

AKS with Basic Linux Fundamentals and Docker

Learn to administer Linux, build Docker containers and deploy, secure and scale applications on Azure Kubernetes Service.

6 Days

DURATION

13

MODULES

71

TOPICS

COURSE OVERVIEW

This course begins with Linux fundamentals, covering commands, file system structure, permissions, users and package management, before moving into Docker administration, including image building, storage and container creation. It then introduces container orchestration concepts and Kubernetes architecture ahead of creating and exploring an Azure AKS cluster with kubectl and Azure CLI. Subsequent modules cover managing pods, labels, replication and services, scheduling with node affinity and taints, application deployment strategies, environment variables and config maps, and storage using volumes, persistent volumes and AKS-provisioned storage classes. The remaining modules address AKS security with Active Directory and role-based access, cluster and pod autoscaling, logging and monitoring, and Kubernetes networking including CNI, ingress rules and load balancer services.

WHO THIS COURSE IS FOR

AKS Administrators

Linux Administrators

DevOps Engineers

Kubernetes Operators

Cloud Infrastructure Engineers

System Administrators

LEARNING OBJECTIVES

- Apply basic Linux commands and manage file system permissions
- Build and store Docker images using Docker Hub
- Explain container orchestration and Kubernetes architecture
- Deploy an Azure AKS cluster using kubectl and Azure CLI
- Configure pods, labels, replication controllers and services
- Apply scheduling techniques such as node affinity and taints
- Implement storage using persistent volumes and storage classes
- Configure AKS security, autoscaling, monitoring and networking

How the Course Is Taught

This hands-on class is approximately 80/20 lab to lecture ratio, combining engaging lecture, demos, group activities and discussions with comprehensive machine-based practical programming labs and project work.

COURSE SYLLABUS

13 Modules, 71 Topics

01

Linux Fundamentals

TOPICS

- What is Linux
- Basic Linux Commands
- Understanding Linux File System Structure
- Creating Files and Directories
- Copying Files and Directories
- Basics of VIM Editor
- Managing Users
- Understand Linux File System Permissions
- Changing Permissions
- Managing Services
- Installing and Updating Software Packages with YUM

02

Docker Administration

TOPICS

- Introduction to Containers
- Introduction to Docker
- Downloading and Installing Docker
- Docker Essential Commands
- Understanding Docker Images
- Building Docker Images
- Storing and Retrieving Docker Images from Docker Hub
- Building Containers from Images
- Understand Storage Methods
- Data Persistence with Volumes

03

Core Concepts

TOPICS

Overview of Container Orchestration · Introduction to Kubernetes · Kubernetes Architecture

04

Create Azure AKS Cluster

TOPICS

Introduction to Azure AKS Cluster · Create AKS Cluster · Explore AKS Cluster using kubectl · Setup Azure CLI on Local Desktop

05

Managing Resources

TOPICS

Managing Pods · Managing Labels & Selector · Managing Replication Controller & Replica Set · Managing Service

06

Scheduling

TOPICS

Manual Scheduling · Taint and Tolerations · Node Selector · Node Affinity

07

Application Lifecycle Management

TOPICS

Overview of Deployment · Deployment Strategies · Managing Deployment

08

Environment Variable

TOPICS

Plain Key · Config Map · Secret · Mount Variable as Volume

09

Storage

TOPICS

- Volumes
- Persistent Volumes
- Persistent Volume Claim
- Azure Disks for AKS Storage
- Create Storage Class
- Managing Persistent Volumes
- Managing Persistent Volume Claims
- Use AKS Provisioned Storage Class instead of Custom Storage Class

10

Security

TOPICS

- Introduction to Active Directory Authentication for AKS admins
- Create AD Group and User and Enable AD for AKS
- Access Azure AKS Cluster Resources using Azure AD User
- Manage Roles and Rolebindings
- Manage ClusterRole and ClusterRoleBindings

11

Autoscaling

TOPICS

- Introduction to Cluster Autoscaler
- Create AKS Cluster with Autoscaling enabled using Azure AKS
- Introduction to Horizontal Pod Autoscaler
- Create Horizontal Pod Autoscaler

12

Logging and Monitoring

TOPICS

- Understand how to Monitor all Cluster Components
- Understand how to Monitor Applications
- Manage Cluster Components Logs
- Manage Application Logs

13

Networking in Kubernetes

TOPICS

Kubernetes Networking · Understand CNI · Understand Pod Networking Concepts · Configure Manual DNS · Configure and Manage Ingress Rule · Namespace · Load Balancer Service

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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