1, Task

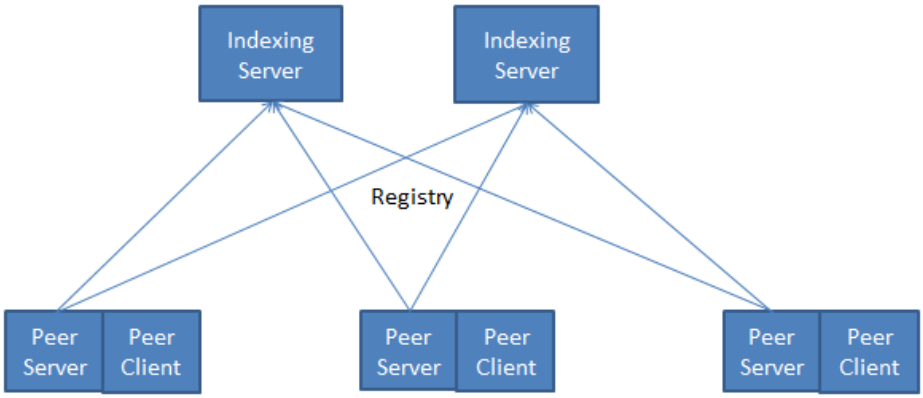
A simple P2Psystem designed in this paper has two component, a decentralized indexing server and a peer.

The indexing server provides registry and search interface.

The peer provides obtain interface. A peer is both a client and a server. As a client, when the user specifies a file name, the indexing server returns a list of all other peers that hold the file. The user can pick one such peer and theclient then connects to this peer and downloads the file. As a server, the peer waits for requests from other peers and sends the requested file when receiving a request.

2, Structure

The structure of the simple system is something as the following picture.



3, Implementation

The simple P2P system uses socket to communicate.

The servers use multithread to support many clients visiting at the same time. The peer registers to all the indexing server when started. When the user input the file name he wants to download, a request will be sent to an indexing server according to the file name's hash code.

The simple P2P system supplies data resilience. If a file server crashes while downloading, the program will catch the exception and ask the user to choose a new server.

The simple P2P system support binary file, it use byte to read the file and send byte as well.

The simple P2P system support 4GB size file downloading.

For the peer, there is a separate thread to handle with the input from the console. Then it sends request to the server, read the response and download files.