



Certified Kubernetes Administrator (CKA)

- ◆ Master Kubernetes cluster administration and prepare for the CKA certification. Learn to install, configure, and manage production-grade Kubernetes clusters with hands-on experience in container orchestration.

Prerequisites

- ◆ Strong Linux administration skills
- ◆ Docker containerization experience
- ◆ Basic understanding of networking concepts
- ◆ Command line proficiency



Course Content

MODULE-1 INTRODUCTION KUBERNETES

- ♦ Introduction to Kubernetes
- ♦ Kubernetes Cluster Architecture
- ♦ Core Concept of Kubernetes Services
- ♦ ETCD & Controller & API & scheduler
- ♦ Exploring your Cluster
- ♦ Understanding YAML

MODULE-2 INSTALLATION

- ♦ Installation minikube
- ♦ Installation using kubeadm utility in HA mode
- ♦ Install Kubernetes the hard Way
- ♦ How to use kops and create
- ♦ Kubernetes cluster



MODULE-3 APPLICATION DEPLOYMENT

- Creating a Deployment in Kubernetes using YAML
- Creating a Service in Kubernetes
- Understanding pod & Replication & Deployment configuration
- Using Rolling Updates in Kubernetes
- Configure Environment variables in the application
- Configure secret resources for sensitive value
- Creating Config Map
- Scale Applications
- Multi Container PODs
- Init Containers
- Self-Healing Applications

MODULE-4 STORAGE MANAGEMENT

- Creating Persistent volume
- Persistent Volume Claim
- Volume claim policy understanding
- Attach storage on deployment



MODULE-5 POD SCHEDULING

- ♦ Manual Scheduling
- ♦ Labels and Selectors
- ♦ Taints and Toleration
- ♦ Node Selectors
- ♦ Node Affinity
- ♦ DaemonSets
- ♦ Static Pods
- ♦ Multiple Schedulers
- ♦ Configuring Kubernetes Scheduler

MODULE-6 RESOURCE ALLOCATION

- ♦ Restrict Limit Memory & CPU use
- ♦ Creating Resource Quota
- ♦ Creating Limit Quota



MODULE-7 NETWORKING

- ♦ Network Namespace understanding
- ♦ Docker Network
- ♦ Deploy Kubernetes Network
- ♦ Cluster Networking
- ♦ Pod Networking
- ♦ Creating Service Network
- ♦ DNS Concept in Kubernetes
- ♦ Ingress System Kubernetes

MODULE-8 MONITORING KUBERNETES

- ♦ Logging and Monitoring
- ♦ Monitoring Cluster Component
- ♦ Managing application Logs

MODULE-9 SECURITY

- ♦ Authentication
- ♦ TLS Introduction
- ♦ Certificate System Kubernetes
- ♦ Creating Certificate
- ♦ Role base Access Controls
- ♦ Cluster Role and Role Binding
- ♦ SCC: Security Constant Conta & Network Policy
- ♦ Image Security