

Peer-to-Peer (P2P) File Sharing System

The implementation of this peer-to-peer application consists of two main components: the Peer and the Tracker. The Peer functions as the node representing a user in the system and performs various operations such as registration, connection, updating the availability of files, downloading files from other Peers, and disconnection. The Tracker serves as the central mediator, maintaining the list of registered users, managing connections, and providing information about the availability of files to users.

The Peer communicates with the Tracker to register, connect, update the availability of its files, request the available files present in the system and from other Peers, and disconnect. When a user runs the Peer application, it establishes a connection with the Tracker and then offers functionalities through a menu.

The communication architecture is achieved through text-based protocols, such as sending messages and reading information via sockets. The use of threads enables the Tracker to handle multiple connections from Peers simultaneously, while the Peer manages user requests in separate threads.

Overall, the implementation provides a reliable and flexible file-sharing system among users, with the Tracker acting as a central meeting point and the Peers as the nodes that supply and request information and files.