Ethernet Switched E-LAN +
Service Level Agreement

1. **Service Level Agreement Summary.** The Ethernet Switched E-LAN services Service Level Agreement is available to Customers with a minimum of a one (1) year commitment for each. Verizon reserves the right to amend the SLA from time to time effective upon written communication that may be delivered in the invoice or by other reasonable means.
   The SLA sets forth Customer's sole and exclusive remedy for any claim relating to the Ethernet Switched E-LAN services Service or Verizon's network. Verizon will determine in its sole discretion what records and data will be the basis for all SLA calculations and determinations. The maximum amount of credit in any calendar month under this SLA will not exceed the amount that, absent the credit, would have been charged for the Service in that month for the particular that was the subject of the credit.
2. **Definitions of Terms.** Terms used in this document are defined in the Definitions section.
3. This Ethernet Switched E-LAN services SLA consist of five service level standards and associated metrics pertaining to the performance of E-LAN EVC ("Service Level Standards"). Customer may qualify for credits when the Service Level Standards are not met.
   3.1 **Available Service Level Standards.** The types of Service Level Standards offered are as follows:
   - Availability
   - Mean Time to Repair ("MTTR")
   - Round Trip Delay ("RTD")
   - Data Delivery Ratio ("DDR")
   - Frame Jitter ("FJ")
4. **Coverage Categories.** The Service Level Standards vary by Local Access operational levels and performance levels or Platinum, Gold, Silver and Bronze, and are applicable to the specific E-LAN EVC(s) from the Geographic Region or Global Tier A Countries or Global Tier B Countries where Customer has a site sending traffic to the Geographic Region or country where Customer has a site receiving traffic based on the following variables:
   4.1. **Access Types.** E-LAN EVC SLA covers On-Net (Platinum) access and Off-Net access but does not apply to the CPLL portion of Off-Net access. Service Levels for Off-Net access are offered in three levels of performance classifications:
   - Gold (Types 2*, 3, 4 and 5 network configurations)
   - Silver (Standard network configuration, DSL Services)
   - Bronze (DSL Services)

   *Type 2 network configuration is not available for EMEA/APAC-sold Customers.
   4.2. **Outage Types.** The Ethernet Switched E-LAN services SLA define service disruptions as either a Hard Outage or a Service Issue. The service restoration priority determines the ranking of the repair actions against other service related events. A Hard Outage has Priority 1 service restoration priority with the exception of Hard Outages for Off-Net Standard which has Priority 2 Service restoration priority. A Service Issue has Priority 2 Service restoration priority.
   The E-LAN EVC Availability and MTTR Service Level Standards apply only to Hard Outages. RTD, DDR and Frame Jitter apply to Service Issues. Priority 3 and Priority 4 issues do not affect functionality of service and are not eligible for SLA credits.

Priority Level	Criteria
Priority 1	Total loss of Service or degraded Service to the extent that it is unusable by Customer and Customer is prepared to release its Service for immediate testing
Priority 2	Degraded Service, however Customer is able to use the Service and is not prepared to release its Service for immediate testing
Priority 3	A problem with the Service that does not impact the functionality of the Service; including a single non-circuit specific quality of Service inquiry.
Priority 4	Non Service affecting requests (e.g. a Customer request for an incident report) and all other queries not covered by Priority Faults

	1 – 3 above. Scheduled maintenance

4.3. **Class of Service.** The E-LAN EVC class of service ("CoS") delivery methodology is based on 802.1q IEEE standards and follows the Internet Engineering Task Force ("IETF") Differentiated Services ("Diff-Serv") model (i.e. IETF RFC 2474). The Verizon traffic priority classes are identified as:

Diff-Serv Queue	E-LAN EVC CoS Naming	802.1q P-bits
EF	Real Time Data (RT)	5 and 6
AF4, AF41, AF42/43 AF3, AF31, AF32/33	Priority Data (PD)	4
AF2AF21, AF 22/23	Business Data (BD)	2 and 3
BE	Basic Data (B)	0,1, and 7

4.4. **Geographical Location.** The countries covered under this SLA are divided into the following categories:

- **U.S. Region:** Contiguous 48 United States**,** Hawaii, and Alaska
- **Global Tier A:** Austria, Belgium, Canada, Denmark, Finland France, Germany, Hong Kong, Ireland, Italy, Japan, Netherlands, Norway, Singapore, South Korea, Spain, Sweden, Switzerland, United Kingdom
- **Global Tier B:** Australia, China, Czech Republic, India, Indonesia, Malaysia, Mexico, Philippines, Poland, Taiwan

5. Service Level Standards.

Parameter	**Local Access Level**	**Scope**	**U.S.**	**Global Tier A**	**Global Tier B**
Availability	On-Net (Platinum)	End-to-End	100%	100%	100%
	Off-Net (Gold)	End-to-End	99.9%	99.9%	99.9%
	Off-Net (Silver)	End-to-End	99.5%	99.5%	99.5%
Mean Time To Repair (MTTR)	On-net (Platinum)	End-to-End	2 Hours	4 Hours	4 Hours
	Off-Net (Gold)	End-to-End	4 Hours	5 Hours	8 Hours
	Off-Net (Silver Bronze)	End-to-End	4 Hours	8 Hours	8 Hours

Parameter	**Access Level**	**Scope**	**E-LAN EVC**	**E-LAN EVC RT**	**E-LAN EVC PD/BD**	**E-LAN EVC B**

Data Delivery Ratio (DDR)	On-Net, Off-Net	PE-to-PE	≥ 99.995%	≥ 99.995%	≥ 99.99%	≥ 99.95%
Round Trip Delay (RTD)	On-Net, Off-Net	PE-to-PE	See Applicable Standard Below			
Frame Jitter	On-Net, Off-Net	PE-to-PE	< 5 ms	< 5 ms	NA	NA

6. **Service Level Standards Defined.**

6.1 **Availability.**

6.1.1 **Definition.** Eligible Hard Outage Minutes are used to calculate Availability for E-LAN EVC. Availability is the total number of Eligible Hard Outage Minutes in a calendar month for a specific Customer connection, divided by the total number of minutes based on a 30-day calendar month. Availability includes the local access from the Customer premises to the Verizon E-LAN EVC Provider Edge and the Core Network. Availability excludes Customer provided Access and CPE not provided as part of the Ethernet Switched E-LAN Service. An EVPL EVC point-to-point connection has one Local Access circuit on each end and Availability Service Level Standard for an EVPL EVC provisioned with two different Local Access levels is determined by the Local Access level having the lowest Availability Service Level Standard

6.1.2 **Standard.** See Service Level Standard tables above.

6.1.3 **Calculation.** Availability is calculated after Customer opens a Priority 1 Trouble Ticket with Verizon and represents the percentage of time that the connection for E-LAN EVC is available within a given calendar month. Hard Outages for E-LAN EVC provisioned with Off-Net Standard Access are handled as Priority 2 tickets and Eligible for Availability.

Availability (%) = (1 - (Total Eligible Hard Outage Minutes per connection for E-LAN EVC per month / 43,200 minutes)) x 100

6.1.4 **Credit Structure.** The credit is based on the number of Eligible Hard Outage Minutes independent of the actual percent availability calculation. Credit tables are provided in Section 7.

6.2 **Mean Time To Repair ("MTTR").**

6.2.1 **Definition.** MTTR is defined as the average time taken to restore a connection for E-LAN EVC during a Hard Outage. An EVPL EVC has one Local Access circuit on each end and Availability Service Level Standard for EVPL EVC provisioned with two different Local Access levels is determined by the Local Access level having the lowest Availability Service Level Standard.

6.2.2 **Standard.** See Service Level Standard tables above.

6.2.3 **Calculation.** MTTR is an average of the time taken to repair all Priority 1 Trouble Tickets generated by Customer on a specific connection for E-LAN EVC. Hard Outages for Off-Net Gold are handled as Priority 2 tickets and Eligible for MTTR. The duration of each Hard Outage on a specific E-LAN EVC is totalled at the end of each calendar month and divided by the corresponding number of Hard Outages for that E-LAN EVC. This is calculated from Trouble Tickets opened during that calendar month. MTTR per calendar month is calculated for Customer's Service as follows:

Cumulative length of Hard Outage(s) per E-LAN EVC /
Total number of Trouble Tickets per calendar month per E-LAN EVC

6.2.4 **Credit Structure.** The credit is based on the average repair times for all Hard Outages on a specific E-LAN EVC within a calendar month. Credit tables are provided in Section 7. Customer may qualify for credits under the MTTR Service Level Standard in addition to the E-LAN EVC Availability Service Level Standard for a particular Hard Outage.

6.3 **Data Delivery Ratio ("DDR").**

6.31 **Definition.** The DDR Service Level Standard represents the E-LAN EVC effectiveness in transporting Customer frames across its Core Network. DDR is the average ratio of Ethernet frames within a specified traffic priority class that are successfully delivered from PE to PE between Provider Edge devices within the Verizon Core Network to total Ethernet frames within the specified traffic priority class that are sent over Verizon's Core Network in a calendar month, excluding frames that are not delivered due in whole or in part to factors unrelated to Verizon's Core Network. The DDR Service Level Standard for E-LAN EVC Real Time Data applies only to traffic that complies with the applicable limitations of Customer's subscribed Ethernet Switched E-LAN services Class of Service. The DDR Service Level Standard does not include frames that are dropped due to congestion at the Customer ingress or egress port.

6.3.2 **Standard.** See Service Level Standard tables above. If the Ethernet Switched E-LAN service does not meet the DDR Service Level Standard, the matter is considered a Service Issue and accorded a Service Restoration Priority 2.

6.3.3 **Calculation.** DDR is calculated as the number of E-LAN EVC test frames within the specified traffic priority class that are successfully delivered from PE to PE within the Core Network divided by the total number of E-LAN EVC test frames within the specified traffic priority class, sent per calendar month is:

DDR (DDR for load consisting of frames) = frames Delivered/frames Offered *100

6.3.4 **Credit Structure.** To obtain a credit, Customer must open a Trouble Ticket in accordance with the "Process for Customer to Apply for SLA Credits" section below. Verizon will work with Customer to confirm that a DDR issue exists with the Core Network and repair the problem(s), as applicable. Once Verizon confirms that the DDR on the Core Network for a specific Customer E-LAN EVC connection does not comply with this Service Level Standard, Verizon will have thirty (30) calendar days opening of the Trouble Ticket to address the Service Issue and close the applicable Trouble Ticket before Customer may be eligible for SLA credits. If, after thirty (30) calendar days of opening the Trouble Ticket, the DDR Service Level Standard issue is not corrected, but has been agreed to as a Service Issue, Customer may qualify for credits.

6.4 **Frame Jitter.**

6.4.1 **Definition.** Frame Jitter is average of the mean deviation of the difference in frame arrival time at the receiver compared to the sender for a pair of frames, calculated on the round trip from PE- to- PE within the Core Network.

6.4.2 **Standard.** The Service Level Standard for Frame Jitter applies to the Core Network performance. If the Ethernet Switched E-LAN service does not meet the Frame Jitter SLA, the matter is considered a Service Issue.

6.4.3 **Calculation.** Verizon calculates Frame Jitter by measuring the mean deviation of the difference in test frame spacing at the receiver compared to the sender for a pair of test frames; Verizon calculates the mean by sampling the Core Network frequently and averaging the results over a thirty (30) calendar day period. The calculation for Frame Jitter "J (i)" for two consecutive frames i and i+1 is as follows:

J (i) = DeltaT(i) – DeltaT(i')

where

T(i) = time 1st byte of frame (i) is received by the source port (ingress time)
T(i+1) = time 1st byte of frame (i+1) is received by the source port (ingress time)
T(i') = time 1st byte of frame (i') is received at the destination port (egress time)
T(i+1') = time 1st byte of frame (i+1') is received at the destination port (egress time)

and

DeltaT(i) = T(i+1) – T(i) (DeltaT(i) is the time interval between frames at ingress)
DeltaT(i') = T(i+1') – T(i') (DeltaT(i') is the time interval between frames at egress)

The average jitter is calculated as follows:

J = Sum J(i) /(N-1)

where

N is the number of measurement intervals over thirty (30) day period

6.4.4 **Credit Structure.** To obtain a credit, Customer must open a Trouble Ticket when a Frame Jitter issue surfaces as described in the "Process for Customer to Apply for SLA Credits" section below. Verizon will work with Customer to confirm that a Frame Jitter issue exists with the Core Network and repair the problem(s), as applicable. Once Verizon confirms that the Frame Jitter on the Core Network between specific Customer locations over a connection for E-LAN EVC does not comply with this Service Level Standard, Verizon will have thirty (30) calendar days to address Service Issue and close the applicable trouble before Customer may be eligible for credits under this SLA. If, after thirty (30) calendar days of opening the Trouble Ticket, the Frame Jitter Service Level Standard issue is not corrected, Customer may qualify for credits. Customer's measure of Frame Jitter prior to opening a Trouble Ticket may be used by Verizon as a benchmark for the repair actions.

6.5 **Round Trip Delay (RTD).**

6.5.1 **Definition.** RTD is the PE to PE monthly average round trip delay as measured in milliseconds within or between the Geographic US Regions or Global Tier A Countries or Global Tier B Countries respective PE device pairs on the Verizon Core Network.

6.5.2 **Standard**. RTD Service Level Standard performance measurements for international and U.S. locations are stated in the http://www.verizonbusiness.com/us/publications/service_guide/secure/cp_evpl_vpls_rtd_sla_matrix_SG.xls.

6.5.3 **Calculation.** RTD is determined by measuring transit delay in milliseconds across the Verizon Core Network and averaging the results over a thirty (30) day period from when the Trouble Ticket was opened.

RTD calculation is as follows:

RTD = T2 – T1

where:

T1 is the time when an Ethernet frame leaves the Ingress Reference Point (i.e., Frame exit event) and T2 is the time when an Ethernet Frame arrives back at the Ingress Reference Point (i.e. Frame return event) with the difference measured.

RTD is measured between the respective origination and destination infrastructure Ports, i.e. between the points where the Frame enters and exits Verizon's Core Network, regardless of the Local Access to Verizon's Core Network. External factors, including, but not limited to, local access issues, are excluded from the measurement.

6.5.4 **Credit Structure.** If the RTD Service Level Standard is not met, it is a Service Issue. If the RTD metric for a pair of Customer Sites is not being met, Customer may be eligible for an SLA credit.

To obtain a credit, a Trouble Ticket must be opened with Verizon in accordance with the "Process for Customer to Apply for SLA Credits" section below. Verizon will work with Customer to confirm that a RTD issue exists and repair the problem(s), as applicable. Once Verizon confirms that the RTD Service Level Standard is not being met, Verizon will have thirty (30) calendar days from the opening of the Trouble Ticket to repair the Service to meet the RTD Service Level Standard 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 RTD Service Level Standard continues to not be met, Customer may qualify for a credit. Customer's measurement of RTD prior to opening a Trouble Ticket may be considered by Verizon in determining the need to repair the Service.

RTD Credit Table:

For Service Level Standard not met	Credit as % of MRC per E-LAN EVC
Round Trip Delay (RTD)	20%

6.5.5 **Exclusions.** In addition to the General Exclusions, as set out in the General Exclusion Section below, PE RTD Service Level Standard measurements for E-LAN EVC do not include the following:

- All Customer data traffic that is marked Real Time by Customer and is not compliant with the subscribed E-LAN EVC Real Time Class of Service feature or any other data traffic that is not compliant with the applicable subscribed Ethernet Switched E-LAN services Class of Service.
- All Customer data traffic that is marked by Customer using 802.1p-bit settings not supported by the Verizon Ethernet Switched E-LAN services Core Network.

7. **Credit Amounts and Application Process.**

7.1 **Credit Tables by Outage Type.**

- The credits vary by Service Level Standard, location, access type and length of Hard Outage.
- Credit is based on the MRC for each connection of the E-LAN EVC.

7.1.1 **Hard Outage Credit Schedules.**

Availability		**Credits as a percent of MRC**		
E-LAN EVC Availability		**Global Tiers A, B and US**	**U.S. and Global Tier A**	**Global Tier B**
From (Mins)	**To (Mins)**	**On-Net (Platinum)**	**Off-Net (Gold or Silver)**	**Off-Net (Gold or Silver)**
1	43	5%	NA	NA
44	120	10%	10%	5%
121	240	15%	10%	5%
241	360	25%	15%	10%
361	480	30%	15%	10%
481	720	40%	20%	10%
> 720		50%	20%	10%

MTTR		**Credit as a Percent of MRC**				
Ethernet Switched E-LAN Services Core Network Outage Time		**U.S.**	**Global Tiers A & B**	**U.S.**	**Global Tier A**	**Global Tier B**
From Hr:Min:Sec	**To Hr:Min:Sec**	**On-Net (Platinum)**	**On-Net (Platinum)**	**Off-Net (Gold or Silver)**	**Off-Net (Gold or Silver)**	**Off-Net (Gold or Silver)**
2:00:00	3:59:59	4%	NA	NA	NA	NA
4:00:00	4:59:59	4%	4%	2%	NA	NA
5:00:00	7:59:59	10%	10%	4%	4%	NA
8:00:00	11:59:59	10%	10%	4%	4%	4%
≥ 12:00:00		10%	10%	4%	4%	4%

7.1.2 **RTD, Frame Jitter and DDR Credit Schedule.**

Service Issue Credit Schedule	
Service Level Standard	**Credit as % of MRC per connection of E-LAN EVC ***
RTD	20%
Frame Jitter	20%
DDR	20%

* Service Issues occur between the PE Ports of the Ethernet Switched E-LAN services Core Network. Consequently, two Customer connections for E-LAN EVC will be affected by each Service Issue. For Service Issue credit purposes, the MRC will be defined as the average of the MRCs for each of the two impacted Customer connections for E-LAN EVC.

7.1.3 **Credit Application Structure.** For any calendar month in which Verizon fails to meet any one of the Service Level Standards stated in this document, the credit structure listed above will be applied to the corresponding net billing MRC for the specific connection(s) for E-LAN EVC) affected by the Hard Outage(s) or Service Issue(s). The total of all credits within any one month is limited to a maximum of one hundred percent (100%) of the MRC for the specific connection of EVC affected. Credits for Hard Outages are determined based on Eligible Hard Outage Minutes. Customer may claim the MTTR Service Level Standard credit in addition to the E-LAN EVC Availability Service Level Standard credit in a given calendar month. Customer can request Verizon to check all of the standard Service Level Standard commitments when requesting credits in any given month.

All credits will be provided at the billing account number level in one lump sum, as opposed to each individual E-LAN EVC connection under multiple BANs. Credits do not apply to local access or backhaul charges. The appropriate amount will be credited to the Customer's account, appearing as a line item on a bill delivered within ninety (90) calendar days following Verizon's confirmation that the Service Level Standard has not been met.

7.1.4 **Process for Customer to Apply for SLA Credits.** Customer completes two steps in order to qualify for an SLA credit. First, Customer must open a Trouble Ticket in response to Service issues. This step brings the problem to the attention of Verizon customer service for intervention and repair. The second step is to request the credit in writing from the account team contact. The timing of the written request varies by Service Level Standard and is detailed below.

The Verizon account team receiving the SLA credit request will confirm receipt with Customer by either email or fax. Verizon will then investigate the outage through the Trouble Ticket history and notify Customer of the outcome of the investigation either by email or fax. The SLA credit is requested with a reason code that consists of the phrase "SLA Credit" plus the involved metric. For example, an SLA credit for MTTR has the reason code of "SLA Credit MTTR".

7.1.4.1 **Opening a Trouble Ticket.** A Trouble Ticket can be opened either through the Customer Service Centre or through the web-based tool Service Event Management. The number for the assigned Customer Service Centre is printed on Customer's invoice. Access to the Service Event Management tool can be requested at the first use. The tool and registration for new users is located at https://customercenter.verizonbusiness.com/.

7.1.4.2 **Submitting a Service Level Agreement Credit Request.** The request for a SLA credit is submitted in writing from Customer to the account team. The timing and content of the request varies by Service Level Standard. This communication can be through email or by fax. Customer may elect to receive verification on all of the Service Level Standards offered in conjunction with their or Service when requesting calculations for any single item.

7.1.4.3 **Trouble Ticket and Credit Request by Service Level Agreement.**

7.1.4.3.1 **E-LAN EVC Availability and Mean Time To Repair.** In order for the outage to qualify for an SLA credit Customer must do the following:

- Open a Trouble Ticket within seventy two (72) hours of the time the Hard Outage.
- Submit SLA credit request to their Verizon account team in writing within fifteen (15) days of opening the Trouble Ticket. The written request must contain the following information:

- The date the outage occurred.
- The time the outage began and ended.
- The circuit ID(s) for each connection that was impacted.

7.1.4.3.2 **E-LAN EVC Round Trip Delay, Frame Jitter and Data Delivery Ratio.** In order to qualify for an SLA credit Customer must do the following:

- Customer opens a Trouble Ticket within seventy two (72) hours of the time the Service Issue arose.
- Customer submits SLA credit request to the Account Team in writing within fifteen (15) days of the end of the repair period. The written request must contain the following information:
  - The date the Service Issue occurred.
  - The time the Service Issue began and ended.
  - The circuit ID(s) for each connection that was impacted.

8. **Service Level Agreement Credit Time Limitation.** After three (3) consecutive months where Verizon has not met the same Service Level Standard (e.g. the Service Level Standard for E-LAN EVC has not been met) for the same E-LAN EVC:

8.1 Customer may elect to discontinue Ethernet Switched E-LAN services for the particular E-LAN EVC without liability except for charges incurred prior to discontinuation of the E-LAN EVC. To cancel a connection for E-LAN EVC , Customer must submit a written disconnect notice to its Verizon account team within thirty (30) days following the end of either the third or subsequent consecutive month of Verizon's failure to meet the Service Level Standard ;or

8.2 Customer may elect to continue connection(s) for E-LAN EVC with the understanding that. Customer can only receive a maximum of six (6) months of credits for any individual Service Level Standard within a twelve (12) month period.

9. **Exclusions.**

9.1 **General Exclusions.** The following exclusions apply to all Service Level Standards contained in this document. Service Level Standard measurements do not include any periods the Service Level Standard was not met resulting in whole or in part from the following:

- Hard Outage minutes associated with failure of CPE not provided as part of the Ethernet Switched E-LAN services;
- CPE associated with Local Access for E-LAN EVC ;
- Service disruptions due to Customer traffic exceeding Customer-subscribed bandwidth or sending frames that do not otherwise comply with the applicable limitations on Customer's subscribed bandwidth;
- Any act or omission on the part of the Customer, its contractors or vendors, or any other entity over which the Customer exercises control or has the right to exercise control;
- Scheduled maintenance on the part of Customer, Customer contractors or Customer vendors;
- Scheduled maintenance on the part of Verizon which is within Verizon's maintenance windows;
- Emergency maintenance;
- Lapses of Ethernet Switched E-LAN services associated with new installations (i.e. before new service acceptances by Customer);
- Force Majeure Events as defined in Customer's Agreement on the Guide.

9.2 **E-LAN EVC Availability Service Level Standard Exclusions.** In addition to the General Exclusions, E-LAN EVC Availability Service Level Standard measurements do not include periods of E-LAN EVC Outage resulting in whole or in part from one or more of the following causes:

- For on-net circuits, any act or omission on the part of any third party including, but not limited to any local access provider other than any third-party over which Verizon exercises control;
- For off-net circuits, any act or omission on the part of any third party other than a local access provider over which Verizon exercises control;
- Periods of Service degradation where the Customer has not released its Service for immediate testing.

9.3 **Mean Time To Repair Exclusions.** MTTR applies only in those cases in which the Customer informs Verizon of an E-LAN EVC Outage (i.e., opens a Trouble Ticket) and subsequently allows necessary physical or logical access to its premises and facilities for testing. In addition to the General Exclusions, MTTR Service Level Standard measurements do not include the following:

- Any act or omission on the part of any third party, other than a Local Access provider over which Verizon exercises control;
- Periods of Service degradation where the Customer has not released its Service for immediate testing.

9.4 **Data Delivery Ratio Exclusions.** In addition to the General Exclusions, DDR Service Level Standard measurements do not include any of the following:

- Frames dropped at infrastructure egress due to improper Customer specifications of Customer connection speeds;
- E-LAN EVC Traffic marked Real Time Data by Customer that exceeds the subscribed Real Time Class of Service bandwidth;
- Frames dropped at infrastructure egress Port due to congestion caused by Customer's traffic exceeding subscription parameters.