

SERVICE SPECIFICATIONS – TRANSPORT SERVICES

The following service specifications (“Service Specifications”) describe the Transport Services offered under the Transport and Dedicated Internet Access Services Schedule, governed by the terms and conditions of the Zayo Group Master Service Agreement (“MSA”). Capitalized terms not defined herein will have the meaning ascribed to them in the MSA.

A. PRIVATE LINE SERVICES. Private Line Services are TDM-based (time-division multiplexing) services which provide the Customer with the transmission of synchronous serial data for interconnection between two or more locations.

1. Service Configurations. Private Line Services are available in the following configurations and may be configured as protected or unprotected circuits as described in the MSA.

- a) Point-to-Point Service connects two (2) end locations and the service terminated at both locations is the same bandwidth.
- b) Hub/Tail Service aggregates multiple lower bandwidth Private Line Services to one or more locations (tails) onto one higher bandwidth service terminating at one location (hub).
- c) Ring Service provides dedicated bandwidth over a ring architecture connecting two or more node locations typically within one metropolitan area. Ring Services may be configured to drop off sub-rate services at any of the node locations.

2. Service Bandwidth. Private Line Services are available in the following bandwidth options:

- a) DS1 Private Line 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 bipolar 8 Zero Substitution (B8ZS) and either Superframe (D4) or Extended Superframe formats. DS1 Service has the equivalent capacity of 24 Voice Grade (VG) services. AMI can support 24 each 56 Kbps channels and B8ZS can support 24 each 64 Kbps channels.
- b) E1 Private Line Service is a dedicated, high capacity, full duplex channel with a line speed of 2.048 Mbps isochronous serial data. E1 Service has the equivalent capacity of 32 Voice Grade (VG) services each with 64 Kbps channels.
- c) DS3 Private Line 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 (VG) services at 56/64 Kbps.
- d) OC3/STM1 Private Line 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. OC3 Service may be configured as one OC3c (concatenated).
- e) OC12/STM4 Private Line 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. OC12 Service may be configured as one OC12c (concatenated).
- f) OC48/STM16 Private Line 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 2488.32 Mbps. OC48 Service may be configured as one OC48c (concatenated).

- g) OC192/STM64 Private Line 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 9953.28 Mbps. OC192 Service may be configured as one OC192c (concatenated).

B. WAVELENGTH SERVICES. Wavelength Services are bi-directional, synchronous, optical transmission services which provide the Customer with interconnection between locations.

- 1. **Service Configurations.** Wavelength Services are available in point-to-point configurations which connect two (2) end locations and the service terminated at both locations is the same bandwidth. Services may be configured as protected or unprotected circuits as described in the MSA.
- 2. **Service Bandwidth.** Wavelength Services are available in the following bandwidth options:
 - a) 2.5 Gbps Wavelength Service operates at 2.488 Gbps with 1 STS-48C signaling path and is provided in accordance with Bellcore GR2918.
 - b) 10 Gbps Wavelength Service Wave Service operates at 10 Gbps with 1 STS-192C signaling path and is provided in accordance with Bellcore GR2918.

C. OPTICAL ETHERNET SERVICES. Optical Ethernet Services are fully managed, Ethernet WAN transport connections allowing for the transparent delivery of voice, video and data over fiber optic facilities. Optical Ethernet Services are finished end-to-end services in which a customer attaches their LAN to a User-Network Interface (UNI) using a standard 10/100Mbps or 1Gbps Ethernet interface.

- 1. **Service Configurations.** Optical Ethernet Services are available in the following configurations and may be configured as protected or unprotected circuits as described in the MSA.
 - a) EPL Service is a point-to-point transport service used to connect two customer locations. EPL delivers Ethernet packets transparently over a single Ethernet Virtual Connection (EVC) between two non-multiservice User-Network Interface (UNI) ports.
 - b) EVPL Service is a transport service used to connect two customer locations or to provide a port aggregation NNI where multiple customer locations are homed to a central hub location. EVPL delivers Ethernet packets over Ethernet Virtual Connections (EVC) between two multiservice User-Network Interface (UNI) ports or between multiservice UNI and NNI ports.
 - c) E-LAN service is a multipoint transport service used to connect multiple LANs over a switched Optical Ethernet WAN platform. LAN traffic routing and prioritization is available through Ethernet Virtual Connections (EVC) or Custom Class of Service options. Network connection speeds can be mixed and matched among the Customer's service locations.
- 2. **Service Bandwidth.** Optical Ethernet Services are available in the following standard bandwidth options:
 - a) Gigabit Ethernet Service 1000-Base X - Gigabit Ethernet operates at a data rate of 1 billion bits per second (one gigabit) as defined in the IEEE 802.3 standard. This product will have a Gigabit Ethernet interface and be offered in the following increments: 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000Mbps (10Gbps available ICB).
 - b) Fast Ethernet Service 100-Base X – Fast Ethernet operates at a data rate of 100Mbps as defined in the IEEE 802.3 standard. This product will have a Fast Ethernet interface and be offered in the following increments: 10, 20, 30, 40, 50, and 100Mbps.