Task 2: Definitions and Explanations

1. Why add additional elements? We've introduced three new components: individual firewalls for each server to enhance security, an SSL certificate for server www.foobar.com to enable secure HTTPS connections, and three monitoring clients to gather logs for analysis via Sumologic.

2. What are firewalls for? Firewalls serve as network security systems that monitor and regulate incoming and outgoing network traffic based on predefined security rules. Essentially, they create a barrier between trusted and untrusted networks.

3. Why serve traffic over HTTPS? Traffic is now served over HTTPS to ensure security. Unlike HTTP, which transfers data in plain text, HTTPS encrypts data using Transport Layer Security (TLS), safeguarding it from unauthorized access.

4. What is monitoring used for? Monitoring enables proactive detection and diagnosis of web application performance issues, helping maintain functionality.

5. How does the monitoring tool collect data? The monitoring tool gathers logs from the application server, MySQL Database, and Nginx web server. These logs document system events with timestamps, aiding in system analysis.

6. How to monitor web server QPS? To monitor web server Query Per Second (QPS), I would track its performance from both network and application perspectives, ensuring efficient handling of queries.

Issues:

A. Why SSL termination at the load balancer level is problematic: SSL decryption demands significant resources and CPU power. Offloading decryption to the load balancer frees up server resources for application tasks, though I currently do not perceive the issue clearly (I will update this point).

B. Why relying on a single MySQL server for write operations is problematic: A single point of failure in the MySQL server means no data can be added or updated, potentially rendering some application features inoperable.

C. Why uniform server components pose a challenge: Identical server configurations increase vulnerability. A bug in one component affects all servers, amplifying the impact of any system.