Kalash Bijukchhe

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Summary

Master of Information Technology student in Adelaide building Kubernetes GitOps, Terraform and CI/CD systems on AWS and a Proxmox homelab. Full-stack background; focused on declarative infrastructure, automated delivery and diagnosing deployment failures.

Education

Master of Information Technology — Expected 2028
Kaplan Business School — *Adelaide, SA*
Bachelor of Information Technology — 2026
King's Own Institute — *Sydney, NSW*

Technical Skills

Cloud & IaC: AWS (VPC, EC2, ALB, NAT Gateway, IAM, ECR, SSM Session Manager), Terraform
Containers & Orchestration: Kubernetes, k3s, Docker, Docker Buildx, Docker Compose, Helm, ArgoCD, Traefik, cert-manager
CI/CD & Operations: GitHub Actions, GitOps, GHCR, Linux (Ubuntu), Proxmox VE, systemd, Nginx, Prometheus, Grafana, TLS
Application Dev: Python, FastAPI, TypeScript, Node.js, React, Next.js, PostgreSQL, Prisma

Projects

AI Inference GitOps — GitHub
Kubernetes (k3s), Helm, ArgoCD, GitHub Actions, AWS ECR, FastAPI, Ollama, Proxmox

- Built a hybrid-cloud CI/CD pipeline (GitHub Actions → private AWS ECR → ArgoCD → local k3s on Proxmox) that builds a FastAPI inference proxy and deploys it declaratively through a Helm chart.
- Configured a rolling-update strategy (`maxUnavailable: 0`, `maxSurge: 1`) with `/healthz` liveness and custom `/readyz` readiness probes that gate traffic on Ollama backend availability.
- Hardened the pod spec (non-root user, seccomp `RuntimeDefault`, read-only root filesystem, dropped capabilities, resource limits) and exposed Prometheus request and latency metrics from the proxy.
- Fixed readiness `503`s caused by Ollama binding only to `127.0.0.1`; resolved ECR `403` pulls after an AWS Organizations SCP blocked GitHub OIDC by using static IAM credentials in a pull secret (OIDC migration documented).
- Overcame CPU-only inference limits by rolling the model from `llama3.2:3b` to `llama3.2:1b` through a Git-driven configuration change.

ERP Lite GitOps — GitHub
Kubernetes (k3s), Helm, ArgoCD, GitHub Actions, GHCR, Traefik, cert-manager, PostgreSQL, Next.js

- Built an automated `linux/amd64` delivery pipeline: GitHub Actions and Docker Buildx build the image, push it to GHCR tagged with the immutable Git commit SHA, and commit the new tag into the Helm values.
- Declared the deployment in Helm and reconciled it with ArgoCD (automated sync, prune, self-heal): Next.js app, PostgreSQL on a PVC, ClusterIP services, readiness/liveness probes, and Traefik ingress with cert-manager TLS.
- Debugged an ARM64/AMD64 image mismatch (Apple Silicon build, AMD64 node), k3s containerd vs Docker image handling, `imagePullPolicy` behaviour, and PVC size drift between the cluster and Helm values.
- Ran Prisma migrations as an explicit post-deploy step, configured AdGuard DNS rewrites for internal ingress hostnames, and used Prometheus/Grafana (kube-prometheus-stack) to inspect workload health.

AWS Secure Web Infrastructure — GitHub
Terraform, AWS VPC, ALB, EC2, NAT Gateway, IAM, SSM Session Manager, Nginx

- Provisioned a VPC with Terraform: 2 public and 2 private subnets across availability zones, Internet Gateway, NAT Gateway, route tables, an ALB with a health-checked target group, and an EC2 Nginx host bootstrapped via `user_data`.
- Enforced network isolation: the instance sits in a private subnet with no public IP, its security group accepts HTTP only from the ALB security group, and outbound traffic egresses through the NAT Gateway.
- Replaced SSH with AWS SSM Session Manager using an IAM role and instance profile (`AmazonSSMManagedInstanceCore`), leaving no inbound administrative ports open.
- Troubleshot ALB Bad Gateway and health-check failures via target-group health, `curl localhost` over SSM, and cloud-init logs, then fixed the `user_data` bootstrap.

Experience

Customer Service Team Member — 2023 – 2026
Woolworths — *Sydney, NSW*

- Handled customer-facing issues and shifting priorities in fast-paced retail operations alongside managers and team members.