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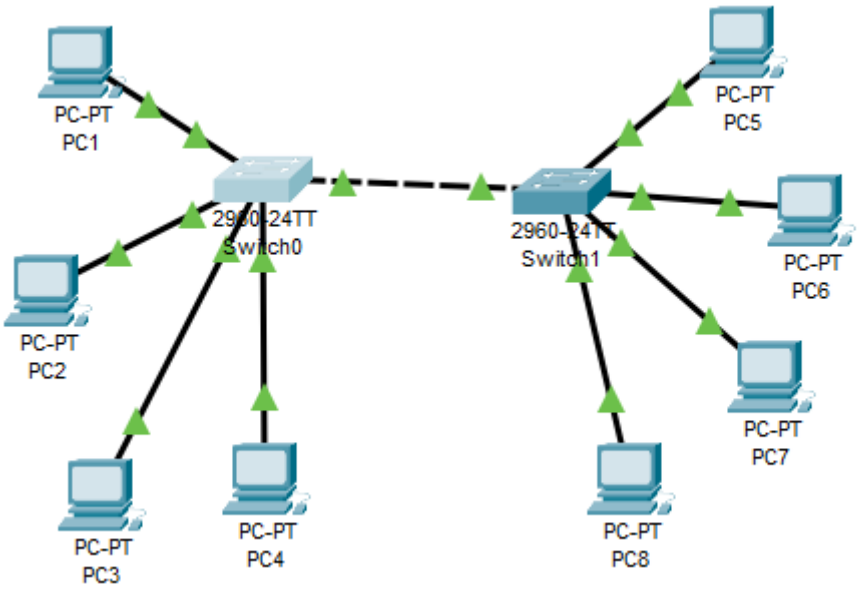
section-7

Session 4 Construction of Different VLANS and TRUNKING using cisco packet tracer.



Devices:

- **Switch 1 (S1)**
- **Switch 2 (S2)**
- **PCs (End Devices)**
  - **PC1** and **PC2** connected to **S1** (assigned to VLAN 10)
  - **PC3** and **PC4** connected to **S1** (assigned to VLAN 20)
  - **PC5** and **PC6** connected to **S2** (assigned to VLAN 10)
  - **PC7** and **PC8** connected to **S2** (assigned to VLAN 20)

VLANs:

- **VLAN 10**: IP range 192.168.10.0/24
- **VLAN 20**: IP range 192.168.20.0/24

Trunk Ports:

- **Fa0/24 on both S1 and S2**

Switch 0 Configuration

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.

Create VLAN 10
Switch(config)#vlan 10
Switch(config-vlan)#name VLAN10
Switch(config-vlan)#exit

Create VLAN 20
Switch(config)#vlan 20
Switch(config-vlan)#name VLAN20
Switch(config-vlan)#exit

Assign Ports to VLAN 10:

Switch(config)#interface range fa0/1 - 4
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#exit

Assign Ports to VLAN 20:

Switch(config)#interface range fa0/5 - 8
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 20
Switch(config-if-range)#exit

Set a Port to Trunk Mode- S0
Switch(config)#interface fa0/24
Switch(config-if)#switchport mode trunk
Switch(config-if)#exit

switch 0

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name vlan10
Switch(config-vlan)#exit
Switch(config)#vlan 20
Switch(config-vlan)#name vlan20
Switch(config-vlan)#exit
Switch(config)#interface range fa0/1-4
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#exit
Switch(config)#interface range fa0/5-8
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 20
Switch(config-if-range)#exit
Switch(config)#interface fa0/24
Switch(config-if)#switchport mode trunk
Switch(config-if)#exit
Switch(config)#
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

switch 1

```
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

Verify Connectivity

Check Trunk Ports:

Check

```
Switch#show interfaces trunk
Port        Mode         Encapsulation  Status        Native vlan
Fa0/24      on           802.1q         trunking      1

Port        Vlans allowed on trunk
Fa0/24      1-1005

Port        Vlans allowed and active in management domain
Fa0/24      1,10,20

Port        Vlans in spanning tree forwarding state and not pruned
Fa0/24      1,10,20
```

VLANs:

```
Switch#show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    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, Gig0/1
                                                Gig0/2
10   vlan10                           active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
20   vlan20                           active    Fa0/5, Fa0/6, Fa0/7, Fa0/8
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
Switch#
```

Configure End Devices

1. **Assign IP Addresses to PCs:**
   - **PC1**: 192.168.10.1/24
   - **PC2**: 192.168.10.2/24
   - **PC3**: 192.168.20.1/24
   - **PC4**: 192.168.20.2/24
   - **PC5**: 192.168.10.3/24
   - **PC6**: 192.168.10.4/24
   - **PC7**: 192.168.20.3/24
   - **PC8: 192.168.20.4/24**

2. **Test Connectivity within VLANs:**

3. **Ping** from **PC1** to **PC2** (both in VLAN 10)
4. **Ping** from **PC3** to **PC4** (both in VLAN 20)
5. **Ping from PC5 to PC1 (both in VLAN 10, across switches)**

- **Ping from PC7 to PC3 (both in VLAN 20, across switches)**

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.10.1

Pinging 192.168.10.1 with 32 bytes of data:

Reply from 192.168.10.1: bytes=32 time=4ms TTL=128
Reply from 192.168.10.1: bytes=32 time=22ms TTL=128
Reply from 192.168.10.1: bytes=32 time=22ms TTL=128
Reply from 192.168.10.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.10.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 22ms, Average = 12ms

C:\>
```

Verify **that PCs in different VLANs cannot communicate without a router:**

```
C:\>ping 192.168.20.1

Pinging 192.168.20.1 with 32 bytes of data:

Reply from 192.168.20.1: bytes=32 time<1ms TTL=128
Reply from 192.168.20.1: bytes=32 time<1ms TTL=128
Reply from 192.168.20.1: bytes=32 time<1ms TTL=128
Reply from 192.168.20.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.20.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

- **Ping** from **PC1** to **PC3** should fail (VLAN 10 to VLAN 20)
- **Ping from PC7 to PC1**

pc1 to pc3 failed

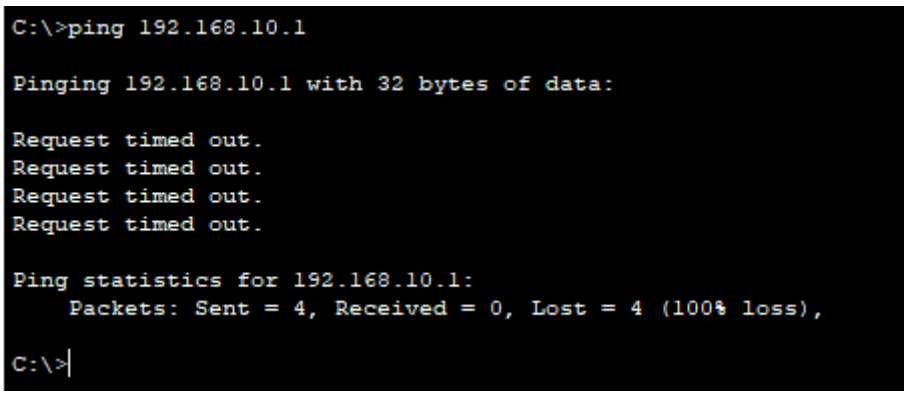
```
C:\>ping 192.168.20.1

Pinging 192.168.20.1 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.20.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

pc7 to pc1 failed


C:\>ping 192.168.10.1
Pinging 192.168.10.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 192.168.10.1:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>