Real-time Anonymous Message Board

Presented by Group 16: Zhixuan Jia, Shayang Zang, Hao Ni

Motivation & Goals

- Motivation:
  - People within the same "group" can anonymously express ideas or opinions.
  - Anonymity encourage people to exchange their idea
- Goal:
  - Users can publish and receive messages in real-time.
  - Deploy the app on a platform which can easily scale up when the number of users grows.
- Code:
  - https://github.com/zhixuan1120/237_Project
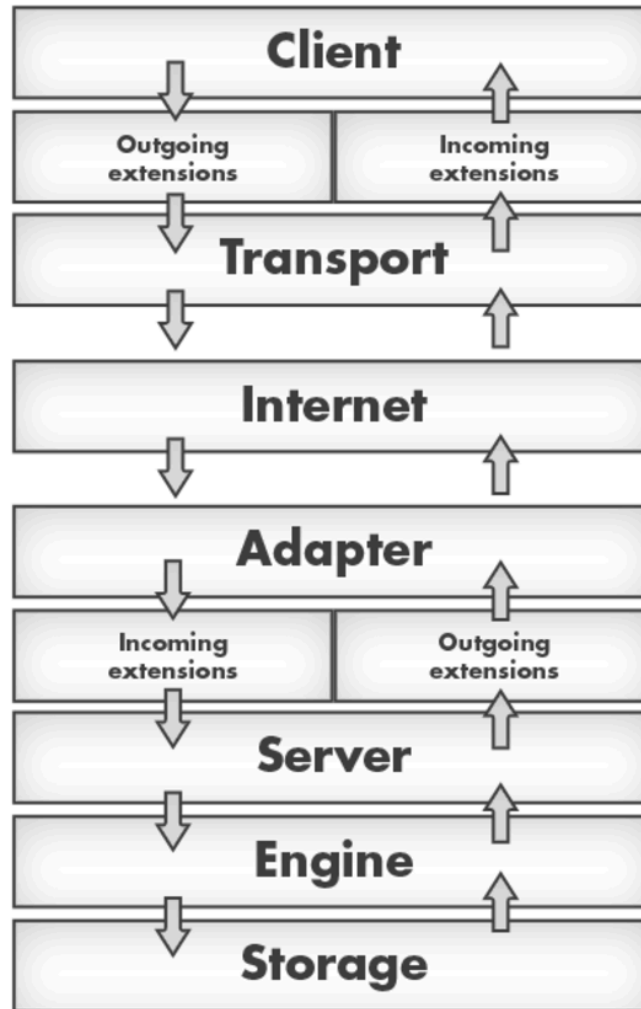 - https://github.com/lishiming9/yipiejihe

Related Work

- Ruby on Rails
  - Open source web application framework.
  - Good for rapid application development.
- Rack
  - Provides a modular and adaptable interface for developing web applications in Ruby.
  - Integrate several middleware handling caching, authentication, catching exceptions…
- Faye (created by James Coglan)
  - Pub/sub messaging system for the web
  - Based on HTTP streaming model in which a long-held HTTP request allows a web server to push data to a browser
- Heroku
  - A container-based cloud Platform as a Service (PaaS).
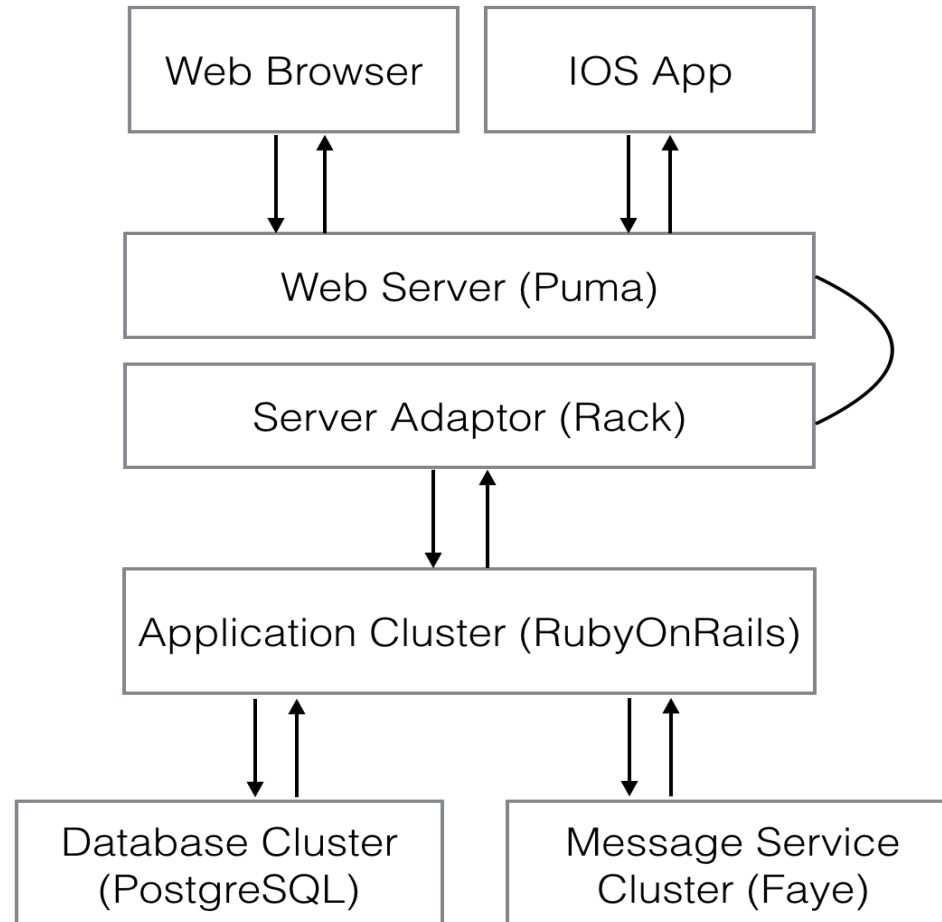 - Used to deploy, manage and scale our app.

System Design Specifics

- Design pattern of the web application is MVC (Model, View, Controller). Enforced by Rails Framework.

- Key components of Faye:
    - A central messaging server: records which clients are subscribed to which channels and handles routing of messages between clients.
    - Client Side and Sever Side Adapter: serializing and deserializing messages

Architecture of Faye Messaging System

System design

Web Browser | IOS App

Web Server (Puma)

Server Adaptor (Rack)

Application Cluster (RubyOnRails)

Database Cluster (PostgreSQL) | Message Service Cluster (Faye)
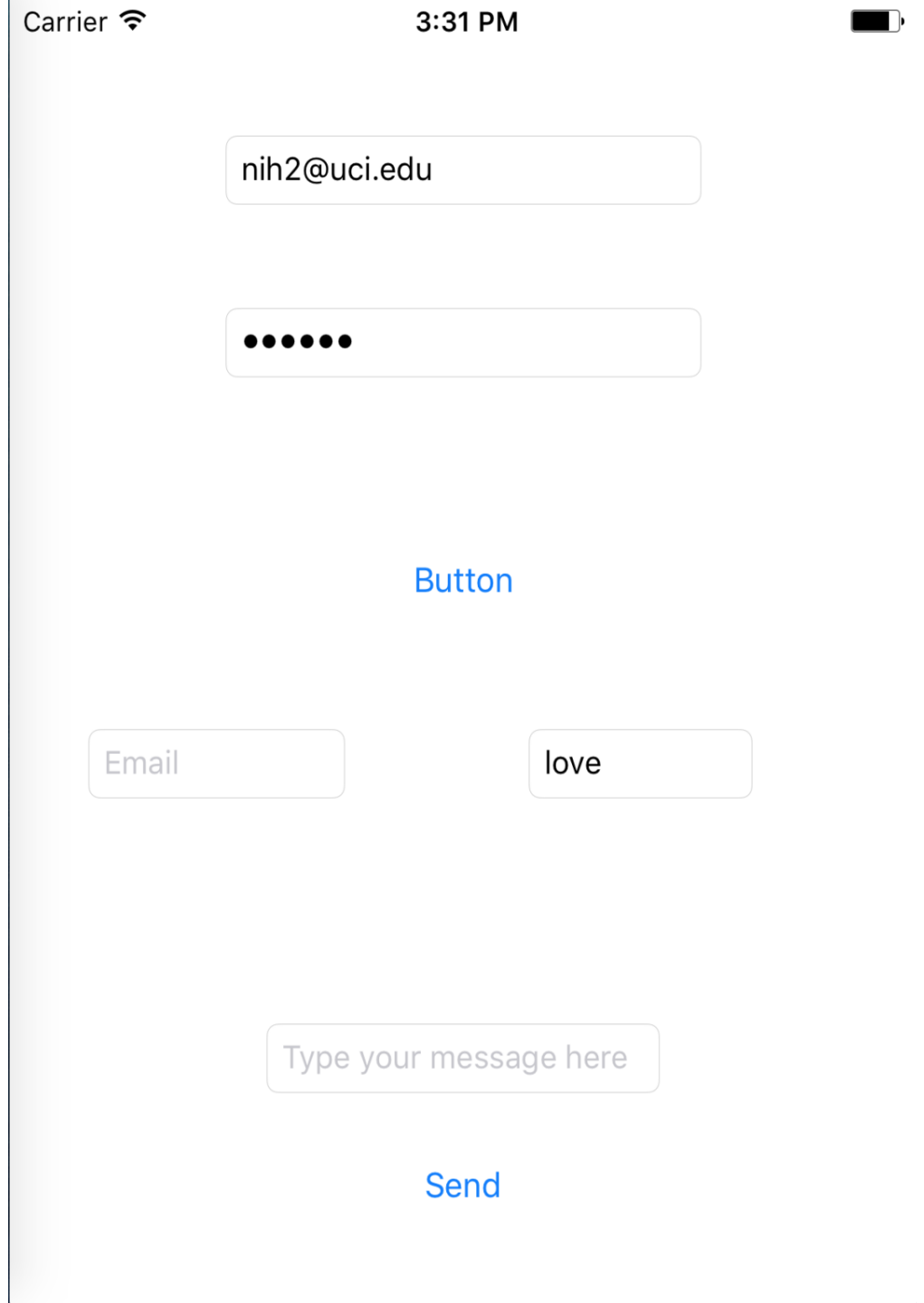
* clusters are made ready to scale

iOS app

- We also offer our service as an iOS app
- For any messaging application, mobile phone is definitely one of the most important target devices.
- Challenges
  - Separate APIs for web and mobile services.
  - Location-based services is hard since users are constantly subscribed and unsubscribed.

iOS client Application mock

Simple one page application to realize
the two basic function:
1. log in
2. send a new message

Testing & Evaluation Plan

- Load testing (only three users currently)
- Try different cloud infrastructure providers
- Integrate better logging system