|  |
| --- |
| OpenHack – Containers 2.0 |

# Overview

Microsoft’s OpenHack series is a three-day immersive, hands-on, challenge-driven hack that brings together developers from across the ecosystem and Microsoft to tackle scenarios influenced by common, real-world problems using Microsoft platform capabilities and other industry leading technologies. The Containers 2.0 OpenHack is focused on containerizing an application and moving it to the cloud using Azure Kubernetes Service. This OpenHack explores what it means to make a cluster ready for production by addressing security, observability, and more.

# Technologies

Developers will leverage Azure Kubernetes Service, Azure Container Registry, Virtual Machine, Networking, Storage, Azure Monitor, Key Vault, Service Mesh

# Challenges

**Challenge 1: But First, Containers**

* Use Docker to build and run containers locally
* Push images to Azure Container Registry

**Challenge 2: Getting Ready for Orchestration**

* Deploy microservices to a basic Azure Kubernetes Service cluster
* Get familiar with basic Kubernetes concepts

**Challenge 3: To Orchestration and Beyond**

* Use Azure Kubernetes Service to configure and create an RBAC enabled Kubernetes cluster in an existing VNET
* Use namespaces to logically separate microservices
* Implement Ingress for the application on the cluster

**Challenge 4: Putting the Pieces Together**

* Deploy containers from Challenge 1 to the Kubernetes cluster with proper RBAC configurations
* Manage and secure secrets with Azure Key Vault

**Challenge 5: Wait, What’s Happening?**

* Use Azure Monitor to monitor the health of the AKS cluster
* Create alerts to detect issues

**Challenge 6: Locking it Down**

* Improve cluster security using network policies and pod security policies
* Configure RBAC roles and permissions for the AKS cluster

**Challenge 7: Mixed Emotions**

* Add Windows nodes to AKS cluster and deploy legacy Windows app
* Use Taints and Tolerations to implement best practices when running mixed workloads in a cluster
* Upgrade a deployment in the cluster

**Challenge 8: Doing More with Service Mesh**

* Use service mesh technology to expand on security and observability