

# Web infrastructure design

## Task 0

### **What is a server?**

A server is a piece of computer hardware or software that provides functionality for other programs or devices, called "clients".

### **What is the role of the domain name?**

A domain name plays a crucial role in the functioning of the internet by providing a human-readable way to identify and access resources on the web. It serves as a user-friendly alias for the numerical IP addresses that computers use to locate each other on the network

### **What type of DNS record `www` is in [www.foobar.com](http://www.foobar.com) ?**

"cName record"

### **What is the role of the web server?**

It is a software application or a hardware device that handles incoming requests from clients (typically web browsers) and responds by serving web pages, files, or other resources.

### **What is the role of the application server?**

It helps the clients to process any requests by connecting to the Database and returning the information back to web servers.

The main purpose of the application server is given below:

- A mechanism for reducing the size and complexity of the client programs.
- For the need to cache and control the data flow for better performance.
- A mechanism for implementing security for data as well as end-user traffic.

### **What is the role of the database?**

A database plays a central role in managing and organizing data in a structured and efficient manner. It serves as a persistent, organized storage system for data, allowing applications to store, retrieve, and manipulate information

### **What is the server using to communicate with the computer of the user requesting the website?**

The server communicates through HTTP protocol

## **Explain what the issues are with this infrastructure**

- **SPOF**

There are a lot of single points of failures starting from having one server that contains only one web server, application server, and database. A single point of failure is a part of a system that, if it fails, will stop the entire system from working.

- **Downtime when maintenance needed**

The downtime period is longer than expected because the server is dependent on one code base which at that moment isn't available. Users will therefore not be able to access the website and its contents which results in a bad user experience and loss of traffic

- **Cannot scale if too much incoming traffic**

The system doesn't contain a load balancer which allows handling increased loads easier. This poses an issue to the volume of users trying to access the website's content and can lead to poor user experience or rather set a limit to the number of users the website will be able to handle.

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