Joe ‘Oz’ Fredette

Infrastructure & Platform Engineer

jfredett@gmail.com Gardner, MA · Remote github.com/jfredett disturbed-circles.com/about/resume

Fifteen years building and operating the deployment platform behind a $50M+/yr regulated clinical data capture and reporting suite. My specialty is navigating the complex web of distributed systems, building them, and translating them to regulators and teammates alike. Audit representative in HIPAA, ISO[1], GxP, 21 CFR Part 11, and Customer-led ad hoc audits for ten of those years; with experience fielding questions and explaining complicated systems to non-technical audience.

EXPERIENCE

Lead Developer, Software Development Engineering (SaaS Ops)[2]

2014 – Present

Merative - Zelta formerly Merge Healthcare; acquired by IBM 2016, divested 2022 Remote

Hired to write code. A turnover of the IT department (five departures, three arrivals; I was the second) left the whole JVM-and-Ruby architecture without an owner. I inherited Zelta, and the legacy systems around it. I sunset the legacy estate, and have kept Zelta running through every infrastructure generation since.

- Own the deployment platform for the company’s 'Zelta' product ($50M+/yr revenue) through every generation of its infrastructure. Taking it from on prem, to hybrid cloud, then cloud. Simultaneously from manual deployment on bare metal on Windows to fully virtualized, disposable infrastructure in Azure.
- Defended highly-regulated systems in audit. HIPAA, ISO, GDPR, GxP, 21 CFR Part 11, and Customer ad hoc sessions. Represented complex enterprise systems, especially those which have taken careful tradeoffs in design, and proved those systems are compliant with regulations. Designed and built those same systems, identified and made those tradeoffs, and found ways to ensure we could exceed the demands of the regulations to provide a high quality product.
- Rebuilt and refactored the build-and-release process from a four-hour, manual, mouse-driven multiple-RDP session; to a zero-downtime, push-button model. Current project involves capturing the broader release flow in a durable-computing style workflow.
- Hardened to CIS Benchmarks Level 2 since 2017 across Windows Server, Ubuntu, Red Hat, and AKS; seven environments plus DR, ~100 VMs, ~130 containers, ~100TB of data. Near-100% in Qualys TruRisk (among other Qualys-suite tools), Azure Security, and Microsoft Defender; monitored continuously, evidenced in audit, held there on a multi-step patching cadence.
- Where an L2 control breaks the application, we fix the application: gap identified, compensating control designed and tracked through a Jira-backed change-control process I built with our compliance lead, then retired once the backend change lands. Coordinated multiple pentests; co-lead a three person security review team.
- Integrated against legacy enterprise systems during the migration to the cloud. Managed dozens of sunsetting/retirements of these systems as they were replaced. Moved from an on-prem bare metal Oracle/MySQL infrastructure to managed Oracle/PostgreSQL in Oracle@Azure and CrunchyBridge, respectively.
- Maintain a Backup system that supports arbitrary deployment of instances of the main application on demand. Including automated syncing of 'nightly copy' environments for use by support and development that mirror the primary system. Additionally allowing for ad hoc deployment of environments. Current projects include refactoring this process to use durable computing workflows.
- Wrote and maintain the 40,000-word Operator’s Manual that onboards and runs the operations team (8-12 people, depending on how you count), plus all other team documentation, regulatory and otherwise. Mentor new hires on the systems and on the constraints they operate under. Run a weekly "Office Hours" fielding questions, pairing on problems, and facilitating collaboration.
- Maintain all CI/CD (Jenkins) services, insourcing them from an external Merative team into the Zelta team. Moved to a baked-config model to ensure reproducibility, fully automated the CI/CD management so Jenkins updated itself, using a blue/green 'componentized' model adapted from our production deployment model.

Software Engineer
2011 – 2013

Vermonster LLC Boston, MA

- Built Women's Worlds of Qajar Iran as primary developer and ops lead. Static S3 plus an Elasticsearch-backed catalog system, deliberately cheap to run, still in active use fourteen years later.
- Built CDS-Onc, a chemotherapy decision support system encoding the NCCN treatment guidelines as a novel Ruby eDSL, including the multivalued logic system underneath it.[3]

Software Engineer
2010 – 2011

Explorica Travel Boston, MA

- Rebuilt the passport management system to modern coding and regulatory standards; re-architected the finance and expense reporting system.

TOOLS

Languages and Ecosystems
: Rust, Ruby, Python, Lean 4, Nix, JavaScript/TypeScript, Haskell, JVM

Azure
: Azure AKS, Bicep, Azure Monitor / Log Analytics, Managed Prometheus, Azure Firewall, managed Oracle & PostgreSQL

Platform
: Kubernetes (AKS, IBM Cloud Platform, k3s), Helm, Ansible, Terraform/OpenTofu, GitHub Actions, Jenkins, Temporal, NixOS, Cilium

Observability
: Prometheus, Grafana, ELK, PagerDuty, Cloudflare, SumoLogic

AI systems
: Claude and Local Models (Qwen and Gemma), agentic tooling and MCP, retrieval over large polyglot codebases

Data
: PostgreSQL and Oracle, both self-managed and cloud-managed; Redis, Elasticsearch

Regulatory
: HIPAA, ISO, GDPR, GxP, 21 CFR Part 11, and ad hoc Customer Audits

PROJECTS AND CURRENT INTERESTS

- Durable Computing: Many recent efforts at work and in my lab have been focused on using durable/HitL workflows which try to capture long-running social processes in code. Release Lifecycle, Application Deployment, and CI have all been or are being moved towards using this technology.
- The Lab: My homelab harnesses almost every compute-capable surface in my house. The fleet has two R730s, which host a self-built k3s cluster managed by tofu, running on NixOS VMs managed by a static NixOS Configuration. It manages and provides access to both CPU and GPU compute across an architecture and model heterogenous fleet.
- Math! Geometry Is Your Friend, a formalization of classical geometry based on Euclidean and Noneuclidean Geometry. Using Atlas as a custom Lean frontend for displaying and querying Lean codebases. As well as Colors to the Chameleon (as yet unpublished), an in-progress categorical model of Neutral Plane Geometry.
- Community and writing: Edited the Haskell Weekly News (2009–2010), occasional moderator of /r/haskell. Solutions published the MAA Mathematics Magazine: Right Prime Rings (#1810) and Wiener Indices of Certain Graphs (#1811) .[4]

EDUCATION

B.S. Mathematics
2010

Worcester State University

transferred from Worcester Polytechnic Institute, Mathematics & Computer Science, 2005–2007

- President, Worcester State Math Club, 2008–2010. Eagle Scout, 2005.

[1] "ISO" here means ISO 9001, 27001, 27701, 27017, and others.

[2] Titles rebanded at each acquisition and the bands don't translate between them. The scope below has been continuous since 2014.

[3] Ask me how abstract algebra resolved a longstanding ambiguity that was blocking development -- a good story, too long for the margin of this resume.

[4] The magazine credits solves, not papers. Submissions as written: #1810 (with M. Winders, and thus a "weak" Erdős number = 4), #1811.