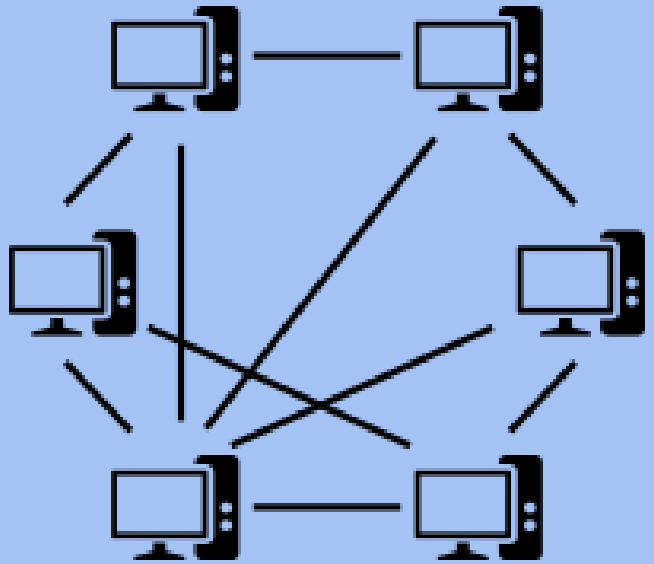
SUBJECT: COMPUTER NETWORKS

Peer to Peer Network Architecture

Elementrix Classes

Peer to Peer Network Architecture

A peer-to-peer (P2P) network in which interconnected nodes ("peers") share resources amongst each other without the use of a centralized administrative system.



- In a peer-to-peer network, computers act as equal peers capable of both client and server functions. Users control their resources, sharing files and setting access permissions independently, which fosters a decentralized environment. However, this decentralization also means there's no central administration, requiring users to manage backups and security themselves. While easy to install and operate, peer-to-peer networks may face challenges with scalability and security as they grow in size. Nonetheless, they remain ideal for smaller environments where simplicity and autonomy are valued.

- **Example:**BitTorrent uses a peer-to-peer network where devices directly exchange file chunks to download and share content without a central server.

Advantages of Peer to Peer Network

- **Decentralization:** No need for a central server or administrator.
- **Cost-Effective:** Simple setup and maintenance reduce infrastructure costs.
- **Resource Sharing:** Users can easily share files and resources.
- **Flexibility:** Scalable and adaptable to changing network needs.
- **Ease of Use:** Simple to set up and operate, suitable for home and small office use.

Disadvantages of Peer to Peer Network

- **Security Risks:** Lack of centralized control can lead to security vulnerabilities.
- **Scalability Challenges:** Efficiency decreases as network size grows.
- **Dependency on Users:** Relies on individual users to manage and maintain resources.
- **Limited Management Tools:** Fewer management and monitoring capabilities compared to client-server networks.
- **Performance Impact:** Performance may suffer when peers act as servers, especially in larger networks.

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