



Experiment 8

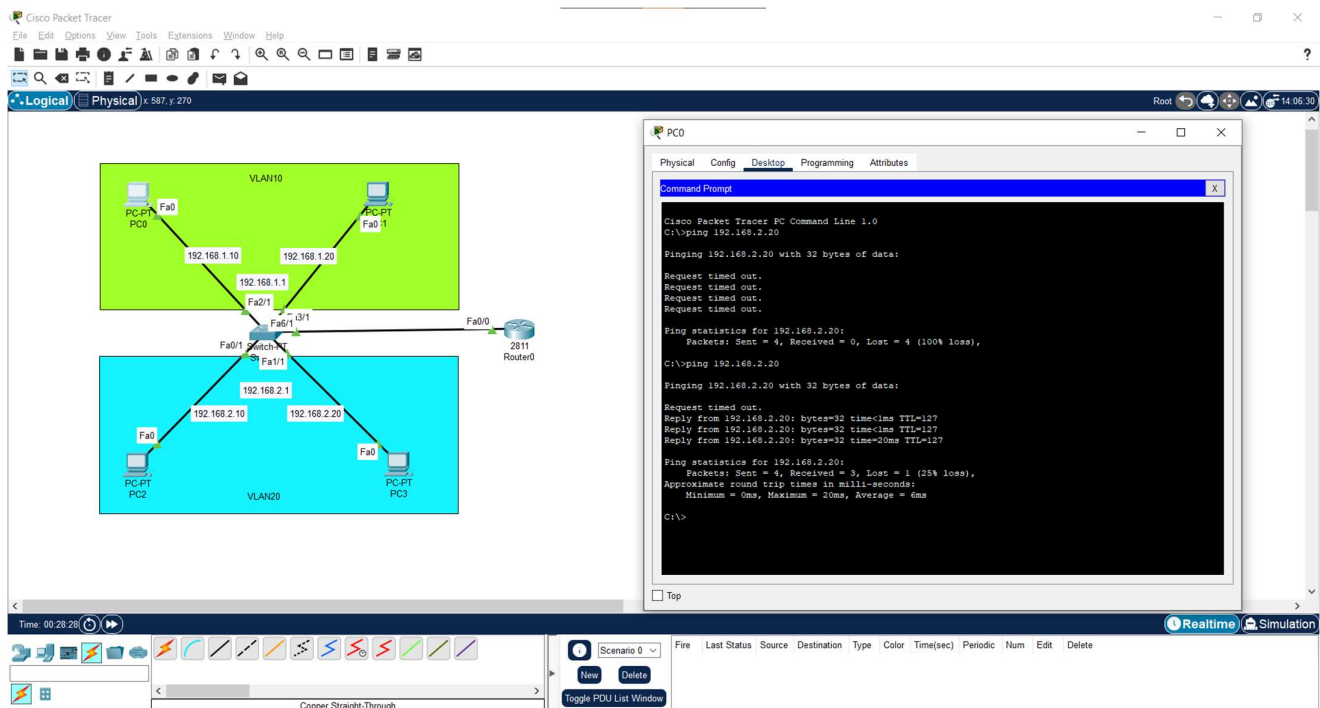
Aim: To create a network topology for simulating VLANs on the switch using Cisco packet tracer

Theory:

A Virtual LAN (VLAN) is simply a logical LAN. VLANs have similar characteristics with those of physical LANs, only that with VLANs, you can logically group hosts even if they are physically located on separate LAN segments. Each VLAN can be considered as a separate subnet or broadcast domain. For this reason, to move packets from one VLAN to another, a router or a layer 3 switch is used. VLANs are configured on switches by placing some interfaces into one broadcast domain and some interfaces into another.

Output:

Main:





VLAN10 PC Configuration:

IP Configuration	
Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.2.10
Subnet Mask	255.255.255.0
Default Gateway	192.168.2.1
DNS Server	0.0.0.0

VLAN20 PC Configuration

IP Configuration	
Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.1.10
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	0.0.0.0



Switch CLI Configuration:

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name HR
Switch(config-vlan)#vlan 20
Switch(config-vlan)#name IT
Switch(config-vlan)#int fa2/1
Switch(config-if)#switchport access vlan 10
Switch(config-if)#int fa3/1
Switch(config-if)#switchport access vlan 10
Switch(config-if)#int fa0/1
Switch(config-if)#switchport access vlan 20
Switch(config-if)#int fa1/1
Switch(config-if)#switchport access vlan 20
Switch(config-if)#int fa6/1
Switch(config-if)#switchport mode trunk
Switch(config-if)#
%LINK-5-CHANGED: Interface FastEthernet6/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet6/1, changed state to up

Switch con0 is now available

Press RETURN to get started.
```

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Router CLI Configuration:

```
Router0
Physical Config CLI Attributes
IOS Command Line Interface

Router>enable
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#int fa0/0.10
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.10, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.10, changed state to up

Router(config-subif)#encapsulation dot1q 10
^
% Invalid input detected at '^' marker.

Router(config-subif)#encapsulation dot1q 10
Router(config-subif)#encapsulation dot1q 10
^
% Invalid input detected at '^' marker.

Router(config-subif)#encapsulation dot1q 10
Router(config-subif)#ip address 192.168.1.1 255.255.255.0
Router(config-subif)#
Router(config-subif)#int fa0/0.20
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.20, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.20, changed state to up

Router(config-subif)#encapsulation dot1q 20
^
% Invalid input detected at '^' marker.

Router(config-subif)#encapsulation dot1q 20
Router(config-subif)#ip address 192.168.2.1 255.255.255.0
Router(config-subif)#
```

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Conclusion: Virtual LAN(VLAN) is a logical LAN which can logically connect host even if they are connected on different physical LAN. Therefore, a switch or a router needs to be configured for connectivity within VLAN and inter-VLANs.