

AFNAN SHAREEF MOHAMMED

Platform · Cloud · Site Reliability · Software Engineering · 7+ Years Experience

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portfolio

PROFESSIONAL SUMMARY

- 7+ years of professional software engineering experience building distributed systems, cloud platforms, and production infrastructure — from Java backend services used by millions to Kubernetes, Go/eBPF observability, and multi-cloud automation.
- Built Starship, an AI-assisted multi-cloud deployment platform (GCP, AWS, Azure, OCP, on-prem) that cut deployment effort ~70% and configuration errors ~50–60% across 7+ infrastructure targets.
- Built a Go/eBPF/DPDK network observability platform processing 50,000+ telemetry samples/second across 25+ nodes, reducing investigation time ~40% and anomaly detection from ~15 minutes to under 5.
- Pioneered PCF and voice-core deployment on GCP for a major European telecom environment — GKE, VPC networking, ingress/DNS/TLS, Crossplane, Workload Identity, and end-to-end traffic troubleshooting.
- Deep production debugging across application, Kubernetes, Linux networking, and cloud layers; owns reliability practices including SLIs/SLOs, incident RCA, runbooks, and automation that eliminates toil.

PROFESSIONAL EXPERIENCE

Software Engineer — Cloud Infrastructure | Nokia Canada | Ottawa, ON | Sept 2023 – Present

Starship — AI-Assisted Multi-Cloud Deployment Platform (Python, Crossplane)

- Reduced CNF deployment effort by ~70%, converting multi-day manual professional-services work into repeatable workflows completed in 2–4 hours.
- Architected a self-service platform automating infrastructure provisioning, environment validation, configuration generation, deployment, and post-install verification across 7+ targets: GCP, AWS, Azure, Oracle Cloud, OpenShift, HPE, and on-prem Kubernetes.
- Built an AI configuration assistant (LangChain, RAG, vector DBs) interpreting natural-language requirements into validated, environment-specific configs — cutting config prep time ~60% and errors ~50–60%.
- Implemented a human-in-the-loop approval model so every AI-generated configuration is engineer-reviewed before any provisioning occurs.
- Developed Python/FastAPI orchestration services translating approved parameters into Crossplane compositions, Kubernetes resources, and Helm values; built REST APIs for onboarding, deployment, status, validation, and reporting.
- Lowered customer implementation and professional-services cost ~30–40% by replacing manual procedures with standardized, policy-controlled automation.

Network Observability Platform (Go, C, eBPF, DPDK, Prometheus)

- Reduced network-issue investigation time ~40% (~50 – ~30 min) by building a centralized observability platform exposing 150+ kernel, network, and infrastructure metrics across 25+ nodes.
- Processed 50,000+ telemetry samples/second at sub-second API latency using concurrent Go pipelines with C components on performance-critical packet paths.
- Implemented eBPF probes for low-overhead kernel tracing (TCP behavior, packet drops, latency, syscalls) and DPDK userspace processing supporting interfaces up to 10 Gbps — with no application code changes.
- Cut anomaly-detection time from ~15 minutes to under 5 by defining Prometheus alert conditions and SLO thresholds; applied ML models to predict failures before service impact.
- Partnered with 6–8 networking, software, and platform engineers to define 20+ operational KPIs and establish repeatable incident-response workflows.

Cloud Infrastructure, Kubernetes & Networking

- Pioneered PCF and voice-core deployment on GCP for a major European telecom environment — building GKE clusters, VPCs, subnets, node pools, static IPs, DNS, TLS, ingress, IAM, and Workload Identity from the ground up.
- Deployed and validated CNFs on AWS for a Canadian carrier disaster-recovery core, performing end-to-end service integration, lifecycle management, and post-deployment verification.
- Diagnosed complex TCP/IP issues in carrier-grade Kubernetes: GRE tunnels, IPv6 pod addressing, routing tables, neighbor discovery, CNI plugins, and node-to-node reachability using tcpdump, ip route/addr/neigh.
- Built CI/CD and IaC across GitLab CI, GitHub Actions, ArgoCD, Jenkins, Terraform, Ansible, and Crossplane; managed images via Harbor, JFrog Artifactory, and ECR with HCP Vault, IAM, and RBAC for secrets and access.

- Drove GCP cost control and environment hygiene: scaled idle node pools to zero, right-sized resources, and automated cleanup of clusters, VPCs, and subnets.
- Authored runbooks, architecture documentation, and stakeholder communications; led post-incident RCA with engineering, management, and cloud-provider teams.

Environment: Go, C, Python, Java, eBPF, DPDK, Kubernetes, GKE, EKS, OCP, Docker, Helm, Prometheus, Grafana, FastAPI, LangChain, RAG, GCP, AWS, Azure, Oracle Cloud, Terraform, Ansible, Crossplane, GitLab CI, GitHub Actions, ArgoCD, Jenkins, Harbor, JFrog, ECR, HCP Vault, Linux, TCP/IP, DNS, TLS, VPC, IAM, IPv6, GRE, CNF

Full-Stack Developer | Ticketmaster | Toronto, ON | Jan 2021 – Aug 2023

- Designed and built the backend for a seat-selection service engineered for extensibility and correctness under intense concurrent demand — still in production today serving millions of ticket buyers.
- Developed Java/Spring Boot microservices and REST APIs deployed to AWS via Jenkins, Docker, and Kubernetes; implemented Kafka event streaming for reliable state propagation across services.
- Generated runtime health and method-level performance metrics using Spring Actuator and AOP; configured and scaled Cassandra clusters for high read/write contention.
- Performed code and API reviews, maintained Swagger documentation, and wrote JUnit/Mockito test suites focused on concurrent contention scenarios.

Environment: Java, Spring Boot, Spring AOP, Microservices, Kafka, Angular, MongoDB, Cassandra, Docker, Kubernetes, Jenkins, AWS, Maven, JUnit, Mockito

Software Developer | UKG | Montreal, QC | Mar 2018 – Jan 2021

- Built high-volume workforce-data backend services using Java 8, Spring MVC, Spring Boot, Hibernate, and RESTful/SOAP web services on AWS (S3, SQS, EC2).
- Developed and maintained CI/CD pipelines with Jenkins, Maven, and Git; configured WebLogic/JBoss servers for stable production releases.
- Implemented data access layers, stored-procedure integration, caching, and exception handling across MongoDB, Oracle, and SQL databases.
- Wrote unit and integration tests with JUnit and Cucumber; participated in requirement analysis, design reviews, Agile delivery, and production defect troubleshooting.

Environment: Java 8, Spring Boot, Spring MVC, Hibernate, JAX-RS, JAX-WS, ReactJS, Node.js, AWS, Jenkins, Maven, MongoDB, Oracle, SQL, WebLogic, Git, Cucumber

SELECTED PROJECT

afnanmohammed.dev — interactive engineering portfolio, self-hosted end to end

- Designed and built a framework-free interactive site (HTML/CSS/JS, Three.js WebGL, canvas visualizations, command palette) with per-project architecture diagrams.
- Self-hosted on homelab infrastructure: Docker + nginx behind a Cloudflare Tunnel with zero inbound ports, edge TLS, CDN caching, and WAF — demonstrating end-to-end ownership from design to secure deployment.

TECHNICAL SKILLS

Languages: Go, Python, Java, C/C++, JavaScript, Bash/Shell, SQL

Cloud & Containers: GCP, AWS, Azure, Oracle Cloud, Kubernetes (GKE, EKS, OCP), Docker, Helm, Workload Identity, VPC, IAM

Platform & IaC: Terraform, Crossplane, Ansible, GitLab CI, GitHub Actions, ArgoCD, Jenkins, Harbor, JFrog Artifactory, ECR

Systems & Observability: Linux, TCP/IP networking, eBPF, DPDK, packet tracing (tcpdump), Prometheus, Grafana, ELK, Datadog, distributed tracing

Reliability / SRE: SLIs & SLOs, incident response, post-incident RCA, runbooks, health checks, rollback validation, capacity & cost optimization

Backend & Data: Spring Boot, FastAPI, REST, gRPC, Kafka, microservices, PostgreSQL, MongoDB, Cassandra, Redis, Oracle

AI / ML: LangChain, RAG, vector databases, LLM integration, ML-based anomaly detection

Security: HCP Vault, IAM least-privilege, RBAC, secrets management, TLS, pipeline security

EDUCATION

Bachelor of Science, Electronics and Instrumentation — Osmania University | 2018