CN Practical 3

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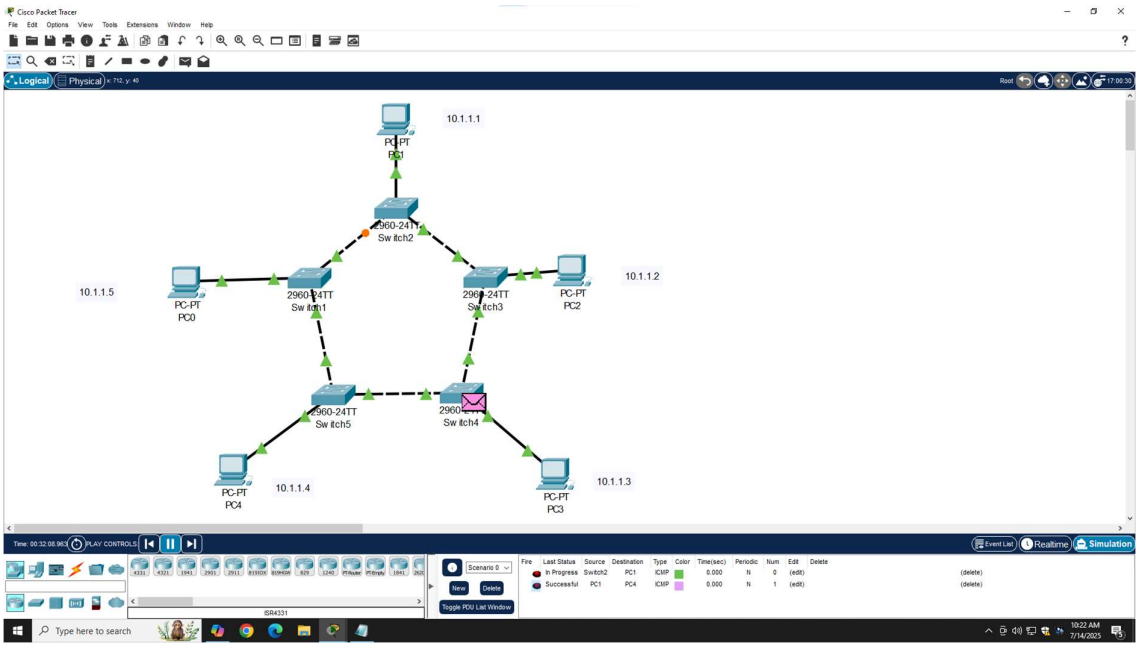
Ring Topology



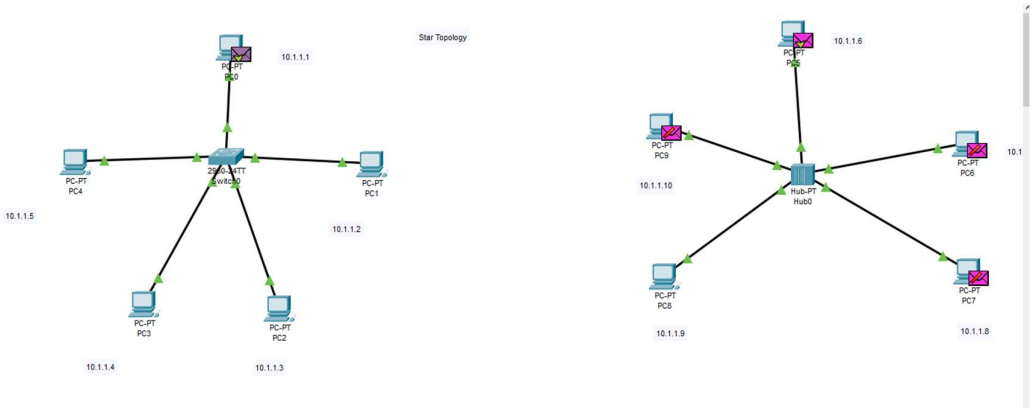
In a ring topology, each device (or node) is connected to exactly two other devices, forming a closed loop — like a circle. Data travels from one node to the next in a unidirectional or bidirectional path.

In the above picture we have used 5 switches and 5 PC each pc is connected to their switches and it's packet are sent respectively

Data flows in a circular path, passing through each node until it reaches its destination.

- Often uses a token-passing protocol, where a special packet (token) grants permission to transmit data.
- If a node has data to send, it waits for the token, attaches its data, and sends it around the ring.

Star Topology



In a star topology, all devices (nodes) are connected to a central hub, switch, or router. This central device acts as a controller, managing communication between the connected devices.

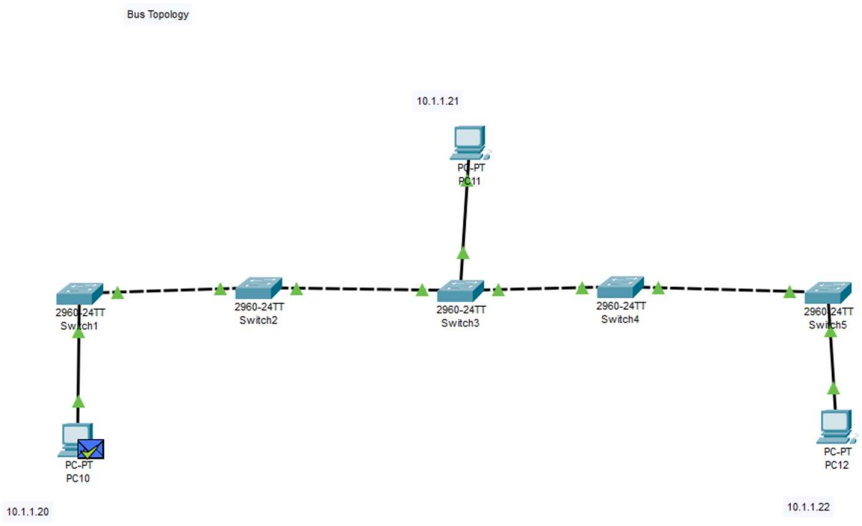
- Each node has a dedicated point-to-point link to the hub
- The hub acts as a traffic director, forwarding data to the correct destination

In the hub topology the packets are sent to all pc and is but is rejected by the pc on which the packets were not supposed to be sent.

A device sends data to the central hub

- The hub then relays that data to the intended recipient
- Communication is not direct between devices — everything goes through the hub

Bus Topology



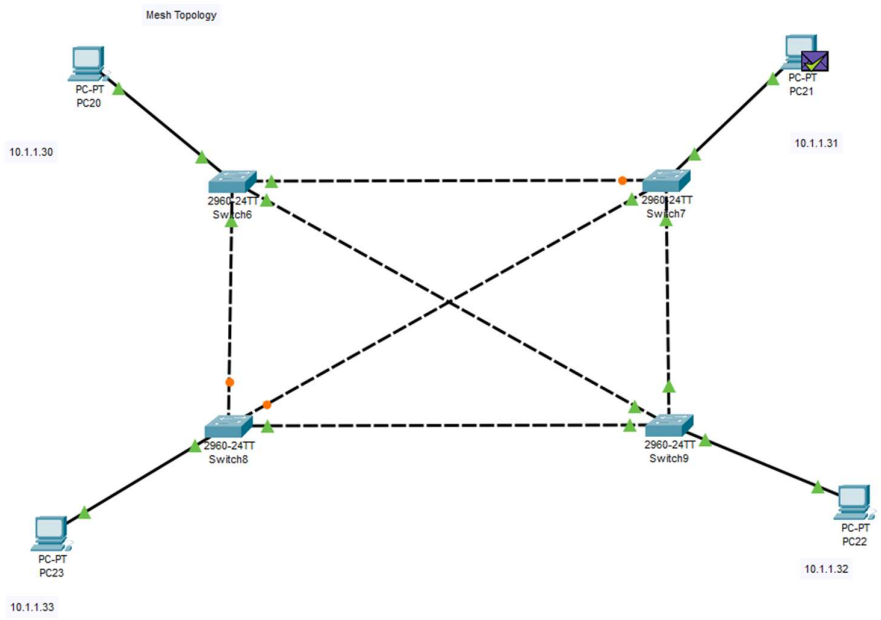
In a bus topology, all devices (nodes) are connected to a single central cable, known as the backbone or bus. This cable acts as the shared communication medium for all devices.

- Think of it like a public bus route — every stop (device) shares the same road (cable).
- Data travels in both directions along the bus until it reaches its destination.

 Devices send data onto the bus.

- Each device checks if the data is meant for it by inspecting the destination address.
- If it matches, the device accepts the data; otherwise, it ignores it.
- Terminators are placed at both ends of the bus to prevent signal reflection and maintain integrity.

Mesh Topology



Mesh topology is a network setup where every device (node) is connected to every other device. This creates a web-like structure that allows data to travel through multiple paths, ensuring high fault tolerance and reliability.

There are two main types:

- Full Mesh: Every node is directly connected to every other node.
- Partial Mesh: Only some nodes are interconnected, balancing cost and redundancy.

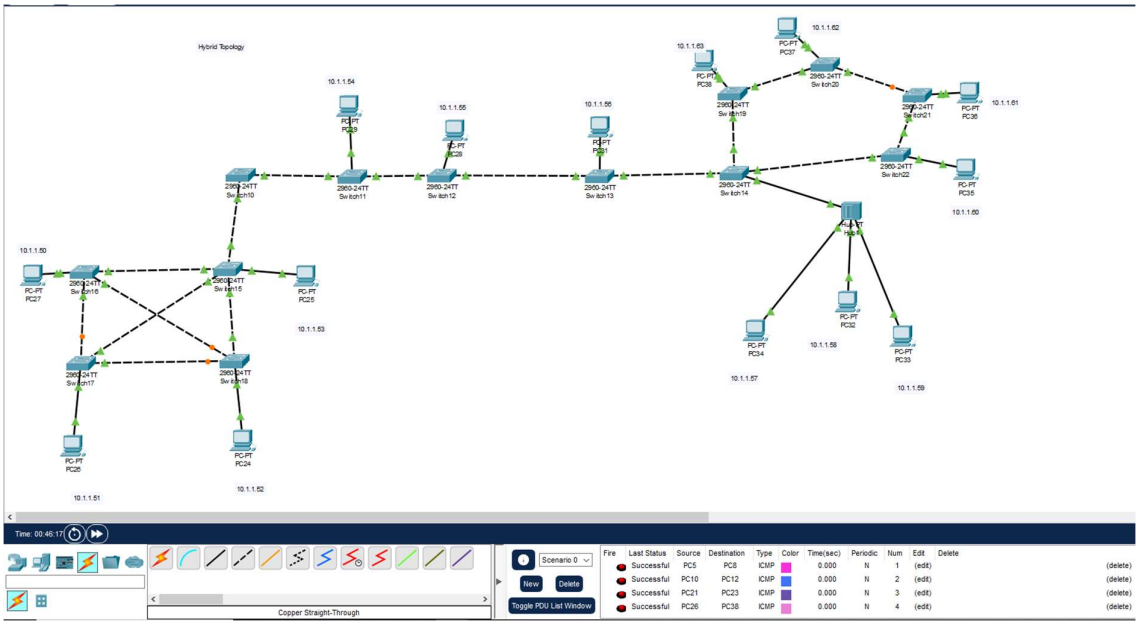
 Data can take any available path to reach its destination.

- If one connection fails, the network automatically reroutes the data.
- Often used in wireless networks, especially in smart homes, industrial systems, and military communications.

Hybrid Topology

Hybrid topology combines two or more different network topologies—like star, bus, ring, or mesh—into a single, unified network. It's like building a custom playlist from different genres to suit your exact vibe.

- Offers flexibility to tailor the network to specific needs
- Common in large organizations where different departments may require different setups


Hybrid Topology
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10.1.1.62
10.1.1.63
Time: 00:46:17
Copper Straight-Through
Scenario 0
New
Delete
Toggle PDU List Window
Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete
Successful PC5 PC8 ICMP 0.000 N 1 (edit) (delete)
Successful PC10 PC12 ICMP 0.000 N 2 (edit) (delete)
Successful PC21 PC23 ICMP 0.000 N 3 (edit) (delete)
Successful PC26 PC38 ICMP 0.000 N 4 (edit) (delete)