IFT 266 Introduction to Network Information Communication Technology (ICT)

Lab 50

Troubleshoot a VLSM network

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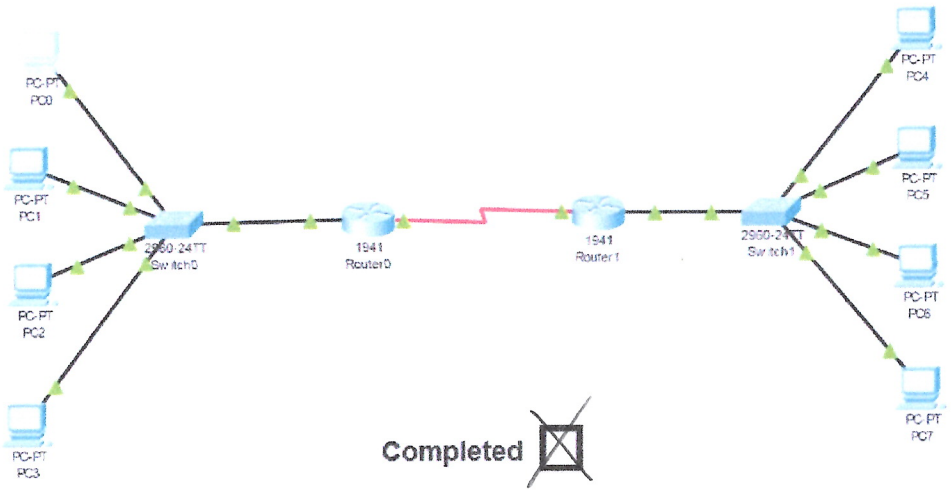
1. Set up the following topology in Packet Tracer.

   You will need to add one HWIC-2T to each router.



Completed ☒

2. Configure Router0 with the following commands

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int s0/1/0
Router(config-if)#ip address 172.24.59.2 255.255.255.252
Router(config-if)#no shut

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


Router(config)#int g0/0
Router(config-if)#ip address 172.24.59.9 255.255.255.240
Router(config-if)#no shut
```

Completed ☒

3. Repeat the same for configuration for Router1 but assign s0/1/0 an IP address of 172.24.59.1 and a subnet of 255.255.255.252 and assign g0/0 172.24.59.17 and a subnet of 255.255.255.248.

Completed ☒

4. Assign PC0 an IP of 172.24.59.3 and a subnet of 255.255.255.252. What error does Packet Tracer give? and why does it give the error (be specific as to why you get the error and cannot assign this address)?

Packet tracer has an invalid IP address for this subnet mask entered. It is invalid because the g0/0 interface on Router 0 was set to /29 instead of /30

5. Create an IP scheme that works for the subnet PC0 is on. The first address is given. The CIDR should be the same for all your addresses.

Device	IP Address	CIDR (/X)
PC0	172.24.59.10	/29
PC1	172.24.59.11	/29
PC2	172.24.59.12	/29
PC3	172.24.59.13	/29

6. Assign PC4 the IP 172.24.59.16 and a subnet of 255.255.255.248. Why won't Packet Tracer let you assign this IP (be specific as to why you get the error and cannot assign this address)?

The 172.24.59.17/29 network has been assigned to router 1's g0/0 interface. The IP address is not allowed for any host because it is the subnet mask's network IP

7. Assign PC4 the IP of 172.24.59.12 and the same subnet (255.255.255.248). Although Packet Tracer lets you assign the IP, this IP would be incorrect.

   List **two reasons** why this IP would not work.

The IP 172.24.59.12/29 is part of the router 0 interface g0/0 network. There will be a clash if it is assigned here. PC4 is not connected to 172.24.59.12/29 so it won't be able to communicate

8. Create an IP scheme like the one you made in Step 5, starting at PC4.

Device	IP Address
PC4	172.24.59.18
PC5	172.24.59.19
PC6	172.24.59.20
PC7	172.24.59.21

9. For the scheme you made in the previous step, list the broadcast address, the network address, and the range of usable hosts.

Broadcast Address - 172.24.59.15
Network Address - 172.24.59.8/29
Range of Hosts 172.24.59.9 - 172.24.59.14

10. PC 0 would like to be able to ping PC 4 and vice versa.

    With the current network configurations, will this ping be successful? NO

    If not, why not? ping traverses two routers with different subnet mask

Important

Please make sure to save your packet tracer file as you will need it for lab 48.