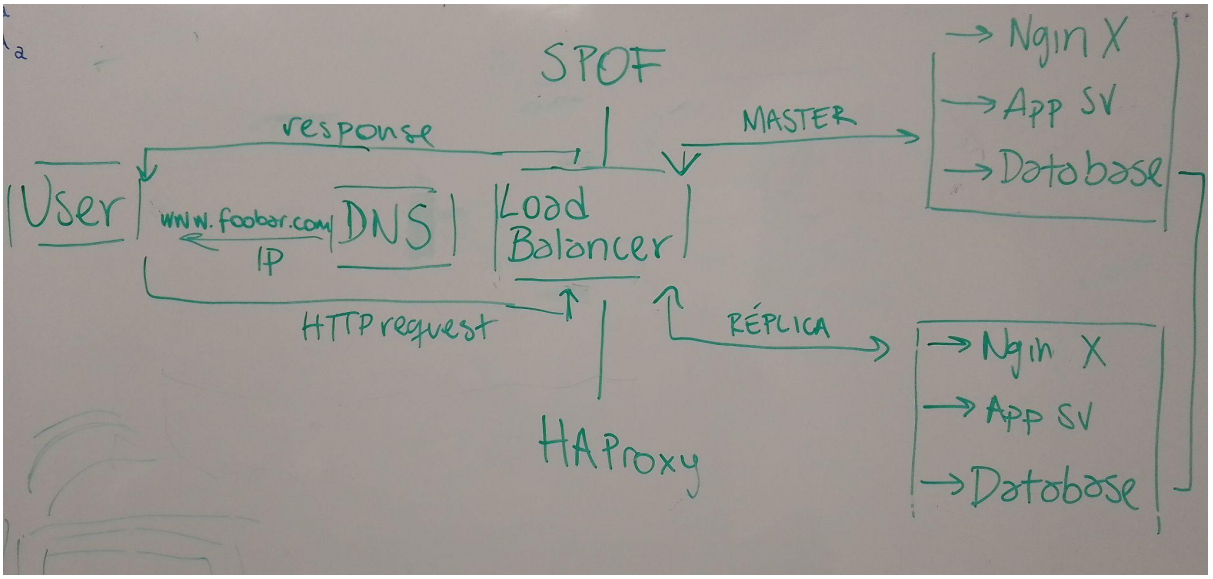


To the previous process of requesting, some new elements have been added to the infrastructure. We introduced the load balancer which is the base of this architecture, also we now have the same main server and a replica.

The load balancer can be hardware or just software. In this case it's software that, through the desired algorithm, distributes the requests depending on the algorithm behind it, which in this case is the Round Robin algorithm.
The Round Robin algorithm consists of distributing the request on turns for each server, in a cyclical way.
The response goes through the load balancer as well, because usually the load balancer makes encryption and certificate validation for HTTPS protocol. On request and on response.

If the load balancer fails, everything else will do, that’s why it’s the single point of failure, because requests won’t reach servers.

The new server is an exact replica of the main server, however, the only difference is that the main server can edit its own database and also the replica database. The replica can only edit its own database, so the main database checks if the replica has changed, and then changes itself.  Replica has no power over main. That's why it's called a master-slave relationship.

In this case we design an active-active setup, we can also use an active passive design, the differences between those types of setups are the way they operate.
In the active-active solutions are two or more active services this way we can improve scalability and provide a high availability.

In the active-passive solutions two instances are handled, one active another standby(passive), if the active instances fail, a cluster brings passive instances to active and services are switched.

Our design can have some security issues that can be solved by adding a firewall and applying the HTTPS protocol.
A firewall is a division between a private network and an outer network,firewall allows, limits and can block network traffic,all those rules must be pre configured in software or hardware. Firewalls can be useful to allow remote access to private networks.
HTTPS protocol is a encrypting http, the webpage will send over ssl certificate which contains the public key necessary to start the secure sessions.