Managed Global Network +
Service Level Agreement

Part IV: Managed Global Network Service Level Agreement.

1. **Overview.** Verizon offers the Managed Global Network SLAs described herein only to Managed Global Network customers whose Service Commitment is not less than one year. The SLA applies from the Service Activation Date for Managed Global Network through the duration of the Service Commitment. Upon Customer's request, Verizon will review any SLA non-compliance and make specified financial compensation ("Service Credits") if applicable. The SLAs are:
   - Network/Site Availability
   - Time to Repair (TTR)
   - Requested Install Date (RID)
   - Packet Transit Delay
   - Packet Delivery Ratio
   - Jitter
   - Proactive Outage Notification
   - Managed LAN Availability (for Sites with optional Managed LAN Service)
   - Managed LAN ~~Time to Repair~~TTR (for Sites with optional Managed LAN Service)
   - Managed Wireless LAN Availability (for Sites with optional Managed Wireless LAN Service)
   - Managed Wireless LAN ~~Time to Repair~~TTR (for Sites with optional Managed Wireless LAN Service)
   - Virtual Network Services (VNS) Availability
   - VNS ~~Time to Repair~~TTR

2. **Dependencies.** The SLA type depends on the form of connectivity between Customer and the Verizon network and the geographic location of Managed Global Network.

   2.1 **Application of SLA.** This MGN SLA applies in the following ways:
   - Each site category is individually based on a Provider Edge (PE) – ~~(~~Service Provider Interface (SPI) / Customer Edge (CE) Availability and ~~Time to Repair (~~TTR~~)~~.
   - SLA values for Availability, Performance and TTR vary from the master table if Silver/Bronze operational performance levels are selected. See Appendix A for the Regional Access Performance level deviation for actual site availability and TTR values.
   - uCPE routing function is considered part of the transport and has same availability and TTR as classic CPE. All other Virtual Network Functions (VNFs) are covered under VNS section of this MGN SLA.
   - The service credits only apply to Verizon owned components of the customer network and not to third party components. Third party services will be supported under the SLA for availability and TTR; however, Verizon will not pay credits for any service for which Verizon is not billing the customer.
   - All SLA credit calculations are based on a calendar month and not billing month.
   - Out of band connection is not required for SD WAN sites for SLA purposes; however, it is recommended (i.e. if an engineer is called out incorrectly due to a customer negligence/fault, customer will be charged for that visit).
   - All TTR SLAs which require a physical device replacement will adhere to the device maintenance providers' guarantees (i.e. TTR guarantees in this SLA are for repairs which do not require a physical CPE replacement/part replacement).
   - For sites with single PIP/IDS circuit, TTR for outage to backup mode applies for the purpose of calculating the TTR credits.
   - If VNS repair is dependent on the underlying network repair, the TTR SLA should be derived from the Regional Access Operational Performance Level deviations table in Appendix A.

   2.2 **Variances by Geographic Location.** The location of a Customer site determines the applicable service levels. The countries covered under this SLA are divided into three categories:
   - U.S. – 48 contiguous United States and Hawaii with Verizon Networks
   - Europe, Middle East and Africa (EMEA) and Canada
   - Latin America and Asia Pacific

   2.3 **Connectivity to Verizon**. Customer can connect to the Verizon PIP Network via the following means:
   - On-Net Access – means Local Access is furnished wholly via facilities owned or operated by Verizon or a Verizon Affiliate. If a Customer Site is collocated with Verizon the Customer is considered to have On-Net access for Managed Global Network to that site.

- Off-Net Access – means Local Access is not wholly furnished via facilities owned or operated by Verizon or a Verizon Affiliate but ordered by Verizon or a Verizon Affiliate from a third party such as the local telecommunications provider.

Customer Provided Local Access – means Local Access is ordered by the Customer from a third party such as the local telecommunications provider. 2.4 **Service Level Agreement Tables.**

2.4.1 **SLA Master Table**

SLA Master Table	**Cat. Hub A**	**Cat. Hub B**	**Cat. Branch A**	**Cat. Branch B**	**Cat. Branch C**	**Cat. Branch D**
Minimal link type setup (for details see service description)	2 PIP/IDS links	2 PIP/IDS links	1 PIP/IDS link and 1IBS link	1 PIP/IDS link and 1 LTE link	1 IBS link and 1 LTE/IBS link	Single PIP/IDS link
SPI/site availability per calendar month (Platinum/ Gold access level only) *See Regional Access Performance level deviations in Appendix A	100% (0 min. downtime)	99.99% (~5 min downtime)	99.9% (~45 min downtime)	99.5% (~245 min downtime)	99% (~600 min downtime)	99.5% (~245 min downtime)
VNS uCPE and HNS availability with dual VNF Backup	100%	100%	100%	100%	100%	99.95%
VNS uCPE and HNS availability No VNF Backup	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%
Core Network Performance						
Jitter (EF priority class only)	< 5ms	< 5ms	< 5ms	<5ms	NA	< 5ms
Packet Transit Delay (~~"~~PTD~~"~~)	Please see PTD section					
Packet Delivery Ratio (~~"~~PDR~~"~~) within Traffic Priority Class (PIP only)	EF** - 99.995% AF - 99.99% BE - 99.5%	EF** - 99.995% AF - 99.99% BE - 99.5%	EF** - 99.995% AF - 99.99% BE - 99.5%	EF** - 99.995% AF - 99.99% BE - 99.5%	NA	EF** - 99.995% AF - 99.99% BE - 99.5%
Requested Install Date (~~"~~RID~~"~~) (On-Net Access only)	100% of Managed Global Network Services installed within RID	100% of Managed Global Network Services installed within RID	100% of Managed Global Network Services installed within RID	100% of Managed Global Network Services installed within RID	NA	100% of Managed Global Network Services installed within RID
Repair						
Network/Site ~~Time To Repair~~TTR to full mode- TTR	4 hours*	4 hours*	4 hours*	4 hours*	8 hours*	4 hours*

(Platinum/ Gold performance level only) * See Regional Access Performance Level Deviations in Appendix A						
Network/Site ~~Time To Repair~~TTR to backup mode-TTR (Platinum/ Gold performance level only) * See Regional Access Performance Level Deviations in Appendix A	4 hours*	4 hours*	4 hours*	4 hours*	4 hours*	n/a
Proactive Outage Notification	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes
Open an outage ticket	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes
TTR requiring dispatch	As per maintenance agreement	As per maintenance agreement	As per maintenance agreement	As per maintenance agreement	As per maintenance agreement	As per maintenance agreement
Conditions for SLA						
Access operational performance level required	Platinum/ Gold	Platinum/ Gold	See operational performance table	See operational performance table	See Operational performance table	N/A
Full path diversity *if available	Y	Y*	n	n	n	n/a
Mandatory use of redundant house entrance *if available at site	Y	Y*	Y*	n	n	n/a
Minimum number of access-devices (CE)	2	2	1	1	1	1
Minimum number of LAN ports per SPI (CE)	2	2	1	1	1	1
Onsite support service times	7x24	7x24	7x24	7x24	5x8	5x8

Encryption	Mandatory for all communication via non-private network (e.g. Internet VPN)	Mandatory for all communication via non-private network (e.g. Internet VPN)	Mandatory for all communication via non-private network (e.g. Internet VPN)	Mandatory for all communication via non-private network (e.g. Internet VPN)	Mandatory for all communication via non-private network (e.g. Internet VPN)	Mandatory for all communication via non-private network (e.g. Internet VPN)

* Please review Appendix A Rregional Access Operational Performance Level deviations

Note – SPI means |Service Provider Interface" which is the Managed WAN interface on a Verizon router with full management.

** A PDR Service Level Commitment (SLC) is offered for each Verizon PIP traffic priority class. The PDR SLA for AF applies if Customer is using the Verizon PIP Standard offering and if Customer is subscribing to Verizon PIP Enhanced Traffic Management.

The traffic profiles for Verizon traffic priority classes conform to the uses the traffic profiles defined by IETF RFC 2474. The Verizon traffic priority classes are identified as:

Queue	Naming
EF ** (Expedited Forwarding)	Real Time (UDP)
AF4 (Assured Forwarding) AF41, AF42/43	Priority Data (UDP)
AF3 (Assured Forwarding) AF31, AF32/33	Mission Critical Data (TCP)
AF2 (Assured Forwarding) AF21, AF 22/23	Transactional Data (TCP)
AF1 (Assured Forwarding) AF11, AF 12/13	General Data
BE (Best Effort)	General Business

** The EF queue is not designed for packets larger than 300 bytes or bursty traffic.

Note: The PDR SLA for the four different AF classes is the same. However the four classes are distinguishable since each is served by a separate queue at an egress port and is assigned its own portion of the port's bandwidth. Customer classifies and marks traffic to the appropriate CoS (and to the corresponding queue) and regulates the amount of traffic for each class. Depending on Customer traffic patterns, when an egress port is congested, each queue may experience different amount of latency or delays.

2.4.2 Single Broadband Circuit SLAs

Single broadband circuit availability	US availability	Europe & Canada	APAC/LATAM
IBS Gold	99.0%	99.0%	98.5%
IBS Silver	99.0%	99.0%	98.5%
IBS Bronze	NA	NA	NA

Single broadband circuit TTR	US	Europe & Canada	APAC/LATAM
IBS Gold	4 Hours	4 Hours	4 Hours
IBS Silver	8 Hours	8 Hours	8 Hours
IBS Bronze	NA	NA	NA

2.4.3 Private IP Secure Cloud Interconnection ("SCI") SLAs

Parameter	Scope	US/EMEA/Canada	BE
Availability	PE-to-PE	100%	N/A

~~Time To Repair (~~TTR~~)~~	PE-to-PE	4 Hours	N/A
~~Packet Delivery Ratio (~~PDR~~)~~	PE-to-PE	N/A	>99.5%

2.4.4 **MLAN and MWLAN Availability and TTR:** This sections provides the availability and TTR associated with Managed Local Area Network (MLAN) and Managed Wireless Local Area Network (MWLAN) services. For further details, please see section 3.10 and 3.11.

2.4.4.1 **MLAN and MWLAN Availability:**

Availability	US	Europe & Canada	APAC/LATAM
Managed LAN	99.95%	99.95%	99.95%
Managed WLAN	99.95%	99.95%	99.95%

2.4.4.2 **MLAN and MWLAN TTR:**

TTR	US	Europe & Canada	APAC/LATAM
Managed LAN	3.5 Hours	4 Hours	6 Hours
Managed WLAN	Next Business Day	Next Business Day	Next Business Day
Managed LAN - Verizon-provided or Customer-contracted Third-Party Maintenance with Onsite Break-fix Maintenance on Cloud-Controlled Switching	Next Business Day	NA	NA
Managed Wireless LAN – Verizon-provided or Customer-contracted Third-Party Maintenance	Next Business Day	Next Business Day	Next Business Day
Managed Wireless LAN – Verizon-provided or Customer-contracted Third-Party Maintenance with Onsite Break-fix Maintenance on Cloud-Controlled Access Point and Software-defined Wireless LAN	Next Business Day	NA	NA

2.4.5 **Secure Gateway Retail and Remote Office (RRO) SLAs**. In the case of RRO, the Service Availability SLA varies by component and service method as shown below. For purposes of this SLA, "Internet Broadband" service means services provided pursuant to Verizon's Internet Broadband (xDSL and Cable) Services. "Internet Dedicated" service means Verizon's Internet Dedicated services. The Service Availability SLA applies only to "Hard Outages", i.e., an inability to exchange data between the Customer edge router and the Provider edge router in the case of RRO, and between the Verizon Internet backbone and the Provider edge router in the case of Firewall. Slow service or other service degradation is not considered a Hard Outage. For all availability and TTR, please refer to site availability in SLA Master Table and Appendix A as applicable.

Service Installation SLA			
Component	**Secure Gateway Service(s)**	**Access Method**	**Installation Time Standard**

Universal Port (and any other installable components ordered on the Universal Port Service Order) or Universal Port UBB	Retail & Remote Office, Mobile User and Firewall	N/A	20 business days or fewer
RRO CPE	Retail & Remote Office	Verizon Internet Dedicated Service or Internet Broadband Service	32 business days or fewer that includes Verizon Internet service activation
RRO CPE	Retail & Remote Office	Existing Verizon or Customer-provided Internet service	20 business days or fewer

3. **Standard SLA Parameters.** Managed Global Network.

3.1 **Network Availability End-to-End.**

3.1.1 **Definition.** Network Availability is defined as the total number of minutes in a billing month during which the Managed Global Network is available to transmit and/or receive IP packets between a Customer Site and the Verizon PIP Network, divided by the total number of minutes in a billing month.

3.1.2 **Service Level Commitment.**

- Regional Access Operational Performance Level availability and TTR is listed in Appendix A.
- Network Availability is calculated in relation to Network Outage Faults that result in a total loss of Managed Global Network at a site.
- Measurement is based on the ETMS Trouble Ticket time documentation and does not include time covered by exclusions shown below.
- The calculation of Network Outage time does not include periods of service degradation, such as slow data transmission.
- The Service Credit table is based on minutes of Network Outage time
- The Service Credit will be calculated as a percentage of the Monthly Recurring Charge (MRC) for the affected part of the Service and not as a percentage of the MRC for the entire network.
- Network Availability credits can only be claimed if all access to a Customer Site is lost, including any dDual Rrouter and DdualCcircuit or BbackUp options.
- Customers Sites which are connected via DSL as primary and secondary access are not included within the SLC for Dual Routers and Dual Circuits or Backup
- Where Border Gateway Protocol (BGP) is the routing protocol deployed, depending on the Network size it can take up to 3 minutes for new routes to be announced following an outage. In this instance, Network Outage time does not include the time it takes for the new BGP routes to be announced.

3.1.3 **Calculation.** Monthly Network Availability (%) =

(	1 -	(	Total minutes of Network Outage per month Days in month24 hours60 minutes	)	)	X100

3.1.3.1 **Translation of SLC Percentagess to Available Minutes and Network Outage Minutes for Billing Months of different lengths.**

Number of Days in Billing Month	100 % Availability per Month in Minutes	Network Outage in Minutes for 99.9% SLC	Network Outage in Minutes for 99.8% SLC
31 days	44.640	45	89
30 Days	43.200	43	86
29 Days	41.760	42	84
28 Days	40.320	40	81

3.1.4 **NETWORK AVAILABILITY SERVICE CREDIT SCHEDULE**

		Service Credits as % of MRC for affected part of the Service Network Availability							
Minutes From	**Minutes To**	**SLC 100%**	**SLC 99.99%**	**SLC 99.9 %**	**SLC 99.8%**	**SLC 99.5%**	**SLC 99%**	**SLC 97.5%**	**SLC 97.0%**

0	**43**	5%	5%	0%	0%	0%	0%	0%	0%
44	**86**	10%	10%	10%	0%	0%	0%	0%	0%
87	**120**	10%	10%	10%	5%	0%	0%	0%	0%
121	**240**	15%	15%	15%	5%	0%	0%	0%	0%
241	**360**	15%	15%	15%	7.5%	5%	5%	0%	0%
361	**647**	20%	20%	20%	10%	5%	5%	0%	0%
648	**720**	20%	20%	20%	10%	7.5%	7.5%	0%	0%
721	**1240**	20%	20%	20%	10%	10%	10%	5%	0%
1241	**2230**	20%	20%	20%	10%	10%	10%	5%	5%
2231	**4463**	20%	20%	20%	10%	10%	10%	5%	5%
>4464		20%	20%	20%	10%	10%	10%	5%	5%

3.2 ~~Virtual Network Services~~VNSs:

3.2.1 **Overview.** ~~This section applies to Virtual Network Services.~~ There are two levels of service, each with different SLA~~'~~s. The SLA~~'~~s for each level of service is provided separately in this Service Level Agreement.

3.2.1.1 **VNS Full Level of Service.** Under the Full Level of Service, Verizon manages the ~~Virtual Network Function~~VNS(s) and supporting infrastructure. The SLA applies to each ~~Virtual Network Function (~~VNF~~)~~ subscribed to by the customer under the ~~Virtual Network Services~~ VNS offering. VNF~~Virtual Network Function~~s are Routing, SD WAN, Security, and WAN Optimization. The VNS Full Level of Service provide for Availability, ~~Time to Repair~~TTR, Installation, and Proactive Outage Notification Service Level Agreements for the VNF.

3.2.1.2 **VNS Monitor Level of Service**. Under the Monitor Level of Service SLA, Verizon does not manage the VNF's but provides for management of the VNF host (uCPE or Verizon's Hosted Network Service-HNS), notification of VNF outages, and recovery of VNF~~'~~s. The M~~onitor~~ONITOR Level of Service SLA provides for Availability and TTR of the uCPE or HNS, Installation for uCPE and Proactive Outage Notification of VNF, uCPE, and HNS platform failures.

3.2.2 **SLA for VNS Full Service**. Under the VNS Full Service, Verizon manages the VNG~~Virtual Network Function~~.

- A VNF is defined as the VNF~~Virtual Network Function~~ servicing a specific customer site. There may be one or more VNF's servicing a specific customer location. Each VNF is covered by this SLA.
- Availability of the ~~Virtual Network Function~~VNF(s) is affected by supporting components provided by Verizon: Network, host platform (on premises server uCPE or Verizon's Hosted Network Service) and VNF software.
- Failures of any of these components affect the availability of one or more of the VNF's to service a specific customer site. Verizon agrees to deliver service levels for each VNF and maintains and restores those components to meet those Service Levels.
- The following are the TTR and installation Service Levels for VNS Full Service:

Parameter	U.S.	EMEA/Canada	LATAM/APAC
TTR	4 Hours*	4 Hours*	4 Hours*
VNF Installation (Excludes Network installation)	45 Calendar days (Excludes Hawaii)	Not Available	Hot Available

*Review Regional Access Operational Performance level deviations in Appendix A for VNF TTR as it relates to the WAN.~~details~~

- The following are the definitions of back up:
  - No VNF backup – Site where the VNF has a single network circuit with no network service backup and no uCPE or HNS backup.
  - Single VNF backup -Site where the VNF has a single uCPE or HNS, a primary network, service and backup network service (redundant circuit, Verizon provided cellular, DSL, or other backup through diverse circuits).
  - Dual VNF b~~B~~ackup-– Site where there are two uCPE or HNS hosts each with the VNF, a primary network, service and backup network service (redundant circuit, Verizon provided cellular, DSL, or other backup through diverse circuits)

- For Availability and ~~Time to Repair~~ TTR SLA metrics, the SLA excludes the amount of time that:

- Verizon is awaiting feedback or an approved maintenance window from Customer.
- The ticket status is ~~'~~On Hold~~'~~ status as requested by Customer.
- The problem is caused by a software bug for which no workaround or patch is available.

Verizon monitors the stability of the service after an incident is perceived to be resolved.

- The SLA clock will resume when the customer permits repairs to continue or when Verizon receives feedback from the vendor or manufacturer on a software or configuration problem.

3.2.2.1 **VNS Full Level of Service Availability SLA.** The Full Level of Service availability is based on the ~~Virtual Network Function~~ VNF availability. Availability is based on the total number of minutes in a calendar month during which the ~~Virtual Network Function~~ VNF serving a site is available divided by the total number of minutes in that month. ~~Virtual Network Function~~VNFs are considered available when they are performing the intended function (routing, optimization, etc.).

3.2.2.2 **Calculation of Full Level of Service Availability.** Availability is the percentage of time that the Customer's ~~Virtual Network Function~~VNF is available within a given calendar month. Availability applies to the ability of the ~~Virtual Network Function~~VNF to perform its function. Total loss of the ability for the ~~Virtual Network Function~~VNF to perform its function is considered a Hard Outage and results in a Priority One Ticket. Total Failure of VNF associated Network, uCPE or HNS, or VNF s~~S~~oftware will constitute a ~~HARD~~Hard Outage and result in a Priority One Ticket.

- The following hierarchy provides the relationship of components to the VNF:
  - The failure of the network supporting the customer site will be treated as a failure of all VNF~~'~~s supporting the customer site, and the time associated with such network failure will be tracked for availability and TTR for each VNF serving the customer site.
  - The failure of uCPE or HNS supporting the customer site will be treated as a failure of all VNF~~'~~s on the affected uCPE or HNS supporting the site. The time associated with such uCPE or HNS failure will be tracked for availability and TTR for each affected VNF.
  - The failure of a VNF itself, when the network and uCPE/HNS remain operational, will be tracked and time associated with such failure will be used in computations for availability and TTR metric.

3.2.2.3 **VNS Full Level of Service Availability Calculation**. The calculation of monthly ~~Virtual Network Function~~VNF Availability (%) =1 - (Total minutes of site Hard Outage per month) X 100% / # days in month x 24 hours x 60 min.

3.2.2.4 **VNS Full Level of Service ~~Time to Repair (~~TTR~~)~~.** TTR is the time to resolve a Hard Outage trouble ticket for the affected ~~Virtual Network Function~~VNF(s).

3.2.2.5 **Calculation of VNS Full Level of Service ~~Time to Repair (~~TTR~~)~~**. The Customer's TTR will be based on the Priority One (Hard Outage) time per ~~Virtual Network Function~~ VNF for each outage event. The TTR time starts when a trouble ticket is opened as a Priority One (Hard Outage) by Verizon or the Customer, and concludes with the restoration of ~~–~~VNF~~Virtual Network Function~~. VNF ~~Virtual Network Function – Time To Repair~~TTR (Hrs.) = Length of trouble ticket resolution for Priority One Ticket (Hard Outage per ~~Virtual Network Function~~VNF).

3.2.2.6 **VNS Full Level of Service TTR Credit Structure and Amounts**. Customers will be credited for VNS ~~Virtual Network Services~~ MRC for the affect VNF.~~Virtual Network Function~~

Hard Outage Repair Time (Per Incident	US	EMEA/Canada	LATAM/APAC
Less than 3.5 Hours	NA	NA	NA
3:30:00-3:59:00 Hours	5%	NA	NA
4:00:00-5:59:00 Hours	10%	5%	NA
6 Hours Plus	15%	10%	5%

3.2.2.7 **VNS Full Level of Service Installation SLA.** The ~~Virtual Network Services~~VNS Installation SLA is defined as the period of time to install the ~~Virtual Network Function~~VNF(s) at a site. The installation SLA guarantees an interval of time when the order is placed and VNF is available for service to the customer site, defined by the date of Site Acceptance. The installation is dependent upon the installation of the uCPE or HNS, and the VNF software.

For sites with no existing network service, the VNS installation SLA starts when the network service is available.

3.2.2.8 **VNS Full Level of Service Installation SLA Calculation**. The ~~Virtual Network Services~~VNS Installation SLA time period starts the date the ~~Virtual Network Function~~VNF order is placed and ends the date the VNS ~~Virtual Network Services~~ function(s) is up and serving the customer site and the service is billable.

3.2.2.9 **Credit Structure and Amounts for Full Installation SLA.** Customer will receive a 50% refund of the non-recurring VNF ~~Virtual Network Function~~ installation fee for a site if Verizon fails to install ~~Virtual Network Services~~VNS service within 45 business days for that site for U.S. installations.

3.2.2.10 **VNS Full Level of Service Installation SLA Exclusions.** In addition to the General Exclusions, the following exclusions apply to the ~~Virtual Network Services~~VNS Installation SLA:

- Orders expedited by Customer; Installations outside of the 48 contiguous United States or circuits terminating outside of the 48 contiguous United States;
- Delays resulting from an order suspension due to Customer credit issues;

3.2.2.11 **VNS Full Level of Service Proactive Outage Notification SLA**. The proactive outage notification SLA provides credits if Verizon fails to notify Customer of a Hard Outage (Priority One Ticket) by electronic means (e.g. pager or e-mail).

3.2.2.12 **VNS Full Level of Service Proactive Notification SLA Calculation**. The Notification Period begins with opening of a trouble ticket (Priority One) for a Hard Outage. Verizon has 15 minutes to notify Customer's primary point of contact from the start point of the Notification Period. Verizon is in compliance with the proactive outage notification SLA if the Customer opened the trouble ticket or contacts Verizon within the Notification Period. Verizon will provide the ticket number and an initial status.

3.2.2.13 **VNS Full Level of Service Proactive Notification Credit Structure and Amounts.** Customer will receive a credit equal to 10% of the ~~monthly recurring charge~~MRC for each ~~Virtual Network Function~~VNF that was impacted during a Hard Outage that was not properly notified.

3.2.2.14 **VNS Full~~ULL~~ Level of Service Proactive Outage Notification SLA Exclusions.** In addition to the General Exclusions, the following exclusions apply to the Proactive Outage Notification SLA:

- Periods of Soft Outage.
- Events that affect multiple customers including without limitation cable or fiber cuts.
- Customer point of contact unavailability due to incorrect contact information or other cause.

3.2.3 **SLA for Monitor Service Level Standard.** Verizon fully manages the uCPE or HNS, and provides Availability, TTR, and Proactive Notification SLA's for uCPE or HNS outages. The Monitor Level of ~~s~~Service also provides Proactive Notification of VNF outages. VNF management in the Monitor Level of Service is the responsibility of the customer.

- Under the Monitor Level of Service, upon request only, Verizon will recover a VNF with a Monitor service level to a standard default configuration. In all cases, any special configurations or other changes from the default configuration are the responsibility of the Customer.
- Verizon limits the number of recoveries without incurring additional charges to two times a year per VNF ~~service~~.

Monitor Level of Service SLA			
Parameter	U.S.	EMEA/Canada	LATAM/APAC
TTR of uCPE/HNS	3.5 Hours	4 Hours	6 Hours
uCPE Installations (Excludes Network installation)	45 days (Excludes Hawaii)	Not Available	Hot Available

- Availability means the uCPE or HNS is powered and is processing the VNF application.
- Processing errors that do not affect the function do not detract from availability. uCPE and HNS Availability is based on the total number of minutes in a calendar month during which the uCPE or HNS serving a site is available divided by the total number of minutes in that month.

- The calculation of monthly uCPE or HNS Availability (%) =1 - (Total minutes of site Hard Outage per month) X 100% / # days in month x 24 hours x 60 min

3.2.3.1 **Monitor Level of Service ~~Time to Repair (“~~TTR~~”)~~ SLA.** TTR is the time to resolve a Hard Outage (Priority One) trouble ticket for the affected uCPE or HNS. Note: In the ~~MONITOR~~Monitor Level of Service, Verizon will take action on uCPE and HNS outages. Customer is responsible for VNF Outages.

3.2.3.2 **VNS Monitor Level of Service TTR SLA Calculation.** The Customer's TTR will be based on the Priority One (Hard Outage) time per uCPE for each outage event. The TTR time starts when a trouble ticket is opened as a Priority One (a Hard Outage) by Verizon or the Customer, and concludes with the restoration of uCPE. uCPE ~~Time To Repair~~TTR (Hrs.) = Length of trouble ticket resolution for Priority One Ticket (Hard Outage per VNF.~~Virtual Network Function~~

3.2.3.3 **VNS Monitor Level of Service Proactive Outage Notification SLA**. The proactive outage notification SLA provides credits if Verizon fails to notify Customer of a Hard Outage of the uCPE, HNS platform, or VNF by electronic means (e.g. pager or e-mail).

3.2.3.4 **VNS Monitor Level of Service Proactive Notification Calculation.** The Notification Period begins with opening of a trouble ticket for a Hard Outage. Verizon has 15 minutes to notify Customer's primary point of contact from the start point of the Notification Period. Verizon is in compliance with the proactive outage notification SLA if the Customer opened the trouble ticket or contacts Verizon within the Notification Period. Verizon will provide the ticket number and an initial status.

3.2.3.5 **VNS Monitor Level of Service Proactive Notification SLA Credit Structure and Amounts.** Customer will receive a credit equal to 10% of the ~~monthly recurring charge~~MRC for each Virtual uCPE or HNS that incurred a Hard Outage and the customer was not properly notified.

3.2.4 **VNS (Full and Monitor Level of Service Availability) SLA Credit Structure and Amounts** Customers will be credited for ~~Virtual Network Services~~VNS ~~monthly recurring charges~~MRCs for the ~~Virtual Network Function~~VNF(s) and/or uCPE experiencing a Hard Outage. Credits are applied based upon back up services for the VNF as follows:

VNS ~~FULL~~ Full Level of Service Availability with Dual VNF Backup Credit as a % of Affected VNF MRC			
VNF Availability	U.S	EMEA/Canada	LATAM/APAC
From / To			
100%-99.90%	10%	10%	10%
99.89%-99.50%	15%	15%	15%
99.49%-99.00%	20%	20%	20%
98.99%-98.00%	30%	30%	30%
97.99%-97.00%	50%	50%	50%
Less than 97%	100%	100%	100%

VNS FULL Service Availability with Single VNF Backup Credit as a % of Affected VNF MRC			
VNF Availability	U.S	EMEA/Canada	LATAM/APAC
From / To			
100%-99.95%	N/A	N/A	N/A
99.94%-99.50%	5%	5%	5%
99.49%-99.00%	10%	10%	10%
98.99%-98.00%	15%	15%	15%
97.99%-96.00%	25%	25%	25%
95.99%-94.00%	50%	50%	50%
Less than 94.00%	100%	100%	100%

VNS ~~FULL~~Full Level of Service Availability with No VNF Backup Credit as a % of VNF MRC			
VNF Availability	U.S:	EMEA/Canada	Latam/APAC
From / To			
100%-99.5%	Not Available	Not Available	Not Available
99.49%-99.00%	10%	5%	0%
98.99%-97.00%	15%	15%	10%
96.99%-95.00%	25%	20%	15%
94.99%-93.00%	35%	25%	20%
92.99%-90.00%	50%	30%	25%
Less than 90%	100%	100%	100%

3.2.5 ~~Virtual Network Services~~VNS **SLA Credit Application Structure and Process for VNS Full and Monitor Levels of Service.** Credits are not cumulative month to month. If the SLA issue exceeds 30 days, the same schedule applies for each consecutive month. Credits are provided for each VNF serving the customer site and there in no maximum credit within each month. Verizon's data and calculations will be used to determine if an SLA has been missed and a credit is due. Verizon will issue a credit within 90 days if its determination of non-compliance with an SLA. Credits are available in accordance with this SLA, but credits are not available for more than the ~~FULL~~full value of any one affected MRC or the sum of the value all affected MRC's.

3.2.6 **Installation SLA Credit Requests**. Customer must make a written request (e-mail or fax) to the Verizon Account Team for a credit within 15 days after the date that the installation is completed that is beyond the 45 business day SLA with the following information:

- The site, circuit identifier, and ~~Virtual Network Function~~VNF
- The date the ~~Virtual Network Function~~VNF should have been installed
- The date the ~~Virtual Network Function~~VNF was installed
- The date that the Customer order was approved

3.3 **Network ~~Time to Repair (~~"TTR~~")~~**

3.3.1 **Definition.** TTR ~~Time To Repair~~ is the time to restore the Managed Global Network during a Network Outage.

3.3.2 **Service Level Commitment.** The SLC for Network TTR based on regional Access Operational Performance level is included in Appendix A.

- Network TTR Service Credits may be claimed in addition to Network Availability Service Credits for the same outage if both SLC's have been violated
- A Service Credit for ~~Time to Repair~~TTR is only payable in relation to Network Outage Faults that result in a total loss of Managed Global Network.
- The Service Credit will be calculated as a percentage of the MRC for the affected part of the Service and not as a percentage of the MRC for the entire network.

3.3.3 **Calculation.** The Customer's TTR will be based on the Priority 1 Fault time per Customer Site for each outage event. The TTR time starts when a Trouble Ticket is opened by Verizon or the Customer, and concludes with the restoration of the Service. The TTR SLC includes the Local Access, the PIP infrastructure port, and the Managed Device.

3.3.3.1 **Monthly ~~Time To Repair~~TTR (Hrs.) =**

Length of Trouble Ticket resolution for Priority 1 Faults per Router per Network Outage

3.3.4 ~~TIME TO REPAIR~~TTR **SERVICE CREDIT SCHEDULE**

	Service Credits as % of MRC for affected part of the Managed Global Network				
	TTR 3.5h	**TTR 4h**	**TTR 6 h**	**TTR 8 h**	**TTR 24 h**
3 hours 30 mins - 3 hours, 59 min, 59 sec	2%	0%	0%	0%	0%
4 hours - 5 hours, 59 min, 59 sec	2%	2%	0%	0%	0%

6 hours - 7 hours, 59 min, 59 sec	2%	2%	2%	0%	0%
8 hours - 11 hours, 59 min, 59 sec	2%	2%	2%	2%	0%
12 Hours -23 Hours, 59 min, 59 sec	2%	2%	2%	2%	0%
24 Hours +	2%	2%	2%	2%	2%

3.3.4.1 **Availability and Network TTR Credit Example**

- Customer with Managed Global Network and Secure Gateway ~~Retail & Remote Office~~RRO Back-up has 2 Network Outages on their port and Local Access on a customer site in Paris, France. ($1,588 MRC)
  Total outage of 630 minutes (or 10.5 hours)
  - First Outage: 347 minutes.
  - Second Outage: 283 minutes
- Calculation for Network Availability
  Total Network Outage of 630 minutes on a site with Managed Global Network with Secure Gateway RRO Back-Up/secondary connection and Off-Net Access in EMEA/Canada= 20% of MRC for month
- Calculation for ~~Time to Repair~~TTR
  1st outage – 5 hrs. 47 mins = 2% of MRC for month
  2nd outage – 4 hrs. 43 mins = 2% of MRC for month
  Total credit – 4% of MRC for month
- Service Credit
  MRC on Access, PIP Port + Managed WAN = $1,588
  Credit = 24% of MRC ($1,588)
  Total Dollar Value = $381.12

3.4 **Packet Transit Delay (~~"~~PTD~~"~~).**

3.4.1 **Definition**. Round trip data packets delay between origination and destination ports.

3.4.2 **Service Level Commitment**

- **PE PTD** is the provider edge PE-to-PE monthly average round trip transit delay in milliseconds between respective Provider Edge device pairs on the Verizon PIP Network.
- The PE PTD SLC is applicable for the following traffic priority classes:
  - Standard PIP Service
  - Enhanced Traffic Management (~~"~~ETM~~"~~) option
- **PE PTD** SLC performance measurements for international and US locations are stated in the PIP PTD Matrix located in the Verizon Secure Guide portal at: http://www.verizonenterprise.com/us/publications/service_guide/secure/cp_pip_sla_intro_SG.htm
- Add 120ms to Packet Transit Delay SLC when MVIC is utilized in the PIP Network

3.4.3 **Calculation.** PTD is determined by using 64-byte packets for measuring transit delay in milliseconds across the Verizon PIP Network and averaging the results over a thirty day period.

PTD calculation is as follows:

PTD = T2 – T1

Where:
T1 is the time in milliseconds when an IP packet leaves the Ingress Reference Point (i.e., Packet exit event) and T2 is the time in milliseconds when an IP packet arrives back at the Ingress Reference Point (i.e., Packet return event)

3.4.3.1 **PE PTD** is measured between the respective origination and destination infrastructure ports, i.e., between the points where the packet enters and exits Verizon's PIP Network, regardless of the mode of access to Verizon's PIP Network. External factors, including, but not limited to, Local Access issues, are excluded from the measurement.

3.4.4 **Credit Structure.**

- If the PTD SLC is not met, it is a Service Issue and is considered a Service Restoration Priority 2.
- If the PTD metric for a pair of Customer c~~C~~onnections or Customer Sites is not being met, Customer may be eligible for a credit.
- To obtain a credit, a Trouble Ticket must be opened with Verizon when a PTD SLC is not being met or if a Service Issue is identified. Verizon will work with Customer to confirm that a PTD issue exists and repair the problem(s), as applicable. Once Verizon confirms that the PTD SLC is not being met, Verizon will have 30 calendar days to repair the Managed Global Network to meet the PTD SLC and close the applicable Trouble Ticket, and in such an event, Customer will not be eligible for a credit. If, after 30 calendar days of opening the Trouble Ticket, the PTD SLC continues to not be met, Customer will qualify for a credit. Customer's measurement of PTD prior to opening

a Trouble Ticket may be considered by Verizon in determining the need to repair the Managed Global Network.

3.4.5 **PTD – SERVICE CREDIT SCHEDULE**

Service Level Commitment	Service Credit as % of MRC for affected part of the Managed Global Network
~~Packet Transit Delay (“~~PTD~~”)~~	10%

Service Issues occur between pair ports of the PIP Network. Consequently, two Customer connections will be impacted by each Service Issue. For Service Issue SLC credit purposes, the MRC will be defined as the average of the MRC's for each of the two impacted Customer c~~C~~onnections.

3.4.6 **Exclusions.** In addition to the General Exclusions, PTD SLC measurements do not include the following:

- All Customer data traffic that is marked EF/COS5 by Customer and is not compliant with the subscribed EF/COS5 Real Time CAR or any other data traffic that is not compliant with the applicable subscribed CAR.
- All Customer data traffic that is marked by Customer using IP Precedence/DSCP settings not supported by the Verizon PIP Network.
- PTD SLCs for MVIC locations are based on measurements at the Verizon owned Provider Edge devices and not the MVIC partner location.

3.5 **Requested Install Date (~~“~~RID~~”~~)**

3.5.1 **Definition.** The ~~Requested Install Date (“~~RID~~”)~~ is the date that Verizon commits to deliver the Managed Global Network to the Customer.

3.5.2 **Service Level Commitment**

- Verizon will confirm the RID in writing to Customer upon acceptance by Verizon of the Contract.
- Where the Managed Global Network is based upon On-Net Access only, Verizon agrees to commit to deliver the Managed Global Network by the RID.
- Where the Managed Global Network or any part thereof is delivered using third party Local Access, or requires new Verizon direct access, Verizon is unable to make any kind of commitment in respect of the RID provided to Customer.

3.5.3 **Requested Install Date Service Credit.** If Verizon fails to meet the ~~Requested Install Date~~RID SLC for Managed Global Network over an existing On-Net Access, the Customer shall receive a Service Credit equal to the total MRC that would have been payable for the Managed Global Network from the RID until the actual Acceptance Date of the Managed Global Network.

3.5.4 **Calculation.** The applicable Service Credits shall be calculated as follows: MRC divided by the number of days in the month, multiplied by the difference between the RID and the actual Acceptance Date for the Managed Global Network.

3.6 **Packet Delivery Ratio (~~“~~PDR~~”~~)**

3.6.1 **Definition.** ~~Packet Delivery Ratio~~PDR is defined as the average ratio of IP packets which are successfully delivered to the total IP packets sent over Verizon's PIP Core Network in the billing month. PDR is a ratio of successful IP packet receptions to attempted IP packet transmissions

- PDR excludes packets, which are not delivered due in whole or in part to factors unrelated to Verizon's Private IP Core Network.
- The PDR reports the effectiveness of the Verizon PIP Core Network in transporting an offered load to an access port on a Verizon PIP switch.
- If egress congestions is caused by excess BE or AF traffic, but the EF traffic rates are within the subscription parameter and do not violate the egress port policy, the PDR SLC will still apply for the EF traffic.
- If EF itself exceeds subscription parameters and causes congestion at an egress port, the excess traffic that is dropped will be excluded from the PDR calculations.

3.6.2 **Service Level Commitment.**

- The Service Level Commitment for PDR is **99.995%** for the EF class of service, **99.99%** for the AF class of service and **99.5%** for the BE or Default class.
- Customers must open a Priority 2 Trouble Ticket for Service Degradation when a PDR issue first surfaces. Verizon will work with Customer to confirm the network transit times, repair problems and ensure customer's applications are functioning.
- Customers can measure PDR prior to opening a Trouble Ticket. Verizon may elect to use Customer's measurements as a benchmark for the repair actions.
- Upon confirmation by Verizon that a specific Managed Global Network does not comply with this SLC for PDR, Verizon has a period of thirty (30) calendar days from such confirmation to address

the non-compliance with the SLC and close the applicable Trouble Ticket, without attracting any liability for payment of Service Credits for failure to meet the SLC.

- If the Managed Global Network continues to not meet this SLC after the expiry of such thirty (30) day period, Customer shall qualify for Service Credits as specified below.
- The Service Credit will be calculated as a percentage of the MRC for the affected part of the Managed Global Network and not as a percentage of the MRC for the entire network.
- For service issues that occur between pair Ports of the Private IP Network, including SCI, that result in two Customer connections impacted by each Service Issue, the MRC for Service Issue Service Level Standard credit purposes will be defined as the average of the MRCs for each of the two impacted Customer ~~C~~connections.

3.6.3 **Calculation.** Packet delivery is calculated as the number of IP packets within a specified traffic priority class that are successfully delivered by the Verizon PIP Core Network divided by the total number of IP packets sent within the specified traffic priority class. This measurement domain is Edge-to-Edge Egress Queue. PDRc per billing month is calculated as follows:

PDRc PDR for load consisting of IP packets within the priority class:

$$PDR_c = \frac{\text{Packets Delivered}}{\text{Packets Offered}}$$

3.6.4 ~~**Packet Delivery Ratio**~~**PDR Service Credit Schedule**

Service Level Commitment	Service Credit as % of MRC for affected part of the Managed Global Network
~~**Packet Delivery Ratio**~~**PDR**	10%

3.7 **Jitter.**

3.7.1 **Definition.** Jitter is the PE-to-PE mean deviation of the difference in packet arrival time at the receiver compared to the sender for a pair of packets

- Verizon's SLC for Jitter applies only to the EF priority class.
- Jitter is not a defined performance characteristic metric for either the AF or BE / Default priority classes in the Differentiated Services (~~"~~Diff Serv~~"~~) model, therefore there is no Jitter SLC for either of those classes.
- Jitter is measured between the ingress and egress ports on the Verizon network (switch port to switch port).
- The measurements do not include the contribution to jitter due to queuing on the CPE and serialization on access circuits or customer provided CPE.

3.7.2 **Service Level Commitment**

- The Jitter SLC is maximum delay variance between Verizon PIP PE devices is less than 5 ms.
- Customers must open a Trouble Ticket when a Jitter issue first surfaces. Verizon will work with the customer to confirm jitter performance, repair problems and ensure customer's applications are functioning.
- Customers can measure Jitter prior to opening a Trouble Ticket. Verizon may elect to use the customer's measurements as a benchmark for the repair actions.
- Upon confirmation by Verizon that a specific Managed Global Network does not comply with this SLC, Verizon has a period of thirty (30) calendar days from such confirmation to address the non-compliance with the SLC and close the applicable Trouble Ticket, without attracting any liability for payment of Service Credits for failure to meet the SLC.
- If the Managed Global Network continues to not meet this SLC after the expiry of such thirty (30) day period, Customer shall qualify for Service Credits as specified below.
- The Service Credit will be calculated as a percentage of the MRC for the affected part of the Managed Global Network and not as a percentage of the MRC for the entire network.
- For service issues that occur between pair Ports of the Private IP Network, including SCI, that result in two Customer connections impacted by each Service Issue, the MRC for Service Issue Service Level Standard credit purposes will be defined as the average of the MRCs for each of the two impacted Customer Connections.

3.7.3 **Calculation.** Jitter is calculated by measuring the mean deviation of the difference in packet spacing at the receiver compared to the sender for a pair of packets. Verizon calculates the mean by sampling the network frequently and averaging the results over a thirty-day period.

The calculation for Jitter (J_i) for two consecutive packets i and i+1 is as follows:

$$J_i = \Delta T_i - \Delta T_i'$$

where:
T_i = time 1st byte of packet i is received by the source port (ingress time)
T_{i+1} = time 1st byte of packet i+1 is received by the source port (ingress time)
T_i' = time 1st byte of packet i is received at the destination port (egress time)
T_{i+1}' = time 1st byte of packet i+1 is received at the destination port (egress time)

and

ΔT = $T_{i+1} - T_i$ (ΔT is the time interval between packets at ingress)

$\Delta T'$ = $T_{i+1}' - T_i'$ ($\Delta T'$ is the time interval between packets at egress)

The average jitter is calculated as follows:

$$J = \sum J_i /(N-1)$$

Where:
N = the number of sample packets over 30 day period

3.7.4 **JITTER SERVICE CREDIT SCHEDULE**

Service Level Commitment	Service Credit as % of MRC for affected part of the Managed Global Network
Jitter	10%

3.8 **Proactive Outage Notification (“PON”)**

3.8.1 **Definition.** Verizon will proactively monitor all interfaces relating to Verizon provided and managed CPE. A Managed Interface Fault is defined as loss of layer 2 protocol as indicated either by an SNMP Link Down alarm or a missed ICMP poll.

3.8.2 **Service Level Commitment.**

- Verizon will open a Priority 1 Trouble Ticket for Customer within fifteen (15) minutes for any Managed Interface Fault greater than five (5) minutes.
- For at least eighty percent (80%) of such Trouble Tickets in any month, Verizon will notify Customer within thirty (30) minutes of the creation of the Trouble Ticket.
- Verizon will supply Customer with the Trouble Ticket number and an initial status based on preliminary troubleshooting conducted following the Managed Interface Fault.
- A Service Credit for PON ~~Proactive Outage Notification~~ is payable in relation to Priority 1 Faults only. The Service Credit will be calculated based on the total MRC for all Managed Global Network services experiencing Priority 1 Managed Interface Faults during the billing month for which the SLC has been violated.

3.8.3 ~~**PROACTIVE OUTAGE NOTIFICATION**~~**PON SERVICE CREDIT SCHEDULE**

Service Level Commitment	Service Credit as % of MRC for affected part of the Managed Global Network
~~**Proactive Outage Notification**~~**PON**	10%

3.9 **Managed LAN Availability.**

3.9.1 **LAN Switch Availability.** A LAN Switch is available if i) no alarm events have occurred on the Network Operations Center’s (“NOC”) Network Management System, or ii) no Trouble Ticket has been opened by Customer. If multiple LAN Switches are unavailable because of a LAN Switch issue, Verizon will only consider the Outage of the affected LAN Switch in its calculation of the Availability SLA and LAN Switches attached logically or physically to that LAN Switch will not be considered unavailable. LAN Switch availability is based on the total number of minutes in a calendar month during which the LAN Switch is unavailable to exchange data divided by the total number of minutes in that month. LAN Switches are considered available if the LAN Switch is available to pass data whether data is passing through the LAN Switch or not. Availability is based on the total number of minutes per calendar month.

Each Trouble Ticket will be evaluated by Verizon for appropriate corrective action and Customer will be informed of the status of each closed ticket even where the LAN Switch is within normal operating parameters.

3.9.2 **Calculation** – Availability is the percentage of time that the LAN Switch is available within a given calendar month. Availability only applies to Hard Outages.

Monthly Managed Site Availability (%) =

$$1 - \left(\frac{\text{Total minutes of Hard Outage per month}}{\text{\# days in calendar month24 hours60 minutes}} \right) \text{ X } 100\%$$

3.9.3 **Credit Structure and Amounts.** For any month in which Verizon fails to meet the applicable availability standards for a LAN Switch, Customer will be eligible for an SLA credit equal to a percentage of the Managed LAN ~~monthly recurring charges~~MRCs for the affected LAN Switch, as indicated in the following tables. LAN Switch Availability matrix Applies to LAN Switch level performance. This SLA is not available with 3rd Party Provided In-Band access.

Managed Availability %		**U.S.**	**EMEA/Canada**	**LATAM/APAC**
From	To			
100%	99.95%	0%	0%	0%
99.94%	99.50%	15%	10%	10%
99.49%	99.40%	25%	20%	20%
99.39%	99.00%	35%	30%	30%
98.99%	98.00%	45%	40%	35%
97.99%	96.70%	50%	50%	40%
Less than 96.7%		100.0%	100.0%	100.0%

3.9.4 **Exclusions.** In addition to the general exclusions, the following exclusions apply to the Availability SLA:

3.9.4.1 LAN Switches are not considered unavailable during periods of Outage resulting in whole or in part from Managed LAN degradation, such as slow data transmission.

3.9.4.2 LAN Switches are not considered unavailable during interruptions not reported by Customer, or for which no Trouble Ticket was opened.

3.9.4.3 The Availability SLA does not apply to LAN Switches installed for less than one full calendar month.

3.9.4.4 LAN Switches under Cloud-Controlled Switching.

3.10 **Managed LAN ~~Time to Repair~~TTR**

3.10.1 **~~Time to Repair (“~~TTR~~”).~~** TTR is the time to resolve an Outage Trouble Ticket for a LAN Switch under management.

3.10.2 **Calculation.** The Customer’s TTR is based on the Outage time per LAN Switch for each Outage event. The TTR SLA is 3.5 hours for the domestic U.S. locations, 4 hours for EMEA/Canada locations and 6 hours for LATAM/APAC. The TTR time starts when a Trouble Ticket is opened by Verizon or the Customer after an Outage and concludes with the restoration of LAN Switch and the LAN interface.

LAN Switch ~~Time To Repair~~TTR (Hrs.) =
Length of Trouble Ticket resolution per LAN Switch per Outage

3.10.3 **Credit Structure and Amounts.** Customers will be credited for Managed LAN ~~monthly recurring charges~~MRC for the affected LAN Switch as shown below. ~~Time to Repair~~TTR with Verizon Data Maintenance – Network (applies to each individual LAN Switch at a Site).

~~Time to Repair~~TTR Verizon Data Maintenance – Network				
Outage Repair Time (Per incident)		**U.S.**	**EMEA/Canada**	**LATAM/APAC**
3:30:00	3:59:59	5%	0%	0%
4:00:00	3:59:59	5%	5%	0%

6 Hours Plus	5%	5%	5%

3.11 **Managed Wireless LAN Availability.**

3.11.1 **WLAN Controller Availability.** A WLAN Controller is available if during the period within the Service Term in which Customer has subscribed to Managed WLAN (i) no alarm events have occurred on the ~~Network Operations Center's (“~~NOC~~”)~~ Network Management System, or (ii) no Trouble Ticket has been opened by Customer. If multiple WLAN Controllers are unavailable because of a single WLAN Controller issue, Verizon will only consider the Outage of the single WLAN Controller in its calculation of the Availability SLA; other WLAN Controllers and LAPs attached logically or physically to that single WLAN Controller will not be considered unavailable. WLAN Controller availability is based on the total number of minutes in a calendar month during which the WLAN Controller is unavailable to exchange data divided by the total number of minutes in that month. WLAN Controllers are considered available if the WLAN Controller is available to pass data whether or not data is passing through the WLAN Controller. Each Trouble Ticket will be evaluated by Verizon for appropriate corrective action and Customer will be informed of the status of each closed ticket even where the WLAN Controller is within normal operating parameters.

3.11.2 **Calculation** – Availability is the percentage of time that the WLAN Controller is available within a given calendar month. Availability only applies to Outages.

Monthly Managed Site Availability (%) =

$$1 - \left(\frac{\textit{Total minutes of Hard Outage per month}}{\textit{\# days in calendar month x 24 hours x 60 minutes}} \right) \times 100\%$$

3.11.3 **Credit Structure and Amounts.** For any month in which Verizon fails to meet the applicable availability standards for a WLAN Controller, Customer will be eligible for an SLA credit equal to a percentage of the Managed WLAN MRC applicable in that month for the affected WLAN Controller, as indicated in the following tables.

Managed Availability %		**U.S.**	**EMEA/Canada**	**LATAM/APAC**
From	To			
100%	99.95%	0%	0%	0%
99.94%	99.50%	15%	10%	10%
99.49%	99.40%	25%	20%	20%
99.39%	99.00%	35%	30%	30%
98.99%	98.00%	45%	40%	35%
97.99%	96.70%	50%	50%	40%
Less than 96.7%		100.0%	100.0%	100.0%

3.11.4 **Exclusions.** In addition to the General Exclusions, the following exclusions apply to the Availability SLA:

3.11.4.1 WLAN Controllers are not considered unavailable during periods of Outage resulting in whole or in part from Managed WLAN degradation, such as slow data transmission.

3.11.4.2 WLAN Controllers are not considered unavailable during interruptions not reported by Customer, or for which no Trouble Ticket was opened.

3.11.4.3 SLA coverage is only applicable to WLAN Controllers for which (a) out-of-band access is available (except for WLAN Controllers under the Monitor and Notify service level), and (b) Customer has purchased a maintenance plan with coverage not less than 8 hours a day, 5 days a week, with NBD ~~(“Next Business Day”)~~ response time.

3.11.4.4 Virtual Controllers with Aruba IAP Management, Lightweight Access Points, Aruba Instant Access Points, Cloud-Controlled Access Points and Software-defined Wireless LAN are not included.

3.11.4.5 WLAN Controllers are not considered unavailable if Verizon did not receive from Customer the login credentials of the Devices for troubleshooting purposes.

3.11.4.6 WLAN Controllers are not considered unavailable if the WLAN Controllers are deployed in High Availability (~~“~~HA~~”~~) mode and the WLAN Controller function will be taken over by one of the other WLAN Controllers in the Customer's network.

3.12 **Managed Wireless LAN ~~Time to Repair~~TTR**

3.12.1 ~~**Time to Repair ("TTR").**~~ TTR is the time to resolve an Outage Trouble Ticket for a Device under management.

3.12.2 **Calculation.** TTR is based on the Outage time per Device for each Outage event. The TTR time starts when a Trouble Ticket is opened by Verizon or the Customer after an Outage and concludes with the restoration of Device and the WLAN interface.

Device ~~Time To Repair~~TTR (Hrs.) = Length of Trouble Ticket resolution per Device per Outage incident

3.12.3 **Credit Structure and Amounts.** If TTR is exceeded for an Outage, Customer will receive a credit on its invoice equal to five percent (5%) of the MRC for Managed WLAN Service in the month of the Outage.

~~Time to Repair~~TTR Verizon Data Maintenance – Network				
Outage Repair Time (Per incident)		**U.S.**	**EMEA/Canada**	**LATAM/APAC**
3:30:00	3:59:59	5%	0%	0%
4:00:00	3:59:59	5%	5%	0%
6 Hours Plus		5%	5%	5%

3.12.4 **Exclusions.** In addition to the General Exclusions, the following exclusions apply to the TTR SLA:

3.12.4.1 For Devices managed by the U.S. NOC, Trouble Tickets opened after 4 p.m. Eastern Time will be considered to be opened on the next business day.

3.12.4.2 For Devices managed by the EMEA NOC, Trouble Tickets opened after 4 p.m. Central European Time (CET), or Central European Summertime (CEST) when in effect, will be considered to be opened on the next business day.

3.12.4.3 For Devices managed by the APAC NOC, Trouble Tickets opened after 4 p.m. Philippines Time (PHT) will be considered to be opened on the next business day.

3.12.4.4 If third-party-provided maintenance is modified pursuant to the provider's maintenance contract with Customer, Verizon may similarly adjust associated SLA commitments set forth herein to reflect the revised service levels provided by the third-party maintenance provider.

3.12.4.5 Devices are not considered unavailable during periods of Outage resulting in whole or in part from the degradation of Customer's Wireless LAN, such as slow data transmission.

3.12.4.6 SLA coverage is only applicable to (i) WLAN Controllers for which Customer has purchased a maintenance plan with coverage not less than 8 hours a day, 5 days a week, with ~~NBD ("~~Next Business Day~~")~~ (NBD) response time; and (ii) Cloud-Controlled Access Points and Software-defined Wireless LAN with Verizon-provided or Customer-contracted Third-Party Maintenance with Onsite Break-Fix Maintenance.

3.12.4.7 WLAN Controllers are not considered unavailable if Verizon did not receive from Customer the login credentials of the Devices for troubleshooting purposes.

4. How the SLA Works

4.1 **Service Credit Claim Process.** When Customer experiences a Fault to which an SLC relates, Customer must:

4.1.1 Notify the appropriate Verizon Help Desk (or Customer Service Center) and open a Trouble Ticket within 72 hours. Verizon may also open a Trouble Ticket on Customer's behalf as part of the service management as described in the Service Terms. In either case, a Trouble Ticket must have been opened to qualify for the Service Credits issued for failure to meet an SLC.

4.1.2 Make a claim in writing within 15 days of the end of the then current billing month. Verizon will process your claim and, if warranted, provide compensation in the form of a Service Credit within 90 days. The SLA claim process is further detailed below.

4.2 **Service Credit Calculation and Process.**

4.2.1 **Service Credit Calculation**

- The Service Credit structure for non-compliance with any SLC is set out above and is based upon monthly billing calculations.
- For any billing month in which Verizon fails to meet an SLC, the applicable Service Credit shall be applied as a percent of the net MRC relating to the Managed Global Network to which the applicable SLC failure relates.
- Customer may claim Service Credits for Network Availability and TTR for the same Managed Global Network in a given month, subject to the terms of this SLA.
- Customer cannot claim Service Credits for both a Network Availability/TTR and a failure to meet the RTD SLC in respect of the same event or same Managed Global Network within a given billing month.

NETWORK OUTAGE EXAMPLE:

Customer had two Network Outages on a US site with Back-Up in the same month, for total monthly downtime equal to 390 minutes (8.5 hrs).

TTR breakdown was as follows:

TTR tkt 1 = 3.7 hrs
TTR tkt 2 = 4.8 hrs

Customer in this case would be entitled to the following percentage pay out on its affected Managed Global Network service.

20% (credit for US site Network Availability with Back-Up SLC) + 4% (credit for US site 2TTR SLC) = 24% total pay out.

4.3 **How to Claim a Credit.** In order to receive a Service Credit on an SLC, Customer must do the following:

4.3.1 Report the Fault and have an opened Trouble Ticket within 72 hours of the occurrence.

4.3.2 Make a request in writing for a Service Credit from Verizon within 15 days of the end of the relevant billing month.

4.3.3 Document the following information when requesting the Service Credit:

4.3.3.1 Trouble Ticket number;

4.3.3.2 Time the Trouble Ticket was opened and closed;

4.3.3.3 IDs for each of the ports, CARs and local access circuits that were affected by the Fault to which the SLC relates.

4.4 All applicable Service Credits will be provided to Customer at the Billing Account Number (~~"~~BAN~~"~~) level in one lump sum basis, not by reference to each individual circuit or all circuits under multiple BANs. The appropriate amount will be credited to the Customer's account, appearing as a line item on a bill delivered within 90 calendar days following Verizon's confirmation of non-compliance with the SLC.

5. **SLA Terms and Conditions**

5.1 **Service Credit Liability and Other Remedies**

- Credits are not cumulative month to month.
- Verizon's liability to pay Service Credits in respect of failure to meet the same SLC for a given Managed Global Network is limited to 3 consecutive months.
- After 3 consecutive months of failing to meet the SLC, Customer may elect to terminate affected Managed Global Network service upon notice to Verizon without liability, except for payment of Charges for Managed Global Network service provided prior to termination.
- Verizon is not obliged to issue Service Credits for the same SLC for the same Managed Global Network service for more than 6 months out of any 12 month period.
- Service Credits or equivalent payments made by Verizon to Customer under this SLA are the sole and exclusive remedy available to Customer in respect of any failure to meet an SLC.

5.2 **General Exclusions.** The following exclusions apply to all obligations of Verizon contained in this SLA:

5.2.1 Any act or omission on the part of Customer, its contractors or vendors, or any other entity over which Customer exercises control or has the right to exercise control;

5.2.2 Any SLA not met because of a Force Majeure event, as defined in the Agreement;

5.2.3 Scheduled maintenance on the part of Verizon or its Verizon Affiliates which are within Verizon's maintenance windows, as applicable from time to time;

5.2.4 Scheduled maintenance by Customer or entities under Customer's direction or control;

5.2.5 Lapses of Managed Global Network or performance issues related to non-Verizon managed ~~Customer Premises Equipment (~~"CPE~~")~~ at a Customer Site;

5.2.6 No credit will be due for which there is no Ticket opened;

5.2.7 No credit will be due for services which have been installed for less than one full calendar month;

5.2.8 Verizon excludes measurement of Trouble Ticket duration any time identified on the Trouble Ticket as "Customer Time" which shall mean any time attributable to or caused by the following:

5.2.8.1 Incorrect or incomplete callout information provided by Customer that prevents Verizon from completing the trouble diagnosis and Managed Global Network Service Restoration

5.2.8.2 Verizon being denied access to network components at the Customer Site when access is required to complete trouble shooting, repair, Restoration, diagnosis or acceptance testing.

5.2.8.3 Customer's failure or refusal to release the Managed Global Network for testing

5.2.8.4 Verizon calls Customer to close Trouble Ticket, but Customer is unavailable or Verizon is unable to verify Managed Global Network Service Restoration with a Customer

5.2.9 Network Availability SLC measurements do not include periods of Network Outage resulting in whole or in part from one or more of the following causes:
- 5.2.9.1 Any act or omission on the part of any third party other than a local access provider; or
- 5.2.9.2 Periods of Managed Global Network degradation, such as slow data transmission; or
- 5.2.9.3 Customer inquiry for circuit monitoring purposes only; or
- 5.2.9.4 Outages on Customer provided Access
- 5.2.9.5 Interruptions to the Managed Global Network caused by scheduled maintenance.

5.2.10 SG RRO Sites with Partner access can only claim Service Credits under the Network Availability and TTR Service Level Commitments.

5.2.11 Packet Transit Delay SLC measurements does not cover any of the following:
- 5.2.11.1 IP packets consisting of more than 64 bytes are not considered in calculating the PTD;
- 5.2.11.2 The PTD SLC is suspended during periods in which a major Verizon Private IP Core Network component (e.g., backbone link or gateway switch) is not functioning and the Verizon Private IP Core Network is in an emergency re-route configuration;
- 5.2.11.3 External factors, e.g., access serialization delay and access link congestion, which may cause delay;
- 5.2.11.4 The PTD SLC is suspended if the customer denies Verizon access to its CPE for the purpose of measuring end-to-end latency.

5.2.12 PDR does not include;
- 5.2.12.1 IP Packets dropped at infrastructure egress due to improper Customer specifications of Customer port speeds;
- 5.2.12.2 IP Packets which are not delivered due to problems unrelated to Verizon's Private IP Core Network including, but not limited to, local access circuits.
- 5.2.12.3 Packets dropped at infrastructure egress port due to congestion caused by EF traffic exceeding subscription parameters

5.2.13 Jitter does not include:
- 5.2.13.1 The Jitter SLC is suspended during periods in which a major Verizon Private IP Core Network component (e.g., backbone link or gateway switch) is not functioning and the Verizon Private IP Core Network is in an emergency re-route configuration
- 5.2.13.2 IP Packets which are not delivered due to problems unrelated to Verizon's Private IP Core Network including, but not limited to, local access circuits.

5.2.14 Managed LAN Availability and TTR does not include:
- 5.2.14.1 Outage periods which are caused by faulty Internal wiring for which Verizon Business is not responsible;
- 5.2.14.2 Outage periods which are caused by Customer Equipment, Customer Wiring or any other LAN device for which Verizon is not responsible;

6. **Classifications.** Capitalized terms in this SLA will, unless the context otherwise requires or unless such terms are separately defined herein, have the same meanings as are ascribed to them in the Contract.

6.1 **Fault**. A Fault is defined as a material defect, fault or impairment in a Managed Global Network which causes an interruption in provision of that Managed Global Network, or anything that gives rise to a request for assistance or a report, as described in this SLA.

6.1.1 **Classifications of Fault.** The Trouble Ticket priority is related to the severity of the Fault as shown below.

Operational Classification	Criteria
Priority 1 Fault	● Total loss of Managed Global Network ● Degraded Managed Global Network (i.e., the Managed Global Network is degraded to the extent where the Customer is unable to use it and is prepared to release it for immediate testing)
Priority 2 Fault	● Degraded Managed Global Network (i.e., the Managed Global Network is degraded, the Customer is able/still wants to use it and is not prepared to release it for immediate testing)
Priority 3 Fault	● Non-Managed Global Network Impacting / Telemetry / Back-ups

Priority 4 Fault	• Non Managed Global Network affecting, e.g., a Customer request for an incident report, and all other queries not covered by Priority Faults 1 – 3 above • Scheduled maintenance

The only categories of Fault for which Verizon shall be held accountable to a Customer under this SLA and for which a Service Credit may be payable, are the SLC' s relating to Network Outage, Network TTR, PTD, PDR, Jitter or Proactive Notification as set out in the definition of each SLC above.

6.2 **Network Outage.** A Network Outage is defined as an unscheduled period in which the Managed Global Network is interrupted and unavailable for use by Customer for sixty (60) or more Unavailable Seconds ("UAS") within a 15 minute period measured by Verizon. UAS is the American National Standards Institute standard ("ANSI") T1.231.

6.3 **Trouble Ticket.** A Trouble Ticket is the method used by either Customer or Verizon to advise the Verizon Help Desk of a perceived Fault, including a Network Outage or a failure to meet an SLC. A unique trouble ticket reference number will be raised and given to the Customer and should be used each time the Customer calls in to the Help Desk for any Fault update or if appropriate, to inform Verizon of restoration of the Managed Global Network.

APPENDIX A

Site availability and TTR based on Regional Access Operational Performance Level

		US/EMEA/Canada	APAC/LATAM	US/EMEA/Canada	APAC/LATAM	US/EMEA/Canada	APAC/LATAM
Cat Hub A							
PIP/IDS	**PIP/IDS**	**SPI Availablility**	**SPI Availablility**	**MTTR Outage to Backup mode**	**MTTR Outage to Backup mode**	**MTTR backup to Full mode**	**MTTR backup to Full mode**
Platinum/Gold	**Platinum/Gold**	100%	100%	4hr	4hr	4hr	4hr
	Silver	99.95%	99.95%	4hr	4hr	8hr	8hr
	Bronze	99.90%	99.90%	4hr	4hr	NBD	NBD
Silver	**Silver**	99.90%	99.90%	8hr	8hr	8hr	8hr
	Bronze	99.85%	99.85%	8hr	8hr	NBD	NBD
Bronze	**Bronze**	99.75%	99.75%	NBD	NBD	NBD	NBD
Cat Hub B							
PIP/IDS	**PIP/IDS**	**SPI Availablility**	**SPI Availablility**	**MTTR Outage to Backup mode**	**MTTR Outage to Backup mode**	**MTTR backup to Full mode**	**MTTR backup to Full mode**
Platinum/Gold	**Platinum/Gold**	99.99%	99.99%	4hr	4hr	4hr	4hr
	Silver	99.95%	99.95%	4hr	4hr	8hr	8hr
	Bronze	99.90%	99.90%	4hr	4hr	NBD	NBD
Silver	**Silver**	99.90%	99.90%	8hr	8hr	8hr	8hr
	Bronze	99.85%	99.85%	8hr	8hr	NBD	NBD
Bronze	**Bronze**	99.75%	99.75%	NBD	NBD	NBD	NBD
Cat Branch A							
PIP/IDS	**Broadband**	**SPI Availablility**	**SPI Availablility**	**MTTR Outage to Backup mode**	**MTTR Outage to Backup mode**	**MTTR backup to Full mode**	**MTTR backup to Full mode**
Platinum/Gold	**Platinum/Gold**	99.95%	99.90%	4hr	4hr	4hr	4hr
	Silver	99.90%	99.85%	4hr	4hr	8 hr	8 hr
	Bronze	99.80%	99.75%	4hr	4hr	NBD	NBD
Silver	**Platinum/Gold**	99.90%	99.80%	8hr	8hr	8hr	8hr
	Silver	99.80%	99.75%	8hr	8hr	8 hr	8 hr
	Bronze	99.80%	99.70%	8hr	8hr	NBD	NBD
Bronze	**Platinum/Gold**	99.90%	99.80%	8hr	8hr	NBD	NBD
	Silver	99.80%	99.70%	8hr	8hr	NBD	NBD
	Bronze	99.50%	99.40%	NBD	NBD	NBD	NBD
Cat Branch B							
PIP/IDS	**LTE**	**SPI Availablility**	**SPI Availablility**	**MTTR Outage to Backup mode**	**MTTR Outage to Backup mode**	**MTTR backup to Full mode**	**MTTR backup to Full mode**
Platinum/Gold	**N/A**	99.50%	99.50%	4hr	4hr	NBD	NBD
Silver	**N/A**	99.50%	99.50%	8hr	8hr	NBD	NBD
Bronze	**N/A**	99.00%	99.00%	NBD	NBD	NBD	NBD
Cat Branch C							
Broadband	**LTE**	**SPI Availablility**	**SPI Availablility**	**MTTR Outage to Backup mode**	**MTTR Outage to Backup mode**	**MTTR backup to Full mode**	**MTTR backup to Full mode**
Platinum/Gold	**N/A**	99.00%	98.50%	4hr	4hr	NBD	NBD
Silver	**N/A**	99.00%	98.50%	8hr	8hr	NBD	NBD
Bronze	**N/A**	N/A	N/A	N/A	N/A	N/A	N/A
Cat Branch C1							
Broadband	**Broadband**	**SPI Availablility**	**SPI Availablility**	**MTTR Outage to Backup mode**	**MTTR Outage to Backup mode**	**MTTR backup to Full mode**	**MTTR backup to Full mode**
Platinum/Gold	**Platinum/Gold**	99.50%	99.50%	4hr	4hr	4hr	8hr
	Silver	99.50%	99.50%	4hr	6hr	8hr	8hr
	Bronze	99.00%	99.00%	4hr	8hr	N/A	24hr
Silver	**Silver**	99.50%	99.50%	8hr	8hr	8hr	24hr
	Bronze	99.00%	99.00%	8hr	8hr	N/A	NBD
Bronze	**Bronze**	99.00%	99.00%	N/A	24hr	N/A	NBD

*** NBD - Next Business Day**

		US/EMEA/Canada	APAC/LATAM	US/EMEA/Canada TTR	APAC/LATAM TTR	US/EMEA/Canada TTR	APAC/LATAM TTR
Cat Hub A							
PIP/IDS	PIP/IDS	SPI Availablility	SPI Availablility	Outage to Backup mode	Outage to Backup mode	backup to Full mode	backup to Full mode
Platinum/Gold	Platinum/Gold	100%	100%	4hr	4hr	4hr	4hr
Cat Hub B							
PIP/IDS	PIP/IDS	SPI Availablility	SPI Availablility	Outage to Backup mode	Outage to Backup mode	backup to Full mode	backup to Full mode
Platinum/Gold	Platinum/Gold	99.99%	99.99%	4hr	4hr	4hr	4hr
	Silver	99.99%	99.99%	4hr	4hr	8 hr	8 hr
Cat Branch A							
PIP/IDS	Broadband	SPI Availablility	SPI Availablility	Outage to Backup mode	Outage to Backup mode	backup to Full mode	backup to Full mode
Platinum/Gold	Platinum/Gold	99.95%	99.90%	4hr	4hr	4hr	4hr
	Silver	99.90%	99.85%	4hr	4hr	8 hr	8 hr
	Bronze	99.80%	99.75%	4hr	4hr	NBD	NBD
Silver	Platinum/Gold	99.90%	99.80%	8hr	8hr	8hr	8hr
	Silver	99.80%	99.75%	8hr	8hr	8 hr	8 hr
	Bronze	99.80%	99.70%	8hr	8hr	NBD	NBD
Bronze	Platinum/Gold	99.90%	99.80%	8hr	8hr	NBD	NBD
	Silver	99.80%	99.70%	8hr	8hr	NBD	NBD
	Bronze	99.50%	99.40%	NBD	NBD	NBD	NBD
Cat Branch B							
PIP/IDS	LTE	SPI Availablility	SPI Availablility	Outage to Backup mode	Outage to Backup mode	backup to Full mode	backup to Full mode
Platinum/Gold	N/A	99.50%	99.50%	4hr	4hr	NBD	NBD
Silver	N/A	99.50%	99.50%	8hr	8hr	NBD	NBD
Bronze	N/A	99.00%	99.00%	NBD	NBD	NBD	NBD
Cat Branch C							
Broadband	LTE	SPI Availablility	SPI Availablility	Outage to Backup mode	Outage to Backup mode	backup to Full mode	backup to Full mode
Platinum/Gold	N/A	99.00%	98.50%	4hr	4hr	NBD	NBD
Silver	N/A	99.00%	98.50%	8hr	8hr	NBD	NBD
Bronze	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cat Branch C1							
Broadband	Broadband	SPI Availablility	SPI Availablility	Outage to Backup mode	Outage to Backup mode	backup to Full mode	backup to Full mode
Platinum/Gold	Platinum/Gold	99.50%	99.50%	4hr	4hr	4hr	8hr
	Silver	99.50%	99.50%	4hr	6hr	8hr	8hr
	Bronze	99.00%	99.00%	4hr	8hr	N/A	24hr
Silver	Silver	99.50%	99.50%	8hr	8hr	8hr	24hr
	Bronze	99.00%	99.00%	8hr	8hr	N/A	NBD
Bronze	Bronze	99.00%	99.00%	N/A	24hr	N/A	NBD