

EXPERIMENT 10

DESIGN A SIMPLE TOPOLOGY AND CONFIGURE WITH ONE ROUTER, TWO SWITCHES AND PCS USING CISCO PACKET TRACER

Aim:

To design and configure a simple network topology using **one router, two switches, and PCs** in Cisco Packet Tracer and verify successful communication between networks.

Introduction:

In networking, routers are used to connect multiple networks.

Switches connect devices within a single LAN.

In this experiment, two LANs (connected by switches) are linked using a router.

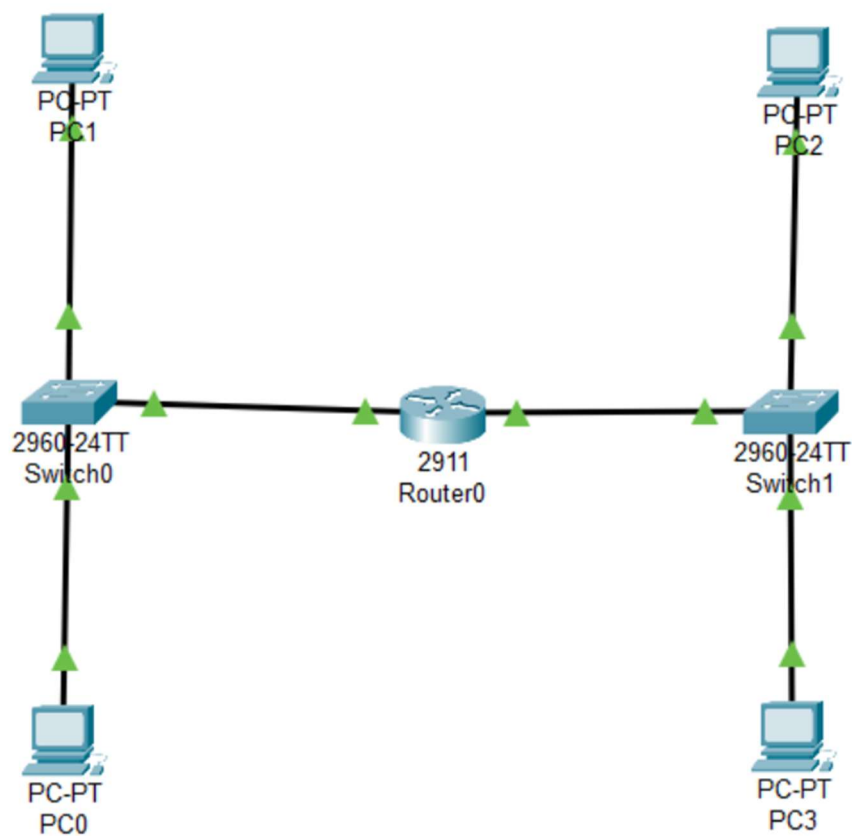
Each LAN will have its own IP network, and the router will route packets between them.

Algorithm:

- Start **Cisco Packet Tracer**.
- Select **and place devices**:
 - 1 Router (e.g., Cisco 2911)
 - 2 Switches (e.g., 2960)
 - 4 PCs
- Connect **the devices using Copper Straight-Through cables**:
 - PC0 → Switch0 (F0/1)
 - PC1 → Switch0 (F0/2)
 - PC2 → Switch1 (F0/1)
 - PC3 → Switch1 (F0/2)
 - Switch0 → Router (G0/0)
 - Switch1 → Router (G0/1)
- Assign **IP addresses to PCs**:
 - LAN1 → 192.168.1.0/24 (PC0, PC1)
 - LAN2 → 192.168.2.0/24 (PC2, PC3)
- Configure router **interfaces**:
 - Interface G0/0 → 192.168.1.1 255.255.255.0
 - Interface G0/1 → 192.168.2.1 255.255.255.0
- Use no shutdown command to activate interfaces.

- Set **Default Gateway** on each **PC**:
- For PCs in LAN1 → 192.168.1.1
- For PCs in LAN2 → 192.168.2.1
- Verify **connections**:
- Use the ping command from one PC in LAN1 to a PC in LAN2.
- Check for successful replies.
- Stop.
- If packets are successfully received, the topology is working correctly.

Network Topology:



Output:

```
C:\>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

Reply from 192.168.2.1: bytes=32 time=4ms TTL=255
Reply from 192.168.2.1: bytes=32 time=4ms TTL=255
Reply from 192.168.2.1: bytes=32 time=4ms TTL=255
Reply from 192.168.2.1: bytes=32 time=4ms TTL=255

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 4ms, Maximum = 4ms, Average = 4ms
```

Result:

A simple network topology using **one router, two switches, and multiple PCs** was designed and configured successfully in Cisco Packet Tracer. Communication between both networks was verified using the **ping** command.