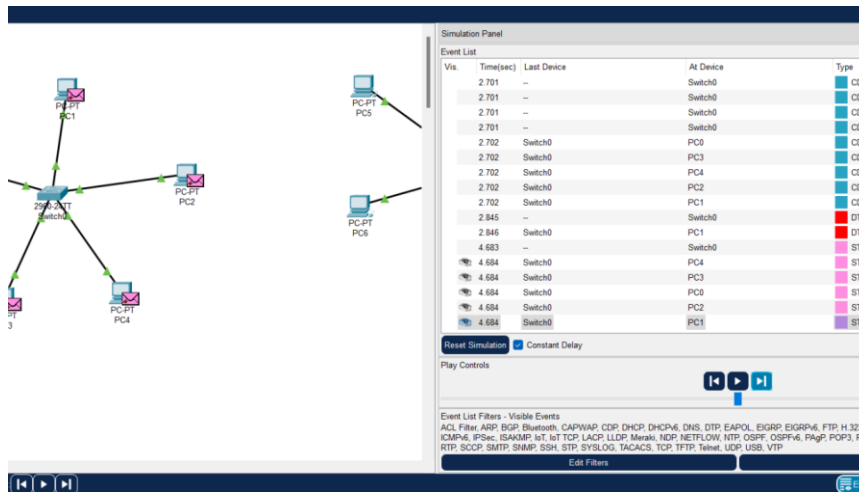


STAR TOPOLOGY USING CISCO PACKET TRACER



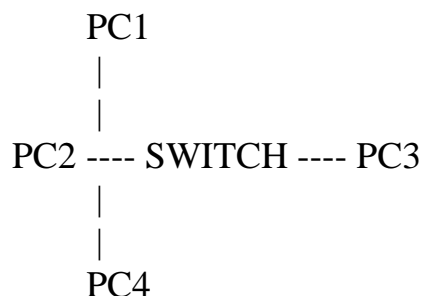
MEANING OF STAR TOPOLOGY

Star topology is a type of network topology in which **all network devices (nodes) are connected to a single central device**, such as a **switch or hub**, using separate communication links.

In this arrangement:

- The **central device** acts as the control point.
- All data sent from one node to another **passes through the central device**.
- Each node has a **dedicated cable** connecting it to the central device.

Diagrammatic Explanation of Star Topology



From the diagram:

- The **switch** is located at the center.
- All computers (PCs) are connected directly to the switch.

- There is **no direct connection between PCs**.
This clearly represents a **star-shaped network**, hence the name *star topology*.

Steps to Achieve Star Topology Using Cisco Packet Tracer

Step 1: Launch Cisco Packet Tracer

- Open the **Cisco Packet Tracer** application.
- A blank workspace (logical workspace) will appear.

Step 2: Add End Devices (Computers)

- At the bottom-left of the screen, click **End Devices**.
- Drag and drop at least **four PCs** (PC0, PC1, PC2, PC3) into the workspace.

Step 3: Add a Central Device (Switch)

- Click **Network Devices**.
- Select **Switches**.
- Drag and drop **one switch** (e.g., 2960 switch) and place it **at the center** of the workspace.

This switch will serve as the **central connecting device** of the star topology.

Step 4: Arrange Devices in Star Form

- Position the switch in the middle.
- Arrange the PCs around the switch in a circular or star-like manner.

This arrangement helps to visually demonstrate the star topology.

Step 5: Connect Devices Using Cables

- Click on **Connections** (lightning icon).
- Choose **Copper Straight-Through Cable**.
- Connect:
 - PC0 → Switch (FastEthernet0/1)
 - PC1 → Switch (FastEthernet0/2)
 - PC2 → Switch (FastEthernet0/3)
 - PC3 → Switch (FastEthernet0/4)

Each PC must have **its own individual cable connected directly to the switch**, which is a key feature of star topology.

Step 6: Configure IP Addresses

To enable communication, IP addresses must be assigned.

For each PC:

- Click on the PC → **Desktop**
- Select **IP Configuration**
- Assign the following:

Device IP Address Subnet Mask

PC0	192.168.1.1	255.255.255.0
PC1	192.168.1.2	255.255.255.0
PC2	192.168.1.3	255.255.255.0
PC3	192.168.1.4	255.255.255.0

All PCs are placed within the **same network** to allow communication.

Step 7: Test the Network

- Click on **PC0**.
- Go to **Desktop** → **Command Prompt**.
- Type:
- ping 192.168.1.2
- Repeat the ping test for other PCs.

If replies are successful, the **star topology has been correctly implemented**.

Explanation of How Star Topology Is Achieved

Star topology is achieved because:

- All nodes are **directly connected to one central switch**.
- There are **no direct links between end devices**.
- Communication flows **through the switch**, which controls data transmission.
- Failure of one PC or cable does **not affect the rest of the network**, except the switch.

Conclusion

Using Cisco Packet Tracer, star topology is achieved by placing a **switch at the center**, connecting all computers to it using **individual straight-through cables**, configuring IP addresses, and testing connectivity. This topology is widely used due to its **simplicity, reliability, and ease of management**.