

Chat App

(Tech Stack + Feasibility Analysis)

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Approach 1 - [Android, XMPP(Ejabberd), Amazon Ec2, Java]

For one-to-one chat,

Pricing: ₹ 30,000/month

Time Period: 2.5 - 3+ months

Future Feasibility: Easily upgradeable with other features, Massive concurrency: 2 000 000 users on 1 node, for more requires distributed servers and clustering.

Requirements : 2 Android Dev, 2 Java Dev, Amazon EC2 server.

Tentative Timeline :

Date	Progress
24/06/19 - 06/07/19	Wireframe, Structure
07/07/19 - 21/07/19	XMPP server setup and coding, App UI layouts
22/07/19 - 5/08/19	App Backend Logic
6/08/19-20/08/19	Integration,Testing
21/08/19 - 4/09/19	Production Setup and Testing
5/09/19 - 10/09/19	Beta Testing

Benefits of ejjabberd:

- REST API and ejabberdctl command-line tool.
- Mobile libraries for iOS: XMPPFramework, Jayme REST API.
- Mobile libraries for Android: Smack, Retrofit.
- Web library with WebSocket support and fallback to BOSH: Strophe.

Miscellaneous :

- Aws + Ejabberd setup with XML-RPC for REST API

<https://androidtechieblog.wordpress.com/2015/12/27/ejabberd-using-amazon-ec2-aws-and-xml-rpc-for-android-xmpp-chat-part-1/>

- Ejabberd : <https://www.ejabberd.im/>

Approach 2 - [Android, Node.js, Socket.io / Volley / WebSocket , Amazon Ec2]

For one-to-one chat,

Pricing: ₹ 30,000/month

Time Period: 2.5 - 3 months

Future Feasibility: Easily upgradeable with other features, 10k+ user bearable for more requires distributed servers.

Requirements : 2 Android Dev, 2 Node Dev, Amazon EC2 server.

Tentative Timeline :

Date	Progress
24/06/19 - 06/07/19	Wireframe, Structure
07/07/19 - 21/07/19	Node REST API, App UI layouts
22/07/19 - 5/08/19	App Backend Logic
6/08/19-20/08/19	Integration, Testing
21/08/19 - 4/09/19	Production Setup and Testing
5/09/19 - 10/09/19	Beta Testing

Miscellaneous:

Basic web group chat using socket.io

<https://itnext.io/build-a-group-chat-app-in-30-lines-using-node-js-15bfe7a2417b>

Case study GoChat and GoSnaps: Scale later build prior

<https://medium.com/unboxd/how-i-built-an-app-with-500-000-users-in-5-days-on-a-100-server-77deeb238e83>

Query scalability : [Mostly denormalized DB schema]

<https://news.ycombinator.com/item?id=9541424>

Stress Testing with Nodejs on the AWS server: Easily passes 10k users without optimization

<https://bocoup.com/blog/node-stress-test-analysis>

Web Socket: More Relevant + Supports XMPP

<https://thoughtbot.com/blog/real-time-online-activity-monitor-example-with-node-js-and-websocket>

During making connection with WebSocket, client and server exchange data per frame which is **2 bytes** each, compared to **8 kilo bytes** of http header when you do continuous polling. Here is the comparison of 2 scenarios:

Case 1: 10,000 clients polling every second:

** Network throughput is $(871 \times 10,000) = 8,710,000$ bytes = 69,680,000 bits per second (66 Mbps)*

Case 2: 10,000 frames every second:

** Network throughput is $(2 \times 10,000)/1 = 20,000$ bytes = 160,000 bits per second (156 Kbps)*

AWS and 600k users with Nodejs: Easily shift to large plans and cheap cost

<https://blog.jayway.com/2015/04/13/600k-concurrent-websocket-connections-on-aws-using-node-js/>

Amazon EC2 pricing

<https://aws.amazon.com/ec2/pricing/>

Multiple DB and Multiple Frontend Support MVC : Sails.js

<https://www.sitepoint.com/building-real-time-chat-app-sails-js/>

<https://github.com/noxo/chat-app>

Approach 3 - [Android,Java,PubNub]

For one-to-one chat,

Pricing: ₹ 30,000/month

Time Period: 2.5 - 3 months

Future Feasibility: Easily upgradeable with other features, 10k+ user bearable for more check Pricing Plans.

Requirements : 2 Android Dev, 2 Java Dev.

Tentative Timeline :

Date	Progress
24/06/19 - 06/07/19	Wireframe, Structure
07/07/19 - 21/07/19	PubNub server setup and coding, App UI layouts
22/07/19 - 5/08/19	App Backend Logic
6/08/19-20/08/19	Integration, Testing
21/08/19 - 4/09/19	Production Setup and Testing
5/09/19 - 10/09/19	Beta Testing

Miscellaneous:

Alternative to Socket.io as PubNub

<https://www.pubnub.com/blog/socket-io-chat-app-alternative/>

Pricing:

<https://www.pubnub.com/pricing/>

Js Chat Application Guide

<https://www.pubnub.com/wp-content/uploads/2016/02/building-chat-app-in-javascript-best-practice-guide.pdf>

Approach 4 - [PHP(Slim REST API) , FCM(GCM) , Android , MySQL]

For one-to-one chat,

Pricing: ₹ 25,000/month

Time Period: 2.5 - 3 months

Future Feasibility: Easily upgradeable with other features, 10k+ user bearable for more check Pricing Plans, Supports XMPP.

Requirements : 2 Android Dev, 2 PHP Dev.

Tentative Timeline :

Date	Progress
24/06/19 - 06/07/19	Wireframe, Structure
07/07/19 - 21/07/19	PHP REST API, App UI layouts
22/07/19 - 5/08/19	App Backend Logic
6/08/19-20/08/19	Integration, Testing

21/08/19 - 4/09/19	Production Setup and Testing
5/09/19 - 10/09/19	Beta Testing

Miscellaneous:

- Related Blog
 - <https://www.androidhive.info/2016/02/android-push-notifications-using-gcm-php-mysql-realtime-chat-app-part-1/>
- Pricing
 - <https://stackoverflow.com/questions/40084322/fcm-pricing-and-usage-limits-for-commercial-app>
 - <https://firebase.google.com/pricing>
- References
 - <https://code.tutsplus.com/tutorials/how-to-create-an-android-chat-app-using-firebase-cms-27397>
 - <https://www.androidtutorialpoint.com/firebase/real-time-android-chat-application-using-firebase-tutorial/>
 - <https://codecanyon.net/item/dreamchat-whatsapp-clone-app-with-firebase-sinch/23280090>
 - <https://github.com/firebase/friendlychat-web>
 - <https://codelabs.developers.google.com/codelabs/firebase-android/#7>
 - <https://github.com/AppLozic/Applozic-Android-SDK>
 - <https://codelabs.developers.google.com/codelabs/growfirebase-android/index.html?index=..%2F..index#0>
 - <http://www.chat21.org/docs/android/get-started/>
 - <https://github.com/chat21/chat21-android-demo>
 - <https://github.com/chat21/chat21-android-sdk>

- <https://www.youtube.com/watch?v=gPqJcPtN18I&list=PLxefhmF0pcPmt doud8f64EpgapkclClIj>
- <https://www.youtube.com/watch?v=mPIEilcFQ9k&list=PLxabZQCAe5fgG QggJxp5nul1ESzP-oMED>

Android App using Jetpack:

- Basics
<https://android.jlelse.eu/what-is-android-jetpack-737095e88161>
- Dev guide and architecture
<https://developer.android.com/jetpack/docs/guide>

Random search to build such a product

- Feasibility with Node and Socket.io
 - <https://dev.to/medaymentn/creating-a-realtime-chat-app-with-android-no dejs-and-socketio-4o55>
- Scaledrone Chat SDK, Pricing and Planning
 - <https://www.scaledrone.com/blog/android-chat-tutorial/>
 - <https://www.scaledrone.com/pricing>
- Ejaberd - Contus Fly similar to Erlang Whatsapp
- Basic Overview
 - <https://hackernoon.com/how-to-build-your-own-real-time-chat-app-like-wh atsapp-9d1d058afd5b>
 - <https://rubygarage.org/blog/create-a-chat-app-like-whatsapp>
 - <https://thinkmobiles.com/blog/how-make-messaging-app/>
- Mirror Fly Chat Solution / SDK Provider
 - https://www.contus.com/messaging-solutions.php?utm_source=whatsap p-clone&utm_medium=CTA&utm_campaign=Hackernoon
- MEAN Stack for Chat Solution

- <https://www.freecodecamp.org/news/building-a-chat-application-with-me-an-stack-637254d1136d/>
- Flutter
 - <https://www.youtube.com/watch?v=2Tyrofn6zPg>
- React Native
 - <https://www.youtube.com/watch?v=7Ot5LSGHLyY>
- Hybrid Apps,
 - <https://www.androidhive.info/2014/10/android-building-group-chat-app-using-sockets-part-1/>
- Python: Slow and useless for chat apps
 - <https://medium.com/swlh/lets-write-a-chat-app-in-python-f6783a9ac170>
- Java and Twilio: Provides Chat SDK and can scale with Price Planning
 - <https://www.twilio.com/docs/chat/tutorials/chat-application-android-java>