Network Operating System (NOS)

- The basic definition of an operating system is that the operating system is the interface between the computer hardware and the user. And in daily life, we use the operating system on our devices which provides a good GUI, and many more features with it. Similarly, a **network operating system(NOS)** is software that connects multiple devices and computers on the network and allows them to share resources on the network. Let's see what are the functions of the network operating system.

Types of Network operating system

- Microsoft Windows Server
- UNIX/Linux
- Artisoft's LANtastic
- Banyan's VINES

Functions of the NOS :

- Creating and managing user accounts on the network.
- Controlling access to resources on the network.
- Provide communication services between the devices on the network.
- Monitor and troubleshoot the network.
- Configuring and Managing the resources on the network.

Types of Network operating systems :

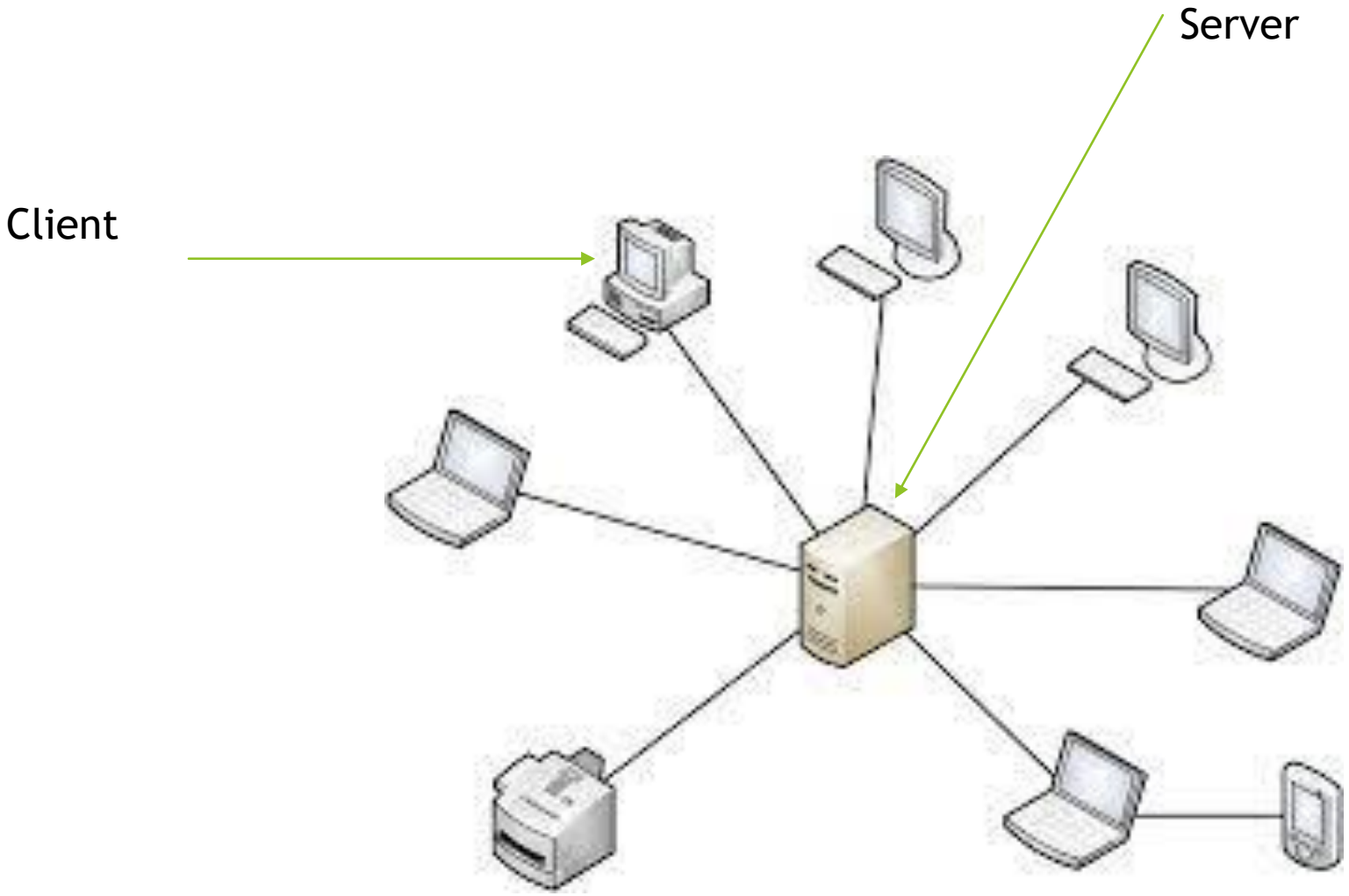
1. **Client-server**
2. **Peer to peer**

Client server

The client server computing works with a system of request and response. The client sends a request to the server and the server responds with the desired information.

- A client-server network is also known as a **network computing model**. In this, we have clients and servers. A client includes a device or a program. Using this, end users can access the web. There are various examples of clients such as web browsers, laptops, desktops, smartphones, etc. A server includes a program or device that replies to the clients with the services. It offers **databases, files, web pages,** and **shared resources** based on their type.
- In a client-server network, the client requests services from the server. The server reacts to client requests by rendering the necessary service after listening to their queries. A client-server network's key benefit is that it is safer because the server constantly controls access and security. Additionally, making backups is simpler. However, it is not very dependable because a server failure will impair the clients' ability to work.

Client-server



Advantages of Client Server

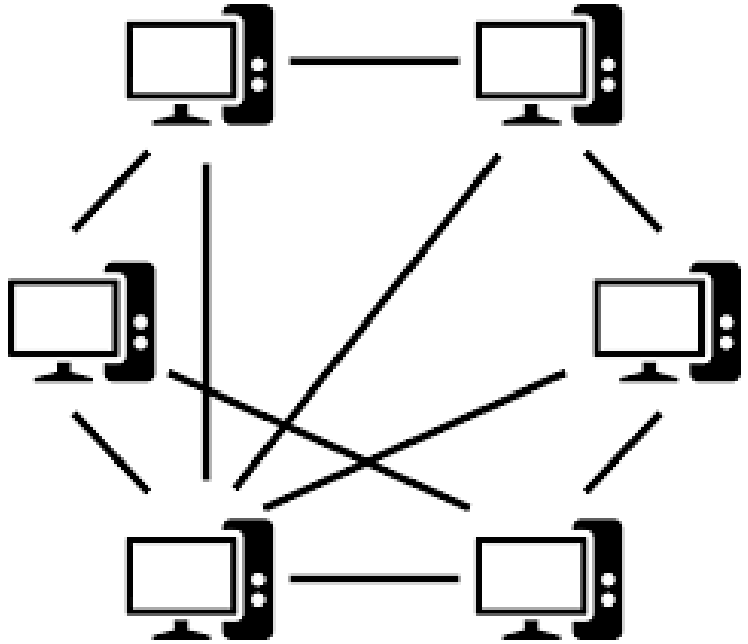
- All the required data is concentrated in a single place i.e. the server. So it is easy to protect the data and provide authorisation and authentication.
- The server need not be located physically close to the clients. Yet the data can be accessed efficiently.
- It is easy to replace, upgrade or relocate the nodes in the client server model because all the nodes are independent and request data only from the server.
- All the nodes i.e clients and server may not be build on similar platforms yet they can easily facilitate the transfer of data.

Disadvantages of Client Server

- If all the clients simultaneously request data from the server, it may get overloaded. This may lead to congestion in the network.
- If the server fails for any reason, then none of the requests of the clients can be fulfilled. This leads of failure of the client server network.
- The cost of setting and maintaining a client server model are quite high.

Peer to peer (P2P)

- Both remote processes are executing at same level and they exchange data using some shared resource.



Advantages of Peer-to-Peer Network

- Each device linked to the peer-to-peer network exchanges resources with other network nodes.
- The setup of a peer-to-peer network is easily established with the help of specialized software.
- Between several devices, resources are exchanged without any issues.
- Peer-to-peer networks are very reliable because other systems continue to function even when a server fails.
- Being a part of a peer-to-peer network makes it simple for nodes to share resources

Advantages of Network operating systems :

- Highly stable due to central server.
- Provide good security.
- Upgradation of new technology and hardware can be easily implemented in the network.
- Provide remote access to servers from different locations.

Disadvantages of Network operating systems :

- Depend on the central location to perform the operations.
- High cost to buying server.
- Regular updating and maintenance are required.
- Now let’s see what are the examples of network operating systems.