MIT College of Engineering
Department of Information Technology

Project Based Seminar (Oral) Presentation

On

Peer to Peer Communication

By

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Guide

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Day and Date of Exam : Friday, 20 April 2018

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- Project Group
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Project Details

- Project Title : Document Sharing Based on Decentralized File System
- Project Domain: Blockchain Implementation
- Project Group Members:
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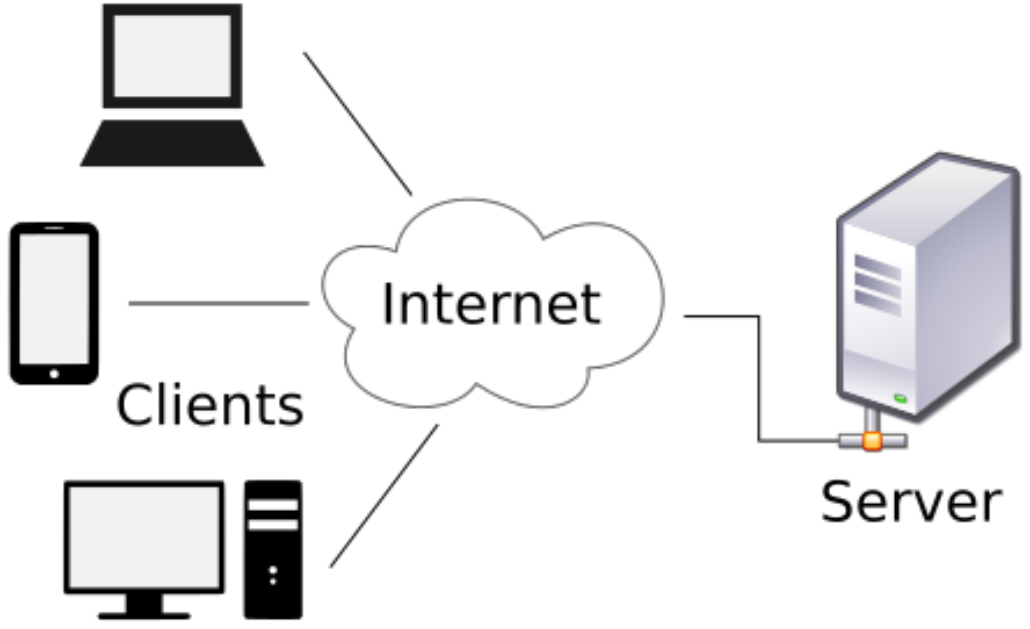
  - T150388594 , Kishlaya Kunj
  - T150388574 , Ishan Joshi

Peer to Peer Technology

History

- Before *Peer to Peer (P2P)* network was implemented, a more simple architecture was used in the form of *Client Server* architecture.
- Eg: A web server serves web pages and a file server serves computer files



Disadvantages

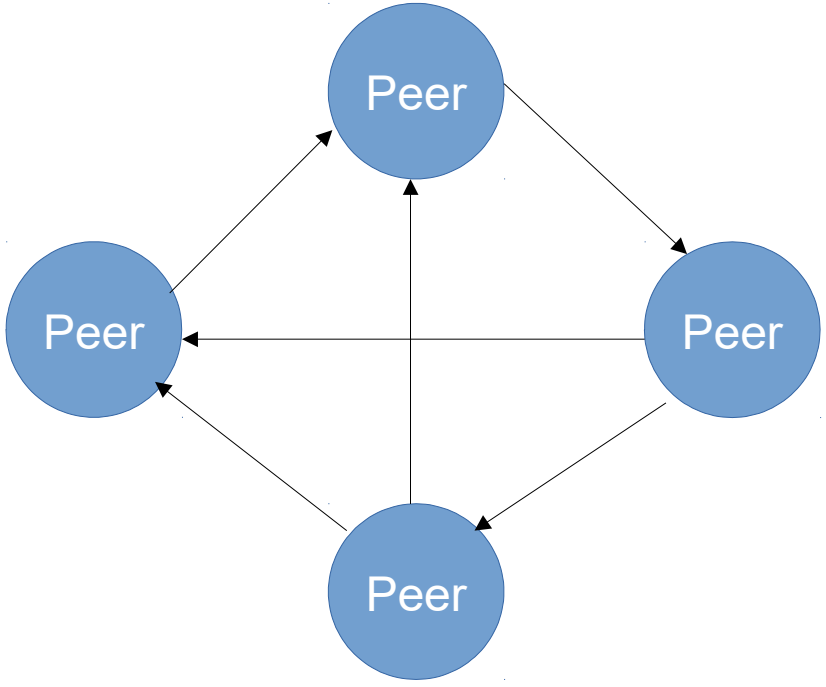
- Number of clients are much higher than number of servers.
- Unable to serve large number of clients due to traffic congestion.
- High work load on server.
- High latency.

Solution?

- Peer to Peer (P2P) Networking.

What is P2P?

- **Peer to Peer Communication is communication between *peers* without the intervention of a sever.**

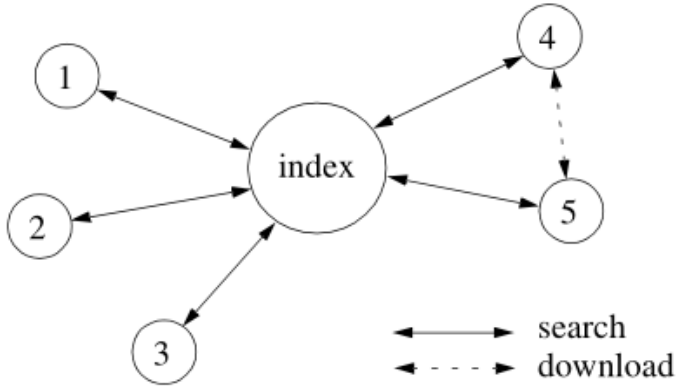


Literature Survey/Related work

Sr. No.	Reference Name (Write Paper Title)	Seed Idea/ Work description
1	Peer to Peer Computing, 2002	Introduction to Peer to Peer Communication
2	Decentralised, Dynamic Network Path Selection in High Performance Computing	Algorithms for Path Selection

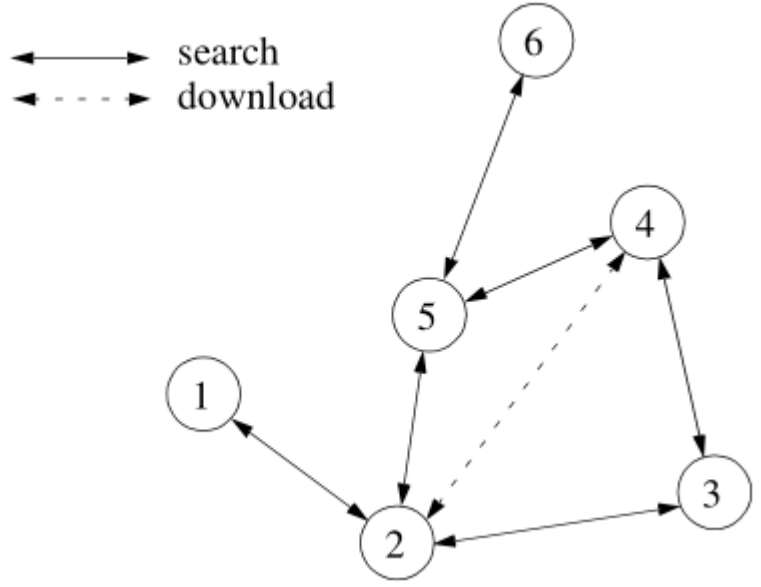
Algorithms

- Centralized directory model:
  - This model was made popular by Napster. The peers of the community connect to a central directory where they publish information about the content they offer for sharing.



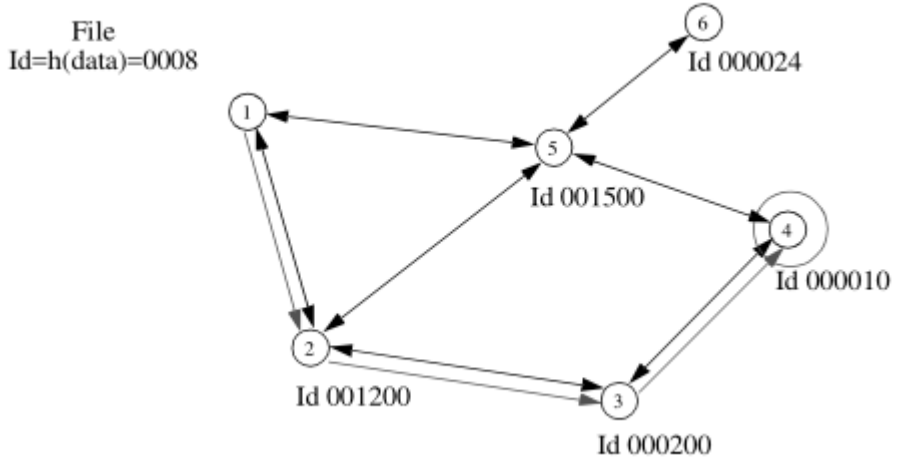
Algorithms

- Flooded Request Model:
    - This is a pure P2P model in which each request from a peer is flooded (broadcast) to directly connected peers until the request is answered or a maximum number of flooding steps (typically 5 to 9)



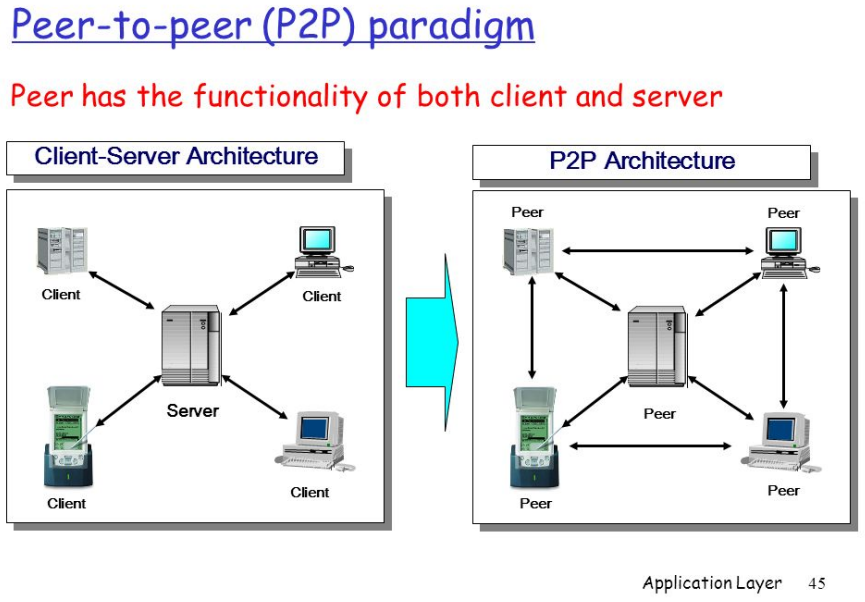
Algorithms

- **Document Routing Model:**
  - **The document routing model, is the most recent approach. Each peer from the network is assigned a random ID and each peer also knows a given number of peers.**



Advantages

- Each peer acts as a client as well as a server. Due to this, there is minimum load.



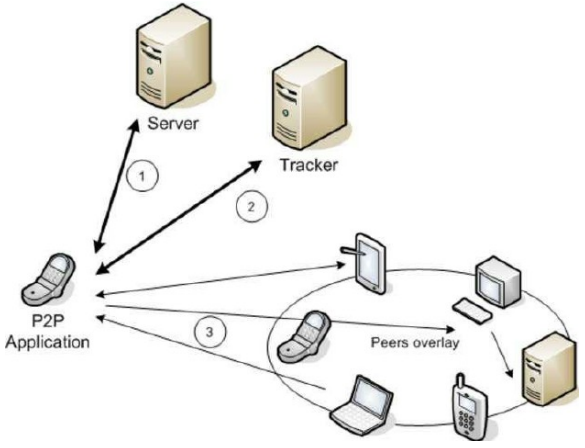
- Server is not present in P2P, which results in increased speed, reliability, reduced latency and maximum efficiency.

Applications

- Cryptocurrency:
    - Cryptocurrencies like Bitcoin, Ethereum, Litecoin, etc are based on blockchain which is a well known application of *P2P* technology.

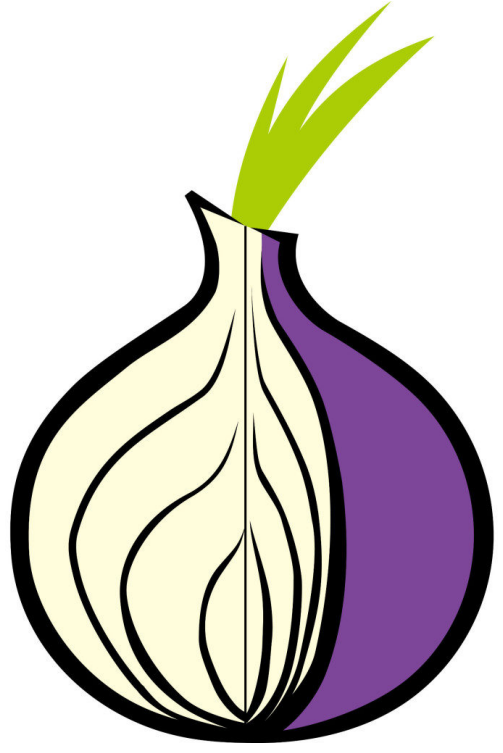
Applications

- Communication:
  - The P2P model covers a wide spectrum of communication paradigms.



- Group Management:
  - Peer group management includes discovery of other peers in the community and location and routing between those peers.

Applications



Our Implementation

- We will be using this decentralized network to share official documents among *peers* allowing them to access the files instantly without worrying about server crash or low bandwidth problems.

Conclusions

- **In this seminar, we studied the different advantages of P2P Networking and its different application which will help in better communication amongst user.**

Our Implementation

- **We will be using this decentralized network to share official documents among *peers* allowing them to access the files instantly without worrying about server crash or low bandwidth problems.**

Not more than 5 to 6 slides

References

List all the material used from various sources for making this seminar

[1] Journal article – A. A. Author of article. "Title of article," Title of Journal, vol. #, no. #, pp. page number/s, Month year.

[2] Books- Author's last name, first initial. (Publication date). Book title. Additional information. City of publication: Publishing company.

[3] Magazine - Author's last name, first initial. (Publication date). Article title. Periodical title, volume number(issue number if available), inclusive pages

[4] Website or Webpage Author's name. (Date of publication). Title of article. Title of Periodical, volume number, Retrieved month day, year, from full URL