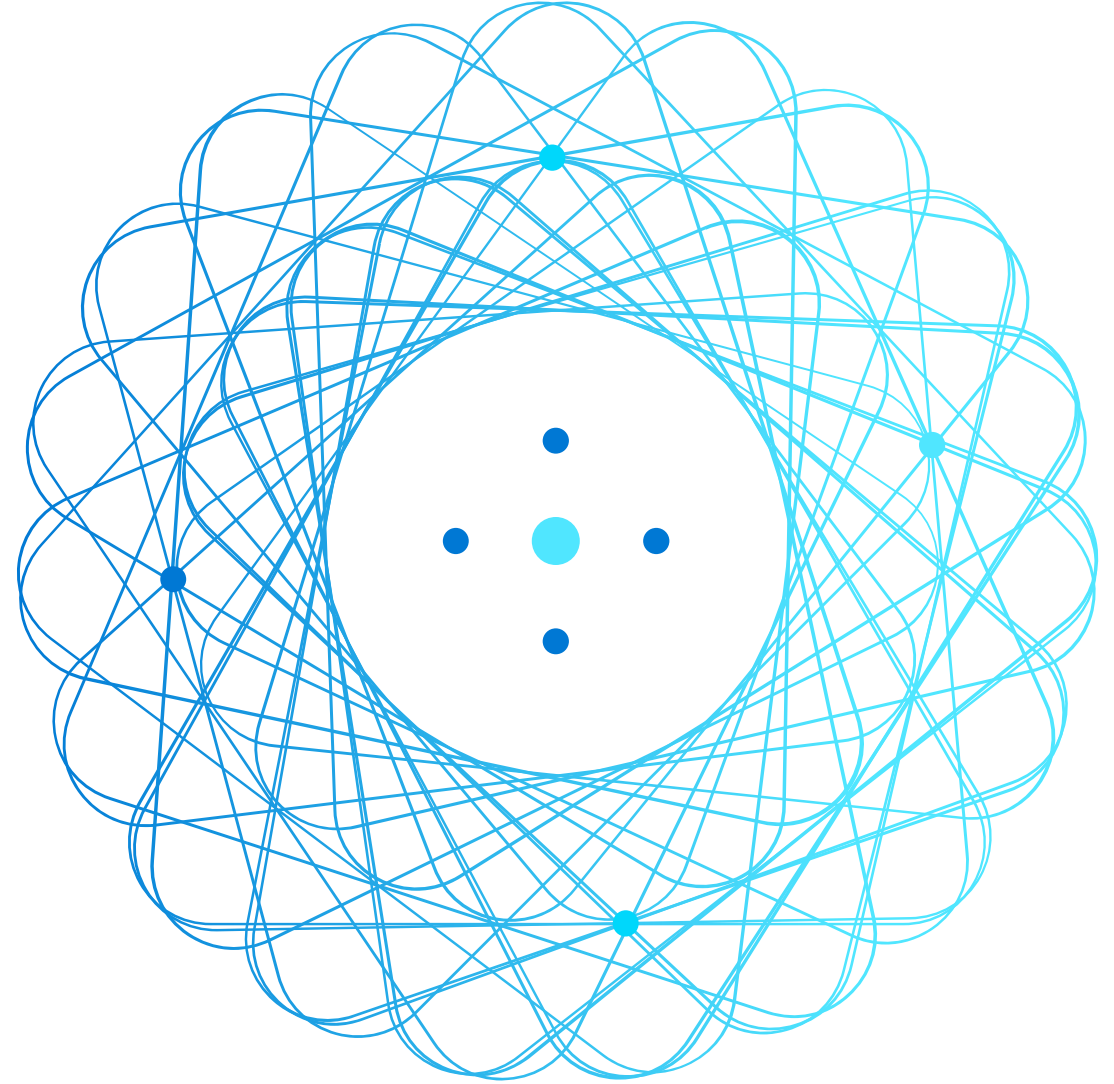


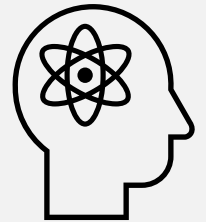
AZ-900T0x

Module 03:

Core Solutions



Module Outline



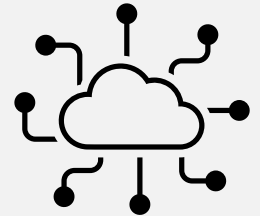
Module 03 – Outline

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.

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.

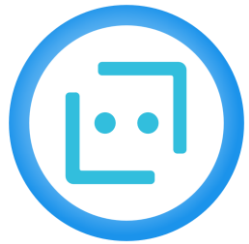
Artificial Intelligence & Machine Learning



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.

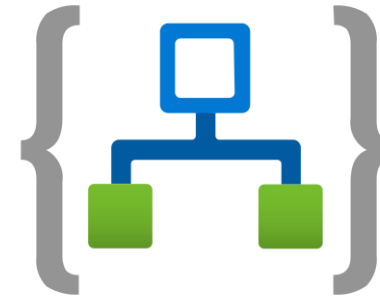
Serverless Computing

Azure Functions



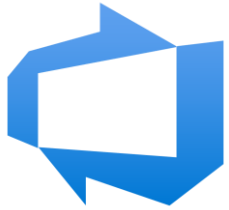
Event based code running your service and not the underlying infrastructure.

Azure Logic Apps



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

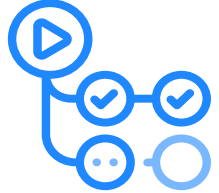
Develop your apps with DevOps and GitHub



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 within GitHub.



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

Azure management tools

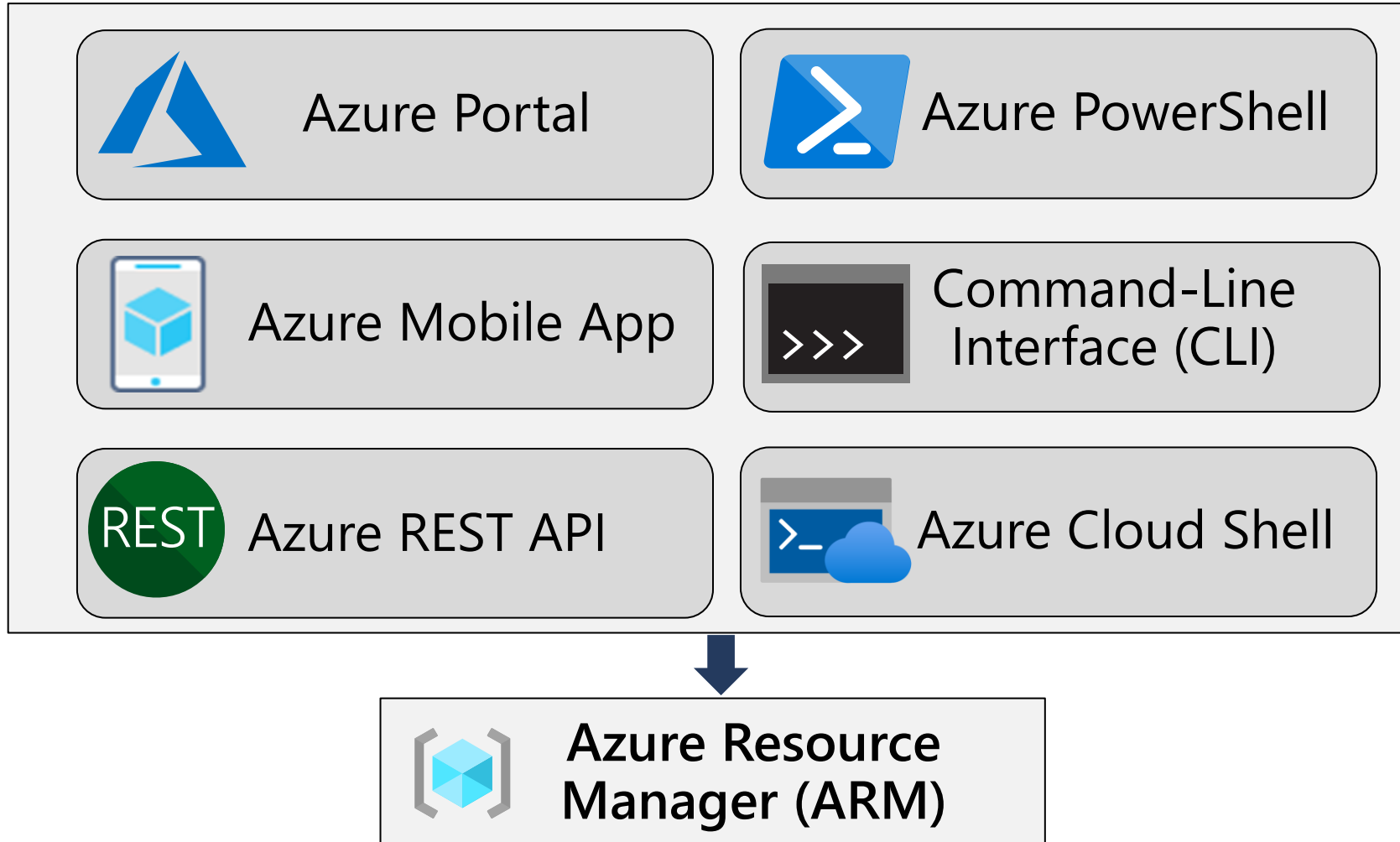


Azure Management Tools - Objective Domain

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.

Management tools available in Azure

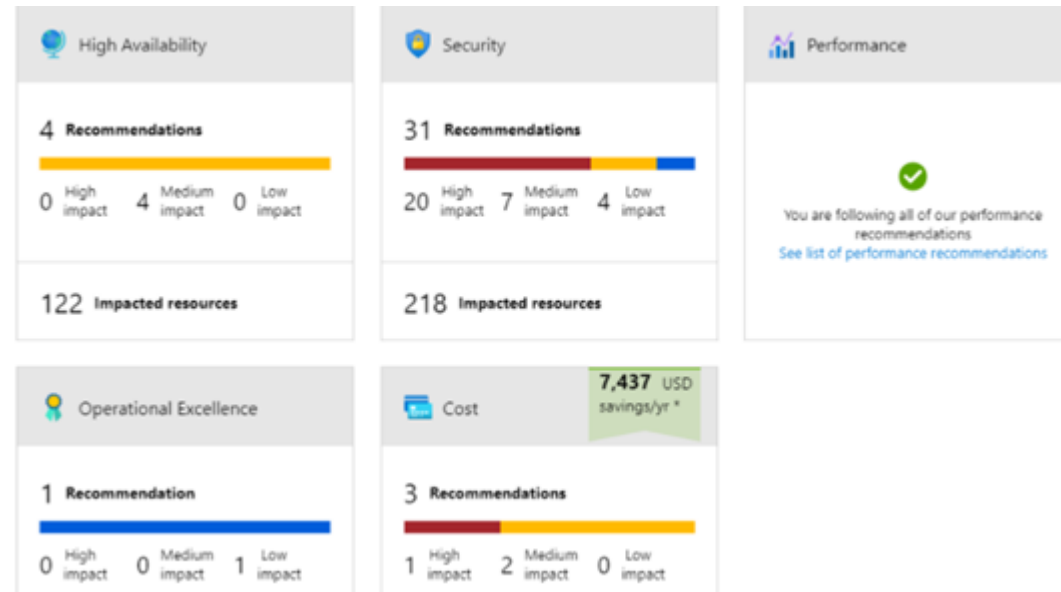


Azure Advisor



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

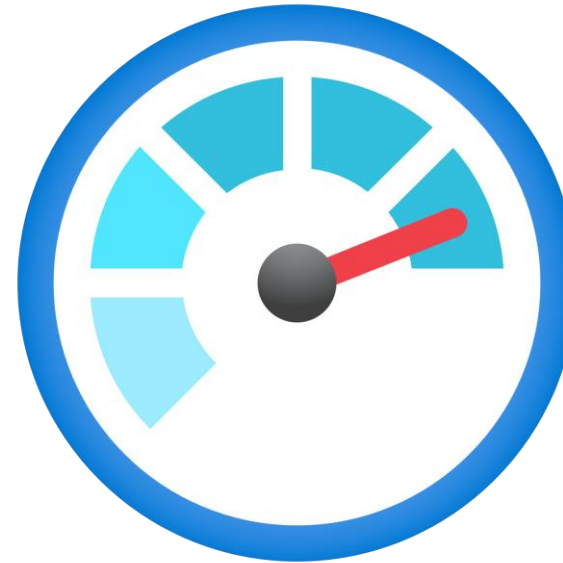
- Reliability
- Security
- Performance
- Cost
- Operational Excellence



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

Microsoft Azure

Search resources, services, and docs (G+/)

Home >

Service Health | Service issues

Search (Ctrl+/)

Save View

Delete View

Add service health alert

ACTIVE EVENTS

Service issues (4)

Planned maintenance (3)

Health advisories (5)

Security advisories (1)

HISTORY

Health history

RESOURCE HEALTH

Resource health

ALERTS

Health alerts

Subscription

28 selected

Region

28 selected

Service

170 selected

Issue Name	Tracking ID	Service(s)	Region(s)	Start Time	Updated
Availability issues – Storage	DTTL-HP8	Storage	West US,West US 2	2020-06-24T00:00:00Z (6 days ago)	3 hours ago
Allocation Failures – Virtual Machi...	TTTL-H90	SQL Database/Virtual...	East US,West Central...	2020-06-24T00:00:00Z (6 days ago)	3 hours ago

No permissions to read Service Health events for 22 subscription(s). To view Service Health events, users must have the [reader role](#) on a subscription. See 2 [service issue\(s\)](#) outside of your filter.

Service issue : Availability issues – Storage

Summary

Potential impact

Issue updates

Tracking ID

DTTL-HP8

Share the below link with your team or use it for reference in your problem management system

https://app.azure.com/h/DTTL-HP8/76c813

Impacted service(s)

Storage

Impacted region(s)

West US; West US 2

Impacted subscription(s)

Last update (3 hours ago)

Customers may have experience difficulties connecting to resources hosted in Central India. A number of Storage and Compute scale units had gone offline, impacting Virtual Machines and other Azure services with dependencies on these.

[See all updates](#)

Potential impact

60 resource(s) in 1 subscription(s)

[View details](#)

Download the issue summary as a PDF.

Request root cause

Track this issue on mobile.

Quickly connect with our problem-solving experts.

Tweet @AzureSupport

Contact Azure Support if you need additional help with this issue.

Create a support request

Was this helpful?

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

© Copyright Microsoft Corporation. All rights reserved.

Azure Service Health (continued)

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

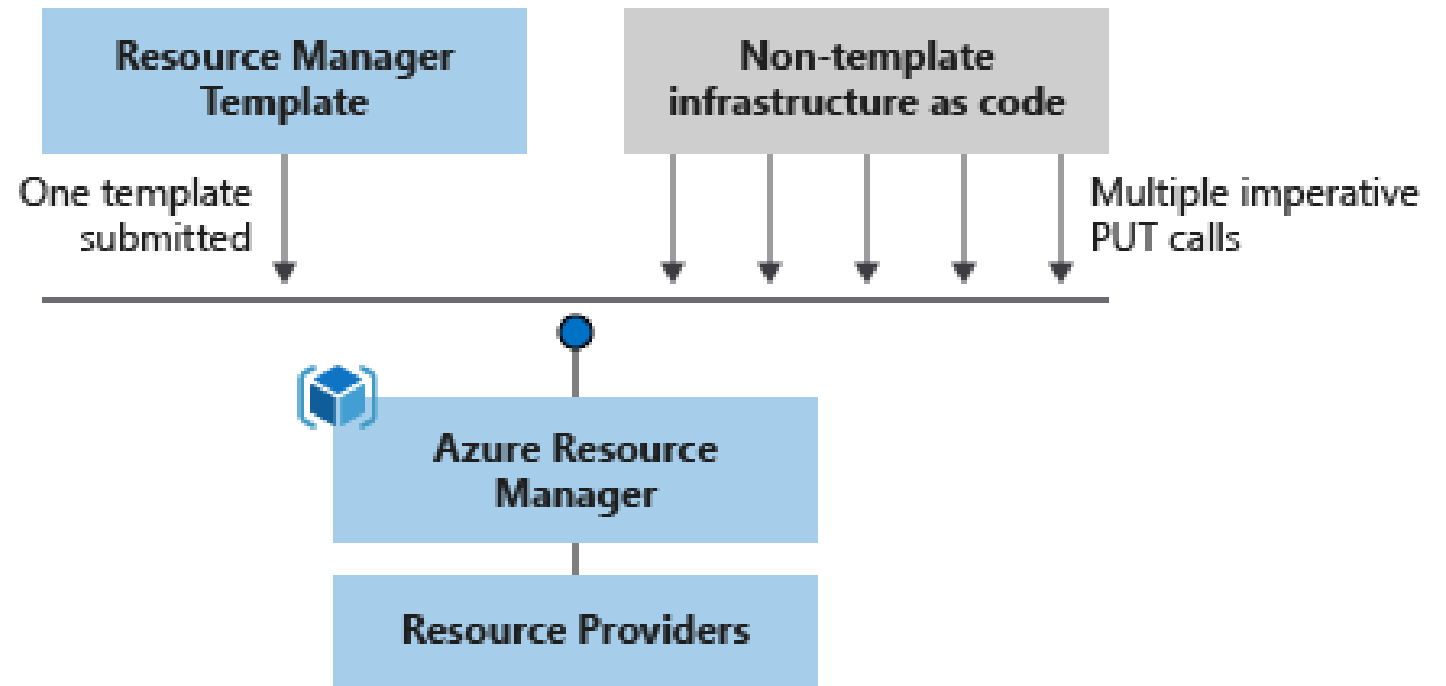
- Communication regarding outages
- Planned maintenance
- Other health advisories

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)	

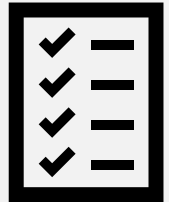
Azure Resource Manager (ARM) templates

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 programming commands.

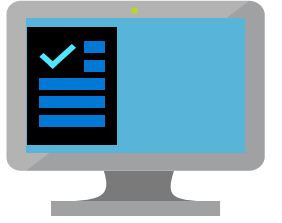
- Declarative syntax
- Repeatable results
- Orchestration
- Modular files
- Built-in validation
- Exportable code



Knowledge Checks (5 min)

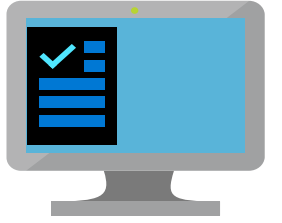


Knowledge Check



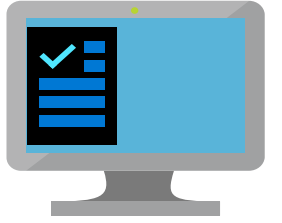
1. When using an Azure IoT Hub service, what does the term 'command and control' apply to?
 - a) device-to-cloud communication
 - b) file upload from devices
 - c) cloud-to-device communication
 - d) message routing

Knowledge Check



1. When using an Azure IoT Hub service, what does the term 'command and control' apply to?
 - a) device-to-cloud communication
 - b) file upload from devices
 - c) cloud-to-device communication
 - d) message routing

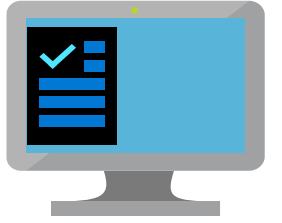
Knowledge Check



2. If your IoT solution cannot use one of the device SDKs or protocols supported by the Azure IoT hub, what Azure services can you use to support creating a custom protocol?

- a) Azure IoT Sphere
- b) Azure IoT Edge
- c) Azure IoT Hub
- d) Azure IoT Central

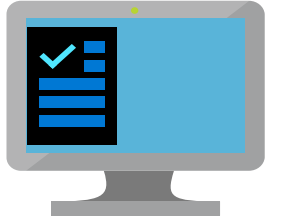
Knowledge Check



2. If your IoT solution cannot use one of the device SDKs or protocols supported by the Azure IoT hub, what Azure services can you use to support creating a custom protocol?

- a) Azure IoT Sphere
- b) [Azure IoT Edge](#)
- c) Azure IoT Hub
- d) Azure IoT Central

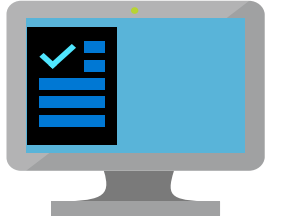
Knowledge Check



3. Which of the following Azure services has pre-trained models available for you to send data to for predictions?

- a) Azure Cognitive Services
- b) Azure Advisor
- c) Azure Machine Learning
- d) Azure IoT Hub

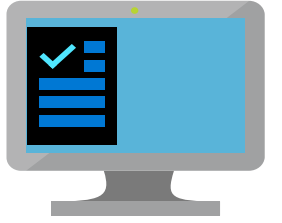
Knowledge Check



3. Which of the following Azure services has pre-trained models available for you to send data to for predictions?

- a) [Azure Cognitive Services](#)
- b) Azure Advisor
- c) Azure Machine Learning
- d) Azure IoT Hub

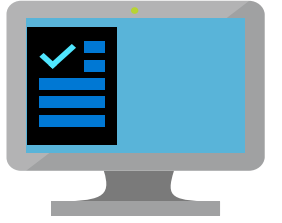
Knowledge Check



4. As part of Azure DevOps, what service would you use for adopting CI/CD for a development team?

- a) Azure Advisor
- b) Azure Boards
- c) Azure Test Plans
- d) Azure Pipelines

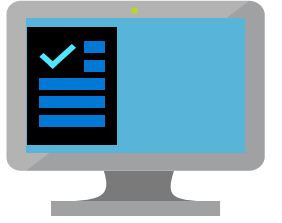
Knowledge Check



4. As part of Azure DevOps, what service would you use for adopting CI/CD for a development team?

- a) Azure Advisor
- b) Azure Boards
- c) Azure Test Plans
- d) Azure Pipelines

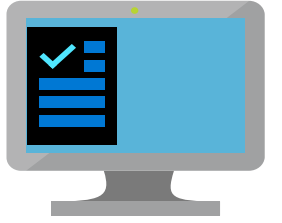
Knowledge Check



5. Which of the following is an attribute of Azure Resource Manager (ARM) Templates?

- a) YAML compatible
- b) Repeatable results
- c) Imperative syntax
- d) Non-modular file structure

Knowledge Check



5. Which of the following is an attribute of Azure Resource Manager (ARM) Templates?

- a) YAML compatible
- b) Repeatable results
- c) Imperative syntax
- d) Non-modular file structure

Lab Exercises - 7 to 11 (45 min)



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.