PRACTICAL-2

AIM:

An organization works on IT projects. It has mainly 3 departments i.e. php, .net and android. CEO of that organization wants to configure a single network but virtually divided into 3 department in such a way that the packets can travel or broadcasted within the same department only. Demonstrate the configuration of such network in cisco packet tracer.

THEORY:

Switch

- Switches are networking devices operating at layer 2 or a data link layer of the OSI model.
- They connect devices in a network and use packet switching to send, receive or forward data packets or data frames over the network.
- A switch has many ports, to which computers are plugged in.
- When a data frame arrives at any port of a network switch, it examines the destination address, performs necessary checks and sends the frame to the corresponding device
- It supports unicast, multicast as well as broadcast communications.
- Switches are active devices, equipped with network software and network management capabilities
- Switches can perform some error checking before forwarding data to the destined port.

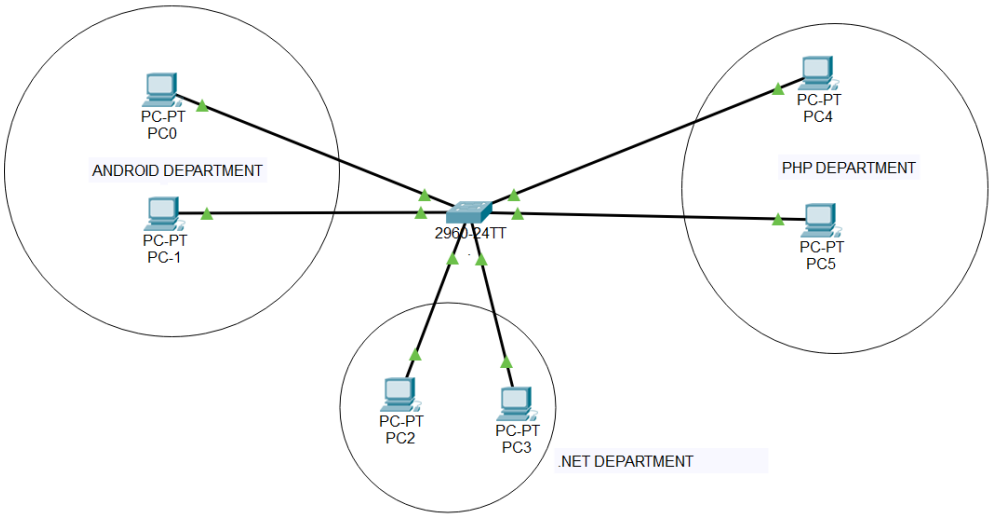
VLAN

- **VLAN** is a custom network which is created from one or more local area networks.
- It enables a group of devices available in multiple networks to be combined into one logical network.
- The result becomes a virtual LAN that is administered like a physical LAN. The full form of VLAN is defined as Virtual Local Area Network.
- VLAN in networking is a virtual extension of LAN

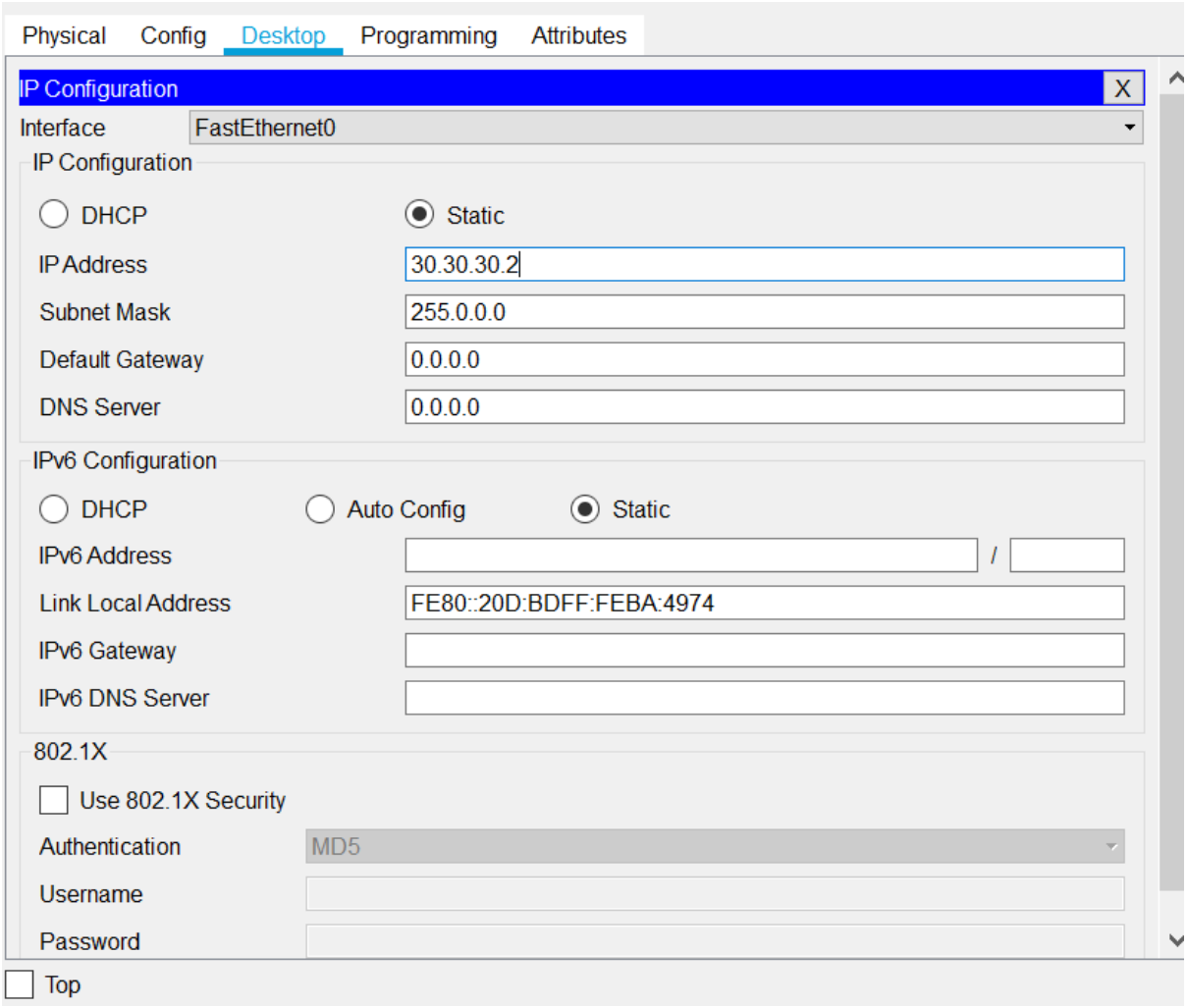
PRACTICAL IMPLEMENTATION:

- In this practical, we will use switch as we have to divide only one network and there is no need of other network.

- Then, we will take some PCs which will act as different hosts for different departments.



- Now, Assign IP Address to each and every PC.
- To assign IP Address, DESKTOP >> IP CONFIGURATION



- Repeat same steps for all the PCs.
- Give different IP address to PCs in different network
- To know the details regarding the VLAN, open the CLI in switch and type "show vlan".

```
Switch>show vlan

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                                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
                                                Gig0/1, Gig0/2
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
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
 --More--
```

- By default all the ports are in one vlan.
- To create three vlans, first, go to privilege mode by typing “enable”.
- Enter in configuration mode.
- Write vlan and its ID.
- To give it a name type “ name vlan_name”
- Type “exit”

```
Switch(config)#
Switch(config)#
Switch(config)#
Switch(config)#vlan 2
Switch(config-vlan)#name ANDROID
Switch(config-vlan)#exit
Switch(config)#
```

- Perform the same steps for another two vlans

```
VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                                 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
                                                 Gig0/1, Gig0/2
2    ANDROID                           active
3    PHP                               active
4    .NET                              active
1002 fddi-default                      active
```

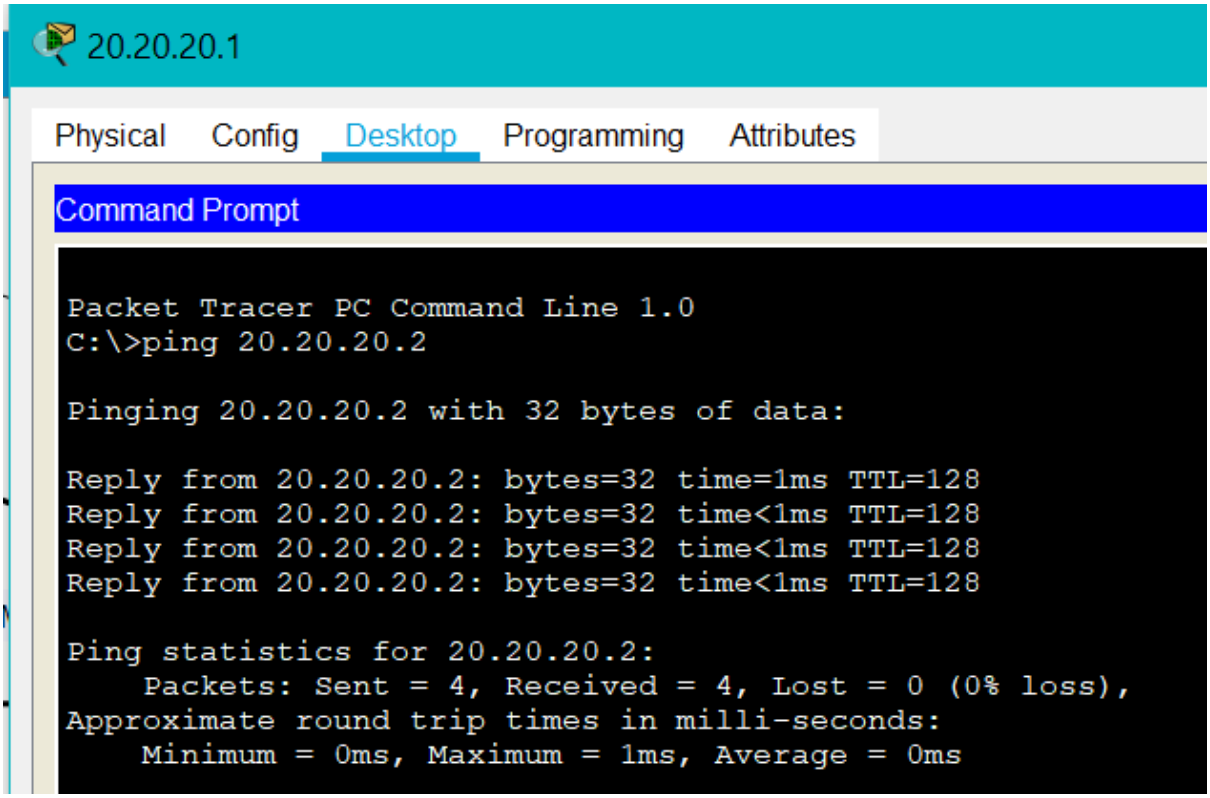
- We will assign the ports to each newly created vlan
- Again go to configuration mode
- Then, go to interface fastEthernet0/1
- Type, switchport access vlan 2
- Exit from the interface
- Repeat same steps for other 2 vlans

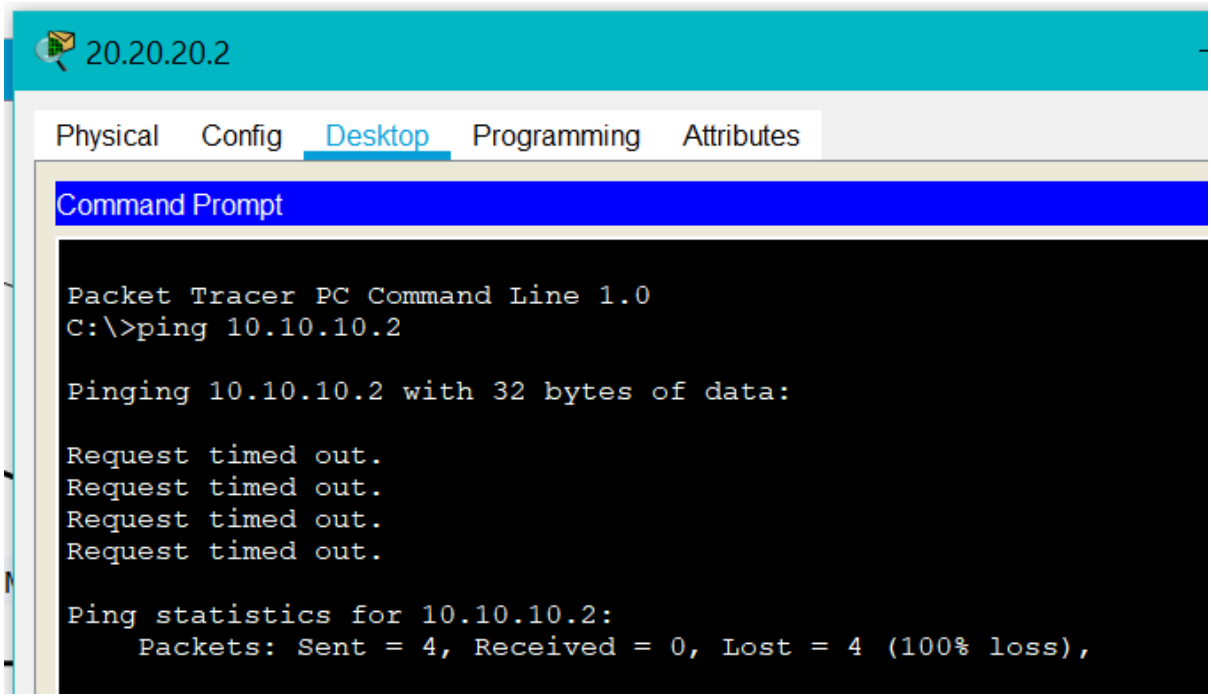
```
Switch>enable
Switch#conf t
Enter configuration commands, one per line.  End with C
Switch(config)#interface fastEthernet0/1
Switch(config-if)#switchport access
% Incomplete command.
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#interface fastEthernet0/2
Switch(config-if)#switch access vlan 2
Switch(config-if)#exit
Switch(config)#interface fastEthernet0/3
Switch(config-if)#switch access vlan 3
Switch(config-if)#exit
Switch(config)#interface fastEthernet0/4
Switch(config-if)#switch access vlan 3
Switch(config-if)#exit
Switch(config)#interface fastEthernet0/5
Switch(config-if)#switch access vlan 4
Switch(config-if)#exit
Switch(config)#interface fastEthernet0/6
Switch(config-if)#switch access vlan 4
Switch(config-if)#exit
```

```
VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    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
2    ANDROID                           active    Fa0/1, Fa0/2
3    PHP                               active    Fa0/3, Fa0/4
4    .NET                              active    Fa0/5, Fa0/6
```

CHECKING THE VLAN:

1. Ping Test:





We cannot communicate to devices outside the network.

CONCLUSION:

- By performing the practical, we learnt about vlan and how to configure it.