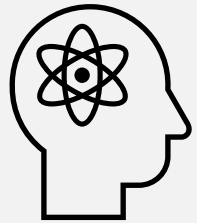
Microsoft

MOD 3: Azure Solutions and Management Tools

Module Outline

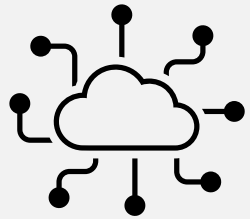


Module 03 – Outline

You will learn the following concepts:

- **Core Azure solutions**
  - IoT to Azure Sphere
  - Synapse Analytics to Databricks
  - AI / ML
- **Azure management tools**
  - Portal, PowerShell, CLI, and others
  - Advisor, Monitor, and Service Health

Azure solutions



Azure Solutions - Objective Domain

Describe the benefits and usage of:

- Internet of Things (IoT) Hub, IoT Central, and Azure Sphere
- Azure Synapse Analytics, HDInsight, and Azure Databricks
- Azure Machine Learning, Cognitive Services, and Azure Bot Service
- Serverless computing solutions that include Azure Functions and Logic Apps
- Azure DevOps, GitHub, GitHub Actions, and Azure DevTest Labs

Azure Internet of Things

Internet of Things (IoT) is the ability for devices to garner and then relay information for data analysis.

Azure IoT Central is a fully managed global IoT SaaS solution that makes it easy to connect, monitor, and manage IoT assets at scale.

Azure IoT Hub is a managed service hosted in the cloud that acts as a central message hub for bi-directional communication between IoT applications and the devices it manages.

Azure Sphere is a secured, high-level application platform with built-in communication and security features for internet-connected devices.

Walkthrough - Implement the Azure IoT Hub

Create an Azure IoT Hub in Azure Portal and configure the hub to authenticate a connection to an IoT device using the Raspberry Pi device simulator.

1. Create an IoT Hub.
2. Add an IoT device.
3. Test the device using the Raspberry Pi Simulator.

Big data and analytics

Azure Synapse Analytics

A cloud-based Enterprise Data Warehouse.

Azure HDInsight

A fully-managed, open-source analytics service for enterprises.

Azure Databricks

Apache Spark based analytics service.

Artificial Intelligence & Machine Learning

Azure Machine Learning: cloud-based to develop, train, and deploy machine learning models.

Cognitive Services: quickly enable apps to see, hear, speak, understand, and interpret a user's needs.

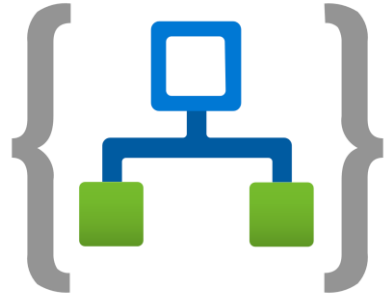
Azure Bot Service: develop intelligent, enterprise-grade bots.

Serverless Computing

Azure Functions

Event based code running your service and not the underlying infrastructure.

Azure Logic Apps

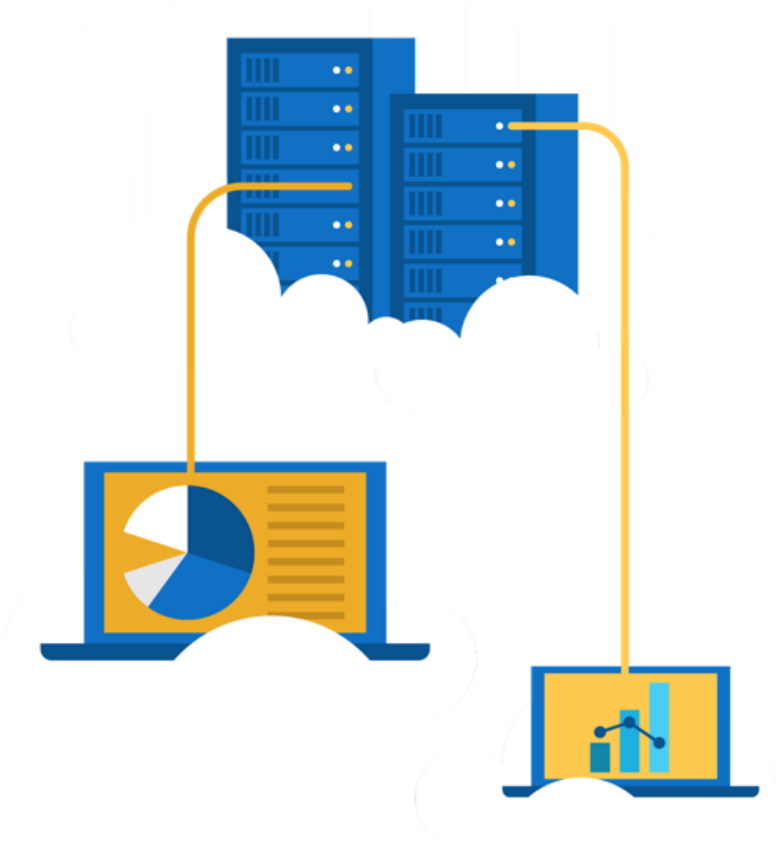


Automate and orchestrate tasks, business processes, and workflows to integrate apps.

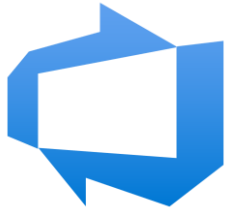
Walkthrough - Implement Azure Functions

Create a Function app with a Webhook to provide a Hello message with your name.

1. Create a Function app.
2. Create a HTTP triggered event function and test.

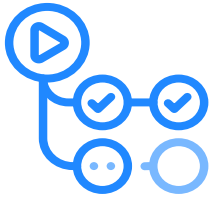


Develop your apps with DevOps and GitHub



Azure DevOps: development collaboration tools including pipelines, Kanban boards, and automated cloud-based load testing.

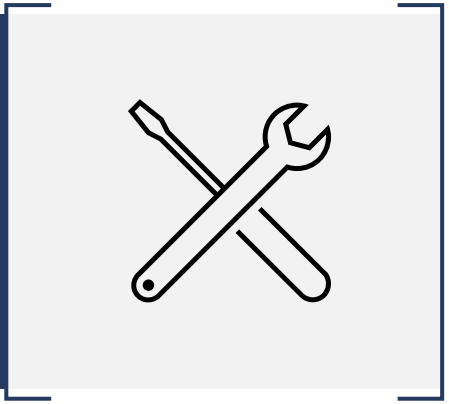
GitHub: software development hosting with version control, source code management, and bug/task management.



GitHub Actions for Azure: automate software workflow to build, test, and deploy from withing GitHub.

Azure DevTest Labs: quickly create environments in Azure while minimizing waste and controlling cost.

Azure management tools

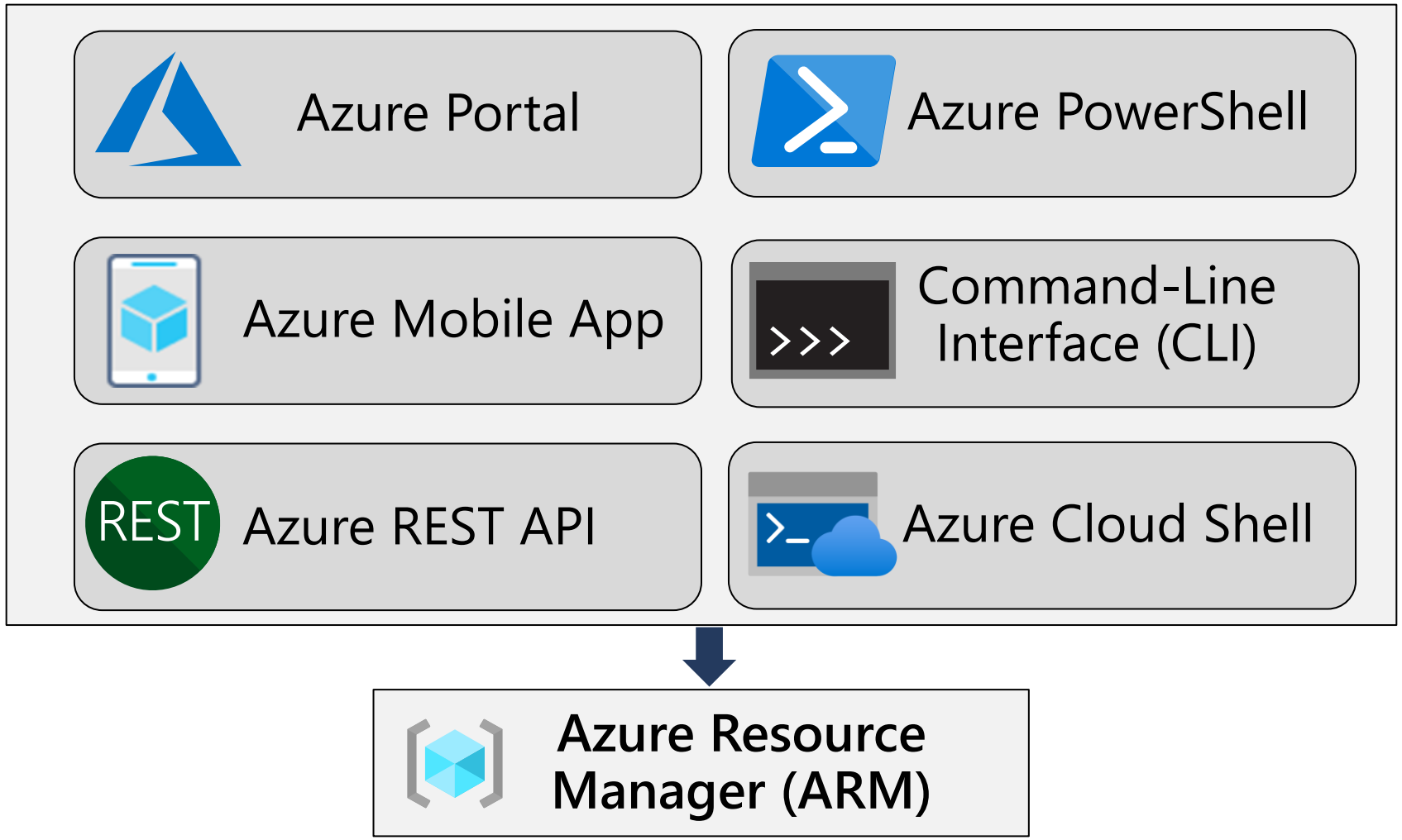


Azure Management Tools - Objective Domain

Describe the functionality and usage of:

- Azure Portal, Azure PowerShell, Azure CLI, Cloud Shell, and Azure Mobile App.
- Azure Advisor.
- Azure Resource Manager (ARM) templates.
- Azure Monitor.
- Azure Service Health.

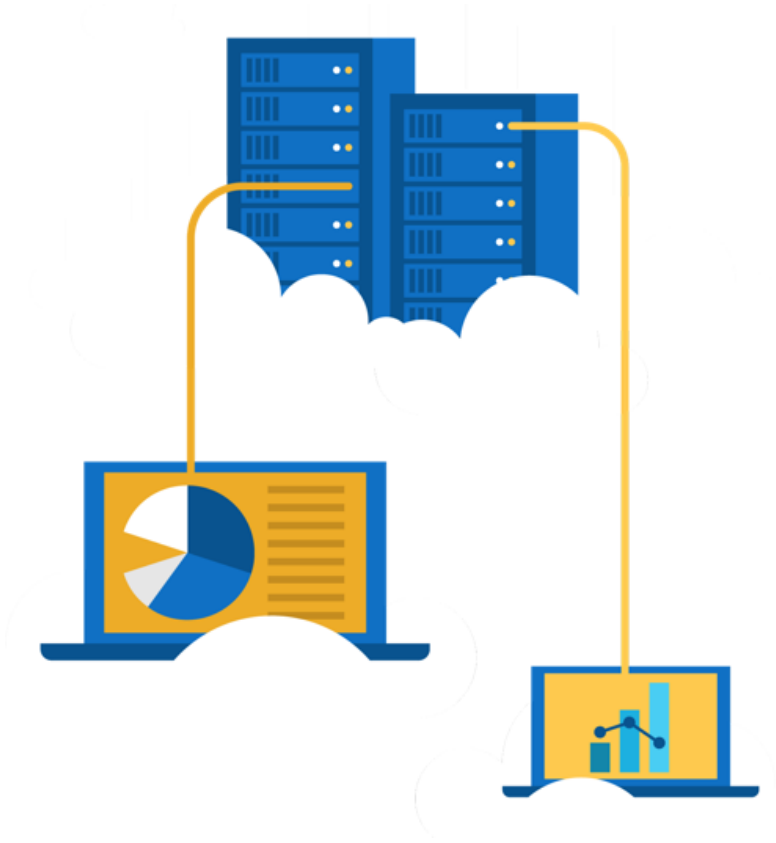
Azure management tools



Walkthrough – Create a VM with an ARM Template

Use the Azure QuickStart gallery to deploy a template that creates a virtual machine.

1. Explore the gallery and deploy a template.
2. Verify your virtual machine deployment.



Walkthrough - Create a VM with PowerShell

Install PowerShell locally, create a resource group and virtual machine, access and use the Cloud Shell, and review Azure Advisor recommendations.

Use PowerShell to create a resource group and virtual machine.

1. Execute PowerShell commands in the Cloud Shell.
2. Review Azure Advisor Recommendations.

Walkthrough - Create a VM with the Azure CLI

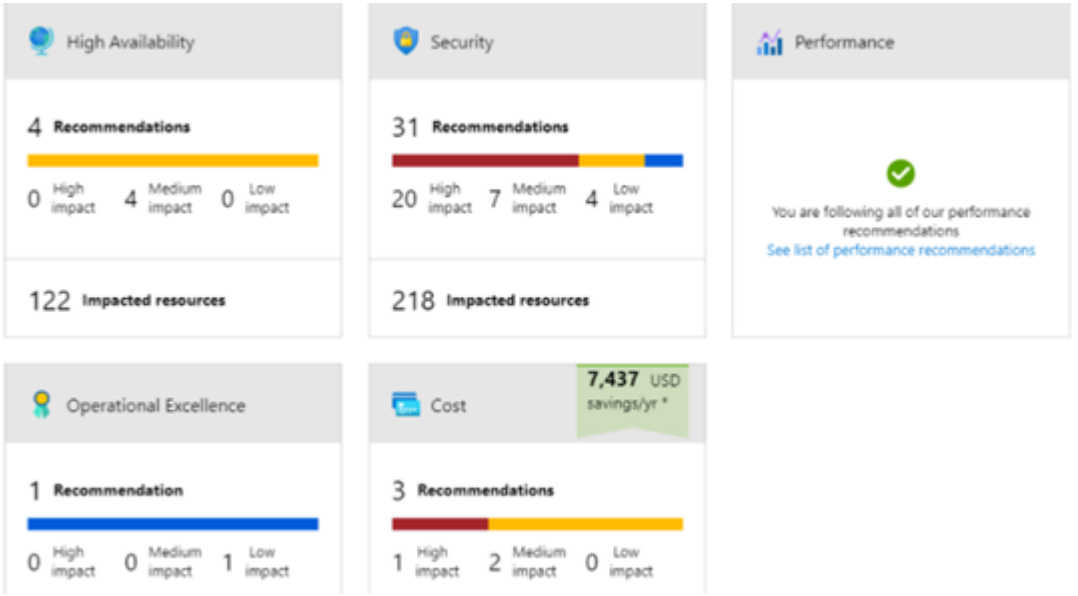
Install the Azure CLI locally, create a resource group and virtual machine, use the Cloud Shell, and review Azure Advisor recommendations.

1. Install the CLI locally.
2. Use the CLI to create a resource group and virtual machine.
3. Execute commands in the Cloud Shell.
4. Review Azure Advisor Recommendations.

Azure Advisor

Azure Advisor analyzes deployed Azure resources and makes recommendations based on best practices to optimize Azure deployments.

- Reliability
- Security
- Performance
- Cost
- Operational Excellence

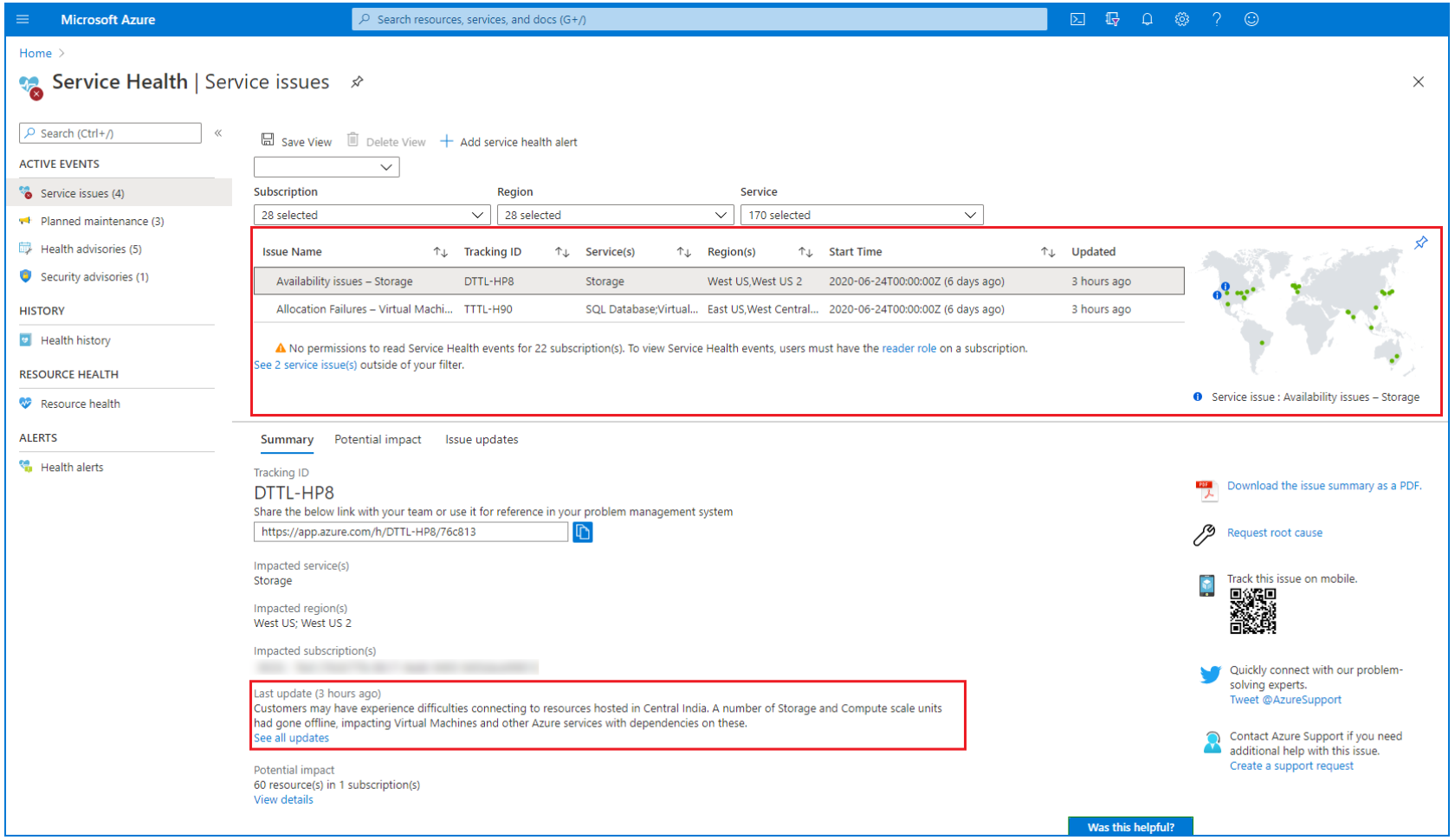


Azure Monitor

Azure Monitor maximizes the availability and performance of applications and services by collecting, analyzing, and acting on telemetry from cloud and on-premises environments.

- Application Insights
- Log Analytics
- Smart Alerts
- Automation Actions
- Customized Dashboards

Azure Service Health



Evaluate the impact of Azure service issues with personalized guidance and support, notifications, and issue resolution updates.

Azure Service Health

Azure Service Health provides a personalized view of the health of Azure services and the regions being used.

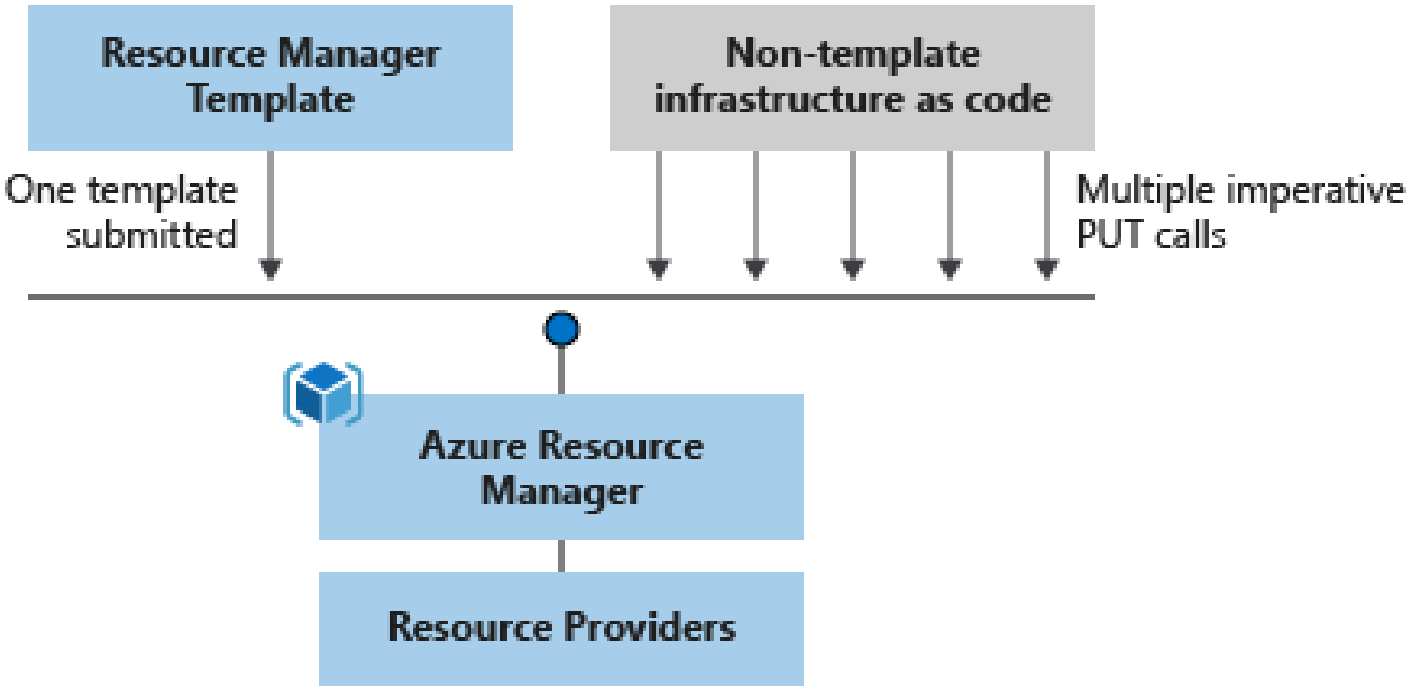
- Communication regarding outages
- Planned maintenance
- Other health advisories

Microsoft Azure	Health Advisory Summary	2020-08-22T19:43:35Z
Title:	We have important information regarding your ExpressRoute service	
Tracking ID:	PLWN-F80	
Event type:	Health Advisory	
Status:	Ongoing as of 2020-08-22T19:43:34Z	
Service(s):	ExpressRoute \ ExpressRoute Circuits	
Region(s):	Australia Central, Australia Central 2, Australia East, Australia Southeast, Brazil South, Canada Central, Canada East, Central India, Central US, Central US EUAP, East Asia, East US, East US 2, East US 2 EUAP, France Central, France South, Germany North, Germany West Central, Global, Japan East, Japan West, Korea Central, Korea South, North Central US, North Europe, South Africa North, South Africa West, South Central US, Southeast Asia, South India, Switzerland North, Switzerland West, UAE Central, UAE North, UK South, UK West, West Central US, West Europe, West India, West US, West US 2	
Start time:	2020-08-18T00:00:00Z	
Resolve time:	Ongoing as of 2020-08-22T19:43:34Z	
Last update time:	2020-08-19T07:19:29Z	
Impacted subscriptions:	5733bcb3-7fde-4caf-8629-41dc15e3b352 (Contoso Hotels)	

Azure Resource Manager (ARM) templates

Azure Resource Manager (ARM) templates are JavaScript Object Notation (JSON) files that can be used to create and deploy Azure infrastructure without having to write programing commands.

- Declarative syntax
- Repeatable results
- Orchestration
- Modular files
- Built-in validation
- Exportable code



Module 03 Review

Microsoft Learn Modules
(docs.microsoft.com/Learn)

- Azure services: IoT, big data, analytics, and development tools.
- Azure Resource Manager.
- Azure Monitoring tools.