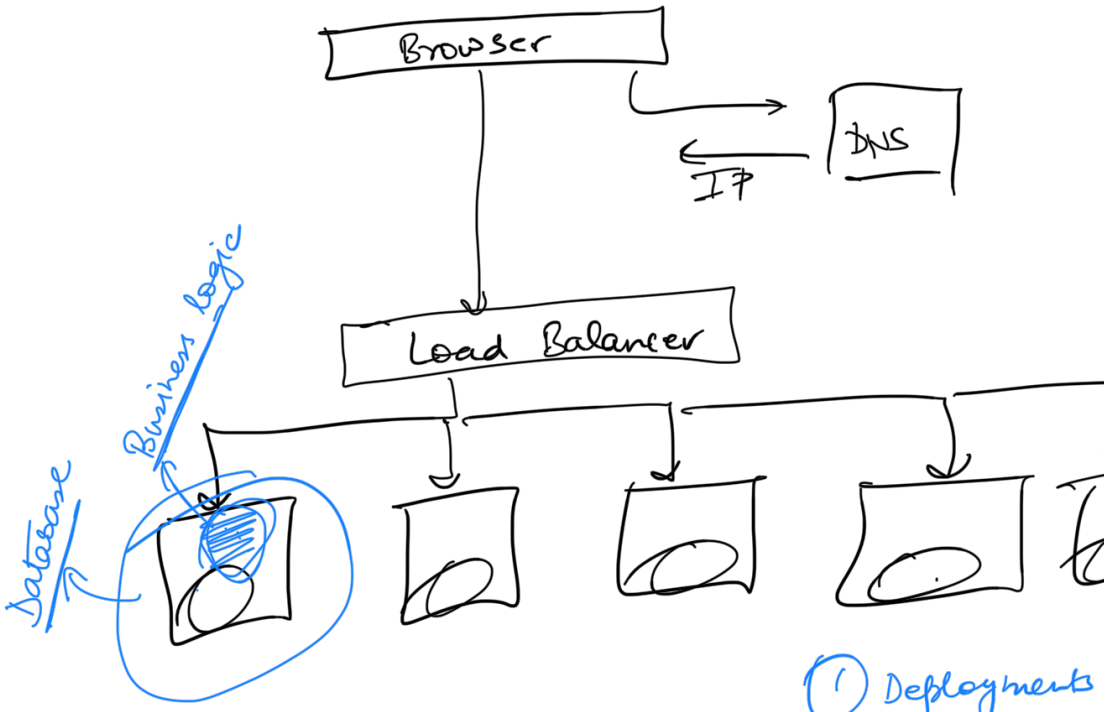
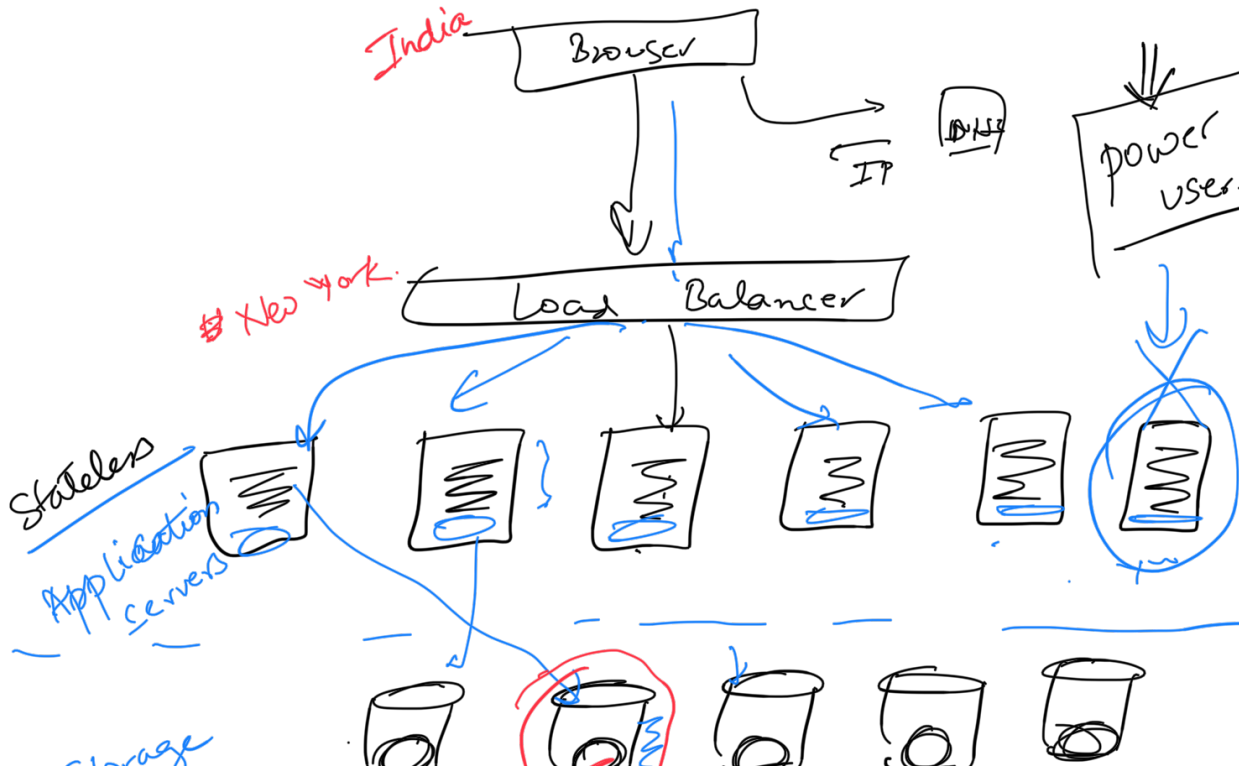
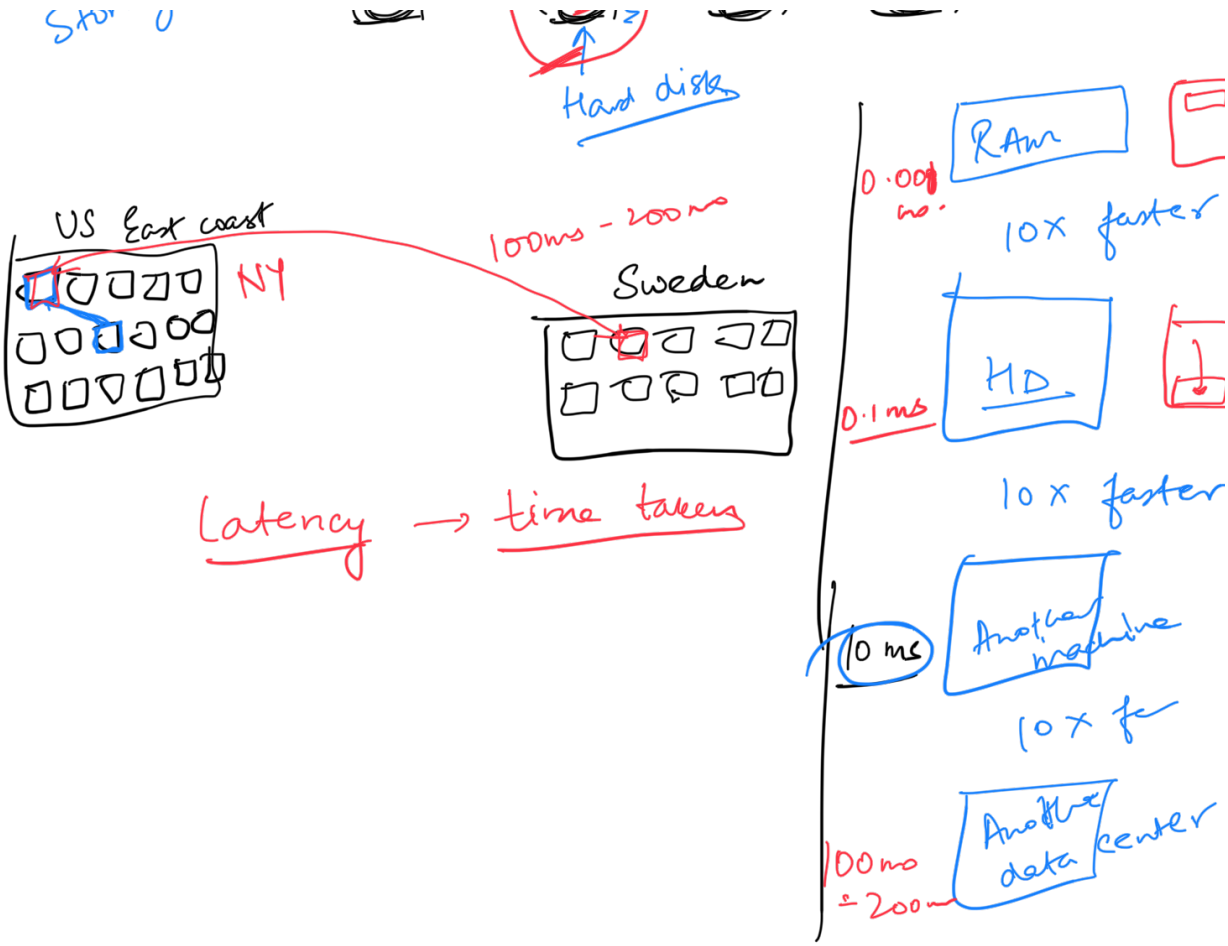
SYSTEM DESIGN - II



(1) Deployments needed f
business logi

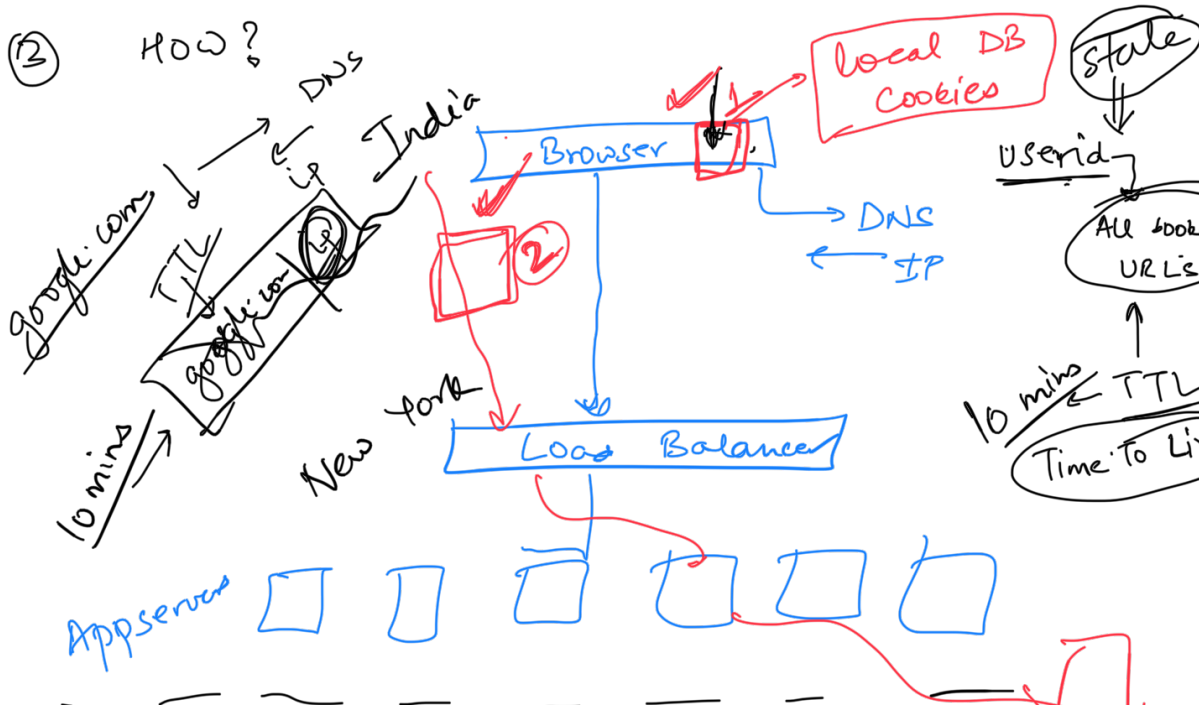
(2) Cost of
machines

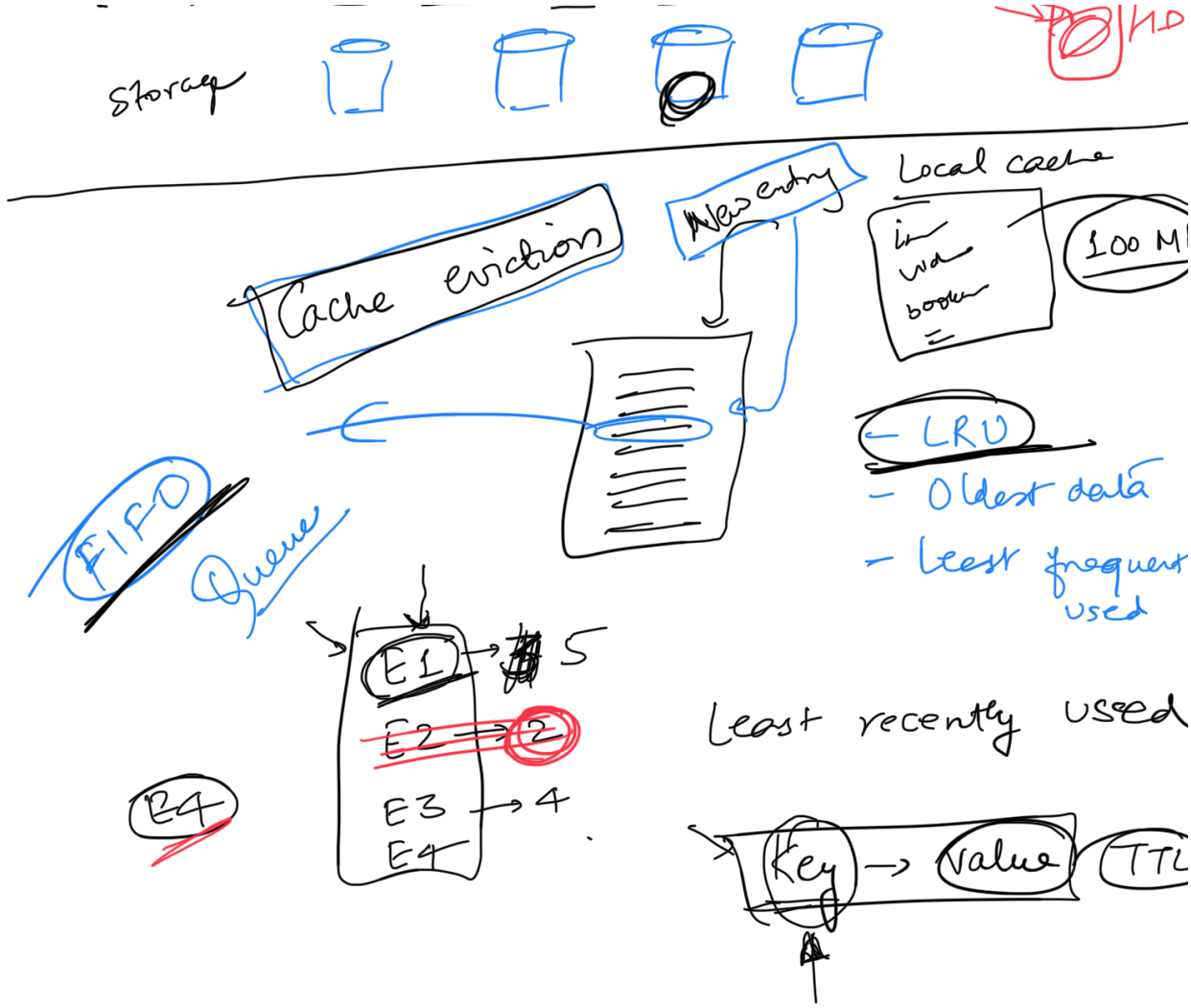




CACHING

1. WHERE TO PLACE FRIDGE
2. WHAT TO STORE IN FRIDGE
3. HOW?




Storage
HD
Cache eviction
New entry
Local cache
100 M
LRU
- Oldest data
- Least frequent used
FIFO
Queue
E1
E2
E3
E4
5
2
4
Least recently used
Key
value
TTL
Eviction algo

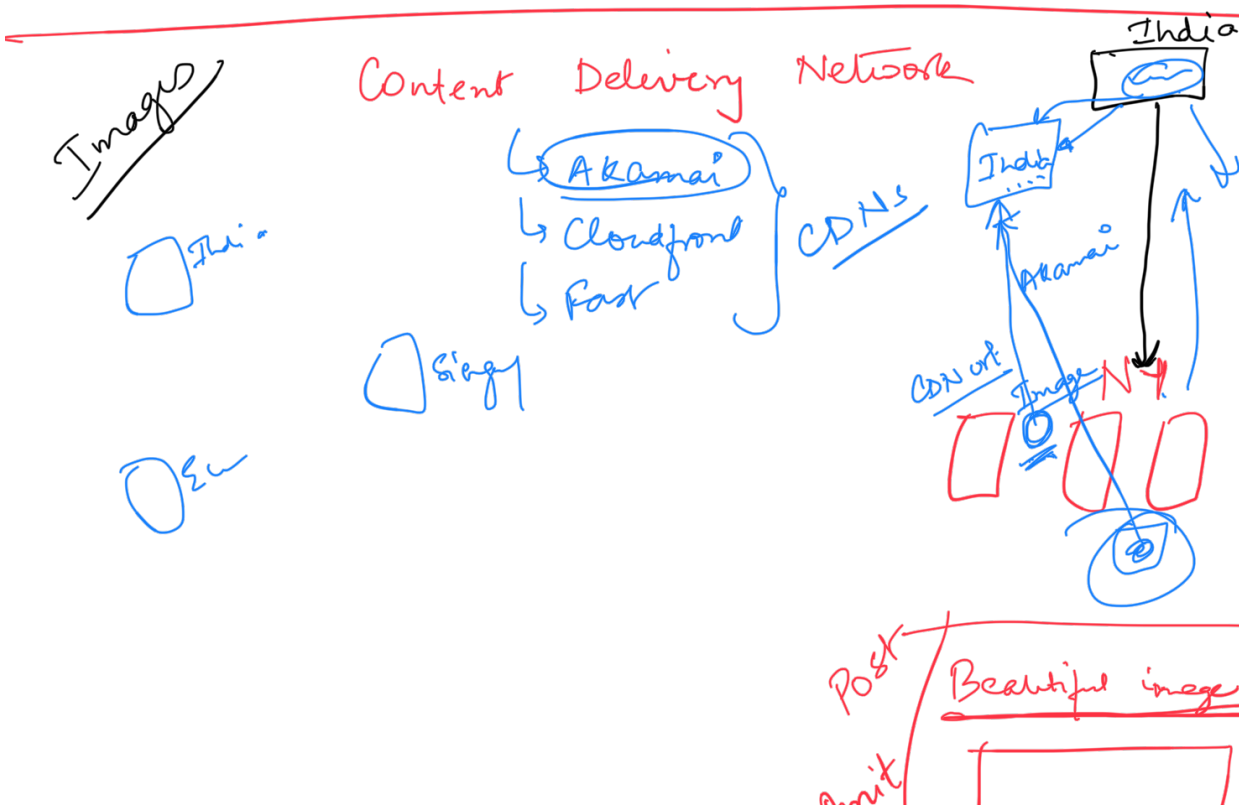


Image
Content Delivery Network
Akamai
Cloudfront
Fast
CDNs
India
Akamai
CDN url
Image
Post
Beautiful image

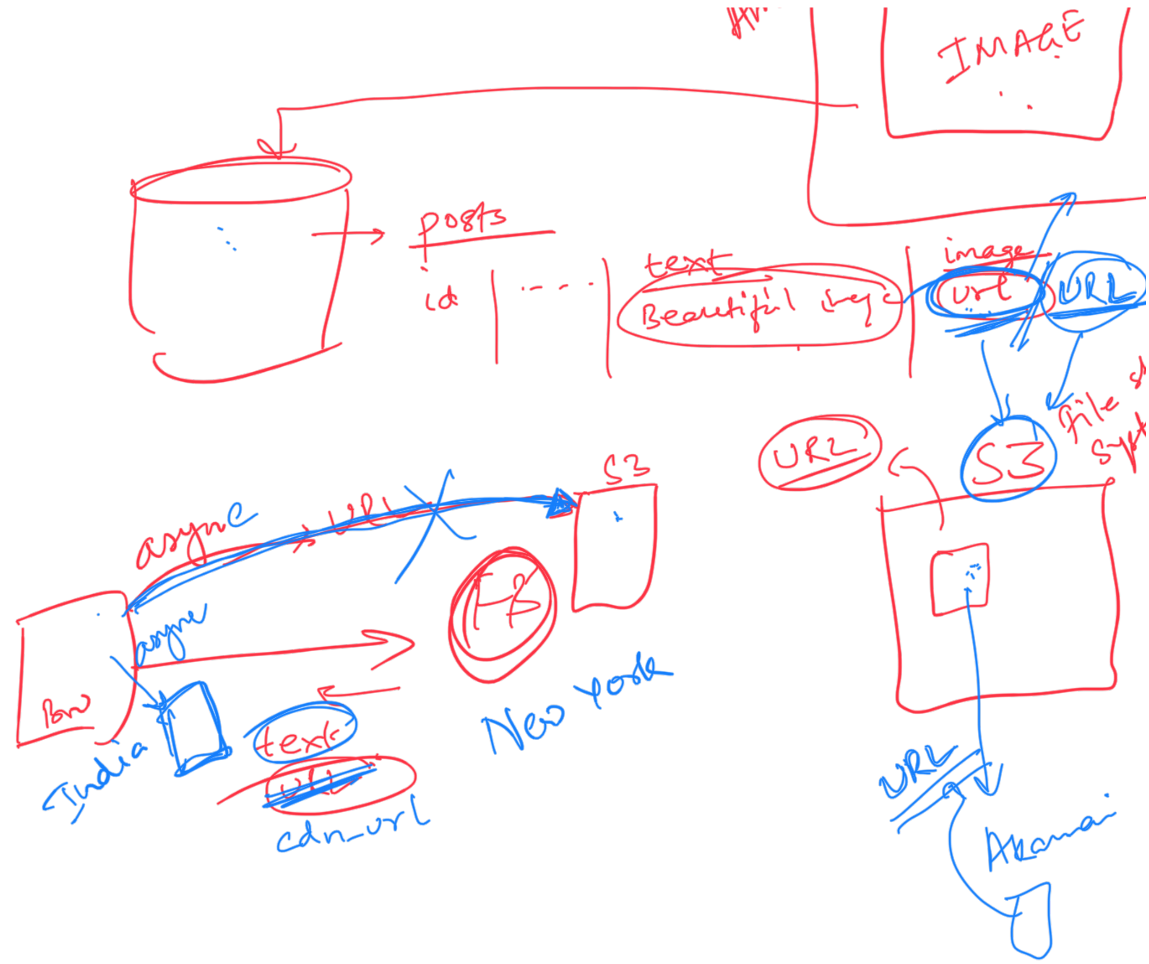
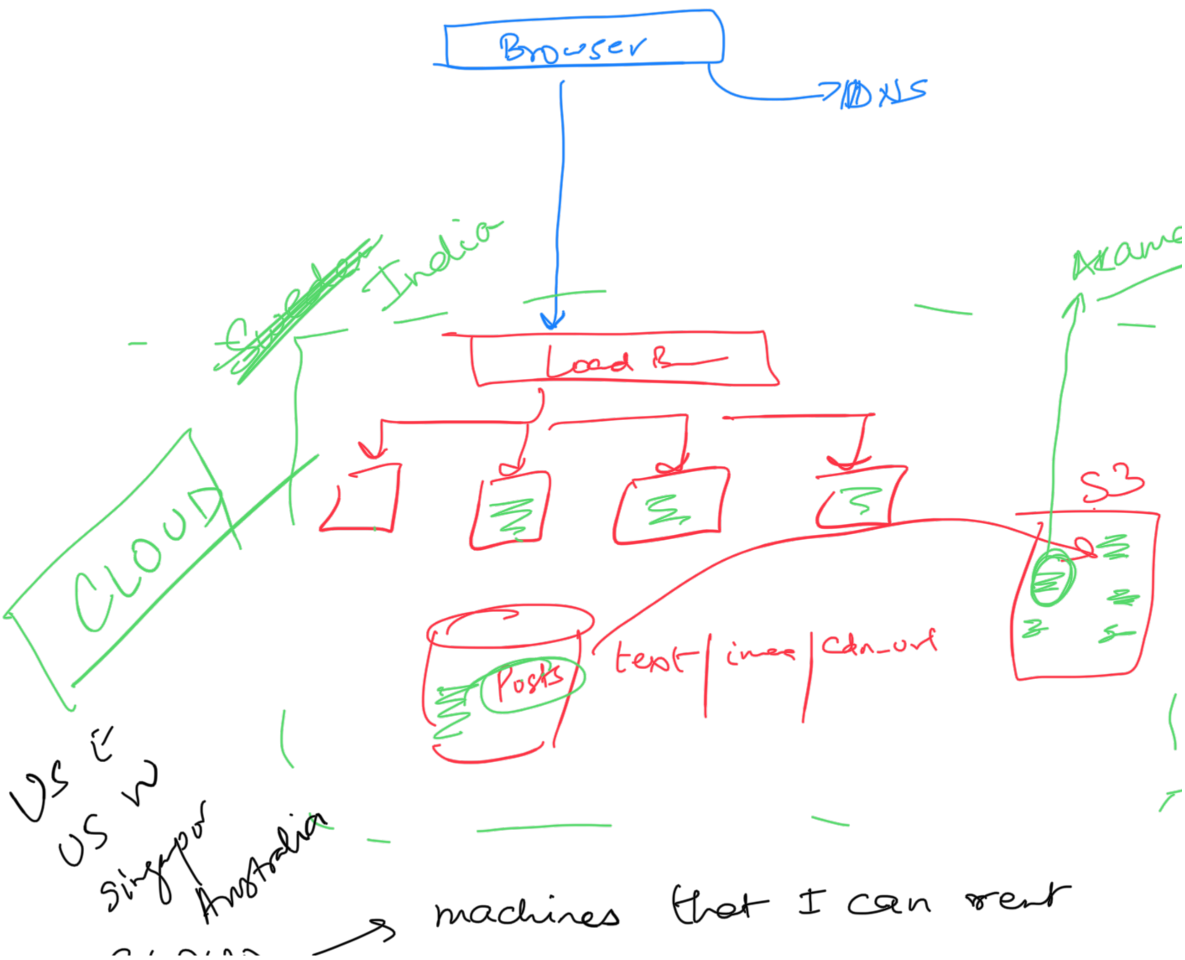


IMAGE
posts
id
text
Beautiful
image
url
URL
file system
S3
URL
async
URL
Bro
India
async
text
cdn_url
New York
URL
Akamai

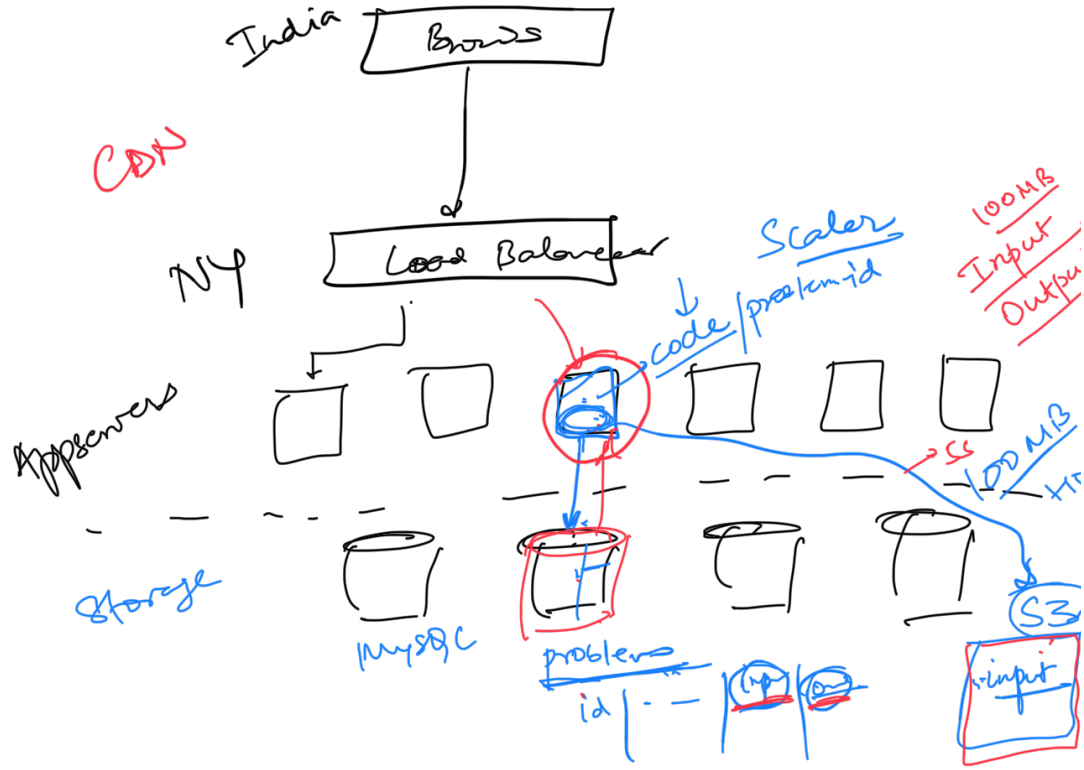

Browser
XLS
India
Akamai
Load B
S3
CLOUD
Posts
text | image | cdn_url
US E
US W
Singapore
Australia
machines that I can rent

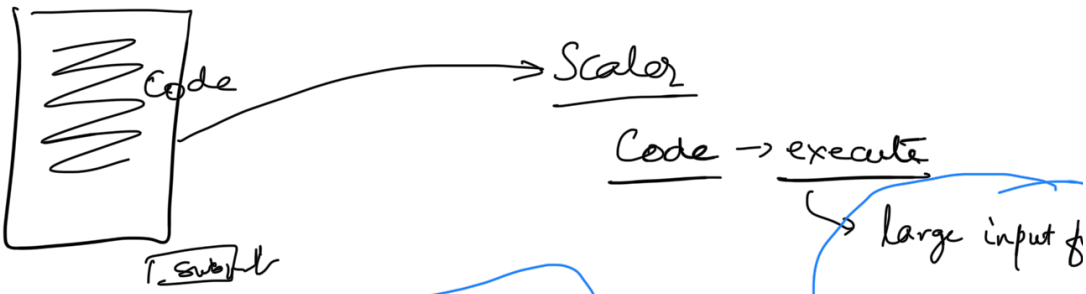
CLOUD → functionalities that is provided as of box

- Redis
- EC2
- MySQL (RDS)
- S3

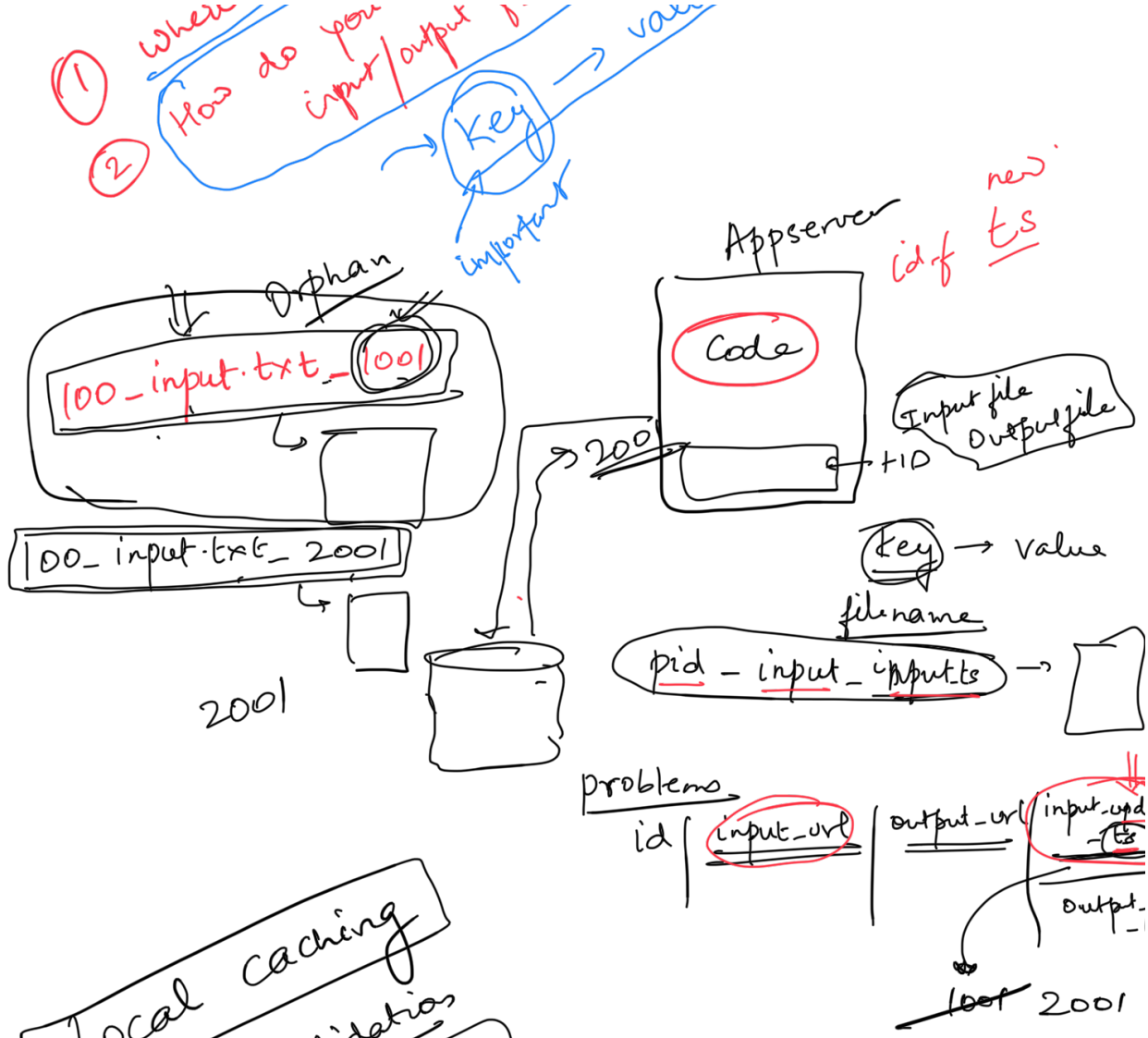
Amazon's CDN → Cloudfront

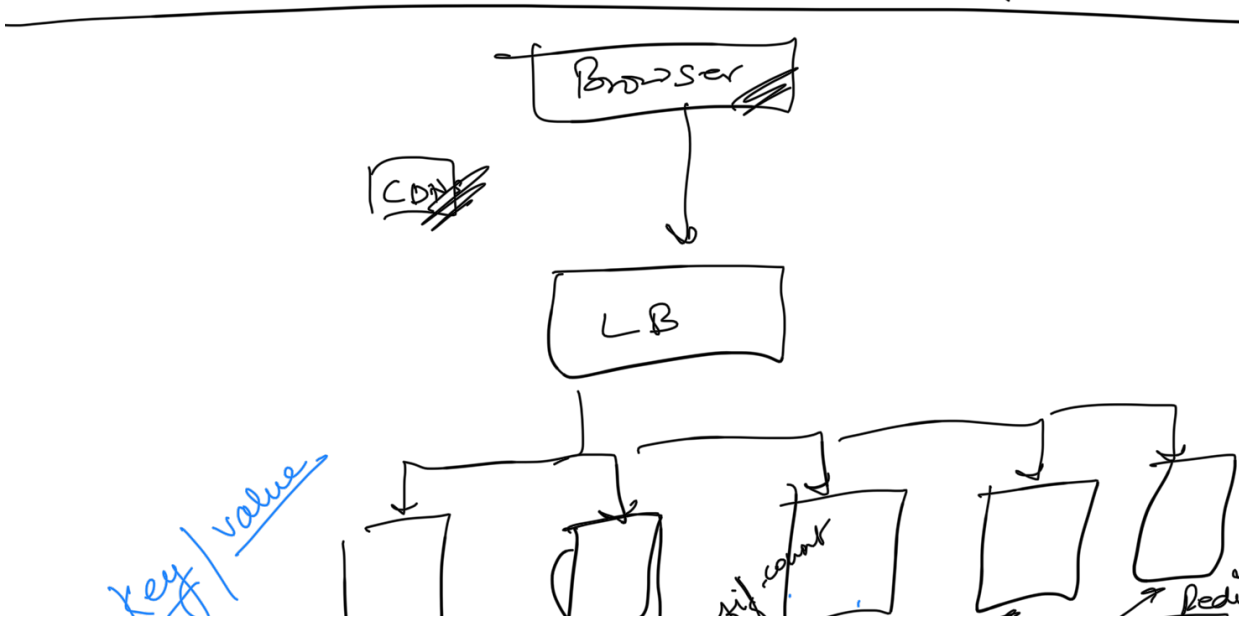
CLOUD ⟷ CDN → Highest coverage
→ fastest

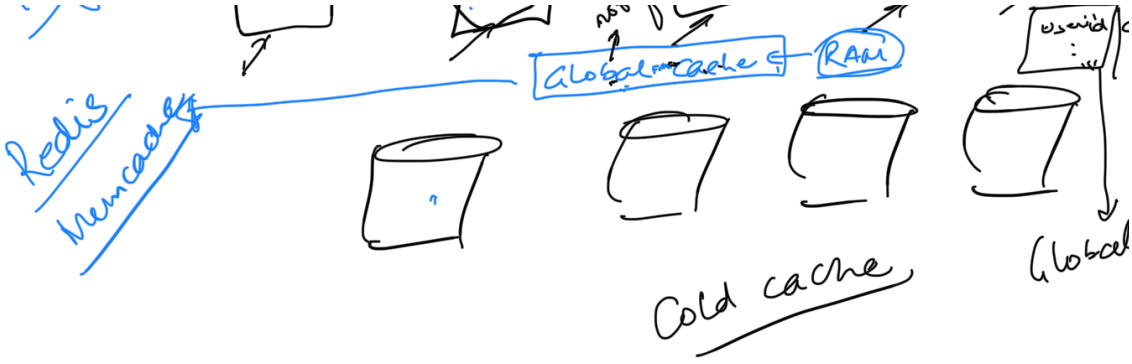




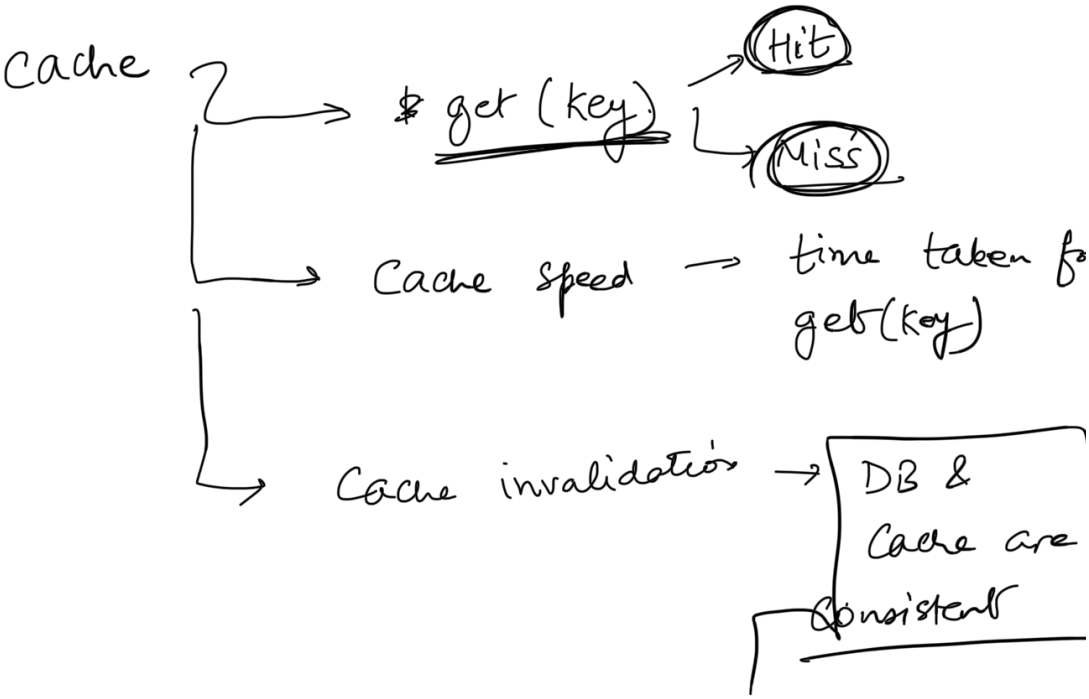
to cache
handle
the update

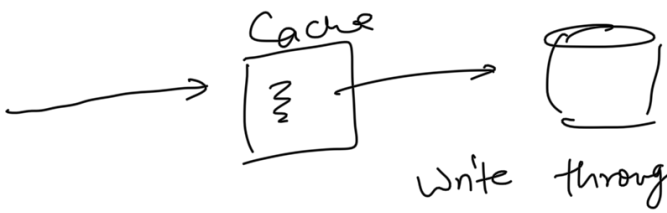

1
2
Where
How do you
input/output
Key
value
important
Appserver
id of
new
ts
Orphan
100_input.txt_1001
100_input.txt_2001
2001
200
Code
+ID
Input file
Output file
Key
value
filename
pid - input_ipput.ts
problems
id
input_url
output_url
input_upd
ts
outpt_
2001
Local caching
cache-invalidation
Key
/home/ testcases/ <file>

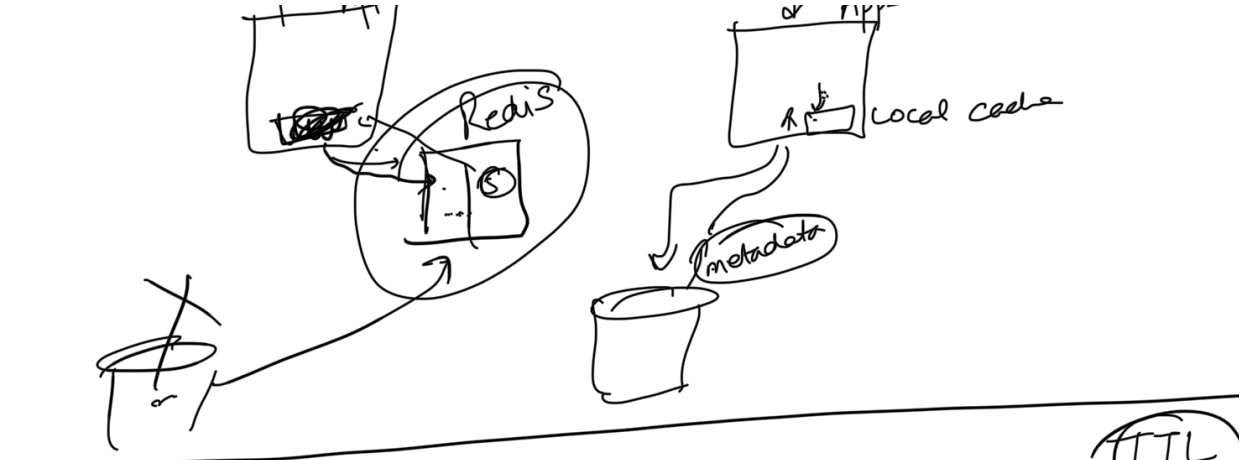

Browser
CDN
LB
key
value
count
Redi

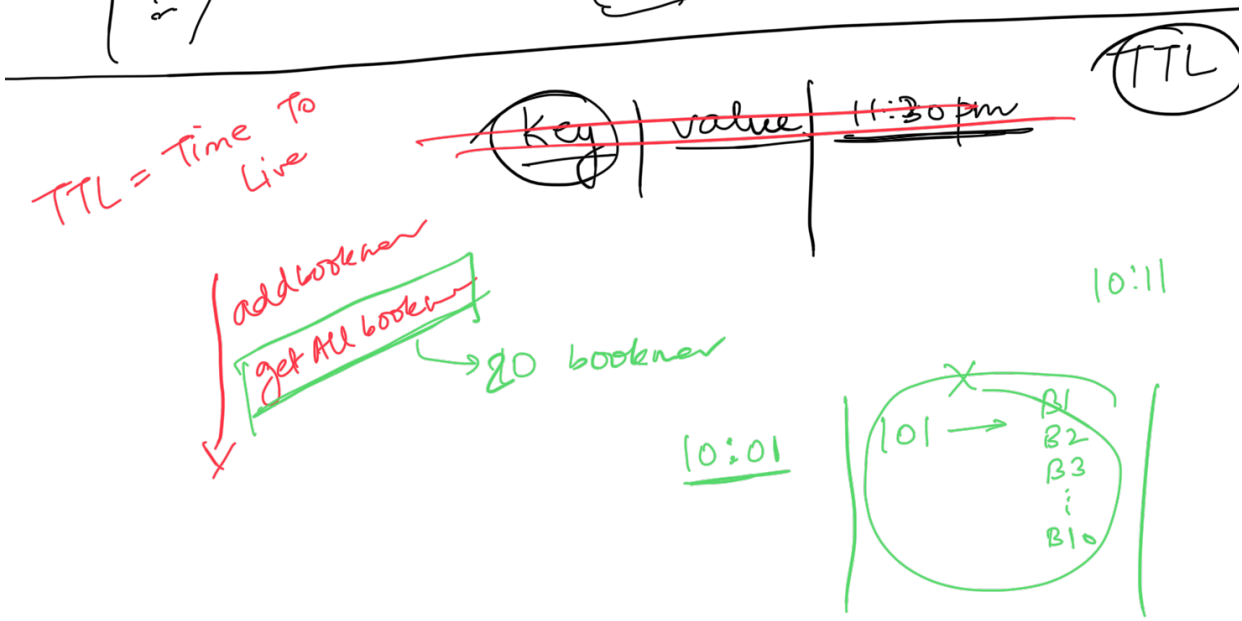


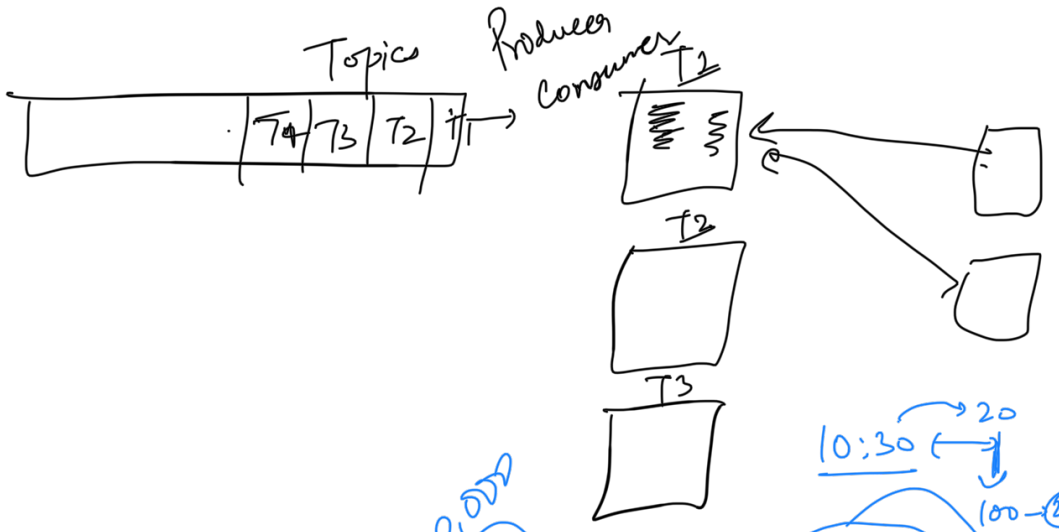
Local cache is faster than global cache only iff you have good cache invalidation approach

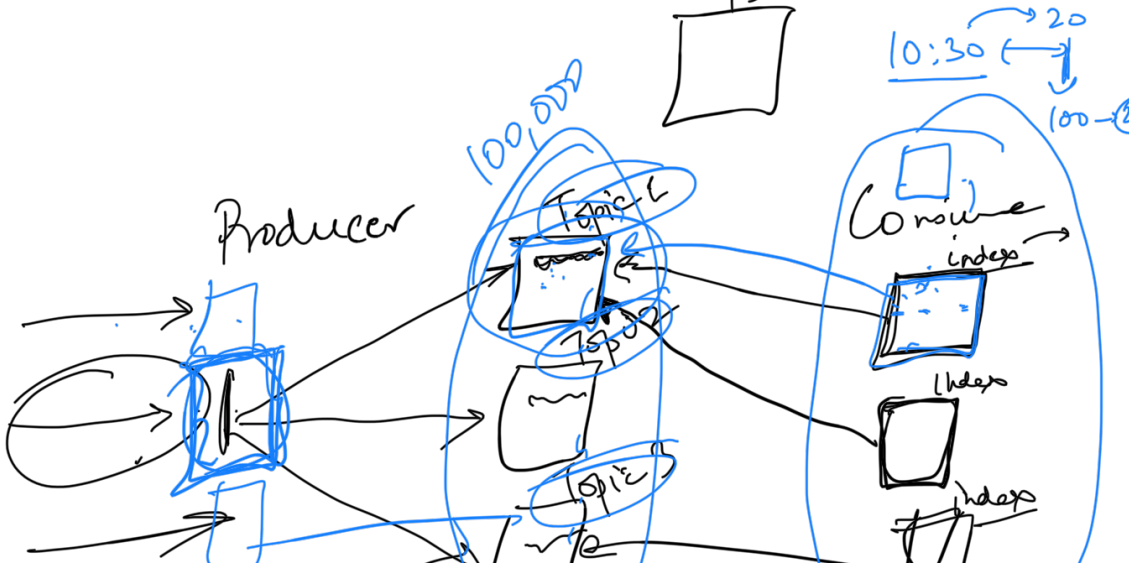





Redis
local cache
metadata


TTL
TTL = Time To Live
Key
value
11:30 pm
addBooknow
getAllBooknow
20 booknow
10:11
10:01
101
B1
B2
B3
B10


Topics
Producer
Consumer
T4
T3
T2
T1
T2
T3


10:30
20
Producer
Topic1
Topic2
Topic3
Consume
index
index
index