

SDIS - Project 2

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Overview

In this second project we will evolve the first project into a version that works on the internet using peer-to-peer architecture. It is our aim to avoid (or limit) the use of central servers, in order to keep the robustness of the network. We will also improve our application in terms of security and fault tolerance.

Main Features

- Client features
 - Backup a file
 - Restore a file
 - Delete a file
 - Reclaim space
- Basic protocols
 - Putchunk
 - Getchunk
 - Delete
 - Removed
- Fault tolerance
 - Survive the crash of a Peer
 - Guarantee that Peers keep the System's consistency when coming back online
 - Backup encrypted file metadata on the system in order to survive a crash where it is lost
- Network creation
 - The P2P network will not require a central server
 - Peers will only need to know an entry point into the network
 - The P2P network will use a Chord DHT for unstructured name resolution
 - The Chord implementation will differ from the one discussed in class in order to allow replication degrees

Target Platforms

- Java standalone application for PC/Mac

Additional Services and Improvements (if time permits)

- Implement or improve the protocol enhancements specified in the first project
- Improve the System's reliability by adding periodic checks
 - Repeat Putchunk protocol to ensure the replication degrees are still met
 - Keep some metadata of deleted files so that useless chunks can later be removed in case of Peer temporary failure
- Add some fairness check to the System
 - A Peer may not ask for more backup space than what it makes available
- Improve security
 - Guarantee chunk confidentiality if desired, using two way encryption
 - Peer authentication