

Class: Sem VI

Subject Code: ECL 602

Subject Name: Computer Communication Network Laboratory

Experiment No. 7

Aim: Installation And Configuration of Local Area Network using Hubs, Switches and Routers For Packet Transmission Using Cisco Packet Tracer.

Learning Objectives:

- To understand working of Hubs, Switches and Routers.
- To simulate LAN using Hubs & switches in CISCO Packet Tracer.
- To understand to connect two different LAN using Router practically in CISCO Packet Tracer.

Learning Outcomes:

After successful completion of the experiment students will be able to:

- Explain working of Hubs & Switches.
- Simulate LAN using Hubs & switches in CISCO Packet Tracer.
- Understand to connect two different LAN using Router in CISCO Packet Tracer.

Theory:

Cisco network devices such as routers, switches, and other generic devices such as bridges, hubs, repeaters, and WAN emulators are available to work in the cisco packet tracer. Network devices enable the end devices to communicate with each other. These devices can be configured from the config tab. You will be able to configure routers and switches using the config tab without using Cisco commands.

PROCEDURE:

HUB:

Connect four PCs to a HUB in cisco packet tracer.

configure each PC with IP address and subnet mask.

select the simulation tab.

Edit filters for ARP and ICMP.

Take a simple PDU, and select a source and destination PC for it.

Press Auto Capture/Play button

Observe the HUB operation.

SWITCH:

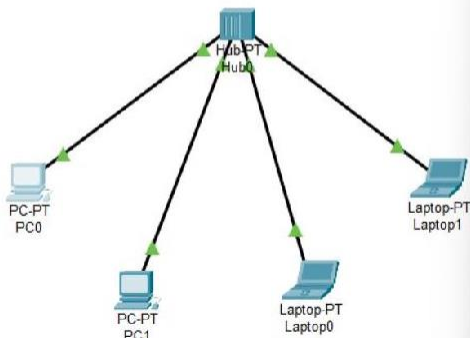
- Connect four PCs to a switch in cisco packet tracer.
- configure each PC with IP address and subnet mask.
- select the simulation tab.
- Take a simple PDU, and select a source and destination PC for it.
- Press Auto Capture/Play button
- observe the switch operation.
- ping all other PCs from each PC.

ROUTER:

- Connect Two routers with a serial connection and connect a switch to each router in cisco packet tracer.
- connect four PCs to each switch.
- configure the serial and fast Ethernet interfaces for IP addresses on each router
- Define static routes on each router
- configure each PC with IP address and subnet mask.
- check the connectivity between two PCs belonging to different networks (routers)
- select the simulation tab.
- Take a simple PDU, and select a source and destination PC for it.
- Press Auto Capture/Play button
- Observe the router operation

SCREENSHOT:

1.HUB



```
graph TD
    Hub0[Hub0] --- PC0[PC-PT PC0]
    Hub0 --- PC1[PC-PT PC1]
    Hub0 --- Laptop0[Laptop-PT Laptop0]
    Hub0 --- Laptop1[Laptop-PT Laptop1]
```

PC0

Physical Config Desktop Programming Attributes

Command Prompt

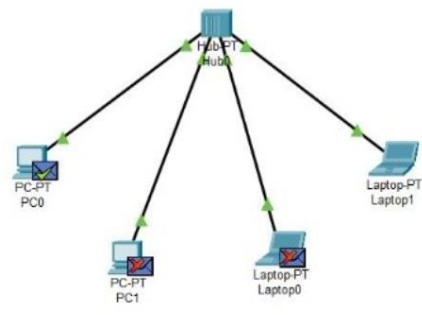
Packet Tracer PC Command Line 1.0
C:\>ping 192.55.12.3

Pinging 192.55.12.3 with 32 bytes of data:

Reply from 192.55.12.3: bytes=32 time=2ms TTL=128
Reply from 192.55.12.3: bytes=32 time=4ms TTL=128
Reply from 192.55.12.3: bytes=32 time<1ms TTL=128
Reply from 192.55.12.3: bytes=32 time<1ms TTL=128

Ping statistics for 192.55.12.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 4ms, Average = 1ms

C:\>



```
graph TD
    Hub0[Hub0] --- PC0[PC-PT PC0]
    Hub0 --- PC1[PC-PT PC1]
    Hub0 --- Laptop0[Laptop-PT Laptop0]
    Hub0 --- Laptop1[Laptop-PT Laptop1]
```

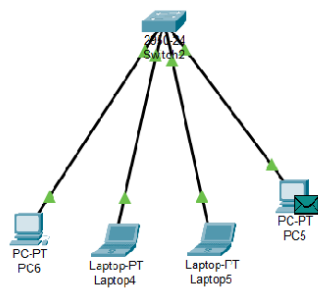
Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.002	Hub0	PC1	ARP
	0.002	Hub0	Laptop0	ARP
	0.002	Hub0	Laptop1	ARP
	0.003	Laptop1	Hub0	ARP
	0.004	Hub0	PC0	ARP
	0.004	Hub0	PC1	ARP
	0.004	Hub0	Laptop0	ARP
	0.004	--	PC0	ICMP
	0.005	PC0	Hub0	ICMP
	0.006	Hub0	PC1	ICMP
	0.006	Hub0	Laptop0	ICMP
	0.006	Hub0	Laptop1	ICMP
	0.007	Laptop1	Hub0	ICMP
	0.008	Hub0	PC0	ICMP
	0.008	Hub0	PC1	ICMP
	0.008	Hub0	Laptop0	ICMP

Reset Simulation ☒ Constant Delay Captured to: 3292.593 s

2.SWITCH



```
graph TD
    Switch2[Switch2] --- PC6[PC-PT PC6]
    Switch2 --- Laptop4[Laptop-PT Laptop4]
    Switch2 --- Laptop5[Laptop-PT Laptop5]
    Switch2 --- PC5[PC-PT PC5]
```

Simulation Panel

Event List

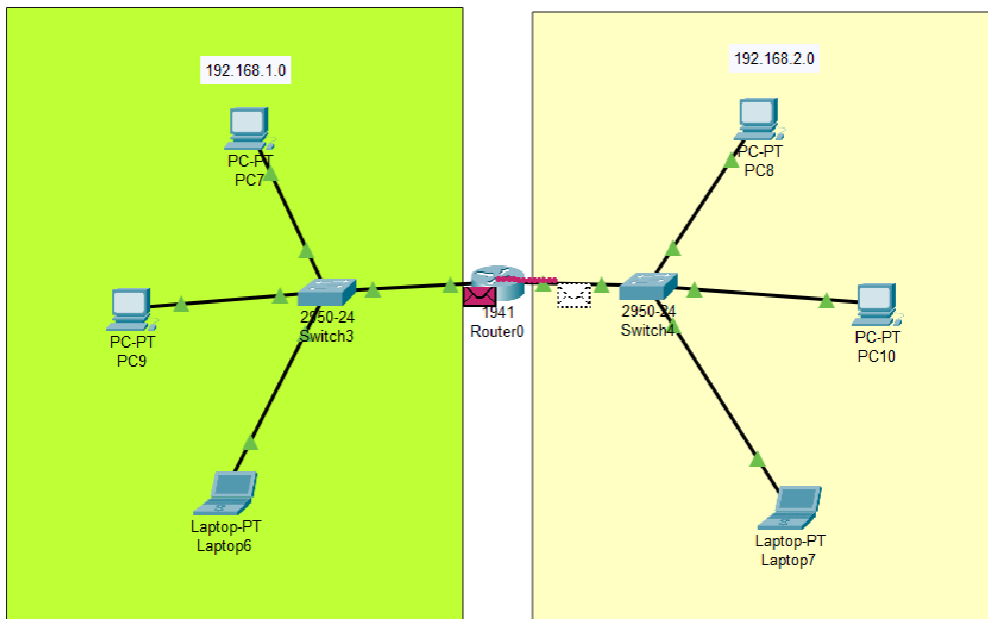
Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC6	ICMP
	0.001	PC6	Switch2	ICMP
	0.002	Switch2	PC5	ICMP

Reset Simulation ☒ Constant Delay Captured to: 0.002 s

Play Controls

⏮ ⏪ ⏩ ⏭

3.ROUTER



CONCLUSION: