3. Scale up

Additional Server:

Why it's added: The additional server provides redundancy and improves fault tolerance. It can be used to host any component (web server, application server, or database) and ensures that the system can handle increased loads while maintaining high availability.

Additional Load-Balancer (HAProxy) Configured as a Cluster:

Why it's added: Configuring a load balancer cluster ensures high availability and fault tolerance. If one load balancer fails, the other one takes over seamlessly, preventing disruptions to incoming traffic. It also improves scalability by distributing traffic across multiple load balancers.

Split Components (Web Server, Application Server, Database) with Their Own Server:

Why they are split:

Web Server: Separating the web server allows for dedicated handling of HTTP requests, serving static content, and managing SSL termination. It also simplifies maintenance and scalability efforts.

Application Server: Isolating the application server enables efficient execution of application logic, independent scaling, and ease of maintenance. It ensures that changes or updates to the application do not impact other components directly.

Database: Running the database on its own server improves security, scalability, and maintenance. It allows for dedicated resources for data storage and processing, and data access can be controlled more effectively.

Benefits of the Updated Infrastructure:

- Improved fault tolerance and high availability with redundant servers and load balancers.
- Enhanced scalability through the ability to independently scale each component.
- Improved security by isolating components and minimizing the attack surface.
- Simplified maintenance and troubleshooting with clear separation of responsibilities.

This updated infrastructure design addresses the need for redundancy, scalability, and improved security, providing a more robust and reliable foundation for the system.