Term	Description
VRF	(Virtual Routing and Forwarding)
MP-BGP	(Multi-protocol BGP)
VPNv4	96-bit address comprising 64-bit RD and 32-bit IP address
RD	(Route Distinguisher) It is 64-bit value that allows overlapping address space between different customers in MP-BGP.
RT	(Route Target) It is 64-bit bgp community used to transfer routes between VRF's/VPNS
LDP	(Label Distribution Protocol) RFC 3036
TDP	(Tag distribution Protocol) Cisco Proprietary
LSP	(Label Switched Path) It is a path through an MPLS network, set up by a signalling protocol such as LDP.
FEC	(Forwarding Equivalence Class) Group of packets forwarded o same path with the same path attributes
LSR	(Label Switching Router) The LSR determines what label operation needs to be performed - swap, push, or pop

Troubleshoot & Verify

- show mpls [interfaces/ldp neighbors]
- debug mpls
- show ip vrf interfaces
- show ip route vrf <name> < IP>
- show ip bgp vpnv4 rd <value>
- show ip bgp vpnv4 vrf <name> <summary>
- Ping/Traceroute vrf <name> <IP>
- show ip bgp vpnv4 vrf <name> neigh <IP> [policy/route/advertised-routes]

Configuration

Global Configuration

- ip cef <distributed>
- mpls ip
- mpls label protocol ldp|tdp
- mpls ldp router-id loopback 0

Interface configuration

- mpls ip
- mpls mtu <size>

MPLS Protocol Header

Link Layer Header	MPLS Label	Layer 3 Header	Layer 3 Payload

Label	20 bits
EXP	3 bits
Bottom of Stack	1 bit
Time to Live	8 bits

0 ... 19 22 23 ... 31

Label	Exp	S	TTL

MPLS Router Roles

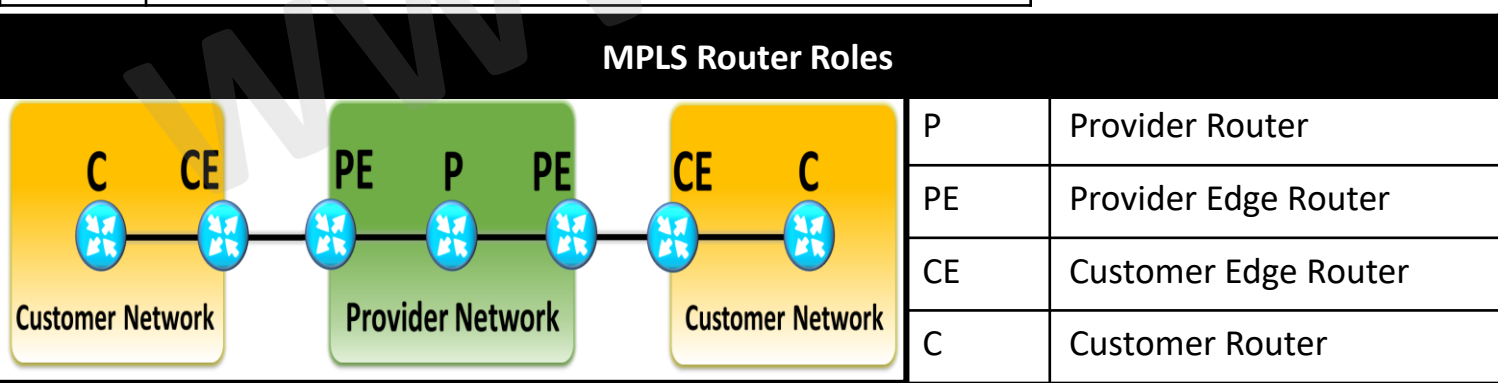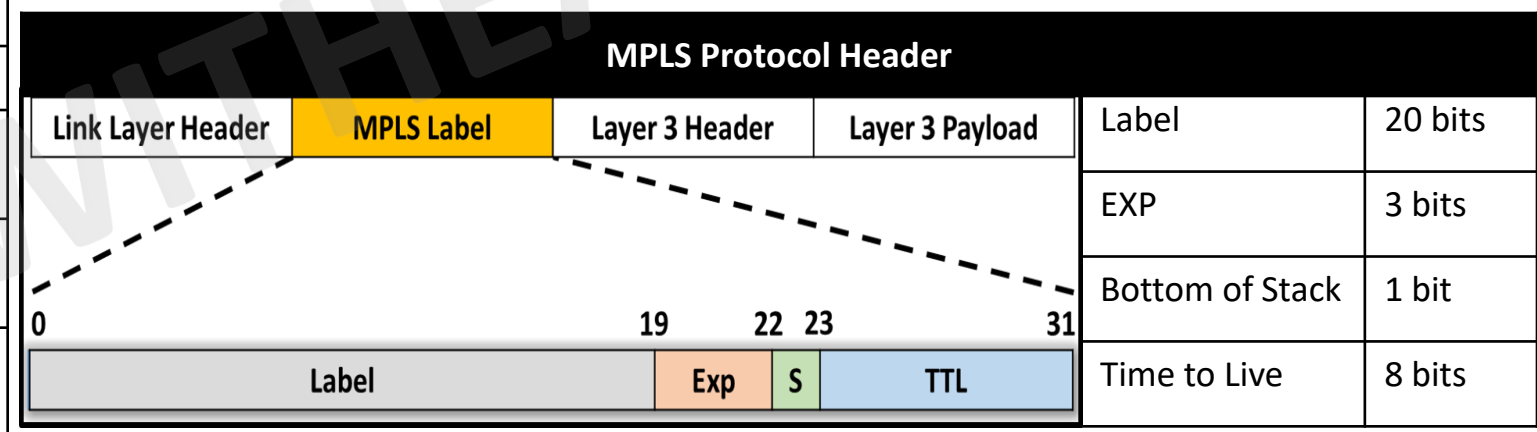|	
P	Provider Router
PE	Provider Edge Router
CE	Customer Edge Router
C	Customer Router

Table	Description
LIB	(Label Information Base) Includes labels learned by LSR through LDP
FIB	(Forwarding Information Base) Contains values in Routing database for unlabelled packets
LFIB	(Label FIB)Table is filled with best routes label values