## ALX - 0x09. Web Infrastructure Design

## Task 0: Simple web stack

**What is a server**; A server is a system, virtual machine, or software that provides services and functionality to other devices or programs, known as "clients."

What is the role of a domain name; A domain name serves as a user-friendly label to identify resources on the Internet, such as computers, networks, and services. Instead of numerical IP addresses, it makes it easier for people to remember and access websites.

What type of DNS record is "www" in www.foobar.com; The "www" in www.foobar.com is a 'CNAME' (Canonical Name) record.

What is the role of the Web Server; The Web Server's role is to store, process, and serve website content, including codebases, web pages (HTML/CSS), and other files, to users over the HTTP protocol.

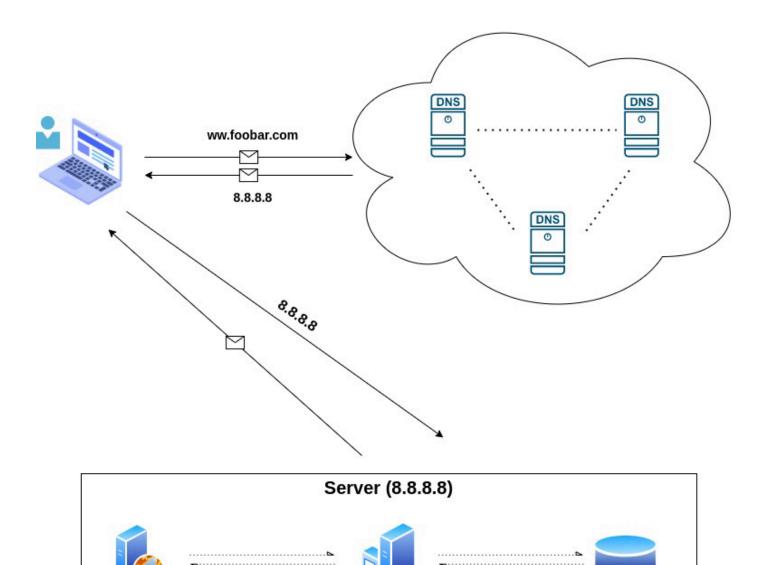
What is the role of the application server; The application server generates dynamic content by executing server-side code, such as JSP, Ajax, PHP, etc., and handles business logic and interactions with databases.

What is the role of the database; Database role is to efficiently and systematically manage data in a well-organized manner. It allows for easy addition, access, updating, management, and deletion of data.

What is the server using to communicate with the user requesting the website; The server communicates with the user's computer through the HTTP protocol.

## **Issues:**

- **A. SPOF (Single Point of Failure**); A single point of failure is a vulnerable component of a system that, if it fails, can cause the entire system to stop functioning. Examples include having a <u>single server that houses</u> <u>the web, application, and database, making the system more</u> susceptible to failure.
- **B.** Downtime when maintenance is needed (like deploying new code, web server restarts); During maintenance or updates, the downtime period might be more extended than expected, primarily if the server relies on a single code base that becomes unavailable. This results in a negative user experience and loss of traffic.
- **C. Cannot scale with too much incoming traffic**; Without a load balancer, the domain name points directly to a single server, making it challenging to handle increased traffic efficiently. This can lead to poor user experience and limit the website's ability to accommodate more users.



Application Server

Code base

Database

MySQL

Web Server

Nginx