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## Kubernetes Administrator

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# Certified Kubernetes Administrator (CKA)

## Course Overview:

The purpose of the Certified Kubernetes Administrator (CKA) program is to provide assurance that CKAs have the skills, knowledge, and competency to perform the responsibilities of Kubernetes administrators. It is an online, proctored, performance-based test that requires solving multiple issues from a command line. The CKA program is separate from Kubernetes Certified Service Provider (KCSP) program. You can become a CKA without needing to be involved with a KCSP, but for a company to become a KCSP it must employ at least three CKAs.

## Course Outline:

### 1. Application Lifecycle Management

- Understand deployments and how to perform rolling update and rollbacks
- Know various ways to configure applications
- Know how to scale applications
- Understand the primitives necessary to create a self-healing application

### 2. Installation, Configuration & Validation

- Design a Kubernetes Cluster
- Install Kubernetes Masters and Nodes
- Configure secure cluster communications
- Configure a highly-available Kubernetes cluster
- Know where to get the Kubernetes release binaries
- Provision underlying infrastructure to deploy a Kubernetes cluster
- Choose a network solution
- Choose your Kubernetes infrastructure configuration
- Run end-to-end tests on your cluster
- Analyze end-to-end test results
- Run Node end-to-end Tests
- Install and use kubeadm to install, configure, and manage Kubernetes clusters

### **3. Core Concepts**

- Understand the Kubernetes API primitives
- Understand the Kubernetes cluster architecture
- Understand Services and other network primitives

### **4. Networking**

- Understand the networking configuration on the cluster nodes
- Understand Pod networking concepts
- Understand Service Networking
- Deploy and configure network load balancer
- Know how to use Ingress rules
- Know how to configure and use the cluster DNS
- Understand CNI

### **5. Scheduling**

- Use label selectors to schedule Pods
- Understand the role of DaemonSets
- Understand how resource limits can affect Pod scheduling
- Understand how to run multiple schedulers and how to configure Pods to use them
- Manually schedule a pod without a scheduler
- Display scheduler events

### **6. Security**

- Know how to configure authentication and authorization
- Understand Kubernetes security primitives
- Know how to configure network policies
- Create and manage TLS certificates for cluster components
- Work with images securely
- Define security contexts
- Secure persistent key value store

### **7. Cluster Maintenance**

- Understand Kubernetes cluster upgrade process
- Facilitate operating system upgrades
- Implement backup and restore methodologies

### **8. Logging / Monitoring**

- Understand how to monitor all cluster components
- Understand how to monitor applications
- Manage cluster component logs
- Manage application logs

## 9. Storage

- Understand persistent volumes and know how to create them
- Understand access modes for volumes
- Understand persistent volume claims primitive
- Understand Kubernetes storage objects
- Know how to configure applications with persistent storage

## 10. Troubleshooting

- Troubleshoot application failure
- Troubleshoot control plane failure
- Troubleshoot worker node failure
- Troubleshoot networking

### Prerequisites:

- Basic understanding of Linux, YAML, and command lines.

### Who Should Attend:

- This certification is for Kubernetes administrators, cloud administrators and other IT professionals who manage Kubernetes instances.

### Number of Hours: 30hrs

### Certification: CKA

### Key Features:

- One to One Training
- Online Training
- Fastrack & Normal Track
- Resume Modification
- Mock Interviews
- Video Tutorials
- Materials
- Real Time Projects
- Virtual Live Experience

- Preparing for Certification

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