Certified Kubernetes Administrator (CKA)

COURSE OVERVIEW

This class prepares students for the Certified Kubernetes Administrator (CKA) exam. Kubernetes is a Cloud Orchestration Platform providing reliability, replication, and stability while maximizing resource utilization for applications and services. By the conclusion of this hands-on, vendor-agnostic training you will go back to work with the knowledge, skills, and abilities to design, implement, and maintain a production-grade Kubernetes cluster. We prioritize covering all objectives and concepts necessary for passing the Certified Kubernetes Administrator (CKA) exam. You will be provided the components necessary to assemble your own high-availability Kubernetes environment and configure, expand, and control it to meet the demands made of cluster administrators. Your week of intensive, hands-on training will conclude with a mock CKA exam that simulates the real exam.

WHO WILL BENEFIT FROM THIS COURSE?

- Professionals who need to maintain or set up a Kubernetes cluster
- Container Orchestration Engineers
- DevOps Professionals

PREREQUISITES

This course is intended for students who have the basic knowledge of the core components of Kubernetes, such as Pods and Deployments.

It is suggested that students take the Kubernetes Bootcamp course prior to taking the Certified Kubernetes Administrator course. However, instructors will always strive to assure every student gains a very thorough understanding of the material covered, regardless of the student's prior experience.

COURSE OBJECTIVES

- Cluster architecture, installation, and configuration
- Rolling out and rolling back applications in production
- Scaling clusters and applications to best use
- How to create robust, self-healing deployments
- Networking configuration on cluster nodes, services, and CoreDNS
- Persistent and intelligent storage for applications
- Troubleshooting cluster, application, and user errors
- Vendor-agnostic cloud provider-based Kubernetes

COURSE OUTLINE

Cluster Architecture
- Kubernetes Architecture
- Pods and the Control Plane

Installation
- Kubeadm Prerequisites
- Configure Network Plugin Requirements
- Kubeadm Basic Cluster
- Installing Kubeadm
- Join Node to Cluster

Cluster Administration
- ETCD Snapshot and Restore
- Kubeadm Cluster Upgrade
- Purge Kubeadm
- Kubernetes the Alta3 Way
- Deploy Kubernetes using Ansible

Containers
- Container Essentials
- Creating a Docker Image

Pod Basics
- YAML
- Manifests
- Basic Pods
- Namespaces
- API Versioning and Deprecations

Kubectl
- Kubectl get and sorting
- kubectl get

Resource Management
- Kubectl Top and Application Monitoring
- Limits, Requests, and Namespace ResourceQuotas
- Resource Requests and Limits
- Namespace Resource Quota
- Admission Controller
- Create a LimitRange AdmissionController

User Administration
- Contexts
- Role-Based Access Control
- RBAC Distributing Access

Advanced Pod Design
- Readiness and Liveness Probes
- Implement Probes and Health Checks

- ConfigMaps and Volume Mounting
- Persistent Configuration with ConfigMaps
- Secrets
- Create and Consume Secrets
- Multi-Container Pods
- Creating Ephemeral Storage For Fluentd Logging Sidecar
- Init Containers
- Understand the Init Container Multi-Container Pod Design Pattern
- Taints, Tolerations, and Pod Affinity
- Tainted Nodes and Tolerations

Logging
- Logging with kubectl log
- Utilize Container Logs
- Advanced Logging Techniques

Labels
- Labels
- Labels and Selectors
- Annotations
- Insert an Annotation

Replica and Daemon Sets
- ReplicaSets
- Create and Configure a ReplicaSet
- DaemonSets

Deployments
- Deployments - Purpose and Advantages
- Writing a Deployment Manifest
- Deployments - Version Control
- Performing Rolling Updates and Rollbacks with Deployments
- Blue/Green and Canary Deployment Strategies
- Advanced Deployment Strategies
- Deployments - Horizontal Scaling
- Horizontal Pod Autoscaling

Persistent Storage
- Persistent Volumes, Claims, and StorageClasses
- Using PersistentVolumeClaims for Storage
- PVC, PV, and StorageClass config
- Persistent Storage with NFS

Services & Networking
- NetworkPolicy
- Deploy a NetworkPolicy
- Namespace Network Policy
- Services - LoadBalancer, NodePort, and ClusterIP

- Access to applications via services
- Networking Plugins
- Ingress Controllers
- Ingress Controllers Expose a Service

DNS

- Hostnames and FQDNs
- CoreDNS
- Install CoreDNS
- Configure CoreDNS
- Revert CoreDNS to KubeDNS

Continuing Education

- Continuing Education

WHY TRAIN WITH SUNSET LEARNING INSTITUTE?

Sunset Learning Institute (SLI) has been an innovative leader in developing and delivering authorized technical training since 1996. Our goal is to help our customers optimize their technology Investments by providing convenient, high quality technical training that our customers can rely on. We empower students to master their desired technologies for their unique environments.

What sets SLI apart is not only our immense selection of trainings options, but our convenient and consistent delivery system. No matter how complex your environment is or where you are located, SLI is sure to have a training solution that you can count on!

Premiere World Class Instruction Team

- All SLI instructors have a four-year technical degree, instructor level certifications and field consulting work experience
- Sunset Learning has won numerous Instructor Excellence and Instructor Quality Distinction awards since 2012

Enhanced Learning Experience

- The goal of our instructors during class is ensure students understand the material, guide them through our labs and encourage questions and interactive discussions.

Convenient and Reliable Training Experience

- You have the option to attend classes live with the instructor, at any of our established training facilities, or from the convenience of your home or office
- All Sunset Learning Institute classes are guaranteed to run – you can count on us to deliver the training you need when you need it!

Outstanding Customer Service

- You will work with a dedicated account manager to suggest the optimal learning path for you and/or your team
- An enthusiastic student services team is available to answer any questions and ensure a quality training experience

Interested in Private Group Training?

Contact Us