

## **Distributed Web Infrastructure**

The specifics about this structure:

**For every additional element, why you are adding it:**

In this web infrastructure, we've added a load balancer plus 2 extra servers.

The reason being is simple. As traffic on a website (in our case: foobar) begins to grow, one web server alone cannot handle all these corresponding requests. Therefore, we have to use two or more servers to be able to handle such a scenario.

We've also added a load balancer to distribute incoming traffic across multiple servers. Which increases efficiency, reliability & availability of the site. If one of the servers crashes all of a sudden, the load balancer will automatically redirect the remaining traffic to the remaining web servers.

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

- Round Robin (most common) — Requests are distributed across the group of servers sequentially. Request 1 is directed to server 1, request 2 to server 2, and so forth.
- Least Connections — Before redirecting a request to a server, the Load Balancer computes which server has the least connections, and then sends the request there.
- IP Hash — The IP address of the client is used to determine which server the request will be directed to. For example, all IP addresses from 100.100.100.100–400.400.400.400 will be sent to server 3.

**How our load-balancer is enabling an Active-Active or Active-Passive setup, explain the difference between both.**

In an active-passive configuration, the server load balancer recognizes a failed node and redirects traffic to the next available node. In an active-active configuration, the load balancer spreads out the workload's traffic among multiple nodes.

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

Master-slave replication enables data from one database server (the master) to be replicated to one or more other database servers (the slaves). The master logs the updates, which then ripple through to the slaves. If the changes are made to the master and slave at the same time, it is synchronous. The difference between the Primary node and the Replica node in regard to the application is that, the primary node is regarded as the authoritative source, and the replica node (also known as slave) databases are synchronized to it(Master).

### The drawbacks:

#### **No monitoring:**

There is no monitoring client in the above infrastructure model. Therefore, one cannot track the availability, performance, and resource utilization of hosts, containers & other backend components.

#### **Security Issues:**

In this infrastructure, there is no firewall, or no HTTPS. Meaning that, it lacks a filtration system for the data that is attempted by entering your computer system/network. This infrastructure is more known to threats such as malicious code.

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