

Task 2. Definitions and Explanations

- For every additional element, why you are adding it

we have added three new components; a firewall for each server to protect them from being attacked and exploited, 1 SSL certificate to server `www.foobar.com` over HTTPS and three monitoring clients that will collect logs and send them to our data collector Sumologic.

- **What are firewalls for**

Monitoring and controlling incoming/outgoing network traffic.

Filtering data based on predefined security rules.

Preventing unauthorized access, attacks, and data breaches.

Enhancing network security and protecting sensitive information.

- **Why is the traffic served over HTTPS**

Encrypt data during transmission, safeguarding it from eavesdropping.

Ensure data integrity, preventing tampering during transit.

Verify the authenticity of the website, preventing phishing and man-in-the-middle attacks.

Enhance user trust and privacy by securing sensitive information like passwords and payment details.

- **What monitoring is used for**

Keep track of system performance, health, and availability.

Detect and resolve issues before they impact users.

Optimize resource usage and ensure efficient operations.

Provide insights for decision-making and future planning.

Enhance security by identifying and responding to anomalies.

Maintain high-quality user experiences and service reliability.

- **How the monitoring tool is collecting data**

Monitoring tools collect data through agents, log files, APIs, network analysis, and more.

This data is processed, analyzed, and presented in user-friendly formats to track system

performance, identify issues, and make informed decisions.

- **Explain what to do if you want to monitor your web server QPS**

By using monitoring software or tool collect web server QOS and analyst it what the issues

A. Why terminating SSL at the load balancer level is an issue

Here's why it can be problematic

Loss of End-to-End Encryption

Data Privacy Concerns

Increased Attack Surface

Certificate Management Complexity

- Why having only one MySQL server capable of accepting writes is an issue

Because once it is down it means data can be added or updated meaning some features of the application won't work.

- Why having servers with all the same components (database, web server and application server) might be a problem

Having servers with identical components can lead to resource waste, scalability issues, maintenance complexity, and inefficient performance due to lack of specialization. It can hinder optimal resource allocation and flexibility for growth.