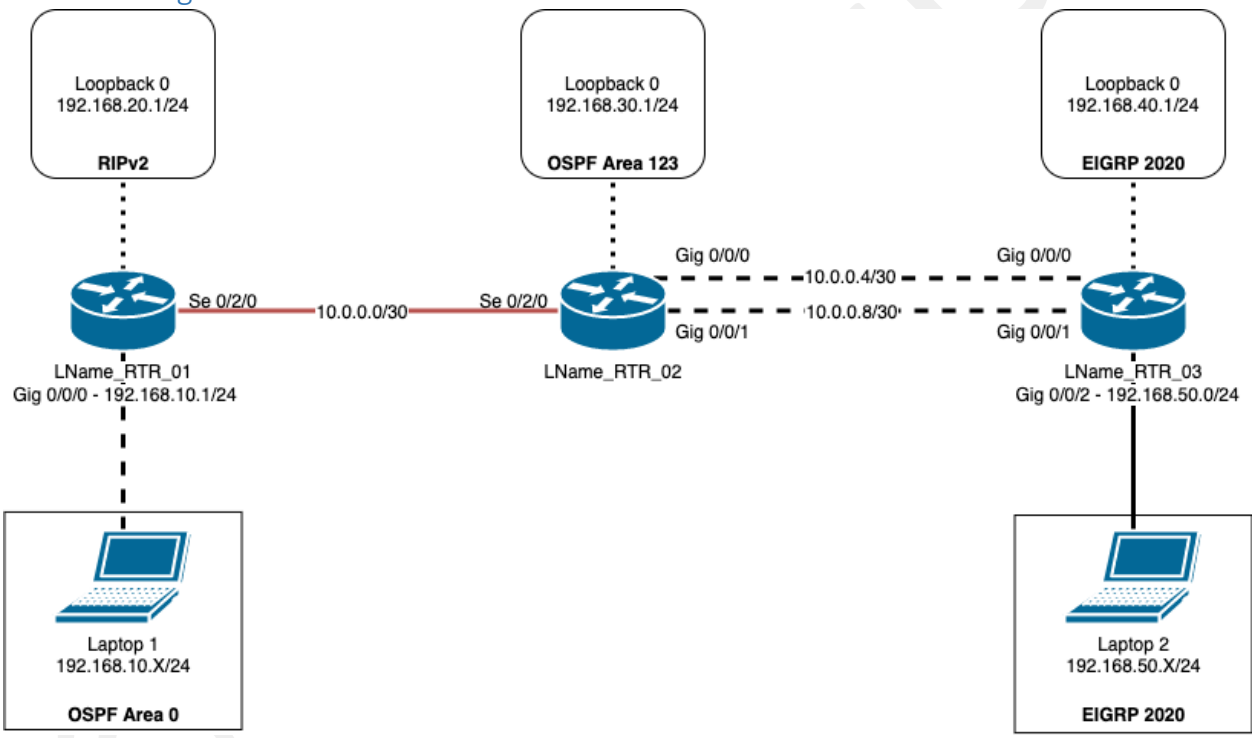
CSC387 Lab 04 – Advanced Routing

Instructions

So many protocols, so little time. Your network is set up to run all sorts of dynamic routing protocols including RIPv2, OSPF, and EIGRP. You'll need to make all of them talk – we can't agree upon a standard.

The following should be completed on Packet Tracer. Please take a screen shot of each of the Verification Steps (below) and submit in a labeled single word document using the screenshot guide in the class content on D2L. Make sure your device names are visible in the screen shot! Don't forget to save your Packet Tracer file.

Network Diagram



Configuration Tasks

Cable the network as shown in the above network diagram using 4331 Routers in Packet Tracer. To enable Se 0/2/0 on the 'Physical' tab of each router, you will need to drag the NIM-2t module to the far-right open slot. To enable Gig 0/0/2 on the 'Physical' tab of each router, you will need to drag the GLC-TE module over to the port labeled GE 002. Everything else that is over Ethernet is for you to do.

1. Configure each router with a hostname. In the diagram, replace the **LName** portion with your actual last name.

2. Set the. IP addresses on each router with the following guidelines:
    a. The gig/0/0/0 interface on RTR_01 has the IP address shown.
        i. Configure the laptop to be on the appropriate subnet. You can do this through DHCP or static configuration.
    b. The gig 0/0/2 interface on RTR_03 has the IP address shown.
        i. Configure the laptop to be on the appropriate subnet. You can do this through DHCP or static configuration.
    c. All Loopback adapter IP addresses are listed in the network diagram.
    d. RTR_01 should take the low IP address on the 10.0.0.0/30 network.
    e. RTR_02 should take the low IP addresses on both the 10.0.0.4/30 and 10.0.0.8/30 networks.

Routing

Your three routers (RTR_01, RTR_02, and RTR_03) are going to need some routing and redistribution configured.

RTR_01

1. Configure OSPF on the router:
    a. Network: **192.168.10.0/24** and **10.0.0.0/30**
    b. Both Networks in Area: **0**

   Configure RIP on the router:
    c. No auto-summary
    d. Version: **2**
    e. Network: **192.168.20.0/24** and **10.0.0.0/30**

RTR_02

1. Configure RIP on the router:
    a. No auto-summary
    b. Version: **2**
    c. Network: **10.0.0.0/30**
2. Configure OSPF on the router:
    a. Network: **10.0.0.0/30** in **Area 0**
    b. Network: **192.168.30.0/24** in **Area 123**

Verification Step 1
Verification Step 2

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3. Configure EIGRP on the router:
    a. No auto-summary
    b. Autonomous System: **2020**
    c. Networks: **10.0.0.4/30** and **10.0.0.8/30**

RTR_03

1. Configure EIGRP on the router:
    a. No auto-summary
    b. Autonomous System: **2020**
    c. Networks: **10.0.0.4/30**, **10.0.0.8/30, 192.168.40.0/24**, and **192.168.50.0/24**

Verification Step 3

Redistribution

Now that all of the protocols are working independently of each other, you need to make them work together using redistribution. It looks like RTR_02 is the only one that knows all of the protocols, it'll have to do the heavy lifting.

1. Have RTR_02 redistribute from RIP→EIGRP and EIGRP→RIP.

2. Configure RTR_02 to redistribute from OSPF→EIGRP and EIGRP→OSPF.

Verification Step 4
Verification Step 5

Verification Steps

1. RTR_02 should be able to see the 192.168.10.0/24 and 192.168.20.0/24 networks when doing a **show ip route**. One route comes from RIP, the other from OSPF.
2. Do a **show ip route** on RTR_01 and confirm it learned about the 192.168.30.0/24 network through an inter-area (IA) OSPF route.
3. Doing a **show ip route** on RTR_02 should show two paths (load-balanced) to get to the 192.168.40.0/24 and 192.168.50.0/24 networks.
4. RTR_03 should be able to see the 192.168.10.0/24 and. 192.168.20.0/24 networks coming into EIGRP via an external protocol. Run a **show ip route** to test this.
5. Show successful pings between Laptop 1 and Laptop 2.

What to Turn In

Go through each of the verification steps and take a screenshot. Please try to show each step in a single, clear screenshot to cut down the number of images. Also, paste all screenshots into a single Word/PDF document. Do not upload them to D2L as individual images – I won't grade them.