Nick Smith

TLEN 5460 Lab1 Writeup

1.

Switch-conf
interface FA0/1
Duplex half
Speed 10

```
Switch#show interface status

Port      Name               Status       Vlan       Duplex  Speed Type
Fa0/1                        connected    1            half     10 10/100BaseTX
Fa0/2                        connected    1          a-full  a-100 10/100BaseTX
```

2.
Switch-conf
interface FA0/1
 switchport mode access
 switchport port-security
 switchport port-security violation restrict
 switchport port-security maximum 2
 switchport port-security mac-address 00-50-56-A0-25-0B

```
Switch(config-if)#switchport port-security mac-address 00-50-56-A0-25-0B
Switch(config-if)#exit
Switch(config-if)#
*Mar  6 08:48:51.758: %PM-4-ERR_DISABLE: psecure-violation error detected on Fa0/1, putting Fa0/1 in err-disable state
*Mar  6 08:48:51.758: %PORT_SECURITY-2-PSECURE_VIOLATION: Security violation occurred, caused by MAC address 0014.6af4.c581 on port FastEthernet0/1.
```

3.
Switch-Conf

vlan 2
 Name Engineering
vlan 3
 Name Accounting
interface FA0/1
 switchport mode access
 switchport access vlan 2
interface FA0/2
 switchport mode access
 switchport access vlan 2
interface FA0/3
 switchport mode access
 switchport access vlan 3

interface FA0/4
 switchport mode access
 switchport access vlan 3

```
Switch#show
*Mar  6 13:00:45.579: %SYS-5-CONFIG_I: Configured from console by consolevlan

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/5, 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
                                                Gi0/1, Gi0/2
2    Engineering                      active    Fa0/1, Fa0/2
3    Accounting                       active    Fa0/3, Fa0/4
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup
```

```
Ping statistics for 172.20.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\Users\itplab>ping 172.20.0.5

Pinging 172.20.0.5 with 32 bytes of data:
Reply from 172.20.0.5: bytes=32 time=1ms TTL=128
Reply from 172.20.0.5: bytes=32 time<1ms TTL=128
Reply from 172.20.0.5: bytes=32 time<1ms TTL=128
Reply from 172.20.0.5: bytes=32 time<1ms TTL=128

Ping statistics for 172.20.0.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\itplab>ping 172.20.0.6

Pinging 172.20.0.6 with 32 bytes of data:
Reply from 172.20.0.6: bytes=32 time=1ms TTL=128
Reply from 172.20.0.6: bytes=32 time<1ms TTL=128
Reply from 172.20.0.6: bytes=32 time<1ms TTL=128
Reply from 172.20.0.6: bytes=32 time<1ms TTL=128

Ping statistics for 172.20.0.6:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\itplab>_
```

e. You do not need to worry about same ip addressing on different VLANs because the different VLANs are completely separate from each other when it comes to the ip addressing.

4.

Switch-conf

interface FA/07
 switchport mode dynamic desirable
interface FA0/3
 no switchport access vlan 2
 no switchport mode access
interface FA0/4

```
 no switchport access vlan 3
 no switchport mode access
```

Switch1-conf

```
interface FA0/7
 switchport mode dynamic desirable
vlan 2
 Name Engineering
 Name Accounting
interface FA0/1
 switchport mode access
 switchport access vlan 2
interface FA0/2
 switchport mode access
 switchport access vlan 3
```

3. The trunking encapsulation that was supported by both switches was dot1q

5.

Switch1-conf

```
interface FA0/8
 switchport trunk encapsulation dot1q
 switchport mode trunk
```

Router-conf

```
interface FastEthernet 1/0
 duplex full
interface FastEthernet 1/0.10
 encapsulation dot1q 2
 ip address 192.168.1.25 255.255.255.0
interface FastEthernet 1/0.20
 encapsulation dot1q 3
 ip address 192.21.2.25 255.255.255.0
```

6.

Switch3-conf

```
vtp mode client
vtp domain Lab
interface FastEthernet 0/7
 switchport mode dynamic desirable
```

Switch2-conf

```
vtp mode transparent
vtp domain Lab
interface FastEthernet 0/8
 switchport mode dynamic desirable
```

Switch1-conf
vtp mode server
vtp domain Lab

f. At first the server didn't update the client with the new VLANs, but after I made another change in the server then all of the changes got propagated and from there they were always propagated. It is really convenient using that so that you don't have to update the VLANs everywhere and they will automatically get updated.

7.

Switch3-conf
interface FastEthernet 0/8
switchport mode dynamic desirable

Switch1-conf
interface FastEthernet 0/8
switchport mode dynamic desirable

After 3 connections:
Switch 1 has the MAC address for PC1 on FA0/8 and PC2 on FA0/7
Switch 2 has the MAC address for PC1 on FA0/7 and PC2 on FA0/1
Switch 3 has the MAC address for PC1 on FA0/1 and PC2 on FA0/8

After adding another connection between Switch1 and Switch3
Switch 1 has the MAC address for PC1 on FA0/8 and PC2 on FA0/7
Switch 2 has the MAC address for PC1 on FA0/7 and PC2 on FA0/1
Switch 3 has the MAC address for PC1 on FA0/1 and PC2 on FA0/8

```
Nick-Switch3#sh spanning-tree vlan 2

VLAN0002
  Spanning tree enabled protocol ieee
  Root ID     Priority    32770
              Address     0017.9412.6980
              Cost        19
              Port        10 (FastEthernet0/8)
              Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID   Priority    32770  (priority 32768 sys-id-ext 2)
              Address     0019.564c.d080
              Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec
              Aging Time  300 sec

Interface           Role Sts Cost      Prio.Nbr Type
------------------- ---- --- --------- -------- --------------------------------
Fa0/1               Desg FWD 19        128.3    P2p
Fa0/7               Altn BLK 19        128.9    P2p
Fa0/8               Root FWD 19        128.10   P2p
Fa0/9               Altn BLK 19        128.11   P2p
```

It took around 30 seconds before I could ping again.

8.
9.
Switch1-conf
Spanning-tree vlan 3 root primary

Switch3-conf
Spanning-tree vlan 2 root primary
10.

Advantages of portfast is that an interface is brought up faster than without it. It speeds up the recovery of interfaces.

Switch1-conf
interface range FastEthernet 0/9
 channel-group 1 mode desirable
 bandwidth 921600
interface range FastEthernet 0/7
 channel-group 1 mode desirable
 bandwidth 1024000

```
Nick-Switch1#show etherchannel summary
Flags:  D - down        P - bundled in port-channel
        I - stand-alone s - suspended
        H - Hot-standby (LACP only)
        R - Layer3      S - Layer2
        U - in use      f - failed to allocate aggregator

        M - not in use, minimum links not met
        u - unsuitable for bundling
        w - waiting to be aggregated
        d - default port


Number of channel-groups in use: 2
Number of aggregators:           2

Group  Port-channel  Protocol    Ports
------+-------------+-----------+-----------------------------------------------
1      Po1(SD)         PAgP      Fa0/9(I)
2      Po2(SD)         PAgP      Fa0/7(I)
```

It immediately brings the port back up to a green state while when portfast is not used it takes a longer time to change from amber to green.

Also when I took out the cable the stp did not change.

10. SPAN

SPAN is a way to configure a port to send a copy of a packet to a specific host. With this functionality you can monitor the traffic that is on the network.

SPAN-conf

conf t
monitor session 1 source interface (some interface for recieving)
monitor session 1 destination interface (some interface you want to send to)

QUESTIONS

1. I would secure the switch by enabling a password, disabling telnet, enabling ssh and using port-security.

2. MAC addresses are 48 bits. The first 3 bytes are the organization that created the device and the last 3 are the serial number of the device.

3. Sticky ports are secure because it is another layer of security with MAC addresses. It is recommended to have some sort of security.

4. Routers use the software to forward while switches use hardware so it is faster.

5. There are as many on your computer as there are network interfaces.

6. It is suppose to solve the problem for the time STP takes to transition ports to the forwarding state.

7. Inter switches send VLAN information through Ethernet frames.

8. Yes you can change your mac address with some simple commands from the command line in a uniz environment.

9. you can use SPAN to monitor network traffic and make sure that the traffic is what it should be.

10. An ARP request will happen so that they can know what your mac address is. Then the packet goes to the gateway and it sends it to the correct ip.

11. Vlans help limit broadcast traffic and can help with keeping similar networks together.

12. It can have higher latency then a LAN

13. Yes you can but it is not a popular practice.

14. Yes you can telnet to a switch and you can't do it from any vlan.

15. It is there so for devices that don't support trunking so that they can receive everything without the tagging.

16. It carries untagged traffic along the trunk.

17. ISL trunking protocols are also used in industry.

18. It combines layer 2 and 3 routing. The packet is viewed to see the information for layer 3.

19. It has fewer states and it is faster than STP.

20. It is the performance of the network. Some of the work is done so that they can improve the overall throughput.

21. It is better for the timing if the connection goes down.

22. It takes out the unnecessary vlan broadcasts to devices that aren't in the vlan.

VERY USEFUL Commands:

Sh mac address-table --- Shows mac address table

Sh interface status – show the interface status

Switchport mode access --- Change from dynamic

Switchport port-security interface FA0/1 --- Show security settings for a port

Show vlan --- show vlans

Dir flash --- list files on flash

Show vtp status --- show vtp info

Sh cdp neighbors --- show connected switches

Sh spanning-tree vlan 2 --- see spanning tree info

Spanning-tree vlan 2 root primary --- set current switch as root

Show etherchannel summary --- show etherchannel info