

INSTAGRAM

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Requirements

- Users can upload photos
- Users can search users to follow
- Users can follow users
- Users can read feeds.
Feeds consists of photos which following users upload

Considerations

- Read heavy
↳ low latency expected

Capacity estimation

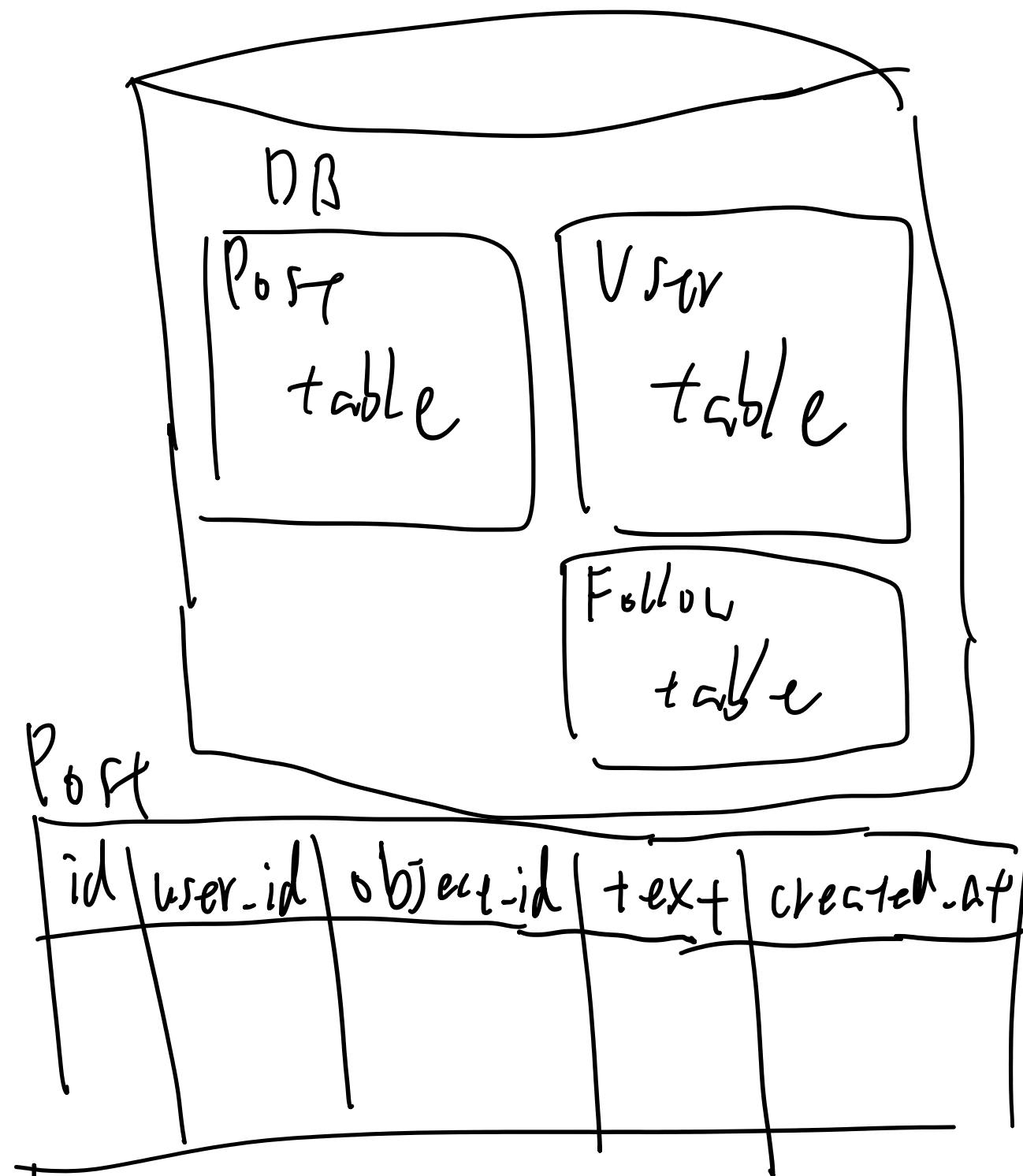
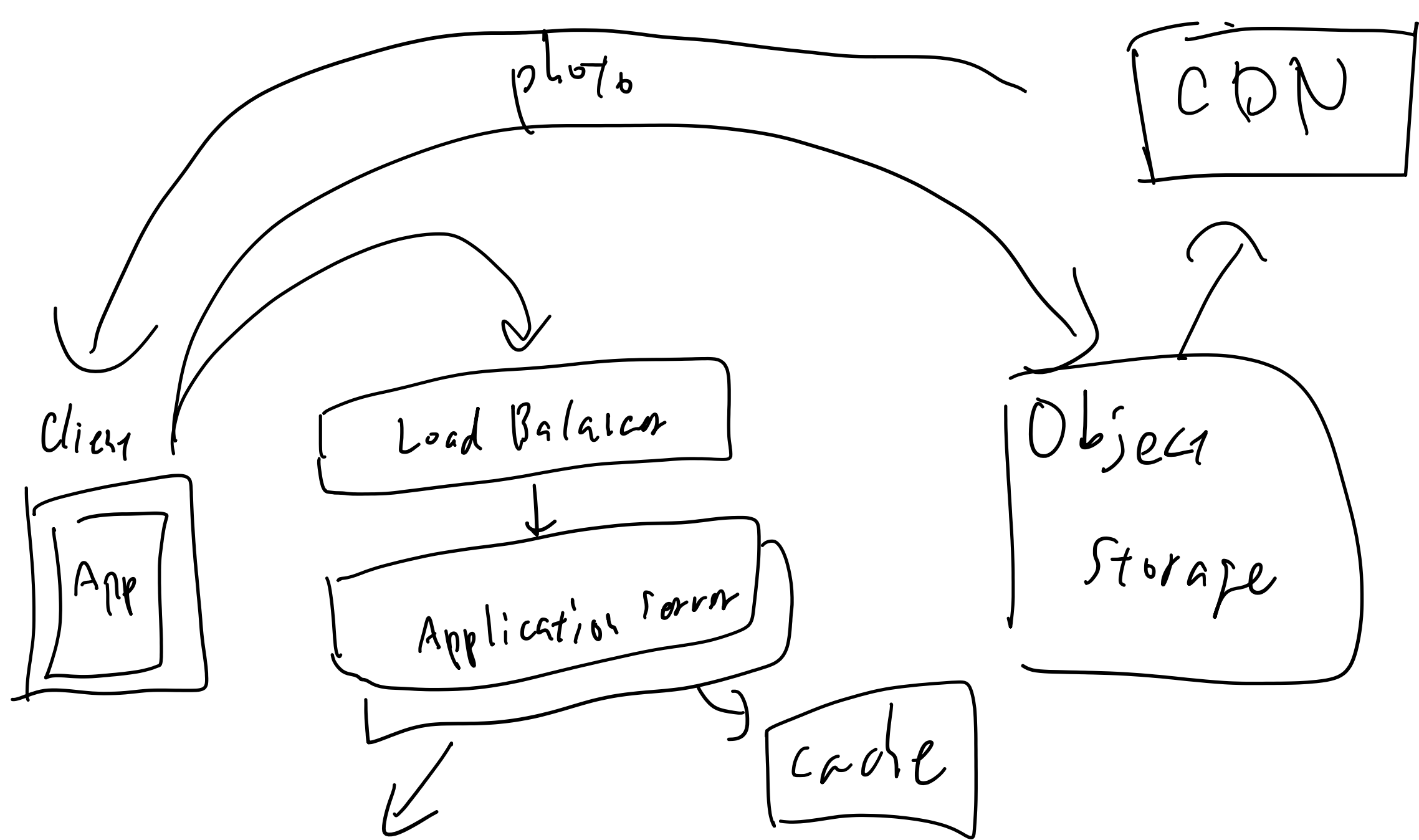
500M total users.

50M DAU.

- 500K users upload 1 photo/day
 $\Rightarrow 500K / 85K \Rightarrow 6 \text{ photos/s}$
 1 photo size $\Rightarrow 1MB$.
 bandwidth: $6MB/s \Rightarrow 48Mbps$.
 storage: $500K \times 1MB = 500GB$
 1 year: $500GB \times 365 \approx 180TB$

50M users get feeds / day
 1 feed contains 30 photos

$$50M / 85K \Rightarrow 50K / 85 = 50,000 / 85 = 550 \text{ req/s}$$



User

id	mail	name
4B	32B	50B

Follow

id	user-id	follow-user-id

1 record
 $= 80 \text{ Byte} \times 500M$
 40GB