21BDS0340

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Information Security and Audit Lab

Task – II

Question 1

Aim: Create 2 LANs and connect them with a router

Tools and Concepts Required:

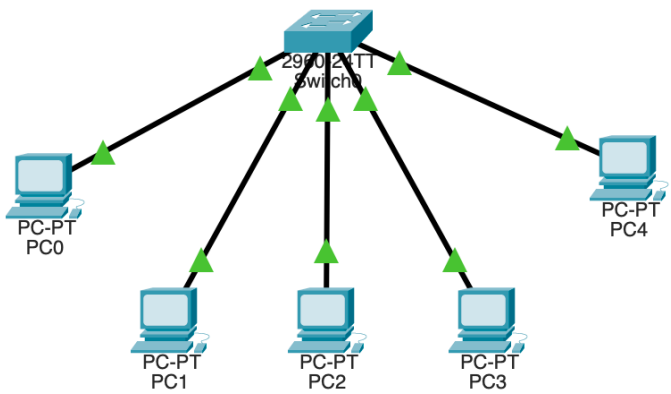
- Cisco Packet Tracer
- Switch
- Hub
- Router
- Personal Computers
- Wiring

Procedure:

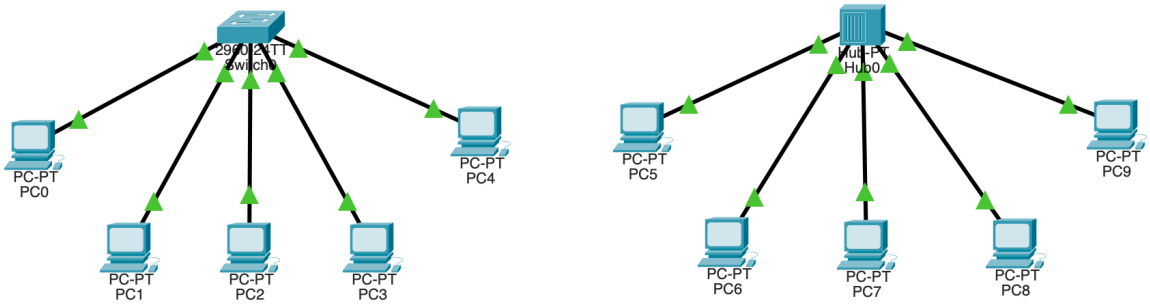
- Create LAN1 using switch with 5 PC
- Create LAN2 using hub with 5 PC
- Interconnect the LAN using a router
- Understand the packet transmission across the LAN

Output:

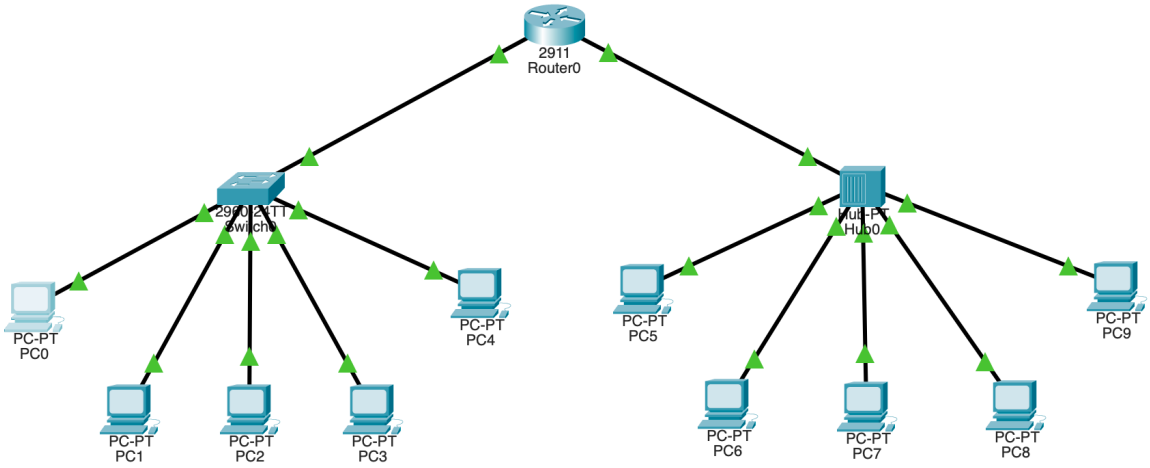
Create LAN1 using switch with 5 PC:



Create LAN2 using hub with 5 PC



Interconnect the LAN using a router:



Understand the packet transmission across the LAN:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 20.0.0.5

Pinging 20.0.0.5 with 32 bytes of data:

Request timed out.
Reply from 20.0.0.5: bytes=32 time<1ms TTL=127
Reply from 20.0.0.5: bytes=32 time=1ms TTL=127
Reply from 20.0.0.5: bytes=32 time<1ms TTL=127

Ping statistics for 20.0.0.5:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

Security Analysis:

Vulnerabilities	Threats	Attack
Outdated software	Physical access with insider access	Malware infection to hardware by insider access
Weak passwords	Unauthorised access by gaining a password	Denial of service by blocking hub access
Lack of encryption	Data theft by insider attacks	Phishing by insider attack
Direct offline hub access		

Prevention:

- Keeping the nodes and hub in a sperate room for nobody to access directly.
- Encrypt and mandate strong password usage

Result:

This network is extremely secure, but all the nodes can only connect to each other and none of them to the internet. This type of connection is very good for local file storages and broadcasting. This also enables different LANs to connect with each other through the usage of a router.

Question 2

Aim: Create 2 LANs with routers and connect them

Tools and Concepts Required:

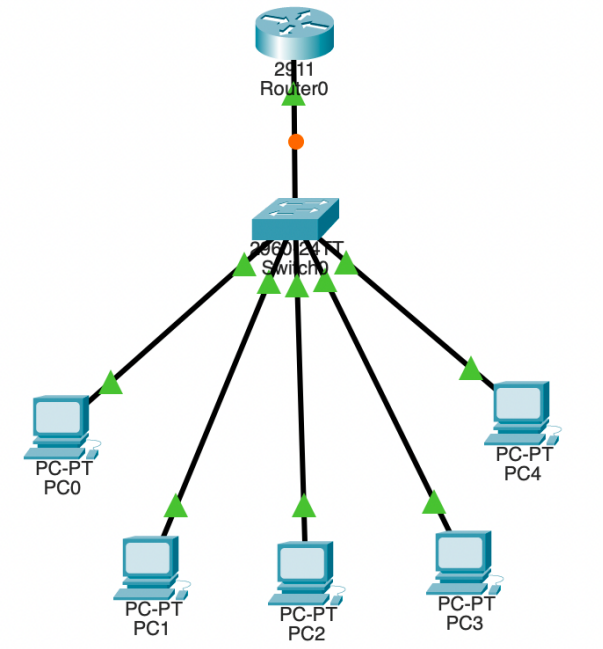
- Cisco Packet Tracer
- Switch
- Router
- Hub
- Personal Computers
- Wiring

Procedure:

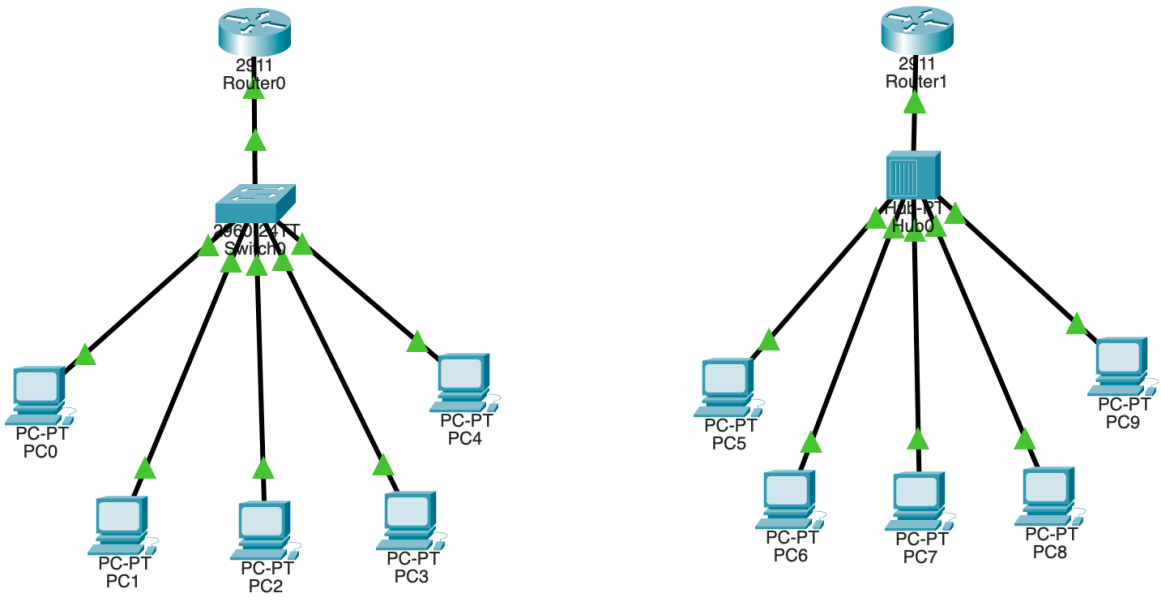
- Create LAN1 using switch with 5 PC router R1
- Create LAN2 using hub with 5 PC router R2
- Interconnect the routers and configure the routing table
- Understand the packet transmission across the LAN

Output:

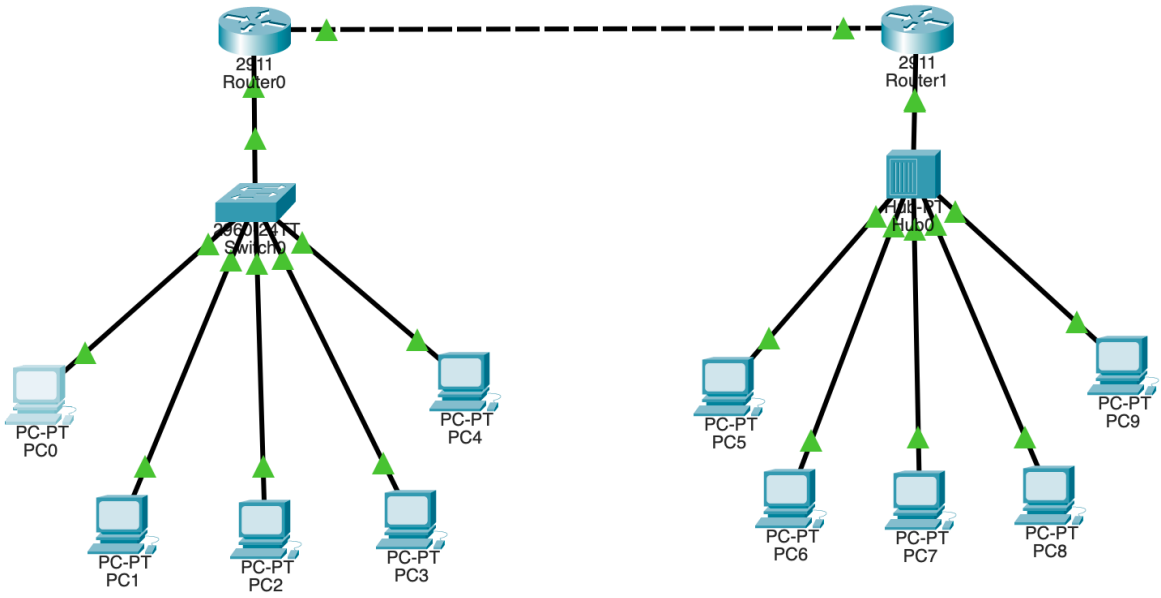
Create LAN1 using switch with 5 PC router R1:



Create LAN2 using hub with 5 PC router R2:



Interconnect the routers and configure the routing table:



Understand the packet transmission across the LAN:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 20.0.0.5

Pinging 20.0.0.5 with 32 bytes of data:

Request timed out.
Reply from 20.0.0.5: bytes=32 time<1ms TTL=126
Reply from 20.0.0.5: bytes=32 time=1ms TTL=126
Reply from 20.0.0.5: bytes=32 time=1ms TTL=126

Ping statistics for 20.0.0.5:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

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```

Security Analysis:

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Result:

This network is extremely secure, but all the nodes can only connect to each other and none of them to the internet. This type of connection is very good for local file storages and broadcasting. This also enables different LANs to connect with each other through the usage of multiple routers.