CS0424IT - S1/L4 - Cisco Packet Tracer pt. 2

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0.1 Assignment

The purpose of today's exercise was to create and configure two different networks, connect them via a router, and establish communication between two hosts, each belonging to a different network.

Network topology (link to .pkz file)

Initially, the first network was created (shown on the left in the figure below), consisting of 3 hosts interconnected through a layer 2 device, Switch0. Subsequently, the second network was created (shown on the right in the figure below) with 2 hosts both connected to Switch1. The summary diagram of the network topology is shown in Figure 1.

Afterward, a Router Gateway was used to connect Switch0 and Switch1. Specifically, while the Router Gateway was powered off, two CFE modules were connected to link the two switches. To enable communication between the switches through the Router Gateway, the GATEWAY IP addresses for the two different networks were configured. Once these GATEWAY IPs were set, the Router Gateway was powered on for both Ethernet ports to activate communication between the two networks.
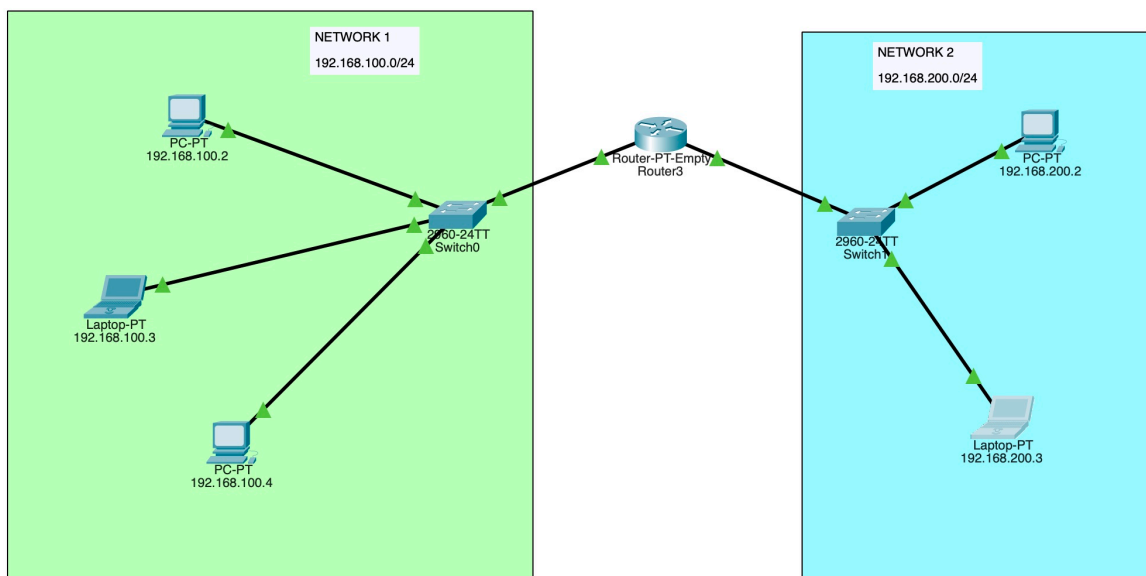

Figure 1: Summary diagram of the network topology, indicating static IP addresses of the devices.

Communication between devices

To verify communication between the two hosts in the first network, the following steps were taken:

Laptop-PT0, to send the packet to Laptop-PT2, first attempts to identify the recipient. Determining that the recipient is a different device, it sends the packet to Switch0. Switch0 receives the packet, unpacks it, and reads the destination MAC address. It then compares the read MAC address with those in its

MAC table. Switch0 identifies the sender using the MAC table and forwards the packet to the recipient, Laptop-PT2.

Next, communication between two hosts in different networks, Laptop-PT0 and Laptop-PT3, was verified. Initially, Laptop-PT0 sends the packet to Switch0, which unpacks it and reads the destination MAC address. It then compares the read MAC address with those in its MAC table. Since the destination MAC address is not within the local network, Switch0 sends the packet to the Router Gateway, an ISO OSI layer 3 device. The Router Gateway compares the destination address with its routing table and identifies it as part of the second network connected to Switch1. The packet is sent to Switch1, which in turn compares the destination address with those in its MAC table. It identifies the destination address as one of its hosts, Laptop-PT3, and forwards the packet to it.

Additional work (link to .pkz file)