ROLL NUMBER-220701049

Practical 8

AIM: -

a) Simulate Virtual LAN configuration using CISCO Packet Tracer Simulation.

Step 1: Open Cisco Packet Tracer

1. Open Cisco Packet Tracer and create a new project.

Step 2: Set Up Network Devices

1. **Add Network Devices**:
    - Drag and drop two **Switches** (e.g., Switch0 and Switch1) and four **PCs** onto the workspace.
    - Connect PCs to the switches using **Copper Straight-Through** cables:
        - Connect PC0 and PC1 to **Switch0**.
        - Connect PC2 and PC3 to **Switch1**.
    - Use a **Cross-Over** cable to connect the two switches.

Step 3: Configure VLANs on Switches

1. **Enter Switch CLI**:
    - Click on **Switch0** > **CLI** tab to enter command-line interface.
2. **Enable Configuration Mode**:
    - Type enable and press Enter.
    - Then type configure terminal to enter global configuration mode.
3. **Create VLANs**:
    - For each VLAN you want to create, type the following commands:

```
vlan 10
name VLAN10
```

- Repeat for VLAN 20:

```
vlan 20
name VLAN20
```

- This creates two VLANs: VLAN10 and VLAN20.

4. **Assign Ports to VLANs**:

- Assign ports for each PC to their respective VLANs:

```
interface FastEthernet 0/1
switchport mode access
switchport access vlan 10
exit

interface FastEthernet 0/2
switchport mode access
switchport access vlan 20
exit
```

- **Explanation**:
  - interface FastEthernet 0/1 connects to PC0 and is assigned to VLAN10.
  - interface FastEthernet 0/2 connects to PC1 and is assigned to VLAN20.

5. **Repeat on Switch1**:

- Perform the same VLAN and port assignment steps on **Switch1**.

Step 4: Set Up Trunking Between Switches

1. **Enable Trunking**:

- On **Switch0**, configure the port that connects to Switch1 as a trunk port

Repeat this step on **Switch1** for the port connecting back to **Switch0.**

Step 5: Configure IP Addresses on PCs

1. **Assign IP Addresses**:
    - Click on **PC0** and go to **Desktop** > **IP Configuration**.
        - Set IP to 192.168.10.2 and Subnet Mask to 255.255.255.0 (for VLAN10).
    - Repeat for each PC:
        - **PC1**: IP 192.168.20.2, Subnet Mask 255.255.255.0 (VLAN20).
        - **PC2**: IP 192.168.10.3, Subnet Mask 255.255.255.0 (VLAN10).
        - **PC3**: IP 192.168.20.3, Subnet Mask 255.255.255.0 (VLAN20).

Step 6: Test VLAN Configuration

1. **Test Connectivity**:
    - Go to **Simulation Mode** in Packet Tracer.
    - Use the **Ping** command from **PC0** to **PC2** (both in VLAN10) to verify they can communicate.
    - Similarly, ping from **PC1** to **PC3** (both in VLAN20).
    - Verify that PCs in different VLANs (e.g., PC0 and PC1) **cannot communicate** with each other, demonstrating VLAN segmentation.

OUTPUT:

```
VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/1, Fa0/2, 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
10   sales                             active
20   HR                                active    Fa0/3, Fa0/4
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
Switch#
```