EPL: Secure, Reliable, High-Speed Connectivity between two locations

OVERVIEW

Ethernet Private Line (EPL) service from IFN provides dedicated Ethernet connectivity between two business locations via high-speed, reliable, secure connection across the IFN network. Our EPL service is uniquely tailored for mission-critical applications where high-speed, low-latency circuits are needed.

EPL enables your organization to transmit mission-critical data instantly and privately at speeds up to 10 Gbps, powering critical connections for point-to-point communications, cloud based services like backup, and data center connectivity.

Key Highlights of EPL:

- **Private & Secure:** All data travels within the secure domain of a Layer 2 dedicated, high-capacity, point-to-point connection at native Ethernet speeds.

- **Geographic Accessibility:** Easily link business locations in geographically dispersed areas.

- **Cost Savings:** You can connect your business's Customer Premises Equipment (CPE) with a lower-cost, reliable Ethernet interface.

- **Standards-Based Connections:** All IFN services, including EPL, conform to MEF 2.0 Certifications.

Service Description

- IFN Ethernet Private Line (EPL) service is reliable, flexible and a higher bandwidth alternative to TDM private line (T1, DS3, SONET, etc.)

- The EPL service enables customers to connect their locations using a lower-cost Ethernet interface.

- The EPL service allows customers to use any VLANs or Ethernet control protocol across the service without coordination with IFN.

- The EPL service provides one Ethernet Virtual Connection (EVC) Between two customer locations.

- The service is offered with 10Mbps, 100Mbps, 1GBps, or 10Gbps Ethernet User-to-Network interfaces (UNI) and is available in speed increments from 10Mbps to 10Gpbs.

TECHNICAL SPECIFICATIONS

Ethernet User-to-Network Interface:

The service provides full-duplex transmission of Ethernet frames using a standard IEEE 802.3 Ethernet interface. The table below lists the available UNI physical interfaces, they're associated Committed Information Rate (CIR) bandwidth increments and the Committed Burst Sizes (CBS).

UNI Speed	UNI Physical Interface
10Mbps	10Base-T
100Mbps	100Base-T
1Gbps	1000Base-T 1000Base-SX 1000Base-LX 1000Base-SR 1000Base-LR
10Gbps	10GBase-SX 10GBase-SR 10GBase-LR

CIR Increments	CBS (bytes)
1Mbps	25,000
10Mbps	250,000
100Mbps	2,500,000
1000Mbps	25,000,000

Figure 1: Available UNI interface types and CBS values for different CIR increments

Traffic Management:

IFN's network traffic-policing policies restrict traffic flows to the subscribed CIR for each service. If the customer-transmitted bandwidth rate for any service exceeds the subscription rate (CIR) and burst size (CBS), IFN will discard the excess frames. For frames with Class of Service (CoS) markings, the service will transmit them without altering the customer's CoS markings.

Maximum Frame Size:

The service supports a Maximum Transmission Units (MTU) frame size of 9000 bytes to support untagged or 802.1Q tagged frame sizes. For On-Net services delivered via the IFN Last Mile Partner Network, frame sizes may not exceed 1518 MTU size (1522 with a single VLAN tag). All frames exceeding specifications shall be dropped.

VLAN Tag Preservation:

The service supports IEEE 802.1Q VLAN-tagged customer frames. All customer VLAN IDs and priority code points (IEEE 802.1p) for CoS are transmitted and received unaltered by the service. Frames received without an IEEE 802.1Q VLAN tag will be delivered without an IEEE 802.1Q VLAN tag. Customers may configure their own VLANs on their customer-owned Customer Premises Equipment (CPE) without coordination with IFN. IFN may reserver one VLAN for networking management purposes.

Ethernet Service Frame Disposition:

The service delivers all service frames associated with the EVC unconditionally across the network.

Layer 2 Control Protocol (L2CP) Processing:

Certain L2CP frames are discarded at the UNI, tunneled across the IFN network, or peered at (processed by) the UNI. Reference the table below for EPL UNI behavior for specific L2CP. For L2CPs with multiple behavior possibilities, the customer must specify to IFN which behavior should be taken. The default behavior is to discard these L2CP service frames.

Destination MAC Address	Layer 2 Control Protocol	Options	L2CP Frame Behavior
01-80-C2-00-00-00	STP, RSTP, MSTP	Option #1 Option #2	Peer or Discard (all UNIs) Tunnel (all UNIs)
01-80-C2-00-00-01	PAUSE	Option #1 Option #2	Discard (all UNIs) Discard (all UNIs)
01-80-C2-00-00-02	LACP, LAMP	Option #1 Option #2	Peer or Discard (disposition specified per UNI) Tunnel (all UNIs)
01-80-C2-00-00-02	Link OAM	Option #1 Option #2	Peer or Discard (disposition specified per UNI) Tunnel (all UNIs)
01-80-C2-00-00-03	Port Authentication	Option #1 Option #2	Peer or Discard (disposition specified per UNI) Tunnel (all UNIs)
01-80-C2-00-00-07	E-LMI	Option #1 Option #2	Peer or Discard (disposition specified per UNI) Tunnel (all UNIs)
01-80-C2-00-00-0E	LLDP	Option #1 Option #2	Discuss or Tunnel (all UNIs) Tunnel (all UNIs)
01-80-C2-00-00-20 through 01-80-C2-00-00-2F	GARP, MRP Block	Option #1 Option #2	Tunnel (all UNIs) Tunnel (all UNIs)

Figure 5: L2CP Frame Behaviors