**✅ Finalized Build Plan for SafeShipping MVP (US-National Scope)**

* **Cloud Platform:** GKE (Google Kubernetes Engine)
* **Smart Contract Layer:** Arbitrum (Solidity + Chainlink)
* **Tech Stack:** Hybrid
  + 🟦 **TypeScript** for the **frontend** + **API layer**
  + 💨 **Go** for the **oracle/event service** + future high-performance modules

**1️⃣ Visual Architecture Diagram**

* Smart contract triggers on Arbitrum
* Chainlink oracles
* IoT + webhook input
* GKE-hosted services (frontend, API, oracle-handler)
* PostgreSQL + IPFS (optional)

**2️⃣ docker-compose Dev Stack**

* frontend (React)
* backend-api (TypeScript/Express)
* oracle-service (Go)
* mock-oracle and mock-iot event simulators
* PostgreSQL + Redis (for demo data + queues)

**3️⃣ Terraform MVP Setup**

* GKE cluster in us-central1
* Node pool + autoscaling setup
* Helm chart deployer (for API + UI)
* Cloud NAT, GKE ingress, TLS cert, service account

⚙️ These are deploy-ready and modular — meant for local testing **and** cloud expansion.