

Technology Stack

Technical Stack Recommendations

1. Architecture Overview

Principles

1. **Microservices Architecture** - Modular, independently deployable
2. **Cloud-Native Design** - Containerized, elastic scaling
3. **Security by Design** - Zero-trust, encryption everywhere

2. Backend Technology

Primary: Java/Spring Boot

- Built-in Spring Security, OAuth2
- ACID compliance for transactions
- Proven in regulated industries
- Spring Boot 3.x, Spring Cloud

Secondary: Node.js

- WebSocket connections
- Push notifications
- Real-time updates

Hybrid Approach

- **Java:** Auth, Accounts, Payments, Cards, Ledger, KYC/AML

- **Node.js:** WebSocket, Notifications, Real-time
- **Python:** Fraud ML, Risk Scoring, Analytics

3. Mobile Development

Recommendation: Flutter

Criteria	Flutter	React Native	Native
Performance	Near-native	Good	Best
Code Sharing	95%+	85-90%	0%
Market Share	46%	35%	-

Why Flutter:

- Same UI across iOS/Android
- Single codebase
- No JS bridge
- Used by major banks

Stack: Bloc, GoRouter, Dio, Hive, local_auth

4. Database & Storage

- **Primary:** PostgreSQL 16
- **Cache:** Redis 7
- **Queue:** Kafka/RabbitMQ
- **Documents:** S3
- **Search:** Elasticsearch

5. Infrastructure

Cloud: AWS or GCP

Components:

- Kubernetes (EKS/GKE)
- Terraform

- GitHub Actions + ArgoCD
- Prometheus + Grafana
- CloudFlare (WAF)

6. Security

OWASP MASVS

- AES-256, TLS 1.3
- Biometric auth, 2FA
- Certificate pinning
- Code obfuscation

7. MVP Stack

- **Backend:** Java 21 + Spring Boot 3.2, Node.js 20
- **Mobile:** Flutter 3.x
- **Data:** PostgreSQL, Redis, Kafka
- **Infra:** AWS/GCP, K8s, Terraform
- **Third-Party:** Swan (BaaS), Stripe Issuing, Sumsb (KYC)

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