9) Single Point of failure in Distributed System

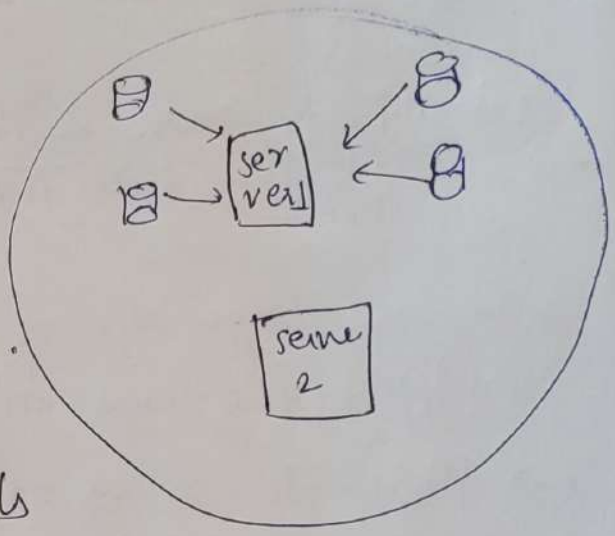
→ It is a point where the entire system can crash if that point crashes.

Eg → we have a server & db, if the db crashes then the entire system would crash

→ Eg If meteore strikes earth, then the entire humanity would disappear.

→ If we have single point of failure, it means that the architecture is not resilient.

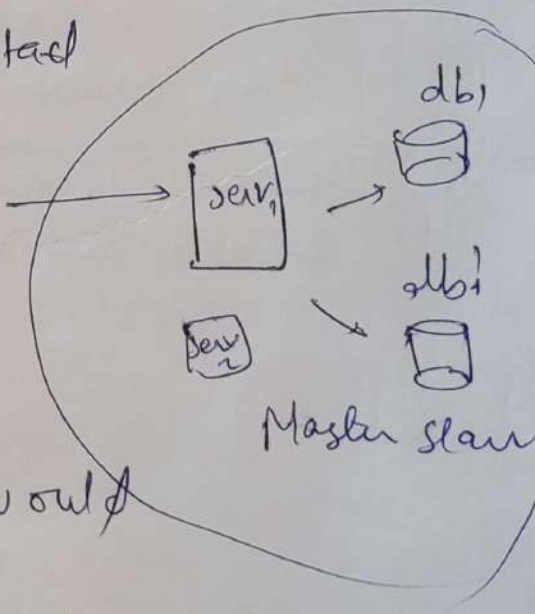
(1) Eg If all dbs are connected to our single server
If the server crashes then our entire system would crash.



To avoid this use another server.
ie add more node

(2) what if the singe db fails where db acts as single pt of contact

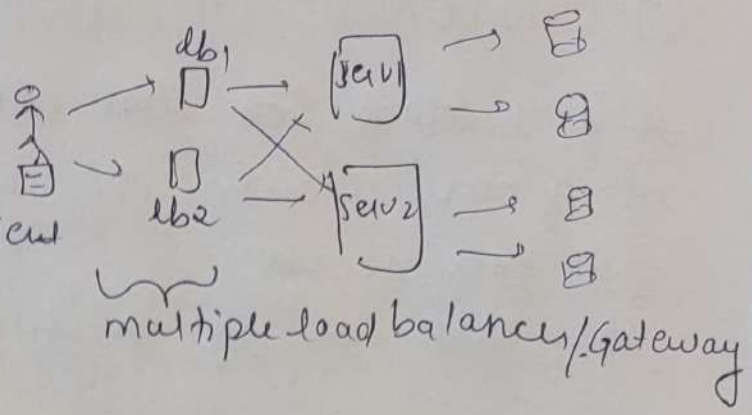
→ make use of master slave
ie add another db
~~Note~~ (from one db we would be only writing & from other we would be only reading)



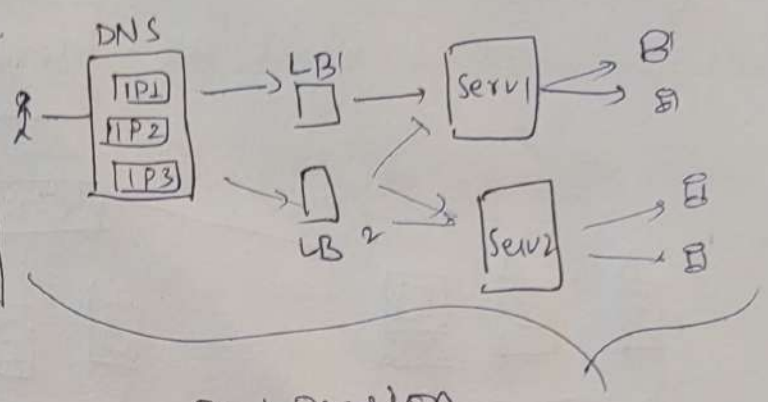
(3) As we have multiple server we would also require load balancer.

→ but having single load balancer can be another point of failure so add multiple load balancer.

(4) As we have multiple load balancers, our client may not know that he should connect to which load balancer. So we would require DNS



(5) DNS would have multiple IP addresses connected to the same host.



(6) There can be another pt of failure
→ if the entire region fails then our system would also fail even after adding (DB, server, LB, DNS)
→ So we can have backup of entire region at some other place.

Overall
→ Add more node
→ add more db's Master Slave
→ Add more lb
→ add ~~more~~ DNS
→ Add another region setup