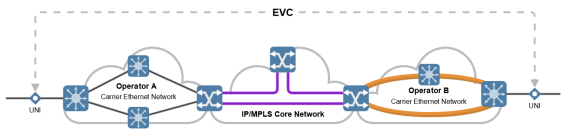
Layer 3 VPN (L3VPN)

Carrier Ethernet Services and Layer 3 VPNs

Many core networks are built over IP/MPLS both nationally and internationally.

IP/MPLS or L3VPN is a technology where the traffic is carried over pseudowires (PW) over MPLS Label Switch Paths (LSPs) tunnels. The forwarding is L3-based. The infrastructure comprises routers that are MPLS-capable. Such a network can provide connectivity service to subscribers, in a similar manner to the way CEN provides Ethernet services.

These L3 services are non-standard, and there is currently no standards development organization that is attempting to create standards for such services. In contrast to L3VPN, Ethernet services are built on the concept of Ethernet based forwarding, hence can be referred to as L2VPN. When we consider L3VPN Vs. L2VPN the following comparison can be made.



Feature	Carrier Ethernet	L3VPN
Customer Handoff	Ethernet UNI	Ethernet port (or PDH circuit)
Service Identification	VLAN ID / EVC	IP Address
Service Rate	Granular, up to 10Gbps	Granular, up to 10Gbps
Service Level Specification	Defined the service performance objectives, controlled by Bandwidth Profile	Proprietary
Class of Service Identification	PCP, DSCP, Per EVC	DSCP/ToS
Packet Forwarding	By MAC Address and/or VLAN ID	IP Address
Fault Management	Link Trace, Continuity Check Loopback	Traceroute, ICMP Ping
Performance Management	Frame Delay, Frame Delay Variation, Frame Loss Ratio, Service Availability	Packet Delay, Packet Delay Variation Packet Loss

In some cases a global solution may result in a combination of L2VPN and L3VPN services. The main reason is that for long haul, forwarding based on Ethernet addresses sometimes does not scale sufficiently, whereas L3VPNs are available throughout the globe on international links.

Status

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Example(s)

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