IFT 266 Introduction to Network Information Communication Technology (ICT)

Lab 37

Connecting multiple IPv6 networks

Co-authored by Jason Miller

Notes on the lab

The primary routing prefix for this organization is 2001:abcd:aaaa::/64

The organization has multiple sites, each of which are setup as a subnet.

The challenge of this lab is to get the connections online for all sites and all sites communicating with each other.

Tip: You may want consider using the 2811 router as opposed to the ISR 4321 routers.

1. Setup the following topology within Packet Tracer
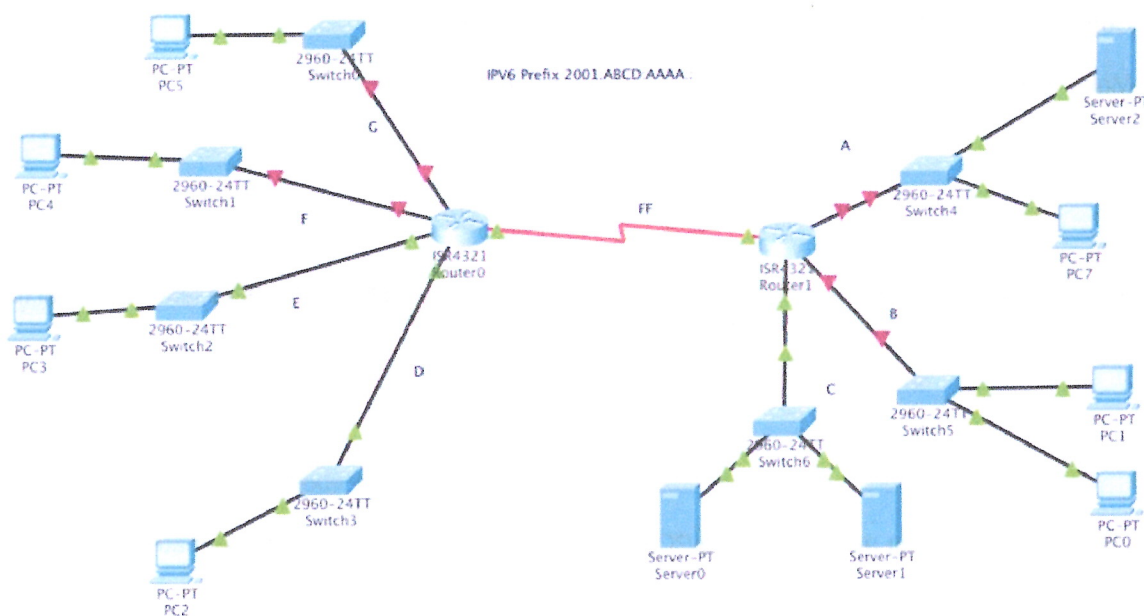
Note: You may need to add additional modules to the routers and switches to connect the devices.

Completed ☒

2. We will first configure Router 0 with the following commands.

   We will start by enabling unicast routing for IPv6 and then configure the serial port on the router with an IPv6 address.

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ipv6 unicast-routing
Router(config)#interface s 0/1/0
Router(config-if)#ipv6 enable
Router(config-if)#ipv6 address 2001:abcd:aaaa:ff::1/64
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/1/0, changed state to down
Router(config-if)#
```

   We have now configured on side of the serial link between the routers

   Completed ☒

3. Configure Router 1 to get the link up between the two routers.

   Make sure you can ping between the two routers, troubleshoot if necessary.

   Completed ☒

4. Now configure each of the subnets attached to both routers using the subnets as labeled on the topology (similarly in how you configured the serial ports on the routers).

   Completed ☒

5. Using the auto-config method, get the PCs and servers connected to their appropriate networks.

   Completed ☒

6. Given what we have configured so far, you should now be able to ping the networks on their respective routers. For example, based on our original topology, PC 2 on Subnet D should be able to ping PC 5 on Subnet G. Troubleshoot if required.

Insert an image of the successful ping between PC 2 and PC 5 below.

↓

7. If you attempt to ping Server 2 from PC 5 what happens?

Un reachable

Why?

Unicast protocal is not enabled

What are 2 different methods that we could use to make communication happen?

enable the unicast protocal

8. We now enable the unicast routing protocol "RIP" that we introduced in the earlier networking course on both routers to get the routers to advertise their respective networks.

We will first create the RIPng process/group named "Elephant" and then enable RIPng on each router interface as shown in the configuration below.

You will need to specify the correct interfaces on your routers.

```
Router(config)#ipv6 router rip elephant
Router(config-rtr)#exit
Router(config)#interface gigabitethernet 0/0
Router(config-if)#ipv6 rip elephant enable
Router(config-if)#exit
Router(config)#
```

Remember, you will need repeat this command "ipv6 rip elephant enable' on each router interface on both routers

Completed ☒

9. Now you should have connectivity and routing for every host on each network.

Now attempt to ping Server 2 from PC 5......it should work, If not, troubleshoot.

Insert an image of the successful ping between Server 2 and PC 5 below.

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