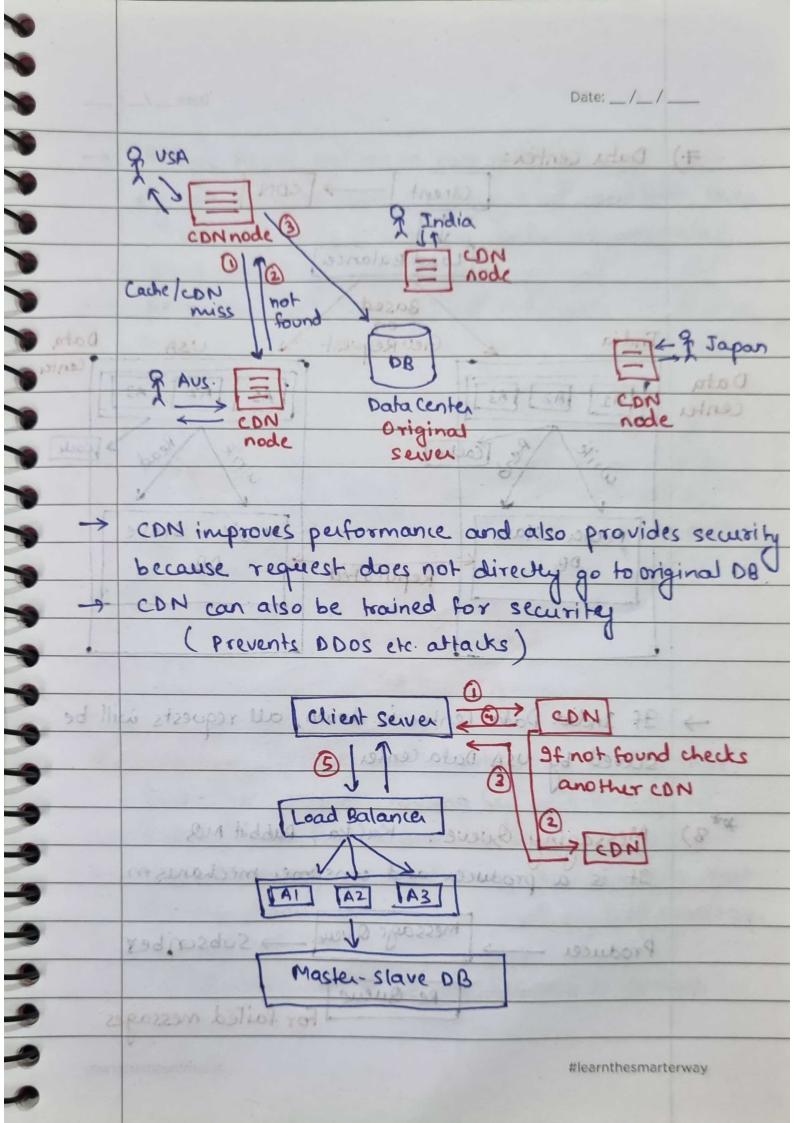
	Date://
#	Scale from ZERO to MILLION Users in Detailed:
	and the first and the second and the
(rib)	Single server: When we have zero users, the we
	only need 1 server.
	1994 Eggs clients A 299A
	web, Mobile
•	isit 8 a fotoa same aa (Basic Project)
	Server
•	Application + OB
9	ethicose aprind 80 sonori = 97 storing
2)	Application and DB Server Separation:
	Wient 20002 gott
	web, mobile
	* 4) Database Replication: Finobald failure DB
9	[Application server] Mid tier (Business logics
	11 implementation)
9	Database Data/DB tien
→	Use: we can independently scale application server
9	and Dalabase server.
9	bess / Stirte
3)	Load Balancer + Multiple App Servers:
2 219	To serve more traffic (requests) on our application
9 84	ve can grow/ scale application server.
2	
3	#learnthesmarterway

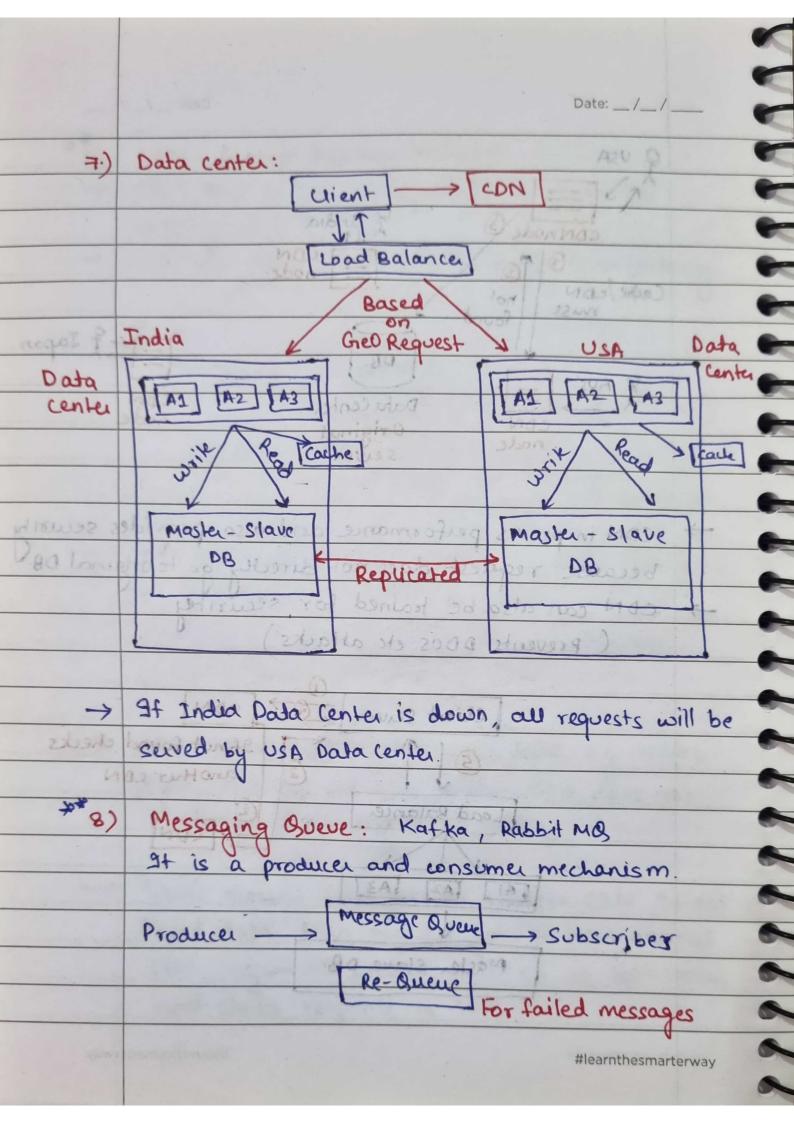
	Date: _/_/
	plinted mi [Client, Server] 0935 mort slose #
3641 0	Load Balances - Provides Security
	PrivateIP +
	APP1 App2 App3 Mid Her
	Note as w
(bejoil sized) DB Server Data/DB Her
	Lesever Lesever
•	Load Balancer talks to Application Server using
	Private IP >> hence LB brings Security.
•	Also LB distributes traffic equally on each of
	the servers took
	Shoom, delu
* 4)	Database Replication: Envoyater failure DB.
wiga	229 MIZELA) 231 Client Server 2 porter 1992
(noitota	inpleme I I impleme
	Load Balancer 32 dolos
server	a Use we can indicate the water application
	Midtier App2 App2 App3
	Write / Read
	OB tien Can have
nothon	Data tier Master Slave Slave Slave Slave Multiple
	DB DB DB DB Slave DB
River	#learnthesmarterway

Master-Slave Architecture : 10 100 100 All write requests will go to Master DB and all read operation will go to slave If one of the slave DB is failed, then another replica slave DB will be up, and will handle the requests If master DB will fail, then anyone of the slave DB will get promoted to master DB 5.) Cache: whenever our application server talks with DB this will be a network call and it is an expensive call > DB operations are very very very expensive. Increase performance / we have save DB calls Use new to data center has tastest response Client Server , suzz montal IMIN 03 pl/ Load Balancer APP2 Midfier (TTL) 9f Cache miss Time to live ton 78 400 DB tien Masky Slave Slave Slave DB DB who dotal of stores response in con

	Date: _/_/
*6)	CON: Content Delivery Network
besent	CDN does caching but all those who does
	caching are not CON to of the mortage
nilgon	caching are not CDN. CDN has more functionalities apart from earling
2/251	stave De will be up and will handle the req-
slave	3ms 2 India 1 Ims (Request/Response time)
	3ms 2mm & Indiamorg top 111 80
	(Request/Response time)
zivit	2 Aus. 2ms Data Center 4ms > 2 Japan
او دهایا	will be a network call and it is an expensive
\rightarrow	Based on useis location time for request/response
2	has increased and sur parameter grassmit -
	User near to data center has fastest response
	Latercy Issue: Solved by CDN
7	CDN Stores caching of Static data. e.g. HTML
-	pages, Videos, CSS etc. Data which does not change frequently
117	Change frequently
-	User's request first goes to nearest CDN. If not
	Toola dara, mer request goes to next nearest
	CON, again not present then go to data center
	and stores response in CDN.

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Date://
ature in our codebase
perform heavy load operation, then
p on waiting until it's completed.
Asynchronous Red of
store failed messages, and after
scriber can again consume those
Routing test - New mothers
Binding Subscribers
change Subscriber2
or some some subscribers
Culcula insedua insedua inservanta
Exchange and some ena
Queue are linked
by binding reduced
DI M
cer sends routing key to exchange.
ones Routing key and Binding to
neve needs to sends data to
on which subscriber distens to that
ication will be sent to that subscriber.

Brings Async n

e.g. we have to

So it should be

some time sub

Re-queue will

messages

Routing

13912059 ∩5 €

Exchange com

decide which o

Now, depending

Exchange:

Produ

Exchange -> sends Request to Queucs.

nos bestru

Produce

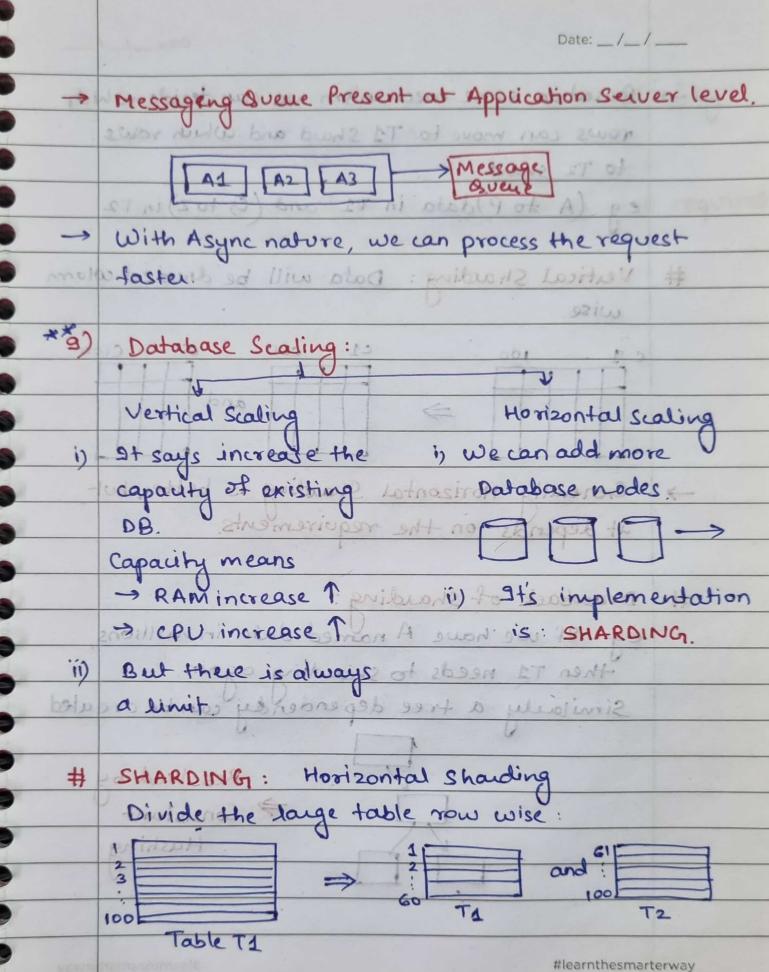
#

we can't kee

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	Date:	_/_/_
#	Types of Exchange:	B _ B .
	we have to perform heavy load operation	
3	Direct Exchange - Exact match	
	(Routing key = = Binding key) -> Se	nds to
nd after	when will store failed messages, and	ed Binding
	It smornos niopo nos sidrozdos smiryos	sueue -
	tingkey tex. match 81 Binding ke	= 2
المحرف	lipaduz = [] milinia]	
	The out out of the second	Produce -
En	Exchange sends same message to all	the
	Queues. Subscribers which are linked	(00)
	consume or ignore the message.	
	Bucue are linked.	
	Exchange M B2 Subscri	ihe.
	M 93	
Serio		623 #
	Espic Exchange: Regex Match	
	Based on regex match, request will	Lo CENT
test of	to that particular queue or multiple	Sourch &
obseriber.	matching with regex routing key	
	0 0 0	
:00	900 of (**) 301 90000000000000000000000000000000000	
	82	•
	#learnth	nesmarterway

Date://
tion server level.
25007
27 01
A) ps 19
the request
Lestical #
ssico
P 19
יווע
rizontal scaling
add more
ase nodes
1919->
implementation



Date: _	_/_	_/_	
	-	-	

	Date://
level.	Based on some mechanism we can decide which
	nows can move to T1 should and which rows
	to T2 shard
	eg. (A to P) data in T1 and (0, to Z) in T2
429	- with Async nature, we can process the ray
#	Vertical Sharding: Data will be divided column
	wise.
	cg
guile	2 whose salt > and whose salts
V	on blandisto i al sustania de la como
→ 2	Generally Horizontal Sharding is better, but
	it depends on the requirements.
4	Capacity in ears
norte#4	Drawback of Sharding ! seeson MAS -
	eg 9f we have A named data in millions.
	then T1 needs to shouding again.
	Similarly a tree dependendy can be created
	prices 12 to Lostoot : Resolved by !
	Consistant
	Hashing
-5	P. 1001
1.100	#learnthesmarterway

Date: _	_/_/
Second issue is join Query: It can be	solved by
Second issue is join Query: It can be de-normalizing the tables.	U
Hence we covered all 9 steps which a for 0 to million scaling.	vere require

(ii