

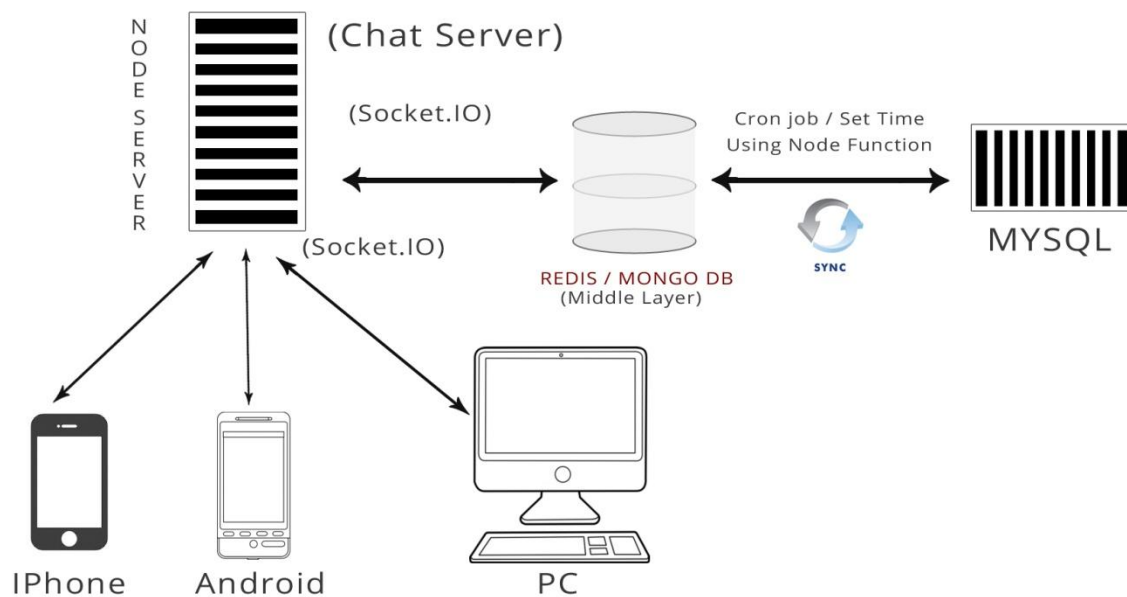
Platform :

The chat server is using node js server implementation that establishes peer to peer connection opening a socket connection between users. That is platform independent. User can chat from windows, iOS, Android, linux etc. Also it is device independent ex. Iphone, Andriod etc.

Technology :

- a) socket.io
- b) node-mysql / node-mongodb
- c) express.js

Chat System Architecture Diagram



Features :

Primary goal is to connecting people in a real-time on a network(or cross network) using TCP/IP socket feature. As node is non-blocking server, It gives advantages to real-time push feature.

One to One communication::

- a) Allows people to communicate with friend/friends in real-time.

- b) Handles people connect(online), disconnect(offline) event.
- c) Handles people message typing event. Its real time like Skype/WhatsApp/Snapchat.
- d) Shows chat history.
- e) Sends out push notification on your iOS/Droid phone.

Group Communication/Group Chat:

- a) Allows people to create chat room/chat group.
- b) Sends out push notification in mobile to group members.
- c) Saves room history.

Sending files (image/audio/video) :

- a) Allows people to send any type of files.
- b) Allows people to capture audio / video/ capture images and send them over the application in compressed format. For video/audio we can use VP8 codec.

Profile settings:

- a) Allows people to setup their profiles.
- b) Upload profile picture
- c) Set profile parameters
- d) Chat settings
- e) Notification settings
- f) Account settings

Basic Setup:

- a) Setup the node environment.
- b) Write a script for run the server in node environment
- c) Write a script for client which is responsible for interacting with server and client.

Process Flow :

- a) Node server/Chat server is central server responsible for the complete chat system.
- b) Socket.io is using TCP/IP socket to transport the messages.
- c) Each client/Device containing a socket.io client, which responsible for maintaining communication with central server.
- d) Using Mysql to store the chat data.
- e) To reduce I/O and Network Roundtrip over MySQL we using a **Middle layer(Redis/MongoDB)** between MySQL and Node Server.
- f) A Cron/Node Function will auto sync The Middle layer data with MySQL in a specific time interval.

Extra features :

1. Integration with the user's Contacts database.
2. Facebook and Twitter integration
3. Ability to take a photo to add as attachment
4. Ability to select a photo from the user's photo library and attach it
5. Ability to select an emoticon/emoji from an in-app library and attach it
6. Sending features that include --
 - a. Sending the same message to more than one individual selected
 - b. Sending the same message to a pre-selected group
7. Integration with the user's SMS system for the sending of short text messages
8. Editing via drag and drop capability
9. Editing messages and contact info using standard keyboard
9. Multiple color themes selectable by user
10. Standard scrolling and swiping capabilities