CSIS 330 – Lab 9: Packet Tracer

Examining a MAC Address Table

Answer Template

1. Complete this template with your answers.
2. Fill in your answers Bold and Red

PART 2: - Reflection Questions

Answer the following questions regarding the captured data:

* 1. Were there different types of wires used to connect devices? **Yes – copper, fiber, wireless**
  2. Did the wires change the handling of the PDU in any way? **No**
  3. Did the **Hub** lose any of the information given to it? **No**
  4. What does the **Hub** do with MAC addresses and IP addresses? **Nothing**
  5. Did the wireless **Access Point** do anything with the information given to it?

**Yes – repackaged information as wireless 802.11 frames**

* 1. Was any MAC or IP address lost during the wireless transfer? **No**
  2. What was the highest OSI layer that the **Hub** and **Access Point** used? **Layer 1**
  3. Did the **Hub** or **Access Point** ever replicate a PDU that was rejected with a red “X”? **Yes**
  4. When examining the **PDU Details** tab, which MAC address appeared first, the source or the destination?

**Destination**

**SCREENSHOT #1 – PDU DETAILS**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test** | **At Device** | **Dest. MAC** | **Src MAC** | **Src IPv4** | **Dest IPv4** |
| Ping from 172.16.31.2 to 10.10.10.3 | 172.16.31.2 | 00D0:BA8E:741A | 000C:85CC:1DA7 | 172.16.31.2 | 10.10.10.3 |
| Hub | -- | -- | -- | -- |
| Switch1 | 00D0:BA8E:741A | 000C:85CC:1DA7 | -- | -- |
| Router | 0060:4706:572B | 00D0:588C:2401 | 172.16.31.2 | 10.10.10.3 |
| Switch0 | 0060:4706:572B | 00D0:588C:2401 | -- | -- |
| Access Point | -- | -- | -- | -- |
| 10.10.10.3 | 0060:4706:572B | 00D0:588C:2401 | 172.16.31.2 | 10.10.10.3 |
|  |  |  |  |  |  |
| Ping from 10.10.10.3 to 10.10.10.2 | 10.10.10.3 | 0060:2F84:4AB6 | 0060:4706:572B | 10.10.10.3 | 10.10.10.2 |
| Hub | -- | -- | -- | -- |
| Switch0 | 0060:2F84:4AB6 | 0060:4706:572B | -- | -- |
| Router | -- | -- | -- | -- |
| Switch1 | -- | -- | -- | -- |
| Access Point | -- | -- | -- | -- |
| 10.10.10.2 | 0060:2F84:4AB6 | 0060:4706:572B | 10.10.10.3 | 10.10.10.2 |
|  |  |  |  |  |  |
| Ping from 172.16.31.3 to 172.16.31.2 | 172.16.31.3 | 000C:85CC:1DA7 | 0060.7036.2849 | 172.16.31.3 | 172.16.31.2 |
| Hub | -- | -- | -- | -- |
| Switch1 | 000C:85CC:1DA7 | 0060.7036.2849 | -- | -- |
| Hub | -- | -- | -- | -- |
| Router | -- | -- | -- | -- |
| Switch0 | -- | -- | -- | -- |
| 172.16.31.2 | 0060.7036.2849 | 000C:85CC:1DA7 | 172.16.31.3 | 172.16.31.2 |
|  |  |  |  |  |  |
| Ping from 172.16.31.5 to 172.16.31.4 | 172.16.31.5 | 000C:CF0B:BC80 | 00D0:D311:C788 | 172.16.31.5 | 172.16.31.4 |
| Hub | -- | -- | -- | -- |
| Switch1 | 000C:CF0B:BC80 | 00D0:D311:C788 | -- | -- |
| Router | -- | -- | -- | -- |
| Switch0 | -- | -- | -- | -- |
| Access Point | -- | -- | -- | -- |
| 172.16.31.4 | 00D0:D311:C788 | 000C:CF0B:BC80 | 172.16.31.5 | 172.16.31.4 |
|  |  |  |  |  |  |
| Ping from 10.10.10.2 to 172.16.31.4 | 10.10.10.2 | 00D0:588C:2401 | 0060:2F84:4AB6 | 10.10.10.2 | 172.16.31.4 |
| Hub | -- | -- | -- | -- |
| Switch0 | 00D0:588C:2401 | 0060:2F84:4AB6 | -- | -- |
| Router | 000C:CF0B:BC80 | 00D0:BA8E:741A | 10.10.10.2 | 172.16.31.4 |
| Switch1 | 000C:CF0B:BC80 | 00D0:BA8E:741A | -- | -- |
| Access Point | -- | -- | -- | -- |
| 172.16.31.4 | 000C:CF0B:BC80 | 00D0:BA8E:741A | 10.10.10.2 | 172.16.31.4 |
|  |  |  |  |  |  |
| Ping from 10.10.10.2 to 172.16.31.3 | 10.10.10.2 | 00D0:588C:2401 | 0060:2F84:4AB6 | 10.10.10.2 | 172.16.31.3 |
| Hub | -- | -- | -- | -- |
| Switch0 | 00D0:588C:2401 | 0060:2F84:4AB6 | -- | -- |
| Router | 0060:7036:2849 | 00D0:BA8E:741A | 10.10.10.2 | 172.16.31.3 |
| Switch1 | 0060:7036:2849 | 00D0:BA8E:741A | -- | -- |
| Access Point | -- | -- | -- | -- |
| 172.16.31.3 | 0060:7036:2849 | 00D0:BA8E:741A | 10.10.10.2 | 172.16.31.3 |

* 1. Why would the MAC addresses appear in this order?

**A switch can begin forwarding a frame to a known MAC address more quickly if the destination is listed first**

* 1. Was there a pattern to the MAC addressing in the simulation? **No**
  2. Did the switches ever replicate a PDU that was rejected with a red “X”? **No**
  3. Every time that the PDU was sent between the 10 network and the 172 network, there was a point where the MAC addresses suddenly changed. Where did that occur?

**It occurred at the router**

* 1. Which device uses MAC addresses starting with 00D0? **Router**
  2. To what devices did the other MAC addresses belong?

**Sender and Receiver**

* 1. Did the sending and receiving IPv4 addresses switch in any of the PDUs? **No**
  2. If you follow the reply to a ping, sometimes called a *pong*, do the sending and receiving IPv4 addresses switch? **Yes**
  3. What is the pattern to the IPv4 addressing in this simulation?

**Each port of a router requires a set of non-overlapping addresses**

* 1. Why do different IP networks need to be assigned to different ports of a router?

**The router’s function is to inter-connect different OP networks**

* 1. If this simulation was configured with IPv6 instead of IPv4, what would be different?

**The IPv4 addresses would be replaces with IPv6 addresses. Everything else would stay the same**

1. Suggested Scoring Rubric

There are 20 questions worth 5 points each for a possible score of 100.

1. Deliverables:
2. Save your Answer Template using the convention of [your first initial] + [your last name] + “\_Lab9”.
3. For example: Joe Smith will save his file template as JSmith\_Lab9.doc .
4. Submit This Answer Template to Blackboard by attaching it to the appropriate assignment link.