

# Deploying Microservices to Kubernetes

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# Outline



Setting up an AKS cluster

Container registry and security

Deployment strategies

Desired-state based deployment

Readiness and health probes

Deployment considerations

Summary



# Setting up an AKS Cluster



**Cluster as a Service**

**Azure Kubernetes Service**

**Scale Set for the nodes**

**Node pools**

- Hardware & OS per pool
- Multiple pools
- Labels & Selectors



# Demo



## Setting up an AKS Cluster



# Container Registry and Security



**A cluster pulls container images to the cluster**

**Images are stored in a registry**

- Docker Hub
- GitHub
- Azure Container Registry (ACR)

**Security**

- Place registry in same V-Net
- Pull secrets

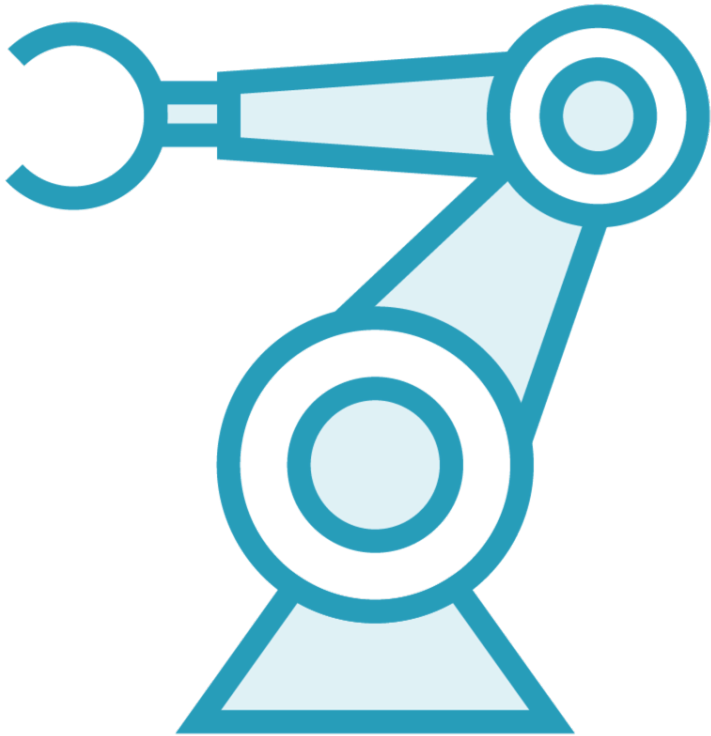
# Demo



## Setting up the Container Registry



# Deployment Strategies



**Deployments are defined in Yaml**

## **Strategy**

- Recreate deployment
- Rolling update
- Canary deployment

**Option to Rollback**

# Desired-state Based Deployment



## Infrastructure & configuration as code

### 4 eyes principle

- Pull requests
- CI/CD

### You define what you need

- The cluster will take care of how to get to this state
- Will retry until it is in the desired state
- Will run checks on deployment using health endpoints



# Demo



## Deploy Initial Version of the Application



# Health Checks



## ReadinessProbe

- Needed to guard your deployment
- Indicates whether the Container is ready to service requests
- No traffic is routed to the Pod until ready

## livenessProbe

- Used to check if deployments are healthy
- Indicates whether the Container is running
- Restart in case of failure

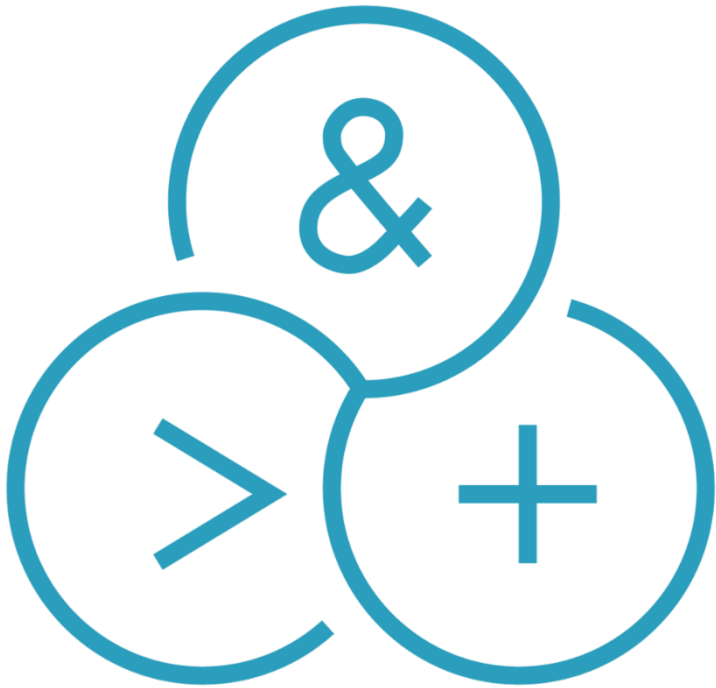
# Demo



## Zero-downtime Deployment New Version



# Deployment Considerations



**What about storage?**

**What about stateful services?**

**Ensure cluster capacity**

- Scale nodes before deployments

**What about the databases?**



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