

**COMCAST ENTERPRISE SERVICES  
PRODUCT-SPECIFIC ATTACHMENT  
ETHERNET TRANSPORT SERVICES**

**ATTACHMENT IDENTIFIER: Ethernet Transport, Version 1.11**

The following additional terms and conditions are applicable to Sales Orders for Comcast's Ethernet Transport Services:

**DEFINITIONS**

Capitalized terms not otherwise defined herein shall have the meaning ascribed to them in the General Terms and Conditions.

**"Estimated Availability Date"** means the target date for delivery of Service.

**"HFC Network"** means a hybrid fiber coax network.

**"Interconnection Facilities"** means transmission capacity provided by Comcast, Customer or a third-party supplier to extend the Comcast Equipment from a Comcast terminal to any other location (e.g., a local loop provided by a local exchange company or other communications company).

**"Off-Net"** means geographical locations that are outside of Comcast's service area and/or geographical locations that are within Comcast's service area generally but are not readily accessible by Comcast Network facilities. All Off-Net Services are provided by third-party service providers. Off-Net Services provisioned over a fiber optic network are referred to as **"Off-Net Fiber."**

**"On-Net"** means geographical locations where Comcast currently provides Services through its Comcast Network. On-Net Services may be provisioned over a fiber optic network (**"On-Net Fiber"**), or via an HFC Network (**"On-Net HFC"**), as available through Comcast.

**"Service(s)"** means Ethernet Transport Services.

**ARTICLE 1. SERVICES**

This attachment shall apply to Ethernet Transport Services. A further description of these Services is set forth in **Schedule A-1** hereto which is incorporated herein by reference.

**ARTICLE 2. PROVIDER**

On-Net Service provided over fiber shall be provided by Comcast Business Communications, LLC.

On-Net Service provided over the HFC Network and Off-Net Services are available in a number of markets. For information on service availability, call 866-429-0152.

**ARTICLE 3. REGULATORY APPROVAL; TRAFFIC MIX**

Comcast's pricing for Service may be subject to FCC, public service commission or other regulatory approval. Further, Customer represents that its use of Service hereunder will be jurisdictionally interstate. Customer agrees to indemnify and hold Comcast harmless from any claims by third parties resulting from or arising out of Customer's failure to properly represent or certify the jurisdictional nature of its use of the Service(s).

**ARTICLE 4. CUSTOM INSTALLATION FEES**

Once Comcast accepts a Sales Order for Services, Comcast will invoice Customer for all Custom Installation Fee(s). Customer will pay the Custom Installation Fee(s) within thirty (30) days of the invoice date unless a payment schedule is specified in the applicable Sales Order.

## **ARTICLE 5. PROVISIONING INTERVAL**

Following its acceptance of a Sales Order, Comcast shall notify Customer of the Estimated Availability Date applicable to that Sales Order. Comcast shall use commercially reasonable efforts to provision the Service on or before the Estimated Availability Date; provided, however, that Comcast's failure to provision by said date shall not constitute a breach of the Agreement.

## **ARTICLE 6. SERVICE COMMENCEMENT DATE**

Comcast shall inform Customer when Service is available and performing in accordance with the "Technical Specifications" set forth in Schedule A-1 hereto ("**Availability Notification**"). Charges for Service shall begin to accrue as of the Service Commencement Date. The Service Commencement Date shall be earliest of: (A) the date on which Customer confirms receipt of and concurrence with the Availability Notification; (B) five (5) business days following the date of the Availability Notification, if Customer fails to notify Comcast that the Service does not comply materially with the Technical Specifications (defined in Article 9) or (C) the date on which Customer first uses the Service. In the event that a Service Term has not been expressly set forth in a Sales Order, the Service Term for such Sales Order shall be twelve (12) months.

## **ARTICLE 7. TERMINATION CHARGES; PORTABILITY; UPGRADES; OFF-NET SERVICES**

**7.1** The charges set forth or referenced in each Sales Order have been extended to Customer in reliance on the Service Term.

### **7.2 Termination Charges for On-Net Services.**

**A.** In the event that On-Net Service is terminated following Comcast's acceptance of the applicable Sales Order but prior to the Service Commencement Date, Customer shall pay Termination Charges equal to the costs and expenses incurred by Comcast in installing or preparing to install the On-Net Service plus twenty percent (20%).

**B.** In the event that On-Net Service is terminated on or following the Service Commencement Date but prior to the end of the applicable Service Term, Customer shall pay Termination Charges equal to a percentage of the monthly recurring charges remaining for the unexpired portion of the then-current Service Term, calculated as follows:

- i.** 100% of the monthly recurring charges with respect to months 1-12 of the Service Term; plus
- ii.** 80% of the monthly recurring charges with respect to months 13-24 of the Service Term; plus
- iii.** 65% of the monthly recurring charges with respect to months 25 through the end of the Service Term; plus
- iv.** 100% of any remaining, unpaid Custom Installation Fees.

Termination Charges shall be immediately due and payable upon cancellation or termination and shall be in addition to any and all accrued and unpaid charges for the Service rendered by Comcast through the date of cancellation or termination.

**C.** **Termination Charges for Off-Net Services.** In the event Customer terminates Off-Net Service following Comcast's acceptance of the applicable Sales Order but prior to the end of the applicable Service Term, Customer shall pay Termination Charges equal to 100% of the monthly recurring charges remaining through the end of the Service Term plus 100% of any remaining, unpaid Custom Installation Fees. Customer shall also pay any third-party charges incurred by Comcast as a result of the early termination of Service by the Customer.

**7.3** **Exclusions.** Termination Charges shall not apply to Service terminated by Customer as a result of Comcast's material and uncured breach in accordance with the General Terms and Conditions.

**7.4** **Portability.** Customer may terminate an existing On-Net Service (an "Existing Service") and turn up a replacement On-Net Service (i.e., activate Service with termination points on Comcast's network that are different than those of the Existing Service) (a "Replacement Service") without incurring Termination Charges with respect to the Existing Service, provided that (a) the Replacement Service must have a Service Term equal to or greater than the remaining Service Term of the Existing Service but in no event less than twelve (12) months; (b) the Replacement Service must have monthly recurring charges equal to or greater than the monthly recurring charges for the Existing Service; (c) Customer submits a Sales Order to Comcast for the Replacement Service within ninety (90) days after termination of the Existing Service and that Sales Order is accepted by Comcast; (d) Customer reimburses Comcast for any and all installation charges that were waived with respect to the Existing Service; and (e) Customer pays the actual costs incurred by Comcast in installing and provisioning the Replacement Service.

**7.5 Upgrades.** Customer may upgrade the speed or capacity of an Existing Service without incurring Termination Charges, provided that (a) the upgraded Service (the “Upgraded Service”) must assume the remaining Service Term of the Existing Service, but in no event less than twelve (12) months; (b) the Upgraded Service must have the same points of termination on Comcast’s network as the Existing Service; (c) Customer submits a Sales Order to Comcast for the Upgraded Service and that Sales Order is accepted by Comcast; (d) Customer pays Comcast’s applicable nonrecurring charges for the upgrade; and (e) Customer agrees to pay the applicable monthly recurring charges for the Upgraded Service commencing with the upgrade. Upgrades to Off-Net Services are subject to the applicable third party service provider rules and availability. Comcast has no obligation to upgrade Customer’s Off-Net Service.

**7.6 Off-Net Services.** If Customer is receiving Off-Net Services, Comcast shall, in its sole discretion, have the ability to (i) provide On-Net Services in lieu of such Off-Net Services and/or (ii) substitute the current Off-Net Services provider for an alternate Off-Net Services provider, each, at no additional cost to Customer; provided, however, that Comcast shall not make any changes to Customer’s Off-Net Services provider that could, in Comcast’s reasonable opinion, impair Customer’s specific network design or provider attributes (e.g. diversity). Comcast shall use commercially reasonable efforts to coordinate a mutually agreeable time with Customer to conduct any such changes..

#### **ARTICLE 8. ADDITIONAL INFORMATION**

As necessary for the interconnection of the Service with services provided by third parties, Comcast may request (as applicable), and Customer will provide to Comcast, circuit facility assignment information, firm order commitment information, and design layout records necessary to enable Comcast to make the necessary cross-connection between the Service and Customer’s other service provider(s). Comcast may charge Customer nonrecurring and monthly recurring cross-connect charges to make such connections.

#### **ARTICLE 9. TECHNICAL SPECIFICATIONS AND PERFORMANCE STANDARDS; SERVICE LEVEL AGREEMENT**

The technical specifications applicable to the Service are set forth in Schedule A-1 hereto (“**Technical Specifications**”). The service level agreement applicable to the Service is set forth in a **Schedule A-2** hereto and incorporated herein by reference.

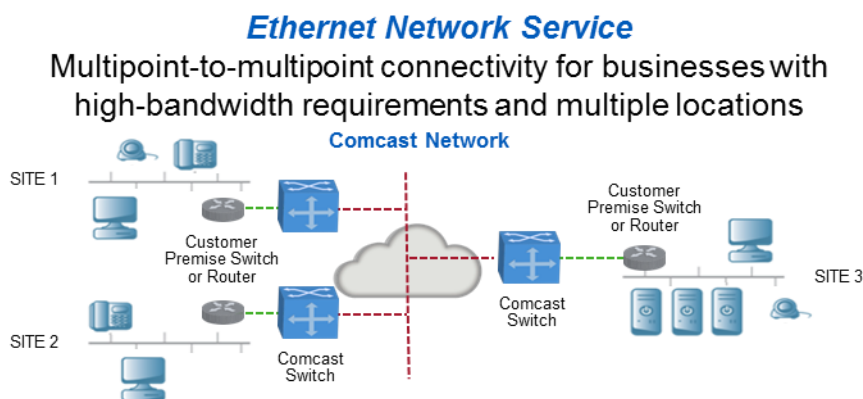
**COMCAST ENTERPRISE SERVICES  
PRODUCT-SPECIFIC ATTACHMENT  
ETHERNET TRANSPORT SERVICES**

**SCHEDULE A-1  
SERVICE DESCRIPTIONS, TECHNICAL SPECIFICATIONS AND PERFORMANCE STANDARDS  
COMCAST ETHERNET TRANSPORT SERVICES**

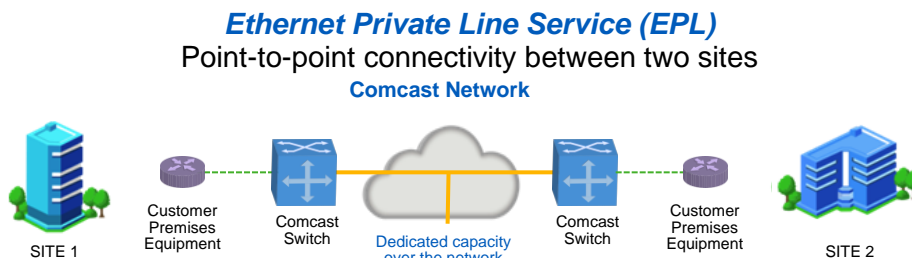
Comcast's Ethernet Transport Services will be provided in accordance with the service descriptions, technical specifications and performance standards set forth below:

**Service Descriptions**

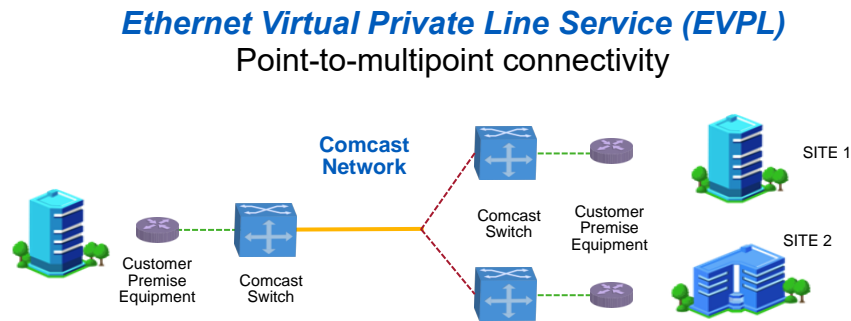
**Ethernet Network Service (ENS)** enables Customer to connect physically distributed locations across a Metropolitan Area Network (MAN) or Wide Area Network (WAN) as if they are on the same Local Area Network (LAN). The Service provides VLAN transparency enabling Customer to implement their own VLANs without any coordination with Comcast. ENS is a highly scalable service that enables customers to connect Customer Premises Equipment (CPE) using industry standard 100 Mbps, 1 Gbps or 10 Gbps Ethernet User-to-Network Interfaces (UNI) and is available with flexible bandwidth options from at 1 Mbps to 10 Gbps. Comcast ENS provides an Ethernet Virtual Connection (EVC) between Customer Service Locations that enables Customer to use any VLANs without coordination with Comcast. Comcast ENS offers three Classes of Service (CoS), as described below.



**Ethernet Private Line (EPL)** is a point-to-point transport service that provides secure, high-performance network connectivity between two Customer Service Locations. EPL is a highly scalable service that enables the Customer to connect their Customer Premises Equipment (CPE) using industry standard 100 Mbps, 1 Gbps or 10 Gbps Ethernet User-to-Network Interfaces (UNI) and is available with flexible bandwidth options from 1 Mbps to 10 Gbps. Comcast EPL provides an Ethernet Virtual Connection (EVC) between Customer Service Locations that enables the Customer to use any VLANs without coordination with Comcast. Comcast EPL offers three Classes of Service (CoS), as described below.



**Ethernet Virtual Private Line (EVPL)** service provides an Ethernet Virtual Connection (EVC) between two or more Customer Service Locations and supports the added flexibility to multiplex multiple services (EVCs) on a single UNI at the Customer’s hub or aggregation site. The Service multiplexing capability is not available at sites served by the Comcast On-Net HFC. It is a highly scalable service that enables the Customer to connect their Customer Premises Equipment (CPE) using industry standard 100 Mbps, 1 Gbps or 10 Gbps Ethernet User-to-Network Interfaces (UNI) and is available with flexible bandwidth options from 1 Mbps to 10 Gbps. Comcast EVPL offers three Classes of Service (CoS), as described below.



### Multiple Access Options

Comcast Ethernet Transport Services are available with the following access options:

- On-Net Fiber Access – Connectivity to Customer Service Locations is enabled via Comcast On-Net fiber Infrastructure.
- On-Net Hybrid Fiber Coax (HFC) Access – Connectivity to Customer Service Locations is enabled via Comcast On-Net Hybrid Fiber Coax (HFC) infrastructure.
- Off-Net Access (both Fiber and Non-Fiber) – Connectivity to Customer Service Locations is enabled through a network-to-network interface (NNI) via third-party network provider.

### Ethernet Virtual Circuit (EVC) Area Types

Comcast Ethernet Transport Services are available both within and between certain major metropolitan areas throughout the United States. Each EVC is assigned an EVC Area Type based upon the proximity of respective A and Z locations.

- **Metro** – EVC enables connectivity between customer locations within a Comcast defined Metro.
- **Regional** – EVC enables connectivity between customer locations that are in different Comcast defined Metros, but within Comcast defined geographic Regions.
- **Continental** – EVC enables connectivity between customer locations that are in different Comcast defined geographic Regions.

### Ethernet Transport Technical Specifications

#### 1. Ethernet User-to-Network Interface

Comcast Ethernet Transport Services provide bidirectional, full duplex transmission of Ethernet frames using a standard IEEE 802.3 Ethernet interface. Comcast implements ingress policies at CPE UNI interfaces to enforce subscribed bandwidth levels. Each ingress policing policy is created utilizing Committed Information Rate (CIR) and Committed Burst Size (CBS) components. The following table provides a list of available UNI physical interfaces and their available Committed Information Rate (CIR) bandwidth increments and Committed Burst Sizes (CBS).

UNI Speed	UNI Physical Interface
100 Mbps	100BaseT
1 Gbps	1000Base T or 1000BaseSX
10 Gbps	10GBase-SR or 10GBase-LR

CIR Increments	CBS (bytes)
10 Mbps	25,000
100 Mbps	250,000
1 Gbps	2,500,000
10 Gbps	25,000,000

## 2. Class of Service (CoS) Options

Comcast Ethernet Transport Services are available with three different class of service (CoS) options that allow for differentiated service performance levels for different types of network traffic. This includes Basic (Low), Priority (Medium) and Premium (High). CoS is used to prioritize customer mission-critical traffic from lesser priority traffic in the network. The Customer must specify a CIR for each CoS to indicate how much bandwidth should be assigned to that CoS. The performance metrics associated with each CoS are described in the Ethernet Transport Service Level Agreement on Schedule A-2 of this PSA. As described in the following table, permissible CoS options vary by access type.

Access Type	CoS Options
On-Net Fiber	Basic, Priority & Premium
On-Net HFC	Basic & Priority
Off-Net Fiber	Basic, Priority & Premium
Off-Net Non-Fiber	Basic & Priority

## 3. CoS Identification and Marking

Customer traffic classification and forwarding is based upon Comcast CoS prioritization that must be specified in the Customer's Sales Order. It is the Customer's responsibility to shape traffic to ordered bandwidth. If the Customer only orders a single CoS solution, they are not required to mark their packets and all Customer packets will be forwarded based upon 802.1p value associated with the CoS level specified in the Sales order. All packets, tagged or untagged, will be mapped into the subscribed CoS. If Customer implements a multi-CoS solution or for EVPL ports with service multiplexing, the Customer must mark all packets using C-tag 802.1p CoS values as specified in the table below to ensure the Service will provide the intended CoS performance objectives. For multi-CoS solutions, untagged packets will be treated as if they are marked with a 0. Packets with other 802.1p values are mapped to the lowest subscribed CoS. For EVPL ports with service multiplexing, untagged packets will be discarded and C-tag VLAN ID values are used to map traffic to applicable EVC's. Based on Ethernet Frame 802.1p values, Customer's traffic is mapped to the Comcast forwarding classes traffic accordingly to the table below:

CoS Type	802.1p Marking
Basic (Low)	0-1
Priority (Medium)	2-3
Premium (High)	5

## 4. Mac Learning and Forwarding (ENS Service)

The ENS Service is capable of learning up to 2500 MAC addresses from all interfaces connecting to the Service. It is highly recommended that routing equipment be utilized to minimize the number of MAC addresses exposed directly to the Service in larger networks. Any addresses in excess of 2500 will not be learned and traffic directed to these addresses will be treated as "unknown unicast".

## 5. Traffic Management

Comcast's Network traffic-policing policies restrict traffic flows to the subscribed CIR for each service class. If the Customer-transmitted bandwidth rate for any CoS exceeds the subscribed committed information rate (CIR) and committed burst size (CBS), Comcast will discard the non-conformant packets. For packets marked with a non-conformant CoS marking, the Service will transmit them using the Basic CoS without altering the Customer's CoS markings. Traffic management policies associated with Off-Net Services will conform to the policies enforced by the third-party service provider.

## 6. Maximum Frame Size

Services delivered via Fiber support a Maximum Transmission Unit (MTU) frame size of 1600 bytes to support untagged, tagged and Q-in-Q traffic with 802.1q or 802.1ad encapsulation types. Services delivered via On-Net Fiber can, upon request, support a MTU up to 9100 bytes to support untagged, tagged and Q-in-Q frame sizes. Services delivered via Off-Net Fiber may, upon request, support a MTU up to 9100 bytes to support untagged, tagged and Q-in-Q frame sizes, but only, and solely, to the extent the applicable Off-Net provider can support such MTU frame size. Services delivered via HFC support a Maximum Transmission Unit (MTU) frame size of 1522 bytes. All frames that exceed specifications shall be dropped.

Transport Type	MTU Size
Fiber	1600-9100 bytes
HFC	1522 bytes

## 7. Customer Traffic Transparency

All fields within customers Ethernet frames (unicast, multicast and broadcast, except L2CP) from the first bit of payload are preserved and transparently transported over UNI to UNI connections, as long as they are mapped into the EVC.

## 8. Ethernet Service Frame Disposition

The Comcast Transport Services process different types of Ethernet frames differently. Frames may pass unconditionally through the Network or may be limited, as indicated in the table below, to ensure acceptable service performance. The following table illustrates Comcast's service frame disposition for each service frame type.

Service Frame Type	ENS Frame Delivery	EPL & EVPL Frame Delivery
Unicast	All frames delivered unconditionally	All frames delivered unconditionally
Multicast	All frames delivered conditionally	All frames delivered unconditionally
Broadcast	All frames delivered conditionally	All frames delivered unconditionally

### *ENS Services only:*

- **Unicast Traffic.** Unicast traffic must be bi-directional in order to facilitate mac-learning and avoid restriction.
- **Multicast Traffic.** By default, every ENS port is able to support up to 2 Mbps of multicast traffic. ENS customer who requires greater than 2 Mbps of multicast bandwidth must uniquely specify the bandwidth they require for each root site and associated Class of Service.
- **Broadcast Traffic.** Broadcast and unknown unicast traffic are restricted to 1.2mb or 300pps on ingress to the network.

### *EVPL Services only:*

- Customer is responsible for mapping multicast, broadcast and unknown unicast traffic to specific C-VLAN.

## Monitoring, Technical Support and Maintenance

1. **Network Monitoring.** Comcast monitors On-Net Services on a 24x7x365 basis.
2. **Technical Support.** Comcast provides a toll-free trouble reporting telephone number to the Comcast Business Services Network Operations Center that operates on a 24x7x365 basis. Comcast provides technical support for Service-related inquiries. Comcast Business Services Network Operations Center will not offer consulting or advice on issues relating to CPE or other equipment not provided by Comcast.
  - (a) **Escalation.** Reported troubles are escalated within the Comcast Business Services Network Operations Center to meet the response/restoration objectives described below (Response and Restoration Standards). Service issues are escalated within the Comcast Business Services Network Operations Center as follows: to a Supervisor at the end of the applicable objective time interval plus one (1) hour; to a Manager at the end of the applicable objective time interval plus two (2) hours, and to a Director at the end of the applicable objective time interval plus four (4) hours.
  - (b) **Maintenance.** Comcast's standard maintenance window for On-Net Services is Sunday to Saturday from 12:00am to 6:00am local time. Scheduled maintenance for On-Net Services is performed during the maintenance window and will be coordinated between Comcast and the Customer. Comcast provides a minimum of seven (7) days' notice for On-Net Service impacting planned maintenance. Emergency maintenance is performed as needed without advance notice to Customer. Maintenance for Off-Net Services shall be performed in accordance with the applicable third party service provider rules. Therefore, maintenance for Off-Net Service may be performed without advance notice to Customer.
3. **Comcast Equipment.** Comcast provides certain Comcast Equipment for provisioning its Services and the delivery of the UNI, which will reside on the Customer-side of the Demarcation Point. Comcast will retain ownership and management responsibility for this Comcast Equipment. This Comcast Equipment must only be used for receipt of Services. Customers are required to shape their egress traffic to the Committed Information Rate (CIR) identified in the Sales Order. Comcast will be excused from paying SLA credits, as set forth in Schedule A-2, if the Service Interruption is the result of Customer's failure to shape their traffic to the contracted CIR or utilizing Comcast Equipment for non-Comcast provided services.
4. **Response and Restoration Standards.** Comcast has the following response and restoration objectives:

CATEGORY	OBJECTIVE	MEASUREMENT	REMEDIES
<i>Mean Time to Respond Telephonically to Call</i>	15 minutes	Averaged Over A Month	Escalation (see above)
<i>Mean Time to Restore On-Net Comcast Equipment</i>	4 hours	Averaged Over A Month	Escalation (see above)
<i>Mean Time to Restore Off-Net Equipment</i>	4 hours	Averaged Over A Month	Escalation (see above)
<i>Mean Time to Restore On-Net Services</i>	6 hours	Averaged Over A Month	Escalation (see above)
<i>Mean Time to Restore Off-Net Services</i>	6 hours	Averaged Over A Month	Escalation (see above)

Customer shall bear any expense incurred, e.g., dispatch/labor costs, where a Service Interruption is found to be the fault of Customer, its end users, agents, representatives or third-party suppliers.

## Customer Responsibilities

Comcast provides an Ethernet terminating device for provisioning its services and the delivery of the UNI. Comcast will retain ownership and management responsibility for this equipment. As a result, it must only be used for delivering Comcast Services. Customer is responsible for providing customer premises equipment (CPE) to connect to this device. To ensure proper performance, Customer is



required to shape its egress traffic to the contracted CIR.

Customers have the following responsibilities related to the installation, support, and maintenance of the Service:

- Provide an operating environment with temperatures not below fifty-five (55) or above eighty-five (85) degrees Fahrenheit. Humidity shall not exceed ninety (90) percent at eighty-five (85) degrees Fahrenheit.
- Provide secure space sufficient for access to one (1) standard, freestanding, equipment cabinet at each of the Customer facilities, no further than fifty feet from the Customer router or switch interface.
- Provide outside cable entry conduit(s), entry cable ground point, and internal building conduit to allow Comcast the ability to rod/rope a fiber optic cable to the Demarcation Point.
- Locate and mark all private underground utilities (water, electric, etc.) along path of new underground placement not covered by utility companies.
- Provide a pull rope in any existing duct that Comcast is to use and ensure existing duct is serviceable for Comcast use.
- Obtain 'right-of-way' entry easement for Comcast facilities and equipment from property owners at each Customer location.
- The Customer is responsible for coring of the building's outside wall and internal walls. Upon request, Comcast can perform this activity on an 'as needed' basis for an additional one-time fee.
- Provide UPS AC power equipment, circuit sizing to be determined, if applicable.
- Emergency local generator backup service, if applicable.
- Provide access to the buildings and Demarcation Point at each Customer location to allow Comcast and its approved Contractors to install fiber for service installation. Provide access to each location for regular (8am - 5pm) and emergency (24 hour) service and maintenance of Comcast's equipment and facilities.
- Provide, install and maintain a device that is capable of interconnecting network traffic between the Service and the Customer's Local Area Network (LAN).
- Customer must provide a point of contact (POC) for installation, service activation and any maintenance activities.

**COMCAST ENTERPRISE SERVICES  
PRODUCT-SPECIFIC ATTACHMENT  
ETHERNET TRANSPORT SERVICES**

**SCHEDULE A-2  
SERVICE LEVEL AGREEMENT**

Comcast's Ethernet Transport Services are backed by the following Service Level Agreement ("SLA"):

**A. Definitions:**

Capitalized terms not otherwise defined herein shall have the meaning ascribed to them in the Ethernet Transport Services PSA or the General Terms and Conditions.

**Definitions**

**"Jitter"** means the short-term variations for a portion of successfully delivered service frames. Jitter may also be referred to as Frame Delay Variation.

**"Latency"** means the maximum delay for a portion of successfully delivered service frames. Latency may also be referred to as Frame Delay.

**"Market"** means the Comcast geographic region where the applicable Service Location is located, as identified on the Sales Order.

**"Packet Loss"** means the difference between the number of service frames transmitted at the ingress UNI and the total number of service frames received at the egress UNI. Packet Loss may also be referred to as Frame Loss.

**"Planned Service Interruption"** means any Service Interruption caused by planned work such as scheduled maintenance or planned enhancements or upgrades to the network.

**"Service Interruption"** means an interruption in transmission that renders the Service unusable due to a total loss of signal for the Service. The Service shall be "Available" in the absence of a Service Interruption.

**B. Ethernet Transport Service Level Agreements**

**1. Availability SLA**

Comcast's liability and Customer's sole remedy for Service Interruptions, and errors, omissions, interruptions, delays, outages, or defects in transmission or switching of any Service (individually or collectively, "**Liability**"), shall be limited to the amounts set forth in the Tables below with the stated percentages to be applied against the MRC (as defined below) associated with the impacted portion of the Service set forth in the Sales Order ("**Availability Credit**"). For the purposes of calculating credit for a Service Interruption, the "Length of Service Interruption" begins when the Customer reports such Service Interruption and a trouble ticket is opened, and concludes upon the closing of the same trouble ticket or, if sooner, the termination of the Service Interruption, less any time Comcast is awaiting additional information or premises testing from the Customer. In no event shall the total amount of Availability Credit issued to Customer's account on a per-month basis exceed 50% of the total monthly recurring charge ("MRC") associated with the impacted portion of the Service set forth in the Sales Order. The Length of Service Interruptions for separately occurring Service Interruptions will not be aggregated for purposes of determining Availability Credit allowances. To qualify, Customer must request the Availability Credit from Comcast within thirty (30) days of the beginning of the Service Interruption. Comcast shall not incur any Liability, including Availability Credit, for any failure of the Services caused by force majeure events, Planned Service Interruptions, Customer actions, omission or equipment, CPE, or any other items set forth in the "Exceptions to Credit Allowances" section below.

**TABLE 1: Availability SLA for Services provided over On-Net or Off-Net Fiber (99.99% Availability)**

<b>Length of Service Interruption:</b>	<b>Amount of Credit:</b>
Less than 4 minutes	None
At least 4 minutes but less than 4 hours	5% of Total MRC
At least 4 hours but less than 8 hours	10% of Total MRC
At least 8 hours but less than 12 hours	20% of Total MRC
At least 12 hours but less than 16 hours	30% of Total MRC
At least 16 hours but less than 24 hours	40% of Total MRC
At least 24 hours or greater	50% of Total MRC

**TABLE 2: Availability SLA for Services provided over On-Net HFC or Off-Net Non-Fiber Transport (99.9% Availability)**

<b>Length of Service Interruption:</b>	<b>Amount of Credit:</b>
Less than 40 minutes	None
At least 40 minutes but less than 4 hours	5% of Total MRC
At least 4 hours but less than 8 hours	10% of Total MRC
At least 8 hours but less than 12 hours	20% of Total MRC
At least 12 hours but less than 16 hours	30% of Total MRC
At least 16 hours but less than 24 hours	40% of Total MRC
At least 24 hours or greater	50% of Total MRC

SEPARATELY OCCURRING SERVICE INTERRUPTIONS ARE NOT AGGREGATED FOR THE PURPOSES OF DETERMINING CREDIT ALLOWANCES.

## **2. Performance Objectives SLA**

Comcast Ethernet Transport Services are available both within and between major metropolitan areas throughout the United States. The performance objectives associated with traffic flows between any two Customer Service Locations are dependent upon the locations of the respective sites, designated as Service Location A and Service Location Z on the applicable Sales Order.

### ***Access Types***

- 1. On-Net Access.** If On-Net Service Location A and On-Net Service Location Z reside within the same Market, Performance Tier 1 objectives will apply. If the On-Net Service Locations are in different Markets, a different Performance Tier will apply. The applicable Performance Tier will appear on/with the respective Sales Order.
- 2. Off-Net Access.** In addition to On-Net Access, Comcast enables Off-Net Access to Ethernet Transport Services via multiple third party providers. The Performance Tier for Off-Net Service is based upon the location of the Off-Net Service Location, the location of the Network to Network Interface (NNI) between Comcast and the third party provider and the performance commitment from the third party provider. The applicable Performance Tier will appear on the respective Sales Order.

### ***Performance Tiers and Performance Objectives***

Comcast collects continuous in-band performance measurements for its Ethernet Transport Services. The calculation of all Latency, Jitter and Packet Loss Performance Metrics for each calendar month for purposes of this Performance Objectives SLA are based upon the average of sample one-way measurements taken by Comcast during the applicable calendar month, excluding any period during which there is a Service Interruption. The below charts indicate the Performance Standard that should be achieved for each of the Performance Metrics over each calendar month based on the applicable Performance Tier and Class of Service.

**1. Performance Tier 1 (PT1) Agreements – Within Market**

Performance Metric	Class of Service (CoS)		
	Basic	Priority	Premium
Latency (One-Way Network Delay)	45ms	23ms	12ms
Jitter (Network Delay Variation)	20ms	10ms	2ms
Packet Loss	<1%	<0.01%	<0.001%

**2. Performance Tier 2 (PT2) Agreements**

Performance Metric	Class of Service (CoS)		
	Basic	Priority	Premium
Latency (One-Way Network Delay)	80ms	45ms	23ms
Jitter (Network Delay Variation)	25ms	15ms	5ms
Packet Loss	<1%	<.02%	<.01%

**3. Performance Tier 3 (PT3) Agreements**

Performance Metric	Class of Service (CoS)		
	Basic	Priority	Premium
Latency (One-Way Network Delay)	100ms	80ms	45ms
Jitter (Network Delay Variation)	30ms	20ms	10ms
Packet Loss	<1%	<.04%	<.02%

**4. Performance Tier 4 (PT4) Agreements**

Performance Metric	Class of Service (CoS)		
	Basic	Priority	Premium
Latency (One-Way Network Delay)	120ms	100ms	80ms
Jitter (Network Delay Variation)	35ms	25ms	15ms
Packet Loss	<1%	<.05%	<.04%

**5. Best Effort Performance Tier (BE)**

No performance commitments will apply. Best Effort Performance Tier will appear on the associated Comcast Sales Order.

***Credit Allowance***

Customer’s sole remedy for Comcast’s failure to achieve the applicable Performance Metric standards above over a given calendar month for the Service are the receipt of the following credit amounts with the stated percentages to be applied against the MRC associated with the impacted portion of the Service set forth in the Sales Order (“**Performance Objective Credits**”).

**TABLE 1: Credit Allowance for Latency Performance Metric**

		Performance Tier							
		PT1		PT2		PT3		PT4	
		Measurement (ms)	Credit	Measurement (ms)	Credit	Measurement (ms)	Credit	Measurement (ms)	Credit
Class of Service	Premium	0 -12	No Credit	0 - 23	No Credit	0 - 45	No Credit	0 to 80	No Credit
		12.01 - 23	10%	23.01 - 45	10%	45.01 - 80	10%	80.01 - 100	10%
		23.01 - 45	25%	45.01 - 80	25%	80.01 - 100	25%	100.01 - 120	25%
		>45	50%	>80.01	50%	>100	50%	>120	50%
	Priority	0 - 23	No Credit	0 - 45	No Credit	0 to 80	No Credit	0 to 100	No Credit
		23.01 - 45	10%	45.01 - 80	10%	80.01 - 100	10%	100.01 - 120	10%
		45.01 - 80	25%	80.01 - 100	25%	100.01 - 120	25%	120.01 - 150	25%
		>80.01	50%	>100	50%	>120	50%	>150	50%
	Basic	0 - 45	No Credit	0 to 80	No Credit	0 to 100	No Credit	0 to 120	No Credit
		45.01 - 80	10%	80.01 - 100	10%	100.01 - 120	10%	120.01 - 150	10%
		80.01 - 100	25%	100.01 - 120	25%	120.01 - 150	25%	150.01 - 180	25%
		>100	50%	>120	50%	>150	50%	>180	50%

**TABLE 2: Credit Allowance for Jitter Performance Metric**

		Performance Tier							
		PT1		PT2		PT3		PT4	
		Measurement (ms)	Credit	Measurement (ms)	Credit	Measurement (ms)	Credit	Measurement (ms)	Credit
Class of Service	Premium	0 - 2	No Credit	0 - 5	No Credit	0 - 10	No Credit	0 - 15	No Credit
		2.01 - 3	10%	5.01 - 10	10%	10.01 - 15	10%	15.01 - 20	10%
		3.01 - 5	25%	10.01 - 15	25%	15.01 - 20	25%	20.01 - 30	25%
		>5	50%	>15	50%	>20	50%	>30	50%
	Priority	0 - 10	No Credit	0 - 15	No Credit	0 - 20	No Credit	0 - 25	No Credit
		10.01 - 15	10%	15.01 - 20	10%	20.01 - 30	10%	25.01 - 40	10%
		15.01 - 20	25%	20.01 - 30	25%	30.01 - 50	25%	40.01 - 60	25%
		>20	50%	>30	50%	>50	50%	>60	50%
	Basic	0 - 20	No Credit	0 - 25	No Credit	0 - 30	No Credit	0 - 35	No Credit
		20.01 - 30	10%	25.01 - 40	10%	30.01 - 50	10%	35.01 - 60	10%
		30.01 - 50	25%	40.01 - 60	25%	50.01 - 80	25%	60.01 - 90.01	25%
		>50	50%	>60	50%	>80	50%	>90	50%

**TABLE 3: Credit Allowance for Packet Loss Performance Metric**

		Performance Tier							
		PT1		PT2		PT3		PT4	
		Measurement	Credit	Measurement	Credit	Measurement	Credit	Measurement	Credit
Class of Service	Premium	0% - 0.001%	No Credit	0% - 0.01%	No Credit	0% - 0.02%	No Credit	0% - 0.04%	No Credit
		0.001% - 2.00%	10%	0.01% - 2.00%	10%	0.02% - 2.00%	10%	0.04% - 2.00%	10%
		2.01% - 4.00%	25%	2.01% - 4.00%	25%	2.01% - 4.00%	25%	2.01% - 4.00%	25%
		>4.00%	50%	>4.00%	50%	>4.00%	50%	>4.00%	50%
	Priority	0% - 0.01%	No Credit	0% - 0.02%	No Credit	0% - 0.04%	No Credit	0% - 0.05%	No Credit
		0.01% - 2.00%	10%	0.02% - 2.00%	10%	0.04% - 2.00%	10%	0.05% - 2.00%	10%
		2.01% - 4.00%	25%	2.01% - 4.00%	25%	2.01% - 4.00%	25%	2.01% - 4.00%	25%
		>4.00%	50%	>4.00%	50%	>4.00%	50%	>4.00%	50%
	Basic	0% - 1.00%	No Credit	0% - 1.00%	No Credit	0% - 1%	No Credit	0% - 1%	No Credit
		1.01% - 2.00%	10%	1.01% - 2.00%	10%	1.01% - 2.00%	10%	1.01% - 2.00%	10%
		2.01% - 4.00%	25%	2.01% - 4.00%	25%	2.01% - 4.00%	25%	2.01% - 4.00%	25%
		>4.00%	50%	>4.00%	50%	>4.00%	50%	>4.00%	50%

Customer shall only be entitled to receive a Performance Objective Credit for one Performance Metric failure per affected portion of the Service per calendar month. For example, if the applicable metric for Jitter and Latency were missed for the same transport connection (Service Location A to Service Location Z) in a given calendar month, Customer will only be entitled to the Performance Objective Credit associated with either the Jitter or Latency failure for such portion of the Service. To qualify for a Performance Objective Credit, Customer must request the applicable Performance Objective Credit from Comcast within thirty (30) days of the end of the applicable calendar month in which the applicable Performance Metric standard was not achieved. Comcast shall not incur any liability, including Performance Objective Credit, for any failure of the Services caused by force majeure events, Planned Service Interruptions, Customer actions, omissions or equipment, CPE or any other items set forth in the “Exceptions to Credit Allowances” section below.

## **C. Exceptions and Terms Applicable to All SLAs**

### **1. Emergency Blocking**

The parties agree that if either party hereto, in its reasonable and sole discretion, determines that an emergency action is necessary to protect its own network, the party may, after engaging in reasonable and good faith efforts to notify the other party of the need to block, block any transmission path over its network by the other party where transmissions do not meet material standard industry requirements. The parties further agree that none of their respective obligations to one another under the Agreement will be affected by any such blockage except that the party affected by such blockage will be relieved of all obligations to make payments for charges relating to the circuit(s) which is so blocked and that no party will have any obligation to the other party for any claim, judgment or liability resulting from such blockage.

### **2. Remedy Processes**

All claims and rights arising under this Service Level Agreement must be exercised by Customer in writing within the time period set forth in Sections B.1 and B.2, as applicable. The Customer must submit the following information to the Customer’s Comcast account representative with any and all claims for credit allowances: (a) Organization name; (b) Customer account number; and (c) basis of credit allowance claim (including date and time, if applicable). Comcast will acknowledge and review all claims promptly and will inform the Customer by electronic mail or other correspondence whether a credit allowance will be issued or the claim rejected, with the reasons specified for the rejection.

### **3. Exceptions to Credit Allowances**

Comcast’s failure to meet the either of the SLAs set forth on this Schedule A-2 shall not qualify for the remedies set forth herein if such failure is related to, associated with, or caused by: Planned Service Interruptions or other scheduled maintenance events; Customer actions or inactions; Customer-provided power or equipment; any third party not contracted through Comcast, including, without limitation, Customer’s users, third-party network providers, any power, equipment or services provided by third parties; or an event of force majeure as defined in the Agreement.

### **4. Other Limitations**

THE TOTAL CREDIT ALLOWANCES PER CALENDAR MONTH UNDER THIS SCHEDULE A-2 IS CAPPED AT 50% OF THAT MONTH’S MRC FOR THE IMPACTED PORTIONS OF SERVICE. In addition, the remedies set forth in this Service Level Agreement shall be Customer’s sole and exclusive remedies for any Service Interruption, outage, unavailability, delay, or other degradation, or any Comcast failure to meet the service objectives.