Infrastructure Specifications

Why adding new elements for the server?

- Adding 1 more (Web server, Application server, Database, set of code files):
  - Setting up the infrastructure to distribute the load on a single server to another Replica with a load balancer to balance the traffic load between my two servers, this makes my server handle twice more the initial design in task0, so now I have a (Primary & Replica) server
- Load Balancer:
  - The load of requests traffic need be Distributed between the two servers with a certain algorithm that's why we add the Load Balancer

What distribution algorithm your load balancer is configured with and how it works?

- Round Robin Load Algorithm:
  - **Round-robin load balancing** is one of the simplest methods for distributing client requests across a group of servers. Going down on my two servers, the round-robin load balancer forwards a client request to each server in turn. When it reaches the end of the list, the load balancer loops back and goes down the list again (sends the next request to the first listed server, the one after that to the second server, and so on). As shown

request 1 → Primary Server request 2 → Replica Server

request 3 → Primary Server request 4 → Replica Server

etc.…

Is your load-balancer enabling an Active-Active or Active-Passive setup, explain the difference between both?

- My load-balancer works as Active-Active:
  - According to My chosen algorithm Round Robin require the two servers to be on active-active setup, in active- active the two servers working as a team sharing the traffic request between them in order unless one server is down
  - Active-Passive:
    - In active-passive setup the load balancer distributes the load traffic to the most suitable server which in our case the primary server, the replica server is off but is ready at any time to step in and take over the load when the primary server shut off or fail

How a database Primary-Replica (Master-Slave) cluster works?

- A *Primary-Replica* setup configures one server to act as the *Primary* server and the other server to act as a *Replica* of the *Primary* server. However, the *Primary* server is capable of performing read/write requests whilst the *Replica* server is only capable of performing read requests. Data is synchronized between the *Primary* and *Replica* servers whenever the *Primary* server executes a write operation.

What is the difference between the Primary node and the Replica node in regard to the application?

- Primary node:
  - Responsible for write and read operations
  - The main source of the data in a system
  - Have the authority to update the data
- Replica node:
  - Copy of the data from the primary node
  - Read operations only

Issues with the infrastructure

Where are SPOF?

My infrastructure has only 1 load balancer.

Security issues (no firewall, no HTTPS)?

Data transferred on network is not encrypted using SSL certificate which is not secure and makes my system to be sensitive to attacks

Also, my system has no firewall so there is no way to block unauthorized IPS from unknown users

No Monitoring:

You cannot fix or improve what you cannot measure is a famous saying in the tech industry. In the age of the data-ism, monitoring how our software systems are doing is an important thing.

Monitoring allow us to get date about our running software making sure its work fine and as expected

We can’t update or improve our system without monitoring and.