

Tomás Iyer

Staff Software Engineer — Distributed Systems

Lisbon, Portugal (UTC+0, remote-first)

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SUMMARY

Staff engineer with twelve years on storage and streaming infrastructure. I work on the parts of a system that are hard to change later: consistency models, failure handling, capacity envelopes and the migration plans that get you from the old design to the new one without a maintenance window. Most recent work is a multi-region event store serving 1.4 million writes a second at four nines of availability. I write design documents that other teams can act on, and I prefer boring, instrumented solutions to clever ones.

TECHNOLOGY MATRIX

AREA	PRIMARY TOOLS	DEPTH	YEARS
Languages	Go, Rust, C++17/20, Python, TypeScript, SQL	■■■■■ Expert	12
Distributed systems	Raft, consistent hashing, CRDTs, exactly-once pipelines, backpressure design	■■■■■ Expert	9
Data stores	PostgreSQL, ScyllaDB, ClickHouse, Redis, S3-compatible object stores	■■■■■ Advanced	10
Streaming	Kafka, Redpanda, Flink, NATS JetStream, schema registry design	■■■■■ Advanced	7
Platform & runtime	Kubernetes, Nomad, containerd, eBPF tracing, Linux performance tuning	■■■■■ Advanced	8
Infrastructure as code	Terraform, Pulumi, Ansible, ArgoCD, GitHub Actions, Buildkite	■■■■■ Proficient	8
Observability	OpenTelemetry, Prometheus, Grafana, Tempo, continuous profiling	■■■■■ Advanced	6
Security & compliance	mTLS, envelope encryption, KMS integration, SOC 2 evidence automation	■■■■■ Proficient	5

EXPERIENCE

Staff Software Engineer

Halcyon Data — Remote (Lisbon)

Jan 2022 — present

Stack: Go, Rust, ScyllaDB, Kafka, Kubernetes, Terraform, OpenTelemetry

- Technical lead for the multi-region event store: 1.4M sustained writes/s, 99.99% availability over the last eight quarters, p99 append latency 7 ms.
- Designed and executed the migration from the single-region v1 store to the new architecture — 340 TB moved online, zero customer-visible downtime, rollback point preserved at every stage.
- Cut steady-state infrastructure spend 41% (about €2.1M a year) by replacing a hot-standby topology with quorum reads and right-sizing the compaction fleet.
- Introduced a deterministic simulation harness for failure testing; it has caught 23 correctness bugs before release, four of which would have caused data loss.
- Mentor three senior engineers and run the storage design-review forum.

Northbeam Systems — Porto, Portugal

Stack: C++, Python, PostgreSQL, Redis, Kubernetes, Prometheus

- Rebuilt the ingestion path for the telemetry product: throughput up 6×, cost per billion events down 72%.
- Owned the query planner for the time-series engine; median dashboard load time went from 4.1 s to 0.6 s.
- Led the incident-response rotation redesign that reduced mean time to mitigate from 46 minutes to 11.

Ferrolane Labs — Lisbon, Portugal

Stack: C++, Go, MySQL, RabbitMQ, Ansible

- Built the order-matching service for a marketplace processing €400M of volume a year.
- Wrote the company's first load-testing framework, still in use, and the capacity model derived from it.

SELECTED PROJECTS & MEASURED IMPACT

PROJECT	TECHNOLOGY	WHAT CHANGED	IMPACT
Meridian event store Halcyon Data · 2023—2026	Rust, Raft, ScyllaDB, io_uring	Replaced a single-region append log with a quorum-replicated, multi-region store; added tiered storage to object storage after 30 days.	1.4M writes/s
Online 340 TB migration Halcyon Data · 2024	Go, Kafka, dual-write shadow reads	Dual-write and verify pipeline with automated consistency sampling and a documented abort path at each of nine stages.	0 s downtime
Deterministic failure simulator Halcyon Data · 2023	Rust, custom scheduler, fault injection	Runs the full cluster under a seeded scheduler with injected partitions, clock skew and disk faults; failures replay exactly.	23 bugs caught
Telemetry ingestion rewrite Northbeam Systems · 2020	C++, lock-free ring buffers, protobuf	Replaced a thread-per-connection parser with a batched, zero-copy path and adaptive backpressure.	6× throughput
Query planner overhaul Northbeam Systems · 2019	C++, cost-based planning, PostgreSQL	Cost-based operator reordering plus a result cache keyed on time-window granularity.	4.1 s → 0.6 s
Capacity model and load harness Ferrolane Labs · 2016	Go, Ansible, Prometheus	Reproducible load profiles derived from production traces, used to size every release since.	3 outages avoided

OPEN SOURCE

github.com/tomasiyer/quorumkit	Raft implementation with a pluggable transport and a test suite built on deterministic simulation.	4.2k stars
github.com/tomasiyer/otel-goflight	Low-overhead OpenTelemetry sampler for high-cardinality Go services.	1.1k stars
github.com/apache/flink	Contributor: state-backend compaction fixes and two RocksDB configuration regressions.	31 commits
github.com/scylladb/scylla	Contributor: repair scheduling bug and documentation for multi-DC quorum reads.	9 commits
tomasiyer.example.dev/notes	Engineering notes on storage design, migrations and simulation testing; roughly 40,000 readers a month.	38 articles

EDUCATION

MSc, Computer Science (Distributed Systems)

Instituto Superior Técnico, Lisbon · 2012 — 2014

BSc, Computer Engineering

University of Coimbra · 2009 — 2012

CERTIFICATIONS

Certified Kubernetes Administrator

CNCF · 2024

AWS Solutions Architect — Professional

Amazon Web Services · 2022

TALKS & WRITING

- “Migrating 340 terabytes without a maintenance window” — Systems Distributed, 2025.
- “Deterministic simulation is cheaper than you think” — Rust Nation, 2024.
- “Backpressure as a product decision” — QCon London, 2023.
- Reviewer, USENIX ATC industry track, 2024 and 2025.