Azure Kubernetes Service

Duration: 5 days (8hrs/day)

Prerequisites:

- Basic knowledge of Linux Server Administration.
- Basic knowledge of Containers

Course Objective: This comprehensive Azure Kubernetes Service course, covering container orchestration, cluster design, installation, resource and application management, security, networking, maintenance, logging, and monitoring on Azure, is designed to equip learners with the skills needed to successfully clear the Certified Kubernetes Administrator exam.

Kubernetes Version: Latest

Lab Requirement: Customer Azure Account Required

Module 1 – Core Concepts

Overview of Container Orchestration

Introduction to Kubernetes

Understanding Kubernetes Architecture

Module 2 – Installation, Configuration & Validation

Introduction to Azure AKS Cluster

Lab: Create AKS Cluster

Lab: Explore AKS Cluster using kubectl

Lab: Setup Azure CLI on Local Desktop

Module 3 – Managing Resources

Understanding Pods, Labels & Selectors

Lab: Managing Pods

Lab: Managing Labels & Selector

Understanding Replication Controller & Replica Set

Lab: Deploying Replication Controller & Replica Set

Understanding Services – ClusterIP, NodePort & LoadBalancer

Lab: Creating & Managing Service

KOENIG
step forward

Module 4 - Scheduling

Manual Scheduling of Pods

Taint and Tolerations

Lab: Using Manual Scheduling or Taints and Tolerations

Lab: Node Selector and Node Affinity

Module 5 - Application Lifecycle Management

Overview of Deployment

Deployment Strategies – Blue/Green & Canary

Lab: Deploying Applications as Deployment

Lab: Implementing Deployment Strategies on Deployments

Module 6 - Environment Variable

Plain Key

Config Map

Secret

Lab: Using Plain Keys, Config Map & Generic Secret as Environment Variables

Lab: Mount Environment Variable as Volumes

Module 7 – Storage

Understanding Volume Management in AKS

Types of Volumes Provisioning

Persistent Volumes

Persistent Volume Claim

Lab: Using PV & PVC to attach Persistent Volume to a Pod using Azure Disk

Understanding Storage Class

Lab: Use AKS Provisioned Storage Class instead of Custom Storage Class

Module 8 – Security

Introduction to Active Directory Authentication for AKS admins

Lab: Create AD Group and User and Enable AD for AKS

Lab: Access Azure AKS Cluster Resources using Azure AD User

Understanding Role, ClusterRole, RoleBinding& ClusterRoleBinding

Lab: Managing Roles and Role Binding

Lab: Managing Cluster Role and Cluster Role Binding

Module 9 – Autoscaling

Introduction to Cluster Autoscaler

Lab: Create AKS Cluster with Autoscaling enabled using Azure AKS

Introduction to Horizontal Pod Autoscaler

Lab: Create Horizontal Pod Autoscaler

Module 10 – Logging and Monitoring

Understand how to Monitor Application and Cluster Components

Lab: Understand how to Read Application & Cluster Component Logs

Lab: Deploying Prometheus & Grafana to Monitor K8s Cluster

Module 11 – Networking in Kubernetes

Understand Basics of Kubernetes Networking

Understand CNI

Understand Pod Networking Concepts

Understanding DNS of K8s

Understanding Ingress

Lab: Configure and Manage Ingress Rule

Understanding Namespace & Use-Cases

Lab: Creating Namespace & Deploying K8s resources in Different Namespaces

Lab: Load Balancer Service