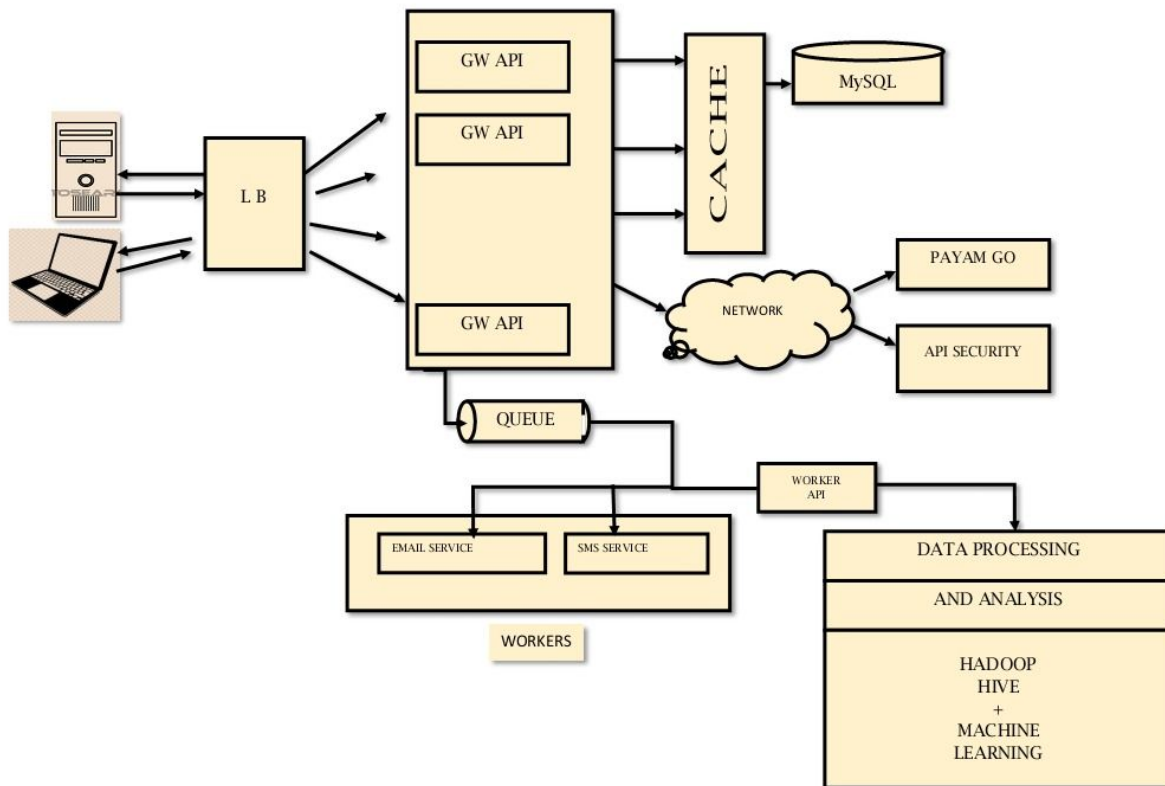# GoWaka System Overview

GoWaka is a bus reservation system for private shared rides and transportation agencies.

Users of Gowaka should be able to search for a journey select from a list of available journey, pick a seat and complete payment to book a seat in that journey.

Components and Interaction

Users from their devices make a request, this request goes through the Load Balancer (LB). The load balance will pick the least busy backend Gowaka API instance to process the request.

GoWaka API interacts with a Cache service that manages most used data loaded from MySQL database. In this way, data processing will be faster in searching and booking for journey.

GoWaka API also interact with API Security to authenticate and authorize users well as PayAmGo Service to make payments.

Asynchronous processes like sending Emails and SMS are managed using event-driven design. When GoWaka wishes to send Email or SMS to a user, it drops the Message in the Message Queue. The Email and SMS worker services will pick message from the queue and process and send emails or SMS.

Analytical data about user interactions with the system and journey histories are also sent to a queue and a worker API pick these messages from the queue and persist it in a Hadoop data warehouse.

While in the Hadoop Data store, big HIVE queries about users journey can be processed. In this way, we can be able to notify users able

- Cheap rides
- Available coupons
- Identify and give special promotions to our regular users

We will also use machine learning to get predictions of what time and place user may want to travel in a particular time/day/month given their travel histories and special promotions will be sent to these users to encourage the to be using Gowaka.