

Difference Between Client-Server and Peer-to-Peer Network

The main difference between Client-server and Peer-to-Peer Network is that a peer-to-peer network allows each node to offer and receive services. When a client-server network is present, the client nodes request services, and the server node responds by providing those services. The table shows the difference between Client-server and Peer-to-Peer Network based on stability, server, etc.

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Client-server Network	Peer-to-Peer Network
Client-server networks are more reliable and scalable than peer-to-peer networks.	As the number of peers in the system grows, it becomes less stable and scalable.
In a client-server network, we have a server and clients that are connected to the server.	Clients are not distinguished in a peer-to-peer network; every node serves as client and server.
A client-server network is more stable and scalable than a peer-to-peer network.	Peer-to-peer networks become less stable and scalable as the number of peers in the system grows.
A Client-Server network is secure because the server can validate a client's access to any network area.	As the number of peers increases, the network's security deteriorates, and its vulnerability grows.
Because the server handles most of the work, client growth does not affect performance.	Because resources in a large peer-to-peer network are shared, performance is likely to suffer.
When many customers make simultaneous service requests, a server may become overloaded.	A server is not bottlenecked because services are distributed across multiple servers via a peer-to-peer network.

What is a Client-Server Network?

A client is a computer system that uses a server to access services. A server is a powerful centralized hub that stores various information and handles client requests (s).

One of the most common networking models is the client-server model. The files in a client-server network are not stored on the hard drive of each computer system. Instead, the files are stored and backed up centrally on a specialized computer known as a server. A server is designed to provide data to a remote client efficiently. There may be more than one server on a large-scale network.

What is Peer-to-Peer Network?

Peer-to-peer network architecture has decentralized the most basic form of network architecture, in which every computer system (node) can communicate with every other computer system (node). Therefore, there is no need for a centralized server in a peer-to-peer network architecture because every computer system can communicate directly with every other computer system.

Each node in a peer-to-peer network has equal permission and responsibility for processing data or information. Each computer network in the peer-to-peer computer network architecture operates independently and securely. Every computer system has a disc that stores data it can share with the other computers in the network. So, each computer system can function as server and client in a peer-to-peer network. As a result, each computer network can both request and provide services. The connectivity between computer systems is the primary focus of the peer-to-peer network model.

Key Difference Between Client-Server and Peer-to-Peer Network

The key difference between client-server and peer-to-peer network is as follows.

- The primary difference between client-server and peer-to-peer networks is that client-server networks have a dedicated server and specialised clients, whereas peer-to-peer networks allow any node to operate as both a client and a server.
- In a client-server model, the server gives the client services. Peer-to-peer, on the other hand, allows each peer to both request and deliver services.
- The importance of connectivity between peers is greater in the peer-to-peer architecture than it is in the client-server approach.
- Compared to peer-to-peer, the client-server approach is more expensive to implement.
- Peer-to-peer is less scalable and unstable than the client-server architecture.