

This 3 day course is designed for administrator and developers and introduces students to both basic and advanced Kubernetes topics. The hands on labs are performed on the Azure Kubernetes Service. The course cost is based on the number students and is delivered remotely. The course agenda can be customised to fit your needs – contact us to discuss your requirements.

### Why enroll

- Gain an understanding of Kubernetes architecture and deployments.
- Get practical skills required to spin up a Kubernetes cluster in AKS
- Get the experience required to successfully operate and manage Kubernetes clusters

### Who should attend

- Administrators and DevOps engineers seeking an understanding of how Kubernetes handles container-based distributed workloads
- Administrators and DevOps engineers seeking an understanding of how to spin up a Kubernetes cluster in AKS

Day 1 – Introduction to Kubernetes	
<ul style="list-style-type: none"> <li>• Kubernetes Architecture               <ul style="list-style-type: none"> <li>○ Containers</li> <li>○ Orchestration</li> <li>○ Why K8s</li> <li>○ Cluster</li> </ul> </li> <li>• K8s Deployments               <ul style="list-style-type: none"> <li>○ Resource files</li> <li>○ Namespaces</li> <li>○ Labels</li> <li>○ Storage &amp; Volumes</li> <li>○ Basic Networking</li> <li>○ Ingress controller</li> <li>○ Access &amp; Identity</li> <li>○ Useful Commands</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Lab 1: Basic concepts using Minikube               <ul style="list-style-type: none"> <li>○ Minikube installation</li> <li>○ Basic K8s commands:                   <ul style="list-style-type: none"> <li>• Command Line</li> <li>• Dashboard</li> </ul> </li> <li>○ Creating resources:                   <ul style="list-style-type: none"> <li>• Pods</li> <li>• Services</li> <li>• ReplicaSets</li> <li>• Deployments</li> <li>• Volumes</li> <li>• Ingress</li> </ul> </li> <li>○ Basic monitoring</li> </ul> </li> </ul>

## Day 2: Deep Dive into Kubernetes

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| <ul style="list-style-type: none"> <li>• Deep Dive into Kubernetes             <ul style="list-style-type: none"> <li>○ RBAC</li> <li>○ Advanced Networking</li> <li>○ Service Discovery</li> <li>○ Affinity / Anti Affinity</li> <li>○ Volumes</li> <li>○ Daemon Sets</li> <li>○ ConfigMap</li> <li>○ Secrets</li> <li>○ Auto-Scaling App</li> <li>○ Monitoring</li> <li>○ Alerts</li> <li>○ Scale K8s Cluster</li> <li>○ Discuss AKS and Control Planes</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Lab 2: Application Deployment with AKS             <ul style="list-style-type: none"> <li>○ Deploy an AKS Cluster</li> <li>○ Setup AKS from CLI</li> <li>○ Prepare application for AKS</li> <li>○ Run application</li> <li>○ Scale application</li> <li>○ Update application</li> </ul> </li> </ul> |
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## Day 3: Kubernetes in Infrastructure and DevOps

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| <ul style="list-style-type: none"> <li>• Kubernetes in Infrastructure             <ul style="list-style-type: none"> <li>○ Cluster Health/Monitoring and Logging</li> <li>○ Cron Jobs</li> <li>○ Advanced Deployment Configurations</li> <li>○ Federation</li> </ul> </li> <li>• Infrastructure Lab 1             <ul style="list-style-type: none"> <li>○ Create container images from an application</li> <li>○ Upload container images to the Azure Container Registry</li> <li>○ Run your container images in Kubernetes</li> <li>○ Scale an application and Kubernetes infrastructure</li> <li>○ Update an application running in Kubernetes</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Kubernetes with Azure DevOps             <ul style="list-style-type: none"> <li>○ Develop with Dev Spaces Applications - Java - VS Code &amp; CLI</li> <li>○ Run applications with Helm</li> <li>○ Develop applications with CI/CD in mind</li> <li>○ Istio / Service Mesh</li> <li>○ Federation</li> </ul> </li> <li>• DevOps Lab 1             <ul style="list-style-type: none"> <li>○ Using Azure DevOps Projects                 <ul style="list-style-type: none"> <li>• Create Azure pipelines</li> <li>• Deploy ASP.NET Core apps to Azure Kubernetes Service</li> </ul> </li> <li>○ Using Jenkins                 <ul style="list-style-type: none"> <li>• Deploy from GitHub to Azure Kubernetes Service (AKS)</li> </ul> </li> </ul> </li> </ul> |
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