

PhotoVerify: Kubernetes Implementation Report

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1 Implementation Overview

The PhotoVerify application demonstrates a complete cloud-native implementation with:

- Next.js frontend with API routes
- PostgreSQL database with Prisma ORM
- Kubernetes deployment on Minikube
- Persistent storage for both database and uploads

2 Technical Highlights

2.1 Kubernetes Architecture

The system uses separate Deployments for frontend and database components, connected via ClusterIP Services. Key features include:

Feature	Implementation
Ingress	NGINX controller with host routing
Persistence	2 PersistentVolumes (1Gi + 500Mi)
Scaling	HPA configured for frontend pods