NOAKHALI SCIENCE AND TECHNOLOGY UNIVERSITY

IIT - Institute Of Information Technology

Topic: Configuration and Implementation Two & Three VLAN Switch of CLI Mode

Course Title: Computer Networks Lab

Course Code: CSE -2106

Submitted By:

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Year-02, Term-01

Session: 2019-20

Submitted To:

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Lecturer

Institute of information technology

Noakhali Science and Technology University

Date Of Submission: *24-06-2022*

Laboratory No: 04

Title: Configuration and Implementation Three VLAN SWITCH of CLI Mode

Problem Statement:

To Learn the configuration and implementation of the three VLAN connected to the PC and communicate with each other using Cisco Packet Tracer simulation software.

Hypothesis:

First, the switch must be connected to each PC; once connected, each PC's network, which will be placed within the VLAN, will transfer packets within the VLAN network. However, it cannot transfer data from one VLAN network to another.

Materials:

- Cisco Packet Tracer Software (version- 6.2)

Procedure:

- Design the connection using Cisco Packet Tracer Software like figure 1

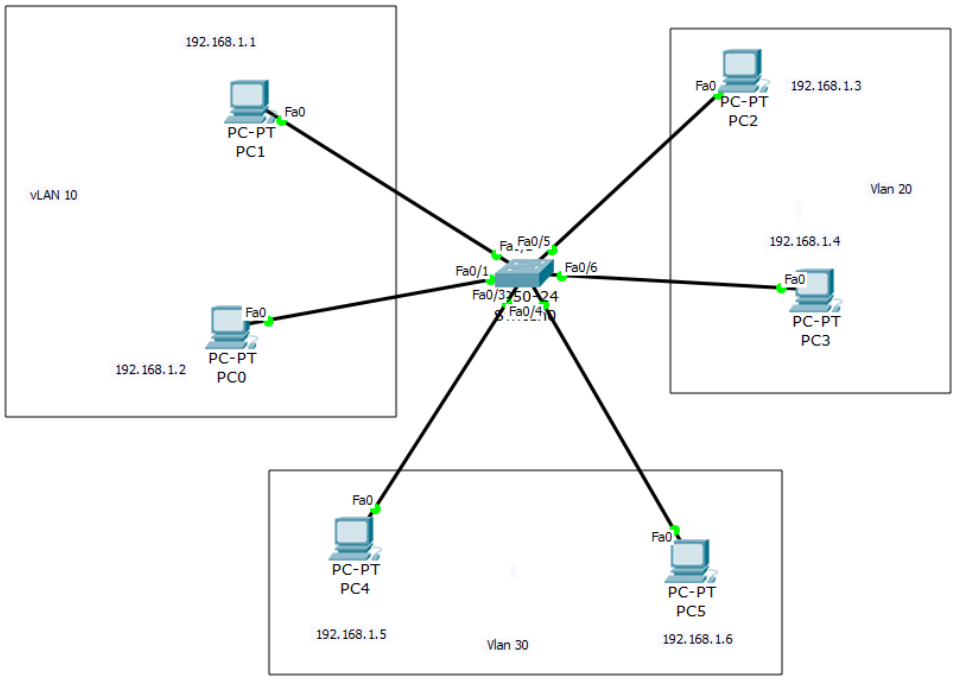
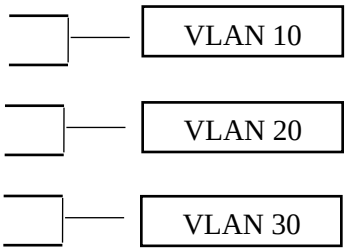


Figure 1 (VLAN Connection)

- Connect Switch0 with PCs
- All PCs are connected to the Switch
  - PC0 with Switch0. [PC0 IP = 192.168.1.2]
  - PC1 with Switch0. [PC1 IP = 192.168.1.1]
  - PC2 with Switch0. [PC2 IP = 192.168.1.3]
  - PC3 with Switch0. [PC3 IP = 192.168.1.4]
  - PC4 with Switch0. [PC4 IP = 192.168.1.5]
  - PC5 with Switch0. [PC5 IP = 192.168.1.6]



Switch Connection CLI Command:

- Enable switch Config :

```
Switch>en
Switch#
```

- Configure VLAN Database :

```
Switch>en
Switch#vlan database
% Warning: It is recommended to configure VLAN from config mode,
  as VLAN database mode is being deprecated. Please consult user
  documentation for configuring VTP/VLAN in config mode.

Switch(vlan)#vlan 10 name A
VLAN 10 modified:
    Name: A
Switch(vlan)#vlan 20 name B
VLAN 20 modified:
    Name: B
Switch(vlan)#vlan 30 name C
VLAN 30 modified:
    Name: C
Switch(vlan)#
```

- Exit (Save connection and close the VLAN Switch setup)

```
Switch(vlan)#exit
APPLY completed.
Exiting....
Switch#
```

- Configure Switch Terminal :

```
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#
```

- 1st VLAN mode setup : (Here, PC0 and PC1 are Connected To 1st VLAN)

```
Switch(config)#int fa0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#int fa0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#exit
```

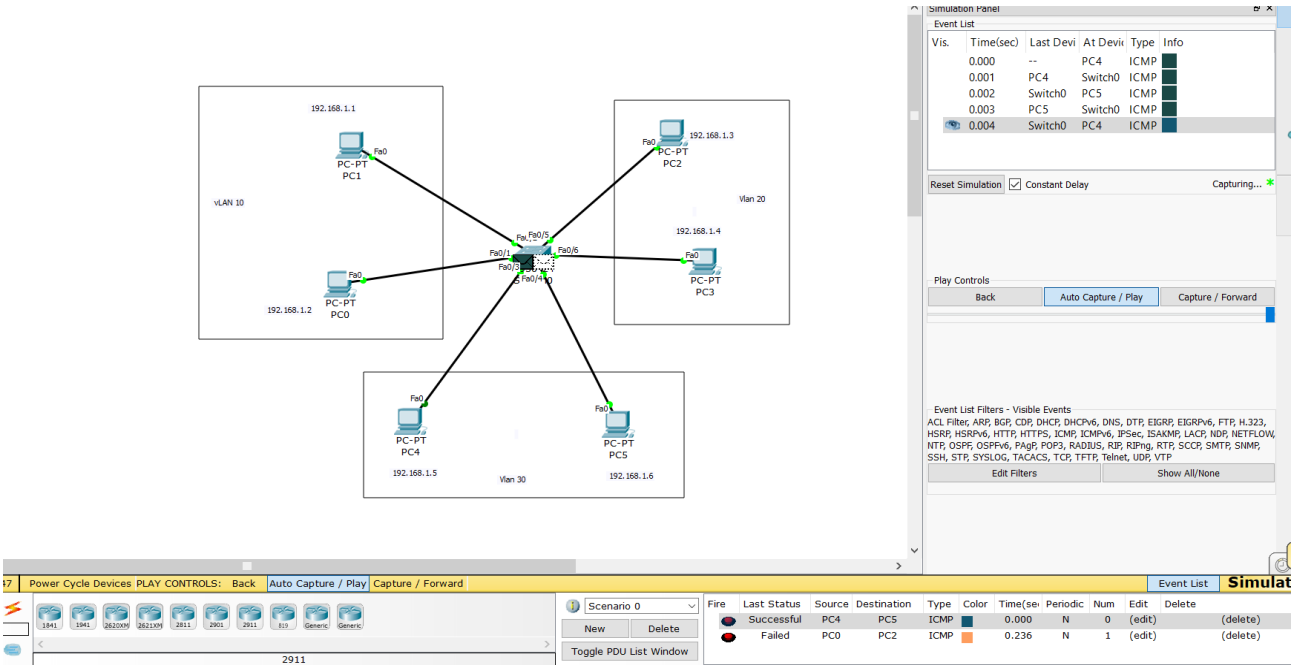
- 2nd VLAN mode setup : (Here, PC2 and PC3 are Connected To 2nd VLAN)

```
Switch(config)#int fa0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 20
Switch(config-if)#int fa0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 20
Switch(config-if)#exit
```

- 3rd VLAN mode setup : (Here, PC4 and PC5 are Connected To 3nd VLAN)

```
Switch(config)#int fa0/3
Switch(config-if)#switchport access vlan 30
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 30
Switch(config-if)#int fa0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 30
Switch(config-if)#exit
```

Results (Data):



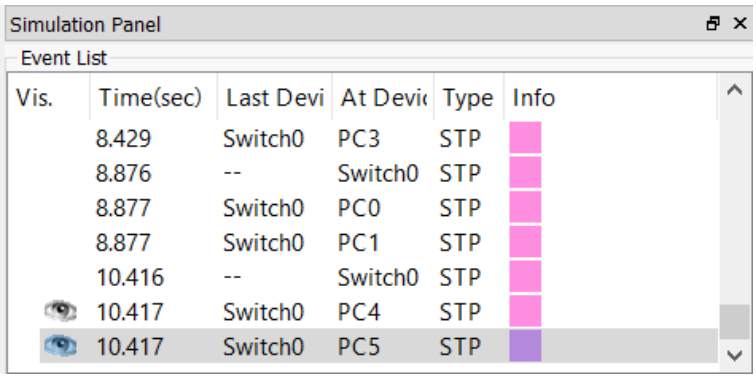
- ❖ We know that data exchange is possible within a VLAN-connected network. When one VLAN communicates with another VLAN, no data is exchanged.
- ❖ Here, when simulate the network here by sending packets from PC4 to PC5. Then it's Successfully sent data from one pc to another.
- ❖ It shows an error when sending a packet from 2 separate VLAN connected networks and PC0 to PC2 and cannot communicate with each other.

We have completed testing by transmitting data through following procedure:

Fire	Last Status	Source	Destination	Type	Color	Time(se	Periodic	Num	Edit	Delete
	Successful	PC4	PC5	ICMP		0.000	N	0	(edit)	(delete)
	Failed	PC0	PC2	ICMP		0.236	N	1	(edit)	(delete)
	Failed	PC2	PC4	ICMP		0.000	N	2	(edit)	(delete)

-> Transmitting message from PC4 to PC5
-> Failed message from PC0 to PC2
-> Failed message from PC2 to PC4

Simulation Panel:



Conclusions:

- After Successfully doing our simulation, so we conclude that our Hypothesis is accepted.
- The hypothesis was accepted because we connected the network between the Ethernet connections on a single Switch, successfully transferred packets to each connected VLAN, and were unable to send packets from two distinct VLANs.
- PCs connected to a VLAN are much more secure. They transfer data in a highly secure manner. To prevent hackers and other users from stealing data.

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To Learn the configuration and implementation of the Two VLAN connected to the PC and communicate with each other using Cisco Packet Tracer simulation software.

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Procedure:

- Design the connection using Cisco Packet Tracer Software like figure 1

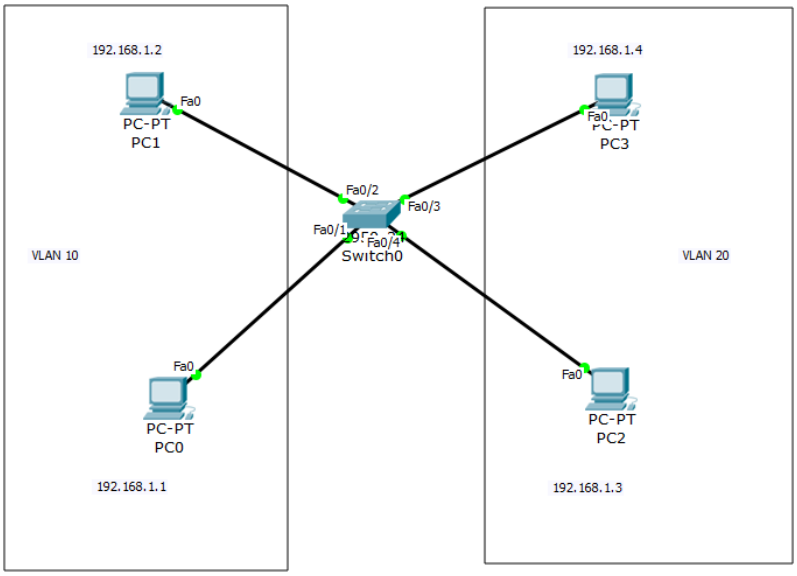

Figure 2 (VLAN Connection)

- Connect Switch0 with PCs
- All PCs are connected to the Switch
  - PC0 with Switch0. [PC0 IP = 192.168.1.1]
  - PC1 with Switch0. [PC1 IP = 192.168.1.2]
  - PC2 with Switch0. [PC2 IP = 192.168.1.3]
  - PC3 with Switch0. [PC3 IP = 192.168.1.4]

PC0, PC1 → VLAN 10

PC2, PC3 → VLAN 20

Switch Connection CLI Command:

- Enable switch Config :
- Configure VLAN Database :

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VLAN 20 modified:
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- Exit (Save connection and close the VLAN Switch setup)

```
Switch(vlan)#exit
APPLY completed.
Exiting....
Switch#
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- Configure Switch Terminal :

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Enter configuration commands, one per line.  End with CNTL/Z.
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Switch(config-if)#exit
```

- 2nd VLAN mode setup : (Here, PC2 and PC3 are Connected To 2nd VLAN)

```
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Switch(config-if)#switchport access vlan 20
Switch(config-if)#int fa0/4
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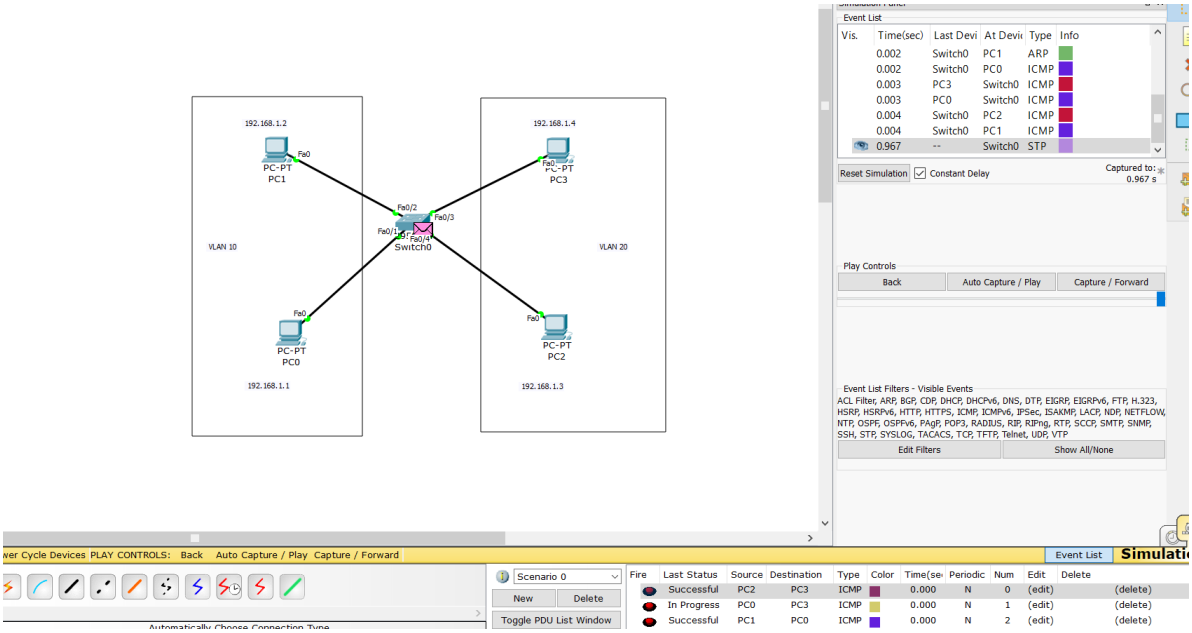

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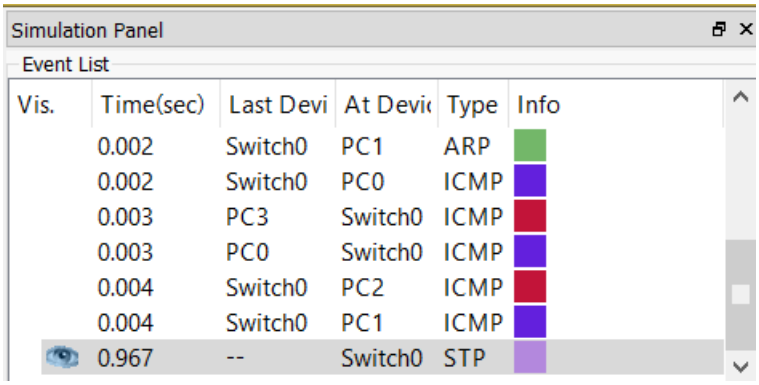
	Successful	PC1	PC0	ICMP		0.000	N	2	(edit)	(delete)

-> Transmitting message from PC2 to PC3
-> Failed message from PC0 to PC3
-> Failed message from PC1 to PC0

Simulation Panel:



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