



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 Tolerations
- ✦ 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