

Server Programming

11.10.2022

System Design of Tinder

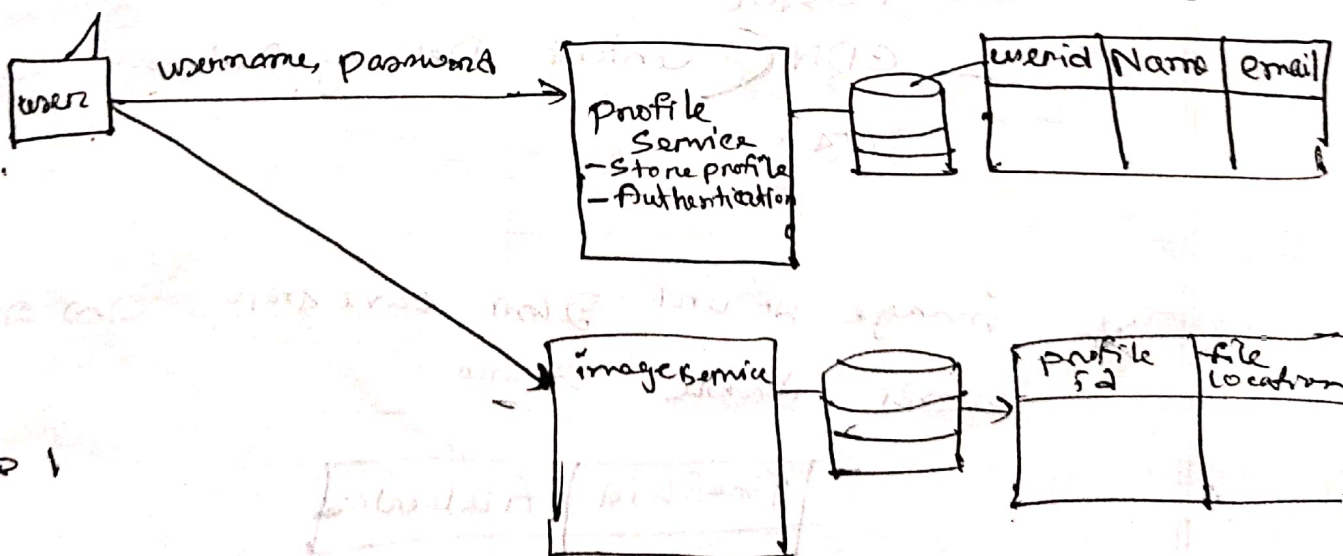
Functional requirements:

- User Profiles - user info, images (5 img/user)
- Recommend matches
- Notedown matches
- Direct messaging.

(Tinder as microservice & shift requirements with)

User Profile

image store 2 on store
 & profile files system
 Blob Binary Large object.



On user image service authenticate user
 to profile service as blob depend on it, that
 And profile service as load on it.

* Blob storage advantage

— Mutability.

(image ap apur part change
kripita ni file systems
kripita ni)

— Transaction

— indexing

— Access control (image store secured
ni)

* But aur file system kripita ni

bez —

— aur cheaper

— faster

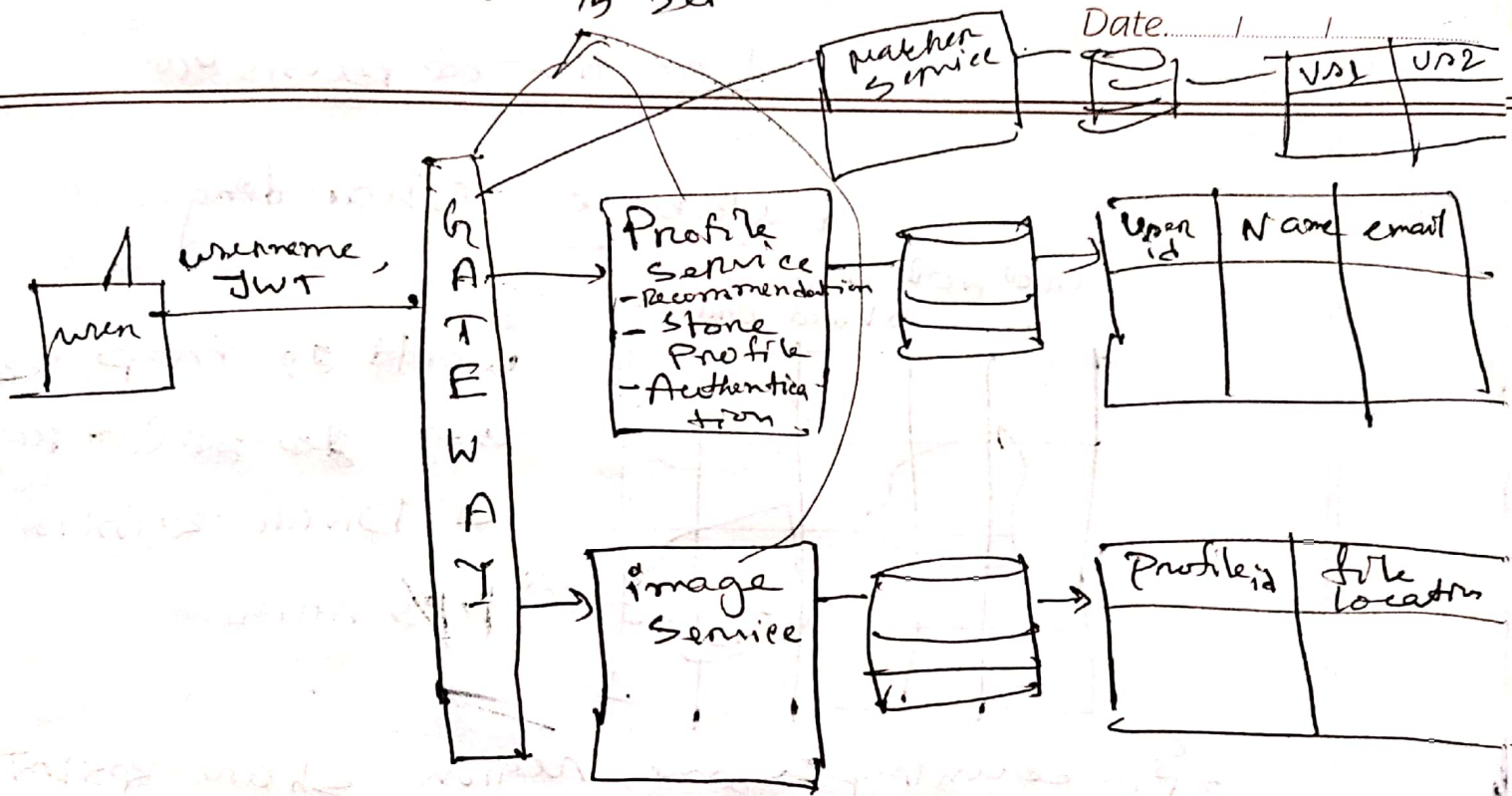
— CDN (Content Delivery Network) kripita ni

ni

* image ap url store kar ni ni
aur table ni.

Profileid	filelocation

we have 3 services.



As per ~~offer~~ ~~data~~ we can use our customized protocol to communication between each other. ^{using} ~~http~~ ~~we~~ will reduce increase the overheads.

Match Recommendation

when profile scanner sort ~~for~~ ~~using~~

age
 gender
 Location

on the basis of

on the basis of

basis of sort

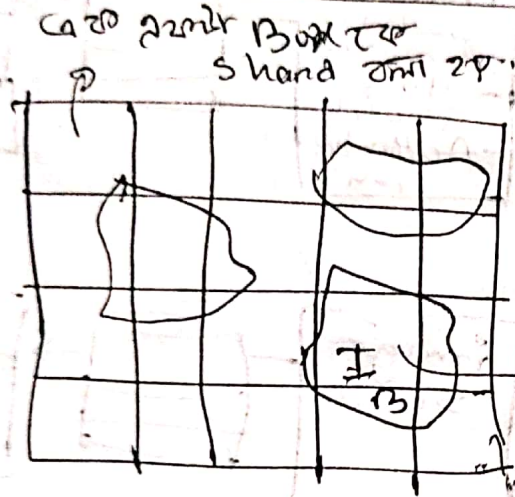
sort of

sort of

Date: / /

Location based DB

Database Sharding



world as map
 → for each region
 → Divide region
 → M/S Arch

2 or country same region share request
 → region / country → user refer to
 master or master slave arch use also
 (master's server, slave server)

→ Benefit → high low latency

Notedown Matches



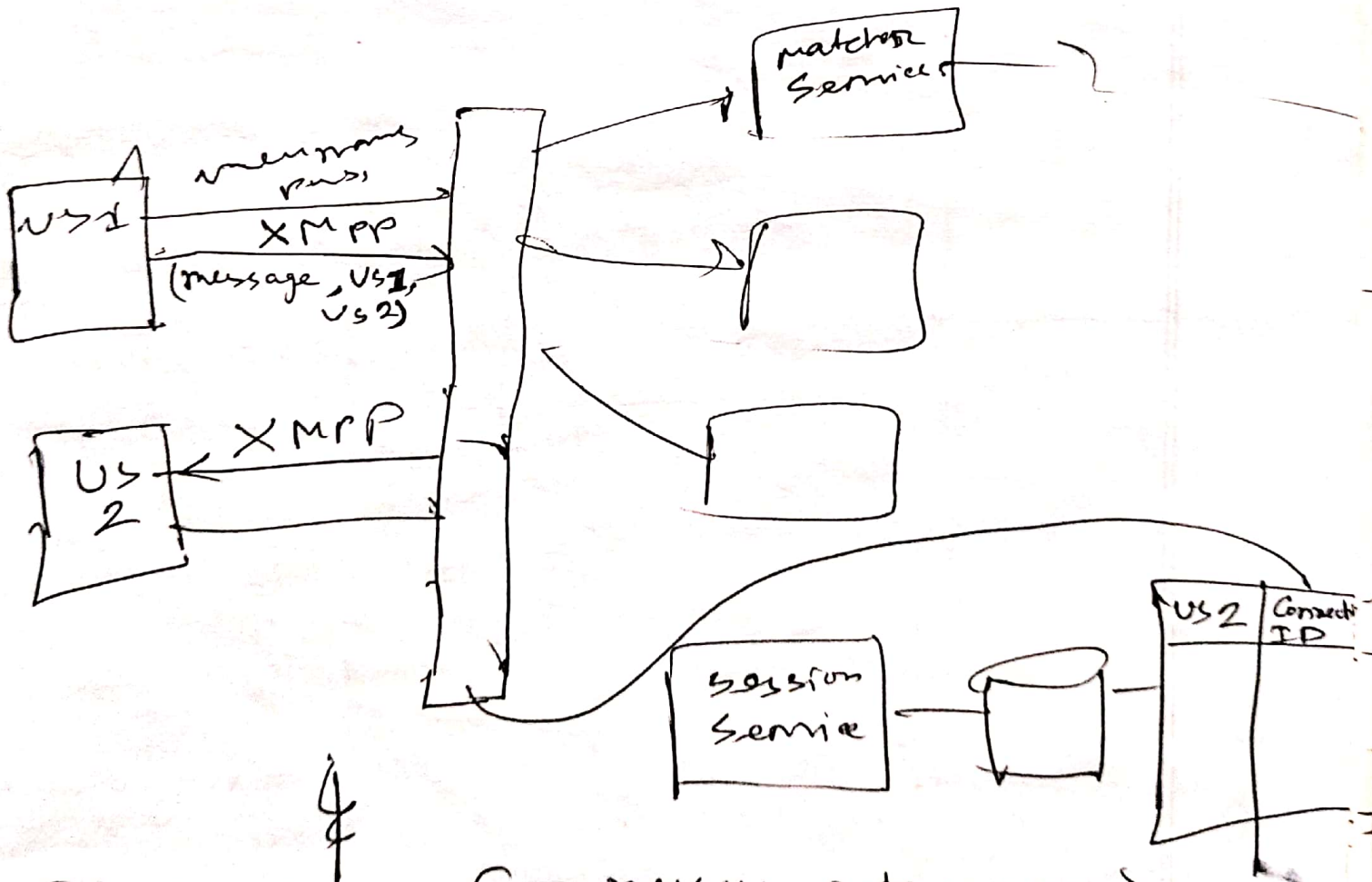
messaging

US 1 → US 2

XMPP Protocol use ~~vs~~ (HTTP protocol

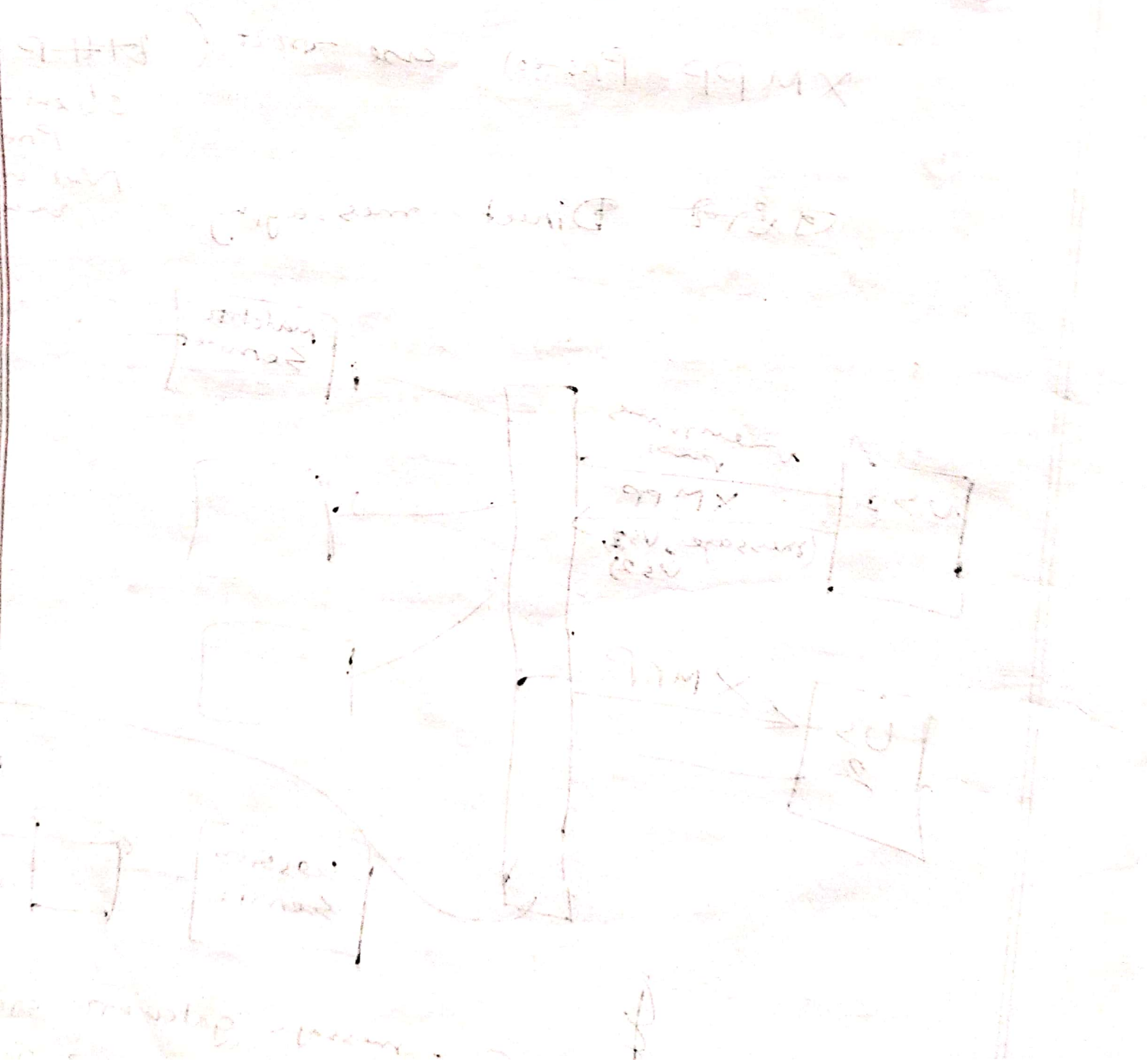
client-server
Practices)
Not user to
user)

Direct messaging.



US 1 XMPP ~~from~~ message gateway and
gateway session service ~~from~~ US 2 to connection
id ~~from~~ ~~US 1 to~~ gateway ~~to~~ (US 2 or
US 1)

At 45% when Br Border region Area
 has multiple - hand zone
 reg. 203010001, Our Disadvantage
 Database handling. Gov.



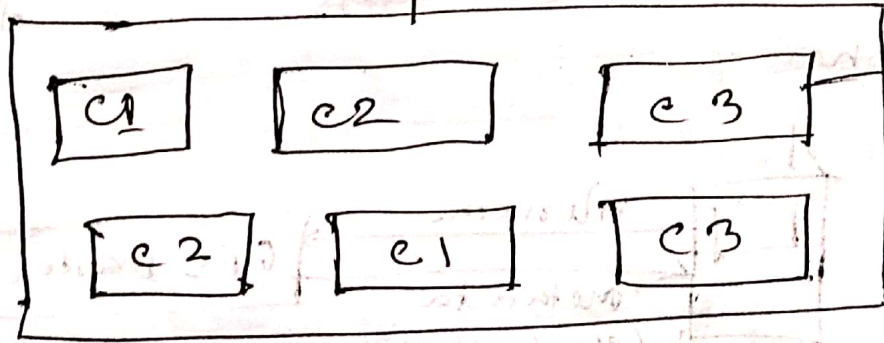
Server Programming

Map Reducing

GFS - A set of clusters.



Master



150 MB → c1, c2, c3

Failure
Network
Hardware
OS

64 MB - Chunk

64 Bitbit unique chunk ID.

Replicas

→ What if c2 file fails?

⇒ ~~120~~ - there are multiple replica in for each file.

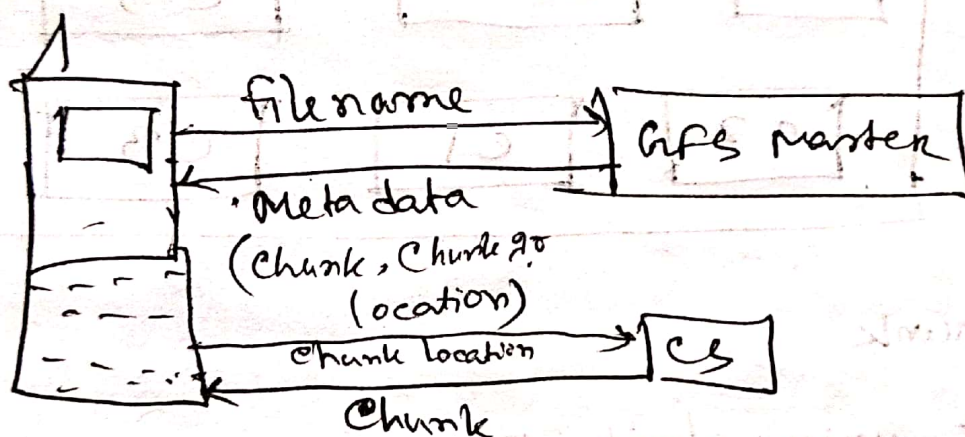
* Master create meta data provide info.

* Master - Access control info

* Master maintain operations log & save after operations log
more of 20M check point error.

filename	Chunks	Chunk locations
data - csv	C1	CS1
	C2	CS3
	C3	

I want to access file from phone.



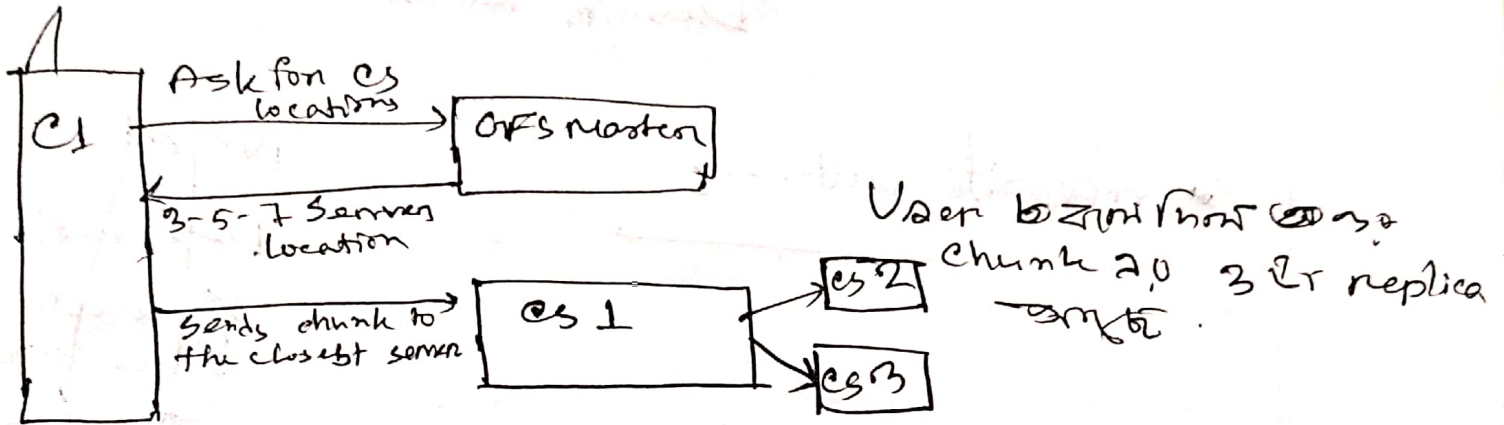
→ यदि CS file CS1 और CS5 → master
 CS5 Access error → master → on CS5 fail.
 → ठीक ठीक,

Periodic Message (to the master)

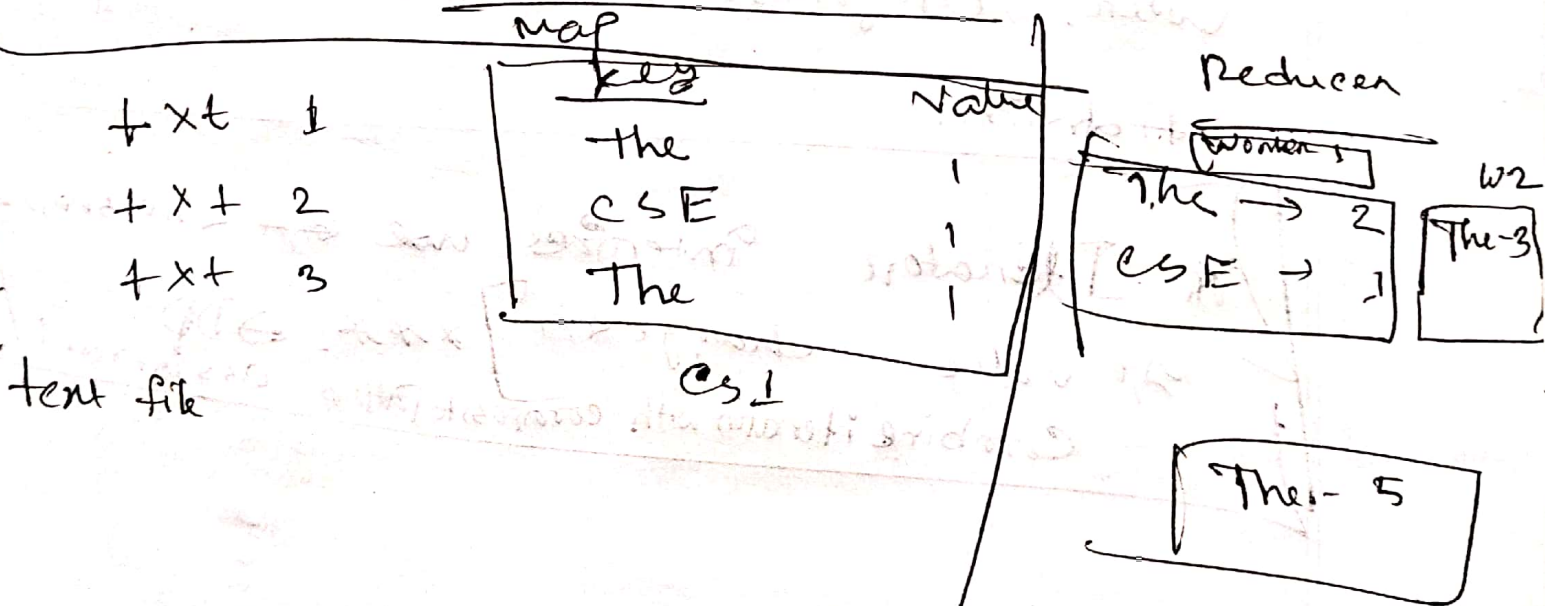
— Heartbeats

CS1 → replica create error

Date: / /



Map Reducing



Design Pattern Server Programming

Designing Instagram

Features:

- Store/Get images
- like/Comment (1 Path recursive)
 1st Post 2 comment 3rd reply
 4th comment 5th reply (recursive)
- Follow someone
- Publish a news feed
- Message service

• Store/Get Images: - finders as well.

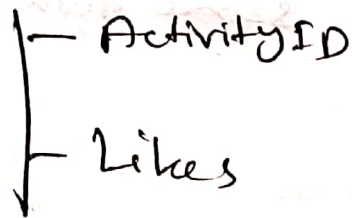
• Like/Comment:

Likes	Posts	Comments
ID	PostID	CommentID
ActivityID	UserID	UserID
UserID	Text	Text
Timestamp	imageURL	ActivityID [either can be PostID/comment ID]
Active	Timestamp	Timestamp
	Active	Active

Each Post is a single Like always or time (select x)
 दिन (24), a few thousands of (select x) frequency.
 Extra costly.

Soln

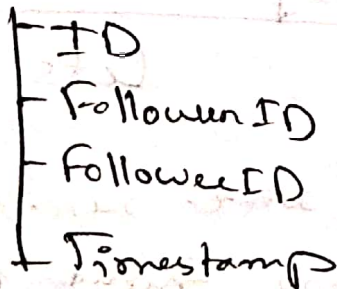
Activity



Activity table is a diff table for 24.

Follow Someone

Follower



Publish a new feed:

1. Naive approach when a user logs in
 - Followerlist -> Posts
 - (Waste of resource here)

2. Pen when 10 posts.

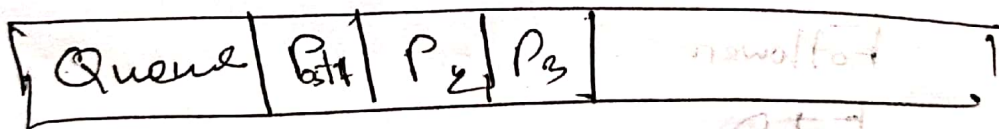
Recent 10 or Post then

3. જાણ મળે તો Post અને time-wise sort કરી
first 100 કે Post then.

આ 3 કે approach કે problem ત્યાર પછી
refresh કરી નવું same data કે ત્યાર
retrieve કરી.

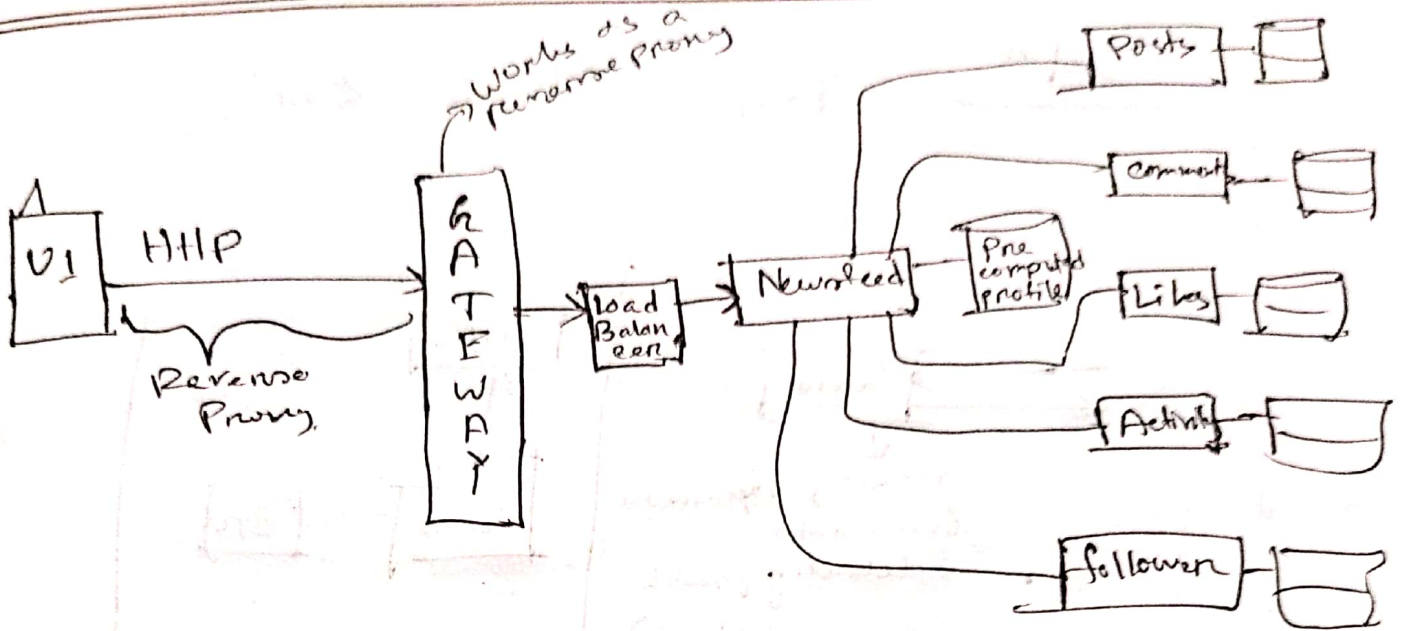
Newsfeed કે ત્યાર Precomputed Newsfeed.

જાણ newsfeed ત્યાર queue maintain કરી



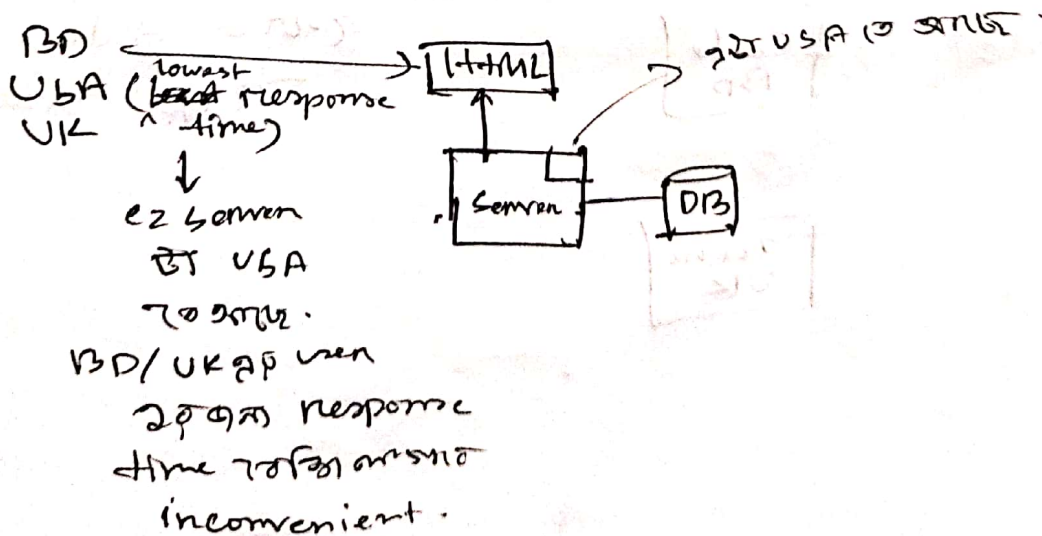
Let's say size of
queue 20

ત્યાર Post ત્યાર અને ત્યાર 2 Post ત્યાર
ત્યાર ફ્રેન્ડ ત્યાર ફ્રેન્ડ Post ત્યાર એ ગોઠી
ત્યાર કે P ખર્ચ ત્યાર.



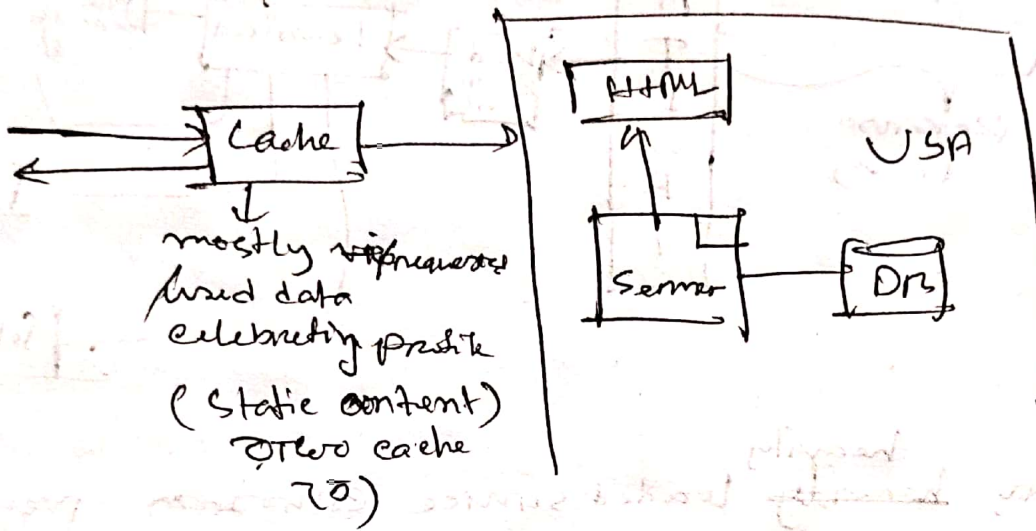
heavily loaded service (NewsFeed) Gateway Posts, comments, likes ~~to~~ service & connect.

Content-Delivery Network (CDN)



Soln

Response time ~~error~~.



CDN ~~never~~ computes a content

It has many copies of the computed content.

Region Basis G popular contents

cache and other CDN G

~~cache~~ cache ~~fail~~ fail

clear ~~data~~ server

data to precompute

~~error~~ error

Cache
USA

Cache
IN

Cache
UK