Design Document
CS-550 Advance Operation System
Fall-2015
Programming Assignmane-3
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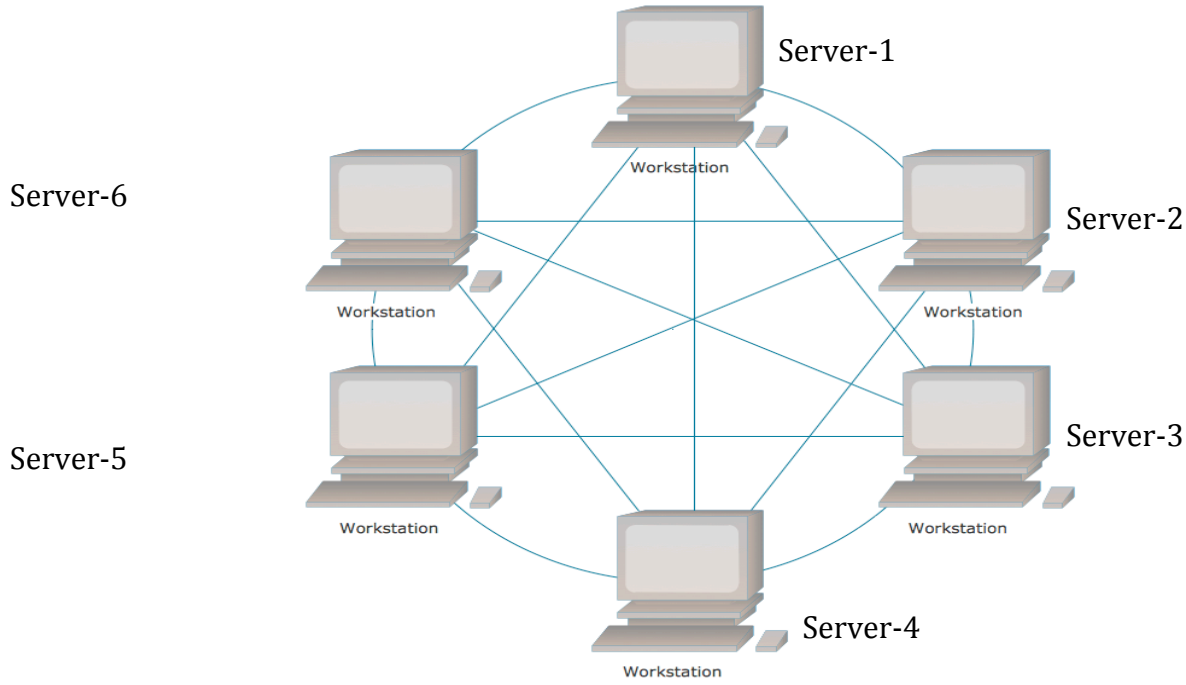
This project has 2 java class packages p2pClient(Client) and p2pClientAsServer (Server). And one more config.properties file.



Class: p2pClientAsServer (Directory Server)

It is simple socket server class with multithreading using Runnable.
p2pClientAsServer class has a HashMap named *Registery* which maintain list of all files as key and peerIP+port no as values stored in client(peer). That hashmap is shared between peers on same network.
When any peer appears into network , first it will connect to it's own server and then connect to other servers(peers) which are already in servers.
Main features of p2pClientAsServer:

- Store key-values into Distributed HashMap
- Provide value(peerIP+port no) for to peer whenever requested for given key(filename)
- Download(obtin) filename requested from peer which locate peer contain file and then download it.

Class: p2pClient

It is multithread class which can appears as a client in network on specified port. Also it will connect to it's own server and other servers present on server.
Main features of p2pClient:

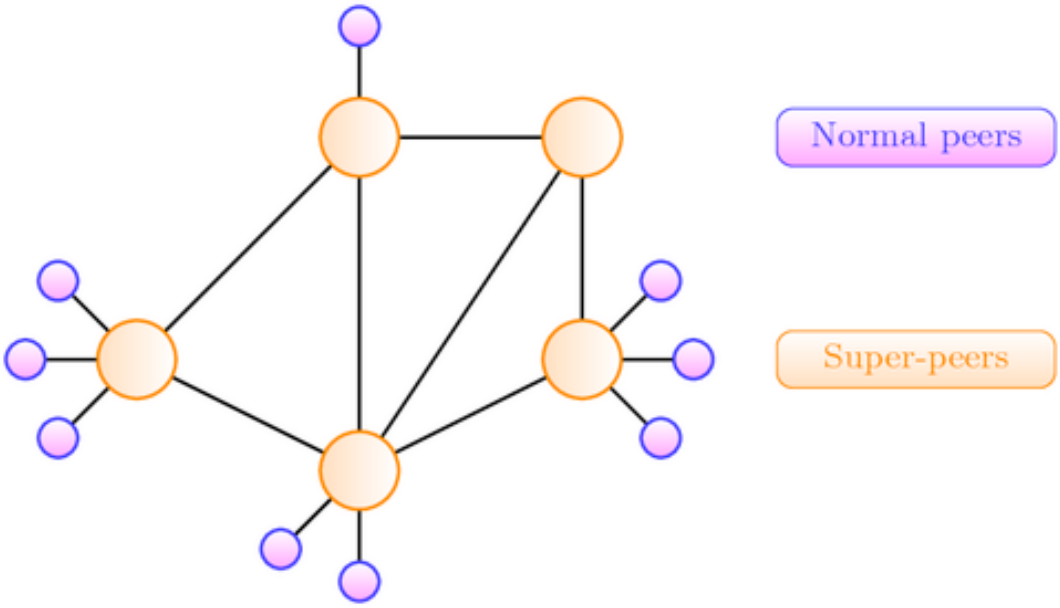
- Connect with it's own server
- Connect with all other peers which are listed in config.properties .
- Register it's all file contains in shared directory with it's IP and port in Distributed HashMap using hashfunction.
- Replicate all file contain in it's own shared directory to other peer for fault tolerance.
- Get IP and port of peers who has given file in their shared directory from specific key(filrname).
- Obtain file from list of peers who contain requested files

config.properties

It contain whole configuration for network. It has list of all peers it address and port number on it.
Every time when peer connect to network it will read config.properties to connect with other network.

Possible Improvements can be made in above Peer-to-Peer System

- Implement grouping P2P network system to eliminate flooding in extreme peer network.
  - In this system there is one Super peer in one small group of peers which only is connected with another Super peer in network.
  - So it will minimize complexity of network..
  - This system may have better performance and scalability then our system.



Note : This System can work with text and binary files.
Fault tolerance also possible because of replication of files.