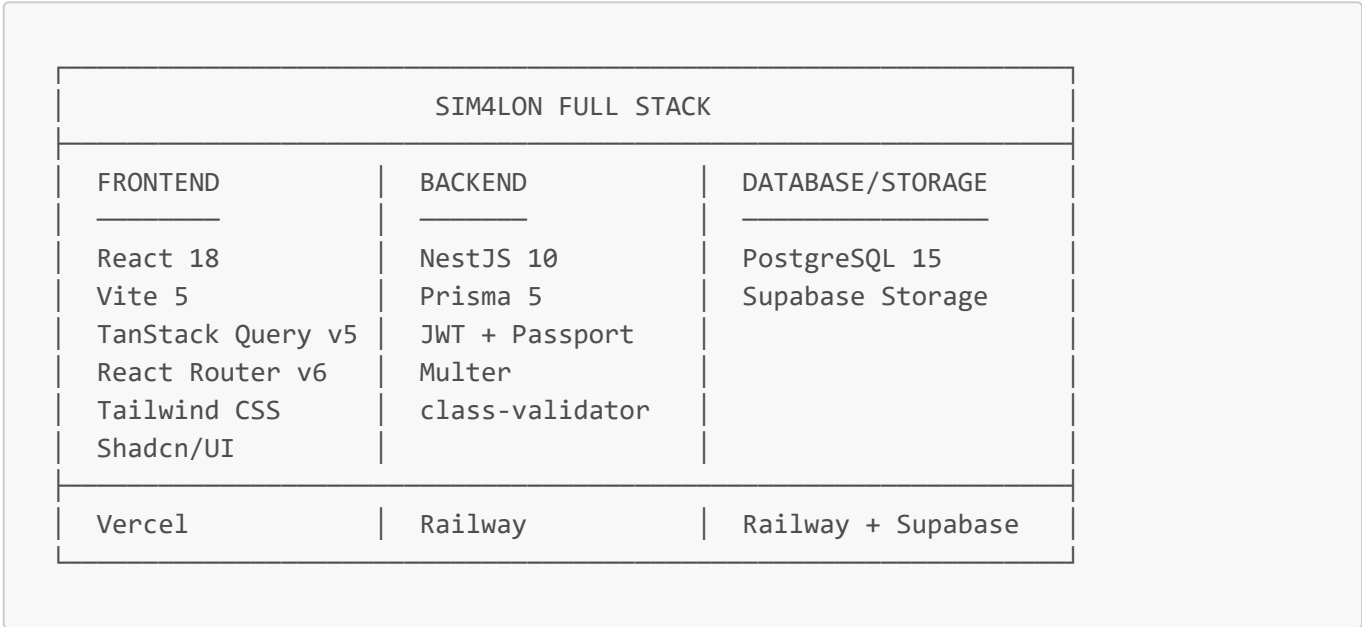
DOKUMENTASI DEPLOYMENT DIAGRAM

Sistem Informasi Manajemen LPG (SIM4LON)

1. GAMBARAN UMUM

Deployment Diagram menggambarkan **arsitektur infrastruktur** sistem SIM4LON, menunjukkan bagaimana komponen aplikasi di-deploy ke berbagai environment.

2. FULL STACK OVERVIEW



3. KOMPONEN INFRASTRUKTUR

3.1 Client Layer (Browser)

Aspek	Detail
Type	`<<device>>`
Browsers	Chrome, Firefox, Edge, Safari
Mobile	Chrome Mobile, Safari iOS
Protocol	HTTPS (TLS 1.3)

3.2 Frontend - Vercel

Aspek	Detail
Type	`<<platform>>`

Aspek	Detail
Provider	Vercel
URL	https://sim4lon.vercel.app
CDN	30+ edge locations worldwide
SSL	Auto-provisioned Let's Encrypt
Deploy	Git-triggered (GitHub)

Technology Stack:

Library	Version	Fungsi
React	18	UI Library
Vite	5	Build Tool & Dev Server
TanStack Query	v5	Data Fetching & Caching
React Router	v6	Client-side Routing
Tailwind CSS	3	Utility-first CSS
Shadcn/UI	Latest	Pre-built Components
Lucide Icons	Latest	Icon Library
Recharts	Latest	Charts & Graphs

3.3 Backend - Railway

Aspek	Detail
Type	<<platform>>
Provider	Railway
URL	https://sim4lon-api.up.railway.app
Container	Docker-based
Port	443 (HTTPS) → 3000 (internal)
Scaling	Vertical auto-scaling

Technology Stack:

Library	Version	Fungsi
NestJS	10	Backend Framework
Prisma	5	ORM & Database Client
Passport	Latest	Authentication

Library	Version	Fungsi
JWT	Latest	Token-based Auth
Multer	Latest	File Upload Handler
class-validator	Latest	DTO Validation
bcrypt	Latest	Password Hashing

Service Modules:

Module	Deskripsi
`AuthModule`	Login, JWT, Single Session
`OrderService`	CRUD Pesanan
`StockService`	Penerimaan & Penyaluran
`PaymentService`	Pembayaran & Records
`PangkalanService`	Master Pangkalan
`DashboardService`	Statistics & Reports
`ReportService`	Export Excel

3.4 Database - Railway PostgreSQL

Aspek	Detail
Type	`<<service>>`
Provider	Railway (integrated)
Engine	PostgreSQL 15
Port	TCP 5432
Connection	Prisma Client
Backup	Daily automated

Schema Statistics:

Metric	Value
Tables	21
Enum Types	7
Primary Keys	UUID (all tables)
Extensions	pgcrypto, uuid-ossp
Indexes	40+

3.5 File Storage - Supabase

Aspek	Detail
Type	`<<service>>`
Provider	Supabase
API	S3-compatible
Security	Row Level Security (RLS)
CDN	Global delivery

Storage Buckets:

Bucket	Konten
`/profile-pictures/`	Avatar user
`/payment-proofs/`	Bukti transfer

4. PROTOKOL KOMUNIKASI

From	To	Protocol	Port	Keterangan
Browser	Vercel	HTTPS	443	Static files + SPA
Vercel	Railway	HTTPS	443	REST API calls
Railway	PostgreSQL	TCP	5432	Prisma Client
Railway	Supabase	HTTPS	443	File operations

5. ENVIRONMENT VARIABLES

Frontend (Vercel)

```
VITE_API_URL=https://sim4lon-api.up.railway.app
VITE_SUPABASE_URL=https://xxx.supabase.co
VITE_SUPABASE_ANON_KEY=eyJ...
```

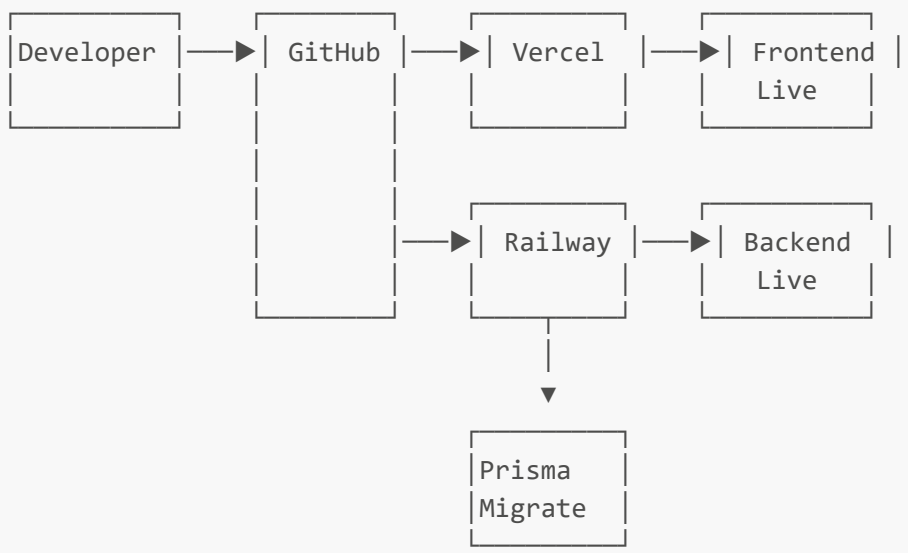
Backend (Railway)

```
# Database
DATABASE_URL=postgresql://user:pass@host:5432/db

# Authentication
JWT_SECRET=your-super-secret-key
```

```
# Server
PORT=3000
NODE_ENV=production
CORS_ORIGIN=https://sim4lon.vercel.app

# Storage
SUPABASE_URL=https://xxx.supabase.co
SUPABASE_SERVICE_KEY=eyJ...
```

---

6. DEPLOYMENT WORKFLOW



Deploy Steps:

1. **Developer** push code ke GitHub
2. **Vercel** auto-detect changes → Build frontend
3. **Railway** auto-detect changes → Build backend
4. **Prisma** runs migrations (if schema changed)
5. **Apps** go live automatically

---

7. SECURITY MEASURES

Layer	Security
Transport	HTTPS/TLS 1.3 everywhere
Authentication	JWT + session_id (single session)
Authorization	Role-based (Admin, Operator, Pangkalan)
Database	Connection pooling, SSL required

Layer	Security
Storage	RLS policies, signed URLs
Secrets	Environment variables only
Password	bcrypt hashing (10 rounds)

8. MONITORING & OBSERVABILITY

Aspect	Tool
Frontend Analytics	Vercel Analytics
Backend Logs	Railway Logs
Database Metrics	Railway PostgreSQL Metrics
Uptime	Railway Health Checks

Dokumen ini menjelaskan infrastruktur deployment SIM4LON
Cloud-native Full Stack: React + NestJS + PostgreSQL + Supabase