Lec7:- Designing a Notification System

Notification System.

Jabhi kuch banana h to, we start with questions

↳ Jo bhi hume banane di gayi h, usse narrow down kare, hume jo bhi requirements h usse list down kare, taki mai aur mera interviewer same page pe ho.

Q1) What are the type of notifications?

eg → PUSH notification (eg "Someone sent you a req" → liked, ...)

→ SMS notification

→ Email Notification

Real time System v/s **Soft Real Time System**

Real time System	Soft Real Time System
→ wo system hota h, jisme hum chahte h ki jo bhi hum changes kare wo usko ekdum se reflect ho jaye	→ We try to send Notification as soon as possible. → There can be exception: like → System is down → Server is busy (Jitna jaldi ho sake bhej denge, koi baat ni agar immediately ni bhej paa rahe ho)

Q1 To hume apna notification system "Real time" ya "Soft real time" banana h?

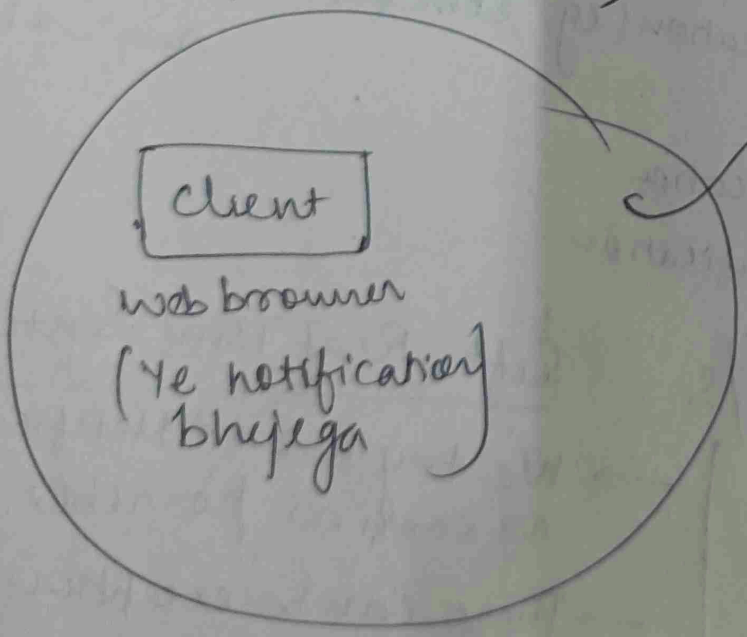
→ Soft real time

Q1 Devices type?

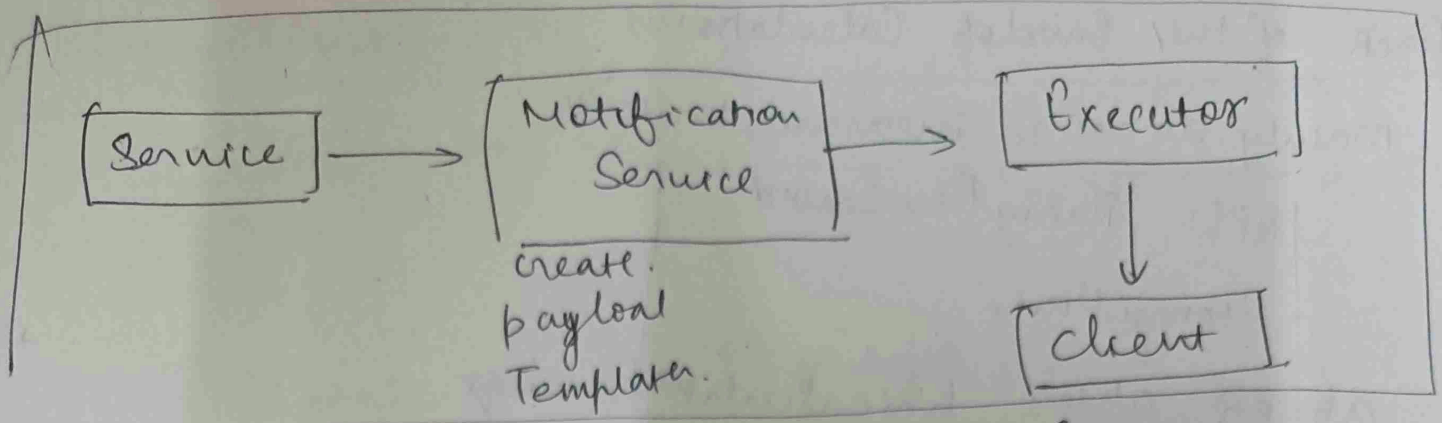
— IOS, Android, Web (Windows, macOS)

Core Entities:-

(Hamare notification System mai kaun kaun si entities hongi, jo aapas mai communicate/interact kar sakte hai)



Ye client jaroori ni ki user ho, koi bhi, kuch bhi ho sakta hai



"Service" hamare 'Notification Service' ko notification bhejegi, fir Notification Service unse ek proper template mai daal ke "executor" ko bhej dega. aur "executor" fir corresponding clients ko bhej deta hoga

Ab hamara next kaam hoga ki unhe zoom mai deeply jana aur samjhana ki haar ek component kaise kaam karti hai

Back of the Envelop Calculations

Mainly do cheez measure karte hi-

- QPS:- Query Per Second
- Storage Unit
- Bandwidth Calculations

ab ek cheez bhi calculate karenge.

- QPS
- Storage Unit
- Bandwidth Calculations

Assumption:

(Yeto mai maan ke chal raha ki aye notification system ek independent service h)

→ Daily Active Users: 1 million

how many notifications one to be sent.

let say 1 user ko kitna notification generate ho rahe.

Total notification = 1 million * 10 = 10 million/day

Storage Unit:

1 notification = 200 bytes (content, timestamp, user Id, notification Id, etc)

total = 10 million * 200 byte

= 10 * 2^20 * 0.2 * 10^3

= ~~10 * 200~~

= 2^3 ~ 2 GB/day

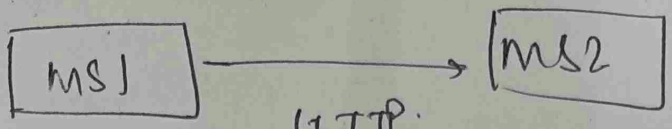
Ab notification koi aisi cheez nahi hai jise mai hamesha ke liye store karke rakhu.

↳ to mai filhaal 1 month ka backup rakh raha hu

2 GB x 30 = 60 GB/month

(OPS khud se kar lena)

Bandwidth Calculation:

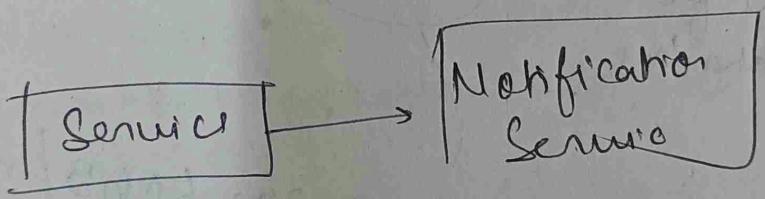


Bandwidth:

The max amount of data that can be transmitted through the network in a given time.

How busy our server will be?

to dekh ki ka calculation for



Let say ye payload bhej rahe h

Notification payload → 1KB (upload/download)
↳ (header, Body, request parameter).

DAU (Daily Active user) = 1 million.

Total notification / day = 10 million.

1 KB * 10 mill
= $1 * 2^{10} * 10 * 2^{20}$ = 10 GB/ day.

$$\text{Bandwidth} = \frac{10 \text{ million} * 1\text{KB}}{86,400 \text{ sec}}$$

$$= \frac{10 * 2^{20} * 1 * 2^{10}}{86.4 * 2^{10}}$$

$$= 115 * 10^{-3} * 2^{20}$$

$$= 115 * 2^{-10} * 2^{20}$$

$$\sim = 115 \text{ KB/sec.}$$

This is how busy our Server is going to be.

Ab Bandwidth calculation se kaafi kuch aap estimate kar sakte ho,

Jaise agar Server 115 kB/sec handle nhi kar sakta to aap Server scale

ya

Server RAM increase

Sab ke baare mai soch sakte ho

32:00