Explanation of Infrastructure Components

1. What is a server?

A server is a physical or virtual machine that provides services to other devices, such as hosting websites, storing data, or running applications.

2. Role of the domain name

The domain name `foobar.com` acts as a human-readable identifier, making it easier for users to access the server without remembering its IP address.

3. Type of DNS record for `www` in `www.foobar.com`

The `www` in `www.foobar.com` is a **CNAME** (Canonical Name) record pointing to an A record that resolves to the server IP `8.8.8.8`.

4. Role of the web server

The web server (Nginx):

- Handles incoming HTTP/HTTPS requests.
- Serves static files like HTML, CSS, and JavaScript.
- Acts as a reverse proxy to forward dynamic requests to the application server.

5. Role of the application server

The application server:

- Processes backend business logic (e.g., retrieving user data, processing forms).
- Interfaces with the database for data storage and retrieval.

6. Role of the database

The database (MySQL):

- Stores and organizes the data used by the application (e.g., user details, product information).
- Provides efficient queries for reading/writing data.

7. Communication with the user

The server communicates with the user's browser using the **HTTP/HTTPS protocol**, transferring data packets over the internet.

Issues with the Infrastructure

1. **Single Point of Failure (SPOF)**:
    - If the server crashes, the entire website becomes unavailable.
2. **Downtime During Maintenance**:
    - Tasks like updating code or restarting the server will make the website temporarily inaccessible.
3. **Scalability Issues**:
    - The single server cannot handle a significant increase in traffic, leading to slow performance or outages.