

CCIE SP Troubleshooting Lab #1



Author

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About the author



Mohammad Khalil is a 13 years' experience in service provider networks, Cisco courses trainer and holds two CCIE in routing & switching and Service Provider.

Lab goal

The goal of this lab document for sure it to troubleshoot and find the errors injected, but the main focus of this lab is that error places are not highlighted, the main focus is the understanding of technologies and implementations within the CCIE service provider track.

Usually troubleshooting tickets are highlighted or marked, but I wanted to change the method.

You are given the main technologies implemented and the connectivity required and you are required to fix it ;)

As well, after solving the faults the lab itself will give you a good example on the various routing protocols used and demonstrates the MPLS VPN connections in place.

Lab highlights

Diagram 2 shows the routing protocols used within the network and between Ps, PEs and CEs in addition to the Cs as well, below are the highlights that will guide you through this practice lab:

- AToM has been configured in order to achieve connectivity between R12 and R13 via both IPv4 and IPv6.



- MPLS L3VPNs have been configured to achieve connectivity between CEs located in AS 100 (R8, R9) and CEs located in AS 200 (R10, R11) via both IPv4 and IPv6, the routing protocols configured as denoted in Diagram #2.
- Carrier supporting Carrier has been implemented in order to achieve connectivity between Cs located in AS 300 (R14, R15, R16 and R17) via IPv4.
- Only R15 and R16 needs to communicate via IPv6 as well.
- MPLS TE has been configured in AS 100 in order to force communication between R1 and R18 loopback 2 networks via the explicit path called INTER_AREA.
- R1 is the RR for IPv4, VPNv4.
- R2 is the RR for IPv4, IPv6, and VPNv6.
- R3 is the RR for IPv4, IPv6, VPNv4, and VPNv6.
- Loopback 1 networks on R4, R5, R6 and R7 is treated as CEs and should be included in testing communications.

Network Diagrams

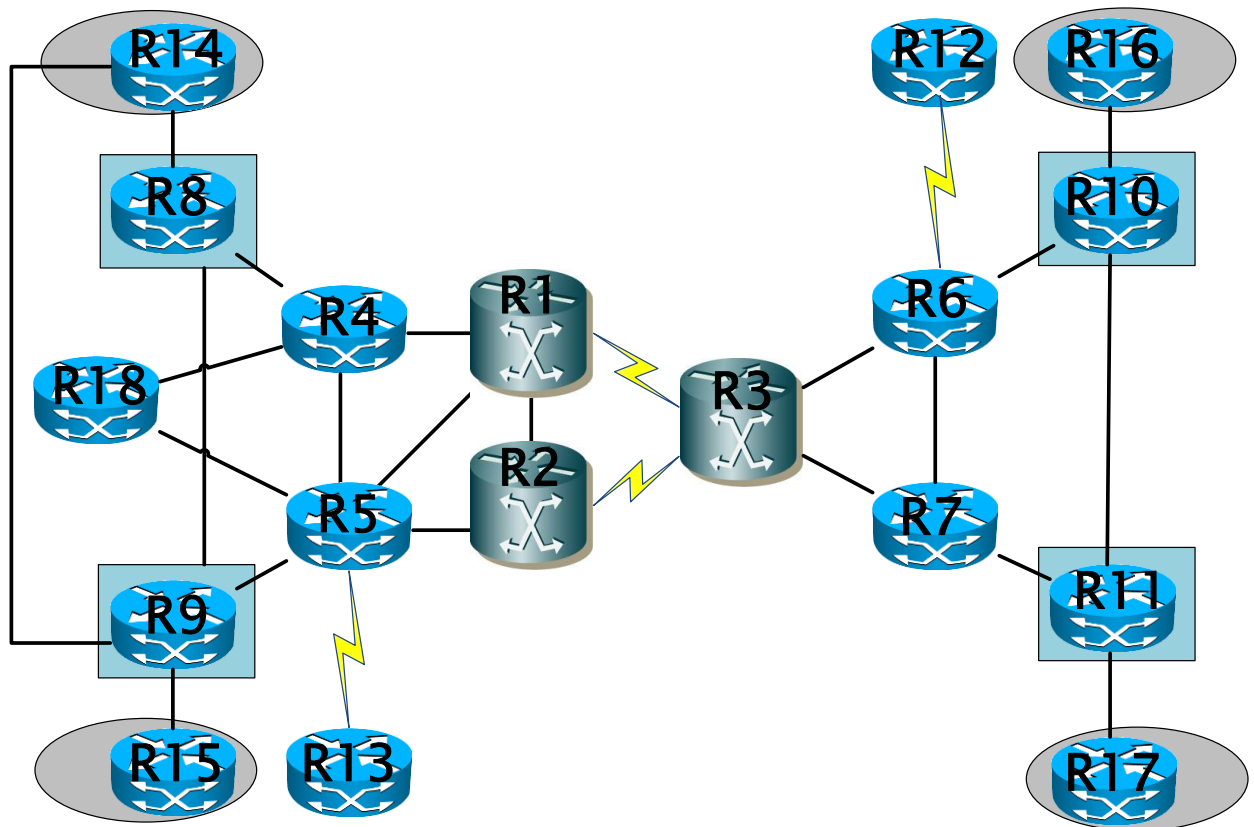


Diagram 1

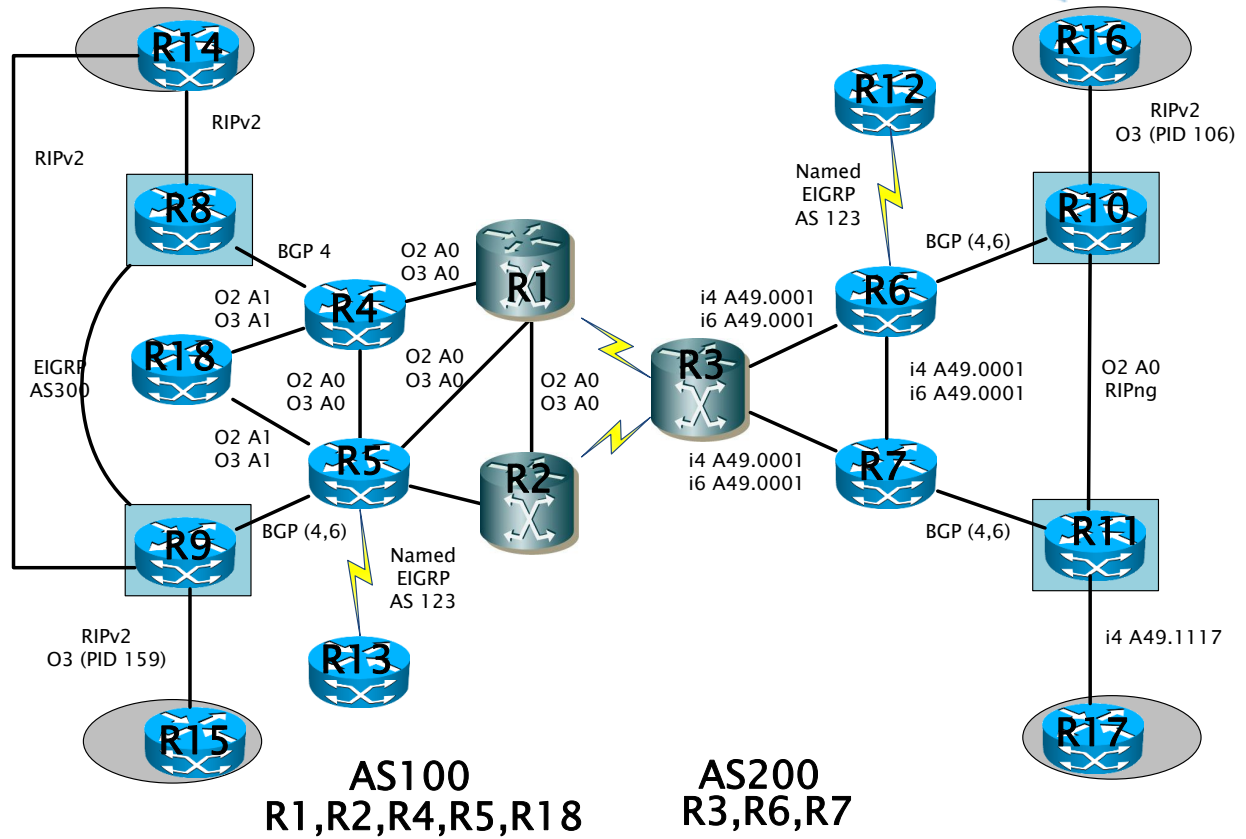


Diagram 2