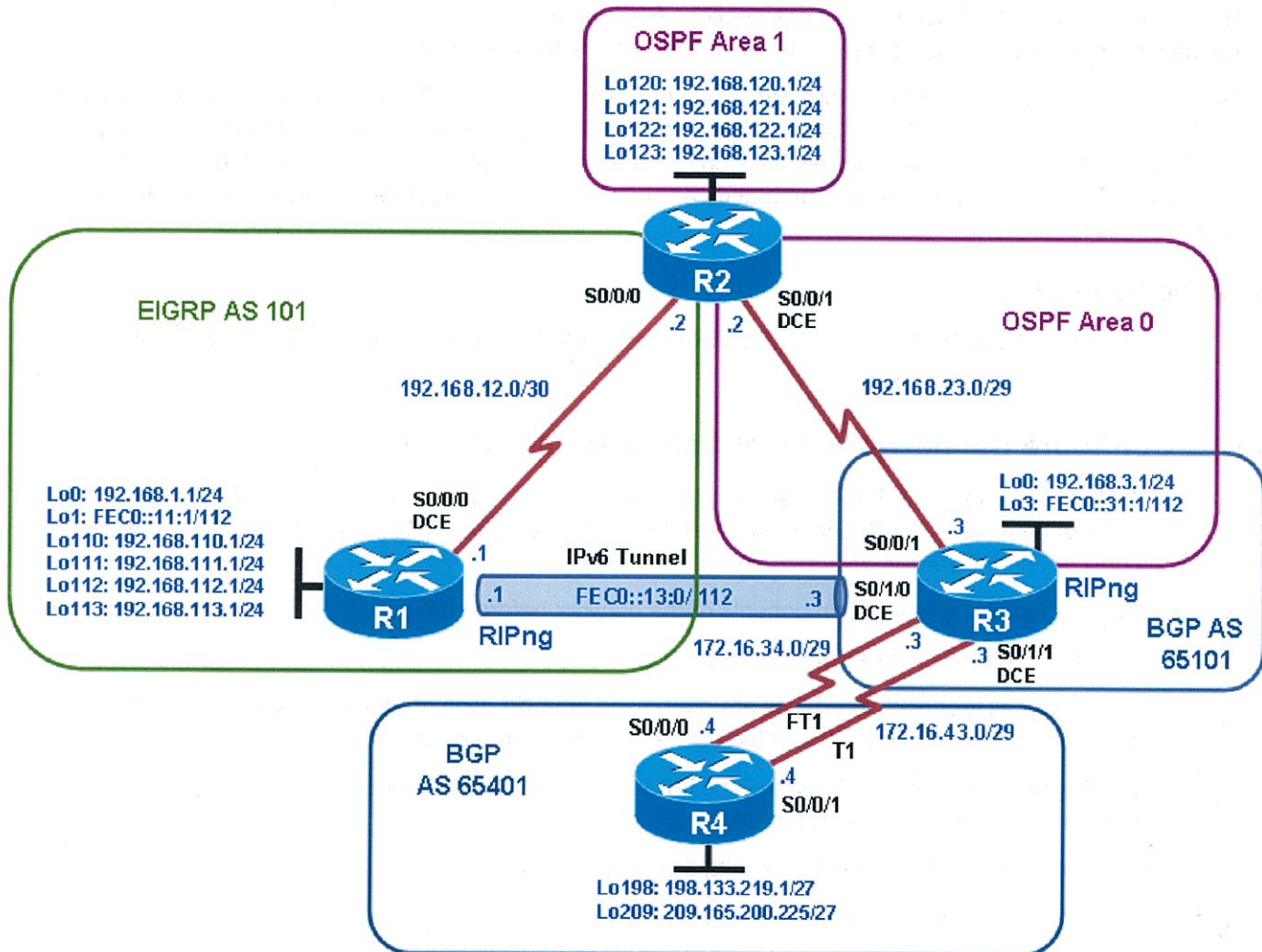


Skills-Based Assessment

Topology



Note: The public network addresses 198.133.219.0/27 and 209.165.200.224/27 are assigned to Cisco Systems, Inc.

Objectives

Part 1: Configure the routers in the topology according to the diagram and the specifications provided.

Part 2: Test the network for appropriate connectivity and path control.

Exam Overview

This skills-based assessment (SBA) is the final practical exam of Academy training for the course CCNPv6 ROUTE. In Part 1, you configure static routes and multiple routing protocols, including EIGRP, OSPF and BGP to create an integrated network. You also configure an IPv6 tunnel between R1 and R3 to use the RIPng protocol. In Part 2, you create a Tcl script to test IPv4 and IPv6 connectivity and use **tracert** and **show** commands to verify routing and path selection. This exam combines device configuration and troubleshooting.

Note: The T1 and FT1 (Fractional T1) designations for the links between R3 and R4 are simply labels. It is not necessary to change the bandwidth or clockrate on the interfaces to reflect a speed difference.

Note: This lab uses Cisco 1841 routers with Cisco IOS Release 12.4(24)T1 and the Advanced IP Services image c1841-advipservicesk9-mz.124-24.T1.bin. You can use other routers (such as a 2801, 2811 or 2911), and Cisco IOS Software versions if they have comparable capabilities and features. Depending on the router and Cisco IOS Software version, the commands available and output produced might vary from what is shown in this lab.

Required Resources

- 4 routers (Cisco 1841 with Cisco IOS Release 12.4(24)T1 Advanced IP Services or comparable)
- Serial and console cables

Part 1: Configure the network according to specifications.

- ✓ 1. Configure interfaces with the IP addresses shown in the diagram. Set the bandwidth to 128 kbps on the links between R1, R2, and R3 and set the clock rate on the DCE connections as appropriate. Add a description for each WAN interface.

Note: Configure and test the IPv4 components of the network before configuring the IPv6 components.

- ✓ 2. Configure the OSPF router identifier 2.2.2.2 on R2 and 3.3.3.3 on R3.
- ✓ 3. Ensure that all loopback interfaces are advertised in OSPF with the correct masks. Place the loopback interface Lo0 on R3 and the connection between R2 and R3 in OSPF area 0.
- ✓ 4. On R2, place the loopback interfaces Lo120 through Lo123 on R2 in OSPF area 1 and the connection between R2 and R3 in OSPF area 0.
- ✓ 5. Summarize area 1 to the backbone with the most efficient mask.
- ✓ 6. Propagate a default route from R3 into the OSPF domain.
- ✓ 7. Configure R1 to be in EIGRP AS 101, add the entire class C network, and disable automatic summarization.
- ✓ 8. Configure R2 to be in EIGRP AS 101, add only the link between R1 and R2 and disable automatic summarization.
- ✓ 9. Configure passive and non-passive interfaces for EIGRP and OSPF as appropriate.
- ✓ 10. Configure a static default route from R1 to R2 and avoid a recursive lookup.
- ✓ 11. Redistribute EIGRP into OSPF with a metric of 1000.
- ✓ 12. On R2, filter R1 network 192.168.113.0 from being advertised to R3.
- ✓ 13. Enable BGP on both WAN links between R3 and R4. R3 is in BGP AS 65101 and R4 is in BGP AS 65401.

- ✓ 14. Advertise R4's loopback interfaces into BGP.
15. Modify the local preference on R3 so that AS 65101 prefers the T1 link to AS 65401 networks.
16. Traffic exiting from R3 and returning to R3 should prefer the T1 link. Add a static route on R4 to 192.168.0.0/16 pointing to the T1 link to R3 and add a floating static route as a backup using the FT1 link.
17. Configure the IPv6 loopback and tunnel interfaces on R1 and R3.
18. Enable RIPng on R1 and R3 and configure the advertisement of the loopback and tunnel networks.

Note: If the BGP output results are not as expected, be sure to issue the **clear ip bgp *** on routers R3 and R4.

Part 2: Test network connectivity and path control.

- a. Create a Tcl script and test connectivity from each router to the addresses shown in the diagram.

Note: One or more addresses will not be reachable from all routers after final configuration due to the use of distribute lists to filter routes and the use of IPv4 and IPv6 addressing in the same network.

- b. Verify that filtered routes are not present in routing tables of the correct routers.
- c. Verify that traffic from AS 65101 to AS 65401 uses the preferred T1 route.
- d. Verify that R4 has a backup route to the AS 65101 networks if the T1 link fails.
- e. Verify that R1 and R3 have learned of their respective IPv6 networks via RIPng.
- f. Verify that R1 can ping the R3 Lo3 interface via the IPv6 tunnel. R1 and R3 should also be able to ping the tunnel endpoints.

Exam Notes:

wrong tunnel source and no tunnel destination
area range not summary address
static route should be to 192.168 not 0.0.0.0

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