1. **For every additional element, why you are adding it**
   **firewall**
   - to monitor and control incoming and outgoing traffic.
   SSL
   - for secure communication between the user's browser and the web servers.
   monitoring
   - collecting, and analyzing data to ensure the efficient operation, performance, and availability of systems and applications.

- **What are firewalls for**
  **-** to monitor and control incoming and outgoing network traffic based on predetermined security rules or policies.
- **Why is the traffic served over HTTPS**
  **-** encryption to secure the data transmitted between the client (user's browser) and the server, protecting it from eavesdropping, tampering, and data manipulation.
- **What monitoring is used for**
  **-**collecting, and analyzing data to ensure the efficient operation, performance, and availability of systems and applications.
- **How the monitoring tool is collecting data**
  - Monitoring tools collect data from various sources using different methods:
  Agents: Software agents installed on the monitored systems gather performance metrics, resource utilization, and other relevant data, transmitting it to a central monitoring server or platform.

  -APIs: Monitoring tools can interact with system APIs to retrieve data such as CPU usage, memory utilization, network statistics, and application-specific metrics.

  -Log Parsing: Parsing log files generated by servers and applications to extract relevant information, such as error logs, access logs, and performance-related data.

  -Network Monitoring: Capturing and analyzing network traffic to monitor performance, detect anomalies, and gather data about network devices and communications.

  -Synthetic Monitoring: Simulating user interactions or executing predefined test scripts to measure response times, availability, and functionality of applications.
- **Explain what to do if you want to monitor your web server QPS**
  -Set up alerts or thresholds to be notified if the QPS exceeds or falls below acceptable levels.
  -Monitor and analyze the QPS metrics over time to identify trends, peak usage periods, and potential performance issues.

## issues are with this infrastructure:

- **Why terminating SSL at the load balancer level is an issue**
  -if the communication between the load balancer and backend servers occurs over an

insecure network or within an untrusted environment, there is a higher risk of unauthorized access, data interception, or tampering.

- **Why having only one MySQL server capable of accepting writes is an issue**
  -If this server fails or experiences issues, it can result in a complete outage or a significant degradation in the application's functionality.
  -Both leader and follower must commits before the right is considered a successful, If the follower delays, it might increase the system's wait time.
- **Why having servers with all the same components (database, web server and application server) might be a problem**
  -lead to a lack of separation of concerns and increase the potential impact of failures or performance issues and  limits flexibility in terms of scaling resources independently