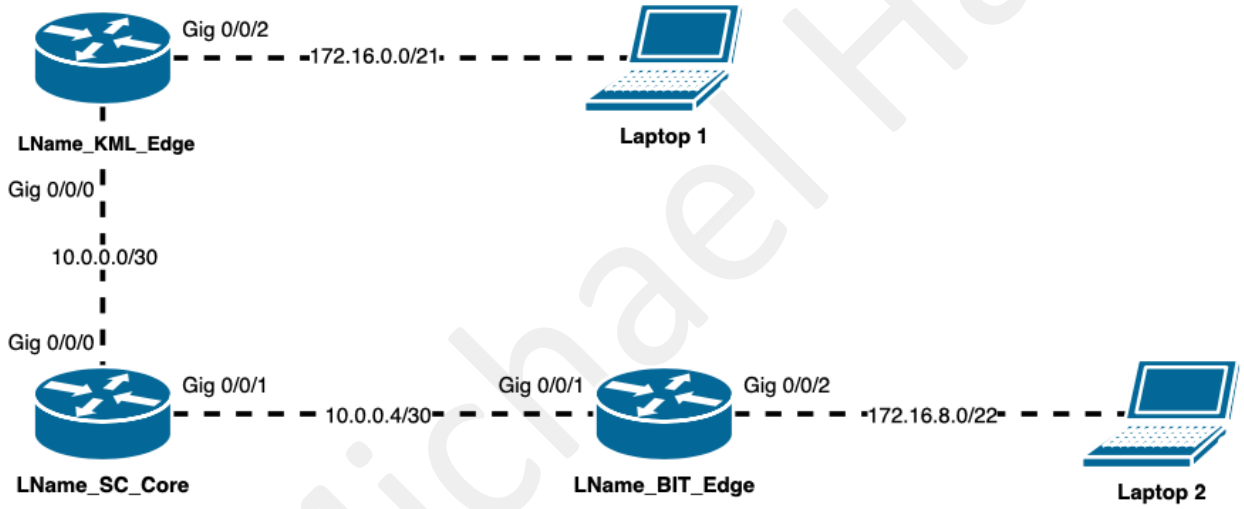
CSC387 Lab 02 – IP Routing

Instructions

You have successfully configured the basics on the lab routers, now it's time to link up the different buildings.

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



Note: all routers in the above diagram are Cisco 4331 routers.

Configuration Tasks

All configuration tasks should be performed from an admin workstation connected to the devices initially by a console cable.

1. Set a hostname on all routers to match the diagram above. Replace **LName** with your actual last name.

2. Assign an IP address to each interface of the routers on the diagram.

    - KML_Edge gig 0/0/0 should take the low IP address in the 10.0.0.0/30 network.
    - SC_Core gig 0/0/1 should take the low IP address in the 10.0.0.4/30 network.

3. Configure the following passwords on all routers.
    - Enable secret = **cisco**
    - Console password = **console**
    - Aux (if avail) = **aux**
    - VTY = **Password1!**

4. Make sure the passwords are encrypted and enforced to thwart the competitors.

5. From SC_Core, ping the neighboring routers (KML_Edge and BIT_Edge) to show you have basic network connectivity.

Verification Step 1

6. The user on Laptop 1 can't configure an IP address. Get their laptop back online by setting up a DHCP server on KML_Edge.

7. The BIT_Edge router should also have DHCP so that the user on Laptop 2 does not need a statically configured address.

8. Configure SSH on the BIT_Edge router with the username **FirstName**, password of **Password1!,** and domain name of **dsu.local** (Replace FirstName with your actual first name).

Verification Step 2

Routing

Now that the mess above is sorted, out, it's time to work on restoring communications. We're going to want Laptop 1 and Laptop 2 to be able to communicate from their respective locations.

KML_Edge

1. Configure a default static route (gateway of last resort) to point all traffic towards SC_Core's **10.0.0.2** interface.

2. Add a route for RIP to advertise the **172.16.0.0/21** network and the **10.0.0.0/30** network. This is to tell the other routers what networks we have directly connected.
    a. RIP Version should be **2** and Auto Summary disabled.

Verification Step 3

BIT_Edge

1. Configure this router for RIP using the following guidelines:
    a. Advertise all of BIT_Edge's networks (**10.0.0.4/30** and **172.16.8.0/22**).
    b. Version: **2**
    c. Auto Summary: **no**

Verification Step 4

SC_Core

1. Configure a static route to get to the BIT_Edge internal network
    a. The destination network will be **172.16.8.0/22**
    b. The next hop for the traffic will be **10.0.0.6** (BIT_Edge gig 0/0/1 Interface)
    c. Set the Administrative Distance for the route to **100**

2. Configure this router for RIP using the following guidelines:
    a. Advertise all of SC_Core's networks
        i. **10.0.0.0/30**
        ii. **10.0.0.4/30**
    b. Version: **2**
    c. Auto Summary: **no**

Verification Step 5
Verification Step 6

Verification Steps

1. SC_Core should be able to ping both the KML_Edge and BIT_Edge routers on its directly connected networks.

2. You should be able to SSH into the BIT_Edge router from Laptop 2.

3. From the KML_Edge router, doing a **show ip route** will display a default route (with an asterisk * by it) pointing towards 10.0.02.

4. On the BIT_Edge router, doing a **show ip protocols** will display some information about RIP. Look for the line that says, "Routing for Networks:" and you will see the two networks that you have advertised as well as the administrative distance below it.

5. On SC_Core, doing a **show ip route** will show the path to get to both laptop networks. Laptop 2's network will come from a static route and Laptop 1's network will come from a RIP route.

6. Laptop 1 should be able to ping Laptop 2 and vice versa. If you are using your laptops to test, you may have to temporarily disable the firewall or make a rule to allow the ICMP traffic.

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.