Part 1: Generate Unicast Traffic

Step 3: Examine unicast traffic

a. Click **Capture/Forward** repeatedly and watch while the echo request is sent to **Router3** and the echo reply is sent back to **PC1**. Stop when the first echo reply reaches PC1.

Which devices did the packet travel through with the unicast transmission?

From PC1 to Switch1 to Router1 to Router3 and back.

b. In the Simulation Panel Event List section, the last column contains a colored box that provides access to detailed information about an event. Click the colored box in the last column for the first event. The PDU Information window opens.

What layer does this transmission start at and why?

Layer 3, because it is dealing specifically with IP and ICMP

c. Examine the Layer 3 information for all of the events. Notice that both the source and destination IP addresses are unicast addresses that refer to PC1 and the serial interface on Router3.

What two changes take place at Layer 3 when the packet arrives at Router3?

The source and destination IP addresses are flipped and the ICMP message type is now 0.

Step 1: Add a complex PDU

c. Click **PC1** 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

e. Click **Capture/Forward** twice. This packet is sent to the switch and then broadcasted to **PC2**, **PC3**, and **Router1**. Examine the Layer 3 information for all of the events. Notice that the destination IP address is 255.255.255.255, which is the IP broadcast address you configured when you created the complex PDU.

Analyzing the OSI Model information, what changes occur in the Layer 3 information of the Out Layers column at Router1, PC2, and PC3?

The PDU becomes a unicast replying back to PC1.

f. Click **Capture/Forward** again. Does the broadcast PDU ever forward on to Router2 or Router3? Why?

No. The limited broadcast should remain within the local network unless the router is set to forward.

Part 3: Investigate Multicast Traffic

Step 1: Examine the traffic generated by routing protocols

c. Click **Capture/Forward** until you see the EIGRP packet arrive at the PCs.

What do the hosts do with the packets?

The hosts reject and drop the packets.

Examine the Layer 3 and Layer 4 information for all of the EIGRP events.

What is the destination address of each of the packets?

224.0.0.10, the IP multicast address for the EIGRP routing protocol.

d. Click one of the packets delivered to one of the PCs. What happens to those packets?

The packets are dropped and no additional processing is done.

Based on the traffic generated by the three types of IP packets, what are the major differences in delivery?

The unicast packet moves through the network destined for a specific device, the broadcast gets sent to every device in the local area network and the multicast is sent to all devices but only processed by those that are part of the multicast group.