Web infrastructure design Project
Task 0: `0-simple_web_stack`
`Url link =` 0-simple_web_stack - Google Docs
`Done by = Temesgen Abdissa`

Definitions and Explanations

1. What is a server;?

=>Server Definition: A server refers to a physical device, a virtual entity, or a software program designed to offer specific functions to other programs or devices, known as "clients."

2. What is the role of a domain name?

=>Domain Name Role: The role of a domain name lies in identifying Internet resources, including computers, networks, and services. It employs a text-based label that is simpler to remember than numerical IP addresses, making it easier for users to access these resources.

3. What type of DNS record www is in www.foobar.com;

=> DNS Record for "www" in www.foobar.com: The DNS record for "www" in the domain www.foobar.com corresponds to a 'CNAME' (Canonical Name) record.

4. What is the role of the Web Server;

=>Web Server Role: The primary function of a Web Server involves storing, processing, and displaying the content of a website, which encompasses the codebase. Additionally, it delivers web pages, primarily consisting of HTML and CSS, to users via the HTTP protocol.

5. What is the role of the application server?

=> Application Server Role: The application server's role revolves around producing dynamic content by executing server-side code, examples of which include JSP, Ajax, and PHP. This capability enables the creation of interactive and personalized experiences for users.

6. What is the role of the database?

=> Database Role: The purpose of a database centers on systematic and efficient data management. It organizes data in a structured manner, facilitating seamless addition, access, updating, management, and deletion of data.

7. What is the server using to communicate with the computer of the user requesting the website;

=>Server-Computer Communication for Website Requests: The server employs the HTTP (Hypertext Transfer Protocol) to establish communication with the computer of the user who is requesting access to a website.

Issues

1. Single Point Of Failure (SPOF): Numerous vulnerabilities arise due to the concentration of critical components within a single server, encompassing the web server, application server, and database. This configuration introduces the risk of a single point of failure, a component whose malfunction can bring the entire system to a halt.

***2. Downtime During Maintenance:* Downtime becomes a significant concern during maintenance instances, particularly when implementing updates that necessitate restarting the web server. The potential for extended downtime arises from the server's dependence on a sole code base, which might be temporarily unavailable. Consequently,**

users are left incapable of accessing the website and its content, resulting in an unfavorable user experience and a subsequent decline in web traffic.

3. Inability to Scale with High Traffic: The existing setup, in which the domain name directly directs traffic to the server without an intermediary load balancer, presents scalability challenges. The absence of a load balancer, designed to distribute increased loads seamlessly, creates a predicament when confronted with a surge in incoming traffic. This deficiency impairs the website's ability to cater to a growing number of users effectively, potentially leading to suboptimal user experiences and imposing limitations on user capacity.

0-simple_web_stack_Design