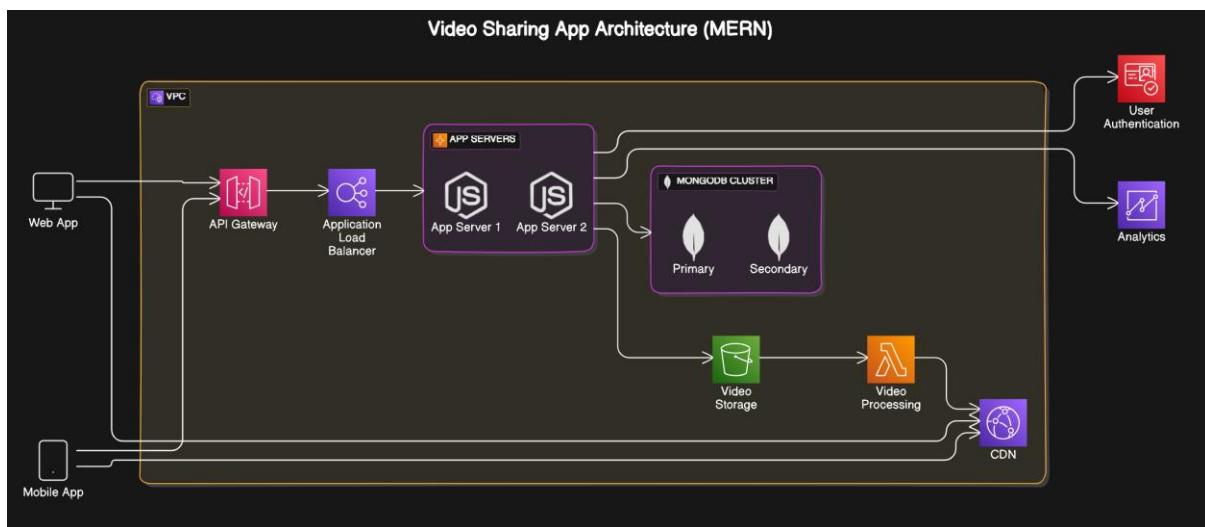


Requirement Gathering and Analysis Phase

Solution Architecture

Date	04 July 2024
Team ID	SWTID1720101616
Project Name	Project - Video Sharing App using MERN
Maximum Marks	

Solution Architecture Diagram:



The architecture diagram for the video sharing app built using the MERN stack includes several components. Here's an explanation of each component:

- 1. Web App / Mobile App:**
 - **Web App:** This represents the frontend part of the application accessible via web browsers.
 - **Mobile App:** This represents the mobile version of the application accessible via mobile devices.
- 2. API Gateway:**
 - Acts as the entry point for all client requests (both from the web and mobile apps). It handles all the incoming API requests and routes them to the appropriate services.
- 3. Application Load Balancer:**
 - Distributes incoming network traffic across multiple application servers to ensure no single server becomes overwhelmed. This helps in achieving better fault tolerance and performance.

4. **App Servers:**
 - **App Server 1 and App Server 2:** These servers host the backend of the application, typically running on Node.js. They handle the business logic, process requests, and communicate with the database and other services.
5. **MongoDB Cluster:**
 - **Primary and Secondary:** The MongoDB cluster is used for data storage. It consists of a primary database server (handling all write operations) and secondary servers (handling read operations and providing redundancy).
6. **Video Storage:**
 - This is a storage service (likely cloud-based, such as AWS S3) where the videos uploaded by users are stored.
7. **Video Processing:**
 - This component handles the processing of uploaded videos, such as encoding, thumbnail generation, and possibly other tasks like adding watermarks or generating different video resolutions. It is shown as a Lambda function, indicating serverless processing.
8. **CDN (Content Delivery Network):**
 - Distributes the video content globally to ensure fast delivery and low latency for users regardless of their geographical location. This improves the user experience by providing quick access to video content.
9. **User Authentication:**
 - This service handles the authentication and authorization of users. It ensures that users are who they claim to be and have the appropriate permissions to access certain features.
10. **Analytics:**
 - Collects and analyzes data related to user behavior, video performance, and other metrics. This information can be used to improve the application and provide insights for business decisions.
11. **VPC (Virtual Private Cloud):**
 - The diagram shows that all the components are within a VPC, which provides network isolation and security.

Data Flow:

- Users interact with the web or mobile app, sending requests through the API Gateway.
- The API Gateway routes these requests to the Application Load Balancer, which then forwards them to one of the App Servers.
- The App Servers process the requests, interact with the MongoDB cluster for data operations, and handle video uploads to the Video Storage.
- Uploaded videos are processed by the Video Processing component and then made available through the CDN.
- User authentication and analytics are handled by their respective services to ensure security and provide valuable insights.

This architecture ensures scalability, security, and efficient handling of video content.