Jacob Stephens

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Software engineer who builds AI agent infrastructure (agent sandboxes, orchestration, review gates, and evals) and runs the production platform a specialty-travel business depends on. 4+ years of production ownership of its reservations, payments, Linux fleet, and backend services. Built thirdshift, an open-source Rust orchestrator for unattended issue-to-PR delivery.

Experience

Head of Engineering

Educational Travel Adventures | Feb 2022 - Present | Remote

- Lead engineering (one direct report) with end-to-end responsibility for architecture, operations, deployment, and on-call response across the production stack of a multi-million-dollar travel business.
- Built three Docker/Traefik Manager Sandboxes with separate application containers, a shared writable database refreshed daily, and per-manager credentials. The marketing workflow alone has produced 30+ pull requests merged by engineering.
- Built an operations console (Python, Flask, SQLite) for fleet health, deploy review, branch previews, and browser terminals, with Google sign-in, passkeys, and per-permission access. Deployed Prometheus, Grafana, and Alertmanager across 14 of the 16 hosts in the fleet.
- After a cyber-insurer's port scan found an exposed remote-desktop service, moved operator SSH for all 16 hosts onto a Tailscale tailnet with tagged ACLs, keeping staff-facing browser consoles on MFA-gated public endpoints.
- Reduced group-manifest SQL statements per request from about 2,650 to 183 with byte-identical output. A separate measurement-led index pass eliminated about 80% of measured query time on the live primary using online DDL.
- Worked a tour as a guide, then turned the guide portal into an offline-capable PWA that guides install on their phones, adding inline itinerary reading and snap-a-photo receipt upload to fix the friction seen on the tour. 77 guides filed 410 tour reports and 1,800+ expense reports (about $154K) over a 12-month period.
- Led PHP 5-to-8, MySQL 5-to-8, and CentOS-to-Rocky Linux migrations. Modernized payment integrations and ACH/NACHA workflows, including bank-account encryption, as part of a PCI compliance initiative.
- Built a deployment pipeline with dirty-worktree rejection, serialized deploys, ancestor-only refs, health checks, and rollback; validated with PHPUnit and GitHub Actions across PHP 8.1-8.4.

Web Developer and Client Support Specialist

Sharp Innovations | Nov 2021 - Feb 2022 | Conestoga, PA

- Automated SQL/PHP database migrations, reducing execution from hours to minutes; supported client websites, security fixes, and Linux server configuration.

Full-Stack Developer (Independent)

Steward Goods | Mar 2020 - Nov 2021 | Remote

- Designed and shipped a multi-tenant possessions tracker in PHP and MySQL with full frontend, backend, and deployment ownership; implemented Stripe subscription payments for client work.

Selected Projects

- thirdshift (source | review evaluation): A deterministic Rust orchestrator for unattended issue-to-PR delivery across six coding-agent harnesses, with dependency-aware parallel tickets in separate Git worktrees, standards and spec reviews, CI checks, bounded repair loops, and resumable runs. Built an Experiment harness that runs agent configurations against a private suite of 27 eval tasks drawn from real bugs and specs, with fixed trials per task, predefined pass/fail bars, A/A calibration runs, and per-run token accounting. Designed an evaluation of 183 replayed code-review sessions with fresh-session controls and predefined acceptance bars, and published the results and limitations.
- vaulted-agent: Launches coding agents with vault-resolved secrets injected in-process, per-agent manifests, and vault-manager tokens removed from the child environment. Supports 1Password, Bitwarden Secrets Manager, pass, and SOPS.
- infrastructure-patterns: Public, sanitized architecture decisions covering agent isolation, scoped credentials, human merge gates, audit trails, and rollback.
- Voice Agent Scheduling: TypeScript telephone assistant for Google Calendar booking, with signed webhooks, explicit caller confirmation, durable reconciliation to prevent duplicate events, and call-duration and cost limits.
- Cascade: A headless Rust audio core shared by four released shells (web PWA, Android, Windows, macOS) through a single JSON interface, with wasm-bindgen, UniFFI, and C ABI bindings; iOS and watchOS shells are in TestFlight.
- Chart35: A shipped fertility tracker with client-side AES-256-GCM encryption, offline-first storage, and expiring provider-share links.

Core Technologies

LANGUAGES & DATABASES

Rust, Python, TypeScript/JavaScript, PHP, SQL, MySQL, PostgreSQL, SQLite

AGENT & DELIVERY SYSTEMS

Coding-agent orchestration, Git worktrees, review evaluations, CI/CD, GitHub Actions, PHPUnit, Vitest, Playwright

INFRASTRUCTURE & APPLICATIONS

Linux, Docker/Compose, Traefik, Tailscale, Terraform, Ansible, Prometheus/Grafana, FastAPI, Flask, React/Next.js, REST APIs

Education & Certification

BA, Sociology | Gordon College | 2017 | Research methods coursework, including interview fieldwork

CompTIA A+ | Earned November 2017