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Computer Network

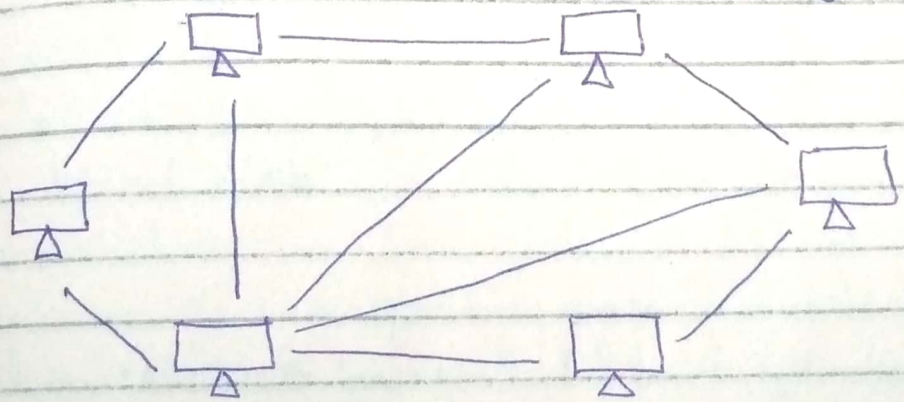
Class Activity #2

1) Decentralized Network:-

Decentralized Network are further classified into:

=> Structured Networks:-

In structure Networks connections are properly structured. They are organized for allowing searching efficiently.



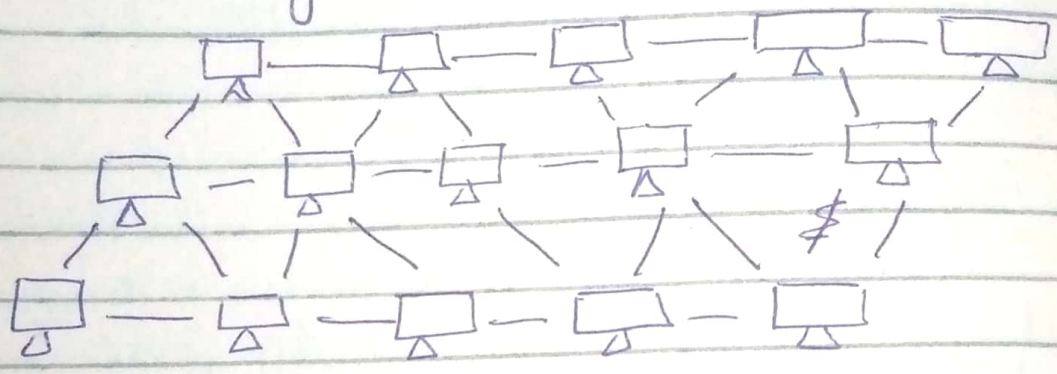
Structured peer to peer Networks.

Example:-

A DHT (Distributed Hash table) is a common example of structured peer to peer networks.

=> Unstructured Networks:

In unstructured network, there is no proper structure. This is nice and simple, but doesn't scale particularly well. The main problem being that you have to search the entire network to find something



Example. —
Gnutela, Freenet etc.

=> Which one is better?

Structure peer to peer network is more better ther unstructured because.

→ Searching is efficient
→ Proper structure
→ less traffic

Example. —

If A want to communicate with B, then it is easily sent request and communicate with B

because of peer to peer structure, and there is a direct link b/w them, while if we are on unstructured network, we have to first send request to our neighbours and then so on.

2) Peer to Peer Network topology:-

we can use both topologies in peer to peer networks:

=> Mesh topology:-

We can used Mesh topology for peer to peer network In Mesh, we used to organize nodes into a network that can transmit data between nodes.

=> Ring topology:-

We can also used ring topology for peer to peer network.

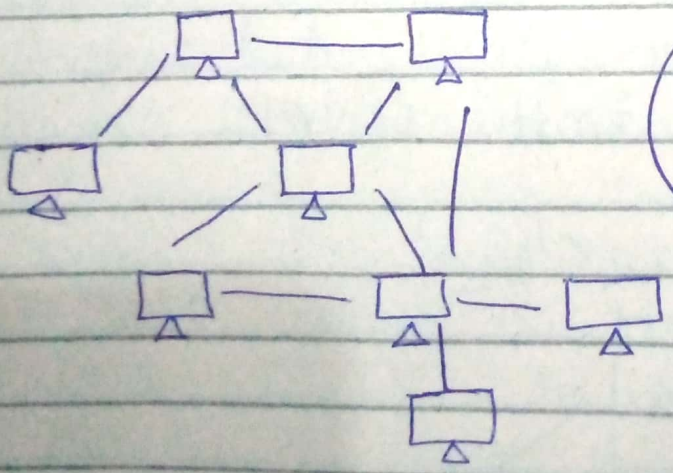
- Better:-

Mesh topology is better in peer to peer networks because in peer to peer network, no server is include and our communication is direct peer to peer and

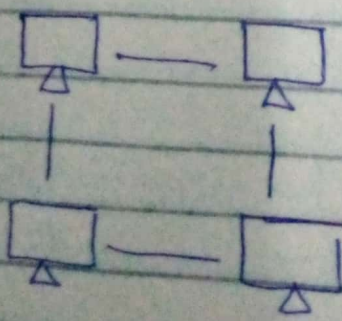
In Mesh topology, all nodes are connected to each other. So when we use Mesh, our peer to peer network established and our communication is direct.

- Each node is peer to peer network function as a router. This allows you to directly addressing node to which you are not directly connected but intermediate nodes will pass the message along it reaches the targeted node.

Example:— Tor, CTDNS etc.



(Peer to Peer Mesh topology)



(Peer topology ring topology)

1) Bit-torrent.

Bit torrent is a communication protocal for peer to peer file sharing, which enables uses to distribute data over internet in a decentralized manner.

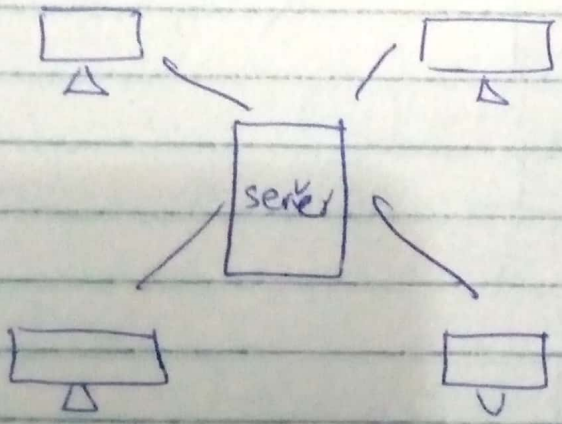
It is designed for fast, efficient content distributed.

Example

Movies, DVDs, Iso's etc.

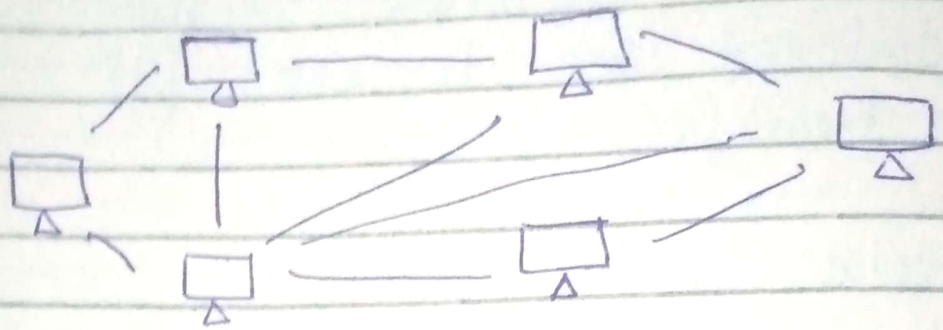
Working.

When you download a nebpage, your computer connects to web servers, downloads data directly from server. Each computer that downloads the data download it from web page central server. This is now traffic controls.



Bit torrent is Peer to peer Protocal, which means Computer is bit torrent is "swarm"

Swarm mean (a group of computers downloading and uploading the same torrent) transfer data structure each other without need of control sever.



Traditionally, a computer joins bit torrent swarm by loading. torrent file into a bit torrent file.

=> Torrent Trackers & Trackless:

A decentralized trackless torrent system allows bit torrent clint to communicate among each other without any concentration central server. Bit torrent clints used DHT technology for this, with each bit torrent clint functionality as a DHT node. when you add a magnetic clint, the DHT node contact nearby nodes and local the information.

⇒ In effect each peer becomes a "tracker".
This means that Bit torrent clients no longer needs a (central Server) managing a swarm. It becomes a fully decentralized peer to peer file system transfer.

- Leeches & Seeders:-

User downloading from a bit torrent swarm are commonly refered as leeches or peer.
Uses that remain connected to bit torrent swarm ever they after downloaded the complete file, contributing more of their upload bandwidth so other people can continue to download file, are referred as "seeders".