CET2032 - Computer Networks & Network Security - Practicum 01

Task 1

1. Which network interface from the table above is the destination MAC address in the frame at **A** in the network?
A: Router1's G0/0/0 MAC address

2. What is the destination MAC address at **A** in the network?
A: 0010.AAAA.AAAA

3. What encapsulation is used at **A** in the network?
A: The encapsulation used is Ethernet frame

4. Which network interface from the table above is the destination MAC address in the frame at **B** in the network?
A: Router1's G0/0/0 MAC address

5. What is the destination MAC address at **B** in the network?
A: 0010.AAAA.AAAA

6. Which network interface from the table above is the destination MAC address in the frame at **C** in the network?
A: There is no MAC address

7. What is the destination MAC address at **C** in the network?
A: There is no MAC address

8. What encapsulation is used at **C** in the network?
A: The encapsulation used is HDLC frame

9. Which network interface from the table above is the destination MAC address in the frame at **D** in the network?
A: PC2's MAC address

10. What is the destination MAC address at **D** in the network?
A: 0010.2222.2222

11. What encapsulation is used at **D** in the network?
A: The encapsulation used is Ethernet frame

12. Which network interface from the table above is the destination MAC address in the frame at **E** in the network?
A: PC2's MAC address

13. What is the destination MAC address at **E** in the network?
A: 0010.2222.2222

14. What encapsulation is used at **E** in the network?
A: The encapsulation used is Ethernet frame

Task 2

One week later, the CEO added a new gaming PC to his room along with a new switch (Switch3) connected to the existing Router2. However, he was facing some trouble in trying to link the two PCs (PC2 and GamingPC) together. He tried pinging from PC2 to GamingPC and vice versa but all did not work. Once again, you have been engaged to help him troubleshoot these issues.

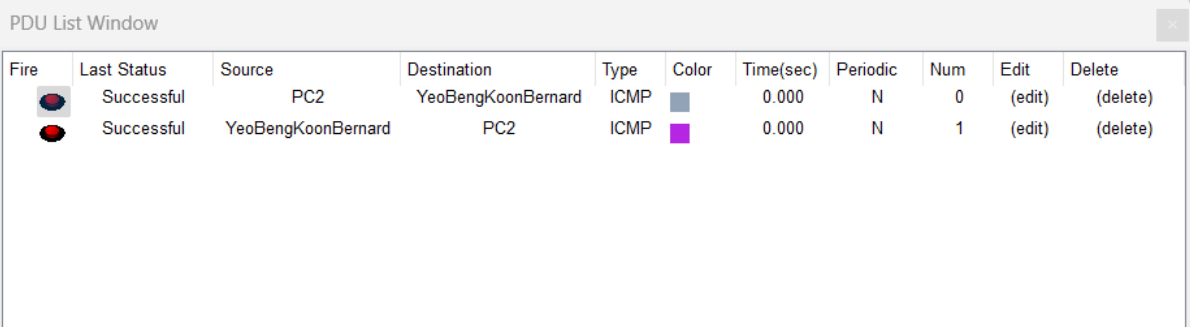Explain what is causing the network problem and what did you do to fix the issue.

Answer:

The first problem was that Switch3 was not turned on. To turn on Switch3, click on Switch3 and go to the Physical tab and click power switch on the switch to turn on Switch3.

The second problem is that from the IP address and subnet mask of GamingPC and PC2, we know that they reside in different networks. Therefore, we need to set the default gateway which is the router interface that connects a single network to the router. Clicking on PC2 and GamingPC and clicking on the Config tab and clicking on Settings, it shows that the default gateway for PC2 and GamingPC has not been set.

To find the correct default gateway, click on Router2, click on Config tab and click on GigabitEthernet0/0/0 and GigabitEthernet0/0/1 the IPv4 Address will give the correct default gateway to set for PC2 and GamingPC which is 10.1.3.254 and 10.1.4.254 respectively. These values are then set as the default gateway for PC2 and GamingPC.

Pinging PC2 to GamingPC and vice versa now works and screenshot of the successful ping is shown below.

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC2	YeoBengKoonBernard	ICMP		0.000	N	0	(edit)	(delete)
	Successful	YeoBengKoonBernard	PC2	ICMP		0.000	N	1	(edit)	(delete)

PDU List Window