



0x09. Web infrastructure design

Overview :

Three server web infrastructure that hosts the website (www.foobar.com) must be secured, serve encrypted traffic, and be monitored.

What is a Firewall ?

- a firewall is a network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules
- A firewall typically establishes a barrier between a trusted network and an untrusted network, such as the Internet

What is an SSL certificate ?

- An SSL certificate is a digital certificate that authenticates the identity of a website and encrypts data exchanged between the website and its visitors, ensuring secure communication over the internet.

What are monitoring clients ?

- Monitoring clients are software agents or components installed on servers, devices, or applications to collect data about their performance, availability, and health status for monitoring purposes.

What are monitoring services ?

- Monitoring services are third-party platforms or tools that remotely monitor the performance, availability, and health of systems, networks, applications, or services, providing insights and alerts to ensure optimal operation and reliability.

Why is the traffic served over HTTPS ?

- Traffic is served over HTTPS for encryption, ensuring secure and private data exchange between users and websites.

What monitoring is used for ?

- Monitoring is used to track performance, detect faults, ensure security, and gather insights for efficient operation and decision-making.

How is the monitoring tool collecting data ?

- Monitoring tools collect data by periodically querying system metrics, logs, or APIs, or by deploying agents on target systems to gather real-time information about performance, availability, and health parameters.

What to do if you want to monitor your web server QPS?

- To monitor web server queries per second (QPS), you can install monitoring software like Prometheus or use built-in server metrics tools. Then, configure the monitoring tool to collect QPS data from your web server, typically by instrumenting it with exporters or agents. Finally, visualize and analyze the collected QPS metrics using dashboards or alerting mechanisms to track server performance effectively.

Why terminating SSL at the load balancer level is an issue?

- Terminating SSL at the load balancer level can be an issue because it requires decrypting and re-encrypting the traffic, adding processing overhead to the load balancer and potentially exposing sensitive data if not handled securely.

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

- Having only one MySQL server capable of accepting writes is an issue because it creates a single point of failure. If this server goes down, all write operations to the database will fail, leading to service disruptions and potential data loss.
- Additionally, it limits scalability and performance as the workload in

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

- Having servers with all the same components can be problematic because it lacks diversity and increases the vulnerability to a single point of failure
- If a critical issue arises that affects one component, it may impact all servers simultaneously, leading to widespread service disruptions or outages.