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In the context of computer networks, there are several different topologies used to interconnect devices and establish communication paths.

Here are some common network topologies:

1. Bus Topology:

In a bus topology, all devices are connected to a common communication medium, usually a single cable known as a bus. Each device shares the same transmission medium, and messages are broadcasted across the bus. However, if the bus fails, the entire network can be affected.

2. Star Topology:

In a star topology, all devices are connected to a central hub or switch. Each device has a dedicated connection to the central hub, and communication between devices is facilitated through the hub. If one device or connection fails, it does not affect the rest of the network.

3. Ring Topology:

In a ring topology, devices are connected in a closed loop, forming a ring. Each device in the

network is connected to two neighboring devices, and messages are passed along the ring in a specific direction. Data circulates around the ring until it reaches the intended recipient. Failure of a single device or connection can disrupt the entire network.

4. Mesh Topology:

In a mesh topology, each device is connected to every other device in the network, creating multiple communication paths. This redundancy provides fault tolerance and enhances network reliability, as data can be rerouted if a particular connection or device fails. Mesh topologies can be categorized into full mesh (every device connected to every other device) or partial mesh (only certain devices connected to others).

5. Tree Topology:

A tree topology, also known as a hierarchical topology, is a combination of bus and star topologies. Devices are arranged in a hierarchical structure, with multiple levels of interconnected hubs or switches. This topology is commonly used in large networks, where multiple star topologies are connected to a central backbone.

6. Hybrid Topology:

A hybrid topology is a combination of two or more different topologies. It allows for greater flexibility and scalability by leveraging the advantages of multiple topologies. For example, a network may have a combination of star and ring topologies or star and mesh topologies.

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