Certified Kubernetes Administrator (CKA) Exam Curriculum

A Cloud Native Computing Foundation (CNCF) Publication

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This document provides the curriculum outline of the Knowledge, Skills and Abilities that a Certified Kubernetes Administrator (CKA) can be expected to demonstrate.

CKA Curriculum

10% - Storage

- Implement storage classes and dynamic volume provisioning
- Configure volume types, access modes and reclaim policies
- Manage persistent volumes and persistent volume claims

15% - Workloads and Scheduling

- Understand application deployments and how to perform rolling update and rollbacks
- Use ConfigMaps and Secrets to configure applications
- Configure workload autoscaling
- Understand the primitives used to create robust, self-healing, application deployments
- Configure Pod admission and scheduling (limits, node affinity, etc.)

20% - Servicing and Networking

- Understand connectivity between Pods
- Define and enforce Network Policies
- Use ClusterIP, NodePort, LoadBalancer service types and endpoints
- Use the Gateway API to manage Ingress traffic
- Know how to use Ingress controllers and Ingress resources
- Understand and use CoreDNS

30% - Troubleshooting

- Troubleshoot clusters and nodes
- Troubleshoot cluster components
- Monitor cluster and application resource usage
- Manage and evaluate container output streams
- Troubleshoot services and networking

25% - Cluster Architecture, Installation and Configuration

- Manage role based access control (RBAC)
- Prepare underlying infrastructure for installing a Kubernetes cluster
- Create and manage Kubernetes clusters using kubeadm
- Manage the lifecycle of Kubernetes clusters
- Implement and configure a highly-available control plane
- Use Helm and Kustomize to install cluster components
- Understand extension interfaces (CNI, CSI, CRI, etc.)
- Understand CRDs, install and configure operators

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Cloud native computing uses an open source software stack to deploy applications as microservices, packaging each part into its own container, and dynamically orchestrating those containers to optimize resource utilization. The Cloud Native Computing Foundation (CNCF) hosts critical components of those software stacks including Kubernetes, Fluentd, Linkerd, Prometheus, OpenTracing and gRPC; brings together the industry's top developers, end users, and vendors; and serves as a neutral home for collaboration. CNCF is part of The Linux Foundation, a nonprofit organization. For more information about CNCF, please visit: https://cncf.io/.