



TechSolutions™

Certified Kubernetes Administrator (CKA)

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Course Introduction

- Course Introduction
- Certification

Core Concept:

- Cluster Architecture
- Docker vs ContainerD
- ETCD in Kubernetes
- Kube API Server
- Kube Controller Manager
- Kube Scheduler
- Kubelet
- Kube Proxy
- Pods
- Pods with YAML
- Replicaset
- Deployments
- Services
- Services Cluster IP
- Service – Loadbalancer
- Namespaces

Scheduling:

- Manual Scheduling
- Labels and Selectors
- Node Selector
- Node Affinity
- Resource Limit
- DaemonSets
- Multi Schedulers
- Configuring Scheduler Profiles

Logging & Monitoring:

- Monitor Cluster Components
- Managing Application Logs
- Logging

Application Lifecycle Management:

- Rolling updates and Rollbacks
- Secrets
- Multi container Pods
- Init Containers
- Self-Healing Applications

Cluster Maintenance:

- OS Upgrades
- Cluster Upgrade
- Backup and Restore Methods
- Working with ETCDCTL

Security:

- Kubernetes Security Primitives
- Authentications
- TLS introduction
- TLS basic
- TLS in Kubernetes
- Certificate API
- Kubeconfig
- APIGroup
- Authorization
- Role Based Access Control
- Cluster Roles
- Service Accounts
- Image Security
- Network Policy

Storage:

- Storage in Docker
- Volumes
- Persistent Volumes
- Persistent Volume Claims
- Storage Classes

Networking:

- Switching, Routing, Gateways CNI in Kubernetes
- Prerequisite DNS
- Docker Networking
- CoreDNS
- CNI
- Cluster Networking
- Pod Networking
- CNI in Kubernetes
- CNI weave
- IPam weave
- Service Networking
- DNS in Kubernetes
- Ingress

Design and install a Kubernetes Cluster:

- Design a Kubernetes Cluster
- Configure High Availability
- ETCD in HA

Troubleshooting:

- Application Failure
- Control Plane Failure
- Worker Node Failure
- Network Trouble shooting.

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