

Access to IP Services

Many of today's enterprise applications are transported using IP. This can be any Internet application but especially relevant are applications and content consumption from application content providers (e.g. VoIP gateway, video content, etc.). Subscribers to a [CEN](#) Service Provider can take advantage of the benefits of Carrier Ethernet services when consuming IP services.

When connecting to the Internet, the CEN can provide the connectivity required to the ISP's Point of Presence (POP) facilitating any required bandwidth with the granularity, manageability, and service performance supported by Carrier Ethernet. Likewise, when a subscriber wants to connect to an application such as a VoIP gateway, this too can be delivered over Carrier Ethernet. One of the benefits to the Subscribers is that the same CEN Service Provider that provides services for corporate interconnectivity can also provide the Internet connectivity.

There are two Ethernet services that are appropriate for this application:

1. [EVPL](#) – between each customer and the content provider or ISP.
2. [EVP-Tree](#) – where the content provider/ISP is designated as a root and each subscriber is designated as a leaf ensuring that each subscriber's traffic cannot be seen by other subscribers.

The EVPL is simpler from an implementation point of view, but has scalability issues, requiring many EVPLs. Also, the bandwidth is not shared between subscribers, which may be a problem for large deployments in view of the fact that Internet access is often bursty and used at different times of the day by different subscribers.

In the following example an ISP named Turbo 2000 Internet Access Inc. is connected to three enterprises for Internet Access. Each customer connects to the ISP's POP using EVPL with CE-VLAN ID of 2000. This enables the customer to use the same UNI port for other services (e.g. Disaster Recovery, L2VPN, etc.) using different CE-VLAN ID(s). See diagram at right.

In this example, assume that Customer 1 has purchased a 300 Mbps downlink service and 100 Mbps uplink service for connecting to the ISP over an unprotected UNI that will be used for another service too. The service has a single CoS, with the following performance objectives measured over a 1 hour period:

- Frame loss ratio = 0.1%
- One-Way Mean Frame Delay = 30 msec

The appropriate Service Attributes for Customer 1 are:

UNI Attributes

Uni Service Attribute	Recommended Value
Speed	1 Gbps
Service Multiplexing	Yes
Bundling	No (only VLAN 2000 is mapped to the EVPL). COuld be Yes if other services require bundling
All to One Bundling	No
CE-VLAN ID for untagged and Priority Tagged frames	Any value that fits other services. Untagged frames must not be sent to the ISP POP
Maximum Number of EVC	>=1 depends on customer's need
Ingress BWP per UNI	No (Ingress BWP will be specified per EVC)
Egress BWP per UNI	No
L2CP Processing	Discard all L2CPs

UNI per EVC Attributes

Status

DRAFT

Reference(s) and Source(s)

EVC per Uni Service Attribute	Recommended Value
CE-VLAN ID / EVC Map	Point to Point
Ingress Bandwidth Profile per EVC	<p>CIR=100 Mbps, CBS=50,0000 bytes</p> <p>EIR=0, EBS=)</p> <p>CF=0, CM=0</p> <p>Note: The ingress BWP per EVC at customer 1 affects the uplink BW.</p> <p>The downlink BW is enforced by a similar ingress BWP per EVC on ISP POP</p>
Ingress Bandwidth Profile per CoS ID	Not specified
Egress Bandwidth Profile per EVC	Not specified
Egress Profile per CoS ID	Not specified

EVC Attributes

EVC Service Attribute	Recommended Value
EVC Type	Point to Point
UNI List	<p>Customer 1 UNI Root</p> <p>ISP POP Root</p>
EVC MTU Size	1522
CE VLAN ID Preservation	NO, VLAN is translated towards the ISP POP and has no significance
CE VLAN CoS Preservation	No
Unicast Service frame Delivery	Deliver unconditionally
Multicast Service frame Delivery	Deliver unconditionally
Broadcast Service frame Delivery	Deliver unconditionally
L2CP Processing	Discard all L2CPs
EVC Performance	<p>Frame Loss ratio 0.1%</p> <p>One-Way Mean Frame Delay 30 msec</p>

Example(s)

Turbo 2000 CEN - Internet Access

? Unknown Attachment

