

Alex Popell

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Professional Summary

Cloud Infrastructure & Systems Engineer with deep expertise in enterprise Linux internals, AI supercomputing clusters, and container orchestration. Proven track record diagnosing P0/P1 distributed system failures, optimizing high-performance GPU fabrics, and automating large-scale cloud infrastructure with zero downtime.

Professional Experience

Google

Kitchener, ON

Technical Solutions Developer – Cloud Infrastructure, Linux Internals & AI Supercomputing Apr 2022 – Present

- **Enterprise Escalation Leadership & Reliability:** Serve as primary technical escalation lead and North America SME for Enterprise Linux (RHEL, SLES, Rocky Linux), resolving mission-critical P0/P1 production outages for Fortune 500 financial, retail, and AI enterprises; maintained a 100% initial response and consultation SLA, 0% case reopen rate, and 90% valid engineering defect escalation rate across 350+ annual engagements.
- **AI Supercomputing & Large-Scale GPU Diagnostics:** Lead infrastructure troubleshooting for frontier AI/ML workloads across 256-GPU NVIDIA H100 (A3 Mega) and liquid-cooled NVIDIA GB200 NVL72 (A4X Max) clusters; resolved distributed PyTorch/NCCL collective hangs over GPUDirect-TCPXO, CUDA PTX JIT driver regressions, NVLink switch fabric degradations, and Managed SLURM root-disk exhaustion.
- **Kernel Driver Backporting & High-Stakes Event Protection:** Guaranteed 100% production uptime for a global quantitative trading platform during a major IPO event by diagnosing hypervisor live-migration drops to an Admin Queue retry flaw in legacy gve 1.0.0 network driver; engineered custom Linux kernel C source patch (gve 1.3.1 backport) for EOL CentOS 7.9 (3.10 kernel) alongside emergency maintenance freezes.
- **Large-Scale Fleet Migration & Systems Profiling:** Unblocked a multi-thousand-node fleet migration to Rocky Linux 9 (Kernel 6.1) for a Tier-1 market maker after simulation jobs experienced 90x latency spikes (30s to 45m); profiled kdump memory cores, maps, and strace D-state traces to isolate a boot-time systemd bound race condition diverting NVMe scratch I/O to NFS, partnering with Principal Engineers to resolve CPU L1 cache contention.
- **Cloud Security Architecture & Disaster Recovery:** Guided an international financial institution through Confidential Computing (vTPM attestation) and VPC-SC perimeter architecture across Shared VPC boundaries; recovered unbootable enterprise SLES production nodes via raw block-level cloning and chroot UEFI/GRUB shim reconstruction, ensuring zero data loss across clustered RAID storage during hypervisor live-migration loops.
- **Technical Enablement & Mentorship:** Authored 7+ internal engineering playbooks and public Google Cloud documentation guides covering HPC Cluster Toolkit/SLURM diagnostics, MIG autohealing, IAM service accounts, and serial console recovery; formally mentored 5+ engineers transitioning into cloud compute infrastructure.

Postmedia Networks Inc.

Toronto, ON

Senior Operations Engineer

Oct 2021 – Mar 2022

- **Infrastructure Automation & IaC:** Architected and deployed multi-region CI/CD pipelines across AWS and GCP using Terraform, Ansible, Jenkins, and Cloud Build, eliminating manual provisioning steps and standardizing configuration management.
- **High-Availability Operations:** Maintained 99.9x% service availability for high-traffic media properties across distributed Linux fleets (Ubuntu/RHEL/CentOS); executed capacity planning and failover testing for core PostgreSQL, Elasticsearch, and MySQL clusters.
- **Containerization & Agile Delivery:** Standardized containerized microservices deployments on Kubernetes (GKE), integrating automated security scanning and centralized logging via ELK Stack within an Agile sprint lifecycle.

Points

Unix Administrator

Toronto, ON

May 2017 – Oct 2021

- **Fleet Reliability & SLA Adherence:** Administered enterprise hybrid Linux environments (Ubuntu, RHEL, CentOS) and perimeter networking across 24/7 on-call rotations, consistently upholding strict multi-tier enterprise SLAs.
- **Infrastructure Security & Incident Triage:** Hardened production server endpoints and network topologies; tuned real-time intrusion detection and log analysis across Snort, Splunk, and ELK Stack to streamline vulnerability mitigation and security audits.
- **Lifecycle Management & Automation:** Automated bare-metal and virtual server lifecycle provisioning across Dell and Cisco hardware utilizing Puppet, Ansible, Foreman, and Terraform.

Technical Skills

Cloud & AI Supercomputing

Google Cloud Platform (GCE, GKE, AI Hypercomputer, MIGs, Cloud Storage, Persistent Disk, Local NVMe), NVIDIA GB200 NVL72 (A4X Max), NVIDIA H100 SXM5 (A3 Mega), Cluster Director, Managed SLURM, HPC Cluster Toolkit, AWS, OCI

GPU Fabric, Networking & Security

GPUDirect-TCPXO / RxDM, NVIDIA NCCL, CUDA, NVLink / NVSwitch Topologies, gVNIC (gve), Andromeda Virtual Networking, Shared VPC, Internal Load Balancing (ILB), Confidential Computing (vTPM Attestation), VPC Service Controls (VPC-SC), IAM & UBLA

Linux Internals & Systems Forensics

Enterprise Linux (RHEL, SLES, Rocky Linux, Ubuntu Server, CentOS), Kernel & Driver Forensics (kdump, strace, maps, dmesg, ethtool, sosreport, sar), C Kernel Module Backporting, sysctl / OOM Tuning, systemd / VFS & NFS Profiling, Bootloader Recovery (UEFI/GRUB2/shim, chroot)

Containers, IaC & Automation

Kubernetes (CKA certified), Docker, Terraform, Ansible, Puppet, Bash/POSIX Shell, PowerShell, SQL (BigQuery), Git, CI/CD (GitHub Actions, FluxCD)

Observability & Storage

Cloud Logging & Monitoring, Prometheus, Splunk, ELK Stack, New Relic, Snort, PostgreSQL, MySQL, Elasticsearch, CouchDB

Operations & Leadership

Enterprise Technical Escalation Command, Event Management Services & Hypercare, Root Cause Analysis (RCA), Architecture Reviews, Capacity Planning & Reservations

Certifications

Certified Kubernetes Administrator (CKA)

The Linux Foundation

Valid through Nov 2026

Associate Cloud Engineer (ACE)

Google Cloud

Valid through May 2028

Professional Cloud Architect (PCA)

Google Cloud

Completed / Historical

Education

Seneca College

Computer Networking and Technical Support

Ontario College Advanced Diploma

Sept 2015 – May 2017

Western University

Human Physiology and Pharmacology

Master of Science

Sept 2012 – Aug 2014

Western University

Bachelor of Medical Science

Sept 2007 – Apr 2011