

Luke MacNeil

Senior Engineer | Infrastructure, Full-Stack & AI Systems | CKA Certified | Remote | U.S. Citizen

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Infrastructure and DevOps leader with 20 years building and operating production systems at enterprise scale. **Certified Kubernetes Administrator (CKA)**. Puppet configuration management across 10,000+ FedRAMP servers at Salesforce. Nationwide migration of 7,500 retail systems at CVS Health (PCI-DSS). Now shipping production agentic AI applications on self-managed Kubernetes infrastructure with SLO-driven reliability, 1,600+ automated tests, and GitHub Actions CI/CD. USPTO patent holder in machine learning.

CORE COMPETENCIES

Infrastructure & IaC Kubernetes (CKA), AWS (EC2, S3, IAM, SES, Route53), GCP, Docker, Terraform, Packer, Ansible, Puppet (10k+ nodes), platform engineering

AI & LLM Integration Multi-model orchestration (Claude, OpenAI, Gemini, Ollama), RAG pipelines (ChromaDB, LlamaIndex), agentic pipelines, function calling, prompt engineering, TTS/STT, embeddings

CI/CD & GitOps GitHub Actions (parallel matrices, multi-platform builds, automated releases), git worktrees, Jenkins, Spinnaker, Artifactory

SRE & Observability SLOs/SLIs, error budgets, incident management, on-call, runbooks, toil reduction, capacity planning, Prometheus, Grafana, Zabbix (50k+ items), Splunk

Full-Stack Dev Python (Django, FastAPI, Celery, async/await), TypeScript, React, Electron, Node.js, SQL, HTMX

Testing & Quality Pytest, Vitest, Playwright (E2E), 1,600+ automated tests across projects, test-driven development

Security & Compliance FedRAMP, PCI-DSS, HIPAA, prompt injection prevention, path traversal guards, secrets management

Platforms RHEL, CentOS, Ubuntu, SuSE, Debian — 20 years production Linux operations

CERTIFICATIONS

Certified Kubernetes Administrator (CKA) — The Linux Foundation / CNCF, 2026

CompTIA A+ / Linux+ / Network+ • Scrum Alliance Certified Scrum Master (CSM) • VMware Certified Professional (VCP)

PROFESSIONAL EXPERIENCE

Head of Engineering / Lead Developer | JET Hospitality

2023 – Present

Cloud Infrastructure & AI Systems | 10 Properties | Remote

- Architected and operate all production AWS infrastructure (EC2, Lightsail, SES) supporting 10 properties. Defined SLOs with error budgets for booking platform availability (99.99% measured uptime), synthetic monitoring, runbooks for top alerting scenarios, and incident response procedures.
- Saved \$50K+/year by designing and shipping a custom multi-department CRM (Django, Celery, PostgreSQL, Redis) replacing paid SaaS — sales pipeline with Kanban boards, investor relations, multi-queue ticketing, hiring pipeline, and AI content publishing via OpenAI GPT-4o/DALL-E.
- Engineered dual-database architecture bridging the CRM (PostgreSQL) with legacy hospitality MySQL via SSH tunnels with health checks and graceful lifecycle management, enabling real-time guest enrichment and targeted marketing across properties.
- Defined the company technology roadmap in collaboration with department heads; led build-vs-buy evaluations across all departments, selecting custom solutions where ROI justified development and recommending SaaS where it did not.

Founder & Lead Engineer | MacNeil Media Group, LLC

2019 – Present

Infrastructure, AI Systems & Full-Stack Development | Remote

- Designed resilient data ingestion pipeline (CareerPulse) across 14 external APIs with independent failure modes; implemented per-provider circuit breakers, adaptive rate limiting, and SHA-256 deduplication. 1,024 automated tests with parallel GitHub Actions CI. (FastAPI, SQLite, Manifest V3 Chrome extension)
- Built production real-time infrastructure (Luke at the Roost) handling 10 concurrent WebSocket audio streams with 5-provider LLM failover, concurrent async recording across 7 audio channels, and automated multi-platform publishing pipeline. 38+ episodes in production. (FastAPI, asyncio, SignalWire, Whisper)
- Engineered multi-process IPC architecture (Hivemind) with isolated tmux sessions, zero-copy output streaming with automatic degradation, and context-isolated security boundaries. GitHub Actions CI/CD producing multi-platform builds (macOS/Windows/Linux). 632 tests. (Electron, React 19, TypeScript, node-pty)
- Designed reusable GitHub Actions CI/CD templates with parallel test matrices and multi-platform build pipelines across all projects; implemented git worktree workflow enabling parallel agent-driven development streams without branch conflicts.

Lead Infrastructure Engineer | Salesforce, Inc.

2014 – 2019

Microservices Migration | Puppet Configuration Management | Government Cloud (FedRAMP)

- Spearheaded migration of monolithic infrastructure to microservices on AWS and GCP using Terraform, Packer, and Kubernetes, reducing environment provisioning from days to under an hour and enabling self-service deployments for product teams.
- Engineered and maintained Puppet configuration management for 10,000+ production servers including Salesforce Government Cloud (GIA), maintaining FedRAMP compliance. Authored configuration standards adopted across the infrastructure org, eliminating manual configuration toil across the fleet.
- Led a 5-person engineering team as Scrum Master and technical lead, reducing manual deployment time by 40% through CI/CD automations. Mentored junior engineers on infrastructure-as-code practices and incident response.
- Architected monitoring infrastructure (Nagios, Zabbix, Zenoss) across 10,000+ nodes with custom alerting tooling and dashboards; authored runbooks for top alerting scenarios and established on-call rotation and postmortem process that reduced repeat incidents.
- Implemented Docker container deployment infrastructure using Artifactory, enabling the Salesforce Analytics Cloud (Wave) product launch to ship on schedule.
- Invented a machine-learning photo auto-tagging system using Salesforce Einstein AI — successfully patented (US20210241019A1).

Senior Infrastructure Engineer | CVS Health

2008 – 2014

Enterprise Linux | Nationwide Retail Infrastructure | PCI-DSS Compliance

- Orchestrated nationwide migration of 7,500 retail servers from SCO UNIX to SuSE Linux Enterprise Server on IBM hardware — completed on time with zero business continuity impact.
- Designed and implemented core infrastructure services (DNS, SVN, NFS, MySQL, Apache, Zabbix, CUPS) for a fleet of 15,000+ hosts with 50,000+ monitored items.
- Led PCI-DSS compliance initiatives for retail pharmacy infrastructure, passing all external audits and establishing secure cardholder data handling procedures.
- Developed centralized automation platform managing software distribution, drive encryption, and printer configuration across 7,500 retail endpoints.

Earlier Career

- Omgeo, Inc. | Infrastructure Engineer (SAS70, BladeLogic, VMware ESX, Solaris 10) | 2008
- Marsh & McLennan Companies | Sr. Systems Engineer (Veritas Cluster Server, EMC PowerPath, SAN) | 2007
- EMC Corporation | Data Center Operations (multi-OS, Cisco, AIX, HP-UX, Linux, Windows) | 2006–2007

PATENT, PUBLICATIONS & TECHNICAL WRITING

- **USPTO Patent US20210241019A1** | Machine Learning Photographic Metadata — Co-inventor. Automated image classification and metadata tagging using CNNs, filed through Salesforce's IP program.

- Technical Blog | macneilmediagroup.com/blog — engineering deep-dives on infrastructure, AI integration, and system design
- How It Works: Luke at the Roost | lukeattheroost.com/how-it-works — technical architecture walkthrough of real-time AI audio pipeline
- AI News Roundup | Daily fully automated newsletter — end-to-end LLM pipeline from aggregation to delivery
- Technical Reviewer | The Zabbix Cookbook, Packt Publishing

EDUCATION

Computer Career Institute, Clark University | Worcester, MA | 2003–2005