

Issued February 18, 2000

FACILITIES FOR INTERSTATE ACCESS

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20 Optical Networking

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(A) General

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This section contains the rules and regulations pertaining to the provisioning of SONET Access and Dense Wave Division Multiplexing (DWDM) Service. The regulations and rates specified herein are in addition to the applicable rates and regulations specified in other Sections of this tariff.

This service supports asynchronous bandwidth capacities at 1.5 Mbps and 45 Mbps in addition to synchronous Optical Carrier (OC) bandwidth capacities at OC-3, OC-12 and OC-48 bit rates and 1.25 Gbps or 2.5 Gbps wavelengths. The SONET add/drop multiplexer aggregates lesser bit speed services onto the dedicated SONET ring or the two-point SONET circuit configuration.

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FACILITIES FOR INTERSTATE ACCESS

- 20 Optical Networking (Cont'd) (T)
- (B) Description (T)
- Optical Networking is comprised of high speed SONET based and/or DWDM technology providing connectivity at, and transport between, two or more customer designated locations (CDLs) (T)
- All traffic must originate and/or terminate at the IC customer location (T)
- (C) Conditions (T)
- Optical Networking is available only in selected wire centers where technical capabilities permit as shown in 20(K). (T)
- The customer is responsible for providing all facilities and cabling necessary to connect customer equipment to this interface (T)
- Customer Facility Assignment (CFA) is controlled by the Telephone Company on all access customer serving wire centers on the IOF and extends to the terminating CDL. Should the customer require control of the facility assignment and order multiplexing on the IOF, the services from the multiplexer to the end user serving wire center will be ordered from Section 5 of this tariff (T)
- It is the customer's responsibility to ensure that the customer's equipment provides industry standard electrical signals compatible with Optical Networking transport transmission. Technical specifications are contained in the following publications (T)
- Bellcore Document GR-253-CORE, Issue 2, April, 1996
 - Bellcore Document GR-1400-CORE, Issue 1, March, 1994
 - Bellcore Document GT-1374-CORE, Issue 1, March, 1994
 - American National Standard, ANSI T1 105-1996
 - American National Standard, ANSI T1 102-1993
- The Company will work cooperatively with the customer during a planning session to insure that the customer orders sufficient Optical Networking bandwidth capacity to satisfy the customer's requirements as well as other applicable Optical Networking services. This planning session must take place prior to an initial Optical Networking ASR (T)

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FACILITIES FOR INTERSTATE ACCESS

20 Optical Networking (Cont'd)

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(D) Application of Rates and Charges

(T)

(1) CONNECT

The Connect rate element provides the platform for customer access to the Telephone Company's Optical Network. The Connect element provides the link between the CDL and the SWC of the (T) CDL.

There are three types of Connects:

- Single Route Connect *
- Dual Route Connect *
- Ring Connect *
- CO Connect *
- Shared Connect *
- Jointly Provided Custom Connect *
- Wholly Provided Custom Connect *
- Custom Connect
- Express Connect
- Flex Express Connect

(a) Single Route Connect

The Single Route provides a connection to the Telephone Company's wire center(s) via a point-to-point route configuration. The Single Route Connect may be provided as electrical or optical interface in OC bandwidths of OC3, OC12, OC24 or OC48. The Single Route Connect may be ordered as switched or special access.

(b) Dual Route Connect

The Dual Route Connect provides a connection to the Telephone Company's wire center(s) in which the working transmission path traverses a distinct and separate path from the protection transmission path. The Dual Route Connect may be provided as electrical or optical interface in OC bandwidths of OC3, OC12, OC24 or OC48. The Dual Route Connect may be ordered as switched or special access.

(c) Ring Connect

The Ring Connect provides a connection to the Telephone Company's wire centers via a ring topology that provides no single point of failure. The Ring Connect has a minimum of three nodes one of which must be a Telephone company wire center. The Ring Connect may be provided as either electrical or optical interface in OC bandwidths of OC3, OC12, OC24 or OC48. When two of the nodes are customer designated locations, at least one of those nodes must be electrical. The Ring Connect may be ordered as switched or special access.

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FACILITIES FOR INTERSTATE ACCESS

- 20 Optical Networking (Cont'd) (T)
- (D) Application of Rates and Charges (Cont'd) (T)
- (1) CONNECT (Cont'd)
- (d) CO Connect
- The CO Connect provides access to the Telephone Company's Optical Networking platform. The CO Connect is provided at DS3, DS1 and DS0 levels. The appropriate special access line from Section 5 will apply. (T)
- When a CO Connect is provided at a DS3 or DS1 level, the customer may order multiplexing, as shown in Section 5, at the end user serving wire center. The customer will be charged for the multiplexing in addition to the CO Connect.
- When a CO Connect is ordered at a DS0 level, the customer must request a minimum of a DS1 interface at the IC customer wire center and will be charged for the appropriate payload (i.e., DS1 or DS3) at the IC customer wire center. The CO connect may be ordered as switched or special access.
- (e) Shared Connect
- The Shared Connect is a SONET based DS1 or DS3 that is provided on a shared SONET facility basis to multiple customer designated locations. The Shared Connect is only available where existing SONET infrastructure is in place.
- The Shared Connect may be provided as either a dual route or as ring topology.
- (f) Jointly Provided Custom Connect (Custom Connect- JP)
- The Jointly Provided Custom Connect provides a connection to the Telephone Company's SONET wire center(s) to an access customer's designated location (CDL) where service is provided by another telephone company. The Jointly Provided Custom Connect is mileage sensitive and may be provided in OC bandwidths of OC3, OC12, OC24 and OC48 as an electrical option only, i.e., GTE provided electronics. Mileage will be calculated based on the V&H coordinates of the wire centers comprising each segment of the connect. The meet point billing mileage calculation is specified in 2.7.3.
- Payloads are included in the monthly rate for the Jointly Provided Custom Connect. However, access to CDLs provided by the Telephone Company require other Optical Networking rate elements as ordered by the customer, i.e., Ring Connect and Payloads, CO Connect and SAL(s), Transport, etc. The serving wire center(s) of the Telephone Company provided CDLs must be part of the Jointly Provided Custom Connect. (T)
- The Jointly Provided Custom Connect may be ordered as switched or special access. *

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FACILITIES FOR INTERSTATE ACCESS

20 Optical Networking (Cont'd)

(D) Application of Rates and Charges (Cont'd)

(1) CONNECT (Cont'd)

(g) Wholly Provided Custom Connect (Custom Connect - WP)

The Wholly Provided Custom Connect provides a connection to the Telephone Company's SONET wire center(s), an interexchange access customer designated location (CDL) and the access customer's end user CDL(s) via a ring topology. The Wholly Provided Custom Connect may be provided in OC bandwidths of OC3, OC12 or OC48.

The Wholly Provided Custom Connect is comprised of four rate elements: CDL Node, CO Node, Custom Connect (CC) Transport and CC Rider. The CDL Node rate element is applicable for each customer designated location, the CO Node is applicable for each central office that is equipped with a fiber optic terminal in which the customer requests the ability to add/drop traffic to a CDL and the CC Transport rate element is applicable for transport from the serving wire centers of the customer designated locations and CO Nodes. The CC Rider is the customer service riding the CC Transport. The CC Rider may be provided at DS1, DS3, OC3 and OC3c bandwidth levels as required by the customer. The bandwidth of the CDL Nodes, CO Nodes and CC Transport rate elements must be the same.

The CC Transport provides distance sensitive transport on a ring topology. The transport is measured from the primary serving wire centers of the customer designated locations and the CO Nodes.

In addition to the Wholly Provided Custom Connect rate elements, the appropriate special access line (SAL) from Section 5 is applicable from the CO Node to the customer designated location where traffic is entering the Wholly Provided Custom Connect at a DS1 or DS3 bandwidth level as required by the customer.

The Wholly Provided Custom Connect may be ordered as switched or special access.

(h) Express Connect

The Express Connect provides a connection to the Telephone Company's Optical Networking wire center(s) via a ring topology consisting of three nodes, one of which must be a Telephone Company wire center. When two of the nodes are customer designated locations, at least one of the nodes must be electrical. The Express Connect is provided at a bandwidth of OC3 or OC12 and may be ordered under a one (1) year, three (3) year, five (5) year or seven (7) year Term Payment Plan (TPP).

The Express Connect has three rate elements: a "First System" with optional "Additional System(s) and Additional Express Nodes." The customer may order up to three "Additional Systems" of OC3 or OC12 bandwidth not to exceed OC12 or OC48 bandwidth capacity respectively. Rider charges are included in the monthly rate for Express Connect.

The customer may subscribe to Custom Connect Shared Transport or Banded Optical Transport with Express Connect.

The Express Connect may be ordered as switched or special access.

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20 Optical Networking (Cont'd)

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(D) Application of Rates and Charges (Cont'd)

(T)

(1) CONNECT (Cont'd)

(i) Flex Express Connect

The Flex Express Connect provides a connection to the Telephone Company's Optical (T) Networking wire center(s) via ring topology with a minimum of four nodes, two of which (T) must be Telephone Company wire centers. When two or more of the nodes are customer designated locations, only one of those nodes may be optical. The Flex Express Connect is provided at a bandwidth of OC3 or OC12.

Flex Express Connect is comprised of four rate elements: a "First System" with optional "Additional System(s)", Additional Flex Nodes, and Flex Express Transport. The customer may order up to three "Additional System(s)" of OC3 or OC12 not to exceed OC12 or OC48 bandwidth capacity, respectively.

Flex Express Transport is applicable for transport from the serving wire center of the customer designated location(s) and the CO Nodes. Flex Express Transport is ordered with the "First System" and each "Additional System" Flex Express Connect in OC3 or OC12 bandwidth not to exceed OC12 or OC48 bandwidth capacity, respectively.

Flex Express may be ordered under a one (1) year, three (3) year or five (5) year or seven (7) year Term Payment Plan (TPP). After the initial order for Flex Express (T) Connect, month-to-month rates shall apply for the additional Flex Nodes. When the TPP of the Flex Express "First System" expires and the customer does not renew the TPP as shown in 20(G)(2), the first Flex Express "Additional System" will assume the Flex (T) Express "First System" rates.

In addition to the Flex Express Connect rate elements, Custom Connect Transport (Transport), as described in 20(D)(1)(j), is applicable for transport from the serving (T) wire centers of the customer designated locations and CO Nodes. Rider charges are included in the monthly rate for Flex Express Connect.

Flex Express Connect may be ordered as switched or special access.

(j) Custom Connect

The Custom Connect provides a connection to the Telephone company's Optical (T) Network and an access customer's designated location (CDL). The Custom Connect is (T) comprised of CO Nodes, CDL Links, Transport and Riders. Each Custom Connect must consist of a minimum of two customer designated locations, one of which must be a CDL Link.

The Custom Connect may be ordered as switched or special access.

CO Node

The CO Node rate element is applicable for each central office that is equipped with a fiber optic terminal in which the customer requests the ability to add/drop traffic to a CDL. If the customer wants to drop traffic below a DS3 at the CO Node, the customer must request a minimum DS1 interface and appropriate special access lines from Section 5. The CO Node may be ordered at an OC3, OC12 or OC48 bandwidth capacity. The CO Node may be ordered under a one (1) year, three (3) year, five (5) year or seven (7) year Term Payment Plan (TPP). (T)

The CO Node may be ordered when a customer requires OC level multiplexing on the Custom Connect.

CO Nodes may only be ordered from Optical Networking wire centers as shown in (T) 20(K).

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20 Optical Networking (Cont'd)

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(D) Application of Rates and Charges (Cont'd)

(T)

(1) CONNECT (Cont'd)

(j) Custom Connect (Cont'd)

CDL Link

The CDL Link rate element is applicable for each customer designated location in which the customer requests the ability to add/drop traffic. The CDL Link is offered as Single Route, Diverse Route or Ring Route and may be ordered with or without Telephone Company provided electronics as OC3, OC12 or OC48 bandwidth capacity. Only one CDL Link per connect may be ordered without electronics.

If more than two Links or Nodes are ordered on the same order, the CDL Link must be ordered as a Ring Route CDL Link. A Custom Connect ordered via a ring topology will be provided with a service guarantee as shown in 2.4.4(A)(8).

The CDL Link may be ordered as OC3c or OC12c Single Route or Diverse Route with Telephone Company provided electronics. OC3c and OC12c rider charges are included in the monthly rate for OC3c and OC12c CDL Links.

The CDL Link may also be ordered as 1.25 Gbps and 2.5 Gbps Single Route or Diverse Route. This CDL Link cannot ride a higher level facility and can only be ordered CDL to CDL.

The CDL Link may be ordered under a one (1) year, three (3) year, five (5) year or seven (7) year TPP.

CDL Link with Optical Cross Connect

The CDL Link with Optical Cross Connect provides the communications path between the Telephone Company provided electronics and a customer's transmission equipment and facilities where the customer is provided EIS as defined in Section 17. This rate element includes the CDL Link from the fiber optic terminal and the optical jumpers to facilitate the cross connect to the customer's transmission equipment and facilities within the Telephone Company wire center.

The CDL Link with Optical Cross Connect will be provided as single route without telephone company provided electronics as OC3, OC3c, OC12 or OC12c as ordered by the customer.

In addition to the rate for the CDL Link with Optical Cross Connect, the appropriate CDL Link rate element is applicable from the customer-designated location to the serving wire center.

The CDL Link with Optical Cross Connect may be ordered under a one (1) year, three (3) year, five (5) year or seven (7) year TPP.

Rates for the CDL Link with Optical Cross Connect are shown in 20(L)(33) will apply in addition to other charges specified in Section 17.

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20 Optical Networking (Cont'd)

(D) Application of Rates and Charges (Cont'd)

(1) CONNECT (Cont'd)

(j) Custom Connect (Cont'd)

Transport

Transport may be ordered as shared or dedicated. Shared Transport is applicable when the transport between nodes and/or Links is ordered at different bandwidth levels. The Dedicated Transport is applicable when transport between the Nodes and/or Links is of the same bandwidth level.

Shared Transport may be ordered in bandwidths of DS1, DS3/STS1, OC3/STM1, E1 or OC12. In Hawaii, shared interisland transport may be ordered for DS3, OC3 and OC12 bandwidths. Dedicated Transport may be ordered in bandwidths of OC3, OC12, OC48, 1.25 Gbps and 2.5 Gbps. The transport is mileage sensitive and will be calculated based on the V&H coordinates of the wire centers comprising each segment of the connect with the exception of shared interisland transport which is non-distance sensitive. The meet point billing mileage calculation is specified in 2.7.3. The customer has the option to subscribe to Banded Optical Transport in place of Customer Connect Shared Transport.

The Transport is provided at a flat-rated monthly recurring charge.

Rider

The Rider is the customer's service(s) traversing the CDL Link. Riders may be provided at DS1, DS3, OC3c, OC12c, STS1, E1 or STM1 bandwidth levels as required by the customer.

The Rider is provided at a flat-rated monthly recurring charge which includes add/drop multiplexing and is applicable per rider circuit with the exception of OC3c and OC12c CDL Links. Express Connect and Flex Express Connect.

Intrastate Riders may be transported on the customer's interstate Optical Networking facility.

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