

ACCESS SERVICE**16. Public Packet Data Network**

Public Packet Data Networks utilize separate data networks, comprised of switching, routing and transmission facilities. The networks provide for the transfer of data provided by a customer in a frame or cell format. The data is separated into discrete segments for transmission through the public packet data network.

16.1 Frame Relay Access Service**16.1.1 General****(A) General**

Frame Relay Access Service (FRAS) is a medium-speed, connection-oriented packet-switched data service that allows for the interconnection of Local Area Networks (LANs) or other compatible customer premises equipment for the purpose of connecting to an interstate frame relay network. FRAS also allows for the interconnection of a customer designated premises to a DSL Access Service Connection Point as described in Section 8, preceding. The terminal equipment accumulates the customer data and puts it into a frame relay format suitable for transmission over the FRAS network. This terminal equipment must conform to American National Standards Institute and Telecommunication Standardization Bureau of the International Telecommunication Union (ITU-T), formerly Committee Consultative de International Telegraphique et Telephonique (CCITT), standards.

FRAS permits customers to share network bandwidth for data transmissions. Rates and charges for FRAS are set forth in Section 17 following. The application of rates for FRAS is described in Section 16.1.2 following. In addition to the regulations and charges specified in this section, the general regulations and charges specified in other sections of this tariff apply as appropriate.

(B) Service Description

FRAS is a transport service that facilitates the exchange of variable length information units (frames) between customer connections. Frames travel a fixed path through the network with an address that specifies the permanent virtual connection. Addresses are read by the network processor and the frames are relayed to the preassigned destination.

FRAS service includes: the Frame Relay Access Connection, the Frame Relay Inter-network Connection, and Permanent Virtual Connections (PVC), which have associated Committed Information Rates (CIRs).

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.1 General (Cont'd)(B) Service Description (Cont'd)

The Frame Relay Access Connection and the Frame Relay Inter-network Connection elements provide access to a Telephone Company wire center equipped with a frame relay switch. A generic view of FRAS access is shown in Section 16.1.2(A) following. Frame Relay Access Service connections are available from the wire centers as identified in NATIONAL EXCHANGE CARRIER ASSOCIATION, INC. TARIFF F.C.C. NO. 4.

The Frame Relay Access Connection combines a frame relay compatible 56.0 kbps, 64.0 kbps, 1.544 Mbps or 44.736 Mbps digital transport facility with a port on a frame relay switch. The Frame Relay Access Connection includes the Telephone Company facility between the customer designated premises and the customer's serving wire center, the interoffice transport (if applicable) between the customer's serving wire center and a wire center equipped with a frame relay switch, and the end user port. The end user port is a user-to-network interface, which provides the lineside physical entry point into the Telephone Company frame relay network and permits FRAS compatible end user customer premises equipment (CPE) to originate or terminate an interstate access service. Connections between end user customer premises equipment and the Telephone Company frame relay switch are available at speeds of 56.0 kbps, 64.0 kbps, 1.544 Mbps or 44.736 Mbps. Each end user port requires the identification of a corresponding terminating port. All end user ports must be in conformance with American National Standards Institute (ANSI) standards T1.606-1990, T1.606 Addendum 1-1991, T1.606a-1992, T1.617, Annex D-1992.

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ACCESS SERVICE**16. Public Packet Data Network (Cont'd)****16.1 Frame Relay Access Service (Cont'd)****16.1.1 General (Cont'd)****(B) Service Description (Cont'd)**

The Frame Relay Inter-network Connection combines a frame relay compatible 1.544 Mbps or 44.736 Mbps digital transport facility with a port on a frame relay switch. The Frame Relay Inter-network Connection includes the Telephone Company facility between the customer-designated premises and the customer's serving wire center, the interoffice transport (if applicable) between the customer's serving wire center and a wire center equipped with a frame relay switch, and the inter-network customer port. The inter-network customer port is a network-to-network interface, which provides the trunkside physical entry point into the Telephone Company frame relay network. The inter-network customer port connects the Telephone Company frame relay switch and the access customer's network. The inter-network customer port is offered at speeds of 1.544 Mbps or 44.736 Mbps. All inter-network customer ports must be in conformance with Telcordia Technologies, Inc. Technical Reference TR-TSV-001370, Issued: May 1993.

The Telephone Company will provide the logical circuits required within its frame relay network to connect the ports or to connect a port with a DSL Access Service Connection Point. These logical circuits, or Permanent Virtual Connections (PVC), are software defined, end-to end, bi-directional communications paths that are established and disestablished via the access service order process. While no physical circuits are dedicated, the two network addresses (one from each port) are connected electronically to form a PVC.

There are two types of PVCs available. The standard PVC establishes a communications path within the Telephone Company's frame relay network between two ports or between a port and a DSL Access Service Connection Point. The extended PVC establishes a communications path on two interconnected telephone companies' frame relay networks located in adjacent serving territories between two ports or between a port and a DSL Access Service Connection Point.

At the time service is ordered the number of PVCs will be identified along with their Committed Information Rates. CIR is the bit rate at which the FRAS network commits to transfer data. Committed Information Rates provide for frame relay switch throughput at designated speeds [*see* Section 16.1.2(A)(3) following]. This information is required for network routing purposes.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.1 General (Cont'd)(C) Service Provided by More than One Telephone Company

When the transport facility between the customer-designated premises and a wire center equipped with a frame relay switch is provided by more than one Telephone Company, the Telephone Companies involved will provide a Special Access Service facility as set forth in Section 7 preceding, and in accordance with Sections 2.4.7 and 5.3 preceding.

Jointly-Provided FRAS service includes: the End User Port, the Inter-network Customer Port, and Permanent Virtual Connections (PVC), which have associated Committed Information Rates (CIRs). A Special Access Service facility is used to connect to the frame relay switch.

Connections are provided via Channel Termination(s) and Channel Mileage (see Section 7 Special Access Digital Data and High Capacity Services preceding). All regulations, rates and charges as specified in Section 7 will apply in addition to the rates and charges associated with FRAS. A generic view of jointly-provided FRAS is shown in Section 16.1.2(A) following.

The Telephone Company that provides the frame relay switch will bill an End User Port charge for the end user port connection and/or an Inter-network Customer Port charge for the inter-network customer port connection.

The Special Access Service, End User Port and/or Inter-network Customer Port charge(s) will apply in lieu of the Frame Relay Access Connection or Frame Relay Inter-network Connection.

(D) Ordering Options and Conditions

Frame Relay Access Service is ordered under the Access Order provisions set forth in Section 5 preceding. Also included in that section are other charges, which may be associated with ordering FRAS (e.g., Service Date Change Charges, Cancellation Charges, etc.)

A minimum of two FRAS connections are required for data to be transported between customer designated premises.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.1 General (Cont'd)(E) Acceptance Testing

At no additional charge, the Telephone Company will, at the customer's request, cooperatively test at the time of installation.

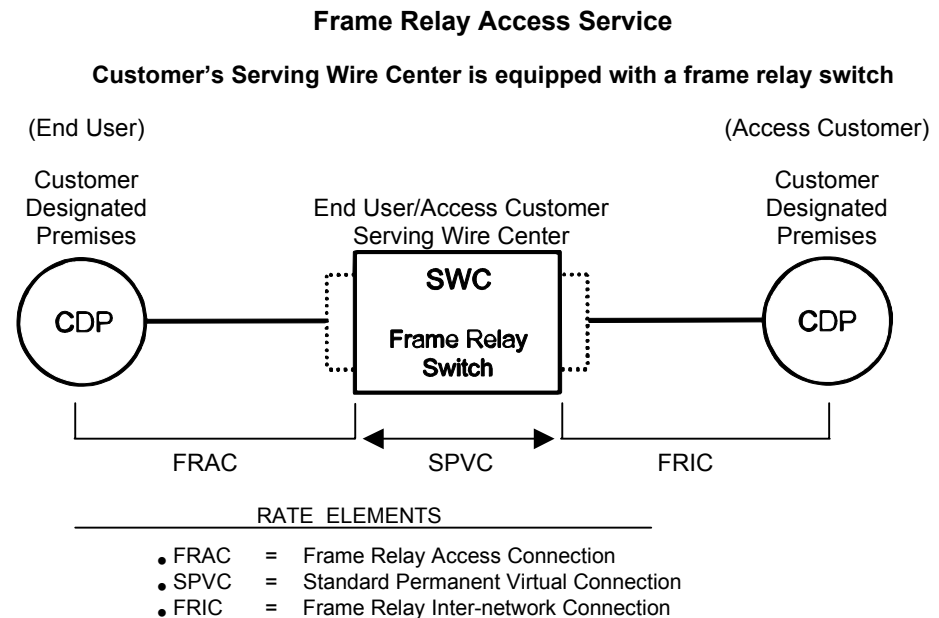
16.1.2 Rate Regulations

This section contains the specific regulations governing the rates and charges that apply for Frame Relay Access Service.

Frame Relay Access Service is available at the wire centers as identified in NATIONAL EXCHANGE CARRIER ASSOCIATION, INC. TARIFF F.C.C. NO. 4. In the case of Interconnected Frame Relay Access Service, NATIONAL EXCHANGE CARRIER ASSOCIATION, INC. TARIFF F.C.C. NO. 4 also identifies the intermediate and super intermediate wire centers.

(A) Rate Categories

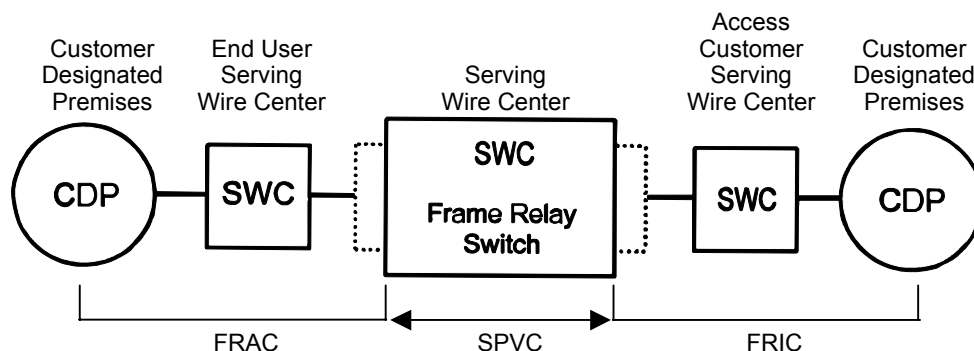
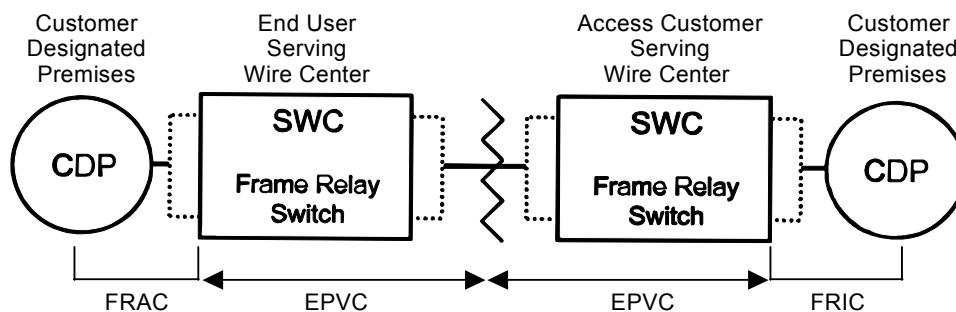
The following diagrams depict a generic view of the components of Frame Relay Access Service and the manner in which the components are combined to provide FRAS, Interconnected FRAS, and Jointly-Provided FRAS.



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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.2 Rate Regulations (Cont'd)(A) Rate Categories (Cont'd)**Frame Relay Access Service****Customer's Serving Wire Center is not equipped with a frame relay switch****Interconnected Frame Relay Access Service****EC A *****EC B *****RATE ELEMENTS**

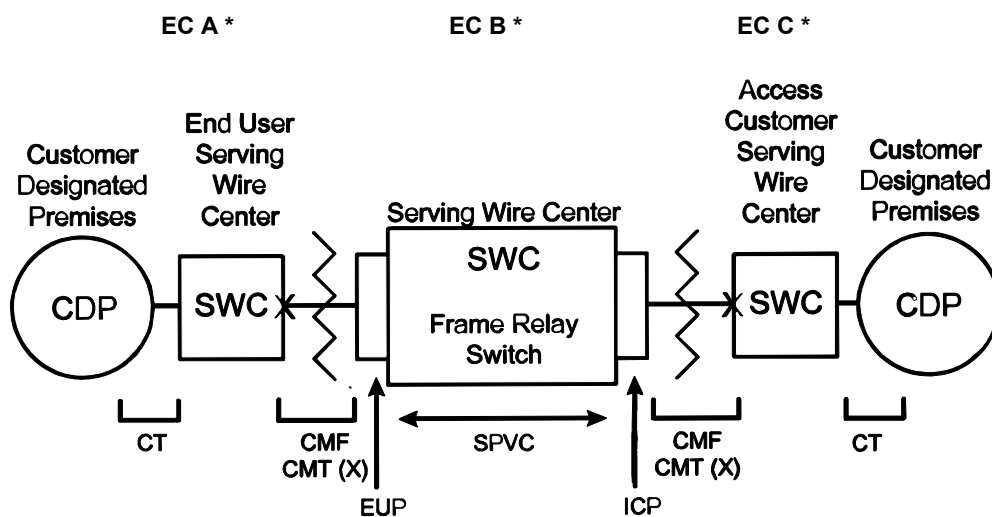
- FRAC = Frame Relay Access Connection
- SPVC = Standard Permanent Virtual Connection
- FRIC = Frame Relay Inter-network Connection

* If EC A or EC B is a non-NECA company, the application of their charges will depend upon EC A or EC B's access tariff.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.2 Rate Regulations (Cont'd)(A) Rate Categories (Cont'd)**Jointly-Provided Frame Relay Access Service****RATE ELEMENTS**

	(Special Access Service)	(Frame Relay Access Service)
EC "A"	<ul style="list-style-type: none"> • CT = Channel Termination • CMT = Channel Mileage Termination • CMF = Channel Mileage Facility 	
EC "B"	<ul style="list-style-type: none"> • CMF = Channel Mileage Facility • CMF = Channel Mileage Facility 	<ul style="list-style-type: none"> • EUP = End User Port • SPVC = Standard Permanent Virtual Connection • ICP = Inter-network Customer Port
EC "C"	<ul style="list-style-type: none"> • CT = Channel Termination • CMT = Channel Mileage Termination • CMF = Channel Mileage Facility 	

* If EC A, EC B or EC C is a non-NECA company, the application of their charges will depend upon EC A, EC B or EC C's access tariff.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.2 Rate Regulations (Cont'd)(A) Rate Categories (Cont'd)(1) Frame Relay Access Connection

The Frame Relay Access Connection (FRAC) rate element recovers the costs associated with the communication path between the end user's premises and the Telephone Company wire center equipped with a frame relay switch. The FRAC includes the physical transmission facility between the customer designated premises and the customer's serving wire center, the interoffice transport (if applicable) between the customer's serving wire center and a wire center equipped with a frame relay switch, and the end user port on the Telephone Company's frame relay switch.

One FRAC charge applies per customer-designated premises at which the FRAS connection is terminated. This applies even if the customer designated premises and the frame relay switch are collocated in a Telephone Company building.

(2) Frame Relay Inter-network Connection

The Frame Relay Inter-network Connection (FRIC) rate element recovers the costs associated with the communication path between the access customer's premises and the Telephone Company wire center equipped with a frame relay switch. The FRIC includes the physical transmission facility between the customer designated premises and the customer's serving wire center, the interoffice transport (if applicable) between the customer's serving wire center and a wire center equipped with a frame relay switch, and the inter-network customer port on the Telephone Company's frame relay switch.

One FRIC charge applies per customer-designated premises at which the FRAS connection is terminated. This applies even if the customer designated premises and the frame relay switch are collocated in a Telephone Company building.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.2 Rate Regulations (Cont'd)(A) Rate Categories (Cont'd)(3) End User Port

An End User Port charge is applied as a discrete rate element in conjunction with jointly provided Special Access Service. Refer to Sections 7.9 and 7.10 preceding for additional applicable rates and charges. The End User Port is the physical location in the Telephone Company switching office where the transport facility of the customer connects to the FRAS Network. It specifies how a frame relay switch sends and receives data from a frame relay end user customer's LAN or other compatible CPE devices.

The End User Port consists of either a 56.0 kbps, 64.0 kbps, 1.544 Mbps or 44.736 Mbps interface. The port connecting the transport facility to the Telephone Company frame relay switch must be ordered and provided at the same speed as the associated transport facility.

(4) Inter-network Customer Port

An Inter-network Customer Port Charge is applied as a discrete rate element in conjunction with jointly provided Special Access Service. Refer to Section 7.10 preceding for additional applicable rates and charges.

The Inter-network Customer Port is the physical location in the Telephone Company switching office where the access customer's transport facility connects to the Telephone Company's FRAS network. It specifies how a frame relay switch sends and receives data from a frame relay access customer's network.

The Inter-network Customer Port is offered at speeds of 1.544 Mbps or 44.736 Mbps. The port connecting the transport facility to the Telephone Company frame relay switch must be ordered and provided at the same speed as the associated transport facility.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.2 Rate Regulations (Cont'd)(A) Rate Categories (Cont'd)(5) Permanent Virtual Connection (PVC)

A PVC is a software defined communications path between two port connections or between a port connection and a DSL Access Service Connection Point.

Each PVC is provisioned with a customer selected Committed Information Rate. The CIR is a transmission speed specified by the customer. CIRs range from 8 kbps to 768 kbps. The Telephone Company will provide switch capacity to permit the customer to transmit information with guaranteed delivery at the specified CIR. The Telephone Company will permit customers to attempt to transmit beyond the specified CIR up to the actual throughput speed of the port with no guarantee of completion. Attempted transmissions above the actual throughput speed of the port will not be permitted.

Customers will be permitted to order multiple PVCs on a given port subject to switch limitations. Customers anticipating non-simultaneous transmission may order CIRs assigned to these multiple PVCs, the sum of which may theoretically exceed the actual throughput of the port. However, when simultaneous transmission of multiple PVCs occurs, the total of the transmission rate (CIRs) may not exceed the actual throughput of the port.

There are two types of PVCs available. The standard PVC establishes a communications path within the Telephone Company's frame relay network between two ports or between a port and a DSL Access Service Connection Point. The extended PVC establishes a communications path on two interconnected telephone companies' frame relay networks located in adjacent service territories between two ports or between a port and a DSL Access Service Connection Point.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.2 Rate Regulations (Cont'd)(B) Types of Rates and Charges

There are two types of rates and charges. They are monthly rates and nonrecurring charges. The rates and charges are described as follows:

(1) Monthly Rates

Monthly rates are recurring rates that apply each month or fraction thereof that a FRAS is provided. For billing purposes, each month is considered to have 30 days.

(2) Nonrecurring Charges

Nonrecurring charges are one-time charges that apply for specific work activity (i.e., installation or change to an existing service). The types of nonrecurring charges that apply for FRAS are: installation of service and service rearrangements. These charges are in addition to the Access Order Charge as specified in Section 17 following:

(a) Installation of Service

Nonrecurring charges apply for the installation of Frame Relay Access Connections (FRAC), Frame Relay Inter-network Connections (FRIC), and Permanent Virtual Connections (PVC).

A nonrecurring charge applies per FRAC or FRIC installed and is based on the speed of the connection. A nonrecurring charge applies per PVC installed.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.2 Rate Regulations (Cont'd)(B) Types of Rates and Charges (Cont'd)(2) Nonrecurring Charges (Cont'd)(b) Service Rearrangements

Service Rearrangements are changes to existing (installed) services.

A PVC Rearrangement Charge will be applied whenever a change is made to the CIR of an existing PVC after initial port installation and/or a change is made to the terminating port destination of the PVC.

Administrative changes will be made without charge(s) to the customer. Administrative changes are as follows:

- Change of customer name,
- Change of customer or customer's end user premises address when the change of address is not a result of physical relocation of equipment,
- Change in billing data (name, address, or contact name or telephone number),
- Change of agency authorization,
- Change of customer circuit identification,
- Change of billing account number,
- Change of customer or customer's end user contact name or telephone number, and
- Change of jurisdiction.

(c) Moves

A move involves a change in the physical location of one of the following:

- The Point of Termination at the customer's premises
- The customer's premises

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.2 Rate Regulations (Cont'd)(B) Types of Rates and Charges (Cont'd)(2) Nonrecurring Charges (Cont'd)(c) Moves (Cont'd)

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.

(i) Moves Within the Same Building

When the move is to a new location within the same building, the charge for the move will be an amount equal to one half of the nonrecurring (i.e., installation) charge for the service termination affected. There will be no change in the minimum period requirements. This charge is in addition to the Access Order Charge as specified in Section 17 following.

(ii) Moves To a Different Building

Moves to a different building will be treated as a discontinuance and start of service and all associated nonrecurring charges will apply. New minimum period requirements will be established for the new services. The customer will also remain responsible for satisfying all outstanding minimum period charges for the discontinued service.

(C) Minimum Period

The minimum period for FRAS is one month and the full monthly rate will apply to the first month. Adjustments for quantities of services established or discontinued in any billing period beyond the minimum period are as set forth in Section 2.4.1(F) preceding.

The minimum period for discounted FRAS is twelve months as set forth in Sections 2.4.2 and 5.5.1 preceding.

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ACCESS SERVICE**16. Public Packet Data Network (Cont'd)****16.1 Frame Relay Access Service (Cont'd)****16.1.3 Optional Rate Plans**

A Term Discount plan is available for Frame Relay Access Service (FRAS). The Term Discount applies to the Frame Relay Access Connection and Frame Relay Inter-network Connection charges. The End User Port and Inter-network Customer Port charges are eligible for term discounts where the associated Special Access Service facility is eligible for a Special Access Service Term Discount. The conditions under which End User Port and Inter-network Customer Port Term Discounts apply are specified in Section 7.2.8(A)(1) preceding while the Term Discount percentage is as set forth in Section 17 following. The Permanent Virtual Connections (PVC) are not eligible for a Term Discount. Under the Term Discount plan, the current monthly rates for eligible services are reduced by a fixed percentage. The amount of the discount percentage differs based on the length of the service commitment period selected by the customer. The Term Discount percentages for FRAS are as set forth in Section 17 following.

Discounts for the Term Discount plan are only applied to FRAS provided to a customer within the same state and LATA by the same Telephone Company.

The Term Discount Optional Rate Plan is only available from those Telephone Companies listed in Section 17 following.

The minimum service period on a month-to-month basis is one month. Under an Optional Rate Plan, the minimum service period is twelve months.

(A) Term Discounts

FRAS may be ordered at the customer's option on a month-to-month basis or for Term Discount periods of 36 months (3 years) or 60 months (5 years).

The minimum service period for all Term Discount plans is twelve months. The customer must specify the length of the service commitment period at the time the service is ordered.

For customers that subscribe to the Term Discount plan for 36 or 60 months, the Term Discount percentage as set forth in Section 17 following will be frozen from Company initiated decreases for the entire discount period at the percent in effect at the beginning of the Term Discount period.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.3 Optional Rate Plans(A) Term Discounts (Cont'd)

If a Term Discount Percentage increase occurs during the term of an existing Term Discount plan, the increased percentage will be applied automatically to the remainder of the current Term Discount period.

At the end of the Term Discount period, the customer may convert to month-to-month service or subscribe to a new Term Discount plan. If the customer does not make a choice by the end of the discount period, the rates will automatically convert to month-to-month service rates.

To be included in a Term Discount plan, all eligible FRAS rate elements must be ordered for the same commitment term (i.e., all 36 months or all 60 months) and with the same service date. When additional capacity is subsequently added, it will be available only on a month-to-month basis unless the discount period of the entire service is upgraded.

Eligible FRAS rate elements are those provided to a customer within the same state and LATA by the same Telephone Company. As long as the number of FRAS connections included in a Term Discount plan remains constant, customer requests to install and disconnect FRAS connections, including changes affecting different wire centers and/or customer designated premises, will not change the current Term Discount period or the minimum service period, and Discontinuance of Service charges as set forth in Section 16.1.3(A)(3) following will not apply.

(1) Upgrades in Term Discounts

Services provided under month-to-month rates or Term Discount rates may be upgraded to a Term Discount plan at any time without incurring FRAS nonrecurring charges or discontinuance charges for existing services. The new Term Discount plan must meet or exceed the service term of the plan being upgraded. For example, a service with a 36-month commitment period may be upgraded to a new 36-month or 60-month service period. The monthly rates will be those that are in effect at the time the service is upgraded. A new minimum service period applies to all FRAS that is upgraded.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.3 Optional Rate Plans(A) Term Discounts (Cont'd)(2) Upgrades in Capacity

If the customer chooses to upgrade a service under the Term Discount plan to a higher capacity (e.g., from 56.0 kbps to 64.0 kbps or from 56.0 kbps or 64.0 kbps to 1.544 Mbps), discontinuance charges will not apply, provided all the following conditions are met:

- the customer's order for the disconnect of the existing service and the installation of the new service are received at the same time and specifically reference the application of upgrade in capacity,
- the customer's disconnect order for the existing service must reference the service installation order,
- the new service has a total capacity greater than the total capacity of the service being discontinued and,
- the new Term Discount period meets or exceeds the Term Discount period being discontinued.

A new minimum service period applies to all upgrades. A Frame Relay Access Connection nonrecurring charge for an equivalent capacity of the existing services being upgraded to the higher speed service will not be assessed. FRAC nonrecurring charges will not apply to the upgraded lower speed services placed on the higher speed service if requested at the same time as the upgrade request. Nonrecurring charges will apply for capacity that exceeds the existing equivalent capacity.

Discontinuance charges will not apply should the customer choose to upgrade either a portion of or the entire FRAS under the Term Discount plan and move the service to a new customer location(s) within the same state and LATA where service is provided by the same Telephone Company.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.1 Frame Relay Access Service (Cont'd)16.1.3 Optional Rate Plans(A) Term Discounts (Cont'd)(3) Discontinuance of Service

If the customer chooses to disconnect all or a portion of the service prior to the expiration of the Term Discount period, discontinuance charges will apply to the portion of the service being discontinued.

Should the customer choose to discontinue a Term Discount plan prior to the completion of the minimum service period, discontinuance charges will apply. Discontinuance charges equal to one hundred percent of the total undiscounted monthly rates, less any amounts previously paid, will apply for the minimum service period. Additionally, discontinuance charges of fifteen percent of the total undiscounted monthly charges will apply to the remaining portion of the discount service term.

Should the customer choose to discontinue service ordered under a Term Discount plan after the minimum service period but before the completion of the discount period, discontinuance charges will apply.

Discontinuance charges of fifteen percent of the total undiscounted monthly charges will apply to the remaining portion of the discount period. For example, a customer has a 1.544 Mbps Frame Relay Access Connection, which it chooses to discontinue after 33 months into a 60-month service term. The discontinuance charge would be 0.15 times 27 months times the undiscounted monthly rates for that service.

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ACCESS SERVICE**16. Public Packet Data Network (Cont'd)****16.2 Asynchronous Transfer Mode Cell Relay Access Service****16.2.1 General**

Asynchronous Transfer Mode Cell Relay Access Service (ATM-CRS) is a connection-oriented transport service that is based on Asynchronous Transfer Mode (ATM) technology using fixed length, 53-byte cells. ATM cells generated by ATM-compatible customer premises equipment (CPE) are transmitted through the Telephone Company's ATM-CRS network to a pre-specified destination.

ATM-CRS provides customers requiring high-speed data transport for bandwidth intensive data, voice or video applications with the ability to interconnect multiple locations using the Telephone Company's ATM-CRS network. The customer may use ATM-CRS to interconnect its customer designated premises (CDPs) served by the Telephone Company's ATM-CRS network, to interconnect its local area network (LAN) to the Telephone Company's ATM-CRS network and/or to interconnect its CDPs to an ATM network located outside of the Telephone Company's serving territory.

16.2.2 Service Description

ATM-CRS is provided using a combination of Ports, Virtual Paths and Virtual Circuit Channels. An ATM-CRS Port is required to provide the interface into the Telephone Company's ATM-CRS network. A Virtual Path (VP) is required to establish a transmission path between any two ATM-CRS Ports. Virtual Circuit Channels (VCCs) may be ordered from the Telephone Company to establish a communications path between any two CDPs or established by the customer using its own equipment.

Service is provided, where available, between CDPs and designated Telephone Company Serving Wire Centers (SWCs). ATM-CRS will be furnished where suitable facilities exist as determined by the Telephone Company. The Telephone Company will identify its ATM-CRS equipped Serving Wire Centers in the NATIONAL EXCHANGE CARRIER ASSOCIATION, INC. Tariff F.C.C. No. 4.

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ACCESS SERVICE**16. Public Packet Data Network (Cont'd)****16.2 Asynchronous Transfer Mode Cell Relay Access Service (Cont'd)****16.2.2 Service Description (Cont'd)**

Rates and charges for ATM-CRS are specified in Section 17 of the companies offering this service. The application of rates and charges for ATM-CRS is described later in this section.

16.2.3 Obligations of the Customer

In addition to the regulations described in other sections of this tariff, the following provisions apply to ATM-CRS:

- (A) The customer is responsible for providing the Telephone Company with the necessary information to provision ATM-CRS as specified in Section 5.2 Ordering Requirements, preceding.
- (B) The customer is responsible for providing and maintaining all required customer premises equipment (CPE), which is compatible with ATM-CRS and complies with the standards specified in the following publications: The ATM Forum Technical Committee ATM User-Network Interface (UNI) Signalling Specification (Version 4.0), Private Network-Network Interface Specification (Version 1.0) and BISDN Inter-Carrier Interface (B-ICI) Specification (Version 2.0). A customer ordering Ethernet-based ATM-CRS Ports is also responsible for ensuring that its CPE complies with the standards specified in Technical Reference IEEE Std. 802.3, Part 3, Clause 15 for 10BASE-F, Clause 26 for 100BASE-F, and Clauses 34 through 38 for 1000BASE-X connections. A customer ordering the ATM-CRS Port Internet Protocol (IP) Function is also responsible for ensuring that its CPE hands off IP packets to the Telephone Company's ATM-CRS network in a format that complies with the standards specified in the Internet Engineering Task Force Request For Comments (RFC) 791 entitled "INTERNET PROTOCOL, DARPA Internet Program Protocol Specification" (September 1981) and RFC 1483 entitled "Multiprotocol Encapsulation over ATM Adaptation Layer 5" (July 1993).

16.2.4 Rate Regulations

This section contains the regulations governing the rates and charges that apply for ATM-CRS. Regulations governing the rates and charges for Special, ADSL and/or SDSL Access Services provided under this tariff used in conjunction with ATM-CRS are as specified in Sections 7 and 8, preceding.

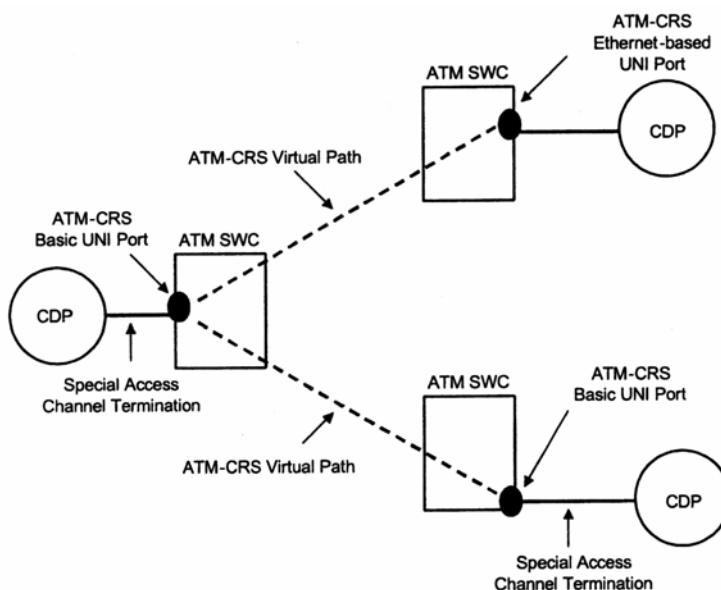
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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.2 Asynchronous Transfer Mode Cell Relay Access Service (Cont'd)16.2.4 Rate Regulations (Cont'd)

The following diagrams depict generic views of the components of ATM-CRS. In the first figure, all of the customer's CDPs are served by ATM-CRS equipped SWCs. The ATM-CRS customer orders the applicable ATM-CRS components pursuant to the provisions specified in this section and the applicable Special Access Service components pursuant to the provisions specified in Section 7, preceding.

Figure 1

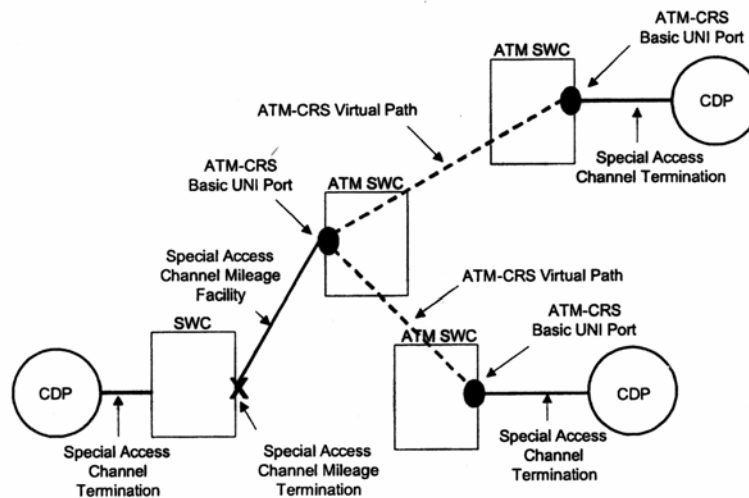
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In the second figure, one of the customer's CDPs is not served by an ATM-CRS equipped SWC. The ATM-CRS customer orders the applicable ATM-CRS components pursuant to the provisions specified in this section and the applicable Special Access Service components pursuant to the provisions specified in Section 7, preceding.

Figure 2

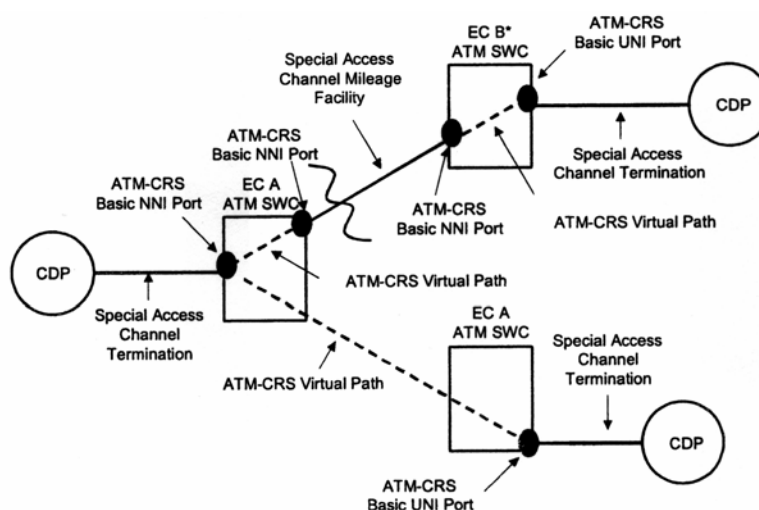
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In the third figure, one of the customers CDPs is served by another telephone company's ATM-network. The ATM-CRS customer orders the applicable ATM-CRS components from the Telephone Company pursuant to the provisions specified in this section and the applicable Special Access Service components pursuant to the provisions specified in Section 7, preceding. In addition, the customer will order the applicable ATM and special access services components from the distant telephone company.

Figure 3

* IF EC B is a non-NECA company, the application of charges will depend on its access tariff.

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The various ATM-CRS service components are described below.

(1) ATM-CRS Ports

An ATM-CRS Port receives ATM cells from the customer's ATM-compatible CPE, validates the addressing parameters contained in the cell headers, and transmits the cells into the ATM-CRS network. The ATM-CRS Port also receives ATM cells from the Telephone Company's ATM-CRS network or from an ATM network located outside of the Telephone Company's serving territory, validates the addressing parameters contained in the cell headers, and transmits the cells to the pre-designated CDP.

ATM-CRS Ports are available with a User Network Interface (UNI) or a Network to Network Interface (NNI) as described below. Each ATM-CRS Port must be associated with a minimum of one ATM-CRS Virtual Path or DSL Access Service Connection optional function.

Interconnection of the Telephone Company's ATM-CRS network to another ATM network located outside of the Telephone Company's serving territory is provided using ATM-CRS Basic NNI ports and Telephone Company provided Special Access Services.

(a) Basic User Network Interface (UNI) Port

Basic UNI Ports provide a port only interface to the Telephone Company's ATM-CRS network and do not include the required transport facility between the CDP and the Telephone Company's SWC at which the basic UNI Port is located. Transport to connect the CDP with the basic UNI Port is provided using Telephone Company provided DS1 or DS3 High Capacity and/or OC3 or OC12 Synchronous Optical Channel special Access Services as described in Sections 7.10 and 7.11, preceding. Basic UNI Ports are available at bandwidth speeds of 1.544 Mbps, 44.736 Mbps, 155.52 Mbps and 622.08 Mbps.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.2 Asynchronous Transfer Mode Cell Relay Access Service (Cont'd)16.2.4 Rate Regulations (Cont'd)(A) Rate Categories (Cont'd)(1) ATM-CRS Ports (Cont'd)(b) Ethernet-based User Network Interface (UNI) Port

Ethernet-based UNI Ports are used to interconnect the customer's Ethernet-compatible CPE with the Telephone Company's ATM-CRS network and include the transport facility between the CDP and the Telephone Company's SWC, provided that the CDP is served by the SWC in which the Ethernet-based UNI Port is located. Ethernet-based UNI Ports are available at bandwidth speeds of up to 10 Mbps (i.e., 10BASE-F), up to 100 Mbps (i.e., 100BASE-F) and up to 1 Gbps (i.e., 1000BASE-X).

(c) Basic Network to Network Interface (NNI) Port

Basic NNI Ports provide a port only interface to the Telephone Company's ATM-CRS network and do not include the required transport facility between the CDP and the Telephone Company's SWC at which the basic NNI Port is located. Transport to connect the CDP with the basic NNI Port is provided using Telephone Company provided DS1 or DS3 High Capacity and/or OC3 or OC12 Synchronous Optical Channel Special Access Services as described in Sections 7.10 and 7.11, preceding. Basic NNI Ports are available at bandwidth speeds of 1.544 Mbps, 44.736 Mbps, 155.52 Mbps and 622.08 Mbps.

(d) Ethernet-based Network to Network Interface (NNI) Port

Ethernet-based NNI Ports are used to interconnect the customer's Ethernet-compatible CPE with the Telephone Company's ATM-CRS network and include a fiber only connection between the CDP and the Telephone Company's SWC, provided that the CDP is served by the SWC in which the Ethernet-based NNI Port is located.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.2 Asynchronous Transfer Mode Cell Relay Access Service (Cont'd)16.2.4 Rate Regulations (Cont'd)(A) Rate Categories (Cont'd)(1) ATM-CRS Ports (Cont'd)(d) Ethernet-based Network to Network Interface (NNI) Port (Cont'd)

Ethernet-based NNI Ports are available at bandwidth speeds of up to 10 Mbps (i.e., 10BASE-F), up to 100 Mbps (i.e., 100BASE-F), up to 1 Gbps (i.e., 1000BASE-X).

Monthly and nonrecurring charges apply for each ATM-CRS Port ordered.

(2) ATM-CRS Virtual Paths

An ATM-CRS Virtual Path (VP) is a pre-defined, logical circuit established by the Telephone Company that is required to route ATM cells between any two ATM-CRS Ports located within the Telephone Company's ATM-CRS network. VPs may be established between two ATM-CRS UNI Ports, between an ATM-CRS UNI Port and an ATM-CRS NNI Port, or between two ATM-CRS NNI Ports. VPs are available in increments of 1 Mbps. The bandwidth capacity on a VP may not exceed the maximum bandwidth of the associated ATM-CRS ports. In addition to specifying the bandwidth capacity required on its order, the customer must specify one of the following traffic routing prioritization parameters for each VP ordered.

(a) Constant Bit Rate (CBR)

CBR supports applications that require special network timing and minimal delay to ensure steady data flow of user information through the ATM-CRS network. Examples of applications requiring CBR include voice, some types of video and circuit emulation for higher speed special access services. CBR is the highest priority traffic on the network.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.2 Asynchronous Transfer Mode Cell Relay Access Service (Cont'd)16.2.4 Rate Regulations (Cont'd)(A) Rate Categories (Cont'd)(2) ATM-CRS Virtual Paths (Cont'd)(b) Variable Bit Rate – real time (VBR-rt)

VBR-rt supports applications for which the data flow is bursty and requires low delay variance in ATM cell transmissions. Examples of applications requiring VBR-rt include voice and video.

(c) Variable Bit Rate – non real time (VBR-nrt)

VBR-nrt supports applications for which the data flow is bursty and variable delays in ATM cell transmissions can be tolerated. Examples of applications requiring VBR-nrt include file transfer, multimedia and computer aided design/computer aided manufacturing (CAD/CAM).

(d) Unspecified Bit Rate (UBR)

UBR supports applications for which the data flow is bursty and delay tolerant using “best effort” engineering. The Telephone Company will attempt to deliver all ATM cells received on a UBR VP, however, network congestion may result in a loss of ATM cells. Examples of applications requiring UBR include interactive data sessions, file transfers, monitoring and signaling.

Monthly and nonrecurring charges apply for each VP ordered. The monthly recurring charge is comprised of a fixed path charge and a variable bandwidth capacity charge, which is calculated based on the total bandwidth of the VP. For example, the monthly charge for a single 145 Mbps VBR-rt path would equal \$2,542.50 (\$5.00 fixed plus \$17.50 per Megabit).

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.2 Asynchronous Transfer Mode Cell Relay Access Service (Cont'd)16.2.4 Rate Regulations (Cont'd)(A) Rate Categories (Cont'd)(3) ATM-CRS Circuit Channels (VCCs)

An ATM-CRS Virtual Circuit Channel (VCC) is a pre-defined logical circuit used to route ATM cells between any two CDPs served by the Telephone Company's ATM-CRS network. VCCs may be established by the customer using its CPE or by the Telephone Company in its ATM-CRS network via the service order process.

Monthly and nonrecurring charges apply for each VCC ordered by the customer.

(4) Optional Features and Functions(a) DSL Access Service Connection

Where available, ATM-CRS UNI and/or NNI Ports may be equipped with the DSL Access Service Connection function. This function provides for the interconnection of ATM-CRS with ADSL Access Service as described in Section 8.1, preceding, and Technical Reference ANSI T1.413-1998, and with SDSL Access Service as described in Section 8.2, preceding, provided by the Telephone Company under this tariff. The function also provides for the interconnection of ATM-CRS with a wireline broadband Internet transmission service provided on a non-tariffed, common carrier basis. This optional function allows the ATM-CRS customer to receive ADSL, SDSL, and/or wireline broadband Internet transmission service data traffic from and transmit ADSL, SDSL, and/or wireline broadband Internet transmission service data traffic to its end user customers using a UBR traffic routing prioritization parameter.

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It is available only at Telephone Company designated DSL Access Service Connection Point SWCs located within the Telephone Company's serving territory. The speed of the DSL Access Service Connection function ordered by the customer may not exceed the speed of the associated ATM-CRS Port. A non-recurring charge applies per port to equip the ATM-CRS UNI or NNI Port with the DSL Access Service Connection function.

- (i) A customer that requires a VBR-nrt traffic routing prioritization parameter may also order a DSL VCC between its CDP and the premises of its end user customer, provided such end user customer's premises is equipped with ADSL and/or SDSL Access Service provided by the Telephone Company under this tariff as described in Sections 8.1 and 8.2, preceding. Each DSL VCC is available with a maximum bandwidth capacity of 1 Mbps, however, the maximum speed to or from the ADSL and/or SDSL Access Service customer will not exceed the maximum peak speeds for the services as specified in Sections 8.1 and 8.2, preceding. The customer is responsible for specifying in its order the premises locations and number of DSL VCCs it wants established to each of its end user customers. Monthly and nonrecurring charges apply to each DSL VCC established by the Telephone Company. The DSL VCC charges apply in addition to the nonrecurring charge for equipping the ATM-CRS UNI or NNI Port with the DSL Access Service Connection function.

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- (ii) Where suitable facilities exist, a customer that requires the ability to send high speed multimedia transmissions may also order a MultiMedia VCC (MM-VCC) between its CDP and the premises of its end user customer, provided such end user customer's premises is equipped with ADSL Access Service provided by the Telephone Company under this tariff as described in Section 8.1, preceding. The MM-VCC is available in increments of 1 Mbps, or 4 Mbps. The customer is responsible for specifying in its order the premises locations and the capacity of each MM-VCC. Transmission speed across the MM-VCC is not guaranteed and may be affected by factors that affect the actual speeds delivered, including the ADSL Access Service customer's distance from the Telephone Company Serving Wire Center, condition of the facilities, and any capacity limitations in the ATM-CRS customer's network design. Monthly and nonrecurring charges apply to each MM-VCC established by the Telephone Company. The MM-VCC charges apply in addition to the nonrecurring charge for equipping the ATM-CRS UNI or NNI Port with the DSL Access Service Connection function.

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ACCESS SERVICE16. Public Packet Data Network (Cont'd)16.2 Asynchronous Transfer Mode Cell Relay Access Service (Cont'd)16.2.4 Rate Regulations (Cont'd)(A) Rate Categories (Cont'd)(4) Optional Features and Functions (Cont'd)(b) ATM-CRS Port Internet Protocol (IP) Function

Where available, ATM-CRS UNI and/or NNI Ports may be equipped with the ATM-CRS Port Internet Protocol (IP) Function. This non-chargeable optional function allows the customer to transmit IP packets, which were formatted by the customer's CPE in conformance with the standards specified in the Internet Engineering Task Force Request for Comments (RFC) 791 entitled "INTERNET PROTOCOL, DARPA Internet Program Protocol Specification" (September 1981) and RFC 1483 entitled "Multiprotocol Encapsulation over ATM Adaptation Layer 5" (July 1993), through the Telephone Company's ATM-CRS network. Monthly and nonrecurring charges do not apply to the ATM-CRS Port IP Function. When this function is installed subsequent to the installation of the ATM-CRS Port or removed from an existing ATM-CRS Port, an Access Order Charge as specified in Section 17 of the applicable company following, will apply per order.

(B) Types of Rates and Charges

There are two types of rates and charges. They are monthly rates and nonrecurring charges. The rates and charges are described below.

(1) Monthly Rates

Monthly rates are recurring rates that apply each month or fraction thereof that an ATM-CRS service component is provided. For billing purposes, each month is considered to have 30 days.

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Nonrecurring charges are one-time charges that apply for specific work activity (i.e., installation or change to an existing service). The types of nonrecurring charges that apply for ATM-CRS are installation of service, service rearrangements, moves and MM-VCC Design Changes. Except as specified below, these charges are in addition to the Access Order Charge as specified in Section 17 of the applicable Company, following.

(a) Installation of Service

Nonrecurring charges apply for installation of Ports, VPs, VCCs, and Optional Features and Functions ordered by the customer.

(b) Service Rearrangements

Service rearrangements are changes to existing (i.e., installed) services, which may be administrative only in nature as set forth below or, that involve an actual physical change to the service.

The VP nonrecurring charge will apply per VP to change the bandwidth capacity and/or to change the traffic routing prioritization parameter on an existing VP.

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Administrative changes will be made without charge(s) to the customer. Administrative changes are as follows:

- Change of customer name,
- Change of customer or customer's end user premises address when the change of address is not a result of physical relocation of equipment,
- Change in billing data (name, address, or contact name or telephone number),
- Change of agency authorization,
- Change of customer circuit identification,
- Change of billing account number,
- Change of customer or customer's end user contact name or telephone number, and
- Change of jurisdiction

(c) Moves

A move involves a change in the physical location of one of the following:

- The Point of Termination at the customer's premises
- The customer's premises

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The charges for moving ATM-CRS service components are dependent on whether the move is to a different location within the same building, to a different building within the same SWC, or to a different building in a different SWC. The charges specified below apply in addition to any applicable charges for moving the associated Special Access Services as specified in Section 7.2.3, preceding.

(i) Moves Within the Same Building

Port only interfaces (i.e., Basic UNI/NNI Ports), VPs and VCCs are not impacted when a customer moves its Point of Termination to a different location within the same building. The charge for moving an Ethernet-based UNI or Ethernet-based NNI Port within the same building will be an amount equal to one half of the nonrecurring (i.e., installation) charge for the port. There will be no change in the minimum period requirements.

(ii) Moves To a Different Building Within the Same SWC

Port only interfaces (i.e., Basic UNI/NNI Ports), VPs and VCCs are not impacted when a customer moves its Point of Termination to a different building within the same SWC. The move of an Ethernet-based UNI or Ethernet-based NNI Port will be treated as a discontinuance and start of service. Associated nonrecurring (i.e., installation) charges will apply. New minimum period requirements will be established for the new services. The customer will also remain responsible for satisfying all outstanding minimum period charges for the discontinued service.

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A move to a different building in a different SWC will be treated as a discontinuance and start of service of all associated ATM-CRS service components. Associated nonrecurring (i.e., installation) charges will apply. New minimum period requirements will be established for the new services. The customer will also remain responsible for satisfying all outstanding minimum period charges for the discontinued service.

(C) Minimum Periods

The minimum period for ATM-CRS service components provided to a customer and for which charges are applicable are:

- Twelve months for ATM-CRS Ports
- One month for ATM-CRS Virtual Paths and Virtual Circuit Channels

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