

DevOps Homework Week 3

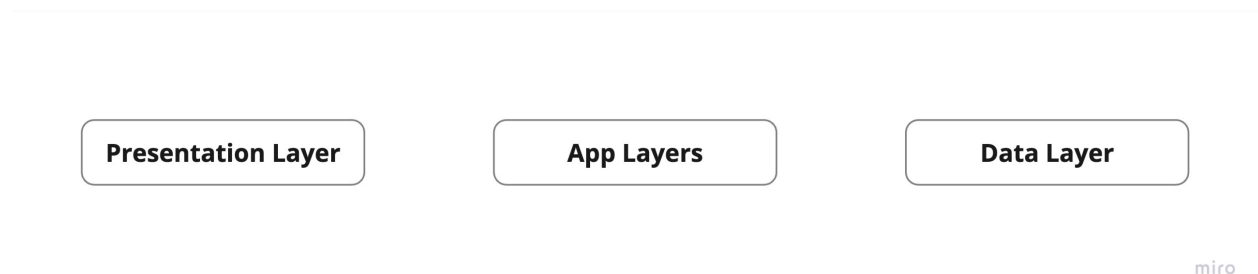
Slack-like System Architecture Design

Description at Top-Level

The architecture suggested for the system similar to Slack is a mix of **Microservices Architecture** and **Three-Tier Architecture**. The system will be divided into small, separate services, each responsible for a specific function, such as:



These services will be organized into three levels:



Presentation Layer

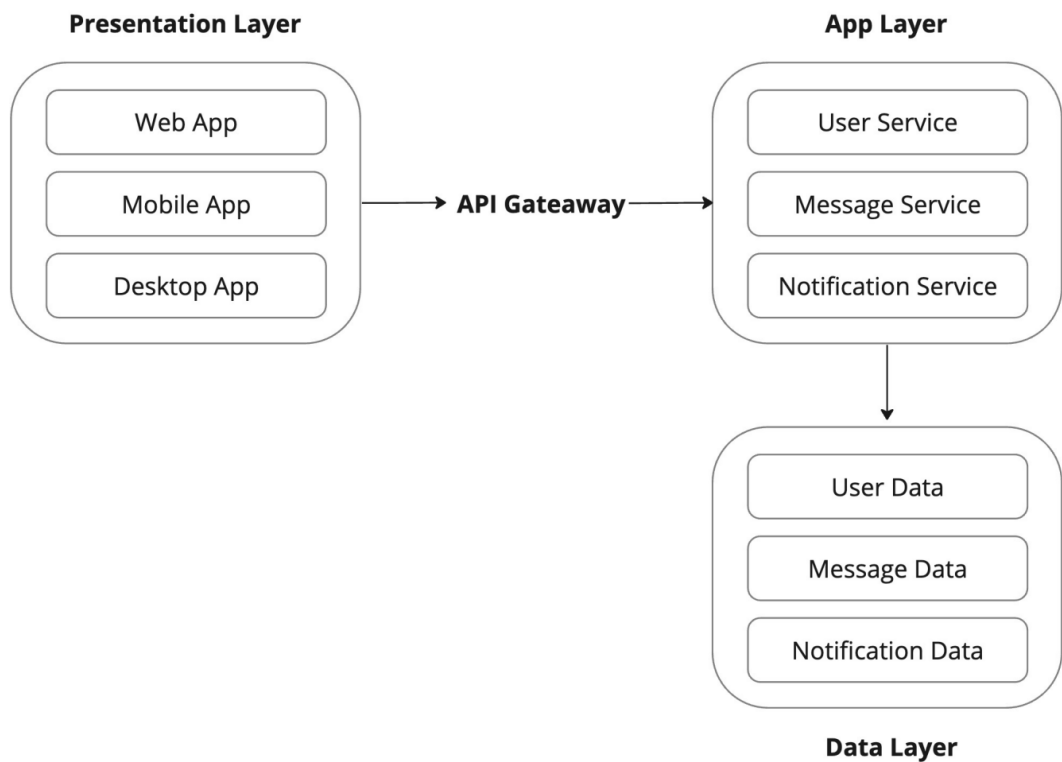
This level will be responsible for the user interface and user experience. It will include a web application, mobile applications and a desktop application. These applications will communicate with the Application Layer through an API Gateway.

Application Layer

This level will consist of multiple microservices, each responsible for a specific function. These microservices will communicate with each other and with the Data Layer.

Data Layer

This level will be responsible for storing and retrieving data. It will include multiple databases, each optimized for a specific type of data, such as user data, messages, and notifications.



Detailed Description of Each Element of Architecture

Presentation Layer

1. **Web App:** This will be a single-page application. It will communicate with the application layer through the API Gateway.
2. **Mobile App:** These will be applications developed for Android and iOS. They will communicate with the Application Layer through the API Gateway.
3. **Desktop App:** This will be an application developed for Desktops. It will communicate with the Application Layer through the API Gateway.

API Gateway: This will be a server that connects the Presentation Layer and the Application Layer. It will guide client requests to the appropriate microservices.

Application Layer

1. **User Service:** This microservice will be responsible for managing user accounts including registration, login, and profile management.
2. **Message Service:** This microservice will be responsible for handling messages, including sending, receiving and storing messages.
3. **Notification Service:** This microservice will be responsible for sending notifications to users, such as new message notifications and mentions.

Data Layer

1. **User Database:** This database will store user data, such as usernames, passwords, and profile information.
2. **Message Database:** This database will store messages.
3. **Notification Database:** This database will store notifications, such as new message notifications and mentions.

Conclusion

The suggested architecture for the system similar to Slack combines the advantages of **Microservices Architecture** and **Three-Tier Architecture** to create a scalable, flexible and maintainable system. This architecture will enable the development of a robust and efficient system similar to Slack that can handle a large number of users.