

Analisis Teknologi HuCommitTao

Manajemen Komitmen Diri

1 Technology Stack per Business Capability

1.1 Strategic Capabilities

Capability	Core Technologies	Supporting Tools
Vision & Strategy	Google Analytics, Mixpanel	Tableau, Jira, Confluence
Brand Management	Adobe Creative Suite, Canva	Hootsuite, HubSpot
Partnership Management	Kong API Gateway, Postman	Zapier, Slack API
Innovation Management	GitHub, Docker, Kubernetes	Firebase A/B Testing

1.2 Core Capabilities

Capability	Core Technologies	Supporting Tools
Commitment Management	Node.js, PostgreSQL, Redis	Express.js, Sequelize ORM
User Engagement	React Native, Socket.io	Firebase Analytics
Community Platform	Node.js, WebSocket, MongoDB	Pusher, Twilio
Analytics & Insights	Python, TensorFlow, MongoDB	Jupyter Notebook, Pandas
Notification System	Firebase FCM, AWS SES, Python	Celery, RabbitMQ

1.3 Supporting Capabilities

Capability	Core Technologies	Supporting Tools
User Management	OAuth 2.0, JWT, bcrypt	Passport.js, Auth0
Payment Processing	Midtrans, Stripe	Node.js, Webhook handling

Capability	Core Technologies	Supporting Tools
Customer Support	Zendesk, Intercom	Chatbot API, FAQ system
Content Management	AWS S3, CloudFront CDN	Multer, Sharp (image processing)
Security & Privacy	SSL/TLS, AWS WAF, Helmet.js	Rate limiting, Data encryption
Infrastructure Management	AWS EC2, RDS, ElastiCache	CloudWatch, Auto Scaling
Data Management	PostgreSQL, MongoDB, Redis	Backup automation, Data pipeline
Web Platform	React.js, PWA	Expo, Webpack, Babel

2 Architecture Components

2.1 Backend Services

- **API Gateway:** Kong/AWS API Gateway
- **Microservices:** Node.js + Express, Python + FastAPI
- **Message Queue:** RabbitMQ/AWS SQS
- **Caching:** Redis
- **Search:** Elasticsearch (optional)

2.2 Frontend Technologies

- **Mobile:** React Native + Expo
- **Web:** React.js + Next.js
- **State Management:** Redux Toolkit
- **UI Components:** ShadCN, Material-UI

2.3 Database Strategy

- **Primary DB:** PostgreSQL (ACID compliance)
- **Analytics DB:** MongoDB (flexible schema)
- **Cache:** Redis (session, real-time data)
- **File Storage:** AWS S3 + CloudFront

2.4 DevOps & Infrastructure

- **Containerization:** Docker + Docker Compose
- **Orchestration:** Kubernetes/AWS ECS
- **CI/CD:** GitHub Actions
- **Monitoring:** AWS CloudWatch, Sentry
- **Security:** AWS WAF, Let's Encrypt SSL

2.5 Third-Party Integrations

- **Authentication:** Google OAuth, Facebook Login
- **Notifications:** Firebase Cloud Messaging
- **Email:** AWS SES/SendGrid
- **Payments:** Midtrans (Indonesia), Stripe (Global)
- **Analytics:** Google Analytics, Mixpanel

3 Technology Decisions Rationale

3.1 Why Node.js for Core Services?

- High concurrency untuk real-time features
- Rich ecosystem untuk rapid development
- JavaScript consistency across stack
- Strong community support

3.2 Why PostgreSQL as Primary Database?

- ACID compliance untuk financial data
- Strong consistency untuk commitment data
- JSON support untuk flexible schemas
- Mature ecosystem dan tooling

3.3 Why Microservices Architecture?

- Independent scaling per service
- Technology flexibility per domain
- Team autonomy dalam development
- Fault isolation dan resilience