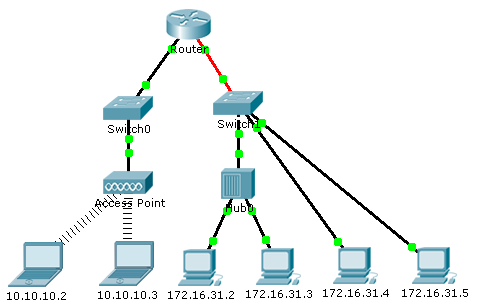
****Packet Tracer - Identify MAC and IP Addresses****

1. Topology



1. Objectives

Part 1: Gather PDU Information

Part 2: Reflection Questions

1. Background

This activity is optimized for viewing PDUs. The devices are already configured. You will gather PDU information in simulation mode and answer a series of questions about the data you collect.

1. Gather PDU Information

**Note:** Review the Reflection Questions in Part 2 before proceeding with Part 1. It will give you an idea of the types of information you will need to gather.

* 1. Gather PDU information as a packet travels from 172.16.31.2 to 10.10.10.3.
     1. Click **172.16.31.2** and open the **Command Prompt**.
     2. Enter the **ping 10.10.10.3** command.
     3. Switch to simulation mode and repeat the **ping 10.10.10.3** command. A PDU appears next to **172.16.31.2**.
     4. Click the PDU and note the following information from the **Outbound PDU Layer** tab:
* Destination MAC Address: 00D0:BA8E:741A
* Source MAC Address: 000C:85CC:1DA7
* Source IP Address: 172.16.31.2
* Destination IP Address: 10.10.10.3
* At Device: Computer
  + 1. Click **Capture / Forward** to move the PDU to the next device. Gather the same information from Step 1d. Repeat this process until the PDU reaches its destination. Record the PDU information you gathered into a spreadsheet using a format like the table shown below:

1. Example Spreadsheet Format

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 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 |

* 1. Gather additional PDU information from other pings.

Repeat the process in Step 1 and gather the information for the following tests:

* Ping 10.10.10.2 from 10.10.10.3.
* Ping 172.16.31.2 from 172.16.31.3.
* Ping 172.16.31.4 from 172.16.31.5.
* Ping 172.16.31.4 from 10.10.10.2.
* Ping 172.16.31.3 from 10.10.10.2.

1. Reflection Questions

Answer the following questions regarding the captured data:

* 1. Were there different types of wires used to connect devices? \_\_\_\_\_\_\_
  2. Did the wires change the handling of the PDU in any way? \_\_\_\_\_\_\_
  3. Did the **Hub** lose any of the information given to it? \_\_\_\_\_\_\_
  4. What does the **Hub** do with MAC addresses and IP addresses? \_\_\_\_\_\_\_
  5. Did the wireless **Access Point** do anything with the information given to it?

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* 1. Was any MAC or IP address lost during the wireless transfer? \_\_\_\_\_\_\_
  2. What was the highest OSI layer that the **Hub** and **Access Point** used? \_\_\_\_\_\_\_
  3. Did the **Hub** or **Access Point** ever replicate a PDU that was rejected with a red “X”? \_\_\_\_\_\_\_
  4. When examining the **PDU Details** tab, which MAC address appeared first, the source or the destination?

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

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* 1. Was there a pattern to the MAC addressing in the simulation? \_\_\_\_\_\_\_
  2. Did the switches ever replicate a PDU that was rejected with a red “X”? \_\_\_\_\_\_\_
  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?

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

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* 1. Did the sending and receiving IPv4 addresses switch in any of the PDUs? \_\_\_\_\_\_\_
  2. If you follow the reply to a ping, sometimes called a *pong*, do the sending and receiving IPv4 addresses switch? \_\_\_\_\_\_\_
  3. What is the pattern to the IPv4 addressing in this simulation?

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

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

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1. Suggested Scoring Rubric

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

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