



MIT College of Engineering Department of Information Technology



Project Based Seminar (Oral) Presentation
On
Peer to Peer Communication
By
T150388606 Neeraj Lagwankar
Guide
Prof. Shamla Mantri

Day and Date of Exam : Friday, 20 April 2018

Contents

- Project Group
- Introduction
- Literature Survey
- Peer-to-Peer Communication
- Applications/advantages
- Conclusions
- References

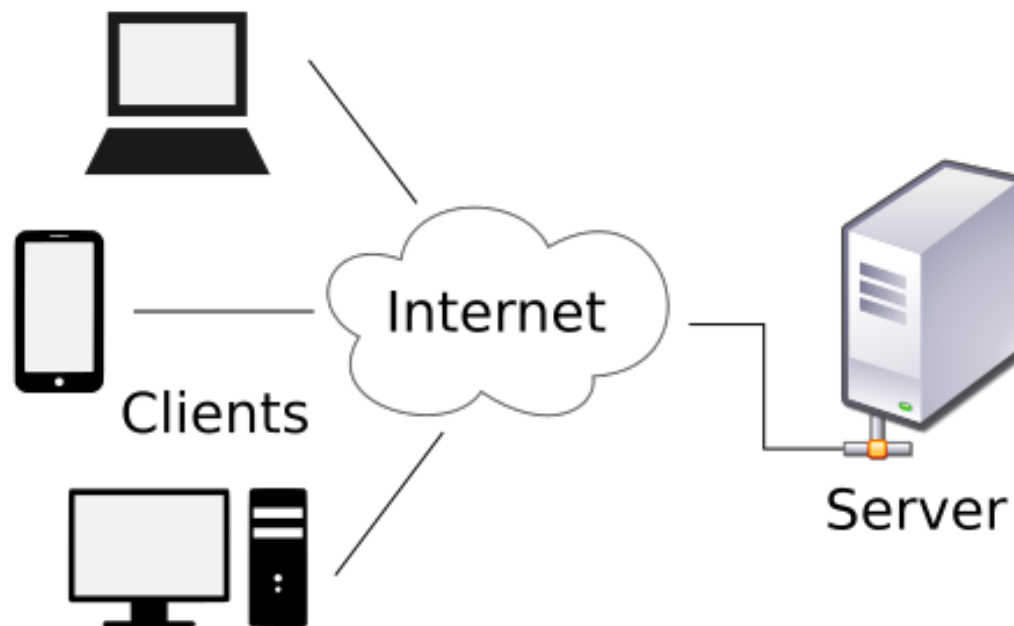
Project Details

- Project Title : Document Sharing Based on Decentralized File System
- Project Domain: Blockchain Implementation
- Project Group Members:
 - T150388606 , Neeraj Lagwankar
 - 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

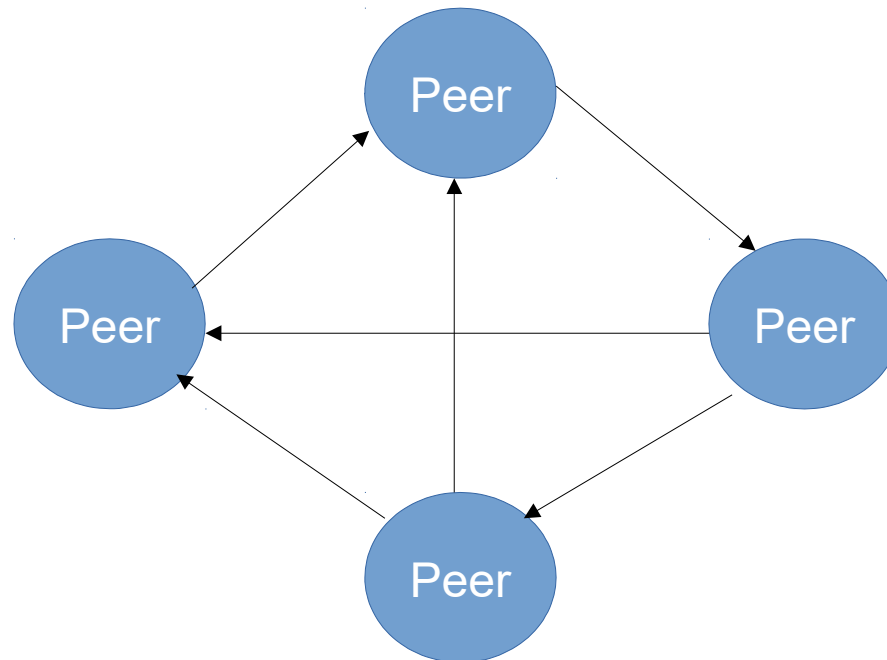
- Number of clients are much higher than number of servers.
- Unable to serve large number of clients due to traffic congestion.
- High work load on server.
- High latency.

Solution?

- **Peer to Peer (P2P) Networking.**

What is P2P?

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

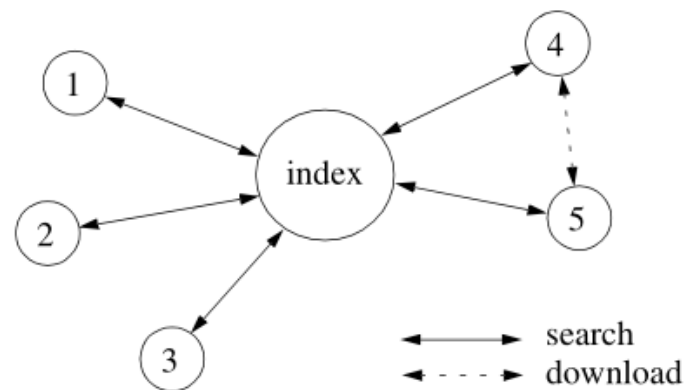


Literature Survey/Related work

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

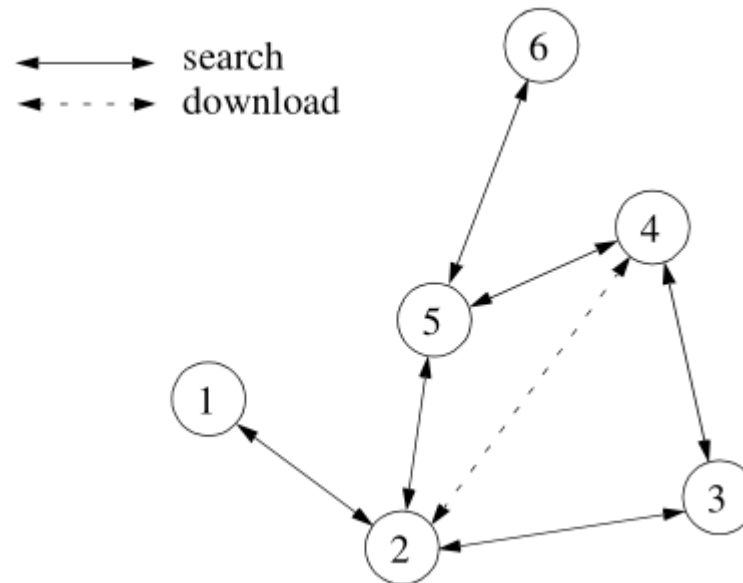
Algorithms

- 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.



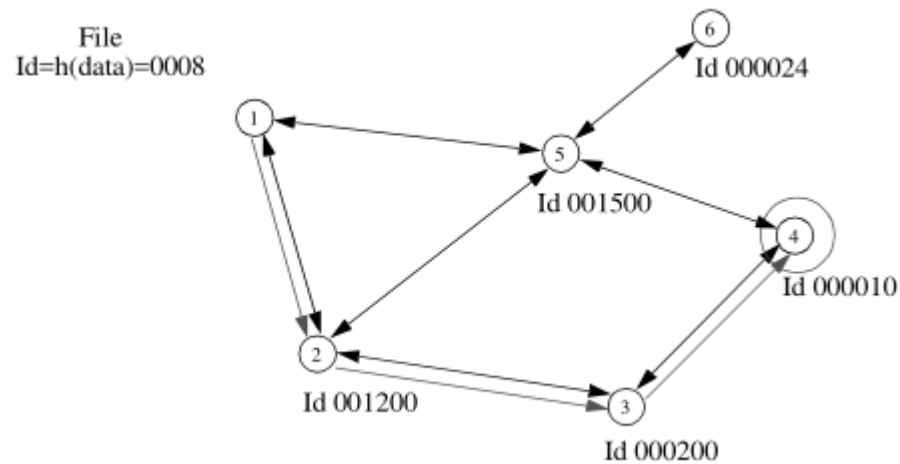
Algorithms

- **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.

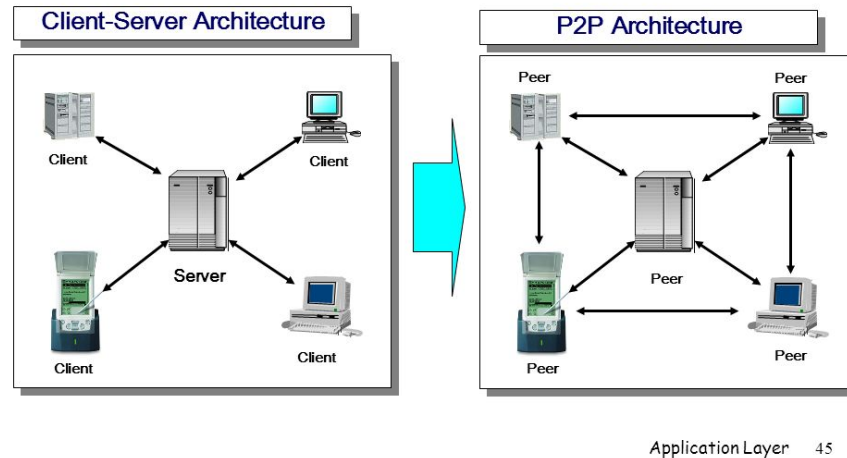


Advantages

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

Peer-to-peer (P2P) paradigm

Peer has the functionality of both client and server



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

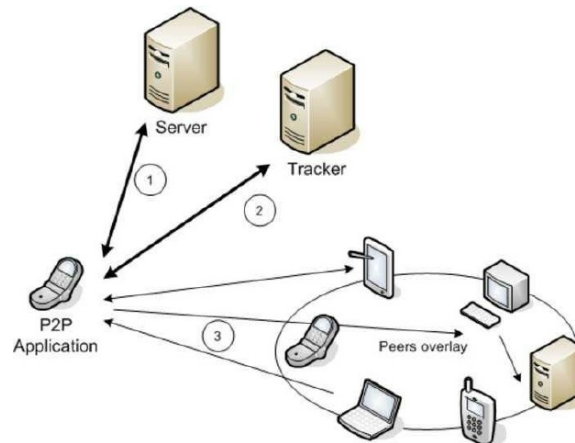
Applications

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



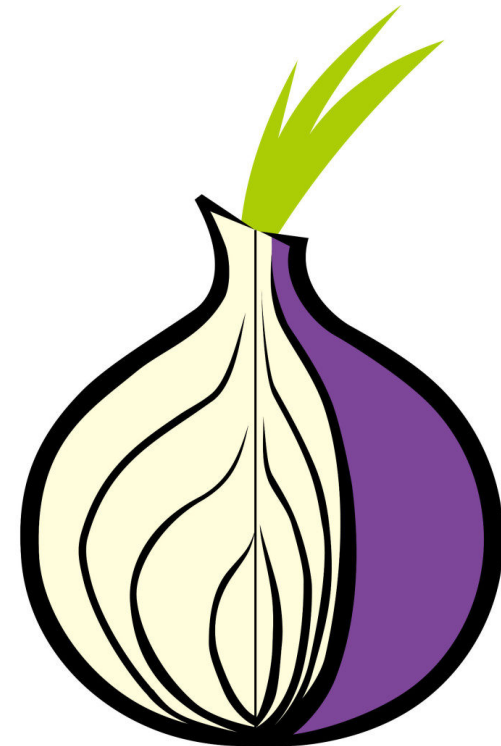
Applications

- 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 amongst *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.

References

- [1] Decentralised, Dynamic Network Path Selection in High Performance Computing: John Anderson, Matt Piazza, Aspen Olmsted, 2016
- [2] “Peer-to-Peer Streaming Peer Protocol (PPSPP),”: A. Bakker, R. Petrocco, and V. Grishchenko, RFC 7574, Jul. 2015.
- [3] Peer to Peer Computing: Dejan S. Milojevic, Vana Kalogeraki, Rajan Lukose, Kiran Nagaraja, Jim Pruyne, Bruno Richard, Sami Rollins, Zhichen Xu, 2002

Thank You!