

Vanier College

Computer Science Department

Advanced Networks

Final Project

Title: LAN Layout with Cisco Packet Tracer

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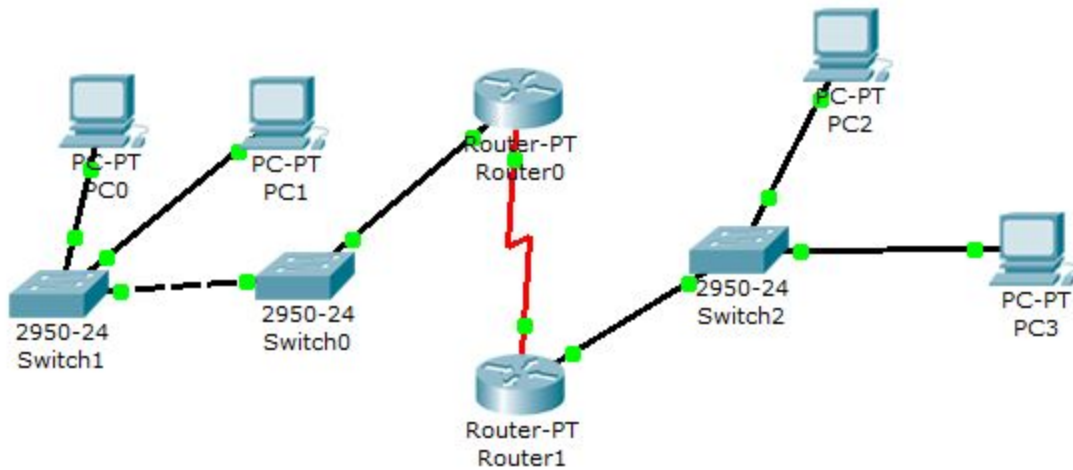
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Part I: Theory Section



1. Fill up the last column of the table below, if there is any value. How did you find MAC addresses values?

The command **show arp** is used to find the MAC addresses for the routers.

```
2600-1#show arp
Protocol Address      Age (min)  Hardware Addr  Type   Interface
Internet 192.168.1.1      -         00E0.F712.4975  ARPA   FastEthernet0/0
```

The command **show arp** is used to find the MAC addresses for the switches.

```
2950-1#show arp
Protocol Address      Age (min)  Hardware Addr  Type   Interface
Internet 192.168.1.2      -         0000.0CAE.8097  ARPA   Vlan1
```

The command **ipconfig /all** is used to find the MAC addresses for the PCs.

```
PC>ipconfig /all

Physical Address. . . . . : 0005.5EBE.C259
IP Address. . . . . : 192.168.1.10
Subnet Mask. . . . . : 255.255.255.0
Default Gateway. . . . . : 192.168.1.1
DNS Servers. . . . . : 0.0.0.0
```

	<u>IP Address</u>	<u>Mask</u>	<u>MAC Address</u>
Router0	fa0/0: 192.168.1.1	255.255.255.0	00E0.F712.4975
	se2/0: 192.168.2.1 (DCE)	255.255.255.0	
Router1	fa0/0: 192.168.3.1	255.255.255.0	0001.9711.8A1C
	se3/0: 192.168.2.2	255.255.255.0	
Switch0	192.168.1.3	255.255.255.0	00E0.F9D4.14E2
Switch1	192.168.1.2	255.255.255.0	0000.0CAE.8097
Switch2	192.168.3.2	255.255.255.0	0001.96CA.2CE1
PC0	192.168.1.10	255.255.255.0	0005.5EBE.C259
PC1	192.168.1.11	255.255.255.0	00D0.D367.65B1
PC2	192.168.3.10	255.255.255.0	00D0.D337.EE9B
PC3	192.168.3.11	255.255.255.0	0004.9A20.AA1A

2. *How many collision and broadcast domains we have in the LAN layout above?*

Collision Domains: 8

Broadcast Domains: 3

3. *Please insert the contents of CAM (Content Addressable Memory) for all three switches?
How did you find this?*

The command **show mac-address-table** is used to determine the contents of all three switches.

Switch0:

```
2950-1#show mac-address-table
      Mac Address Table
-----
Vlan    Mac Address      Type      Ports
----    -
1       00e0.8f93.9002    DYNAMIC   Fa0/1
1       00e0.f712.4975    DYNAMIC   Fa0/1
```

Switch1:

```
2950-2#show mac-address-table
      Mac Address Table
-----
Vlan    Mac Address      Type      Ports
----    -
1       0002.17c2.8301    DYNAMIC   Fa0/2
1       00e0.f712.4975    DYNAMIC   Fa0/1
```

Switch2:

```
2950-3#show mac-address-table
      Mac Address Table
-----
Vlan    Mac Address      Type      Ports
----    -
1       0001.9711.8alc    DYNAMIC   Fa0/1
```

4. *Show how to rename the switches as Switch_A, Switch_B and Switch_C.*

1. Enable the switch with the **enable** command.

```
| Switch>enable|
```

2. Use the **configure terminal** command.

```
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
```

3. Rename the switch using the **hostname** command.

```
|Switch(config)#hostname Switch_A
```

```
Switch(config)#hostname Switch_B
```

```
Switch(config)#hostname Switch_C
```

5. *Please insert the contents of routing tables for Router0 and Router1.*

Router0:

```
2600-1#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    192.168.1.0/24 is directly connected, FastEthernet0/0
     192.168.2.0/30 is subnetted, 1 subnets
C      192.168.2.0 is directly connected, Serial2/0
S    192.168.3.0/24 [1/0] via 192.168.2.2
```

Router1:

```
2600-2#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

S    192.168.1.0/24 [1/0] via 192.168.2.1
     192.168.2.0/30 is subnetted, 1 subnets
C      192.168.2.0 is directly connected, Serial3/0
C    192.168.3.0/24 is directly connected, FastEthernet0/0
```

6. *How to enable a secret password as **cisco**?*

Use the **enable secret cisco** command.

```
Router(config)#enable secret cisco
```

7. *How to set up a password for a privileged EXEC mode as **D245**?*

1. Use the **enable** command to be in the privileged EXEC mode.

```
Router>enable
```

2. Use the **configure terminal** command to be in the configuration terminal.

```
Router#configure terminal
```

3. Use the **enable password D245** command to set the password as D245.

```
Router(config)#enable password D245
```

8. *How to set up passwords for console and VTY as **pa\$\$w0rd**?*

Password for Console:

1. Use the **enable** command to be in the privileged EXEC mode.

```
Router>enable
```

2. Use the **configure terminal** command to be in the configuration terminal.

```
Router#configure terminal
```

3. Use the **line console 0** to configure the line password for the console.

```
Router(config)#line console 0
```

4. Use the **password pa\$\$w0rd** to set up the new password.

```
Router(config-line)#password pa$$w0rd
```

Password for VTY:

1. Use the **enable** command to be in the privileged EXEC mode.

```
Router>enable
```

2. Use the **configure terminal** command to be in the configuration terminal.

```
Router#configure terminal
```

3. Use the **line vty 0 4** to configure the line password for VTY.

```
| Router(config)#line vty 0 4
```

4. Use the **password pa\$\$w0rd** to set up the new password.

```
| Router(config-line)#password pa$$w0rd
```

Part II: Lab Section

Exercise 18-2 (p. 642-645):

- 1.

```
PC>ping 192.168.3.10

Pinging 192.168.3.10 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

- 2.

```
PC>ipconfig /all

Physical Address. . . . .: 0005.5E8E.C259
IP Address. . . . .: 192.168.1.10
Subnet Mask. . . . .: 255.255.255.0
Default Gateway. . . . .: 192.168.1.1
DNS Servers. . . . .: 0.0.0.0
```

3.

```
PC>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=25ms TTL=255
Reply from 192.168.1.1: bytes=32 time=27ms TTL=255
Reply from 192.168.1.1: bytes=32 time=16ms TTL=255
Reply from 192.168.1.1: bytes=32 time=30ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 16ms, Maximum = 30ms, Average = 24ms
```

4.

```
Packet Tracer PC Command Line 1.0
PC>ipconfig /all

Physical Address. . . . .: 00D0.D337.EE9B
IP Address. . . . .: 192.168.3.10
Subnet Mask. . . . .: 255.255.255.0
Default Gateway. . . . .: 192.168.3.1
DNS Servers. . . . .: 0.0.0.0
```

5.

```
PC>ping 192.168.3.1

Pinging 192.168.3.1 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.3.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

6.

```
2600-2#ping 192.168.3.10

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.3.10, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
```



```

2600-2#show interface fa0/0
FastEthernet0/0 is administratively down, line protocol is down (disabled)
  Hardware is Lance, address is 0001.9711.8alc (bia 0001.9711.8alc)
  Internet address is 192.168.3.1/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  ARP type: ARPA, ARP Timeout 04:00:00,
  Last input 00:00:08, output 00:00:05, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: fifo
  Output queue :0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    49 packets input, 6272 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    0 input packets with dribble condition detected
    296 packets output, 23804 bytes, 0 underruns
    0 output errors, 0 collisions, 1 interface resets
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
--More-- |

```

```

2600-2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
2600-2(config)#interface fa0/0
2600-2(config-if)#no shutdown
2600-2(config-if)#end
2600-2#
%SYS-5-CONFIG_I: Configured from console by console

```

```

2600-2#ping 192.168.3.10

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.3.10, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 3/10/14 ms

```

7.

```

PC>ping 192.168.3.10

Pinging 192.168.3.10 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

```

8.

```
2600-1#show ip interface brief
Interface          IP-Address      OK? Method Status        Protocol

FastEthernet0/0    192.168.1.1    YES manual up           up
FastEthernet1/0    unassigned     YES unset  administratively down down
Serial2/0          192.168.2.1    YES manual up           up
Serial3/0          unassigned     YES unset  administratively down down
FastEthernet4/0    unassigned     YES unset  administratively down down
FastEthernet5/0    unassigned     YES unset  administratively down down
```

```
2600-1#ping 192.168.2.2
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.2.2, timeout is 2 seconds:

.....

Success rate is 0 percent (0/5)

```
2600-1#show cdp entry 2600-2
```

% CDP is not enabled

9.

```
2600-2#configure terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

```
2600-2(config)#interface se3/0
```

```
2600-2(config-if)#ip address 192.168.2.2 255.255.255.0
```

```
2600-2(config-if)#end
```

```
2600-2#
```

%SYS-5-CONFIG_I: Configured from console by console

```
2600-2#ping 192.168.2.1
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.2.1, timeout is 2 seconds:

!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 5/6/9 ms

10.

```
2600-2#show ip route
```

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

Gateway of last resort is not set

```
S    192.168.1.0/24 [1/0] via 192.168.2.1
```

```
C    192.168.2.0/24 is directly connected, Serial3/0
```

```
C    192.168.3.0/24 is directly connected, FastEthernet0/0
```

11.

```
Packet Tracer PC Command Line 1.0
PC>ping 192.168.3.1

Pinging 192.168.3.1 with 32 bytes of data:

Reply from 192.168.3.1: bytes=32 time=11ms TTL=255
Reply from 192.168.3.1: bytes=32 time=11ms TTL=255
Reply from 192.168.3.1: bytes=32 time=12ms TTL=255
Reply from 192.168.3.1: bytes=32 time=9ms TTL=255

Ping statistics for 192.168.3.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 9ms, Maximum = 12ms, Average = 10ms
```

```
PC>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

Reply from 192.168.3.1: Destination host unreachable.
Reply from 192.168.3.1: Destination host unreachable.
Reply from 192.168.3.1: Destination host unreachable.
Reply from 192.168.3.1: Destination host unreachable.

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

12.

```
2600-1#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

2600-1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
2600-1(config)#ip route 192.168.3.0 255.255.255.0 192.168.2.2
2600-1(config)#end
2600-1#
%SYS-5-CONFIG_I: Configured from console by console

2600-1#ping 192.168.3.10

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.3.10, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 6/14/18 ms
```

13.

```
PC>ping 192.168.3.10

Pinging 192.168.3.10 with 32 bytes of data:

Reply from 192.168.3.10: bytes=32 time=30ms TTL=126
Reply from 192.168.3.10: bytes=32 time=15ms TTL=126
Reply from 192.168.3.10: bytes=32 time=17ms TTL=126
Reply from 192.168.3.10: bytes=32 time=33ms TTL=126

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 15ms, Maximum = 33ms, Average = 23ms
```