

No event may ever be lost

The cloud division of Europe's largest retail group (€167B revenue) — sovereign-cloud platform, storage team

THE STAKES

A sovereign cloud sells one thing above all: trust. Its customers require a complete, durable audit trail of storage operations — every auditable action across NFS and object storage, including nested operations. A lost audit event is not a bug; it is a compliance failure on a platform whose product is trust. And separately, the storage API in front of the grid was collapsing under load: 500 errors to paying customers at roughly 80 concurrent clients, with support tickets running for weeks.

WHAT WE DID

- Built the **audit-log pipeline end to end, by one accountable engineer** — architecture, design, implementation, repository creation, CI integration, and the producer-side integrations — against an explicit mandate: **no event may ever be lost**. PostgreSQL as a persistent message broker with River Queue workers: messages survive crashes without adding a Kafka operational footprint. Producer-agnostic by design — any number of APIs, any language.
- Built the full monitoring and alerting layer alongside it (Prometheus, Grafana, Loki) — part of the same delivery, not bolted on after.
- Co-built and shipped the **NFS service (Go)** — live in production, heavily used by the platform's cloud customers.
- Diagnosed the architectural fault behind the capacity incidents and delivered a full async rewrite of the 3–4K-line core module — **one engineer, in under 3 weeks**, alongside normal duties. Load tests (Locust): from crashing at ~80 concurrent clients to passing at **~500 on a single Kubernetes instance** — a measured ~6x per-instance capacity increase.

OUTCOMES

- Audit pipeline and NFS solution in production today, carrying the platform's compliance-grade audit trail for its customer base. Zero-loss delivery by construction.
- Concept to production in 3 months across enterprise boundaries (per-environment infrastructure via PRs to the infra team, secrets through Vault) — shipping through that process without stalling is part of the work.
- The 6x rewrite: measured and load-tested; one engineer, under three weeks, at roughly the cost of a single sprint — against weeks of customer-facing incident triage and churn risk. (The rollout was later deprioritized by the organization; the measured result stands.)

STACK

Go · Python · FastAPI · PostgreSQL · River Queue · Kubernetes · Prometheus · Grafana · Loki · Locust

This is the engineering standard behind Alpine's fixed-price delivery audit: findings with file-and-line evidence, an implementation playbook, and an execution-ready backlog your team can run with. References on request.

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