

## CCIE Enterprise Infrastructure v1.0 Bootcamp Labs - MPLS

1. OSPF
  - 1.1. Configure OSPF Area 0 between R1, R2, R3, R4, and R5 on their interfaces in the 10.0.0.0/8 network.
  - 1.2. Advertise their Loopback0 networks into OSPF.
2. LDP
  - 2.1. Configure LDP between R1, R2, R3, R4, and R5.
  - 2.2. Authenticate the LDP adjacencies with the password CISCOLDP.
3. LDP Filtering
  - 3.1. Configure LDP to only generate labels for the four PE devices, R2, R3, R4, and R5's Loopback0 networks.
4. IGP Optimization
  - 4.1. Configure OSPF to not advertise the links in the 10.0.0.0/8 network into the OSPF database.
  - 4.2. Only the Loopback0 networks should appear in their LSA 1 advertisements.
5. BGP
  - 5.1. Configure BGP AS 12345 between R1, R2, R3, R4, and R5.
  - 5.2. Use R1 as the central point of peering.
  - 5.3. Activate the VPNv4 and VPNv6 address families under BGP.
6. PE-CE Routing
  - 6.1. Configure OSPF Area 0 between R7, R8, R9, and SW6.
  - 6.2. Configure OSPF Area 0 between R10, R11, R12, and SW1.
  - 6.3. Advertise their Loopback0 interfaces into OSPF Area 0.
  - 6.4. Configure VRF "Customer1" on R2, R3, and R5.
  - 6.5. Enable OSPF Area 0 in the VRF, and redistribute into BGP where necessary.
  - 6.6. Once complete you should have IP reachability between all devices in the VRF, including SW6.

8. MPLS Load Balancing
  - 8.1. Modify the network as necessary so that R10 can load balance traffic to the remote OSPF site via both R7 and R8's exit points.
  
9. PE-CE Routing
  - 9.1. Configure BGP AS 613 on R6 and R13 and advertise their Loopback0 networks into BGP.
  - 9.2. R6 should peer with R2 and R13 should peer with R4 in VRF "Customer2".
  - 9.3. Once complete you should have IP reachability between R6 and R13.
  
10. IPv6 PE-CE Routing
  - 10.1. Configure IPv6 BGP peerings from R6 to R2 and from R13 to R4.
  - 10.2. Advertise the IPv6 Loopback0 networks of R6 and R13 into BGP.
  - 10.3. Once complete you should have IPv6 reachability between these routers.