



Nitel AT&T OPT-E-MAN Service Level Objectives and Agreements

This document provides information regarding Nitel’s Service Level Agreement based on AT&T’s comprehensive service level guarantees and objectives for the OPT-E-MAN® Basic Service as filed in the State and Federal Tariffs.

Introduction

The following Nitel Service Level Agreement applies to standard OPT-E-MAN® configurations only. AT&T will not provide customer-specific SLAs or SLAs for non-standard configurations. SLAs provide customers with end-to-end performance guarantees that are backed by service credits if minimum quality standards are not met by AT&T and Nitel.

Definitions

For purposes of this Agreement, the following definitions shall apply:

1. Overall Service -

Allowance for Interruption

In case of an interruption to service, allowance for the period of interruption, if not due to the negligence of the customer or the customer’s end user, shall be as follows: no credit shall be allowed for an interruption of less than 10 seconds. The customer shall be credited for an interruption of 10 seconds or more as follows: the credit shall be at the rate of 10/8640 of the monthly charges for the service for each period of 5 minutes or major fraction thereof that the interruption continues. The credit allowance(s) for service interruptions shall not exceed 100% of the applicable monthly rates.

AT&T’s failure to provide or maintain services under this tariff shall be excused by force majeure events such as, but not limited to, an earthquake, hurricane, flood, fire, storms, tornadoes, explosion, lightning, power surges or failure, fiber cuts, strikes or labor disputes, acts of war, civil disturbances, acts of civil or military authorities or public enemy, governmental orders, civil commotion, criminal actions taken against the AT&T, acts of God and other circumstances beyond the AT&T’s reasonable control.

2. Connections

Network Availability of 99.95% per month, including the local loop, is provided by the Company. This equates to less than 21.6 minutes of downtime per month (based on a 30-day month), excluding maintenance windows and other appropriate exclusions (see *Exclusions* following). Network Availability is calculated as the percentage of time that the OPT-E-MAN® 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:

$$\text{Network Availability} = \frac{[24 \text{ hours} \times \text{days in month} \times 60 \text{ minutes} \times \text{number of customer sites}] - \text{network outage time (measured in minutes)}}{[24 \text{ hours} \times \text{days in month} \times 60 \text{ minutes} \times \text{number of customer sites}]}$$

- As noted in the above formula, all ports included in a customer’s network are utilized in calculating *Network Availability*.

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- The customer is responsible for (1) notifying Nitel within 45 days after the end of the month when the service parameter within the calendar month falls below the committed level, and (2) requesting a service credit.
- Upon verification by AT&T that the actual service performance for that parameter was less than the committed level, Nitel will provide the customer a service credit equal to 10% of the monthly recurring charge for that service parameter for all affected ports.

3. Measurement Definitions for Grades of Service

Service configurations include a choice of one of two underlying Grades of Service: Bronze and Silver. Each Grade of Service offers a different level of service performance. The following describes the service parameters for each Grade of Service.

Packet Delivery Rate(PDR)

Packet Delivery Rate (PDR) is a measurement of the actual amount of useful and non-redundant information that is transmitted or processed from end-to-end across the network. It 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. Those frames that violate the maximum range will be excluded from the calculation. PDR is measured by averaging sample measurements taken during a 30 day period from network terminating equipment to network terminating equipment to which the customer ports are attached when the OPT-E-MAN network is available.

Latency

Latency is the amount of time necessary for a typical frame to traverse the network. Latency is calculated as the measurement of time taken for a customer frame to go from one end of the network (origination point) to the other end (termination point). The 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 OPT-E-MAN[®] network is available.

Jitter

Jitter is the delay that occurs between 2 packets or Ethernet frames that are traversing the network. 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 OPT-E-MAN[®] network is available

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4. Grades of Service Definitions and SLAs

Bronze

The applications best suited for this Grade of Service are general data applications with more tolerance for delay and/or those that are lower in priority. This Grade of Service is the appropriate selection for general data traffic since it tolerates bursty and time-varying traffic. The service parameters associated with this Grade of Service are Packet Delivery Rate (PDR) and Latency.

Packet Delivery Rate is at least 99.5% of total traffic from source Network Terminating Equipment (NTE) to the destination NTE to which the customer port is attached.

Latency is limited to a delay across a connection of no more than 27 ms (54 ms roundtrip) one-way end-to-end within AT&T's network for packets 1500 bytes or less.

Silver

This Grade of Service supports applications that require minimal loss and low latency variation (jitter). Data in this Grade of Service will be provisioned in a priority queue indicating that it is delay sensitive. The service parameters associated with this Grade of Service are Packet Delivery Rate (PDR), Latency and Jitter.

Packet Delivery Rate is at least 99.9% of total traffic from source Network Terminating Equipment (NTE) to the destination NTE to which the customer port is attached.

Latency is limited to a delay across a connection of no more than 18 ms (36 ms roundtrip) one-way end-to-end within AT&T's network for packets 1500 bytes or less.

Jitter is limited to less than 12 ms one-way end-to-end within the Company's network.

Network Availability	99.95 %	99.95 %
SLAs	Bronze	Silver
Packet Delivery Rate (PDR)	99.5%	99.9%
Latency	<27 ms one way	<18 ms one way
Jitter	N/A	12 ms

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Reporting and Remedies for Grades of Service

Grade of Service SLAs are provided for OPT-E-MAN[®] Service. If AT&T fails to meet service parameters defined for each Grade of Service, a service credit will be offered, by Nitell, to the customer given certain conditions are met:

- The customer is responsible for (1) notifying Nitell within 45 days after the end of the month when the service parameter falls below (or above) the committed level, and (2) requesting a service credit.
- Upon notification by the customer that the actual service performance for that parameter was less than the committed level, the Company has 30 days to correct the problem.
- If after 30 days, the service performance for that parameter is still less than the committed level, the customer will be provided a service credit equal to 25% of the monthly recurring charge for that service parameter for all affected ports for the month in which the service parameters fall below (or above) the committed level.
- Packet Delivery Rate, Latency and Jitter calculations will be measured only when the OPT-E-MAN[®] network is available.

5. Exclusions for all SLAs

Nitell will be excluded from providing Service Level Agreements credits and Grade of Service credits should any of the following conditions occur:

- Force major events such as, but not limited to, an earthquake, hurricane, flood, fire, storms, tornadoes, explosion, lightning, power surges or failure, fiber cuts, strikes or labor disputes. Loss or damage resulting from any cause beyond the AT&T's reasonable control such as acts of war, civil disturbances, acts of civil or military authorities or public enemy.
- All SLAs are offered across AT&T's network. The failures of any components beyond the local facility including the Network Interface (NI), the CSU/DSU/Channel band/Extended Demarcation are excluded from the SLA calculation.
- Data loss during the AT&T's scheduled maintenance window.
- Data exceeding subscribed Usage.
- Failures attributed to facilities or equipment provided by customer or its contractors, equipment vendors, another local exchange carrier or inter-exchange carrier.
- Any type of Customer Network Management functionality is not included in SLAs.

6. Service Level Objective (SLO)

OPT-E-MAN[®] Basic and Basic Plus service offers the following Service Level Objectives

- MTTR: 4 hrs. end-to-end, including the local loop, per month
- Installation: mutually agreed upon due date established on location by location basis based on fiber availability and equipment availability

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7. Additional Information

- For Basic Plus Multipoint configurations, AT&T will use controls to limit the amount of multicast and broadcast traffic to protect the OPT-E-MAN network against traffic storms. The maximum throughput of multicast traffic will be set at 1 Mbps per customer port, while the maximum throughput of broadcast traffic will be set at 200 packets per second per port. Packets dropped by traffic controls will be excluded from SLA calculations. AT&T recommends that customers enable controls for multicast, broadcast and unknown unicast traffic within the customer network(s).
- Committed Information Rate (CIR) is inclusive of allowances for overhead within the Ethernet network. If a customer orders 1 Gbps of CIR on a single port, the AT&T reserves the right to use up to 10% of the bandwidth for traffic management.
- To ensure maximum throughput efficiency, traffic shaping should be enabled on the customer's CPE.
 - When traffic policing is applied on the OPT-E-MAN network, traffic shaping is required in order to ensure that packets are not dropped when entering the network.
 - If shaping is not turned on, SBC will randomly drop traffic if the customer exceeds the amount of CIR that is contracted per connection. Most routers on the market should support traffic shaping, which makes it easy to implement in its simplest form.
 - Shaping is supported in the standard Cisco IOS since it is a common IP software function.
 - OPT-E-MAN can scale from 5 Mbps to 1 Gbps as long as the customer can shape their traffic - If customers are not able to shape their traffic, they should purchase service in the 10/100/1000 Mbps speed tiers to achieve maximum use of the bandwidth. **Failure to comply with this recommendation could result in reduced throughput and performance!**
- If the customer connects to the OPT-E-MAN network using a bridge or switch for Layer 2 connectivity, a total of 50 MAC addresses can be utilized per Layer 2 device, per port. Any additional MAC addresses will be assessed an additional charge, **with a maximum of 100 MAC addresses total per port.**

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