Bangladesh Open University

Diploma in Computer Science and Application Program (DCSA)

**Internet Technology and Web Designing**

TMA - 1

Briefly describe different types of topology used in LAN

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Local Area Networks (LANs) can be set up using various network topologies, which define how devices are connected to form a network. Here are brief descriptions of some commonly used LAN topologies:

1. **Bus Topology:** In a bus topology, all devices are connected to a common communication channel, often referred to as a bus or backbone. Devices are connected in a linear fashion, with each device tapped into the bus through drop lines. Data transmitted by one device is received by all other devices on the network. However, only the intended recipient processes the data. Bus topologies are relatively simple to implement and cost-effective, but they can suffer from performance issues and limited scalability.
2. **Star Topology:** In a star topology, all devices are connected to a central device, typically a switch or hub. Each device has a dedicated point-to-point connection to the central device. Data transmitted by a device is sent directly to the central device, which then broadcasts the data to the intended recipient. Star topologies provide better performance, fault isolation (a single device failure does not affect the entire network), and scalability compared to bus topologies.
3. **Ring Topology:** In a ring topology, devices are connected in a closed loop or ring. Each device is connected to two neighboring devices, forming a continuous circular path. Data is transmitted from one device to the next until it reaches the intended recipient. Ring topologies are known for their simplicity and efficiency in transmitting data but can be prone to network disruption if one device fails or the ring is broken.
4. **Mesh Topology:** Mesh topology involves connecting each device directly to every other device in the network. It provides multiple redundant paths, offering high reliability and fault tolerance. Mesh topologies can be fully connected, where every device is directly connected to every other device, or partially connected, where only selected devices have direct connections. While mesh topologies provide excellent fault tolerance, they can be expensive and complex to implement, especially in larger networks.
5. **Hybrid Topology:** Hybrid topology combines two or more different topologies to form a network. For example, a common hybrid topology is a combination of star and bus topologies, where multiple star topologies are interconnected using a bus backbone. Hybrid topologies offer flexibility in designing networks to meet specific requirements, such as scalability, fault tolerance, or cost-effectiveness.

It's important to note that LAN topologies can vary depending on the specific network infrastructure and requirements. Each topology has its own advantages and disadvantages, and the choice of topology depends on factors such as the size of the network, the number of devices, the required performance, fault tolerance, and budget considerations.