

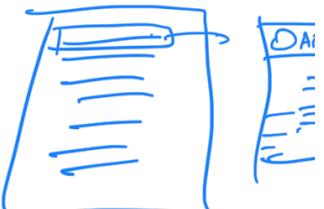
DESIGN = MESSENGER

① MVP

- ① Send & receive messages
- ② ~~Recent~~ Recent conversation
- ③ Text / Image / video
 - ↳ X MVP
- ④ 1:1 chats vs group chats
 - MVP
 - X
- ⑤ Notifications.
- ⑥ Recent chat history ↳ a User

① MVP

- ② Est. of scale
 - Sharding
 - Read vs
- ③ Design goals
- ④ API
 - ↳ System des



② Est. of scale

① Read & write heavy

② 10 billion msg sent / day.

* 200 bytes

2000 GB

~2 TB / day

$$\frac{2 \text{ TB}}{\text{day}} * \frac{365 \text{ days}}{\text{year}} * 10 \text{ years} \rightarrow 7 \text{ PB}$$

$$\begin{aligned} \text{msg} &= 8 \leftarrow \text{sender} \\ &= 8 \leftarrow \text{msg} \\ &= 150 \leftarrow \text{[text]} \\ &= 8 \leftarrow \text{recipient} \\ &= 8 \leftarrow \text{times} \\ &\approx 200 \text{ bytes} \end{aligned}$$

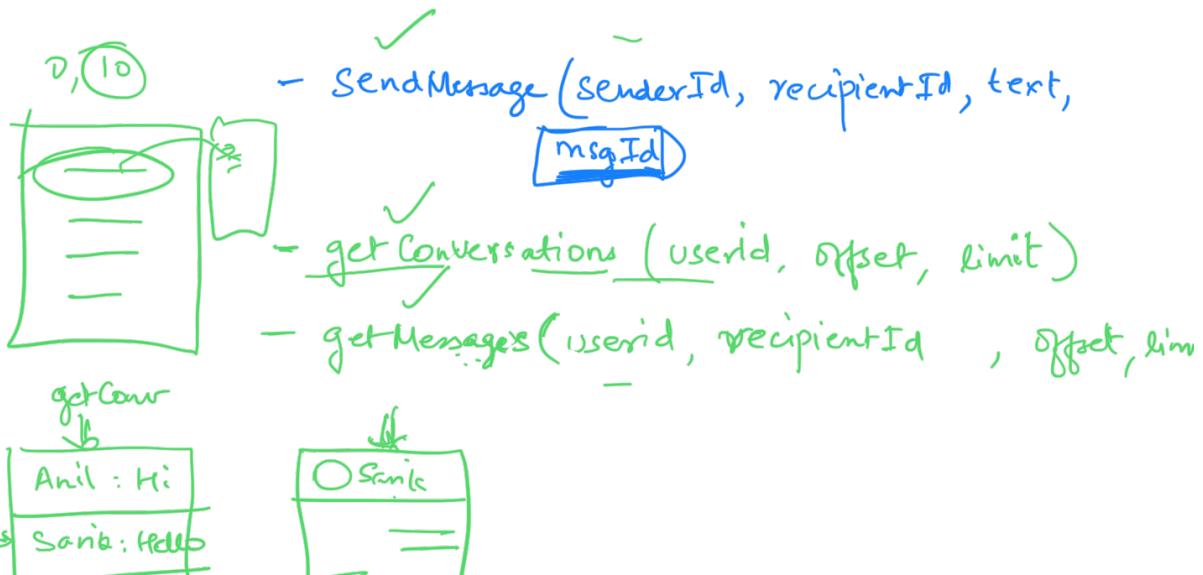
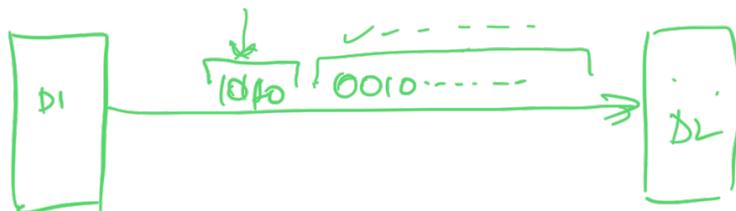
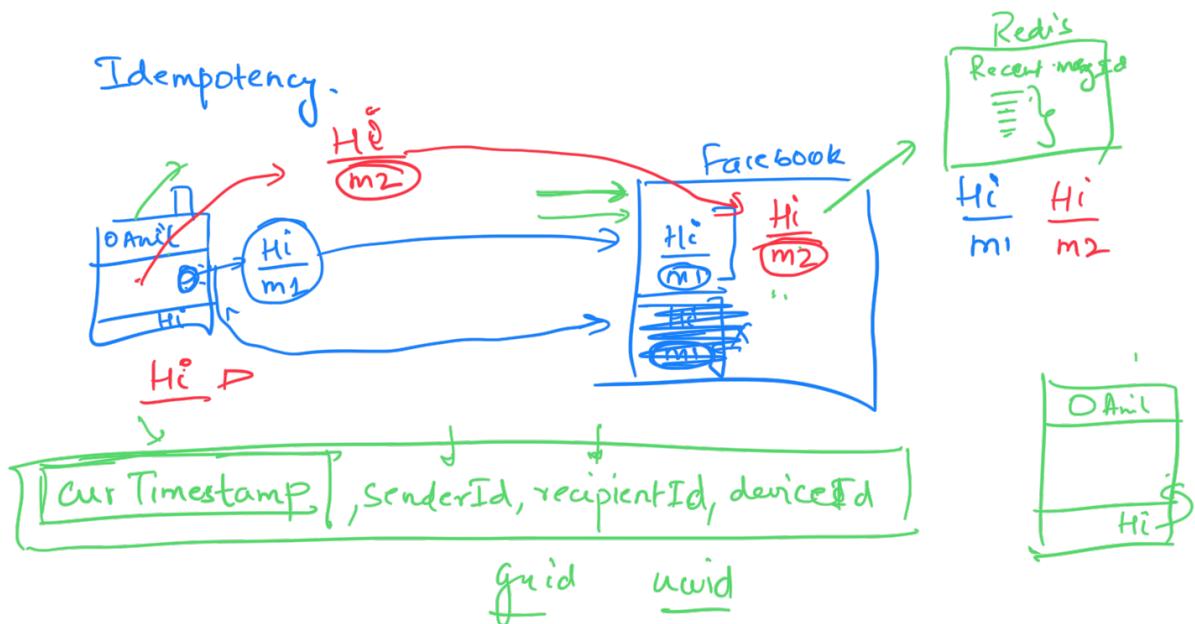
Sharding → YES

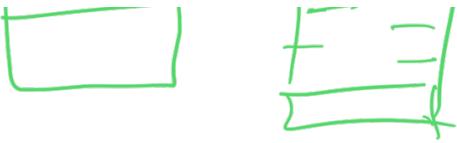
Design goals

- ✓ - low latency (Real Time chat)
- ✓ - high consistency.

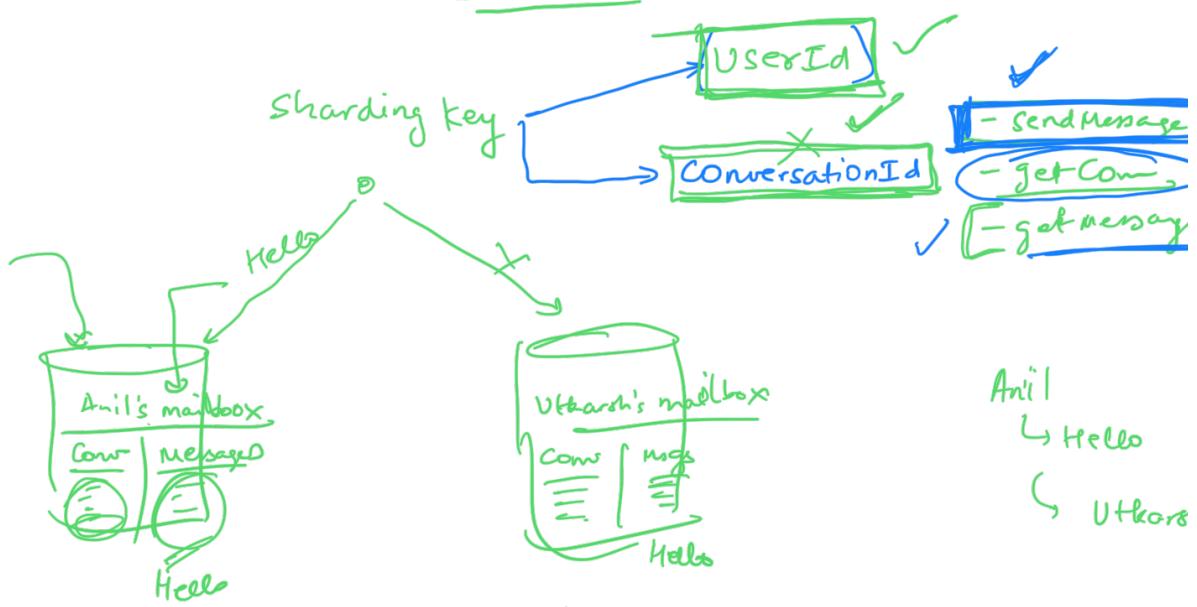
- High throughput

API

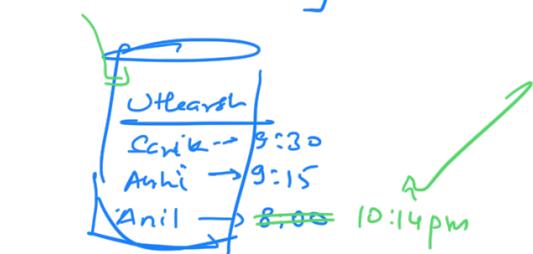
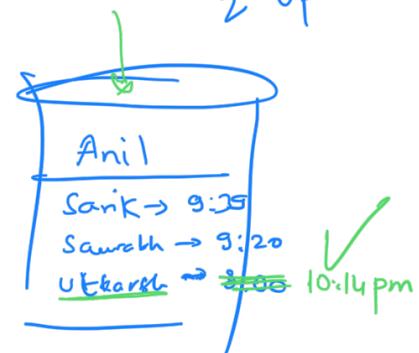
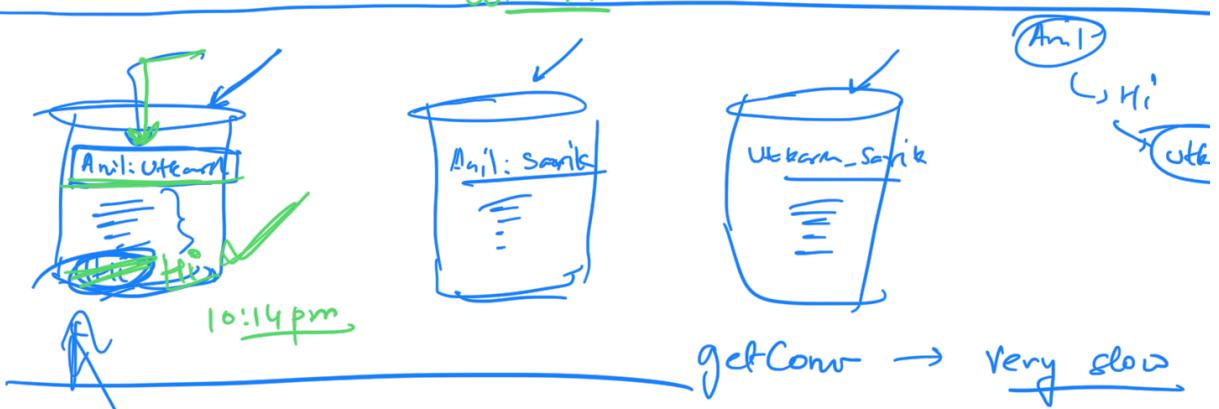




Database



Conv-id



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