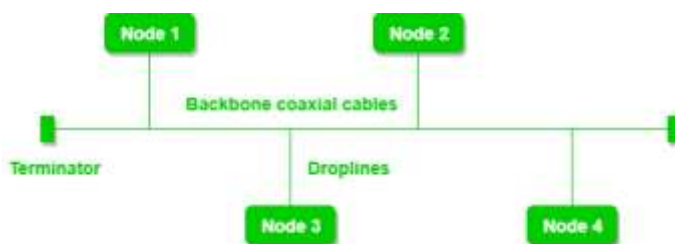


Network Topology:

Network topology refers to the physical or logical arrangement of devices and connections in a computer network. There are several types of network topologies, each with its own advantages and disadvantages. Here are some examples:

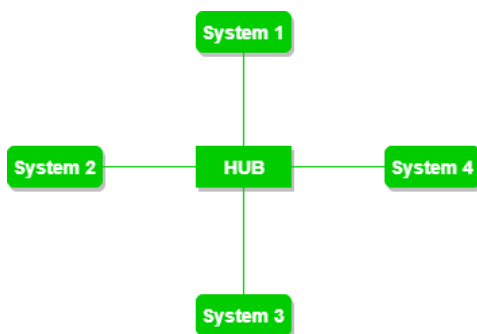
1. **Bus Topology:**

- All devices share a single communication line (bus).
- Simple and inexpensive to implement.
- Performance can degrade as more devices are added.



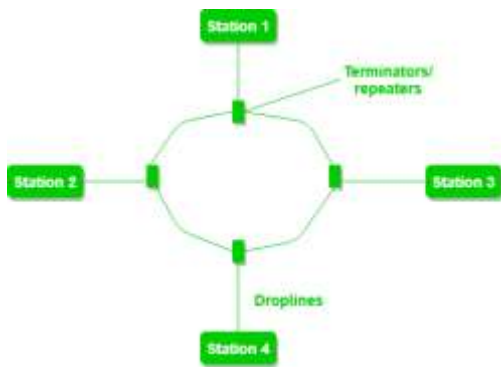
2. **Star Topology:**

- All devices are connected to a central hub or switch.
- Easy to install and manage.
- If the central hub fails, the entire network may be affected.



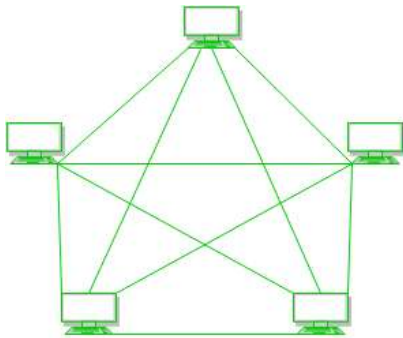
3. **Ring Topology:**

- Devices are connected in a circular fashion.
- Data travels in one direction, passing through each device.
- Failure in one device can disrupt the entire network.



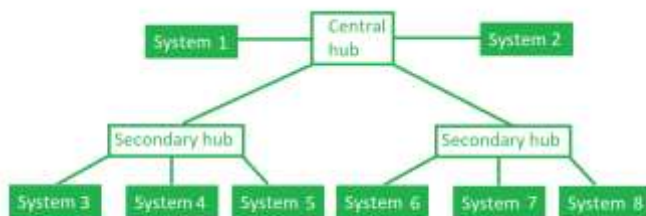
4. **Mesh Topology:**

- Every device is connected to every other device in the network.
- Provides redundancy and reliability.
- Expensive and complex to install and manage.



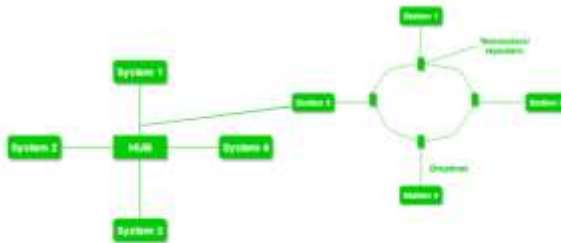
5. **Tree Topology:**

- Hierarchical structure with a main central node (root) connected to other nodes.
- Allows for the expansion of the network.
- Failure of the central node can impact the entire network.



6. **Hybrid Topology:**

- Combination of two or more different types of topologies.
- Offers flexibility and scalability.
- Complex to design and maintain.



7. **Point-to-Point Topology:**

- Direct connection between two devices.
- Commonly used in WAN (Wide Area Network) connections.
- Simple but lacks scalability.



Real-life examples for each of the network topologies:

1. **Bus Topology:**

- **Example:** Small office network where computers are connected through a single Ethernet cable.

2. **Star Topology:**

- **Example:** Local area network (LAN) in a home where all devices (computers, printers, etc.) are connected to a central Wi-Fi router.

3. **Ring Topology:**

- **Example:** Token Ring network (less common today) where computers are connected in a circular fashion, and data circulates in one direction.

4. **Mesh Topology:**

- **Example:** Internet backbone infrastructure where multiple routers and switches are interconnected, providing redundant paths for data.

5. **Tree Topology:**

- **Example:** Large corporate network with a main server (root) connected to departmental servers, and computers connected to those servers.

6. **Hybrid Topology:**

- **Example:** University campus network combining a star topology for individual buildings and a backbone ring connecting these buildings.

7. **Point-to-Point Topology:**

- **Example:** Direct connection between two offices in different locations using a dedicated leased line.

8. **Daisy Chain Topology:**

- **Example:** Home theater system where audio/video devices are connected in a linear fashion, such as speakers connected to each other.

9. **Cellular Topology:**

- **Example:** Mobile phone network where individual cell towers provide coverage to specific geographic areas.

10. **Star-Bus Topology:**

- **Example:** A large department store with a central server (hub) connected to multiple branches (bus) in a hierarchical fashion.