

PROJECT PHASES

Phase 0 – Planning & Repo Setup (1–2 days)

- Repo creation, naming, folder structure
- README + architecture diagram
- Initial Docker Compose / local dev environment
- TimescaleDB/Postgres setup with basic schema

Time: 1–2 days

Phase 1 – Ingest Service MVP (3–5 days)

- Scaffold ASP.NET Core Web API project for IngestService
- Implement /v1/ingest/metrics endpoint
- Batch inserts to TimescaleDB
- Basic validation + DTOs
- Dockerfile for local development
- Test ingest workflow with Postman / curl

Time: 3–5 days

Phase 2 – Query Service MVP (2–4 days)

- Scaffold QueryService (ASP.NET Core Web API)
- Implement endpoints: /v1/query/metrics, /v1/query/series
- Aggregation queries (using TimescaleDB continuous aggregates)
- Connect to dashboard (React) with sample data

Time: 2–4 days

Phase 3 – Alerting Service MVP (2–4 days)

- Scaffold AlertingService (ASP.NET Core Web API + background worker)
- Create alert rule model + evaluator
- Trigger alerts for sample metrics
- Store alert history in Postgres
- Optional: send notifications via webhook/email

Time: 2–4 days

Phase 4 – Auth & Metadata Service (1–2 days)

- Scaffold AuthService (JWT + API keys)
- Implement RBAC for endpoints
- Users / API keys stored in Postgres
- Connect other services to verify authentication

Time: 1–2 days

Phase 5 – Scaling & DevOps Integration (3–5 days)

- Dockerize all services
- CI/CD pipelines: GitHub Actions / Azure DevOps
- Kubernetes manifests / Helm charts
- Connection pooling (pgbouncer), configuration via environment variables
- Implement batching, retries, health checks, liveness/readiness probes

Time: 3–5 days

Phase 6 – Observability & Testing (2–3 days)

- OpenTelemetry traces & Prometheus metrics for platform
- Unit tests + integration tests (Docker Compose / Testcontainers)
- Load testing (k6 / Vegeta)
- Log structured logging (Serilog / Elasticsearch optional)

Time: 2–3 days

Phase 7 – Optional Logs & Full-Text Search (3–5 days)

- Add Elasticsearch or ClickHouse for logs
- Implement /v1/ingest/logs endpoint + batched writes
- Implement log search endpoints for dashboard
- Retention policies + compression / archiving to S3

Time: 3–5 days

Phase 8 – Final Polish / Portfolio Prep (2 days)

- Update README with architecture diagrams, screenshots
- Add example data & scripts for quick demo
- CI/CD fully integrated & tested
- Prepare GitHub repo for showcase

Time: 2 days