Types of Collocation Arrangements

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Physical Collocation

In physical collocation, the Competitive Local Exchange Carrier (CLEC) occupies dedicated space within a central office. Other States(Frontier) is responsible for designating the space to be occupied by the CLEC's facilities. Entrance facilities to a collocation node can be CLEC-owned fiber facilities or leased transport from Frontier or a third party. Microwave collocation entrance facility arrangements are also available.

In addition to traditionally accepted transmission equipment, Frontier will allow the installation of equipment that is necessary for either interconnection or for access to unbundled network elements. This equipment may include DSLAMs, routers, ATM multiplexers and remote switching modules. Frontier will not allow the collocation of equipment that is designed exclusively for switching or enhanced services and that are not necessary for interconnection or access to UNEs. A standard Frontier central office toll transmission environment is provided for any CLEC equipment deployed in Frontier premises.

The CLEC and its vendor must complete a Frontier Network Equipment Building System (NEBS) Compliance Checklist for any equipment that is not currently identified by Frontier as being NEBS compliant. Once a piece of transmission equipment and associated components have met NEBS requirements and necessary documentation has been provided to Frontier, it may be deployed in any Frontier central office. It should be noted that any new components added to a piece of transmission equipment not previously certified as NEBS compliant require the checklist documentation and any appropriate vendor documentation demonstrating that the component is NEBS compliant.

Once the physical interconnection is established and tested, the CLEC purchases services or UNEs from Frontier that the CLEC uses to provide services to its end user. Physical collocation supports interconnection to voice grade, digital and optical transmission rates.

Frontier provides space in its central offices to the CLEC and provides interconnection and access to the embedded Frontier network under FCC and various state tariffs. The description of physical collocation set forth in this section is based on current tariff offerings and is subject to changes based on, among other things, modifications to these tariffs.
Shared Collocation

A shared caged arrangement is a newly constructed caged collocation arrangement that is jointly applied for and occupied by two or more CLECs, within a Company premises. When two or more CLECs request establishment and jointly apply for a new caged collocation arrangement to be used as a shared caged arrangement, one of the participating CLECs must agree to be the Host CLEC (Host) and the other(s) to be the Guest CLEC (Guest).

The Host and Guest(s) are solely responsible for determining whether to share a shared cage collocation arrangement and if so, upon what terms and conditions. The Host and Guest(s) must each be interconnected to Frontier for the exchange of traffic with Frontier and/or to access unbundled network elements. Frontier will not issue separate billing for any of the rate elements associated with the shared caged collocation arrangement between the Host and the Guest(s), but Frontier will provide the Host with information on the proportionate share of the non-recurring charges for each CLEC in the shared arrangement. The Host will be responsible for ordering and payment of all collocation applicable services ordered by the Host and Guest(s). Each Host and Guest will be responsible for ordering their own unbundled network elements from Frontier. Frontier will separately bill the Host and/or Guest(s) for unbundled network elements ordered.

The Host CLEC and Guest(s) are Frontier’s customers and have all the rights and obligations applicable hereunder to CLECs purchasing collocation-related services, including, without limitation, the obligation to pay all applicable charges, whether or not the Host is reimbursed for all or any portion of such charges by the Guest(s). All terms and conditions described for caged collocation apply to shared caged collocation requirements.
Caged Collocation

Caged collocation provides the customer with a caged floor space arrangement in Frontier wire centers and access tandems, to allow the CLEC to install and maintain CLEC provided equipment with direct access 24 hours a day. This option will be available in Frontier’s intrastate tariff for the purposes of interconnection or for access to Unbundled Network Elements (UNE’s).

Caged collocation is similar to Frontier’s "Physical" collocation arrangement with the following major exception:

- Caged may be requested in any size with 25 sq. ft. being the minimum cage, subject to space availability. Formerly, Physical was offered in 100 sq. ft. increments with 100 sq. ft. being the minimum
Cageless Collocation provides the CLEC with a floor space arrangement in Frontier’s wire centers or access tandems, for a minimum of a single equipment bay or cabinet. This space arrangement will allow the CLEC to install and maintain its own CLEC provided equipment, provide direct access to its equipment 24 hours a day, and not require the CLEC to cage its equipment. This option will be available in Frontier’s intrastate tariff for the purposes of interconnection or for access to Unbundled Network Elements (UNEs).

The following is an outline of cageless floor space arrangements:

- The CLEC must have direct access, 24 hours a day, to its equipment and can not be required to pay for the construction of a separate personnel entrance to the CLEC’s space.
- The CLEC may not be required to collocate in a room or isolated space separate from Frontier’s own equipment. Segregated physical collocation space that pre-existed the Order is the exception.
- Frontier will provide floor space for cageless collocation in single bay or cabinet increments in accordance with Frontier’s space management practice.
- Floor space for CLEC cageless collocation equipment will be assigned by Frontier.
- Frontier will not guarantee contiguous bays locations for the CLEC.
- CLEC’s are permitted to request floor space for future use through the application process. The CLEC must complete the application information to reflect the full utilization of the space being requested. In addition, the CLEC must supply a forecast (month and year) when each piece of equipment will be installed in their cageless bays or cabinets. This information should be provided in the equipment section of the Collocation application. The CLEC cageless bay or cabinet must be constructed to maintain proper space utilization within the central office and to further identify the CLEC’s leased space. Upon written notice, Frontier West may reclaim any unused cageless space for Frontier or CLEC use.
- If a single bay or cabinet space is not available, the CLEC will be offered virtual collocation. The CLEC will not be permitted to commingle their equipment within the same bay as Frontier equipment on a cageless collocation arrangement. Note: Virtual Collocation is available in the FCC #1 Tariff.
- Frontier employees will specially tag lines-ups/Bays/Cabinets used by CLECs so that they are readily discernable.
- CLEC is responsible for supplying repeater equipment, if necessary, between the CLECs equipment and the demarcation point.
Subleased Collocation

Vacant space available in a CLEC’s existing caged collocation arrangement may be made available to a third party for the purpose of interconnection and/or for access to unbundled network elements in Frontier’s premises via the subleasing collocation arrangement. The CLEC subleases floor space to the third party pursuant to terms and conditions agreed to by the CLEC and third party involved. The CLEC and third party must each be interconnected to Frontier for the exchange of traffic with Frontier and/or to access unbundled network elements.

The CLEC is solely responsible for determining whether to sublease a caged collocation arrangement and if so, upon what terms and conditions. Frontier will not issue separate billing for any of the rate elements associated with the subleased caged collocation arrangements between the CLEC and the third party. The CLEC will be responsible for ordering and payment of all collocation applicable services ordered by the CLEC and the third party/parties.

Each CLEC and third party will be responsible for ordering their own unbundled network elements from Frontier. Frontier will separately bill the CLEC and third party/parties for unbundled network elements ordered. The CLEC and third party/parties are Frontier’s customers and have all the rights and obligations applicable hereunder to CLEC customers purchasing collocation-related services, including, without limitation, the obligation to pay all applicable charges, whether or not the CLEC is reimbursed for all or any portion of such charges by the third party/parties. All terms and conditions described for caged collocation apply to subleased caged collocation requirements.
Adjacent Collocation

An adjacent collocation arrangement permits a CLEC to construct or procure a structure on Frontier property for collocation for the purposes of provisioning expanded interconnection and/or access to unbundled network elements in accordance with the terms and conditions of this tariff. Adjacent collocation is only an option when the following conditions are met:

- Space is legitimately exhausted in Frontier’s premises for caged and cageless collocation; and
- It is technically feasible to construct or procure a hut or similar structure on Frontier property that adheres to local building code, zoning requirements, and Frontier building standards.

The CLEC is responsible for complying with all zoning requirements, any federal, state or local regulations, ordinances and laws, and obtaining all associated permits. Frontier may, where required, participate in the zoning approval and permit acquisitions. The CLEC may not take any action in establishing an adjacent structure that will force Frontier to violate any zoning requirements or any federal, state or local regulations, ordinances, or laws.

Any construction by the CLEC on Frontier property must comply with Frontier technical specifications as they relate to environmental safety and grounding. Frontier will make available power and physical collocation services to the CLEC in the same non-discriminatory manner as it provides to itself for Frontier’s own Remote Equipment Buildings (REBs).
Virtual Collocation

In a virtual collocation arrangement, Frontier installs and maintains CLEC provided equipment, which is dedicated to the exclusive use of the CLEC in a collocation arrangement. A CLEC provides fiber optic facilities through Frontier’s entrance manholes for connection to the CLEC virtually collocated transmission equipment that provides interconnection to Company facilities located in the premises.

The physical point of interface for connection to the virtual arrangement is referred to as manhole zero. From this manhole into the premises, Frontier shall assume ownership of and maintain the fiber. From this manhole toward the CLEC’s location, the fiber optic cable remains the CLEC’s responsibility, with the CLEC performing all servicing and maintaining full ownership. If the CLEC is purchasing Company provided unbundled interoffice facilities as transport, the CLEC entrance fiber is not required. All elements/services shall be connected to the output cables of the virtual collocation arrangement using Company designated cable assignments, not channel assignments.

Virtual collocation is offered on a first come, first served basis and is provided subject to the availability of space and facilities in each premise where virtual collocation is requested. If the CLEC requests virtual collocation of equipment other than the standard virtual arrangement, the CLEC and Company will mutually agree upon the type of equipment to be virtually collocate.
Ancillary Collocation Services

Microwave Collocation Facilities

Microwave collocation provides Collocators with physical collocation of certain terrestrial point-to-point microwave facilities and transmission equipment for connection to their own collocated transmission equipment.

Microwave collocation is available on a first-come first-served basis where technically feasible.

The microwave equipment may include microwave antenna(s), mounts, towers or other antenna support equipment on the exterior of the building, and radio transmitter/receiver equipment located either inside or on the exterior of the building. All microwave antennas must be physically interconnected to Frontier’s facilities through the collocation arrangement.

Microwave collocation shall be used by the Collocator solely for the purpose of interconnection to Frontier’s Unbundled Network Elements (UNE) or Interstate Switched Access and Special access services.

Rates, terms and conditions for Microwave facilities can be found in the applicable collocation tariffs.

Competitive Fiber Providers (CATT)

This service allows competitive (3rd party) fiber providers (CFPs) access to a shared alternate splice point, hereafter referred to as the Competitive Alternate Transport Terminal (CATT), in or near a Frontier vault for the purposes of terminating CFP fiber facilities for distribution to collocation arrangements within a central office. This offering is filed in FCC No. 1 and FCC No. 11. The description of CATT set forth below is based on such current tariff offerings and is subject to change based on, among other things, modifications to these tariffs. To the extent that there is a conflict or inconsistency between the description in this Section 4.6. and such tariffs, the terms set forth in the tariff shall prevail.

Product Description

- The CFP must submit an application along with the application fee for all CATT requests.
- The CFP must contract with a Frontier approved vendor to install the CFP’s fiber under escort.
- CFPs may pull a maximum of 432 fibers and a minimum of 72 fibers per entrance manhole to be ultimately spliced at the CATT.
- CFPs will be billed for the entire capacity of the fiber pulled into the Frontier premises regardless of how much of that fiber is spliced initially.
- CFPs will be required to splice and terminate a minimum of 24 strands per fiber cable installation for use within the central office.
- An additional 432 fibers maximum, 72 fibers minimum, for a particular office may be pulled in via a separate manhole for diversity where manhole space and conduit is available. Where such diversity does not exist, the CFP may request special construction options as exist in applicable tariffs.
• The CATT will be located in or near the vault as determined by Frontier.
• Frontier will provide equipment support (bay and floor space) for the CATT. The CFP will provide splice enclosures/trays.
• Splice enclosures installed must equate to the capacity of the fiber installed at 72 fibers per shelf.
• CFP equipment must conform to NEBS standards as defined in the collocation sections of the FCC tariffs.
• The CFP will be responsible for all splicing at the CATT.
• Space for additional shelves for future use may be reserved, if available, until such time as Frontier requires the reserved shelves to meet another CFP's request.
• The CFP shall not store any ancillary equipment within the CATT area.
• Fiber will be distributed at a minimum of 12 strands to collocation arrangements (virtual or physical). Collocators will submit collocation applications to request fiber to their collocation arrangements during site implementation or augment and pay existing virtual or physical collocation cable support and cable installation charges in Frontier-South, and cable support per linear foot to the physical arrangement or cabling to the FDF per 12 strands in virtual collocation in Frontier-North.
• On all CATT installations, the CFP shall complete Methods of Procedures (MOP) detailing the installation work to be performed by the CFP. The MOP shall be agreed upon and signed by a Frontier representative and a CFP representative prior to the beginning of any work effort within the CATT space. The CFP shall prominently display the signed MOP at the equipment bay while performing any work functions.

Cable Installation

The CFP is allowed to place its cable in the central office vault. The Frontier outside plant engineer verifies an approved fire retardant riser cable. An authorized Frontier representative accompanies the CFP or approved agent completing the splicing at the CATT. A Frontier approved fire retardant splice closure must be used. All bonding and grounding procedures need to be followed.

If the CFP plans to fusion splice the transition point of the outside plant fiber to the building rated fire retardant fiber, an alternate splice area may be required. Frontier provides and owns the equipment bay. The CFP supplies a Frontier approved splice tray. A Frontier representative conducts a quality inspection when the work is completed.

Attenuation, if required, is the responsibility of the CFP. The fiber optic cable is CFP provided and owned and all maintenance is the responsibility of the CFP.

See rate section following for a description of cable installation from the CATT to collocation arrangements.

Pricing Information

The basic components of the CATT rate structure are as follows, although other charges may apply:

The Application Fee
The Application Fee is submitted by the CFP with all requests for the application processing and administrative activities performed by the Wholesale Markets contact and the initial engineering site survey.
If a CFP cancels any of the above requests prior to installation, any unused portion of the application fee will be refunded.
Engineering and Implementation Fee
This fee will apply to the CFP for all requests from the CFP for planning, Frontier engineering and project management of the CATT arrangement. This applies to new arrangements, as well as to equipment additions to existing arrangements.

Fiber Placement and Splice Charges
CATT to Collocation Arrangements (Billed to Collocator - see also Specific Collocator Rates Following)
Under the existing procedures, the collocator is required to place fiber (minimum 12 strands) from the CATT to the collocator’s physical collocation arrangement. The collocator must use a Frontier approved vendor and must conform to Frontier’s engineering specifications. Frontier incurs costs associated with the activities performed by the Frontier outside plant technicians supervising the collocator’s installation activities. These costs will be recovered on a time and materials basis and are billed to the collocator.

Manhole to CATT - Entire Region (Billed to CFP)
Frontier incurs costs associated with the activities performed by Frontier outside plant technicians supervising the CFP’s installation activities. The amount of time required to pull and splice the fiber will depend on the CFP, the particular central office and the location of the CATT. These costs will be recovered based on established escort hours as described below.

Additional CFP Rates
Escort Service for Cable Installation
Escorts are required for all activities performed from the manhole to the CATT and from the CATT to a physical collocation arrangement.

Cable Space Per Cable
This fee applies to the CFP per cable installed for the support between the manhole and the CATT.

Equipment Support
This rate applies to the CFP and is for monthly support services including the cost of providing the equipment bay for the splice enclosures and associated floor space. The actual splice enclosures/trays will be provided by the CFP. Equipment support will be billed per shelf/72 fibers.
Dedicated Transit Service (DTS)

Dedicated Transit Service (DTS) can be ordered by one CLEC to connect its collocation arrangement to another CLEC's collocation arrangement or to another collocation arrangement of its own in the same Frontier central office. DTS is only available provided that the collocated equipment of both collocators is also used for interconnection with Frontier or access to unbundled network elements. Such connections may be physical arrangement to physical arrangement, physical to virtual, virtual to physical, or virtual to virtual. DTS is ordered via an Access Service Request (ASR), with the initiating CLEC becoming the ordering, provisioning, maintenance and billing customer of record. Split billing for DTS is not permitted.

The arrangement ordered to is reflected only as the terminating end of the services (i.e., an end user-like location). Alternatively, a CLEC may order DTS to connect two of its own virtual arrangements in the same Frontier premises, in what is known as a Virtual Collocation Cascading Arrangement (VCA). In this case, the CLEC requests the two virtual collocation arrangements in cascading fashion on the virtual collocation application as a part of the virtual arrangement configuration. An ASR should not be issued by the CLEC. Frontier installs VCA at the time of the virtual collocation arrangement installation.

Technical Description

A CLEC may connect one collocation arrangement to another CLEC's collocation arrangement by ordering (only) dedicated circuits through Frontier distributing frames, joining their collocation arrangement to that of another CLEC, or using existing circuit architectures.

DTS is available via Voice Grade (VG), DS1, DS3, OC3, and Dark Fiber in the following configurations:

- Physical Collocation to Physical Collocation arrangements
- Physical Collocation to Virtual Collocation arrangements
- Virtual Collocation to Virtual Collocation arrangements

Requests for lit fiber cross connects between two collocation arrangements will be handled on a case-by-case basis.

Existing NC/NCI codes for VG, DS1, DS3, and Dark Fiber are used, as are existing circuit nomenclature, circuit identification (CLS format), and Circuit Location Addresses (CKL format) which include POI/XPOI information to designate specific circuit termination locations (i.e., the CLLI for the collocation arrangement). Visit Frontier Business Rules for Non LSOG Specific information.

Overall designs for DTS are made based on existing engineering standards and practices and existing private line processes. DTS may require cooperative testing with both CLECs, or between Frontier and the CLEC in the case of VCA, to isolate and resolve trouble conditions.

CLECs are no longer permitted to directly cable facilities ("cable over the wall") between collocation arrangements in the same room. Dedicated Cable Support, which is described below is only furnished to CLECs with existing DCS arrangements. Additions, rearrangements and moves are not permitted. The two collocation arrangements must be co-terminous (i.e., both must be located within the same central office).
Pricing Information

For some state DTS options, and all transmission levels (VG, DS1, DS3, and Dark Fiber), each DTS service has one transmission level specific recurring rate element applied per collocation arrangement. Since interoffice transport is not used, there is no mileage sensitive transport element.

The recurring rate is for maintenance of the cables and terminations between the collocation arrangements and the digital cross-connect/fiber distributing frames, along with the appropriate cost of the distribution network. This recurring rate is considered a generic Service Access Charge (SAC), Interconnection Access Charge (IAC), or cross connect. The same SAC/IAC USOCs and rates that are applied to connections of other UNEs apply in this instance. In other states, the SAC/IAC and cross connects are billed to the collocator when the collocation arrangement is completed. The application of rates are defined in the applicable tariffs.

Non-recurring charges are for expenses associated with circuit provisioning, central office wiring, and service orders. The circuit provisioning charge includes the costs for circuit engineering (Circuit Provisioning Center), circuit wiring and turn-up (central office and control office), etc. The service order charge includes the costs for order placement and issuance. The same service order charge is applied to all transmission levels. There are, however, distinct provisioning charges for VG, DS1, DS3, and Dark Fiber transmission speeds.

Pricing and applicable USOCs are pursuant to applicable tariffs, SGATs or interconnection agreements and may vary accordingly.

Interval

The interval for DTS is negotiated.
Business Integrated Timing Supply (BITS)

This service offering will make available to collocator’s a connection to the Business Integrated Timing Supply (BITS) that provides a synchronized timing source for the collocator’s electronic communications equipment from a central source within Frontier’s network.

The BITS clock is an integral part of the Timing Signal Generator (TSG). All the BITS/TSGs in the network are synchronized to a common, very accurate synchronization Stratum 1 source. The BITS/TSG, regenerates this Stratum1 source synchronization signal and reformats the signal into one of the formats, DS1 or Composite Clock, required by the digital network elements within the central office.

When the collocator requests BITS for an existing collocation arrangement, the collocator must submit a collocation augment application and applicable augment fee.

Frontier will provision including; the shielded cable from the timing source to the collocator’s equipment arrangement, the cable termination on the Frontier timing source and the cable pull from the timing source to the collocator’s equipment arrangement.

The BITS service offering is only available to collocator’s in the FCC tariffs via DS1 and Composite Clock and subject to the availability of the timing source for the central office requested.

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