

## 3.1.4 Packet Tracer - Who Hears the Broadcast? (Instructor Version)

**Instructor Note:** Red font color or gray highlights indicate text that appears in the instructor copy only.

### Objectives

**Part 1: Observe Broadcast Traffic in a VLAN Implementation**

**Part 2: Complete Review Questions**

### Scenario

In this activity, a 24-port Catalyst 2960 switch is fully populated. All ports are in use. You will observe broadcast traffic in a VLAN implementation and answer some reflection questions.

### Instructions

#### Step 1: Use ping to generate traffic.

- Click **PC0** and click the **Desktop** tab > **Command Prompt**.
- Enter the **ping 192.168.1.8** command. The ping should succeed.

Unlike a LAN, a VLAN is a broadcast domain created by switches. Using Packet Tracer **Simulation** mode, ping the end devices within their own VLAN. Based on your observation, answer the questions in Step 2.

#### Step 2: Generate and examine broadcast traffic in a VLAN implementation.

- Switch to **Simulation** mode.
- Click **Edit Filters** in the Simulation Panel. Uncheck the **Show All/None** checkbox. Check the **ICMP** checkbox.
- Click the **Add Complex PDU** tool, this is the open envelope icon on the right toolbar.
- Float the mouse cursor over the topology and the pointer changes to an envelope with a plus (+) sign.
- Click **PC0** to serve as the source for this test message and the **Create Complex PDU** dialog window opens. Enter the following values:
  - Destination IP Address: 255.255.255.255 (broadcast address)
  - Sequence Number: 1
  - One Shot Time: 0

Within the PDU settings, the default for **Select Application:** is PING.

What are at least 3 other applications available for use?

**DNS, FINGER, FTP, HTTP, HTTPS, IMAP, NETBIOS, PING, POP3, SFTP, SMTP, SNMP, SSH, TELNET, TFTP and OTHER**

- Click **Create PDU**. This test broadcast packet now appears in the **Simulation Panel Event List**. It also appears in the PDU List window. It is the first PDU for Scenario 0.

- g. Click **Capture/Forward** twice.

What happened to the packet?

**The packet is sent to the switch and then broadcast to all of the PCs that belong to the same VLAN and in this case, VLAN 10.**

- h. Repeat this process for **PC8** and **PC16**.

### Reflection Questions

1. If a PC in VLAN 10 sends a broadcast message, which devices receive it?

**All end devices on VLAN 10**

2. If a PC in VLAN 20 sends a broadcast message, which devices receive it?

**All end devices on VLAN 20**

3. If a PC in VLAN 30 sends a broadcast message, which devices receive it?

**All end devices on VLAN 30**

4. What happens to a frame sent from a PC in VLAN 10 to a PC in VLAN 30?

**It will be dropped because they are not on the same VLAN.**

5. Which ports on the switch light up if a PC connected to port 11 sends a unicast message to a PC connected to port 13?

**Ports 11 and 13 will light up.**

6. Which ports on the switch light if a PC connected to port 2 sends a unicast message to a PC connected to port 23?

**The packet will be dropped.**

7. In terms of ports, what are the collision domains on the switch?

**Each port is its own collision domain.**

8. In terms of ports, what are the broadcast domains on the switch?

**Each VLAN is its own broadcast domain.**