Computer Network Architecture.

There are two types of network architecture which are as follows —

1) Peer to Peer network (P2P)
2) Client/Server network.

(Two types of designing a Computer Architecture)

1) Peer to peer network —

- It is the simplest type of network.
- In peer to peer network, every computer can communicate directly with every other computer
- There is no use of centralized Server.
- In peer to peer network, each computer have equal permissions and responsibilities for procesing data.

In P2P network, each computer acts as an independent workstation and maintaining its own security that stores data on its own disk but which can share it with all others computers on the network.

- In a P2P network, each computer can act as both a server and a client.

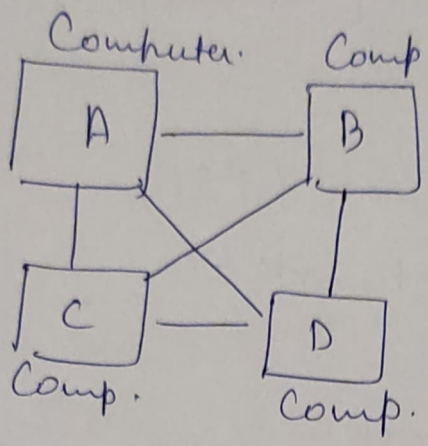

Fig. Peer to Peer network.

Easier to manage on a small scale. Can be setup in home / small businesses.

- Each computer can request for services and can also provide the services.

Individual users control their own resources.

Advantages →

(1) Less expensive to implement because it eliminates extra cost required in setting up the server.

(2) Very Reliable →
If one computer fails it will not affect any other part of the network. It just means that these files are not available to other users at that time.

(3) Easy to setup & maintain as each computer manage itself.

Disadvantages →

(1) It is not very secure, data and other resources shared by network users can be easily discovered and used by ~~Unauthoz~~ unauthorized users.

(2) Each user must be trained to perform administrative tasks

(3) Files and Folder cannot be centrally backed up.

(4) As each computer might be being accessed by others it can slow down the performance for the user.

(5) Each computer needs its own antivirus scanner and back-up schedule.

(2) Client-Server network Architecture.

→ In a client server network, the file & will not be stored on the hard drive of each computer. Instead they will be stored on a specialised computer called server.

→ Here, a server is designed to efficiently provide data to a remote client.

→ On a large network, there may be more than one Server.

File Server → Used to transfer files.

Email Server – Used to deal with the internal email system.

Web Server – Used to Controls access to the internet and block access to any unsuitable sites.
→ It serve webpages

Print Server – Used to deals with all of the printing requests.

→ In client server network, there is a specific Server and specific clients Connected to the Server.

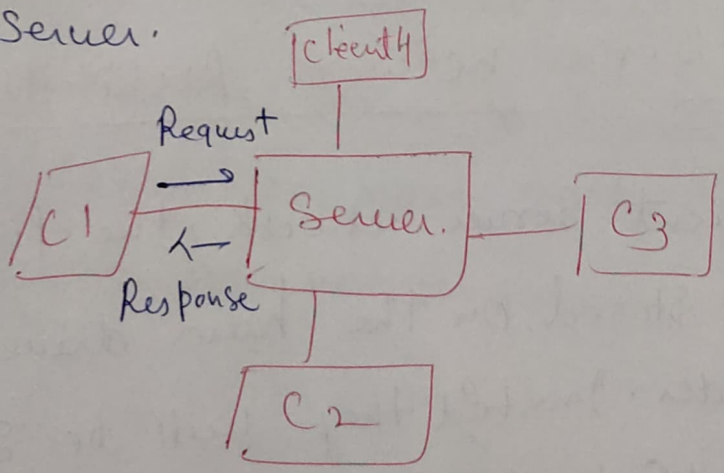

Fig: Client-Server Architecture.

→ There is a Central Computer known as Server used to provide Communication and resource Sharing between other Computers on a network, which are known as Clients.

→ A client does not share any of its resources, but it requests data or service from a Server.

→ Client requests Service from Server and Server response to that request.

→ Large organization are likely to have more than one Server.

→ Server is always ON, So client machines can access the files and resources without caring whether a certain Computer ON or off. But if the the Server is turned off, its resources and Sometimes most of the resources on the network are not available.

Advantages

1) File are all located on the Server so backing up is a lot easier than backing up each individual Computer Seprately.

(2) Antivirus Software is managed Centrally. All Computers are protected as files are managed in one place (Increase security)

(3) Problem on the network can be tracked, diagnosed and often fixed from one location.
→ easy maintenance.

(4) Increase security as each user needs to log in.

(5) Different levels of access are available.

Disadvantages

(1) More expensive as you need to buy a Server and Server Software.

(2) If the Server is down there is no access to data.

(3) Specialist Staff such as network manager is needed.