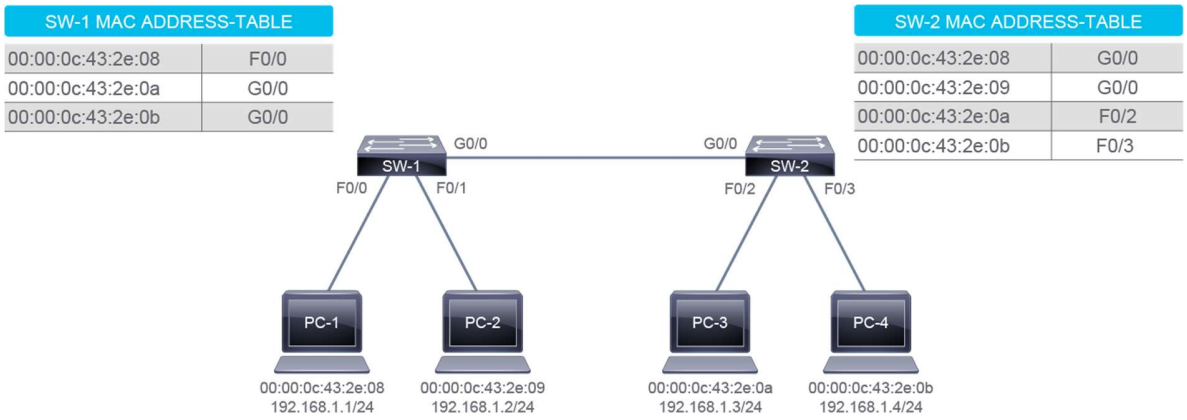
Understanding Frame Switching and Forwarding

Introduction

With this exercise, you will practice, how traffic is switched and forwarded in a simple network. This is an important skill to master, as it will aid you later when learning about more complex networks.

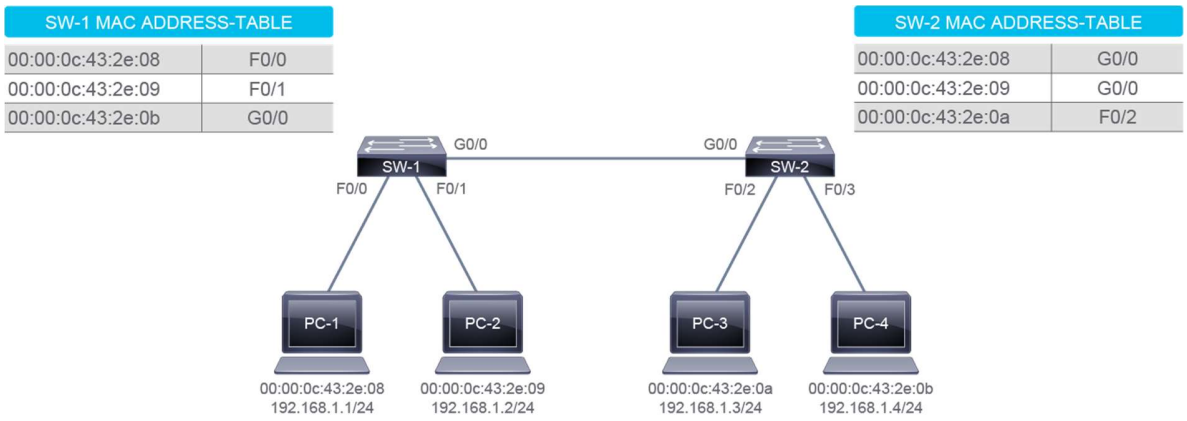
You will be presented with multiple scenarios, each describing the state of the network at a given time. At that time, it's not necessary that all devices have already learned about all other devices. Your task is to answer the multiple-choice questions on how traffic will be forwarded.

1. Refer to the exhibit. PC-1 sends a unicast frame to PC-2. According to the MAC Address table of SW-1, on which ports does it forward the frame? (Choose two.)



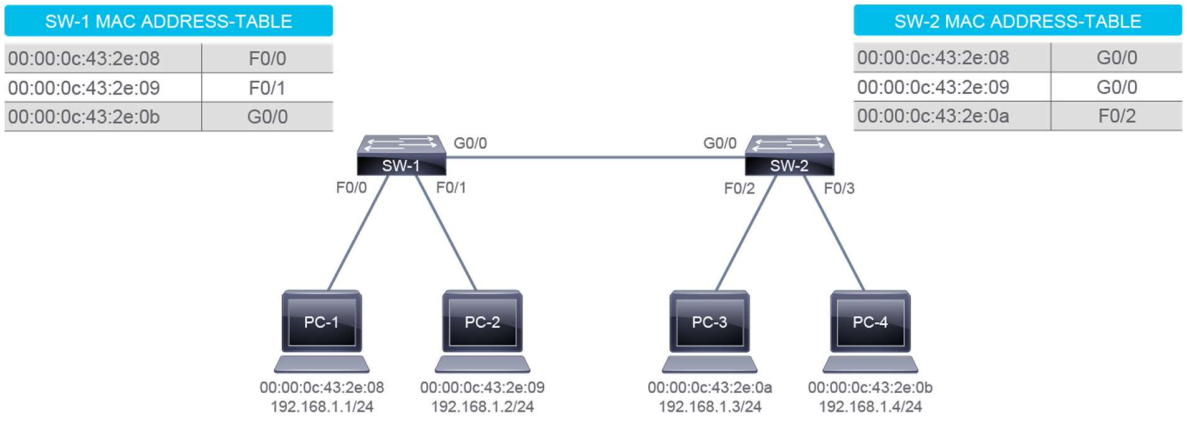
a. F0/0
b. F0/1
c. F0/2
d. F0/3
e. G0/0

2. Refer to the exhibit. PC1 sends a unicast frame to PC4. According to the MAC Address table, on which ports does SW-2 forward the frame? (Choose two.)



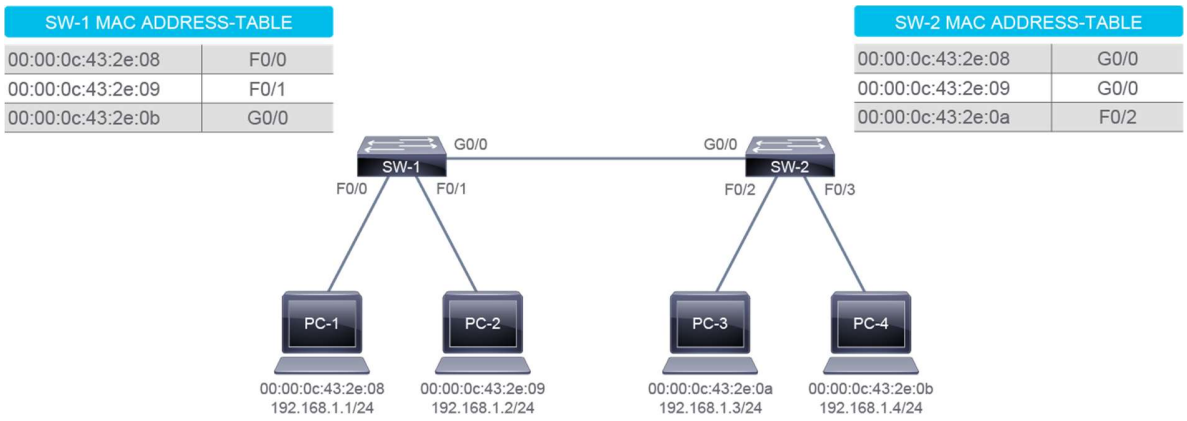
a. F0/0
b. F0/1
c. F0/2
d. F0/3
e. G0/0

3. Refer to the exhibit. PC1 sends a unicast frame to PC2. According to the MAC Address table, on which ports does SW-1 forward the frame?



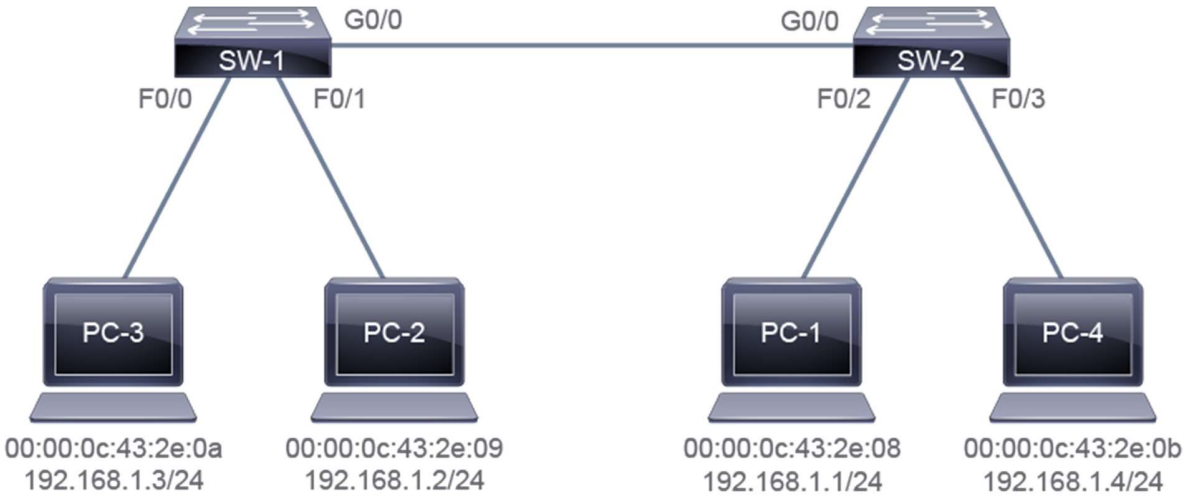
a. F0/0
b. F0/1
c. F0/2
d. F0/3
e. G0/0

4. Refer to the exhibit. PC1 sends a unicast frame to PC4. According to the MAC Address table, on which ports does SW-1 forward the frame?



a. F0/0
b. F0/1
c. F0/2
d. F0/3
e. G0/0

5. Refer to the exhibit. PC1 and PC3 swap their positions and are now connected to different switches. PC1 sends a unicast frame to PC3. What is the action of SW-1 and SW-2 to forward the frame?



a. SW-1 and SW-2 forward the frame as Unknown Unicast frame.
b. SW-2 drops the frame because it does not know how to reach PC3.
c. SW-2 forwards the frame as Unknown Unicast frame, but SW-1 drops the frame.
d. The switches do not flush the mac address table entries, so the mac address table aging time must expire before PC1 and PC3 can communicate again.

Answer Key

1. B, E
2. C, D
3. B
4. E
5. A

Answer Feedback:

1. The correct answers are **F0/1, G0/0**. Switch SW-1 does not have a MAC entry for PC-2, so it floods the frame out of all ports except the one it received the frame on.

2. The correct answers are **F0/2, F0/3**. Switch SW-2 does not have a MAC entry for PC-4, so it floods the frame out of all ports except the one it received the frame on.

3. The correct answer is **F0/1**. Switch SW-1 has an entry for PC-2 MAC address in its MAC Address Table, so it forwards the frame out of the interface specified for PC-2 MAC.

4. The correct answer is **G0/0**. Switch SW-1 has an entry for PC-4 MAC address in its MAC Address Table, so it forwards the frame out of the interface specified for PC-4 MAC.

5. The correct answer is **SW-1 and SW-2 forward the frame as Unknown Unicast frame**. Switches will no longer have a MAC entry for the newly connected devices until traffic is received on those ports. Until then, they will forward the traffic as Unknown Unicast frames.

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