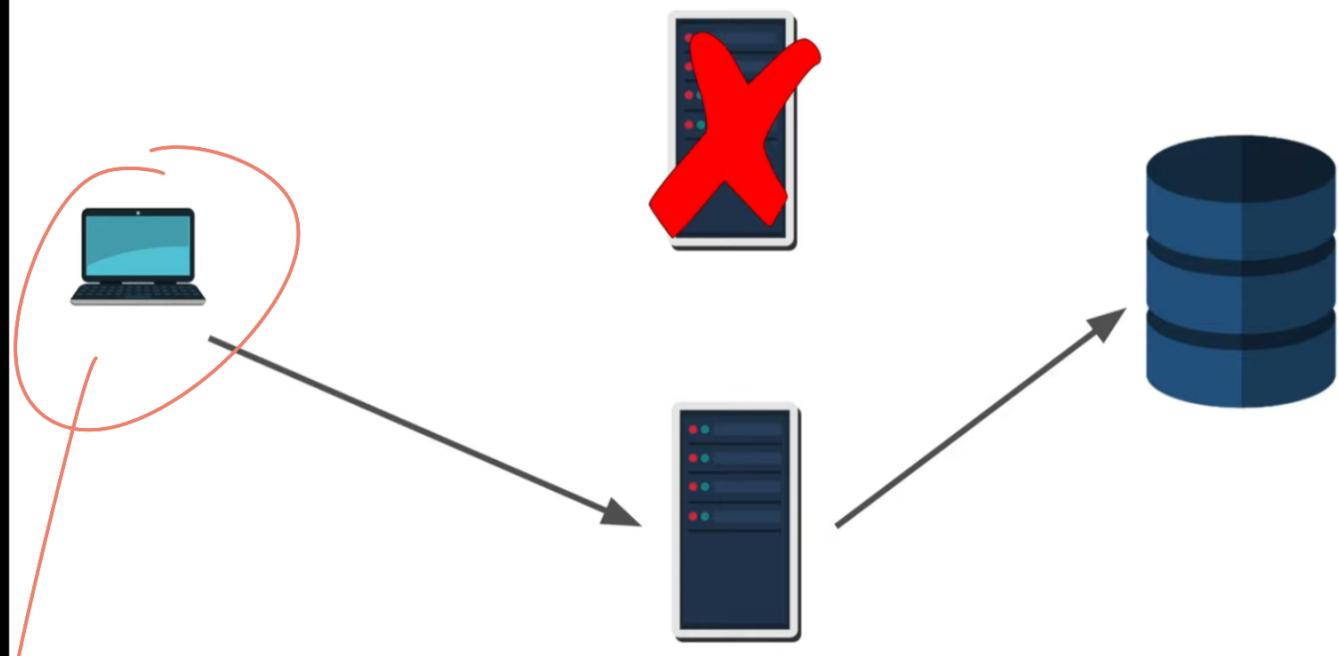


# [Failover]

What is Failover?



client doesn't know failover happened  
→ What happened in Backend to switch on failover?



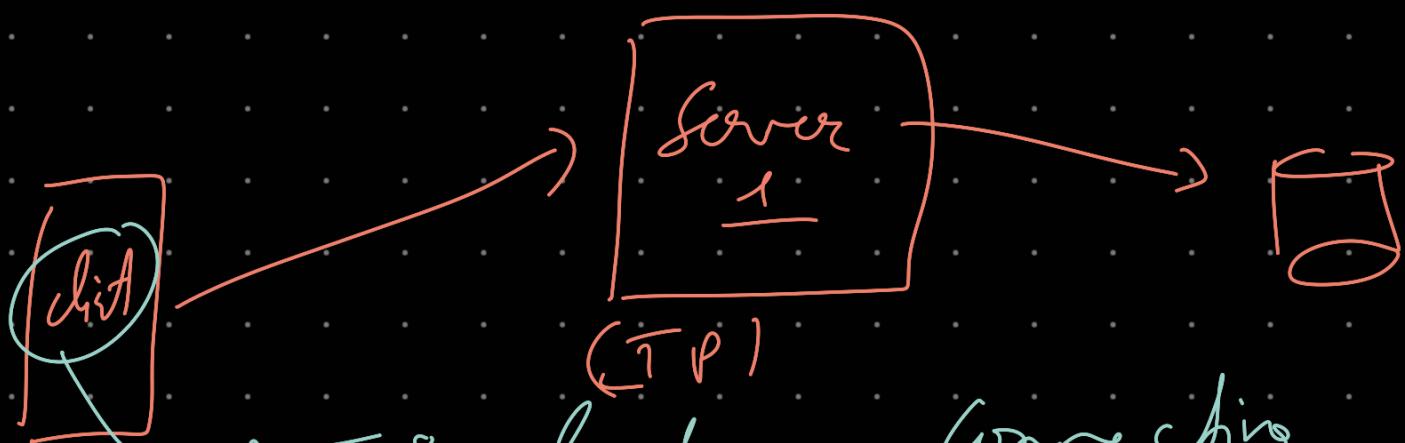
\* What is failover?

Technique to switch to Backup Machine when certain Machine goes down

↳ For high availability

① Client doesn't know failover happened

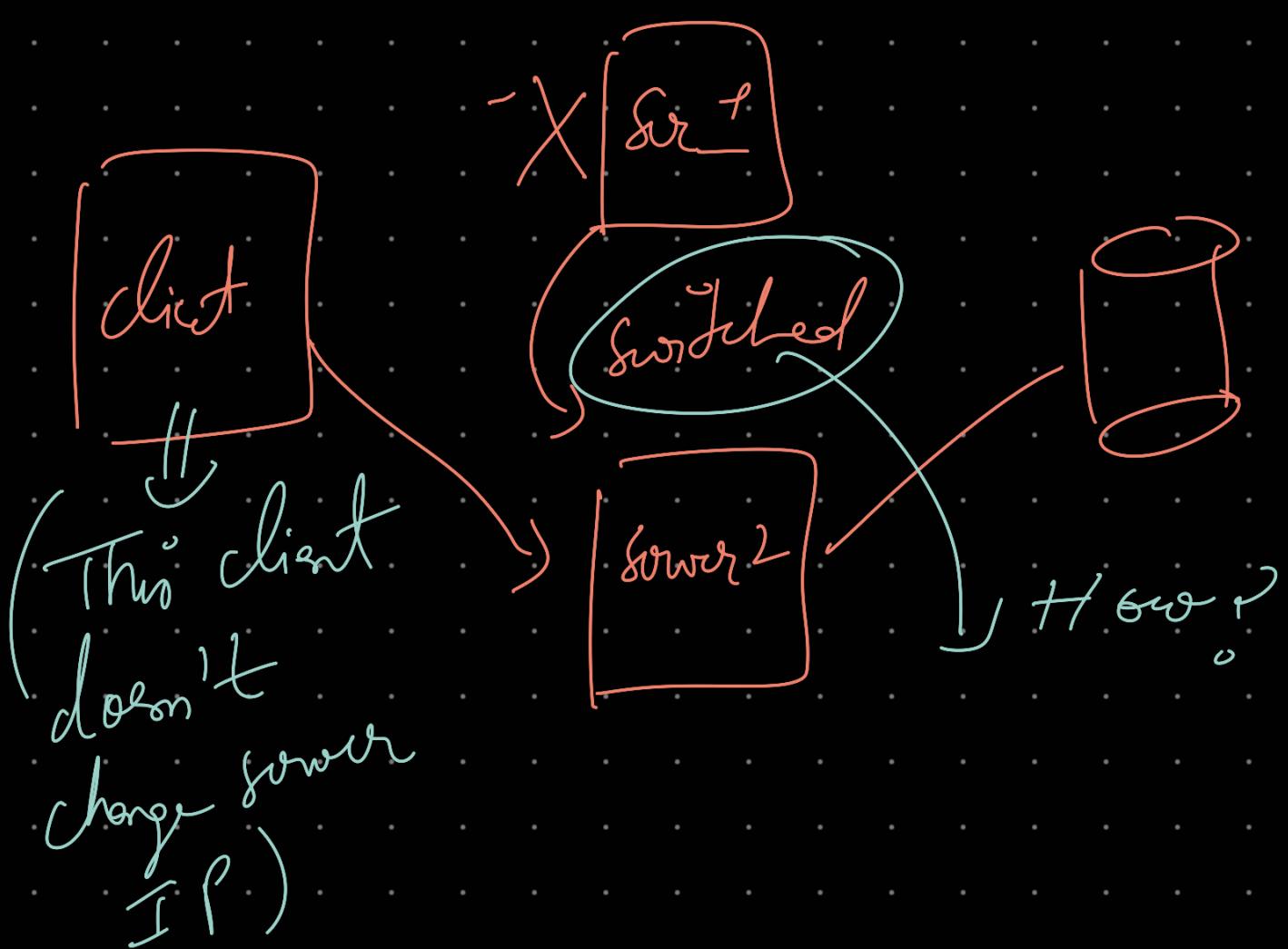
② How does the switching happens in Backbone.



→ This client was connecting to server 1 having some IP

↓  
Server 1 fails

↓



\* Concept behind this is ARP

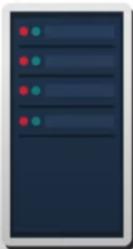
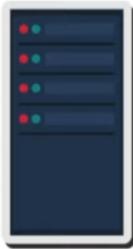
Address resolution protocol  
(IP → MAC)

# ARP

Who has the IP address 10.0.0.2?  
Its machine BBB



Mac: AAA  
IP: 10.0.0.1



Mac: BBB  
IP: 10.0.0.2

# VIP and VRRP

## VIP & VRRP

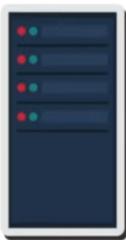
Who has the IP address 10.0.0.100?  
Its machine AAA



10.0.0.100

master

Mac: AAA  
IP: 10.0.0.1



10.0.0.100

backup

Mac: BBB  
IP: 10.0.0.2

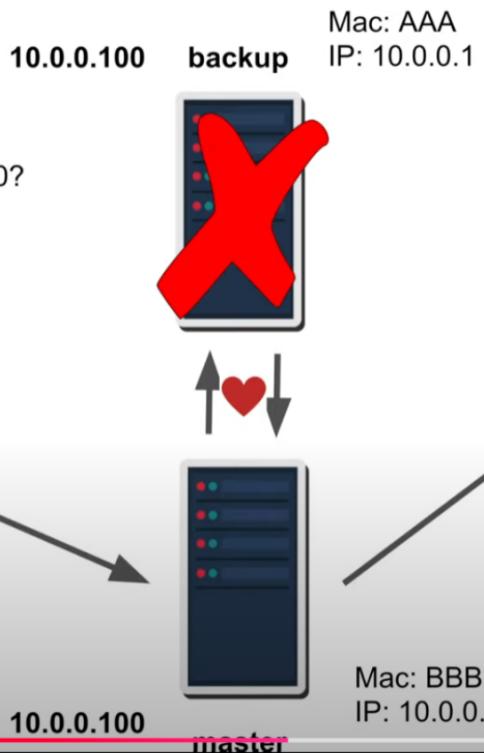
VIP: Virtual  
IP address

Both have unique IP

But Single VIP

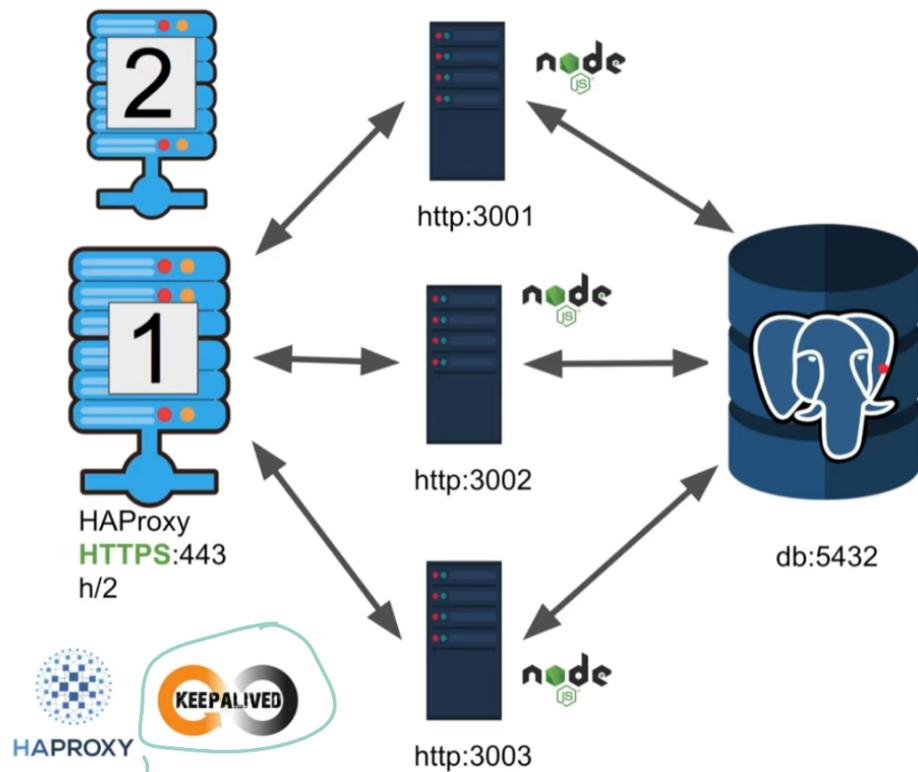
- \* Both Machine have specialised s/w, which periodically communicates b/w them.
- \* For client, it connects with VIP thinking that is 1 machine but 1 VIP can have Multiple Machine
- \* If one Machine stops working, Client still connects to Same VIP
- \* If Master machine fails, other Machine takes role of master, this is done by s/w running on all Machines having same IP
  - L) This switching takes fraction of a second.

## VIP & VRRP



↳ This switching is known as  
(Virtual router redundancy protocol)

## Example



↳ S/W for VRRP

- K
1. Load Balancer Setup (e.g., Nginx or HAProxy with a VIP).
  2. High Availability Setup (e.g., with `keepalived` or `pacemaker` ).
  3. Docker/Kubernetes Service with VIP (e.g., VIP for cluster services).
  4. Redundant NAT Gateway using VIP.
  5. Windows/Linux Server Cluster with VIP.