

SYSTEM DESIGN: FILE SHARING AND STORAGE SYSTEM

Requirements/Capabilities:

Functional Requirements:

- User is able to upload, delete and edit files.
- Multiple file format support.
- Files must be sharable- via links.

Non-functional requirements:

- Scalable, durable, reliable system
- ACID-ity required

Estimates:

- Assuming about 10M users and 2M daily transactions.
- Each user has an average of 10 files to upload, thus 100M files.
- Each file is about 100kb, thus require 10TB of storage space.

File Upload/Download:

- Files can be stored in chunks on a server so that when they are updated, there is no need to upload entire file.
- This reduces use of bandwidth and storage space.
- Databases:
 - Tables keep track of all users and metadata such as file name, file size.
 - Tables to keep track of chunks.

File Sharing:

- Have a load balancer to direct traffic.
- Use hashing to store links to the files that can be shared with a user.

