

**What is a server:** A server is a computer program or device that provides a service to another computer program and its user, also known as the client. A server is a type of computer that is equipped with software and hardware to offer services to other computers connected to it.

**What is the role of the domain name**: Domain names serve to identify Internet resources, such as computers, networks, and services, with a text-based label that is easier to memorize than the numerical addresses used in the Internet protocols. Domain name, often referred to as “web address”, is the address that people type into a browser address bar to find your website.

**What type of DNS record www is in** [**www.foobar.com**](http://www.foobar.com)**:** www is a CNAME (Canonical Name) DNS record-type in www.foobar.com since it also points to the same IP address as foobar.com and if the IP address changes we can only record changes in the DNS A record of foobar.com. A Canonical Name (CNAME) record is a type of resource record in the Domain Name System (DNS) that maps one domain name (an alias) to another (the canonical name)

**What is the role of the web server**: The primary role of a web server is to store, process, and deliver requested information or webpages to end users. It uses: Physical Storage: All website data is stored on a physical web server to ensure its safety.

The web server is an essential part of the internet. It is responsible for hosting websites and providing access to web content.

“Web Server” can be refer to both software or hardware.

Web Server as a hardware is a computer that stores web server software and a website’s component files (for example, HTML documents, images, CSS stylesheets, and JavaScript files). A web server connects to the Internet and supports physical data interchange with other devices connected to the web.

Web Server as a software includes several parts that control how web users access hosted files. Or you can call it is an HTTP server. An HTTP server is software that understands URLs (web addresses) and HTTP (the protocol your browser uses to view webpages). An HTTP server can be accessed through the domain names of the websites it stores, and it delivers the content of these hosted websites to the end user’s device.

**What is the role of the application server:** The function of the application server is to act as host (or container) for the user's business logic while facilitating access to and performance of the business application. An application server is a server that hosts applications or software that delivers a business application through a communication protocol.

**What is the role of the database**: The use of a computer database is typically involved in efficient data management. A shared, integrated computer structure, a database stores the following: End-user data i.e. raw data relevant to the end user. Metadata—the data about data, through which end-user data is integrated and managed. The role of a DBMS is to act as a storehouse of a company's payroll, orders, receivables and other important records.

**What is the server using to communicate with the computer of the user requesting the website:** Web servers and HTTP (a primer) Web browsers communicate with web servers using the HyperText Transfer Protocol (HTTP). When you click a link on a web page, submit a form, or run a search, the browser sends an HTTP Request to the server.

Web browsers communicate with web servers using the HyperText Transfer Protocol (HTTP). When you click a link on a web page, submit a form, or run a search, the browser sends an HTTP Request to the server.

This request includes:

A URL identifying the target server and resource (e.g. an HTML file, a particular data point on the server, or a tool to run).

A method that defines the required action ( GET, POST, PUT, PATCH,…)

Additional information can be encoded with the request (for example, HTML form data, URL parameters, or cookies)

Web servers wait for client request messages, process them when they arrive, and reply to the web browser with an HTTP Response message. The response contains an HTTP Response status code indicating whether or not the request succeeded (e.g. “200 OK" for success, "404 Not Found" if the resource cannot be found, "403 Forbidden" if the user isn't authorized to see the resource, etc.). The body of a successful response to a GET request would contain the requested resource.

When an HTML page is returned it is rendered by the web browser. As part of processing the browser may discover links to other resources (e.g. an HTML page usually references JavaScript and CSS pages), and will send separate HTTP Requests to download these files.

Issues That Can Affect A Simple Web Stack:

1. SPOF;

Single Point Of Failure (SPOF), is a part of the system that, if it fails the whole entire system stops from working.

The above infrastructure has no redundancy that can help in avoiding SPOFs, hence, any single failure in any part of the system will cause all the system to stop.

2. Downtime when maintenance needed (like deploying new code web server needs to be restarted);

The Infrastructure above, downtime will occur because we only have one server and one database, that is used to make the deployment and maintenance hence no way users will access the website in that period.

3. Cannot scale if too much incoming traffic;

The above infrastructure cannot scale if there’s too much incoming traffic because no second server in the system to share loads and the system will be overloaded.