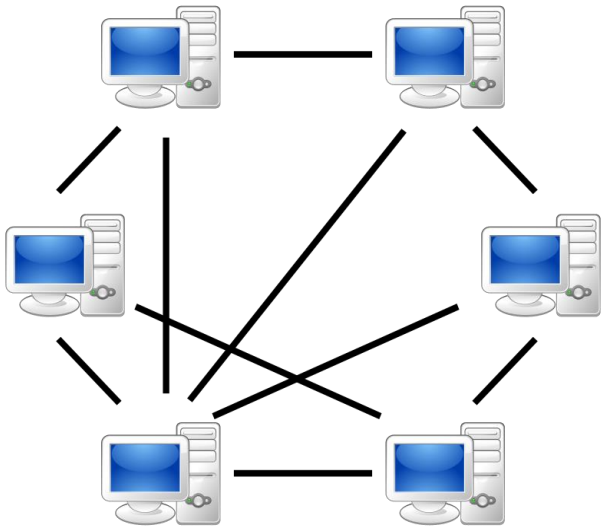
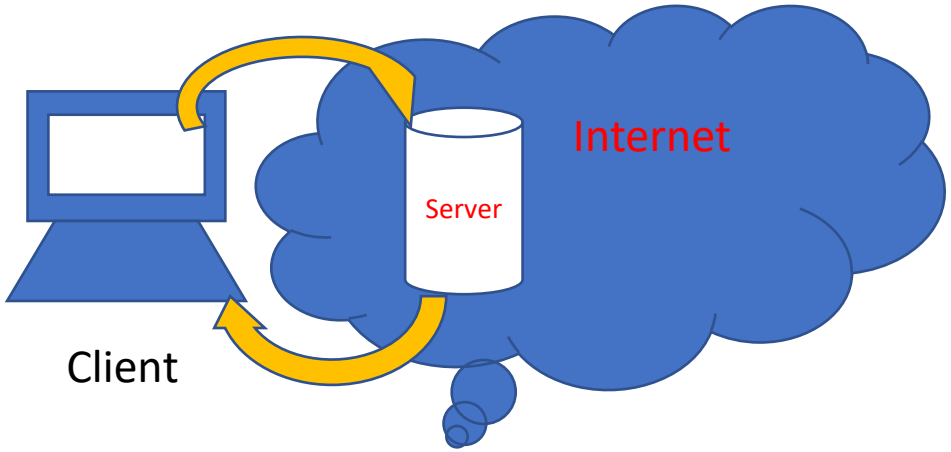
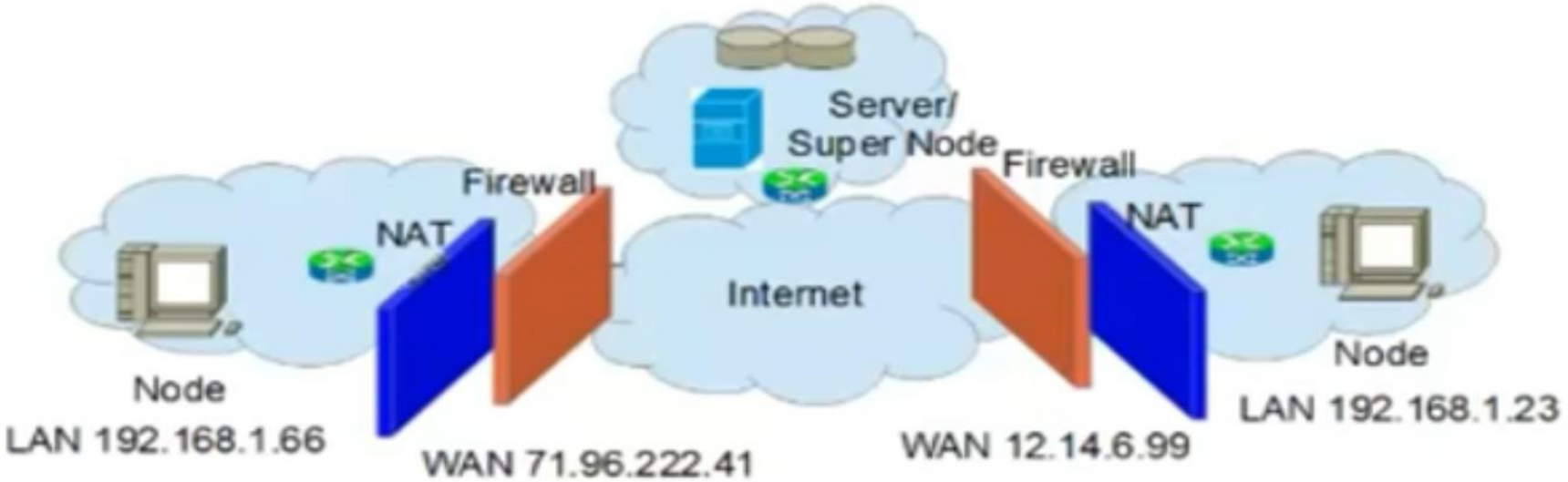
Peer to Peer



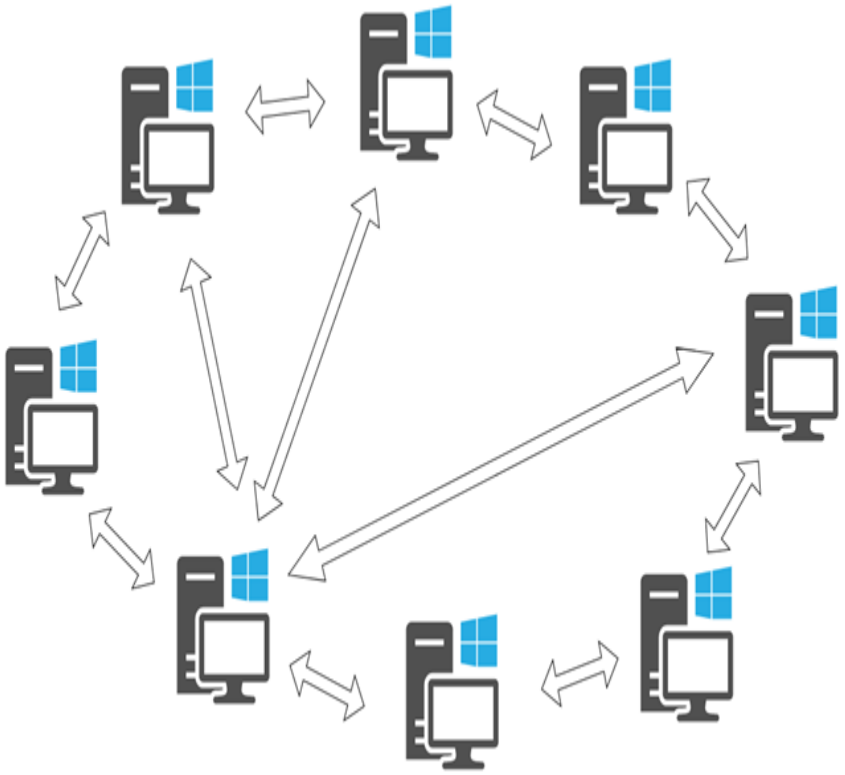


Peer - to - Peer Model



Peer to Peer Challenges

- Discovery - Registration
- NAT Traversal
- Firewalls
- Asymmetrical Bandwidth
- Security
- Optimization



Peer to Peer Architecture

Peer-to-peer, or P2P in its abbreviated form, refers to computer networks using a distributed architecture. In P2P networks, all the computers and devices that are part of them are referred to as peers, and they share and exchange workloads. Each peer in a peer-to-peer network is equal to the other peers. There are no privileged peers, and there is no primary administrator device in the center of the network.

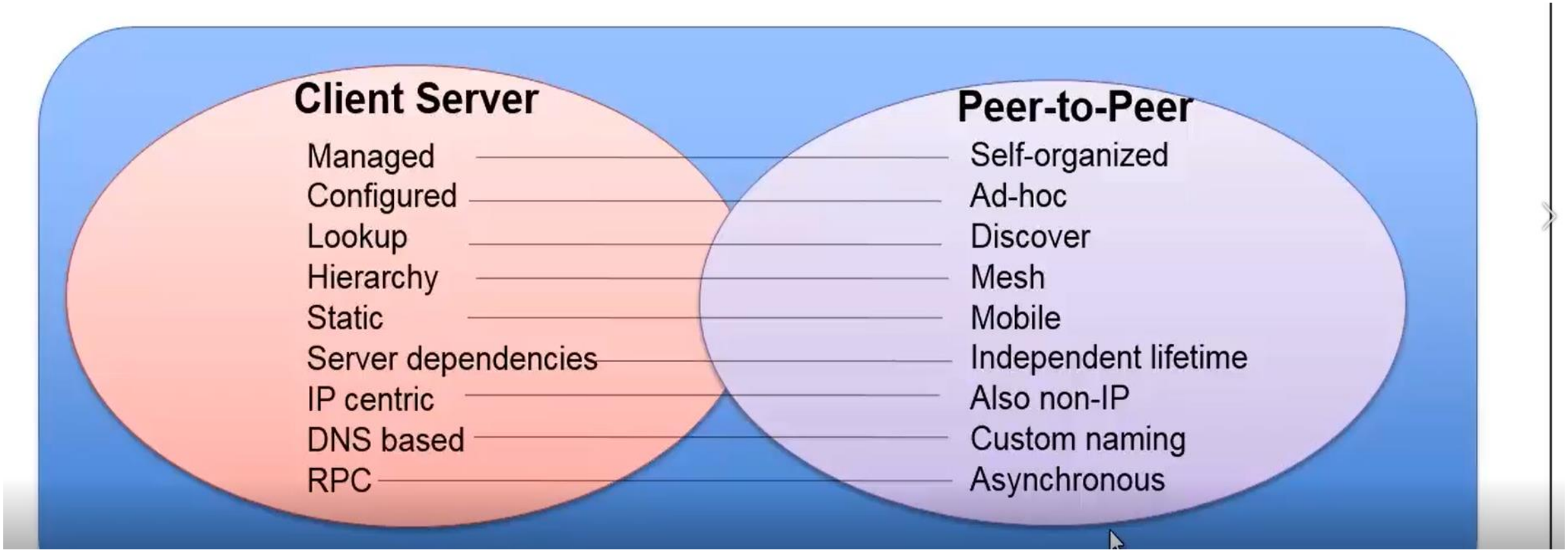
Example- Nepter
Bittorrent
Bitcoin

Advantage

1. Cheap
2. No permissions required

Disadvantage

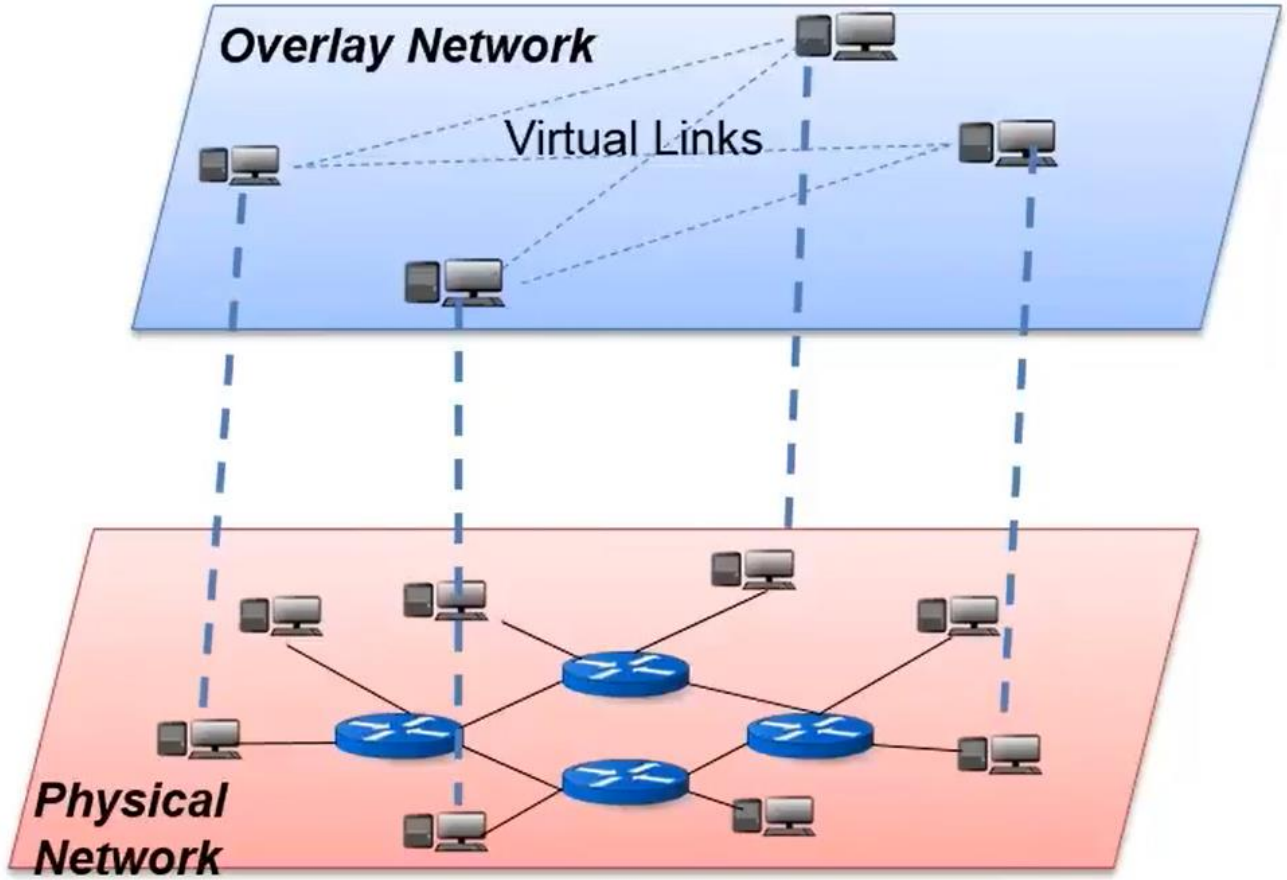
1. Less secure


Client Server
Managed
Configured
Lookup
Hierarchy
Static
Server dependencies
IP centric
DNS based
RPC
Peer-to-Peer
Self-organized
Ad-hoc
Discover
Mesh
Mobile
Independent lifetime
Also non-IP
Custom naming
Asynchronous

Difference between Client-Server and Peer-to-Peer Network:

S.NO	CLIENT-SERVER NETWORK	PEER-TO-PEER NETWORK
1.	In Client-Server Network, Clients and server are differentiated, Specific server and clients are present.	In Peer-to-Peer Network, Clients and server are not differentiated.
2.	Client-Server Network focuses on information sharing.	While Peer-to-Peer Network focuses on connectivity.
3.	In Client-Server Network, Centralized server is used to store the data.	While in Peer-to-Peer Network, Each peer has its own data.
4.	In Client-Server Network, Server respond the services which is request by Client.	While in Peer-to-Peer Network, Each and every node can do both request and respond for the services.
5.	Client-Server Network are costlier than Peer-to-Peer Network.	While Peer-to-Peer Network are less costlier than Client-Server Network.
6.	Client-Server Network are more stable than Peer-to-Peer Network.	While Peer-to-Peer Network are less stable if number of peer is increase.
7.	Client-Server Network is used for both small and large networks.	While Peer-to-Peer Network is generally suited for small networks with fewer than 10 computers.

Overlay Network



Overlay Network

- Logical network built on top of a physical network.
- Nodes in the overlay is a subset of the underling physical network
- Multiple overlay networks can share a single physical network.
- Each such overlay corresponds to a different application.
- Overlay helps P2P system independent of the underlying physical network.

Type of Overlay Network