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# **AZURE KUBERNETES**

## **1 Introduction to Kubernetes and Azure**

- 1.1. What is Kubernetes?
- 1.2. Azure Cloud Platform Overview
- 1.3. Azure Kubernetes Service (AKS) Introduction

## **2 Setting Up the Environment**

- 2.1. Azure Subscription Setup
- 2.2. Azure CLI and Azure PowerShell Installation
- 2.3. Kubernetes Cluster Creation (AKS)

## **3 Kubernetes Fundamentals**

- 3.1. Pods, Services, and Deployments
- 3.2. Labels and Selectors
- 3.3. ConfigMaps and Secrets

## **4 Deploying Applications on AKS**

- 4.1. Creating Docker Containers
- 4.2. Deploying Applications using YAML Files
- 4.3. Scaling Applications

## **5 Managing AKS Clusters**

- 5.1. Cluster Upgrades and Maintenance
- 5.2. Monitoring and Logging (Azure Monitor, Azure Log Analytics)
- 5.3. Auto Scaling and Load Balancing



## **6 Security in AKS**

- 6.1. Network Policies
- 6.2. Role-Based Access Control (RBAC)
- 6.3. Secrets Management

## **7 CI/CD and DevOps Integration**

- 7.1. Azure DevOps and GitHub Actions
- 7.2. Continuous Integration and Deployment Pipelines
- 7.3. Deploying to AKS from Containers Registries

## **8 Helm and Package Management**

- 8.1. Helm Overview
- 8.2. Using Helm Charts

## **9 Advanced Topics (optional)**

- 9.1. Stateful Applications in AKS
- 9.2. Istio Service Mesh
- 9.3. Azure Kubernetes Service Best Practices

## **10 Troubleshooting and Debugging**

- 10.1. Common AKS Issues
- 10.2. Debugging Tools and Techniques

## **Best Practices and Optimization**

- 11.1. AKS Cluster Optimization
- 11.2. Resource Management

