

ERIC MASTRO

Staff Software Engineer, Distributed Systems & Protocol Design

SUMMARY

Nineteen years building systems software, the last eight in peer-to-peer networking, content-addressed storage and Ethereum infrastructure. Most recently engineering lead for Logos Storage, a privacy-preserving decentralised storage protocol, after leading the team that built its on-chain storage market. Depth in adversarial mechanism design, asynchronous state machine concurrency, and the tooling that makes protocols usable by other teams.

Since 2018: **796 pull requests authored** · **934 reviewed** · **1,639 commits across 95 repositories**. Contributions are publicly visible at github.com/emizzle, design write-up examples available at egonat.me

KEY ACHIEVEMENTS

- **Led the marketplace team through design, implementation and launch of a public testnet reaching roughly 100 participants**, covering storage requests, slot reservation and filling, proof verification, validators, slashing and repair.
- **Acted as temporary Logos Storage lead** through the Codex to Logos Storage transition, completing three critical pieces of work: timeline negotiation then planning, design and implementation of Logos Storage into Status Desktop Communities as the history archive service; driving the working groups that defined an altruistic, marketplace-free protocol for the future roadmap; and delivering specs and threat models for Codex.
- **Designed the protocol's on-chain slot reservation mechanism**. Uncapped competition meant many providers downloading identical content for one payout, a lucrative request could inadvertently DDoS the client posting it, and well-resourced providers could accumulate most of a dataset. A Kademlia distance expanding window design and reservation cap mitigated these issues. egonat.me/slot-reservations
- **Enumerated and mitigated a dozen distinct attack classes against the storage market** over four years of design review, including client data withholding, slot squatting, proof-without-content, repair-reward arbitrage and exploit emergency preparedness. Separately commissioned the formal threat model, the full codebase and smart contract audit, and the integration tests verifying each modelled threat was handled.
- **Cut worst-case marketplace gas cost by a factor of ten**, from 3,115,596 to 302,584 gas, by building and benchmarking two competing on-chain architectures and pricing the difference in EUR at live rates. egonat.me/marketplace-state-restoration
- **Led the design of ERC-8233**, a vault holding ERC-20 funds on behalf of other contracts in time-locked accounts where tokens can be irreversibly designated to a holder or burned, limiting the blast radius of a compromised controller.

EXPERIENCE

Logos (formerly Status / Institute of Free Technology), Remote

April 2018 to September 2026 · 8 years 5 months, five progressive roles

Startup building fully open-source decentralised infrastructure. Every artefact referenced above is public.

Engineering Lead, Logos Storage · Nov 2025 to Sep 2026

2 direct reports, 3 indirect · 202 commits · 95 pull requests authored · 75 reviewed

- Drove the protocol's strategic pivot from an on-chain marketplace model to a gossip-based altruistic replication network, authoring competing design proposals and running the evaluation that selected the direction.
- Negotiated a compressed one-month delivery mandate from parent-organisation leadership into a staged four-phase plan.
- Ran cross-organisation requirements gathering with the Waku and Status Desktop teams, landing merged FURPS requirement sets in both organisations' planning repositories.
- Led the integration of the altruistic Logos Storage into Status Desktop for the Community History Archive service.

Marketplace Team Lead, Codex · Jul 2024 to Nov 2025

4 direct reports · 197 commits · 118 pull requests authored · 186 reviewed

- Owned roadmap, architecture and delivery for the on-chain storage market across node protocol, contracts and documentation, and oversaw the published marketplace protocol specification.
- Established the marketplace roadmap for testnet: twelve epics spanning contract interactions, L2 deployment, formal verification, validators, emergency upgrades and repair, each linked to implementation issues across two repositories.

- Shipped slot reservations end-to-end, from research design through a six-workstream epic to enforcement in contracts and client, deliberately holding three non-critical items to hit the deadline. egonat.me/how-i-work
- Drove the technical audit including formal verification with Certora, established emergency preparedness and contract monitoring, and specified payoutAddress plus a vault registry restricting which contracts may touch pooled funds.
- Set the half-year engineering programme on a FURPS framework with measurable targets: reliability under one-third Byzantine validators, gas ceilings, p95 latency under load, nightly state-machine fuzzing. Ran the Arbitrum L2 evaluation, modelling proof-verification economics against provider profitability.
- Established a distributed testing framework pipeline in CI using an ephemeral K8s cluster.

Senior Distributed Networking Engineer, Codex • Oct 2021 to Jul 2024

314 commits • 147 pull requests authored • 147 reviewed

- Core contributor to the protocol node in Nim: peer discovery, content-addressed block storage, erasure coding, storage proofs and the marketplace client. Built the Reservations module and the on-chain state restoration path letting nodes recover full state after power loss or hardware failure.
- Authored nim-ethers (a Nim port of ethers.js, including EIP-1559 support for correct L2 gas estimation) and nim-serde, replacing hand-rolled marshalling across the stack with a declarative pragma-driven API.
- Built nimv, a Nim toolchain manager fixing the failure mode that made the ecosystem standard painful: silently installing binaries incompatible with the host OS. Shipped via Homebrew, Chocolatey and apt.

Senior Nim and Qt (QML) Engineer, Status Desktop • Apr 2020 to Oct 2021

188 commits • 176 pull requests authored • 144 reviewed

- Built desktop features in Nim, C++, Qt and QML: community creation and editing, channel management, wallet transaction history, ENS validation, contract call encoding and a paid sticker market.
- Contributed to nim-status, the ground-up Nim rewrite of the client library; worked on DOtherSide and nimqml, the Nim to C++ FFI bridge letting a Qt application be driven from Nim; extended nim-sqlcipher (encrypted SQLite) with data-access pragmas.

Senior JavaScript / TypeScript Engineer, Embark Framework • Apr 2018 to Apr 2020

738 commits • 260 pull requests authored • 382 reviewed

- Core contributor to Embark, an open-source Ethereum developer framework, and its most active reviewer.
- Introduced the RFC process the team adopted for design decisions, and diagnosed a code-generation race condition that had persisted over seven months.
- Built the plugin ecosystem covering MythX security analysis, Plasma chains, zkSNARKs and Status messaging, authored swarm-api for the Swarm storage platform, and wrote the workshop applications taught live at six international events: EDCON, Cryptolife, DappCon, EthBerlin, Devcon and UNICEF Surge.

Earlier • Sydney and USA • 2007 to 2018

Senior .NET Full Stack Developer at Interesting (2010 to 2018) and Switch I.T. (2018); **.NET Developer** at Webcoda (2008 to 2009); **Software Engineer** at RedPrairie (2007 to 2008).

- Technical lead on enterprise CMS builds for Sanitarium (Kentico Site of the Year 2016, Best Healthcare Site), Tourism NT, Lord Mayor's Charitable Foundation and Pickles Auctions. Introduced continuous delivery on Jenkins with Azure deployment slots, improving release reliability across the client portfolio.

OPEN SOURCE

Logos Storage, engineering lead. **nim-libp2p**, upstream contributor to the library underpinning Nimbus, Waku and Logos Storage. **nimv**, Nim toolchain manager on Homebrew, Chocolatey and apt. Contributor to **MetaMask**, **Quorum**, **Vue CLI** (v3.9.3), **Nim**, **nim-web3** and **nim-chronos**. Speaking and workshops at EDCON, Cryptolife, DappCon, EthBerlin, EthCC, Devcon and UNICEF Surge.

TECHNICAL

Languages. Nim, TypeScript / JavaScript, Solidity, Go, C# / .NET, Shell, QML, C, C++

Mechanism and incentive design. Adversarial threat modelling and mitigation, collateral and slashing design, sybil and address-grinding resistance, reservation and dispersal mechanics

Smart contracts. Ethereum L1 and L2 (Arbitrum, Linea), gas profiling and optimisation, formal verification with Certora, audit preparation, zero-knowledge storage proofs, ERC authorship

Distributed systems. Asynchronous state machine design and crash recovery, erasure coding, content addressing, libp2p, Kademlia DHT, gossipsub, NAT traversal

Platform and interop. CI/CD design, GitHub Actions, ephemeral Kubernetes test clusters, Docker, Nix, C FFI, Go bindings, Qt

EDUCATION

North Carolina State University. B.Sc. Computer Engineering; B.Sc. Electrical Engineering, *Magna Cum Laude*. Brazilian Jiu-Jitsu black belt (2017), Judo black belt (2007).