CS 237 : Middleware For Distributed Systems

Project : Dynamic Communities : “Samudaya”

Team :
Abhishek Nancherla J, 78106700
Ashwin Raman, 33241801
Vaishakh Baragur Narasimhahreddy, 57491291
Motivation and Goal

1. Distributed Publish Subscribe in dynamic communities is essential because all messages published in a community may not be relevant to every user of the community.

2. In today's world where there is an outburst of the number of notifications, relevance of messages to the users is important failing which, messages will be treated as spam or ignored.

3. Our application, which we like to call “Samudaya” aims to leverage a dynamic/static ontology which allows a client to specify their interest; based on the user’s interest, messages are delivered dynamically.
Related Work


5. Publish/subscribe middleware for energy-efficient mobile crowdsensing : Ivana Podnar Zarko, Aleksandar Antonic, Krešimir Pripužić
System Architecture

A high level design of the system.
System Architecture Explained

The system has three main components:

1. **Client (An Android Application)**
2. **Server**
3. **Cloud Messaging Service (Google Cloud Messaging System)**

A simple flow is explained below:

1. A client creates a group (could be friends, apartment communities, project groups) and selects from a list of interests.
2. Users join that group and select a subset from the same list of interests that are part of that group.
3. While sending messages, a flag containing the interest ID is sent along with the message to the server.
4. The server, based on the previous knowledge of the list of interested users, sends the device IDs of the interested parties to GCM.
5. GCM transmits the message to those devices as a push notification.
Intended Test Plan

1. **Scalability**: We intend to use POSTMAN, an advanced REST client to test the scalability of the REST service built on the server side.

2. **UI Testing**: We plan to use UI/Application exerciser Monkey, a well known way of testing Android applications.

3. **A/B Testing**: We plan to test the application in the apartment community we reside in with other students as A/B testers.