STAR TOPOLOGY

Building a Resilient and Scalable Local Area Network

Objective

Goal: To design a small business star network ensuring centralized control, easy scalability and reliable connectivity.

Hardware Components

Switch [Cisco 2960] – Central connecting device all PC's connect to it.

PCs [PC-PT] – Used as network host to send/receive data.

Router – Connect multiple networks or provides internet access.

Ethernet Cables [Copper-Straight-Through] – Used to connect PCs to the switch.

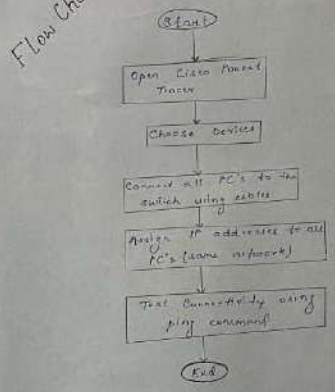
Software Components

Cisco Packet Tracer – Simulation tool used to design and test the star topology.

Operating System [Windows/Linux/macOS] – To run Cisco Packet Tracer.

Command Prompt/Terminal – Used to test connectivity using ping command.

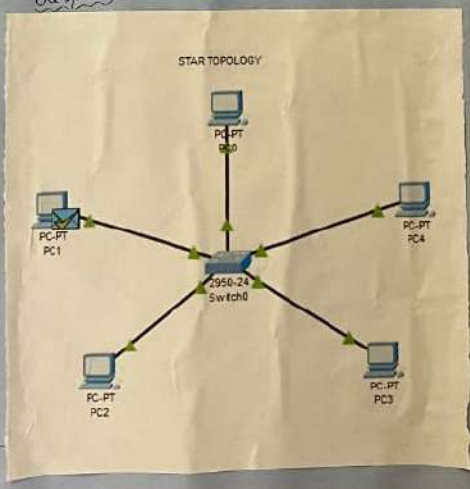
Flow Chart



Procedure

1. Launch Cisco Packet Tracer.
2. From the device-type selection box, drag:
   → 1 switch & as many PCs
3. Connect Devices:
   Use Copper Straight-Through cable:
   & Connect each PC → Switch
4. Assign IP Addresses
   → Click each PC → Desktop Tab → IP Configuration
   → Assign IP in same network
   PC0: 192.168.1.1
   PC1: 192.168.1.2
   PC2: 192.168.1.3
   PC3: 192.168.1.4
   PC4: 192.168.1.5
   Subnet Mask: 255.255.255.0
5. Test Connectivity
   On PC0 → Command Prompt type:
   ping 192.168.1.2
   ping 192.168.1.3
   Successful ripple confirm proper configuration.

Output:



Conclusion

A switch centered network using PCs, cables and Packet Tracer software forms the complete star topology setup – ideal for learning, testing and network design simulation.

Advantage

1. Easy to install and configure.
2. Highly Scalable
3. Improved performance
4. High Security
5. Mostly use topology in big industries.

Disadvantage

1. Costly
2. Highly scalable but maintenance issue
3. Single point of failure

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