

## Jawahar Education Societys Annasaheb Chudaman Patil College of Engineering, Kharghar, Navi Mumbai

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Batch: 03

**EXPERMINT: 06** 

●Aim: Star Topology graphical simulation using packet tracer.

### ●Theory:

### **Star topology:**

- Star topology is a computer network topology in which all the nodes are connected to a centralized hub.
- The hub or switch acts as a middleware between the nodes.
- Any node requesting for service or providing service, first contact the hub for communication.
- The central device (hub or switch) has point to point communication link (the dedicated link
- between the devices which cannot be accessed by some other computer) with the devices.
- The central device then broadcast or unicast the message based on the central device used.
- The hub broadcasts the message, while the switch unicasts the messages by maintaining a switch table.
- Broadcasting increases unnecessary data traffic in the network.

#### **Advantages of Star topology:**

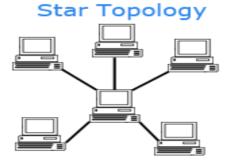
- Centralized control.
- Less Expensive.
- Easy to troubleshoot (the faulty node does not give response).
- Good fault tolerance due to centralized control on nodes.
- Easy to scale (nodes can be added or removed to the network easily).

#### **Disadvantages of Star topology:**

- If the central device fails, the network will fail.
- The number of devices in the network is limited (due to limited input-output port in a central device).

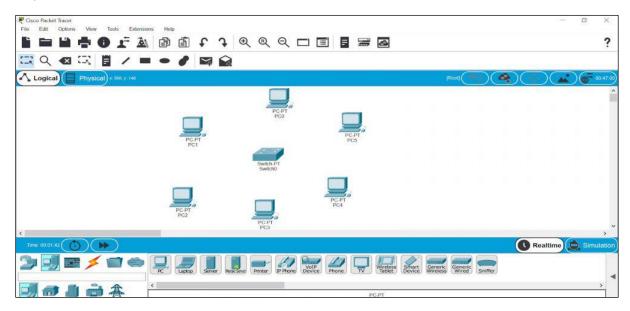


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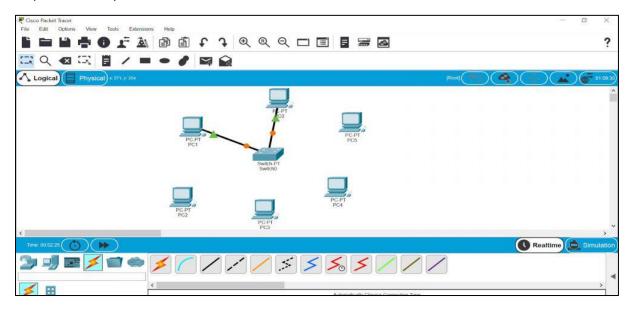


#### **Steps Implementing Star Topology using Cisco Packet Tracer:**

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



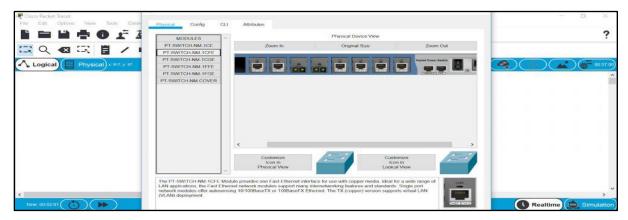
Step 2: Link every device with the switch.



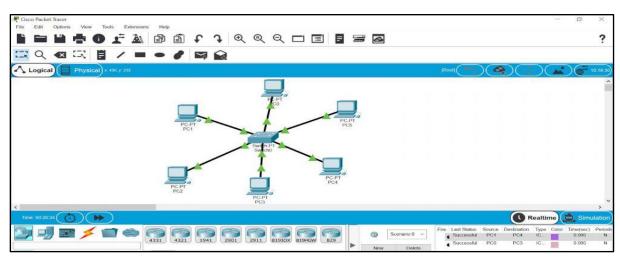
Step 3: Provide the IP address to each device.



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



Step 4: ping.

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Physical Config Desktop Programming Attributes

Command Prompt

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: 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 = Oms, Maximum = 2ms, Average = Oms

C:\>
```

 <u>Conclusion</u>: Thus, we have studied about Star topology graphical simulation using packet tracer.