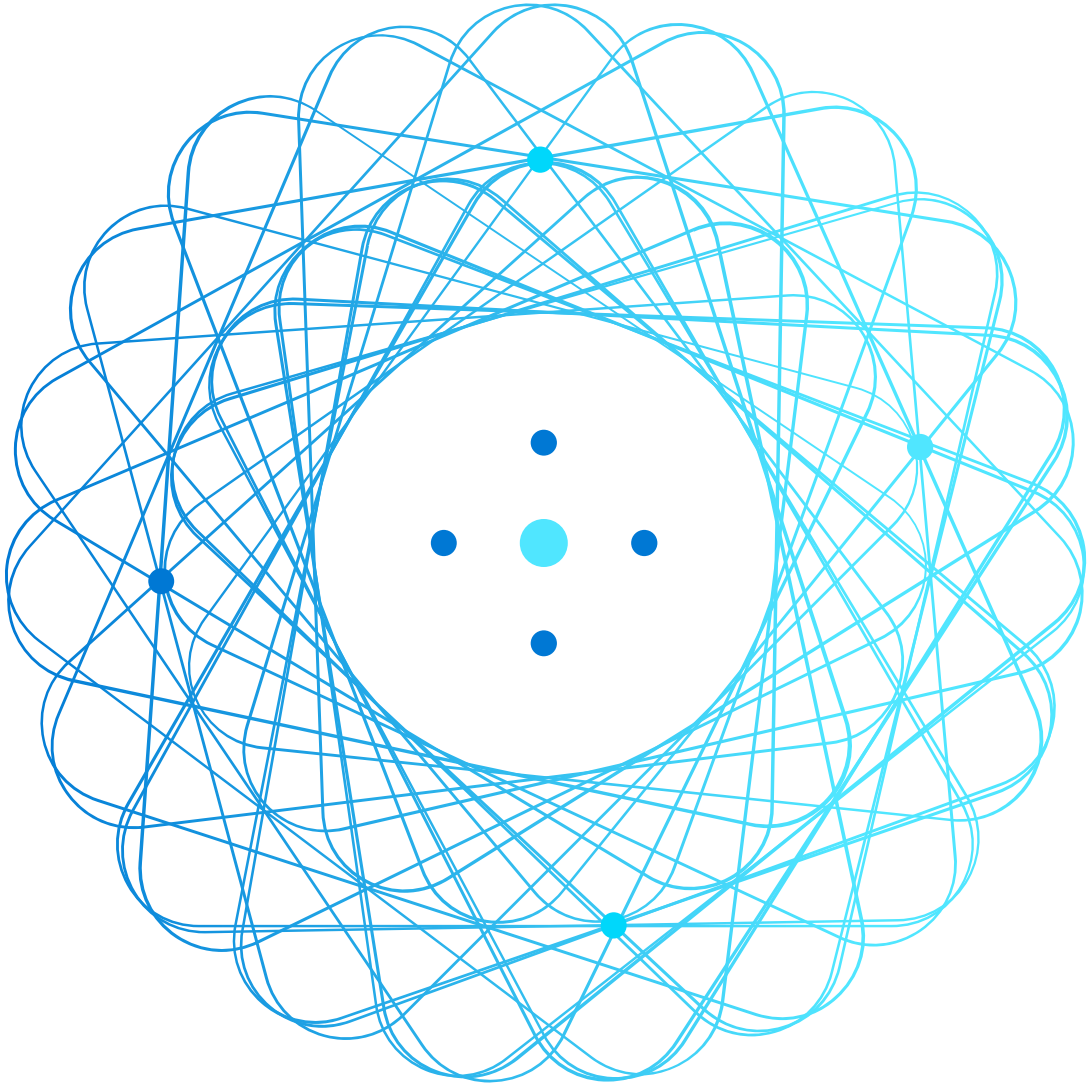
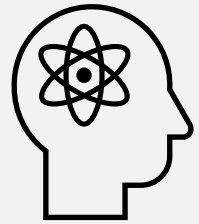
Microsoft Azure

AZ-900

Learning Path 03: Management and Governance



Learning Path Outline

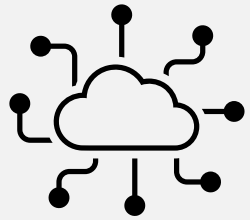


Learning Path 03 – Outline

You will learn the following concepts:

- **Cost management**
  - Cost and pricing calculators
  - Cost management and tags
- **Governance and compliance**
  - Blueprints, policies, and resource locks
  - Service Trust portal
- **Resource deployment tools**
  - Portal, PowerShell, CLI, and others
  - Azure Arc and Azure Resource Manager
- **Monitoring tools**
  - Azure Advisor, Azure Service Health, and Azure Monitor

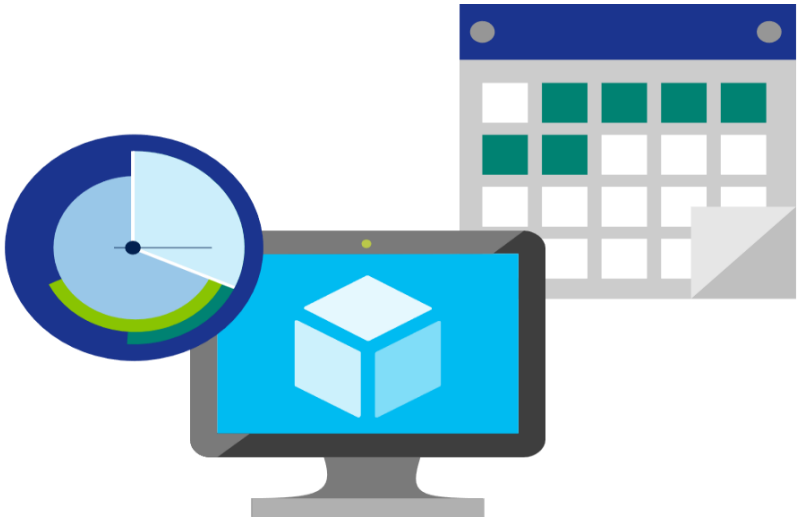
Cost management



Cost management - Objective Domain

- Describe factors that can affect costs in Azure.
- Compare the Pricing calculator and Total Cost of Ownership (TCO) calculator.
- Describe Azure Cost Management Tool.
- Describe the purpose of tags.

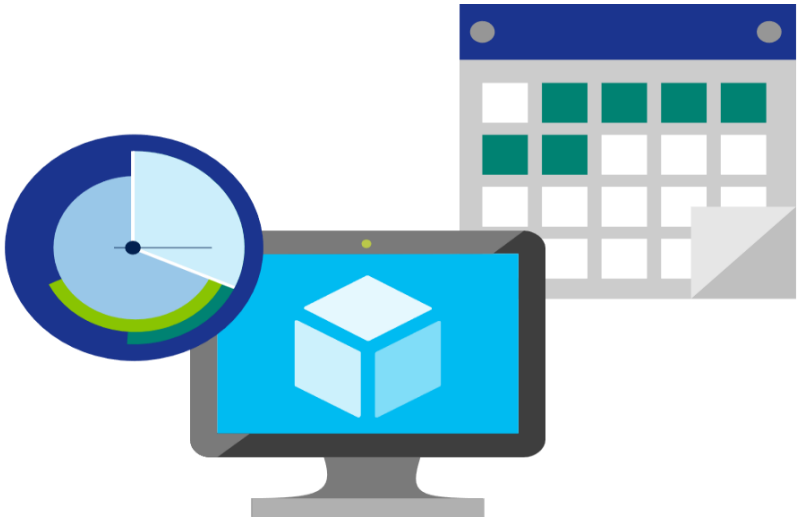
Factors affecting costs (part 1)



These are some of the factors affecting costs:

1) Resource Type	2) Consumption	3) Maintenance
Costs are resource-specific, so the usage that a meter tracks and the number of meters associated with a resource, depend on the resource type.	With a pay-as-you-go model, consumption is one of the biggest drivers of costs.	Monitoring your Azure footprint and maintaining your environment can help you identify and mitigate costs that aren't necessary, such as shutting down under used virtual machines.

Factors affecting costs (part 2)



These are some of the factors affecting costs:

4) Geography	5) Network traffic	6) Subscription
The same resource type can cost different amounts depending on the geographic area, so geography has an impact on Azure costs.	While some inbound data transfers are free, the cost for outbound data or data between Azure resources is impacted by Billing zones.	The type and configuration of your subscription can also impact your cost. For example, the free trial lets you explore some Azure resources for free.

Explore Azure Marketplace

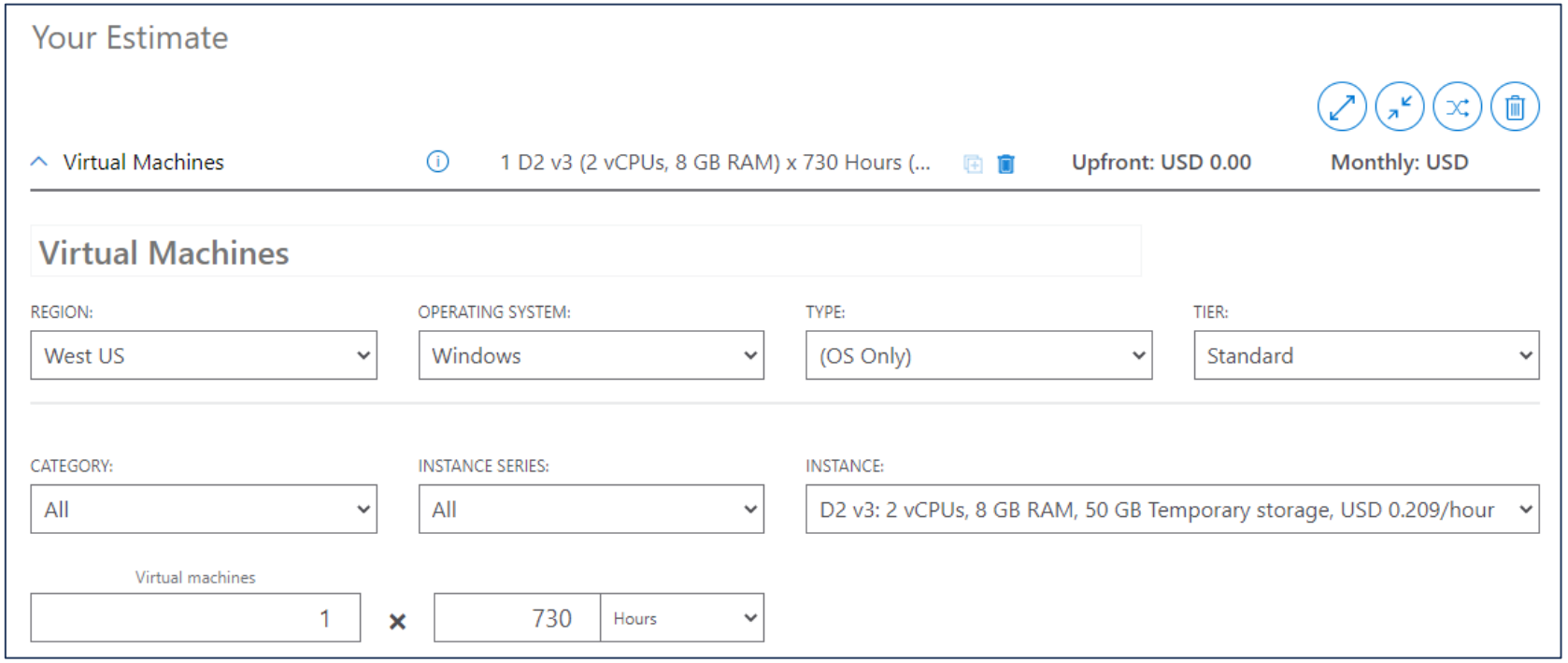
Azure Marketplace allows customers to find, try, purchase, and provision applications and services from hundreds of leading service providers, which are all certified to run on Azure.

- Open source container platforms.
- Virtual machine and database images.
- Application build and deployment software.
- Developer tools.
- And much more, with 10,000+ listings!

Pricing Calculator

The **Pricing Calculator** is a tool that helps you estimate the cost of Azure products. The options that you can configure in the Pricing Calculator vary between products, but basic configuration options include:

- Region
- Tier
- Billing options
- Support options
- Programs and offers
- Azure dev/test pricing



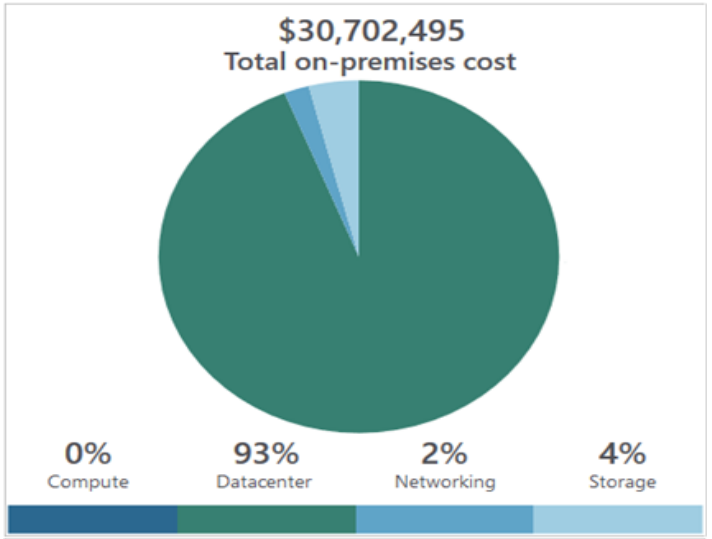
Exercise - Use the Azure Pricing Calculator

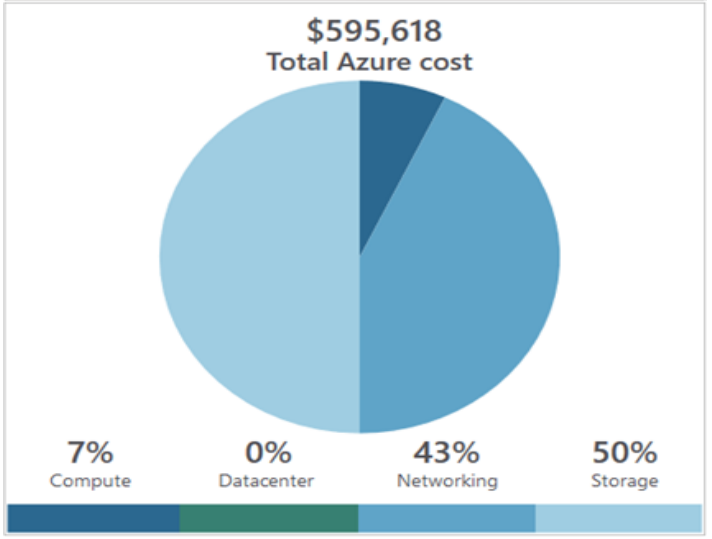
Use the Azure Pricing Calculator to generate a cost estimate for an Azure virtual machine and related network resources.

1. Configure the pricing calculator.
2. Review the pricing estimate.

Total Cost of Ownership Calculator

- A tool to estimate cost savings you can realize by migrating to Azure.
- A report compares the costs of on-premises infrastructures with the costs of using Azure products and services in the cloud.



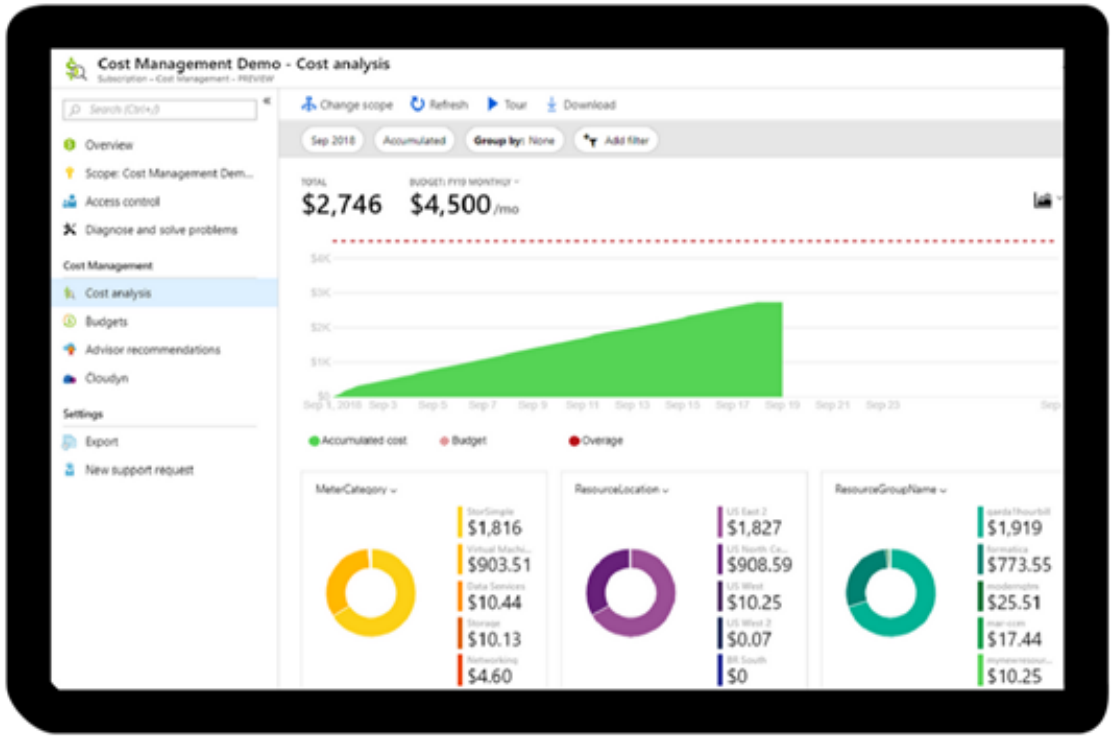


Exercise - Use the Azure TCO Calculator

Use the Total Cost of Ownership (TCO) Calculator to generate cost comparison report for an on-premises environment.

1. Configure the TCO calculator.
2. Review the results and save a copy.

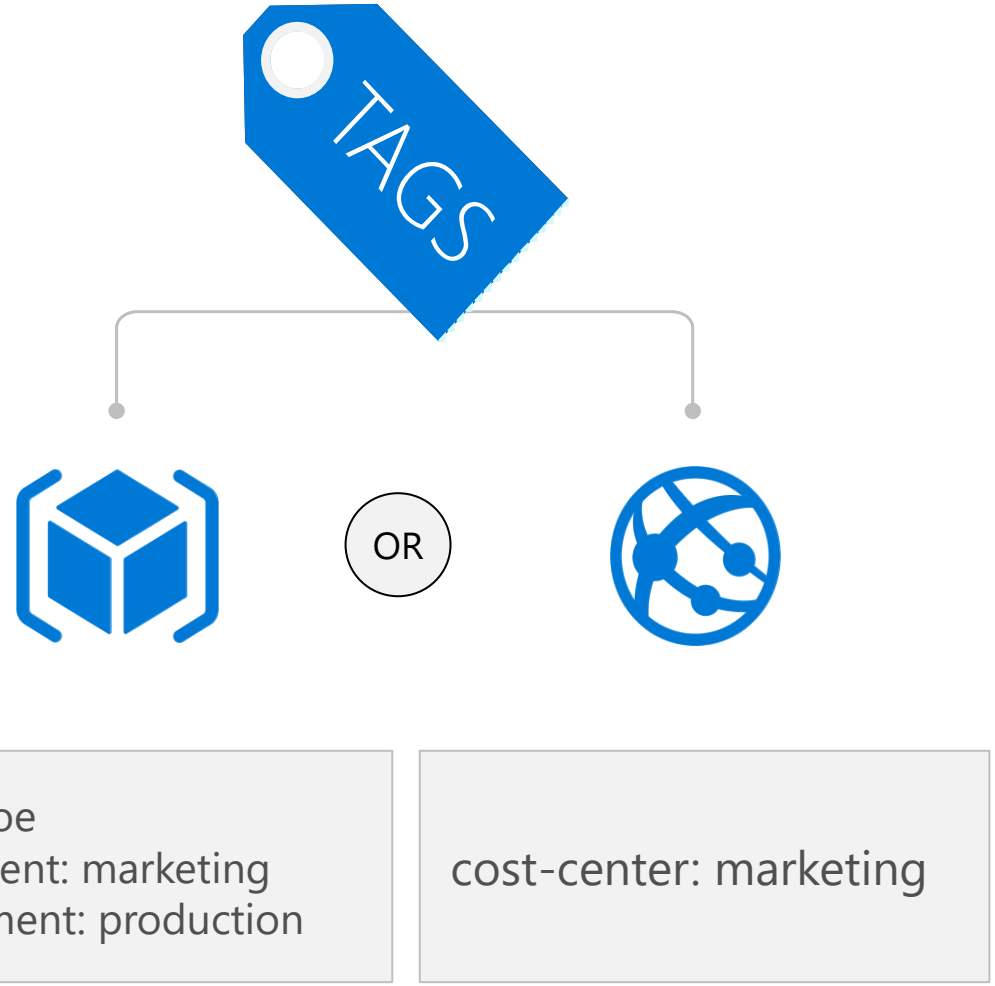
Azure Cost Management



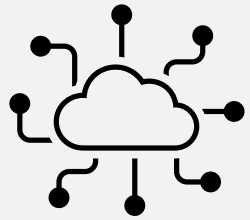
- Reporting – billing reports
- Data enrichment
- Budgets – set spend budget
- Alerting – when cost exceed limits
- Recommendation – cost recommendations

Tags

- Provides metadata for your Azure resources.
- Logically organizes resources into a taxonomy.
- Consists of a name-value pair.
- Very useful for rolling up billing information.



Governance and compliance



Governance and compliance - Objective Domain

- Describe the purpose of Azure Blueprints.
- Describe the purpose of Azure Policy.
- Describe the purpose of resource locks.
- Describe the purpose of the Service Trust portal.

Azure Blueprints

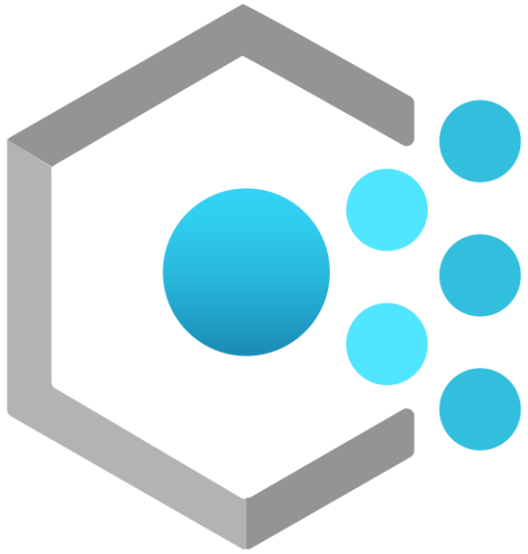
Azure Blueprints makes it possible for development teams to rapidly build and stand up new environments. Development teams can quickly build trust through organizational compliance with a set of built-in components (such as networking) in order to speed up development and delivery.

- Role Assignments
- Policy Assignments
- Azure Resource Manager Templates
- Resource Groups

Azure Policy

Azure Policy helps to enforce organizational standards and to assess compliance at-scale. Provides governance and resource consistency with regulatory compliance, security, cost, and management.

- Evaluates and identifies Azure resources that do not comply with your policies.
- Provides built-in policy and initiative definitions, under categories such as Storage, Networking, Compute, Security Center, and Monitoring.



Resource locks

- Protect your Azure resources from accidental deletion or modification.
- Manage locks at subscription, resource group, or individual resource levels within Azure Portal.

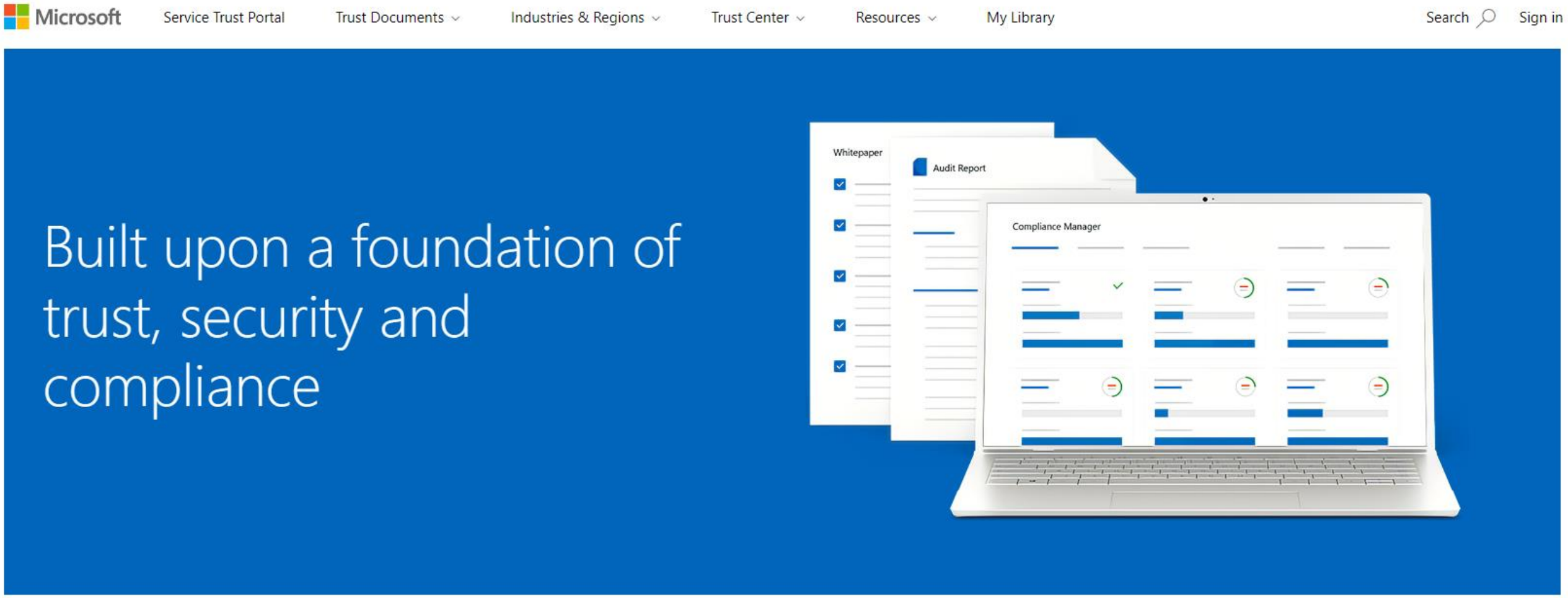
Lock Types	Read	Update	Delete
Delete	Yes	Yes	No
ReadOnly	Yes	No	No

Walkthrough - Manage Resource Locks

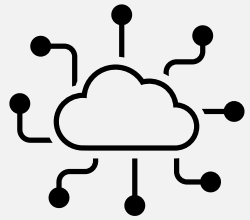
Create a resource add a lock and modification.

1. Create a resource.
2. Add a ReadOnly resource lock to prevent resource modification.
3. Update lock and retest.
4. Remove the resource lock.
5. Delete the resource.

Service Trust portal



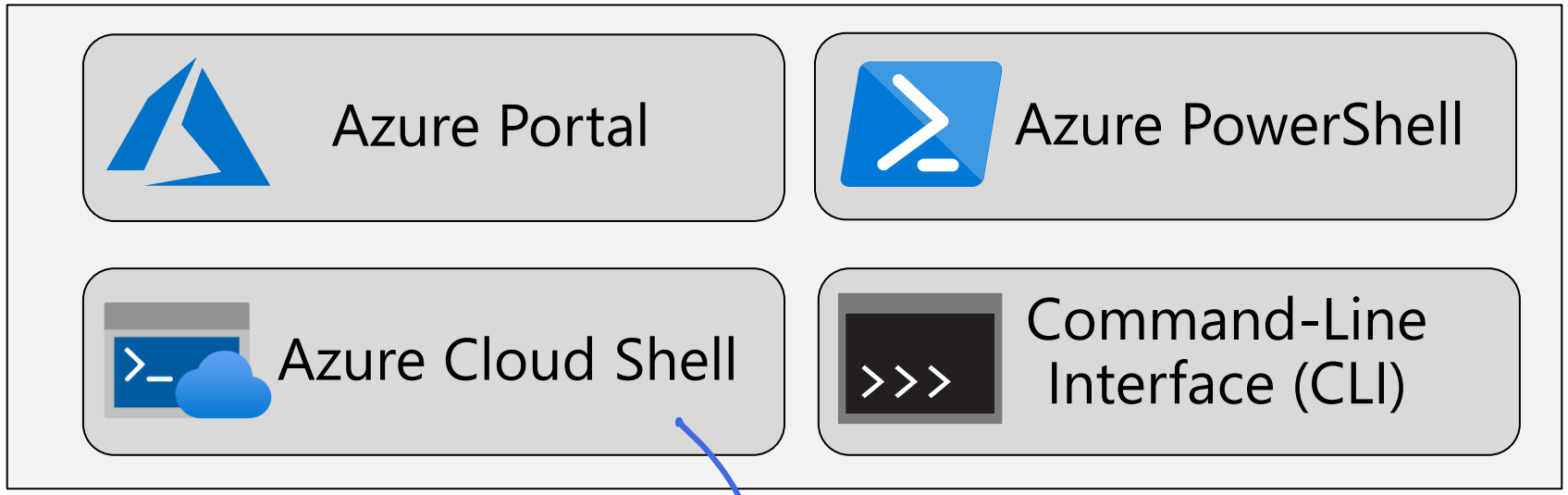
Management and deployment tools



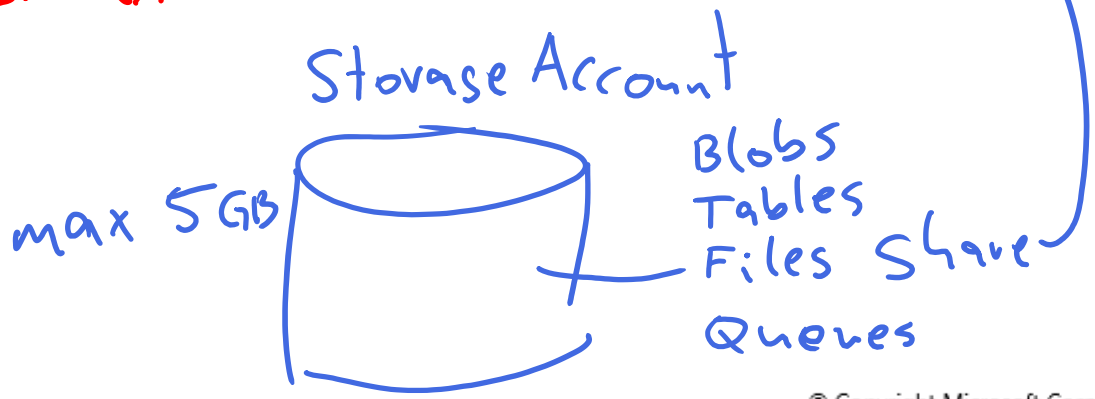
Management and deployment tools - Objective Domain

- Describe Azure portal.
- Describe Azure Cloud Shell, including Azure CLI and Azure PowerShell.
- Describe the purpose of Azure Arc.
- Describe Azure Resource Manager (ARM) and Azure ARM templates.

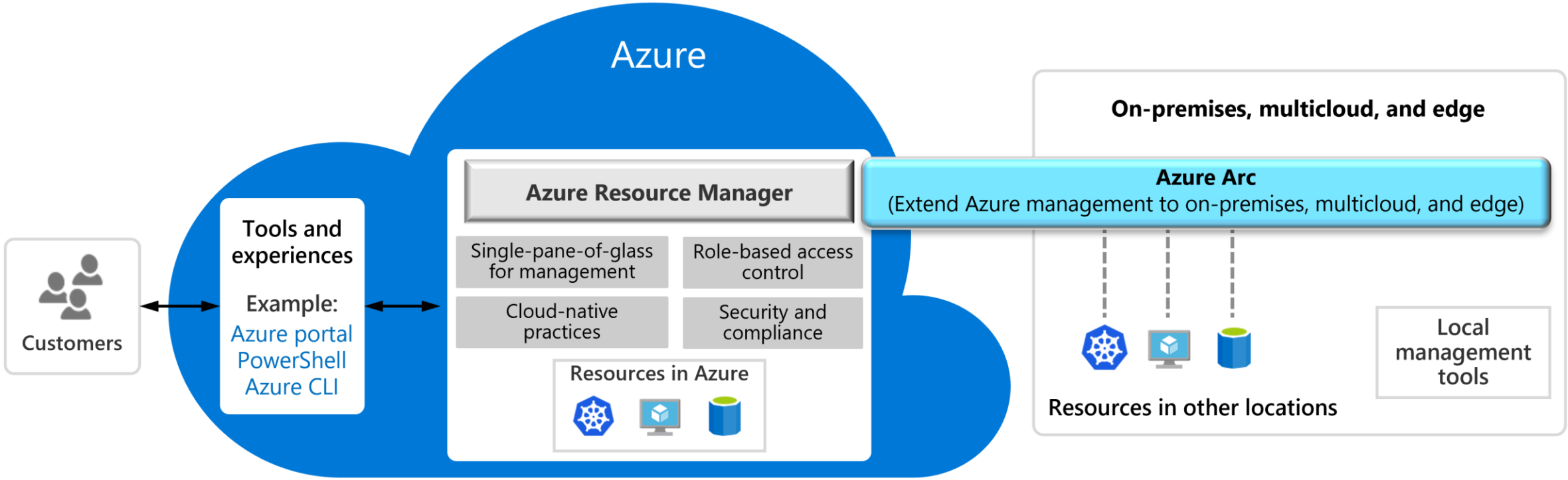
Tools for interacting with Azure



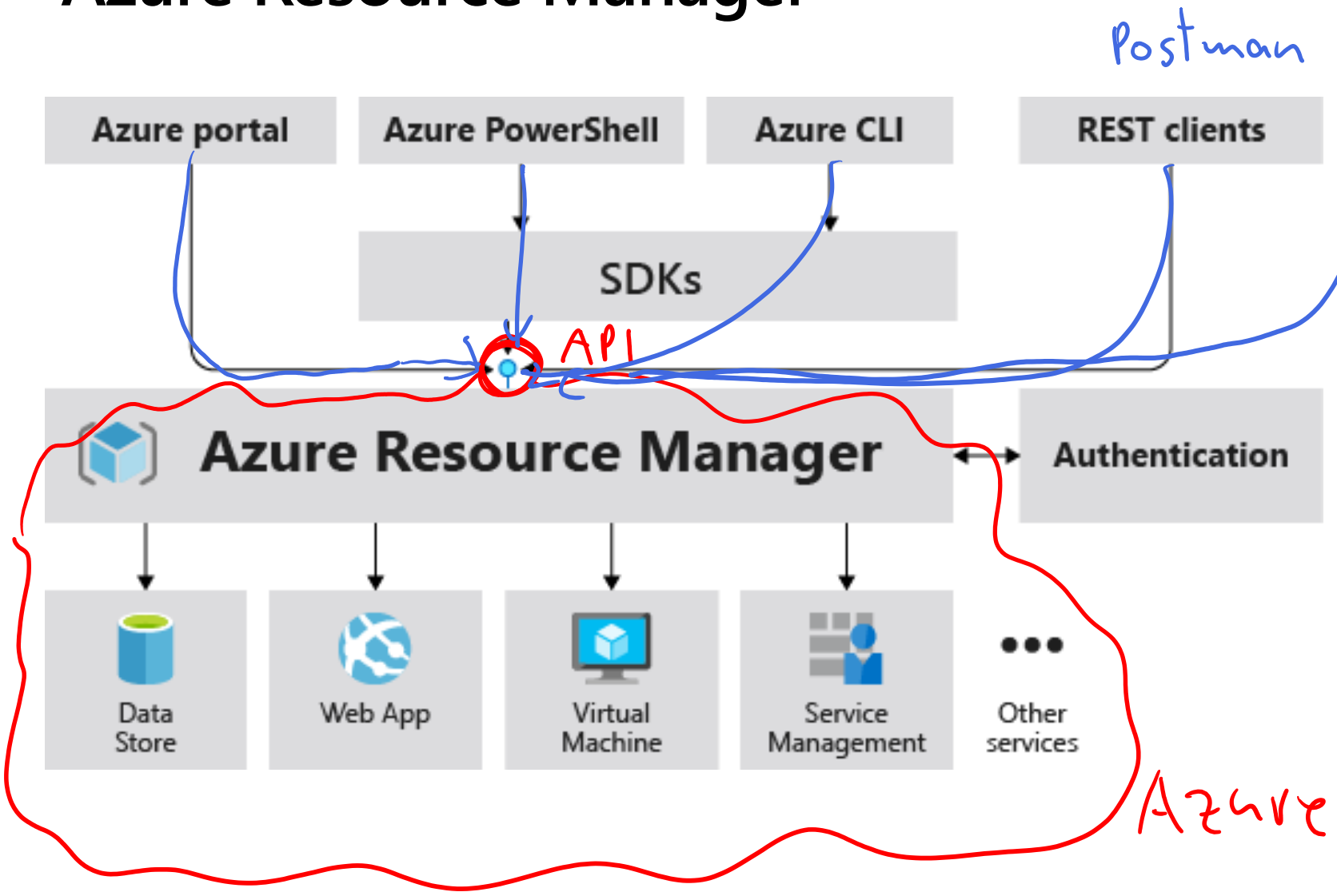
ACI
Container Instance
Linux



Azure Arc



Azure Resource Manager



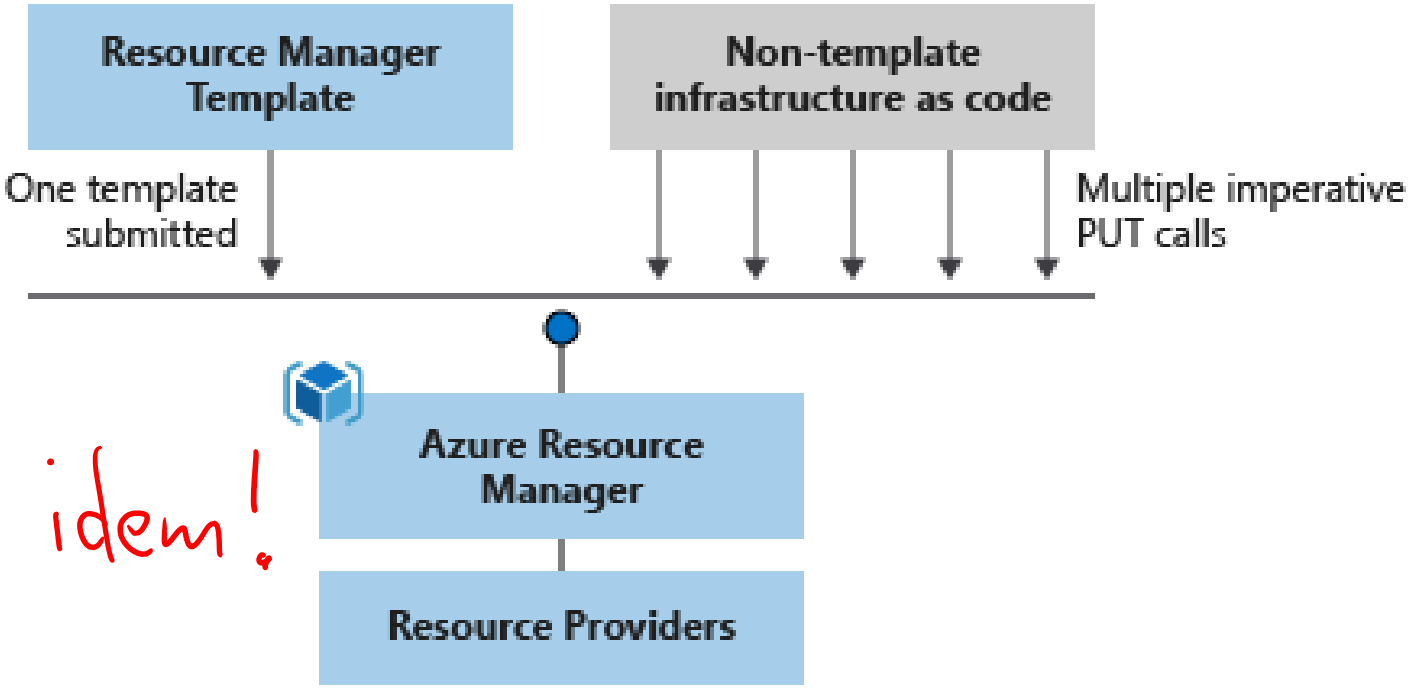
Postman

The **Azure Resource Manager (ARM)** provides a management layer that enables you to create, update, and delete resources in your Azure subscription.

Azure Resource Manager (ARM) templates

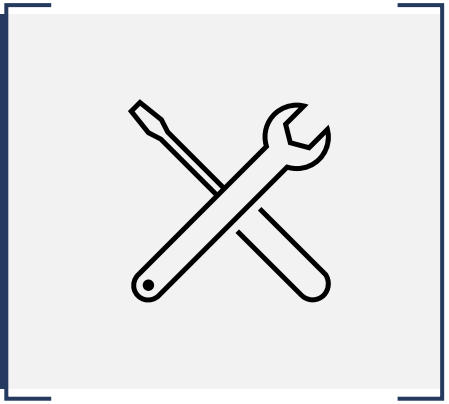
Azure Resource Manager (ARM) templates are JavaScript Object Notation (JSON) files that can be used to create and deploy Azure infrastructure without having to write programing commands.

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



Semper idem!

Azure monitoring tools



Azure Management Tools - Objective Domain

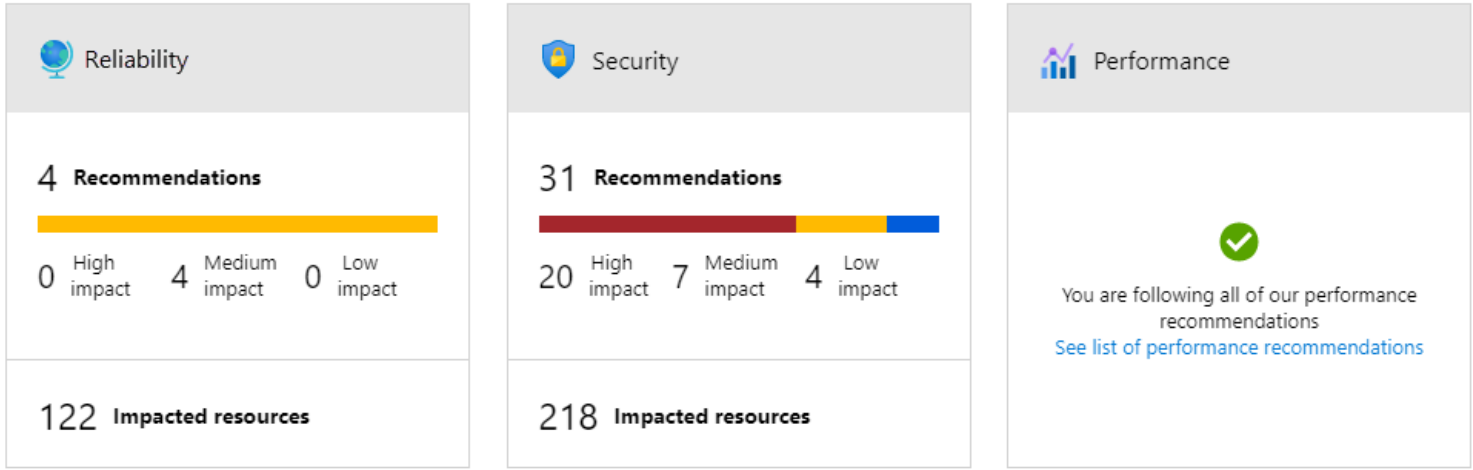
Describe the functionality and usage of:

- Describe the purpose of Azure Advisor.
- Describe Azure Service Health.
- Describe Azure Monitor, including Azure Log Analytics, Azure Monitor Alerts, and Application Insights.

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 Service Health

Azure Service Health is a collection of services that keep you informed of general Azure status, service status that may impact you, and specific resource status that is impacting you.

Azure Status: global view of the health of all Azure services across all Azure regions

Service Health: focused view on only the services and regions that you're using. If a service is experiencing a problem in a region you're not using, it won't show up here.

Resource Health: tailored view of your actual Azure resources. It provides information about the health of your individual cloud resources

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.

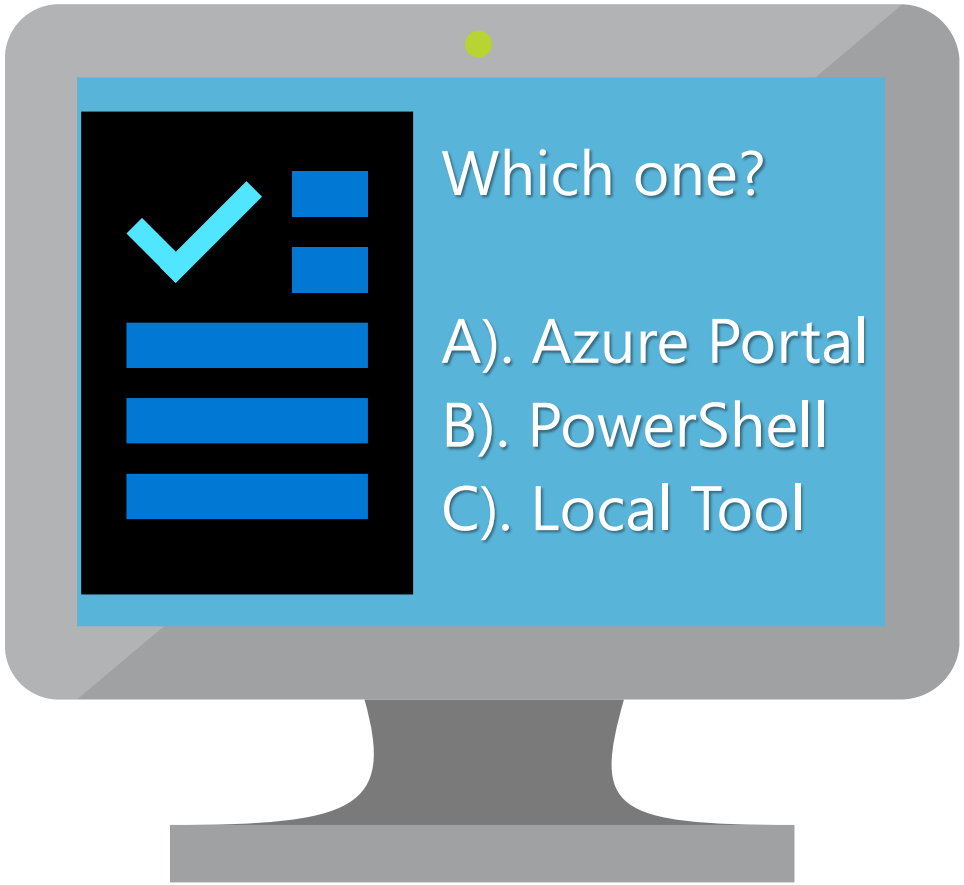
- Application Insights
- Log Analytics
- Smart Alerts
- Automation Actions
- Customized Dashboards

Knowledge Check

Populate with instructions to use the polling tool of your choice

Learning Path 3

1. Use your Smartphones or Mobile Devices
2. Go to *(insert polling app link of your choice)*
3. Enter Code: 123-45-678
4. Please participate in the quiz for this section



Learning Path 03 Review

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

- Cost management
- Governance and compliance
- Resource deployment tools
- Monitoring tools