DEDICATED SONET RING (REGIONS 1 AND 11)

A. AVAILABILITY OF SERVICE (N)

Dedicated SONET Ring was previously offered under FCC Tariff and is limited under this Product Guide to in-Service arrangements in Region 1 or 11 of existing Customers that (i) were grandfathered under FCC Tariff and/or (ii) are not governed by a private carriage agreement. Additions and/or changes are not permitted.

B. SERVICE DESCRIPTION

Verizon Dedicated SONET Ring (**DSR**) provides a Customer a dedicated high capacity customized network. The network is in a ring architecture or topology that assures survivability and can be arranged as a full (closed) ring or as a partial ring. Partial rings are offered on Special Access DSR only. Full rings may subtend (interconnect with) each other as described in Section F following.

DSR is an alternative to basic High Capacity Special Access point-to-point service between multiple Customer locations. DSR is an alternative to basic High Capacity Switched Access premises to hub service between a Customer's location and an end office or tandem office. DSR is, therefore, rated discretely. Rate elements include nodes, port nodes, ports, high speed interfaces (certain partial ring configurations only) and mileage between nodes.

Minimum period obligations can be found in Part 0 Section 9.

Technical specifications for Special Access DSR are set forth in:

GR-253-CORE, Issue 4
GR-1374-CORE, Issue 1
ANSI T1.105.01-2000 (R2005)
IEEE X3.802.3-2005
X3.802.3z-1998

C. FULL RING

A full DSR ring provides connectivity to multiple Customer designated locations (nodes). A full ring must have a minimum of three nodes with at least one of the nodes being located in a Company Central Office (**CO**) and one being located at a Customer premises. One or more full rings may interconnect with each other in a subtending ring configuration as described in Section F following.

D. PARTIAL RING

A partial DSR ring provides connectivity to multiple Customer designated locations (nodes) between fiber meet locations at which high speed interconnection of the Company's backbone network facilities to the Customer's facilities or the facilities of a third party occurs. Partial ring service may only be interconnected to (1) another partial ring provided by the Company or (2) ring facilities provided by the Customer or third party. Subtending rings may not interconnect with, or be associated with, a partial ring. The portion of the ring provided by the Customer or third party must use vendor equipment that matches the equipment used by the Company and must maintain the same vintage in software release as the Company. Upon written notice by the Company, the Customer or third party will have sixty (60) days in which to complete the change out of any software release deployed by the Company.

The partial ring must have a minimum of two devices (enhanced nodes or high speed interfaces) with a device at each fiber meet location and at least one node on the partial ring must be in a CO. When the partial ring is provided over an IntelliLight Optical Transport Service (**IOTS**) or a Company provided DWDM ring service, the IOTS/DWDM ring service device(s) are counted towards satisfying the minimum device requirement at each fiber meet location on the DSR partial ring. High speed interconnection may occur at a Customer's designated premises, a Company central office or a location that is mutually agreeable to both the Customer and the Company (such location will be designated as a premises for the purpose of administering the terms of service set forth in this Product Guide). (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

D. PARTIAL RING (Cont'd) (N)

Fiber Meet

1. When the fiber meet occurs at a Customer's designated premises, the point of interconnection between the Company's facilities and the facilities of the Customer or of a third party shall be a node.

2. When the fiber meet occurs in a Company wire center, high speed interconnection from the device (DSR node, IOTS/DWDM ring service node or IOTS/DWDM ring service amplifier, as applicable) occurs at a collocation arrangement via fiber cross-connects between the Company's fiber optic facilities and the Customer's or third party's facilities.

3. When the fiber meet occurs at a mutually agreed upon location, the point of interconnection shall be a high speed (pass-through) interface.

4. The Company's network design will define the optical parameters at the fiber meet locations. The Company is responsible for the quality and integrity of the high speed optical signal at the fiber meet where its facilities are interconnected to the facilities of the Customer or of the third party. The Company bears no responsibility for the optical parameters beyond the fiber meet (i.e., in the facilities of the Customer or of the third party). The Customer or third party is responsible for engineering its portion of the jointly provided ring. At their option, the Company will engineer the Customer or third party's portion of the ring within the LATA subject to Additional Engineering as set forth in Part 0, Section 6.

5. The Customer must provide the Company with its fiber optic facility requirements (i.e., whether it will use single mode fiber or multi-mode fiber) prior to the Company ordering the necessary SONET network equipment to provide the requested service. The Customer may utilize its own fiber optic facilities or the facilities of a third party.

6. Interconnection to DSR partial ring services may occur (i) at the Customer's designated premises for which interconnection will occur via a node; (ii) in a Company wire center for which interconnection from a device will occur at a collocation arrangement via fiber cross-connects as described in the applicable Company Tariff; or (iii) at a mutually agreed upon location where interconnection occurs via a high speed (pass-through) interface. Interconnection to other Company services may not occur at the mutually agreed upon fiber meet location utilizing a high speed interface.

7. Interconnection to DSR partial ring service is limited to high speed fiber interconnection of the Company's backbone network fiber optic facilities and the fiber optic facilities of the Customer or of a third party.

When ordering lower speed channels that originate at and terminate to nodes which are not within the partial ring provided by the Company, the Customer must provide the Company with a copy of the order. This order provides the Company with authority to perform the necessary mapping of the channel through the partial ring to ensure continuity of the signal over the jointly provided ring. A Channel Mapping nonrecurring charge will apply for each channel mapped through the Company provided partial ring. Channel mapping charges do not apply when ordering channels that originate at and/or terminate to nodes on the Company's portion of the partial ring. (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

E. RING-ON-RING (N)

When DSR is provided in a ring on ring design, the following requirements apply:

- The lower speed ring must have a minimum of two nodes located at the Customer premises or Company wire center.
- The Company must provide the lower speed nodes.
- Each lower speed node must be located at the same Customer premises or Company wire center as its corresponding higher speed node.
- Ring-on-Ring designs may not include a mix of enhanced nodes and those nodes that are not enhanced.

F. SUBTENDING RINGS

The Customer may interconnect two (2) or more full rings in a subtending ring configuration subject to the following:

1. One (1) of the DSR full rings must be designated by the Customer as the main ring from which the other DSR full ring(s) will subtend. The main ring must be of equal or greater capacity than each DSR full ring that subtends the main ring. For example, a main ring that is an OC12 DSR can have an OC3 and/or OC12 subtending ring but cannot have an OC48 subtending ring. The number of rings that can subtend a main ring may be limited by the type and capacity of the nodes and port configuration specific to the Customer's overall DSR service configuration.

2. Interconnection between the main ring and the subtending ring occurs via a port node. A port node provides high speed interconnection between an enhanced node on the main ring and the high speed facilities of the port node on the subtending ring, and applies in lieu of the enhanced node on the subtending ring at that location. Each subtending ring requires one port node at the point of interconnection to the enhanced node on the main ring. Interconnection between the main ring and a subtending ring may occur at a Customer designated premises or within a Company wire center where such nodes are located. Up to two (2) points of interconnection are allowed per subtending ring. A port node is required per point of interconnection.

3. Only DSR full rings that utilize suitably equipped enhanced nodes can be arranged in subtending ring configurations. Subtending ring configurations are not available on DSR full rings utilizing nodes that are not enhanced.

4. Each ring in a subtending ring configuration must be arranged as a unidirectional path switched ring (**UPSR**) and must use enhanced nodes. Bidirectional line switched rings (**BLSR**) may not be arranged in subtending ring configurations.

5. DSR partial rings may not be arranged in subtending ring configurations.

6. Where two (2) points of interconnection between the subtending ring and the main ring are provided, circuits originating on the main ring may be mapped to the subtending ring and circuits originating on the subtending ring may be mapped to the main ring. Channels mapped across the two (2) interconnecting nodes are subject to Dual Node Cross-connect Channel Mapping charges.

7. The main ring and any subtending rings associated with the main ring must individually meet the minimum requirement of three (3) nodes, except that only one (1) node for the entire service configuration must be located in a Company wire center. For example, if the main ring has one (1) node located in a Company wire center and two (2) nodes located at Customer designated premises, the subtending ring(s) need not have a node that is located in a Company wire center. (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

F. SUBTENDING RINGS (Cont'd) (N)

7. (Cont'd)

a. When determining if the minimum number of nodes on a subtending ring has been met, the port node providing interconnection to the main ring is included in the count.

b. When determining if the minimum number of nodes on a subtending ring has been met, the enhanced node on the main ring that interconnects with the subtending ring is not included in the count.

8. Each subtending ring may only interconnect with one (1) main ring.

9. Subtending ring configurations may be established using new DSR full rings, existing DSR full rings, or a combination of new and existing DSR full rings.

10. All DSR rings in the same subtending ring configuration must be billed to the same Customer.

11. Lower speed services provided over DSR must ingress at a node on either ring (the main ring or the subtending ring) and egress at a node on either ring (the subtending ring or the main ring). A single port charge applies at the point of ingress and a single port charge applies at the point of egress, unless the ingress and/or egress occurs via an asymmetrical port facility in which case a separate port charge will not apply for each such ingress or egress.

12. At the Customer's option, a lower level service may interconnect the main and one (1) or more of the subtending ring(s) through two (2) separate points of interconnection with each subtending ring. In this case, a single Dual Node Cross-connect Charge applies per lower level service provided across the interconnecting port nodes, regardless of the number of subtending rings involved. The Dual Node Cross-connect Charge does not apply when a lower level service interconnects the main and subtending ring(s) through a single point of interconnection.

13. In the event that the Customer elects to make a subtending ring an independent full DSR, the independent full DSR ring must meet all of the requirements for a DSR full ring. This may require an additional node in order to satisfy the minimum node requirement for a single, independent ring. (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

G. GENERAL (N)

1. The Customer must provide, at no cost to the Company, suitable and secure space, suitable environmental conditions, and uninterrupted power supply, building entrance facilities, and conduit for placement of the facilities and network equipment at its locations as necessary to provide the service.

2. The Customer will be billed additional charges for any charges levied the Company for space and power required to place ADMs on the Company's side of the network interface.

3. Connections to Other Company provided Services

   a. DSR may connect to IntelliLight Optical Transport Service (**IOTS**) optical transport channels. IOTS combines Dense Wave Division Multiplexing (**DWDM**) and SONET technologies to create a high-speed backbone network configured in a ring architecture. When the DSR partial ring is provided over an IOTS, the IOTS nodes through which the DSR partial ring is configured are included in the minimum device requirement at each fiber meet location for a DSR partial ring.

   b. A Switched or Special Access DSR port may connect to an equal speed IntelliLight Broadband Transport (**IBT**) Service, an equal speed IBT multiplexing node or an equal speed port of a multiplexed IBT service.

   c. Verizon Optical Networking STS1, OC3, OC3c, OC12, OC12c, and OC48 Ethernet-to-SONET mapped services may be connected to Special Access STS1, OC3, OC3c, OC12, OC12c, and OC48 ports, respectively, via symmetrical or asymmetrical port arrangements.

      - In a symmetrical port arrangement, one (1) of such ports applies on the higher-speed node at the Company wire center where the service enters the ring, and a second port of the same capacity applies on the higher-speed node where the service exits the ring. For example, a Verizon Optical Networking OC3c Ethernet-to-SONET mapped service would require two (2) OC3c ports in a symmetrical port arrangement (one port to enter the ring and one port to exit the ring).

      - In an asymmetrical port arrangement, one of such ports referenced above applies on the higher-speed node at the Company wire center where the service enters the ring, and the service exits the ring via the OCn port associated with the Asymmetrical Port Facility. More than one such service referenced above may utilize the same Asymmetrical Port Facility and OCn Port of that Asymmetrical Port Facility. For example, three (3) Verizon Optical Networking OC12 Ethernet-to-SONET mapped services require 3 OC12 ports (one port for each service) to enter the ring, and all 3 of such services could be provided over an OC48 Asymmetrical Port Facility, and exit the ring via the same OC48 port of that facility. The number of services that can exit the ring via the same port is limited by the STS1 capacity utilized for the connecting service. (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

G. GENERAL (Cont'd) (N)

4. Ethernet services are provided on a point-to-point basis (i.e., native Ethernet to native Ethernet) between two suitably equipped DSR premises nodes. Additionally, Verizon Optical Networking Gigabit Ethernet (transmitted at 50, 150, 300, 450, 600 Mbps or Full Rate) may be connected to a DSR OC48 or OC192 enhanced CO node. The connection of Verizon Optical Networking Gigabit Ethernet to DSR will occur via a Special Access DSR GigE-1, 3, 6, 9, 12 or 24 port on the CO node. When Verizon Optical Networking Customers under a three, five, or seven-year commitment period connect their Verizon Optical Networking Gigabit Ethernet service to DSR, the DSR GigE ports must be provided under the same length commitment period. When Verizon Optical Networking Customers under a one-year commitment period connect their Verizon Optical Networking Gigabit Ethernet service to DSR, the DSR GigE ports will be provided at month-to-month rates. Native to native Ethernet services may not be provided over an asymmetrical port facility.

5. When a Customer transmits STS1, Internet Protocol or Ethernet signals, the mapping feature must be designated.

6. Extended Superframe Format (**ESF**) is required on all DS1 circuits in order to ensure performance objectives.

(N)

DEDICATED SONET RING (REGIONS 1 AND 11)

H. SERVICE COMPONENTS (N)

The service components of DSR include:

- Nodes and Subtending Nodes
- Port Nodes
- Ports
- High Speed Interfaces (certain partial ring configurations only)
- Mileage between nodes

1. Nodes and Subtending Nodes

a. The Customer specifies the ring capacity in terms of optical carrier rates. DSR is available in capacities of OC3, OC12, OC48 and OC192. In addition, an OC12/3 node is available on OC12 DSRs. Lower speed channel services are provided between nodes via port designations. DSR may be provided with enhanced nodes that allow for additional port options. Enhanced nodes are available on ring capacities of OC12, OC48, and OC192 for Switched Access services. Enhanced nodes are available on ring capacities of OC3, OC12, OC48, and OC192 for Special Access services.

b. The following ports are accepted speeds on nodes that are not enhanced.

Nodes:	OC3	OC12/3	OC12	OC48	OC192
DS1 Ports	X	X			
DS3 Ports	X	X	X	X	X
STS1 Ports	X	X	X	X	X
OC3 Ports*			X	X	X
OC3c Ports*			X	X	X
OC12 Ports*				X	X
OC12c Ports*				X	X
OC48 Ports*					X
OC48c Ports*					X

* May also be utilized with service connecting to certain advanced data services.

(N)

DEDICATED SONET RING (REGIONS 1 AND 11)

H. SERVICE COMPONENTS (Cont'd) (N)

1. Nodes and Subtending Nodes (Cont'd)

c. The type of ports that are supported on an enhanced node may limit the maximum number of ports that are provided on that node. Upon installation of a new ring, the Customer must provide the Company with an initial port requirement and a forecast of future port requirements on that node which the Company will utilize when engineering the port configuration for that node.

Enhanced Nodes =	OC3	OC12	OC48	OC192
DS1 Ports	X	X	X	X
DS3 Ports	X	X	X	X
DS3 Transmux Ports	X	X	X	X
STS1 Ports	X	X	X	X
OC3 Ports*		X	X	X
OC3c Ports*		X	X	X
OC12 Ports*			X	X
OC12c Ports*			X	X
OC48 Ports*				X
OC48c Ports*				X
Ethernet Ports				
GigE-1 Ports	X	X	X	X
GigE-3 Ports		X	X	X
GigE-6 Ports		X	X	X
GigE-9 Ports		X	X	X
GigE-12 Ports			X	X
GigE-24 Ports			X	X
Storage Interface Ports				
Fibre Channel at 1 Gbps		X	X	
FICON at 1 Gbps			X	X

d. Additional nodes could be required to maintain service quality levels. Generally, a transmission of 20 or more miles or a transmission through 6 or more COs will be subject to loss of signal integrity, and would require an additional node. A regeneration node requires a full capacity node, i.e., an OC12/3 node cannot be used to regenerate transmission on an OC12 ring.

* May also be utilized with service connection to certain advanced data services. (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

H. SERVICE COMPONENTS (Cont'd) (N)

1. Nodes and Subtending Nodes (Cont'd)

e. Except for DSR utilizing enhanced nodes, the Customer may provide a single node and associated port equipment at one of its premises subject to compatibility with the Company's equipment in the COs. This compatibility requires that the Customer, at its own expense, uses matching vendor's equipment and maintains the same vintage in software release as the Company. Upon written notification from the Company, the Customer has 60 days in which to complete the change out of software. In addition, the Customer must configure the node to limit access to the data communications channel of the node.

f. The Company cannot ensure the performance monitoring of the ring when it is equipped with Customer provided nodes.

g. Subtending Nodes

i. A subtending node is an enhanced node that subtends another enhanced node of a higher speed (e.g., an OC12 enhanced node may subtend an OC192 enhanced node).

ii. More than one (1) lower speed enhanced node may subtend the same higher speed enhanced node.

iii. The connection between the higher and lower speed enhanced nodes is a SONET facility (Subtending Node Facility) between an OCn port on the higher speed node and the lower speed node which must be of the same optical carrier rate as the OCn port on the higher speed node.

iv. When the higher speed enhanced node is located at a Customer designated premises, the subtending node(s) must be located at the same Customer designated premises.

v. When the higher speed enhanced node is located at a Company wire center, the subtending node(s) may be located within that same wire center or extended to a Customer designated premises that is served by that wire center or by a different wire center. When extending the subtending node to a Customer designated premises, the subtending node facility is subject to a channel extension charge. When the Customer designated premises is not served by the same wire center as the higher speed enhanced node, mileage applies between the wire centers involved. Mileage applies in addition to the channel extension charge.

h. When a Customer premises node is located in the same building as a CO node, there will be no diversity between the two nodes. (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

H. SERVICE COMPONENTS (Cont'd) (N)

2. Ports

a. Ports may be ordered in a symmetrical arrangement (e.g., DS3 Port to DS3 Port), an asymmetrical arrangement (e.g., OC12 Port to DS3 Port) or in certain transmuxing arrangements as specified preceding. Ports are not provided at mutually agreed upon locations where a high speed (pass-through) interface is utilized.

b. Signals transported over DSR will be mapped as follows:

DS1 mapped as VT1.5
DS3 mapped as STS1
STS1 mapped as STS1
OC3 mapped as 3 STS1s
OC3c* mapped as one STS3c channel or STS1-3v
OC12 mapped as 12 STS1s
OC12c* mapped as one STS12c channel or STS1-12v
OC48 mapped as 48 STS1s
OC48c* mapped as one STS48c channel or STS1-48v
Gigabit Ethernet* (available with enhanced nodes only)
GigE1 (mapped as 1 STS1 or STS1-1v channel)
GigE3 (mapped as a STS1-3v channel or 1 STS3c channel)
GigE6 (mapped as a STS1-6v channel or 1 STS6c channel)
GigE9 (mapped as a STS1-9v channel or 1 STS9c channel)
GigE12 (mapped as a STS1-12v channel or 1 STS12c channel)
GigE24 (mapped as a STS1-21v channel or 1 STS24c channel)
Storage Interface* (available with enhanced nodes only)
Fibre Channel (mapped as a STS1-19v channel)
FICON (mapped as a STS1-19v channel)

c. Asymmetrical Ports

i. Asymmetrical ports allow lower level services to be added to, and dropped from, DSR using ports with different transmission rates. For example, a DS1 channel can be added to the ring via a DS3 port and dropped from the ring via a DS1 port. These lower level services may originate and/or terminate at locations that are on or off of the DSR.

ii. For OCn ports, the port with the higher transmission rate uses a facility (Asymmetrical Port Facility or (APF), which is also referred to as a Stub Hub), which is channelized to individual services requiring lower capacity facilities and lower capacity ports. Only one (1) such higher transmission rate OCn port applies per asymmetrical port arrangement. The number of lower capacity services that can utilize the same Stub Hub is limited by the total STS1 capacity of the connecting services. Available transmission rates for the APF are dependent on the capacity of the port to which it is connected. For example, an OC12 APF cannot be established on an OC3 Port. Additionally, the capacity of the port is dependent on the capacity of the node involved.

* Special Access Ports only (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

H. SERVICE COMPONENTS (Cont'd) (N)

2. Ports (Cont'd)

c. Asymmetrical Ports (Cont'd)

iii. The APF provides a two-point channelized facility between a Customer designated premises or a Collocated Interconnection arrangement and the OCn higher transmission rate port of the asymmetrical port combination. Such port may be associated with a node that is located at either the Customer designated premises or within a Company wire center.

1. When the APF is located at the Customer's designated premises, the APF is provided between the Customer's designated premises and the port on the associated node located at that same premises. Rates and charges for the port apply.

- When the APF is located in a Company wire center and the APF connects to a Customer designated premises that is served by the same wire center, an asymmetrical port channel extension applies to extend the APF to the Customer designated premises. Rates and charges for the asymmetrical port channel extension apply in addition to the rates and charges for the port.

- When the APF is located in a Company wire center and the APF connects to a Customer designated premises that is served by a different wire center, an asymmetrical port channel extension and mileage applies to extend the APF to the Customer designated premises. Rates and charges for the asymmetrical port channel extension and mileage apply in addition to the rates and charges for the port.

- When the APF is located in a Company wire center and the APF connects to a Collocated Interconnection arrangement that is located within the same wire center as the node, a port charge applies.

- When the APF is located in a Company wire center and the APF connects to a Collocated Interconnection arrangement that is not located within the same wire center as the node, mileage applies to extend the APF to the Collocated Interconnection arrangement. Rates and charges for the mileage apply in addition to the rates and charges for the port.

- Channel termination or cross-connect charges apply in addition to the port, asymmetrical port channel extension, and mileage charges. Cross-connection to Collocated Interconnection Service arrangements apply in accordance with the applicable Company Tariff. (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

(N)

H. SERVICE COMPONENTS (Cont'd)
2. Ports (Cont'd)
c. Asymmetrical Ports (Cont'd)

iv. Asymmetrical ports are available in the following combinations:

Ring Capacity	APF Rate	Asymmetrical Port Combinations
OC3 DSR Ring	N/A	DS3 Transmux - DS1*
	STS-1	STS1 - DS3 STS1 - DS1*
OC12 DSR Ring	N/A	STS1 - DS3 DS3 Transmux - DS1*
	OC3	OC3 - STS1 OC3 – DS3 OC3 - DS1* OC3 - GigE3* OC3 - GigE1*
OC48 DSR Ring	N/A	STS1 - DS3 DS3 Transmux - DS1*
	OC12	OC12 - OC3 OC12 – OC3c OC12 - STS1 OC12 - DS3 OC12 - DS1* OC12 – GigE12* OC12 – GigE9* OC12 - GigE6* OC12 - GigE3* OC12 - GigE1*
	OC3	OC3 - STS1 OC3 - DS3 OC3 - DS1* OC3 - GigE3* OC3 - GigE1*

* Requires enhanced node. For Ethernet (GigE) port options, the associated Ethernet Service must be SONET mapped.

(N)

DEDICATED SONET RING (REGIONS 1 AND 11)

H. SERVICE COMPONENTS (Cont'd) (N)

2. Ports (Cont'd)

c. Asymmetrical Ports (Cont'd)

iv. Asymmetrical ports are available in the following combinations:

Ring Capacity	APF Rate	Asymmetrical Port Combinations
OC192 DSR Ring	N/A	STS1 - DS3 DS3 Transmux - DS1*
	OC48	OC48 – OC12 OC48 – OC12c OC48 – OC3 OC48 – OC3c OC48 – STS1 OC48 - DS3 OC48 – DS1* OC48 – GigE24* OC48 – GigE12* OC48 – GigE9* OC48 - GigE6* OC48 - GigE3* OC48 - GigE1*
	OC12	OC12 – OC3 OC12 – OC3c OC12 – STS1 OC12 - DS3 OC12 – DS1* OC12 – GigE12* OC12 – GigE9* OC12 - GigE6* OC12 - GigE3* OC12 - GigE1*
	OC3	OC3 – STS1 OC3 - DS3 OC3 – DS1* OC3 - GigE3* OC3 - GigE1*

* Requires enhanced node. For Ethernet (GigE) port options, the associated Ethernet Service must be SONET mapped. (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

H. SERVICE COMPONENTS (Cont'd) (N)

2. Ports (Cont'd)

d. Transmux Ports

i. The DS3 Transmux Port performs a DS3 to DS1 conversion at an Enhanced DSR node. The DS3 to DS1 conversions allows a single DSR DS3 Transmux port to be a facility associated with up to twenty-eight (28) VT1.5 mapped DSR DS1 ports. Transmuxing is only available on an enhanced node and where suitable facilities and equipment exist to provide the DS3 Transmux Port.

ii. DS3 Transmux Ports utilize a DS3 Transmux Facility to which VT1.5 mapped DSR DS1 ports are associated. Such facility will be provisioned upon ordering the associated DS3 Transmux port.

iii. When transmuxing arrangements are ordered in symmetrical or asymmetrical port combinations, the following conditions apply:

- A DS1 port associated with a DS3 Transmux port and facility may not coexist as a separate DS1 port with the same DSR node.
- DS3 Transmux ports are available on enhanced nodes only.
- An end-to-end DS1 service provided over DSR may not be associated with more than one DS3 Transmux port or DS3 Transmux Facility.
- DS3 Transmux ports are available at premises nodes or at wire center nodes.
- When a DS3 Transmux port is utilized on an enhanced node located in a Company wire center, such port must be connected to DS3 High Capacity Service.
- The higher speed port of an asymmetrical port combination will be mapped based on the speed of the connecting service and port.

e. Storage Interface Ports

i. The FICON Storage Interface Port provides an optical transport channel for transmission of 1 Gbps Fibre CONnection among mainframes, storage devices and on a single channel. A FICON signal is limited to a maximum distance of 100km (physical route kilometers) between the locations involved.

ii. The Fibre Channel Storage Interface Port provides an optical transport channel for transmission of 1 Gbps signals in a serial link between supercomputers, mainframes, workstations, desktop computers, storage devices, displays and other peripherals. A Fibre Channel signal is limited to a maximum distance of 100 km (physical route kilometers) between the locations involved. (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

H. SERVICE COMPONENTS (Cont'd) (N)

3. High Speed (Pass-Through) Interfaces

A High Speed (Pass-Through Interface applies at a mutually agreed upon location associated with partial ring DSR. The High Speed (Pass-Through) Interface applies in lieu of a node at such location.

4. Mileage

a. DSR Mileage on a full ring is the total of airline distances between nodes rounded up to the nearest mile.

b. DSR Mileage on a partial ring is the total of airline distances between fiber meet locations (Customer designated premises, wire center or mutually agreed upon pass-through location, as applicable) and each node on the partial ring. The total mileage is then rounded up to the nearest mile.

c. The mileage rate is based on total ring capacity and not on individual services between nodes. For example, the mileage charge for a four-node OC3 ring with 5.1 miles between each node (20.4 total miles) would be calculated by multiplying the OC3 mileage rate by 21 miles. This mileage calculation applies regardless of the number of services (e.g., DS3s) on the ring.

d. When DSR is provided entirely or in part over an IntelliLight Optical Transport Service (IOTS) backbone network, connection between the DSR nodes is provided using IOTS optical transport channels in lieu of DSR channel mileage between the nodes.

e. When DSR is provided entirely or in part over a Company provided DWDM ring service backbone network, DSR channel mileage will not apply between the nodes.

5. Port Nodes

A port node allows interconnection between two (2) full DSR rings. One (1) of the rings will be designated as the main ring and the other ring is designated as a subtending ring. (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

I. APPLICATION OF RATES AND CHARGES (N)

1. All monthly recurring rate elements for DSRs are available for 3, 5, and 7-Year commitment periods. DSR ports and asymmetrical port facilities are also available on monthly terms. Nodes, port nodes, optional features, subtending node facilities, asymmetrical port facilities, and ports* added subsequent to the initial installation may be coterminous to the expiration date of the DSR provided the addition is prior to the 21st month for a 3-year plan, prior to the 36th month for a 5-year plan, or prior to the 50th month for a 7-Year plan. Ports and asymmetrical port facilities in a Month-to-Month plan may be added at any time.

2. Nonrecurring Charges

a. First and Additional Nonrecurring Charges for Ports

i. The First Nonrecurring Charge applies to the first of each port type and speed installed at a node. The Additional Nonrecurring Charge applies for each additional port of the same type and same speed added at the same node on the same order. For example, if a Customer places an order for ten (10) GigE3 Ports at the same OC48 node, one First Nonrecurring Charge and nine Additional Nonrecurring Charges will apply for the GigE3 Ports. With the exception of Storage Interface Ports, the charge will vary based on whether the installation is in connection with the initial installation of the DSR service or a subsequent installation of ports.

ii. With the exception of Storage Interface Ports, nonrecurring charges for DSR ports purchased on a month-to-month plan at the initial installation of DSR service apply on a first and additional basis.

iii. With the exception of Storage Interface Ports, nonrecurring charges for DSR ports purchased under a term plan apply on a first and additional basis for each DSR port that is ordered subsequent to the initial installation of DSR Service.

iv. For Storage Interface Ports purchased on a month-to-month basis, nonrecurring charges apply to the installation of ports on a first and additional basis regardless of whether the installation of such Storage Interface Port is in connection with the initial or subsequent installation of DSR.

v. Changes in Month-to-Month billed ports or changes in term plan billed port nodes, are treated as disconnects and subsequent installations for which subsequent nonrecurring charges apply.

b. Nonrecurring charges for DSR nodes apply to all nodes and port nodes installed subsequent to the initial installation of DSR.

c. A Channel Mapping nonrecurring charge applies for each channel which the Company must map over the partial ring. Channel mapping is only required on channels that originate at and terminate to devices that are not within the partial ring.

* A mix of enhanced nodes and those nodes that are not enhanced is prohibited. Ports requiring enhanced nodes may not be added to nodes that are not enhanced. (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

I. APPLICATION OF RATES AND CHARGES (Cont'd) (N)

2. Nonrecurring Charges (Cont'd)

d. When a lower capacity service is dropped from a DSR Ring, the associated ports will be billed to the lower capacity service. Lower capacity services may not be dropped at locations utilizing a pass-through interface. However, a Channel Mapping Charge will apply for each lower capacity service that originates at and terminates to devices that are not within the partial ring provided by the Company. The Channel Mapping Charge is billed to the lower capacity service.

e. When a lower capacity service is provided between two (2) separate asymmetric port facilities (**APF**) on the same DSR, the Company must map the facility assignment on the first APF to the facility assignment on the second APF for which an Asymmetrical Port Mapping Nonrecurring Charge applies per lower capacity service mapped.

f. A single Dual Node Cross-connect Charge applies per lower level service provided across the interconnecting port nodes of a subtending ring(s) configuration, regardless of the number of subtending rings involved. Dual Node Cross-connect Charges apply for each channel which the Company must cross-connect between the port nodes of the interconnecting ring(s).

3. When a node is disconnected prior to the end of the commitment period, the node is subject to termination liability Section J following.

4. Changes from OC12 to OC12/3 and OC12/3 to OC12 Nodes are treated as upgrades. Subsequent installation nonrecurring charges are applicable.

5. Where an Ethernet, Fibre Channel, or FICON signal is mapped to a SONET service, and that SONET service is provided in a symmetrical port arrangement, two (2) OCn ports apply (one where the mapped signal enters the ring and one where the mapped signal exits the ring).

6. Where one or more Ethernet, Fibre Channel or FICON signals are mapped to a SONET service, and that SONET service utilizes an asymmetrical port combination (e.g., the signals enter the ring mapped to an OC12 SONET service and exit the ring via an OC48 port associated with an asymmetrical port facility), only one OCn port applies per mapped signal to enter the ring and the signal exits the ring over the asymmetrical port facility. The total number of such mapped Ethernet, Fibre Channel, or FICON signals that can be associated with the OCn Port of the asymmetrical port facility is limited by the STS1 capacity required to map each signal into the SONET service. For example, assume that an OC48 APF is ordered for which an OC48 port, OC48 mileage, and, when applicable, an OC48 Extension applies (an OC48 has a capacity of 48 STS1s). Further assume that 2 Verizon Optical Networking 600 Mbps Ethernet-to-SONET mapped services are ordered, each of which requires 6 STS1s when mapped into an OC12 SONET signal. In this example, the OC48 asymmetrical port arrangement would still have 36 available STS1s.

7. Changes in Month-to-Month billed asymmetrical port facilities are treated as disconnects and subsequent installations. (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

J. TERMINATION LIABILITY (N)

1. Unless otherwise set forth in this Section J, termination liability applies when DSR service is terminated prior to the end of the applicable commitment term. Termination liability is charged per monthly rate element on all nodes, port nodes, high speed (pass-through) interfaces, subtending node facilities or asymmetrical port facilities, and ports (other than Month-to-Month billed ports for which the one month minimum service charge applies).

2. A separate termination liability charge is assessed for each rate element associated with the disconnected DSR service.

3. DSR service may be canceled without termination liability when cancellation of the DSR service occurs within thirty (30) days of the effective date of a Company initiated rate increase of eight percent (8%) or more on any rate applicable to the DSR service.

4. Termination liability will not apply on any DSR service if a Customer changes to a longer term commitment period for such service under a private carriage agreement.

5. Termination liability will not apply to a Customer upgrade (change to a higher capacity DSR service) under a private carriage agreement, if all of the following conditions are met.

   a. A new commitment period commences with the upgrade.
   b. The new expiration date extends beyond the discontinued plan date.
   c. The upgrade consists of either one (1) existing DSR service being upgraded into a higher capacity DSR service or two (2) existing DSR services being upgraded into a single, higher capacity DSR service.
   d. The new DSR service has at least one Customer premises Node and one CO Node in common with the discontinued service(s).
   e. When two (2) existing DSR services are being upgraded into a single, higher capacity DSR service, the aggregate amount of all monthly charges for the nodes and ports included under the new commitment period is at least 25% greater than the aggregate amount of the monthly charges remaining in the commitment period for the nodes and ports being disconnected.

   For illustrative purposes, assume the following:

   - Customer has 2 separate OC3 DSR services
   - One OC3 DSR is in its twenty-fourth (24th) month of a 3-year term plan (i.e., 12 months remain in the term commitment period) and is configured with 3 nodes and 6 ports (Ring A)
   - The other OC3 DSR is in its twenty-first (21st) month of a 3-year term plan (i.e., 15 months remain in the term commitment period) and is configured with 3 nodes and 6 ports (Ring B)
   - The Customer is upgrading Rings A & B to a single OC12 DSR with a term plan of 3 years that is to be configured with 3 nodes and 6 ports (Ring C)

   Based on the above assumptions, the following calculations are used to determine if the aggregate amount of monthly charges for the commitment period of Ring C is greater than the combined aggregate amount of monthly charges for the remainder of the commitment periods on Rings A & B and therefore, whether or not termination liability will apply to Rings A & B for the upgrade.

(N)

DEDICATED SONET RING (REGIONS 1 AND 11)

J. TERMINATION LIABILITY (Cont'd) (N)

5. (Cont'd)

e. (Cont'd)

Step 1 – Determine the amount of monthly charges remaining on Ring A for the balance of the term commitment by multiplying the monthly rates for the 3 nodes and 6 ports (assume $4680 per month) by the 12 months remaining in the term commitment = $56,160.

Step 2 - Determine the amount of monthly charges remaining on Ring B for the balance of the term commitment by multiplying the monthly rates for the 3 nodes and 6 ports (assume $4680 per month) by the 15 months remaining in the term commitment = $70,200.

Step 3 – Determine the combined aggregate amount of monthly charges remaining for Rings A & B by summing the amounts determined in Steps 1 and 2 ($56,160 + $70,200 = $126,360).

Step 4 – Determine the aggregate amount of monthly charges associated with Ring C by multiplying the monthly rates (assume $9390) by 36 months for the term commitment = $338,040.

Step 5 – Determine the difference between the monthly charges for the existing service and the monthly charges for the upgraded service by subtracting the combined aggregate amount determined in Step 3 from the aggregate amount determined in Step 4 ($338,040 - $126,360 = $211,680).

Step 6 - Divide the result obtained in Step 5 by the aggregate amount determined in Step 3 ($211,680/$126,360 = 1.675). Convert the decimal amount to a percentage by multiplying by 100 (1.675 x 100 = 167.5%).

If the result is equal to or greater than 25%, then the upgrade occurs without the application of termination liability on Rings A & B. If the result is less than 25%, termination liability applies to Rings A & B in accordance with this Section J. Standard rounding rules apply. For this example, the result is 167.5%; therefore, termination liability does not apply.

Additional nodes and ports added at the time of the upgrade incur all applicable rates.

f. Termination liability will apply when none of the conditions above are met and the Customer cancels service prior to expiration of the plan period. If the cancellation occurs within the first two years of a term plan, termination liability is equal to 100 percent of the monthly charges for the unexpired portion of the first two years, and 25 percent of the monthly charges for the remainder of the plan. If the Customer cancels after the first two years of service, then termination liability is equal to 25 percent of the monthly charges for the remaining life of the term.

g. For DSR with a commitment period which was extended, termination liability is calculated as the difference between the monthly rates for the highest Term Pricing Plan commitment period that could have been satisfied prior to disconnection of the service or cancellation of the plan and the monthly rates already paid for the expired commitment period and the extended commitment period for the period of time the service was in effect. (N)

DEDICATED SONET RING (REGIONS 1 AND 11)

K. SHARED USE

1. Shared use is permitted whenever Switched Access is provided over the same Special Access DSR. Special Access DSR node, mileage and port rate elements will apply, regardless of whether individual channelized services of the shared use facility are used for Special Access Service, Switched Access Service, or any other type of service. Notwithstanding any provision of this Product Guide, the practice known as “ratcheting” (to apply non-Special Access rates on a proportional basis) shall not apply in any circumstance. (C) (C) (D) (D)

2. Shared use and Switched Access Services are prohibited on DSR partial ring configurations. (T)