

Glossary & FAQ

Glossary

Term	Definition
API	Application Programming Interface, allows communication between software components.
JWT	JSON Web Token, a compact token format used for securely transmitting information between parties.
WebSocket	A protocol for real-time, full-duplex communication over a single TCP connection.
Kubernetes (K8s)	An open-source platform for automating deployment, scaling, and management of containerized applications.
PostgreSQL	An open-source, object-relational database known for its robustness and SQL compliance.
Redis	An in-memory data structure store used for caching and session management.
S3 (Simple Storage)	Scalable object storage service, often used for storing files like images, videos, and backups.
CI/CD	Continuous Integration and Continuous Deployment, automates building, testing, and deploying applications.
TLS/SSL	Transport Layer Security / Secure Sockets Layer, ensures secure communication over networks using encryption.
Flutter	An open-source UI software development kit by Google for building natively compiled applications.
NestJS	A progressive Node.js framework for building efficient and scalable server-side applications.
Firestore	A cloud-hosted NoSQL database by Firebase for scalable, real-time applications.
RBAC	Role-Based Access Control, a method for regulating access to resources based on roles assigned to users.
PlantUML	A tool for creating UML diagrams from plain text descriptions.

FAQ

General

Q1: What is the purpose of this messaging app?

A1: The app is designed for secure, email-based messaging without the need for phone numbers or status updates. It prioritizes privacy, encryption, and a clean user experience.

Q2: What platforms will the app support?

A2: The app will be available for Android, iOS, and as a web application.

Q3: Why is it email-based?

A3: To ensure accessibility for users without requiring a phone number and to enhance privacy.

Technical

Q4: How is user data secured?

A4: Data is encrypted using AES-256 for storage and TLS for transmission. Messages are end-to-end encrypted with a unique key for each conversation.

Q5: What happens to media files?

A5: Media files (e.g., images, videos) are stored in an S3-compatible storage solution. Only authorized users can access these files via pre-signed URLs.

Q6: How does real-time messaging work?

A6: WebSocket servers are used for instant message delivery. The app also uses fallback mechanisms like polling for less capable networks.

Q7: How are backups handled?

A7: Automated daily backups are taken for the database and stored in separate secure regions. Backups are encrypted for safety.

UI/UX

Q8: What guidelines should UI/UX designers follow?

A8: Designers should ensure simplicity and intuitiveness. Follow Material Design principles for mobile apps and provide seamless navigation.

Q9: Can users customize the interface?

A9: Yes, users can enable dark mode, customize chat themes, and adjust notification settings.

Development

Q10: What technologies are used in the project?

A10: Key technologies include:

- **Frontend:** Flutter for Android, iOS, and Web.
- **Backend:** NestJS with Node.js.
- **Database:** PostgreSQL and Firestore.
- **Real-Time Messaging:** WebSocket protocols.
- **Caching:** Redis.

Q11: How is the CI/CD pipeline implemented?

A11: GitHub Actions are used for continuous integration, Docker for containerization, and Kubernetes for orchestration.

Troubleshooting

Q12: What to do if a message fails to send?

A12: The app automatically retries sending messages in case of a failure. If it persists, check the network connection or app logs.

Q13: How to handle login issues?

A13: Users can reset their passwords via the email-based recovery process. For further assistance, contact support.

Q14: What if a user's email is compromised?

A14: Recommend the user update their email credentials and enable multi-factor authentication if available.

Future Enhancements

Q15: What features might be added later?

A15: Planned features include:

- Multi-device support.
- Scheduled message delivery.
- Voice and video calling.

Q16: Can the app support custom emojis or stickers?

A16: Yes, custom emoji and sticker packs are planned for a future release.
