

WorkshopPLUS - Kubernetes: Technical Briefing with Labs

WorkshopPLUS

Duration: 1 Day or 2 Days [Remote / Onsite]
Difficulty Level: 300 - Advanced

Description

This offering provides you with an understanding of key concepts of Kubernetes and how best to use them in Azure Kubernetes Service (AKS). Details about Kubernetes, including container management, networking services, persistent volumes, and cluster organization will be presented. We will also discuss AKS integration with Azure service like Azure Container Registry, Log Analytics Workspace, and Azure Key Vault. Microservice development with Kubernetes and deploying those services to AKS using Azure DevOps will be covered as well.

Objectives

- Identify the components of a Kubernetes Cluster.
- Understand the benefits of using Azure Kubernetes Service for container orchestration.
- Review the most widely used Kubernetes objects.
- Practice developing or debugging a microservice application and deploying it to an AKS cluster.
- Monitor deployed applications with Application Insights.

Outcomes

Gain knowledge of methods to implement, deploy, and manage containerized applications with the Azure Kubernetes Service.

Methodology

Learn by example

Participate in group discussions and learn from presentations and demonstrations.

Hands-on

- Use a ready environment for a hands-on experience.
- Access to resources and labs for up to six months after the workshop.

Scope

This offering is scoped for a Kubernetes cluster hosted as an Azure Kubernetes Service.

Agenda

Day 1

- Kubernetes Core Concepts

Day 2

- Azure Kubernetes Service (AKS)
- Intermediate Kubernetes Topics

Optional Modules

- Application Development with Kubernetes
- Application Deployment to Kubernetes using DevOps
- Advanced Kubernetes Topics – Parts 1 & 2

Note: One to two optional modules can be included based on your requirements.

Time Commitment

One or two full-day engagements with relevant roles.

Delivery Requirements

- Microsoft/Windows Live ID to connect to the virtual environment

Hardware running:

- Supported version of Windows
- Supported version of Office
- Modern browser, such as Microsoft Edge (or equivalent)
- Internet access

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Delivery Outline

Education		
Day 1	Module 1: Kubernetes Core Concepts	▪ Introduction to Kubernetes and Kubernetes Clusters ▪ Pods, Replica Sets and Deployments ▪ Deployment Strategies ▪ Networking Services ▪ Config Maps and Secrets ▪ Namespaces
Day 2	Module 2: Azure Kubernetes Service (AKS)	▪ Azure Kubernetes Service Overview ▪ Node Pools / Cluster Auto Scaler ▪ Authentication/Authorization ▪ AKS Networking ▪ Azure Container Registry ▪ Azure Monitor
Day 2	Module 3: Intermediate Kubernetes Topics	▪ Volumes and Persistence ▪ Multi-Container Pods and Init Containers ▪ Ingress ▪ Jobs and Cron Jobs ▪ Daemon Sets ▪ Health Probes ▪ Helm Package Manager
Optional Module	Module 4: Application Development with Kubernetes	▪ Microservices with Azure and AKS ▪ Bridge To Kubernetes ▪ Application Monitoring
Optional Module	Module 5: Using DevOps with Kubernetes	▪ Basic Microservices Deployments with DevOps ▪ Complex Microservices Deployments w/Helm and Azure Key Vault
Optional Module*	Module 6: Advanced Kubernetes Topics – Part 1	▪ Integration with Azure Key Vault ▪ Kubernetes RBAC with Azure AD ▪ Node Affinity, Taints, and Tolerations ▪ Pod Affinity/Anti-Affinity ▪ Pod Topology Spread Constraints ▪ Stateful Sets ▪ Network Policy
Optional Module*	Module 7: Advanced Kubernetes Topics – Part 2	▪ Requests, Limits, Limit Ranges and Resource Quotas ▪ Horizontal Pod Auto Scalar ▪ Kubernetes Event-Driven Autoscaling (KEDA) ▪ AKS Patching and Upgrading ▪ Pod Disruption Budget ▪ Open Service Mesh (OSM)

*** NOTE:** Advanced sections in Module 6 and Module 7 can be presented in any order and moved as needed.

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