L4 load balancer

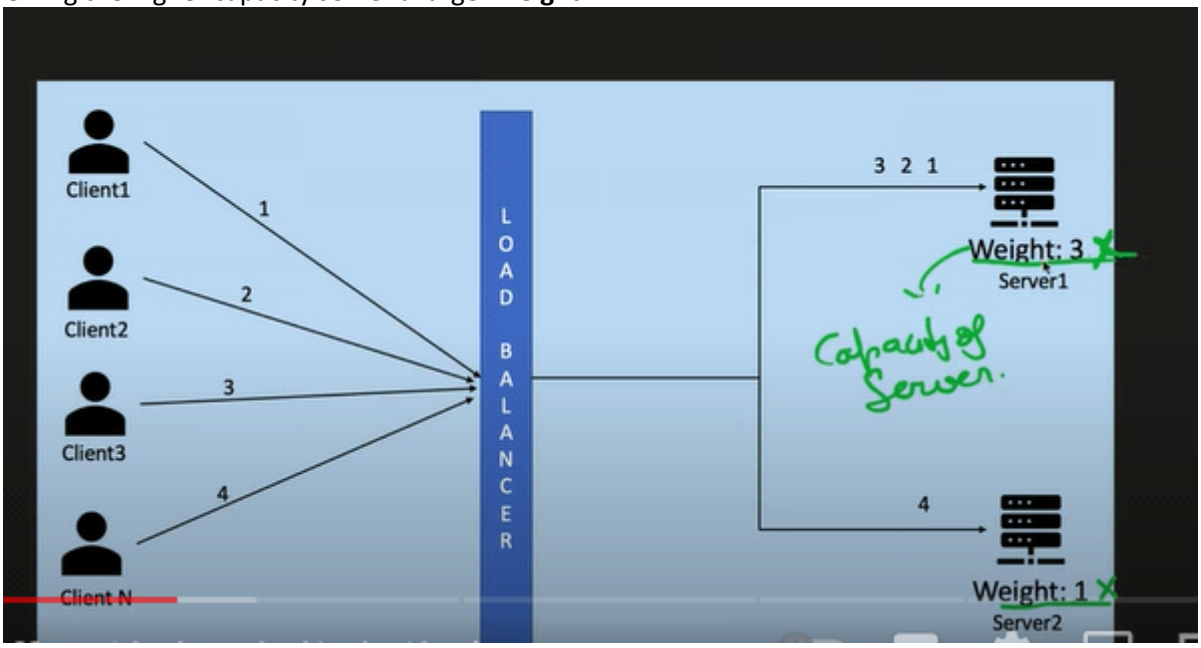
Monday, September 4, 2023 3:44 PM

Network load balancer(L4 load balancer):
We only know the ip address and port number. It makes no sense to look at the data.

Static algorithms:

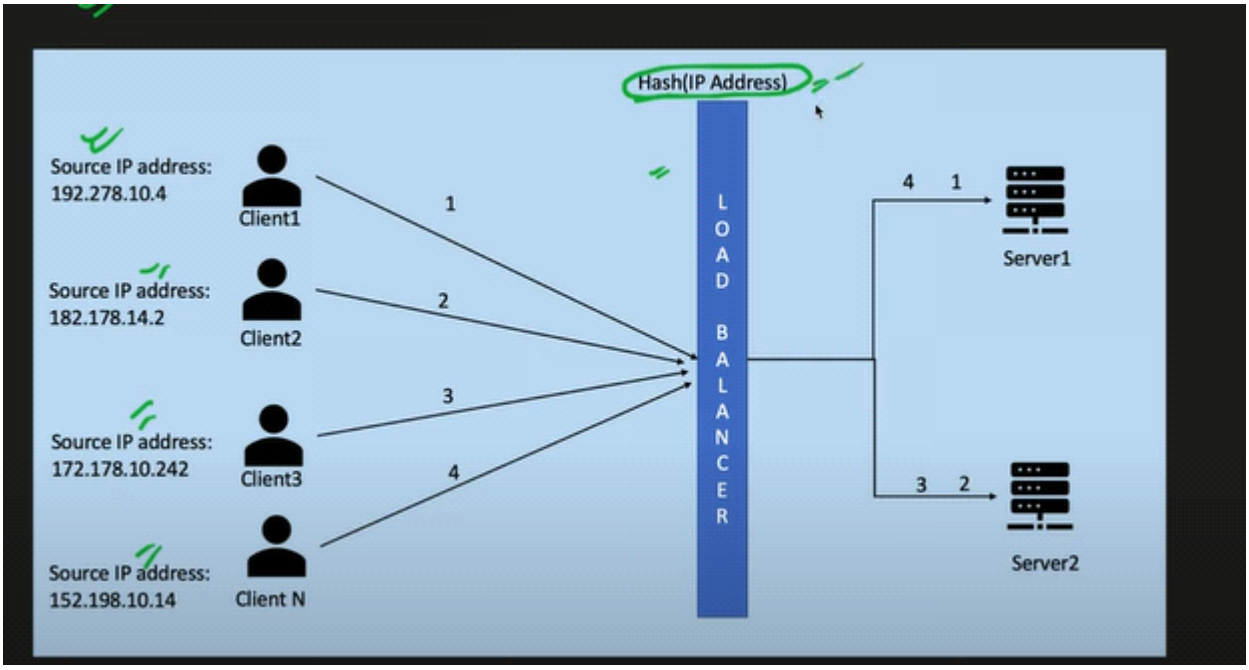
-round robin
Equal load distribution to the server
Disadvantage:
Servers with high or low capacities are treated the same

-weighted round robin
Giving the higher capacity server a larger **weight**



Adv: low capacity server will get less requests and it is easy to implement since weights are static with no dynamic computation
Disadvantage: requests vary in computation complexities. If the lower capacity server get the high complexity request, it will become over-burden soon.

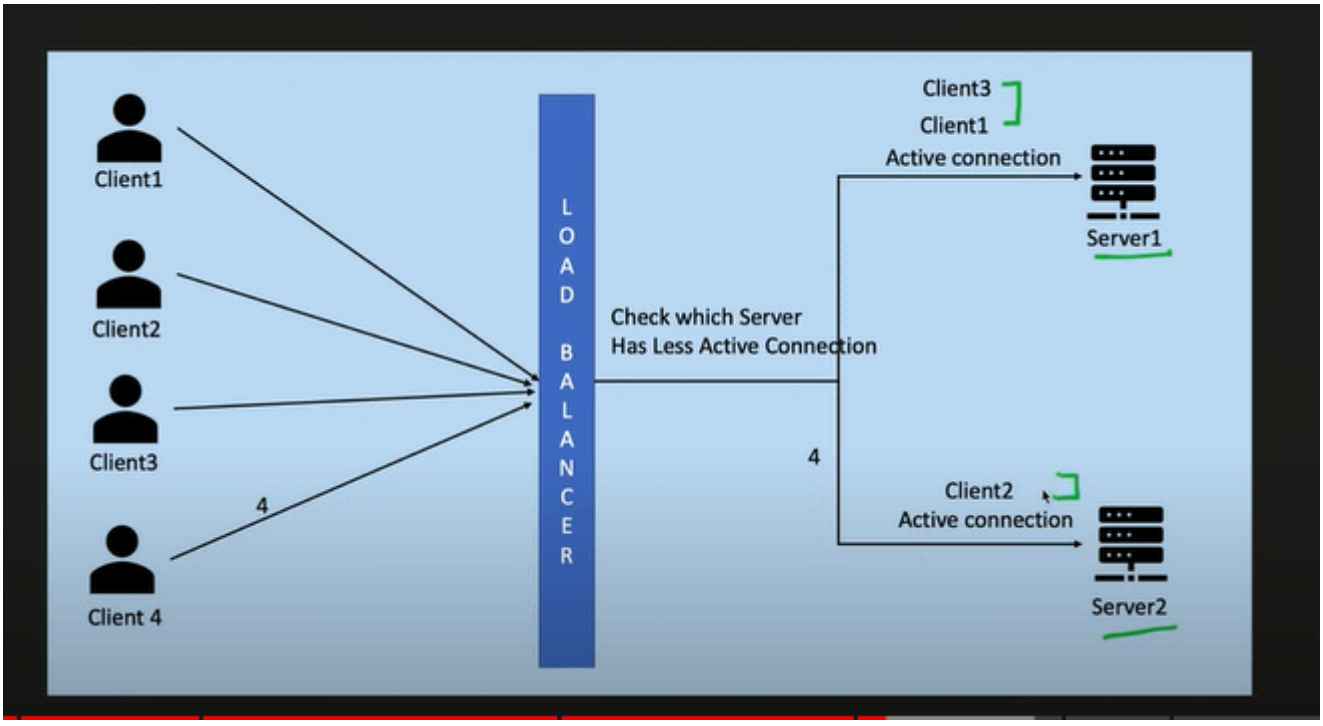
-ip hash algorithm



Use an hash algorithm to H(ip) => server
Adv: used when the same client need to connect to the same server
Disadvantage: if the clients request is coming through PROXY(forward proxy), then all the clients will have the same source IP address, and this will overload the specific server
Cannot ensure equal distribution

Dynamic load balancing

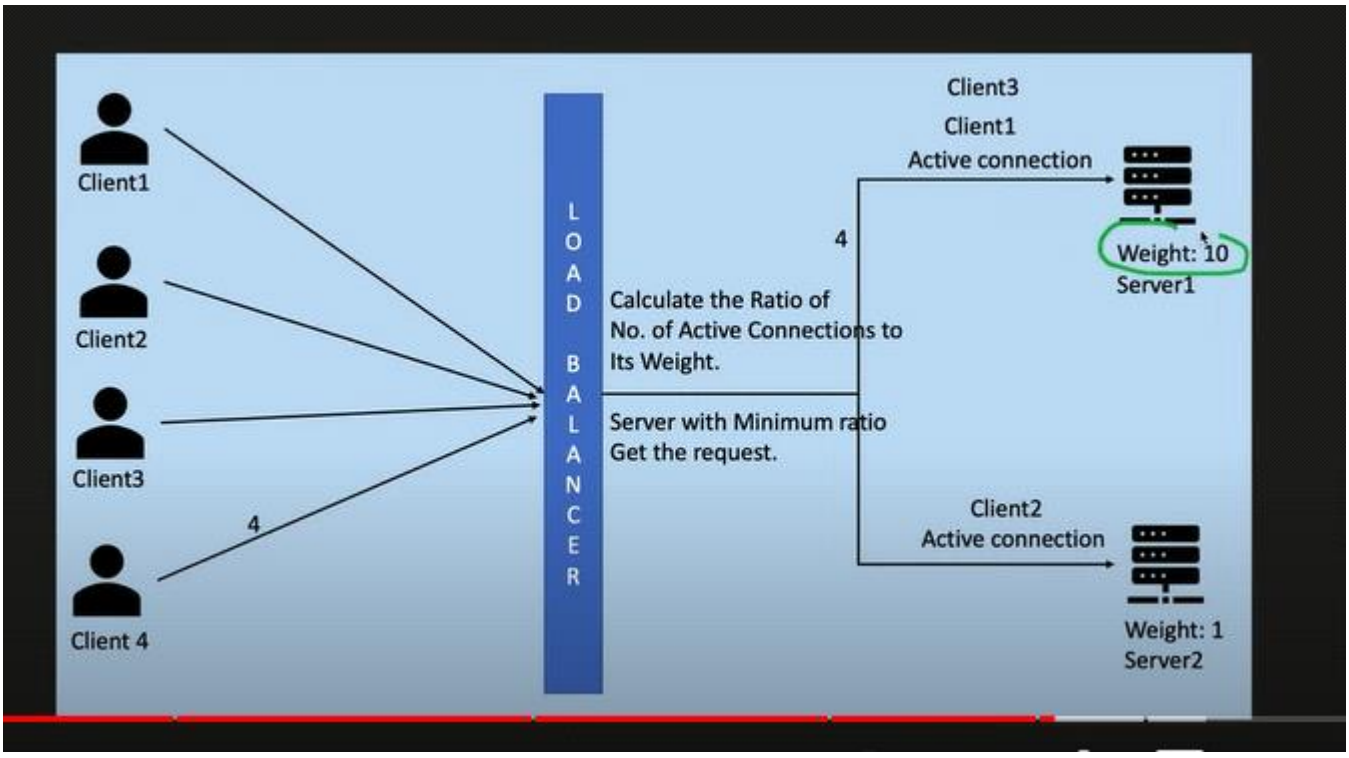
Least connection



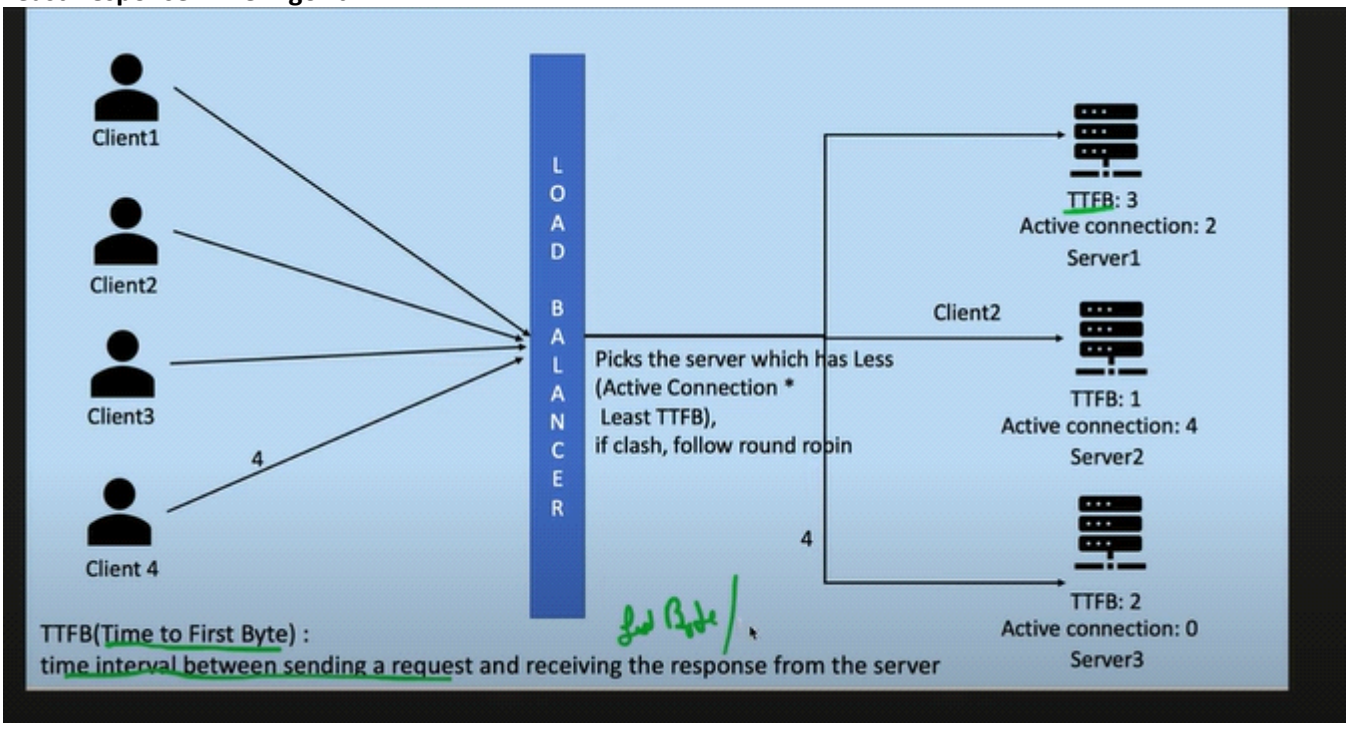
Adv: dynamically consider which server have less active request
Disadv: tcp connections can be active but no traffic

Not consider the capacity of the server

Weighted least connection algorithm



Least Response Time Algorithm



From <https://www.youtube.com/watch?v=vJYycNWAYZU>