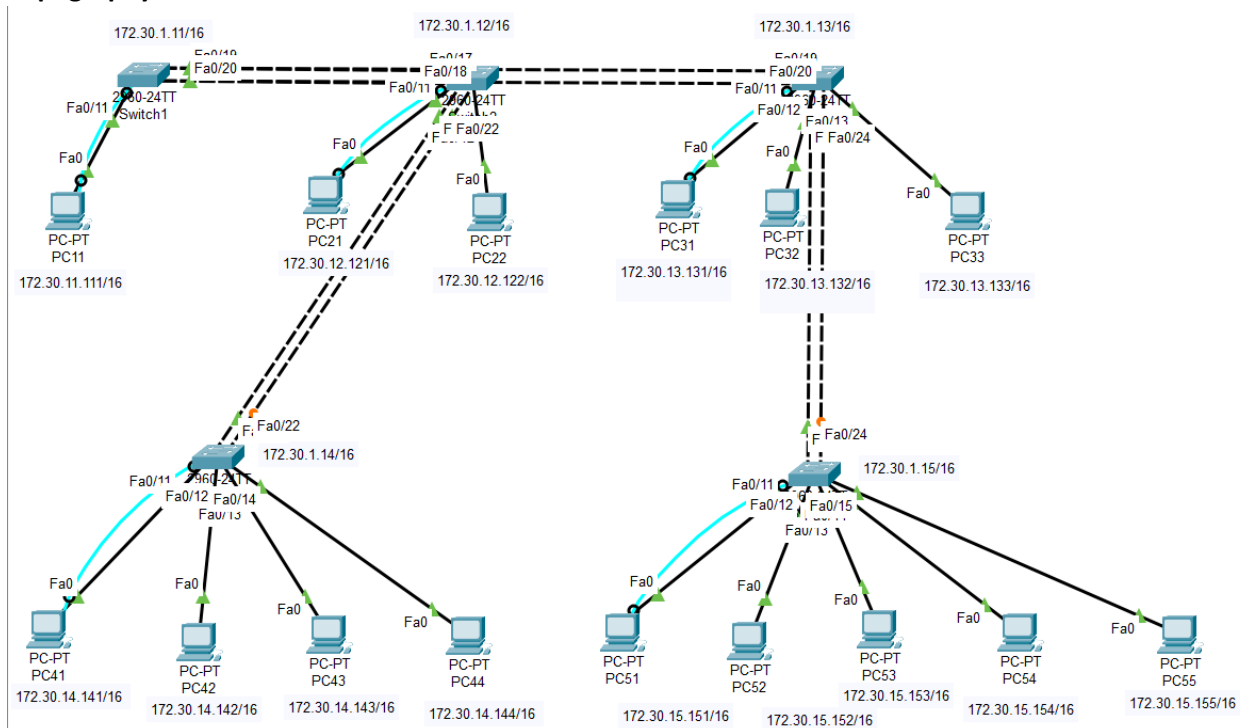


Lab 1 Lab Report

Lab Description:

Introduction to how Cisco Packet Tracer will be used in Internetworking to show a network topography, as well as setting up a basic network incorporating several PC's and switches.

Topology:



Syntax:

CLI Command Description Mode of Cisco OIS

ping	Used to ping ip addresses from a PC. You can ping other PC's or switches with this.	Windows CMD
Logging synchronous	Forces error messages to be on its own line, rather than interrupt a line that you're typing on.	Console Line
Enable	Enter Privileged Mode	User Mode
Conf t	Enter Global Configurator Mode	Privileged Mode
Line con 0	Enter the Console Line	Global Configurator Mode

Hostname	Used to name a switch or PC	Privileged Mode
Password	Used to set a password	Privileged Mode
Login	Used to require the password to utilize User Mode	Global Configurator Mode
Enable password	Used to set an unencrypted Privileged Password	Global Configurator Mode
Show ip interface brief (sh ip int brief)	Displays a brief list of all interfaces	Privileged Mode

Verification:

2.

C) Verify PCs are able to reach the other PC's and the Switches:

Below is the ping commands checking the connectivity of different PCs, which is labeled with a Fig 1 next to it. In this case I connected to PC21, which is directly connected to Switch2. Below that, represented with Fig 2, I connected to Switch 5 to show the connection between switches. The Request timed out for the first connection as it was the first time reaching that switch, which will always cause a failure the first attempt. While it is feasible to test the connectivity to each host within the network manually, it can take a long time depending on the amount of hosts within the network. A way to improve the efficiency of testing connectivity is to set up an automated system to go through a list of IPs and test the connectivity until the list has been completed.

```
C:\>ping 172.30.12.121

Pinging 172.30.12.121 with 32 bytes of data:

Reply from 172.30.12.121: bytes=32 time<1ms TTL=128
Reply from 172.30.12.121: bytes=32 time=8ms TTL=128
Reply from 172.30.12.121: bytes=32 time<1ms TTL=128
Reply from 172.30.12.121: bytes=32 time=8ms TTL=128

Ping statistics for 172.30.12.121:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 8ms, Average = 4ms
```

Fig 1

```
C:\>ping 172.30.1.15

Pinging 172.30.1.15 with 32 bytes of data:

Request timed out.
Reply from 172.30.1.15: bytes=32 time<1ms TTL=255
Reply from 172.30.1.15: bytes=32 time<1ms TTL=255
Reply from 172.30.1.15: bytes=32 time<1ms TTL=255

Ping statistics for 172.30.1.15:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Fig 2

D) ARP Cache:

```
C:\>arp -a
Internet Address      Physical Address      Type
172.30.1.11          0004.9abb.b1c0        dynamic
172.30.1.15          00d0.ba08.e922        dynamic
172.30.12.121         00e0.8f2a.7cde        dynamic
172.30.12.122         00e0.f91e.0499        dynamic
172.30.13.131         000c.cfca.b549        dynamic
172.30.13.132         0001.64b2.1207        dynamic
172.30.13.133         0060.3e3d.0a96        dynamic
172.30.14.141         0001.c798.ec20        dynamic
172.30.14.142         0001.42e0.dd57        dynamic
172.30.14.143         0010.113d.6021        dynamic
172.30.14.144         0005.5e44.a53c        dynamic
172.30.15.151         000d.bde7.ac65        dynamic
172.30.15.152         000c.8521.7708        dynamic
172.30.15.153         00e0.b088.a82e        dynamic
172.30.15.154         000b.be3c.aaa4        dynamic
172.30.15.155         00e0.a3be.5ddd        dynamic
```

E) MAC address Table:

```
Switch1#show mac-address-table
Mac Address Table
-----
Vlan    Mac Address      Type        Ports
----    -
1       0007.ecc5.c311   DYNAMIC     Fa0/17
1       0007.ecc5.c312   DYNAMIC     Fa0/18
1       00d0.97b7.3813   DYNAMIC     Fa0/19
1       00d0.97b7.3814   DYNAMIC     Fa0/20
```

F) Redundant Switch to Switch Connections:

While both ports are forwarding ports, because there are redundant ports it turns one of the two connections to a blocking connection rather than a forwarding connection. Both are not actively forwarding traffic.

Conclusion:

This lab, while seemed complex at first glance, was quite straightforward. The lab was a lot of repetition and getting used to setting up networks, using terminals, as well as just getting used to Cisco Packet Tracer. I did not run into any major issues.