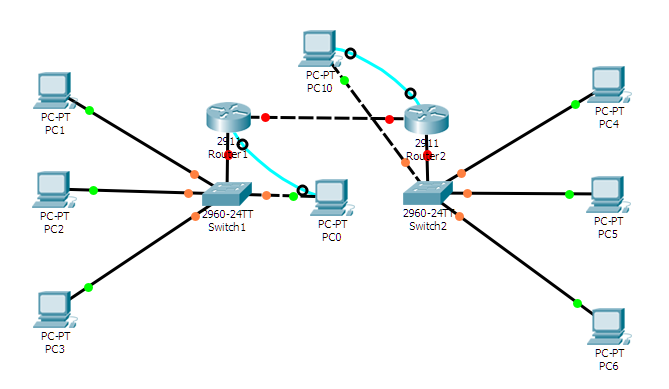
**Homework 4 -- Trunking & Routing Vlans**

**CSCE 4535 Final Grade 8%**

**Objectives: The objective of this Lab is to learn Layer 3 networking which includes, basic routing of vlans and inter vlan connectivity, loopback interfaces, default gateway and default routes for each device.**

**Build the network with the following specifications using packet tracer as shown in diagram below:**

**The network consists of 8 PC’s, two switches and two routers. PC0 and PC10 serve as a console for Management.** **PC1 is on vlan 10, PC2 is on vlan 20, PC3 is on vlan 30, PC4 is on vlan 40, PC5 is on vlan 50, and PC6 is on vlan 60. Router-1 connects to Switch-1 trunking vlans 1, 10, 20, 30 and Router-2 connects to Switch-2 trunking vlans 1, 40, 50, 60. Both routers connect to each other using gigabit interface 0/2.**

* **Configure the following:**

1. Console cable for PC0 for management of Switch-1 and then Router-1
2. Console cable for PC10 for management of Switch-2 and then Router-2
3. Ethernet cable for PC0 & PC10 for remote management
4. Ethernet cables for remaining PC’s as assigned to correct switchport
5. Set IP address for each PC as assigned
6. Create vlan 10, 20 & 30 on Switch-1 and name them student-1, Lab-1 & staff-1 respectively
7. Create vlan 40, 50 & 60 on Switch-2 and name them student-2, Lab-2 & staff-2 respectively
8. Set “switchport mode access” for ports 1, 2, 3 on each switch
9. Set “switchport access vlan xx” for ports 1, 2, 3 on each switch respectively
10. Set interface description for each interface and sub-interface
11. Set IP address for each vlan as assigned
12. Set up dot1Q trunk between Switch-1 and Router-1 with vlans 1, 10, 20, 30 using gigabit 1 port
13. Set up dot1Q trunk between Switch-2 and Router-2 with vlans 1, 40, 50, 60 using gigabit 1 port
14. Setup gigabit 1 port on both routers with sub-interface for each vlan
15. Set IP address for each vlan as assigned on both routers
16. Set loopback interface for each router
17. Set default gateway on each switch.
18. Set default route 0.0.0.0 on each router.
19. Apply Security Script to setup the following:
    1. Configure Hostname for MLS-1
    2. Configure enable “secret password” cisco
    3. Configure “line console 0 password” cisco
    4. Configure the console Idle privilege exec timeout of 5 minutes
    5. Now encrypt the console password
    6. Now add a banner “No unauthorized access allowed!”
    7. Configure vty lines 0-4 for remote access
20. Save your configuration for Switch-1, Switch-2, Router-1 & Router-2
21. Save your Packet tracer activity file (.pkt) on your USB drive. You will need it in future

* **Submit the following for grading in a single Word file:**

1. Submit the configuration item from Switch-1, Switch-2, Router-1 & Router-2 for this homework

Switch1:

hostname Switch1

!

enable secret 5 $1$mERr$hx5rVt7rPNoS4wqbXKX7m0

!

interface FastEthernet0/1

description Interface for VLAN10

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/2

description Interface of VLAN20

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/3

description Interface of VLAN30

switchport access vlan 30

switchport mode access

!

interface FastEthernet0/5

switchport trunk allowed vlan 1,10,20,30

switchport mode trunk

!

interface Vlan1

description default VLAN

ip address 192.168.1.2 255.255.255.0

shutdown

!

interface Vlan10

description VLAN of student-1

ip address 192.168.10.2 255.255.255.0

!

interface Vlan20

description VLAN of Lab-1

ip address 192.168.20.2 255.255.255.0

!

interface Vlan30

description VLAN of staff-1

ip address 192.168.30.2 255.255.255.0

!

ip default-gateway 192.168.1.1

!

banner motd ^CNo unauthorized access allowed!^C

!

!

!

line con 0

password 7 0822455D0A16

login

exec-timeout 5 0

!

line vty 0 4

password 7 0822455D0A16

login

transport input telnet

line vty 5 15

login

!

!

!

!

End

Switch2:

hostname Switch2

!

enable secret 5 $1$mERr$hx5rVt7rPNoS4wqbXKX7m0

!

interface FastEthernet0/1

description Interface for VLAN40

switchport access vlan 40

switchport mode access

!

interface FastEthernet0/2

description Interface for VLAN50

switchport access vlan 50

switchport mode access

!

interface FastEthernet0/3

description Interface for VLAN60

switchport access vlan 60

switchport mode access

!

interface FastEthernet0/5

switchport trunk allowed vlan 1,40,50,60

switchport mode trunk

!

interface Vlan1

description Default VLAN

ip address 192.168.1.3 255.255.255.0

!

interface Vlan40

description VLAN for student-2

ip address 192.168.40.2 255.255.255.0

!

interface Vlan50

description VLAN for Lab-2

ip address 192.168.50.2 255.255.255.0

!

interface Vlan60

description VLAN for staff-2

ip address 192.168.60.2 255.255.255.0

!

ip default-gateway 192.168.1.250

!

banner motd ^CNo unauthorized access allowed!^C

!

!

!

line con 0

password 7 0822455D0A16

login

exec-timeout 5 0

!

line vty 0 4

password 7 0822455D0A16

login

transport input telnet

line vty 5 15

login

!

!

!

!

end

Router1:

hostname Router1

!

!

!

enable secret 5 $1$mERr$hx5rVt7rPNoS4wqbXKX7m0

!

interface Loopback0

ip address 192.168.3.1 255.255.255.252

!

interface GigabitEthernet0/1

no ip address

duplex auto

speed auto

!

interface GigabitEthernet0/1.1

encapsulation dot1Q 1 native

ip address 192.168.1.1 255.255.255.0

!

interface GigabitEthernet0/1.2

encapsulation dot1Q 10

ip address 192.168.10.1 255.255.255.0

!

interface GigabitEthernet0/1.3

encapsulation dot1Q 20

ip address 192.168.20.1 255.255.255.0

!

interface GigabitEthernet0/1.4

encapsulation dot1Q 30

ip address 192.168.30.1 255.255.255.0

!

interface GigabitEthernet0/2

ip address 192.168.2.1 255.255.255.0

duplex auto

speed auto

!

ip route 0.0.0.0 0.0.0.0 GigabitEthernet0/2

!

banner motd ^CNo unauthorized access allowed!^C

!

!

!

!

line con 0

exec-timeout 5 0

password 7 0822455D0A16

login

!

line aux 0

!

line vty 0 4

password 7 0822455D0A16

login

transport input telnet

!

!

!

end

Router2:

hostname Router2

!

!

!

enable secret 5 $1$mERr$hx5rVt7rPNoS4wqbXKX7m0

!

interface Loopback0

ip address 192.168.3.5 255.255.255.252

!

interface GigabitEthernet0/1

no ip address

duplex auto

speed auto

!

interface GigabitEthernet0/1.1

encapsulation dot1Q 1 native

ip address 192.168.1.250 255.255.255.0

!

interface GigabitEthernet0/1.2

encapsulation dot1Q 40

ip address 192.168.40.1 255.255.255.0

!

interface GigabitEthernet0/1.3

encapsulation dot1Q 50

ip address 192.168.50.1 255.255.255.0

!

interface GigabitEthernet0/1.4

encapsulation dot1Q 60

ip address 192.168.60.1 255.255.255.0

!

interface GigabitEthernet0/2

ip address 192.168.2.2 255.255.255.0

duplex auto

speed auto

!

ip route 0.0.0.0 0.0.0.0 GigabitEthernet0/2

!

banner motd ^CNo unauthorized access allowed!^C

!

!

!

!

line con 0

exec-timeout 5 0

password 7 0822455D0A16

login

!

line aux 0

!

line vty 0 4

password 7 0822455D0A16

login

transport input telnet

!

!

!

End

1. Label and Submit a copy of your network diagram (you can use windows “snip” to copy & paste)

Diagram

Description automatically generated

1. Submit “show vlan” normalized output from Switch-1 & Switch-2 for this homework

Switch1:

VLAN Name Status Ports

---- -------------------------------- --------- -------------------------------

1 default active Fa0/4, Fa0/6, Fa0/7, Fa0/8

Fa0/9, Fa0/10, Fa0/11, Fa0/12

Fa0/13, Fa0/14, Fa0/15, Fa0/16

Fa0/17, Fa0/18, Fa0/19, Fa0/20

Fa0/21, Fa0/22, Fa0/23, Fa0/24

Gig0/1, Gig0/2

10 student-1 active Fa0/1

20 Lab-1 active Fa0/2

30 staff-1 active Fa0/3

1002 fddi-default active

1003 token-ring-default active

1004 fddinet-default active

1005 trnet-default active

VLAN Type SAID MTU Parent RingNo BridgeNo Stp BrdgMode Trans1 Trans2

---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------

1 enet 100001 1500 - - - - - 0 0

10 enet 100010 1500 - - - - - 0 0

20 enet 100020 1500 - - - - - 0 0

30 enet 100030 1500 - - - - - 0 0

1002 fddi 101002 1500 - - - - - 0 0

1003 tr 101003 1500 - - - - - 0 0

1004 fdnet 101004 1500 - - - ieee - 0 0

1005 trnet 101005 1500 - - - ibm - 0 0

VLAN Type SAID MTU Parent RingNo BridgeNo Stp BrdgMode Trans1 Trans2

---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------

Remote SPAN VLANs

------------------------------------------------------------------------------

Primary Secondary Type Ports

------- --------- ----------------- ------------------------------------------

Switch2:

VLAN Name Status Ports

---- -------------------------------- --------- -------------------------------

1 default active Fa0/4, Fa0/6, Fa0/7, Fa0/8

Fa0/9, Fa0/10, Fa0/11, Fa0/12

Fa0/13, Fa0/14, Fa0/15, Fa0/16

Fa0/17, Fa0/18, Fa0/19, Fa0/20

Fa0/21, Fa0/22, Fa0/23, Fa0/24

Gig0/1, Gig0/2

40 student-2 active Fa0/1

50 Lab-2 active Fa0/2

60 staff-2 active Fa0/3

1002 fddi-default active

1003 token-ring-default active

1004 fddinet-default active

1005 trnet-default active

VLAN Type SAID MTU Parent RingNo BridgeNo Stp BrdgMode Trans1 Trans2

---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------

1 enet 100001 1500 - - - - - 0 0

40 enet 100040 1500 - - - - - 0 0

50 enet 100050 1500 - - - - - 0 0

60 enet 100060 1500 - - - - - 0 0

1002 fddi 101002 1500 - - - - - 0 0

1003 tr 101003 1500 - - - - - 0 0

1004 fdnet 101004 1500 - - - ieee - 0 0

1005 trnet 101005 1500 - - - ibm - 0 0

VLAN Type SAID MTU Parent RingNo BridgeNo Stp BrdgMode Trans1 Trans2

---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------

Remote SPAN VLANs

------------------------------------------------------------------------------

Primary Secondary Type Ports

------- --------- ----------------- ------------------------------------------

1. Verify console connectivity from PC0 to Switch-1, Switch-2, Router-1 & Router-2 by logging into the switches & router using telnet

Switch1:

Router1#telnet 192.168.10.2

Trying 192.168.10.2 ...OpenNo unauthorized access allowed!

User Access Verification

Password:

Switch1>

Switch2:

Switch1>telnet 192.168.40.2

Trying 192.168.40.2 ...OpenNo unauthorized access allowed!

User Access Verification

Password:

Switch2>

Router1:

Router2>telnet 192.168.10.1

Trying 192.168.10.1 ...OpenNo unauthorized access allowed!

User Access Verification

Password:

Router1>

Router 2:

Switch2>telnet 192.168.40.1

Trying 192.168.40.1 ...OpenNo unauthorized access allowed!

User Access Verification

Password:

Router2>

1. Verify Switch-1, Switch-2, Router-1 & Router-2 connectivity to PC0 with ping command
2. Verify Router-1 & Router-2 loopback interface connectivity from PC0 with telnet command
3. Verify network connectivity from each PC to all other PCs for complete inter-vlan connectivity, for example PC1 to PC2, 3, 5, 6 etc.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | PC1 | PC2 | PC3 | PC4 | PC5 | PC6 |
| PC1 | ==== | Pinging 192.168.20.10 with 32 bytes of data:  Request timed out.  Reply from 192.168.20.10: bytes=32 time=11ms TTL=127  Reply from 192.168.20.10: bytes=32 time<1ms TTL=127  Reply from 192.168.20.10: bytes=32 time<1ms TTL=127  Ping statistics for 192.168.20.10:  Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 11ms, Average = 3ms | Request timed out.  Reply from 192.168.30.10: bytes=32 time<1ms TTL=127  Reply from 192.168.30.10: bytes=32 time=13ms TTL=127  Reply from 192.168.30.10: bytes=32 time=1ms TTL=127  Ping statistics for 192.168.30.10:  Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 13ms, Average = 4ms | Pinging 192.168.40.10 with 32 bytes of data:  Reply from 192.168.40.10: bytes=32 time=11ms TTL=126  Reply from 192.168.40.10: bytes=32 time=12ms TTL=126  Reply from 192.168.40.10: bytes=32 time=11ms TTL=126  Reply from 192.168.40.10: bytes=32 time=12ms TTL=126  Ping statistics for 192.168.40.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 11ms, Maximum = 12ms, Average = 11ms | Pinging 192.168.50.10 with 32 bytes of data:  Reply from 192.168.50.10: bytes=32 time=10ms TTL=126  Reply from 192.168.50.10: bytes=32 time=24ms TTL=126  Reply from 192.168.50.10: bytes=32 time=19ms TTL=126  Reply from 192.168.50.10: bytes=32 time=13ms TTL=126  Ping statistics for 192.168.50.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 10ms, Maximum = 24ms, Average = 16ms | Pinging 192.168.60.10 with 32 bytes of data:  Reply from 192.168.60.10: bytes=32 time=12ms TTL=126  Reply from 192.168.60.10: bytes=32 time=13ms TTL=126  Reply from 192.168.60.10: bytes=32 time=11ms TTL=126  Reply from 192.168.60.10: bytes=32 time=13ms TTL=126  Ping statistics for 192.168.60.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 11ms, Maximum = 13ms, Average = 12ms |
| PC2 | Pinging 192.168.10.10 with 32 bytes of data:  Reply from 192.168.10.10: bytes=32 time=10ms TTL=127  Reply from 192.168.10.10: bytes=32 time=11ms TTL=127  Reply from 192.168.10.10: bytes=32 time=10ms TTL=127  Reply from 192.168.10.10: bytes=32 time<1ms TTL=127  Ping statistics for 192.168.10.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 11ms, Average = 7ms | ==== | Pinging 192.168.30.10 with 32 bytes of data:  Reply from 192.168.30.10: bytes=32 time<1ms TTL=127  Reply from 192.168.30.10: bytes=32 time=12ms TTL=127  Reply from 192.168.30.10: bytes=32 time=11ms TTL=127  Reply from 192.168.30.10: bytes=32 time=1ms TTL=127  Ping statistics for 192.168.30.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 12ms, Average = 6ms | Pinging 192.168.40.10 with 32 bytes of data:  Request timed out.  Reply from 192.168.40.10: bytes=32 time<1ms TTL=126  Reply from 192.168.40.10: bytes=32 time=4ms TTL=126  Reply from 192.168.40.10: bytes=32 time=11ms TTL=126  Ping statistics for 192.168.40.10:  Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 11ms, Average = 5ms | Pinging 192.168.50.10 with 32 bytes of data:  Reply from 192.168.50.10: bytes=32 time=10ms TTL=126  Reply from 192.168.50.10: bytes=32 time=13ms TTL=126  Reply from 192.168.50.10: bytes=32 time=11ms TTL=126  Reply from 192.168.50.10: bytes=32 time=1ms TTL=126  Ping statistics for 192.168.50.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 1ms, Maximum = 13ms, Average = 8ms | Pinging 192.168.60.10 with 32 bytes of data:  Reply from 192.168.60.10: bytes=32 time=12ms TTL=126  Reply from 192.168.60.10: bytes=32 time=13ms TTL=126  Reply from 192.168.60.10: bytes=32 time=11ms TTL=126  Reply from 192.168.60.10: bytes=32 time=22ms TTL=126  Ping statistics for 192.168.60.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 11ms, Maximum = 22ms, Average = 14ms |
| PC3 | Pinging 192.168.10.10 with 32 bytes of data:  Reply from 192.168.10.10: bytes=32 time<1ms TTL=127  Reply from 192.168.10.10: bytes=32 time=12ms TTL=127  Reply from 192.168.10.10: bytes=32 time=11ms TTL=127  Reply from 192.168.10.10: bytes=32 time<1ms TTL=127  Ping statistics for 192.168.10.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 12ms, Average = 5ms | Pinging 192.168.20.10 with 32 bytes of data:  Reply from 192.168.20.10: bytes=32 time=1ms TTL=127  Reply from 192.168.20.10: bytes=32 time<1ms TTL=127  Reply from 192.168.20.10: bytes=32 time=13ms TTL=127  Reply from 192.168.20.10: bytes=32 time=14ms TTL=127  Ping statistics for 192.168.20.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 14ms, Average = 7ms | ==== | Pinging 192.168.40.10 with 32 bytes of data:  Request timed out.  Reply from 192.168.40.10: bytes=32 time=12ms TTL=126  Reply from 192.168.40.10: bytes=32 time=11ms TTL=126  Reply from 192.168.40.10: bytes=32 time<1ms TTL=126  Ping statistics for 192.168.40.10:  Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 12ms, Average = 7ms | Pinging 192.168.50.10 with 32 bytes of data:  Reply from 192.168.50.10: bytes=32 time=32ms TTL=126  Reply from 192.168.50.10: bytes=32 time=10ms TTL=126  Reply from 192.168.50.10: bytes=32 time=13ms TTL=126  Reply from 192.168.50.10: bytes=32 time=14ms TTL=126  Ping statistics for 192.168.50.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 10ms, Maximum = 32ms, Average = 17ms | Pinging 192.168.60.10 with 32 bytes of data:  Reply from 192.168.60.10: bytes=32 time=13ms TTL=126  Reply from 192.168.60.10: bytes=32 time=15ms TTL=126  Reply from 192.168.60.10: bytes=32 time=3ms TTL=126  Reply from 192.168.60.10: bytes=32 time<1ms TTL=126  Ping statistics for 192.168.60.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 15ms, Average = 7ms |
| PC4 | Pinging 192.168.10.10 with 32 bytes of data:  Reply from 192.168.10.10: bytes=32 time=11ms TTL=126  Reply from 192.168.10.10: bytes=32 time=11ms TTL=126  Reply from 192.168.10.10: bytes=32 time=13ms TTL=126  Reply from 192.168.10.10: bytes=32 time=11ms TTL=126  Ping statistics for 192.168.10.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 11ms, Maximum = 13ms, Average = 11ms | Pinging 192.168.20.10 with 32 bytes of data:  Reply from 192.168.20.10: bytes=32 time=26ms TTL=126  Reply from 192.168.20.10: bytes=32 time=12ms TTL=126  Reply from 192.168.20.10: bytes=32 time<1ms TTL=126  Reply from 192.168.20.10: bytes=32 time<1ms TTL=126  Ping statistics for 192.168.20.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 26ms, Average = 9ms | Pinging 192.168.30.10 with 32 bytes of data:  Reply from 192.168.30.10: bytes=32 time=25ms TTL=126  Reply from 192.168.30.10: bytes=32 time=13ms TTL=126  Reply from 192.168.30.10: bytes=32 time=11ms TTL=126  Reply from 192.168.30.10: bytes=32 time=15ms TTL=126  Ping statistics for 192.168.30.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 11ms, Maximum = 25ms, Average = 16ms | ==== | Pinging 192.168.50.10 with 32 bytes of data:  Reply from 192.168.50.10: bytes=32 time<1ms TTL=127  Reply from 192.168.50.10: bytes=32 time<1ms TTL=127  Reply from 192.168.50.10: bytes=32 time=1ms TTL=127  Reply from 192.168.50.10: bytes=32 time=4ms TTL=127  Ping statistics for 192.168.50.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 4ms, Average = 1ms | Pinging 192.168.60.10 with 32 bytes of data:  Reply from 192.168.60.10: bytes=32 time<1ms TTL=127  Reply from 192.168.60.10: bytes=32 time<1ms TTL=127  Reply from 192.168.60.10: bytes=32 time<1ms TTL=127  Reply from 192.168.60.10: bytes=32 time=1ms TTL=127  Ping statistics for 192.168.60.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 1ms, Average = 0ms |
| PC5 | Pinging 192.168.10.10 with 32 bytes of data:  Reply from 192.168.10.10: bytes=32 time=14ms TTL=126  Reply from 192.168.10.10: bytes=32 time=15ms TTL=126  Reply from 192.168.10.10: bytes=32 time=16ms TTL=126  Reply from 192.168.10.10: bytes=32 time=11ms TTL=126  Ping statistics for 192.168.10.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 11ms, Maximum = 16ms, Average = 14ms | Pinging 192.168.20.10 with 32 bytes of data:  Reply from 192.168.20.10: bytes=32 time=13ms TTL=126  Reply from 192.168.20.10: bytes=32 time=10ms TTL=126  Reply from 192.168.20.10: bytes=32 time=15ms TTL=126  Reply from 192.168.20.10: bytes=32 time=1ms TTL=126  Ping statistics for 192.168.20.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 1ms, Maximum = 15ms, Average = 9ms | Pinging 192.168.30.10 with 32 bytes of data:  Reply from 192.168.30.10: bytes=32 time=14ms TTL=126  Reply from 192.168.30.10: bytes=32 time=12ms TTL=126  Reply from 192.168.30.10: bytes=32 time=11ms TTL=126  Reply from 192.168.30.10: bytes=32 time=11ms TTL=126  Ping statistics for 192.168.30.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 11ms, Maximum = 14ms, Average = 12ms | Pinging 192.168.40.10 with 32 bytes of data:  Reply from 192.168.40.10: bytes=32 time=11ms TTL=127  Reply from 192.168.40.10: bytes=32 time<1ms TTL=127  Reply from 192.168.40.10: bytes=32 time=1ms TTL=127  Reply from 192.168.40.10: bytes=32 time=12ms TTL=127  Ping statistics for 192.168.40.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 12ms, Average = 6ms | ==== | Pinging 192.168.60.10 with 32 bytes of data:  Reply from 192.168.60.10: bytes=32 time=12ms TTL=127  Reply from 192.168.60.10: bytes=32 time=13ms TTL=127  Reply from 192.168.60.10: bytes=32 time=1ms TTL=127  Reply from 192.168.60.10: bytes=32 time=1ms TTL=127  Ping statistics for 192.168.60.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 1ms, Maximum = 13ms, Average = 6ms |
| PC6 | Pinging 192.168.10.10 with 32 bytes of data:  Reply from 192.168.10.10: bytes=32 time=12ms TTL=126  Reply from 192.168.10.10: bytes=32 time=13ms TTL=126  Reply from 192.168.10.10: bytes=32 time=10ms TTL=126  Reply from 192.168.10.10: bytes=32 time=11ms TTL=126  Ping statistics for 192.168.10.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 10ms, Maximum = 13ms, Average = 11ms | Pinging 192.168.20.10 with 32 bytes of data:  Reply from 192.168.20.10: bytes=32 time=13ms TTL=126  Reply from 192.168.20.10: bytes=32 time=10ms TTL=126  Reply from 192.168.20.10: bytes=32 time=18ms TTL=126  Reply from 192.168.20.10: bytes=32 time=12ms TTL=126  Ping statistics for 192.168.20.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 10ms, Maximum = 18ms, Average = 13ms | Pinging 192.168.30.10 with 32 bytes of data:  Reply from 192.168.30.10: bytes=32 time<1ms TTL=126  Reply from 192.168.30.10: bytes=32 time=13ms TTL=126  Reply from 192.168.30.10: bytes=32 time=4ms TTL=126  Reply from 192.168.30.10: bytes=32 time=18ms TTL=126  Ping statistics for 192.168.30.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 18ms, Average = 8ms | Pinging 192.168.40.10 with 32 bytes of data:  Reply from 192.168.40.10: bytes=32 time<1ms TTL=127  Reply from 192.168.40.10: bytes=32 time=4ms TTL=127  Reply from 192.168.40.10: bytes=32 time=12ms TTL=127  Reply from 192.168.40.10: bytes=32 time=4ms TTL=127  Ping statistics for 192.168.40.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 12ms, Average = 5ms | Pinging 192.168.50.10 with 32 bytes of data:  Reply from 192.168.50.10: bytes=32 time=14ms TTL=127  Reply from 192.168.50.10: bytes=32 time=10ms TTL=127  Reply from 192.168.50.10: bytes=32 time=12ms TTL=127  Reply from 192.168.50.10: bytes=32 time<1ms TTL=127  Ping statistics for 192.168.50.10:  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  Approximate round trip times in milli-seconds:  Minimum = 0ms, Maximum = 14ms, Average = 9ms | ==== |

1. Verify management console connectivity from PC10 to Switch-1, Switch-2, Router-1 & Router-2 using telnet
2. Is the management network broken? Propose a solution to fix it if it is broken?

I don’t believe there is anything broken within the network.

1. Compile all your output in one word document and include it in your submission for grading.

**Please note that the grading for Homeworks and Labs require that you configure correct vlans on the switch and trunk based on the design. Configuring access vlans or configuring all vlans on trunk is not acceptable. I have seen many networks destroyed by this bad practice. I want to make sure that you do not learn this bad habit. You will not get full credit for work if you use this bad practice for homeworks and Labs.**