forward and your networking requirements evolve. As a communications service provider, **tw telecom** is uniquely qualified to provide the State with the services and solutions that will help you meet these agency challenges.

tw telecom is a nationwide provider of telecommunication services while providing a local feel and presence. Across the US, **tw telecom** provides voice, data and Internet solutions to business customers in 75 markets, connecting 14,300 on-net buildings with 11,000 miles of fiber.

In Hawaii, **tw telecom** has local sales and operations personnel in Honolulu, providing on-net customer connectivity to the islands of Oahu, Maui, Kauai and Hawaii. We are co-located at all interexchange carriers POPs and seven LSOs on Oahu. These interconnection facilities allow us to pick up customer interLATA traffic and provide local transport to more than 300 buildings on the island - all locally owned and managed by **tw telecom**.

“Our innovation and industry leadership in the Business Ethernet market is something we are focused on and work incredibly hard at delivering to all of our customers,” said Harold Teets, Senior Vice President, Information Technology at tw telecom. “We are committed to delivering our customers industry leading services on which they can build their networks and increase their business productivity.”

tw telecom provides its customers telecommunications service both locally and nationally, using its fiber-based facility to provide superior products and service.

A Superior Customer Experience

What really sets **tw telecom** apart from our competitors is our dedication to providing a superior customer experience.



Passionate People

Our people are your advocates. Both before and after the sale, our employees are empowered to advise and deliver the right solutions. No bureaucracy, no runaround, just dedicated people who listen carefully, respond quickly and make things happen.

Personalized Service Interaction

Our service model is unique, with local sales, engineering and operations teams within all of our 75 markets. These resources are then supported by two centralized Network Operations Centers, so you benefit from the superior personal service of a local business with the sophisticated resources of a major national provider, all at the same time.

In addition to your local service team and national support, **tw telecom** gives you visibility and control over your accounts with our customer portal, MyPortal. MyPortal gives you real-time access to information about your account, performance, billing, trouble tickets and convenient options for communicating with **tw telecom**.

Voice of the Customer

Through collaboration, we have enhanced our business to create a stronger experience for you. As a trusted advisor to your business, we listen and take action.

Listening to and incorporating customer feedback has allowed **tw telecom** to drive customer loyalty and satisfaction. In fact, we have some of the highest customer satisfaction scores in the industry.

Robust Product Offerings and Competitive Pricing

tw telecom connects more commercial buildings to its fiber network than any other competitive communications provider. We integrate complex Ethernet and Converged IP VPN solutions and we own and manage a national fiber network and IP backbone. **tw telecom** has the national capability, robust product portfolio and national/local customer care teams to support mission critical enterprise applications and to deliver the industry's most sought after customer experience.

We have designed innovative products and services to deliver real solutions, desired benefits and competitive prices to help businesses win in today's marketplace:

- Top Three National Enterprise Metro Ethernet Providers since 2006 (Vertical Systems Group, 2012)
- Best-in-Class Data and Internet Services
- Co-location and Disaster Recovery Services

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- Business VoIP
- High-Capacity Storage Transport
- Local and Long Distance Voice Services

tw telecom has provided competitive, aggressive pricing to the State as demonstrated in Schedule A.

Financial Strength

Investing in your telecommunications system is an investment in your business. That is why you need a financially strong provider you can trust – one with strong liquidity and the ability to invest in customer opportunities. For more than 17 years, **tw telecom** has built a growing company with solid fundamentals. We have a stable customer base of approximately 30,000 business customers and a strong national network infrastructure that competes with the top names in our industry. **tw telecom's** financial stability puts us in a unique position to invest in a relationship with the State.

Section Two – Technical Requirements

2.1 GENERAL

The Offeror must provide a response to all requirements in Section Two, Technical Requirements.

The Offeror must first respond with the level of compliance: “Comply”, “Does Not Comply”, or “Exception” to each paragraph. (See Section 3.2.5) Then, for “Comply” responses, the Offeror shall submit a detailed explanation, diagrams, and other descriptive information as to how the technical requirements will be accomplished. For “Exception” responses, the Offeror shall explain what portion of the requirement that it is able to meet and what portion it is unable to meet and the proposed alternative or modification, if any. The State will evaluate the “Exception” responses and make a determination if the response will be considered acceptable.

2.2 QUALIFICATIONS

Section 2.2 describes the minimum qualifications required for participation. Failure to comply with any of these requirements may result in disqualification of the Offeror. Responses to these questions must be answered in Schedule C found in Section Six.

2.2.1 Meets the Technical Support Requirements

2.2.1.1 Offeror shall be able to provide toll free telephone support via a technical support center which is staffed 24 hours a day, 7 days a week, 365 days a year (24x7x365).

Response: Comply. **tw telecom**'s Network Operations Centers (NOC), located in both Denver, Colorado and O'Fallon, Missouri, are available to provide support 24x7x365. The OC will remotely provide network administration, operations and maintenance support services for the majority of our Internet, data, transport and voice services. The NOC provides around-the-clock proactive monitoring for all its services. Once a service issue has been identified and recorded into the trouble ticket management database, **tw telecom**'s highly trained customer care staff works one-on-one with the customer providing ongoing support and updates until resolution is achieved. The NOC maintains, as an objective for on-net services, a Mean-Time-To-Repair (MTTR) interval of less than two (2) hours and six (6) hours for off-net services.

tw telecom's highly skilled operations specialists are available to provide continuous support of the following:

- Monitoring **tw telecom**'s networks
- Responding to network alarms
- Troubleshooting and expeditiously correcting potential issues as they arise

tw telecom's monitoring systems provide continuous fault management status with the ability to detect, isolate and correct malfunctions in **tw telecom**'s entire metropolitan and Internet backbone networks. **tw telecom**'s monitoring systems also have the capability to report all available major, minor and power alarms that may potentially affect a customer's service.

To ensure the highest level of customer service availability, **tw telecom**'s core metropolitan networks are designed utilizing either SONET or Ethernet technology, connected via optical fibers. Depending upon the platform utilized, path-protected or dual path, SONET-based services are equipped with Automatic Protection Switching (APS) for a fail-over time of 50ms or less. Ethernet platforms provide redundant link restoration by utilizing either Rapid Spanning Tree Protocol (RSTP) or Spanning Tree Protocol (STP).

In the unlikely event of a service interruption resulting from damage to a fiber optic cable, emergency restoration will be completed in an expeditious and timely manner. Local crews will maintain the fiber optic network. Restoration of the fiber cable represents the highest priority for these highly trained and well-equipped crews. Restoration work is performed according to written procedures with both line crews and fiber splicing crews at the scene.

Clarification – **tw telecom**'s Network Operations Center in Denver, CO handles the majority of our Internet, data and voice services. Our O'Fallon NOC handles very small business customers and serves as a backup to our Denver NOC. The two NOCs combined handle all of our services.

2.2.1.2 Offeror shall be able to initiate troubleshooting within 30 minutes of receiving a call and if necessary, deploy technicians onsite within two Business Hours of problem determination on Oahu and four Business Hours on the neighbor islands.

Response: Comply.

2.2.1.3 The Offeror must employ a minimum of five (5) support technicians residing in Hawaii and support all islands where service is offered.

Response: Comply. **tw telecom** has an office in Honolulu and employees more than five (5) support technicians.

2.2.1.4 Offeror shall be responsible for continually monitoring and tracking the outage until it is resolved. Offer shall provide a final status update after resolution.

Response: Comply.

2.2.2 Meets the Reliability Requirements

2.2.2.1 Offeror shall be able to provide circuit reliability that meets or exceeds 99.99% availability over the past two years for each offered service.

Response: Comply. **tw telecom** offers and availability guarantee of 99.99% for all products being proposed. Please refer to our Service Level Agreements in Appendix A.

2.2.3 Provides Basic Required Services

2.2.3.1 At a minimum, Offeror shall be able to provide Broadband Ethernet to the islands of Oahu, Kauai, Maui, and the island of Hawaii Or Internet Service Provider (ISP) service to Oahu of at least 300Mbps.

Response: Comply. **tw telecom** meets both of the above requirements. We are currently doing this today.

2.2.3.2 All neighbor island services must be able to terminate on Oahu.

Response: Comply. **tw telecom** provides services that do this today.

2.2.4 Ownership of Network Infrastructure

2.2.4.1 Offeror shall be directly responsible for the monitoring, management and maintenance of its telecommunication infrastructure and its associated network equipment. Offeror must have direct control of the management and maintenance of its network backbone infrastructure.

Response: Comply. **tw telecom**'s Network Operations Center (NOC) is available to provide support 24x7x365. The NOC will remotely provide network administration, operations and maintenance support services for the majority of our Internet, data, transport and voice services. The NOC provides around-the-clock proactive monitoring for all its services. Once a service issue has been identified and recorded into the trouble ticket management database, **tw telecom**'s highly trained customer care staff works one-on-one with the customer providing ongoing support and updates until resolution is achieved. The NOC maintains, as an objective for on-net services, a Mean-Time-To-Repair (MTTR) interval of less than two (2) hours and six (6) hours for off-net services.

tw telecom owns and operates a national IP backbone in the United States via a Packet Over SONET (POS) and Ethernet architecture. **tw telecom** has created six regional IP hub sites where all traffic within a region is directed for access to other regions and peering sites. Diverse, high-speed optical circuits connect the IP POPs and hubs within a given region.

2.2.5 Existing Installation in the State of Hawaii

2.2.5.1 Offeror shall be an experienced provider of the proposed telecommunication services with existing installations in the State of Hawaii.

Response: Comply. **tw telecom** provides on-net customer connectivity to the islands of Oahu, Maui, Kauai and Hawaii. We are co-located at all interexchange carriers POPs and seven LSOs on Oahu. These interconnection facilities allow us to pick up customer interLATA traffic and provide local transport to approximately 306 buildings on the island - all locally owned and managed by **tw telecom**.

2.3 TELECOMMUNICATION SERVICES

This section describes the desired technology solutions to be provided from Offerors. As identified in Section 2.2.3.1, Offerors are required to provide a minimum of Broadband Ethernet service or Internet Service Provider services.

2.3.1 Broadband Ethernet

2.3.1.1 Broadband Ethernet service shall be offered as a routed (layer 3) and/or non-routed (layer 2) service. Routed services shall offer the ability to support Virtual Private Networks (VPNs) that can provide logical separation of traffic on a single physical connection.

Response: Comply. **tw telecom**'s Ethernet service is offered as a Layer 2 service. **tw telecom** offers one of the most comprehensive suites of Ethernet products. **tw telecom**'s Ethernet services allow customers to both extend their own internal corporate Ethernet networks across the metropolitan area for multiple location connectivity as well as Internet Access. One of the fastest growing products is **tw telecom**'s suite of Metro Ethernet products, which enables business-to-business connectivity across a metropolitan area and is available to large, medium and small companies. These products, called Native Local Area Network ("Native LAN" or "NLAN") services, are high-speed, flexible solutions designed to deliver customers up to 100 times faster connection speeds at lower prices than traditional networks can offer.

Many older technologies like ISDN, Frame Relay and DSL only talked about the benefits that **tw telecom**'s current Internet and data services deliver today.

Ethernet is a technology that is already understood, employed by many businesses, and has the potential to combine quality of service, restoration and high bandwidth into a single customer solution that provides scalable, flexible and low-cost metropolitan area data services. Since most enterprises deploy Ethernet LANs at each of their locations, it makes sense that the networks that carry traffic between LANs reflect the enterprise architecture. Extending the corporate LAN over the metropolitan area represents a natural network solution.

Businesses require a metro solution that combines the attractive features of legacy technologies (restoration and high bandwidth) with the benefits of Metro Ethernet (low cost, technological familiarity, and scalable bandwidth).

Native LAN bridges the gap between legacy networks and a pure Ethernet metro solution by combining each of their benefits. Next-generation optical platforms provide customers with a migration path for the evolving metropolitan area Ethernet technology.

tw telecom deploys, owns and manages the equipment in the State's business location and allows you to plug into a familiar interface: IEEE Standard 10M, 100M, 1000M and 10G Ethernet interfaces. Customers can dedicate or share bandwidth between multiple locations using **tw telecom**'s multiple connectivity options. The NLAN product portfolio is positioned to offer customers various levels of service from dedicated SONET-protected bandwidth to shared and oversubscribed bandwidth. They include:



Elite NLAN Services

- Point-to-Point
 - Dedicated and non-oversubscribed bandwidth to customer.
 - High Availability – line/network protected NLAN service.

Switched NLAN Services

- Switched NLAN (SNLAN)
 - Shared and oversubscribed bandwidth to customer.

- Standard Availability - protocol- protected NLAN service.
- Class of Service (CoS) options available.

Extended Native LAN (ENLAN) Overview

tw telecom's Extended NLAN (ENLAN) service is an inter-market Ethernet service that provides a managed end-to-end solution for the customer.

ENLAN is offered over the **tw telecom** IP Backbone, encapsulating the customer traffic using Layer 2 tunnels as a best effort service. To transport Ethernet frames across the IP Backbone, an Ethernet connection will be made between the NLAN CO Ethernet switch and an aggregation router on the Internet infrastructure. This IP ingress point is responsible for encapsulating Ethernet frames into a Layer 2 logical frame. The customer is responsible for their LAN protocols traversing the long-haul NLAN network.

There are two levels of ENLAN service: Enhanced and Basic. Both of these services are offered in a redundant manner. The redundant offering would mean that an IP Backbone outage would result in packets being rerouted over an alternate path. The enhanced service offering means that capacity for both paths must be reserved for all Enhanced ENLAN customers and a higher Class of Service will be implemented for these customers. The basic service offering means that the Basic ENLAN customer will receive a lower Class of Service if their traffic needs to be rerouted.

Clarification – Both NLAN and ENLAN are Layer 2 services. NLAN is offered within a metro market and ENLAN is offered market-to-market or between markets.

2.3.1.2 Offeror shall provide encryption services as part of the VPN service.

Response: Does not comply. **tw telecom** does not encrypt our private Layer 3 service. The VPN portion of **tw telecom**'s IPVPN signifies a private network within **tw telecom**'s private cloud. A customer's network is segmented within the cloud to separate out different customers' network traffic.

2.3.1.3 Offeror shall support quality of service/ class of service (QoS/CoS) capabilities necessary to support delay-sensitive and drop-sensitive traffic such as voice and video. Offeror shall detail its pricing structure if QoS/CoS is an additional cost item, along with discounts that will be provided.

Response: Comply. **tw telecom** offers QoS/CoS as an optional add-on service on both our Layer 2 and Layer 3 services. Costs are included in the proposed pricing. The CoS offering delivers five service classes. The classes are defined as:

- Realtime
- Interactive
- Mission Critical
- Priority

- Best Effort

Based on the customer's overall CoS requirements, a customer can choose from all service classes or an individual service class.

When CoS is enabled within the network, the customer must mark/color their traffic with CoS markings according to Table 1 below.

Service Class	DSCP Name	DSCP Decimal
Realtime Class	CS5	40
	EF	46
Interactive Class	CS4	32
	AF4x	34, 36, 38
Mission Critical Class	CS6	48
	CS7	56
	CS3	24
	AF3x	26, 28, 30
Priority Class	CS2	16
	AF2x	18, 20, 22
Best Effort Class	CS1	8
	AF1x	10, 12, 14
	CS0	0
	All other DSCP markings	

CoS treatment will be provided based on Differentiated Service Code Points (DSCP) values outlined above in Table 1. DSCP transparency will be provided for all customer traffic. For all traffic that is marked with DSCP settings not identified in Table 1, this traffic will be delivered as Best Effort.

The customer is responsible for correctly marking all packets sent to the Layer 2 or Layer 2 network. The customer is responsible for queuing/rate-shaping traffic such that it does not exceed the contracted service rate and conforms to **tw telecom** burst size on the ingress policers (where policers are applied).

2.3.1.4 Offeror shall be able to provide Layer 3 any-to-any connectivity between the offered Broadband Ethernet service and other offered services.

Response: Comply. **tw telecom** uses TDM for transport where needed or where it is effective based on equipment. To deliver ETHERNET based services, we utilize media converters to handoff an Ethernet - RJ45 connection.

2.3.1.5 Offeror shall identify all supported routing protocols.

Response: Comply. In regards to EIGRP specifically, we ask that customer utilize GRE tunneling between devices. **tw telecom** does utilize Cisco devices and we ask for GRE tunneling to ensure customer's routers are not flooded with routes. Please contact **tw telecom** prior to using protocols other than BGP or EIGRP.

2.3.1.6 Offeror shall be able to provide up to 100Mbps of bandwidth per circuit or greater.

Response: Comply. Connection speeds are available for up to 10 Gigabit Ethernet (2 Mbps up to GbE- 10000Mbps) for the Layer 2 services and up to 10 Gigabit Ethernet (from T-1, NxT-1 or 2 Mbps up to GbE- 10000Mbps) for the Layer 3 services.

2.3.2 Digital Subscriber Line (xDSL)

2.3.2.1 Offeror's providing Digital Subscriber Line service shall provide a minimum of 1.5Mbps download and 384Kbps upload.

Response: tw telecom is not bidding on DSL services. As an alternative, tw telecom is offering Internet access.

2.3.2.2 xDSL circuits should allow for the direct termination into the State's private network.

Response: tw telecom is not bidding on DSL services.

2.3.2.3 Line charges for specific speeds shall be consistent across all supported islands.

Response: tw telecom is not bidding on DSL services.

2.3.3 Frame Relay

2.3.3.1 Frame Relay service must include the ability to provide fractional T-1, T-1, and DS-3 circuits.

Response: tw telecom is not bidding on Frame Relay services. Our alternative to Frame Relay technology is our IP VPN (MPLS) or NLAN services.

2.3.3.2 Frame Relay service must offer various levels of Committed Information Rates (CIR) as an option.

Response: tw telecom is not bidding on Frame Relay services. Our alternative to Frame Relay technology is our IP VPN (MPLS) or NLAN services.

2.3.3.3 Frame relay circuits should allow for the direct termination into the State's private network.

Response: tw telecom is not bidding on Frame Relay services. Our alternative to Frame Relay technology is our IP VPN (MPLS) or NLAN services.

2.3.3.4 Line charges for specific speeds shall be consistent across all supported islands.

Response: tw telecom is not bidding on Frame Relay services. Our alternative to Frame Relay technology is our IP VPN (MPLS) or NLAN services.

2.3.4 Point-to-Point Dedicated Line

Point-to-Point Dedicated Line service shall be offered in various fractional T-1 speeds in addition to T-1, DS-3, and OC-3.

Response: Comply. **tw telecom** transport service provides multi-service, high-capacity access between designated premises and/or a **tw telecom** co-location facility over **tw telecom**-owned and provisioned equipment.

Dedicated Transport services are provided over the most advanced, fiber optic network available today providing customers with the highest quality, reliability and security possible. The entire usable bandwidth for each service is available to customers for their exclusive use 24x7. The total Private Network Transport (PNT) bandwidth is dedicated to a single customer and is available locally in a **tw telecom** city.

Interface Options:

DS-1

DS-1 service is a dedicated, high capacity, full duplex channel with a line speed of 1.544 Mbps isochronous serial data having a line signal format of either Alternate Mark Inversion (AMI) or Binary 8 Zero Substitution, and either Superframe (D4) or Extended Superframe (ESF) formats. DS-1 service has the equivalent capacity of 24 Voice Grade Services or 24 DS0 Services. AMI can support 24 each 56 Kbps channels and B8ZS can support 24 each 64Kbps channels.

DS-3

DS-3 service is a dedicated, high capacity, full duplex channel with a line speed of 44.736 Mbps isochronous serial data having a line code of bipolar with three zero substitution (B3ZS). DS-3 service has the equivalent capacity of 28 DS-1 Services at 1.544 Mbps or 672 Voice Grade Services or 672 DS0 Services at 56/64 Kbps. Synchronous Transport Signal (STS) is not a standard Interface offering.

OC-3

OC-3 service is a high capacity channel for the full duplex, synchronous, optical transmission of digital data based on the Synchronous Optical Network (SONET) standard at a rate of 155.520 Mbps. OC-3 service may be configured with one OC-3c (concatenated), up to three STS-1's, or with combinations of asynchronous DS-3 or DS-1 (VT1.5) payload mapping.

OC-3c

OC-3c service is a concatenated, high capacity, clear channel for synchronous, optical transmission of digital data based on the SONET standard rate of 155.520 Mbps.

OC-12

OC-12 service is a high capacity channel for the full duplex, synchronous, optical transmission of digital data based on the Synchronous Optical Network (SONET) standard at a rate of 622.080 Mbps. OC-12 service may be configured with up to four OC-3's, up to 12 STS-1's, or up to 12 asynchronous DS-3 payload mapping. DS-1 payload mapping can be accommodated via a subtended OC-3 add-drop multiplexer.

OC-12c

OC-12c service is a concatenated, high capacity, clear channel for synchronous, optical transmission of digital data based on the SONET standard rate of 622.080 Mbps.

OC-48

OC-48 service is a high capacity channel for the full duplex, synchronous, optical transmission of digital data based on the Synchronous Optical Network (SONET) standard at a rate of 2.488 Gbps. OC-48 Service may be configured with up to four OC-12's, up to 16 OC-3's, up to 48 STS-1's, or up to 48 asynchronous DS-3 payload mapping. DS-1 payload mapping can be accommodated via a subtended OC-3 add-drop multiplexer.

OC-48c

OC-48c service is a concatenated, high capacity, clear channel for synchronous, optical transmission of digital data based on the SONET standard rate of 2.488 Gbps.

Wavelength Services

tw telecom Wavelength services are a Wavelength Division Multiplexing (WDM) fiber optic communications system. The system provides arbitrary connections between nodes using wavelength specific communication channels in 2.5G (2.488 Gbps) and 10G (9.952 Gbps) "LAMBDA."

tw telecom Wavelength services provide our customers with greater choices, today and in the future. Utilizing DWDM technology, **tw telecom** provides 2.5G and 10G interfaces. Standard wavelengths are offered as a 2-fiber drop to the customer with **tw telecom** providing either a 'protected' or 'unprotected' pathway on the network. Optional 4-fiber interfaces allow the customer's equipment to protect the pathway. Regardless of option, each system is proactively monitored 24 hours-a-day, 7 days per week by **tw telecom**'s Network Operations Center. Wavelength services can include the option of a "transparent pathway", allowing visibility of the customers' equipment from end-to-end. This enhancement gives customers greater flexibility than current SONET services. With the future of optical networking growing, **tw telecom** is leading the industry in meeting the needs of our customers.

2.5G

2.5G service is a clear channel, bi-directional, synchronous, point-to-point optical service with a line rate of 2.488 Gbps. The service is non-multiplexed, non-channelized, and excludes termination bandwidth. Each circuit constitutes an entire wavelength channel of a multi-channel WDM system. Standard wavelengths are offered as a 2-fiber interface.

10G

10G service is a clear channel, bi-directional, synchronous, point-to-point optical services with a line rate of 9.952 Gbps. The service is non-multiplexed, non-channelized, and excludes termination bandwidth. Each circuit constitutes an entire wavelength channel of multi-channel WDM system. Standard wavelengths are offered as a 2-fiber interface.

Long-Haul Transport Services

tw telecom intercity long-haul provides point-to-point connections between customer locations in a variety of configurations.

Dedicated Transport services are provided over the most advanced, fiber optic network available today providing customers with the highest quality, reliability and security possible. The entire usable bandwidth for each service is available to customers for their exclusive use 24x7.

Private Ring Service

Private Ring service is a custom designed, high-capacity service that delivers dedicated capacity between multiple locations over a private reserved path for the Customer's exclusive use. Private ring service customers can also connect standard **tw telecom**'s Dedicated Capacity Wavelength Services to your private ring.

Service Features and Benefits for Transport Solutions

Dedicated

Transport services are provided over the most advanced, fiber optic network available today to provide customers with the highest quality, reliability and security possible. The entire usable bandwidth for each service is available to customers for their exclusive use, 24 hours-a-day, 7 days-a-week.

Resiliency

tw telecom's network utilizes the most advanced fiber optic technology available. Our network is comprised of SONET-based fiber optic rings, which are constantly monitored for their performance. The network will automatically switch to its backup ring (protect path) if the transmission quality becomes degraded, a cable is cut or a network node experiences failure. SONET allows **tw telecom** to remotely monitor all aspects of the performance of the network to ensure the highest quality transmission available anywhere.

Efficient

tw telecom provides a single point of contact for both on-net and off-net services with the ability to provision, monitor, maintain and bill our customer's saving them the time of having to deal with multiple vendors for their communication services. **tw telecom**'s on-net provisioning intervals are aggressive compared with our competitors.

Knowledgeable

Knowledgeable technicians, network consultants and data specialists support customers locally.

Around-the-Clock Monitoring and Response

tw telecom provides around-the-clock monitoring to ensure excellent customer service when service is needed most.

2.3.5 Internet Service Provider (ISP)

2.3.5.1 Offeror shall provide a physical Ethernet interface.

Response: Comply. **tw telecom** can provide either a copper or fiber physical Ethernet interface.

2.3.5.2 Offeror shall provide ISP connectivity up to 1Gbps or more.

Response: Comply. **tw telecom** offers a comprehensive suite of high-quality, high-speed Internet options including Ethernet connections from 100Mbps ports to 10Gbps ports.

Ethernet Internet Services Include:

- Ethernet 100 Mbps - 2 Mbps to 10 Mbps in 2 Mbps increments, 10 Mbps to 100 Mbps in 5 Mbps increments
- Ethernet 1Gbps - 50M to 1000M in 10M increments to 100M, 25M increments to 250M, 50M increments to 1000M
- 250 Mbps in 25 Mbps increments, 250 Mbps to 1 Gbps in 50 Mbps increments
- Ethernet 10Gbps – 1 Gbps to 10 Gbps in 500Mbps increments

2.3.5.3 ISP shall optionally offer a 1Gbps physical interface for speeds less than 1Gbps if the customer is obtaining services of 50Mbps or more.

Response: Comply. See above. Bandwidths greater than 50M are offered on Ethernet 1Gbps ports.

2.3.5.4 ISP must provide a minimum of 10 class C IP version 4 (IPv4) subnets.

Response: Comply.

2.3.6 Other Services

Offer can list additional telecommunications services that is not listed above but would be of value to the State.

IP VPN Overview

Businesses everywhere need choices when it comes to their communications services. This is why a growing number of customers are choosing **tw telecom**'s IP VPN solutions. With any-to-any connectivity across the United States, including Hawaii, companies count on the reach of our IP-based network to support the evolution of their business.

tw telecom's IP VPN solution keeps your operations on track, allowing you to seamlessly add any amount of bandwidth where and when you need it. IT staff like it because sites can be added quickly and easily without having to reconfigure routers. Our service also saves money by reducing infrastructure costs because it uses your existing equipment.

Our Multiprotocol Label Switching (MPLS) technology means you experience a fully meshed solution that makes multiple sites act as if they are all in the same location. It also delivers reliable communications and data integrity every time. The technologies around **tw telecom**'s IP VPN service allow traffic to be isolated and segmented from other traffic traveling along the same physical pipes. As with Layer 2 connectivity VPN, there is a 'tunnel' built between two points that traverses a public or proprietary network cloud.

The isolation and segmentation of **tw telecom**'s IP VPN offer delivers many of the same privacy features provided by Primary Virtual Circuits (PVCs) over ATM or Frame Relay. This is a routed connection and requires that the two end points are capable of Layer 3 (Network Layer) decisions and are on different subnets. The two networks are attached via a "nailed up", isolated and segmented connection which traverses the network cloud as one hop, even though many devices may be involved in passing the traffic. This type of VPN is supported by the current network devices that exist today within the **tw telecom** IP Network and is currently being utilized to support the Voice over IP (VoIP) platform.

Business Benefits

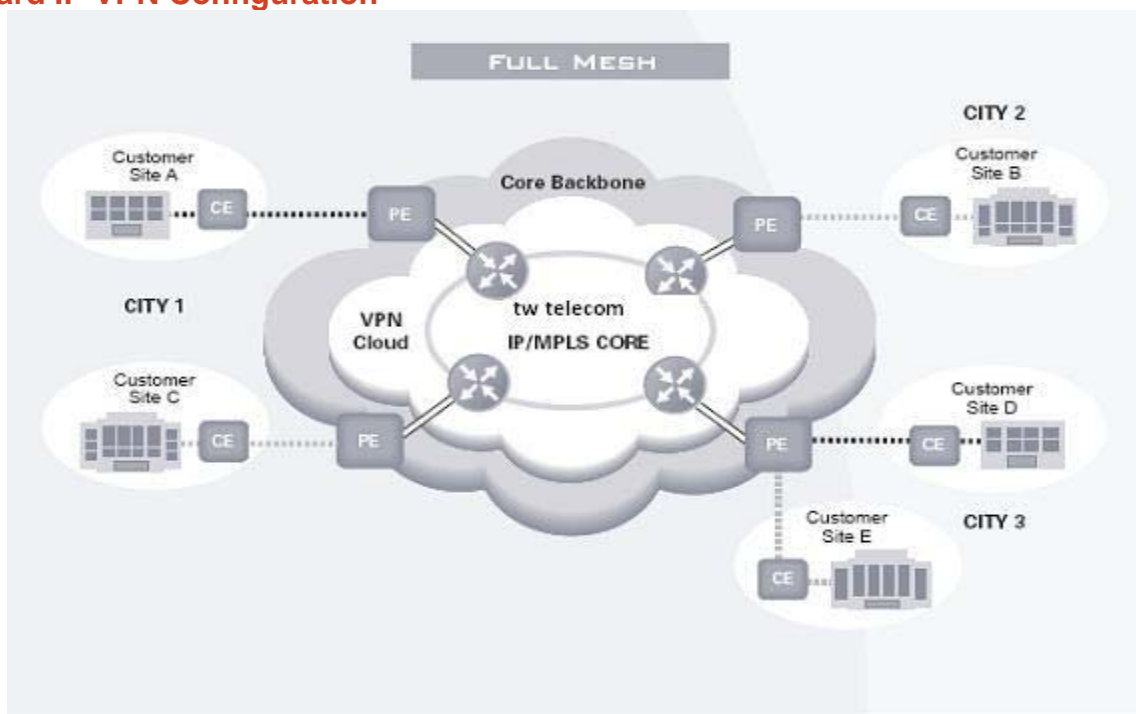
- **Improves productivity and profits** – Private IP Network Services is a powerful and flexible networking solution that enables secure access to remote offices, employees and business partners, improving productivity and profitability.
- **Enjoy the benefits of IP** – Migration to an IP-based network environment eliminates interoperability issues and opens the door to the economic benefits of IP services, such as VoIP, while preparing our customers for future IP-based applications such as video.
- **Optimize efficiency** – Buy only the bandwidth the State needs and eliminate unnecessary investments.

IP VPN Services Features and Service Components

- **Premier IP Network Coverage** – National footprint offering city-to-city coverage in key markets over a native IP infrastructure.
- **Any-to-Any Connectivity** – Industry leading, fully meshed MPLS network offering customizable, configurable deployment options between sites, including any-to-any visibility.
- **Scalability for Growth** – **tw telecom**'s state-of-the-art regional and global infrastructure can scale to meet growing business requirements, or the introduction of new bandwidth-hungry applications.
- **Built-in Security** – MPLS ensures that data inside each IP VPN is separated from other traffic, offering the same level of privacy as traditional Frame Relay and ATM links.
- **Flexible Migration** – Ensures maximum leverage of existing network investments while providing a migration path to future IP-based services.
- **Reliability** – **tw telecom**'s network is monitored around-the-clock by **tw telecom**'s extensive Network Operations Center which provides real-time problem diagnosis and network restoration in case of an outage.

- **High Performance** – The core device interconnects are primarily at the OC-192 level. Connection speeds are available for up to 10 Gigabit Ethernet (from T-1, NxT-1 or 2 Mbps up to GE- 10000Mbps).
- **Multimedia Support** – Provides native support for multimedia applications, including video streaming and VoIP.

Standard IP VPN Configuration



Security Services

tw telecom's Private IP service is fully compliant with the industry's RFC 4364 BGP/MPLS VPN recommendation. With MPLS's core functionality, all customers' data is labeled by the core network and separated, ensuring complete privacy inside the shared network environment. Security is built-in at a physical, logical and operational level. Based on widely accepted industry standards, MPLS-based VPNs can offer the same level of security and data integrity as traditional dedicated circuits using Frame Relay or ATM.

Ethernet Line (E-Line) Overview

tw telecom's Ethernet Line (E-Line) service is an Ethernet service that provides a managed end-to-end solution for the customer.

E-Line is offered over the **tw telecom** Ethernet backbone, encapsulating the customer traffic using Layer 2 tunnels as either a Shared service or a Dedicated service. To transport Ethernet frames across the Ethernet backbone, an Ethernet connection will be made between the E-Line CO Ethernet switch and an aggregation router on the Internet infrastructure. This IP ingress point

is responsible for encapsulating Ethernet frames into a Layer 2 logical frame. The customer is responsible for their LAN protocols traversing the Long-Haul Ethernet network.

The E-Line service can be ordered in both a Shared or Dedicated configuration. By default both configurations are redundant, meaning that an Ethernet Backbone outage would result in packets being rerouted over an alternate path. In a dedicated configuration customers may select to have their Long-Haul portion of their service unprotected and/or their Metro portion unprotected.

The E-Line service is made up of three components; 2 customer User Network Interfaces (UNIs) and a single Ethernet Virtual Circuit (EVC) that logically connects the two customer locations' UNIs.

E-Line can be configured in either a simple point-to-point service or in a point-to-multipoint (hub and spoke) configuration. Point-to-multipoint configuration requires that the hub location UNI be multiplexed to allow for multiple EVCs to be terminated.

The E-Line service can be ordered in a point-to-point configuration that is analogous to a traditional transport service such as a DS-3 or SONET service. This product will utilize Ethernet Private Line (EPL) configurations and will consist of 2 UNIs and a single EVC. The service utilizes dedicated bandwidth across **tw telecom**'s network to deliver the most reliable service available.

The E-Line service can also be ordered in a shared, multiplexed service utilizing an Ethernet Virtual Private Line (EVPL) configuration. This configuration will allow for a customer to have multiple EVCs homed to each UNI. Each EVC still requires two UNIs and is considered a point-to-point service, but customers could have multiple EVCs from diverse locations and UNIs homed to the single UNI. Dedicated or Shared Metro Access can be used and the service is multiplexed.

Converged Service Overview

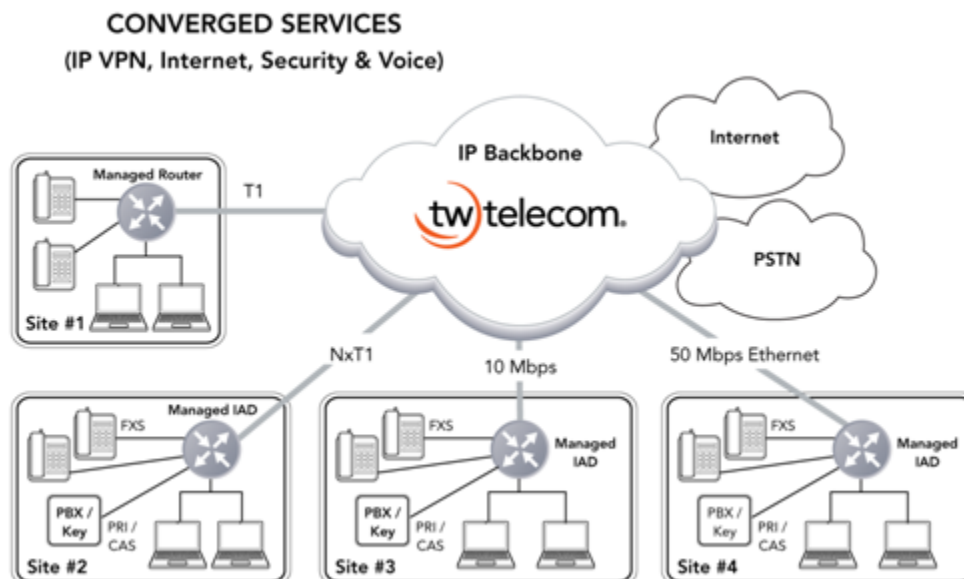
Converged Service provides businesses with the ultimate in flexibility, simplicity and efficiency by allowing them to combine SIP-based Voice services, Internet Access, Security and IP VPN into a single, fully managed solution. As with all **tw telecom** services, Converged Services are backed by **tw telecom**'s superior customer experience and delivered via our world-class national fiber network.

Converged Services can be purchased as 1 of 4 bundles depending on your specific needs:

- Voice and Internet (single site application)
- Voice and IP VPN (multi-site application)
- Voice and IP VPN and Secure Internet Access (multi-site application)
- IP VPN and Secure Internet Access (multi-site application)

You may choose from a wide range of connectivity options to meet the needs of each of your sites: T-1, NxT-1, DS-3, OC-3, 10/100/1000 Ethernet. Bandwidth is dynamically allocated between each service with priority always going to voice. All hardware is fully managed and network connections are proactively monitored.

Voice service can include lines and digital trunks or PRI. Voice service is handed off via traditional TDM interfaces and includes a full set of features, as well as free monthly minutes of long distance and free calling to any other **tw telecom** voice customer.



Advantages of Converged Service

- **Convergence:** Simplify your network by integrating voice, data and Internet into a single, flexible, efficient solution.
- **Any to Any Connectivity:** A fully meshed network allows you to reduce latency by avoiding hub and spoke traffic patterns. It also makes adding a location quick and easy.
- **Dynamic Bandwidth Allocation:** Bandwidth is not fixed for each service. Instead bandwidth is dynamically allocated to whatever service requires it. This ensures your bandwidth never sits idle.
- **Internet Security:** All Internet traffic flows through **tw telecom**'s redundant network firewalls which are proactively monitored and managed by our team of security experts.
- **Class of Service (CoS):** CoS options allows you to prioritize traffic by application to ensure peak performance of your most time sensitive applications.
- **Cost Savings:** Customers can save money by eliminating additional connections, hardware and management resources with Converged Services.
- **Free Long Distance and In-Network calling:** ConvergedVoice Services include free long distance minutes of use (based on bandwidth purchased). You also receive free calling to any other **tw telecom** customer nation wide
- **Proactive Management:** Fully managed security and hardware frees your IT resources up for other initiatives. Your network connections are also monitored 24x7.
- **Control & Visibility:** MyPortal provides access to account information, bandwidth utilization, online billing, trouble ticket creation and tracking and much more.
- **SLA:** Your services are backed by **tw telecom**'s industry leading Service Level Agreements.

- **Superior Customer Experience:** **tw telecom** is obsessed with delivering exceptional Customer Service. We are an organization full of employees that listen carefully, respond quickly and make things happen.

Voice T1 Overview

tw telecom's Voice T1 service offers a TDM-based quality communication link between the Customer Premise Equipment (CPE) and the **tw telecom** Central Office Switch. Using a 1.544 Mbps digital connection, Voice T1 provides customers with a simple solution by allowing them to select provisioning options based upon their CPE and application. Whether it is ISDN or non-ISDN digital signaling, facility or non-facility-based signaling, voice or dial-up data access, customers can select the options that best suit their needs without any additional cost. Customers may also choose between inbound, outbound, or two-way service as well as flat or measured local usage depending upon market availability.

Standard Features

tw telecom's Voice T1 provides a wide spectrum of control over your service. Standard features include:

Long Distance Minutes– Each Voice T1 facility includes a monthly allowance of 5,000 long distance minutes that may be used for interLATA domestic, and where available, intraLATA calling.

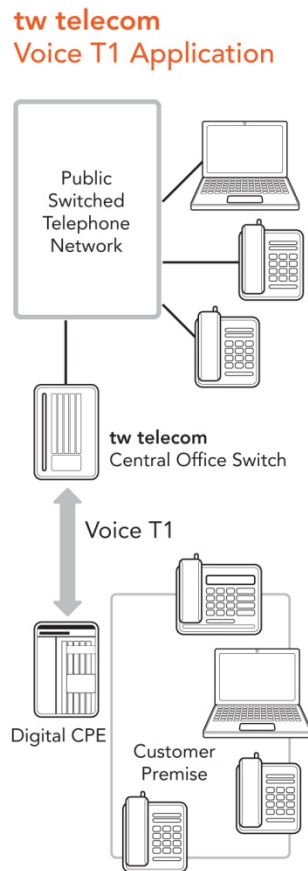
Facility and Non-Facility Associated Signaling (requires ISDN signaling)–Allows you to designate primary D-channel, backup D-channel, or 24 B-channel configurations.

Call by Call (requires ISDN signaling) – Allows you to define the ratio of inbound and outbound channels that are always available on a dynamic basis to prevent blockage.

Calling Name and Number Delivery (requires ISDN signaling) – Allows you to receive calling party information for caller identification purposes (CPE must be National ISDN 2 compatible).

Attendant-Free Service – Allows outside callers to call internal extensions without having to pass through an attendant.

Calling Name and Number Transmission (requires ISDN Signaling) – Allows you to send calling name and number information for caller identification purposes (Calling Name Transmission is not available in all areas).



Optional Features

- **Call Blocking**– Permits you to restrict access from your telephone line to any combination of the various discretionary services prefixed by 900, 971, 974, 976 and 700.
- **Toll Restriction** – Permits you to restrict access to numbers that generate toll charges. (Toll charges include operator assistance, international, interLATA, intraLATA and directory assistance.)
- **Bill Restriction** – Permits you to restrict incoming calls billed to your number including third number billed and collect calls.
- **Two B-channel Transfer (requires ISDN Signaling)** – Allows you to receive a call on one B-channel and transfer it back out on a second B-channel. When the transferred call connects, both of the B-channels are released and available to make or receive calls.

2.4 MANAGED SERVICES

Offeror shall describe optional managed network services that can be offered, such as security, network, connectivity, and device monitoring and management.

Enhanced Management

Optional Enhanced Management provides businesses with greater visibility into their network performance by delivering end-to-end network performance metrics including latency, jitter and packet delivery. Easy to use reports available via the customer portal provide information that improves your ability to troubleshoot, plan and fine tune your network for peak application performance. Performance is backed by comprehensive SLAs. Currently available for IP VPN Layer 3 services with Layer 2 services to follow.

IP VPN (Layer 3) Additional Services

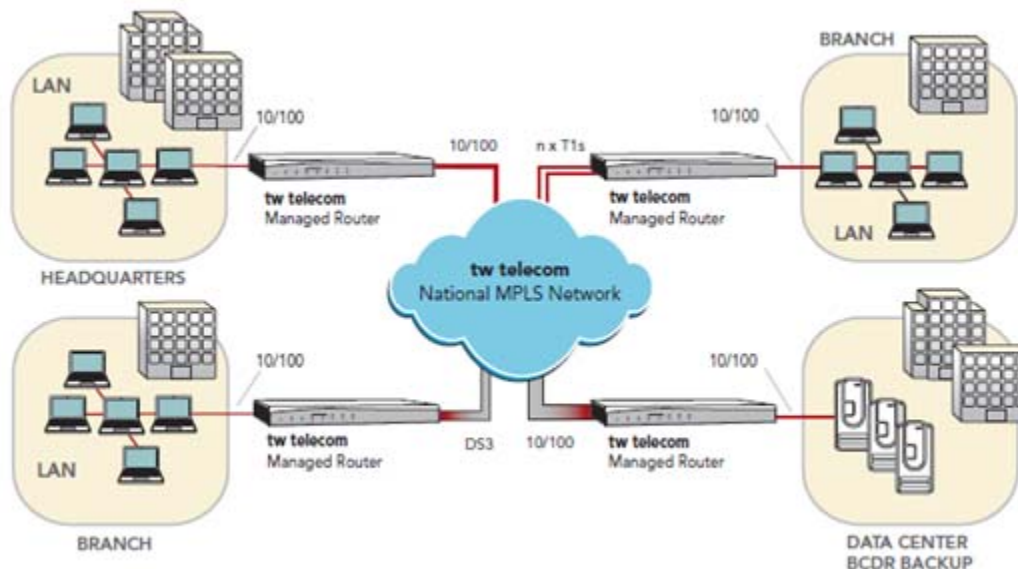
IP VPN – Managed Router Overview

Managed IP VPN (M-IP VPN) router bundles a **tw telecom**-owned and managed customer premises-based router with **tw telecom** provided IP VPN service. **tw telecom** will procure, configure, install and provide on-going management and maintenance of the CPE router at the customer site.

The standard service supports both IP VPN basic (no CoS) and IP VPN Premium (CoS). Managed IP VPN will support customer-side 802.1Q virtual LANs (VLANs) for up to ten (10) VLANs/interface. The Managed IP VPN service provides customers with a single LAN side 10/100/1000 Ethernet interface as a service handoff and point of demarcation. Two active LAN ports may be configured as a non-standard request (additional charges apply).

M-IP VPN is available with T-1, Bonded T-1 (up to 8xT-1), DS-3 (full & frac), 10/100/1,000 Mbps Ethernet. Customers may have a mix of managed and unmanaged sites (e.g. not all sites need to be managed by **tw telecom**).

Diagram 1.0: IP VPN Network Topology



The standard M-IP VPN service is based on the Adtran NetVanta platform of modular access routers and includes equipment **tw telecom** provides at the customer site(s) that is installed solely for **tw telecom**'s use in providing the service. **tw telecom** retains ownership of Managed CPE and software. The **tw telecom** CPE is provided under the terms specified in the standard IP VPN Service Order Form (SOF).

tw telecom provides on-site installation, test and turn up support for both the initial router installation and (if required) for hardware maintenance. **tw telecom** will physically stage and logically configure the router, then ship the router to the customer location. At the scheduled service activation time, **tw telecom**'s service partner will unpack and physically install the router. The partner technician will work with **tw telecom**'s service activation team to validate the service is fully operational before leaving.

Management and Maintenance

tw telecom procures, configures, field tests, installs and provides on-going management and maintenance of the M-IP VPN router. The basic elements associated with router management and maintenance include:

On-Going CPE Management: As required, **tw telecom** will conduct on-going management and maintenance of the CPE router to include, but not limited to, keeping equipment warranties up-to-date, router code upgrades and/or installing patch releases as needed.

Around-the-Clock CPE Maintenance and Replacement: Should the **tw telecom** Network Operations Center (NOC) determine that a trouble issue is the result of a CPE hardware failure; a partner field technician will arrive at the service location with a replacement CPE within four (4) hours after determination by the NOC of a hardware failure.

2.4.1 Offeror shall allow a potential customer to try the service for 30 days without charge.

Response: Comply with exception. **tw telecom** will consider this on an individual case basis.

2.4.2 Offeror shall ensure that all confidential information including network configurations, network diagrams, and IP addresses remain confidential and is only used to provide monitoring and management support.

Response: Comply. All customer information will remain confidential.

2.5 PROVIDER NETWORK

2.5.1 Industry Standards

Offeror shall meet and be in compliance with the following industry standards:

- Telecommunication Industry Association/ Electronics Industry Association (TIA/EIA)
- Internet Engineering Task Force (IETF)
- International Telecommunication Union (ITU)
- American National Standards Institute (ANSI)
- Building Industry Consulting Service International (BICSI)
- Institute of Electrical and Electronic Engineers (IEEE)

Response: Comply. **tw telecom** agrees to comply with the industry standards set forth in this section to the extent they were designed and intended to apply to the type of services being provided by **tw telecom** under this RFP.

2.5.2 Interisland Network (for Offerors providing services on islands other than Oahu)

2.5.2.1 Offeror shall provide a diagram of its interisland fiber network and Point of Presence (POP) switch locations.

Response: Comply. Please refer to Appendix C – 3.2.11 Confidential Information.

2.5.2.2 Offeror shall explain what parts (of the fiber network and switches) it owns and leases and what parts are owned by partner carriers.

Response: Exception. Due to proprietary nature of the network, **tw telecom** can provide this information under NDA if awarded.

2.5.2.3 Offeror shall describe its POP switch type and switch capacity.

Response: Comply. **tw telecom** is connected to all interexchange carrier POPs, DRFortress, all transpacific cable landings on Oahu and the Big Island, and all satellite facilities on Oahu. **tw telecom** utilizes dense wave division multiplexing equipment (10G per wavelength) for a

backbone between islands and on Oahu. **tw telecom** also uses both SONET (OC-192 to T1) and Metro Ethernet (10G to 2M) technologies for deployment within the metropolitan areas. Before leaving Hawaii via any of the 10G IP backbone routes owned by **tw telecom**, IP traffic will transit **tw telecom**'s local IP core. This core is made up of multiple redundant Juniper carrier grade routers. **tw telecom** also has in place both a Lucent 5ESS and Sonus GSX in different locations for connecting into the local public switch telephone network.

2.5.3 Interstate Network (for Offerors providing ISP services)

2.5.3.1 Offeror shall explain its interstate fiber network and identify the network redundancies in place.

Response: Comply. **tw telecom** owns and operates a national IP backbone in the United States via a Packet Over SONET (POS) and Ethernet architecture. **tw telecom** has created six regional IP hub sites where all traffic within a region is directed for access to other regions and peering sites. Diverse, high-speed optical circuits connect the IP POPs and hubs within a given region.

Each regional hub is then connected to other regional hubs via multiple, diverse, high-speed optical circuits. MPLS technology is used to switch high-speed traffic to and from the Internet and across our backbone. This technology provides quality of service and added traffic-engineering capabilities to our network. BGP4 is also used throughout the network to exchange routing information.

A quality of service policy is maintained that calls for increases in backbone capacity when any network element reaches 60 percent sustained utilization. The backbone is designed to promote availability, survivability and diversity in order to provide high-quality services to our customers.

Each IP POP utilizes leading-edge equipment and routers with redundant power, equipment, and/or routing processors. **tw telecom** utilizes Juniper M20, M120, M160, MX480 core routers in non-hub sites and Juniper MX480s, T320s and T640s in hub sites. The core routers are fed by dual Extreme Alpine 3808 or dual Cisco Catalyst 7606 switches, which in turn connect to Juniper M10, M20, M120, M320 and/or MX480 routers used as high-speed aggregation devices for all TDM-based Internet connections. Cisco 7609 switches are used to deliver Ethernet Internet services.

tw telecom has established multiple locations for peering at major public Network Access Points (NAPs) and Internet exchange locations. **tw telecom** also has established private peering agreements with other national IP networks at multiple locations across the nation. Those locations include:

- **HIX:** Honolulu
- **SIX:** Seattle
- **Equinix:** Ashburn (Virginia), Atlanta, Chicago, Dallas, Los Angeles, New York, Palo Alto, San Jose
- **NYIIX:** New York

Advantages over other providers:

For on-net customers, **tw telecom** owns the local loop. This is not the case with many ISPs, who have to get to the end-user utilizing another company's facilities. By providing the local loop, **tw telecom** offers complete, end-to-end Internet Access service. Additionally, our Network

OperationsCenter monitors and manages network backbone circuits and customer access on an around-the-clock basis.

2.5.3.2 Offeror shall provide diagrams of its interstate fiber network and switch locations.

Regional Fiber Network Map



2.5.3.3 Offeror shall explain what parts it owns and leases and what parts are owned by partner carriers.

Response: Comply. Sixty-four percent (64%) of the long-haul circuits utilized in the tw telecom IP Backbone are leased from other providers. The remaining thirty-six percent (36%) are on our own facilities. 100% of the IP Network is controlled and managed by tw telecom.

Regarding Internet services, tw telecom has strong peering relationships with regional, national and international networks to ensure traffic reaches its destination quickly and reliably.

2.5.3.4 Offeror shall explain how it is connected to its international fiber network.

Response: Comply. **tw telecom**'s MPLS IP VPN Layer 3 service portfolio extends our network reach to serve the international needs of our customers. Customer with sites outside of the United States can create a VPN network to them. Our extended reach internationally enables us to support our customers' global network demands.

2.5.3.5 Offeror shall provide a diagram showing how Internet traffic is routed from the State

Response: Please refer to the map in 2.5.3.2.

2.5.4 Network Design Objectives

2.5.4.1 Offeror must describe the design objectives used to minimize “over subscription” conditions on its network and the procedures used to insure these objectives are met. Offeror must provide its current performance including substantiating documentation.

Response: Comply. **tw telecom** uses advanced technologies and network architectures to develop a highly reliable infrastructure for delivering high-speed, quality digital transmissions of voice, data, and Internet. This infrastructure is based on WDM, SONET and Ethernet transport equipment deployed in fully redundant, self-healing rings that allow **tw telecom** the capability of routing customer traffic in both directions around the ring thereby eliminating loss of service in the event of a fiber cut.

These networks are constructed on our own fiber optic facilities when financially attractive or by leasing capacity on other carriers' networks to expand **tw telecom**'s service footprint or improve the fiber path diversity. **tw telecom** will install diverse building entry points if a customer's redundancy needs require such a design.

A quality-of-service policy is maintained on our backbone that calls for increases in backbone capacity when any network element reaches 60 percent sustained utilization. The backbone is designed to promote availability, survivability and diversity in order to provide high-quality services to our customers.

Electronic equipment to terminate the service may also be dedicated to a customer or shared with other customers depending on the service requirements.

We have an advanced Internet backbone using redundant core routers to deliver Internet/data traffic services to our customers. Within our IP infrastructure, we have a redundant application-based, service architecture of media gateways and softswitches to enable higher-layer services, including Voice over IP (VoIP).

Our networks are designed for remote provisioning, allowing us to deliver customer services on a more real-time basis and also be more proactive in trouble resolution.

IP Backbone Performance

Monthly Network Averages			
Month / Year	Packet Delivery%	Latency (ms)	Jitter (ms)
February 2012	100	36	0
January 2012	100	36	0
December 2011	100	36	0
November 2011	100	36	0
October 2011	100	36	0
September 2011	100	37	0
August 2011	100	37	0
July 2011	100	37	0
June 2011	100	38	0
May 2011	100	38	0
April 2011	100	38	0
March 2011	100	38	0

Metrics used as basis for SLA comparison

2.5.4.2 Offeror must describe its design objectives for transmission quality and reliability, as well as, procedures to insure these objectives are met.

Response: Comply. There are no single points of failure on the **tw telecom** network. The core network is engineered to be fully redundant. For a specific customer connection, a failure of the edge or aggregation router could cause a service interruption.

tw telecom's network utilizes the most advanced fiber optic technology available. Our transport network is comprised of SONET, WDM, and Metro Ethernet-based fiber optic rings, which are constantly monitored for their performance. The network will automatically switch to its backup ring (protect path) if the transmission quality becomes degraded, a cable is cut or a network node experiences failure. The deployed technology allows **tw telecom** to remotely monitor all aspects of the performance of the network to ensure the highest quality transmission available anywhere.

2.5.4.3 Offeror must describe the scalability of the proposed telecommunication services.

Response: Comply. Both Layer 2 and Layer 3 services can easily scale to 10G of bandwidth. Depending on the initial port size, additional cards or equipment may be required.

Offeror shall include descriptions of their methodologies on how the proposed services address the following:

Ubiquity – Offeror’s ability to provide services throughout the State.

Response: Comply. **tw telecom** currently offers on-net services on the islands of Oahu, Maui, Kauai and Hawaii. We can provide off-net services to any location throughout the State.

Interoperability – the ability to deliver services that interconnect and communicate on open established standards.

Response: Comply. **tw telecom** will work with the State of deliver services that interconnect. Our services are built on industry standards and should be compatible across various platforms and providers.

Scalability – the ability to increase delivery of services in number and/or size in a reasonable timeframe.

Response: Comply. The proposed services are easily scalable to either 1G or 10G, depending on the port size being purchased.

Survivability – the ability to continue to operate or quickly restore services in the face of unanticipated incidents or disasters.

Response: Comply. **tw telecom**’s Operations Center monitors our services 24x7x365 and maintains a Mean Time to Repair objective of two hours for on-net services and six hours for off-net services. In the unlikely event of a service interruption resulting from damage to a fiber optic cable, emergency restoration will be completed in an expeditious and timely manner. Local crews will maintain the fiber optic network. Restoration of the fiber cable represents the highest priority for these highly trained and well-equipped crews. Restoration work is performed according to written procedures with both line crews and fiber splicing crews at the scene.

The Risk Management department at **tw telecom** actively manages a comprehensive business continuity planning program that seeks to assure the well-being and safety of employees, protect Company assets, and ensure a high level of service to customers.

The Company’s contingency planning program addresses the four phases of business continuity management: mitigation, preparedness, response and recovery. Company contingency planning is approached from an all-hazards perspective in order to improve flexibility and adaptability to any type of business interruption.

Company plans have been developed with the involvement of certified business continuity professionals to incorporate best practices acknowledged by Disaster Recovery Institute International (DRII) and Business Continuity Institute (BCI). Best practices employed by the Company include, but are not limited to:

- Using Risk Assessment and Business Impact Analysis results as a basis for business continuity planning.
- Diversity of recovery resources.
- Multiple business resumption options for various critical functions.
- Consideration of third party resources.
- Annual plan reviews and updates; and annual exercises.
- Consistent and integrated planning approach across the enterprise.

2.5.4.4 Offeror must describe the resiliency of the proposed telecommunication services to guarantee service level agreements in case of network outages or failures.

Response: Comply. Service Level Agreements for the proposed services are included in Appendix A and include availability guarantees as well as monetary remuneration in the event of a service outage.

2.5.5 Network Security

2.5.5.1 The State expects the Offeror to follow stringent security standards and commit to the following:

- **Current state-of-the-art security standards that is current within the industry for the proposed services.**
- **Security Administration.**
- **Physical site security.**

Response: Comply. **tw telecom** continuously monitors its network for traffic anomalies and security threats. **tw telecom**'s security professionals monitor security message boards, threat announcements and regularly communicates with industry professionals to anticipate threats and to prevent and mitigate network attacks.

2.5.5.2 Offeror shall describe its network infrastructures physical, logical and operation levels of security.

Response: Comply. **tw telecom** utilizes geographically redundant Authentication, Authorization and Accounting (AAA) services. Access to any Metro Ethernet and IP/MPLS device on **tw telecom**'s network requires operator authentication. **tw telecom** enforces command authorization controls so that each network operator has only enough access to make the configuration changes necessary to complete their job role.

Backbone Devices

All **tw telecom** backbone network equipment is secured using industry best practices to protect against unauthorized access, as well as malicious attempts to interrupt service through common Distributed Denial of Service (DDoS) methods.

tw telecom implements and maintains strict access controls to the backbone routers through the use of access control lists and geographically redundant centralized and secured AAA systems. Encrypted access protocols are required on all supported devices and device access is limited only to required **tw telecom** personnel and user management is maintained by IP Security Engineering, a group separate from network operations to remove any bias.

tw telecom IP Security Engineering is an active member of the ISP Security community and works proactively with other carriers and vendors to maintain device security.

Systems

All **tw telecom** systems with access to backbone devices or with management system functionality are secured through multiple layers of protection. These include redundant

centralized encrypted authentication, centralized logging and monitoring, patch updates and multiple geographically redundant infrastructure firewalls. IP Security Engineering proactively updates all machines and reviews infrastructure firewall policies once per quarter or as required when changes occur.

tw telecom continuously monitors system access at the server level as well as the network layer to maintain device security.

Authentication and Accounting

tw telecom employs a geographically redundant Central Authentication, Authorization and Accounting services infrastructure managed independently by the IP Security Engineering team. All command authorization is role based with only enough access provided to an employee that is necessary for them to perform their job role. All network access requests must identify the job role and be made by the employee's hiring manager. IP Security Engineering implements new job functions only after a peer review is performed and IP Security Engineering receives joint approval from the Operations and Engineering teams. Terminated employees are removed from the Central AAA system on the last day of the employee's employment.

All **tw telecom** IP Backbone devices and systems utilize the centralized secure authentication and accounting system. All common secure authentication protocols (such as RADIUS, TACACS+, LDAP/SSL) are configured in a geographically redundant architecture.

All logins and commands on these devices are logged and reviewed on a regular basis by IP Security Engineering.

Proactive Security Measures

tw telecom proactively monitors its IP/MPLS Backbone for Denial of Service attacks and takes proactive measures to mitigate infrastructure affecting attacks through the use of BGP signaled - Flow Specification (Flowspec) routes. Network flow information is collected from Peering and provider edge routers which provide a "real-time" view of traffic flows occurring within **tw telecom**'s network. Traffic anomalies that may affect infrastructure are analyzed and, if necessary, mitigated.

2.5.5.3 Offer shall describe how its network infrastructure delivers reliable communication and how it provides data security and integrity.

Response: [Comply](#). Please refer to the above answer.

2.5.6 Interface Requirements

2.5.6.1 The telecommunication services provided by Offerors must interface with existing State telecommunications systems in a transparent manner that does not negatively impact State users or the existing network infrastructure.

Response: Comply. Any proposed services will interfaces with existing State systems where necessary provided this is a clear requirements of all services requested.

2.5.6.2 Offeror shall indicate what interface requirements are needed to support the proposed telecommunication services.

Response: Comply. **tw telecom** will provide at the customer designated demarc, the appropriate interface/connection for the requested service. For underlying Ethernet services with bandwidths up to 100Mb, **tw telecom** will provide a RJ-45/Copper based port. PRI Voice services are served via a RG48 PRI port. The customer will supply the jumper cable between the customer premise equipment (CPE) and the **tw telecom** port. Customer premise equipment will need to be capable of receiving the requested services, for example - layer 3 services will require a router or router/firewall, layer 2 will require capable routers or switches, and Class of Service (CoS) will require routers or switches capable of shaping traffic flow. Please don't hesitate to contact us if you have specific questions regarding the service you are interested in.

2.5.6.3 In cases where network wiring is required to complete a connection, the Offeror shall provide such wiring.

Response: **tw telecom** will comply as long as infrastructure is available to extend a facility.

2.5.6.4 Offeror shall identify all network equipment that is not considered part of the agreement in which the State will need to provide the equipment and support.

Response: Comply. The State will be required to supply the CPE routers. Our managed services do include the CPE router but managed services are not a part of this solicitation.

2.5.7 Offeror Responsibility

It is the Offeror's responsibility to provide:

- Solution architecture
- Required telecommunication services
- Installation and provisioning of the telecommunication services
- Network connectivity
- Final Testing
- Management, maintenance and support services

Response: Comply. **tw telecom** will be responsible for providing all of the above.

2.6 NETWORK PERFORMANCE & SERVICE LEVELS

2.6.1 Circuit Parameters

Offeror shall describe its service level commitments for Annual Network Availability

Offeror shall provide equal or better Annual Network Availability than 99.99% (Percentage of time that the service is operational.).

Response: Comply. **tw telecom** has provided our Service Level Agreements for the proposed services in Appendix A. All services have an availability of at least 99.99%.

2.7 TERMS

2.7.1 Multiple Terms

2.7.1.1 Services shall be available with multiple terms of 1 year, 3 year, and 5 year terms.

Response: Comply. **tw telecom** has provided pricing for one, three and five year terms.

2.7.1.2 Larger discounts should be applied to longer terms.

Response: Comply. **tw telecom** has provided pricing that applies larger discounts to longer terms.

2.8 BILLING

2.8.1 Start of Billing

2.8.1.1 Billing of all circuits must not begin until the circuit has been declared operational by the customer.

Response: Comply. Our standard process, included in our terms and conditions, states that:

tw telecom will notify Customer when the Service has been successfully installed and is available for Customer's use ("Service Date"). Unless Customer notifies **tw telecom** by the close of business on the Service Date that the Service is not operational, the Service Term will commence. If Customer so notifies **tw telecom**, the Service Date will not occur and the Service Term will not commence until the Service is operating properly. The Service Date will not be delayed or postponed due to problems with Customer's equipment or Customer's lack of readiness to accept or use Service.

2.8.2 Monthly Invoices

2.8.2.1 The Offeror shall prepare monthly invoices as directed by State departments, agencies, branches of government, and counties as stand alone accounts or parent and child accounts. State departments usually require separate billing by department, division, or branch.

Response: Comply. **tw telecom** bills our customers once a month and has four billing cycles – the 1st, 10th, 15th, or 20th of the month. Invoices are mailed via USPS within four business days after the billing cycle. Customers can also access their **tw telecom** invoices on-line. Customers can download their billing data through our secure web portal, MyBilling. When customers sign up for MyBilling via the MyBilling web portal, they can also use **tw telecom**'s electronic invoice payment service, ePay, which provides customers with the added convenience of easily paying their bills on-line. **tw telecom** can also accommodate separate billing by department, division, or branch where necessary.

2.8.2.2 The billing period must be from the first of the month to the end of the month or a mutually agreeable period.

Response: Comply. Please see above. The State can be set up to have a billing cycle that begins on the first of the month or a mutually agreeable period.

2.8.2.3 Billing for all services must be on a monthly basis with bills rendered within 15 days after the end of the billing period.

Response: Comply. Please refer to 2.8.2.1 above.

2.8.2.4 The Offeror shall prepare monthly invoices in two (2) copies for each billing account.

Response: Comply with clarification. Typically, only one hard copy invoice is prepared. The State may download as many copies as they would like from the MyBilling section of **tw telecom**'s customer portal. The MyBilling web portal gives customers access to their **tw telecom** invoices on-line via the MyBilling web tool. Customers can download their billing data through our secure website. When customers sign up for MyBilling, they can also use **tw telecom**'s electronic invoice payment service, ePay, which provides them with the added convenience of easily and securely paying their bill on-line.

2.8.2.5 All monthly invoices must at a minimum identify the customer being billed, billing address, billing phone number, billing account number, billing circuit number, the type of service being billed, regulatory taxes/fees/charges, and the amount billed.

Response: Comply. The **tw telecom** invoice includes the following information:

- Account number
- Invoice number
- Account name, bill date and payment due date
- Payment, adjustment, and previous balance information
- Payment remit address
- Customers' product and service descriptions for basic services
- Bundled services
- Call management
- Internet and data
- Private line and end user transport services
- Conferencing
- Non-recurring and installation charges
- Usage-based services
- Service location ID and address
- Bill from and bill to dates
- Quantity and amounts charged

Usage detail includes:

- Reference number
- Call date
- Start time
- Destination
- Duration
- Call from number
- Call to number
- Call type
- Call amount
- Discount line items (if applicable)
- Account codes (if applicable).

Circuit detail includes:

- Circuit ID
- Purchase order number (if applicable)
- A location
- Z location
- Item description
- Bill from and bill to dates
- Charged amount
- Taxes, fees, and surcharges (broken down and assessed per invoice section and not rolled up as an aggregate total on the invoice)

General invoice information includes:

- Adjustment reason code

2.8.2.6 Invoices shall be simple in format and easy for the customer to understand. If the Offeror uses company or industry specific wording (for example Universal Service Order Codes) on invoices, the Offeror shall provide definitions of the entries either on the monthly detailed invoice or on a separate document that defines the entries. Also, the use of codes in place of product descriptions will not be acceptable.

Response: Comply. With MyBilling, end user customers can download a PDF image of their current invoice, their usage, circuit, conferencing, and invoice detail information. There are twelve months of invoice data available and three months of usage, circuit, and conferencing billing data. MyBilling is a secure, reliable and easy way to view and pay **tw telecom** invoices. Customers can access MyBilling through an updated link on their email notification, sent to them monthly when their invoice is available. By downloading your invoice, you will also be able to format usage and circuit data in a format that can be used to meet your specific business needs.

2.8.3 Late Payment Charge

Contractors are reminded that the State, from the date of receipt of an invoice (not the date billed or mailed), has 30 calendar days to process and pay the bill without a late charge by State law (Hawaii Revised Statutes §103-10). The Contractor must not send out late payment letters or assess late charges until the 30 days has passed.

Response: Comply.

2.8.4 Education Discount

The Offeror shall participate in the FCC e-Rate discount program for schools and libraries.

It is anticipated that some services obtained under this procurement may be eligible for E-rate discounts which the Hawaii Department of Education (DOE) intends to apply for. Under the program, providers receive the full amount they contract for, however, payment for the eligible goods and services is split between the DOE and the Universal Service Fund (USF).

The Offeror shall refer to the Eligible Services List (FCC Docket No. 96 – 45) at the Schools and Libraries website at www.usac.org/sl. The Offeror is responsible for ensuring that all submissions are on the Eligible Services List, or if not, are so noted and priced separately.

2.8.4.1 Any Offeror wishing to provide E-rate qualifying services to the DOE shall:

- Possess a Service Provider Identification Number and provide it with the bid proposal. Call the Schools and Libraries Division at 888-203-8100 for additional information.
- Agree that the DOE's portion of the contract is subject to the availability of the discount to the DOE schools on a year-by-year basis.
- Agree to invoice the Schools and Libraries
- Corporation for the discount amount using the SLD approved forms and procedures.
- Agree to invoice the DOE only for the after-discount amount.
- Agree to assist the DOE in resolving any administrative issues that arise from the USF program.
- Agree that the order may be canceled, at the DOE's option, if the DOE does not receive the anticipated discounts.
- Not assess additional surcharges related to e-Rate processing for non-DOE agencies.

Response: Comply. **tw telecom** participates in the E-Rate program and is accustomed to working with the USAC, schools and libraries to provide them with services through the E-Rate program. **tw telecom** provides primarily Priority 1 services (telecommunications and Internet Access). Our SPIN number is 143032782.

There are two options available to customers to receive service discounts through the E-Rate program.

- OPTION 1: Customer submits BEAR (Billed Entity Applicant Reimbursement) Form 472 to USAC:
 - Customer is billed in full, and is ALWAYS responsible for paying bill in full.
 - Once customer is approved for funding, USAC issues a reimbursement check to **tw telecom**, and if customer is current, **tw telecom** issues the refund to the customer in one lump sum for the entire years' worth of funding. If customer is not current with bill payments, **tw telecom** credits the customer account and the customer is responsible for the balance.
- OPTION 2: **tw telecom** submits SPI (Service Provider Invoice) Form 474 to USAC:
 - Customer is billed in full and is responsible for paying in full until **tw telecom** receives Funding Commitment Letter from USAC.
 - **tw telecom** receives FCL, and applies the customer discount to the bill. **tw telecom** credits the customer for any applicable amount (if the customer has overpaid on past bills, since customer was responsible for paying in full until the FCL was received) and starts "net billing" the customer. This means the customer is only responsible for the amount of their bill NOT covered by the E-Rate discount. **tw telecom** receives reimbursement on the discounted portion directly from USAC.

2.9 CUSTOMER SERVICE

2.9.1 Network Support

2.9.1.1 Offeror must have a full-time network operations center, preferably located in the State of Hawaii, who are ready to take trouble and technical assistance phone calls 24 hours a day, 7 days per week, as the State has workers on shifts, flex time, and overtime who may report a problem. Prompt response to problems is required.

Response:Comply. The Network Operations Center (NOC) will remotely provide network administration, operations and maintenance support services for the majority of our Internet, data, transport and voice services. The NOC provides around-the-clock proactive monitoring for all its services. Once a service issue has been identified and recorded into the trouble ticket management database, **tw telecom**'s highly trained customer care staff works one-on-one with the customer providing ongoing support and updates until resolution is achieved. The NOC maintains, as an objective for on-net services, a Mean-Time-To-Repair (MTTR) interval of less than two (2) hours and six (6) hours for off-net services.

Network Operations Center Capabilities

tw telecom's highly skilled operations specialists are available to provide continuous support of the following:

- Monitoring **tw telecom**'s networks
- Responding to network alarms
- Troubleshooting and expeditiously correcting potential issues as they arise

tw telecom's monitoring systems provide continuous fault management status with the ability to detect, isolate and correct malfunctions in tw telecom's entire metropolitan and Internet backbone networks. tw telecom's monitoring systems also have the capability to report all available major, minor and power alarms that may potentially affect a customer's service.

2.9.1.2 Identify other problem reporting methods such as email submissions.

Response: Comply. Trouble tickets can be initiated by either calling tw telecom's toll free number or entering a trouble ticket via tw telecom's web portal.

~~2.9.1.3 Identify appropriate response times to trouble calls and outages. Offeror shall describe response time to outages. At a minimum, the Offeror shall provide the following response times to outages:~~

- ~~• Two (2) hour problem identification and notification~~
- ~~• Four (4) hour onsite support for Oahu locations~~
- ~~• Next day onsite support for Neighbor Island locations~~

~~Offeror shall be responsible for continually monitoring and tracking the outage until it is resolved.~~

~~Offeror shall provide a final status update after the outage is resolved.~~

~~When necessary, the Offeror shall provide onsite technical support to troubleshoot or fix a problem.~~

~~**Response:** Comply with clarification. tw telecom maintains a Mean Time to Repair objective of two hours for on-net services and six hours for off-net services. We agree to the above response times in terms of problem identification and notification and onsite support for all locations. tw telecom's Network Operations Center will be responsible for continually monitoring and tracking an outage until it is resolved. A final status update will be provided via the customer portal.~~

2.9.1.4 Identify problem escalation process. Offeror shall outline its problem escalation process beyond Tier 1 support.

Offeror must describe the escalation procedure available to the State in the event the State deems progress on problem resolution to be unsatisfactory.

Response:

Trouble Ticket Escalation

If your ticket has been open for a minimum of one hour and you are unsatisfied with the response time communicated to you or the progress made, you may escalate your ticket per the below.

National Operations Center

Level 1 Call (800) 829-0420 and request a Level 1 escalation. A Technician will return your call within 30 minutes.

Level 2 If you do not receive a status call within 30 minutes or feel additional escalations are needed, please call (800) 829-0420, request a Level 2 escalation and for a Manager to return your call.

Level 3 If you do not receive a return call within 15 minutes or feel additional escalations are needed call:

George King	Office:303-566-1582
Director, Customer Technical Assistance Center	Cell: 720-810-9626

Level 4 If you do not receive a return call within 15 minutes or feel additional escalations are needed call:

Kaily Bassani	Office: 303-566-1277
VP Denver Operations	Cell:720-326-9682

Level 5 If you do not receive a return call within 15 minutes or feel additional escalations are needed, then call:

Beth Lackey	Office: 303-566-1224
Sr. VP Denver Operations	Cell: 303-808-2201

Local City Management – Hawaii Office

If you have reached a Level 2 escalation, please escalate with a member of your Local City Management Team by using the numbers listed below:

Chris Luciano:	Office: 808-441-8572
Manager, Operations	Cell: 808-292-6757

Mitch Miyoshi:	Office: 808-441-8520
Manager, Engineering	Cell: 808-226-9461

Powell Onishi:	Office: 808-441-8555
Director, Operations	Cell: 808-343-4587

HonoluluSales Account Team

Barry Fong, Account Executive II barry.fong@twtelecom.com	Office: (808) 441-8565
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Bob Neuberger, Account Manager bob.neuberger@twtelecom.com	Office: 808-441-8525
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Marjorie Pearson, Network Applications Engineer marjorie.pearson@twtelecom.com	Office: 808-441-8516
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David Lau, Network Applications Engineer david.lau@twtelecom.com	Office: 808-441-8529
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Millie Perreira-Gilmore, Sales Manager
millicent.perreira-gilmore@twtelecom.com

Office: 808-441-8527

Cliff Miyake, Vice President / General Manager
cliff.miyake@twtelecom.com

Office: 808-441-8537

2.9.1.5 Monitoring and Reporting

2.9.1.5.1 Network Operations Center (NOC)

Offeror shall describe how its NOC will provide technical assistance and 24x7 network monitoring.

Offeror shall provide toll-free telephone access to the NOC 24x7.

Phone support is necessary. Online trouble ticket creation and monitoring is desired, but not required.

Response: Comply. The Network Operations Center (NOC) will remotely provide network administration, operations and maintenance support services for the majority of our Internet, data, transport and voice services. The NOC provides around-the-clock proactive monitoring for all its services. Once a service issue has been identified and recorded into the trouble ticket management database, **tw telecom**'s highly trained customer care staff works one-on-one with the customer providing ongoing support and updates until resolution is achieved. The NOC maintains, as an objective for on-net services, a Mean-Time-To-Repair (MTTR) interval of less than two (2) hours and six (6) hours for off-net services.

Trouble tickets can be initiated by either calling **tw telecom**'s toll free number or entering a trouble ticket via **tw telecom**'s web portal.

2.9.1.5.2 Offeror shall take immediate corrective action to resolve any network failure, such as rerouting traffic, utilizing a redundant facility, dispatching technicians, and all other steps required for the immediate re instituting of services to the State.

Response: Comply. Our trouble ticket process is as follows:

tw telecom's Reactive Trouble Ticketing Process

The process includes:

- The customer calls **tw telecom**'s toll free number to report system trouble or enters a trouble ticket via **tw telecom**'s web portal.
- The CustomerServiceCenter receives the call or on-line request and creates a customer ticket.
- Customer is advised to provide as much information as possible, such as circuit ID, billing telephone number, local access information, etc.
- The ticket is then handed off to a Maintenance Technician. The ticket is worked within the appropriate group (i.e., Switch, Transport, Data).
- All DS-3 and above troubles are paged to Director level and below within the OperationsCenter.

- Ticket status is provided to the customer as appropriate for that outage and agreed upon with the customer.
- Once the trouble is resolved, **tw telecom** follows up with the customer for ticket closure.

tw telecom Proactive Monitoring and Surveillance

Event Alarm Severity Levels are defined as:

- **Red/Critical:** Problem is operationally impacting or has direct impact on the network and must be resolved immediately.
- **Yellow/Major:** Problem requires attention and if not resolved could directly impact the network or Quality of Service.
- **Green/Minor:** Problem requires attention (i.e. threshold alarm), and it could escalate if not resolved. Administration and maintenance issues are classified in this level.

Alarms are generated at the service or network level. The process for resolution includes:

- The NOC receives alert via alarm monitoring systems.
- Initial isolation occurs and service impact is identified.
- Initial outreach to the customer occurs as part of the fault isolation process.
- Field operations and the Customer Technical Assistance Center (CTAC) resolve on-net/off-net troubles.
- All DS-3 and above troubles are paged to Director level and below.
- Status to the customer as appropriate for outage and agreed upon with the customer.
- Ticket closure with the customer: Ticket closure always follows discussion with the customer including confirmation that **tw telecom** has addressed any issues within our control and obtaining the customer's approval to close the ticket.
- Data troubles resolved by data technicians.
- All products supported by next-level network operations support (Tier II) as appropriate.

2.9.1.5.3 For individual trouble reports, a verbal report of trouble clearance with the report number shall be furnished within one (1) hour to the customer that reported the trouble.

Response: Comply with clarification. Using the MyTickets section of the customer portal, customers have the ability to create new trouble tickets on-line and have real-time access to ticket detail and status. Customers can also view the status of open and closed tickets going back 12 months and can easily create a trouble ticket on-line without having to place a call. [A verbal report can be provided if requested.](#)

2.9.1.5.4 Web Portal. Offeror shall optionally provide web portal access that allows for network monitoring, real time traffic analysis, and reporting functionality with a minimum of twelve (12) months' worth of historical data.

Response: Comply. MyPortal is **tw telecom**'s on-line self-service tool where customers can easily manage their accounts around-the-clock. MyPortal is confidential and secure. Customers can easily and efficiently perform self-service transactions without having to place a call. Current portal functionality includes:

MyHome

MyHome provides a one screen overview that includes total invoice due amount, status information for in-progress orders, and trouble ticket status. MyHome includes the main page view which can be customized to include all of the information that is important to a particular customer. The customize link provides options to change the information seen on the main MyHome view.

Customers have the ability to add additional accounts or change their account information. Setting up customized view options allows customers with certain roles (e.g. billing) to only view the information that is most pertinent to them.

MyServices

Within the **tw telecom** MyServices web portal, customers can easily view the performance of various service components. MyServices provides performance monitoring data for **tw telecom**'s IP VPN and EIS/DIA services. New customers can also take advantage of performance monitoring for our ENLAN and SNLAN basic product services.

Customers can view their hour-to-hour Internet bandwidth utilization against what they purchased. As they view how their services are performing throughout the day, the utilization and trending information will better manage their network and business.

Performance monitoring gives customers the ability to view the performance of these services by location within the **tw telecom** network.

MyOrders

MyOrders gives customers the ability to view the status of in-progress and closed orders going back 12 months. Order tracking and detail allows them to view their order during the installation process.

MyTickets

MyTickets gives customers the ability to create new trouble tickets on-line and have real-time access to ticket detail and status. Customers can also view the status of open and closed tickets going back 12 months and can easily create a trouble ticket on-line without having to place a call.

MyBilling

MyBilling gives customers access to their **tw telecom** invoices on-line. It also allows them to download their billing data through our secure MyBilling website. When customers sign up for MyBilling, they can also use **tw telecom**'s electronic invoice payment service, ePay, which provides the added convenience of easily and securely paying bills on-line.

MyDisputes

MyDisputes allows customers to submit and review any disputed charges on-line and can review complete details on the specific charges, date ranges and amounts being disputed.

MyChange Requests

My Change Requests lets customers view, track and submit their change requests. Customers can submit requests to add, change and delete LD account codes and submit IP Address, BGP and Static Internet Routing requests, and also DNS Change requests.

MyNotifications

MyNotifications gives customers visibility to any **tw telecom** maintenance notifications. Customers can check the time, duration and status of effected circuits as well as alert **tw telecom** of any maintenance activities the customer has scheduled.

2.9.2 Management Reports

2.9.2.1 Contractor shall provide annual reports to the Contract Administrator (preferably at the end of the calendar year or beginning twelve (12) months from the Contract Start Date), which summarizes the circuit type, Department, Location, Speed, and Cost. One report will be a consolidated report for the State and the other reports will be by department or agency.

Response: Comply. **tw telecom** will provide annual reports as requested above.

2.9.2.2 After giving forty-five (45) days' notice, the Contract Administrator may request the Contractor to provide a list of State customers, account numbers, billing addresses, and circuits on each account. It is desirable that the Contractor be able to provide the physical address where service is provided to each account.

Response: Comply. **tw telecom** will provide annual reports as requested above including the physical address.

2.9.2.3 Offeror shall identify and include samples of all available management reports regarding billing analysis, traffic studies, and usage.

Response: This information is available via **tw telecom**'s web portal as described above in 2.8.2.

2.9.3 Circuit Downtime

2.9.3.1 Contractor shall provide a credit for circuit outages and problems with transmission quality that affects connectivity.

Response: Credits for services outages are offered per our SLAs included in Appendix A.

2.9.3.2 Offeror shall explain how it will handle credits.

Response: Credits are provided upon request by the customer.

2.10 IMPLEMENTATION / MIGRATION PLAN

2.10.1 Upon request, the Contractor shall submit an Implementation/Migration Plan that describes the major tasks, personnel proposed to perform each task, estimated hours to perform each task, costs, and a schedule for any purchased services.

Response: Comply with clarification. Once a service has been confirmed our ordered, **tw telecom** will create a detailed implementation plan specific to a particular order or configuration. At this time, there is not enough detail available to create an implementation plan.

2.10.2 The Contractor shall identify potential risks associated with implementation/migration and recommend strategies for managing those risks.

Response: Comply. Based on a particular service or network configuration, **tw telecom** will identify potential risks associated with implementation/migration.

2.10.3 It is essential that there be a seamless migration of services to a new service or Contractor.

Response: Comply. **tw telecom** will work with the State to ensure a seamless migration.

2.10.4 The Implementation/Migration Plan will be reviewed by the requesting Department prior to starting installation.

Response: Comply. The Implementation/Migration Plan will be mutually agreed upon between **tw telecom** and the State.

2.11 ACCEPTANCE TESTING

2.11.1 After completion of any portion of the system, the Contractor shall conduct acceptance tests for performance and reliability. The Contractor shall provide all test equipment and accessories required to perform tests and to record test results. The Contractor must ensure that all associated costs (e.g. travel), for the participation at all acceptance testing, are included within its total proposal cost. The Contractor shall notify the State prior to conducting any testing. The State reserves the right to witness any or all testing. If, during the conduct of testing, test items fail to meet performance requirements, the Contractor shall correct the deficiencies and repeat testing of all affected items. The Contractor shall submit the Acceptance Test Reports to the requesting Department showing the Contractor's functional specifications and the test results.

Response: Comply. **tw telecom** will meet all of the above requirements regarding testing.

2.11.2 Acceptance of the system shall be granted after all items have passed the acceptance tests and has been approved by the requesting Department.

Response: Comply. Our standard process, included in our terms and conditions, states that:

tw telecom will notify Customer when the Service has been successfully installed and is available for Customer's use ("Service Date"). Unless Customer notifies **tw telecom** by the close of business on the Service Date that the Service is not operational, the Service Term will commence. If Customer so notifies **tw telecom**, the Service Date will not occur and the Service

Term will not commence until the Service is operating properly. The Service Date will not be delayed or postponed due to problems with Customer's equipment or Customer's lack of readiness to accept or use Service.

2.12 TRANSITION PERIODS

2.12.1 Transition at Beginning of Contract

The Contractor shall work with the existing telecommunications provider to insure a seamless transition at no cost to the State.

Response: Comply with clarification. tw telecom will work with the existing telecommunications provider to insure a seamless transition. However, any costs assessed by the existing provider will be the responsibility of the State.

2.12.2 Transition at End of Contract

Monthly cost to continue existing service will be at the current rate of the existing agreement or better on a month-to-month basis, but not to exceed 12 months or there is a cancellation of service or a new multi-year agreement is executed.

Response: Comply.

2.13 OTHER CHARGES

2.13.1 There will be no service charge to the State for changing service types or increasing bandwidth speed when the monthly cost of the new service is equal to or higher than the existing service and the contractor does not change. For example, moving from lower cost Frame Relay to more costly Broadband Ethernet or moving from 10Mbps Broadband Ethernet to 25Mbps Broadband Ethernet. This shall also apply to circuits procured prior to the start of this contract.

Response: Comply. Additional charges may apply for upgrades but no service charge will be assessed.

Clarification – For bandwidth upgrades, additional charges may apply and will be communicated to the customer prior to placing an order.

2.13.2 Cancellation of Service

There will be no charge to the State for the cancellation of service due to the completion of a term/agreement.

Response: Comply. There is no charge for cancellation due to completion of a term/agreement.

2.13.3 Early Termination Fees

2.13.3.1 There will be no early termination fees for one (1) year agreements.

Response: Exception. tw telecom will evaluate early terminate fees on an individual case basis, primarily due to the fact that tw telecom may have to invest capital to build fiber infrastructure to a particular location, or, we may have to lease “last mile” services from another carrier.

For recovery of capital investment, tw telecom proposes the following:

“If Customer terminates a Service prior to the expiration of the applicable Service Term, Customer agrees to reimburse **tw telecom** for any unrecovered time and materials costs actually incurred and documented by **tw telecom** in engineering and installing the terminated Service.”

2.13.3.2 Three (3) and five (5) year agreements will have a termination fee equal to 25% or less of the remaining balance on the existing agreement.

Response: Termination fees on three and five year agreements can be evaluated on an individual case basis. There are several factors that determine **tw telecom** spend for a given situation such as costs to lease the last mile, additional equipment costs, etc. that need to be considered.

2.13.3.3 Offeror shall provide the termination fee percentage for both three (3) and five (5) year agreements.

Response: Termination fees on three and five year agreements can be evaluated on an individual case basis. There are several factors that determine **tw telecom** spend for a given situation such as costs to lease the last mile, additional equipment costs, etc. that need to be considered.

2.13.3.4 There will be no early termination fees if the Contractor does not meet the Annual Network Availability requirements in Section 2.6.1.

Response: Cannot comply. **tw telecom**'s Service Level Agreements will be the sole and exclusive remedy for non-performance with the exception of chronic outages defined below:

*Clarification – Chronic Definition: If two service outages have occurred on a particular Service during a 30-day period, and a third service outage occurs within 30 days following the second service outage, customers may terminate the applicable service without early termination liability provided that customer supplies **tw telecom** with a written termination notice no later than 30 days following the third service outage.*

2.13.4 Any new regulatory fees, regulatory charges, and taxes or any changes (increases and decreases) to these during the contract period or extensions, shall be submitted with an explanation to the Contract Administrator, at least fifteen (15) days prior to the effective date. If the Contractor fails to provide fifteen (15) days notice prior to the effective date for billing, the Contractor shall not bill for the item until the 15-day period has elapsed.

Response: Comply.

2.13.5 Late submittals will be allowed if it can be shown that the agency granting the change does not announce the change more than thirty (30) days prior to the effective date. If a tax, fee, or charge changes regularly, the Contractor and the Contract Administrator may agree to streamline the process and reduce the fifteen (15) day notice period on a case-by-case basis.

Response: Comply.

2.13.6. Non-recurring costs to provide services (such as cabling infrastructure, labor costs, etc.) shall not exceed actual costs.

Response: Comply. **tw telecom** is only bidding on on-net locations at this time. Costs for builds can be provided on an individual case basis.

2.14 CLIENT EXPERIENCE, REFERENCES, AND LICENSES

2.14.1 Experience

Offeror shall have a minimum of five (5) years experience in providing telecommunications services in the State of Hawaii. Offeror shall enter this information on the Offeror Qualifications form found in Section Six - Attachments. Award shall not be made to any Offeror not meeting this qualification requirement.

It is the Offeror's responsibility to provide the necessary professional staff and support personnel to guarantee a completely functional and fully supported solution that is in compliance with this RFP.

Offeror shall employ experienced and qualified staff such as:

- **Project Manager**
- **Infrastructure Design and Coordination Staff**
- **Circuit Design Engineers**
- **Installation Technicians**
- **Operation and Support Personnel**

Offeror shall list the number of years Offeror has been in business in Hawaii and the number of years Offeror has performed the proposed network and telecommunication services.

Response: **tw telecom** has been in business and has been offering telecommunications and network services since 1993.

Offeror shall include a list of key personnel and associated resumes for those who will be dedicated to this contract. Throughout the term of the contract, an updated list of personnel and resumes shall be provided if requested by the State.

Millie Perreira-Gilmore, Sales Manager

550 Paiea St., Suite 238

Honolulu, HI 96819

Office: (808) 441-8527

Cell: (808) 371-0283

millie.perriera@twtelecom.com

Millicent Perreira-Gilmore is the Sales Manager at **tw telecom**. Millie was born and raised in Hilo. Attended and graduated from Chaminade University earning a Bachelor of Arts degree in Communications. She worked as a sales representative for GTE Hawaiian Tel for 7 years before joining tw Oceanic Communications/Time Warner Telecom/**tw telecom**. She has been with **tw telecom** for 14 years where she started as an Account Executive and then promoted to Senior Account Executive. While in this position she received the 2005 High Tech Leader Award by the Pacific Technology Foundation. Millie is married and has three children. Aside from her hectic work schedule Mille finds the time to volunteer to be the team parent for her son's sports activities. She is also an active volunteer with HTCA (Hawaii Telecommunications Association) where she was the VP and Program Co-Chair for several years.

Barry Fong, Account Executive II

550 Paiea St., Suite 238

Honolulu, HI 96819

Office: (808) 441-8565

Cell: (808) 284-2464

Barry.Fong@twtelecom.com

Barry joined **tw telecom** in 2010. He is currently responsible for the federal public sector in Hawaii as a co-manager. Barry is also responsible for the State of Hawaii public sector accounts as well as the separate local counties' accounts.

Prior to joining **tw telecom**, Barry was a pharmaceutical representative for approximately 13 years. His line of products involved cardiovascular, pulmonology, neurologic, and Central Nervous System disorders and medications.

After 20 years, Barry also retired from the U.S. Navy Reserves at the rank of Commander/O-5.

Barry received his Bachelor of Business Administration from the University of Hawaii and his Juris Doctor from Santa Clara University. He is a serving member of the Armed Forces Communications and Electronics Association's Hawaii affiliate.

Bob Neuberger, Senior Account Executive

550 Paiea St., Suite 238

Honolulu, HI 96819

Office: (808) 441-8525

Cell: (808) 285-7194

Bob.Neuberger@twtelecom.com

Bob joined **tw telecom** in 2007 and supported education accounts in Colorado for three years. He and his wife returned to the islands in 2009 where he has been responsible for the K-12 and Higher Education segment in Hawaii, including the University of Hawaii and the State of Hawaii Department of Education accounts as well as private and parochial schools. Prior to joining **tw telecom**, Bob was with Qwest Communications for 15 years. He is married with 2 daughters and 2 grandchildren. Bob is a Vietnam veteran and is an active volunteer supporting veterans and their families at Tripler AMC and the Spark Matsunaga VA Medical Center and fund raising for Fisher House Hawaii, a non-profit organization providing free housing for sick and wounded veterans and their families during hospitalization.

Powell Onishi, Operations Director

550 Paiea St., Suite 238

Honolulu, HI 96819

Office: (808) 441-8555

Cell: (808) 292-1328

Powell.onishi@twtelecom.com

Powell has been with **tw telecom** since 2002. His responsibilities include: Network design, managing capital budget, equipment inventory facilities and directing and controlling maintenance activities as it pertains to ensuring a quality network for our customers.

Prior to **tw telecom**, Powell was a consultant to Global Pacific Engineering in Melbourne, Victoria 1999 – 2000. Responsibilities included: Oversee the development and planning of a cable system to manage railroads in Queensland, Australia

Powell worked at GTE Hawaiian Tel from 1966 to 1999. His positions included the following: Technician,

Equipment Engineer, Budget Analysis, Central Office Supervisor, Manager of Equipment Installation, Implementation Project Manager for several Hawaiian Cable Systems.

Cliff Miyake, Vice President and General Manager

550 Paiea St., Suite 238

Honolulu, HI 96819

Office: (808) 441-8537

Cell: (808) 223-9249

Cliff.miyake@twtelecom.com

Cliff Miyake, Vice President and General Manager for **tw telecom** in Hawaii, has over 25 years of information technology and telecommunications experience. In his current role, he has overall responsibility for the sales and operations groups of **tw telecom** in the state of Hawaii.

Mr. Miyake joined **tw telecom** in 1996 as the first Account Executive in Hawaii. He has held every sales position at **tw telecom** Hawaii during his tenure.

Prior to joining **tw telecom**, Mr. Miyake worked at GTE Hawaiian Tel as the Account Manager for University of Hawaii system. Previous to that, he handled Federal and International sales as an Account Executive for GTE. Mr. Miyake also has previous experience in the computer system integration, Information System Facility design and operations, paging and wireless industries.

Cliff Miyake holds a Bachelors of Business Administration from the University of Hawaii Manoa, and a Masters of Science in Information Systems from Roosevelt University of Chicago. He currently holds a United States Federal Government Top Secret clearance.

Christopher Luciano, Operations Manager

550 Paiea St., Suite 238

Honolulu, HI 96819

Office: 808-441-8572

Cell: 808-292-6757

Christopher.Luciano@twtelecom.com

Chris has been in the telecom industry for 12+ years. In the last four years, he has handled the installation and maintenance teams locally for our customers. The Hawaii team is one of the best in the nation due to his tireless efforts.

Mitchell Miyoshi, Engineering Manager

550 Paiea St., Suite 238

Honolulu, HI 96819

Office: 808-441-8520

Cell: 808-226-9461

Mitchell.miyoshi@twtelecom.com

Mitchell Miyoshi, Engineering Manager for **tw telecom** Hawaii has over 16 years of experience in the telecommunications industry in various specialties including Outside Plant, Central Office and

Customer Premise Engineering. Currently his role is to oversee all engineering and installation projects in the Hawaii market as well plan for future expansions and network advancements.

Mitchell joined **tw telecom** in 1998 as an OSP Engineer after spending 2 years as a contractor to **tw telecom** as an equipment engineer. In 2005 he was promoted to his current position as the Engineering Manager for the Hawaii market. Prior to joining **tw telecom**, he was an intern at GTE Hawaiian Tel as an OSP Engineer in 1994 to 1995.

Mitchell Miyoshi attended the University of Hawaii at Manoa where he earned his Bachelor's of Science degree in Electrical Engineering in 1995. He also currently holds a United States Federal Government Secret clearance.

Offeror shall include a list of subcontractors and associated resumes for those who will be dedicated to this contract.

Response: **tw telecom** will not have any subcontractors dedicated to this project.

2.14.2 Client References

Offeror shall list on the Offeror Qualifications Form (SECTION SIX ATTACHMENTS), three (3) Client References who presently use the same or similar services to those being proposed. The clients used for reference purpose should be paying customers external to the Offeror's organization. Offeror shall include this information in its Proposal submittal. The State may contact any of the listed Client References to inquire about the Offeror's performance.

University of Hawaii, Manoa
2565 McCarthy Mall
Keller Hall
Chris Zane
Network Engineering Manager
(808) 956-0974
czane@hawaii.edu

Services:
Ethernet Internet Service - 1.5 Gbps
Switched Native LAN (SNLAN) - 40 Mbps – 100 Mbps
DWDM transport – 10 Gbps
Voice T1 PRI
Customer since 2004 (to present)

Department of Veterans' Affairs
1 Jarrett White Road, Honolulu, HI 96859
Dave Rapoza
Manager
(808) 433-7798
Dave.Rapoza@va.gov

State of Hawaii RFP-12-006-SW

Section Two – Technical Requirements

Services:

- 1.5M SNLAN
- 10M SNLAN
- 100M SNLAN
- 1G SNLAN
- DS1 Private Line

Customer since 2005 (to present)

State of Hawaii, Department of Education

Dean Horiuchi
Telecom Director, Acting
1390 Miller St.
Honolulu, HI 96813
808-377-7701
dean_horiuchi@notes.k12.hi.us

Services:

- 1Gig Internet Service

Customer since 2011(to present)

Initial Offer Page, Offeror Qualifications, and Wage Certificate



Offer Page.pdf



Offeror
Qualifications.pdf



Wage Certificate.pdf

OFFER PAGE

To Furnish, Deliver, Install, and Manage Network and Telecommunications Services
For Hawaii State Government
RFP-12-006-SW

Procurement Officer
State Procurement Office
State of Hawaii
Honolulu, Hawaii 96813

Dear Procurement Officer:

The undersigned has carefully read and understands the terms and conditions specified in the Specifications and Special Provisions attached hereto, and included by reference, the SPO General Provisions, dated 8/5/09, and the AG General Conditions, Form AG-008, dated 4/15/09; and hereby submits the following offer to perform the work specified herein, all in accordance with the true intent and meaning thereof. The undersigned further understands and agrees that by submitting this offer, 1) Offeror is declaring that offer is not in violation of Chapter 84, Hawaii Revised Statutes, concerning prohibited State contracts, and 2) Offeror is certifying that the price(s) submitted was (were) independently arrived at without collusion.

Offeror is:

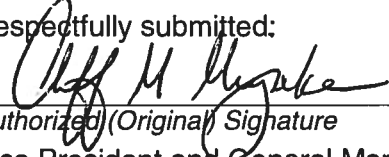
Sole Proprietor Partnership Corporation Joint Venture
Other _____
State of incorporation: Delaware

Hawaii General Excise Tax License I.D. W20014076-01
No. _____

Payment address (other than street address below):
P.O. Box 172567
City, State, Zip Code: Denver, CO 80217-2567

Business address (street address):
10475 Park Meadows Drive
City, State, Zip Code: Littleton, CO 80124

March 28, 2012
Date:
(808) 441-8537
Telephone No.:
(808) 441-8554
Fax No.:
Cliff.miyake@twtelecom.com

Respectfully submitted:
(x) 
Authorized (Original) Signature
Vice President and General Manager
Name and Title (Please Type or Print)
* tw telecom holdings inc.
Exact Legal Name of Company (Offeror)

OFFEROR QUALIFICATIONS

Offeror must provide information on experience in providing telecommunications services and key personnel and subcontractors who will be dedicated to this contract (See Section 2.15.1).

1. Offeror shall have a minimum of five (5) years' experience in providing telecommunications services in the State of Hawaii. Award shall not be made to any Offeror not meeting this qualification requirement.

List the number of years Offeror has been in business in Hawaii and the number of years Offeror has performed the proposed network and telecommunication services.

Response: tw telecom has been in business and has been offering telecommunications and network services since 1993. We have been in business in the State of Hawaii since 1993.

2. List Key Personnel and provide associated resumes.

Millie Perreira-Gilmore , Sales Manager

2669 Kilihau Street
Honolulu, HI 96819
Office: (808) 441-8527
Cell: (808) 371-0283

millie.perriera@twtelecom.com

Millie Perreira-Gilmore is the Sales Manager at tw telecom. Millie was born and raised in Hilo. Attended and graduated from Chaminade University earning a Bachelor of Arts degree in Communications. She worked as a sales representative for GTE Hawaiian Tel for 7 years before joining tw Oceanic Communications/Time Warner Telecom/tw telecom. She has been with tw telecom for 14 years where she started as an Account Executive and then promoted to Senior Account Executive. While in this position she received the 2005 High Tech Leader Award by the Pacific Technology Foundation. Millie is married and has three children. Aside from her hectic work schedule Millie finds the time to volunteer to be the team parent for her son's sports activities. She is also an active volunteer with HTCA (Hawaii Telecommunications Association) where she was the VP and Program Co-Chair for several years.

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Honolulu, HI 96819
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Barry.Fong@twtelecom.com

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Cliff Miyake – Vice President and General Manager

550 Paiea St., Suite 238

Honolulu, HI 96819

Office: (808) 441-8537

Cell: (808) 223-9249

OFFER FORM

RFP-12-006-SW

Cliff.miyake@twtelecom.com

Cliff Miyake, Vice President and General Manager for tw telecom in Hawaii, has over 25 years of information technology and telecommunications experience. In his current role, he has overall responsibility for the sales and operations groups of tw telecom in the state of Hawaii.

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550 Paiea St., Suite 238
Honolulu, HI 96819
Office: 808-441-8572
Cell: 808-292-6757

Christopher.Luciano@twtelecom.com

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Mitchell Miyoshi, Engineering Manager

550 Paiea St., Suite 238
Honolulu, HI 96819
Office: 808-441-8520
Cell: 808-226-9461

Mitchell.miyoshi@twtelecom.com

Mitchell Miyoshi, Engineering Manager for tw telecom Hawaii has over 16 years of experience in the telecommunications industry in various specialties including Outside Plant, Central Office and Customer Premise Engineering. Currently his role is to oversee all engineering and installation projects in the Hawaii market as well plan for future expansions and network advancements.

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Mitchell Miyoshi attended the University of Hawaii at Manoa where he earned his Bachelor's of Science degree in Electrical Engineering in 1995. He also currently holds a United States Federal Government Secret clearance.

3. List Subcontractors and provide associated resumes.

Response: tw telecom will not have any subcontractors dedicated to this project.

4. Client References: Offeror is required to supply the State with names, addresses, and telephone numbers of three (3) companies or entities which the Offeror has supplied telecommunication and network services, of similar size and usage requirements to those being requested in this RFP. As part of the evaluation, State personnel may call the customers whose names you furnish to inquire about Offeror's services, performance, equipment, and degree of customer satisfaction. (See Section 2.15.2 Client References)

Client Name: University of Hawaii, Manoa
Address: 2565 McCarthy Mall , Keller Hall
Description of Contract and Service Provided: 1.5Gig Internet Service,
40-100Mbps Switched Native LAN (SNLAN), 10Gig DWDM transport,
Voice T1 PRI

Dates over which service was provided (from/to): 2004/present
Reference Name and Title: Chris Zane
Current Phone: 808-956-0974
E-mail Address: czane@hawaii.edu

Client Name: Department of Veteran's Affairs
Address: 1 Jarrett White Road, Honolulu, HI 96859
Description of Contract and Service Provided: 1.5M SNLAN, 10M SNLAN,
100M SNLAN, 1G SNLAN, DS1 Private Line

Dates over which service was provided (from/to): 2005/present
Reference Name and Title: Dave Rapoza, Manager
Current Phone: (808) 433-7798
E-mail Address: Dave.Rapoza@va.gov

Client Name: State of Hawaii, Department of Education
Address: 1390 Miller St, Honolulu, HI 96813
Description of Contract and Service Provided: 1Gig Internet Services

Dates over which service was provided (from/to): 2011/present
Reference Name and Title: Dean Horiuchi, Acting Telecom Director
Current Phone: (808) 377-7701
E-mail Address: Dean_Horiuchi@notes.k12.hi.us

**WAGE CERTIFICATE
FOR SERVICE CONTRACTS**
(See Special Provisions)

Subject: RFP No.: RFP-12-006-SW

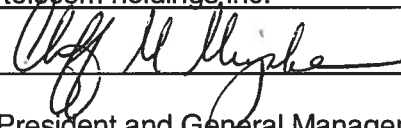
Title of RFP: To Furnish, Deliver, Install, and Manage Network and
Telecommunications Services for Hawaii State Government

Pursuant to Section 103-55, Hawaii Revised Statutes (HRS), I hereby certify that if awarded the contract in excess of \$25,000, the services to be performed will be performed under the following conditions:

1. All applicable laws of the federal and state governments relating to workers' compensation, unemployment compensation, payment of wages, and safety will be fully complied with; and
2. The services to be rendered shall be performed by employees paid at wages or salaries not less than the wages paid to public officers and employees for similar work, with the exception of professional, managerial, supervisory, and clerical personnel who are not covered by Section 103-55, HRS.

I understand that failure to comply with the above conditions during the period of the contract shall result in cancellation of the contract, unless such noncompliance is corrected within a reasonable period as determined by the procurement officer. Payment in the final settlement of the contract or the release of bonds, if applicable, or both shall not be made unless the procurement officer has determined that the noncompliance has been corrected; and

I further understand that all payments required by Federal and State laws to be made by employers for the benefit of their employees are to be paid in addition to the base wage required by Section 103-55, HRS.

Offeror tw telecom holdings inc.
Signature 
Title Vice President and General Manager
Date March 28, 2012

Schedule A – Networking and Telecommunication Rates



Schedule A -
Network and Telecomm

Technical Category	1 Year Agreement			3 Year Agreement			5 Year Agreement			Install Price
	List Price	Discount (%)	Total Price	List Price	Discount (%)	Total Price	List Price	Discount (%)	Total Price	
2.3.1. Broadband Ethernet										
Switched Native LAN (SNLAN)										
2mb	\$ 50.43	25%	\$ 37.82	\$ 43.37	35%	\$ 28.19	\$ 40.34	35%	\$ 26.22	\$ 504.25
4mb	\$ 100.85	25%	\$ 75.64	\$ 85.72	35%	\$ 55.72	\$ 80.68	35%	\$ 52.44	\$ 504.25
6mb	\$ 151.28	25%	\$ 113.46	\$ 129.09	35%	\$ 83.91	\$ 121.02	35%	\$ 78.66	\$ 504.25
8mb	\$ 201.70	25%	\$ 151.28	\$ 171.45	35%	\$ 111.44	\$ 161.36	35%	\$ 104.88	\$ 504.25
10mb	\$ 252.13	25%	\$ 189.09	\$ 214.81	35%	\$ 139.63	\$ 201.70	35%	\$ 131.11	\$ 504.25
15mb	\$ 285.41	25%	\$ 214.05	\$ 242.04	35%	\$ 157.33	\$ 227.92	35%	\$ 148.15	\$ 756.38
20mb	\$ 318.69	25%	\$ 239.01	\$ 270.28	35%	\$ 175.68	\$ 254.14	35%	\$ 165.19	\$ 756.38
25mb	\$ 350.96	25%	\$ 263.22	\$ 298.52	35%	\$ 194.04	\$ 281.37	35%	\$ 182.89	\$ 756.38
30mb	\$ 384.24	25%	\$ 288.18	\$ 326.75	35%	\$ 212.39	\$ 307.59	35%	\$ 199.94	\$ 756.38
35mb	\$ 417.52	25%	\$ 313.14	\$ 354.99	35%	\$ 230.74	\$ 333.81	35%	\$ 216.98	\$ 756.38
40mb	\$ 450.80	25%	\$ 338.10	\$ 383.23	35%	\$ 249.10	\$ 360.03	35%	\$ 234.02	\$ 756.38
45mb	\$ 483.07	25%	\$ 362.30	\$ 411.47	35%	\$ 267.45	\$ 387.26	35%	\$ 251.72	\$ 756.38
50mb	\$ 516.35	25%	\$ 387.26	\$ 438.70	35%	\$ 285.15	\$ 413.49	35%	\$ 268.77	\$ 756.38
55mb	\$ 549.63	25%	\$ 412.22	\$ 466.94	35%	\$ 303.51	\$ 439.71	35%	\$ 285.81	\$ 756.38
60mb	\$ 582.91	25%	\$ 437.18	\$ 495.17	35%	\$ 321.86	\$ 465.93	35%	\$ 302.85	\$ 756.38
65mb	\$ 616.19	25%	\$ 462.15	\$ 523.41	35%	\$ 340.22	\$ 492.15	35%	\$ 319.90	\$ 756.38
70mb	\$ 648.47	25%	\$ 486.35	\$ 551.65	35%	\$ 358.57	\$ 519.38	35%	\$ 337.60	\$ 756.38
75mb	\$ 681.75	25%	\$ 511.31	\$ 579.89	35%	\$ 376.93	\$ 545.60	35%	\$ 354.64	\$ 756.38
80mb	\$ 715.03	25%	\$ 536.27	\$ 608.13	35%	\$ 395.28	\$ 571.82	35%	\$ 371.68	\$ 756.38
85mb	\$ 748.31	25%	\$ 561.23	\$ 635.36	35%	\$ 412.98	\$ 598.04	35%	\$ 388.73	\$ 756.38
90mb	\$ 780.58	25%	\$ 585.43	\$ 663.59	35%	\$ 431.34	\$ 625.27	35%	\$ 406.43	\$ 756.38
95mb	\$ 813.86	25%	\$ 610.39	\$ 691.83	35%	\$ 449.69	\$ 651.49	35%	\$ 423.47	\$ 756.38
100mb	\$ 847.14	25%	\$ 635.36	\$ 720.07	35%	\$ 468.04	\$ 677.71	35%	\$ 440.51	\$ 756.38
150mb	\$ 898.57	25%	\$ 673.93	\$ 763.43	35%	\$ 496.23	\$ 719.06	35%	\$ 467.39	\$ 1,512.75
200mb	\$ 950.01	25%	\$ 712.51	\$ 807.81	35%	\$ 525.08	\$ 760.41	35%	\$ 494.27	\$ 1,512.75
250mb	\$ 1,001.44	25%	\$ 751.08	\$ 851.17	35%	\$ 553.26	\$ 800.75	35%	\$ 520.49	\$ 1,512.75
300mb	\$ 1,052.87	25%	\$ 789.66	\$ 894.54	35%	\$ 581.45	\$ 842.10	35%	\$ 547.36	\$ 1,512.75
350mb	\$ 1,104.31	25%	\$ 828.23	\$ 938.91	35%	\$ 610.29	\$ 883.45	35%	\$ 574.24	\$ 1,512.75
400mb	\$ 1,155.74	25%	\$ 866.81	\$ 982.28	35%	\$ 638.48	\$ 924.79	35%	\$ 601.12	\$ 1,512.75
450mb	\$ 1,207.17	25%	\$ 905.38	\$ 1,025.64	35%	\$ 666.67	\$ 966.14	35%	\$ 627.99	\$ 1,512.75
500mb	\$ 1,258.61	25%	\$ 943.96	\$ 1,070.02	35%	\$ 695.51	\$ 1,006.48	35%	\$ 654.21	\$ 1,512.75
550mb	\$ 1,310.04	25%	\$ 982.53	\$ 1,113.38	35%	\$ 723.70	\$ 1,047.83	35%	\$ 681.09	\$ 1,512.75
600mb	\$ 1,361.48	25%	\$ 1,021.11	\$ 1,157.76	35%	\$ 752.54	\$ 1,089.18	35%	\$ 707.97	\$ 2,017.00
650mb	\$ 1,412.91	25%	\$ 1,059.68	\$ 1,201.12	35%	\$ 780.73	\$ 1,130.53	35%	\$ 734.84	\$ 2,017.00
700mb	\$ 1,464.34	25%	\$ 1,098.26	\$ 1,244.49	35%	\$ 808.92	\$ 1,171.88	35%	\$ 761.72	\$ 2,017.00
750mb	\$ 1,515.78	25%	\$ 1,136.83	\$ 1,288.86	35%	\$ 837.76	\$ 1,212.22	35%	\$ 787.94	\$ 2,017.00
800mb	\$ 1,567.21	25%	\$ 1,175.41	\$ 1,332.23	35%	\$ 865.95	\$ 1,253.57	35%	\$ 814.82	\$ 2,017.00
850mb	\$ 1,618.64	25%	\$ 1,213.98	\$ 1,375.59	35%	\$ 894.14	\$ 1,294.91	35%	\$ 841.69	\$ 2,017.00
900mb	\$ 1,670.08	25%	\$ 1,252.56	\$ 1,419.97	35%	\$ 922.98	\$ 1,336.26	35%	\$ 868.57	\$ 2,017.00
950mb	\$ 1,721.51	25%	\$ 1,291.13	\$ 1,463.33	35%	\$ 951.17	\$ 1,377.61	35%	\$ 895.45	\$ 2,017.00
1gb	\$ 1,764.88	25%	\$ 1,323.66	\$ 1,500.65	35%	\$ 975.42	\$ 1,411.90	35%	\$ 917.74	\$ 2,017.00
2gb	\$ 3,227.20	25%	\$ 2,420.40	\$ 2,743.12	35%	\$ 1,783.03	\$ 2,581.76	35%	\$ 1,678.14	\$ 4,034.00
3gb	\$ 3,765.74	25%	\$ 2,824.30	\$ 3,200.98	35%	\$ 2,080.64	\$ 3,012.39	35%	\$ 1,958.05	\$ 4,034.00
4gb	\$ 4,304.28	25%	\$ 3,228.21	\$ 3,658.84	35%	\$ 2,378.24	\$ 3,443.02	35%	\$ 2,237.96	\$ 4,034.00
5gb	\$ 4,842.82	25%	\$ 3,632.11	\$ 4,116.70	35%	\$ 2,675.85	\$ 3,874.66	35%	\$ 2,518.53	\$ 4,034.00

6gb	\$ 5,381.36	25%	\$ 4,036.02	\$ 4,574.56	35%	\$ 2,973.46	\$ 4,305.29	35%	\$ 2,798.44	\$ 4,034.00
7gb	\$ 5,919.90	25%	\$ 4,439.92	\$ 5,032.42	35%	\$ 3,271.07	\$ 4,735.92	35%	\$ 3,078.35	\$ 4,034.00
8gb	\$ 6,458.43	25%	\$ 4,843.83	\$ 5,489.27	35%	\$ 3,568.02	\$ 5,166.55	35%	\$ 3,358.25	\$ 4,034.00
9gb	\$ 6,996.97	25%	\$ 5,247.73	\$ 5,947.12	35%	\$ 3,865.63	\$ 5,597.18	35%	\$ 3,638.16	\$ 4,034.00
10gb	\$ 8,068.00	25%	\$ 6,051.00	\$ 6,857.80	35%	\$ 4,457.57	\$ 6,454.40	35%	\$ 4,195.36	\$ 4,034.00
SNLAN with Realtime CoS (Incremental to Basic BW)										
2mb	\$ 186.57	25%	\$ 139.93	\$ 158.33	35%	\$ 102.92	\$ 149.26	35%	\$ 97.02	\$ 504.25
4mb	\$ 186.57	25%	\$ 139.93	\$ 158.33	35%	\$ 102.92	\$ 149.26	35%	\$ 97.02	\$ 504.25
6mb	\$ 186.57	25%	\$ 139.93	\$ 158.33	35%	\$ 102.92	\$ 149.26	35%	\$ 97.02	\$ 504.25
8mb	\$ 186.57	25%	\$ 139.93	\$ 158.33	35%	\$ 102.92	\$ 149.26	35%	\$ 97.02	\$ 504.25
10mb	\$ 186.57	25%	\$ 139.93	\$ 158.33	35%	\$ 102.92	\$ 149.26	35%	\$ 97.02	\$ 504.25
15mb	\$ 186.57	25%	\$ 139.93	\$ 158.33	35%	\$ 102.92	\$ 149.26	35%	\$ 97.02	\$ 756.38
20mb	\$ 186.57	25%	\$ 139.93	\$ 158.33	35%	\$ 102.92	\$ 149.26	35%	\$ 97.02	\$ 756.38
25mb	\$ 186.57	25%	\$ 139.93	\$ 158.33	35%	\$ 102.92	\$ 149.26	35%	\$ 97.02	\$ 756.38
30mb	\$ 186.57	25%	\$ 139.93	\$ 158.33	35%	\$ 102.92	\$ 149.26	35%	\$ 97.02	\$ 756.38
35mb	\$ 186.57	25%	\$ 139.93	\$ 158.33	35%	\$ 102.92	\$ 149.26	35%	\$ 97.02	\$ 756.38
40mb	\$ 186.57	25%	\$ 139.93	\$ 158.33	35%	\$ 102.92	\$ 149.26	35%	\$ 97.02	\$ 756.38
45mb	\$ 193.63	25%	\$ 145.22	\$ 164.39	35%	\$ 106.85	\$ 154.30	35%	\$ 100.30	\$ 756.38
50mb	\$ 206.74	25%	\$ 155.06	\$ 175.48	35%	\$ 114.06	\$ 165.39	35%	\$ 107.51	\$ 756.38
55mb	\$ 219.85	25%	\$ 164.89	\$ 186.57	35%	\$ 121.27	\$ 175.48	35%	\$ 114.06	\$ 756.38
60mb	\$ 232.96	25%	\$ 174.72	\$ 197.67	35%	\$ 128.48	\$ 186.57	35%	\$ 121.27	\$ 756.38
65mb	\$ 246.07	25%	\$ 184.56	\$ 209.77	35%	\$ 136.35	\$ 196.66	35%	\$ 127.83	\$ 756.38
70mb	\$ 259.18	25%	\$ 194.39	\$ 220.86	35%	\$ 143.56	\$ 207.75	35%	\$ 135.04	\$ 756.38
75mb	\$ 272.30	25%	\$ 204.22	\$ 231.96	35%	\$ 150.77	\$ 217.84	35%	\$ 141.59	\$ 756.38
80mb	\$ 286.41	25%	\$ 214.81	\$ 243.05	35%	\$ 157.98	\$ 228.93	35%	\$ 148.80	\$ 756.38
85mb	\$ 299.52	25%	\$ 224.64	\$ 254.14	35%	\$ 165.19	\$ 239.01	35%	\$ 155.36	\$ 756.38
90mb	\$ 312.64	25%	\$ 234.48	\$ 265.24	35%	\$ 172.40	\$ 250.11	35%	\$ 162.57	\$ 756.38
95mb	\$ 325.75	25%	\$ 244.31	\$ 276.33	35%	\$ 179.61	\$ 260.19	35%	\$ 169.13	\$ 756.38
100mb	\$ 338.86	25%	\$ 254.14	\$ 288.43	35%	\$ 187.48	\$ 271.29	35%	\$ 176.34	\$ 756.38
150mb	\$ 359.03	25%	\$ 269.27	\$ 305.58	35%	\$ 198.62	\$ 287.42	35%	\$ 186.82	\$ 1,512.75
200mb	\$ 380.20	25%	\$ 285.15	\$ 322.72	35%	\$ 209.77	\$ 303.56	35%	\$ 197.31	\$ 1,512.75
250mb	\$ 400.37	25%	\$ 300.28	\$ 340.87	35%	\$ 221.57	\$ 320.70	35%	\$ 208.46	\$ 1,512.75
300mb	\$ 421.55	25%	\$ 316.16	\$ 358.02	35%	\$ 232.71	\$ 336.84	35%	\$ 218.95	\$ 1,512.75
350mb	\$ 441.72	25%	\$ 331.29	\$ 375.16	35%	\$ 243.86	\$ 352.98	35%	\$ 229.43	\$ 1,512.75
400mb	\$ 461.89	25%	\$ 346.42	\$ 393.32	35%	\$ 255.65	\$ 370.12	35%	\$ 240.58	\$ 1,512.75
450mb	\$ 483.07	25%	\$ 362.30	\$ 410.46	35%	\$ 266.80	\$ 386.26	35%	\$ 251.07	\$ 1,512.75
500mb	\$ 503.24	25%	\$ 377.43	\$ 427.60	35%	\$ 277.94	\$ 402.39	35%	\$ 261.55	\$ 1,512.75
550mb	\$ 524.42	25%	\$ 393.32	\$ 445.76	35%	\$ 289.74	\$ 419.54	35%	\$ 272.70	\$ 1,512.75
600mb	\$ 544.59	25%	\$ 408.44	\$ 462.90	35%	\$ 300.89	\$ 435.67	35%	\$ 283.19	\$ 2,017.00
650mb	\$ 564.76	25%	\$ 423.57	\$ 480.05	35%	\$ 312.03	\$ 451.81	35%	\$ 293.68	\$ 2,017.00
700mb	\$ 585.94	25%	\$ 439.45	\$ 498.20	35%	\$ 323.83	\$ 468.95	35%	\$ 304.82	\$ 2,017.00
750mb	\$ 606.11	25%	\$ 454.58	\$ 515.34	35%	\$ 334.97	\$ 485.09	35%	\$ 315.31	\$ 2,017.00
800mb	\$ 627.29	25%	\$ 470.47	\$ 532.49	35%	\$ 346.12	\$ 501.22	35%	\$ 325.80	\$ 2,017.00
850mb	\$ 647.46	25%	\$ 485.59	\$ 550.64	35%	\$ 357.92	\$ 518.37	35%	\$ 336.94	\$ 2,017.00
900mb	\$ 667.63	25%	\$ 500.72	\$ 567.79	35%	\$ 369.06	\$ 534.51	35%	\$ 347.43	\$ 2,017.00
950mb	\$ 688.81	25%	\$ 516.60	\$ 584.93	35%	\$ 380.20	\$ 550.64	35%	\$ 357.92	\$ 2,017.00
1gb	\$ 705.95	25%	\$ 529.46	\$ 600.06	35%	\$ 390.04	\$ 564.76	35%	\$ 367.09	\$ 2,017.00
SNLAN with Interactive CoS (Incremental to Basic BW)										
2mb	\$ 93.79	25%	\$ 70.34	\$ 79.67	35%	\$ 51.79	\$ 149.26	35%	\$ 97.02	\$ -

4mb	\$ 93.79	25%	\$ 70.34	\$ 79.67	35%	\$ 51.79	\$ 74.63	35%	\$ 48.51	\$ -
6mb	\$ 93.79	25%	\$ 70.34	\$ 79.67	35%	\$ 51.79	\$ 74.63	35%	\$ 48.51	\$ -
8mb	\$ 93.79	25%	\$ 70.34	\$ 79.67	35%	\$ 51.79	\$ 74.63	35%	\$ 48.51	\$ -
10mb	\$ 93.79	25%	\$ 70.34	\$ 79.67	35%	\$ 51.79	\$ 74.63	35%	\$ 48.51	\$ -
15mb	\$ 93.79	25%	\$ 70.34	\$ 79.67	35%	\$ 51.79	\$ 74.63	35%	\$ 48.51	\$ -
20mb	\$ 93.79	25%	\$ 70.34	\$ 79.67	35%	\$ 51.79	\$ 74.63	35%	\$ 48.51	\$ -
25mb	\$ 93.79	25%	\$ 70.34	\$ 79.67	35%	\$ 51.79	\$ 74.63	35%	\$ 48.51	\$ -
30mb	\$ 93.79	25%	\$ 70.34	\$ 79.67	35%	\$ 51.79	\$ 74.63	35%	\$ 48.51	\$ -
35mb	\$ 93.79	25%	\$ 70.34	\$ 79.67	35%	\$ 51.79	\$ 74.63	35%	\$ 48.51	\$ -
40mb	\$ 93.79	25%	\$ 70.34	\$ 79.67	35%	\$ 51.79	\$ 74.63	35%	\$ 48.51	\$ -
45mb	\$ 96.82	25%	\$ 72.61	\$ 82.70	35%	\$ 53.75	\$ 77.65	35%	\$ 50.48	\$ -
50mb	\$ 102.87	25%	\$ 77.15	\$ 87.74	35%	\$ 57.03	\$ 82.70	35%	\$ 53.75	\$ -
55mb	\$ 109.93	25%	\$ 82.44	\$ 93.79	35%	\$ 60.96	\$ 87.74	35%	\$ 57.03	\$ -
60mb	\$ 116.99	25%	\$ 87.74	\$ 98.83	35%	\$ 64.24	\$ 92.78	35%	\$ 60.31	\$ -
65mb	\$ 123.04	25%	\$ 92.28	\$ 104.88	35%	\$ 68.17	\$ 98.83	35%	\$ 64.24	\$ -
70mb	\$ 130.10	25%	\$ 97.57	\$ 109.93	35%	\$ 71.45	\$ 103.88	35%	\$ 67.52	\$ -
75mb	\$ 136.15	25%	\$ 102.11	\$ 115.98	35%	\$ 75.39	\$ 108.92	35%	\$ 70.80	\$ -
80mb	\$ 143.21	25%	\$ 107.41	\$ 122.03	35%	\$ 79.32	\$ 113.96	35%	\$ 74.07	\$ -
85mb	\$ 149.26	25%	\$ 111.94	\$ 127.07	35%	\$ 82.60	\$ 120.01	35%	\$ 78.01	\$ -
90mb	\$ 156.32	25%	\$ 117.24	\$ 133.12	35%	\$ 86.53	\$ 125.05	35%	\$ 81.29	\$ -
95mb	\$ 162.37	25%	\$ 121.78	\$ 138.16	35%	\$ 89.81	\$ 130.10	35%	\$ 84.56	\$ -
100mb	\$ 169.43	25%	\$ 127.07	\$ 144.22	35%	\$ 93.74	\$ 135.14	35%	\$ 87.84	\$ -
150mb	\$ 179.51	25%	\$ 134.63	\$ 152.28	35%	\$ 98.98	\$ 144.22	35%	\$ 93.74	\$ -
200mb	\$ 189.60	25%	\$ 142.20	\$ 161.36	35%	\$ 104.88	\$ 152.28	35%	\$ 98.98	\$ -
250mb	\$ 200.69	25%	\$ 150.52	\$ 170.44	35%	\$ 110.78	\$ 160.35	35%	\$ 104.23	\$ -
300mb	\$ 210.78	25%	\$ 158.08	\$ 178.50	35%	\$ 116.03	\$ 168.42	35%	\$ 109.47	\$ -
350mb	\$ 220.86	25%	\$ 165.65	\$ 187.58	35%	\$ 121.93	\$ 176.49	35%	\$ 114.72	\$ -
400mb	\$ 230.95	25%	\$ 173.21	\$ 196.66	35%	\$ 127.83	\$ 184.56	35%	\$ 119.96	\$ -
450mb	\$ 241.03	25%	\$ 180.77	\$ 204.73	35%	\$ 133.07	\$ 193.63	35%	\$ 125.86	\$ -
500mb	\$ 252.13	25%	\$ 189.09	\$ 213.80	35%	\$ 138.97	\$ 201.70	35%	\$ 131.11	\$ -
550mb	\$ 262.21	25%	\$ 196.66	\$ 222.88	35%	\$ 144.87	\$ 209.77	35%	\$ 136.35	\$ -
600mb	\$ 272.30	25%	\$ 204.22	\$ 231.96	35%	\$ 150.77	\$ 217.84	35%	\$ 141.59	\$ -
650mb	\$ 282.38	25%	\$ 211.79	\$ 240.02	35%	\$ 156.01	\$ 225.90	35%	\$ 146.84	\$ -
700mb	\$ 292.47	25%	\$ 219.35	\$ 249.10	35%	\$ 161.91	\$ 233.97	35%	\$ 152.08	\$ -
750mb	\$ 303.56	25%	\$ 227.67	\$ 258.18	35%	\$ 167.81	\$ 242.04	35%	\$ 157.33	\$ -
800mb	\$ 313.64	25%	\$ 235.23	\$ 266.24	35%	\$ 173.06	\$ 251.12	35%	\$ 163.23	\$ -
850mb	\$ 323.73	25%	\$ 242.80	\$ 275.32	35%	\$ 178.96	\$ 259.18	35%	\$ 168.47	\$ -
900mb	\$ 333.81	25%	\$ 250.36	\$ 284.40	35%	\$ 184.86	\$ 267.25	35%	\$ 173.71	\$ -
950mb	\$ 343.90	25%	\$ 257.92	\$ 292.47	35%	\$ 190.10	\$ 275.32	35%	\$ 178.96	\$ -
1gb	\$ 352.98	25%	\$ 264.73	\$ 300.53	35%	\$ 195.35	\$ 282.38	35%	\$ 183.55	\$ -
Extended Native LAN (ENLAN)										
2mb	\$ 252.13	25%	\$ 189.09	\$ 214.31	35%	\$ 139.30	\$ 201.70	35%	\$ 131.11	\$ 504.25
4mb	\$ 289.94	25%	\$ 217.46	\$ 246.46	35%	\$ 160.20	\$ 231.96	35%	\$ 150.77	\$ 504.25
6mb	\$ 327.76	25%	\$ 245.82	\$ 278.60	35%	\$ 181.09	\$ 262.21	35%	\$ 170.44	\$ 504.25
8mb	\$ 365.58	25%	\$ 274.19	\$ 310.75	35%	\$ 201.99	\$ 292.47	35%	\$ 190.10	\$ 504.25
10mb	\$ 403.40	25%	\$ 302.55	\$ 342.89	35%	\$ 222.88	\$ 322.72	35%	\$ 209.77	\$ 504.25
15mb	\$ 431.42	25%	\$ 323.56	\$ 366.70	35%	\$ 238.36	\$ 345.13	35%	\$ 224.33	\$ 756.38
20mb	\$ 459.43	25%	\$ 344.57	\$ 390.51	35%	\$ 253.83	\$ 367.54	35%	\$ 238.90	\$ 756.38
25mb	\$ 487.44	25%	\$ 365.58	\$ 414.32	35%	\$ 269.31	\$ 389.96	35%	\$ 253.47	\$ 756.38
30mb	\$ 515.45	25%	\$ 386.59	\$ 438.13	35%	\$ 284.79	\$ 412.37	35%	\$ 268.04	\$ 756.38

35mb	\$ 543.47	25%	\$ 407.60	\$ 461.95	35%	\$ 300.27	\$ 434.77	35%	\$ 282.60	\$ 756.38
40mb	\$ 571.49	25%	\$ 428.62	\$ 485.76	35%	\$ 315.75	\$ 457.18	35%	\$ 297.17	\$ 756.38
45mb	\$ 599.49	25%	\$ 449.62	\$ 509.57	35%	\$ 331.22	\$ 479.60	35%	\$ 311.74	\$ 756.38
50mb	\$ 627.51	25%	\$ 470.63	\$ 533.39	35%	\$ 346.70	\$ 502.01	35%	\$ 326.31	\$ 756.38
55mb	\$ 655.53	25%	\$ 491.64	\$ 557.20	35%	\$ 362.18	\$ 524.42	35%	\$ 340.87	\$ 756.38
60mb	\$ 683.54	25%	\$ 512.66	\$ 581.01	35%	\$ 377.65	\$ 546.83	35%	\$ 355.44	\$ 756.38
65mb	\$ 711.56	25%	\$ 533.67	\$ 604.82	35%	\$ 393.13	\$ 569.24	35%	\$ 370.00	\$ 756.38
70mb	\$ 739.56	25%	\$ 554.67	\$ 628.63	35%	\$ 408.61	\$ 591.66	35%	\$ 384.58	\$ 756.38
75mb	\$ 767.58	25%	\$ 575.68	\$ 652.44	35%	\$ 424.09	\$ 614.07	35%	\$ 399.14	\$ 756.38
80mb	\$ 795.60	25%	\$ 596.70	\$ 676.26	35%	\$ 439.57	\$ 636.47	35%	\$ 413.71	\$ 756.38
85mb	\$ 823.61	25%	\$ 617.71	\$ 700.07	35%	\$ 455.05	\$ 658.88	35%	\$ 428.27	\$ 756.38
90mb	\$ 851.62	25%	\$ 638.71	\$ 723.88	35%	\$ 470.52	\$ 681.30	35%	\$ 442.85	\$ 756.38
95mb	\$ 879.63	25%	\$ 659.73	\$ 747.69	35%	\$ 486.00	\$ 703.71	35%	\$ 457.41	\$ 756.38
100mb	\$ 907.65	25%	\$ 680.74	\$ 771.50	35%	\$ 501.48	\$ 726.12	35%	\$ 471.98	\$ 756.38
125mb	\$ 1,058.93	25%	\$ 794.19	\$ 900.09	35%	\$ 585.06	\$ 847.14	35%	\$ 550.64	\$ 1,512.75
150mb	\$ 1,210.20	25%	\$ 907.65	\$ 1,028.67	35%	\$ 668.64	\$ 968.16	35%	\$ 629.30	\$ 1,512.75
175mb	\$ 1,361.48	25%	\$ 1,021.11	\$ 1,157.25	35%	\$ 752.21	\$ 1,089.18	35%	\$ 707.97	\$ 1,512.75
200mb	\$ 1,512.75	25%	\$ 1,134.56	\$ 1,285.84	35%	\$ 835.79	\$ 1,210.20	35%	\$ 786.63	\$ 1,512.75
225mb	\$ 1,664.03	25%	\$ 1,248.02	\$ 1,414.42	35%	\$ 919.37	\$ 1,331.22	35%	\$ 865.29	\$ 1,512.75
250mb	\$ 1,815.30	25%	\$ 1,361.48	\$ 1,543.01	35%	\$ 1,002.95	\$ 1,452.24	35%	\$ 943.96	\$ 1,512.75
275mb	\$ 1,916.15	25%	\$ 1,437.11	\$ 1,628.73	35%	\$ 1,058.67	\$ 1,532.92	35%	\$ 996.40	\$ 1,512.75
300mb	\$ 2,017.00	25%	\$ 1,512.75	\$ 1,714.45	35%	\$ 1,114.39	\$ 1,613.60	35%	\$ 1,048.84	\$ 1,512.75
325mb	\$ 2,117.85	25%	\$ 1,588.39	\$ 1,800.17	35%	\$ 1,170.11	\$ 1,694.28	35%	\$ 1,101.28	\$ 1,512.75
350mb	\$ 2,218.70	25%	\$ 1,664.03	\$ 1,885.90	35%	\$ 1,225.83	\$ 1,774.96	35%	\$ 1,153.72	\$ 2,017.00
375mb	\$ 2,319.55	25%	\$ 1,739.66	\$ 1,971.62	35%	\$ 1,281.55	\$ 1,855.64	35%	\$ 1,206.17	\$ 2,017.00
400mb	\$ 2,420.40	25%	\$ 1,815.30	\$ 2,057.34	35%	\$ 1,337.27	\$ 1,936.32	35%	\$ 1,258.61	\$ 2,017.00
425mb	\$ 2,521.25	25%	\$ 1,890.94	\$ 2,143.06	35%	\$ 1,392.99	\$ 2,017.00	35%	\$ 1,311.05	\$ 2,017.00
450mb	\$ 2,622.10	25%	\$ 1,966.58	\$ 2,228.79	35%	\$ 1,448.71	\$ 2,097.68	35%	\$ 1,363.49	\$ 2,017.00
475mb	\$ 2,722.95	25%	\$ 2,042.21	\$ 2,314.51	35%	\$ 1,504.43	\$ 2,178.36	35%	\$ 1,415.93	\$ 2,017.00
500mb	\$ 2,823.80	25%	\$ 2,117.85	\$ 2,400.23	35%	\$ 1,560.15	\$ 2,259.04	35%	\$ 1,468.38	\$ 2,017.00
525mb	\$ 2,924.65	25%	\$ 2,193.49	\$ 2,485.95	35%	\$ 1,615.87	\$ 2,339.72	35%	\$ 1,520.82	\$ 2,017.00
550mb	\$ 3,025.50	25%	\$ 2,269.13	\$ 2,571.68	35%	\$ 1,671.59	\$ 2,420.40	35%	\$ 1,573.26	\$ 2,017.00
575mb	\$ 3,126.35	25%	\$ 2,344.76	\$ 2,657.40	35%	\$ 1,727.31	\$ 2,501.08	35%	\$ 1,625.70	\$ 2,017.00
600mb	\$ 3,227.20	25%	\$ 2,420.40	\$ 2,743.12	35%	\$ 1,783.03	\$ 2,581.76	35%	\$ 1,678.14	\$ 2,017.00
625mb	\$ 3,328.05	25%	\$ 2,496.04	\$ 2,828.84	35%	\$ 1,838.75	\$ 2,662.44	35%	\$ 1,730.59	\$ 2,017.00
650mb	\$ 3,428.90	25%	\$ 2,571.68	\$ 2,914.57	35%	\$ 1,894.47	\$ 2,743.12	35%	\$ 1,783.03	\$ 2,017.00
675mb	\$ 3,529.75	25%	\$ 2,647.31	\$ 3,000.29	35%	\$ 1,950.19	\$ 2,823.80	35%	\$ 1,835.47	\$ 2,017.00
700mb	\$ 3,630.60	25%	\$ 2,722.95	\$ 3,086.01	35%	\$ 2,005.91	\$ 2,904.48	35%	\$ 1,887.91	\$ 2,017.00
725mb	\$ 3,731.45	25%	\$ 2,798.59	\$ 3,171.73	35%	\$ 2,061.63	\$ 2,985.16	35%	\$ 1,940.35	\$ 2,017.00
750mb	\$ 3,832.30	25%	\$ 2,874.23	\$ 3,257.46	35%	\$ 2,117.35	\$ 3,065.84	35%	\$ 1,992.80	\$ 2,017.00
775mb	\$ 3,902.90	25%	\$ 2,927.17	\$ 3,317.46	35%	\$ 2,156.35	\$ 3,122.32	35%	\$ 2,029.51	\$ 2,017.00
800mb	\$ 3,973.49	25%	\$ 2,980.12	\$ 3,377.47	35%	\$ 2,195.35	\$ 3,178.79	35%	\$ 2,066.21	\$ 2,017.00
825mb	\$ 4,044.09	25%	\$ 3,033.06	\$ 3,437.47	35%	\$ 2,234.36	\$ 3,235.27	35%	\$ 2,102.92	\$ 2,017.00
850mb	\$ 4,114.68	25%	\$ 3,086.01	\$ 3,497.48	35%	\$ 2,273.36	\$ 3,291.74	35%	\$ 2,139.63	\$ 2,017.00
875mb	\$ 4,185.28	25%	\$ 3,138.96	\$ 3,557.48	35%	\$ 2,312.36	\$ 3,348.22	35%	\$ 2,176.34	\$ 2,017.00
900mb	\$ 4,255.87	25%	\$ 3,191.90	\$ 3,617.49	35%	\$ 2,351.37	\$ 3,404.70	35%	\$ 2,213.05	\$ 2,017.00
925mb	\$ 4,326.47	25%	\$ 3,244.85	\$ 3,677.50	35%	\$ 2,390.37	\$ 3,461.17	35%	\$ 2,249.76	\$ 2,017.00
950mb	\$ 4,397.06	25%	\$ 3,297.80	\$ 3,737.50	35%	\$ 2,429.38	\$ 3,517.65	35%	\$ 2,286.47	\$ 2,017.00
975mb	\$ 4,467.66	25%	\$ 3,350.74	\$ 3,797.51	35%	\$ 2,468.38	\$ 3,574.12	35%	\$ 2,323.18	\$ 2,017.00
1gb	\$ 4,538.25	25%	\$ 3,403.69	\$ 3,857.51	35%	\$ 2,507.38	\$ 3,630.60	35%	\$ 2,359.89	\$ 2,017.00

ENLAN with Class of Service (Incremental to Basic BW)										
2mb	\$ 186.57	25%	\$ 139.93	\$ 158.59	35%	\$ 103.08	\$ 149.26	35%	\$ 97.02	\$ -
4mb	\$ 186.57	25%	\$ 139.93	\$ 158.59	35%	\$ 103.08	\$ 149.26	35%	\$ 97.02	\$ -
6mb	\$ 186.57	25%	\$ 139.93	\$ 158.59	35%	\$ 103.08	\$ 149.26	35%	\$ 97.02	\$ -
8mb	\$ 186.57	25%	\$ 139.93	\$ 158.59	35%	\$ 103.08	\$ 149.26	35%	\$ 97.02	\$ -
10mb	\$ 186.57	25%	\$ 139.93	\$ 158.59	35%	\$ 103.08	\$ 149.26	35%	\$ 97.02	\$ -
15mb	\$ 186.57	25%	\$ 139.93	\$ 158.59	35%	\$ 103.08	\$ 149.26	35%	\$ 97.02	\$ -
20mb	\$ 186.57	25%	\$ 139.93	\$ 158.59	35%	\$ 103.08	\$ 149.26	35%	\$ 97.02	\$ -
25mb	\$ 194.97	25%	\$ 146.23	\$ 165.73	35%	\$ 107.72	\$ 155.98	35%	\$ 101.39	\$ -
30mb	\$ 206.18	25%	\$ 154.63	\$ 175.26	35%	\$ 113.92	\$ 164.95	35%	\$ 107.22	\$ -
35mb	\$ 217.39	25%	\$ 163.04	\$ 184.78	35%	\$ 120.11	\$ 173.91	35%	\$ 113.04	\$ -
40mb	\$ 228.60	25%	\$ 171.45	\$ 194.31	35%	\$ 126.30	\$ 182.87	35%	\$ 118.87	\$ -
45mb	\$ 239.80	25%	\$ 179.85	\$ 203.83	35%	\$ 132.49	\$ 191.84	35%	\$ 124.69	\$ -
50mb	\$ 251.01	25%	\$ 188.25	\$ 213.36	35%	\$ 138.68	\$ 200.80	35%	\$ 130.52	\$ -
55mb	\$ 262.21	25%	\$ 196.66	\$ 222.88	35%	\$ 144.87	\$ 209.77	35%	\$ 136.35	\$ -
60mb	\$ 273.41	25%	\$ 205.06	\$ 232.40	35%	\$ 151.06	\$ 218.73	35%	\$ 142.18	\$ -
65mb	\$ 284.62	25%	\$ 213.46	\$ 241.93	35%	\$ 157.25	\$ 227.70	35%	\$ 148.00	\$ -
70mb	\$ 295.82	25%	\$ 221.87	\$ 251.45	35%	\$ 163.44	\$ 236.66	35%	\$ 153.83	\$ -
75mb	\$ 307.03	25%	\$ 230.27	\$ 260.98	35%	\$ 169.64	\$ 245.63	35%	\$ 159.66	\$ -
80mb	\$ 318.24	25%	\$ 238.68	\$ 270.50	35%	\$ 175.82	\$ 254.59	35%	\$ 165.48	\$ -
85mb	\$ 329.45	25%	\$ 247.09	\$ 280.03	35%	\$ 182.02	\$ 263.55	35%	\$ 171.31	\$ -
90mb	\$ 340.65	25%	\$ 255.49	\$ 289.55	35%	\$ 188.21	\$ 272.52	35%	\$ 177.14	\$ -
95mb	\$ 351.86	25%	\$ 263.89	\$ 299.08	35%	\$ 194.40	\$ 281.48	35%	\$ 182.96	\$ -
100mb	\$ 363.06	25%	\$ 272.30	\$ 308.60	35%	\$ 200.59	\$ 290.45	35%	\$ 188.79	\$ -
125mb	\$ 423.57	25%	\$ 317.68	\$ 360.03	35%	\$ 234.02	\$ 338.86	35%	\$ 220.26	\$ -
150mb	\$ 484.08	25%	\$ 363.06	\$ 411.47	35%	\$ 267.45	\$ 387.26	35%	\$ 251.72	\$ -
175mb	\$ 544.59	25%	\$ 408.44	\$ 462.90	35%	\$ 300.89	\$ 435.67	35%	\$ 283.19	\$ -
200mb	\$ 605.10	25%	\$ 453.83	\$ 514.34	35%	\$ 334.32	\$ 484.08	35%	\$ 314.65	\$ -
225mb	\$ 665.61	25%	\$ 499.21	\$ 565.77	35%	\$ 367.75	\$ 532.49	35%	\$ 346.12	\$ -
250mb	\$ 726.12	25%	\$ 544.59	\$ 617.20	35%	\$ 401.18	\$ 580.90	35%	\$ 377.58	\$ -
275mb	\$ 786.63	25%	\$ 589.97	\$ 668.63	35%	\$ 434.61	\$ 629.31	35%	\$ 409.04	\$ -
300mb	\$ 847.14	25%	\$ 635.36	\$ 720.07	35%	\$ 468.04	\$ 677.71	35%	\$ 440.51	\$ -
325mb	\$ 847.14	25%	\$ 635.36	\$ 720.07	35%	\$ 468.04	\$ 677.71	35%	\$ 440.51	\$ -
350mb	\$ 887.48	25%	\$ 665.61	\$ 754.36	35%	\$ 490.33	\$ 709.98	35%	\$ 461.49	\$ -
375mb	\$ 927.82	25%	\$ 695.87	\$ 788.65	35%	\$ 512.62	\$ 742.26	35%	\$ 482.47	\$ -
400mb	\$ 968.16	25%	\$ 726.12	\$ 822.94	35%	\$ 534.91	\$ 774.53	35%	\$ 503.44	\$ -
425mb	\$ 1,008.50	25%	\$ 756.38	\$ 857.23	35%	\$ 557.20	\$ 806.80	35%	\$ 524.42	\$ -
450mb	\$ 1,048.84	25%	\$ 786.63	\$ 891.51	35%	\$ 579.48	\$ 839.07	35%	\$ 545.40	\$ -
475mb	\$ 1,089.18	25%	\$ 816.89	\$ 925.80	35%	\$ 601.77	\$ 871.34	35%	\$ 566.37	\$ -
500mb	\$ 1,129.52	25%	\$ 847.14	\$ 960.09	35%	\$ 624.06	\$ 903.62	35%	\$ 587.35	\$ -
525mb	\$ 1,169.86	25%	\$ 877.40	\$ 994.38	35%	\$ 646.35	\$ 935.89	35%	\$ 608.33	\$ -
550mb	\$ 1,210.20	25%	\$ 907.65	\$ 1,028.67	35%	\$ 668.64	\$ 968.16	35%	\$ 629.30	\$ -
575mb	\$ 1,250.54	25%	\$ 937.91	\$ 1,062.96	35%	\$ 690.92	\$ 1,000.43	35%	\$ 650.28	\$ -
600mb	\$ 1,290.88	25%	\$ 968.16	\$ 1,097.25	35%	\$ 713.21	\$ 1,032.70	35%	\$ 671.26	\$ -
625mb	\$ 1,331.22	25%	\$ 998.42	\$ 1,131.54	35%	\$ 735.50	\$ 1,064.98	35%	\$ 692.23	\$ -
650mb	\$ 1,371.56	25%	\$ 1,028.67	\$ 1,165.83	35%	\$ 757.79	\$ 1,097.25	35%	\$ 713.21	\$ -
675mb	\$ 1,411.90	25%	\$ 1,058.93	\$ 1,200.12	35%	\$ 780.07	\$ 1,129.52	35%	\$ 734.19	\$ -
700mb	\$ 1,452.24	25%	\$ 1,089.18	\$ 1,234.40	35%	\$ 802.36	\$ 1,161.79	35%	\$ 755.16	\$ -
725mb	\$ 1,492.58	25%	\$ 1,119.44	\$ 1,268.69	35%	\$ 824.65	\$ 1,194.06	35%	\$ 776.14	\$ -
750mb	\$ 1,532.92	25%	\$ 1,149.69	\$ 1,302.98	35%	\$ 846.94	\$ 1,226.34	35%	\$ 797.12	\$ -
775mb	\$ 1,561.16	25%	\$ 1,170.87	\$ 1,326.98	35%	\$ 862.54	\$ 1,248.93	35%	\$ 811.80	\$ -

800mb	\$ 1,589.40	25%	\$ 1,192.05	\$ 1,350.99	35%	\$ 878.14	\$ 1,271.52	35%	\$ 826.49	\$ -
825mb	\$ 1,617.63	25%	\$ 1,213.23	\$ 1,374.99	35%	\$ 893.74	\$ 1,294.11	35%	\$ 841.17	\$ -
850mb	\$ 1,645.87	25%	\$ 1,234.40	\$ 1,398.99	35%	\$ 909.34	\$ 1,316.70	35%	\$ 855.85	\$ -
875mb	\$ 1,674.11	25%	\$ 1,255.58	\$ 1,422.99	35%	\$ 924.95	\$ 1,339.29	35%	\$ 870.54	\$ -
900mb	\$ 1,702.35	25%	\$ 1,276.76	\$ 1,447.00	35%	\$ 940.55	\$ 1,361.88	35%	\$ 885.22	\$ -
925mb	\$ 1,730.59	25%	\$ 1,297.94	\$ 1,471.00	35%	\$ 956.15	\$ 1,384.47	35%	\$ 899.90	\$ -
950mb	\$ 1,758.82	25%	\$ 1,319.12	\$ 1,495.00	35%	\$ 971.75	\$ 1,407.06	35%	\$ 914.59	\$ -
975mb	\$ 1,787.06	25%	\$ 1,340.30	\$ 1,519.00	35%	\$ 987.35	\$ 1,429.65	35%	\$ 929.27	\$ -
1gb	\$ 1,815.30	25%	\$ 1,361.48	\$ 1,543.01	35%	\$ 1,002.95	\$ 1,149.69	35%	\$ 747.30	\$ -
VLAN Tags										
VLAN Tag each per month	\$ 14.98	0%	\$ 14.98	\$ 14.98	0%	\$ 14.98	\$ 14.98	0%	\$ 14.98	\$ -
NLAN Ports										
Ethernet 10/100 Mbps	\$ 327.76	25%	\$ 245.82	\$ 278.35	35%	\$ 180.92	\$ 262.21	35%	\$ 170.44	\$ -
Ethernet 1 Gbps	\$ 705.95	25%	\$ 529.46	\$ 600.06	35%	\$ 390.04	\$ 564.76	35%	\$ 367.09	\$ -
Ethernet 10 Gbps	\$ 2,017.00	25%	\$ 1,512.75	\$ 1,714.45	35%	\$ 1,114.39	\$ 1,613.60	35%	\$ 1,048.84	\$ -
2.3.2 Digital Subscriber Line (xDSL)										
No Bid										
2.3.3 Frame Relay										
No Bid. tw telecom is proposing our MPLS service, IP VPN, within section 2.3.6 and SNLAN within section 2.3.1 of this response as an alternative to Frame Relay.										
2.3.4. Point-to-Point Dedicated Line										
Local Transport Prem to Prem										
DS-1	ICB	ICB	ICB	\$ 163.33	20%	\$ 130.66	ICB	ICB	ICB	ICB
DS-3 (Clear Channel)	ICB	ICB	ICB	\$ 1,045.50	20%	\$ 836.40	ICB	ICB	ICB	ICB
OC-3 (2 fiber)	ICB	ICB	ICB	\$ 1,939.78	20%	\$ 1,551.82	ICB	ICB	ICB	ICB
OC-3 (4 fiber)	ICB	ICB	ICB	\$ 2,522.52	20%	\$ 2,018.01	ICB	ICB	ICB	ICB
OC-12 (2 fiber)	ICB	ICB	ICB	\$ 5,836.47	20%	\$ 4,669.18	ICB	ICB	ICB	ICB
OC-12 (4 fiber)	ICB	ICB	ICB	\$ 7,586.71	20%	\$ 6,069.36	ICB	ICB	ICB	ICB
OC-48 (2 fiber)	ICB	ICB	ICB	\$ 16,162.45	20%	\$ 12,929.96	ICB	ICB	ICB	ICB
OC-48 (4 fiber)	ICB	ICB	ICB	\$ 21,010.89	20%	\$ 16,808.71	ICB	ICB	ICB	ICB
Local Transport Pop to Prem										
DS-1	ICB	ICB	ICB	\$ 137.16	20%	\$ 109.72	ICB	ICB	ICB	ICB
DS-3 (Clear Channel)	ICB	ICB	ICB	\$ 857.23	20%	\$ 685.78	ICB	ICB	ICB	ICB
OC-3 (2 fiber)	ICB	ICB	ICB	\$ 1,366.52	20%	\$ 1,093.21	ICB	ICB	ICB	ICB
OC-3 (4 fiber)	ICB	ICB	ICB	\$ 1,775.97	20%	\$ 1,420.77	ICB	ICB	ICB	ICB
OC-12 (2 fiber)	ICB	ICB	ICB	\$ 4,004.75	20%	\$ 3,203.80	ICB	ICB	ICB	ICB
OC-12 (4 fiber)	ICB	ICB	ICB	\$ 5,205.88	20%	\$ 4,164.70	ICB	ICB	ICB	ICB
OC-48 (2 fiber)	ICB	ICB	ICB	\$ 10,977.52	20%	\$ 8,782.02	ICB	ICB	ICB	ICB
OC-48 (4 fiber)	ICB	ICB	ICB	\$ 14,271.28	20%	\$ 11,417.03	ICB	ICB	ICB	ICB
Local Transport Pop to Pop										
DS-1	ICB	ICB	ICB	\$ 137.16	20%	\$ 109.72	ICB	ICB	ICB	ICB
DS-3 (Clear Channel)	ICB	ICB	ICB	\$ 468.95	20%	\$ 375.16	ICB	ICB	ICB	ICB
OC-3 (2 fiber)	ICB	ICB	ICB	\$ 1,164.82	20%	\$ 931.85	ICB	ICB	ICB	ICB
OC-3 (4 fiber)	ICB	ICB	ICB	\$ 1,513.76	20%	\$ 1,211.01	ICB	ICB	ICB	ICB

OC-12 (2 fiber)	ICB	ICB	ICB	\$ 3,006.34	20%	\$ 2,405.07	ICB	ICB	ICB	ICB
OC-12 (4 fiber)	ICB	ICB	ICB	\$ 3,907.94	20%	\$ 3,126.35	ICB	ICB	ICB	ICB
OC-48 (2 fiber)	ICB	ICB	ICB	\$ 8,778.99	20%	\$ 7,023.19	ICB	ICB	ICB	ICB
OC-48 (4 fiber)	ICB	ICB	ICB	\$ 11,412.19	20%	\$ 9,129.75	ICB	ICB	ICB	ICB
Point to Multi PT Entrance Facility										
DS-3 (Clear Channel)	ICB	ICB	ICB	\$ 499.21	30%	\$ 349.45	ICB	ICB	ICB	ICB
OC-3 (2 fiber)	ICB	ICB	ICB	\$ 998.42	30%	\$ 698.89	ICB	ICB	ICB	ICB
OC-3 (4 fiber)	ICB	ICB	ICB	\$ 1,297.94	30%	\$ 908.56	ICB	ICB	ICB	ICB
OC-12 (2 fiber)	ICB	ICB	ICB	\$ 2,722.95	30%	\$ 1,906.07	ICB	ICB	ICB	ICB
OC-12 (4 fiber)	ICB	ICB	ICB	\$ 3,539.84	30%	\$ 2,477.88	ICB	ICB	ICB	ICB
OC-48 (2 fiber)	ICB	ICB	ICB	\$ 8,168.85	30%	\$ 5,718.20	ICB	ICB	ICB	ICB
OC-48 (4 fiber)	ICB	ICB	ICB	\$ 10,619.51	30%	\$ 7,433.65	ICB	ICB	ICB	ICB
Point to Multi PT End Links										
DS-1	ICB	ICB	ICB	\$ 68.58	30%	\$ 48.00	ICB	ICB	ICB	ICB
DS-3 (Clear Channel)	ICB	ICB	ICB	\$ 428.61	30%	\$ 300.03	ICB	ICB	ICB	ICB
OC-3 (2 fiber)	ICB	ICB	ICB	\$ 682.75	30%	\$ 477.93	ICB	ICB	ICB	ICB
OC-3 (4 fiber)	ICB	ICB	ICB	\$ 888.49	30%	\$ 621.94	ICB	ICB	ICB	ICB
OC-12 (2 fiber)	ICB	ICB	ICB	\$ 2,001.87	30%	\$ 1,401.31	ICB	ICB	ICB	ICB
OC-12 (4 fiber)	ICB	ICB	ICB	\$ 2,602.94	30%	\$ 1,822.06	ICB	ICB	ICB	ICB
OC-48 (2 fiber)	ICB	ICB	ICB	\$ 5,489.27	30%	\$ 3,842.49	ICB	ICB	ICB	ICB
OC-48 (4 fiber)	ICB	ICB	ICB	\$ 7,135.14	30%	\$ 4,994.60	ICB	ICB	ICB	ICB
Local Wavelength Prem to Prem										
2.5G (2-Fiber, Linear, Unprotected)	ICB	ICB	ICB	\$ 9,614.03	30%	\$ 6,729.82	ICB	ICB	ICB	ICB
2.5G (2-Fiber, Network Protected)	ICB	ICB	ICB	\$ 14,804.78	30%	\$ 10,363.35	ICB	ICB	ICB	ICB
10G (2-Fiber, Linear, Unprotected)	ICB	ICB	ICB	\$ 12,858.38	30%	\$ 9,000.86	ICB	ICB	ICB	ICB
10G (2-Fiber, Network Protected)	ICB	ICB	ICB	\$ 19,801.90	30%	\$ 13,861.33	ICB	ICB	ICB	ICB
Local Wavelength POP to Prem										
2.5G, 2-Fiber Linear Unprotected	ICB	ICB	ICB	\$ 7,210.78	30%	\$ 5,047.54	ICB	ICB	ICB	ICB
2.5G, 2-Fiber Network Protected	ICB	ICB	ICB	\$ 11,103.59	30%	\$ 7,772.51	ICB	ICB	ICB	ICB
10G WAN PHY, 2-Fiber Linear Unprotected	ICB	ICB	ICB	\$ 9,644.29	30%	\$ 6,751.00	ICB	ICB	ICB	ICB
10G WAN PHY, 2-Fiber Network Protected	ICB	ICB	ICB	\$ 14,851.17	30%	\$ 10,395.82	ICB	ICB	ICB	ICB
Local Wavelength POP to POP										
2.5G, 2-Fiber Linear Unprotected	ICB	ICB	ICB	\$ 6,248.67	30%	\$ 4,374.07	ICB	ICB	ICB	ICB
2.5G, 2-Fiber Network Protected	ICB	ICB	ICB	\$ 9,623.11	30%	\$ 6,736.17	ICB	ICB	ICB	ICB
10G WAN PHY, 2-Fiber Linear Unprotected	ICB	ICB	ICB	\$ 8,358.45	30%	\$ 5,850.91	ICB	ICB	ICB	ICB
10G WAN PHY, 2-Fiber Network Protected	ICB	ICB	ICB	\$ 12,871.49	30%	\$ 9,010.04	ICB	ICB	ICB	ICB
**tw telecom can provide Long Haul Transport on a case-by-case basis.										
**LAN PHY is available inter-island.										
2.3.5. Internet Service Provider (ISP)										
1.5 Mbps	\$ 225.90	25%	\$ 169.43	\$ 191.62	30%	\$ 134.13	\$ 180.52	35%	\$ 117.34	\$ 504.25
2 Mbps	\$ 225.90	25%	\$ 169.43	\$ 191.62	30%	\$ 154.00	\$ 180.52	35%	\$ 117.34	\$ 756.38
3 Mbps	\$ 257.17	25%	\$ 192.88	\$ 218.84	30%	\$ 185.50	\$ 205.73	35%	\$ 133.73	\$ 756.38
4 Mbps	\$ 287.42	25%	\$ 215.57	\$ 244.06	30%	\$ 202.30	\$ 229.94	35%	\$ 149.46	\$ 756.38
4.5 Mbps	\$ 302.55	25%	\$ 226.91	\$ 257.17	30%	\$ 214.20	\$ 242.04	35%	\$ 157.33	\$ 756.38

6 Mbps	\$ 347.93	25%	\$ 260.95	\$ 295.49	30%	\$ 252.70	\$ 278.35	35%	\$ 180.92	\$ 756.38
7.5 Mbps	\$ 398.36	25%	\$ 298.77	\$ 338.86	30%	\$ 288.40	\$ 318.69	35%	\$ 207.15	\$ 756.38
8 Mbps	\$ 413.49	25%	\$ 310.11	\$ 351.97	30%	\$ 300.30	\$ 330.79	35%	\$ 215.01	\$ 756.38
9 Mbps	\$ 443.74	25%	\$ 332.81	\$ 377.18	30%	\$ 324.10	\$ 354.99	35%	\$ 230.74	\$ 756.38
10 Mbps	\$ 474.00	25%	\$ 355.50	\$ 403.40	30%	\$ 349.30	\$ 379.20	35%	\$ 246.48	\$ 756.38
10.5 Mbps	\$ 489.12	25%	\$ 366.84	\$ 415.50	30%	\$ 357.00	\$ 391.30	35%	\$ 254.34	\$ 756.38
12 Mbps	\$ 524.42	25%	\$ 393.32	\$ 445.76	30%	\$ 383.60	\$ 419.54	35%	\$ 272.70	\$ 756.38
15 Mbps	\$ 600.06	25%	\$ 450.04	\$ 510.30	30%	\$ 357.21	\$ 480.05	35%	\$ 312.03	\$ 756.38
20 Mbps	\$ 726.12	25%	\$ 544.59	\$ 617.20	30%	\$ 432.04	\$ 580.90	35%	\$ 377.58	\$ 756.38
25 Mbps	\$ 852.18	25%	\$ 639.14	\$ 724.10	30%	\$ 506.87	\$ 681.75	35%	\$ 443.13	\$ 756.38
30 Mbps	\$ 978.25	25%	\$ 733.68	\$ 832.01	30%	\$ 582.41	\$ 782.60	35%	\$ 508.69	\$ 756.38
35 Mbps	\$ 1,104.31	25%	\$ 828.23	\$ 938.91	30%	\$ 657.24	\$ 883.45	35%	\$ 574.24	\$ 1,512.75
40 Mbps	\$ 1,230.37	25%	\$ 922.78	\$ 1,045.81	30%	\$ 732.07	\$ 984.30	35%	\$ 639.79	\$ 1,512.75
45 Mbps	\$ 1,356.43	25%	\$ 1,017.32	\$ 1,152.72	30%	\$ 806.90	\$ 1,085.15	35%	\$ 705.34	\$ 1,512.75
50 Mbps	\$ 1,482.50	25%	\$ 1,111.87	\$ 1,260.63	30%	\$ 882.44	\$ 1,186.00	35%	\$ 770.90	\$ 1,512.75
55 Mbps	\$ 1,527.88	25%	\$ 1,145.91	\$ 1,298.95	30%	\$ 909.26	\$ 1,222.30	35%	\$ 794.50	\$ 1,512.75
60 Mbps	\$ 1,578.30	25%	\$ 1,183.73	\$ 1,341.31	30%	\$ 938.91	\$ 1,262.64	35%	\$ 820.72	\$ 1,512.75
65 Mbps	\$ 1,623.69	25%	\$ 1,217.76	\$ 1,380.64	30%	\$ 966.45	\$ 1,298.95	35%	\$ 844.32	\$ 1,512.75
70 Mbps	\$ 1,674.11	25%	\$ 1,255.58	\$ 1,422.99	30%	\$ 996.10	\$ 1,339.29	35%	\$ 870.54	\$ 1,512.75
75 Mbps	\$ 1,719.49	25%	\$ 1,289.62	\$ 1,461.32	30%	\$ 1,022.92	\$ 1,375.59	35%	\$ 894.14	\$ 1,512.75
80 Mbps	\$ 1,764.88	25%	\$ 1,323.66	\$ 1,500.65	30%	\$ 1,050.45	\$ 1,411.90	35%	\$ 917.74	\$ 1,512.75
85 Mbps	\$ 1,815.30	25%	\$ 1,361.48	\$ 1,543.01	30%	\$ 1,080.10	\$ 1,452.24	35%	\$ 943.96	\$ 1,512.75
90 Mbps	\$ 1,860.68	25%	\$ 1,395.51	\$ 1,581.33	30%	\$ 1,106.93	\$ 1,488.55	35%	\$ 967.55	\$ 1,512.75
95 Mbps	\$ 1,911.11	25%	\$ 1,433.33	\$ 1,624.69	30%	\$ 1,137.29	\$ 1,528.89	35%	\$ 993.78	\$ 1,512.75
100 Mbps	\$ 1,956.49	25%	\$ 1,467.37	\$ 1,663.02	30%	\$ 1,164.11	\$ 1,565.19	35%	\$ 1,017.37	\$ 1,512.75
125 Mbps	\$ 2,233.83	25%	\$ 1,675.37	\$ 1,899.01	30%	\$ 1,329.30	\$ 1,787.06	35%	\$ 1,161.59	\$ 1,512.75
150 Mbps	\$ 2,516.21	25%	\$ 1,887.16	\$ 2,139.03	30%	\$ 1,497.32	\$ 2,012.97	35%	\$ 1,308.43	\$ 2,017.00
155 Mbps	\$ 2,571.68	25%	\$ 1,928.76	\$ 2,186.43	30%	\$ 1,530.50	\$ 2,057.34	35%	\$ 1,337.27	\$ 2,017.00
175 Mbps	\$ 2,793.55	25%	\$ 2,095.16	\$ 2,375.02	30%	\$ 1,662.51	\$ 2,234.84	35%	\$ 1,452.64	\$ 2,017.00
200 Mbps	\$ 3,070.88	25%	\$ 2,303.16	\$ 2,610.00	30%	\$ 1,827.00	\$ 2,456.71	35%	\$ 1,596.86	\$ 2,017.00
225 Mbps	\$ 3,353.26	25%	\$ 2,514.95	\$ 2,850.02	30%	\$ 1,995.01	\$ 2,682.61	35%	\$ 1,743.70	\$ 2,017.00
250 Mbps	\$ 3,630.60	25%	\$ 2,722.95	\$ 3,086.01	30%	\$ 2,160.21	\$ 2,904.48	35%	\$ 1,887.91	\$ 2,017.00
300 Mbps	\$ 4,210.49	25%	\$ 3,157.87	\$ 3,579.17	30%	\$ 2,505.42	\$ 3,368.39	35%	\$ 2,189.45	\$ 2,017.00
350 Mbps	\$ 4,790.38	25%	\$ 3,592.78	\$ 4,072.32	30%	\$ 2,850.63	\$ 3,832.30	35%	\$ 2,491.00	\$ 2,017.00
400 Mbps	\$ 5,365.22	25%	\$ 4,023.92	\$ 4,560.44	30%	\$ 3,192.31	\$ 4,292.18	35%	\$ 2,789.91	\$ 2,017.00
450 Mbps	\$ 5,945.11	25%	\$ 4,458.83	\$ 5,053.59	30%	\$ 3,537.52	\$ 4,756.09	35%	\$ 3,091.46	\$ 2,017.00
500 Mbps	\$ 6,525.00	25%	\$ 4,893.75	\$ 5,546.75	30%	\$ 3,882.73	\$ 5,220.00	35%	\$ 3,393.00	\$ 2,017.00
550 Mbps	\$ 6,822.50	25%	\$ 5,116.88	\$ 5,798.88	30%	\$ 4,059.21	\$ 5,458.00	35%	\$ 3,547.70	\$ 2,017.00
600 Mbps	\$ 7,114.97	25%	\$ 5,336.23	\$ 6,047.97	30%	\$ 4,233.58	\$ 5,691.97	35%	\$ 3,699.78	\$ 2,017.00
622 Mbps	\$ 7,246.07	25%	\$ 5,434.55	\$ 6,158.91	30%	\$ 4,311.24	\$ 5,796.86	35%	\$ 3,767.96	\$ 2,017.00
650 Mbps	\$ 7,412.48	25%	\$ 5,559.36	\$ 6,301.11	30%	\$ 4,410.78	\$ 5,929.98	35%	\$ 3,854.49	\$ 2,017.00
700 Mbps	\$ 7,704.94	25%	\$ 5,778.71	\$ 6,549.20	30%	\$ 4,584.44	\$ 6,163.95	35%	\$ 4,006.57	\$ 2,017.00
750 Mbps	\$ 8,002.45	25%	\$ 6,001.84	\$ 6,802.33	30%	\$ 4,761.63	\$ 6,401.96	35%	\$ 4,161.27	\$ 2,017.00
800 Mbps	\$ 8,299.96	25%	\$ 6,224.97	\$ 7,055.47	30%	\$ 4,938.83	\$ 6,639.96	35%	\$ 4,315.98	\$ 2,017.00
850 Mbps	\$ 8,592.42	25%	\$ 6,444.32	\$ 7,303.56	30%	\$ 5,112.49	\$ 6,873.94	35%	\$ 4,468.06	\$ 2,017.00
900 Mbps	\$ 8,889.93	25%	\$ 6,667.45	\$ 7,556.69	30%	\$ 5,289.68	\$ 7,111.94	35%	\$ 4,622.76	\$ 2,017.00
950 Mbps	\$ 9,182.39	25%	\$ 6,886.79	\$ 7,804.78	30%	\$ 5,463.35	\$ 7,345.91	35%	\$ 4,774.84	\$ 2,017.00
1000 Mbps	\$ 9,479.90	25%	\$ 7,109.93	\$ 8,057.92	30%	\$ 5,640.54	\$ 7,583.92	35%	\$ 4,929.55	\$ 2,017.00
1500 Mbps	\$ 12,399.51	25%	\$ 9,299.63	\$ 10,539.83	30%	\$ 7,377.88	\$ 9,919.61	35%	\$ 6,447.74	\$ 5,042.50
2000 Mbps	\$ 15,324.16	25%	\$ 11,493.12	\$ 13,025.79	30%	\$ 9,118.05	\$ 12,259.33	35%	\$ 7,968.56	\$ 5,042.50
2488 Mbps	\$ 18,173.17	25%	\$ 13,629.88	\$ 15,447.19	30%	\$ 10,813.04	\$ 14,538.54	35%	\$ 9,450.05	\$ 5,042.50

2500 Mbps	\$ 18,243.77	25%	\$ 13,682.82	\$ 15,507.70	30%	\$ 10,855.39	\$ 14,595.01	35%	\$ 9,486.76	\$ 5,042.50
3000 Mbps	\$ 21,163.37	25%	\$ 15,872.53	\$ 17,988.61	30%	\$ 12,592.03	\$ 16,930.70	35%	\$ 11,004.95	\$ 5,042.50
3500 Mbps	\$ 24,088.02	25%	\$ 18,066.02	\$ 20,474.57	30%	\$ 14,332.20	\$ 19,270.42	35%	\$ 12,525.77	\$ 5,042.50
4000 Mbps	\$ 27,007.63	25%	\$ 20,255.72	\$ 22,956.49	30%	\$ 16,069.54	\$ 21,606.10	35%	\$ 14,043.97	\$ 5,042.50
4500 Mbps	\$ 29,927.24	25%	\$ 22,445.43	\$ 25,438.40	30%	\$ 17,806.88	\$ 23,941.79	35%	\$ 15,562.16	\$ 5,042.50
5000 Mbps	\$ 32,851.89	25%	\$ 24,638.92	\$ 27,924.36	30%	\$ 19,547.05	\$ 26,281.51	35%	\$ 17,082.98	\$ 5,042.50
5500 Mbps	\$ 35,771.50	25%	\$ 26,828.62	\$ 30,406.28	30%	\$ 21,284.39	\$ 28,617.20	35%	\$ 18,601.18	\$ 5,042.50
6000 Mbps	\$ 38,691.10	25%	\$ 29,018.33	\$ 32,887.19	30%	\$ 23,021.03	\$ 30,952.88	35%	\$ 20,119.37	\$ 5,042.50
6500 Mbps	\$ 41,615.75	25%	\$ 31,211.81	\$ 35,373.14	30%	\$ 24,761.20	\$ 33,292.60	35%	\$ 21,640.19	\$ 5,042.50
7000 Mbps	\$ 44,535.36	25%	\$ 33,401.52	\$ 37,855.06	30%	\$ 26,498.54	\$ 35,628.29	35%	\$ 23,158.39	\$ 5,042.50
7500 Mbps	\$ 47,454.97	25%	\$ 35,591.23	\$ 40,336.97	30%	\$ 28,235.88	\$ 37,963.97	35%	\$ 24,676.58	\$ 5,042.50
8000 Mbps	\$ 50,379.62	25%	\$ 37,784.71	\$ 42,822.93	30%	\$ 29,976.05	\$ 40,303.69	35%	\$ 26,197.40	\$ 5,042.50
8500 Mbps	\$ 53,299.23	25%	\$ 39,974.42	\$ 45,304.85	30%	\$ 31,713.39	\$ 42,639.38	35%	\$ 27,715.60	\$ 5,042.50
9000 Mbps	\$ 56,218.83	25%	\$ 42,164.12	\$ 47,785.76	30%	\$ 33,450.03	\$ 44,975.07	35%	\$ 29,233.79	\$ 5,042.50
9500 Mbps	\$ 59,138.44	25%	\$ 44,353.83	\$ 50,267.67	30%	\$ 35,187.37	\$ 47,310.75	35%	\$ 30,751.99	\$ 5,042.50
10000 Mbps	\$ 62,062.08	25%	\$ 46,546.56	\$ 52,752.62	30%	\$ 36,926.83	\$ 49,649.46	35%	\$ 32,272.15	\$ 5,042.50
Internet Port										
T1	\$ 225.90	25%	\$ 169.43	\$ 72.00	30%	\$ 50.40	\$ 68.58	35%	\$ 44.58	\$ -
DS-3	\$ 327.76	25%	\$ 245.82	\$ 276.00	30%	\$ 193.20	\$ 262.21	35%	\$ 170.44	\$ -
OC-3	\$ 922.78	25%	\$ 692.08	\$ 778.00	30%	\$ 544.60	\$ 738.22	35%	\$ 479.84	\$ -
OC-12	\$ 1,769.92	25%	\$ 1,327.44	\$ 1,492.00	30%	\$ 1,044.40	\$ 1,415.93	35%	\$ 920.36	\$ -
OC-48	\$ 6,051.00	25%	\$ 4,538.25	\$ 5,100.00	30%	\$ 3,570.00	\$ 4,840.80	35%	\$ 3,146.52	\$ -
Ethernet 10 Mbps	\$ 327.76	25%	\$ 245.82	\$ 276.00	30%	\$ 193.20	\$ 262.21	35%	\$ 170.44	\$ -
Ethernet 100 Mbps	\$ 327.76	25%	\$ 245.82	\$ 276.00	30%	\$ 193.20	\$ 262.21	35%	\$ 170.44	\$ -
Ethernet 1 Gbps	\$ 705.95	25%	\$ 529.46	\$ 595.00	30%	\$ 416.50	\$ 564.76	35%	\$ 367.09	\$ -
Ethernet 10 Gbps	\$ 5,042.50	25%	\$ 3,781.88	\$ 4,250.00	30%	\$ 2,975.00	\$ 4,034.00	35%	\$ 2,622.10	\$ -
2.3.6. Other Services										
Voice T1 Service										
Voice T1 (1.5Mbps)	\$ 514.34	20%	\$ 411.47	\$ 428.61	45%	\$ 235.00	\$ 407.43	45%	\$ 224.09	\$ 504.25
Standard Voice Features:	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Blocking Services (Call Blocking, Toll Restriction, and Bill Restriction)	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Multi-Line Hunting (Regular, Circular, Universal Call Distribution)	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Series Completion Hunting (Regular, Circular)	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Calling Number Delivery	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Caller ID Blocking (Prevents a customer's telephone number and name from being displayed on a called party's Caller ID equipment)	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Trunk Features: The following features may be purchased when trunks are provisioned on the applicable product.	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Call Transfer (requires CAS/Digital Trunk signaling)	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB
Two B-Channel Transfer (requires ISDN signaling)	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB

First 3 Trunk Groups per T1*	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge
Each Additional Trunk Group per T1*	\$ 50.43	0%	\$ 50.43	\$ 50.43	0%	\$ 50.43	\$ 50.43	0%	\$ 50.43	\$ 50.43
First 3 Route Indexes per Trunk Group*	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge
Each Additional Route Index per Trunk Group*	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB	\$ 54.25
DNIS (only available on dedicated LD product)	\$ 5.04	0%	\$ 5.04	\$ 5.04	0%	\$ 5.04	\$ 5.04	0%	\$ 5.04	\$ -
CARE CPN Management	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB
E911 CPN Management	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB	ICB
Redirected Number (requires ISDN signaling)	\$ 50.43	0%	\$ 50.43	\$ 50.43	0%	\$ 50.43	\$ 50.43	0%	\$ 50.43	\$ -
Individual Telephone Number 100 Numbers or Less (Hawaii Only)	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge
Individual Telephone Number 100+ Numbers (Hawaii Only) (Per ITN)	\$ 0.10	0%	\$ 0.10	\$ 0.10	0%	\$ 0.10	\$ 0.10	0%	\$ 0.10	\$ 0.35
Directory Listing (1st is free, \$0.91 each additional)	\$ 0.91	0%	\$ 0.91	\$ 0.91	0%	\$ 0.91	\$ 0.91	0%	\$ 0.91	\$ -
Directory Assistance (A Customer's first 10 calls per service location per month to Directory Assistance are at no additional charge. \$0.20 per instance after.)	\$ 0.20	0%	\$ 0.20	\$ 0.20	0%	\$ 0.20	\$ 0.20	0%	\$ 0.20	\$ -
Voice Mail (Per Mailbox/Per Line)	\$ 7.01	0%	\$ 7.01	\$ 7.01	0%	\$ 7.01	\$ 7.01	0%	\$ 7.01	\$ -

* Each Voice T1 facility includes a monthly allowance of 5,000 long distance minutes that may be used for interLATA domestic, and where available, intraLATA calling.

* tw telecom also provides International termination Long Distance. Pricing available upon request.

E-Line UNI--Ethernet Service

100M Transparent	\$ 327.76	25%	\$ 245.82	\$ 278.60	35%	\$ 181.09	\$ 262.21	35%	\$ 170.44
1G Transparent	\$ 705.95	25%	\$ 529.46	\$ 600.06	35%	\$ 390.04	\$ 564.76	35%	\$ 367.09
10G Transparent	\$ 2,017.00	25%	\$ 1,512.75	\$ 1,714.45	35%	\$ 1,114.39	\$ 1,613.60	35%	\$ 1,048.84
100M Multiplexed	\$ 504.25	25%	\$ 378.19	\$ 428.61	35%	\$ 278.60	\$ 403.40	35%	\$ 262.21
1G Multiplexed	\$ 857.23	25%	\$ 642.92	\$ 728.64	35%	\$ 473.62	\$ 685.78	35%	\$ 445.76
10G Multiplexed	\$ 2,218.70	25%	\$ 1,664.03	\$ 1,885.90	35%	\$ 1,225.83	\$ 1,774.96	35%	\$ 1,153.72

E-Line Shared Metro EVC

2 Mbps	\$ 75.64	25%	\$ 56.73	\$ 64.29	30%	\$ 45.00	\$ 60.51	35%	\$ 39.33	\$ 504.25
4 Mbps	\$ 120.01	25%	\$ 90.01	\$ 102.01	30%	\$ 71.41	\$ 96.01	35%	\$ 62.41	\$ 504.25
6 Mbps	\$ 164.39	25%	\$ 123.29	\$ 139.73	30%	\$ 97.81	\$ 131.51	35%	\$ 85.48	\$ 504.25
8 Mbps	\$ 208.76	25%	\$ 156.57	\$ 177.45	30%	\$ 124.21	\$ 167.01	35%	\$ 108.55	\$ 504.25
10 Mbps	\$ 252.13	25%	\$ 189.09	\$ 214.31	30%	\$ 150.01	\$ 201.70	35%	\$ 131.11	\$ 504.25
15 Mbps	\$ 294.48	25%	\$ 220.86	\$ 250.31	30%	\$ 175.22	\$ 235.59	35%	\$ 153.13	\$ 504.25
20 Mbps	\$ 336.84	25%	\$ 252.63	\$ 286.31	30%	\$ 200.42	\$ 269.47	35%	\$ 175.16	\$ 504.25
25 Mbps	\$ 379.20	25%	\$ 284.40	\$ 322.32	30%	\$ 225.62	\$ 303.36	35%	\$ 197.18	\$ 504.25
30 Mbps	\$ 421.55	25%	\$ 316.16	\$ 358.32	30%	\$ 250.82	\$ 337.24	35%	\$ 219.21	\$ 504.25
35 Mbps	\$ 463.91	25%	\$ 347.93	\$ 394.32	30%	\$ 276.03	\$ 371.13	35%	\$ 241.23	\$ 504.25
40 Mbps	\$ 506.27	25%	\$ 379.70	\$ 430.33	30%	\$ 301.23	\$ 405.01	35%	\$ 263.26	\$ 504.25
45 Mbps	\$ 548.62	25%	\$ 411.47	\$ 466.33	30%	\$ 326.43	\$ 438.90	35%	\$ 285.28	\$ 504.25
50 Mbps	\$ 590.98	25%	\$ 443.24	\$ 502.33	30%	\$ 351.63	\$ 472.78	35%	\$ 307.31	\$ 504.25
55 Mbps	\$ 633.34	25%	\$ 475.00	\$ 538.34	30%	\$ 376.84	\$ 506.67	35%	\$ 329.34	\$ 504.25

60 Mbps	\$ 675.70	25%	\$ 506.77	\$ 574.34	30%	\$ 402.04	\$ 540.56	35%	\$ 351.36	\$ 504.25
65 Mbps	\$ 718.05	25%	\$ 538.54	\$ 610.34	30%	\$ 427.24	\$ 574.44	35%	\$ 373.39	\$ 504.25
70 Mbps	\$ 760.41	25%	\$ 570.31	\$ 646.35	30%	\$ 452.44	\$ 608.33	35%	\$ 395.41	\$ 504.25
75 Mbps	\$ 802.77	25%	\$ 602.07	\$ 682.35	30%	\$ 477.65	\$ 642.21	35%	\$ 417.44	\$ 504.25
80 Mbps	\$ 845.12	25%	\$ 633.84	\$ 718.35	30%	\$ 502.85	\$ 676.10	35%	\$ 439.46	\$ 504.25
85 Mbps	\$ 887.48	25%	\$ 665.61	\$ 754.36	30%	\$ 528.05	\$ 709.98	35%	\$ 461.49	\$ 504.25
90 Mbps	\$ 929.84	25%	\$ 697.38	\$ 790.36	30%	\$ 553.25	\$ 743.87	35%	\$ 483.52	\$ 504.25
95 Mbps	\$ 972.19	25%	\$ 729.15	\$ 826.36	30%	\$ 578.46	\$ 777.76	35%	\$ 505.54	\$ 504.25
100 Mbps	\$ 1,008.50	25%	\$ 756.38	\$ 857.23	30%	\$ 600.06	\$ 806.80	35%	\$ 524.42	\$ 756.38
150 Mbps	\$ 1,121.45	25%	\$ 841.09	\$ 953.23	30%	\$ 667.26	\$ 897.16	35%	\$ 583.16	\$ 756.38
200 Mbps	\$ 1,234.40	25%	\$ 925.80	\$ 1,049.24	30%	\$ 734.47	\$ 987.52	35%	\$ 641.89	\$ 756.38
250 Mbps	\$ 1,347.36	25%	\$ 1,010.52	\$ 1,145.25	30%	\$ 801.68	\$ 1,077.88	35%	\$ 700.63	\$ 756.38
300 Mbps	\$ 1,460.31	25%	\$ 1,095.23	\$ 1,241.26	30%	\$ 868.88	\$ 1,168.25	35%	\$ 759.36	\$ 756.38
350 Mbps	\$ 1,573.26	25%	\$ 1,179.95	\$ 1,337.27	30%	\$ 936.09	\$ 1,258.61	35%	\$ 818.10	\$ 756.38
400 Mbps	\$ 1,686.21	25%	\$ 1,264.66	\$ 1,433.28	30%	\$ 1,003.30	\$ 1,348.97	35%	\$ 876.83	\$ 756.38
450 Mbps	\$ 1,799.16	25%	\$ 1,349.37	\$ 1,529.29	30%	\$ 1,070.50	\$ 1,439.33	35%	\$ 935.57	\$ 756.38
500 Mbps	\$ 1,912.12	25%	\$ 1,434.09	\$ 1,625.30	30%	\$ 1,137.71	\$ 1,529.69	35%	\$ 994.30	\$ 756.38
550 Mbps	\$ 2,025.07	25%	\$ 1,518.80	\$ 1,721.31	30%	\$ 1,204.92	\$ 1,620.05	35%	\$ 1,053.04	\$ 756.38
600 Mbps	\$ 2,138.02	25%	\$ 1,603.52	\$ 1,817.32	30%	\$ 1,272.12	\$ 1,710.42	35%	\$ 1,111.77	\$ 756.38
650 Mbps	\$ 2,250.97	25%	\$ 1,688.23	\$ 1,913.33	30%	\$ 1,339.33	\$ 1,800.78	35%	\$ 1,170.51	\$ 756.38
700 Mbps	\$ 2,363.92	25%	\$ 1,772.94	\$ 2,009.34	30%	\$ 1,406.53	\$ 1,891.14	35%	\$ 1,229.24	\$ 756.38
750 Mbps	\$ 2,476.88	25%	\$ 1,857.66	\$ 2,105.34	30%	\$ 1,473.74	\$ 1,981.50	35%	\$ 1,287.98	\$ 756.38
800 Mbps	\$ 2,589.83	25%	\$ 1,942.37	\$ 2,201.35	30%	\$ 1,540.95	\$ 2,071.86	35%	\$ 1,346.71	\$ 756.38
850 Mbps	\$ 2,702.78	25%	\$ 2,027.09	\$ 2,297.36	30%	\$ 1,608.15	\$ 2,162.22	35%	\$ 1,405.45	\$ 756.38
900 Mbps	\$ 2,815.73	25%	\$ 2,111.80	\$ 2,393.37	30%	\$ 1,675.36	\$ 2,252.59	35%	\$ 1,464.18	\$ 756.38
950 Mbps	\$ 2,928.68	25%	\$ 2,196.51	\$ 2,489.38	30%	\$ 1,742.57	\$ 2,342.95	35%	\$ 1,522.92	\$ 756.38
1000 Mbps	\$ 3,025.50	25%	\$ 2,269.13	\$ 2,571.68	30%	\$ 1,800.17	\$ 2,420.40	35%	\$ 1,573.26	\$ 2,017.00
2000 Mbps	\$ 4,034.00	25%	\$ 3,025.50	\$ 3,428.90	30%	\$ 2,400.23	\$ 3,227.20	35%	\$ 2,097.68	\$ 2,017.00
3000 Mbps	\$ 5,042.50	25%	\$ 3,781.88	\$ 4,286.13	30%	\$ 3,000.29	\$ 4,034.00	35%	\$ 2,622.10	\$ 2,017.00
4000 Mbps	\$ 6,051.00	25%	\$ 4,538.25	\$ 5,143.35	30%	\$ 3,600.35	\$ 4,840.80	35%	\$ 3,146.52	\$ 2,017.00
5000 Mbps	\$ 7,059.50	25%	\$ 5,294.63	\$ 6,000.58	30%	\$ 4,200.40	\$ 5,647.60	35%	\$ 3,670.94	\$ 2,017.00
E-Line Dedicated EVC										
100 Mbps	\$ 2,017.00	25%	\$ 1,512.75	\$ 1,714.45	30%	\$ 1,200.12	\$ 1,129.52	35%	\$ 734.19	\$ 756.38
150 Mbps	\$ 2,185.42	25%	\$ 1,639.06	\$ 1,857.61	30%	\$ 1,300.32	\$ 1,223.83	35%	\$ 795.49	\$ 756.38
200 Mbps	\$ 2,353.84	25%	\$ 1,765.38	\$ 2,000.76	30%	\$ 1,400.53	\$ 1,318.15	35%	\$ 856.80	\$ 756.38
250 Mbps	\$ 2,522.26	25%	\$ 1,891.69	\$ 2,143.92	30%	\$ 1,500.74	\$ 1,412.46	35%	\$ 918.10	\$ 756.38
300 Mbps	\$ 2,690.68	25%	\$ 2,018.01	\$ 2,287.08	30%	\$ 1,600.95	\$ 1,506.78	35%	\$ 979.41	\$ 756.38
350 Mbps	\$ 2,859.10	25%	\$ 2,144.32	\$ 2,430.23	30%	\$ 1,701.16	\$ 1,601.09	35%	\$ 1,040.71	\$ 756.38
400 Mbps	\$ 3,027.52	25%	\$ 2,270.64	\$ 2,573.39	30%	\$ 1,801.37	\$ 1,695.41	35%	\$ 1,102.02	\$ 756.38
450 Mbps	\$ 3,195.94	25%	\$ 2,396.95	\$ 2,716.55	30%	\$ 1,901.58	\$ 1,789.72	35%	\$ 1,163.32	\$ 756.38
500 Mbps	\$ 3,364.36	25%	\$ 2,523.27	\$ 2,859.70	30%	\$ 2,001.79	\$ 1,884.04	35%	\$ 1,224.63	\$ 756.38
550 Mbps	\$ 3,532.78	25%	\$ 2,649.58	\$ 3,002.86	30%	\$ 2,102.00	\$ 1,978.35	35%	\$ 1,285.93	\$ 756.38
600 Mbps	\$ 3,701.20	25%	\$ 2,775.90	\$ 3,146.02	30%	\$ 2,202.21	\$ 2,072.67	35%	\$ 1,347.23	\$ 756.38
650 Mbps	\$ 3,869.61	25%	\$ 2,902.21	\$ 3,289.17	30%	\$ 2,302.42	\$ 2,177.07	35%	\$ 1,415.09	\$ 756.38
700 Mbps	\$ 4,038.03	25%	\$ 3,028.53	\$ 3,432.33	30%	\$ 2,402.63	\$ 2,261.30	35%	\$ 1,469.84	\$ 756.38
750 Mbps	\$ 4,206.45	25%	\$ 3,154.84	\$ 3,575.49	30%	\$ 2,502.84	\$ 2,355.61	35%	\$ 1,531.15	\$ 756.38
800 Mbps	\$ 4,374.87	25%	\$ 3,281.15	\$ 3,718.64	30%	\$ 2,603.05	\$ 2,449.93	35%	\$ 1,592.45	\$ 756.38
850 Mbps	\$ 4,543.29	25%	\$ 3,407.47	\$ 3,861.80	30%	\$ 2,703.26	\$ 2,544.24	35%	\$ 1,653.76	\$ 756.38
900 Mbps	\$ 4,711.71	25%	\$ 3,533.78	\$ 4,004.96	30%	\$ 2,803.47	\$ 2,638.56	35%	\$ 1,715.06	\$ 756.38
950 Mbps	\$ 4,880.13	25%	\$ 3,660.10	\$ 4,148.11	30%	\$ 2,903.68	\$ 2,732.87	35%	\$ 1,776.37	\$ 756.38

1000 Mbps	\$ 5,042.50	25%	\$ 3,781.88	\$ 4,286.13	30%	\$ 3,000.29	\$ 2,823.80	35%	\$ 1,835.47	\$ 2,017.00
2000 Mbps	\$ 6,499.78	25%	\$ 4,874.84	\$ 5,524.82	30%	\$ 3,867.37	\$ 3,639.88	35%	\$ 2,365.92	\$ 2,017.00
3000 Mbps	\$ 7,957.07	25%	\$ 5,967.80	\$ 6,763.51	30%	\$ 4,734.45	\$ 4,455.96	35%	\$ 2,896.37	\$ 2,017.00
4000 Mbps	\$ 9,414.35	25%	\$ 7,060.76	\$ 8,002.20	30%	\$ 5,601.54	\$ 5,272.03	35%	\$ 3,426.82	\$ 2,017.00
5000 Mbps	\$ 10,871.63	25%	\$ 8,153.72	\$ 9,240.89	30%	\$ 6,468.62	\$ 6,088.11	35%	\$ 3,957.27	\$ 2,017.00
IP VPN MPLS Service										
1.5 Mbps	\$ 313.64	25%	\$ 235.23	\$ 266.24	30%	\$ 186.37	\$ 251.12	35%	\$ 163.23	\$ 504.25
2 Mbps	\$ 313.64	25%	\$ 235.23	\$ 266.24	30%	\$ 186.37	\$ 251.12	35%	\$ 163.23	\$ 756.38
3 Mbps	\$ 373.15	25%	\$ 279.86	\$ 317.68	30%	\$ 222.37	\$ 298.52	35%	\$ 194.04	\$ 756.38
4 Mbps	\$ 438.70	25%	\$ 329.02	\$ 373.15	30%	\$ 261.20	\$ 350.96	35%	\$ 228.12	\$ 756.38
4.5 Mbps	\$ 468.95	25%	\$ 351.71	\$ 398.36	30%	\$ 278.85	\$ 375.16	35%	\$ 243.86	\$ 756.38
6 Mbps	\$ 559.72	25%	\$ 419.79	\$ 476.01	30%	\$ 333.21	\$ 447.77	35%	\$ 291.05	\$ 756.38
7.5 Mbps	\$ 650.48	25%	\$ 487.86	\$ 552.66	30%	\$ 386.86	\$ 520.39	35%	\$ 338.25	\$ 756.38
8 Mbps	\$ 685.78	25%	\$ 514.34	\$ 582.91	30%	\$ 408.04	\$ 548.62	35%	\$ 356.61	\$ 756.38
9 Mbps	\$ 746.29	25%	\$ 559.72	\$ 634.35	30%	\$ 444.04	\$ 597.03	35%	\$ 388.07	\$ 756.38
10 Mbps	\$ 806.80	25%	\$ 605.10	\$ 685.78	30%	\$ 480.05	\$ 645.44	35%	\$ 419.54	\$ 756.38
10.5 Mbps	\$ 821.93	25%	\$ 616.45	\$ 698.89	30%	\$ 489.22	\$ 657.54	35%	\$ 427.40	\$ 756.38
12 Mbps	\$ 867.31	25%	\$ 650.48	\$ 737.21	30%	\$ 516.05	\$ 693.85	35%	\$ 451.00	\$ 756.38
15 Mbps	\$ 958.08	25%	\$ 718.56	\$ 814.87	30%	\$ 570.41	\$ 766.46	35%	\$ 498.20	\$ 756.38
18 Mbps	\$ 1,048.84	25%	\$ 786.63	\$ 891.51	30%	\$ 624.06	\$ 839.07	35%	\$ 545.40	\$ 756.38
20 Mbps	\$ 1,109.35	25%	\$ 832.01	\$ 942.95	30%	\$ 660.06	\$ 887.48	35%	\$ 576.86	\$ 756.38
21 Mbps	\$ 1,139.61	25%	\$ 854.70	\$ 969.17	30%	\$ 678.42	\$ 911.68	35%	\$ 592.59	\$ 756.38
24 Mbps	\$ 1,230.37	25%	\$ 922.78	\$ 1,045.81	30%	\$ 732.07	\$ 984.30	35%	\$ 639.79	\$ 1,512.75
25 Mbps	\$ 1,260.63	25%	\$ 945.47	\$ 1,072.04	30%	\$ 750.42	\$ 1,008.50	35%	\$ 655.53	\$ 1,512.75
27 Mbps	\$ 1,321.14	25%	\$ 990.85	\$ 1,123.47	30%	\$ 786.43	\$ 1,056.91	35%	\$ 686.99	\$ 1,512.75
30 Mbps	\$ 1,411.90	25%	\$ 1,058.93	\$ 1,200.12	30%	\$ 840.08	\$ 1,129.52	35%	\$ 734.19	\$ 1,512.75
33 Mbps	\$ 1,502.67	25%	\$ 1,127.00	\$ 1,277.77	30%	\$ 894.44	\$ 1,202.13	35%	\$ 781.39	\$ 1,512.75
35 Mbps	\$ 1,563.18	25%	\$ 1,172.38	\$ 1,329.20	30%	\$ 930.44	\$ 1,250.54	35%	\$ 812.85	\$ 1,512.75
36 Mbps	\$ 1,593.43	25%	\$ 1,195.07	\$ 1,354.42	30%	\$ 948.09	\$ 1,274.74	35%	\$ 828.58	\$ 1,512.75
39 Mbps	\$ 1,684.20	25%	\$ 1,263.15	\$ 1,432.07	30%	\$ 1,002.45	\$ 1,347.36	35%	\$ 875.78	\$ 1,512.75
40 Mbps	\$ 1,714.45	25%	\$ 1,285.84	\$ 1,457.28	30%	\$ 1,020.10	\$ 1,371.56	35%	\$ 891.51	\$ 1,512.75
42 Mbps	\$ 1,774.96	25%	\$ 1,331.22	\$ 1,508.72	30%	\$ 1,056.10	\$ 1,419.97	35%	\$ 922.98	\$ 1,512.75
45 Mbps	\$ 1,865.73	25%	\$ 1,399.29	\$ 1,586.37	30%	\$ 1,110.46	\$ 1,492.58	35%	\$ 970.18	\$ 1,512.75
50 Mbps	\$ 2,017.00	25%	\$ 1,512.75	\$ 1,714.45	30%	\$ 1,200.12	\$ 1,613.60	35%	\$ 1,048.84	\$ 1,512.75
55 Mbps	\$ 2,092.64	25%	\$ 1,569.48	\$ 1,778.99	30%	\$ 1,245.30	\$ 1,674.11	35%	\$ 1,088.17	\$ 1,512.75
60 Mbps	\$ 2,168.28	25%	\$ 1,626.21	\$ 1,843.54	30%	\$ 1,290.48	\$ 1,734.62	35%	\$ 1,127.50	\$ 1,512.75
65 Mbps	\$ 2,243.91	25%	\$ 1,682.93	\$ 1,907.07	30%	\$ 1,334.95	\$ 1,795.13	35%	\$ 1,166.83	\$ 1,512.75
70 Mbps	\$ 2,319.55	25%	\$ 1,739.66	\$ 1,971.62	30%	\$ 1,380.13	\$ 1,855.64	35%	\$ 1,206.17	\$ 2,017.00
75 Mbps	\$ 2,395.19	25%	\$ 1,796.39	\$ 2,036.16	30%	\$ 1,425.31	\$ 1,916.15	35%	\$ 1,245.50	\$ 2,017.00
80 Mbps	\$ 2,470.83	25%	\$ 1,853.12	\$ 2,100.71	30%	\$ 1,470.49	\$ 1,976.66	35%	\$ 1,284.83	\$ 2,017.00
85 Mbps	\$ 2,546.46	25%	\$ 1,909.85	\$ 2,164.24	30%	\$ 1,514.97	\$ 2,037.17	35%	\$ 1,324.16	\$ 2,017.00
90 Mbps	\$ 2,622.10	25%	\$ 1,966.58	\$ 2,228.79	30%	\$ 1,560.15	\$ 2,097.68	35%	\$ 1,363.49	\$ 2,017.00
95 Mbps	\$ 2,697.74	25%	\$ 2,023.30	\$ 2,293.33	30%	\$ 1,605.33	\$ 2,158.19	35%	\$ 1,402.82	\$ 2,017.00
100 Mbps	\$ 2,773.38	25%	\$ 2,080.03	\$ 2,357.87	30%	\$ 1,650.51	\$ 2,218.70	35%	\$ 1,442.16	\$ 2,017.00
105 Mbps	\$ 2,864.14	25%	\$ 2,148.11	\$ 2,434.52	30%	\$ 1,704.16	\$ 2,291.31	35%	\$ 1,489.35	\$ 2,017.00
115 Mbps	\$ 3,050.71	25%	\$ 2,288.03	\$ 2,592.85	30%	\$ 1,815.00	\$ 2,440.57	35%	\$ 1,586.37	\$ 2,017.00
125 Mbps	\$ 3,237.29	25%	\$ 2,427.96	\$ 2,752.20	30%	\$ 1,926.54	\$ 2,589.83	35%	\$ 1,683.39	\$ 2,017.00
135 Mbps	\$ 3,418.82	25%	\$ 2,564.11	\$ 2,906.50	30%	\$ 2,034.55	\$ 2,735.05	35%	\$ 1,777.78	\$ 2,017.00
145 Mbps	\$ 3,605.39	25%	\$ 2,704.04	\$ 3,064.83	30%	\$ 2,145.38	\$ 2,884.31	35%	\$ 1,874.80	\$ 2,017.00

150 Mbps	\$ 3,696.15	25%	\$ 2,772.11	\$ 3,141.48	30%	\$ 2,199.03	\$ 2,956.92	35%	\$ 1,922.00	\$ 2,017.00
155 Mbps	\$ 3,791.96	25%	\$ 2,843.97	\$ 3,223.17	30%	\$ 2,256.22	\$ 3,033.57	35%	\$ 1,971.82	\$ 2,017.00
175 Mbps	\$ 4,160.06	25%	\$ 3,120.05	\$ 3,535.80	30%	\$ 2,475.06	\$ 3,328.05	35%	\$ 2,163.23	\$ 2,017.00
200 Mbps	\$ 4,623.97	25%	\$ 3,467.98	\$ 3,930.12	30%	\$ 2,751.09	\$ 3,699.18	35%	\$ 2,404.47	\$ 2,017.00
225 Mbps	\$ 5,082.84	25%	\$ 3,812.13	\$ 4,320.41	30%	\$ 3,024.29	\$ 4,066.27	35%	\$ 2,643.08	\$ 2,017.00
250 Mbps	\$ 5,546.75	25%	\$ 4,160.06	\$ 4,714.74	30%	\$ 3,300.32	\$ 4,437.40	35%	\$ 2,884.31	\$ 2,017.00
300 Mbps	\$ 6,252.70	25%	\$ 4,689.53	\$ 5,314.80	30%	\$ 3,720.36	\$ 5,002.16	35%	\$ 3,251.40	\$ 2,017.00
350 Mbps	\$ 6,958.65	25%	\$ 5,218.99	\$ 5,914.85	30%	\$ 4,140.40	\$ 5,566.92	35%	\$ 3,618.50	\$ 2,017.00
400 Mbps	\$ 7,664.60	25%	\$ 5,748.45	\$ 6,514.91	30%	\$ 4,560.44	\$ 6,131.68	35%	\$ 3,985.59	\$ 2,017.00
450 Mbps	\$ 8,370.55	25%	\$ 6,277.91	\$ 7,114.97	30%	\$ 4,980.48	\$ 6,696.44	35%	\$ 4,352.69	\$ 2,017.00
500 Mbps	\$ 9,076.50	25%	\$ 6,807.38	\$ 7,715.03	30%	\$ 5,400.52	\$ 7,261.20	35%	\$ 4,719.78	\$ 2,017.00
550 Mbps	\$ 9,429.48	25%	\$ 7,072.11	\$ 8,015.56	30%	\$ 5,610.89	\$ 7,543.58	35%	\$ 4,903.33	\$ 2,017.00
600 Mbps	\$ 9,782.45	25%	\$ 7,336.84	\$ 8,315.08	30%	\$ 5,820.56	\$ 7,825.96	35%	\$ 5,086.87	\$ 2,017.00
622 Mbps	\$ 9,938.77	25%	\$ 7,454.08	\$ 8,448.20	30%	\$ 5,913.74	\$ 7,951.01	35%	\$ 5,168.16	\$ 2,017.00
650 Mbps	\$ 10,135.43	25%	\$ 7,601.57	\$ 8,615.62	30%	\$ 6,030.93	\$ 8,108.34	35%	\$ 5,270.42	\$ 2,017.00
700 Mbps	\$ 10,488.40	25%	\$ 7,866.30	\$ 8,915.14	30%	\$ 6,240.60	\$ 8,390.72	35%	\$ 5,453.97	\$ 2,017.00
750 Mbps	\$ 10,841.38	25%	\$ 8,131.03	\$ 9,215.67	30%	\$ 6,450.97	\$ 8,673.10	35%	\$ 5,637.52	\$ 2,017.00
800 Mbps	\$ 11,194.35	25%	\$ 8,395.76	\$ 9,515.20	30%	\$ 6,660.64	\$ 8,955.48	35%	\$ 5,821.06	\$ 2,017.00
850 Mbps	\$ 11,547.33	25%	\$ 8,660.49	\$ 9,815.73	30%	\$ 6,871.01	\$ 9,237.86	35%	\$ 6,004.61	\$ 2,017.00
900 Mbps	\$ 11,900.30	25%	\$ 8,925.23	\$ 10,115.26	30%	\$ 7,080.68	\$ 9,520.24	35%	\$ 6,188.16	\$ 2,017.00
950 Mbps	\$ 12,253.28	25%	\$ 9,189.96	\$ 10,415.79	30%	\$ 7,291.05	\$ 9,802.62	35%	\$ 6,371.70	\$ 2,017.00
1000 Mbps	\$ 12,606.25	25%	\$ 9,454.69	\$ 10,715.31	30%	\$ 7,500.72	\$ 10,085.00	35%	\$ 6,555.25	\$ 2,017.00
1500 Mbps	\$ 16,231.81	25%	\$ 12,173.86	\$ 13,797.29	30%	\$ 9,658.10	\$ 12,985.45	35%	\$ 8,440.54	\$ 5,042.50
2000 Mbps	\$ 20,618.78	25%	\$ 15,464.09	\$ 17,525.71	30%	\$ 12,268.00	\$ 16,495.03	35%	\$ 10,721.77	\$ 5,042.50
2488 Mbps	\$ 24,894.82	25%	\$ 18,671.12	\$ 21,160.35	30%	\$ 14,812.24	\$ 19,915.86	35%	\$ 12,945.31	\$ 5,042.50
2500 Mbps	\$ 25,000.72	25%	\$ 18,750.54	\$ 21,251.11	30%	\$ 14,875.78	\$ 20,000.57	35%	\$ 13,000.37	\$ 5,042.50
3000 Mbps	\$ 24,345.19	25%	\$ 18,258.89	\$ 20,979.54	30%	\$ 17,485.68	\$ 23,510.15	35%	\$ 15,281.60	\$ 5,042.50
3500 Mbps	\$ 33,769.62	25%	\$ 25,327.22	\$ 28,703.93	30%	\$ 20,092.75	\$ 27,015.70	35%	\$ 17,560.20	\$ 5,042.50
4000 Mbps	\$ 38,156.60	25%	\$ 28,617.45	\$ 32,433.36	30%	\$ 22,703.35	\$ 30,525.28	35%	\$ 19,841.43	\$ 5,042.50
4500 Mbps	\$ 42,538.53	25%	\$ 31,903.90	\$ 36,157.75	30%	\$ 25,310.43	\$ 34,030.82	35%	\$ 22,120.04	\$ 5,042.50
5000 Mbps	\$ 46,925.51	25%	\$ 35,194.13	\$ 39,887.18	30%	\$ 27,921.03	\$ 37,540.40	35%	\$ 24,401.26	\$ 5,042.50
5500 Mbps	\$ 51,307.44	25%	\$ 38,480.58	\$ 43,611.57	30%	\$ 30,528.10	\$ 41,045.95	35%	\$ 26,679.87	\$ 5,042.50
6000 Mbps	\$ 55,689.37	25%	\$ 41,767.03	\$ 47,335.96	30%	\$ 33,135.18	\$ 44,551.50	35%	\$ 28,958.47	\$ 5,042.50
6500 Mbps	\$ 60,076.35	25%	\$ 45,057.26	\$ 51,065.40	30%	\$ 35,745.78	\$ 48,061.08	35%	\$ 31,239.70	\$ 5,042.50
7000 Mbps	\$ 64,458.28	25%	\$ 48,343.71	\$ 54,789.79	30%	\$ 38,352.85	\$ 51,566.62	35%	\$ 33,518.30	\$ 5,042.50
7500 Mbps	\$ 68,845.25	25%	\$ 51,633.94	\$ 58,518.21	30%	\$ 40,962.75	\$ 55,076.20	35%	\$ 35,799.53	\$ 5,042.50
8000 Mbps	\$ 73,227.19	25%	\$ 54,920.39	\$ 62,243.61	30%	\$ 43,570.53	\$ 58,581.75	35%	\$ 38,078.14	\$ 5,042.50
8500 Mbps	\$ 77,614.16	25%	\$ 58,210.62	\$ 65,972.04	30%	\$ 46,180.43	\$ 62,091.33	35%	\$ 40,359.36	\$ 5,042.50
9000 Mbps	\$ 81,996.09	25%	\$ 61,497.07	\$ 69,696.43	30%	\$ 48,787.50	\$ 65,596.87	35%	\$ 42,637.97	\$ 5,042.50
9500 Mbps	\$ 86,383.07	25%	\$ 64,787.30	\$ 73,425.86	30%	\$ 51,398.10	\$ 69,106.45	35%	\$ 44,919.20	\$ 5,042.50
10000 Mbps	\$ 90,765.00	25%	\$ 68,073.75	\$ 77,150.25	30%	\$ 54,005.18	\$ 72,612.00	35%	\$ 47,197.80	\$ 5,042.50

* **tw telecom's** Offers Quality of Service levels -referred to as "CoS" or Class of Service - are RT (Realtime), IT (interactive), and MC/P/BE (Mission Critical/Priority/Best Effort).

* Customers may purchase any of 5 service classes for bandwidths up to 12 Mbps for a flat rate: 1.5 - 2Mbps = \$50 • 3- 8 Mbps = \$75 • 9-12 Mbps = \$120

* Above 12 Mbps, **tw telecom** allows granularity by service class; pricing is dependent on the amount of bandwidth devoted to each class.

* International IP VPN is also available on an Individual Case Basis.

IP VPN Transport/Port										
T1	\$ 85.72	25%	\$ 64.29	\$ 72.61	30%	\$ 50.83	\$ 68.58	35%	\$ 44.58	\$ -
DS-3	\$ 327.76	25%	\$ 245.82	\$ 278.35	30%	\$ 194.84	\$ 262.21	35%	\$ 170.44	\$ -
OC-3	\$ 922.78	25%	\$ 692.08	\$ 784.61	30%	\$ 549.23	\$ 738.22	35%	\$ 479.84	\$ -

OC-12	\$ 1,769.92	25%	\$ 1,327.44	\$ 1,504.68	30%	\$ 1,053.28	\$ 1,415.93	35%	\$ 920.36	\$ -
OC-48	\$ 6,051.00	25%	\$ 4,538.25	\$ 5,143.35	30%	\$ 3,600.35	\$ 4,840.80	35%	\$ 3,146.52	\$ -
Ethernet 10 Mbps	\$ 327.76	25%	\$ 245.82	\$ 278.35	30%	\$ 194.84	\$ 262.21	35%	\$ 170.44	\$ -
Ethernet 100 Mbps	\$ 327.76	25%	\$ 245.82	\$ 278.35	30%	\$ 194.84	\$ 262.21	35%	\$ 170.44	\$ -
Ethernet 1 Gbps	\$ 705.95	25%	\$ 529.46	\$ 600.06	30%	\$ 420.04	\$ 564.76	35%	\$ 367.09	\$ -
Ethernet 10 Gbps	\$ 5,042.50	25%	\$ 3,781.88	\$ 4,286.13	30%	\$ 3,000.29	\$ 4,034.00	35%	\$ 2,622.10	\$ -
Converged Services										
IP VPN & Secure Internet Access Package										
1.5Mbps	\$ 469.96	25%	\$ 352.47	\$ 400.37	30%	\$ 280.26	\$ 376.17	35%	\$ 244.51	\$ 504.25
2Mbps	\$ 524.42	25%	\$ 393.32	\$ -	30%	\$ -	\$ -	35%	\$ -	\$ 756.38
3Mbps	\$ 628.30	25%	\$ 471.22	\$ 534.51	30%	\$ 374.15	\$ 503.24	35%	\$ 327.11	\$ 756.38
4Mbps	\$ 733.18	25%	\$ 549.88	\$ -	30%	\$ -	\$ -	35%	\$ -	\$ 756.38
4.5Mbps	\$ 785.62	25%	\$ 589.22	\$ 667.63	30%	\$ 467.34	\$ 629.30	35%	\$ 409.05	\$ 756.38
6Mbps	\$ 942.95	25%	\$ 707.21	\$ 801.76	30%	\$ 561.23	\$ 754.36	35%	\$ 490.33	\$ 756.38
7.5Mbps	\$ 1,099.27	25%	\$ 824.45	\$ 933.87	30%	\$ 653.71	\$ 879.41	35%	\$ 571.62	\$ 756.38
8Mbps	\$ 1,151.71	25%	\$ 863.78	\$ -	30%	\$ -	\$ -	35%	\$ -	\$ 756.38
9Mbps	\$ 1,256.59	25%	\$ 942.44	\$ 1,068.00	30%	\$ 747.60	\$ 1,004.47	35%	\$ 652.90	\$ 756.38
10Mbps	\$ 1,360.47	25%	\$ 1,020.35	\$ -	30%	\$ -	\$ -	35%	\$ -	\$ 756.38
10.5Mbps	\$ 1,387.70	25%	\$ 1,040.77	\$ 1,179.95	30%	\$ 825.96	\$ 1,110.36	35%	\$ 721.73	\$ 756.38
12Mbps	\$ 1,482.50	25%	\$ 1,111.87	\$ 1,259.62	30%	\$ 881.73	\$ 1,186.00	35%	\$ 770.90	\$ 756.38
15Mbps	\$ 1,662.01	25%	\$ 1,246.51	\$ 4,138.88	30%	\$ 2,897.22	\$ 1,329.20	35%	\$ 863.98	\$ 756.38
18Mbps	\$ 1,828.41	25%	\$ 1,371.31	\$ 1,554.10	30%	\$ 1,087.87	\$ 1,462.33	35%	\$ 950.51	\$ 756.38
20Mbps	\$ 1,967.58	25%	\$ 1,475.69	\$ -	30%	\$ -	\$ -	35%	\$ -	\$ 756.38
21Mbps	\$ 2,037.17	25%	\$ 1,527.88	\$ 1,731.59	30%	\$ 1,212.12	\$ 1,629.74	35%	\$ 1,059.33	\$ 756.38
24Mbps	\$ 2,201.56	25%	\$ 1,651.17	\$ 1,870.77	30%	\$ 1,309.54	\$ 1,760.84	35%	\$ 1,144.55	\$ 756.38
25Mbps	\$ 2,269.13	25%	\$ 1,701.84	\$ -	30%	\$ -	\$ -	35%	\$ -	\$ 756.38
27Mbps	\$ 2,375.02	25%	\$ 1,781.26	\$ 2,019.02	30%	\$ 1,413.31	\$ 1,900.01	35%	\$ 1,235.01	\$ 756.38
30Mbps	\$ 2,575.71	25%	\$ 1,931.78	\$ 2,189.45	30%	\$ 1,532.62	\$ 2,060.37	35%	\$ 1,339.24	\$ 756.38
33Mbps	\$ 2,743.12	25%	\$ 2,057.34	\$ 2,331.65	30%	\$ 1,632.16	\$ 2,194.50	35%	\$ 1,426.42	\$ 756.38
35Mbps	\$ 2,875.23	25%	\$ 2,156.43	\$ 2,588.82	30%	\$ 1,812.17	\$ 2,300.39	35%	\$ 1,495.25	\$ 1,512.75
36Mbps	\$ 2,941.79	25%	\$ 2,206.35	\$ 2,501.08	30%	\$ 1,750.76	\$ 2,353.84	35%	\$ 1,530.00	\$ 1,512.75
39Mbps	\$ 3,112.23	25%	\$ 2,334.17	\$ 2,645.30	30%	\$ 1,851.71	\$ 2,488.98	35%	\$ 1,617.84	\$ 1,512.75
40Mbps	\$ 3,177.78	25%	\$ 2,383.34	\$ -	30%	\$ -	\$ -	35%	\$ -	\$ 1,512.75
42Mbps	\$ 3,287.71	25%	\$ 2,465.78	\$ 2,794.55	30%	\$ 1,956.19	\$ 2,630.17	35%	\$ 1,709.61	\$ 1,512.75
45Mbps	\$ 3,482.35	25%	\$ 2,611.76	\$ 2,959.95	30%	\$ 2,071.96	\$ 2,785.48	35%	\$ 1,810.56	\$ 1,512.75
50Mbps	\$ 3,783.89	25%	\$ 2,837.92	\$ -	30%	\$ -	\$ -	35%	\$ -	\$ 1,512.75
55Mbps	\$ 3,923.07	25%	\$ 2,942.30	\$ 3,335.11	30%	\$ 2,334.58	\$ 3,138.45	35%	\$ 2,039.99	\$ 1,512.75
60Mbps	\$ 4,060.22	25%	\$ 3,045.17	\$ -	30%	\$ -	\$ -	35%	\$ -	\$ 1,512.75
65Mbps	\$ 4,199.39	25%	\$ 3,149.55	\$ 3,569.08	30%	\$ 2,498.36	\$ 3,359.31	35%	\$ 2,183.55	\$ 1,512.75
70Mbps	\$ 4,336.55	25%	\$ 3,252.41	\$ 3,686.07	30%	\$ 2,580.25	\$ 3,469.24	35%	\$ 2,255.01	\$ 1,512.75
75Mbps	\$ 4,475.72	25%	\$ 3,356.79	\$ 3,804.06	30%	\$ 2,662.84	\$ 3,580.18	35%	\$ 2,327.11	\$ 1,512.75
80Mbps	\$ 4,609.85	25%	\$ 3,457.39	\$ 3,918.02	30%	\$ 2,742.62	\$ 3,687.08	35%	\$ 2,396.60	\$ 1,512.75
85Mbps	\$ 4,747.01	25%	\$ 3,560.26	\$ 4,035.01	30%	\$ 2,824.51	\$ 3,797.00	35%	\$ 2,468.05	\$ 1,512.75
90Mbps	\$ 4,885.17	25%	\$ 3,663.88	\$ 4,153.00	30%	\$ 2,907.10	\$ 3,907.94	35%	\$ 2,540.16	\$ 1,512.75
95Mbps	\$ 5,022.33	25%	\$ 3,766.75	\$ 4,269.99	30%	\$ 2,988.99	\$ 4,017.86	35%	\$ 2,611.61	\$ 1,512.75
100Mbps	\$ 5,161.50	25%	\$ 3,871.13	\$ 4,387.98	30%	\$ 3,071.59	\$ 4,128.80	35%	\$ 2,683.72	\$ 1,512.75
105Mbps	\$ 5,362.19	25%	\$ 4,021.65	\$ 4,342.60	30%	\$ 3,039.82	\$ 4,001.73	35%	\$ 2,601.12	\$ 1,512.75
115Mbps	\$ 5,979.40	25%	\$ 4,484.55	\$ 4,912.40	30%	\$ 3,438.68	\$ 4,556.40	35%	\$ 2,961.66	\$ 1,512.75
125Mbps	\$ 6,280.94	25%	\$ 4,710.70	\$ 5,213.95	30%	\$ 3,649.76	\$ 4,857.94	35%	\$ 3,157.66	\$ 1,512.75
135Mbps	\$ 6,582.48	25%	\$ 4,936.86	\$ 5,515.49	30%	\$ 3,860.84	\$ 5,159.49	35%	\$ 3,353.67	\$ 1,512.75

145Mbps	\$ 7,198.67	25%	\$ 5,399.00	\$ 6,084.28	30%	\$ 4,259.00	\$ 5,712.14	35%	\$ 3,712.89	\$ 1,512.75
155Mbps	\$ 7,430.63	25%	\$ 5,572.97	\$ 6,316.24	30%	\$ 4,421.36	\$ 5,944.10	35%	\$ 3,863.66	\$ 1,512.75

IP VPN + VOICE Package

WAN Access	Bandwidth (Mbps) ¹	Call Package (# of simultaneous calls) ² CoS Charge not included	Managed IAD (included) ³	Managed Router (not included) ^{6, 7}	Maximum Analog Lines	Maximum PRI Calls	Maximum Digital Trunk Calls	NRC	MRC				
									12 mos	36 mos			
T1	1.5	4-8	Basic	Adtran	N/A	8	8	8	\$ 504.25	\$ 546.61	\$ 461.89		
		9-12		Adtran	N/A	12	12	12	\$ 504.25	\$ 636.36	\$ 536.52		
		4-8	Premium ⁵	Adtran	N/A	8	8	8	\$ 504.25	\$ 546.61	\$ 461.89		
2xT1	3	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 662.58	\$ 559.72		
		9-12		Adtran	N/A	12	12	12	\$ 756.38	\$ 752.34	\$ 634.35		
		13-18		Adtran	N/A	18	18	18	\$ 756.38	\$ 853.19	\$ 718.05		
		19-24	Adtran	N/A	24	23	24	\$ 756.38	\$ 973.20	\$ 818.90			
		4-8	Premium ⁵	Adtran	N/A	8	8	8	\$ 756.38	\$ 571.82	\$ 559.72		
		9-16		Adtran	N/A	12	12	12	\$ 756.38	\$ 752.34	\$ 634.35		
3xT1	4.5	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 783.60	\$ 662.58		
		9-12		Adtran	N/A	12	12	12	\$ 756.38	\$ 873.36	\$ 737.21		
		13-18		Adtran	N/A	18	18	18	\$ 756.38	\$ 974.21	\$ 820.92		
		19-24		Adtran	N/A	24	23	24	\$ 756.38	\$ 1,094.22	\$ 921.77		
		25-30	Premium ⁵	Adtran	Adtran or Cisco ⁵	24	30	30	\$ 756.38	\$ 1,215.24	\$ 1,022.62		
		31-36		Adtran	Adtran or Cisco ⁶	24	36	36	\$ 756.38	\$ 1,336.26	\$ 1,122.46		
		4-8		Adtran	N/A	8	8	8	\$ 756.38	\$ 783.60	\$ 662.58		
		9-16		Adtran	N/A	12	12	12	\$ 756.38	\$ 873.36	\$ 737.21		
		17-24		Adtran	N/A	18	18	18	\$ 756.38	\$ 1,094.22	\$ 921.77		
4xT1 ¹	6	4-8	Basic	Adtran	N/A	24	0	0	\$ 756.38	\$ 904.62	\$ 765.45		
		9-12		Adtran	N/A	24	0	0	\$ 756.38	\$ 994.38	\$ 840.08		
		13-18		Adtran	N/A	24	0	0	\$ 756.38	\$ 1,095.23	\$ 923.79		
		19-24		Adtran	N/A	24	0	0	\$ 756.38	\$ 1,215.24	\$ 1,024.64		
		4-8	Premium ⁵	Adtran	N/A	24	0	0	\$ 756.38	\$ 904.62	\$ 765.45		
		9-16		Adtran	N/A	24	0	0	\$ 756.38	\$ 994.38	\$ 840.08		
		17-24		Adtran	N/A	24	0	0	\$ 756.38	\$ 1,215.24	\$ 1,024.64		
		4-8		Adtran	N/A	8	8	8	\$ 756.38	\$ 904.62	\$ 765.45		
4xT1 ⁷	6	9-12	Basic	Adtran	Adtran or Cisco (MR is required with this configuration)	12	12	12	\$ 756.38	\$ 994.38	\$ 840.08		
		13-18		Adtran		18	18	18	\$ 756.38	\$ 1,095.23	\$ 923.79		
		19-24		Adtran		24	24	24	\$ 756.38	\$ 1,215.24	\$ 1,024.64		
		25-30		Adtran		24	30	30	\$ 756.38	\$ 1,336.26	\$ 1,125.49		
		31-36		Adtran		24	36	36	\$ 756.38	\$ 1,457.28	\$ 1,225.33		
		37-42		Adtran		24	42	42	\$ 756.38	\$ 1,577.29	\$ 1,326.18		
		43-50		Adtran		24	46	48	\$ 756.38	\$ 1,718.48	\$ 1,443.16		
		4-8	Premium ⁵	Adtran	Adtran or Cisco (MR is required with this configuration)	8	8	8	\$ 756.38	\$ 904.62	\$ 866.30		
		9-16		Adtran		16	16	16	\$ 756.38	\$ 994.38	\$ 840.08		
		17-24		Adtran		24	24	24	\$ 756.38	\$ 1,215.24	\$ 1,024.64		
		25-32		Adtran		24	32	32	\$ 756.38	\$ 1,336.26	\$ 1,125.49		
		4-8		Premium ⁵		Adtran	Adtran or Cisco (MR is required with this configuration)	8	8	8	\$ 756.38	\$ 904.62	\$ 866.30
		9-16				Adtran		16	16	16	\$ 756.38	\$ 994.38	\$ 840.08

NOTES:

¹ 4xT1 via the IAD only supports analog lines (PRI and digital trunks are not available)

² # simultaneous calls may be a combination of analog lines and PRI or analog lines and digital trunks. PRI & digital trunk combination is not available

³ A fully managed Adtran TA 924e integrated access device (IAD) is included in the converged bundle price.

⁴ PREMIUM/CoS has an additional charge. See note⁸ for pricing rules.

⁵ A managed router is required in addition to the managed IAD to support BWs > 6 Mbps (4xT1). Adtran or Cisco are available options. The MR is not included in the pricing.

⁶ A managed router is required in addition to the IAD if 2xPRI or 2xDigital Trunks is required.

⁷ A 4xT1 requires a managed router in addition to the Managed IAD when PRI's or Digital Trunks are required. If only analog lines, a Managed Router is not required.

⁸ CoS on Bandwidths up to and including 12 Mbps will receive all 5 service classes (RT/IA/MC/P/BE) for a flat rate. Above 12 Mbps, 2-12M w/COS – RT/IA equals WAN line rate; 15M WAN bandwidth or greater - for PREMIUM without voice – a customer can order in increments of 2, 4, 6, 8, 10, 15, 20, 25 or greater for RT/IA – Example (15M aggregate with 2M RT, 4M IA)

* Converged Voice Services include a bundle of LD minutes based upon purchased bandwidth. 1.5-2Mbps includes 2,500 Minutes of Usage / 3-4Mbps includes 5,000 Minutes of Usage and >4Mbps includes 7,500 Minutes of Usage.

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IP VPN + VOICE Package

WAN Access	Bandwidth (Mbps) ¹	Call Package (# of simultaneous calls) ² CoS Charge not included	Managed IAD (included) ³	Managed Router (not included) ⁵	Maximum Analog Lines	Maximum PRI Calls	Maximum Digital Trunk Calls	NRC	MRC										
									12 mos	36 mos									
10	2	4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 581.90	\$ 491.14									
		9-15									Basic	15	15	15	\$ 756.38	\$ 671.66	\$ 565.77		
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 581.90	\$ 491.14								
10	4	4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 743.26	\$ 628.30									
		9-15									Basic	15	15	15	\$ 756.38	\$ 833.02	\$ 702.92		
		16-21										Adtran	N/A	21	21	21	\$ 756.38	\$ 1,053.88	\$ 887.48
		22-30	Adtran	N/A	24	30	30	\$ 756.38	\$ 1,174.90	\$ 988.33									
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 743.26	\$ 628.30								
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 1,053.88	\$ 887.48								
10	6	4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 904.62	\$ 765.45									
		9-15									Adtran	N/A	15	15	15	\$ 756.38	\$ 994.38	\$ 840.08	
		16-21									Basic	Adtran	N/A	21	21	21	\$ 756.38	\$ 1,215.24	\$ 1,024.64
		22-30										Adtran	N/A	24	30	30	\$ 756.38	\$ 1,336.26	\$ 1,125.49
		31-37										Adtran	N/A	24	37	37	\$ 756.38	\$ 1,457.28	\$ 1,225.33
		38-45	Adtran	N/A	24	45	45	\$ 756.38	\$ 1,577.29	\$ 1,326.18									
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 904.62	\$ 765.45								
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 1,215.24	\$ 1,024.64								
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 1,336.26	\$ 1,125.49								
		10	8	4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 1,065.98	\$ 902.61							
9-15	Adtran			N/A									15	15	15	\$ 756.38	\$ 1,155.74	\$ 977.24	
16-21	Basic			Adtran									N/A	21	21	21	\$ 756.38	\$ 1,376.60	\$ 1,161.79
22-30				Adtran									N/A	24	30	30	\$ 756.38	\$ 1,497.62	\$ 1,262.64
31-37				Adtran									N/A	24	37	37	\$ 756.38	\$ 1,618.64	\$ 1,362.48
38-45	Adtran			N/A	24	45	45	\$ 756.38	\$ 1,738.65	\$ 1,463.33									
46-50	Adtran			N/A	24	46	48	\$ 756.38	\$ 2,159.20	\$ 1,818.33									
4-10	Premium ⁴			Adtran	N/A	10	10	10	\$ 756.38	\$ 1,065.98	\$ 902.61								
11-20				Adtran	N/A	20	20	20	\$ 756.38	\$ 1,376.60	\$ 1,161.79								
21-30				Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 1,497.62	\$ 1,262.64								
31-40	Adtran			Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 1,738.65	\$ 1,463.33									
10	10	4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 1,227.34	\$ 1,039.76									
		9-15									Adtran	N/A	15	15	15	\$ 756.38	\$ 1,317.10	\$ 1,114.39	
		16-21									Adtran	N/A	21	21	21	\$ 756.38	\$ 1,537.96	\$ 1,298.95	
		22-30									Basic	Adtran	N/A	24	30	30	\$ 756.38	\$ 1,658.98	\$ 1,399.80
		31-37										Adtran	N/A	24	37	37	\$ 756.38	\$ 1,780.00	\$ 1,499.64
		38-45	Adtran	N/A	24	45	45	\$ 756.38	\$ 1,900.01	\$ 1,600.49									
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 2,041.20	\$ 1,717.48									
		4-10	Adtran	N/A	10	10	10	\$ 756.38	\$ 1,227.34	\$ 1,039.76									

		11-20	Premium ⁴	Adtran	N/A	20	20	20	\$ 756.38	\$ 1,537.96	\$ 1,298.95
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 1,658.98	\$ 1,399.80
		31-40		Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 1,900.01	\$ 1,600.49
		41-50		Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 2,041.20	\$ 1,717.48

NOTES:

- ¹ A Managed Router is required in addition to the IAD for all applications that require 2 PRI or Digital Trunk interfaces with CoS.
- ² # simultaneous calls may be a combination of analog lines and PRI or analog lines and digital trunks. PRI & digital trunk combination is not available
- ³ A fully managed Adtran TA 924e integrated access device (IAD) is included in the converged bundle price.
- ⁴ PREMIUM/CoS has an additional charge. See note⁶ for pricing rules.
- ⁵ A managed router is required in addition to the managed IAD to support BWs > 6 Mbps (4xT1). Adtran or Cisco are available options. The MR is not included in the pricing.
- ⁶ CoS on Bandwidths up to and including 12 Mbps will receive all 5 service classes (RT/IA/MC/P/BE) for a flat rate. Above 12 Mbps, 2-12M w/COS – RT/IA equals WAN line rate; 15M WAN bandwidth or greater - for PREMIUM without voice – a customer can order in increments of 2, 4, 6, 8, 10, 15, 20, 25 or greater for RT/IA – Example (15M aggregate with 2M RT, 4M IA)
- * Converged Voice Services include a bundle of LD minutes based upon purchased bandwidth. 1.5-2Mbps includes 2,500 Minutes of Usage / 3-4Mbps includes 5,000 Minutes of Usage and >4Mbps includes 7,500 Minutes of Usage.

IP VPN + VOICE Package

WAN Access	Bandwidth (Mbps) ¹	Call Package (# of simultaneous calls) ² CoS Charge not included		Managed IAD (included) ³	Managed Router (not included) ⁵	Maximum Analog Lines	Maximum PRI Calls	Maximum Digital Trunk Calls	NRC	MRC	
										12 mos	36 mos
										100	15
		9-15	Adtran	N/A	15	15	15	\$ 756.38	\$ 1,538.97	\$ 1,302.98	
		16-21	Adtran	N/A	21	21	21	\$ 756.38	\$ 1,759.83	\$ 1,487.54	
		22-30	Adtran	N/A	24	30	30	\$ 756.38	\$ 1,880.85	\$ 1,588.39	
		31-37	Adtran	N/A	24	37	37	\$ 756.38	\$ 2,001.87	\$ 1,688.23	
		38-45	Adtran	N/A	24	45	45	\$ 756.38	\$ 2,121.88	\$ 1,789.08	
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 2,263.07	\$ 1,906.07	
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 1,449.21	\$ 1,228.35
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 1,639.82	\$ 1,386.69
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 1,880.85	\$ 1,588.39
		31-40		Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 2,121.88	\$ 1,789.08
		41-50		Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 2,263.07	\$ 1,906.07
		4-8		Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 1,676.13
		9-15	Adtran		N/A	15	15	15	\$ 756.38	\$ 1,765.88	\$ 1,496.61
		16-21	Adtran		N/A	21	21	21	\$ 756.38	\$ 1,986.75	\$ 1,681.17
		22-30	Adtran		N/A	24	30	30	\$ 756.38	\$ 2,107.77	\$ 1,782.02
		31-37	Adtran		N/A	24	37	37	\$ 756.38	\$ 2,228.79	\$ 1,881.86
		38-45	Adtran		N/A	24	45	45	\$ 756.38	\$ 2,348.80	\$ 1,982.71
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 2,489.99	\$ 2,099.70	
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 1,676.13	\$ 1,421.99
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 1,866.73	\$ 1,580.32
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 2,107.77	\$ 1,782.02
		31-40		Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 2,348.80	\$ 1,982.71
		41-50		Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 2,489.99	\$ 2,099.70
		4-8		Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 1,898.00
		9-15	Adtran		N/A	15	15	15	\$ 756.38	\$ 1,987.75	\$ 1,685.20
		16-21	Adtran		N/A	21	21	21	\$ 756.38	\$ 2,208.62	\$ 1,869.76
		22-30	Adtran		N/A	24	30	30	\$ 756.38	\$ 2,329.64	\$ 1,970.61
		31-37	Adtran		N/A	24	37	37	\$ 756.38	\$ 2,450.66	\$ 2,070.45

100	25	38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 2,570.67	\$ 2,171.30	
		46-50		Adtran	N/A	24	46	48	\$ 756.38	\$ 2,711.86	\$ 2,288.29	
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 1,898.00	\$ 1,610.57	
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 2,088.60	\$ 1,768.91	
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 2,329.64	\$ 1,970.61	
		31-40		Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 2,570.67	\$ 2,171.30	
		41-50		Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 2,711.86	\$ 2,288.29	
100	30	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 2,124.91	\$ 1,803.20	
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 2,214.67	\$ 1,877.83	
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 2,435.53	\$ 2,062.38	
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 2,556.55	\$ 2,163.23	
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 2,677.57	\$ 2,263.07	
		38-45	Adtran	N/A	24	45	45	\$ 756.38	\$ 2,797.58	\$ 2,363.92		
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 2,938.77	\$ 2,480.91		
	4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 2,124.91	\$ 1,803.20		
	11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 2,315.52	\$ 1,961.53		
	21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 2,556.55	\$ 2,163.23		
	31-40		Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 2,797.58	\$ 2,363.92		
	41-50		Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 2,938.77	\$ 2,480.91		
	100	35	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 2,346.78	\$ 1,991.79
			9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 2,436.54	\$ 2,066.42
16-21			Adtran		N/A	21	21	21	\$ 756.38	\$ 2,657.40	\$ 2,250.97	
22-30			Adtran		N/A	24	30	30	\$ 756.38	\$ 2,778.42	\$ 2,351.82	
31-37			Adtran		N/A	24	37	37	\$ 756.38	\$ 2,899.44	\$ 2,451.66	
38-45			Adtran	N/A	24	45	45	\$ 756.38	\$ 3,019.45	\$ 2,552.51		
46-50			Adtran	N/A	24	46	48	\$ 756.38	\$ 3,160.64	\$ 2,669.50		
4-10		Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 2,346.78	\$ 1,991.79		
11-20			Adtran	N/A	20	20	20	\$ 756.38	\$ 2,537.39	\$ 2,150.12		
21-30			Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 2,778.42	\$ 2,351.82		
31-40			Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 3,019.45	\$ 2,552.51		
41-50			Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 3,160.64	\$ 2,669.50		
100		40	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 2,568.65	\$ 2,180.38
			9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 2,658.41	\$ 2,255.01
	16-21		Adtran		N/A	21	21	21	\$ 756.38	\$ 2,879.27	\$ 2,439.56	
	22-30		Adtran		N/A	24	30	30	\$ 756.38	\$ 3,000.29	\$ 2,540.41	
	31-37		Adtran		N/A	24	37	37	\$ 756.38	\$ 3,121.31	\$ 2,640.25	
	38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 3,241.32	\$ 2,741.10		
	46-50		Adtran	N/A	24	46	48	\$ 756.38	\$ 3,382.51	\$ 2,858.09		
	4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 2,568.65	\$ 2,180.38		
	11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 2,759.26	\$ 2,338.71		
	21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 3,000.29	\$ 2,540.41		
	31-40		Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 3,241.32	\$ 2,741.10		
	41-50		Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 3,382.51	\$ 2,858.09		
	100	40	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 2,795.56	\$ 2,373.00
			9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 2,885.32	\$ 2,447.63
16-21			Adtran		N/A	21	21	21	\$ 756.38	\$ 3,106.18	\$ 2,632.19	
22-30			Adtran		N/A	24	30	30	\$ 756.38	\$ 3,227.20	\$ 2,733.04	
31-37			Adtran		N/A	24	37	37	\$ 756.38	\$ 3,348.22	\$ 2,832.88	
38-45			Adtran		N/A	24	45	45	\$ 756.38	\$ 3,468.23	\$ 2,933.73	

100	45	46-50		Adtran	N/A	24	46	48	\$ 756.38	\$ 3,609.42	\$ 3,050.71
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 2,795.56	\$ 2,373.00
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 2,986.17	\$ 2,531.34
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 3,227.20	\$ 2,733.04
		31-40		Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 3,468.23	\$ 2,933.73
		41-50		Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 3,609.42	\$ 3,050.71
100	50	4-8		Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 3,017.43
		9-15	Adtran		N/A	15	15	15	\$ 756.38	\$ 3,107.19	\$ 2,636.22
		16-21	Adtran		N/A	21	21	21	\$ 756.38	\$ 3,328.05	\$ 2,820.77
		22-30	Adtran		N/A	24	30	30	\$ 756.38	\$ 3,449.07	\$ 2,921.62
		31-37	Adtran		N/A	24	37	37	\$ 756.38	\$ 3,570.09	\$ 3,021.47
		38-45	Adtran		N/A	24	45	45	\$ 756.38	\$ 3,690.10	\$ 3,122.32
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 3,831.29	\$ 3,239.30	
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 3,017.43	\$ 2,561.59
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 3,208.04	\$ 2,719.92
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 3,449.07	\$ 2,921.62
		31-40		Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 3,690.10	\$ 3,122.32
		41-50		Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 3,831.29	\$ 3,239.30

NOTES:

¹ A Managed Router is required in addition to the IAD for all applications that require 2 PRI or Digital Trunk interfaces with CoS.

² # simultaneous calls may be a combination of analog lines and PRI or analog lines and digital trunks. PRI & digital trunk combination is not available

³ A fully managed Adtran TA 924e integrated access device (IAD) is included in the converged bundle price.

⁴ PREMIUM/CoS has an additional charge. See note⁶ for pricing rules.

⁵ A managed router is required in addition to the managed IAD to support BWs > 6 Mbps. Adtran or Cisco are available options. The MR is not included in the pricing.

⁶ CoS on Bandwidths up to and including 12 Mbps will receive all 5 service classes (RT/IA/MC/P/BE) for a flat rate. Above 12 Mbps, 2-12M w/COS – RT/IA equals WAN line rate; 15M WAN bandwidth or greater - for PREMIUM without voice – a customer can order in increments of 2, 4, 6, 8, 10, 15, 20, 25 or greater for RT/IA – Example (15M aggregate with 2M RT, 4M IA)

* Converged Voice Services include a bundle of LD minutes based upon purchased bandwidth. 1.5-2Mbps includes 2,500 Minutes of Usage / 3-4Mbps includes 5,000 Minutes of Usage and >4Mbps includes 7,500 Minutes of Usage.

IP VPN + VOICE + SIA Package											

WAN Access	Bandwidth (Mbps)	Call Package (# of simultaneous calls) ² CoS Charge not included ⁶		Managed IAD (included) ³	Managed Router (not included) ⁵	Maximum Analog Lines	Maximum PRI Calls	Maximum Digital Trunk Calls	NRC	MRC	
										12 mos	36 mos
T1	1.5	4-8	Basic	Adtran	N/A	8	8	8	\$ 504.25	\$ 663.59	\$ 560.73
		9-12		Adtran	N/A	12	12	12	\$ 504.25	\$ 754.36	\$ 636.36
		4-8	Premium ⁴	Adtran	N/A	8	8	8	\$ 504.25	\$ 663.59	\$ 560.73
2xT1	3	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 821.93	\$ 694.86
		9-12		Adtran	N/A	12	12	12	\$ 756.38	\$ 912.69	\$ 770.49
		13-18		Adtran	N/A	18	18	18	\$ 756.38	\$ 1,012.53	\$ 854.20
		19-24		Adtran	N/A	24	23	24	\$ 756.38	\$ 1,133.55	\$ 955.05
		4-8	Premium ⁴	Adtran	N/A	8	8	8	\$ 756.38	\$ 821.93	\$ 694.86
		9-16		Adtran	N/A	12	12	12	\$ 756.38	\$ 912.69	\$ 770.49
		4-8		Adtran	N/A	8	8	8	\$ 756.38	\$ 979.25	\$ 828.99
		9-12		Adtran	N/A	12	12	12	\$ 756.38	\$ 1,070.02	\$ 904.62
		13-18		Adtran	N/A	18	18	18	\$ 756.38	\$ 1,169.86	\$ 988.33

3xT1	4.5	19-24	Basic	Adtran	N/A	24	23	24	\$ 756.38	\$ 1,290.88	\$ 1,088.17
		25-30		Adtran	Adtran or Cisco ⁶	24	30	30	\$ 756.38	\$ 1,410.89	\$ 1,189.02
		31-36		Adtran	Adtran or Cisco ⁶	24	36	36	\$ 756.38	\$ 1,531.91	\$ 1,288.86
		4-8	Premium ⁴	Adtran	N/A	8	8	8	\$ 756.38	\$ 979.25	\$ 828.99
		9-16		Adtran	N/A	12	12	12	\$ 756.38	\$ 1,070.02	\$ 904.62
		17-24		Adtran	N/A	18	18	18	\$ 756.38	\$ 1,290.88	\$ 1,088.17
4-8	Basic	Adtran		N/A	24	0	0	\$ 756.38	\$ 1,136.58	\$ 963.12	
9-12		Adtran	N/A	24	0	0	\$ 756.38	\$ 1,227.34	\$ 1,037.75		
13-18		Adtran	N/A	24	0	0	\$ 756.38	\$ 1,327.19	\$ 1,121.45		
19-24		Adtran	N/A	24	0	0	\$ 756.38	\$ 1,448.21	\$ 1,222.30		
4-8		Premium ⁴	Adtran	N/A	24	0	0	\$ 756.38	\$ 1,136.58	\$ 963.12	
9-16			Adtran	N/A	24	0	0	\$ 756.38	\$ 1,227.34	\$ 1,037.75	
17-24	Adtran		N/A	24	0	0	\$ 756.38	\$ 1,448.21	\$ 1,222.30		
4-8	Basic		Adtran	Adtran or Cisco (MR is required with this configuration)	8	8	8	\$ 756.38	\$ 1,136.58	\$ 963.12	
9-12		12	12		12	\$ 756.38	\$ 1,227.34	\$ 1,037.75			
13-18		18	18		18	\$ 756.38	\$ 1,327.19	\$ 1,121.45			
19-24		24	24		24	\$ 756.38	\$ 1,448.21	\$ 1,222.30			
25-30		24	30		30	\$ 756.38	\$ 1,568.22	\$ 1,323.15			
31-36		24	36		36	\$ 756.38	\$ 1,689.24	\$ 1,422.99			
37-42		24	42		42	\$ 756.38	\$ 1,809.25	\$ 1,523.84			
43-50		24	46		48	\$ 756.38	\$ 1,950.44	\$ 1,640.83			
4-8		Premium ⁴	Adtran		Adtran or Cisco (MR is required with this configuration)	8	8	8	\$ 756.38	\$ 1,136.58	\$ 963.12
9-16			Adtran			16	16	16	\$ 756.38	\$ 1,227.34	\$ 1,037.75
17-24	Adtran		24	24		24	\$ 756.38	\$ 1,448.21	\$ 1,222.30		
25-32	Adtran		24	32		32	\$ 756.38	\$ 1,568.22	\$ 1,323.15		

NOTES:

- ¹ 4xT1 via the IAD only supports analog lines (PRI and digital trunks are not available)
- ² # simultaneous calls may be a combination of analog lines and PRI or analog lines and digital trunks. PRI & digital trunk combination is not available
- ³ A fully managed Adtran TA 924e integrated access device (IAD) is included in the converged bundle price.
- ⁴ PREMIUM/CoS has an additional charge. See note⁸ for pricing rules.
- ⁵ A managed router is required in addition to the managed IAD to support BWs > 6 Mbps (4xT1). Adtran or Cisco are available options. The MR is not included in the pricing.
- ⁶ A managed router is required in addition to the IAD if 2xPRI or 2xDigital Trunks is required
- ⁷ 4xT1 requires a Managed Router in addition to the Managed IAD when PRIs or Digital Trunks are required. If only analog lines, a managed router is not required.
- ⁸ CoS on Bandwidths up to and including 12 Mbps will receive all 5 service classes (RT/IA/MC/P/BE) for a flat rate. Above 12 Mbps, 2-12M w/COS – RT/IA equals WAN line rate; 15M WAN bandwidth or greater - for PREMIUM without voice – a customer can order in increments of 2, 4, 6, 8, 10, 15, 20, 25 or greater for RT/IA – Example (15M aggregate with 2M RT, 4M IA)
- * Converged Voice Services include a bundle of LD minutes based upon purchased bandwidth. 1.5-2Mbps includes 2,500 Minutes of Usage / 3-4Mbps includes 5,000 Minutes of Usage and >4Mbps includes 7,500 Minutes of Usage.

IP VPN + VOICE + SIA Package

WAN Access	Bandwidth (Mbps)	Call Package (# of simultaneous calls) ² CoS Charge not included ⁶	Managed IAD (included) ³	Managed Router (not included) ⁵	Maximum Analog Lines	Maximum PRI Calls	Maximum Digital Trunk Calls	NRC	MRC		
									12 mos	36 mos	
10	2	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 718.05	\$ 606.11
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 807.81	\$ 681.75
		4-10	Premium ²	Adtran	N/A	10	10	10	\$ 756.38	\$ 718.05	\$ 606.11
10	4	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 926.81	\$ 783.60
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 1,016.57	\$ 859.24
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 1,237.43	\$ 1,042.79

10	7	22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 1,358.45	\$ 1,143.64
		4-10	Premium ²	Adtran	N/A	10	10	10	\$ 756.38	\$ 926.81	\$ 783.60
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 1,237.43	\$ 1,042.79
10	6	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 1,136.58	\$ 963.12
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 1,227.34	\$ 1,037.75
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 1,448.21	\$ 1,222.30
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 1,568.22	\$ 1,323.15
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 1,689.24	\$ 1,422.99
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 1,809.25	\$ 1,523.84
		4-10	Premium ²	Adtran	N/A	10	10	10	\$ 756.38	\$ 1,136.58	\$ 963.12
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 1,448.21	\$ 1,222.30
		21-30		Adtran	Adtran or Cisco ⁵	24	30	30	\$ 756.38	\$ 1,568.22	\$ 1,323.15
		10	8	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38
9-15	Adtran			N/A		15	15	15	\$ 756.38	\$ 1,435.10	\$ 1,215.24
16-21	Adtran			N/A		21	21	21	\$ 756.38	\$ 1,656.97	\$ 1,399.80
22-30	Adtran			N/A		24	30	30	\$ 756.38	\$ 1,776.98	\$ 1,500.65
31-37	Adtran			N/A		24	37	37	\$ 756.38	\$ 1,898.00	\$ 1,600.49
38-45	Adtran			N/A		24	45	45	\$ 756.38	\$ 2,018.01	\$ 1,701.34
4-10	Premium ²			Adtran	N/A	10	10	10	\$ 756.38	\$ 1,345.34	\$ 1,140.61
11-20				Adtran	N/A	20	20	20	\$ 756.38	\$ 1,656.97	\$ 1,399.80
21-30				Adtran	Adtran or Cisco ⁵	24	30	30	\$ 756.38	\$ 1,776.98	\$ 1,500.65
31-40				Adtran	Adtran or Cisco ⁵	24	40	40	\$ 756.38	\$ 2,018.01	\$ 1,701.34
10	10	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 1,554.10	\$ 1,317.10
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 1,643.86	\$ 1,392.74
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 1,864.72	\$ 1,577.29
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 1,985.74	\$ 1,677.14
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 2,106.76	\$ 1,777.99
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 2,226.77	\$ 1,877.83
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 2,367.96	\$ 1,995.82	
		4-10	Premium ²	Adtran	N/A	10	10	10	\$ 756.38	\$ 1,554.10	\$ 1,317.10
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 1,864.72	\$ 1,577.29
		21-30		Adtran	Adtran or Cisco ⁵	24	30	30	\$ 756.38	\$ 1,710.42	\$ 1,677.14
		31-40		Adtran	Adtran or Cisco ⁵	24	40	40	\$ 756.38	\$ 2,226.77	\$ 1,877.83
		41-50		Adtran	Adtran or Cisco ⁵	24	46	45	\$ 756.38	\$ 2,367.96	\$ 1,995.82

Note:

¹ Pricing and availability for larger bandwidths provided below.

² PREMIUM/CoS has an additional charge.

³ # of simultaneous calls may be a combination of analog lines and PRI or analog lines and digital trunks. PRI & digital trunk combination is not available.

⁴ A fully managed Adtran TA924e integrated access device (IAD) is included in the converged bundle price.

⁵ A managed router is required in addition to the IAD for all applications that require 2 PRI or Digital Trunk interfaces with CoS

* Converged Voice Services include a bundle of LD minutes based upon purchased bandwidth. 1.5-2Mbps includes 2,500 Minutes of Usage / 3-4Mbps includes 5,000 Minutes of Usage and >4Mbps includes 7,500 Minutes of Usage.

IP VPN + Voice + SIA Package										
WAN Access	Bandwidth (Mbps)	Call Package (# of simultaneous calls) ² CoS Charge not included ⁶	Managed IAD (included) ³	Managed Router (not included) ⁵	Maximum Analog Lines	Maximum PRI Calls	Maximum Digital Trunk Calls	NRC	MRC	
									12 mos	36 mos
		4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 1,855.64	\$ 1,573.26

100	15	9-15	Basic	Adtran	N/A	15	15	15	\$ 756.38	\$ 1,945.40	\$ 1,648.90
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 2,167.27	\$ 1,833.45
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 2,287.28	\$ 1,933.29
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 2,408.30	\$ 2,034.14
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 2,528.31	\$ 2,134.99
		46-50		Adtran	N/A	24	46	48	\$ 756.38	\$ 2,669.50	\$ 2,251.98
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 1,855.64	\$ 1,573.26
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 2,046.25	\$ 1,732.60
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 2,287.28	\$ 1,933.29
		31-40		Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 2,528.31	\$ 2,134.99
		41-50		Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 2,669.50	\$ 2,251.98
100	20	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 2,160.21	\$ 1,833.45
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 2,330.64	\$ 1,976.66
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 2,632.19	\$ 2,228.79
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 2,829.85	\$ 2,396.20
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 3,030.54	\$ 2,564.62
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 3,229.22	\$ 2,731.02
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 3,450.08	\$ 2,915.57	
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 2,674.54	\$ 2,270.13
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 2,901.45	\$ 2,460.74
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 3,180.81	\$ 2,693.70
		31-40		Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 3,458.15	\$ 2,925.66
41-50	Adtran	Adtran or Cisco ¹		24	46	45	\$ 756.38	\$ 3,636.65	\$ 3,074.92		
100	25	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 2,462.76	\$ 2,090.62
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 2,552.51	\$ 2,165.25
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 2,773.38	\$ 2,349.81
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 2,894.40	\$ 2,450.66
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 3,015.42	\$ 2,550.50
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 3,135.43	\$ 2,651.35
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 3,276.62	\$ 2,768.33	
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 2,462.76	\$ 2,090.62
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 2,653.36	\$ 2,248.96
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 2,894.40	\$ 2,450.66
		31-40		Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 3,135.43	\$ 2,651.35
41-50	Adtran	Adtran or Cisco ¹		24	46	45	\$ 756.38	\$ 3,276.62	\$ 2,768.33		
100	30	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 2,769.34	\$ 2,350.81
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 2,859.10	\$ 2,426.45
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 3,080.97	\$ 2,610.00
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 3,200.98	\$ 2,710.85
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 3,322.00	\$ 2,810.69
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 3,442.01	\$ 2,911.54
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 3,583.20	\$ 3,028.53	
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 2,769.34	\$ 2,350.81
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 2,959.95	\$ 2,510.16
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 3,200.98	\$ 2,710.85
		31-40		Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 3,442.01	\$ 2,911.54
41-50	Adtran	Adtran or Cisco ¹		24	46	45	\$ 756.38	\$ 3,583.20	\$ 3,028.53		
		4-8		Adtran	N/A	8	8	8	\$ 756.38	\$ 3,068.87	\$ 2,605.96
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 3,159.63	\$ 2,681.60

100	35	16-21	Basic	Adtran	N/A	21	21	21	\$ 756.38	\$ 3,380.49	\$ 2,865.15
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 3,500.50	\$ 3,974.50
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 3,621.52	\$ 3,065.84
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 3,741.54	\$ 3,166.69
		46-50		Adtran	N/A	24	46	48	\$ 756.38	\$ 3,882.73	\$ 3,283.68
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 3,068.87	\$ 2,605.96
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 3,259.47	\$ 2,765.31
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 3,500.50	\$ 2,966.00
		31-40		Adtran	Adtran or Cisco ¹	24	40	40	\$ 756.38	\$ 3,741.54	\$ 3,166.69
		41-50		Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 3,882.73	\$ 3,283.68
100	40	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 3,370.41	\$ 2,862.12
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 3,461.17	\$ 2,937.76
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 3,682.03	\$ 3,121.31
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 3,803.05	\$ 3,222.16
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 3,923.07	\$ 3,323.01
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 4,044.09	\$ 3,422.85
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 4,184.27	\$ 3,540.84	
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 3,370.41	\$ 2,862.12
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 3,561.01	\$ 3,021.47
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 3,803.05	\$ 3,222.16
31-40	Adtran	Adtran or Cisco ¹		24	40	40	\$ 756.38	\$ 4,044.09	\$ 3,422.85		
41-50	Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 4,184.27	\$ 3,540.84			
100	45	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 3,675.98	\$ 3,121.31
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 3,765.74	\$ 3,195.94
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 3,987.61	\$ 3,380.49
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 4,107.62	\$ 3,481.34
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 4,228.64	\$ 3,581.18
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 4,348.65	\$ 3,682.03
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 4,489.84	\$ 3,799.02	
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 3,675.98	\$ 3,121.31
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 3,866.59	\$ 3,279.64
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 4,107.62	\$ 3,481.34
31-40	Adtran	Adtran or Cisco ¹		24	40	40	\$ 756.38	\$ 4,348.65	\$ 3,682.03		
41-50	Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 4,489.84	\$ 3,799.02			
100	50	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 3,977.52	\$ 3,377.47
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 4,068.29	\$ 3,453.10
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 4,289.15	\$ 3,636.65
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 4,409.16	\$ 3,737.50
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 4,530.18	\$ 3,837.34
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 4,650.19	\$ 3,938.19
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 4,791.38	\$ 4,055.18	
		4-10	Premium ⁴	Adtran	N/A	10	10	10	\$ 756.38	\$ 3,977.52	\$ 3,377.47
		11-20		Adtran	N/A	20	20	20	\$ 756.38	\$ 4,168.13	\$ 3,536.81
		21-30		Adtran	Adtran or Cisco ¹	24	30	30	\$ 756.38	\$ 4,409.16	\$ 3,737.50
31-40	Adtran	Adtran or Cisco ¹		24	40	40	\$ 756.38	\$ 4,650.19	\$ 3,938.19		
41-50	Adtran	Adtran or Cisco ¹	24	46	45	\$ 756.38	\$ 4,791.38	\$ 4,055.18			

Note:

¹ Pricing and availability for bandwidths above 50Mbps can be provided on a case-by-case basis.

² PREMIUM/CoS has an additional charge.										
³ # of simultaneous calls may be a combination of analog lines and PRI or analog lines and digital trunks. PRI & digital trunk combination is not available.										
⁴ A fully managed Adtran TA924e integrated access device (IAD) is included in the converged bundle price.										
⁵ A managed router is required in addition to the IAD for all applications that require 2 PRI or Digital Trunk interfaces with CoS										

* Converged Voice Services include a bundle of LD minutes based upon purchased bandwidth. 1.5-2Mbps includes 2,500 Minutes of Usage / 3-4Mbps includes 5,000 Minutes of Usage and >4Mbps includes 7,500 Minutes of Usage.

VOICE + Internet Package

WAN Access	Bandwidth (Mbps) ¹	Call Package (# of simultaneous calls) ²	Managed IAD (included) ³	Managed Router (not included) ⁵	Maximum Analog Lines	Maximum PRI Calls	Maximum Digital Trunk Calls	NRC	MRC	
									12 mos	36 mos
T1	1.5	4-8	Adtran	N/A	8	8	8	\$ 504.25	\$ 554.68	\$ 342.89
		9-12	Adtran	N/A	12	12	12	\$ 504.25	\$ 630.31	\$ 378.19
2xT1	3	4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 795.71	\$ 518.37
		9-12	Adtran	N/A	12	12	12	\$ 756.38	\$ 837.06	\$ 546.61
		13-18	Adtran	N/A	18	18	18	\$ 756.38	\$ 881.43	\$ 574.85
		19-24	Adtran	N/A	24	23	24	\$ 756.38	\$ 927.82	\$ 605.10
3xT1	4.5	4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 683.76	\$ 577.87
		9-12	Adtran	N/A	12	12	12	\$ 756.38	\$ 773.52	\$ 652.50
		13-18	Adtran	N/A	18	18	18	\$ 756.38	\$ 874.37	\$ 736.21
		19-24	Adtran	N/A	24	23	24	\$ 756.38	\$ 994.38	\$ 837.06
		25-30	Adtran	Adtran or Cisco ⁶	24	23	24	\$ 756.38	\$ 1,115.40	\$ 937.91
		31-36	Adtran	Adtran or Cisco ⁶	24	23	24	\$ 756.38	\$ 1,236.42	\$ 1,037.75
4xT1 ¹	6	4-8	Adtran	N/A	24	0	0	\$ 756.38	\$ 774.53	\$ 655.53
		9-12	Adtran	N/A	24	0	0	\$ 756.38	\$ 864.28	\$ 730.15
		13-18	Adtran	N/A	24	0	0	\$ 756.38	\$ 965.13	\$ 813.86
		19-24	Adtran	N/A	24	0	0	\$ 756.38	\$ 1,085.15	\$ 914.71
4xT1 ⁷	6	4-8	Adtran	Adtran or Cisco (MR is required with this configuration)	8	8	8	\$ 756.38	\$ 774.53	\$ 655.53
		9-12	Adtran		12	12	12	\$ 756.38	\$ 864.28	\$ 730.15
		13-18	Adtran		18	18	18	\$ 756.38	\$ 965.13	\$ 813.86
		19-24	Adtran		24	24	24	\$ 756.38	\$ 1,085.15	\$ 914.71
		25-30	Adtran		24	30	30	\$ 756.38	\$ 1,206.17	\$ 1,015.56
		31-36	Adtran		24	36	36	\$ 756.38	\$ 1,327.19	\$ 1,115.40
		37-42	Adtran		24	42	42	\$ 756.38	\$ 1,447.20	\$ 1,216.25
		43-50	Adtran		24	46	48	\$ 756.38	\$ 1,588.39	\$ 1,333.24

NOTES:										
¹ 4xT1 via the IAD only supports analog lines (PRI and digital trunks are not available)										
² # simultaneous calls may be a combination of analog lines and PRI or analog lines and digital trunks. PRI & digital trunk combination is not available										
³ A fully managed Adtran TA 924e integrated access device (IAD) is included in the converged bundle price.										
⁴ A managed router is required in addition to the managed IAD to support BWs > 6 Mbps (4xT1). Adtran or Cisco are available options. The MR is not included in the pricing.										
⁶ A managed router is required in addition to the IAD if 2xPRI or 2xDigital Trunks is required.										
⁷ 4xT1 requires a Managed Router in addition to the Managed IAD when PRIs or Digital Trunks are required. If only analog lines, a Managed router is not required.										

* Converged Voice Services include a bundle of LD minutes based upon purchased bandwidth. 1.5-2Mbps includes 2,500 Minutes of Usage / 3-4Mbps includes 5,000 Minutes of Usage and >4Mbps includes 7,500 Minutes of Usage.

Voice + Internet Package

WAN Access	Bandwidth (Mbps)	Call Package (# of simultaneous calls) ¹		Managed IAD (included) ²	Managed Router (not included)	Maximum Analog Lines	Maximum PRI Calls	Maximum Digital Trunk Calls	NRC	MRC	
										12 mos	36 mos
10	2	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 534.51	\$ 450.80
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 624.26	\$ 525.43
10	4	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 652.50	\$ 550.64
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 742.26	\$ 625.27
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 963.12	\$ 809.83
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 1,084.14	\$ 910.68
10	6	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 774.53	\$ 655.53
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 864.28	\$ 730.15
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 1,085.15	\$ 914.71
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 1,206.17	\$ 1,015.56
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 1,327.19	\$ 1,115.40
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 1,447.20	\$ 1,216.25
10	8	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 892.52	\$ 756.38
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 982.28	\$ 831.00
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 1,203.14	\$ 1,015.56
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 1,324.16	\$ 1,116.41
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 1,445.18	\$ 1,216.25
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 1,565.19	\$ 1,317.10
10	10	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 1,010.52	\$ 856.22
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 1,100.27	\$ 930.85
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 1,321.14	\$ 1,115.40
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 1,442.16	\$ 1,216.25
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 1,563.18	\$ 1,316.09
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 1,683.19	\$ 1,416.94
		46-50		Adtran	N/A	24	46	48	\$ 756.38	\$ 1,824.38	\$ 1,533.93

Note:

¹ # simultaneous calls may be a combination of analog lines and PRI or analog lines and digital trunks. PRI & digital trunk combination is not available

² A fully managed Adtran TA 924e integrated access device (IAD) is included in the converged bundle price.

* Converged Voice Services include a bundle of LD minutes based upon purchased bandwidth. 1.5-2Mbps includes 2,500 Minutes of Usage / 3-4Mbps includes 5,000 Minutes of Usage and >4Mbps includes 7,500 Minutes of Usage.

Voice + Internet Package											
WAN Access	Bandwidth (Mbps)	Call Package (# of simultaneous calls) ¹		Managed IAD (included) ²	Managed Router (not included)	Maximum Analog Lines	Maximum PRI Calls	Maximum Digital Trunk Calls	NRC	MRC	
										12 mos	36 mos
100	15	4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 1,210.20	\$ 1,025.64
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 1,299.96	\$ 1,100.27
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 1,520.82	\$ 1,284.83
		22-30		Adtran	N/A	24	30	30	\$ 756.38	\$ 1,641.84	\$ 1,385.68
		31-37		Adtran	N/A	24	37	37	\$ 756.38	\$ 1,762.86	\$ 1,485.52
		38-45		Adtran	N/A	24	45	45	\$ 756.38	\$ 1,882.87	\$ 1,586.37
		46-50		Adtran	N/A	24	46	48	\$ 756.38	\$ 2,024.06	\$ 1,703.36
		4-8	Basic	Adtran	N/A	8	8	8	\$ 756.38	\$ 1,405.85	\$ 1,192.05
		9-15		Adtran	N/A	15	15	15	\$ 756.38	\$ 1,495.61	\$ 1,266.68
		16-21		Adtran	N/A	21	21	21	\$ 756.38	\$ 1,716.47	\$ 1,451.23

100	20	22-30	Adtran	N/A	24	30	30	\$ 756.38	\$ 1,837.49	\$ 1,552.08
		31-37	Adtran	N/A	24	37	37	\$ 756.38	\$ 1,958.51	\$ 1,651.92
		38-45	Adtran	N/A	24	45	45	\$ 756.38	\$ 2,078.52	\$ 1,752.77
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 2,219.71	\$ 1,869.76
100	25	4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 1,605.53	\$ 1,361.48
		9-15	Adtran	N/A	15	15	15	\$ 756.38	\$ 1,695.29	\$ 1,436.10
		16-21	Adtran	N/A	21	21	21	\$ 756.38	\$ 1,916.15	\$ 1,620.66
		22-30	Adtran	N/A	24	30	30	\$ 756.38	\$ 2,037.17	\$ 1,721.51
		31-37	Adtran	N/A	24	37	37	\$ 756.38	\$ 2,158.19	\$ 1,821.35
		38-45	Adtran	N/A	24	45	45	\$ 756.38	\$ 2,278.20	\$ 1,922.20
100	30	46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 2,419.39	\$ 2,039.19
		4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 1,805.22	\$ 1,530.90
		9-15	Adtran	N/A	15	15	15	\$ 756.38	\$ 1,894.97	\$ 1,605.53
		16-21	Adtran	N/A	21	21	21	\$ 756.38	\$ 2,115.83	\$ 1,790.09
		22-30	Adtran	N/A	24	30	30	\$ 756.38	\$ 2,236.85	\$ 1,890.94
		31-37	Adtran	N/A	24	37	37	\$ 756.38	\$ 2,357.87	\$ 1,990.78
100	35	38-45	Adtran	N/A	24	45	45	\$ 756.38	\$ 2,477.88	\$ 2,091.63
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 2,619.07	\$ 2,208.62
		4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 1,999.86	\$ 1,697.31
		9-15	Adtran	N/A	15	15	15	\$ 756.38	\$ 2,089.61	\$ 1,771.93
		16-21	Adtran	N/A	21	21	21	\$ 756.38	\$ 2,310.47	\$ 1,956.49
		22-30	Adtran	N/A	24	30	30	\$ 756.38	\$ 2,431.49	\$ 2,057.34
100	40	31-37	Adtran	N/A	24	37	37	\$ 756.38	\$ 2,552.51	\$ 2,157.18
		38-45	Adtran	N/A	24	45	45	\$ 756.38	\$ 2,672.53	\$ 2,258.03
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 2,813.72	\$ 2,375.02
		4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 2,199.54	\$ 1,866.73
		9-15	Adtran	N/A	15	15	15	\$ 756.38	\$ 2,289.30	\$ 1,941.36
		16-21	Adtran	N/A	21	21	21	\$ 756.38	\$ 2,510.16	\$ 2,125.92
100	45	22-30	Adtran	N/A	24	30	30	\$ 756.38	\$ 2,631.18	\$ 2,226.77
		31-37	Adtran	N/A	24	37	37	\$ 756.38	\$ 2,752.20	\$ 2,326.61
		38-45	Adtran	N/A	24	45	45	\$ 756.38	\$ 2,872.21	\$ 2,427.46
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 3,013.40	\$ 2,544.45
		4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 2,395.19	\$ 2,032.13
		9-15	Adtran	N/A	15	15	15	\$ 756.38	\$ 2,484.94	\$ 2,106.76
100	50	16-21	Adtran	N/A	21	21	21	\$ 756.38	\$ 2,705.81	\$ 2,291.31
		22-30	Adtran	N/A	24	30	30	\$ 756.38	\$ 2,826.83	\$ 2,392.16
		31-37	Adtran	N/A	24	37	37	\$ 756.38	\$ 2,947.85	\$ 2,492.00
		38-45	Adtran	N/A	24	45	45	\$ 756.38	\$ 3,067.86	\$ 2,592.85
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 3,209.05	\$ 2,709.84
		4-8	Adtran	N/A	8	8	8	\$ 756.38	\$ 2,594.87	\$ 2,201.56
100	50	9-15	Adtran	N/A	15	15	15	\$ 756.38	\$ 2,684.63	\$ 2,276.18
		16-21	Adtran	N/A	21	21	21	\$ 756.38	\$ 2,905.49	\$ 2,460.74
		22-30	Adtran	N/A	24	30	30	\$ 756.38	\$ 3,026.51	\$ 2,561.59
		31-37	Adtran	N/A	24	37	37	\$ 756.38	\$ 3,147.53	\$ 2,661.43
		38-45	Adtran	N/A	24	45	45	\$ 756.38	\$ 3,267.54	\$ 2,762.28
		46-50	Adtran	N/A	24	46	48	\$ 756.38	\$ 3,408.73	\$ 2,879.27
NOTES:										
¹ # simultaneous calls may be a combination of analog lines and PRI or analog lines and digital trunks. PRI & digital trunk combination is not available										
² A fully managed Adtran TA 924e integrated access device (IAD) is included in the converged bundle price.										

* Converged Voice Services include a bundle of LD minutes based upon purchased bandwidth. 1.5-2Mbps includes 2,500 Minutes of Usage / 3-4Mbps includes 5,000 Minutes of Usage and >4Mbps includes 7,500 Minutes of Usage.

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On-Net Converged Services Transport Pricing

The Transport Pricing below applies to all Converged Services Packages. Transport is a separate charge that is applied in addition to the Converged access charges										MRC		
WAN Access	Bandwidth (Mbps)1	MRC Description								NRC	12 mos	36 mos
1xT1 - 8xT1	1.5 - 12 mb	Price per single On-Net T1								\$ -	\$ 85.72	\$ 72.61
DS3	3 - 45 mb	Price per single On-Net DS3								\$ -	\$ 327.76	\$ 278.35
OC3	35 - 155 mb	Price per single OC3								\$ -	\$ 922.78	\$ 784.61
10/100 Port	2 - 100 mb	Price per 10/100 Port								\$ -	\$ 327.76	\$ 278.35
GigE Port	1000mb	Price per 1000 mb Port								\$ -	\$ 705.95	\$ 600.06

Managed Routers										NRC			MRC		
WAN Access	Supported Bandwidth (Mbps)	Router Make/Model									12 mos	36 mos			
T1-2xT1	1.5 – 3	Adtran NetVanta 3430 or Adtran NetVanta 4430								\$ 504.25	\$ 75.64	\$ 75.64			
3xT1-8xT1	4.5 - 12	Adtran NetVanta 4430								\$ 504.25	\$ 75.64	\$ 75.64			
DS3	3 – 45	Adtran NetVanta 5305								\$ 504.25	\$ 201.70	\$ 201.70			
Ethernet ³	2-10	Adtran NetVanta 3430 or Adtran NetVanta 4430								\$ 504.25	\$ 75.64	\$ 75.64			
Ethernet ⁴	15 - 100	NetVanta 4430								\$ 504.25	\$ 75.64	\$ 75.64			

										NRC			MRC		
WAN Access	Supported Bandwidth (Mbps)	Router Make/Model									12 mos	36 mos			
T1 - 2xT1	1.5 – 3	Cisco 1941								\$ 504.25	\$ 75.64	\$ 75.64			
3xT1-4xT1	4.5-6	Cisco 1941								\$ 504.25	\$ 75.64	\$ 75.64			
5xT1-6xT1	7.5 - 9	Cisco 2911								\$ 504.25	\$ 100.85	\$ 100.85			
7xT1-8xT1	10.5 - 12	Cisco 2911								\$ 504.25	\$ 126.06	\$ 126.06			
DS3	3 – 45	Cisco 3925 ISR								\$ 504.25	\$ 302.55	\$ 302.55			
OC3	35 - 155	Cisco 7201								\$ 1,008.50	\$ 756.38	\$ 756.38			
Ethernet	2-40	Cisco 1941								\$ 504.25	\$ 75.64	\$ 75.64			
Ethernet	45 - 150	Cisco 3925								\$ 504.25	\$ 151.28	\$ 151.28			
Ethernet	175 - 500	Cisco 7201								\$ 504.25	\$ 554.68	\$ 554.68			
Ethernet	550-1Gig	Cisco ASR1002								\$ 1,008.50	\$ 857.23	\$ 857.23			

Disclaimers:

- This quote is valid for 120 days from the issue date.
- The quoted rates are based on On-Net Services. "On-Net Service" means a Service that is provisioned entirely on tw telecom's network utilizing our fiber facilities to the end-user location. "Off-Net Service" means a Service where tw telecom must procure the "last mile" from the LEC or CLEC, as we do not have our own fiber facilities to the end-user location.
- These prices assume that facilities exist. If facilities have to be created, the monthly price can either increase or a one-time special construction charge can be applied. State will have the option to accept the price or cancel the order.
- Any Off-Net Service required to provision Services to a particular location not serviced by tw telecom fiber for the "last mile" are ICB.
- This quote does not include applicable taxes, surcharges, or other fees. Standard government fees and taxes apply and are the same for all carriers. This includes federal excise tax, federal universal service (USF) surcharge, Emergency Telephone Users Surcharge, State Regulatory Fee, Universal Lifeline Telephone Service (ULTS) Surcharge, and Utility Users Tax. The actual percentage for each is subject to change as mandated by appropriate government and regulatory entities. Fees and taxes are imposed on a per service basis and may not be applicable in all

percentage for each is subject to change as mandated by appropriate government and regulatory entities. Fees and taxes are imposed on a per-service basis and may not be applicable in all cases.

- TWTC does NOT impose any FCC Charges for Network Access (EUCLC), FCC Port Fees, Local Number Portability Fees, LDAC Fees, PICC fees, or Administrative Fees on our products and services.
- **Long Distance Specific Disclaimers:**
- Minimum initial per call charge is \$.01 (one cent), which will be applied to all long distance calls.
- If 40% or more of Customer's long distance traffic results in TWTC incurring inter-carrier compensation costs that are at least 20% higher than Customer's contracted long distance rate, the Parties agree to enter into good faith negotiations to increase the rate for Long Distance Services. If the Parties are not able to reach agreement regarding a new long distance rate, TWTC may discontinue providing the Long Distance Services following ten days written notice without further obligation.

IP VPN + VOICE + SIA Package												
WAN Access	Bandwidth (Mbps)	Call Package (# of simultaneous calls) ² CoS Charge not included ⁶	Managed IAD (included) ³	Managed Router (not included) ⁵	Maximum Analog Lines	Maximum PRI Calls	Maximum Digital Trunk Calls	NRC	MRC			
									12 mos	36 mos	60 mos	
T1	1.5	4-8	Adtran	N/A	8	8	8	\$ 500.00	\$ 658.00	\$ 556.00	\$ 525.00	
		9-12	Adtran	N/A	12	12	12	\$ 500.00	\$ 748.00	\$ 631.00	\$ 596.00	
		4-8	Premium ⁴	Adtran	N/A	8	8	8	\$ 500.00	\$ 658.00	\$ 556.00	\$ 525.00
2xT1	3	4-8	Adtran	N/A	8	8	8	\$ 750.00	\$ 815.00	\$ 689.00	\$ 650.00	
		9-12	Adtran	N/A	12	12	12	\$ 750.00	\$ 905.00	\$ 764.00	\$ 721.00	
		13-18	Adtran	N/A	18	18	18	\$ 750.00	\$ 1,004.00	\$ 847.00	\$ 800.00	
		19-24	Adtran	N/A	24	23	24	\$ 750.00	\$ 1,124.00	\$ 947.00	\$ 895.00	
		4-8	Premium ⁴	Adtran	N/A	8	8	8	\$ 750.00	\$ 815.00	\$ 689.00	\$ 650.00
		9-16	Adtran	N/A	12	12	12	\$ 750.00	\$ 905.00	\$ 764.00	\$ 721.00	
3xT1	4.5	4-8	Adtran	N/A	8	8	8	\$ 750.00	\$ 971.00	\$ 822.00	\$ 775.00	
		9-12	Adtran	N/A	12	12	12	\$ 750.00	\$ 1,061.00	\$ 897.00	\$ 846.00	
		13-18	Adtran	N/A	18	18	18	\$ 750.00	\$ 1,160.00	\$ 980.00	\$ 925.00	
		19-24	Adtran	N/A	24	23	24	\$ 750.00	\$ 1,280.00	\$ 1,079.00	\$ 1,020.00	
		25-30	Adtran	Adtran or Cisco ⁶	24	30	30	\$ 750.00	\$ 1,399.00	\$ 1,179.00	\$ 1,114.00	
		31-36	Adtran	Adtran or Cisco ⁶	24	36	36	\$ 750.00	\$ 1,519.00	\$ 1,278.00	\$ 1,209.00	
		4-8	Premium ⁴	Adtran	N/A	8	8	8	\$ 750.00	\$ 971.00	\$ 822.00	\$ 775.00
		9-16	Adtran	N/A	12	12	12	\$ 750.00	\$ 1,061.00	\$ 897.00	\$ 846.00	
		17-24	Adtran	N/A	18	18	18	\$ 750.00	\$ 1,280.00	\$ 1,079.00	\$ 1,020.00	
		4xT1 ¹	6	4-8	Adtran	N/A	24	0	0	\$ 750.00	\$ 1,127.00	\$ 955.00
9-12	Adtran			N/A	24	0	0	\$ 750.00	\$ 1,217.00	\$ 1,029.00	\$ 971.00	
13-18	Adtran			N/A	24	0	0	\$ 750.00	\$ 1,316.00	\$ 1,112.00	\$ 1,050.00	
19-24	Adtran			N/A	24	0	0	\$ 750.00	\$ 1,436.00	\$ 1,212.00	\$ 1,145.00	
4-8	Premium ⁴			Adtran	N/A	24	0	0	\$ 750.00	\$ 1,127.00	\$ 955.00	\$ 900.00
9-16	Adtran			N/A	24	0	0	\$ 750.00	\$ 1,217.00	\$ 1,029.00	\$ 971.00	
17-24	Adtran			N/A	24	0	0	\$ 750.00	\$ 1,436.00	\$ 1,212.00	\$ 1,145.00	

- Note:
- 1) 4xT1 requires a Managed Router in addition to the Managed IAD when PRIs or Digital Trunks are required. If only analog lines are needed, then a Managed Router is not required
 - 2) A Managed Router may be ordered with the IP VPN + Voice package to support bandwidths > 6 Mbps (4xT1).
 - 3) A Managed Router will be deployed in addition to the managed integrated access device (IAD).
 - 4) Pricing for 5xT1-8xT1 is available on a case by case basis.

4xT1 ⁷	6	4-8	Adtran	Adtran or Cisco (MR is required with this configuration)	8	8	8	\$ 750.00	\$ 1,127.00	\$ 955.00	\$ 900.00
		9-12	Adtran		12	12	12	\$ 750.00	\$ 1,217.00	\$ 1,029.00	\$ 971.00
		13-18	Adtran		18	18	18	\$ 750.00	\$ 1,316.00	\$ 1,112.00	\$ 1,050.00
		19-24	Adtran		24	24	24	\$ 750.00	\$ 1,436.00	\$ 1,212.00	\$ 1,145.00
		25-30	Adtran		24	30	30	\$ 750.00	\$ 1,555.00	\$ 1,312.00	\$ 1,239.00
		31-36	Adtran		24	36	36	\$ 750.00	\$ 1,675.00	\$ 1,411.00	\$ 1,334.00
		37-42	Adtran		24	42	42	\$ 750.00	\$ 1,794.00	\$ 1,511.00	\$ 1,428.00
		43-50	Adtran		24	46	48	\$ 750.00	\$ 1,934.00	\$ 1,627.00	\$ 1,539.00
	Premium ⁴	4-8	Adtran	Adtran or Cisco (MR is required with this configuration)	8	8	8	\$ 750.00	\$ 1,127.00	\$ 955.00	\$ 900.00
		9-16	Adtran		16	16	16	\$ 750.00	\$ 1,217.00	\$ 1,029.00	\$ 971.00
		17-24	Adtran		24	24	24	\$ 750.00	\$ 1,436.00	\$ 1,212.00	\$ 1,145.00
		25-32	Adtran		24	32	32	\$ 750.00	\$ 1,555.00	\$ 1,312.00	\$ 1,239.00

- Notes:
- 1) 4xT1 via the IAD only supports analog lines (PRI and digital trunks are not available).
 - 2) Number of simultaneous calls may be a combination of analog lines and PRI or analog lines and digital trunks. PRI and digital trunk combination is not available

Schedule B – Managed Services



Schedule B.docx

SCHEDULE B – MANAGED SERVICES

Provide the hourly rate for Managed Services.

Hourly Rate: N/A – see below

The State understands that there is 24x7 monitoring with managed services. The hourly rate is for the actual amount of time each month spent analyzing/responding/dealing with the actual services/devices for the customer.

For example: Based on an analysis of customer devices and services required, 5 hours per month of monitoring per month will be needed. The quoted rate is \$100 per hour, thus the monthly rate is \$500.

If an hourly rate is not appropriate, describe in the space provided below how Managed Services are charged.

Response: All of the proposed services will be monitored and managed by tw telecom's Denver Operations Center at no additional charge. This does not apply to the customer-provided equipment/router that will be the responsibility of the customer.

tw telecom offers managed router services for our Internet and IP VPN (MPLS) services at an additional monthly premium, depending on the amount of bandwidth and other determining factors.

Schedule C – Minimum Qualifications



Schedule C.docx

SCHEDULE C – MINIMUM QUALIFICATIONS

Item No.	Qualifications – Section 2.2 describes minimum qualifications required for participation. Failure to comply with any of these requirements may result in disqualification of the Offeror.	Comply, Does Not Comply, Exception	Explanation
2.2.1	Meets the Technical Support Requirements		
2.2.1.1	Offeror shall be provide toll free telephone support via a technical support center which is staffed 24 hours a day, 7 days a week, 365 days a year (24x7x365).	Comply	<p>tw telecom's Denver Operations Center (DOC) is available to provide support 24x7x365. The DOC will remotely provide network administration, operations and maintenance support services for the majority of our Internet, data, transport and voice services. The DOC provides around-the-clock proactive monitoring for all its services. Once a service issue has been identified and recorded into the trouble ticket management database, tw telecom's highly trained customer care staff works one-on-one with the customer providing ongoing support and updates until resolution is achieved. The DOC maintains, as an objective for on-net services, a Mean-Time-To-Repair (MTTR) interval of less than two (2) hours and six (6) hours for off-net services.</p> <p>tw telecom's highly skilled operations specialists are available to provide continuous support of the following:</p> <ul style="list-style-type: none"> • Monitoring tw telecom's networks • Responding to network alarms • Troubleshooting and expeditiously correcting potential issues as they arise <p>tw telecom's monitoring systems provide continuous fault management status with the ability to detect, isolate and correct malfunctions in tw telecom's entire metropolitan and Internet backbone networks. tw telecom's monitoring systems also have the capability to report all available major, minor and power alarms that may potentially affect a customer's service.</p> <p>To ensure the highest level of customer service availability, tw</p>

			<p>telecom's core metropolitan networks are designed utilizing either SONET or Ethernet technology, connected via optical fibers. Depending upon the platform utilized, path-protected or dual path, SONET-based services are equipped with Automatic Protection Switching (APS) for a fail-over time of 50ms or less. Ethernet platforms provide redundant link restoration by utilizing either Rapid Spanning Tree Protocol (RSTP) or Spanning Tree Protocol (STP).</p> <p>In the unlikely event of a service interruption resulting from damage to a fiber optic cable, emergency restoration will be completed in an expeditious and timely manner. Local crews will maintain the fiber optic network. Restoration of the fiber cable represents the highest priority for these highly trained and well-equipped crews. Restoration work is performed according to written procedures with both line crews and fiber splicing crews at the scene.</p>
2.2.1.2	Offeror shall initiate troubleshooting within 30 minutes of receiving a call and if necessary, deploy technicians onsite within two Business Hours of problem determination on Oahu and four Business Hours on the neighbor islands.	Exception	Response: This requirement appears to conflict with 2.9.1.3 of this RFP. tw telecom will comply with 2.9.1.3 per our response to 2.9.1.3 and we are open to further discussion of these requirements.
2.2.1.3	The Offeror must employ a minimum of five (5) support technicians residing in Hawaii and support all islands where service is offered.	Comply	tw telecom has an office in Honolulu and employees more than five (5) support technicians.
2.2.2	Meets the Reliability Requirements		

2.2.2.1	Offeror shall provide circuit reliability that meets or exceeds 99.99% availability over the past two years for each offered service.	Comply	tw telecom offers and availability guarantee of 99.99% for all products being proposed
2.2.3	Provides Basic Required Services		
2.2.3.1	At a minimum, Offeror shall provide Broadband Ethernet to the islands of Oahu, Kauai, Maui, and the island of Hawaii Or Internet Service Provider (ISP) service to Oahu and at least one other island of at least 300Mbps.	Comply	tw telecom meets both of these requirements. We are currently doing this today.
2.2.3.2	All neighbor island services must be able to terminate on Oahu.	Comply	tw telecom provides services that do this today.
2.2.4	Ownership of Network Infrastructure		

2.2.4.1	Offeror shall be directly responsible for the monitoring, management and maintenance of its telecommunication infrastructure and its associated network equipment. Offeror must have direct control of the management and maintenance of its network backbone infrastructure.	Comply	<p>tw telecom's Denver Operations Center (DOC) is available to provide support 24x7x365. The DOC will remotely provide network administration, operations and maintenance support services for the majority of our Internet, data, transport and voice services. The DOC provides around-the-clock proactive monitoring for all its services. Once a service issue has been identified and recorded into the trouble ticket management database, tw telecom's highly trained customer care staff works one-on-one with the customer providing ongoing support and updates until resolution is achieved. The DOC maintains, as an objective for on-net services, a Mean-Time-To-Repair (MTTR) interval of less than two (2) hours and six (6) hours for off-net services.</p> <p>tw telecom owns and operates a national IP backbone in the United States via a Packet Over SONET (POS) and Ethernet architecture. tw telecom has created six regional IP hub sites where all traffic within a region is directed for access to other regions and peering sites. Diverse, high-speed optical circuits connect the IP POPs and hubs within a given region.</p>
2.2.5	Existing Installation in the State of Hawai'i		
2.2.5.1	Offeror shall be an experienced provider of the proposed telecommunication services with existing installations in the State of Hawaii.	Comply	<p>tw telecom provides on-net customer connectivity to the islands of Oahu, Maui, Kauai and Hawaii. We are co-located at all interexchange carriers POPs and seven LSOs on Oahu. These interconnection facilities allow us to pick up customer interLATA traffic and provide local transport to approximately 306 buildings on the island - all locally owned and managed by tw telecom.</p>

Clarifications to Terms and Conditions

TWTC agrees that the services will be governed by this RFP, the referenced general conditions and provisions to the extent they are intended to apply to the type of services being provided by TWTC, and pursuant to the attached **tw telecom** Standard Terms and Conditions as modified to be consistent with this RFP. The TWTC Standard Terms and Conditions and applicable service order forms contain greater detail regarding how the services are provided, which are tied to TWTC's internal systems and are necessary to allow TWTC to provide the services, and also include appropriate limitations of liability and indemnification provisions.

If TWTC is awarded some or all of the services described in this RFP, it is anticipated that Customer and TWTC will execute terms and conditions consistent with this RFP and TWTC's responses thereto.

Appendix A – Service Level Agreements



SLA_IPVPN.pdf



SLA_Transport-New.pdf



SLA_Internet_Services.pdf



SLA_Converged_Services.pdf



SLA Ethernet Services.pdf



IP VPN SERVICES

I. Product Description

TWTC's IP VPN Service (Layer 3 Internet Protocol (IP) Virtual Private Network) provides the features and flexibility of an IP network while offloading the complexity of IP routing to TWTC. TWTC's IP VPN Service is fully compliant with the industry's RFC 4364 (formerly known as 2547) BGP/MPLS VPN recommendation. TWTC's IP VPN Service allows its customers to prioritize and to keep the data it is transmitting across TWTC's next generation network separate and private from other data traffic.

Class of Service ("CoS") is available as a value add-on service to TWTC's IP VPN Service. CoS provides customers with the ability to prioritize multiple applications that are competing for the same network resources. CoS provides several levels or "classes" of differentiated service and essentially controls Network and system resources in order to achieve a more predictable flow of the customer's priority traffic across the Network. TWTC offers five levels of CoS priority (listed in descending order of priority): Realtime; Interactive; Mission Critical; Priority and Best Effort. Each CoS level represents traffic with similar network performance requirements for packet delay, jitter, latency and network availability. Customers may select the type of CoS associated with each traffic group based on their own desired priority levels.

TWTC will provide Customer with free access to a website portal named *My Service* which tracks Network performance between any two TWTC designated points of presence ("POPs") on TWTC's Network. *My Service* also provides average Network performance measurements that can be utilized for determining TWTC's performance in accordance with this Service Level Agreement ("SLA"). Network performance measurements between any two POPs on TWTC's Network may not correlate to the Network Average used to determine compliance with this SLA because measurements between POPs are used to calculate the Network Average.

II. Service Level Agreement - Domestic IP VPN Services

Network Availability

TWTC's IP VPN Services that are provisioned within the continental United States and Hawaii will be available to Customer at least 99.99% of the time during each calendar month. An IP VPN Service is unavailable during any period of time that it experiences a Service Outage. Upon Customer's request, TWTC shall issue credits for each Service Outage, and such credits shall be calculated by multiplying the percentage specified in the table below by the MRC for the non-performing Domestic IP VPN Service.

Duration of Service Outage	Percentage Credit
Less than 5 minutes (99.99% availability)	No Credit
5 minutes up to 4 hours	5% of the MRC
4 hours up to 8 hours	10% of the MRC
8 hours up to 12 hours	15% of the MRC
12 hours up to 16 hours	20% of the MRC
16 hours up to 24 hours	35% of the MRC
24 hours or greater	50% of the MRC

Network Average Latency

TWTC measures network latency with respect to average round-trip transmission on its Network each month. Network latency calculations for IP VPN Services provided in the continental United States are made between designated points of presence (“POPs”) within the continental United States and, for Hawaii, are made between its POPs in Hawaii and its POPs on the west coast of the continental United States (collectively “Network Latency”). Upon Customer’s request, TWTC shall issue credits for TWTC’s failure to meet the Network Latency metrics specified below, and such credits will be calculated by multiplying the percentage specified in the table below for the contracted CoS by the MRC for the non-performing IP VPN Service. The credits specified below are not cumulative and, in any calendar month, Customer shall only be entitled to one credit specified in the table below based on the highest affected CoS level for the non-performing IP VPN Service.

Network Average Latency						
Network Latency – (within continental United States)	Network Latency (from continental U.S. to Hawaii)	CoS Designation				
		Realtime	Interactive	Mission Critical	Priority	Best Effort
0.00 - 45.00 ms	0.00 – 75.00 ms	No Credit	No Credit	No Credit	No Credit	No Credit
45.01 – 50.00 ms	75.01 – 80.00 ms	10%	5%	No Credit	No Credit	No Credit
50.01 - 60.00 ms	80.01 – 90.00 ms	15%	10	No Credit	No Credit	No Credit
60.01 - 65.00 ms	90.01.01 – 95.00 ms	20%	15%	No Credit	No Credit	No Credit
65.01 - 70.00 ms	95.01 – 100.00 ms	30%	25%	20%	10%	No Credit
70.01 - 75.00 ms	100.01 – 105.00 ms	40%	35%	25%	15%	No Credit
75.01 ms or greater	105.01 ms or greater	50%	45%	30%	20%	10%

Average Packet Delivery (as measured between TWTC’s Designated POPs)

Average packet delivery metrics for TWTC’s Domestic IP VPN Services vary depending on the CoS designated by Customer and are specified in the table below. Upon Customer’s request, TWTC shall issue credits for TWTC’s failure to meet the applicable average packet delivery metric and such credits will be calculated by multiplying the percentages specified in the table below for the contracted CoS by the MRCs associated with the non-performing IP VPN Service. The credits specified below are not cumulative and, in any calendar month, Customer shall only be entitled to one credit specified in the table below based on the highest affected CoS level for the non-performing IP VPN Service.

Average Packet Delivery					
	CoS Designation – Percentage Credits				
<i>IP VPN Services (Average Packet Delivery)</i>	<i>Realtime</i>	<i>Interactive</i>	<i>Mission Critical</i>	<i>Priority</i>	<i>Best Effort</i>
99.9+	No Credit	No Credit	No Credit	No Credit	No Credit
99.5 - 99.8	10%	5%	No Credit	No Credit	No Credit
99 – 99.4	20%	15%	No Credit	No Credit	No Credit
98 – 98.9	30%	20%	15%	No Credit	No Credit
97 – 97.9	40%	25%	20%	15%	No Credit
less than 97	50%	40%	25%	20%	10%

Network Jitter

TWTC’s network jitter metric only applies to IP VPN Services for which the Customer has selected either the Realtime or Interactive CoS. “Network Jitter” means the average variation in delay for packet transfers between TWTC’s designated POPs during each calendar month. For IP VPN Services provided within the continental United States, measurements are taken at TWTC’s POPs in the continental United States; for Services provided in Hawaii, between TWTC’s POPs in Honolulu, HI and TWTC’s POPs on the west coast of the continental United States. Upon Customer’s request, TWTC will issue credits for TWTC’s failure to meet the Network Jitter metrics specified in the table below, and such credits will be calculated by multiplying the percentage specified in the table by the MRC for the non-performing IP VPN Service. The credits specified below are not cumulative and, in any calendar month, Customer shall only be entitled to one credit specified in the table below based on the highest affected CoS level for the non-performing IP VPN Service.

Network Jitter						
		CoS Designation – Percentage Credits				
<i>Continental United States</i>	<i>Hawaii</i>	<i>Realtime</i>	<i>Interactive</i>	<i>Mission Critical</i>	<i>Priority</i>	<i>Best Effort</i>
0.5 ms	1 ms	No Credit	No Credit	No Credit	No Credit	No Credit
.51 ms - 2.0 ms	1.1 ms – 2.0 ms	5%	No Credit	No Credit	No Credit	No Credit
2.1 ms - 4.0 ms	2.1 ms - 4.0 ms	10%	5%	No Credit	No Credit	No Credit
4.1 ms - 5.0 ms	4.1 ms - 5.0 ms	15%	10%	No Credit	No Credit	No Credit
5.1 ms - 6.5 ms	5.1 ms - 6.5 ms	20%	15%	10%	No Credit	No Credit
6.6 ms - 7.5 ms	6.6 ms - 7.5 ms	30%	20%	15%	No Credit	No Credit
7.5 ms - 10.0 ms	7.5 ms – 10.0 ms	40%	30%	25%	20%	No Credit
>10.0 ms	>10.0 ms	50%	40%	30%	15%	10%

III. Service Level Agreement - International IP VPN Services

Network Availability

TWTC’s IP VPN Services that are not provided within the continental United States and Hawaii (“International IP VPN Services”) will be available to Customer at least 99.99% of the time during a calendar month (“International Availability Standard”). An International IP VPN Service is unavailable during any period of time that it experiences a Service Outage. Upon Customer’s request, TWTC shall issue credits for each Service Outage, and such credits shall be calculated by multiplying the percentage specified in the table below by the MRC for the non-performing International IP VPN Service.

Duration of Service Outage	Percentage Credit
Up to 5 minutes (99.99% availability)	No Credit
5 minutes up to 4 hours	5% of the MRC
4 hours up to 8 hours	10% of the MRC
8 hours up to 12 hours	15% of the MRC
12 hours up to 16 hours	20% of the MRC
16 hours up to 24 hours	35% of the MRC
24 hours or greater	50% of the MRC

Latency, Packet Deliver and Jitter

Latency, packet delivery and jitter metrics for TWTC’s International IP VPN Services are available at www.twtelecom.com and vary by route and CoS. If TWTC’s International IP VPN Service fails to meet an applicable latency, packet delivery, or jitter metric, TWTC will pass through to Customer any credits or monetary compensation that it receives from the underlying carrier for the non-performing International IP VPN Service. All latency, packet delivery and jitter measurements for TWTC’s International IP VPN Services are measured by the underlying provider. The underlying provider’s measurement/calculation is used for the determination of, and compliance with, the applicable service levels for International IP VPN Services.

Additional Provisions

Customer is responsible for marking all packets sent to the IP VPN correctly (DSCP), properly queuing/rate-shaping traffic to the IP VPN so that it does not exceed the contracted for CoS, and ensuring that all of its communications to TWTC are in English.

IV. Service Level Agreement - Managed IP VPN Services

Managed IP VPN

Managed IP VPN Services bundle a TWTC owned and managed router located at Customer’s premises (“Managed CPE”) with TWTC’s IP VPN Services. TWTC’s NOC monitors the up/down status of the LAN and WAN ports of the Managed CPE. Upon detection of a problem with the Managed CPE, TWTC’s NOC will begin trouble isolation and resolution steps and will notify Customer. If repair of Managed CPE requires hardware replacement, TWTC will dispatch a field technician to the service location to either repair or replace the Managed CPE.

TWTC’s Managed IP VPN Service will be available to Customer at least 99.99% of the time during each calendar month (“CPE Availability Standard”). The Managed IP VPN Service is unavailable during any period of time that it experiences a Service Outage. If TWTC fails to meet the CPE Availability Standard during any calendar month, upon Customer’s request, TWTC shall issue credits calculated by multiplying the percentage specified in the table below by the MRC for the non-performing Managed IP VPN Service.

Cumulative Time of Unavailability During a Calendar Month	Percentage Credit
Up to 5 minutes (99.99% availability)	No Credit
5 minutes up to 4 hours	5% of the MRC
4 hours up to 8 hours	10% of the MRC
8 hours up to 12 hours	15% of the MRC
12 hours up to 16 hours	20% of the MRC
16 hours up to 24 hours	35% of the MRC
24 hours or greater	50% of the MRC

Dedicated Transport Services and Private Network Transport Services

I. Product Description

A. Dedicated Transport Services

DS1 SERVICE

DS1 Service is a dedicated, high capacity, full duplex channel with a line speed of 1.544 Mbps isochronous serial data having a line signal format of either Alternate Mark Inversion or Binary 8 Zero Substitution and either Superframe (D4) or Extended Superframe formats. DS1 Service has the equivalent capacity of 24 Voice Grade Services or 24 DS0 Services. AMI can support 24 each 56 Kbps channels and B8ZS can support 24 each 64Kbps channels.

DS3 SERVICE

DS3 Service is a dedicated, high capacity, full duplex channel with a line speed of 44.736 Mbps isochronous serial data having a line code of bipolar with three zero substitution (B3ZS). DS3 Service has the equivalent capacity of 28 DS1 Services at 1.544 Mbps or 672 Voice Grade Services or 672 DS0 Services at 56/64 Kbps and is available: Data / Voice; Clear Channel; and/or Channelized

OC-3 SERVICE

OC-3 Service is a high capacity channel for the full duplex, synchronous, optical transmission of digital data based on the Synchronous Optical Network (SONET) standard at a rate of 155.52 Mbps. OC-3 Service may be configured with one OC-3c (concatenated), or with combinations of asynchronous DS3 or DS1 (VT1.5) payload mapping. An OC-3C service is a concatenated, high capacity, clear channel for synchronous, optical transmission of digital data based on the SONET standard rate of 155.52 Mbps.

OC-12 SERVICE

OC-12 Service is a high capacity channel for the full duplex, synchronous, optical transmission of digital data based on the Synchronous Optical Network (SONET) standard at a rate of 622.08 Mbps. OC-12 Service may be configured with up to 4 OC-3's, or up to 12 asynchronous DS3 payload mapping. DS1 payload mapping can be accommodated via a subtended OC-3 add-drop multiplexer. OC-12C service is a concatenated, high capacity, clear channel, for synchronous, optical transmission of digital data based on a SONET standard rate of 622 Mbps.

OC-48 SERVICE

OC-48 Service is a high capacity channel for the full duplex, synchronous, optical transmission of digital data based on the Synchronous Optical Network (SONET) standard at a rate of 2.488 Gbps. OC-48 Service may be configured with up to 4 OC-12's, up to 16 OC-3's, or up to 48 asynchronous DS3 payload mapping. DS1 payload mapping can be accommodated via a subtended OC-3 add-drop multiplexer.

LAMBDA SERVICE

Optical Wavelength Services include 2.5Gbps and 10Gbps "Lambdas", are clear channel, bi-directional, synchronous, point-to-point optical Services capable of transporting 2.488 Gbps (OC48c), or 9.952 Gbps (OC192c) line rates. Each circuit constitutes an entire wavelength channel of a multi-channel DWDM system. Standard wavelengths are offered as a 2-fiber drop to the Customer with Service Provider providing an "unprotected" pathway on the Network. Optional 4-fiber interfaces can be provided with the ability to allow the Customer's equipment to protect the pathway.

B. Private Network Transport Service

A “Private Network Transport Service” or “PNT” is a dedicated On-Net Service with private ring SONET architecture and self-healing capabilities which provides dedicated high capacity services between multiple metropolitan locations for Customer's exclusive use. Customer will incur applicable charges for all nodes and individual service channels associated with the ring configuration. Private Network Transport Service locations may be any combination of Customer-designated (end-user) locations and carrier POPs. This Service is comprised of Nodes (OC-12, OC-48, OC-192) and has dedicated total ring bandwidth to Customer and is designed to deliver DS1, DS3, OC-3, OC-3c, OC-12, OC-12c, OC-48 and OC-48c Services to the Customer.

C. Custom Services

Dedicated Transport Services or non-standard configurations not described above will be evaluated on an individual case basis.

II. Service Level Agreement

A. Availability - Fully Protected Private Network Transport Services

Private Network Transport Services that are provisioned with diverse paths and dual building entrances at each terminating location will be available to Customer at least 99.999% of each calendar month. If there is a Service Outage, upon Customer’s request TWTC will issue credits as follows:

- (a) for Service Outages exceeding one minute, Customer will receive a credit of 50% of the MRC for such Service.
- (b) if there is a second Service Outage exceeding one minute on the same Service during the same calendar month, Customer will receive an additional credit of 50% of the MRC for such Service.

B. Availability - : Dedicated Transport Services and Non-Fully Protected Private Network Transport Services (not having fully diverse paths and dual building entrances at each terminating location)

Dedicated but non-private DS_n and OC_n Transport Services, and Private Network Transport Services not having fully diverse paths and dual building entrances at each terminating location will be available to Customer at least 99.99% of each calendar month Network Availability. Network unavailability occurs during a Service Outage. Upon Customer’s request, TWTC shall issue credits for each Service Outage, and such credits shall be calculated by multiplying the percentage specified in the table below by the MRC for the non-performing Service.

Duration of Service Outage	Percentage Credit
Less than 5 minutes (99.99% availability)	No Credit
5 minutes up to 4 hours	5% of the MRC
4 hours up to 8 hours	10% of the MRC
8 hours up to 12 hours	15% of the MRC
12 hours up to 16 hours	20% of the MRC
16 hours up to 24 hours	35% of the MRC
Over 24 hours	50% of the MRC

Internet Services

I. Product Description

Internet Services

TWTC offers a comprehensive suite of high-quality, high-speed Internet options -- Ethernet connections from 10Mbps ports to 10Gbps ports, as well as traditional connections (TDM) from T1 to OC48. Internet Services are high capacity, full duplex, Internet Protocol ("IP") Services connecting the Customer's network to TWTC's Internet backbone. Internet Services are comprised of two service elements -- Internet Access (bandwidth) and Internet Transport (port).

Ethernet Internet Services

Ethernet 10 Mbps - 2 Mbps to 10 Mbps in 2 Mbps increments

Ethernet 100 Mbps - 2 Mbps to 10 Mbps in 2 Mbps increments, 10 Mbps to 100 Mbps in 5 Mbps increments

Ethernet 1Gbps - 50 Mbps to 100 Mbps in 10 Mbps increments, 100 Mbps to 250 Mbps in 25 Mbps increments, 250 Mbps to 1 Gbps in 50 Mbps increments

Ethernet 10Gbps – 1 Gbps to 10 Gbps in 500Mbps increments

Traditional Internet Services

T1 - 1.5 Mbps

NxT1 - multiple bonded T1s – 3 Mbps to 12 Mbps, in 1.5 Mbps increments

DS3 - 2 Mbps to 10 Mbps in 2 Mbps increments, 10 Mbps to 45 Mbps in 5 Mbps increments

OC3 - 35 Mbps to 95 Mbps in 10 Mbps increments, 100 Mbps to 150 Mbps in 25 Mbps increments, plus 155 Mbps

OC12 - 125 Mbps to 250 Mbps in 25 Mbps increments, 250 Mbps to 600 Mbps in 50 Mbps increments, plus 622 Mbps

OC48 – 1 Gbps, 1.5 Gbps, 2 Gbps, 2.488 Gbps

Note: Not all services available in all markets. Burstable service is available in most markets. Burstable bandwidth minimums may vary.

Available Features:

- Primary DNS (for up to 10 domains)
- Secondary DNS available at no charge (up to 50 domains)
- IP address space with proper justification
- 24x7 trouble shooting (excludes Customer 's equipment)
- Online bandwidth utilization reports
- Backup mail-exchange (MX service)
- BGP peering

Available Services at an additional charge:

- Managed Router Service
- Managed Firewall
- DDoS
- Shared Web/E-mail Hosting

Additional Terms and Conditions

Usage. Customer will not originate the transmission of or store material in violation of any Federal or state laws or regulations, including, but not limited to, obscenity, indecency, defamation or infringement of trademark or copyright. Customer must comply with TWTC's IP policy at http://www.twtelecom.com/cust_center/ip_addressing_policy.html and Acceptable Use Policy at http://www.twtelecom.com/cust_center/acceptable_use_policy.html; either may be reasonably modified from time to time.

II. Service Level Agreement

Network Availability

TWTC's Internet Services will be available to Customer at least 99.99% of the time in a calendar month ("Network Availability"). Network unavailability occurs during a Service Outage. Upon Customer's request, TWTC shall issue credits for each Service Outage, calculated by multiplying the percentage specified in the table below by the MRC for the non-performing Service.

Duration of Service Outage	Percentage Credit
Less than 5 minutes (99.99% availability)	No Credit
5 minutes up to 4 hours	5% of the MRC
4 hours up to 8 hours	10% of the MRC
8 hours up to 12 hours	15% of the MRC
12 hours up to 16 hours	20% of the MRC
16 hours up to 24 hours	35% of the MRC
24 hours or greater	50% of the MRC

Network Latency

TWTC measures network latency with respect to average round-trip transmission on its Network each month. Network latency calculations for Internet Services provided in the continental United States are made between designated points of presence ("POPs") within the continental United States and, for Hawaii, are made between its POPs in Hawaii and its POPs on the west coast of the continental United States (collectively "Network Latency"). Upon Customer's request, TWTC shall issue credits for TWTC's failure to meet the Network Latency metrics specified below, and such credits will be calculated by multiplying the percentage specified in the table below multiplied by the MRC for the non-performing Service.

Network Latency Metrics (continental United States)	Network Latency Metrics (Hawaii to continental United States - west coast)	Percentage Credits
0.00 to 45.00 ms	0.00 to 75.00 ms	No Credit
45.01 to 55.00 ms	75.01 to 85.00 ms	5% of the MRC
55.01 to 60.00 ms	85.01 to 90.00 ms	10% of the MRC
60.01 to 65.00 ms	90.01 to 95.00 ms	15% of the MRC
65.01 to 70.00 ms	95.01 to 100.00 ms	20% of the MRC
70.01 to 75.00 ms	100.01 to 105.00 ms	35% of the MRC
75.01 ms or greater	105.01 ms or greater	50% of the MRC

Packet Delivery

TWTC measures packet delivery on its Network on a monthly basis. Packet Delivery is determined by averaging sample measurements taken each calendar month between TWTC's designated POPs. Upon Customer's request, TWTC will issue credits for TWTC's failure to meet the Packet Delivery metrics specified in the table below, and such credits will be calculated by multiplying the percentage specified in the table by the MRC for the non-performing Service.

Packet Delivery Metrics (continental United States)	Percentage Credits
99.9% or greater	No Credit
99.5% to 99.8%	5% of the MRC
99% to 99.4%	10% of the MRC
98% to 98.9%	15% of the MRC
97% to 97.9%	20% of the MRC
96% to 96.9%	35% of the MRC
Less than 96%	50% of the MRC

Performance Metrics Available at TWTC's Website

Monthly Network Latency and Packet Delivery averages may be viewed at:
www.twtelecom.com/performance/ip_network_overview_performance.html

Converged Services

1. Service Description

Converged Services allow customers to fully integrate IP VPN, voice (lines, PRI & Digital trunks), Internet and managed services (MSS, MR, IAD) on a single IP connection. Data/Internet and voice services dynamically share all bandwidth. **tw telecom** ("TWTC")'s voice traffic is always prioritized via CoS. However, customer may still purchase CoS for delay sensitive traffic or critical applications.

Class of Service ("CoS") is a value add-on service for the Converged Voice and Data packages that include IP VPN. CoS gives customers the ability to manage multiple applications that are competing for the same network resources. CoS provides several levels or "classes" of differentiated service assurances across the network. CoS provides a control mechanism for network and system resources in order to achieve more predictable delays for preferred applications.

TWTC provides access to a website portal named *My Service* at no charge for customers purchasing Converged Services. *My Service* graphically shows measurements of Network performance between locations where a customer connects to TWTC's IP Backbone. *My Service* also shows average Network performance measurements, which relate to the overall SLA for the Class of Service offering of this product. Customers should note that the Network performance measurements between locations where a customer connects to TWTC's IP Backbone do not correlate to the average Network measurements used to determine compliance with TWTC's SLAs. This is because in any given market the locations at which an individual customer's performance is measured may or may not be the same as the locations used to measure the network averages for the SLA.

TWTC offers five classes of service which are supported by this SLA as follows:

- Realtime
- Interactive
- Mission Critical
- Priority
- Best Effort

Each service class represents a group of traffic with similar network performance requirements in relation to packet delay, jitter, IP Backbone latency and overall network availability. Each service class will have distinct service level metrics which are based on these network tolerances. Customers choose which traffic is placed in each of the service classes depending on the desired priority for each traffic group.

Terminology

- **POP(s):** Point(s) of Presence
- **IP VPN:** Layer 3 Internet Protocol (IP) Virtual Private Network
- **Backbone:** TWTC owned and operated IP Backbone.
- **Network Availability:** The percentage of time within a given calendar month that TWTC's monitoring system indicates that IP VPN service is available for Customer's use.
- **Network Latency:** Determined by averaging sample measurements taken by TWTC during the most recent full calendar month as described below under the heading "Measurements/Remedies."
- **Network Jitter:** The average variation in delay for packet transfers between TWTC-designated IP POPs during a calendar month, measured by TWTC as described below under the heading "Measurements/Remedies."
- **Network Average:** Measurements of performance between all TWTC markets as described below under the heading "Measurements/Remedies."
- **Off-Net Service:** A service that is not provisioned entirely on TWTC's IP Backbone in that either the origination or termination point of the service (or both) is/are on telecommunication facilities that are operated by another telecommunication provider(s). Off-Net Services are priced on an individual case basis ("ICB"). On-Net Services means services that are provisioned entirely on TWTC's IP Backbone.
- **Packet Delivery:** Determined by averaging sample measurements taken during the most recent full calendar month between TWTC-designated IP POPs, as measured by TWTC.

2. Service Level Agreement

Network Availability

A. On-Net Converged Services Locations

TWTC's On-net Converged Services will be available to the Customer at least 99.99% of the time in a calendar month ("Network Availability") or the Customer will receive Service Outage credits per the table below.

Credits are based upon a percentage of the monthly recurring charge ("MRC") for the non-performing On-Net Converged Service location as follows:

Per Service Outage	Percentage Credit
Up to 5 minutes (99.99% availability)	No Credit
5 minutes up to 4 hours	5% of the MRC
4 hours up to 8 hours	10% of the MRC
8 hours up to 12 hours	15% of the MRC
12 hours up to 16 hours	20% of the MRC
16 hours up to 24 hours	35% of the MRC
24 hours or greater	50% of the MRC

B. Off-Net Converged Services

In the event of a Service Outage caused by a failure in a third party provider's equipment or facilities not on TWTC's network, TWTC will pass through to Customer any credits or monetary compensation that it receives from the underlying carrier for such Service Outage.

C. Application of Credits

For purposes of these Availability metrics, and calculating applicable credits, a Service Outage begins when Customer reports the Service Outage to TWTC's CNRC. A Service Outage ends when the Service has been restored.

Managed CPE

TWTC's Managed CPE services (i.e. managed router, managed IAD and MSS-CPE managed firewall) will be available to the Customer at least 99.99% of the time in a calendar month ("CPE Availability") or the Customer will receive Service Outage credits per the table above.

The service also includes a hardware replacement and monitoring goals as outlined in the table below.

SLA	Goal	Description
Proactive Monitoring & Fault Notification	Respond to a service outage alarm & send customer notification within 15 minutes of identifying issue	tw telecom NOC will continuously monitor the up/down status of the managed CPE's LAN and WAN port(s). In the event of an outage, the NOC will begin trouble isolation and resolution steps within 15 minutes of detecting the outage. Additionally, customers will be automatically notified of the outage.
Managed CPE Availability	99.99%	tw telecom's Managed CPE will be available to the Customer at least 99.99% of the time in a calendar month ("Service Availability") or the Customer will receive a Service Outage credit (based on SLA credit table).
CPE Hardware Replacement	24x7x4 (default-based on availability)	Once the tw telecom NOC has determined that a Managed CPE has experienced an issue that requires a hardware replacement as a remedy, a field technician will be dispatched. The technician will arrive at the service location with a replacement unit/part within four (4) hours after the tw telecom NOC has determined the issue to be hardware related.
	9x5xNBD (based on availability-when 24x7x4 is not available)	Once the tw telecom NOC has determined that a trouble issue is the result of a CPE hardware failure, a field technician will be dispatched to arrive at the service location the next business day, between 8:00 am and 5:00 pm (local time). For dispatch requests issued after 1:00 pm (local time), technician shall arrive the following business day with a replacement CPE.

IP Backbone Latency

TWTC's Converged Services will have an average round-trip transmission of 50 milliseconds ("ms") or less between TWTC-designated IP POPs in the forty-eight contiguous United States within a given calendar month (Hawaii metric is different and is shown below). If TWTC fails to meet the Network Average Latency standard, credits will be calculated per the table below. Credits are based upon a percentage of the MRC for the non-performing Service per VPN location as follows:

48 Contiguous States	Hawaii	Remuneration				
		Realtime	Interactive	Mission Critical	Priority	Best Effort
0.00 - 50.00 ms	0.00 - 110.00 ms	No Credit	No Credit	No Credit	No Credit	No Credit
50.01 - 60.00 ms	110.01 - 115.00 ms	20%	15%	10%	7%	5%
60.01 - 65.00 ms	115.01 - 120.00 ms	30%	20%	15%	12%	10%
65.01 - 70.00 ms	120.01 - 125.00 ms	40%	25%	20%	17%	15%
70.01 - 75.00 ms	125.01 - 130.00 ms	50%	40%	25%	22%	20%
75.01 - 80.00 ms	130.01 - 135.00 ms	75%	60%	45%	40%	35%
80.01 ms or greater	135.01 ms or greater	100%	75%	60%	55%	50%

IP Backbone Packet Delivery

TWTC's Converged Services will have packet delivery SLA metrics depending on the type of CoS purchased. If TWTC fails to meet the applicable Network Average Packet Delivery objective, credits will be calculated per the table below. Credits are based upon a percentage of the MRC for the non-performing Service per VPN location as follows:

Remuneration						
48 Contiguous States	Hawaii	Realtime	Interactive	Mission Critical	Priority	Best Effort
99.9+	99.9+	No Credit	No Credit	No Credit	No Credit	No Credit
99.5 - 99.8	99.5 - 99.8	10%	5%	No Credit	No Credit	No Credit
99 - 99.4	99 - 99.4	20%	15%	10%	7%	5%
98 - 98.9	98 - 98.9	30%	20%	15%	12%	10%
97 - 97.9	97 - 97.9	40%	25%	20%	17%	15%
96 - 96.9	96 - 96.9	50%	40%	25%	22%	20%
95 - 95.9	95 - 95.9	75%	60%	45%	40%	35%
Below 95	Below 95	100%	75%	60%	55%	50%

IP Backbone Jitter

TWTC's jitter metric only applies to Converged Services for which the Customer has selected either the Realtime or Interactive Classes of Service, as follows:

Realtime CoS:

TWTC's Realtime CoS will have a network average one-way jitter measurement of .5 milliseconds ("ms") or less between TWTC POPs (Hawaii metric is different and is shown below).

Interactive CoS:

TWTC's Service Class of Interactive will have a network average one-way jitter measurement of 2 milliseconds ("ms") or less between TWTC POPs (Hawaii metric is different and is shown below).

Remuneration						
48 Contiguous States	Hawaii	Realtime	Interactive	Mission Critical	Priority	Best Effort
0.5 ms	1 ms	No Credit	No Credit	No Credit	No Credit	No Credit
.51 ms - 2.0 ms	1.1 ms - 2.0 ms	5%	No Credit	No Credit	No Credit	No Credit
2.1 ms - 4.0 ms	2.1 ms - 4.0 ms	10%	5%	No Credit	No Credit	No Credit
4.1 ms - 5.0 ms	4.1 ms - 5.0 ms	15%	10%	No Credit	No Credit	No Credit
5.1 ms - 6.5 ms	5.1 ms - 6.5 ms	20%	15%	No Credit	No Credit	No Credit
6.6 ms - 7.5 ms	6.6 ms - 7.5 ms	30%	20%	No Credit	No Credit	No Credit
7.5 ms - 10.0 ms	7.5 ms - 10.0 ms	40%	30%	No Credit	No Credit	No Credit
>10.1 ms	>10.1 ms	50%	40%	No Credit	No Credit	No Credit

On-time Installation

For Converged Services provisioned completely on TWTC's Network, TWTC will complete installation within 15 business days from the date the Service Order is accepted by TWTC's Provisioning Network Operations Center ("PNOC"). For Off-Net Services, TWTC will complete installation within 15 business days from the date the Service Order is received by the PNOC, plus the underlying provider's actual installation interval. If TWTC fails to meet the installation interval for a particular site, it will provide Customer with a 50% credit off the installation fee set forth in the applicable Service Order for such site. If Customer is not ready on the scheduled installation date or has requested a change to the installation date, then the 15 day installation requirement is nullified.

Customer's Responsibility

- Customer's with CoS are responsible for correctly marking (DSCP) all packets. CoS customers with Managed CPE (e.g. managed router, managed IAD) may choose to either have the fully managed CPE mark packets based on customer requirements or to mark traffic on their LAN.
- Customer is responsible for Queuing/Rate-Shaping CoS traffic so that it does not exceed the contracted service.

General Terms Applicable to Service Level Agreement

All of the above SLA metrics and credits do not apply to Service Outages or the failure to meet stated metrics arising from:

- Customer's acts or omissions or those of its end users
- Failure of customer premise equipment or facilities
- Force Majeure events
- Scheduled or emergency maintenance
- Failure of elements of the IP backbone outside of TWTC's control
- Fiber cuts caused by third-parties
- Denial of access to premises necessary to restore Service

Customer shall report problems with its Services by contacting TWTC's Customer & Network Reliability Center ("CNRC") at 1-800-829-0420. TWTC will open a trouble ticket and provide a trouble ticket number for tracking purposes. For the purpose of determining the applicable credit, a Service Outage begins when the Customer reports the Service Outage to TWTC's CNRC and ends when the Service is restored. Credits are provided to Customer only upon request by Customer and review and validation by TWTC. The resources, equipment and methodology used to measure service level metrics are determined by TWTC in its reasonable discretion.

Standard maintenance windows are based on the time zone of a city's location and are available at: <http://info.twtelecom.net/info.php?id=1>.

Measurements/Remedies

All IP Backbone Latency, Packet Delivery and Jitter measurements are determined by averaging sample measurements taken during the most recent full calendar month between: (a) for Service in the continental U.S., TWTC's Internet POPs (i.e. Network Regional Routers) in the 48 contiguous United States and, (b) for Service between the continental U.S. and Hawaii, between TWTC's Internet POPs located in Honolulu, HI and the mainland United States ("Network Average"). Monthly network averages are calculated by TWTC from provider edge devices and do not include measurement to Customer's edge device. TWTC's measurement/calculation is used for the determination of, and compliance with, the stated metrics.

The remedies set forth in this Service Level Agreement and in the Master Services Agreement or Time Warner Telecom Standard Terms and Conditions executed by Customer are Customer's sole and exclusive remedies if there are Service Outages and/or failures to meet the performance objectives in this Service Level Agreement. Credits issued during any calendar month, for any reason(s), will not exceed the MRC associated with the troubled Service per VPN location.

If, for any reason, TWTC's performance data collection methods are found to provide incorrect or incomplete information, TWTC will determine, using its reasonable discretion, what remuneration is owed to Customer.

Ethernet Services

I. Ethernet Services – Technology

Ethernet Services utilize Ethernet technology to transport data and are offered with the following types of Ethernet ports: (1) 10/100 Mbps Ethernet port where (a) the 10 Mbps Ethernet service provides a physical IEEE-compliant (IEEE 802.3) 10Base-T (twisted pair), RJ-45 interface to the customer (transmission speed is available at a maximum of 10 Mbps which is equal to the line rate of the 10Base-T interface); and (b) the 100 Mbps Ethernet (Fast Ethernet) service provides a physical IEEE-compliant 100Base-TX (twisted pair) RJ-45 interface to the customer (transmission speed is available at a maximum of 100 Mbps, which is equal to the line rate of the 100Base-TX interface); (2) 1000 Mbps Ethernet port – Gigabit Ethernet where the 1000 Mbps Ethernet (Gigabit Ethernet) service provides an IEEE-compliant physical interface of either 1000Base-SX (multimode fiber), or 1000Base-LX (single mode fiber) interface to the customer; and (3) 10000 Mbps Ethernet port – 10 Gigabit Ethernet where the 10000 Mbps Ethernet (10Gigabit Ethernet) service provides an IEEE-compliant physical interface of either 10GBase-SR (multimode fiber), or 10GBase-LR (single mode fiber) interface to the customer.

II. Product Descriptions

A. Enterprise Switched NLAN Services

Enterprise Switched NLAN Services (“Enterprise SNLAN”) are switched Ethernet services that incorporate data switching technology through the use of Ethernet switches in the TWTC Network. Enterprise SNLAN conforms to Metro Ethernet Form (“MEF”) E-LAN standards and allows customers to access a shared, oversubscribed metro Ethernet infrastructure through Ethernet ports that are unique to each customer and its locations. Each location has a port and a bandwidth component for ordering and billing purposes. The Enterprise SNLAN Service will accept and carry customers’ tagged and untagged Ethernet traffic. If a customer requires individual tag service from TWTC, it shall use the VLAN identifications assigned by TWTC.

Additional Features:

- Any-to-any connectivity
- TWTC differentiates customer traffic on the shared infrastructure through unique logical connections for each customer.
- Metro area solution
- Various bandwidth increments of Enterprise SNLAN Service are offered over 100M, 1000M, 10G End User Ethernet ports.
- Port-based pricing
- Full port line rate to the Customer
- Full-duplex service
- Ethernet ring topology
- REP and RSTP spanning tree network restoration protocols (Sub-second convergence and failover time)
- Virtual separation between customer traffic streams (802.1q VLAN tagging)
- Oversubscribed network bandwidth (Max 4:1 over-subscription)

B. Elite Native LAN Services (Point-to-Point Configuration)

Elite NLAN Services are dedicated point-to-point, transparent Ethernet services that conform to the MEF “EPL” standard. The Services provide a dedicated point-to-point DWDM or SONET-protected transport solution between Customer’s locations. These Services are available in bandwidth increments of 10 Mbps, 100 Mbps, 622 Mbps (GigE port but with a limited bandwidth of 622M), 1000 Mbps (GigE), and 10 Gbps. These Services are offered directly to the customer utilizing TWTC’s existing fiber infrastructure to provide Ethernet LAN-to-

Additional Features:

- Dedicated Point-to-Point connectivity and bandwidth between two Customer locations
- Customer has access to full bandwidth of the port (no bandwidth increments)
- Full-duplex services
- DWDM or SONET-Protected service (hybrid SONET platform)
- Tagged or untagged Customer Ethernet traffic

C. Extended Native LAN Services

Extended Native LAN Services (“ENLAN”) are fully meshed, inter-market Ethernet Services that provide a managed end-to-end solution for customers over TWTC’s Network. ENLAN Services conform to E-LAN MEF standards, encapsulating Customer traffic using later 2 tunnels. To transport Ethernet frames across TWTC’s Network, an Ethernet connection will be made between TWTC’s central office Ethernet switch and an aggregation router on TWTC’s Network.

ENLAN is provisioned on diverse and redundant paths, meaning that if there is an interruption on one of the paths, the ENLAN traffic is automatically re-routed onto a secondary path until the primary path is restored. The basic service offering does not provide Customer with premium Class of Service (“CoS”), but Customer may order CoS separately for the ENLAN Service as further described below. Enterprise SNLAN also is required on each end of the ENLAN Service, and is priced separately.

D. E-Line Services

E-Line is a point-to-point Layer 2 Ethernet service between any two IEEE-compliant User Network Interfaces (“UNIs”). These UNIs may be connected with other IEEE-compliant UNIs at a variety of speed intervals, regardless of the platform or device that enables them.

The E-Line service is comprised of a UNI at each site combined with Ethernet Virtual Connections (“EVC”) between UNIs to be used to create a point-to-point or hub and spoke network topology. Each UNI and EVC are priced separately. ELINE may be ordered as: (a) a port-based private line with limited but dedicated line rate speeds (a/k/a/ Ethernet Private Line of “EPL” which is available with a protected or unprotected configuration); (b) a transparent oversubscribed service between two UNIs (a/k/a/ Ethernet Virtual Private Line or “EVPL” which is only available in a protected configuration); or (c) a multiplexed VLAN-based solution with dedicated or shared EVCs that span between UNIs, and is available at a variety of speed intervals (this service also may be referred to as EVPL, which is only available in a protected configuration).

The multiplexed E-Line service provisions with three or more locations is commonly referred to as point to multipoint or, because of its architecture, may be referred to as “VLAN-based” point-to-point. The multiplexed E-Line service resembles a “hub and spoke” topology, where the “hub” has several VLAN-based services aggregating into a single multiplex UNI or NNI. The UNI is available as 100M, 1G, or 10G Ethernet port and may be ordered as a transparent or multiplexed interface. The EVC is available in various bandwidth increments from 2M to 10G and may be ordered with Best Effort (a/k/a/ “shared”) or Real-Time (a/k/a/

“dedicated”) bandwidth. The UNI conforms to MEF standards, and the terminology and configurable options associated with TWTC’s multiplexed E-Line Services typically follow MEF standards.

An E-Line Service is “Protected” if it is provisioned on a diverse ring-protected route not only in each of the metro markets, but also between those markets. If there is an interruption on the ring, the traffic on the Protected EVC is automatically re-routed in the opposite direction on the ring until the normal condition is restored.

III. Class of Service

For an additional charge, Customer may order CoS for its SNLAN and ENLAN Ethernet Services (a/k/a Premium Services). CoS provides customers with the ability to prioritize multiple applications that are competing for the same network resources. CoS provides several levels or “classes” of differentiated service and essentially controls network and system resources in order to achieve a more predictable flow of Customer’s proprietary traffic across the TWTC Network. TWTC offers five levels of CoS priority (listed in descending order of priority): Realtime; Interactive; Mission Critical; Priority and Best Effort. Each CoS level represents traffic with similar network performance requirements for packet delay, jitter, latency and network availability. If Customer orders the CoS feature, it may designate the type of CoS associated with each traffic group based on its own desired priority levels, provided that the traffic designated by Customer as Real Time and Interactive combined may not exceed the allowable bandwidth designations contracted for in the applicable Service Order. If Customer’s traffic exceeds the CoS bandwidth designation, then the remedies set forth in the Service Level Agreement below will not apply.

IV. Service Level Agreement

A. Availability

Elite NLAN and Protected E-Line Services. These services will be available at least 99.999% of the time in a calendar month. The Service is unavailable during any period of time that it experiences a Service Outage. Upon Customer’s request, TWTC will issue credits for each Service Outage, and such credits shall be calculated by multiplying the percentage specified in the table below by the MRC for the non-performing Service.

Duration of Service Outage	Percentage Credit
Less than 1 minute (99.999% availability)	No Credit
1 minute up to 4 hours	5% of the MRC
4 hours up to 8 hours	10% of the MRC
8 hours up to 12 hours	15% of the MRC
12 hours up to 16 hours	20% of the MRC
16 hours up to 24 hours	35% of the MRC
24 hours or greater	50% of the MRC

SNLAN, ENLAN and Premium ENLAN Services. These Services will be available at least 99.99% of the time in a calendar month. The Service is unavailable during any period of time it experiences a Service Outage. Upon Customer's request, TWTC shall issue credits for each Service Outage, and such credits shall be calculated by multiplying the percentage specified in the table below by the MRC for the non-performing Service.

Duration of Service Outage	Percentage Credit
Less than 5 minutes (99.99% availability)	No Credit
5 minutes up to 4 hours	5% of the MRC
4 hours up to 8 hours	10% of the MRC
8 hours up to 12 hours	15% of the MRC
12 hours up to 16 hours	20% of the MRC
16 hours up to 24 hours	35% of the MRC
24 hours or greater	50% of the MRC

TWTC's Unprotected E-Line Services will be available at least 99.9% of the time in a calendar month. The Service is unavailable during any period of time it experiences a Service Outage. Upon Customer's request, TWTC shall issue credit for each Service Outage, and such credits shall be calculated by multiplying the percentage specified in the table below by the MRC for the non-performing Service.

Duration of Service Outage	Percentage Credit
Less than 45 minutes (99.9% availability)	No Credit
45 minutes up to 4 hours	5% of the MRC
4 hours up to 8 hours	10% of the MRC
8 hours up to 12 hours	15% of the MRC
12 hours up to 16 hours	20% of the MRC
16 hours up to 24 hours	35% of the MRC
24 hours or greater	50% of the MRC

B. Network Latency – Continental United States and Hawaii

TWTC measures "Network Latency" with respect to average round-trip transmission on its Network each month. Upon Customer's request, TWTC shall issue credits for TWTC's failure to meet the Network Latency metrics specified below if the failure is service impacting to the Customer. Such credits will be calculated by multiplying the percentage specified in the table below by the MRC for the non-performing Service. The credits

specified below are not cumulative and, for any calendar month, Customer is only entitled to one credit specified in the table below based on the highest affected CoS level for the non-performing Service.

CoS Designation – Percentage Credits						
Network Latency Metrics (continental United States)	Network Latency Metrics (Hawaii)	Realtime (Dedicated Bandwidth)	Interactive	Mission Critical	Priority	Best Effort (shared bandwidth) & Basic ENLAN
45.00 milliseconds (“ms”) or less	75.00 ms or less	No Credit	No Credit	No Credit	No Credit	No Credit
45.01 to 50.00 ms	75.01 to 80.00 ms	10%	5%	No Credit	No Credit	No Credit
50.01 to 60.00 ms	80.01 to 90.00 ms	15%	10%	No Credit	No Credit	No Credit
60.01 to 65.00 ms	90.01 to 95.00 ms	20%	15%	No Credit	No Credit	No Credit
65.01 to 70.00 ms	95.01 to 100.00 ms	30%	25%	20%	10%	No Credit
70.01 to 75.00 ms	100.01 to 105.00	40%	35%	25%	15%	No Credit
75.01 ms or greater	105.01 or greater	50%	45%	30%	20%	10%

C. Packet Delivery

TWTC measures packet delivery on its Network on a monthly basis. Packet Delivery is determined by averaging sample measurements taken each calendar month between TWTC’s designated POPs. Upon Customer’s request, TWTC will issue credits for TWTC’s failure to meet the Packet Delivery metrics specified in the table below if such failure is service impacting to the Customer. Such credits will be calculated by multiplying the percentage specified in the table by the MRC for the non-performing Services. The credits specified below are not cumulative and, for any calendar month, Customer shall only be entitled to one credit specified in the table below based on the highest affected CoS level for the non-performing Service.

Average Packet Delivery					
CoS Designation – Percentage Credits					
Average Packet Delivery (within Continental U.S. and from Continental U.S. to Hawaii)	Realtime	Interactive	Mission Critical	Priority	Best Effort
99.9% or greater	No Credit	No Credit	No Credit	No Credit	No Credit
99.5% to 99.8%	10%	5%	No Credit	No Credit	No Credit
99% to 99.4%	20%	15%	No Credit	No Credit	No Credit
98% to 98.9%	30%	20%	15%	No Credit	No Credit
97% to 97.9%	40%	25%	20%	15%	No Credit
Less than 97%	50%	40%	25%	20%	10%

D. Network Jitter – Continental United States and Hawaii

TWTC’s Network Jitter metric only applies to Services for which the Customer has selected either the Realtime or Interactive CoS. “Network Jitter” means the average variation in delay for packet transfers between TWTC’s designated points of presence (“POPs”) during a calendar month, as further described below in the section titled “Measurements”. Upon Customer’s request, TWTC will issue credits for TWTC’s failure to meet the Network Jitter metrics specified in the table below if the failure is service impacting to the Customer. Credits will be calculated by multiplying the percentage specified in the table by the MRC for the non-performing Service. The credits specified below are not cumulative and, for any calendar month, Customer shall only be entitled to one credit specified in the table below based on the highest affected CoS level for the non-performing Service.

Network Jitter (one way)						
		CoS Designation – Percentage Credits				
Continental United States	Hawaii	Realtime	Interactive	Mission Critical	Priority	Best Effort
1 ms or less	1 ms or less	No Credit	No Credit	No Credit	No Credit	No Credit
1.1 ms to 2.0 ms	1.1 ms to 2.0 ms	5%	No Credit	No Credit	No Credit	No Credit
2.1 ms to 4.0 ms	2.1 ms to 4.0 ms	10%	5%	No Credit	No Credit	No Credit
4.1 ms to 5.0 ms	4.1 ms to 5.0 ms	15%	10%	No Credit	No Credit	No Credit
5.1 ms to 6.5 ms	5.1 ms to 6.5 ms	20%	15%	10%	No Credit	No Credit
6.6 ms to 7.5 ms	6.6 ms to 7.5 ms	30%	20%	15%	No Credit	No Credit
7.6 ms to 10.0 ms	7.6 ms to 10.0 ms	40%	30%	25%	15%	No Credit
10.1 ms or greater	10.1 ms or greater	50%	40%	30%	20%	10%

E. Measurements

All latency, packet delivery and jitter measurements are measured by averaging sample measurements taken during the calendar month. For Services provided within the continental United States, measurements are taken at TWTC's POPs in the continental United States; for Services provided in Hawaii, between TWTC's POPs in Honolulu, HI and TWTC's POPs on the west coast of the continental United States.

Appendix B – tw telecom Standard Ts and Cs



Standard Ts and Cs
02-15-12 (5.18.12 re

Standard Terms and Conditions

These Standard Terms and Conditions (“Agreement”) are entered into by **tw telecom holdings inc.**, a Delaware corporation, on behalf of itself and its wholly owned and state certified operating subsidiaries, (collectively “TWTC”) and the State of Hawaii (“Customer”) and are effective upon execution by both Parties. Customer and TWTC may be referred to individually as a “Party” or collectively as the “Parties”. TWTC is responsible for the performance of its operating subsidiaries under this Agreement.

1. Service Orders: Customer may submit service orders to TWTC to purchase telecommunication and related services under this Agreement (“Service Orders”). The Service Orders describe the telecommunication and related services that are available for purchase (“Services”). Service Orders executed by the Parties together with this Agreement form the final written agreement between the Parties, and can only be amended or modified in a written document executed by both Parties. Services are subject to availability, and TWTC has the right not to accept a Service Order submitted by Customer. If a Service Order has been accepted by TWTC, it will provide Services for the term set forth in the Service Order and renewal periods (“Service Term”). Upon expiration of a Service Term for a particular Service, the Service Term will automatically renew for successive Month to Month terms for a period not to exceed twelve (12) months unless terminated by either Party upon written notice provided in accordance with Section 20 below at least thirty days prior to expiration of the then existing Service Term.

2. Term of Standard Terms and Conditions: The term of these Standard Terms and Conditions will commence upon signature by both Parties and will continue to govern Service Orders entered into by the Parties unless and until the Agreement is terminated in accordance with Sections 12 or 13 herein, is otherwise superseded by a subsequent written agreement between the Parties, or TWTC is no longer providing Services to Customer.

3. Cancellation, Modification or Expedition of Orders: “Cancellation”, “Modification” and “Expedite Charges” referenced hereunder are set forth in the attached Exhibit A.

(a) Cancellation. Customer may cancel a Service Order if the request is received in writing by TWTC prior to the planned installation date, and TWTC shall have the right to assess a Cancellation Charge. If the request to cancel is received after installation has begun, Customer must pay full termination liability as set forth in Section 14 below.

(b) Modification. Customer may request in writing the modification of any Service Order(s). Such request shall result in a Modification Charge. If TWTC receives a written modification request for delay of installation less than 3 days prior to the planned installation date, Customer must pay, in addition to the Modification Charge, the monthly recurring charge (“MRC”) applicable to the delayed Service for the shorter of one billing month or the period from the original due date to the requested installation date. TWTC reserves the right to limit the number of requests to delay the planned installation date.

(c) Expedite. Customer may request an expedited installation date. If TWTC accepts the expedited installation date, Customer must pay an Expedite Charge.

(d) Third Party Charges. In addition to the charges set forth in (a), (b) and (c) above, TWTC may bill Customer for third party charges it incurs in order to complete Customer’s request to cancel, modify, or expedite the Service Order.

4. TWTC Network, Access and Interconnection:

(a) Responsibilities. TWTC will own and control the telecommunications equipment, cable and facilities installed and operated by TWTC for provision of the Services to Customer (“TWTC Network”). The TWTC Network will remain TWTC’s personal property regardless of where located or attached. TWTC has the right to upgrade, replace or remove the TWTC Network in whole or in part, regardless of where located, so long as the Services continue to perform. Customer may not alter, move or disconnect any parts of the TWTC Network and is responsible for any damage to, or loss of, the TWTC Network caused by Customer’s (or its end users’) breach of this provision, negligence or willful misconduct. TWTC has no obligation to install, maintain or repair any equipment owned or provided by Customer, unless otherwise agreed to in a writing executed by the Parties. If Customer’s equipment is incompatible with the Service, Customer is responsible for any special interface equipment or facilities necessary to achieve compatibility.

(b) Access. Customer must provide TWTC with access to its premises to install and maintain Services and TWTC's Network. Customer must provide, at its expense, the following (collectively "Premise Requirements"): (i) appropriate space, power and environmental conditioning; and (ii) reasonable access rights and/or rights of way from third parties, as may be required for the installation and maintenance of the TWTC Network at and into Customer's premises. Customer must pay a Modification Charge if Customer does not provide the Premise Requirements prior to the scheduled installation date. In addition to the Modification Charge, TWTC may charge Customer for the reasonable time and materials incurred and documented by TWTC that are incurred because of Customer's failure to timely provide the Premise Requirements plus any third party charges assessed against TWTC. Customer must provide TWTC with a contact and/or help desk number that can be reached 24 hours per day/7 days per week.

(c) Demarcation Point and Inside Wiring. TWTC shall be responsible for provisioning Service up to the Demarcation Point and Customer is responsible for providing and maintaining any necessary wiring and facilities on Customer's side of the Demarcation Point. "Demarcation Point" means the TWTC-designated physical interface between TWTC's Network and Customer's equipment, which point shall be either (i) in the case of a Service terminating at a TWTC owned or controlled premises, TWTC's designated distribution panel or network interface device located within such TWTC premises or (ii) in the case of a Service terminating at Customer's premises, the distribution panel or network interface device located at the common telecommunications ("telco") demarcation at the Customer or end-user premises (e.g., entry point for telco facilities, telco closet or common telco room). If requested by Customer, TWTC may install, co-ordinate or otherwise arrange for installing or obtaining from third parties, facilities on Customer's side of the Demarcation Point ("Inside Wiring"). Customer agrees to pay Time and Materials rates posted at www.twtelecom.com for any Inside Wiring performed by TWTC personnel and agrees that TWTC may bill Customer for any third party charges it incurs to provide such Inside Wiring.

(d) Letter of Authorization / Carrier Facility Assignment. If Customer intends to connect the Services to facilities that neither it nor TWTC owns, it must provide TWTC with and maintain (for the Service Term) a current letter of authorization and carrier facility assignment, as applicable.

5. Installation and Maintenance:

(a) Installation. TWTC will notify Customer when the Service has been successfully installed and is available for Customer's use ("Service Date"). Unless Customer notifies TWTC by the close of business on the Service Date that the Service is not operational, the Service Term will commence. If Customer so notifies TWTC, the Service Date will not occur and the Service Term will not commence until the Service is operating properly. The Service Date will not be delayed or postponed due to problems with Customer's equipment or Customer's lack of readiness to accept or use Service.

(b) Maintenance:

(i) Scheduled Maintenance. TWTC will monitor TWTC's Network 24 hours per day, 7 days per week. Scheduled Maintenance will be performed between the hours of midnight and 6:00 a.m. (local time where the maintenance is being performed) unless another time is agreed to by the Parties for the particular circumstance. TWTC will endeavor to provide Customer with at least five business days notice before performing Scheduled Maintenance unless a shorter notice period is required under the circumstances.

(ii) Emergency Maintenance. If TWTC has to perform maintenance outside of the Scheduled Maintenance window set forth in Section 5(b)(i) above, then TWTC will provide as much prior notice to Customer as is practicable under the circumstances.

6. Charges, Billing, Taxes and Payment:

(a) Services are billed on a monthly basis commencing with the Service Date. Services are invoiced in advance, but usage charges are invoiced in arrears. Any installation or other non-recurring charges, which are non-refundable, will appear on the first monthly invoice.

(b) TWTC may require a deposit prior to the provision of any new Service. TWTC also may require a deposit as a condition to its obligation to continue to provide Service(s) if Customer has failed to timely pay for Service(s) on two occasions during any six month period.

(c) TWTC will invoice Customer for applicable Taxes (defined below) and, whenever possible, will identify such charges as a separate line item on the invoice. Customer will be liable for Taxes which were assessed by or paid to an appropriate taxing authority within the applicable statute of limitations period. If Customer fails to pay any Taxes properly billed, then as between TWTC and Customer, Customer will be solely responsible for payment of the Taxes, and penalty and interest.

“Tax” or “Taxes” mean any federal, state or local excise, gross receipts, value added, sales, use or other similar tax, fee, tax-like fee or surcharge of whatever nature and however designated, imposed, or sought to be imposed, on or with respect to purchases by Customer from TWTC for consideration under this Agreement or for TWTC's use of public streets or rights of way, which TWTC is required or permitted by law or a tariff to collect from Customer; *provided, however*, that the term "Tax" will not include any tax on TWTC's corporate existence, status, income, corporate property or payroll taxes.

If either Party is audited by a taxing or other governmental authority, the other Party agrees to cooperate reasonably by responding to the audit inquiries in a proper, complete and timely manner. TWTC will cooperate, at Customer's expense, with reasonable requests of Customer in connection with any Tax contest or refund claim including, but not limited to, Customer audit rights under Hawaii Revised Statute H.R.S. 103(D-317).

If Customer claims an exemption for any Taxes, Customer must provide TWTC with a proper tax exemption certificate as authorized by the appropriate taxing authority. Customer must pay the applicable Taxes to TWTC until it provides TWTC with a valid tax exemption certificate. If applicable law exempts a Service under this Agreement from a Tax, but does not also provide an exemption procedure, then TWTC will not collect such Tax if Customer provides TWTC with a letter signed by one of its officers: (i) claiming a right to the exemption; and (ii) identifying the applicable law that allows such exemption and does not require an exemption certificate.

(d) Payment for all undisputed amounts due under this Agreement must be received by TWTC on or before the due date specified on the bill, which in no event shall be less than thirty (30) days following the invoice date, (“Due Date”). Any payment or portion thereof not received by the Due Date is subject to a late charge on the unpaid amount at the lesser of 1.5% per month or the maximum rate permitted by law.

7. Disputes: If Customer disputes any charges, it must log the dispute by completing and submitting a dispute form via TWTC's dispute website located at: <http://customers.twtelecom.com/disputes/>, or by contacting TWTC's dispute telephone line at 1-800-829-0420. All disputes must be submitted to TWTC in the manner specified above within 120 calendar days of the date of the invoice associated with the disputed charges, or the invoice shall be deemed correct and all rights to dispute such charges are waived. Withheld disputed amounts determined in favor of TWTC must be paid by Customer within five (5) business days following written, electronic or telephonic notice of the resolution, and will bear interest at the lesser of 1.5% per month or the maximum rate allowed by law from the Due Date until the date paid.

8. Service Levels / Service Outage Credits:

(a) Service Level Agreement (“SLA”). The SLAs provided by TWTC are set forth at http://www.twtelecom.com/cust_center/support.html. The SLAs identify the applicable performance metrics and Service Outage credit tables. If a specific SLA is not identified on the website for a particular Service, then credits for Service Outages exceeding thirty (30) minutes will be calculated on a pro rata basis, i.e. credits will be calculated by multiplying the duration of the Service Outage by the applicable MRC, divided by the monthly period.

(b) Service Outage Definition. A “Service Outage” is defined as either: (a) material non-compliance with a specific performance metric in a service level agreement and such non-compliance is caused by TWTC's Network; or (b) a complete loss of transmission or reception capability for a Service caused by TWTC's Network.

(c) Reporting and Tracking of Service Outages. If there is a Service Outage, Customer must contact TWTC's Customer Network Reliability Center (“CNRC”) at 800-829-0420 and TWTC will open a trouble ticket and provide Customer with a trouble ticket number for tracking purposes.

(d) Duration of Service Outage and Application of Credits. For the purpose of calculating applicable credits, a Service Outage begins when Customer reports the Service Outage to TWTC's CNRC, and ends when the Service is restored. Service Outages do not include outages and failures caused by the equipment, acts or omissions of Customer, third parties, Force Majeure events, or outages occurring during scheduled or emergency maintenance. The duration of a Service Outage does not include any time during which TWTC is not allowed access to the premises necessary to restore the Service. Credits for Service Outages are only issued if requested by Customer, and such requests must be submitted to TWTC within 120 days from the date Service is restored.

(e) Chronic Trouble Services. If two Service Outages have occurred on a particular Service during a 30-day period, and a third Service Outage occurs within thirty days following the second Service Outage, Customer may terminate the applicable Service without early termination liability provided that Customer supplies TWTC with a written termination notice no later than thirty days following the third Service Outage.

(f) Remedies. Notwithstanding anything to the contrary in this Agreement, the remedies set forth in the service level agreement and in Sections 8(a) and 8(e) of this Agreement constitute Customer's sole and exclusive remedy for Service Outages.

(g) Service Outages Not Caused by TWTC's Network. If TWTC responds to a service call initiated by Customer, and TWTC reasonably determines that the cause of the problem is: (i) not due to TWTC's Network; or (ii) on Customer's side of the Demarcation Point, Customer must compensate TWTC for the service call at TWTC's then prevailing Time and Materials rates posted at www.twtelecom.com.

9. Governmental Regulation - Changes:

(a) This Agreement is subject to all applicable federal, state and local laws, rules and regulations, and each Party must comply with them in performing its obligations hereunder. To the extent any provision herein conflicts with any applicable law, rule or regulation, such law, rule or regulation will supersede the conflicting provision.

(b) TWTC may discontinue or impose additional requirements to the provision of Service, upon 15 days written notice, if necessary to meet regulatory requirements or if such requirements have a material, adverse impact on the economic feasibility of TWTC providing the Service. Customer is not responsible for the termination liability set forth in Section 14 below if TWTC discontinues the Service under this subsection.

10. Indemnification: TWTC shall indemnify, defend and hold harmless Customer from all losses or damages arising from or related to bodily injury or physical damage to tangible property caused by the negligence or willful misconduct of TWTC.

11. Limitation of Liability: Except for the Parties' respective obligations set forth in Section 14 herein, neither Party is liable to the other for indirect, consequential, special, incidental, or punitive damages of any kind or nature whatsoever (including without limitation lost profits, lost revenues, lost savings, lost opportunity or harm to business), whether or not foreseeable, whether or not the Party had or should have had any knowledge, actual or constructive, that such damages might be incurred, and regardless of the form of action, nature of the claim asserted or the frustration of either Party's purpose. Indirect damages include, but are not limited to, damages of the kinds specified in the preceding sentence that are incurred by a third party and are asserted against a Party (including attorneys' fees and expenses). TWTC's liability to Customer for direct damages may not exceed three month's calculation of the applicable MRCs regardless of the form of action, nature of the claim asserted or the frustration of either Party's purpose. TWTC has no liability for the content of information that Customer passes through TWTC's Network, Customer's transmission errors, or any failure to establish connections outside of the TWTC Network.

12. Termination by TWTC:

(a) Termination With Notice. TWTC may disconnect all Service(s) associated with a delinquent account upon ten (10) days written notice for Customer's failure to pay amounts due under this Agreement which remain uncured at the end of the notice period; or upon thirty (30) days written notice for: (i) Customer's breach of a non-economic, material provision of this Agreement or any law, rule or regulation governing the Services which remains uncured at the end of the notice

period; (ii) Customer's insolvency, bankruptcy, assignment for benefit of creditors, appointment of trustee or receiver; and/or (iii) any governmental prohibition or required alteration of the Services.

(b) Termination Without Notice. TWTC may terminate or suspend Services without notice if: (i) necessary to protect TWTC's Network; (ii) TWTC has reasonable evidence of Customer's illegal, improper or unauthorized use of Services; or (iii) required by legal or regulatory authority.

(c) Post Termination. Any termination or disconnection shall not relieve Customer of any liability incurred prior to such termination or disconnection, or for payment of unaffected Services. TWTC retains the right to pursue all available legal remedies if it terminates this Agreement or disconnects Service(s) in accordance with this Section. All terms and conditions of this Agreement shall continue to apply to any Services not so terminated, regardless of the termination of this Agreement. If TWTC terminates Service in accordance with this section, and Customer wants to restore such Service, Customer first must pay all past due charges, a reconnection charge and a deposit equal to 2 months' recurring charges. All requests for disconnection will be processed by TWTC in 30 days or less. Customer must pay for Services until such disconnection actually occurs.

13. Termination by Customer: Customer may terminate this Agreement and/or any Service Order hereunder upon thirty (30) days prior written notice, without incurring termination liability, for TWTC's (i) breach of any material provision of this Agreement, or any law, rule or regulation that affects Customer's use of Service(s), which remains uncured at the end of the notice period and/or (ii) insolvency, bankruptcy, assignment for the benefit of creditors, appointment of trustee or receiver or similar event.

14. Termination Liability: If TWTC terminates this Agreement or any Service Order(s) pursuant to Section 12 above (other than subsections a(iii) and/or b(iii)), or if Customer terminates this Agreement or any Service Order(s) for any reason other than pursuant to Section 13 above, all MRCs associated with the terminated Service(s) for the balance of the applicable Service Term shall become immediately due and payable.

15. Assignment: Neither Party may assign this Agreement without the prior written consent of the other Party, not to be unreasonably conditioned, withheld or delayed, except that: (1) TWTC may assign its rights and/or obligations hereunder (a) to its parent, affiliates or subsidiaries, (b) pursuant to any merger, acquisition, reorganization, sale or transfer of all or substantially all its assets, or (c) for purposes of financing; and (2) Customer may assign its rights and/or obligations hereunder (a) to its parent, affiliates or subsidiaries, or (b) pursuant to any merger, acquisition, reorganization, sale or transfer of all or substantially all its assets, provided that any assignment by Customer pursuant to this exception is subject to the following conditions: (i) the proposed assignee satisfies TWTC's credit and deposit standards; (ii) Customer has fully paid for all Services through the date of assignment; and (iii) the proposed assignee agrees in writing to be bound by all provisions of this Agreement.

16. Entire Agreement: This Agreement, together with the Service Order(s) and applicable tariffs set forth the entire agreement with respect to the subject matter hereof, and supersede all prior agreements, promises, representations, and negotiations between the Parties. If there is a conflict, the Service Order shall prevail over this Agreement and any applicable tariff shall prevail over both. Modifications, amendments, supplements to or waivers of this Agreement must be in writing and executed by both Parties.

17. Force Majeure: Either Party shall be excused from performance if inability to perform is due to a cause or causes beyond such Party's reasonable control, including without limitation, acts of God, fire, explosion, vandalism, acts of terrorism, cable cuts caused by a third party, adverse weather conditions, labor strikes and governmental action ("Force Majeure"). If such inability to perform continues for sixty days or longer, the other Party may terminate the affected Services. Customer's invocation of this clause does not relieve Customer of its obligation to pay for Services actually received.

18. Governing Law - Litigation: The interpretation of the rights and duties of the Parties and any claim, controversy or dispute arising under or related to this Agreement shall be governed by and subject to the laws of the State of Hawaii excluding its principles of conflicts of law. If litigation is commenced to enforce this Agreement, the prevailing Party is entitled to reimbursement of its costs and attorneys' fees from the other Party.

19. Headings: Headings herein are for convenience only and are not intended to have substantive significance in interpreting this Agreement.

20. Notices: Any notice required under this Agreement must be in writing and be delivered to the receiving Party at the addresses listed below (i) in person, (ii) by certified mail with return receipt requested, or (iii) by overnight courier. A notice is deemed given (i) when delivered, if personally delivered, (ii) at the time indicated on the return receipt, if delivered by certified mail, or (iii) at the time the party or its representative executes the delivery receipt, if delivered via courier. TWTC must provide such notice to Customer's billing address, and Customer must provide such notice to TWTC at 10475 Park Meadows Drive, Littleton CO 80124, Attn: Deputy General Counsel, ***except that if Customer is disconnecting Services for any reason, it must deliver notice to TWTC either by facsimile to 303-803-9638 or by email to "CustomerCare@twtelecom.com"***. Notice by facsimile or email is deemed given when delivered.

21. No Waiver: Either Party's failure to enforce any provision or term of this Agreement shall not be construed as a future or continuing waiver of such provision or term of this Agreement.

22. Public Releases, Use of Name: Neither Party may issue a news release, public announcement, advertisement or other form of publicity regarding this Agreement nor the Services provided hereunder without the prior written consent of the other Party. Customer may not use TWTC's name, logo or service mark without TWTC's prior written consent. TWTC may use Customer's name and logo in materials presented to analysts and investors.

23. Representations and Warranties: Each Party represents and warrants that it, and the person signing on its behalf, is fully authorized to enter into this Agreement. TWTC represents and warrants that the Services will be performed by qualified and trained personnel. TWTC does not guarantee, represent or warrant that the Service(s) will be without interruption. TWTC MAKES NO OTHER REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, AND DISCLAIMS ANY AND ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR OR ORDINARY PURPOSE.

24. Severability: If any provision hereunder is declared or held invalid, illegal or unenforceable, this Agreement will be revised only to the extent necessary to make such provision(s) legal and enforceable, or if impossible, the unaffected portions of this Agreement shall remain in full force and effect so long as the Agreement remains consistent with the Parties' original intent.

25. Survival: The terms and conditions of this Agreement will survive the expiration or termination of this Agreement to the extent necessary for their enforcement and for the realization of the benefit thereof by the Party in whose favor they operate.

26. Relationship of Parties; No Third Party Beneficiaries: The Parties are independent contractors, and nothing herein creates or implies an agency, joint venture or partnership relationship between the Parties. This Agreement shall bind and inure to the benefit of TWTC, Customer, and permitted successors and assigns. The Parties do not intend to create any rights for the benefit of any third parties.

27. Confidentiality: Each Party may disclose confidential information to the other Party in connection with this Agreement. Confidential information includes this Agreement, Service Orders, Service Level Agreements, and any other information that is marked confidential or bears a marking of like import, or that the Party disclosing such information states is confidential and then confirms such confidentiality in writing within ten (10) days ("Confidential Information"). Confidential Information may only be used in connection with performance under this Agreement. Confidential Information may not be disclosed except to those employees or affiliates of the receiving Party who have a need to know, or to consultants or subcontractors of the receiving Party who agree to be bound by this Section. Confidential Information does not include information that is generally available to the public through no wrongful act of the receiving Party, is independently developed by the receiving Party, or is otherwise required by Hawaii law to not be confidential. Upon termination or expiration of this Agreement, the receiving Party will return the Confidential Information or destroy it. The obligations of this provision will survive for five years after the termination or expiration of this Agreement.

Signature Block

tw telecom holdings inc.	State of Hawaii
Signature:	Signature:
Name:	Name:
Title:	Title:
Date:	Date:
Sales Person:	

Customer and the individual signing above represent that such individual has the authority to bind Customer to this Agreement.

Exhibit A to Standard Terms and Conditions

Miscellaneous Charges

New Circuit / Service Installation:

CHARGE TYPE	DESCRIPTION	CHARGE
Cancellation of Service Order	Customer's cancellation of Service Order prior to the Service Date	<ul style="list-style-type: none"> \$100.00 per circuit plus, for Off-net circuits, an additional Off Net cancellation charge will apply as set forth in the chart below.
Modification of Service Order	Customer's request to modify a Service Order prior to installation (as an example, requesting to delay an installation date)	<ul style="list-style-type: none"> \$100.00 per Service Order being modified. An Off-net cancellation charge will also apply if Customer requests to delay installation of an Off-Net circuit by more than 30 days.
Expedited Installation of Service	Customer requests that TWTC install Service sooner than the installation date quoted by TWTC to Customer	<p>All voice, data, Internet, and transport Services provisioned at a service location utilizing DS1 circuit(s) or below:</p> <ul style="list-style-type: none"> \$500 per On-net circuit \$1000 per Off-net circuit <p>All voice, data, Internet, and transport Services that are provisioned at a service location utilizing DS3 circuit(s) or utilizing Ethernet circuits:</p> <ul style="list-style-type: none"> \$1,250 per On-net circuit \$2,500 per Off-net circuit <p>All voice, data, Internet, and transport Services that are provisioned at a service location utilizing OC-n circuits, and Off-net Ethernet Services for bandwidth capacity greater than 45Mb, will be evaluated on an individual case basis.</p>

In addition to the above, TWTC may charge Customer for the reasonable time and materials incurred and documented by TWTC in engineering and installing the Service that Customer has cancelled or modified, and also for any third-party charges assessed against TWTC as a result of the cancellation or modification.

Off-Net Cancellation Charges*:

**Applied per Off-net circuit in addition to the cancellation charges listed above. The Off-Net Cancellation charge is assessed per circuit according to the chart below based on: (1) circuit type; (2) location where the circuit is provisioned; and (3) whether the cancellation occurs before or after TWTC has confirmed its acceptance of the Service Order to Customer ("FOC") to Customer.*

STATE	DS1 CIRCUIT OR BELOW; CANCELLED PRE-FOC	DS1 CIRCUIT OR BELOW; CANCELLED POST-FOC	DS3 CIRCUIT OR ABOVE; CANCELLED PRE-FOC	DS3 CIRCUIT OR ABOVE; CANCELLED POST-FOC

STATE	DS1 CIRCUIT OR BELOW; CANCELLED PRE-FOC	DS1 CIRCUIT OR BELOW; CANCELLED POST-FOC	DS3 CIRCUIT OR ABOVE; CANCELLED PRE-FOC	DS3 CIRCUIT OR ABOVE; CANCELLED POST-FOC
Alabama	\$ 110	\$ 960	\$ 160	\$ 1,400
Arizona	\$ 150	\$ 300	\$ 220	\$ 440
Arkansas	\$ 130	\$ 300	\$ 190	\$ 440
California	\$ 130	\$ 1,070	\$ 190	\$ 1,560
Colorado	\$ 130	\$ 570	\$ 190	\$ 830
Connecticut	\$ 110	\$ 960	\$ 160	\$ 1,400
District of Columbia	\$ 110	\$ 1,500	\$ 160	\$ 2,190
Florida	\$ 130	\$ 420	\$ 190	\$ 610
Georgia	\$ 150	\$ 500	\$ 220	\$ 730
Hawaii	\$ 110	\$ 960	\$ 160	\$ 1,400
Idaho	\$ 150	\$ 280	\$ 220	\$ 410
Illinois	\$ 110	\$ 690	\$ 160	\$ 1,010
Indiana	\$ 110	\$ 660	\$ 160	\$ 960
Iowa	\$ 110	\$ 960	\$ 160	\$ 1,400
Kansas	\$ 110	\$ 960	\$ 160	\$ 1,400
Kentucky	\$ 120	\$ 470	\$ 180	\$ 690
Louisiana	\$ 140	\$ 560	\$ 200	\$ 820
Maryland	\$ 75	\$ 1,280	\$ 110	\$ 1,870
Massachusetts	\$ 110	\$ 960	\$ 160	\$ 1,400
Michigan	\$ 110	\$ 960	\$ 160	\$ 1,400
Minnesota	\$ 140	\$ 250	\$ 200	\$ 370
Mississippi	\$ 100	\$ 960	\$ 150	\$ 1,400
Missouri	\$ 110	\$ 960	\$ 160	\$ 1,400
Nebraska	\$ 110	\$ 960	\$ 160	\$ 1,400
Nevada	\$ 110	\$ 610	\$ 160	\$ 890
New Jersey	\$ 110	\$ 960	\$ 160	\$ 1,400
New Mexico	\$ 140	\$ 680	\$ 200	\$ 990
New York	\$ 110	\$ 960	\$ 160	\$ 1,400
North Carolina	\$ 120	\$ 430	\$ 180	\$ 630
Ohio	\$ 60	\$ 1,050	\$ 90	\$ 1,530
Oklahoma	\$ 110	\$ 960	\$ 160	\$ 1,400
Oregon	\$ 170	\$ 690	\$ 250	\$ 1,010
Pennsylvania	\$ 110	\$ 960	\$ 160	\$ 1,400
South Carolina	\$ 160	\$ 290	\$ 230	\$ 420
Tennessee	\$ 150	\$ 480	\$ 220	\$ 700
Texas	\$ 110	\$ 1,030	\$ 160	\$ 1,500
Utah	\$ 110	\$ 960	\$ 160	\$ 1,400
Virginia	\$ 110	\$ 1,500	\$ 160	\$ 2,190
Washington	\$ 110	\$ 680	\$ 160	\$ 990
Wisconsin	\$ 110	\$ 810	\$ 160	\$ 1,180

Existing Circuits / Services:

CHARGE TYPE	DESCRIPTION	CHARGE
Feature/Facility Change Charge	Request for a feature to an existing Service to be added, changed, or deleted. Note: Changes to 911 addressing, calling name, and/or directory listing records are subject to Feature/Facility Change Charges, and are not Records Order Changes.	\$50.00 per order. *Some limitations may exist as to how many changes and what type of changes may be made per Service Order type.
Records Order Change	Request for a change that impacts only the records of a Customer's Service and not any physical change to the Services	\$20 per order
Long Distance Changes	800 numbers and Account Codes	See FCC Interstate Price List #3 for all Miscellaneous LD Change Charges
PIC Change	Request to change or freeze an Interexchange carrier	\$5 per order
Expedited Change to an existing Service	Change requested sooner than the interval quoted by TWTC to Customer	Feature/Facility, Records Order, or PIC Change \$100 per order, if available

For Off-net Services, TWTC also may charge Customer for any third-party charges assessed against TWTC as a result of the above changes requested by Customer.

Customer's request may be subject to time and material charges in accordance with TWTC's Time and Materials Charges policy set forth at www.twtelecom.com.

If Customer requests a change that requires installation of a new circuit / Service, then the New Circuit / Service Installation section above will apply.

Ethernet Services

I. Ethernet Services – Technology

Ethernet Services utilize Ethernet technology to transport data and are offered with the following types of Ethernet ports: (1) 10/100 Mbps Ethernet port where (a) the 10 Mbps Ethernet service provides a physical IEEE-compliant (IEEE 802.3) 10Base-T (twisted pair), RJ-45 interface to the customer (transmission speed is available at a maximum of 10 Mbps which is equal to the line rate of the 10Base-T interface); and (b) the 100 Mbps Ethernet (Fast Ethernet) service provides a physical IEEE-compliant 100Base-TX (twisted pair) RJ-45 interface to the customer (transmission speed is available at a maximum of 100 Mbps, which is equal to the line rate of the 100Base-TX interface); (2) 1000 Mbps Ethernet port – Gigabit Ethernet where the 1000 Mbps Ethernet (Gigabit Ethernet) service provides an IEEE-compliant physical interface of either 1000Base-SX (multimode fiber), or 1000Base-LX (single mode fiber) interface to the customer; and (3) 10000 Mbps Ethernet port – 10 Gigabit Ethernet where the 10000 Mbps Ethernet (10Gigabit Ethernet) service provides an IEEE-compliant physical interface of either 10GBase-SR (multimode fiber), or 10GBase-LR (single mode fiber) interface to the customer.

II. Product Descriptions

A. Enterprise Switched NLAN Services

Enterprise Switched NLAN Services (“Enterprise SNLAN”) are switched Ethernet services that incorporate data switching technology through the use of Ethernet switches in the TWTC Network. Enterprise SNLAN conforms to Metro Ethernet Form (“MEF”) E-LAN standards and allows customers to access a shared, oversubscribed metro Ethernet infrastructure through Ethernet ports that are unique to each customer and its locations. Each location has a port and a bandwidth component for ordering and billing purposes. The Enterprise SNLAN Service will accept and carry customers’ tagged and untagged Ethernet traffic. If a customer requires individual tag service from TWTC, it shall use the VLAN identifications assigned by TWTC.

Additional Features:

- Any-to-any connectivity
- TWTC differentiates customer traffic on the shared infrastructure through unique logical connections for each customer.
- Metro area solution
- Various bandwidth increments of Enterprise SNLAN Service are offered over 100M, 1000M, 10G End User Ethernet ports.
- Port-based pricing
- Full port line rate to the Customer
- Full-duplex service
- Ethernet ring topology
- REP and RSTP spanning tree network restoration protocols (Sub-second convergence and failover time)
- Virtual separation between customer traffic streams (802.1q VLAN tagging)
- Oversubscribed network bandwidth (Max 4:1 over-subscription)

B. Elite Native LAN Services (Point-to-Point Configuration)

Elite NLAN Services are dedicated point-to-point, transparent Ethernet services that conform to the MEF “EPL” standard. The Services provide a dedicated point-to-point DWDM or SONET-protected transport solution between Customer’s locations. These Services are available in bandwidth increments of 10 Mbps, 100 Mbps, 622 Mbps (GigE port but with a limited bandwidth of 622M), 1000 Mbps (GigE), and 10 Gbps. These Services are offered directly to the customer utilizing TWTC’s existing fiber infrastructure to provide Ethernet LAN-to-

Additional Features:

- Dedicated Point-to-Point connectivity and bandwidth between two Customer locations
- Customer has access to full bandwidth of the port (no bandwidth increments)
- Full-duplex services
- DWDM or SONET-Protected service (hybrid SONET platform)
- Tagged or untagged Customer Ethernet traffic

C. Extended Native LAN Services

Extended Native LAN Services (“ENLAN”) are fully meshed, inter-market Ethernet Services that provide a managed end-to-end solution for customers over TWTC’s Network. ENLAN Services conform to E-LAN MEF standards, encapsulating Customer traffic using later 2 tunnels. To transport Ethernet frames across TWTC’s Network, an Ethernet connection will be made between TWTC’s central office Ethernet switch and an aggregation router on TWTC’s Network.

ENLAN is provisioned on diverse and redundant paths, meaning that if there is an interruption on one of the paths, the ENLAN traffic is automatically re-routed onto a secondary path until the primary path is restored. The basic service offering does not provide Customer with premium Class of Service (“CoS”), but Customer may order CoS separately for the ENLAN Service as further described below. Enterprise SNLAN also is required on each end of the ENLAN Service, and is priced separately.

D. E-Line Services

E-Line is a point-to-point Layer 2 Ethernet service between any two IEEE-compliant User Network Interfaces (“UNIs”). These UNIs may be connected with other IEEE-compliant UNIs at a variety of speed intervals, regardless of the platform or device that enables them.

The E-Line service is comprised of a UNI at each site combined with Ethernet Virtual Connections (“EVC”) between UNIs to be used to create a point-to-point or hub and spoke network topology. Each UNI and EVC are priced separately. ELINE may be ordered as: (a) a port-based private line with limited but dedicated line rate speeds (a/k/a/ Ethernet Private Line of “EPL” which is available with a protected or unprotected configuration); (b) a transparent oversubscribed service between two UNIs (a/k/a/ Ethernet Virtual Private Line or “EVPL” which is only available in a protected configuration); or (c) a multiplexed VLAN-based solution with dedicated or shared EVCs that span between UNIs, and is available at a variety of speed intervals (this service also may be referred to as EVPL, which is only available in a protected configuration).

The multiplexed E-Line service provisions with three or more locations is commonly referred to as point to multipoint or, because of its architecture, may be referred to as “VLAN-based” point-to-point. The multiplexed E-Line service resembles a “hub and spoke” topology, where the “hub” has several VLAN-based services aggregating into a single multiplex UNI or NNI. The UNI is available as 100M, 1G, or 10G Ethernet port and may be ordered as a transparent or multiplexed interface. The EVC is available in various bandwidth increments from 2M to 10G and may be ordered with Best Effort (a/k/a/ “shared”) or Real-Time (a/k/a/

“dedicated”) bandwidth. The UNI conforms to MEF standards, and the terminology and configurable options associated with TWTC’s multiplexed E-Line Services typically follow MEF standards.

An E-Line Service is “Protected” if it is provisioned on a diverse ring-protected route not only in each of the metro markets, but also between those markets. If there is an interruption on the ring, the traffic on the Protected EVC is automatically re-routed in the opposite direction on the ring until the normal condition is restored.

III. Class of Service

For an additional charge, Customer may order CoS for its SNLAN and ENLAN Ethernet Services (a/k/a Premium Services). CoS provides customers with the ability to prioritize multiple applications that are competing for the same network resources. CoS provides several levels or “classes” of differentiated service and essentially controls network and system resources in order to achieve a more predictable flow of Customer’s proprietary traffic across the TWTC Network. TWTC offers five levels of CoS priority (listed in descending order of priority): Realtime; Interactive; Mission Critical; Priority and Best Effort. Each CoS level represents traffic with similar network performance requirements for packet delay, jitter, latency and network availability. If Customer orders the CoS feature, it may designate the type of CoS associated with each traffic group based on its own desired priority levels, provided that the traffic designated by Customer as Real Time and Interactive combined may not exceed the allowable bandwidth designations contracted for in the applicable Service Order. If Customer’s traffic exceeds the CoS bandwidth designation, then the remedies set forth in the Service Level Agreement below will not apply.

IV. Service Level Agreement

A. Availability

Elite NLAN and Protected E-Line Services. These services will be available at least 99.999% of the time in a calendar month. The Service is unavailable during any period of time that it experiences a Service Outage. Upon Customer’s request, TWTC will issue credits for each Service Outage, and such credits shall be calculated by multiplying the percentage specified in the table below by the MRC for the non-performing Service.

Duration of Service Outage	Percentage Credit
Less than 1 minute (99.999% availability)	No Credit
1 minute up to 4 hours	5% of the MRC
4 hours up to 8 hours	10% of the MRC
8 hours up to 12 hours	15% of the MRC
12 hours up to 16 hours	20% of the MRC
16 hours up to 24 hours	35% of the MRC
24 hours or greater	50% of the MRC

SNLAN, ENLAN and Premium ENLAN Services. These Services will be available at least 99.99% of the time in a calendar month. The Service is unavailable during any period of time it experiences a Service Outage. Upon Customer's request, TWTC shall issue credits for each Service Outage, and such credits shall be calculated by multiplying the percentage specified in the table below by the MRC for the non-performing Service.

Duration of Service Outage	Percentage Credit
Less than 5 minutes (99.99% availability)	No Credit
5 minutes up to 4 hours	5% of the MRC
4 hours up to 8 hours	10% of the MRC
8 hours up to 12 hours	15% of the MRC
12 hours up to 16 hours	20% of the MRC
16 hours up to 24 hours	35% of the MRC
24 hours or greater	50% of the MRC

TWTC's Unprotected E-Line Services will be available at least 99.9% of the time in a calendar month. The Service is unavailable during any period of time it experiences a Service Outage. Upon Customer's request, TWTC shall issue credit for each Service Outage, and such credits shall be calculated by multiplying the percentage specified in the table below by the MRC for the non-performing Service.

Duration of Service Outage	Percentage Credit
Less than 45 minutes (99.9% availability)	No Credit
45 minutes up to 4 hours	5% of the MRC
4 hours up to 8 hours	10% of the MRC
8 hours up to 12 hours	15% of the MRC
12 hours up to 16 hours	20% of the MRC
16 hours up to 24 hours	35% of the MRC
24 hours or greater	50% of the MRC

B. Network Latency – Continental United States and Hawaii

TWTC measures "Network Latency" with respect to average round-trip transmission on its Network each month. Upon Customer's request, TWTC shall issue credits for TWTC's failure to meet the Network Latency metrics specified below if the failure is service impacting to the Customer. Such credits will be calculated by multiplying the percentage specified in the table below by the MRC for the non-performing Service. The credits

specified below are not cumulative and, for any calendar month, Customer is only entitled to one credit specified in the table below based on the highest affected CoS level for the non-performing Service.

CoS Designation – Percentage Credits						
Network Latency Metrics (continental United States)	Network Latency Metrics (Hawaii)	Realtime (Dedicated Bandwidth)	Interactive	Mission Critical	Priority	Best Effort (shared bandwidth) & Basic ENLAN
45.00 milliseconds (“ms”) or less	75.00 ms or less	No Credit	No Credit	No Credit	No Credit	No Credit
45.01 to 50.00 ms	75.01 to 80.00 ms	10%	5%	No Credit	No Credit	No Credit
50.01 to 60.00 ms	80.01 to 90.00 ms	15%	10%	No Credit	No Credit	No Credit
60.01 to 65.00 ms	90.01 to 95.00 ms	20%	15%	No Credit	No Credit	No Credit
65.01 to 70.00 ms	95.01 to 100.00 ms	30%	25%	20%	10%	No Credit
70.01 to 75.00 ms	100.01 to 105.00	40%	35%	25%	15%	No Credit
75.01 ms or greater	105.01 or greater	50%	45%	30%	20%	10%

C. Packet Delivery

TWTC measures packet delivery on its Network on a monthly basis. Packet Delivery is determined by averaging sample measurements taken each calendar month between TWTC’s designated POPs. Upon Customer’s request, TWTC will issue credits for TWTC’s failure to meet the Packet Delivery metrics specified in the table below if such failure is service impacting to the Customer. Such credits will be calculated by multiplying the percentage specified in the table by the MRC for the non-performing Services. The credits specified below are not cumulative and, for any calendar month, Customer shall only be entitled to one credit specified in the table below based on the highest affected CoS level for the non-performing Service.

Average Packet Delivery					
CoS Designation – Percentage Credits					
Average Packet Delivery (within Continental U.S. and from Continental U.S. to Hawaii)	Realtime	Interactive	Mission Critical	Priority	Best Effort
99.9% or greater	No Credit	No Credit	No Credit	No Credit	No Credit
99.5% to 99.8%	10%	5%	No Credit	No Credit	No Credit
99% to 99.4%	20%	15%	No Credit	No Credit	No Credit
98% to 98.9%	30%	20%	15%	No Credit	No Credit
97% to 97.9%	40%	25%	20%	15%	No Credit
Less than 97%	50%	40%	25%	20%	10%

D. Network Jitter – Continental United States and Hawaii

TWTC’s Network Jitter metric only applies to Services for which the Customer has selected either the Realtime or Interactive CoS. “Network Jitter” means the average variation in delay for packet transfers between TWTC’s designated points of presence (“POPs”) during a calendar month, as further described below in the section titled “Measurements”. Upon Customer’s request, TWTC will issue credits for TWTC’s failure to meet the Network Jitter metrics specified in the table below if the failure is service impacting to the Customer. Credits will be calculated by multiplying the percentage specified in the table by the MRC for the non-performing Service. The credits specified below are not cumulative and, for any calendar month, Customer shall only be entitled to one credit specified in the table below based on the highest affected CoS level for the non-performing Service.

Network Jitter (one way)						
		CoS Designation – Percentage Credits				
Continental United States	Hawaii	Realtime	Interactive	Mission Critical	Priority	Best Effort
1 ms or less	1 ms or less	No Credit	No Credit	No Credit	No Credit	No Credit
1.1 ms to 2.0 ms	1.1 ms to 2.0 ms	5%	No Credit	No Credit	No Credit	No Credit
2.1 ms to 4.0 ms	2.1 ms to 4.0 ms	10%	5%	No Credit	No Credit	No Credit
4.1 ms to 5.0 ms	4.1 ms to 5.0 ms	15%	10%	No Credit	No Credit	No Credit
5.1 ms to 6.5 ms	5.1 ms to 6.5 ms	20%	15%	10%	No Credit	No Credit
6.6 ms to 7.5 ms	6.6 ms to 7.5 ms	30%	20%	15%	No Credit	No Credit
7.6 ms to 10.0 ms	7.6 ms to 10.0 ms	40%	30%	25%	15%	No Credit
10.1 ms or greater	10.1 ms or greater	50%	40%	30%	20%	10%

E. Measurements

All latency, packet delivery and jitter measurements are measured by averaging sample measurements taken during the calendar month. For Services provided within the continental United States, measurements are taken at TWTC's POPs in the continental United States; for Services provided in Hawaii, between TWTC's POPs in Honolulu, HI and TWTC's POPs on the west coast of the continental United States.