Certified Kubernetes Administrator (CKA)

Kubernetes Platform

- Comparison with Docker Swarm
- Orchestration and Various Tools
- History of Kubernetes

Introduction to Kubernetes

- Kubernetes Terminology
- Kubernetes Architecture
- Kubernetes Cluster Architecture
- Kubernetes API Primitives
- Kubernetes Services and Network Primitives

Kubernetes Setup and Validation

- Building the Kubernetes Cluster on Ubuntu
- Release Binaries, Provisioning and Types of Clusters
- Installing Kubernetes Master and Nodes
- Building a Highly Available Kubernetes Cluster
- Configuring Secure Cluster Communications
- Testing The Cluster

Managing Cluster

- Managing the Kubernetes Cluster
- Upgrading the Kubernetes Cluster
- Backing Up and Restoring a Kubernetes Cluster

Networking

- Cluster Communications
- Pod and Node Networking
- Container Network Interface (CNI)
- Service Networking
- Ingress Rules and Load Balancers
- Cluster DNS

Scheduling

- Pod Scheduling within the Kubernetes Cluster
- Configuring the Kubernetes Scheduler
- Running Multiple Schedulers for Multiple Pods
- Scheduling Pods with Resource Limits and Label Selectors
- DaemonSets and Manually Scheduled Pods
- Displaying Scheduler Events

Application Lifecycle Management

- Deploying Applications in the Kubernetes Cluster
- Deploying an Application, Rolling Updates, and Rollbacks
- Configuring an Application for High Availability and Scale
- Creating a Self-Healing Application

Storage

- Managing Data in the Kubernetes Cluster
- Persistent Volumes
- Volume Access Modes
- Persistent Volume Claims
- Applications with Persistent Storage

Security

- Securing the Kubernetes Cluster
- Kubernetes Security Primitives
- Cluster Authentication and Authorization
- Creating TLS Certificates

Logging and Monitoring