

# **Microsoft Virtual OpenHacks**

delivered by Fast Lane





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## Welcome

Our Microsoft Virtual OpenHack is a developer-focused engagement where a wide variety of participants learn through hands-on experimentation using challenges based on real-world customer scenarios designed to mimic the developer journey.

Our Virtual OpenHack provides a unique and fun upskilling experience for Microsoft employees, customers and partners. Attendees work together in teams to complete challenges that increase in complexity and are actively engaged, requiring deep collaboration, as they learn together.

See our London DevOps OpenHack Video »



## **OpenHack Tracks**

Fast Lane's skilled Coaches can deliver events in a variety of OpenHack tracks.





### **AI-Powered Knowledge Mining**

#### Overview

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This OpenHack enables attendees to add intelligent search capabilities to their applications and services, leveraging artificial intelligence to extract meaningful results from data. This OpenHack simulates a real-world scenario where a travel company needs to uncover data locked up in documents and withdraw insights from that data to make key business decisions. During the "hacking" attendees will focus on 1. exploring ways in which Azure Search can be used as the core of a search solution and 2. enriching the search solution through integration with Cognitive Services, Azure Machine Learning, and custom code. By the end of the OpenHack, attendees will have built out a technical solution that is a complete Azure machine learning-based intelligent search infrastructure that can make sense of vast quantities of data (i.e. documents, scanned images, and other digital artifacts).

#### Technologies

Microsoft Azure Search, Cognitive Services, Azure Functions, Microsoft QnA Maker, Language Understanding Intelligent Service (LUIS), Microsoft Form Recognizer, Azure Machine Learning

#### **Prerequisites**

To be successful and get the most out of this OpenHack, participants should have existing knowledge of programing languages including C#, JavaScript, Node.JS or Java.





### **App Modernization with NoSQL**

#### Overview

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In the App Modernization with NoSQL OpenHack, developers will migrate an application from a relational database to a NoSQL database. During the initial set of challenges, developers focus on migrating data and optimizing their NoSQL database for performance and costs. Developers also learn about the massively scalable event-sourcing design pattern and build this for their application using their chosen NoSQL database. After attending this OpenHack, developers will be able to identify workloads that are good candidates for migration to NoSQL and be able to execute a successful migration.

#### **Technologies**

Attendees will have the option to leverage several services available in Azure, such as Cosmos DB, Azure SQL Database, Azure Data Factory, Azure Functions, Azure Event Hubs, Azure Stream Analytics, Power BI, and Azure Cognitive Search

#### **Prerequisites**

To be successful and get the most out of this OpenHack, participants should have familiarity with database concepts such as data modeling, partitioning, and indexing. Prior experience with NoSQL databases and familiarity with relational data structures is helpful, but not required. Experience with programming languages such as C#, Java, and Python will help you advance more quickly.



### Containers

#### Overview

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The challenges in this OpenHack are inspired from real-world scenarios where customers are looking to modernize their application by moving to containers, so that they can meet the demands of their large, and scaling, workloads. During the "hacking" attendees will focus on configuring an AKS cluster with production concerns in mind such as security (secret management and RBAC) and observability (logging and monitoring). By the end of the OpenHack, attendees will have built out a technical solution that has cluster(s) ready for production – meeting top-quality security, observability and networking requirements.

#### **Technologies**

Linux and Windows Containers, Azure Kubernetes Service, Azure Container Registry, Virtual Machine, Networking, Storage, Azure Monitor, Key Vault, Service Mesh

#### **Prerequisites**

It helps to know general concepts around containerization, orchestration using Kubernetes before diving into the production level concerns.

Even if you have successfully deployed your application to Kubernetes, it may be beneficial to learn more about running production workloads using AKS and understanding how to address concerns around Security, Monitoring, Service Meshes and Mixed Container Workloads.

Note: Serverless and DevOps services are not addressed in this OpenHack.





DevOps

#### Overview

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This OpenHack enables attendees to use DevOps practices to achieve zero downtime deployment for a micro-service based application running on a managed Kubernetes cluster on Azure Kubernetes Service (AKS). The OpenHack simulates a real-world scenario where developers from an insurance company have to "keep the lights on" while evolving their containerized application – collecting relevant usage data and minimizing downtime. During the "hacking" attendees will focus on 1. building a CI/CD pipeline from scratch that accommodates basic testing and, then, 2. building out and improving the pipeline to implement monitoring, integration testing, and phased rollout. By the end of the OpenHack, attendees will have built out a technical solution that is a complete development pipeline which fully takes into account modern compute (utilization of containers to run workloads).

#### **Technologies**

Azure Kubernetes Service, GitHub, Azure DevOps Services (formerly known as Visual Studio Team Services - VSTS) or Jenkins (team choice), Log Analytics/ Application Insights/Azure Monitor or Prometheus/Grafana (team choice), Istio/Traefik

#### **Prerequisites**

To be successful and get the most out of this OpenHack, participants should have existing knowledge of the benefits of adopting DevOps practices as well as Azure Kubernetes Service. Be prepared to roll up your sleeves, learn, and participate in an interactive team environment. Before the start of OpenHack, you should make sure you have a good knowledge of what DevOps is.



### **DevOps for Data Science**

#### Overview

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This OpenHack enables attendees to employ fundamental up to advanced DevOps practices for the Data Science process, leveraging Azure Machine Learning Service, Azure DevOps, Azure Data Factory, and other relevant Azure services. This OpenHack simulates a real-world scenario where an insurance company needs to predict the probability that a driver will initiate an auto insurance claim in the next year and needs to be able to take the Data Scientist's local functional model and associated data used to train the model to production in a high-quality, secure, scalable way. During the "hacking", attendees will focus on: 1. Understanding DevOps fundamentals as applied to the Data Science process to train and deploy machine learning models 2. Begin to apply more advanced DevOps practices (such as canary rollout or taking automated actions based on instrumentation)

#### **Technologies**

Azure Machine Learning, Azure Data Factory, Azure DevOps, Azure Kubernetes Service, Azure Container Instances, Python.

#### **Prerequisites**

To be successful and get the most out of this OpenHack, familiarize yourself with the following:

Data Science: What is Machine Learning. What is Azure Machine Learning. Basic familiarity with Jupyter notebooks. DevOps: What is DevOps. All participants should have familiarity with programming languages like Python.





### **DevSecOps**

#### Overview

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This OpenHack enables attendees to add security-oriented tooling into their workflow and CI/CD tasks. Simulating a real-world scenario where a development team is concerned, they might have leaked information in their web app that could expose their site to being hacked. This discovery has led the team to leverage DevSecOps practices to increase their security posture and catch issues early in the development process. During the "hacking" attendees will focus on leveraging available tools/ tasks in Azure DevOps to enable best-practice oriented scenarios such as Managing Secrets, Enabling static analysis/ dependency/ container scanning, Dynamic Application Security Testing and Workflow and organization policy enforcement. By the end of the OpenHack, attendees will have built out a technical solution that enables secure development workflow taking into account recommended best practices, all found through real world engagements with S500 and Hi-Po partners.

#### **Technologies**

Azure DevOps, Azure Key Vault, Azure Automation, Microsoft Security Code Analysis, Azure Kubernetes Service, Azure Container Registry, Azure Active Directory. Third Party: Sonar Cloud, Aqua, Fossa, White Source,

#### **Prerequisites**

To be successful and get the most out of this OpenHack and to avoid any delays with downloading or installing tooling, you are encouraged to have the following ready to go.

- Install your choice of Integrated Development Environment (IDE) Software, i.e. Visual Studio / Visual Studio Code/ Eclipse / IntelliJ
- Download Azure CLI 2.0 preferred version is 2.0.43 or Azure PowerShell
- Browser Client (e.g. Chrome/Safari/ Firefox)



### **Dynamics 365 + Power Platform**

#### Overview

Dynamics 365 + Power Platform OpenHack challenges participants to build a Power App that leverages the Dynamics 365 Healthcare Accelerator and key parts of the Power Platform, including Power Automate, Al Builder, Power Bl, Data Connectors, and the Common Data Service (CDS), while also integrating with Microsoft Teams and Azure. By the end of the OpenHack, participants will have built out a technical solution that serves as an all-encompassing solution for the modern medical practitioner in the digital age, built on the building blocks of the Power Platform.

#### **Technologies**

Dynamics 365, Power Apps, Power Automate, Power BI, Common Data Service, Common Data Model, Data Connectors, Microsoft Teams, Azure Cognitive Services, Al Builder.

#### **Prerequisites**

To be successful and get the most out of this OpenHack, familiarize yourself with the Power Platform. We encourage everyone to complete the free 'App in a Day' Power Apps training course to learn the basics of building canvas and model-driven apps, using CDS to store data, and integrating with Power Automate.



### **Migrating Microsoft Workloads to Azure**

#### Overview

The Migration OpenHack enables attendees to assess, migrate, modernize, and optimize existing on-premises applications hosted on Windows Server 2008 R2 and Microsoft SQL Server 2008 R2 as they move to Microsoft Azure, in a secured way. The OpenHack simulates a real-world scenario where a mortgage company has multiple line-of-business applications residing on legacy infrastructure that is rapidly approaching end-of-support and need to be migrated. During the "hacking" attendees will focus on 1. migrating their applications from legacy operating systems to Azure using a rehost methodology and, then, 2. transitioning from IaaS to PaaS services that account for application behavior monitoring and security of organizational secrets. By the end of the OpenHack, attendees will have built out a technical solution that has all applications and virtual machines (all workloads) fully hosted on the Azure cloud.

#### **Technologies**

Azure Migrate, Azure Database Migration Service, Data Migration Assistant, Azure Active Directory, Azure Active Directory Connect (AAD Connect), Azure Site Recovery, Azure Monitor/Log Analytics, Azure Monitor/Log Analytics, Azure Networking, Azure Virtual Machines, Azure Storage, Azure DNS, Azure Traffic Manager, Azure Bastion, Azure Load Balancer, Azure Application Gateway

#### **Prerequisites**

There are no prerequisites, but previous Containers knowledge would be beneficial to attendees.





### **Modern Data Warehousing**

#### Overview

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This OpenHack enables attendees to develop, implement, and operationalize ETL pipelines for a multi-source data warehouse solution on Microsoft Azure. This OpenHack simulates a real-world scenario where an online DVD company's data is coming in from a mess of disparate sources but needs to be stored in a single location, made sense of, and then used to feed a wide variety of downstream systems. During the "hacking" attendees will focus on 1. systematically ingesting and securing data from multiple sources and, then, 2. transforming data to fit business's required schema and monitor dataflow with levels of DevOps testing. By the end of the OpenHack, attendees will have built out a technical solution that is a fully operating Modern Data Warehouse with corresponding CI/CD pipeline that takes into account data management – which meets top-quality data consumption requirements, like reliability, scalability, and maintainability.

#### **Technologies**

Azure Data Lake Storage, Azure Data Factory, Azure Databricks, Azure DevOps, SQL Data Warehouse

#### **Prerequisites**

To be successful and get the most out of this OpenHack, participants should have existing knowledge of relational database structures and concepts (e.g. tables, joins, SQL) and experience with either SSIS or programing languages like Scala or Python. Previous experience creating ETL pipelines, source control management, automated testing, and build and release automation will help you advance more quickly.





### Serverless

#### Overview

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This OpenHack enables attendees to quickly build and deploy Azure Serverless solutions that are comprised of cutting-edge compute services like Functions, Logic Apps, Event Grid, Service Bus, Event Hubs and Cosmos DB. The OpenHack simulates a real-world scenario where an ice cream company wants to utilize Platform as a Service (PaaS) services to build and release an API to integrate into their distributor's application. During the "hacking" attendees will focus on 1. building serverless functions, web APIs, and CI/CD pipeline to support them and, then, 2. implementing further Serverless technologies to integrate LOB app workflows, process user/data telemetry and create business KPI-aligned reports. By the end of the OpenHack, attendees will have built out a technical solution that is a full serverless solution which can create workflows between systems and handle events, files, and Data Ingestion.

#### **Technologies**

Azure Functions, Logic Apps, Event Grid, Cosmos DB, API Management, Event Hubs, Azure Dev Ops or GitHub (team choice), Application Insights, Dynamics 365/Office 365, Cognitive APIs, Service Bus

#### **Prerequisites**

Customers who are using FaaS should attend this OpenHack because the content showcases end-toend application cycles with focus on CI/CD, Scaling, DR and VNet requirements.



## **OpenHack Learning Path**

Use the OpenHack recommended Learning Path to select the core technology track right for your role. Accelerate your expertise by joining the suggested follow-on OpenHack tracks.



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## **Our Global Reach**



## Attendee Feedback

What did you enjoy most about the virtual event?

	This is still a very collaborative approach, even though it is virtual. Having a mix of people meant that where one person had expertise they were able to lead the group, along with splitting up over tasks.			The overall team learning and getting over frustration around the issues we found	ng Getting hands o ations command line d ound. tools. Working in		n with the gain and k8s a team.	
	Microsoft CSA			Microsoft CSA		Microsoft CSA		
Extremely impressed with doing this via Teams. The factThe factthat I was working with people for the first time andwI thought the way in which we collaborated waswoutstanding! I can't wait to get access to my Teamswcustom background!mS500 CustomerS			The immersion and minimal distractions, and way that we had to work far closer together to solve the problems. We worked as a unit on a specific problem, and stuck with it as a team until it was done - in our particular case I think this really helped those more room to up-skill to learn more. S500 Customer			Ability to still col with team even it was virtual. The environment wa way to collabor Microsoft CSA	laborate though e teams as a great rate virtually.	
	The way the whole OpenHack is organised and challenges that are set. They are all linked and build the knowledge base.	Having hands on experie progressing in a step by difficulty was very helpfu through the hands on ch S500 Customer		ence with kubernetes, and step way with increasing II. I was able to learn a lot nallenges	Great team to work with challenging exercise. I c Teams took away from t it was very productive a what we needed to do Microsoft CSA		h on a very don't feel that the experience, and easy to do as a team.	

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## Marketing Assets

As part of the Virtual OpenHack Program we will provide the following, co-branded, marketing assets:

- » OpenHack Invitation
- » OpenHack Registration page
- » Microsoft Teams Invitation
- » Delegate Survey

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» Event Report







For more Information email **Openhack@fastlaneus.com** 



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## **Technical Setup**

Set-up Required for Virtual OpenHack Attendees in order to ensure a high quality learning experience, we recommend the following:

### Minimum Set-up:

- » Robust, high speed, highly available WiFi
- » Minimum 15MB uplink / Minimum downlink 20MB/sec
- » Laptop / PC
- » Microsoft Teams installed
- » Admin rights to install software required to complete OpenHack challenges
- » Headphones
- » Webcam / Camera

## What's in the Box

#### **Included by Fast Lane**

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Event Resources	
Project Manager	•
OpenHack Technical Content	•
OpenHack Coaches	•
Setup of Microsoft Teams Environment	•
Event Support Staff	•
Marketing Assets	
OpenHack Agenda	•
OpenHack Invitation	•
Registration Management	•
Team Allocation	•
Reporting	
Event Flash Report	•
Student Survey	•
Coach's Feedback	•

OpenHack Tracks Available (duration 3 days each)	10 Delegates (2 Teams)	Each Additional Team	
Al-Powered Knowledge Mining	\$17,750.00	\$8,000.00	
App Modernization with NoSQL	\$17,250.00	\$8,000.00	
Containers	\$18,250.00	\$8,000.00	
DevOps	\$17,250.00	\$8,000.00	
DevOps for Data Science	\$17,250.00	\$8,000.00	
DevSecOps	\$17,250.00	\$8,000.00	
Dynamics 365 + Power Platform	\$16,750.00	\$8,000.00	
Migrating Microsoft Workloads to Azure	\$19,500.00	\$8,500.00	
Modern Data Warehousing	\$20,250.00	\$8,500.00	
Serverless	\$18,250.00	\$8,000.00	

#### Note:

- » Each Team should consist of 5 delegates
- » Maximum number of teams is 20 = 100 delegates for Virtual OpenHack
- » Price includes Azure consumption costs

## About Fast Lane

Fast Lane are a Global Microsoft Gold Learning Partner with offices in 45 countries and were recognised as a Finalist for the 2020 Microsoft Partner of the Year Awards.

With our global presence, we are driving Microsoft's vision in delivering 21st Century skills through our Learning and Platform as a Service capability. We offer the complete Microsoft role-based training and certification courses, which are delivered by our pool of over 3,000 industry experts.

Fast Lane Virtual OpenHack's provide delegates the opportunity to:

» Hack on challenges designed to leave you with the skills and expertise needed to deploy your solution.

- » Network virtually with fellow industry peers and other professional developers from large enterprises as well as Microsoft engineers.
- » Participate in technical talks with industry subject matter experts.

