ALX Project

Web infrastructure design

For every additional element, why you are adding it: to be able to distribute the load among several servers by using load balancer and prevent the single point failure and handling too much income traffic.

What distribution algorithm your load balancer is configured with and how it works Round Robin: Distributes traffic evenly in a circular fashion, ensuring relatively equal distribution. Least Connections: Redirects HTTP requests to the server with the fewest connections.

Is your load-balancer enabling an Active-Active or Active-Passive setup, explain the difference between both Active-Active configuration involves all resources actively handling traffic through a load balancer, offering high scalability and fault tolerance but can be complex to manage. On the other hand, Active-Passive configuration has one active resource with others on standby, activating only when the primary resource fails. While ensuring high availability, it comes with failover time causing brief service interruptions.

How a database Primary-Replica (Master-Slave) cluster works A master-slave database cluster, also known as a master-slave setup, enhances database system availability and fault tolerance. The primary database handles all operations (CRUD), while the replica serves read-only functions. The primary server maintains a log of changes (Binary log) and communicates with replicas to keep them updated. Replicas, potentially located in different places, receive updates, and apply changes for synchronization, contributing to an improved user experience.

What is the difference between the Primary node and the Replica node regarding the application A replica node is a copy of the primary node, they provide redundant copies of the application codebase to protect against hardware failure and increase capacity to serve read requests like searching or retrieving a document.

ISSUES

Firewalls are security devices that monitor traffic according to predefined rules. In this setup, two firewalls are crucial: one between the client and the ISP (client-side firewall) and another between the ISP and the server (network firewall).

HTTPS, short for HyperText Transfer Protocol Secure, is a protocol that employs encryption to ensure the secure exchange of data between a user's browser and the web server, safeguarding confidentiality.