Linux Foundation Kubernetes Administrator (LF-CKA)

Course Duration: 5 Days
Exam Reference: LF CKA

Course Overview

This course is designed to prepare IT professionals with the skills and knowledge required to become a Certified Kubernetes Administrator (CKA). It covers the core principles and practices needed to manage Kubernetes clusters in production environments. Students will gain hands-on experience with cluster installation, configuration, security, networking, and troubleshooting.

Prerequisites

- Strong understanding of Linux system administration
- Familiarity with container technologies (e.g., Docker)
- Experience with command-line tools
- Basic knowledge of YAML syntax

Course Objectives

- Install, configure, and manage Kubernetes clusters
- Understand Kubernetes architecture and components
- Deploy containerized applications using Kubernetes
- Implement networking, storage, and security policies
- Perform cluster maintenance and troubleshooting
- Prepare for and pass the CKA certification exam

Course Outline

Module 1: Introduction to Kubernetes and the CKA Exam

APPLIED TECHNOLOGY ACADEMY

Contact Us

800.674.3550

2151 W. Hillsboro Blvd., Ste 210
Deerfield Beach, FL 33442

Connect With Us

Linux Foundation Kubernetes Administrator (LF-CKA)

- Course overview and goals
- Kubernetes history and architecture
- Overview of CKA exam structure and objectives

Module 2: Kubernetes Architecture and Core Concepts

- Cluster components: Master and nodes
- Control plane and node roles
- Pods, ReplicaSets, Deployments, and Namespaces

Module 3: Installation and Configuration

- Installing Kubernetes using kubeadm
- Cluster initialization and networking
- Configuring and accessing the cluster

Module 4: Kubernetes Networking

- Cluster networking model
- Service discovery: ClusterIP, NodePort, LoadBalancer
- Network policies and CNI plugins

Module 5: Workloads and Scheduling

- Deployments, Jobs, and CronJobs
- Labels, selectors, and annotations
- Node selectors and affinity rules

Module 6: Services and Application Lifecycle Management

- Exposing applications via Services
- Rolling updates and rollbacks
- Probes and health checks

Module 7: Storage Management

- Persistent Volumes and Claims
- Storage classes and dynamic provisioning
- Volume modes and access modes

Module 8: Configuration Management

- Managing configuration with ConfigMaps
- Managing secrets securely

- Environment variables and command-line arguments

Module 9: Security in Kubernetes

- Kubernetes authentication and authorization
- Role-Based Access Control (RBAC)
- Pod security standards and security contexts

Module 10: Cluster Maintenance and Monitoring

- Upgrading and backing up clusters
- Logging and monitoring basics
- Managing cluster components and resources

Module 11: Troubleshooting and Validation

- Troubleshooting deployments, nodes, and networking
- Common failure scenarios and solutions
- Using kubectl for debugging and validation

Module 12: Final Review and CKA Exam Tips

- Review of key topics and objectives
- Exam-taking strategies and time management
- Practice labs and sample questions