MIS251 LAB 1 ETHAN DUNZER

Summary: 1 to 2 paragraphs summarizing this lab, the processes, configurations, and your experience.

This lab was relatively simple. All that was done was creating a simple network of 3 pc’s with a 2960 switch used as a connection point for all 3. Then we set static ips to all the computers and then sent a packet through from one computer to another and tracked where it went in the network using the simulator.

Question #1: During our setup, we selected a Cisco 2960 Switch. Do some research on the Internet, primarily Cisco’s website, and highlight five features you think are the most important in today’s networks. Note: we have not covered any of these features in lecture, but I want to expose you to as many networking devices as possible and their purpose.

The 2960 cisco switch seems to check all the boxes when creating a network between devices. It has lots of functionality, but little setup needed to get going. Its smart which allows for multiple power saving modes and network control features, along with being highly secure. Its built for cost effective server rack deployment.

Question #2: During the ‘physical’ connection of your network, you were instructed to use a straight through copper cable. Another option is the cross-over copper cable. Research and explain the difference between these two types of cables.

The biggest difference is the use along with how the cable connector is organized. With common straight-through cables the connector has the same wire placement (white orange, orange, white green, blue, white blue, green, white brown, brown) on crossover its different on each side. This is because the cables are used to connect the same devices directly to each other with no switch involved.

Question #3: Take note of the IP address and subnet assignments given to each PC. At this point, why do you think we needed to follow such a strict, or specific, IP address assignment? In other words, why couldn’t we just use any IP address we want?

There are a couple reasons. First is so we know which devices have what ip and since there not dynamic they wont change. Then since we are tracing the packets from device to device, we don’t want the devices to change addresses on restart.

Question #4: In the simulation portion of the lab, you observed ICMP and ARP packets flowing through your network. Explain what each packet is (ICMP and ARP), what it is used for, and what layer(s) of the OSI model these packets live.

ARP is used to tell the layer two interface where to send the layer 2 frame that encapsulates the IP packet which contains the ICMP ping message. ARP is sent first, and the ICMP message is used as a communication device between networking devices to generate messages most commonly error.

Question #5: You used the command arp –a to view the ARP entries on your PCs. These entries are placed into the arp table. Explain the purpose of the ARP table. After that, explain the different options available with the arp command (arp /?) and discuss potential issues with arp tables.

The ARP table is used to store IP addresses of the network devices. This table is used to determine the destination of addresses of the network nodes. Basically, its used to store all the addresses to organize traffic. There are a couple different ARP commands, including ones that flush the cache, view the current cache, viewing addresses, starting a continuous ping to a new IP, etc.