



DEVOPS-201B

Professional Kubernetes for Operations

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OVERVIEW

Skill Level	:	Intermediate
Suitable for	:	Experienced system administrators who will deploy, monitor, observe, troubleshoot, and triage applications on Kubernetes.
Duration	:	5 Days

In this course, students will learn how to deploy applications in a manner that is resilient, scalable, and secure when run on top of Kubernetes. Moreover, students will acquire the skills to operate Kubernetes and its applications on a daily basis.

Throughout the course, students will also learn patterns and tools within the Kubernetes ecosystem.

PREREQUISITES

- DEVOPS-101 – Docker & Kubernetes Fundamentals
- DEVOPS-102 – Linux Fundamentals
- DEVOPS-103 – Git Fundamentals

Recommended:

JAVA-302 – Enterprise Microservices with Istio

LEARNING OUTCOMES

- Learn how to set up and manage a Kubernetes cluster, including networking, storage, and security configurations, which is crucial for both developers when designing applications and administrators when managing the infrastructure.
- Understand how to integrate Kubernetes into a DevOps workflow, including continuous integration and continuous deployment (CI/CD) practices with tools like Jenkins, GitLab CI, or GitHub Actions.

COURSE OUTLINE

Cloud Native Architecture

- Microservices Architecture
- The Twelve-Factor Application

Docker and Kubernetes Recap

- Docker and Kubernetes Recap (from DEVOPS-101)

Kubernetes From Scratch

- Basic Cluster installation using kubeadm
- Custom Cluster Creation on major clouds (AWS, GCP, Azure)

Continuous Integration and Continuous Deployment

- Authoring, Deploying and Publishing Helm Charts
- GitOps using ArgoCD and GitLab DevOps
- Private Registry Deployment and Administration

Deployment Patterns

- Sidecar Containers
- CRDs and Operator Pattern

Security

- User Authentication
- Network Policies
- RBAC
- Pod Security Context

Networking, Operations, Monitoring and Observability

- Inspecting Application Logs
- Deploying and Consuming Metrics with Prometheus
- Deploying and Visualizing Metrics with Grafana
- Deploying and Tracing with Jaeger
- Node and Pod Management
- Scaling
- Resource Quotas

Backup and Restore

- Patterns for SQL databases
- etcd backup and restore
- Patterns for NoSQL databases

Kubernetes Ecosystem

- Cloud Native Computing Foundation (CNCF)
- Differences: AWS EKS vs GCP GKE vs Azure AKS vs Tanzu?
- Tanzu Application Platform (TAP)
- Visualization Tools
- Custom Ingress Controllers

Microservices and Service Mesh

- Microservices Recap
- Deploying Microservices on Kubernetes
- Istio Gateway and Service Mesh



Enquiries



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