

Installation

https://www.tutorialspoint.com/sqlite/sqlite_installation.htm

File name unique assumption

uuids - 64bit

hub uuid random generation (64 bit)

dnode uuid -> some bits timestamp 40bit+ hub corresponding random counter id 24bit

Hub

Identifier - intercommunication of hubs

dnode connection map

hubs connection map

file mapping hash map

uploader map

metadata map

Initialization:

- Load hub uuid (if not create new)
 - save uuid in a file
 - connect with other hubs (input some hub ids)
 - get corresponding hub ids
 - populate in memory maps with sqlite storage
- SQLite (mapping, metadata, uploader)
 - mapping - file name (PK) file hash
 - metadata - file hash, size
 - uploader - file hash, dnode uuid
- on upload:
 - save chunk hash list as vector
 - put info in mapping, metadata, uploader
- on download:
 - get rows with dnode uuid
 - communicate with other hubs
 - for corresponding dnode uuid set connection string for corresponding dnodes (ip and port)
- node join:
 - calculate new uuid
 - update in dnode connection map
 - send uuid
- node hello:
 - update in dnode connection map
- hub connection request:
 - send hubs list

DNode

Initialization:

- Load dnode uuid (if not create new)
 save uuid in a file
 - Connect with hub (command line hub ip address and port)
 - Uploading
 - search file with path
 - calculate chunk hashes
 - send to hub -> file name, file chunks hash list, size, file hash, dnode uuid
 - Node join (if uuid not present)
 - send ip address and port
 - get back other hub ip address
 - Node hello (if uuid present)
 - send ip address and port and uuid
 - get back other hub ip address
 - download
 - send request to hub with file name
 - get metadata and chunk hash list and dnode connection list
 - maintain connections to atleast 5
 - downloading protocol
 - do the upload protocol for downloaded file
- file name -> file hash
file hash -> dnode id hash
dnode id hash -> dnode ip address, port

hub

- 1 structures followed -> ayush and aniket
- 2 layout and requests handler -> jaga (RPC)
- 2 overall structure -> jaga
- 6 chunking -> ayush and aman
- 4 id generation -> ish
- multithread -> jaga and aman
- 5 storage -> ish

dnode

- 3 upload -> aman and aniket
- 3 download -> aman and aniket
- 5 replication -> ish and aniket

- 8 logistics -> aniket
- data server -> ayush