

**Application Management with Azure Arc**

**Course Number:** AZR-148  
**Duration:** 3 days

**Overview**

The Application Management with Azure Arc training course teaches attendees how to use Azure Arc to integrate and manage resources across multiple clouds, on-premise, hybrid, and edge environments. Attendees learn how to view and manage resources with Azure Resource Manager, including virtual machines, Kubernetes clusters, and databases. Participants also use standard Azure services and management tools for all resources connected through Azure Arc. This course concludes with incorporating DevOps practices to support cloud-native development and deployment patterns.

**Prerequisites**

Students will need a basic knowledge of cloud computing, cloud-native application development, and DevOps practices. Also, students should know Azure fundamentals.

**Materials**

All students receive comprehensive courseware covering all topics in the course. Students will access the courseware through GitHub. The courseware is a collection of documents. Students practice the topics covered through challenging hands-on lab exercises.

**Software Needed on Each Student PC**

Students will need a free, personal GitHub account to access the courseware. Students will need a modern web browser. Also, students will need an Azure Subscription.

**Objectives**

* Understand Azure Arc's purpose, capabilities, and benefits
* Navigate the multi-cloud maze and tackle the challenges of managing apps across cloud providers and on-premises
* Understand Azure Arc use cases for Arc-enabled servers, Kubernetes, and data services
* Master Azure Arc architecture and get familiar with Jumpstarts, custom locations, and the Resource Bridge
* Manage resources and connect and manage Windows/Linux servers, Kubernetes clusters, and SQL
* Secure hybrid and multi-cloud environments by implementing governance and threat protection
* Extend Azure services to edge locations and custom environments
* Integrate DevOps tools for streamlining application deployment using Git and GitOps

**Outline**

* Introduction
  + What is Azure Arc?
  + Challenges of Multiple Environment Application Management
  + Azure & Multiple Clouds
  + On-Premises & Hybrid
  + Edge Computing
  + Azure Arc Use Cases
  + Azure Arc Architecture
  + Azure Arc Jumpstarts
* Services Outside Azure managed by Arc
  + Windows and Linux Servers
  + Kubernetes Clusters
  + SQL Managed Instances
  + PostgreSQL Server
  + SQL Server
  + Virtual Machines managed by VMware vSphere
  + Virtual Machines managed by Azure Stack HCI
* Custom Locations
  + What is a Custom Location?
  + Custom Location Architecture
  + Configure Custom Locations
* Resource Bridge
  + What is the Resource Bridge?
  + Resource Bridge Architecture
  + Resource Bridge within Azure
  + Resource Bridge Projection for On-Premises Resources
  + Configure Custom Locations
  + Integration with vSphere VMs
  + Integration with Azure Stack HCI VMs
  + Integration with System Center Virtual Machine Manager (SCVMM)
* Resource Bridge Management
  + Deploying the Resource Bridge
  + Managing the Resource Bridge
  + Secure the Resource Bridge
  + Troubleshooting the Resource Bridge
* Resource Bridge Tasks
  + Start, stop, and restart a virtual machine
  + Control access and add Azure tags
  + Add, remove, and update network interfaces
  + Add, remove, and update disks and update VM size (CPU cores and memory)
  + Enable guest management
  + Install extensions
* Arc-enabled Servers
  + What is an Arc-enabled Server?
  + Install the Azure Connected Machine Agent
  + Connect and Disconnect a Server to/from Azure Arc
  + Manage Arc-enabled Servers
  + Governance
  + Threat Protection
  + Configuration
  + Monitoring
* Arc-enabled Kubernetes
  + What is an Arc-enabled Kubernetes Cluster?
  + Compatibility with CNCF-certified K8s clusters
  + Google Cloud and AWS K8s clusters
  + On-premises K8s clusters running on vSphere or Azure Stack HCI
  + Install the Azure Connected Machine Agent
  + Connect and Disconnect a Kubernetes Cluster to/from Azure Arc
  + Manage Arc-enabled Kubernetes Clusters
  + Governance
  + Threat Protection
  + Configuration
  + Monitoring
* Arc-enabled Data Services
  + Run Azure Data Services Anywhere
  + Azure SQL Managed Instance
  + Azure Arc-enabled PostgreSQL
  + Connectivity Modes
  + Storage Configuration
  + Sizing of Compute, Memory, and Storage
  + Security and Permissions
  + Automated Validation Testing
* SQL Server enabled by Arc
  + What is SQL Server enabled by Arc?
  + Install the Azure Connected Machine Agent
  + Azure extensions for SQL Server
  + Connect and Disconnect a SQL Server to/from Azure Arc
  + Manage SQL Server enabled by Arc
  + Governance
  + Threat Protection
  + Configuration
  + Monitoring
* Deploy Applications to Azure Arc Services
  + Integrate with DevOps, Git, and GitOps
  + Azure App Service
  + Azure Functions
  + Azure Logic Apps
  + Azure Event Grid
  + Azure API Management
* Conclusion