

**SERVICE ATTACHMENT 2
TO THE
MASTER SERVICE AGREEMENT
REGIONAL OPT-E-MAN SERVICES**

This is a Service Attachment to the Master Service Agreement effective December 7, 2006, ("Agreement"), between The Office of Information Technology ("OIT") on behalf of the State of Ohio ("the State"), and AT&T Global Services on behalf of its affiliate, AT&T Corp. ("AT&T" or "Vendor").

WHEREAS, AT&T desires to include additional services and the corresponding general provisions thereof; and

WHEREAS, the above named Parties desire to execute this Service Attachment to said Agreement;

NOW THEREFORE, in accordance with the Agreement, and in consideration of the conditions and covenants contained herein, the Parties mutually agree as follows:

1. The Addition of Service Attachment 2 – Regional OPT-E-MAN Services ("ROS").
2. All other terms and conditions of the Master Service Agreement not otherwise supplemented and/or amended shall remain unchanged and in full force and effect.

IN WITNESS WHEREOF, the Parties have executed this Service Attachment which shall be effective on the date signed by OIT.

AT&T GLOBAL SERVICES, INC.

**STATE OF OHIO,
OFFICE OF INFORMATION
TECHNOLOGY**

Rosemary Dziurgot RN
Signature

Walter F. Cavanaugh, Jr
Signature

Rosemary Dziurgot RN
Printed Name

WALTER F. CAVAUGHAN, JR
Printed Name

Senior Manager Contract Mgt.
Title

Acting Director State CIO
Title

January 26, 2007
Date

2-2-07
Effective Date

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This Service Attachment provides the Subscribing Entity(s) with the ability to purchase Regional OPT-E-MAN Service offered by AT&T.

Additional information regarding this service has been included in an Appendix located at the end of this document:

- Appendix 1: Service Description Detail
- Appendix 2: Pricing Tables
- Appendix 3: SLA/SLO Information

Note: The language contained in the Appendices is intended to supplement the information contained in this Service Attachment and is not intended as additional ROS Terms and Conditions.

1 Description of Services

This section provides an overview of the AT&T Regional OPT-E-MAN Services (“ROS”) which are available under this Service Attachment.

ROS is a managed service that provides connectivity between a Subscribing Entity(s) Ethernet protocol communication devices requiring InterLATA connectivity. ROS will support nearly any data transport configuration including Point-to-Point, Point-to-Multipoint, and Multipoint-to-Multipoint, by using physical and virtual connections to meet specific business needs.

Bandwidth Information

Connections to the network range from 5 Mbps - 1 Gbps. The handoff to the Subscribing Entity(s) will be a 10/100 Mbps or 1 Gbps Ethernet interface. If the Subscribing Entity(s) connect to the ROS network using a bridge or switch for Layer 2 connectivity, only 50 Media Access Control (MAC) addresses can be used per Layer 2 device, per port.

Any additional MAC addresses will be assigned additional charges as defined in Appendix 2 with a limit of 100 MAC addresses total per port.

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2 Service Options

The Subscribing Entity(s) will have the following options for purchasing Regional OPT-E-MAN Service (“ROS”) under this Service Attachment:

Option 1 – Standard Pricing – Includes Standard pricing elements and rates applicable for all locations

Option 2 – Multi-port Pricing – Includes pricing elements and rates applicable only for the following specified sites that have 4 or more ROS ports installed at established demarcation point(s):

Applicable Sites			
Site Name	Address		
State of Ohio Computer Center	1320 Arthur E Adams Dr	Columbus	OH
Rhodes State Office Tower	30 E Broad St	Columbus	OH
Vern Riffe Center	77 South High St	Columbus	OH
Lausche State Office Tower	615 Superior	Cleveland	OH
Port counts defined by site purchasing off agreement, not specific agency			
Each site will have 4 or more ports at a minimum			

Grade of Service Options

There are three (3) Grade of Service (“GOS”) distinctions that affect the pricing of both Option 1 and Option 2 Regional OPT-E-MAN Services.

- Standard – available only with CSME access (“CSME Access”)and ROS Port only
- Bronze CIR – available only with OPT-E-MAN access (“OPT-E-MAN Access”) and ROS Port only
- Silver CIR – available only with OPT-E-MAN access and ROS Port only

Access purchased by Subscribing Entity(s) from AT&T Ohio pursuant to a Service Attachment 1 – IntraLata Multi-Point Services OPT-E-MAN and Custom Switched Metro Ethernet.

Note: Bronze CIR ports are available when selecting a Bronze or Silver port. A Silver port is required for Silver CIR service.

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3 Standard Service Information

This section provides the following information regarding ROS.

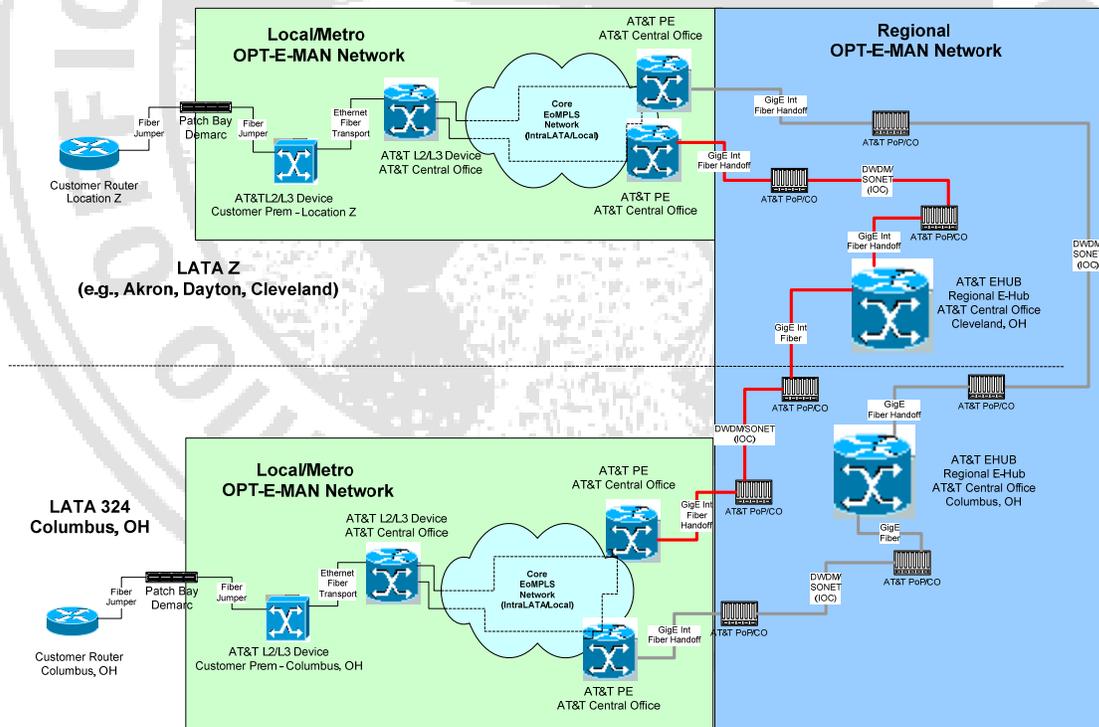
- Component Detail Overview
- Included Services Overview
- Implementation
- Service Maintenance

Additional information regarding Component Detail and Included Services is located in Appendix 1 of this Service Attachment.

3.1 Component Detail

The following diagram provides an example ROS configuration for Ethernet services provided under this Attachment

Regional OPT-E-MAN Service Overview



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3.2 Included Services

Included in ROS is AT&T's Network Premises Equipment ("NPE"). The ROS demarcation between AT&T and Subscribing Entity(s) for LAN handoff ("ROS Interface") will be on the Subscribing Entity(s) side of the rack mounted NPE. ROS may include Metro OPT-E-MAN Access, CSME Access or Third Party Certified Ethernet Access "Type 2". Type 2 Access will not be offered to locations which can be supported by Metro OPT-E-MAN or Metro CSME (Additional information in Appendix 1)

3.3 Implementation

The Subscribing Entity(s) and AT&T will mutually agree upon a Scheduled Network Activation Date ("SNAD") by location basis based on fiber availability, equipment availability and Subscribing Entity(s) availability to complete Initial Logical Network Configuration.

The Subscribing Entity(s) may postpone implementation at any time prior to the Scheduled Network Activation Date and mutually agree with AT&T on a new SNAD. If the Subscribing Entity(s) cannot mutually agree with AT&T on a new SNAD, the Subscribing Entity(s) shall accept billing for the impacted Port(s) thirty (30) days after the new SNAD proposed by AT&T.

3.4 Service Maintenance:

AT&T may need to conduct service maintenance activities, which will necessitate a window of service downtime. AT&T realizes this will affect Subscribing Entity(s) operations and will ensure appropriate prior notification, as well as schedule the maintenance activities during off-peak time periods upon reasonable notice to Subscribing Entity(s). There are no additional charges for AT&T maintenance services. However, AT&T shall have no responsibility for the maintenance and repair of facilities and equipment, which it does not furnish, and AT&T may assess Subscribing Entity(s) its standard charge for any false call outs related to AT&T service outages due to site facilities or equipment failure that AT&T does not furnish, only if the Subscribing Entity initiates the request.

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4 Fee Structure

This Section provides the following information:

- A pricing overview for available service options
- General Pricing Information
- Termination Fee Information

4.1 Service Options

The Pricing Tables, located in Appendix 2, provide the MRC for a 24, 48, and 60 month service commitment terms for the following ROS options for a variety of access speed options:

- Option 1 – ROS Standard Pricing
 - ROS with CSME Access and Port
 - ROS Basic Plus Access – OPT-E-MAN Access only
 - ROS CIR – Bronze GOS – OPT-E-MAN Access only
 - ROS CIR – Silver GOS – OPT-E-MAN Access only
 - ROS – Local EVC
 - ROS w/ Type 2 Local Access Providers
 - ROS – Regional Port CIR
- Option 2 – ROS Multi-port Pricing
 - ROS with CSME Access and Port
 - ROS Basic Plus Access – OPT-E-MAN only
 - ROS CIR – Bronze GOS – OPT-E-MAN only
 - ROS CIR – Silver GOS – OPT-E-MAN only
 - ROS – Local EVC
 - ROS w/ Type 2 Local Access Providers
 - ROS – Regional Port CIR

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4.2 Termination Fee Information

If the Subscribing Entity disconnects a circuit prior to fulfilling a 24 month term commitment for reasons other than those permitted elsewhere in this Attachment, AT&T agrees to re-rate the circuit to the then prevailing 12 month tariff rate and the Subscribing Entity would pay the difference between the appropriate rate in Appendix 1 and the prevailing 12 month tariff rate times the number of months the circuit was in service.

For circuits purchased under the 48 and 60 month options set forth in Appendix 1, a circuit disconnected prior to fulfilling the chosen term would be re-rated to the 24 month rate set forth in Appendix 1. The Subscribing Entity would then pay the difference between the appropriate 48 or 60 month rate set forth in Appendix 1 and the 24 month rate times the number of months the circuit was in service.

4.3 Managed Services Fee

An AT&T affiliate and OIT have entered into an agreement for Managed Care Services as set forth in Service Attachment 3 to the AT&T Master Services Agreement, therefore, pricing components for Monthly Recurring rate elements in the following tables include a 5% Managed Services fee as defined in Service Attachment 3, to the AT&T Master Services Agreement and is a required component of the Services in this Attachment.

In the event Services Attachment 3, Managed Care Services is terminated and this Agreement remains in effect, the enhanced management, service levels, and reporting as defined in Service Attachment 3 will no longer be supported by the AT&T affiliate. AT&T and OIT will mutually agree to appropriately revise this Agreement to reflect scope changes and pricing.

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5 Service Level Agreement and Service Level Objective Requirements

This Section provides the following Service Level Agreement (“SLA”) / Service Level Objective (SLO”) information:

- A recap and short description of the SLA’s/SLO’s.
- Grade of Service Remedy Overview
- A description of the SLA/SLO reports
- SLA Credits

5.1 SLA/SLO Recap

The following SLA’s are provided by AT&T for the Regional OPT-E-MAN Service as defined herein:

- SLA 1: Latency (One Way)
- SLA 2: Packet Delivery Rate (“PDR”)
- SLA 3: Jitter
- SLA 4: Connections/Network Availability
- SLA 5: Mean Time to Restore (“MTTR”)
- SLO 6: Circuit Installation
- SLO 7: Routine Remote Changes (TSR Initiated)

Please refer to Appendix 3 for detailed description of each SLA/SLO.

5.2 Grade of Service Remedy Overview

The following Grade of Service measures are available:

- SLA 1 - Latency
- SLA 2 – PDR
- SLA 3 - Jitter

Individual instances of Port specific Latency, PDR or Jitter issues that result in the service being rendered unusable by the Subscribing Entity and treated as a service outage.

5.3 SLA/SLO Reports

All measures are reported as a monthly average of all Customer ports in service. SLA/SLO measures identified in Appendix 2 will be available on a monthly basis by request. Monthly report fields and definitions are included in Appendix 2 to this Attachment

5.4 SLA Credits

Standard tariff SLA Credits for Services contained within this Attachment shall apply.

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6 Service Specific Terms and Conditions

This section contains the additional Terms and Conditions that are specific to the Regional OPT-E-MAN Services described herein:

6.1 Configuration

The Service shall be configured and Service Term shall be selected as set forth in each order placed via the TSR System.

6.2 Term

In the event that the Service Term of any service ordered under this Service Attachment and/or MSA extends beyond the term of the Service Attachment and/or MSA or termination of the Service Attachment and/or MSA, then the Terms and Conditions of the Service Attachment and/or MSA shall survive with respect to that service until that service expires or is otherwise terminated.

6.3 Rates and Charges

AT&T shall charge, and Subscribing Entity agrees to pay, the appropriate monthly rates and non-recurring charges set forth in Appendix 2 to this Attachment. AT&T reserves the right to reject any service order, or provide ICB rates as defined in Section 11.2.1 Limitations on Service Pricing in the AT&T Master Services Agreement.

6.4 Special Construction Charge Information

Special Construction charges will not apply to locations equipped with spare capacity of existing AT&T fiber that meets the specifications of the requested service. Special Construction charges are determined based on the distance of the location to the AT&T switching office that supports the requested service and the reusability by other AT&T customers of the equipment and fiber facilities being deployed to support the requested service.

Prior to a Subscribing Entity issuing a TSR order for service, AT&T will document in writing the (firm) Special Construction Charges associated with the order.

The Subscribing Entity(s) is responsible for conduit/structure as well as path from the property line to the demarcation point for access of primary route and, where the Subscribing Entity(s) deems appropriate, dual entrance access.

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6.5 Competitive Pricing

In the event an RFP, RFQ or 470 is issued by any Subscribing Entity that falls under the OIT contracting authority and is required to purchase the services described in this Service Attachment, AT&T reserves the right to respond with a discount off the Pricing Tables located in Appendix 2 of this document, based upon the competitive nature of the opportunity. AT&T agrees on an annual basis to perform a competitive pricing review of services that were discounted with the Office of Information Technology. The competitive pricing review will include the services that are purchased directly from AT&T, outside of the Service Attachment, by Subscribing Entity(s) that are Cooperative Purchasing Members as defined in Section 1.3 of the MSA. AT&T will conceal the Subscribing Entity name and provide pricing and terms and conditions information for the competitive pricing review. Notwithstanding the foregoing, the State understands and agrees that AT&T is subject to certain state and federal rules and regulations regarding the disclosure of customer information including but not limited to pricing. Therefore, AT&T will comply with the foregoing to the extent that, as determined by AT&T, such compliance does not result in a violation of such rules and regulations.

AT&T agrees on an annual basis, during the month of January beginning in 2008, on a date mutually agreed to by the State and AT&T, to conduct a competitive pricing review that will determine if pricing adjustments are needed to this Service Attachment. In the event that either; (i) a shift in market pricing has occurred or (ii) any entities eligible to use this Service Attachment through a RFP, RFQ or 470 process are offered more favorable pricing, Terms and Conditions, excluding pricing for a unique suite of (bundled) services and/or for localized competitive situations., AT&T will adjust the Pricing Tables through an Amendment to this Service Attachment to reflect the lowest cost given to any Subscribing Entity(s) for that particular Ethernet Component to the extent such pricing differential is 5% or more, along with any associated Terms and Conditions.

The new pricing schedule will be implemented within 90 days following the execution of the Amendment to this Service Attachment. At the end of each review period, AT&T will certify in writing to the best of its knowledge and ability that AT&T has strictly complied with the review and re-pricing provision of this contract.

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6.6 Equipment

This section provides information regarding AT&T's owned Network Premises Equipment ("NPE") located on a Subscribing Entity(s) premises and Customer Provided Equipment ("CPE") which is owned by the Subscribing Entity.

Network Premises Equipment

The following text applies to the NPE:

- AT&T will deliver, install, and maintain the NPE.
- The Subscribing Entity(s), at its own expense, shall provide:
 - (i) an equipment room with space for the NPE that is environmentally compliant, as specified by the equipment manufacturer and meets other environmental conditions as specified by AT&T in the SOW;
 - (ii) reasonable access to the NPE during the Subscribing Entity(s) business hours;
 - (iii) adequate work space, heat, light, ventilation and electrical outlets.
- The NPE shall not be removed, relocated, modified, or attached to non-AT&T components at other than the ROS Interface by the Subscribing Entity(s) without prior written authorization from AT&T.

Customer Provided Equipment

The following text applies to the CPE:

- The Subscribing Entity(s) is responsible for extending the CPE to the ROS Interface, including providing the appropriate media adapter/cables for the applicable ROS interface protocol as detailed in the SOW.
- For fiber extensions, the fiber connectivity between the CPE and the ROS interface must meet the 1000BaseSX protocol standards as detailed in the SOW.
- For fiber extensions, the length of the fiber connecting the Subscribing Entity(s) CPE and the ROS interface must account for fiber bending signal losses but must in no event be more than 600 feet in length as detailed in the SOW.
- For Unshielded Twisted Pair (UTP) extensions, the UTP connectivity between the CPE and the ROS interface must be Category 5 or better and meet the 100BaseT or equivalent standards as detailed in the SOW.
- For Unshielded Twisted Pair (UTP) extensions, the length and location of the UTP Category 5 cable connecting the CPE and the ROS interface must be free of bridges, splices and taps other than a maximum of two "punch-downs"; and account for electromagnetic interference; but must in no event be more than 300 feet in length as detailed in the SOW.

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- An Uninterruptible Power Supply is not a standard component of ROS and is not included in the configuration or price. If the Subscribing Entity(s) desires power backup at a given site, it is their responsibility to provide the UPS mechanism to include purchase, installation, etc. of the UPS solution. AT&T is not responsible for outages due to power failures or interruptions at the Subscribing Entity(s) premises especially as they apply to network availability SLAs metrics/credits.

7 Service Availability

Contact the AT&T account team for information on service availability

8 Cost Recovery Fee

In accordance with Section 9 of the AT&T Master Services Agreement, a 2% Cost Recovery Fee will be paid to OIT for services provided under this Service Attachment.

The Cost Recovery Fee is not E-Rate eligible, and will be itemized as a separate cost element on the invoice for the service.

9 Reporting Requirements

This Section provides a description of the reports required from a state level perspective by OIT, which includes Monthly Expenditure and Quarterly Inventory reports. Reports shall be submitted to OIT in an electronic format within a month of the ending period of the report. Information on reporting options available to the Subscribing Entity(s) may be obtained from the account team.

9.1 Monthly Expenditure Report

To facilitate reporting continuity, all services purchased under this Service Attachment will be put on the same month end billing cycle. Reports will be provided to the state on a monthly basis for each service provided hereunder. At a minimum, these reports will contain totals for the following data elements:

- Credits
- Adjustments
- Aging
- Charges
- Invoice Report
- Payments
- Revenue
- Total charges summary by State and Subscribing entity

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10 Definitions

The definitions contained in this section have been organized into the following categories:

- Service Specific
- General
- SLA
- Technical

10.1 Service Specific

The following definitions provide additional information specific to the services described herein:

- **Ethernet** - The most widely installed local area network (“LAN”) technology. Specified in a standard, IEEE 802.3, An Ethernet LAN typically uses coaxial cable or special grades of twisted pair wires.
- **Packet-based Switching Technologies** - Refers to protocols in which messages are divided into packets before they are sent. Each packet is then transmitted individually and can even follow different routes to its destination. Once all the packets forming a message arrive at the destination, they are recompiled into the original message.
- **Point-to-Point** – Communications between two designated locations.
- **Point-to-Multipoint** – Communications between one designated location to more than one designated location.
- **Multipoint-to-Multipoint** – Communication between more than one designated location to more than one designated location.

10.2 General

The following definitions provide additional information regarding the services described herein:

- **LATA** - Local Access and Transport Area, is a geographical and administrative area that is the responsibility of a Local Exchange Carrier (“LEC”).
- **IntraLATA** - Refers to a communication, data or voice, which does not cross a LATA boundary.
- **InterLATA** - Refers to communication, data or voice, from one LATA to another, which can be within a state or from state to state (interstate).
- **Type 2 Access** – Access provided by partnerships with alternative Ethernet carriers not owned by AT&T.

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- **470** - Section 54.504 of the Federal Communications Commission's ("FCC") rules requires all schools and libraries requesting universal service discounts to file—individually, or as a district or system, or as a consortium—this Description of Services Requested and Certification Form (FCC Form 470) with the Universal Service Administrator, which is the Schools and Libraries Division ("SLD") of the Universal Service Administrative Company ("USAC"). 47 C.F.R. § 54.504. For purposes of this form, the Universal Service Administrator will be referred to as the SLD. The collection of information stems from the Commission's authority under Section 254 of the Communications Act of 1934, as amended, 47 U.S.C. § 254. The data collected in FCC Form 470 will be used to ensure that schools and libraries and any consortia they comprise comply with the competitive bidding requirement contained in 47 C.F.R. § 54.504.
- **Best Effort** - Refers to a network service that attempts to deliver messages to their intended destinations but which does not provide any special features that retransmit corrupted or lost packets.
- **Service Term** - The length of time committed by Subscribing Entity to maintain service in effect.
- **Common Language Location Identifier Code** - ("CLLI") Refers to a unique identifier assigned by the local exchange carrier to define network facilities and elements.

10.3 SLA

The following definitions provide additional information specific to the SLA's described herein:

- **Latency** – In a network, latency, a synonym for *delay*, is an expression of how much time it takes for a packet of data to get from one designated point to another. In some usages latency is measured by sending a packet that is returned to the sender and the round-trip time is considered the latency.
- **Jitter** - Is the deviation in or displacement of some aspect of the pulses in a high-frequency digital signal. As the name suggests, jitter can be thought of as shaky pulses. The deviation can be in terms of amplitude, phase timing, or the width of the signal pulse.

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10.4 Technical

The following definitions provide additional technical information regarding the services described herein:

- **Port** - In this attachment refers to a physical or logical interface established to support requested services. The Port may be located either on the network or customer provided equipment.
- **Physical connection(s)** – Any physical cable, jack, cross-connect, patch panel, splice or hardware interface required to complete required connectivity to support services.
- **Virtual Circuit** - A communications arrangement in which data from a source user may be passed to a destination user over various real circuit configurations during a single period of communication. *Note:* Virtual circuits are generally set up on a per-call basis and are disconnected when the call is terminated; however, a permanent virtual circuit can be established as an option to provide a dedicated link between two facilities.
- **Virtual connections** – A logical connection that is made to a Virtual Circuit.
- **Layer 2** - Also known as the OSI Model Data Link Layer 2. This layer responds to service requests from the Network Layer and issues service requests to the Physical Layer. The Data Link Layer provides the functional and procedural means to transfer data between network entities and to detect and possibly correct errors that may occur in the Physical Layer. *Note:* Examples of data link protocols are HDLC and ADCCP for point-to-point or packet-switched networks and LLC for local area networks.
- **10BaseT** - One of several adaptations of the Ethernet (IEEE 802.3) standard for Local Area Networks (LANs). The 10Base-T standard (also called *Twisted Pair Ethernet*) uses a twisted-pair cable with maximum lengths of 100 meters. The cable is thinner and more flexible than the coaxial cable used for the 10Base-2 or 10Base-5 standards.
- **100Base-T** - A networking standard that supports data transfer rates up to 100 Mbps (100 megabits per second). 100BASE-T is based on the older Ethernet standard. Because it is 10 times faster than Ethernet, it is often referred to as Fast Ethernet. Officially, the 100BASE-T standard is IEEE 802.3u.
Like Ethernet, 100BASE-T is based on the CSMA/CD LAN access method. There are several different cabling schemes that can be used with 100BASE-T, including:
 - 100BASE-TX: two pairs of high-quality twisted-pair wires
 - 100BASE-T4: four pairs of normal-quality twisted-pair wires
 - 100BASE-FX: fiber optic cables

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- **1000BASE-T** - Is Gigabit Ethernet (1 gigabit is 1000 megabits per second) on copper cables, using four pairs of Category 5 Unshielded Twisted Pair to achieve the gigabit data rate. 1000BASE-T can be used in data centers for server switching, for uplinks from desktop computer switches, or directly to the desktop for broadband applications. A big advantage of 1000BASE-T is that existing copper cabling can be used instead of having to rewire with optical fiber.

For Gigabit Ethernet, industry offerings include these types of wiring:

- 1000BASE-SX (a short laser wavelength on multimode fiber optic cable for a maximum length of 550 meters)
 - 1000BASE-LX/LH (a long wavelength for a "long haul" fiber optic cable for a maximum length of 10 kilometers)
 - 1000BASE-ZX (an extended wavelength single-mode optical fiber for up to 100 kilometers)
 - 1000BASE-CX (two pairs of 150-ohm shielded twisted pair cable for a maximum length of 25 meters)
 - 1000BASE-T (four pairs of Category 5 Unshielded Twisted Pair cable for a maximum length of 100 meters)
 - **Cisco 3550** - Edge Ethernet switch model currently used as part of AT&T network.
 - **PE/7609 Node** - Core Ethernet switch model currently used as part of AT&T network.
 - **Demarcation Point** - The point at which operational control or ownership of communications facilities changes from one organizational entity to another. *Note:* The demarcation point is usually the interface point between customer-premises equipment and external network service provider equipment.
 - **Patch Panel** - One segment of a patch bay.
 - **Patch Bay** - An assembly of hardware so arranged that a number of circuits, usually of the same or similar type, appear on jacks for monitoring, interconnecting, and testing purposes.
 - **RJ45** - An 8 wire electrical connector that has two forms: the male plug and the female jack or socket.
-

APPENDIX 1

SERVICE DESCRIPTION DETAIL

Appendix 1 provides additional information referenced as Component Detail and Included Services, which further defines service elements and requirements for the local and regional access components of ROS.

Component Detail

ROS with CSME Access (Metro Components)

- Local Access Interface
 - 10/100 Base T or 1Gbps Optical (1000 Base LX/LH, SX, & ZX available)
 - Demarcation point is RJ45 patch panel or fiber patch panel
- Local Access Port
 - Available in speeds 10 Mbps, 100 Mbps, and 1 Gbps
 - Includes local access and selected “best effort” bandwidth between locations within a LATA.
- Local Ethernet Virtual Circuit (EVC) Range *
 - 10/100 Port = 8 EVC maximum
 - 1Gbps Port = 64 EVC maximum

ROS with OPT-E-MAN Access (Metro Components)

- Local Access Interface
 - Required local access connection and Interface
 - 10/100 Base T or 1Gbps Optical (1000 Base LX/LH, SX, & ZX available)
 - Demarcation point is RJ45 patch panel or fiber patch panel
- Local Committed Information Rate (CIR):
 - Only 1 CIR speed and class of service (Bronze or Silver) may be selected per Interface
 - CIR speed may be less than or equal to Interface speed
 - Bronze or Silver class of service is defined by CIR selected
- Local Ethernet Virtual Circuit (EVC):
 - Multiple EVCs may be configured per Interface with each EVC having a defined CIR.
 - The sum of all EVC CIRs on a given Interface must not exceed selected CIR
 - In the event that a Silver CIR is selected for a given Interface, EVCs may be provisioned within the selected CIR bandwidth as either Bronze or Silver to allow differentiated traffic on a single interface
 - If a Bronze CIR is selected on a given Interface, EVCs can only be configured with a Bronze level of service.
- Ethernet Virtual Circuit Range
 - 10/100 Port = 8 EVC maximum
 - 1Gbps Port = 64 EVC maximum

APPENDIX 1

SERVICE DESCRIPTION DETAIL

ROS with “Type 2” Ethernet Local Access (Metro Components)

- AT&T will provide local access utilizing approved partner carriers to the ROS network
- All Type 2 locations will be identified at time of design and be priced on an Individual Case Basis (ICB)

ROS Backbone (Regional Components)

- ROS – Regional Port/CIR
 - A Regional ROS Port is required when traffic needs to traverse LATA boundaries or to communicate between disparate Ethernet local access providers (OPT-E-MAN Access, CSME Access, and Type 2) that have been approved by AT&T for access to the common backbone
 - Regional ROS Ports are selected by Class of Service and speed required
 - Only 1 Regional ROS Port is required to communicate between two locations in different LATAs or between two locations supported by disparate Ethernet local access providers

Included Services

Included in ROS is AT&T's Network Premises Equipment ("NPE"). The ROS demarcation between AT&T and Subscribing Entity(s) for LAN handoff ("ROS Interface") will be on the Subscribing Entity(s) side of the rack mounted NPE. ROS may include OPT-E-MAN Access, CSME Access or Third Party Certified Ethernet Access “Type 2”. Type 2 Access will not be offered to locations which can be supported by OPT-E-MAN Access or CSME Access.

Although the NPE may have multiple connection points, only the initially connected connector(s) or jack(s) will be designated as the ROS Interface. The ROS Interface is the Subscribing Entity(s) LAN handoff connection to the Port and ROS.

Each Port Location through an AT&T provided access facility connects to an Ethernet switch at an AT&T Central Office at speeds up to a maximum as specified by the Port Bandwidth (CIR) at the Subscribing Entity(s) location. Actual throughput achieved between ROS Interfaces will be affected by items including:

- Subscribing Entity(s) Ethernet frame size (e.g., reduced throughput for smaller frame sizes vs. larger frame sizes)
- AT&T VLAN-related frame overhead (e.g., 4 additional bytes per frame per VLAN)
- In-band NPE management traffic (e.g., per the tariff, AT&T reserves the right to use up to 10% for Subscribing Entity(s) purchasing 1Gb worth of BW)

Prior to ROS installation, Subscribing Entity(s) may identify multiple, mutually exclusive virtual networks within ROS. ROS will separate such networks by AT&T assigned VLAN.

APPENDIX 1

SERVICE DESCRIPTION DETAIL

AT&T will proactively monitor ROS on AT&T's side of the ROS Interface. Monitoring will be on a 7x24 basis to identify network connectivity status. Problems will be isolated to the AT&T network components including the NPE, or the Subscribing Entity(s) side of the ROS Interface. Subscribing Entity(s) will be notified when alarms indicate connectivity has been lost and service problems with the AT&T network components will be managed to resolution.

ROS includes the following installation and maintenance features:

- AT&T will provide and install a NPE at each Port Location. Installation of ROS will be provided during normal business hours, Monday to Friday, 8:00 AM to 5:00 PM Local Time. Installation performed outside of normal business hours will incur additional charges (see Pricing Schedule for ROS).
- A service implementation manager will be available to handle Customer inquiries and requests during installation.
- AT&T will provide on-site maintenance and repair coverage 24 hours per day, seven days per week. A field engineer will arrive at the site on average within the time specified in the Performance Objectives. If the reason causing the field engineer to be dispatched is not related to AT&T's ROS, Customer will be billed for the dispatch at the prevailing Time and Material rates.
- A toll-free number and appropriate escalation procedure will be provided for maintenance calls.
- In the event of a concern regarding ROS, the Customer may contact AT&T using the 24X7 toll-free trouble reporting number. At that time, AT&T will log the trouble report, investigate and correct problems, if any, in the AT&T network, and dispatch a field engineer if necessary.
- Outside moves must be handled through a service disconnect and new installation.
- Customer is responsible for all Inside Wire/Fiber installation and maintenance.

APPENDIX 2

PRICING TABLES

Appendix 2 provides the MRC for the following pricing options for a 24 month, 48 month, and 60 month service terms:

- Option 1 – ROS Standard Pricing
- Option 2 – ROS Multi-port Pricing

Pricing components for Monthly Recurring rate elements in the following tables include a 5% Managed Services fee as defined in section 4.3 of this Attachment and the 2% Cost Recovery Fee as defined in section 8 of this Attachment, and are required components of this Service.

Note: Installation provided outside normal business hours shall be provided on a time and materials basis.

Option 1 – ROS Standard Pricing

ROS w/ CSME Access - Standard

Component	Speed	Term		
		24 Months	48 Months	60 Months
Regional Port/CIR	10 Mbps	\$ 314.00	\$ 285.00	\$ 257.00
Regional Port/CIR	100 Mbps	\$2,013.00	\$1,830.00	\$1,647.00
Regional Port/CIR	1 Gbps	ICB	ICB	ICB

ROS w/ OPT-E-MAN Access – Bronze

Component	Speed	Term		
		24 Months	48 Months	60 Months
Regional Port/CIR	5 Mbps	\$ 178.00	\$ 161.00	\$ 145.00
Regional Port/CIR	10 Mbps	\$ 330.00	\$ 300.00	\$ 270.00
Regional Port/CIR	20 Mbps	\$ 566.00	\$ 514.00	\$ 463.00
Regional Port/CIR	50 Mbps	\$1,177.00	\$1,070.00	\$ 963.00
Regional Port/CIR	100 Mbps	\$2,119.00	\$1,926.00	\$1,734.00
Regional Port/CIR	1 Gbps	ICB	ICB	ICB
MAC Address above 50 *	All	ICB	ICB	ICB

* Not to exceed 100 per port

APPENDIX 2

PRICING TABLES

ROS w/ OPT-E-MAN Access – Silver

Component	Speed	Term		
		24 Months	48 Months	60 Months
Regional Port/CIR	5 Mbps	\$ 196.00	\$ 178.00	\$ 161.00
Regional Port/CIR	10 Mbps	\$ 363.00	\$ 330.00	\$ 297.00
Regional Port/CIR	20 Mbps	\$ 623.00	\$ 566.00	\$ 510.00
Regional Port/CIR	50 Mbps	\$1,295.00	\$1,177.00	\$1,060.00
Regional Port/CIR	100 Mbps	\$2,331.00	\$2,119.00	\$1,908.00
Regional Port/CIR	1 Gbps	ICB	ICB	ICB
MAC Address above 50 *	All	ICB	ICB	ICB

* Not to exceed 100 per port

ROS w/ Type 2 Access

Component	Speed	Term		
		24 Months	48 Months	60 Months
Local Access and Port	All	ICB	ICB	ICB
Regional CIR	All	ICB	ICB	ICB

Option 2 – ROS Multi-Port Pricing

ROS w/ CSME Access– Standard

Component	Speed	24 Months	48 Months	60 Months
Regional Port/CIR	10 Mbps	\$ 314.00	\$ 285.00	\$ 257.00
Regional Port/CIR	100 Mbps	\$2,013.00	\$1,830.00	\$1,647.00
Regional Port/CIR	1 Gbps	ICB	ICB	ICB

ROS w/ OPT-E-MAN Access – Bronze

Component	Speed	24 Months	48 Months	60 Months
Regional Port/CIR	5 Mbps	\$ 178.00	\$ 161.00	\$ 145.00
Regional Port/CIR	10 Mbps	\$ 330.00	\$ 300.00	\$ 270.00
Regional Port/CIR	20 Mbps	\$ 566.00	\$ 514.00	\$ 463.00
Regional Port/CIR	50 Mbps	\$1,177.00	\$1,070.00	\$ 963.00
Regional Port/CIR	100 Mbps	\$2,119.00	\$1,926.00	\$1,734.00
Regional Port/CIR	1 Gbps	ICB	ICB	ICB
MAC Address above 50	All	ICB	ICB	ICB

* Not to exceed 100 per port

APPENDIX 2

PRICING TABLES

ROS w/ OPT-E-MAN Access – Silver

Component	Speed	Term		
		24 Months	48 Months	60 Months
Regional Port/CIR	5 Mbps	\$ 196.00	\$ 178.00	\$ 161.00
Regional Port/CIR	10 Mbps	\$ 363.00	\$ 330.00	\$ 297.00
Regional Port/CIR	20 Mbps	\$ 623.00	\$ 566.00	\$ 510.00
Regional Port/CIR	50 Mbps	\$1,295.00	\$1,177.00	\$1,060.00
Regional Port/CIR	100 Mbps	\$2,331.00	\$2,119.00	\$1,908.00
Regional Port/CIR	1 Gbps	ICB	ICB	ICB
MAC Address above 50 *	All	ICB	ICB	ICB

* Not to exceed 100 per port

ROS w/ Type 2 Access

Component	Speed	Term		
		24 Months	48 Months	60 Months
Regional Port/CIR	All	ICB	ICB	ICB

Note: The pricing provided for Option 2 – Multi-port is applicable for the following sites:

Site Name	Applicable Sites	Address		
State of Ohio Computer Center	1320 Arthur E Adams Dr	Columbus	OH	
Rhodes State Office Tower	30 E Broad St	Columbus	OH	
Vern Riffe Center	77 South High St	Columbus	OH	
Lausche State Office Tower	615 Superior	Cleveland	OH	
Port counts defined by site purchasing off Service Attachment, not a specific Subscribing Entity				
Each site will have 4 or more ports at a minimum				

APPENDIX 3

SERVICE LEVEL AGREEMENTS/OBJECTIVES

Appendix 3 provides a definition and performance standards for the SLA's/SLO's as described in Section 5 of this Service Attachment.

SLA 1 - Latency (One Way)

Definition - Latency measurement will consist of measuring the time it takes to "ping" or travel from the origination to termination ports for the connection in question. Latency is measured by averaging sample measurements taken during a 30 day period between network terminating equipment to which the customer ports are attached when the AT&T network is available.

Performance Standards – For the following Grade of Service options:

- Standard – NA
- Bronze – 54 ms
- Silver – 36 ms

SLA 2 - Packet Delivery Rate

Definition - Packet Delivery Rate ("PDR") is a function of bandwidth, error performance, congestion and other factors. PDR is expressed as a percentage of Ethernet frames offered to the network that successfully traverse the network, end-to-end, within the CIR, and within a 30 day period. PDR is calculated as the total number of effective Ethernet frames, per port, that successfully traverse the network divided by the total number of effective Ethernet frames, per port, offered to the network within a 30 day period. PDR is measured by averaging sample measurements taken during a 30 day period from NTE to NTE to which the customer ports are attached when the AT&T network is available.

Performance Standards – For the following Grade of Service options:

- Standard – NA
- Bronze – 99.50%
- Silver – 99.90%

SLA 3 - Jitter

Definition - Jitter is calculated as the delay variance of the packets transported across the network or the delta of delay between two consecutive packets. It is measured between two endpoints, and will consist of measuring the time between a set of packets. Jitter is measured by averaging sample measurements taken during a 30 day period between network terminating equipment to which the customer ports are attached when the AT&T network is available

Performance Standards – For the following Grade of Service options:

- Standard – NA
- Bronze – NA
- Silver – 24 ms

APPENDIX 3

SERVICE LEVEL AGREEMENTS/OBJECTIVES

SLA 4 - Connections/Network Availability

Definition - Network Availability is calculated as the percentage of time that the ROS network is capable of accepting and delivering customer data to the total time in the measurement period. The calculation for Network Availability for a given calendar month is as follows:

1. [24 hours x days in month x 60 minutes x number of customer sites]
2. Subtract network outage time (measured in minutes)
3. Divide by [24 hours x days in month x 60 minutes x number of customer sites]

Performance Standards – For all Grade of Service options is 99.99%.

SLA 5 - Mean Time to Restore

Definition –Mean Time to Restore (“MTTR”) is defined as the time interval between initial repair ticket request being opened by AT&T support center to the time the repair ticket is closed by the AT&T support center after trouble resolution.

Performance Standards – For all Grade of Service options is 4 hours.

SLO 6 - Circuit Installation

Definition - A request for service to be installed or reconfigured in such a way that requires a physical alteration to any component of the service or requires a person to be at the customer location as part of the test and turn-up procedure.

Performance Standard – For all Grade of Service options are a mutually agreed upon due date established on location by location basis based on fiber availability & equipment availability

SLO 7 - Routine Remote Changes (TSR Initiated)

Definition - A request for service upgrade or configuration change that only requires alteration to a software component of the service and does not require a person at the customer location to initiate the change.

Emergency Changes - An unpredictable telecommunications need to satisfy and maintain government services at any time or location (i.e. catastrophic event, court mandates and/or newly installed critical application) may require an emergency change.

Performance Standard – For all Grade of Service options is 14 Calendar Days for standard changes and 96 Hours for emergency changes

APPENDIX 3

SERVICE LEVEL AGREEMENTS/OBJECTIVES

SERVICE LEVEL REPORTING

Data Elements

The following table identifies the SLA Reporting fields and definitions available within for the services within this Attachment.

Field Name	Definition
YYYY-MM	Current Year (YYYY) & Current Month (MM)
CustomerOrdering	Customer Name
METRO	Name of specific metro location where service will be installed/deployed (e.g., Cleveland)
CUST TYPE	Circuit Type (e.g., PT-TO-PT, MULTI-PT)
EVC_PATH	EVC Path ID
CATEGORY	Technology that Ethernet Virtual Circuit (EVC) uses to traverse network cloud (VPLS, VLAN-Only, etc.)
EVC_CoS	Class of Service Per EVC (e.g., Bronze, Silver)
EVC_BW	Size of customer EVC in Mbps
EVC_MAX_BW	EVC Maximum Bandwidth
Probe_Dir	Direction of Network Monitoring Probe
poA	3550 CLI Code on A side of circuit
CustomerA	A Location Customer Name
ipA	A Location IP Address
EdgeA	Name of SWC for 3550/CPE on A side of the network
SiteA	A Location Site Name
UniA	A Location Port
CirA	A Location CIR
CoreA	Node name of PE/7609 node on A side of network
AddrA	Z Location Address
poZ	3550 CLI Code on Z side of circuit
CustomerZ	Z Location Customer Name
ipZ	Z Location IP Address
EdgeZ	Name of SWC for 3550/CPE on Z side of the network
SiteZ	Z Location Name
UniZ	Z Location Port
CirZ	Z Location CIR
CoreZ	Node name of PE/7609 node on Z side of network
AddrZ	Z Location Address

APPENDIX 3

SERVICE LEVEL AGREEMENTS/OBJECTIVES

Field Name	Definition
AvgPDR	Average Packet Deliver Rate. PDR is a function of bandwidth, error performance, congestion and other factors. PDR is expressed as a percentage of Ethernet frames offered to the network that successfully traverse the network, end-to-end, within the CIR, and within a 30 day period. PDR is calculated as the total number of effective Ethernet frames, per port, that successfully traverse the network divided by the total number of effective Ethernet frames, per port, offered to the network within a 30 day period. PDR is measured by averaging sample measurements taken during a 30 day period from NTE to NTE to which the customer ports are attached when the AT&T network is available.
AvgLATENCY	Average Latency (One-Way). Latency measurement will consist of measuring the time it takes to “ping” or travel from the origination to termination ports for the connection in question. Latency is measured by averaging sample measurements taken during a 30 day period between network terminating equipment to which the customer ports are attached when the AT&T network is available.
AvgJITTER	Average Jitter. Jitter is calculated as the delay variance of the packets transported across the network or the delta of delay between two consecutive packets. It is measured between two endpoints, and will consist of measuring the time between a set of packets. Jitter is measured by averaging sample measurements taken during a 30 day period between network terminating equipment to which the customer ports are attached when the AT&T network is available
MaxAvgJITTER	Largest jitter sample received from total end-to-end test results over 30 day period
SSLAFlag	Did metric meet Network Performance SLAs (Latency, Jitter, PDR)