

Functional Requirements

- (i) System able to generate 1000 transactions per minute
- (ii) Display transaction on UI (Almost real time)

Non-functional Requirements

- (i) Availability (99.999) \rightarrow 5-9s
- (ii) Scalability

Back-of the Envelope Calculations

- (i) System needs to store , transactions info, product info, user info

Tables required

Transaction
-id : uuid (Primary key)
username : str (20) (foreign key)
merchant : str (20) (foreign key)
Amount : float
currency : enum
Date : DateTime
P.id : (foreign key)

User
user-id : uuid (PK)
username : str (20)
Address : str (20)

Product
P.id : uuid (PK)
Description : str (20)

Assuming \rightarrow 1 Million entrs in User table

$$16 + 20 + 20 = 56 \text{ bytes}$$

$$56 \times 1M \Rightarrow \underline{56 \text{ Mb}}$$

1 Million in product

$$16 + 20 \Rightarrow 36 \text{ bytes}$$

$$36 \times 1M \Rightarrow 36 \text{ Mb}$$

Transaction \rightarrow 1000/min

$$\text{Size of 1 transaction} \rightarrow 16 + 20 + 20 + 4 + 4 + 8 = 72 \text{ bytes}$$

total space required for 5 year

$$72 \times 1000 \times 3600 \times 365 \times 5 \approx \underline{\underline{500 \text{ GB}}}$$

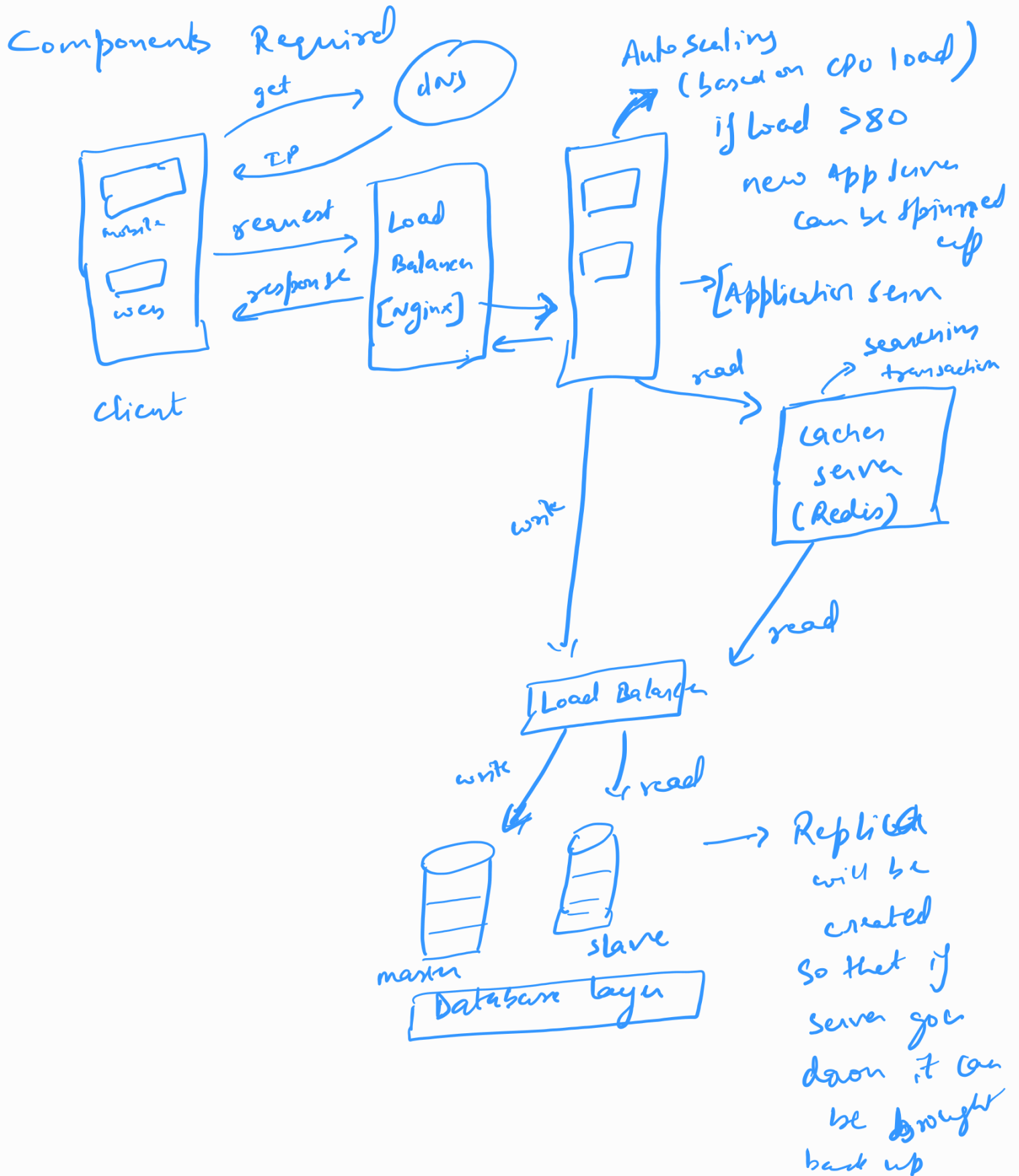
API's Required

(i) Post /create \rightarrow for creating transactions

Payload = { "username" : String,
"merchantname" : String,
"amount" : Float
"currency" : String,
"productId" : String
"quantity" : String
}

iii) get / search

query parameter \rightarrow tid : string
 \rightarrow transaction id



⑧ Newly added transactions will be displayed based on polling

Dataverse will be polled every 30 sec