

Verizon New England Inc.

1. Advanced Data Services**1.1 Terminology**

1.1.1. Definitions of Terms and Abbreviations	
A.	ACCESS LINE - A local Channel for voice, data, or video communications which connects the Customer location to a location of Verizon or its underlying carrier or service provider.
B.	ADDITIONAL LOGICAL CHANNELS - Additional communications channels on a given Network Address allowing Customer to establish permanent virtual circuits between multiple locations and maintain a high degree of flexibility in configuring the network.
C.	BURSTING – Bursting is the ability to temporarily exceed Committed Information Rate (CIR) which is the average rate one can send data through the Frame Relay network. The Verizon Frame Relay Service allows data to be sent two times the CIR into the Frame Relay network in one second. For example, if the UNI's access circuit is 10 MBPS and the PVC's Committed Information Rate (CIR) is 5 MBPS, then data could be sent 10 MBPS into the network over that PVC in one second, with additional data being discarded.
D.	COMMITTED INFORMATION RATE (CIR) – A feature that provides Customers with a mechanism for prioritizing data on a per Permanent Virtual Circuit (PVC) basis across a given User Network Interface (UNI). A CIR allows a sustained throughput at a chosen rate without having any frames designated “discard eligible” under normal operating conditions.
E.	DEDICATED ACCESS - A dedicated communications channel that terminates on a switch facility provided by Verizon or Verizon's underlying carrier or service provider.
F.	DS0 - Transmission bandwidth capable of supporting digital bit rates of up to 56 kilobits per second (KBPS).
G.	DS1 PORT CONNECTION - An interface on the Frame Relay network which terminates a Customer's 1.536 megabits per second (MBPS) circuit.
H.	DS3 PORT CONNECTION - An interface on the Frame Relay network which terminates a Customer's 44.736 megabits per second (MBPS) circuit.
I.	GROOMING - Allows the connection of up to 24 DS0 channels, or one or more Fractional DS1 channels to a single DS1 channel. Grooming also allows the connection of up to 28 DS1 channels to a single DS3 channel.
J.	HUB - Verizon designated serving wire center which is equipped to provide private line service.
K.	LOGICAL CHANNEL - A communications channel that allows transmission of sequenced data packets through one network. One logical channel comes standard with one 56 KBPS, 384 KBPS, and 1.536 MBPS Frame Relay UNI Port with Access Line.
L.	NETWORK ADDRESS - The numeric characters representing the origination or destination point (i.e., the Subscriber Network Access Line) for each dedicated circuit accessing the Frame Relay network. The Network Address is numbered in number format. One Network Address comes standard with one Subscriber Network Access Line.

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1.1 Terminology

1.1.1. Definitions of Terms and Abbreviations	
M.	NETWORK MAP – The complete configuration of the Customer's frame relay subscriber network access lines and permanent virtual circuits, as defined by the interconnectivity of network addresses and logical channels.
N.	NETWORK TO NETWORK INTERFACE (NNI) – The NNI port configuration is used for connecting two networks together for bi-directional messaging.
O.	PERMANENT VIRTUAL CIRCUITS (PVC) – Are the electronic equivalent of a private line between two points.
P.	PORT CONNECTION – The point of entry into a public Frame Relay Network service.
Q.	PREMISES – The physical space designated by the Customer for the termination of the Company's service.
R.	USER TO NETWORK INTERFACE (UNI) – A standard interface used to connect the end user to the Frame Relay Service network. It receives the data frame from the Customer's Local Area Network (LAN) or other Customer Provided Equipment (CPE) devices and verifies that the Data Link Connection Identifier (DLCI) is valid before relaying the frame to the destination end point. The DLCI is a Frame Relay term defining a 10-bit field of the address field, and identifies data links and their service parameters.

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1. Advanced Data Services**1.2 Application of Rates**

1.2.1. Availability of Service

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| A. | Any telecommunications services provided under this Product Guide at retail to Customers who are not telecommunications carriers are available at wholesale rates to telecommunications carriers pursuant to 47 U.S.C. §251(c)(4) of the Telecommunications Act of 1996. |
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Effective: March 31, 2021

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1. Advanced Data Services

1.5 Enhanced Dedicated SONET Service

1.5.1	Definitions										
Add/Drop Multiplexing (ADM) - a multiplexing function that allows lower level signals to be added or dropped from an optical carrier channel.											
Node - an Enhanced Dedicated SONET Service (EDSS) rate element and a designation of either a customer location or Central Office on a SONET ring that has ADM capability. It is also the address of where a channelized (lower speed) service originates or terminates on a ring.											
High Speed Interface - an EDSS rate element on a partial ring service that allows high-speed connection of Verizon's facilities to the facilities of the customer or of a third party. High-speed connection is provided at a location that is mutually agreed upon by Verizon and the customer.											
Optical Carrier Rate (OC #) - a SONET transmission signal/speed, line rate, or service. The rates are in multiples of an OC1, which is equivalent to an Synchronous Transport Signal (STS1) Level (51.84 Mbps), SONET's basic rate: <table><tr><th><u>OC(#) Rate</u></th><th><u>Bandwidth Capacity</u></th></tr><tr><td>3</td><td>155.52 Mbps</td></tr><tr><td>12</td><td>622.08 Mbps</td></tr><tr><td>48</td><td>2.488 Gbps</td></tr><tr><td>192</td><td>9.952 Gbps</td></tr></table>		<u>OC(#) Rate</u>	<u>Bandwidth Capacity</u>	3	155.52 Mbps	12	622.08 Mbps	48	2.488 Gbps	192	9.952 Gbps
<u>OC(#) Rate</u>	<u>Bandwidth Capacity</u>										
3	155.52 Mbps										
12	622.08 Mbps										
48	2.488 Gbps										
192	9.952 Gbps										
Optical Carrier Rate Concatenated (OC#c) - a clear channel SONET transmission using only one framing format. Generally, an OC3 signal provides three Synchronous Transport Signal (STS1) frame formats with 3 overheads for a total capacity of 2268 bytes per Synchronous Payload Envelope (SPE) frame; in an OC3c signal, one STS3c frame format is used with one overhead, increasing the total payload capacity to 2340 bytes per SPE frame.											
OC12+3, OC48+3,OC192+3,OC192+12,and OC192+48 - designations for nodes in ring-on-ring designs; the higher speed ADM is part of the true ring, and the lower speed ADM is connected for the purpose of mapping lower speed services onto the STS1s of the OC12, OC48 or OC192.											
Port - an EDSS rate element that denotes the interface at which a channelized or lower speed service terminates or originates at an EDSS node.											
Synchronous Optical NETWORK: (SONET) – a standard for the transmission of high capacity bandwidth over optical facilities. This synchronous transmission platform utilizes a modular multiplexing approach. Because of the large bandwidth, some of the payload is used to monitor, protect, manage and improve the transmission of the signal.											
Synchronous Transport Signal Level (STS1) - a 51.84 Mbps signal that is the electrical equivalent of the OC1 or a DS3 with additional Mbps devoted to SONET overhead information. An STS1 can carry a DS3 or 28 DS1s when specifically formatted (Mapped). These DS1s may be accessed off-ring using a DS3 to DS1 multiplexing optional service or via a DS3 Transmux port											
Transmuxing - the function of an EDSS DS3 Transmux port that performs a DS3 to DS1 conversion at an EDSS Node. The DS3 to DS1 conversion allows a single EDSS DS3 Transmux port to be associated with up to twenty-eight (28) Virtual Tributary VT1.5 mapped EDSS DS1 ports. Transmuxing within the EDSS network retains DS1 visibility allowing for full, proactive maintenance capability of DS1 signals.											
Virtual Tributary (VT) - a SONET structure designed for transport of sub-STs1 payloads. A DS1 is mapped into the SONET format using a VT1.5 as a packaging mechanism that is internal to the SONET signal.											

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1. Advanced Data Services

1.5 Enhanced Dedicated SONET Service

Rates and charges for services explained herein are contained in Part M, Section 6.

1.5.2	Description
A.	Verizon's Enhanced Dedicated SONET Service (EDSS) is an optical high capacity service provided using SONET-based technology. EDSS is provided on SONET facilities except where a service is extended on an "off-net" facility. EDSS provides the customer a dedicated high capacity customized network. The network is in a ring architecture or topology that assures greater survivability and can be arranged as a full ring or as a partial ring that provides connectivity to multiple customer locations. 1. A full ring must have a minimum of three nodes with at least one of the nodes being located in a Verizon Central Office (CO) and one being located at a customer premises. The fiber path is such that when traversing the ring, the starting node and the end node are the same. 2. A partial ring must have a minimum of two nodes with at least one of the nodes being located in a CO and one being located at a customer premises. The customer premises node can be substituted with a high-speed interface if the customer circuits that are provisioned on the partial ring are connected in a CO. The fiber path is such that when traversing the ring, the starting node and the end node are different. 3. There is third network type known as ring-on-ring, which is a full ring riding over a bigger full ring.
B.	EDSS is an alternative to basic High Capacity point-to-point service between multiple customer locations. It is, therefore, rated discretely. Monthly rate elements include ports, nodes, mileage and high-speed interfaces (certain partial ring configurations only). When a DS1 service is provided between a DS1 port on an OC3 EDSS CO node and a channel of a multiplexed 44.736Mbps or groomed NES DS3 facility, a ThruPath Connection nonrecurring charge applies. ThruPath connections at service levels less than, or greater than, DS1 are prohibited with EDSS.

1.5.3	Technical Specifications
A.	Technical specifications are delineated in the following publications: 1. Telcordia Document GR-253-CORE; Issue 2, December 1995; Revision 1, December 1997 "Synchronous Optical Network (SONET) Transport Systems: Common Generic Criteria;" 2. Telcordia Document GR-1374-CORE; Issue 1, December 1994; "SONET Inter-Carrier Interface Physical Layer Generic Criteria for Carriers;" 3. American National Standard, ANSI T1.105-1995; "Synchronous Optical Network (SONET) - Basic Description including Multiplex Structure, Rates and Formats;" 4. Telcordia Document GR-1377-CORE; Issue 5, December 1998; "SONET OC192 Transport System Generic Criteria;" 5. American National Standard, ANSI X3.802.3, Telecommunications and information exchange between systems-Local and Metropolitan Areas Networks-Specific Requirements-Part 3, Released 1998; and, 6. American National Standard, ANSI X3.802.3z, Supplement to Standard for Information Technology-Local and Metropolitan Area Networks, Part 3, Released 1998.

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1.5 Enhanced Dedicated SONET Service

1.5.4 Terms and Conditions	
A.	Provision of Service
1.	All Rings
a.	When a customer premises node is located in the same building as a CO node, there may be diminished survivability between the two nodes.
b.	When a customer transmits STS1, Internet Protocol or Ethernet signals, the mapping feature must be designated.
c.	Ethernet services are provided on a point-to-point basis between two suitably equipped EDSS nodes; that is, two premises nodes or a premises node and a CO node.
d.	Extended Superframe Format (ESF) is required on all DS1 circuits in order to ensure performance objectives.
e.	Additional nodes may 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.
f.	The customer specifies the ring capacity in terms of optical carrier rates. EDSS is available in capacities of OC3, OC12, OC48 and OC192. Lower speed channel services are provided between nodes via port designations.
g.	EDSS is available based on negotiated intervals. Since EDSS provides a dedicated high capacity customized network, it is deployed upon customer request. Where suitable SONET facilities are not generally available, Special Construction rates and charges apply.
h.	The customer must provide, at no cost to Verizon, 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.
i.	One or more lower speed node(s) may subtend a higher speed node (e.g., an OC12 node may subtend an OC192 node). Rates and charges apply for both the higher speed node and for each subtending lower speed node provided. Additionally, the applicable port charge will apply to drop the lower speed channel that connects the higher speed node to the subtending lower speed node.

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1.5 Enhanced Dedicated SONET Service

1.5.4 Terms and Conditions	
A.	Provision of Service (Continued)
2.	Partial Ring When EDSS is provided in a partial ring configuration, the following applies: a. The customer must provide Verizon with its fiber optic facility requirements (i.e., whether it will use single mode fiber or multi-mode fiber) prior to Verizon 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. b. When ordering lower speed channels that originate at and terminate to nodes that are not within the partial ring provided by Verizon, the customer must provide Verizon with a copy of the order. This order provides Verizon 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 Verizon provided partial ring. The Channel Mapping charge applies to each lower capacity service that originates at and terminates to devices that are not within the partial ring provided by Verizon. The Channel Mapping charge is billed to the lower capacity service. Channel mapping charges do not apply when ordering channels that originate at and terminate to nodes on Verizon's portion of the partial ring. c. Connection to Partial Ring Service: Verizon's network design will define the optical parameters at the connection locations. Verizon is responsible for the optical parameters of the high-speed optical signal at the location where its facilities are connected to the facilities of the customer or of the third party. Verizon bears no responsibility for the optical parameters beyond its location (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. Connection to EDSS partial ring service is limited to high-speed fiber connection of Verizon backbone network fiber optic facilities and the fiber optic facilities of the customer or of a third party. Partial ring service may only be connected to (1) another partial ring provided by Verizon or (2) suitable ring facilities provided by the customer or third party. The portion of the ring provided by the customer or third party must use vendor equipment that matches the equipment used by Verizon and must maintain the same vintage in software release as Verizon. Upon written notice by Verizon, the customer or third party will have sixty (60) days in which to complete the change out of any software release deployed by Verizon. Connection to EDSS partial ring services may occur at the customer premises at which location the connection will occur via a node or at a mutually agreed upon location where connection occurs via a high-speed interface. Connection to other Verizon services may not occur at the mutually agreed upon high-speed interface. Such location will be designated as a customer premises for the purpose of administering the general terms and conditions set forth in this Product Guide.

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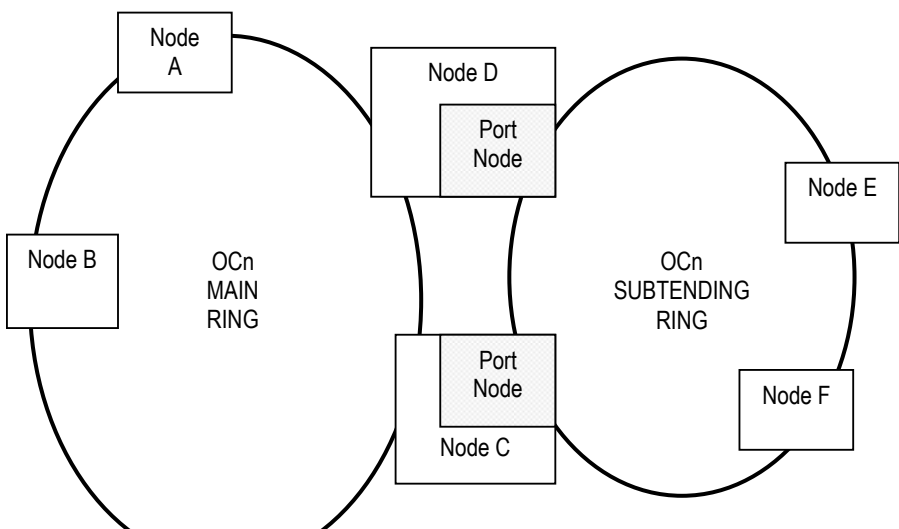
1.5 Enhanced Dedicated SONET Service

1.5.4 Terms and Conditions	
A.	Provision of Service (Continued)
3.	Ring-on-Ring When EDSS is provided in a ring-on-ring design, the following applies: a. The lower speed ring must have a minimum of two nodes located at the customer premises or one node at the customer premises and one node at the CO. b. Verizon must provide the lower speed nodes. c. Each lower speed node must subtend off of its corresponding higher speed node. 4. Subtending Rings The customer may interconnect two (2) or more full rings in a subtending ring configuration subject to the following: a. One (1) of the EDSS full rings must be designated by the customer as the main ring from which the other EDSS full ring(s) will subtend. The main ring must be of equal or greater capacity than each EDSS full ring that subtends the main ring. For example, a main ring that is an OC12 EDSS can have an OC3 and/or OC12 subtending ring but can not 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 EDSS service configuration. Changes in month-to-month billed ports are treated as disconnects and subsequent installations. b. Interconnection between the main ring and the subtending ring requires 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 subtending ring. Each subtending ring requires one port node where the subtending ring is interconnected to an 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 wire center where such nodes are located. A maximum of two (2) interconnection points with the main ring are allowed per subtending ring. c. Only EDSS full rings that utilize suitably equipped enhanced nodes can be arranged in subtending ring configurations. Subtending ring configurations are not available on EDSS full rings utilizing nodes that are not enhanced. EDSS partial rings may not be arranged in subtending ring configurations. d. 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. e. 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 as described in 1.5.4.B.m following.

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1.5 Enhanced Dedicated SONET Service

1.5.4 Terms and Conditions	
A.	Provision of Service (Continued)
4.	Subtending Rings (Continued)
f.	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 Verizon wire center. For example, if the main ring has one (1) node located in a Verizon 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 Verizon wire center.
i.	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.
ii	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.
g.	Each subtending ring may only interconnect with one (1) main ring.
h.	Subtending ring configurations may be established using new EDSS full rings, existing EDSS full rings, or a combination of new and existing EDSS full rings.
i.	All EDSS rings in the same subtending ring configuration must be billed to the same customer of record.
j.	An example of a subtending ring configuration with two (2) points of interconnection to the main ring is diagrammed below:
 The diagram illustrates two interconnected rings. The left ring is labeled 'OCn MAIN RING' and contains three nodes: Node A at the top, Node B on the left, and Node C at the bottom. The right ring is labeled 'OCn SUBTENDING RING' and contains three nodes: Node D at the top, Node E on the right, and Node F at the bottom. Two 'Port Node' boxes are positioned between the rings, one connected to Node D and the other to Node C. These Port Nodes are connected to both the Main Ring and the Subtending Ring, creating two distinct points of interconnection. The Port Nodes are shaded gray, while the other nodes are white. Applicable rate elements: - Nodes (6) - Port Node (2) - Mileage for circumference of Main Ring - Mileage for circumference of Subtending Ring	

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1.5 Enhanced Dedicated SONET Service

1.5.4 Terms and Conditions	
A.	Provision of Service
4.	Subtending Rings (Continued)
k.	Lower speed services provided over EDSS 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.
l.	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.
m.	In the event that the customer elects to make a subtending ring an independent full EDSS, the independent full EDSS ring must meet all of the requirements for an EDSS full ring as set forth in 1.5.4.A.1 preceding. This may require an additional node in order to satisfy the minimum node requirement for a single, independent ring. Verizon must provide the lower speed nodes.
n.	The customer must provide, at no cost to Verizon, 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.
o.	The customer will be billed additional charges for any charges levied on Verizon for space and power required to place ADMs on Verizon's side of the network interface.

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1.5 Enhanced Dedicated SONET Service

1.5.4 Terms and Conditions					
A.	Provision of Service (Continued)				
5.	Port Types				
a.	The type of ports that are supported on a node may limit the maximum number of ports that are provided on that node. Accepted port speeds are as follows:				
	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
	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
b.	Changes in month-to-month ports are treated as disconnects and subsequent installations.				
c.	When high capacity services are provided between two EDSS rings, the associated ports must be symmetrical.				
d.	When a lower capacity service is dropped from an EDSS, the associated ports will be billed to the lower capacity service. Lower capacity services may not be dropped at locations utilizing a high-speed interface.				
e.	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 following. Ethernet ports may only be ordered in symmetrical arrangements. Ports are not provided where a high- speed interface is utilized.				
f.	Port node allow interconnection between two (2) full EDSS rings. One (1) of the rings will be designated as the main ring and the other ring is designated as a subtending ring. Subtending rings are described in 1.5.4.A.4.				

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1.5 Enhanced Dedicated SONET Service

1.5.4 Terms and Conditions																			
A.	Provision of Service (Continued)																		
5.	Port Type (Continued)																		
g.	When transmuxing arrangements are ordered in symmetrical or asymmetrical port combinations, the following conditions apply: - A DS1 port associated with a DS3 Transmux port may not coexist as a separate DS1 port with the same EDSS node. - An end-to-end DS1 service provided over EDSS may not be associated with more than one DS3 Transmux port. - DS3 Transmux ports are available at premises nodes or at CO nodes. - The higher speed port of an asymmetrical port combination will be mapped based on the speed of the connecting service and port.																		
h.	For all other asymmetrical port combinations, the following conditions apply: - The higher speed port will be mapped based on the speed of the connecting service and port. The higher speed port is referred to as a Stub Hub Port in the arrangement. - The Stub Hub Port is only available at a premises node. - Asymmetrical port arrangements (Stub Hubs) are not provided on partial ring configurations. - The lower speed port(s) can be provided at customer premises and CO nodes.																		
i.	Asymmetrical ports are available in the following combinations: <table> <tr> <th><u>APF Asymmetrical Port</u></th><th><u>Ring Capacity</u></th><th><u>Node Speed</u></th><th><u>Rate Combinations</u></th></tr> <tr> <td>OC3 EDSS Ring</td><td>OC3 - OC3</td><td>STS1</td><td>STS1 – DS3 STS1 – DS1</td></tr> <tr> <td>OC12 EDSS Ring</td><td>OC12 - OC12</td><td>OC3</td><td>OC3 – STS1 OC3 – DS3 OC3 – DS1 OC3 – GigE3 OC3 – GigE1</td></tr> <tr> <td>OC48 EDSS Ring</td><td>OC48 - OC48</td><td>OC12</td><td>OC12 – OC3 OC12 – OC3c OC12 – STS1 OC12 – DS3 OC12 – DS1 OC3 – GigE12* OC3 – GigE9* OC3 – GigE6* OC3 – GigE3* OC3 – GigE1*</td></tr> </table>			<u>APF Asymmetrical Port</u>	<u>Ring Capacity</u>	<u>Node Speed</u>	<u>Rate Combinations</u>	OC3 EDSS Ring	OC3 - OC3	STS1	STS1 – DS3 STS1 – DS1	OC12 EDSS Ring	OC12 - OC12	OC3	OC3 – STS1 OC3 – DS3 OC3 – DS1 OC3 – GigE3 OC3 – GigE1	OC48 EDSS Ring	OC48 - OC48	OC12	OC12 – OC3 OC12 – OC3c OC12 – STS1 OC12 – DS3 OC12 – DS1 OC3 – GigE12* OC3 – GigE9* OC3 – GigE6* OC3 – GigE3* OC3 – GigE1*
<u>APF Asymmetrical Port</u>	<u>Ring Capacity</u>	<u>Node Speed</u>	<u>Rate Combinations</u>																
OC3 EDSS Ring	OC3 - OC3	STS1	STS1 – DS3 STS1 – DS1																
OC12 EDSS Ring	OC12 - OC12	OC3	OC3 – STS1 OC3 – DS3 OC3 – DS1 OC3 – GigE3 OC3 – GigE1																
OC48 EDSS Ring	OC48 - OC48	OC12	OC12 – OC3 OC12 – OC3c OC12 – STS1 OC12 – DS3 OC12 – DS1 OC3 – GigE12* OC3 – GigE9* OC3 – GigE6* OC3 – GigE3* OC3 – GigE1*																

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

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1. Advanced Data Services

1.5 Enhanced Dedicated SONET Service

1.5.4 Terms and Conditions				
A.	Provision of Service			
5.	Port Type (Continued)			
	<u>APF Asymmetrical Port</u>	<u>Ring Capacity</u>	<u>Node Speed</u>	<u>Rate Combinations</u>
	OC48 EDSS Ring	OC48 - OC48	OC3	OC3 – STS1 OC3 – DS3 OC3 – DS1 OC3 – GigE3* OC3 – GigE1*
	OC192 EDSS Ring	OC192 - OC192	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 OC3 – GigE12* OC3 – GigE9* OC3 – GigE6* OC3 – GigE3* OC3 – GigE1*
			OC3	OC3 – STS1 OC3 – DS3 OC3 – DS1 OC3 – GigE3* OC3 – GigE1*

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

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1. Advanced Data Services

1.5 Enhanced Dedicated SONET Service

1.5.4 Terms and Conditions	
A.	Provision of Service (Continued)
6.	Interfaces EDSS is only available for the following interface combinations: DS1 – DS1 DS1 – STS1 DS3 – DS3 DS3 – DS1 STS1 – STS1 OC3 – STS1 OC3 – OC3 OC3 w/DS3 mapping – DS3 OC3 w/DS1 mapping – DS1 STS1 w/DS3 mapping – DS3 STS1 w/DS1 mapping – DS1 OC3c – OC3c OC12 – STS1, DS3, OC3, OC3c & OC12 OC12c – OC12c OC48 – STS1, DS3, OC3, OC3c, OC12, OC12c & OC48 OC48c – OC48c Gigabit Ethernet GigE1 – GigE1 (mapped as 1 STS1 channel) GigE3 – GigE3 (mapped as 3 STS1 channels or 1 STS3c channel) GigE6 – GigE6 (mapped as 6 STS1 channels or 1 STS6c channel) GigE9 – GigE9 (mapped as 9 STS1 channels or 1 STS9c channel) GigE12 – GigE12 (mapped as 12 STS1 channels or 1 STS12c channel) GigE24 – GigE24 (mapped as 24 STS1 channels or 1 STS24c channel) 7. Mileage a. EDSS Mileage on a full ring is the total of airline distances between nodes rounded up to the nearest mile. b. EDSS Mileage on a partial ring is the total of airline distances between connection locations 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 EDSS is provided entirely or in part over a Verizon provided DWR ring service backbone network, EDSS channel mileage will not apply between the nodes.

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1. Advanced Data Services

1.5 Enhanced Dedicated SONET Service

1.5.4	Terms and Conditions
B.	Commitment Period
a.	EDSS is available for 3, 5 and 7-year commitment periods, for ports, nodes, mileage and high-speed interfaces. Ports are also available on a month-to-month basis. Ports and nodes added subsequent to the initial installation may be coterminous to the expiration date of the EDSS 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 nodes added after the aforementioned periods require extending the commitment period for an additional one-year for a 3-year plan, an additional 2 years for a 5-year plan, or an additional 3 years for a 7-year plan. Ports, in a month-to-month plan, may be added at any time. The added nodes must be at the same or lower speed as the existing nodes and port nodes.
b.	Monthly recurring rates apply for the ports, nodes, mileage and high-speed interfaces. Once a term period expires, the prevailing rates of the current plan will continue until the customer cancels service or requests a new term plan.
c.	Nonrecurring charges for ports apply on a first and additional basis. To qualify as first and additional, the ports must be like-ports installed at the same node at the same time. Nonrecurring charges apply to the initial installation of ports purchased on a month-to-month basis, and to the subsequent installations of all ports and nodes. 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 EDSS service or a subsequent installation of ports.
d.	With the exception of Storage Interface Ports, nonrecurring charges for EDSS ports purchased on a month-to-month plan at the initial installation of EDSS service apply on a first and additional basis.
e.	With the exception of Storage Interface Ports, nonrecurring charges for EDSS ports purchased under a term plan apply on a first and additional basis for each EDSS port that is ordered subsequent to the initial installation of EDSS Service.
f.	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 EDSS. There is no NRC associated with term plans.
g.	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.
h.	Nonrecurring charges for EDSS nodes apply to all nodes and port nodes installed subsequent to the initial installation of EDSS.
i.	A Channel Mapping nonrecurring charge as set forth in (j) following applies for each channel which Verizon 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.

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1.5 Enhanced Dedicated SONET Service

1.5.4	Terms and Conditions
B.	Commitment Period
j.	When a lower capacity service is dropped from a EDSS 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 Verizon. The Channel Mapping Charge is billed to the lower capacity service.
k.	When a lower capacity service is provided between two (2) separate asymmetric port facilities (APF) on the same EDSS, Verizon 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.
L.	Nonrecurring charges apply for the installation of an Optional Feature as described in 1.5.5.D.2
m.	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 as set forth in (L) following apply for each channel which Verizon must cross-connect between the port nodes of the interconnecting ring(s).
n.	When a node is disconnected prior to the end of the commitment period, the node is subject to termination liability under (E)(1) following.
o.	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).
p.	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.
q.	Changes in Month-to-Month billed asymmetrical port facilities are treated as disconnects and subsequent installations.

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1. Advanced Data Services

1.5 Enhanced Dedicated SONET Service

1.5.4	Terms and Conditions
C.	Service Interruption
1.	Credit Allowance Applies:
a.	EDSS is guaranteed service restoral within one minute in the event of a service interruption except as specified in 2 following. Any service interruption greater than one minute due solely to a Verizon facility failure will result in a credit allowance of 100% of the monthly rate for the applicable rate elements of the affected service, provided that the interruption is brought to the attention of Verizon within 10 days. The total credit allowance in any one billing period cannot exceed 100% of the customer's monthly rate for the affected rate elements, regardless of the number or length of service interruptions within a billing month
2.	A Credit Allowance Does Not Apply for:
a.	Service interruptions of less than one minute.
b.	Service interruptions caused by the negligence of the customer or authorized user.
c.	Service interruptions resulting from the failure of equipment or systems provided by the customer or authorized user.
d.	Service interruptions during any period in which Verizon is not afforded access to a premises for testing and/or repair of service.
e.	Service interruptions when the customer has released the service to Verizon for maintenance purposes, to make rearrangements, or for the implementation of an order for a change in the service during the time that was negotiated with the customer prior to the release of that service.
f.	Service interruptions which continue due to the failure of the customer to authorize replacement of any element of special construction. The period during which no credit allowance will be made begins on the seventh day after the customer receives Verizon's notification of the need for replacement and ends on the day after Verizon receives the customer's authorization for replacement.
g.	Service interruptions during periods when the customer elects not to release the service for testing and/or repair.
h.	Service interruptions during periods when the customer or user has released the service for rearrangement purposes or for the implementation of a customer order.

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1.5 Enhanced Dedicated SONET Service

1.5.5	Customer Service Management Optional Feature (CSM)
A.	Where provisioning is available, CSM provides a customer with real-time information about the operational status of its EDSS network and the ability to reconfigure lower level services riding the EDSS ring. Three (3) Service Levels of support are offered for CSM. Each Service Level provides different functionalities to which the customer may gain access. These functionalities are described following and include access to real-time information about the customer's EDSS network and the ability to generate reports. When ordering CSM, the customer must specify one of the following three Service Levels:
1.	Level 1 provides a network view of real-time detection and reporting of network alarm conditions within the customer's EDSS network.
2.	Level 2 provides the same capabilities described in Level 1 along with the ability for the customer to generate basic network performance reports for its EDSS network. The customer may also request network performance reports that are customized to meet their specific needs.
3.	Level 3 support provides the same support described in Levels 1 and 2 along with the ability to reconfigure (re-map) the end points of lower level services riding the ring.
a.	Reconfiguration using CSM consists of re-mapping the end point of a primary circuit to its preplanned (backup) port location. The customer must specify a preplanned port location for each primary circuit installed. The preplanned port location is a backup location that is activated and de-activated when a primary circuit is reconfigured at the request of the customer via the CSM platform. Existing EDSS Port rates and nonrecurring subsequent installation EDSS Port rates are applicable to the preplanned port. A reconfiguration is limited to the mapping of one primary circuit to its assigned preplanned location. For each preplanned port location, a monthly recurring rate and a nonrecurring installation charge apply per port in accordance with Section 1.5.5.D. following.
b.	A Verizon Performed Reconfiguration charge will apply when the customer requests that Verizon perform a reconfiguration of service on its behalf. This charge does not apply when a customer performs its own service reconfiguration.
1.	Reconfiguration is not permitted on services arranged in the following service configurations:
i.	Switched Access Service;
ii.	Service provided under a shared use arrangement;
iii.	Service associated with Centrex-CO or Primary Rate ISDN service; or,
iv.	Primary circuits for which the customer has not specified a preplanned backup location.
v.	Fibre Channel/FICON service.

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1. Advanced Data Services

1.5 Enhanced Dedicated SONET Service

1.5.5 Customer Service Management Optional Feature (CSM)	
B.	The type of nodes deployed within the EDSS network may limit reconfiguration of OC12/OC12c circuits within an OC48 EDSS. CSM is not available on partial ring configurations.
C.	When CSM is added to an existing ring, existing circuits that are being made reconfigurable will require that an Access Order be issued to designate the circuit as reconfigurable. Nonrecurring charges as set forth in Section 1.5.5.D. following may apply. Verizon's ability to provide CSM on a particular ring may be limited by the overall configuration of that ring. Reconfiguration is limited to those circuits that originate and/or terminate on the ring (i.e., at locations served by a node on the ring) and utilize ports that are symmetrical. For circuits that originate or terminate off the ring (i.e., at locations not served by a node on the ring), the reconfiguration is limited to customer premises node locations on the ring.
D.	Application of Rates and Charges- CSM rates and charges are set forth in Part M, Section 6 for Rate Zone Rates and Charges, unless noted otherwise. CSM rates and charges apply in addition to any applicable EDSS rates and charges. Unless otherwise indicated below, CSM rates and charges apply regardless of the Service Level selected by the customer. 1. Monthly Recurring Charges- A CSM Service Level monthly recurring charge applies for each EDSS ring provided with CSM. 2. Nonrecurring Charges- Apply as follows: a. A Node Setup charge applies for each node that is equipped with CSM at the time that CSM is initially established on the ring. b. An Add/Remove Node charge applies for each node that is subsequently added to, or removed from, a ring that has already been equipped to provide CSM. c. An Initial CSM Setup charge applies for establishment of the customer's initial CSM database partition. The initial CSM database partition includes setup for up to six (6) users. d. A Setup of Additional Users charge applies for the setup of up to six (6) additional users beyond those provided with the initial database setup when CSM is initially established on the ring.

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1.5 Enhanced Dedicated SONET Service

1.5.5 Customer Service Management Optional Feature (CSM)	
D. (Continued)	
e.	A Setup of Additional Partition or Change in CSM Service Level charge applies for the setup of an additional CSM database partition created for the same customer or to change from one CSM service level to another (e.g., change Service Level 1 to Service Level 2). Each additional CSM database provides for the setup of up to six (6) additional users.
f.	A Consultation and Support charge applies for each thirty (30) minutes or fraction thereof that the customer requests Verizon consultation and support of its CSM network. This charge does not apply during initial setup of CSM on the ring.
g.	A Verizon Performed Reconfiguration charge applies for Service Level 3 customers only when the customer requests that Verizon perform a reconfiguration based on its pre-mapping instructions.
h.	A Preplanned Port charge applies for Service Level 3 customers only for each port associated with a preplanned location that is established during the initial establishment of CSM on the ring. The Preplanned Port NRC is the same as for the equivalent EDSS port serving as the primary location.
E. Terms and Conditions	
1.	The customer must utilize Internet web access to connect its customer-provided terminal equipment to Verizon's CSM management system. Access to the Internet and any associated rates and charges are the responsibility of the customer. The customer is also responsible for obtaining communications software that is compatible with the software Verizon utilizes to provide CSM. Verizon will work cooperatively with the customer to determine compatibility of its communications software.
2.	CSM is provided only when Verizon provides all nodes on the ring.
3.	Subject to the restrictions set forth in Section 1.5.5.E.4. following, CSM is provided coincident with the installation of the associated EDSS ring or may be added to an existing ring.
4.	CSM Service Level is provided under a term plan of 3 years, 5 years, or 7 years, as described following.
a.	The duration of the term plan for CSM Service Level must be the same duration as the term plan for the EDSS nodes provided with CSM. At the expiration of its 3, 5, or 7 year term plans for CSM Service Levels, the customer has the option of extending CSM Service Level Ports with a coterminous end date as described in Section 1.5.5.E.4.b. following.
b.	The expiration date of each CSM Service Level added subsequent to the initial installation must be coterminous to the expiration date of the associated EDSS service, provided that 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. A CSM added after the aforementioned periods requires extension of the commitment period for the associated EDSS service in accordance with this Section (A) preceding. Such extension results in the establishment of a new plan that includes both the EDSS and the CSM under the same plan with the same expiration date.

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1.5 Enhanced Dedicated SONET Service

1.5.5 Customer Service Management Optional Feature (CSM)	
E.	(Continued)
5.	With Service Level 2 support, the customer may retrieve certain basic reports containing performance-monitoring information on its EDSS network, as designated and provided by Verizon. Basic reports are available at no additional charge to the customer. The customer may also request that a report be customized to meet its particular needs. Rates and charges for customized reports are provided on a special assembly basis. Reports are not provided with Level 1 support.
6.	CSM is subject to termination liability if CSM is removed prior to completion of the existing commitment period. The terms and conditions in Section 1.5.6. following, as applicable, apply to removal of CSM prior to completion of the existing commitment period.

1.5.6 Termination Liability	
A.	Termination liability applies to EDSS service or an optional feature, and is charged per rate element on all ports, nodes, mileage and high-speed interfaces and optional features, except month-to-month ports for which the one-month minimum service charge applies.
B.	EDSS service or an optional feature may be canceled without termination liability when cancellation of the service occurs within thirty (30) days of the effective date of a Verizon initiated rate increase of eight percent (8%) or more on any rate applicable to EDSS service.
C.	Termination liability will not apply for EDSS service or an optional feature if a customer changes to a longer-term commitment period, and the number of services or ports included in the new commitment period remain the same or increase.
D.	Termination liability will not apply to a customer upgrade (change to a higher capacity EDSS service) of an EDSS node or port, if all of the following conditions are met: 1. A new commitment period commences with the upgrade. 2. The new expiration date must extend beyond the discontinued plan date. 3. The new EDSS service is provided at the same customer and/or Verizon location(s) as the discontinued service plan. 4. Additional nodes and ports added at the time of the upgrade incur all applicable rates and charges.
E.	Customer can move a node from one location to another location without incurring termination liability providing that all of the following conditions are met: 1. A new commitment period commences with the move. 2. The new expiration date must extend beyond the date of the disconnected plan date. 3. The customer accepts a temporary interruption of the existing service in order to establish the new service. 4. The new service is ordered at the same time as the service being disconnected.

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1.5 Enhanced Dedicated SONET Service

1.5.6 Termination Liability	
F.	Termination liability will apply when the conditions above are not 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 EDSS with a commitment period which was extended under 1.5.7 following, termination liability is calculated as the difference between the monthly rates for the highest commitment period that could have been satisfied prior to disconnection of the service or cancellation of the plan and the monthly rates for the extended commitment period for the period of time the service was in effect.
H.	Customers who wish to move or convert existing High Capacity services to an EDSS may do so without conversion charges (termination liability and installation charges) as long as the total capacity of service purchased by the customer does not decrease.

1.5.7 Extension of a Commitment Period	
A.	For EDSS, the customer also has the option, within sixty (60) days prior to the expiration date for its commitment period, to extend its expiring term plan to a plan with a longer commitment period. The commitment period selected for the extended plan must be longer than the commitment period of the expiring plan as follows: ▪ An expiring 3-Year Term may be extended to either a 5-Year or 7-Year Term Plan. ▪ An expiring 5-Year Term may be extended to a 7-Year Term Plan.
B.	Time-in-service credit on the expiring plan will be granted and applied towards the new extended plan. For example, an expiring 3-Year term plan will allow for 3 years of time-in-service credit towards a 5-Year or 7-Year extended plan.
C.	The discount percentage associated with the extended plan will apply effective with the first bill date following expiration of the commitment period for the existing plan and will continue through the remainder of the commitment period associated with the extended plan. No adjustment for the increased discount percentage associated with the extended plan will be made to the monthly rates already billed on the expiring plan.

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1. Advanced Data Services

1.6 Transparent LAN Service (TLS)

1.6.1 Definitions	
In addition to the General Definitions set forth in this Product Guide, the following definitions apply:	
A.	Domain: A Virtual Local Area Network (VLAN) or a collection of circuits that belong to one closed user group.
B.	Gigabits Per Second (Gbps): The speed at which data is transferred through the network, where one Gigabit Per Second equals the transfer rate of one (1) billion bits of data in one (1) second.
C.	Megabit Per Second (Mbps): The speed at which data is transferred through the network, where one Megabit Per Second equals the transfer rate of one (1) million bits of data in one (1) second.
D.	Nanometers (nm): Wavelength frequency equivalent to one (1) billionth of a meter.

1.6.2 Service Description	
A.	Transparent LAN Service (TLS) is a high speed data service which uses a shared optical transport network to allow for the interconnection of Local Area Networks (LANs) across selected metropolitan areas. TLS delivers interfaces of 10 Mbps, 100 Mbps, 1000 Mbps or 10 Gbps from the customer's LANs to the shared network.
B.	TLS creates a network with the ability to function as a shared public network. TLS protects data privacy by using specialized screening software that permits subscribers to access only their data.
C.	<u>Jurisdictional Treatment</u> - It is the nature of the traffic over the facility that determines the jurisdiction under Federal Communications Commission (FCC) regulations, not merely the physical endpoints of the facility over which service is delivered. Traffic is intrastate when it begins and ends in the same state. Traffic is interstate when it begins in one state and ends in a different state. Internet traffic is interstate as well. When ordering an intrastate TLS service, the customer must certify that traffic over the TLS facility will be intrastate, as defined below. The customer must also agree to notify Verizon within thirty (30) days if the Jurisdictional Treatment changes, and, if such certification is incorrect, the customer will be responsible for any unbilled surcharges and applicable fees. If the customer does not certify that the traffic meets the "Intrastate" definition below, Verizon may treat the service as interstate for regulatory jurisdictional purposes and charge applicable interstate surcharges. - Interstate is when interstate traffic amounts to more than 10% of the total traffic on the facility. - Intrastate is when interstate traffic amounts to 10% or less of the total traffic on the facility.

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1.6 Transparent LAN Service (TLS)

1.6.2	Service Description
D.	TLS is available as two service types: Ethernet Multipoint Service (EMS) or Ethernet Relay Service (ERS) Standard. The customer must select either EMS or ERS Standard as the service type for each domain: 1. Ethernet Multipoint Service (EMS) - a connection-less Ethernet TLS service that allows connectivity among multiple customer-designated locations within a LATA. With the EMS service type, Ethernet TLS protects data privacy by using closed user groups (CUGs), also known as virtual LANs. CUGs or virtual LANs are used to provide traffic separation, privacy and security between customers on the shared switch and backbone. An EMS domain is comprised of any number of access lines which have been designated by the customer to be included in a closed user group (CUG) or virtual LAN. EMS provides multipoint-to-multipoint connectivity among all of the customer's access lines within a given domain. 2. Ethernet Relay Service (ERS) Standard - a connection-oriented Ethernet TLS service that allows for point-to-point connectivity between customer-designated locations within a LATA. With the ERS service type, an Ethernet Virtual Circuit (EVC) establishes a virtual LAN or CUG. An ERS domain is comprised of any number of virtual LANs which have been designated by the customer to be included in the ERS domain. ERS provides point-to-point connectivity between pairs of customer's access lines. A customer may have more than one domain within a LATA, but connections between domains are not permitted. TLS may be used to access shared networks. In such cases, subscribers in a CUG can only access their own data. With ERS service type, an Ethernet Virtual Private – Local Area Network (EVP-LAN) can be established with EVP-LAN EVCs. An EVP-LAN is a multipoint Virtual LAN comprised of a CUG of two or more EVCs. EVP-LAN EVCs are designated by the Customer within an ERS Premier domain.

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1.6 Transparent LAN Service (TLS)

1.6.2	Service Description
2.	(Continued)
a.	Six EVC service classes are available for use with the ERS service type: ERS Standard (ERS-Std), ERS Basic (ERS-B) and EVP-LAN Basic (EVPLAN-B): designed for customer applications that do not require a Committed Information Rate (CIR) or low delay, where CIR = 0 and Excess Information Rate (EIR) = Number of Mbps of the selected ERS-Std/ERS-B or EVPLAN-B EVC service class. ERS-Priority Data (ERS-PD): designed for customer applications which do not require low delay, but require a CIR, where CIR = Number of Mbps of the selected ERS-PD EVC service class and EIR = Number of Mbps of the selected ERS-PD EVC service class. ERS Real Time (ERS-RT) and EVP-LAN Real Time (EVPLAN-RT): designed for customer applications which require a CIR and low delay for some portion of their traffic, where CIR = Number of Mbps of the selected ERS-RT EVC service class and EIR = 0. EVPLAN-RT is not available for 10 Gbps UNI speed. An ERS EVC can include up to three service classes (ERS-B, ERS-PD and ERS-RT) as described above within each EVC. An EVP-LAN EVC can include one service class (either EVPLAN-B or EVPLAN-RT) as described above within each EVC. The customer will be required to identify the Basic, PD and RT Class of Service Ethernet frames by one of the following choices: setting the VLAN Class of Service (CoS) ID (for 802.1q tagged Ethernet Frames), or setting the DiffServ Code Point (DSCP) (for tagged or untagged Ethernet frames) or setting the VLAN ID (for tagged or untagged Ethernet frames), appropriately.

1.6.3.	Terms and Conditions
A.	A TLS network is provisioned through specialized wire centers in a specific geographic location. Customers gain access to the shared public wire center network via a switch, node or other Verizon equipment delivering service through a shared fiber path or network infra-structure. Verizon equipment used to deliver service may be deployed in the customer's serving central office (TLS equipped central office), deployed in leased space near the customer's location, or deployed at the Customer's location. At subscription, the customer has an option of selecting access lines at speeds of 10 Mbps, 100 Mbps, 1000 Mbps or 10 Gbps.
B.	TLS is available to customers whose serving central office is a TLS equipped central office and is located within the maximum allowable fiber range of the serving central office. The maximum allowable range is determined by the dB loss rate where the actual distance between the TLS equipped serving wire center and the customer's location will vary based on the specifics of the transport facility used in each serving arrangement.
C.	If the customer's serving central office is not a TLS equipped central office, the Customer may obtain service by purchasing Interoffice Mileage in addition to the TLS access line. The dB loss cannot exceed the maximum allowable range, as specified in (B).

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1. Advanced Data Services

1.6 Transparent LAN Service (TLS)

1.6.3. Terms and Conditions	
D.	Provision of Service: The TLS service will consist of: 1. Network Interface Device (NID) at the Customer's premises to terminate the fiber pair or other optical transport. 2. Optical Transport from the Customer's premises to the serving central office. 3. Network Management including fault monitoring and diagnostics, performance and network configuration applications and manual monitoring when necessary. 4. User Network Interface (UNI) Port With Access Line Connection 5. Ethernet Virtual Circuit (EVC) where applicable. 6. Interoffice mileage, where applicable
E.	Availability of Service – TLS will be provided seven days a week, 24 hours a day, from central offices equipped to provide this service. 1. ERS Service, including Premier Access Lines as defined in Section 1.6.6.A.1.b. and ERS-Std, ERS-B, ERS-PD, ERS-RT, EVPLAN-B, and EVPLAN-RT EVCs, as defined in Section 1.6.2.C.2, will only be available from Central Offices equipped to support ERS service.
F.	The standard Customer connectivity model for UNI Port with Access includes direct fiber or existing transport facilities between the Customer's location and the TLS equipped central office. Customer may select to have their UNI Port with Access provisioned over an optical transport system. If so, the customer must choose one of the following UNI Port with Access arrangements: 1. Protected Non-Diverse – Customer connectivity is provisioned over an optical transport system as a survivable service with an alternate (not diverse) facility between the Customer's location and the TLS equipped central office. 2. Protected Diverse – Customer connectivity is provisioned over an optical transport system as a survivable service with an alternate and diverse fiber path between the Customer's location and the TLS equipped central office. Dual entrance at the customer premises and Verizon wire centers are not considered a standard feature of this option, but may be provided through special construction charges, where facilities are available. 3. Protected Private – Customer connectivity is provisioned over a dedicated private ring which the customer has already obtained from Verizon. At least one node of the private ring must be located in a TLS equipped central office.

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1. Advanced Data Services

1.6 Transparent LAN Service (TLS)

1.6.3. Terms and Conditions	
G.	Connections – The network interface is the LAN interface on the TLS equipment at the customer's premises. The customer is responsible for any inside wiring required to connect the LAN to the TLS equipment.
1.	The customer is also responsible for installation, operation and maintenance of any Customer-provided equipment.
2.	Verizon has the service responsibility up to and including the network interface.
H.	Limitations – The customer's location must be within the maximum allowable range of the TLS equipped central office, as defined in (B).
I.	Maintenance Window – To meet the customer's requirements, occasional network upgrades must be performed. These network upgrades are needed to provide improved performance and new features. Generally these upgrades will be performed between the hours of 11PM and 6AM. Network upgrades are planned to provide customers reasonable and timely notification in order to minimize any impact on the customer's service.
J.	Technical Specification – The technical specifications for TLS are delineated in IEEE802.3-2000.
K.	Transmission Mode —The transmission mode supported is dependent on the access rate. The supported transmission mode for 10 Mbps access is half duplex and full duplex. Full duplex 10 Mbps access is available only where conditions and facilities permit. The supported transmission mode for 100 Mbps, 1000 Mbps and 10 Gbps access is full duplex.
L.	TLS is available where facilities and conditions permit. Special construction charges may apply.
M.	The associated terms, conditions, rates and charges under the appropriate section of this Product Guide or any Verizon tariff shall apply in addition to the terms and conditions, rates and charges associated with TLS.

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1. Advanced Data Services

1.6 Transparent LAN Service (TLS)

1.6.4 Interruption of Service

- | | |
|-----------|---|
| A. | For Transparent LAN Service, any complete failure of service which continues for more than twenty-four (24) hours, credit will be applied according to Part A, Section 1. |
|-----------|---|

1.6.5 Service Level Agreements (SLA)

- | | |
|-----------|--|
| A. | <p>Service Level Agreements (SLA) provide TLS Customers with Service Response Credits (SRC) applied to their Verizon Massachusetts telephone bill if Verizon fails to meet certain operational and network thresholds. SLAs are available at no additional charge or fee to the Customer.</p> <p>A Customer is eligible for the SLA SRC provided that the Customer adheres to the conditions stated within this section. The SLA specifies performance criteria against which actual performance for TLS will be compared on a monthly basis.</p> |
| B. | <p>The TLS SLA includes the following measurements:</p> <ol style="list-style-type: none"> 1. Operational SLAs <ol style="list-style-type: none"> a. Mean Time to Repair (MTTR) is the average mean time for Verizon to repair Customer reported interruptions of service that are within Verizon's network. A TLS service is interrupted when it becomes unusable to the Customer because of a failure of a facility component within Verizon's network that is used to furnish service under this Product Guide. <p>Measurement - Verizon will measure the average Time to Repair (TTR) for Customer-reported interruptions in the services with respect to TLS Access Lines. To be measured under this SLA, the Customer must report any interruption to a Verizon-designated entity for the opening of a trouble ticket. The TTR is measured from the date and time a trouble ticket is opened by Verizon and the date and time when such ticket is closed by Verizon. In measuring the TTR, any stop clock time or adjusted duration time associated with the trouble shall be subtracted from such measurement. For purposes of this measurement, stop clock time refers to:</p> <ul style="list-style-type: none"> - periods when the Customer testing is occurring; - periods when Verizon is awaiting the Customer's authorization to commence work on a TLS Access Line; - periods when Verizon is denied access to the Customer's premises or facilities as necessary to diagnose, repair or test - periods following a repair of a TLS Access line when the ticket is held open by the Customer to ensure the trouble is resolved and - any time period during which any of the occurrences existed as listed in section E - <p>SLA Exclusions.</p> <p>The SLA shall not apply to cases of trouble where no trouble was found or for repeated cases of the reporting of the same interruption. The MTTR SLA shall be measured on a calendar month basis and shall be calculated by adding the TTR for all interruptions and dividing that sum by the total number of trouble tickets opened for interruptions for the Customer during that month.</p> |

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1. Advanced Data Services

1.6 Transparent LAN Service (TLS)

1.6.5	Service Level Agreements (SLA)
B.	(Cont'd)
	SRCs - If the MTTR is greater than four (4) hours over the calendar month, then 50% of the one month TLS Access Line monthly charge shall be given as a MTTR SRC for those Access Lines which have been out of service for longer than four (4) hours and have been reported by the Customer via a trouble ticket to Verizon. The MTTR SRC credit excludes and is not applicable to scheduled maintenance, scheduled downtimes or delays resulting from an event of force majeure. b. Network Availability is the percentage of time during a calendar month that the TLS is available for use by the Customer. Measurements – The Verizon threshold for Network Availability is 99.90%. Network Availability is calculated on a per-TLS Port Connection basis as follows: - $((24 \times \text{Number of Days in Month} \times \text{Number of TLS Port Connections}) - (\text{Number of Hours Out of Service during Month})) / (24 \times \text{Number of Days in Month} \times \text{Number of TLS Port Connections})$. - Verizon will not round up the calculation to reach the 99.90% threshold. This SLA is only available for outages reported by the Customer via a trouble ticket to Verizon. SRCs - If the overall Network Availability measurement is less than the threshold of 99.90% for a calendar month, Verizon will provide a credit equal to ten percent (10%) of the associated monthly charge for any individual TLS port connection that did not meet such threshold during such calendar month. 2. Network Performance SLAs applies to all Customers subscribing to an EVC Class of Service (CoS) within a local network consisting of the following types: - ERS Real Time EVC bandwidth CoS, and - ERS Priority Data EVC bandwidth CoS - All other EVCs do not qualify for Network Performance SLAs including EVPLAN EVCs The performance SLA is hierarchical in nature and statistically-based, conformance is determined on a Met or Missed basis - first on a per-hour basis and then on a per-month conformance basis. Per-Hour Conformance - For each hour in the month, a determination is made as to whether the performance objectives are 'Met' for the CoS attributes related to the CoS instance on a given EVC. For a given Hour (e.g., H1), the overall performance objective is 'Met' if the performance objectives for each of the Data Delivery Ratio (DDR), Round Trip Delay (RTD), and Jitter, attributes are 'Met'. If any of the attribute objectives are 'Missed', then the overall performance objective for Hour (H1) is determined to be 'Missed'. Per-Month Conformance - For the month, a determination is made as to the percentage of hours that the overall performance objective is 'Met'. For a given Month (e.g., M1), the monthly performance guarantee is 'Met' if the % of hours 'Met' for the month meet or exceed the monthly objective. EVC Class of Service Network Performance SLA shall be based on the following Ethernet frame traffic criteria:

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1. Advanced Data Services

1.6 Transparent LAN Service (TLS)

1.6.5 Service Level Agreements (SLA)																		
2.	(Cont'd)																	
	Data Delivery Ratio (DDR) is the ratio of service frames successfully received from the network relative to the number of service frames offered to the network. The DDR definition is restricted to service frames that conform to the subscribed Committed Information Rate (CIR) profile. Interruptions caused by MTTR activity shall be excluded from the measurement of DDR. <table border="1"> <thead> <tr> <th></th><th>Data Delivery Ratio</th><th>Data Delivery SRCs</th></tr> </thead> <tbody> <tr> <td>Real Time EVC Bandwidth</td><td>The Verizon threshold for Data Delivery Ratio is 99.5% in a calendar month.</td><td rowspan="2">If the overall Data Delivery measurement does not meet the per-month conformance, then Verizon shall provide an SRC equal to ten percent (10%) of the monthly charge for any individual EVC that did not meet such threshold during such calendar month.</td></tr> <tr> <td>Priority Data EVC Bandwidth</td><td>The Verizon threshold for Data Delivery Ratio is 99% in a calendar month.</td></tr> </tbody> </table> Round Trip Delay (RTD) is the time (in milliseconds) it takes for a service frame to be sent from one UNI to another UNI and back again (includes link insertion delays, propagation delays and queuing delays in the network). The RTD calculation includes only the time the packet is in the network, i.e., the processing time spent in devices attached to the UNI are factored out of the definition. The RTD definition is restricted to service frames that conform to the subscribed CIR profile. <table border="1"> <thead> <tr> <th></th><th>Delay Measurement</th><th>Delay SRCs</th></tr> </thead> <tbody> <tr> <td>Real Time EVC Bandwidth</td><td>The Verizon threshold for Delay is 20 milliseconds.</td><td rowspan="2">If the overall delay measurement does not meet the per-month conformance, then Verizon shall provide an SRC equal to ten percent (10%) of the monthly charge for any individual EVC that did not meet such threshold during such calendar month.</td></tr> <tr> <td>Priority Data EVC Bandwidth</td><td>The Verizon threshold for Delay is 50 milliseconds.</td></tr> </tbody> </table>			Data Delivery Ratio	Data Delivery SRCs	Real Time EVC Bandwidth	The Verizon threshold for Data Delivery Ratio is 99.5% in a calendar month.	If the overall Data Delivery measurement does not meet the per-month conformance, then Verizon shall provide an SRC equal to ten percent (10%) of the monthly charge for any individual EVC that did not meet such threshold during such calendar month.	Priority Data EVC Bandwidth	The Verizon threshold for Data Delivery Ratio is 99% in a calendar month.		Delay Measurement	Delay SRCs	Real Time EVC Bandwidth	The Verizon threshold for Delay is 20 milliseconds.	If the overall delay measurement does not meet the per-month conformance, then Verizon shall provide an SRC equal to ten percent (10%) of the monthly charge for any individual EVC that did not meet such threshold during such calendar month.	Priority Data EVC Bandwidth	The Verizon threshold for Delay is 50 milliseconds.
	Data Delivery Ratio	Data Delivery SRCs																
Real Time EVC Bandwidth	The Verizon threshold for Data Delivery Ratio is 99.5% in a calendar month.	If the overall Data Delivery measurement does not meet the per-month conformance, then Verizon shall provide an SRC equal to ten percent (10%) of the monthly charge for any individual EVC that did not meet such threshold during such calendar month.																
Priority Data EVC Bandwidth	The Verizon threshold for Data Delivery Ratio is 99% in a calendar month.																	
	Delay Measurement	Delay SRCs																
Real Time EVC Bandwidth	The Verizon threshold for Delay is 20 milliseconds.	If the overall delay measurement does not meet the per-month conformance, then Verizon shall provide an SRC equal to ten percent (10%) of the monthly charge for any individual EVC that did not meet such threshold during such calendar month.																
Priority Data EVC Bandwidth	The Verizon threshold for Delay is 50 milliseconds.																	

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1. Advanced Data Services

1.6 Transparent LAN Service (TLS)

1.6.5 Service Level Agreements (SLA)

2. (Cont'd)

Jitter is the variance in frame delay (in milliseconds) between two service frames as measured at the ingress and egress UNIs. The jitter definition is restricted service frames that conform to the subscribed CIR profile

Real Time EVC Bandwidth	Jitter Measurement	Jitter SRCs
	The Verizon threshold for Delay is 5 milliseconds.	If the overall jitter measurement does not meet the per-month conformance, then Verizon shall provide an SRC equal to ten percent (10%) of the monthly charge for any individual EVC that did not meet such threshold during such calendar month.

3. The SLA SRCs apply to the following TLS elements:

- UNI Port with Access Line Connection
- Ethernet Virtual Circuit (EVC) Bandwidth, excluding EVPLAN EVCs

E. SLA Exclusions - do not apply to the extent that any of the following reasons prevented Verizon from meeting such SLAs:

1. The acts of the Customer or other party authorized by the Customer to use the TLS circuit/connection, including but not limited to Customer's negligence, Customer's refusal to grant Verizon reasonable access to its premises for testing/repair, Customer's refusal to release the TLS circuit/connection for testing and/or repair, Customer's maintenance activities or its rearrangement of the TLS circuit/connection or where the Customer has exceeded the purchased EVC bandwidth;
2. Subsequent reports (i.e., additional Customer inquiries) while the trouble is pending;
3. Service troubles closed due to the Customer's action;
4. Service troubles repaired by Verizon prior to its receipt of a trouble report;
5. Service trouble caused by the Customer's CPE or facilities on its side of the demarcation point or any power, equipment, service or systems not provided by Verizon;
6. An Interruption related to the provisioning of a new TLS Access Line or Access Lines in service for less than a month;
7. Scheduled maintenance and downtimes;
8. Unavailability of network monitoring or management equipment or reporting;
9. Any other reason outside the control of Verizon.

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1. Advanced Data Services

1.6 Transparent LAN Service (TLS)

1.6.5 Service Level Agreements (SLA)	
F.	Limitation on SRCs - The combined total of any SRCs applied to the Customer's TLS service for a calendar month must meet the following conditions:
1.	For any calendar year, the total SRCs shall not exceed ten percent (10%) of the total annual revenue of the prior calendar year billed to the Customer for qualifying service elements, or \$200,000 per Customer, whichever is less. For any calendar year in which the Customer had less than twelve (12) full months of revenue for qualifying service elements in the prior calendar year, the SRCs may not exceed \$20,000 per Customer for TLS Network.
2.	To receive an SRC, the Customer must request such SRC in writing within thirty (30) calendar days of the end of the monitoring period of the referenced SRC. The request must include a list of all impacted EVC identification numbers and the type of SRC requested for each EVC.

1.6.6 Responsibility of the Customer	
A.	To receive SRCs on eligible rate elements, the Customer must have the eligible rate elements listed in its initial subscription based on the established customer of record, or have ordered the eligible rate elements subsequent to its initial subscription. Verizon reserves the right to change, alter or discontinue the optional SRC plan at its discretion.
1.	To receive credit, Verizon must receive from the Customer a written request for credit within thirty (30) calendar days of the end of the monitoring period that the SRC is referencing. The Customer's request for credit must be submitted to the appropriate Verizon entity (office or interface) in a manner prescribed by Verizon. The request must include a list of all impacted circuit/connection identification numbers and the type of SRC requested for each circuit/connection. The SRC monitoring period is based on a calendar month.
B.	Operational SLAs - The Customer must submit in writing a list of all rate elements, impacted circuit/connection identification numbers and the type of SRC requested for each circuit/connection. The written request for credit must be submitted to the appropriate Verizon entity in the manner prescribed by Verizon.
C.	Network Performance SLAs - The Customer must request SRCs for Network Performance SLAs and may submit in support of such request its own measurements made by industry-standard network performance measuring equipment. Such equipment shall be subject to prior approval by Verizon and be capable of the following:
1.	DDR SLA - the equipment must be capable of determining the number of actual packets sent and successfully received between two (2) Customer locations.
2.	RTD SLA - the equipment must be capable of measuring the transmission of a series of 128-byte time-stamped packets to a measurement system from one Customer location to another Customer location. The measurement systems must be time-synchronized by using a network based timing source that uses Greenwich Mean Time (GMT)

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1. Advanced Data Services
1.6 Transparent LAN Service (TLS)

1.6.6 Responsibility of the Customer	
C.	(Cont'd)
3.	Jitter SLA - the equipment must be capable of measuring the transmission of a series of at least fifty (50), 128-byte time stamped packets at a fixed interval between each packet from one Customer location to a measurement system at another Customer location. The measurement systems must be time-synchronized by using a network based timing source that uses Greenwich Mean Time (GMT).
D.	All equipment must be capable of measuring from edge to edge (Customer Premises Equipment (CPE) to CPE) and of making the measurement every five (5) minutes per hour for four (4) hours total per day, for a total of two-hundred and forty (240) measures per day. In order to be considered, such measurements must include at least seven consecutive days' worth of measurements for four (4) hours per day.

1.6.7 Responsibility of Verizon	
A.	All service performance and provisioning measurements are conducted using Verizon monitoring systems and procedures. Verizon may change these systems and procedures at its sole discretion. In performing measurements of overall Mean Time To Repair (MTTR) and Network Availability, Verizon shall include data measured throughout the territories covered by this Product Guide.
B.	Verizon will research and validate the Customer-submitted SRC in accordance with its own procedures and systems. Verizon may, at its discretion, use either the Customer-provided data or its own measurement data (or as described in Section 1.6.6 to evaluate and assess whether SRCs are warranted).

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1. Advanced Data Services

1.6 Transparent LAN Service (TLS)

1.6.8 Optional Features	
A. Customer Service Management (CSM)**	
1.	Customer Service Management (CSM)** is an optional feature that provides customers with web-based reports. These reports give the customer the ability to extract “read-only” network traffic information regarding their networks thereby allowing customers to monitor and manage their network performance. CSM** is provided per customer Domain/VLAN.
2.	CSM** will be provided where conditions and facilities permit.
3.	Verizon reserves the right to temporarily interrupt CSM** for maintenance, software upgrades, and in emergency situations.

1.6.9 Application of Rates and Charges	
A.	The following rate elements are applicable to TLS:
1.	UNI Port With Access Line Connection
a.	Standard Access Lines (available for EMS Type Only) – A monthly rate applies on a per line basis, based on the speed of the access connection (i.e., 10 Mbps, 100 Mbps, 1000 Mbps or 10 Gbps). The Standard Access Line is offered on a month-to-month basis, or as a three-year or five-year Term Commitment Plan. A nonrecurring charge applies to the installation of TLS Standard Access Lines provided on a month-to-month basis. Besides the standard connectivity model, Standard Access Line is offered with three other types of UNI Port with Access Line Connections, where facilities exist. 10 Gbps is not available for these Protected options. - Protected Non-Diverse - Protected Diverse - Protected Private

** Effective February 7, 2011, the Customer Service Management feature is limited to existing customers of record. Additions, rearrangements and moves of service are not permitted.

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1. Advanced Data Services

1.6 Transparent LAN Service (TLS)

1.6.9 Application of Rates and Charges	
A.	(Continued)
b.	Premier Access Line - A monthly rate applies on a per-line basis, based on the speed of the access line (i.e., 10 Mbps, 100 Mbps, 1000 Mbps or 10 Gbps). A Premier Access Line must be purchased in conjunction with some combination of ERS-B, ERS-PD, ERS-RT, EVPLAN-B and/or EVPLAN-RT EVC service classes, which are described in Section 1.6.2.C.2. The Premier Access Line is offered on a month-to-month basis or as a 3 Year or 5 Year Term Plan. A nonrecurring charge applies to the installation of the UNI provided on a month-to-month basis. A customer cannot mix Premier UNI Ports with any other UNI port type. The percentage of each Premier Access Line UNIs allowed for EVC bandwidth is limited, where connections must comply with each of the following threshold requirements : - ERS-B less than or = 500% of UNI Speed - ERS-PD less than or = 100% of UNI Speed - ERS-RT less than or = 100% of UNI Speed - ERS-PD + ERS-RT+ EVPLAN-RT less than or = 100% of UNI Speed - ERS-B + ERS-PD + ERS-RT+ EVPLAN-B less than or = 500% of UNI Speed - EVPLAN-B less than or = 20 Gbps of the EVP-LAN CUG - EVPLAN-RT less than or = 1 Gbps of the EVP-LAN CUG Besides the standard connectivity model, Premier Access Line is offered with three other types of UNI Port with Access Line Connections, where facilities exist. - Protected Non-Diverse - Protected Diverse - Protected Private
c.	EMS – Real Time (EMS-RT) Access Line - A monthly rate applies on a per-line basis, based on the speed of the access connection (i.e., 100 Mbps, 1000 Mbps or 10 Gbps). This enhanced service class configures a fixed portion of the UNI to be configured for real time traffic, where each 100 Mbps UNI has CIR = 5 Mbps with EIR = 0 with each 1000 Mbps UNI has CIR = 20 Mbps with EIR = 0, and with each 10 Gbps UNI has CIR = 50 Mbps with EIR = 0. The remainder of the UNI can be used for CIR = 0 and EIR = 0 traffic. The EMS-RT Access Line is offered on a month-to-month basis or as a 3 Year or 5 Year Term Plan. A nonrecurring charge applies to the installation of the EMS-RT Access Line provided on a month-to-month basis. A customer can not mix an EMS-RT Access Line with the ERS Service type, but may mix EMS-RT Access Line with EMS Access Lines. Besides the standard connectivity model, EMS – Real Time Access Line is offered with three other types of UNI Port with Access Line Connections, where facilities exist. 10 Gbps is not available for these Protected options. - Protected Non-Diverse - Protected Diverse - Protected Private
2.	Ethernet Virtual Circuit (EVC) – For customers who order the Standard Access Line, a monthly rate will apply on a per EVC bandwidth basis. ERS Standard is the only EVC class available with the Standard Access Line. The EVC bandwidth must be equal to the bandwidth of the lowest speed of the end points it is connecting. ERS Standard EVCs are purchased on a month-to-month basis. A non-recurring setup charge will apply per ERS Standard EVC. For customers who order the Premier Access Line, a monthly rate will apply on a service class and EVC bandwidth basis. Premier Access Line customers have the choice of combining ERS-Basic, ERS-Priority Data, and/or ERS-Real Time bandwidth or combining EVPLAN-Basic and EVPLAN-Real Time bandwidth on an EVC. A non-recurring setup.

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1. Advanced Data Services

1.6 Transparent LAN Service (TLS)

1.6.9 Application of Rates and Charges

2. (Continued)

charge will apply per ERS EVC. EVCs are purchased on a month-to-month basis. A customer may have more than one service class on the EVC, but will only pay one EVC non-recurring setup charge.

The number of EVCs permitted on each Standard Access Line and/or Premier Access Line are limited as follows :

10 Mbps	=	5 EVCs
100 Mbps	=	No more than 16 EVCs
1000 Mbps	=	No more than 250 EVCs
10 Gbps	=	No more than 750 EVCs

ERS-Basic, ERS Priority Data and ERS-Real Time EVC bandwidth is limited to a maximum Mbps per Service Class per EVC, and must comply with each of the following maximum limits:

EVC Service Class	10 Mbps UNI Max/EVC	100 Mbps UNI Max/EVC	100 Mbps UNI Max/EVC	10 Gbps UNI Max/EVC
ERS-B (or) EVPLAN-B	10 Mbps	100 Mbps	1000 Mbps	1000 Mbps
ERS-PD	10 Mbps	100 Mbps	500 Mbps	500 Mbps
ERS-RT	10 Mbps	100 Mbps	100 Mbps	100 Mbps
EVPLAN-RT	10 Mbps	50 Mbps	50 Mbps	N/A

- 3. Interoffice Mileage** – The Interoffice Mileage charge applies to the distance between the customer's serving central office and the nearest TLS equipped central office (a central office equipped with a switch, node or other Verizon equipment capable of delivering service, via a shared fiber path or network infra-structure). This interoffice distance is measured in airline miles, based upon the latitude and longitude of each central office. The mileage measurement is calculated as specified by NECA tariff FCC No. 4. The mileage rate applies on a per mile basis. This charge applies in addition to the applicable rates and charges for the TLS UNI Port with Access Line. Optical protected mileage is the use of optical transport systems in the interoffice network to carry an Ethernet UNI circuit to protect against fiber outages and is available only for the 1000 Mbps Protected Non-Diverse and Protected Diverse UNI speed at the applicable rate provided in Part M, Section 6. The protected transport option for 10/100 Mbps Protected Non-Diverse and Protected Diverse UNI speeds include optical protected interoffice transport when needed.

- 4. Domain/LAN Extension Equipment Changes** – Customer requests for changes in domains and replacement of LAN extension equipment will be assessed a nonrecurring charge per location per change.

- B. Minimum Period** – The minimum period for TLS under the month-to month plan is nine months.

- C. Term Payment Plans** – The TLS UNI Port with Access Lines are offered under a three (3) year or five (5) year Term Payment Plan. The terms and conditions applicable to TLS provided under a Term Payment Plan are specified in section 1.6.10.

- D. Moves, Changes and Upgrades** – When the customer requests a move or relocation of a Standard Access Line, Premier Access Line or EMS Real Time Access Line to a different address and/or different building, the move or relocation will be treated as a termination of the existing service and the establishment of a new service for the application of all charges.

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1. Advanced Data Services

1.6 Transparent LAN Service (TLS)

1.6.9 Application of Rates and Charges	
D.	Moves, Changes and Upgrades (Cont'd)
	When the customer requests an upgrade in service speed, or change in service type, at an existing address, the upgrade in service speed/change in service type will be treated as a termination of the existing service and the establishment of a new service for the application of all charges. Customer requests for changes in domains and replacement of LAN extension equipment will be charged a nonrecurring charge per location per change.
E.	Optional Features – Additional rates and charges apply for optional features.
1.	A monthly rate and a nonrecurring charge apply for each CSM** arrangement. The customer will be charged on a per domain/VLAN basis. The nonrecurring charge applies in addition to all other applicable service charges.

1.6.10 Termination Liability	
A.	In the event TLS is terminated by the customer prior to completion of the current term commitment period, the customer shall be liable for an early termination charge, except as noted below. The amount of the early termination charge will be 25% of the monthly recurring charge(s) (MRC) for the remainder of the term. For example: $25\% \times \text{MRC} \times \# \text{ of Lines} \times \text{Remainder of Term} = \text{Termination Charge}$
1.	Early termination charges will apply only to those rate elements under a term plan. If any rates for the service are increased during the term period, exclusive of any increase due to local, state or federal fees, taxes or surcharges, the customer may terminate the service without incurring an early termination charge.
B.	End of Term Options – Prior to the end of the term plan, the customer may select one of the following options, to be effective at the end of the term:
1.	Renew term plan,
2.	Commit to a new term plan
3.	Arrange for a change of service, or
4.	Arrange for termination of the service.
C.	In the event the customer does not select one of the above options, the customer will be converted to the shortest-term period available under Product Guide (i.e., month-to-month) for the same service, and will be subject to the applicable term commitment, if any, unless the customer terminates the service within sixty (60) days of the conversion date.

** Effective February 7, 2011, the Customer Service Management feature is limited to existing customers of record. Additions, rearrangements and moves of service are not permitted.

1. Advanced Data Services
1.6 Transparent LAN Service (TLS)

1.6.10 Termination Liability

- | | |
|-----------|---|
| D. | Early termination charges will not be assessed under the following circumstances: |
| 1. | Customer moves existing service either to a new location within the same address and/or same building (inside move) or to a new location (outside move) and maintains that service for the remainder of the term; |
| 2. | Customer attempts to move the existing service to a new location within Verizon's service area, but the service is unavailable; |
| 3. | Customer renegotiates a new term plan for the same service before the current plan expires and the value of the new term plan is equal to or greater than the remaining value of the current term plan, or; |
| 4. | Customer changes to another service or upgrades service to a higher speed or capacity under a term commitment, provided the following conditions are met: |
| a. | The value of the new term plan is equal to or greater than the remaining value of the current term plan, |
| b. | Verizon provides the new service via this Product Guide, and |
| c. | The order to discontinue the existing service and the order for the new or upgraded service are received by Verizon at the same time. |

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1. Advanced Data Services

1.7 SONET Point-to-Point Service

1.7.1 General									
A.	SONET Point-to-Point Service (SPTP) provides high speed, synchronous optical fiber-based, full duplex data transmission capabilities. SPTP is provisioned over Verizon's SONET network and provides customers with SONET based broadband transport with the following capabilities. <table> <tr> <td>OC3, OC3c or STM – 1</td><td>Transmission services operating at the bit rate of 155.52 Mbps.</td></tr> <tr> <td>OC12, OC12c</td><td>Transmission services operating at the bit rate of 622.08 Mbps.</td></tr> <tr> <td>OC48, OC48c</td><td>Transmission services operating at the bit rate of 2.488 Gbps.</td></tr> </table>	OC3, OC3c or STM – 1	Transmission services operating at the bit rate of 155.52 Mbps.	OC12, OC12c	Transmission services operating at the bit rate of 622.08 Mbps.	OC48, OC48c	Transmission services operating at the bit rate of 2.488 Gbps.		
OC3, OC3c or STM – 1	Transmission services operating at the bit rate of 155.52 Mbps.								
OC12, OC12c	Transmission services operating at the bit rate of 622.08 Mbps.								
OC48, OC48c	Transmission services operating at the bit rate of 2.488 Gbps.								
1.7.2 Service Description									
A.	SPTP provides transport at the optical level between a customer's locations or between a customer's premises and a Verizon wire center, where it connects with another service of equal speed. SPTP is transported over a shared network infrastructure and remains optical throughout the path. Depending on the service rate (payloads consisting of 3, 12, or 48 separate Synchronous Transport Signals (STS1s) with OC3, OC12, or OC48), separate overheads are transported. SPTP service is also offered in a concatenated format (one single channel with one single overhead) at service rates of OC3c, OC12c, and OC48c. The same payload content is maintained throughout the service (i.e. if DS1s are mapped by the customer at one end, DS1s must be mapped at the other end of the service). SONET equipment is required throughout the circuit.								
B.	The service is available at month-to-month, and 3-year and 5-year term pricing plans. A 12-month minimum billing period applies. Month-to-month, 3-year and 5-year term pricing plan rates are not fixed and will vary based upon the rates in effect in the Product Guide.								
C.	The technical specifications for SPTP service are delineated in Technical Reference GR-253-CORE, Issue 3. When provided with Synchronous Transport Module (STM-1) transmission, the technical specifications are delineated in Technical References ITU G707, ITU G708 and ITU G709.								
D.	SPTP services may be configured as follows: <table> <tr> <td>OC3</td><td> 3 STS1 channels each of which may consist of: - a DS3 that is STS1 mapped - up to 28 DS1s that are Virtual Tributary (VT) mapped - an STS1 channel without constraint to payload mapping </td></tr> <tr> <td>OC3c</td><td>A single concatenated STS3c channel</td></tr> <tr> <td>STM1</td><td>Synchronous Digital Hierarchy (SDH) channel of 155.52 Mbps</td></tr> <tr> <td>OC12</td><td> 12 STS1 channels each of which may consist of: - a DS3 that is STS1 mapped - up to 28 DS1s that are VT mapped - an STS1 channel without constraint to payload mapping </td></tr> </table>	OC3	3 STS1 channels each of which may consist of: - a DS3 that is STS1 mapped - up to 28 DS1s that are Virtual Tributary (VT) mapped - an STS1 channel without constraint to payload mapping	OC3c	A single concatenated STS3c channel	STM1	Synchronous Digital Hierarchy (SDH) channel of 155.52 Mbps	OC12	12 STS1 channels each of which may consist of: - a DS3 that is STS1 mapped - up to 28 DS1s that are VT mapped - an STS1 channel without constraint to payload mapping
OC3	3 STS1 channels each of which may consist of: - a DS3 that is STS1 mapped - up to 28 DS1s that are Virtual Tributary (VT) mapped - an STS1 channel without constraint to payload mapping								
OC3c	A single concatenated STS3c channel								
STM1	Synchronous Digital Hierarchy (SDH) channel of 155.52 Mbps								
OC12	12 STS1 channels each of which may consist of: - a DS3 that is STS1 mapped - up to 28 DS1s that are VT mapped - an STS1 channel without constraint to payload mapping								

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1. Advanced Data Services

1.7 SONET Point-to-Point Service

1.7.2 Service Description	
D.	(Continued)
OC12c	A single concatenated STS12c channel
OC48	48 STS1 channels each of which may consist of: - a DS3 that is STS1 mapped - up to 28 DS1s that are VT mapped - an STS1 channel without constraint to payload mapping; or 16 separate concatenated STS3c channels; or 4 separate concatenated STS12c channels; or any combination of the above configurations up to the total OC48 capacity
OC48c	A single concatenated STS48c channel

1.7.3 Terms and Conditions	
A.	All rate elements associated with an SPTP service that is provided on a point-to-point basis between customer designated premises must be in the same rate plan.
B.	When SPTP is ordered with STM transmission, both of the customer-designated premises must use STM transmission.
C.	SPTP is deployed upon customer request, and is available based on negotiated installation intervals. Where suitable SONET facilities are not available, special construction rates and charges may apply.
D.	The customer must provide, at no cost to Verizon, 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.
E.	SPTP services, which are provided on a month-to-month basis, are subject to a one-year minimum service requirement. If service is disconnected during the first year, the minimum period charge is 100% of the monthly rate from the date of disconnection through the end of the first year.
F.	SPTP services which are provided under 3-year or 5-year term plans are subject to termination liability if service is disconnected prior to the end of the term plan.
G.	Termination Liability
1.	If the disconnect occurs during the first year of service, termination liability is calculated at 100% of the monthly charges for the unexpired portion of the first year, and at 15% of the monthly charges for the remainder of the term plan.
2.	If the disconnect occurs after the first year of service, termination liability is calculated at 15% of the monthly charges from the date of disconnection through the remainder of the term plan.

Effective: January 1, 2015

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1. Advanced Data Services

1.7 SONET Point-to-Point Service

1.7.3 Terms and Conditions	
G.	(Continued)
3.	Termination liability will not apply: a) When cancellation of the SPTP service occurs within thirty-days of the effective date of a Verizon initiated rate increase and the customer's total monthly rate for the affected service increased by 8% or more; b) When the service is changed to a longer SPTP term plan; c) When the service is changed to an SPTP service of a higher bit rate with a new, equal or longer, term plan; or, d) When the service is converted to Enhanced Dedicated SONET Service.
H.	Expiration – At the expiration of a 3-year or 5-year term plan, the rates for the expiring term plan will continue until the customer either cancels service or orders a new plan.
I.	A change in port or channel termination will be treated as a discontinuance of the existing service and an installation of a new service. All associated nonrecurring charges will apply for the new service. A new minimum period will be established for the new service. The customer will also be responsible for all outstanding minimum service period obligations associated with the disconnected service.
J.	Credit Allowance
1.	Any single service outage of four hours or more due solely to a Verizon facility failure will result in a credit of 100% of the monthly rate for the applicable rate elements affected, provided that the interruption is brought to the attention of Verizon within 10 days. The total credit allowance in any one billing period cannot exceed 100% of the customer's monthly rate for the affected rate elements, regardless of the number or length of service interruptions within a billing month.
2.	When credit allowance does not apply for: a) Service interruptions of less than four hours; b) Service interruptions caused by the negligence of the customer or authorized user; c) Service interruptions resulting from the failure of equipment or systems provided by the customer or authorized user; d) Service interruptions during any period in which Verizon is not afforded access to premises for testing and/or repair of service; e) Service interruptions when the customer has released the service to Verizon for maintenance purposes, to make rearrangements, or for the implementation of an order for a change in the service during the time that was negotiated with the customer prior to the release of that service; f) Service interruptions that continue due to the failure of the customer to authorize replacement of an element of special construction; or, g) Service interruptions during periods when the customer elects not to release the service for testing and/or repair.

Effective: January 1, 2015

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1. Advanced Data Services
1.7 SONET Point-to-Point Service

1.7.4 Application of Rates and Charges	
A.	Monthly Recurring Charges – Apply to Local Distribution Channels (LDCs) and Channel Mileage (Fixed and Per Mile) rate elements.
1.	Local Distribution Channels – The LDC rate element combines the Channel Termination and port (protected or nonprotected) to provide the single LDC Charge. LDCs apply to that portion of the SONET Point-to-Point Service connecting two specific customer locations or connecting a customer location to Verizon’s serving wire center. Typically, a LDC is found at each end point.
2.	Channel Mileage –. The calculation of this charge is based on a fixed mileage component and per airline miles between two serving wire centers.
B.	Nonrecurring Charges – Apply to Local Distribution Channels (LDCs) only.

Effective: January 1, 2015

Verizon New England Inc.

1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.1 General	
A.	This section contains definitions, terms and conditions applicable to the provision of Dedicated Wavelength Ring (DWR) Service furnished by Verizon within the State of Massachusetts, where conditions and facilities permit.
1.8.2 Service Description	
A.	Dedicated Wavelength Ring (DWR) provides managed optical transport of multiple protocols which are transmitted over a single fiber optic pair. DWR is configured in a diversely routed ring architecture or topology and can be arranged as a full (closed) ring or as a partial ring. The ring architecture allows for point-to-point optical services of varying wavelengths to be multiplexed on or off of the ring.
B.	DWR allows for the native transmission of multiple high-speed protocols of various wavelengths over a single customized network. The wavelengths are arranged in a channelized format such that the protocol transmitted over each channel is independent of every other channel on the DWR. The customer must specify, by channel, the interface that defines the transmission speed and protocol being transmitted over the associated wavelength.
1.8.3 Terms and Conditions	
	Dedicated Wavelength Ring (DWR) is comprised of nodes, ring mileage, network optimization (amplification), high-speed (pass-through) interfaces (certain partial ring configurations only), and optical transport channels.
A. Full Ring	
1.	A DWR full (closed) ring provides connectivity to multiple customer designated locations (nodes). A full ring must have a minimum of three nodes at different locations or two nodes at different locations with a network optimization mid-span amplifier. At least one of the devices (node or amplifier) must be located in a Central Office (CO) and one must be located at a customer's designated premises.
B. Partial Ring	
1.	A DWR partial ring connects multiple customer designated locations (nodes) between fiber-meet locations at which high-speed interconnection of Verizon's backbone network facilities to the customer's facilities or the facilities of a third party occurs.
2.	Partial ring service may only be interconnected to (1) another partial ring provided by Verizon, or (2) ring facilities provided by the customer or a third party.
3.	The portion of the ring provided by the customer or third party must use vendor equipment that matches the equipment used by Verizon and must maintain the same vintage in software release as that in use by Verizon. Upon written notice by Verizon, the customer or third party will have sixty (60) days in which to complete the change to any software release deployed by Verizon.

Effective: January 1, 2015

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.3 Terms and Conditions	
B.	Partial Ring (Continued)
4.	A fiber-meet may occur at a customer's designated premises, in a Verizon CO, or at a location that is mutually agreeable to both the customer and Verizon.
5.	When the fiber-meet occurs at a customer's designated premises, the point of interconnection between Verizon's facilities and the facilities of the customer or of a third party shall be a node.
6.	When the fiber-meet occurs in a Verizon CO, high-speed interconnection from the device (node or amplifier) occurs at a collocation arrangement via fiber cross-connects between Verizon's fiber optic facilities and the customer's or third party's facilities.
7.	When the fiber-meet occurs at a mutually agreed upon location, the point of interconnection shall be a high-speed (pass-through) interface as described in Section 1.8.4.D following.
8.	A partial ring must have a minimum of two devices (nodes or amplifiers), one of which must be a node. Additionally, at least one of the devices (node or amplifier) must be located in a Verizon CO. When the fiber-meet occurs via a high-speed (pass-through) interface at a mutually agreed upon location, that interface is provided in lieu of the device (node or amplifier) at that location.
9.	When DWR is provided in a partial ring configuration, the following applies:
a.	The customer must provide Verizon with its fiber optic facility requirements (i.e., whether it will use single mode fiber or multi-mode fiber) prior to Verizon ordering the necessary devices (nodes and amplifiers) to provide the requested service. The customer may utilize its own fiber optic facilities or the facilities of a third party.
b.	The customer must provide, at no cost to Verizon, suitable and secure space, suitable environmental conditions, an 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.

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.3 Terms and Conditions	
B.	Partial Ring (Continued)
9.	(Continued)
c.	Interconnection to partial DWR service is limited to high-speed fiber interconnection of Verizon's backbone network fiber optic facilities and the fiber optic facilities of the customer or of a third party. Except as specified in this Product Guide, interconnection to other Verizon services may not occur at a premises which the customer has designated at its fiber-meet location.
d.	When ordering a transport channel that originates at and terminates to devices that are not within the partial ring provided by Verizon, the customer must provide Verizon with a copy of the order. This order provides Verizon 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 a Verizon provided partial ring. Channel Mapping charges do not apply when ordering point-to-point or point-to-meet-point optical transport channels. Channel Mapping is further described in the Product Guide.
C.	Network Design
1.	Verizon is responsible for the overall design and configuration of the DWR. Construction of the ring will not begin until such design and configuration are mutually agreeable to both the customer and Verizon.
2.	The customer or third party is responsible for engineering its portion of the jointly provided ring. Verizon may engineer the customer's portion or the third party's portion of the ring within the LATA subject to additional engineering charges.
3.	Verizon's network design will define the optical parameters at the fiber-meet locations. Verizon 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.
4.	Verizon bears no responsibility for the optical parameters beyond the fiber-meet (i.e., in the facilities of the customer or of the third party).
5.	The customer is responsible to ensure that its facilities and equipment meet any applicable technical requirements or limitations for the protocol being transmitted over the optical transport channels.
6.	The technical specifications for DWR are delineated in Technical Publications GR-2918-CORE, Issue 4, GR-2979-CORE, Issue 3, GR-1312-CORE, Issue 3, ITU G.959.1, and ITU G.692.

Effective: January 1, 2015

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.3 Terms and Conditions

D. Connection to a Dedicated Wavelength Ring (DWR)

1. Connection of SONET Connects to a DWR occurs via a protected or unprotected SONET transport channel of an equal speed as follows:

SONET Connects Capacity	Single Port Channel	Multi-port 2.5 Gbps Facility	Multi-port 10 Gbps Facility
OC3/OC3c	SONET OC3/OC3c	SONET OC3/OC3c	
OC12/OC12c	SONET OC12/OC12c	SONET OC12/OC12c	
OC48/OC48c	SONET OC48/OC48c		SONET OC48/OC48c
OC192/OC192c	SONET OC192/OC192c		

2. Connection of Enhanced Dedicated SONET Service (EDSS) to a DWR is provided over an equal speed, unprotected optical transport channel (e.g. a 155.52 Mbps unprotected channel would connect to an OC3 EDSS node). Each node on the EDSS ring must be located at the same customer designated premises or in the same Verizon CO as its corresponding DWR node.
3. Connection of SONET Point-to-Point (SPTP) to a DWR is provided over an equal speed OC3/OC3c, OC12/OC12c, OC48/OC48c, or OC192/OC192c protected SONET optical transport channel with a 2-fiber or 4-fiber interface, or using an equal speed unprotected optical transport channel with a 2-fiber interface as described in the following section. Protected 4-fiber interfaces are available with single port interfaces only.
4. Connection of Verizon Optical Networking service to a DWR is provided over an equal speed protected optical transport channel as follows. These services are transported over the DWR using a 2-fiber protected interface or a 4-fiber protected interface.

Verizon Optical Networking Service	Single Port Channel	Multi-port 2.5 Gbps Facility	Multi-port 10 Gbps Facility
OC3c Ethernet to SONET mapped Service	SONET OC3c	SONET OC3c	
GigE12/600 Mbps Ethernet mapped to OC12c Ethernet to SONET mapped	SONET OC12c	SONET OC12c	
1 Gbps Ethernet full rate	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet
1 Gbps FICON	1 Gbps FICON	1 Gbps FICON	1 Gbps FICON
Fibre Channel	1 Gbps Fibre	1 Gbps Fibre	1 Gbps Fibre

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.3 Terms and Conditions	
D.	Connection to a Dedicated Wavelength Ring (DWR) (Continued)
5.	Connection of a Verizon Optical Networking Gigabit Fibre Channel and/or Gigabit FICON service is provided over a Gigabit Fibre channel and/or Gigabit FICON optical transport channel.
6.	The use of a multi-port interface card requires that all channels on a single card be interrupted during periods when Verizon is performing maintenance on that card. No credit for such periods of interruption will apply.

1.8.4 Service Components	
A.	Nodes
	Nodes are Dense Wave Division Multiplexing (DWDM) devices located at customer designated premises or Verizon wire centers from which optical transport channels are multiplexed on or off the DWR. The type of node that is deployed at each location is determined by the number of optical transport channels that will be multiplexed on or off the DWR at that location.
1.	4-Channel Node - Placement of a 4-channel node at a location enables up to 4 protected optical transport channels to be deployed. Each protected optical channel may be replaced by two unprotected optical channels up to a maximum of 8 possible channels on the node. A 4-channel node may be utilized as the primary node at a location or as an expansion node to expand the capacity of a 16-channel primary node. 4-channel nodes are subject to the availability of suitable facilities and equipment to provide such device. No more than one 4-channel node will be provided at a location.
2.	16-Channel Node - Placement of a 16-channel node at a location enables up to 16 protected optical transport channels to be deployed. Each protected optical channel may be replaced by two unprotected optical channels up to a maximum of 32 possible channels on the primary node.
3.	The capacity of a 16-channel primary node may be increased through the addition of an expansion node at the same location. A 4-channel expansion node enables up to 20 protected optical transport channels (i.e., 16 on the primary node and 4 on the expansion node) to be deployed at a single location. Each protected optical channel may be replaced by 2 unprotected optical channels up to a maximum of 40 possible channels at that location. A 16-channel expansion node enables up to 32 protected optical transport channels (i.e., 16 on the primary node and 16 on the expansion node) to be deployed at a single location. Each protected optical channel may be replaced by two unprotected optical channels up to a maximum of 64 possible channels at that location.

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.4 Service Components	
A. Nodes (Continued)	
4.	The maximum number of optical transport channels that can be deployed at a single location is dependent upon the specific configuration of the DWR and the type of optical transport channels being deployed from that location.
5.	The customer will be billed additional charges for any charges levied against Verizon for space and power required to place nodes on Verizon's side of the network interface.
6.	When two nodes are located in the same building there will be no diversity between the two nodes.
B. Mileage	
1.	For full ring service configurations, DWR Mileage is the total of airline distances between devices (nodes and amplifiers) rounded up to the nearest mile. The mileage rate is based on total ring capacity and not on individual services between devices. For example, the mileage charge for a five device ring with two mid-span amplifiers and a distance of 4.3 miles between each device (21.5 total miles) would be calculated by multiplying the mileage rate by 22 miles.
2.	For partial ring service configurations, DWR Mileage is the total of airline distances between fiber-meet locations (customer designated premises, CO or mutually agreed upon location, as applicable) and each device (node or amplifier) on the partial ring. The total mileage is then rounded up to the nearest mile. The mileage between devices (e.g., an initial node and an expansion node or an At-Node amplifier, as applicable) located at the same customer designated premises or Verizon CO is zero. This mileage calculation applies regardless of the number of services on the ring.
C. Network Optimization/Amplification	
1.	Network Optimization provides for amplification of the signal to ensure acceptable optical levels. When required, amplification is performed in a Verizon CO when mid-span amplification of the signal is required between nodes. Node amplification occurs in one or two directions (East to West and/or West to East). Mid-span amplification occurs simultaneously in both directions (East to West and West to East). Verizon shall have sole responsibility in determining when amplification is required and the quantity and type of amplification necessary to maintain acceptable optical levels.
D. High-Speed (Pass-Through) Interface	
1.	A high-speed (pass-through) interface is a device placed at a mutually agreed upon fiber meet location where interconnection between the facilities of Verizon and those of the customer or of a third party provider occurs. The high-speed (pass through) interface will not be utilized when such interconnection occurs within a Verizon CO (for which a node or amplification device and fiber cross-connects apply) or at a customer's designated premises for which interconnection via a node occurs. Connection to other Verizon services is prohibited at locations utilizing a high-speed (pass-through) interface.

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.4 Service Components																					
E. Optical Transport Channels																					
1.	Optical transport channels allow for optical services to be multiplexed on to or off of the DWR at locations equipped with a DWR node. An optical interface at the node allows for connection of the applicable protocol to the customer's equipment. Optical transport channels are provided on a node-to-node (i.e., point-to-point) basis, or between a location equipped with a DWR node and a fiber-meet location. These channels are provided on a point-to-fiber-meet basis. When a channel originates at and terminates to devices which are not within the partial ring, Verizon must map that channel through the partial ring to ensure continuity of the signal over the jointly provided ring.																				
2.	A Channel Mapping nonrecurring charge applies in lieu of the rates and charges for a point-to-point or point-to-fiber-meet transport channel. Optical Transport Channels are available on a protected or unprotected basis depending on the protocol being transmitted and the level of redundancy required for the optical channel. These channels may be ordered using a single-port interface (a single channel per interface card) or using a multi-port interface. A multi-port interface is a facility capable of supporting up to 4 multi-port channels of ESCON, Fibre Channel, FDDI, Fast Ethernet, D1 Video, or any combination of these multi-port channels. A multi-port optical transport channel provides a two-point facility over the DWR for the purpose of aggregating multiple optical channels over a single wavelength.																				
3.	Some protocols have facility distance limitations and may affect the design or availability of the DWR or its optical transport channels. The multi-port interface is provided with a short reach, 2-fiber interface with a 1310nm signal. A protected optical channel allows for a single signal from the customer to be duplicated and sent over separate diverse routes (working and protect paths) within the DWR network. An unprotected optical channel provides minimum protection of the signal from the customer. End-to-end protection is provided by the protection inherent in the connecting service provided by Verizon (e.g., EDSS), as applicable.																				
4.	Optical transport channels are delivered over a single-port interface or multi-port optical transport channel unless otherwise specified. The use of a multi-port optical transport channel and the type of optical transport channels that can be provided over a single-port or multi-port optical transport channel are subject to the availability of suitable equipment to provide the requested service. Multi-port facilities are offered in capacities of 2.5 Gbps or 10 Gbps and are capable of supporting the following channel types, in any combination up to the maximum capacity of the multi-port facility.																				
	<table> <tr> <th><u>2.5 Gbps Multi-port Facility</u></th><th><u>10 Gbps Multi-port Facility</u></th></tr> <tr> <td>ESCON</td><td>1 Gbps Fibre Channel</td></tr> <tr> <td>1 Gbps Fibre Channel</td><td>2 Gbps Fibre Channel</td></tr> <tr> <td>FDDI</td><td>Gigabit Ethernet</td></tr> <tr> <td>1 Gbps FICON</td><td>1 Gbps FICON</td></tr> <tr> <td>Fast Ethernet</td><td>2 Gbps FICON</td></tr> <tr> <td>D1 Video</td><td>SONET OC48/OC48c</td></tr> <tr> <td>SONET OC3/OC3c</td><td></td></tr> <tr> <td>SONET OC12/OC12c</td><td></td></tr> <tr> <td>Gigabit Ethernet</td><td></td></tr> </table>	<u>2.5 Gbps Multi-port Facility</u>	<u>10 Gbps Multi-port Facility</u>	ESCON	1 Gbps Fibre Channel	1 Gbps Fibre Channel	2 Gbps Fibre Channel	FDDI	Gigabit Ethernet	1 Gbps FICON	1 Gbps FICON	Fast Ethernet	2 Gbps FICON	D1 Video	SONET OC48/OC48c	SONET OC3/OC3c		SONET OC12/OC12c		Gigabit Ethernet	
<u>2.5 Gbps Multi-port Facility</u>	<u>10 Gbps Multi-port Facility</u>																				
ESCON	1 Gbps Fibre Channel																				
1 Gbps Fibre Channel	2 Gbps Fibre Channel																				
FDDI	Gigabit Ethernet																				
1 Gbps FICON	1 Gbps FICON																				
Fast Ethernet	2 Gbps FICON																				
D1 Video	SONET OC48/OC48c																				
SONET OC3/OC3c																					
SONET OC12/OC12c																					
Gigabit Ethernet																					

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.4	Service Components
F.	Protocols
1.	All signals generated by customer provided equipment and delivered to Verizon for multiplexing on to DWR must meet industry standards and specifications for the underlying protocol. The customer is responsible to perform any error detection and error correction of the data generated by its equipment. Verizon assumes no responsibility for the quality of the signal generated by the customer or any customer provided equipment and will deliver the signal to the receiving location in the same format and condition as generated by the customer. Verizon will transmit the following protocols over DWR optical transport channels: SONET OC3 – for transmission of 155.52 Mbps synchronous optical data transmission capability. SONET OC3 is delivered over a 2-fiber or 4-fiber single-port channel or a 2.5 Gbps multi-port channel. SONET OC3c – for transmission of concatenated 155.52 Mbps synchronous optical data transmission capability. SONET OC3c is delivered over a 2-fiber or 4-fiber single-port channel or a 2.5 Gbps multi-port channel. SONET OC12 – for transmission of 622.08 Mbps synchronous optical data transmission capability. SONET OC12 is delivered over a 2-fiber or 4-fiber single-port channel or a 2.5 Gbps multi-port channel. SONET OC12c – for transmission of concatenated 622.08 Mbps synchronous optical data transmission capability. SONET OC12c is delivered over a 2-fiber or 4-fiber single-port channel or a 2.5 Gbps multi-port channel. SONET OC48 – for transmission of 2.488 Gbps synchronous optical data transmission capability. SONET OC48 is delivered over a 2-fiber or 4-fiber single-port channel or a 10 Gbps multi-port channel. SONET OC48c – for transmission of concatenated 2.488 Gbps synchronous optical data transmission capability. SONET OC48c is delivered over a 2-fiber or 4-fiber single-port channel or a 10 Gbps multi-port channel.

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.4 Service Components											
F.	Protocols (Continued)										
1.	(Continued) SONET OC192 – for transmission of 9.953 Gbps synchronous optical data transmission capability. SONET OC192 is delivered over a 2-fiber or 4-fiber single-port channel only. SONET OC192c – for transmission of concatenated 9.953 Gbps synchronous optical data transmission capability. SONET OC192c is delivered over a 2-fiber or 4-fiber single-port channel only. ESCON* – for transmission of one 200 Mbps Enterprise Service Connection channel between the same two DWR nodes used for computer-to-computer data exchange. An ESCON signal is limited to a maximum distance of 43km (physical route kilometers) between the locations involved. ESCON is delivered over a 2.5 Gbps multi-port channel only. FICON* – for transmission of 1 Gbps and 2 Gbps Fiber Connection among mainframes, storage devices and peripherals on a single channel. A FICON signal is limited to a maximum distance of 100km (physical route kilometers) between the locations involved. FICON is delivered over a single-port channel, a 2.5 Gbps multi-port channel or a 10 Gbps multi-port channel. Fibre Channel* – for transmission of 2.125 Gbps, 1.0625 Gbps, 531 Mbps, 266 Mbps and 133 Mbps 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 100km (physical route kilometers) between the locations involved. Fibre Channel signals at transmission speeds of 2.125 Gbps, 1.0625 Gbps, 531 Mbps, 266 Mbps, and 133 Mbps are delivered over a single-port channel. Fibre Channel may also be delivered over a multi-port channel as follows: <table> <tr> <td><u>2.5 Gbps Multi-port Facility</u></td><td><u>10 Gbps Multi-port Facility</u></td></tr> <tr> <td>133 Mbps</td><td>1.0625 Gbps</td></tr> <tr> <td>266 Mbps</td><td>2.125 Gbps</td></tr> <tr> <td>531 Mbps</td><td></td></tr> <tr> <td>1.0625 Gbps</td><td></td></tr> </table> * Denotes a data optical transport channel	<u>2.5 Gbps Multi-port Facility</u>	<u>10 Gbps Multi-port Facility</u>	133 Mbps	1.0625 Gbps	266 Mbps	2.125 Gbps	531 Mbps		1.0625 Gbps	
<u>2.5 Gbps Multi-port Facility</u>	<u>10 Gbps Multi-port Facility</u>										
133 Mbps	1.0625 Gbps										
266 Mbps	2.125 Gbps										
531 Mbps											
1.0625 Gbps											

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.4	Service Components
F.	Protocols (Continued)
1.	(Continued) ETR/CLO* – a channel for transmission of an 8 Mbps External Timing Reference/Control Link Oscillator signal for distributing time-of-day information to all central processing units in the Sysplex and to keep the Sysplex timer units synchronized with each other. An ETR/CLO signal is limited to a maximum distance of 40km (physical route kilometers) between the locations involved. ETL/CLO is delivered over a single-port channel only. FDDI* – for transmission of 100 Mbps Fiber Distributed Data Interface channels for general purpose interconnection between computers and peripheral equipment, including interconnection of Local Area Networks and other networks. FDDI is delivered over a single-port channel or 2.5 Gbps multi-port channel. ISC* – for transmission of 1.06 Gbps InterSystem Channel for data caching, locking and queuing services between coupling facility and a central processing unit. An ISC signal is limited to a maximum distance of 40km (physical route kilometers) between the locations involved. ISC is delivered over a single-port channel only. ISC3* – for transmission of 2.125 Gbps InterSystem Channel for data caching, locking and queuing services between coupling facility and a central processing unit. An ISC3 signal is limited to a maximum distance of 40km (physical route kilometers) between the locations involved. ISC3 is delivered over a single-port channel only. Fast Ethernet* – for 100 Mbps transmission of Ethernet. Fast Ethernet is delivered over a single-port or multi-port channel. Gigabit Ethernet* – for 1.0 Gbps transmission of Ethernet. Gigabit Ethernet is delivered over a single-port channel, a 2.5 Gbps multi-port channel, or a 10 Gbps multi-port channel. 10 Gigabit Ethernet LAN-PHY – 10GBASE-R (LAN PHY) interfaces offer an effective line rate of 10.3125 Gbps (10 Gbps of data traffic encoded in a 64B/66B protocol compared to the traditional 8B/10B protocol of Gigabit Ethernet). 10 Gigabit Ethernet LAN-PHY is delivered over a single-port channel only. 10 Gigabit Ethernet WAN-PHY – 10GigE data rate and format compatible with the SONET OC192c transmission format defined by ANSI. 10 Gigabit Ethernet WAN-PHY is delivered over a single-port channel only. D1 Video* – for uncompressed digital transmission of video signals operating at 270 Mbps. D1 Video is delivered over a single-port channel or 2.5 Gbps multi-port channel. * Denotes a data optical transport channel

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.4 Service Components
G. Channel Interface Codes 1. The following channel interface codes are used for the DWR: <u>NCI</u> 02FMF.4 for 4-Channel Node (Primary or Expansion) 02FMF.16 for 16-Channel Node (Primary or Expansion) 2. The following channel interface codes are used for channels using wavelengths on the DWR: 02FCF.10A (FDDI MM 125 Mbps) 02FCF.10A (FDDI SM 125 Mbps) 02FMF.S (DWDM 4-Port 1.25 Gbps) 02LNF. A02, A04, A07 (Fast Ethernet) 02LNF. A02, A04, A07 (Gigabit Ethernet) 02LNF.A02 (10 Gigabit Ethernet LAN-PHY) 02LNF.A02 (10 Gigabit Ethernet WAN-PHY) 02OPF.A02, A04, A07 (2.125 Gbps Fibre Channel) 02OPF.A02, A04, A07 (2.125 Gbps FICON) 02OPF.A02, A04, A07 (ISC3 at 2.125Gbps) 02OPF.A02, A04, A07 (1.0625 Gbps Fibre Channel) 02OPF.A02, A04, A07 (133 Mbps Fibre Channel) 02OPF.A02, A04, A07 (1Gbps FICON) 02OPF.A02, A04, A07 (266 Mbps Fibre Channel) 02OPF.A02, A04, A07 (531 Mbps Fibre Channel) 02OPF.A02, A04, A07 (ESCON) 02OPF.A02, A04, A07 (ETR/CLO) 02OPF.A02, A04, A07 (ISC) 02SOF.B,D,F,X (SONET OC12/OC12c) 02SOF.B,D,F,X (SONET OC192/OC192c) 02SOF.B,D,F,X (SONET OC3/OC3c) 02SOF.B,D,F,X (SONET OC48/OC48c) 02TD6.E (D1 Video) 04SOF.B,D,F,X (SONET OC12/OC12c) 04SOF.B,D,F,X (SONET OC3/OC3c) 04SOF.B,D,F,X (SONET OC48/OC48c)

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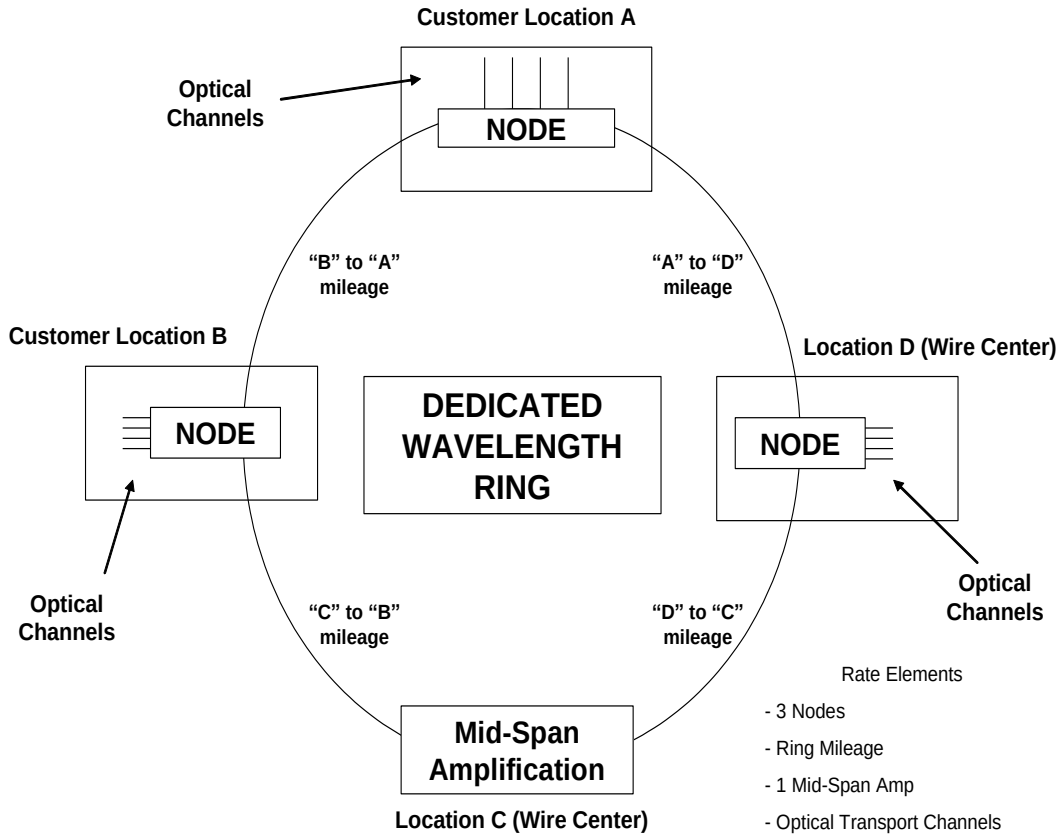
1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.4 Service Components

H. Ring Diagram

1. An example of a Dedicated Wavelength Ring



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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.5 Application of Rates and Charges	
A.	Commitment Periods
1.	DWR is available for 3-, 5- and 7-year commitment periods for the nodes, ring mileage, network optimization mid-span amplification and optical transport channels. DWR Optical Transport Channels are also available for a 1-year commitment.
2.	Nodes, network optimization mid-span amplification and SONET optical transport channels added subsequent to the initial installation may be coterminous to the expiration date of the DWR at the rates and charges specified for the term plan on the existing DWR or may require an extension to the existing plan as follows: For all rate elements other than SONET optical transport channels under a 1-year commitment period, a) If the addition is prior to the 21st month for an existing 3-year plan, prior to the 36th month for an existing 5-year plan, or prior to the 50th month for an existing 7-year plan, the addition will be coterminous to the expiration date of the DWR. b) If the addition is after the aforementioned periods, the customer must extend the commitment period of the existing plan for an additional one-year for a 3-year plan, an additional 2 years for a 5-year plan, or an additional 3 years for a 7-year plan. SONET services associated with DWR are subject to the termination liability set forth in Section 1.8.5.C following. c) For SONET optical transport channels under a 1-year commitment period, the addition will have commitment period that expires one year from the date that billing for the SONET optical transport channel commences. The minimum service period for such channels is three months.
3.	Data optical transport channels (see Section 1.8.4.E) added subsequent to the initial installation under a 3-year, 5-year or 7-year commitment period will be coterminous to the expiration date of the DWR at the rates and charges specified for the term plan on the existing DWR. These channels are subject to a minimum service period of three months.
4.	Data optical transport channels under a 1-year commitment period will have a commitment period that expires one year from the date that billing for the SONET optical transport channel commences. The minimum service period for such channels is three months.
5.	The addition of SONET and/or Data optical transport channels subsequent to the initial installation of service may also require the addition of an expansion node(s) and/or network optimization device(s) to accommodate the increase in channels. The addition of an expansion node or network optimization is subject to the conditions set forth in Section 1.8.5.A.2 above.

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.5 Application of Rates and Charges	
A.	Commitment Periods (Continued)
6.	Monthly recurring charges apply for the nodes, ring mileage, network optimization, partial ring high speed (pass-through) interfaces (certain partial ring configurations only), and optical transport channels. The monthly rate for an optical transport channel applies for the entire point-to-point connection. The monthly rate for a point-to-fiber-meet optical transport channel applies for the entire node-to-fiber-meet (collocation arrangement in a wire center, premises or mutually agreed upon location, as applicable) connection. Once a term period expires, the prevailing rates of the current plan will continue until the customer cancels service or requests a new term plan.
7.	When the optical transport channel is provided with a multi-port channel, rates and charges apply for the multi-port facility and for each multi-port channel riding the multi-port facility. When an optical transport channel is delivered over a multi-port channel, the multi-port facility and each multi-port channel riding the multi-port facility must be billed to the same customer who subscribes to the DWR. Once a term period expires, the prevailing rates of the current plan will continue until the customer cancels service or requests a new term plan.
8.	The rates and charges for optical transport channels delivered over a single-port or multi-port interface are set forth in Part M, Section 6.6.1. When the optical transport channel is provided with a multi-port interface, rates and charges apply for the multi-port facility and for each multi-port channel riding the multi-port facility.
B.	Nonrecurring Charges
1.	Nonrecurring charges for DWR apply for the initial installation of service and for any subsequent node, network optimization mid-span amplification, or optical transport channel that is added at any time after the initial installation of service. A nonrecurring charge also applies to upgrade a 4-channel primary node to a 16-channel primary node or a 4-channel expansion node to a 16-channel expansion node.
2.	Additionally, a Channel Mapping nonrecurring charge as set forth in Part M, Section 6.6.2 applies for each channel which Verizon must map over the partial ring. Only channels that originate at and terminate to devices that are not within the partial ring require mapping.
3.	A change in the type (e.g., Fibre Channel to FICON, or SONET channel with a 2-fiber interface to SONET channel with a 4-fiber interface) or optical carrier rate (e.g., OC3 to OC12) of optical transport channel is treated as a discontinuance of the existing channel and an installation of a new optical transport channel.

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.5 Application of Rates and Charges	
B.	Nonrecurring Charges (Continued)
4.	When an optical transport channel is ordered to connect with Enhanced Dedicated SONET Service (EDSS) or SONET Point-to-Point (SPTP), the optical channel will be billed to the EDSS or SPTP customer, as applicable.
5.	When an optical transport channel is delivered over a multi-port interface, the multi-port facility and each multi-port channel riding the multi-port facility must be billed to the same customer who subscribes to the DWR.
C.	Termination Liability
1.	Termination liability applies to DWR and is charged per rate element on all nodes, network optimization, partial ring high speed (pass-through) interfaces, optical transport channels and Network Management Methods (see Section 1.8.6 following). Data optical transport channels as set forth in Section 1.8.4.E are not subject to termination liability, however, such channels are subject to a minimum service period of three months.
2.	A separate termination liability charge is assessed for each rate element associated with the disconnected DWR or a Network Management Method. A customer who subscribes to a DWR ring that is arranged with the Direct TL1 Monitoring Optional Feature, as set forth in Section 1.8.6.B following, and who disconnects the DWR ring along with the Direct TL1 Monitoring Optional Feature prior to the end of the commitment period shall pay termination liability on the nodes, network optimization, partial ring high-speed interfaces, optical transport channels and the Direct TL1 Monitoring Optional Feature monthly recurring rate elements as set forth in Part M, Section 6.6.3.
3.	DWR or a Network Management Method may be canceled without termination liability when cancellation of the DWR or Network Management Method occurs within thirty (30) days of the effective date of a Verizon initiated rate increase of eight percent (8%) or more on any rate applicable to DWR service or Network Management Method.
4.	Termination liability will not apply (1) if a customer changes the term plan to a longer commitment period; (2) if a 4-channel primary node is upgraded to a 16-channel primary node; or (3) if a 4-channel expansion node is upgraded to a 16-channel expansion node.
5.	Termination liability will apply when the conditions above are not met and the customer cancels service prior to expiration of the plan period.
6.	For all rate elements other than SONET optical transport channels under a 1-year commitment period, if the cancellation occurs within the first two years of a term plan, termination liability is equal to 100 percent (100%) of the monthly charges for the unexpired portion of the first two years, and 25 percent (25%) of the monthly charges for the remainder of the plan.

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.5 Application of Rates and Charges	
C.	Termination Liability (Continued)
7.	If the customer cancels after the first two years of service, then termination liability is equal to 25 percent (25%) of the monthly charges for the remaining life of the term.
8.	For SONET optical transport channels under a 1-year term commitment, if the cancellation occurs prior to completion of the 1-year commitment period, termination liability is equal to 100 percent of the monthly charges for the unexpired portion of the first year.
9.	For Dedicated Wavelength Ring (DWR) Service 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, multiplied by the total number of months in service, 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.
D.	Conversions
1.	Customers who wish to move or convert existing Special Access DSR or High Capacity Special Access services to DWR may do so without conversion charges (termination liability and installation charges) as long as the total capacity of Special Access services or DSR purchased by the customer does not decrease.
E.	Extension of a Commitment Period
1.	The customer has the option, within sixty (60) days prior to the expiration date of the commitment period, to extend the expiring Term Pricing Plan to a plan with a longer commitment period, for which time-in-service credit will be allowed for the expiring plan. The commitment period selected for the extended plan must be longer than the commitment period of the expiring plan as follows: - An expiring 1-Year Term may be extended to a 3-Year, 5-Year or 7-Year Term Plan. - An expiring 3-Year Term may be extended to either a 5-Year or 7-Year Term Plan. - An expiring 5-Year Term may be extended to a 7-Year Term Plan.
2.	Time-in-service credit on the expiring plan will be granted and applied towards the new extended plan. For example, an expiring 3-Year term plan will allow for 3 years of time-in-service credit towards the extended plan.
3.	The customer may also extend the commitment period in order to install additional nodes, network optimization devices or SONET optical channels as described in Section 1.8.5.A.2 preceding.

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.5 Application of Rates and Charges	
E. Extension of a Commitment Period (Continued)	
4.	The rate for the longer commitment period will apply effective with the first bill day following expiration of the commitment period for the existing plan and continue through the remainder of the commitment period associated with the extended plan. No adjustment for the increased discount associated with the extended plan will be made to the monthly rates already billed on the expiring plan.
F. Credit Allowance for Service Interruption	
1.	For Dedicated Wavelength Ring (DWR) nodes and network optimization, any single service outage of four hours or more due solely to a Verizon facility failure will result in a credit of 100% of the monthly rates for the applicable DWR node or network optimization devices affected. Only one such credit is allowed in a single month's billing period.
2.	For DWR Optical Transport Channels, the following credits will be applied: - For protected Optical Transport Channels, any Verizon facility failure which is not restored within 1 minute will result in a credit of 100% of the monthly rate for the applicable protected optical channels affected. Only one such credit is allowed in a single month's billing period. - For unprotected Optical Transport Channels, no credit applies for a service outage on these channels for which no protection is provided by Verizon.
G. Moves and Changes	
	A move involves a change in the physical location of the Customer designated Premises which also involves a connection to a different rate demarcation point. The charges for the move are dependent on whether the move is to a new location within the same building or to a different building.
1.	Moves Within the Same Building - When the move is to a new location within the same building (Inside Move), a non-recurring charge for the Inside Move will apply. There will be no change in the Minimum Period requirement, and termination liability does not apply.
2.	Moves To a Different Building - Moves to a different building (Outside Move) will be treated as a discontinuance and start of Service and all associated nonrecurring charges will apply. New minimum period and/or Service Discount Plan requirements will be established for the new Services. The Customer will also remain responsible for satisfying all outstanding minimum period and/or termination liability charges for the discontinued Service.

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.5 Application of Rates and Charges

H. Cancellation Charges

1. For DWR, Verizon will construct the customer's dedicated ring. The customer must provide Verizon with complete and accurate information to design and construct the dedicated ring. Construction will not begin until the customer and Verizon agree on the design of the ring. The order date for the ring is the date on which the customer provides Verizon with a complete and accurate order for the service. In the event that the customer cancels the request, or part of the request, for construction of the ring, cancellation charges will apply as follows.
2. Cancellation Charges Which Apply After the Order Date:

	31st to 60th day after ordering	61st day after ordering to completion of Ring
- per Primary Node	\$13,000.00	\$26,000.00
- per Expansion Node	26,000.00	52,000.00
- per Mid-span Amp.	5,600.00	10,600.00

1.8.6 Optional Features - Network Management

The customer has the option of purchasing one of the following Network Management Methods for use with DWR service provided by Verizon in accordance with this Product Guide. Only one method may be provided on a single DWR. Network Management Methods will be available subject to compatibility of the current release of the Network Management Methods software with the DWR equipment deployed for the customer's network.

A. Customer Service Management (CSM)

CSM provides a customer with real-time information about the operational status of its DWR network. CSM provides a network view of real-time detection and reporting of network alarm conditions within the customer's DWR network. In addition, CSM provides the customer with the ability to generate basic network performance reports for its DWR network. The customer may also request network performance reports that are customized to meet their specific needs.

1. Terms and Conditions

- a. The customer must utilize Internet web access to connect its customer-provided terminal equipment to Verizon's CSM management system. Access to the internet and any associated rates and charges are the responsibility of the customer. The customer is also responsible for obtaining communications software that is compatible with the software Verizon utilizes to provide CSM. Verizon will work cooperatively with the customer to determine compatibility of its communications software

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.6 Optional Features - Network Management	
A.	Customer Service Management (CSM) (Continued)
1.	Terms and Conditions (Continued)
b.	CSM is provided only when Verizon provides all nodes on the ring.
c.	Subject to the restrictions set forth in Section 1.8.6.A.3 following, CSM is provided coincident with the installation of the associated DWR ring or may be added to an existing ring.
2.	Application of Rates and Charges
a.	A CSM monthly recurring charge applies, per full or partial ring, for each DWR provided with the CSM optional feature.
b.	A Node Setup charge applies, per primary or expansion node, for each node that is equipped with CSM at the time that CSM is initially established on the DWR.
c.	An Initial CSM Setup charge applies for establishment of the customer's initial CSM database partition. The initial CSM database partition includes setup for up to six (6) users.
d.	A Setup of Additional Users charge applies for the setup of up to six (6) additional users beyond those users included with the setup of initial or additional database partitions.
e.	A Setup of Additional Partition charge applies for the setup of an additional CSM database partition created for the same customer. Each additional CSM database partition provides for the setup of up to six (6) additional users.
f.	An Add/Remove Node charge applies, per primary and expansion node, for each node that is added to, or removed from, a DWR equipped with CSM subsequent to the initial establishment of CSM.
g.	A Consultation and Support charge applies for each thirty (30) minutes or fraction thereof that the customer requests Verizon consultation and support of its CSM network. This charge does not apply during initial setup of CSM.
h.	A Change in Network Management Method charge applies, per primary and expansion node, when the customer requests a change in Network Management Method (e.g., from CSM to DTM).
3.	Rate Terms
	CSM is provided under a term plan of 3 years, 5 years or 7 years, as described following:
a.	The duration of the term plan for CSM must be the same duration as the term plan for the DWR nodes provided with CSM. At the expiration of its 3-, 5- or 7-year term plans for CSM, the customer has the option of extending CSM with a coterminous end date as described following.

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.6 Optional Features - Network Management	
A.	Customer Service Management (CSM) (Continued)
3.	Rate Terms (Continued)
b.	The expiration date of each CSM feature added subsequent to the initial installation must be coterminous with the expiration date of the associated DWR, 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. CSM added after the aforementioned periods requires extension of the commitment period for the associated DWR in accordance with this Product Guide. Such extension results in the establishment of a new plan that includes both the DWR and the CSM under the same plan with the same expiration date.
c.	The customer may retrieve basic reports containing performance-monitoring information on its DWR network. Basic reports are available at no additional charge to the customer. The customer may also request that a report be customized to meet its particular needs. Rates and charges for customized reports are provided on an individual case basis (ICB) only.
d.	CSM is subject to termination liability if the service is disconnected prior to completion of the existing commitment period. The terms and conditions in Section 1.8.5.C apply to termination of CSM prior to completion of the existing commitment period. Changes in Network Management Method (e.g., from CSM to DTM) will be made without termination liability subject to the Add/Remove Node charge described in Section 1.8.5.A of this Product Guide.
B.	Direct TL1 Monitoring (DTM) DTM provides a customer with near real-time information about the operational status of its DWR network over a TL1 connection. A TL1 connection is a machine-to-machine communication language protocol. The connection allows a customer to monitor its DWR network via a limited set of executable TL1 commands in order to query alarm and performance criteria. DTM enables the following: • Near real-time access to system-generated alarm and performance messages originating from the customer's DWR network elements. • Query and response capability that enables two-way communications with the capability to poll and retrieve messages, such as command alarms and performance messages. • Access to ring inventory information that will enable the customers to maintain their own inventory database containing network element configurations and usage records for active service channels. • Notification that a power failure has occurred at a DWR network element and that the affected network element has reverted to battery backup. • Ability to monitor the ring, as well as all service channels riding the ring.

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1. Advanced Data Services

1.8 Dedicated Wavelength Ring (DWR)

1.8.6 Optional Features - Network Management	
B.	Direct TL1 Monitoring (DTM) (Continued)
1.	Terms and Conditions
a.	The customer must order two (2) special access or point to point services, provided by Verizon, in order to ensure secure, dedicated private line access and enable full redundancy for DTM. These special access or point to point services must originate at the customer's designated premises and terminate at a DTM site designated by Verizon with the terms and conditions of this Product Guide. The customer is responsible for procuring any additional services that may be necessary to connect the special access or point to point service to the customer's designated premises.
b.	When requested by the customer, and where technically feasible to do so, Verizon will provide encryption capabilities on the special access or point to point services used to access DTM. Verizon will specify any equipment or software required to provide encryption. Obtaining such equipment or software is the responsibility of the customer. The customer is also responsible for: 1) Security of any equipment, servers, systems or other facilities provided by the customer and which have access to the DTM network; and 2) Monitoring access to the DTM service using the facilities, systems, equipment or servers provided by the customers. 3) DTM is only provided when Verizon provides all the nodes on the ring.
2.	Application of Rates and Charges
a.	A DTM monthly recurring charge applies, per full ring, for each DWR provided with the DTM optional feature.
b.	A Node Setup charge applies, per primary or expansion node, for each node that is equipped with DTM at the time that DTM is initially established on the DWR.
c.	A DTM Setup charge applies for establishment of the customer's DTM database partition.
d.	An Add/Remove Node charge applies, per primary and expansion node, for each node that is added to, or removed from, a DWR ring equipped with DTM subsequent to the initial establishment of DTM.
e.	A Consultation and Support charge applies for each thirty (30) minutes or fraction thereof that the customer requests Verizon consultation and support of its DTM network. This charge does not apply during initial setup of DTM.
f.	A Change in Network Management Method charge applies, per primary and expansion node, when the customer requests a change in Network Management Method (e.g., from DTM to CSM).

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1.8 Dedicated Wavelength Ring (DWR)

1.8.6 Optional Features - Network Management	
B.	Direct TL1 Monitoring (DTM) (Continued)
3.	Rate Terms DTM is provided under a term plan of 3 years, 5 years or 7 years, as described following: a. The duration of the term plan for DTM must be the same duration as the term plan for the DWR nodes provided with DTM. At the expiration of its 3-, 5- or 7-year term plans for DTM, the customer has the option of extending DTM with a coterminous end date as described following. b. The expiration date of each DTM added subsequent to the initial installation must be coterminous to the expiration date of the associated DWR, 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. A DTM added after the aforementioned periods requires extension of the commitment period for the associated DWR in accordance with this Product Guide. Such extension results in the establishment of a new plan that includes both the DWR and the DTM under the same plan with the same expiration date. c. Termination liability will apply if DTM is removed prior to completion of the existing commitment period. The terms and conditions in Section I.8.5.C apply to termination of DTM prior to completion of the existing commitment period. Changes in Network Management Method (e.g., from DTM to CSM) will be made without termination liability subject to the Add/Remove Node charge set forth in Section I.8.5.A of this Product Guide.

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