

CEIR Platform Case Study (Focused Subsystem)

Real-Time CheckIMEI Ingestion & Processing | ~500,000 RPS | Role: Lead/Senior Backend Engineer (Ruby on Rails)

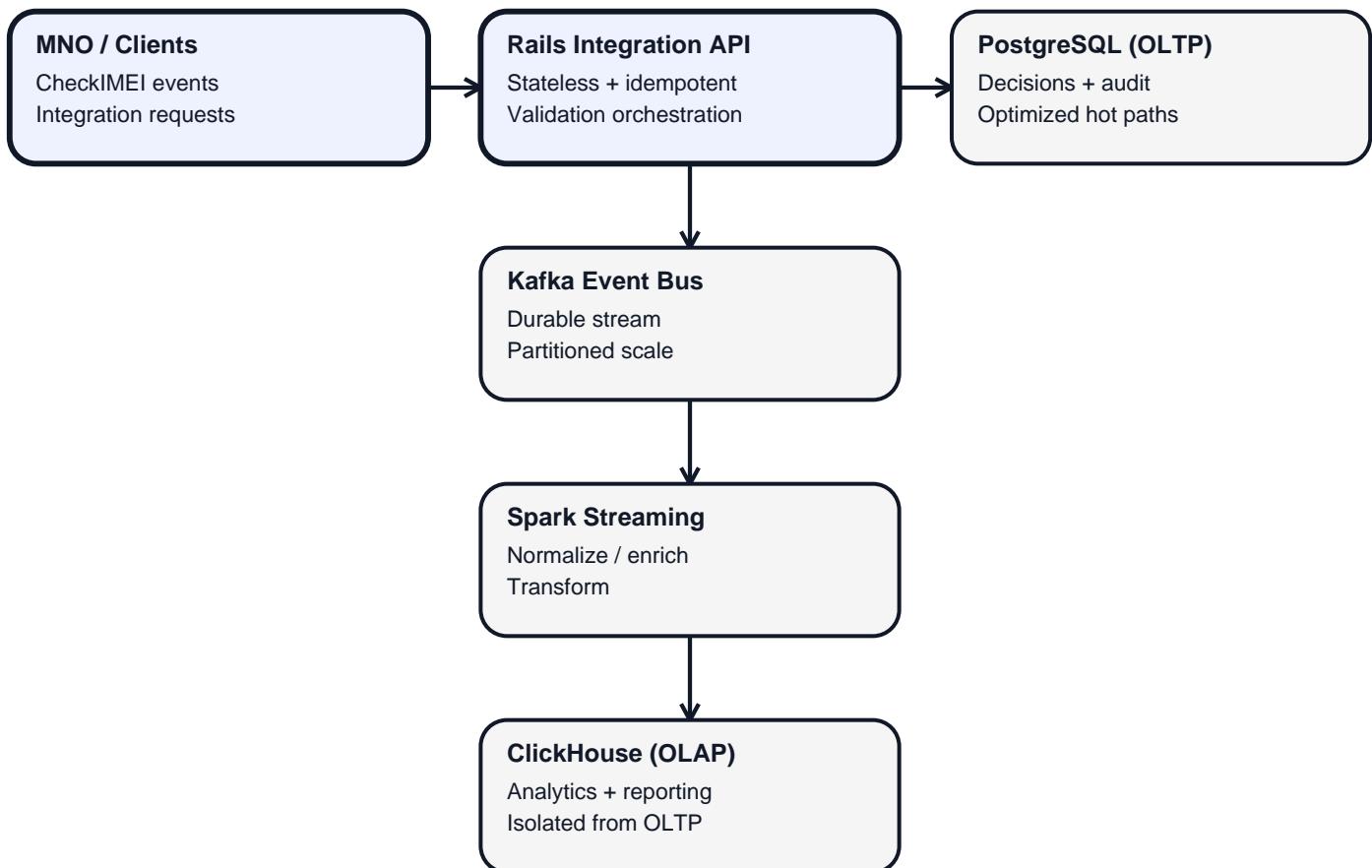
Overview: CEIR is a national telecom compliance and analytics platform designed to monitor device activity, enforce regulatory policies, and support fraud detection across mobile network operators.

Scope note: CEIR includes multiple subsystems (National List management, user/role management, GSMA/reference-data pipelines, admin tooling). This case study focuses on the most technically demanding subsystem: **high-throughput, near real-time ingestion and processing of MNO CheckIMEI events.**

Responsibilities: backend & infrastructure ownership across Rails services, PostgreSQL performance tuning, event-driven ingestion (Kafka), stream processing (Spark), analytical storage (ClickHouse), CI/CD and production observability.

Key challenges: sustaining extreme throughput, minimizing OLTP contention, preserving correctness across async pipelines, and enabling analytics without degrading transactional latency.

Architecture Snapshot (Focused CheckIMEI Path)



Broader CEIR (not detailed here):

National List workflows • User/role management • GSMA/reference pipelines • Admin & reporting tooling