



1.3.3 Client-Server & Peer-to-Peer

Client Server

A **client-server network** is a centralised network where a **server provides services and resources to client devices**.

The **client** requests a service or resource from the server.

The **server** processes the request and returns a response.

Example

A web browser acts as a client and requests a webpage from a web server.

Advantages

- Centralised management of data and resources.
- Data can be stored and backed up centrally.
- Security can be managed centrally.
- Servers can provide specialised services to many clients.

Disadvantages

- If the server fails, clients may lose access to services or resources.
- Servers can be expensive to purchase and maintain.
- A large number of clients can put a high demand on the server.
- Requires network administration and maintenance.





Peer-to-Peer

A **peer-to-peer (P2P) network** is a network where devices communicate directly with each other. Each device can act as both a **client and a server**, providing and requesting resources from other devices.

There is **no central server** controlling the network.

A computer could provide a file to another computer while also requesting a different file from another peer.

Advantages

- No central server is required.
- Easy and relatively inexpensive to set up.
- No single server failure affects the entire network.
- Resources can be shared directly between devices.

Disadvantages

- Security can be more difficult to manage.
- Data and resources are distributed across multiple devices.
- Backups can be more difficult to manage.
- Performance can decrease as the network grows.
- Each device may need to manage its own resources and security.

