



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Worksheet :- 2.1

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Aim:- Implement different network topologies like Star, Bus with the help of packet tracer.

Objective: - To simulate Star, Bus Topology.

Software Requirements:- Packet Tracer or NS2.

Hardware Requirements:-

- **Processor** – Any suitable Processor e.g. Celeron
- **Main Memory** - 128 MB RAM
- **Hard Disk** – minimum 20 GB IDE Hard Disk
- **Removable Drives**–1.44 MB Floppy Disk Drive–52X IDE CD-ROM Drive
- **PS/2 HCL** Keyboard and Mouse

Method: -

BUS TOPOLOGY:

- First, open the cisco packet tracer desktop and select the devices
- Then, create a network topology
- Use an Automatic connecting cable to connect the devices with others.
- **Configure the PCs (hosts) with IPv4 address and Subnet Mask**
 - To assign an IP address in PC0, click on PC0.
 - Then, go to desktop and then IP configuration and there you will IPv4 configuration.
 - Fill IPv4 address and subnet mask.
- **Verify the connection by pinging the IP address of any host in PC0.**

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- Use the ping command to verify the connection.
- As we can see we are getting replies from a targeted node on both PCs. ○
- Hence the connection is verified.

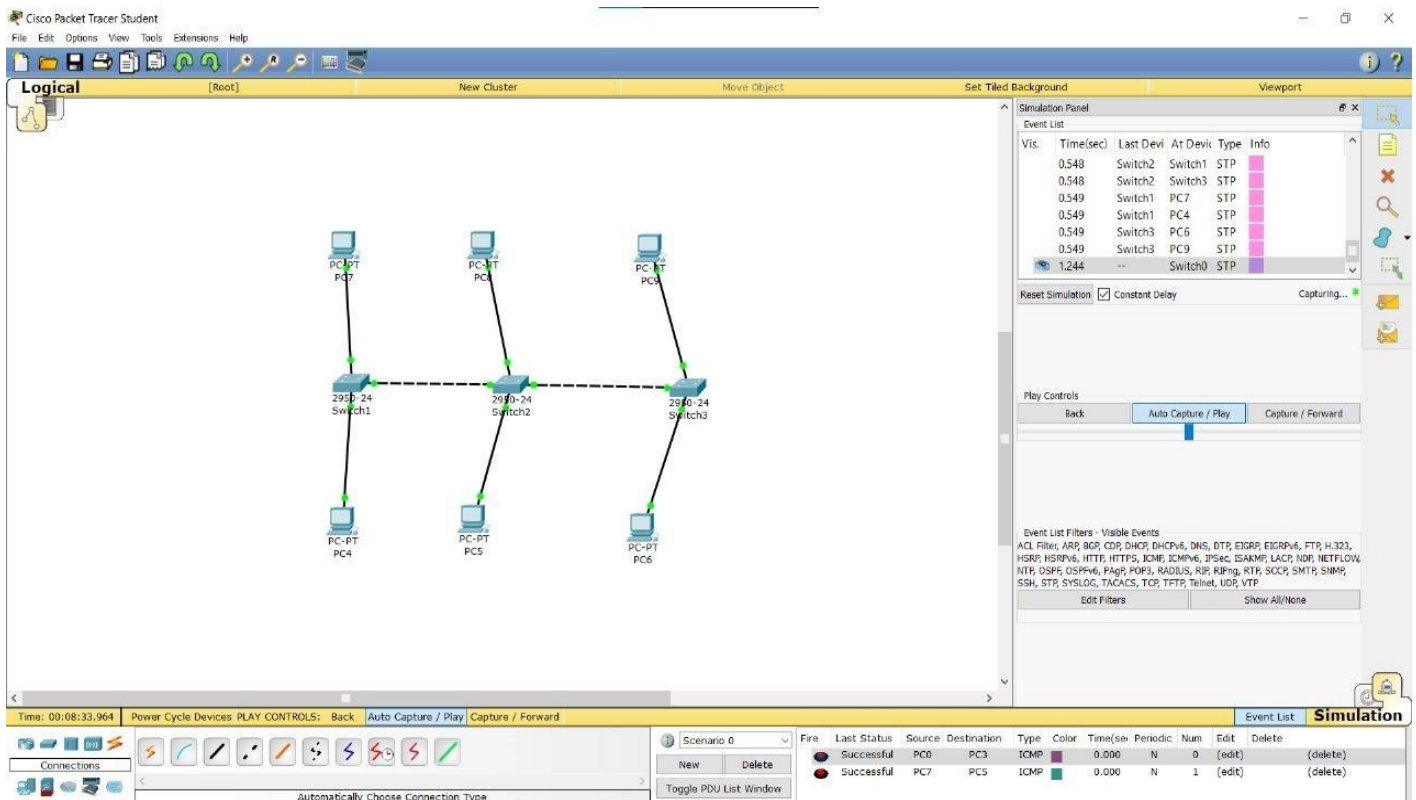
```
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig 192.168.0.1 255.255.255.0
C:\>ping 192.168.0.3

Pinging 192.168.0.3 with 32 bytes of data:

Reply from 192.168.0.3: bytes=32 time=16ms TTL=128
Reply from 192.168.0.3: bytes=32 time=8ms TTL=128
Reply from 192.168.0.3: bytes=32 time=8ms TTL=128
Reply from 192.168.0.3: bytes=32 time=8ms TTL=128

Ping statistics for 192.168.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 8ms, Maximum = 16ms, Average = 10ms
```

SIMULATION RESULT :-



B) STAR Topology:

Steps Implementing Star Topology using Cisco Packet Tracer:

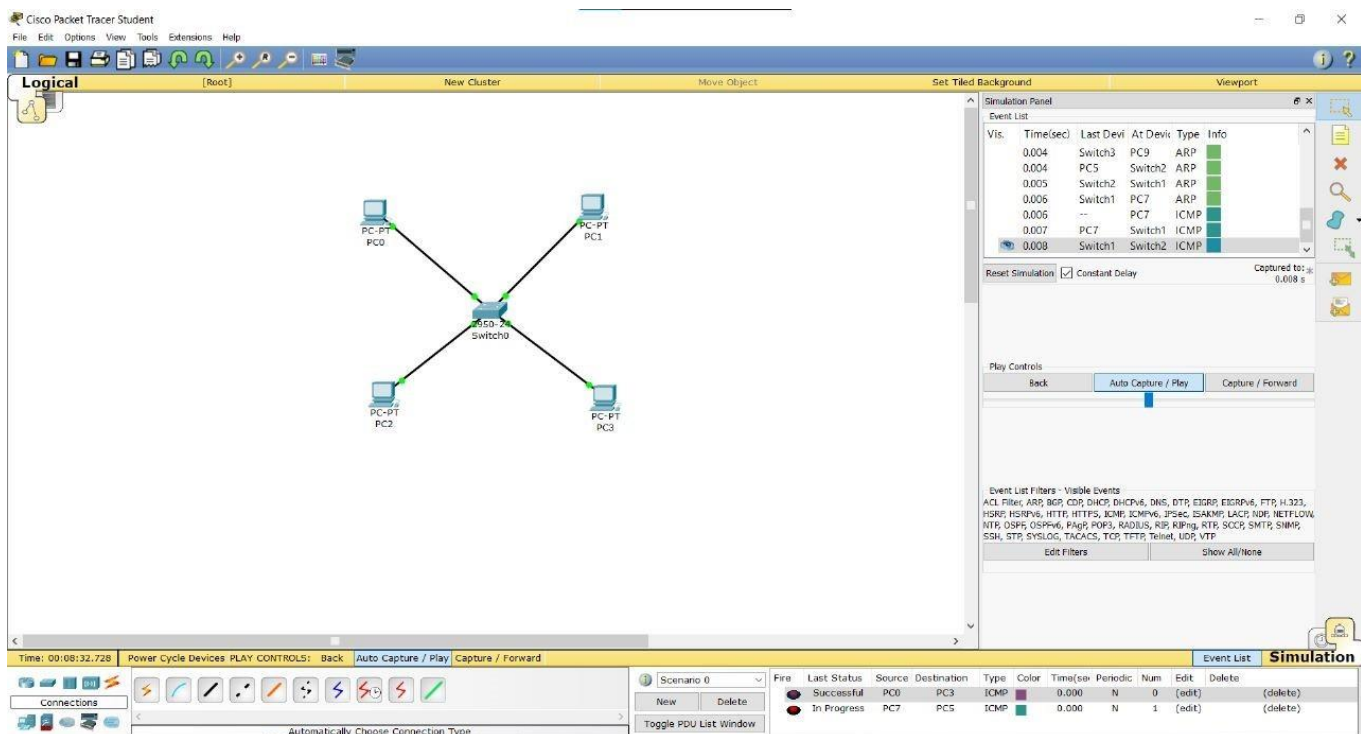
Step 1: We have taken a switch and linked it to six end devices.

Step 2: Link every device with the switch.

Step 3: Provide the IP address to each device.

Step 4: Transfer message from one device to another and check the Table for Validation.

SIMULATION RESULT:-



The screenshot displays the Cisco Packet Tracer Student interface. The main workspace shows a Star Topology with a central switch (Switch0) connected to four PCs (PC0, PC1, PC2, PC3). The Event List on the right shows captured events for ARP and ICMP. The bottom status bar shows the simulation is running.

Time(sec)	Last Devi	At Devi	Type	Info
0.004	Switch3	PC9	ARP	
0.004	PC5	Switch2	ARP	
0.005	Switch2	Switch1	ARP	
0.006	Switch1	PC7	ARP	
0.006	---	PC7	ICMP	
0.007	PC7	Switch1	ICMP	
0.008	Switch1	Switch2	ICMP	

- Now to check whether the connections are correct or not try to ping any device and the image below is doing the same.
 - To do ping one terminal of one device and run the following command:



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"Ping 192.168.2.8"

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.4

Pinging 192.168.1.4 with 32 bytes of data:

Reply from 192.168.1.4: bytes=32 time=1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=2ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\>|
```

RESULT:-

Simulated Star and Bus Network topologies.