

0x09-web_infrastructure_design

Task0 explanations:

Infrastructure Components:

1. **Server:**
 - The server (e.g., IP: 8.8.8.8) is a computer storing website data and serving it to users. It's where the website lives.
2. **Domain Name (foobar.com):**
 - The domain name "foobar.com" is like the address of the website. It helps users find it.
3. **DNS Record ("www"):**
 - The DNS record "www" in "www.foobar.com" points to the server's IP address (8.8.8.8) and acts as a signpost for finding the website.
4. **Web Server (Nginx):**
 - Nginx serves web pages. It receives user requests and sends back the pages.
5. **Application Server:**
 - The application server manages dynamic content and interacts with the database.
6. **Application Files (Code Base):**
 - These are instructions for building the website, used by the application server.
7. **Database (MySQL):**
 - The database stores and retrieves data like user profiles, posts, and comments.

Communication:

- User enters "www.foobar.com" in their browser.
- DNS ("www") points them to the server's IP (8.8.8.8).
- Nginx receives the request and communicates with the application server.
- Application server uses code files and MySQL to create web pages.
- Nginx sends the web page back to the user's computer.

Issues with this Infrastructure:

- **Single Point of Failure (SPOF):**
 - If the server (8.8.8.8) has issues, the entire website goes down, just like a treehouse falling if the tree trunk breaks.
- **Downtime during Maintenance:**
 - Updates or code changes may require web server restarts, causing downtime.
- **Limited Scalability:**
 - The setup may struggle to handle heavy traffic, and it's challenging to add more servers for increased capacity.