

Microsoft Azure Fundamentals Certification and Beyond

Preface:

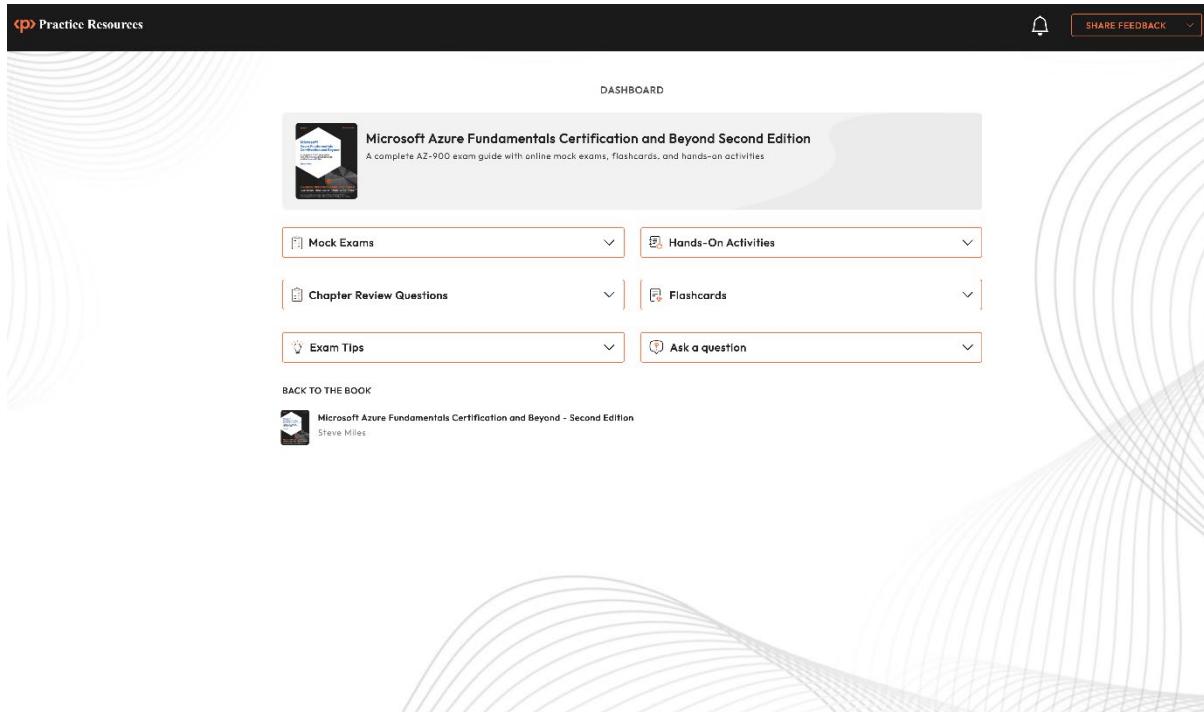


Figure 0.1 – Exam AZ-900: Microsoft Azure Fundamentals Online exam-prep platform

Chapter 1: Introduction to Cloud Computing

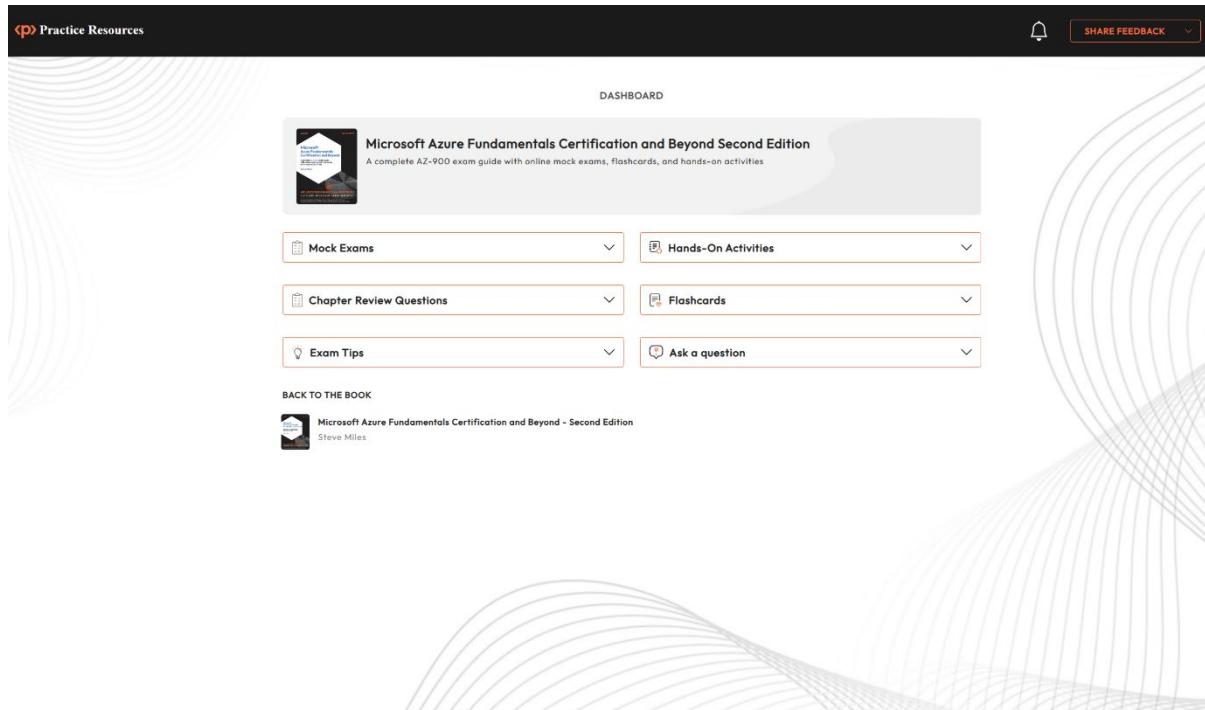


Figure 1.1: Dashboard interface of the online practice resources

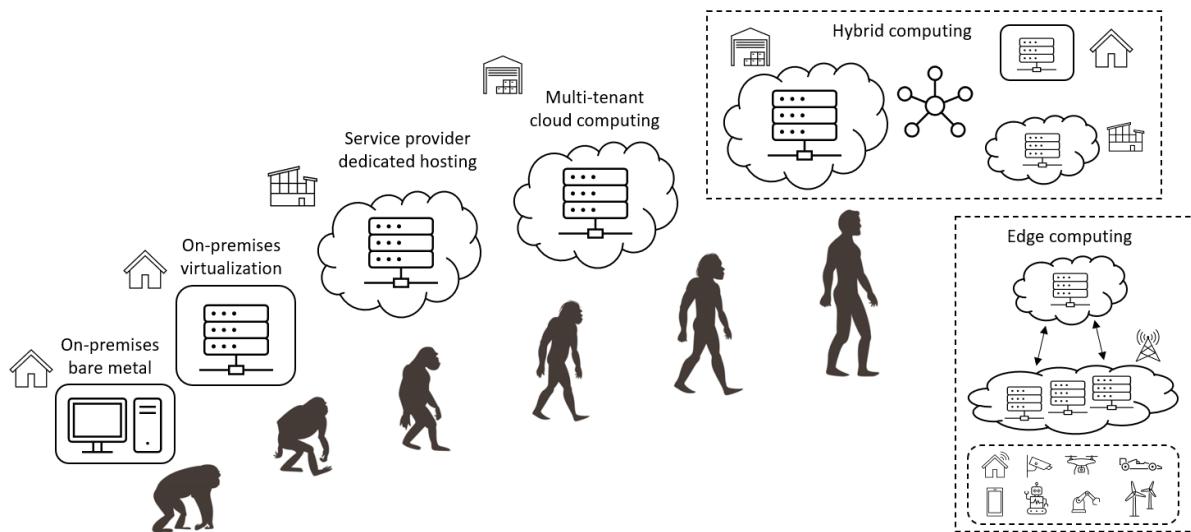


Figure 1.2 – Evolution of cloud computing

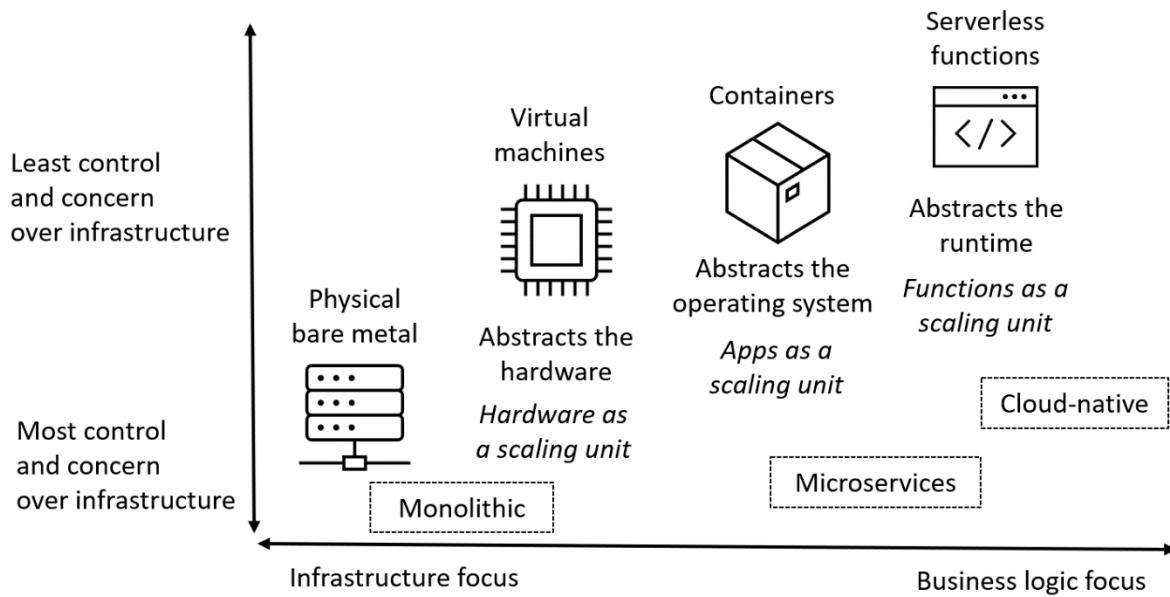


Figure 1.3 – Cloud computing architectures

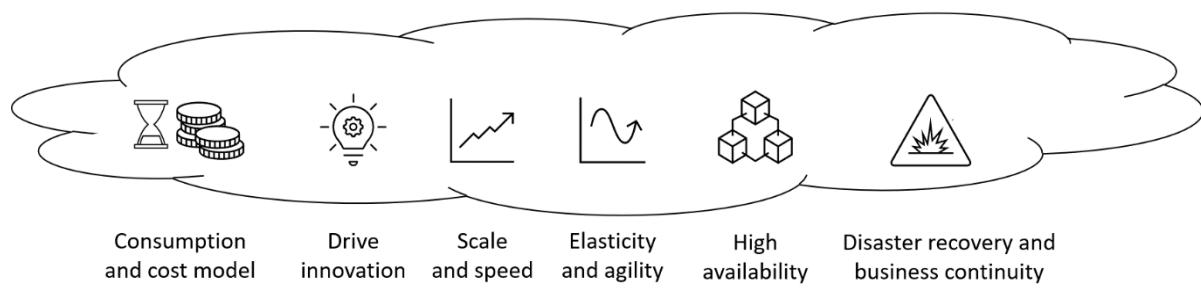


Figure 1.4 – Benefits of cloud computing

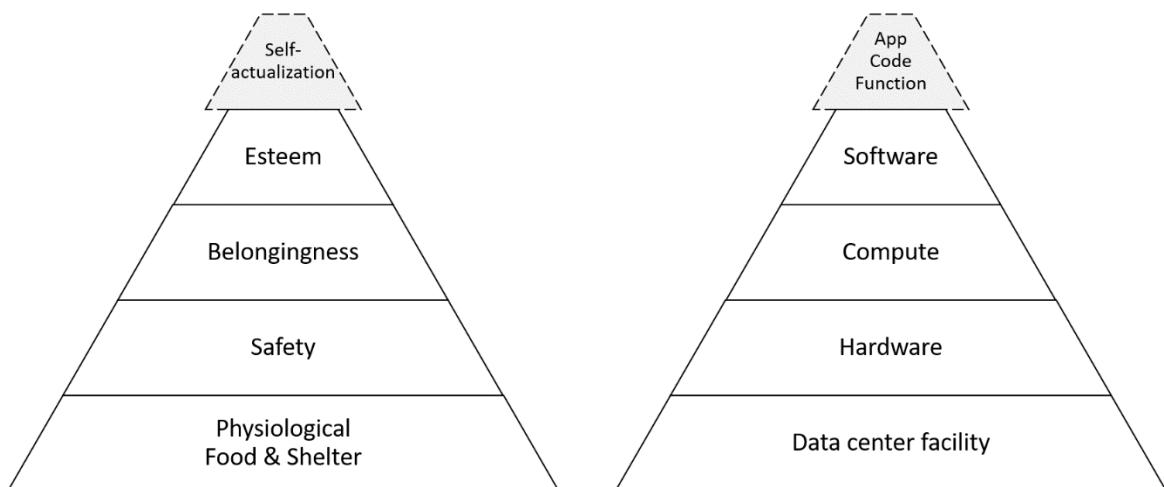


Figure 1.5 – Maslow's hierarchy versus the cloud computing hierarchy of needs

Responsibility	On-Prem	IaaS	PaaS	SaaS	Customer	Microsoft
Information and data	█	█	█	█	█	█
Devices (mobile and PCs)	█	█	█	█	█	█
Accounts and identities	█	█	█	█	█	█
Identity and directory infrastructure	█	█	█	█	█	█
Applications	█	█	█	█	█	█
Network controls	█	█	█	█	█	█
Operating system	█	█	█	█	█	█
Physical hosts	█	█	█	█	█	█
Physical network	█	█	█	█	█	█
Physical data center	█	█	█	█	█	█

Figure 1.6 – Shared responsibility model

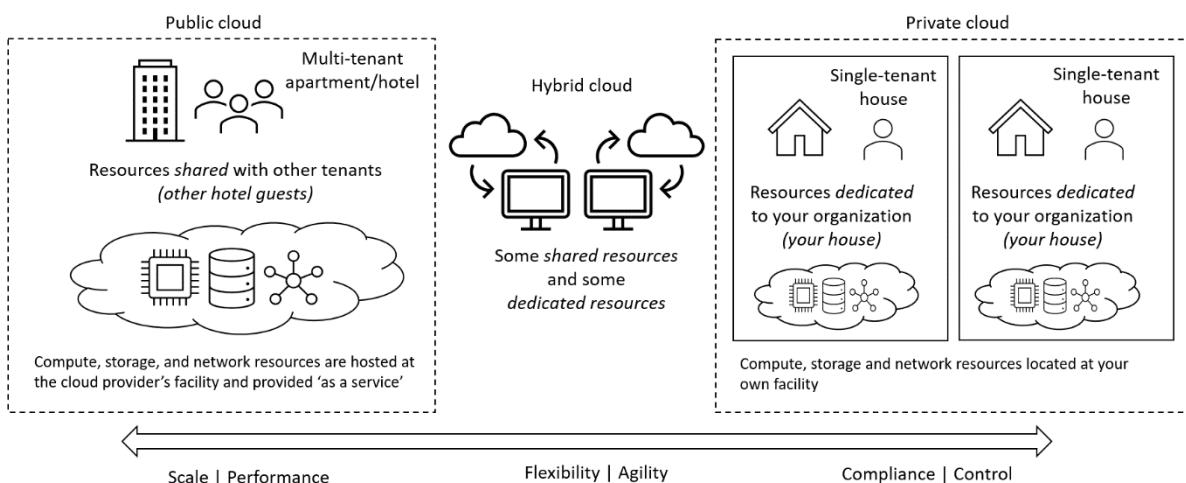


Figure 1.7 – Cloud computing delivery models

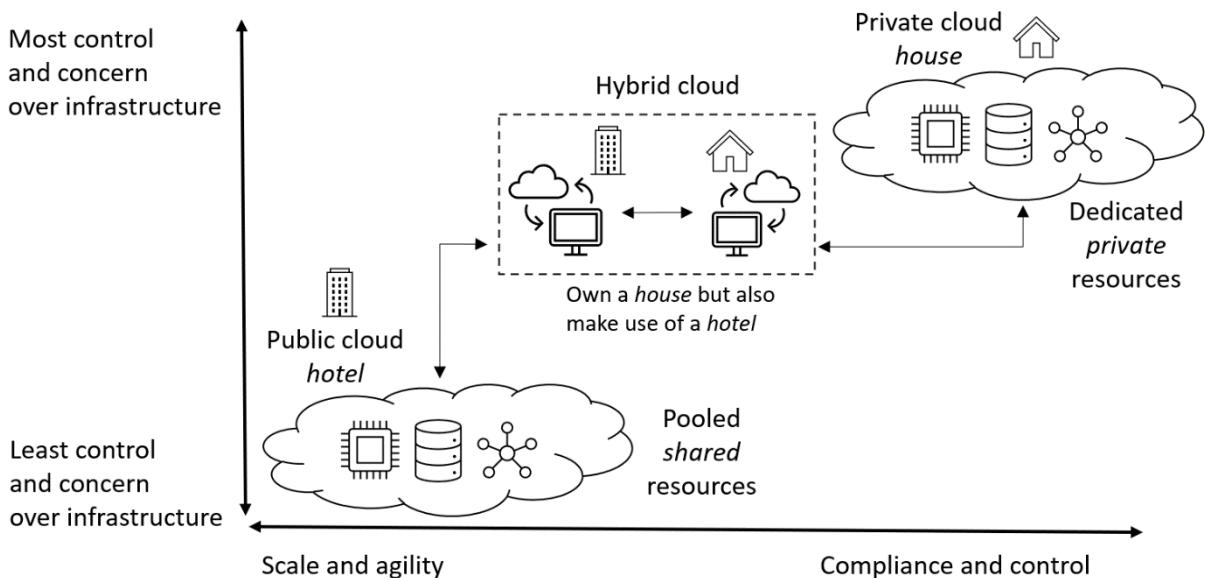


Figure 1.8 – Comparing cloud computing delivery models

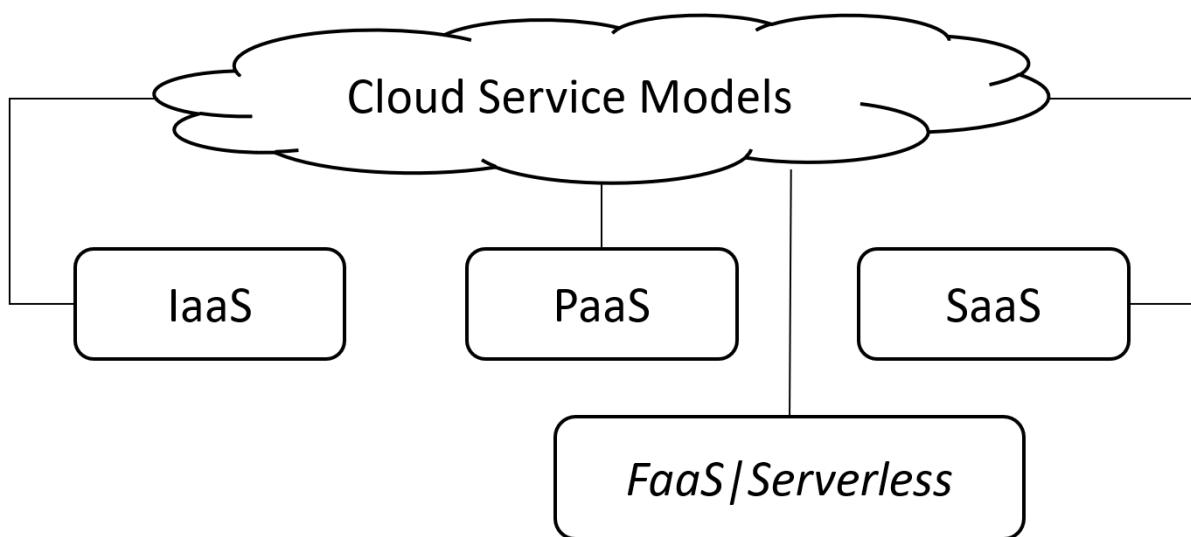


Figure 1.9 – Cloud computing service models

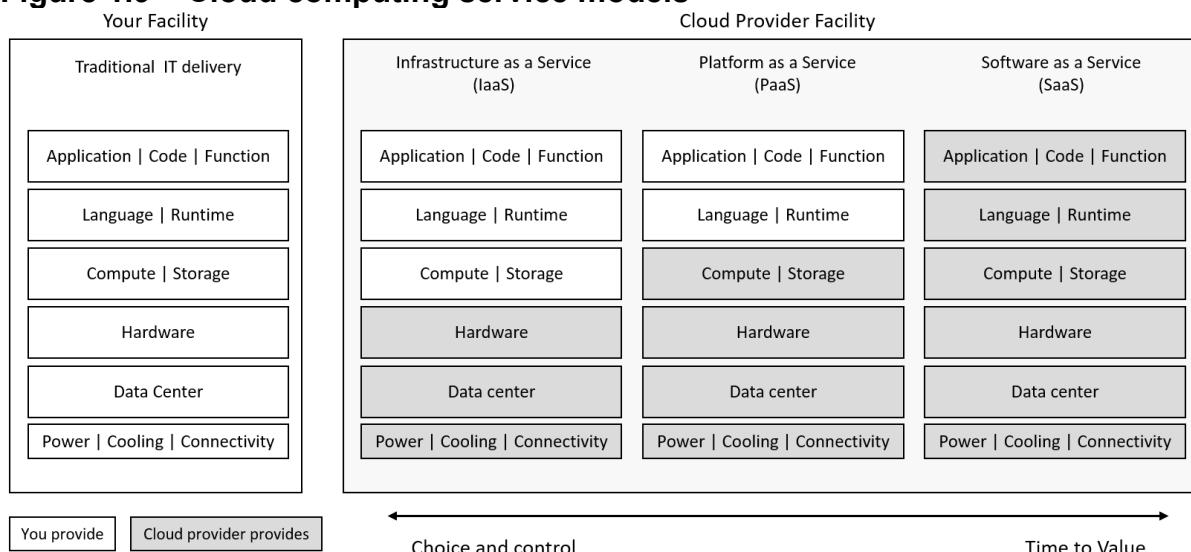


Figure 1.10 – Cloud computing service models—layer providers

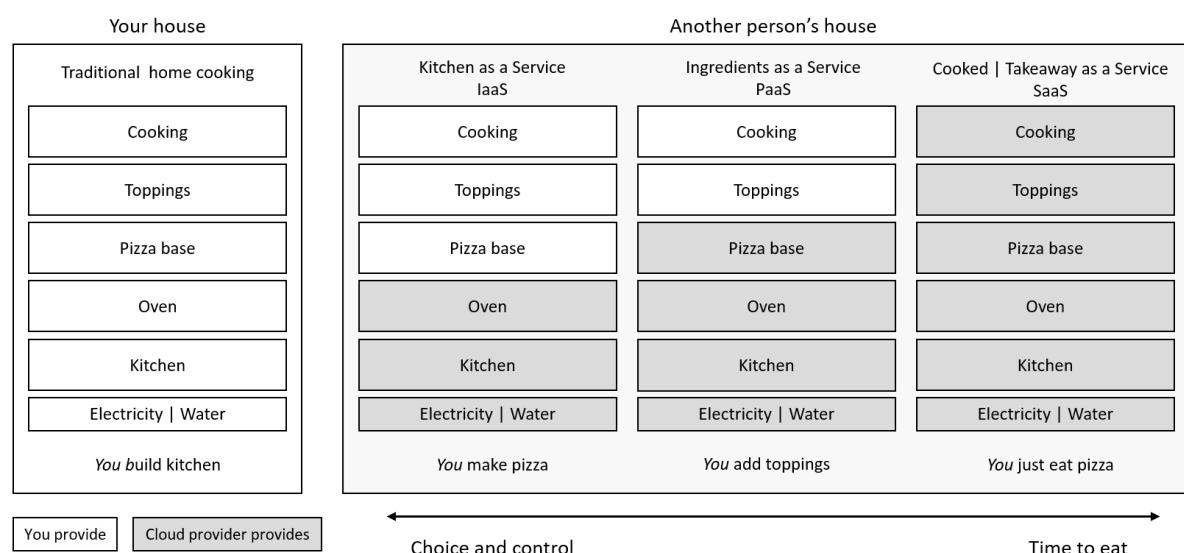


Figure 1.11 – Cloud computing service models—layer analogy of pizza processing

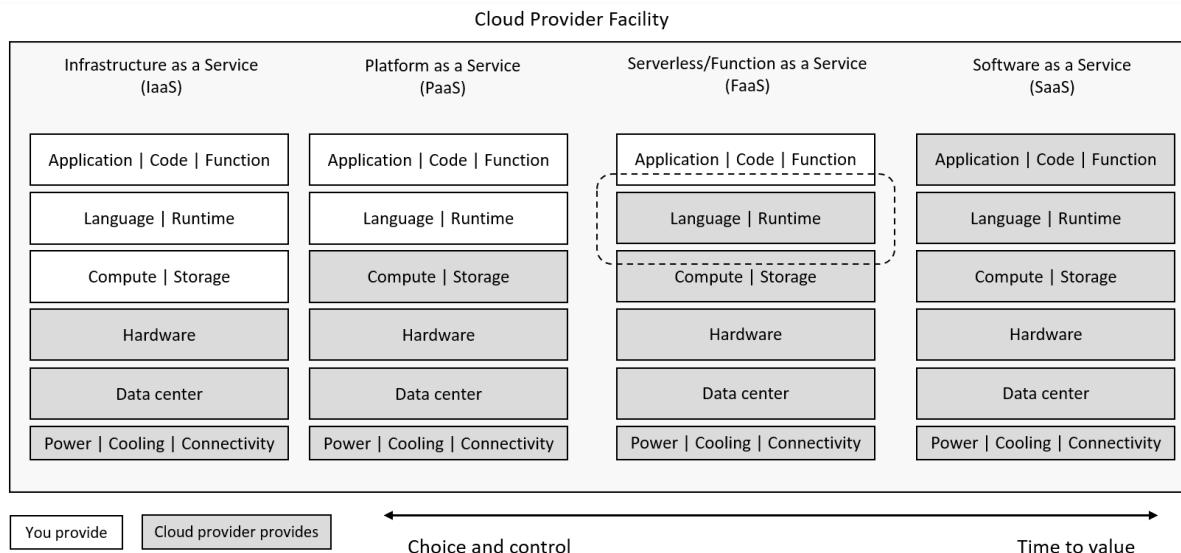


Figure 1.12 – Cloud computing service models—compare and contrast

The screenshot shows a chapter review section for Chapter 1. At the top, there are navigation links: Practice Resources, a bell icon, and a Share Feedback button.

The main content area has a dark header: DASHBOARD > CHAPTER 1. Below it, the title is **Introduction to Cloud Computing**.

Summary

This chapter included complete coverage of the AZ-900 Azure Fundamentals exam skills area: **Describe Cloud Concepts**

In this chapter, you learned how to define cloud computing; describe the shared responsibility model; define cloud models, including public, private, and hybrid; identify appropriate use cases for each cloud model; describe the consumption-based model; describe IaaS; describe PaaS; describe SaaS; and identify appropriate use cases for each cloud service (IaaS, PaaS, and SaaS).

Further knowledge beyond the required exam content was provided to prepare you for a real-world, day-to-day, Azure-focused role. In the next chapter, you will look at the benefits of using cloud services.

Chapter Review Questions

The Microsoft Azure Fundamentals Certification and Beyond - Second Edition by Steve Miles

Select Quiz

Quiz 1 [SHOW QUIZ DETAILS](#) ▾ [START](#)

Figure 1.13 – Chapter Review Questions for Chapter 1

Chapter 2: Benefits of Using Cloud Services

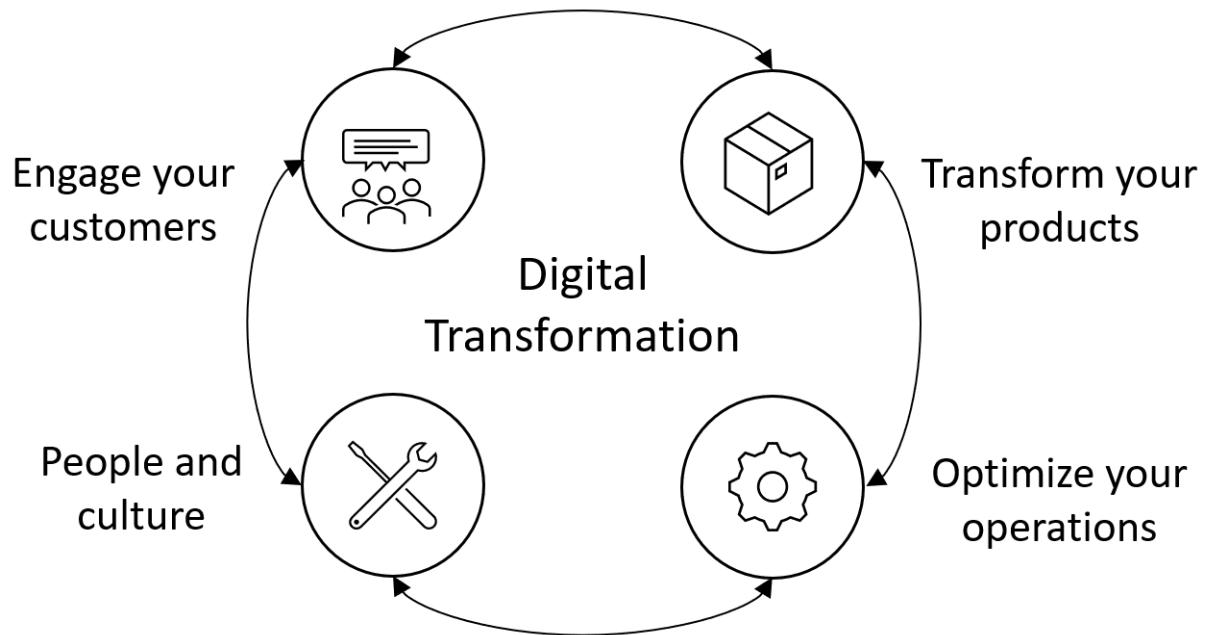


Figure 2.1 – Cloud computing as a digital transformation enabler

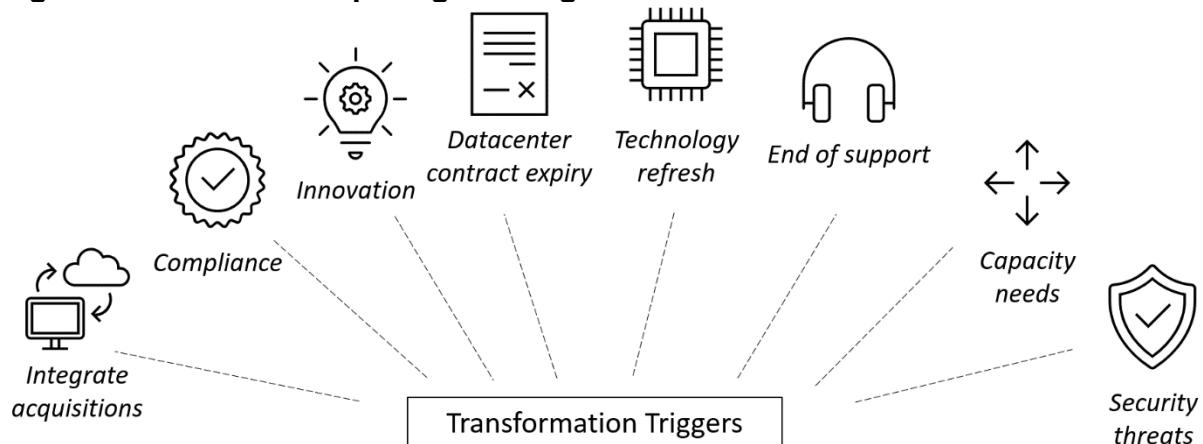


Figure 2.2 – Digital transformation triggers

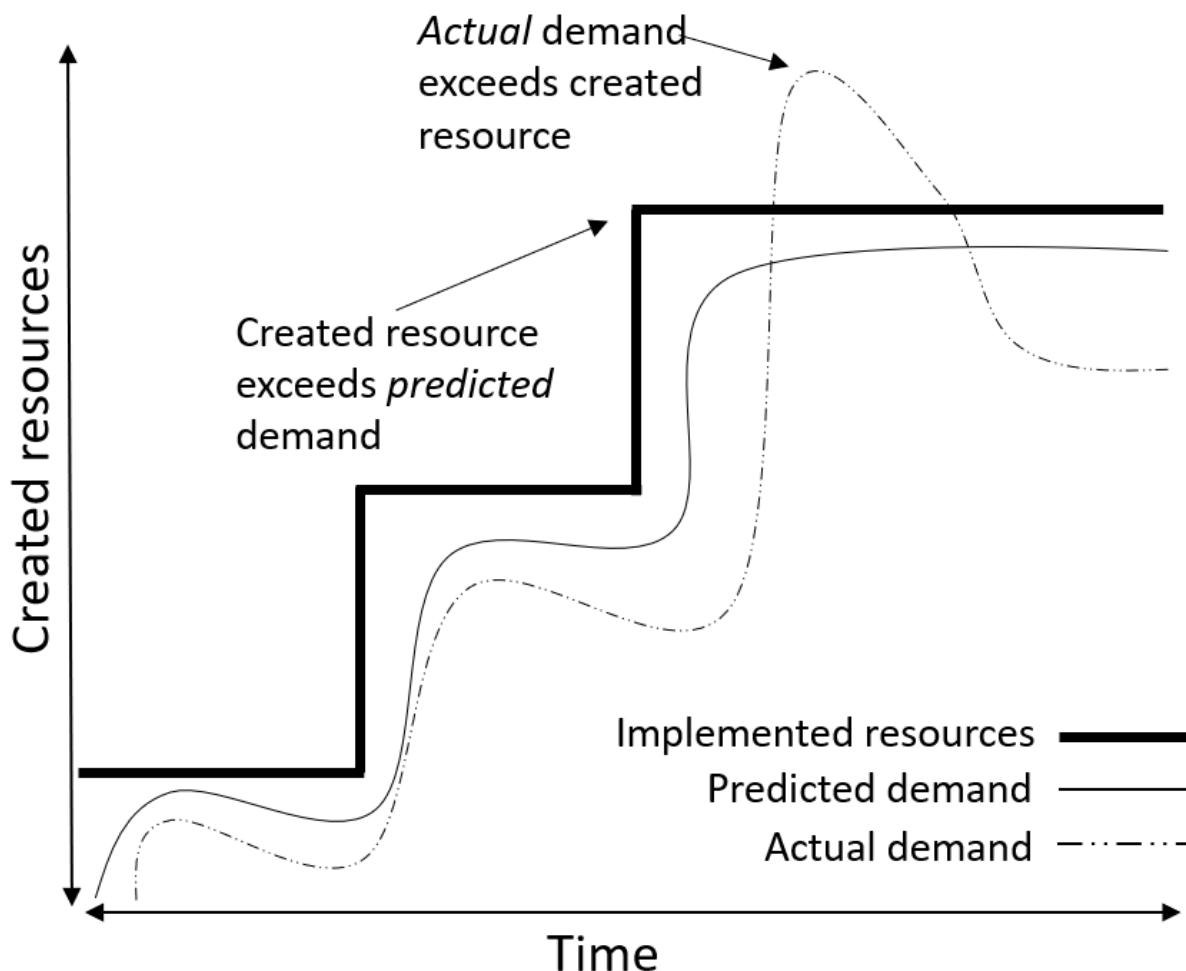


Figure 2.3 – Cloud computing resource demand model

Disaster!

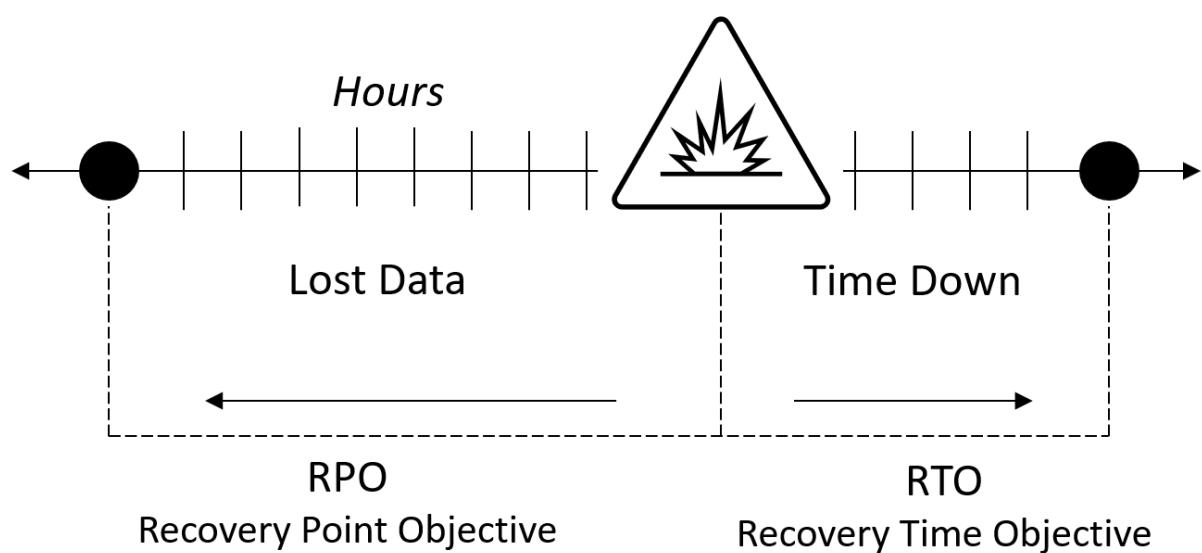


Figure 2.4 – RTO and RPO

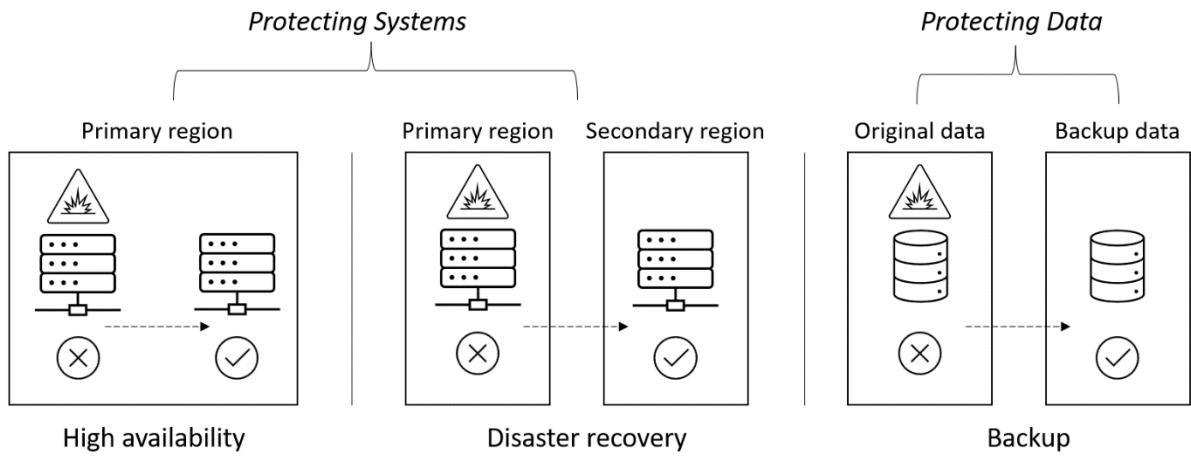


Figure 2.5 – Comparing backup, high availability, and disaster recovery

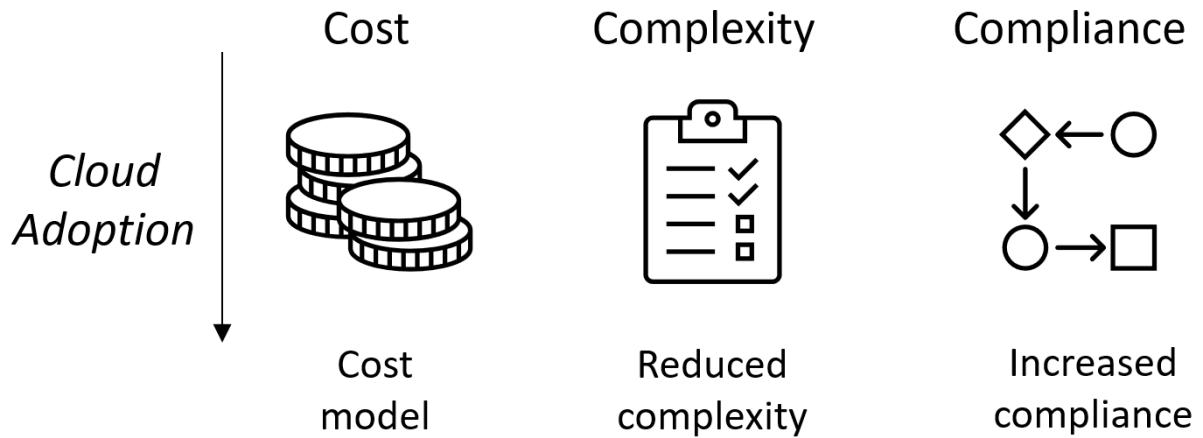


Figure 2.6 – Challenges to implementing business continuity

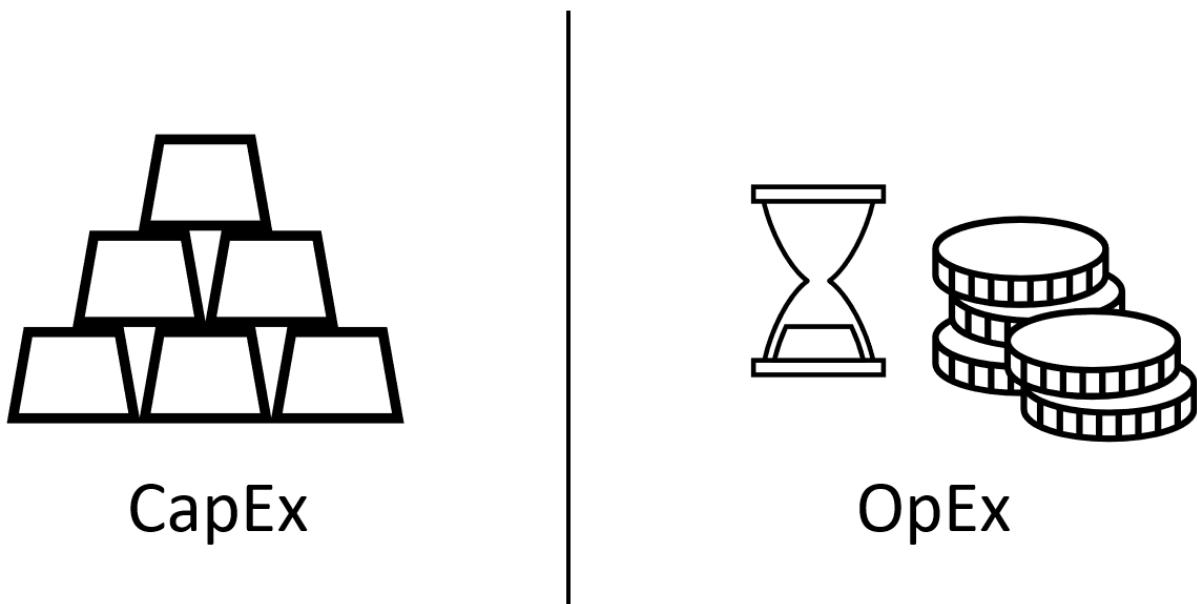


Figure 2.7 – Cost expenditure models

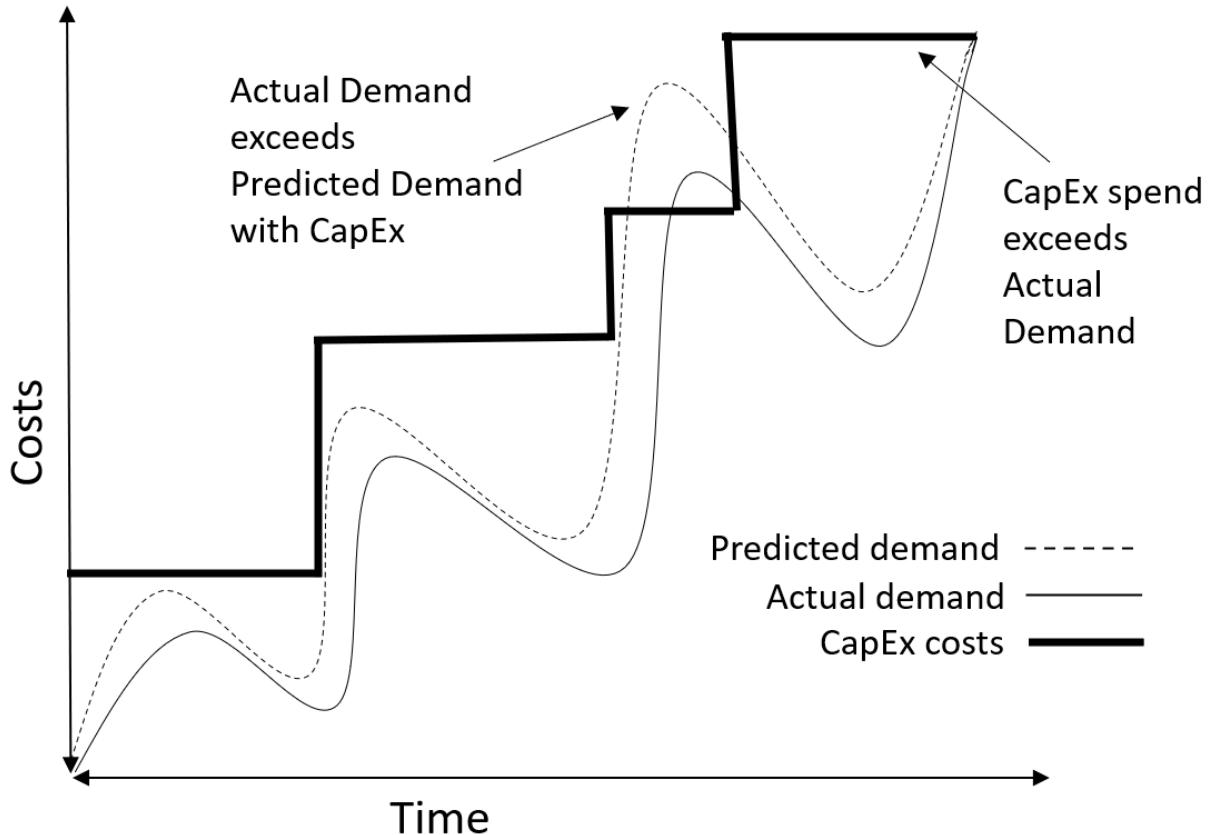


Figure 2.8 – Application of cost expenditure models

◀▶ Practice Resources
🔔
SHARE FEEDBACK ▾

DASHBOARD > CHAPTER 2

Benefits of Using Cloud Services

Summary

This chapter included complete coverage of the **Describe the benefits of using cloud services** skills area of the AZ-900 Azure Fundamentals exam.

In this chapter, you learned about the benefits of using cloud services. You looked at cloud computing as a digital transformation enabler, the triggers, the cloud migration approach, and adopting a cloud mindset. In addition, you learned various aspects of a cloud operations model and the economics of cloud computing.

Further knowledge beyond the required exam content was provided to prepare you for a real-world, day-to-day Azure-focused role.

The next chapter will look at Azure's core architectural components.

Chapter Review Questions

The Microsoft Azure Fundamentals Certification and Beyond - Second Edition by Steve Miles

Select Quiz

Quiz 1

SHOW QUIZ DETAILS ▾

START

Figure 2.10 – Chapter Review Questions for Chapter 2

Chapter 3: Azure Core Architectural Components

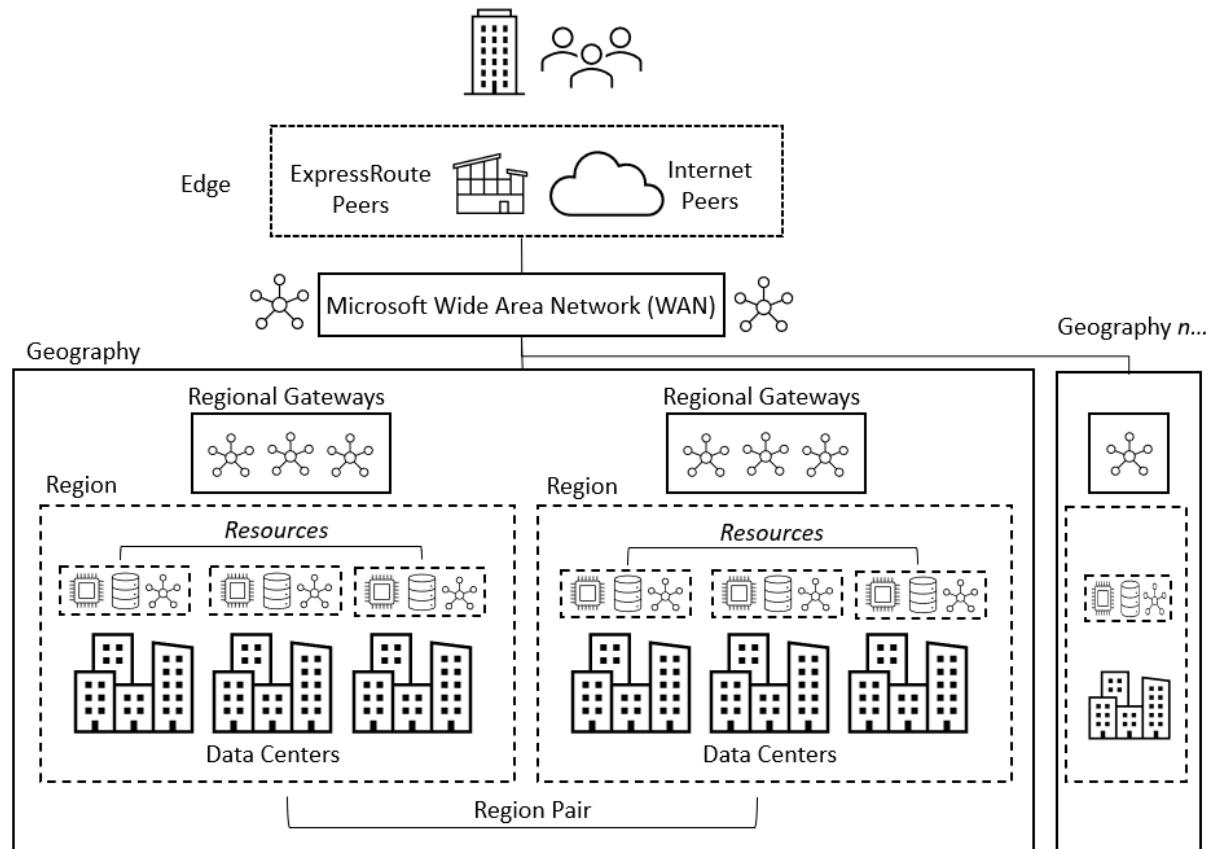


Figure 3.1 – Azure global infrastructure key component topology

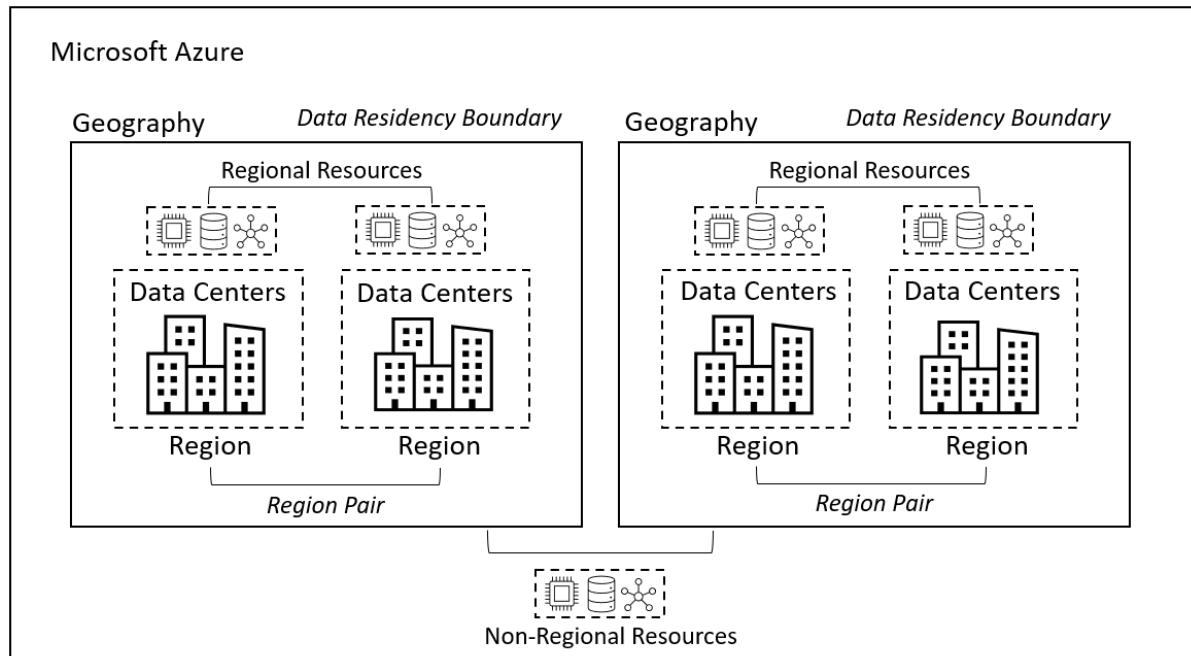


Figure 3.2 – Azure regions and geographies relationship

Home > Virtual machines >
Create a virtual machine ...

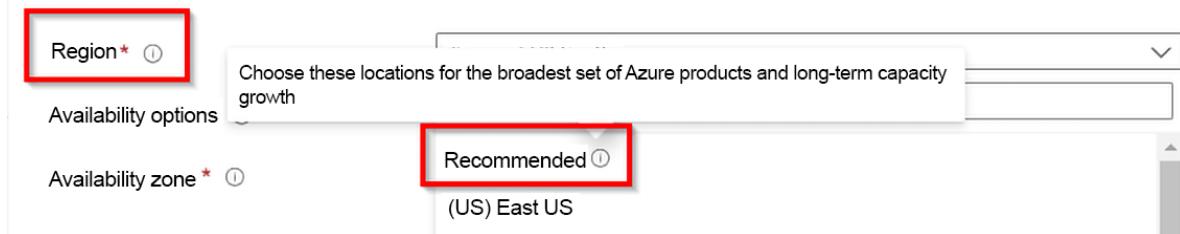


Figure 3.3 – Azure region selection for creating resources

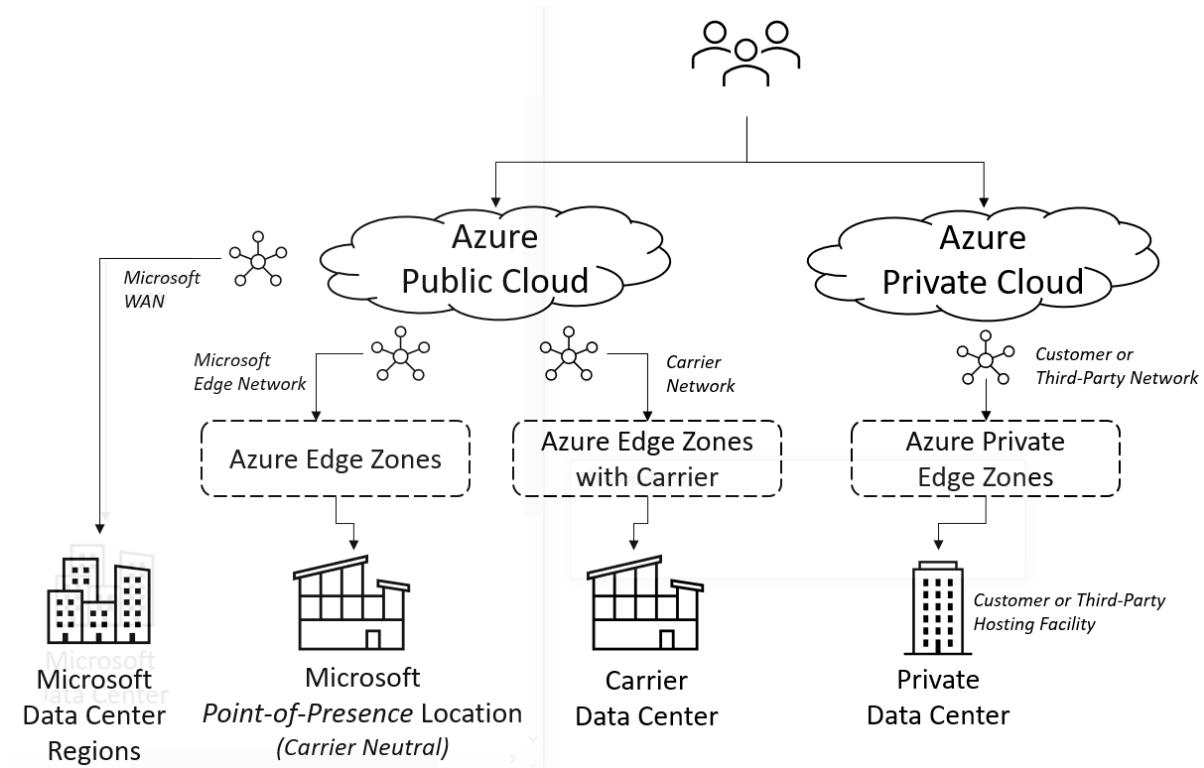


Figure 3.4 – Azure Edge Zone relationships

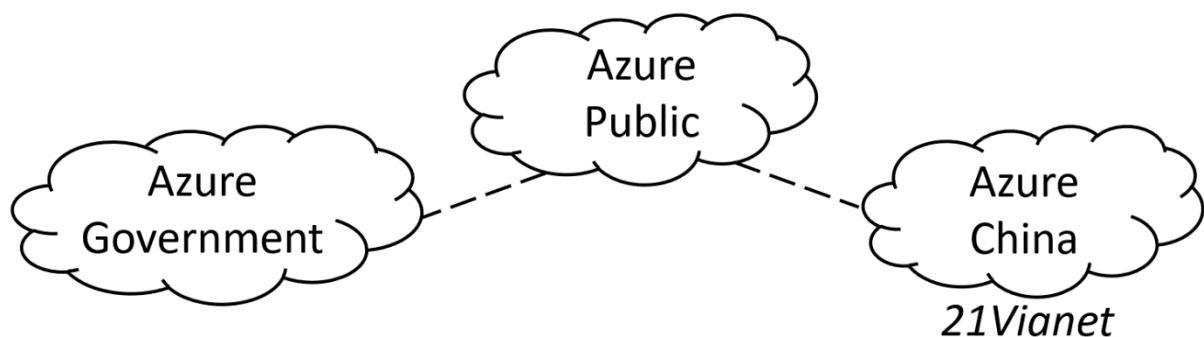


Figure 3.5 – Provided Azure sovereign regions

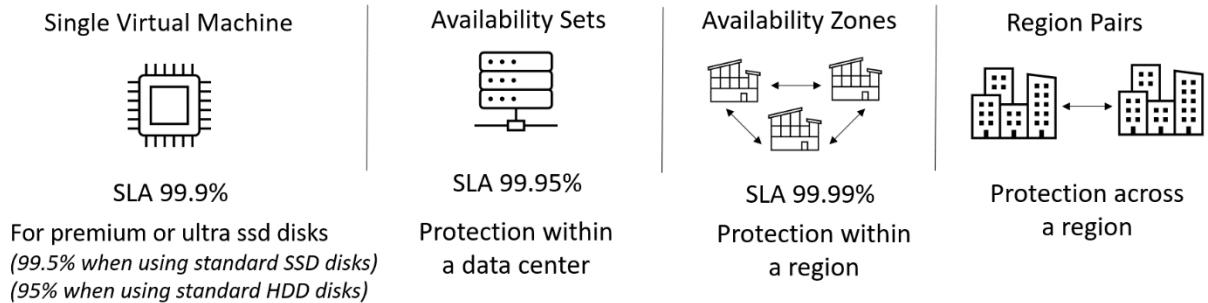


Figure 3.6 – Azure availability components relationship

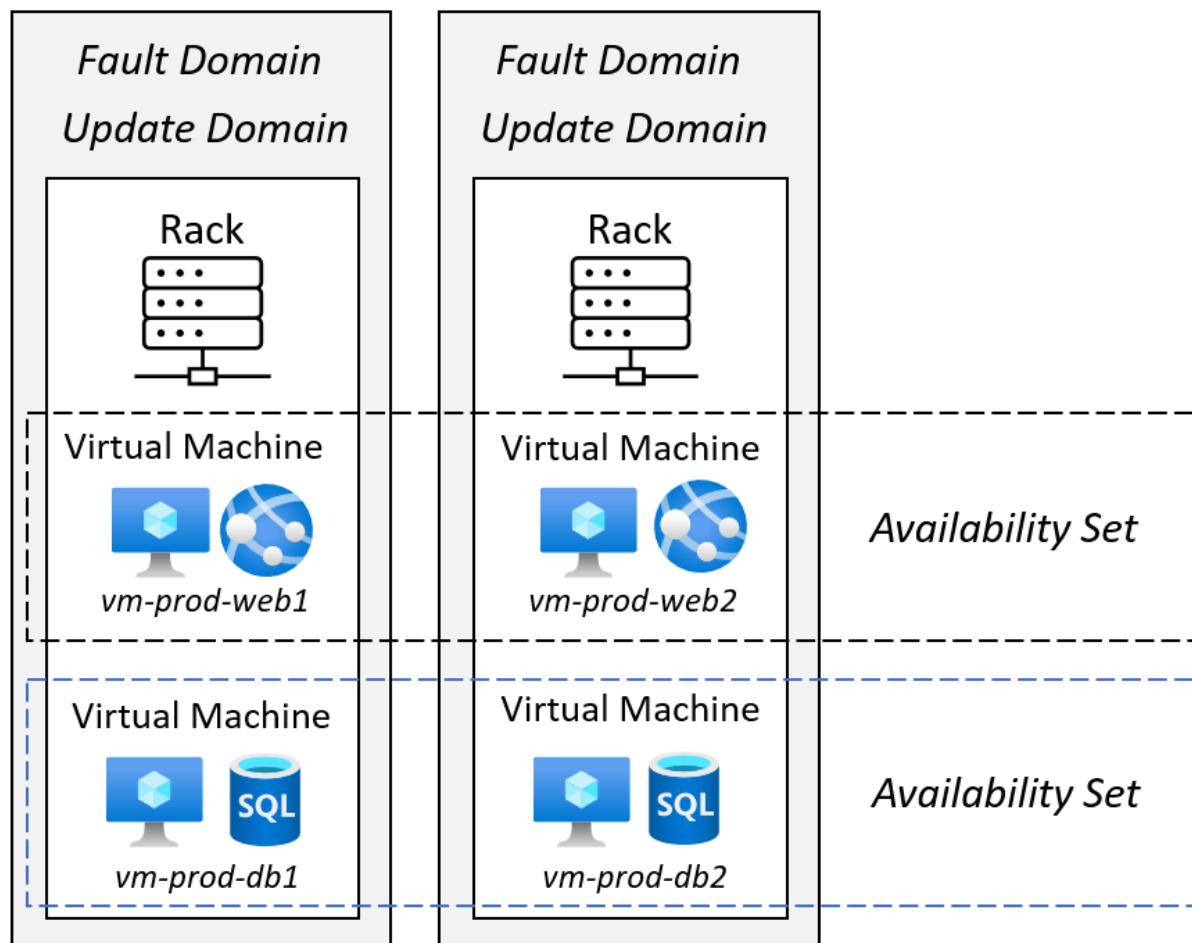


Figure 3.7 – Providing Azure availability set functionality in a solution

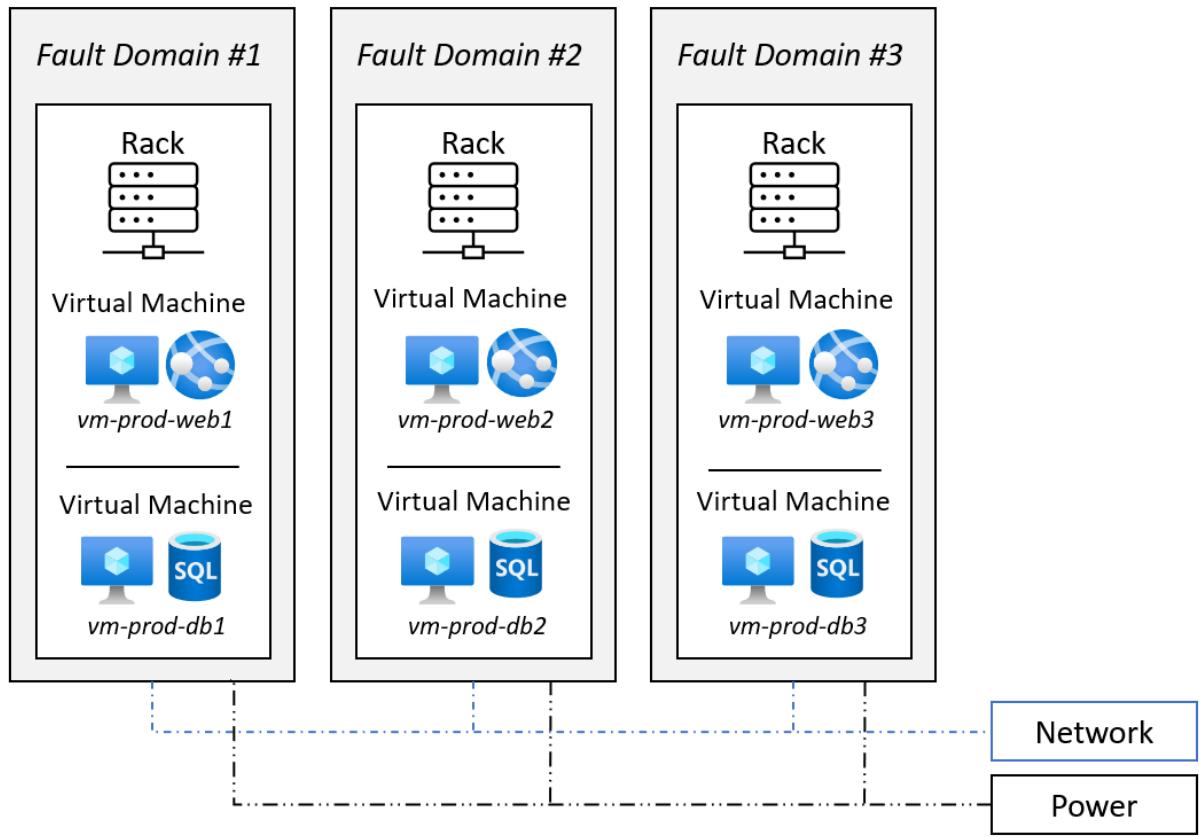


Figure 3.8 – Providing availability set fault domain functionality in a solution

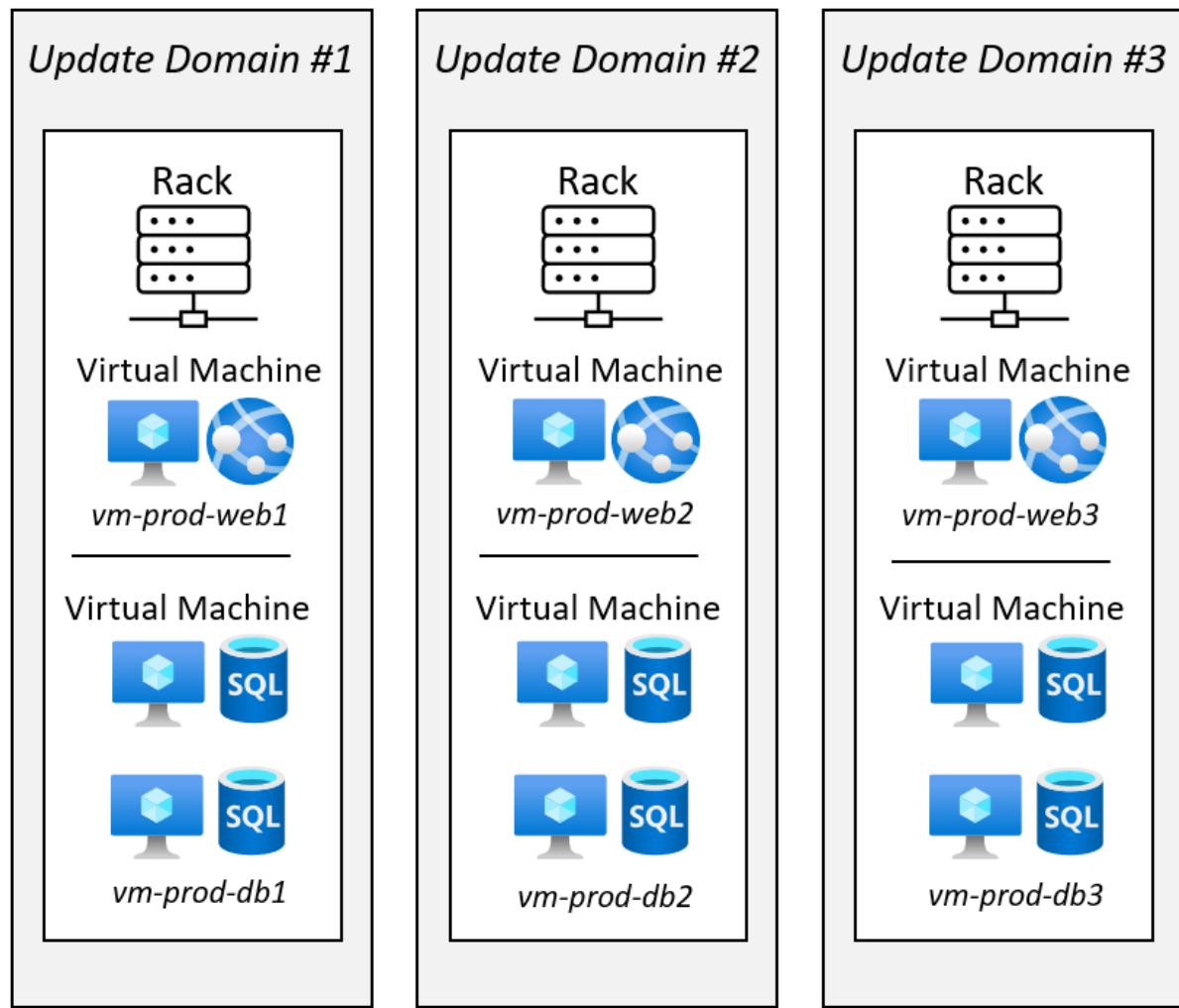


Figure 3.9 – Providing availability set update domain functionality in a solution

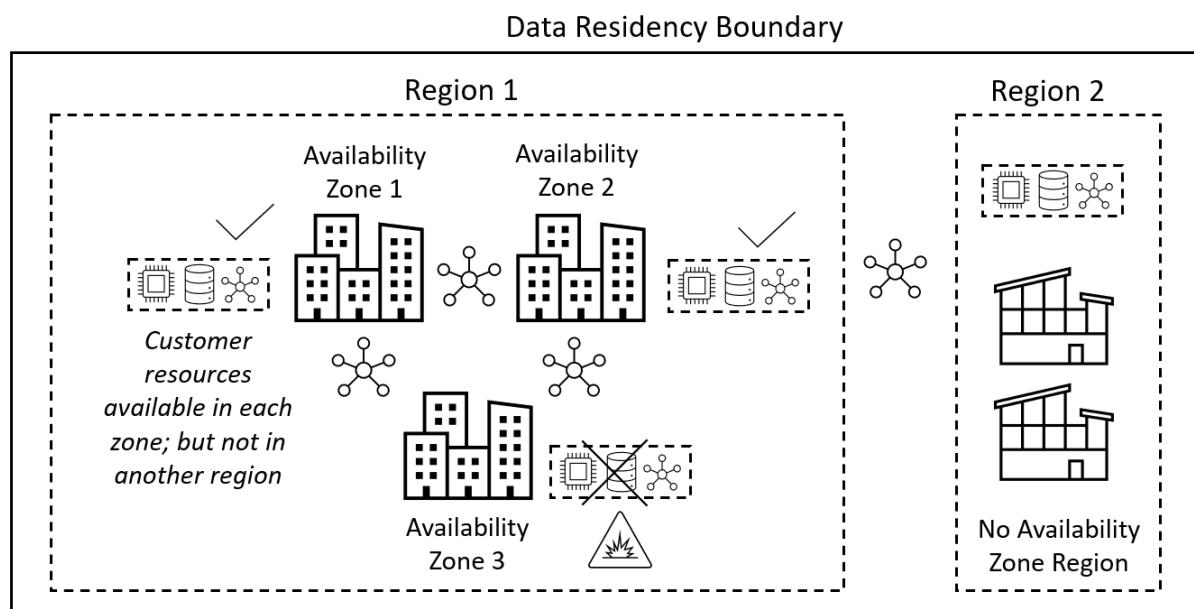


Figure 3.10 – Azure availability zones providing redundancy within a region

UK South Region

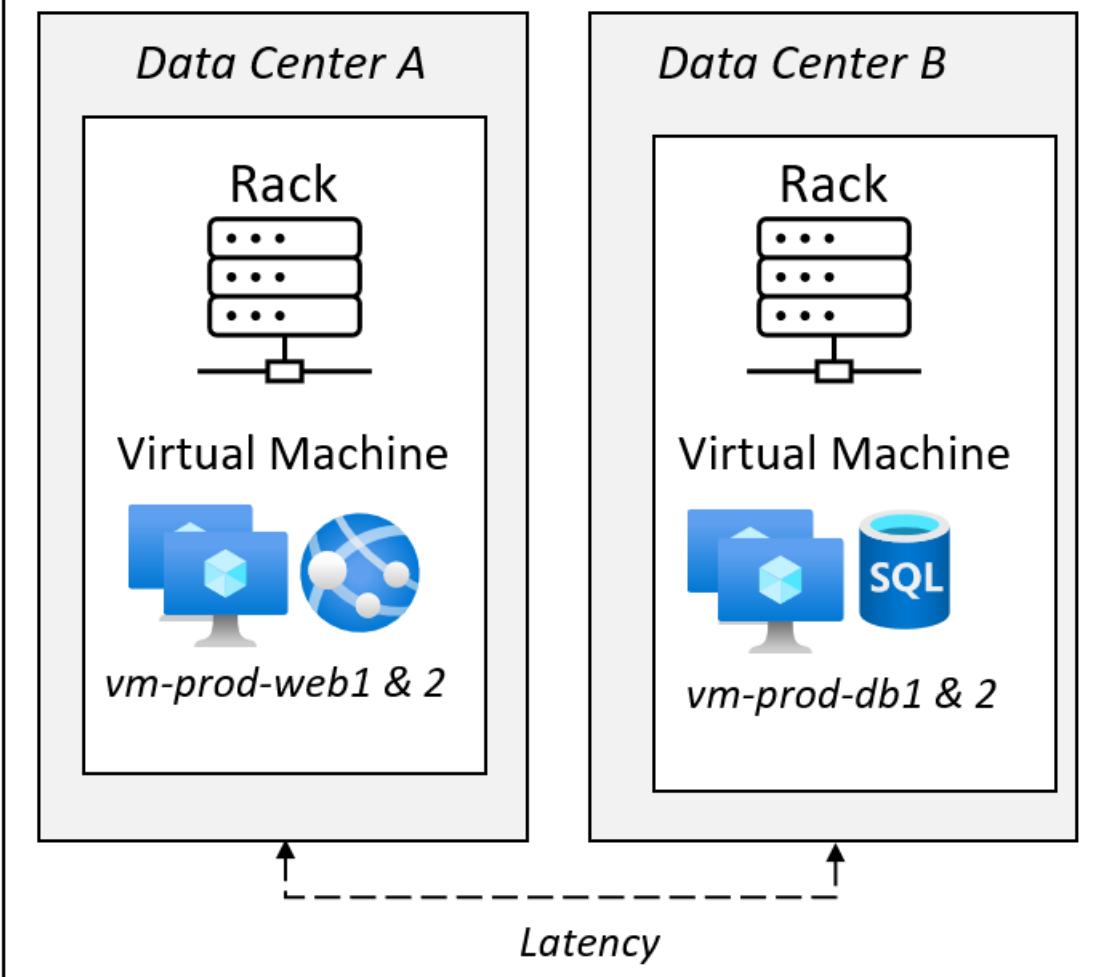


Figure 3.11 – Providing virtual machine placement without proximity placement groups in a solution

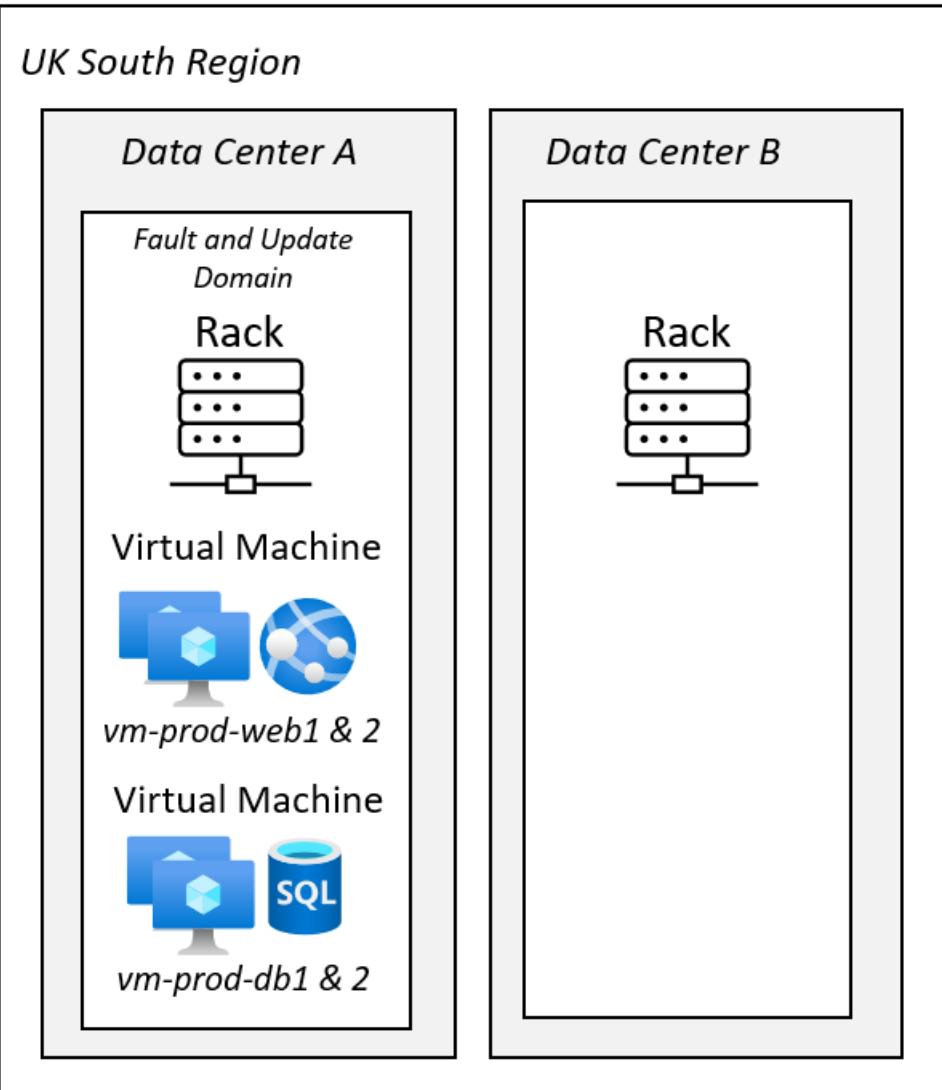


Figure 3.12 – Providing virtual machine placement with proximity placement groups in a solution

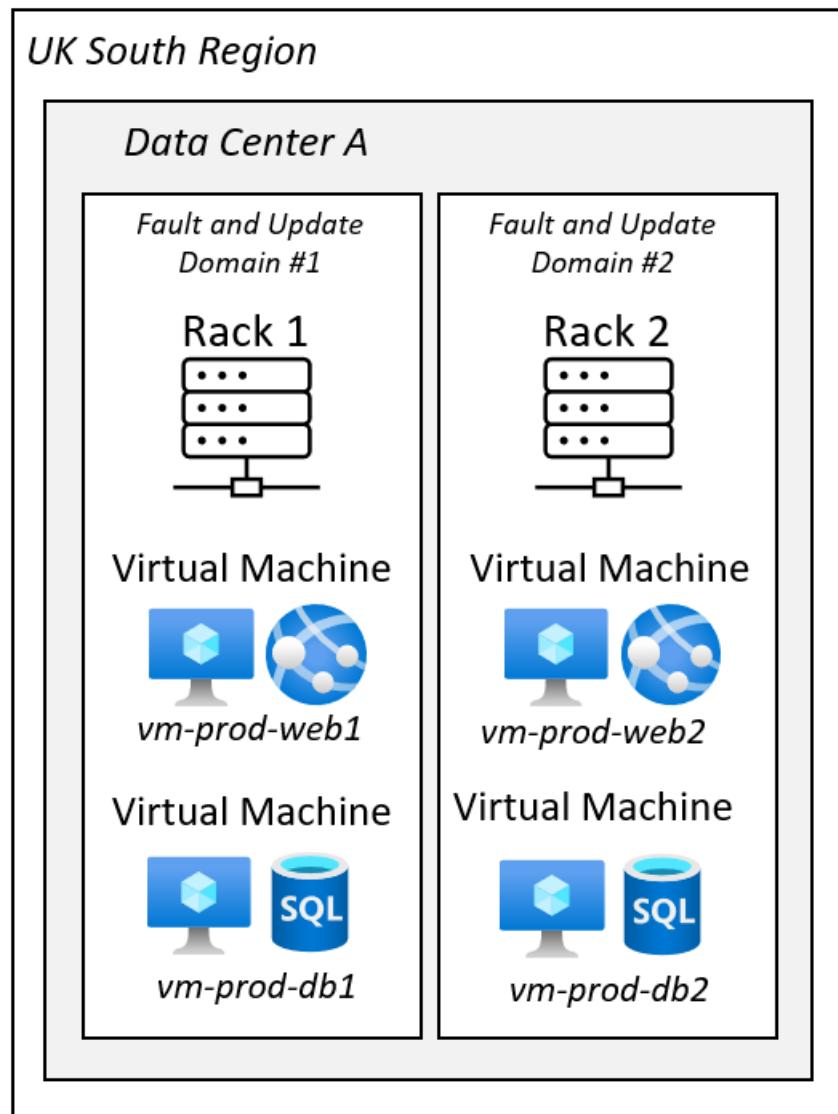


Figure 3.13 – Providing proximity placement groups and availability sets in a solution

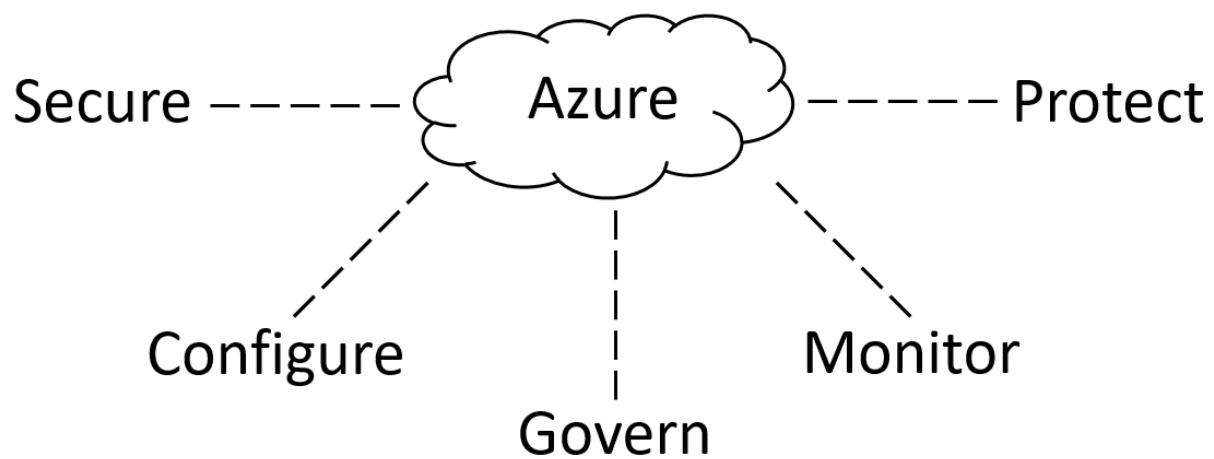


Figure 3.14 – Azure resource management

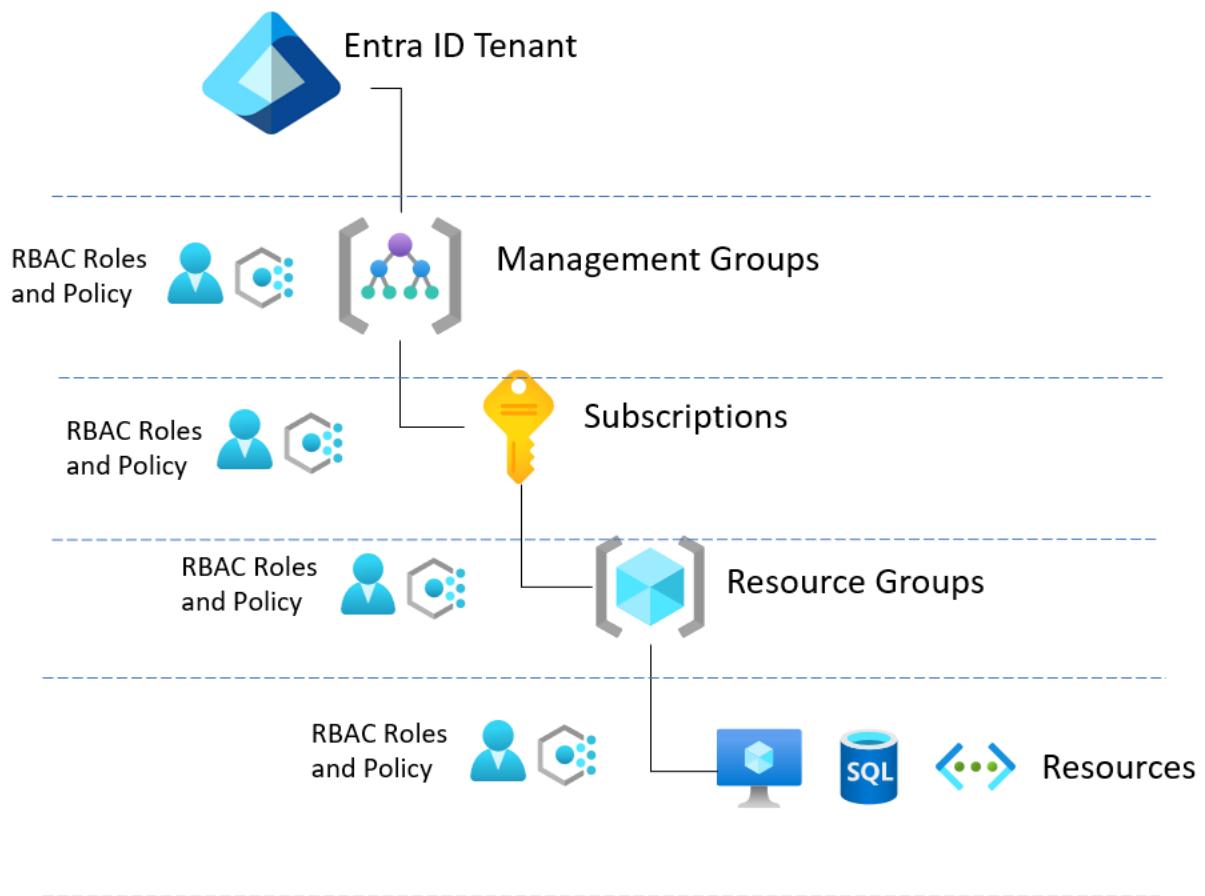


Figure 3.15 – Azure management scopes relationship

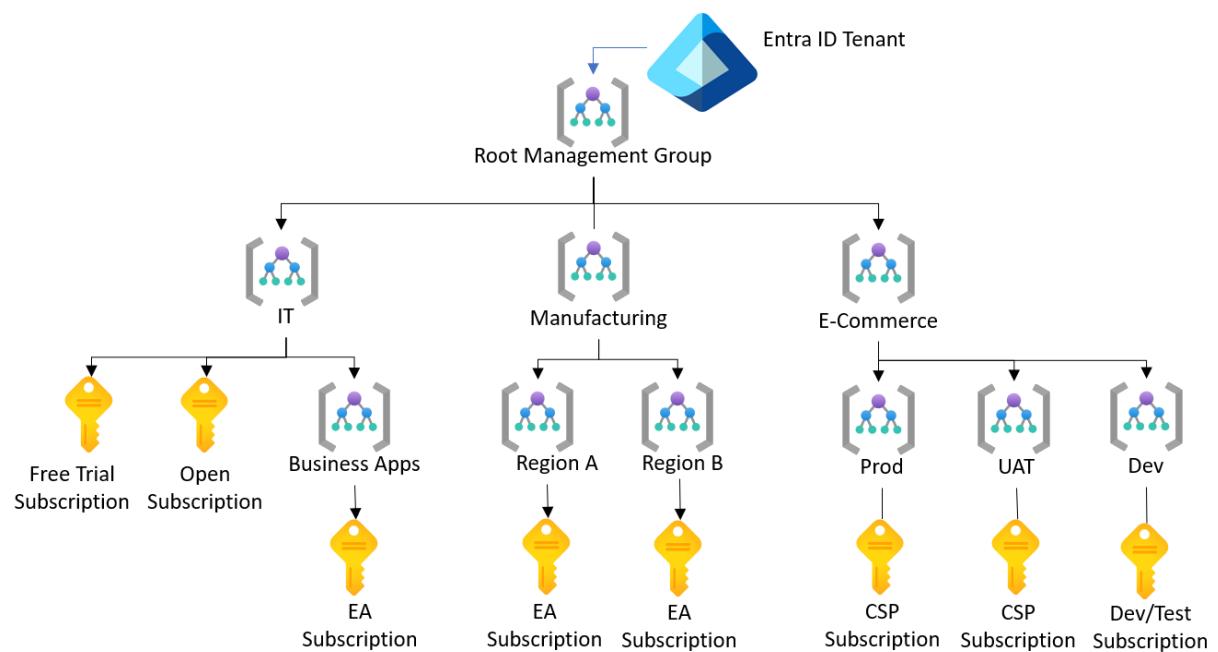


Figure 3.16 – Azure management group and subscription relationships

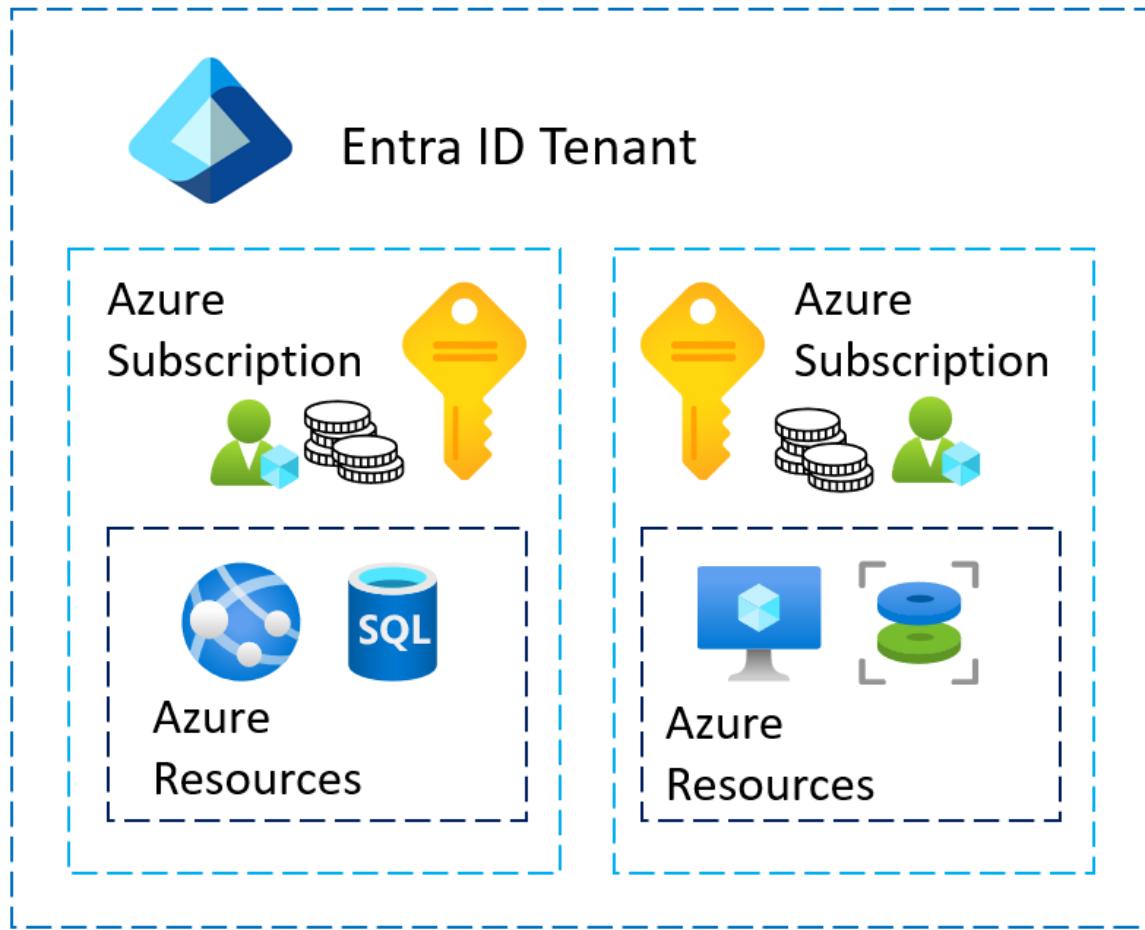


Figure 3.17 – Relationship between Azure subscriptions and resources within a tenant

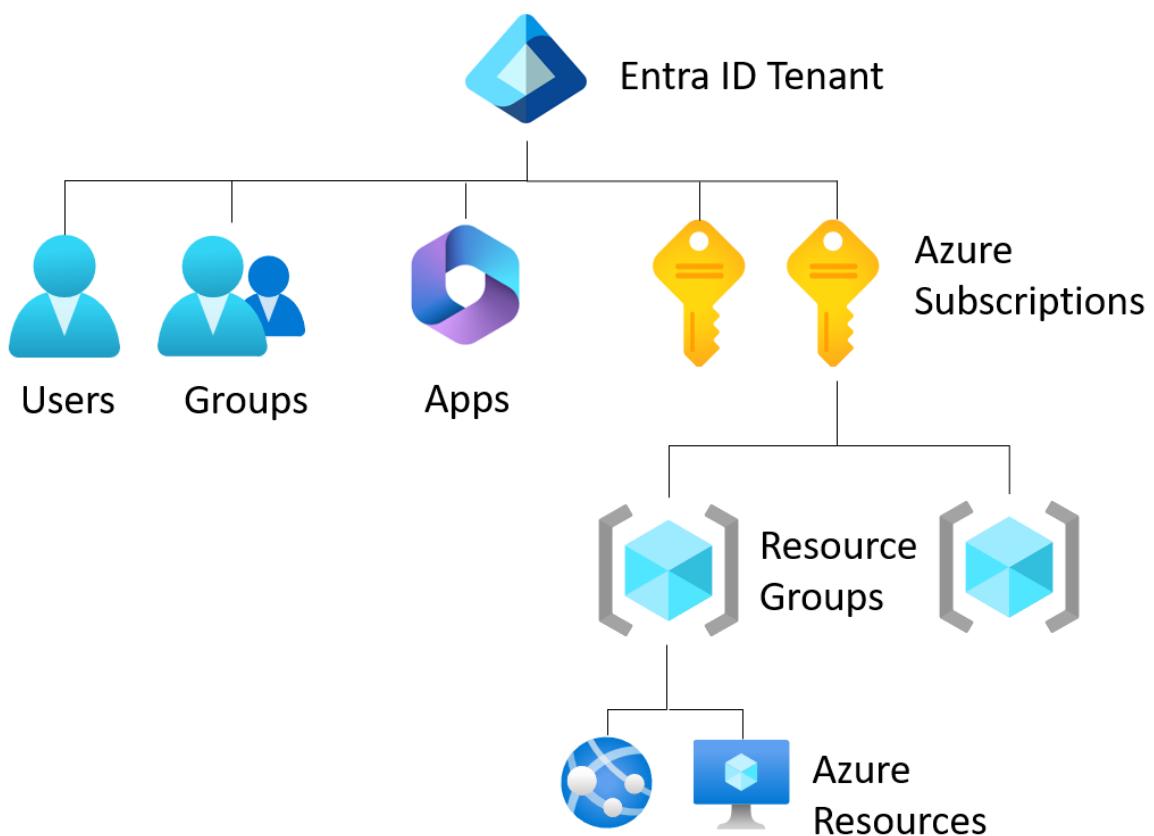


Figure 3.18 – Azure subscription and tenant relationship

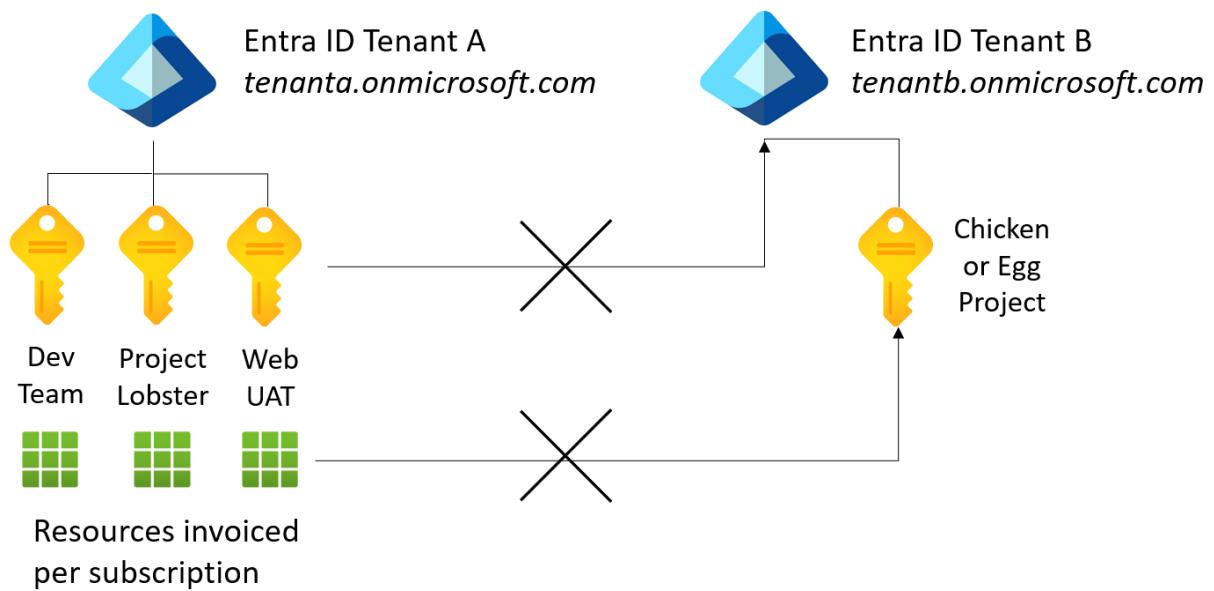


Figure 3.19 – Multiple Azure subscriptions

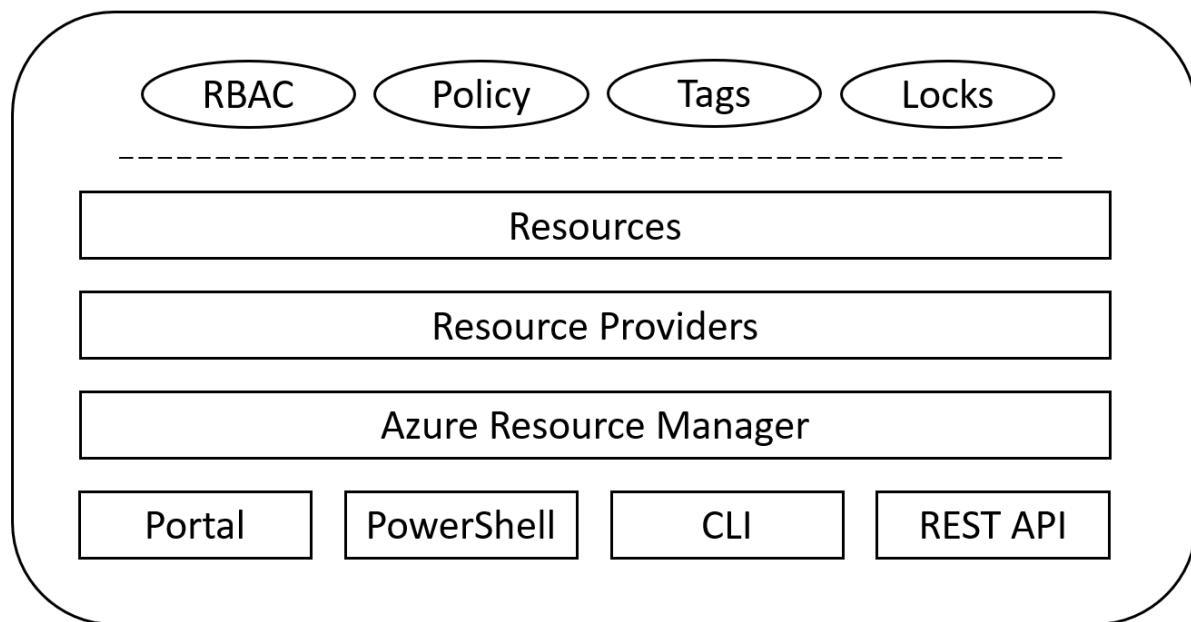


Figure 3.20 – ARM architecture showing the relationship between its

components 8

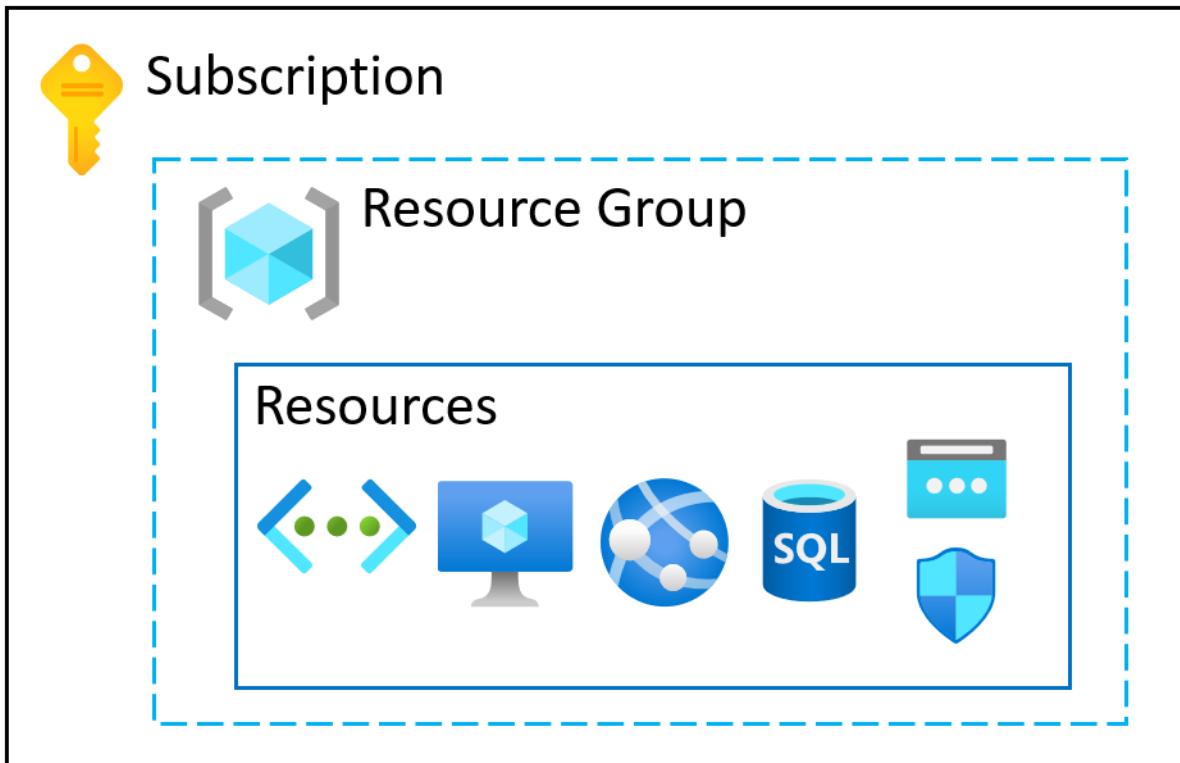
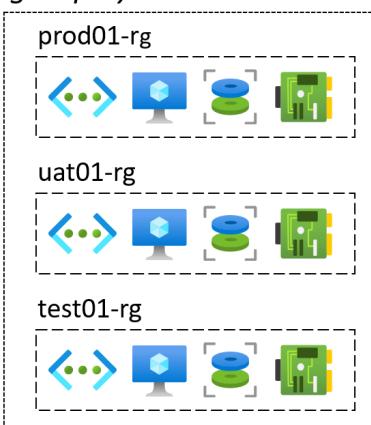
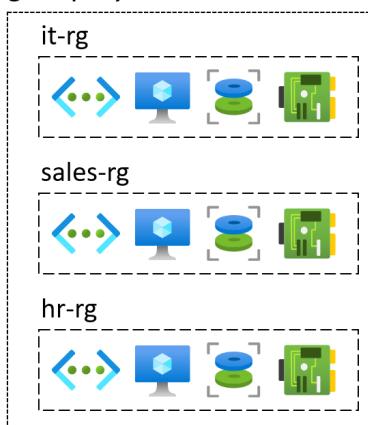


Figure 3.21 – Azure resource group relationships

group by environment



group by business unit



group by project or regions

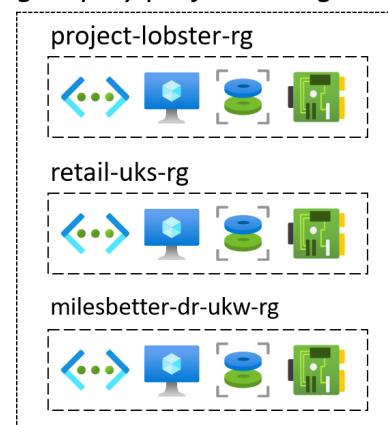


Figure 3.22 – Azure resource group organization showing grouping methodologies

The screenshot shows the 'Practice Resources' interface. At the top, there's a dark header with the 'Practice Resources' logo and a 'SHARE FEEDBACK' button. Below the header, the page title is 'Azure Core Architectural Components'. A 'Summary' section contains text about the chapter's coverage of Azure architecture and services. To the right, a 'Chapter Review Questions' section is shown, featuring a book cover for 'The Microsoft Azure Fundamentals Certification and Beyond - Second Edition by Steve Miles', a 'Select Quiz' button, and a 'Quiz 1' section with a 'START' button.

DASHBOARD > CHAPTER 3

Azure Core Architectural Components

Summary

This chapter included complete coverage of the AZ-900 Azure Fundamentals exam skills area, that is, **Describe Azure architecture and services**.

In this chapter, you learned both the physical and logical aspects of the core Azure architectural components: the data centers that host the Azure platform resources, the regions they exist in, the networks connecting them, and the related aspects of availability. You now also know about Azure subscriptions and all aspects of Azure resources management, including management groups and management scopes, Azure Resource Manager, and resource groups.

The next chapter will deal with **Azure core resources** to follow Microsoft's intended guided learning path for the AZ-800 exam.

Chapter Review Questions

The Microsoft Azure Fundamentals Certification and Beyond - Second Edition by Steve Miles

Select Quiz

Quiz 1

[SHOW QUIZ DETAILS](#) ▾

START

Figure 3.23 – Chapter Review Questions for Chapter 3

The screenshot shows the 'Practice Resources' interface. At the top, there's a dark header with the 'Practice Resources' logo and a 'SHARE FEEDBACK' button. Below the header, the page title is 'Azure Subscriptions'. It shows a progress bar at 0% completed. A 'Description' section explains the activity involves working with an Azure subscription. A 'Tasks' section lists two tasks: 'REQUIREMENTS' (marked as 'Important') and 'Task 1', both listed as 'Not Started' with 'OPEN' links and 'Mark as Complete' checkboxes.

DASHBOARD > AZURE SUBSCRIPTIONS

Azure Subscriptions

Book: Microsoft Azure Fundamentals Certification and Beyond - Second Edition

Progress: 0% completed

Description:

In this activity, you will work with an Azure subscription. The tasks performed in this activity align with Chapter 3.

NOTE: You can use an existing account, or you can create a free Azure account from this URL: <https://azure.microsoft.com/free/>.

Tasks

START

Task No	Task	Status	Open	Mark as Complete
1	REQUIREMENTS <small>Important</small>	Not Started	OPEN REQUIREMENTS	<input type="checkbox"/>
2	Task 1	Not Started	OPEN TASK	<input type="checkbox"/>

Figure 3.25: Tasks in Azure Subscriptions activity

Chapter 4: Azure Core Resources

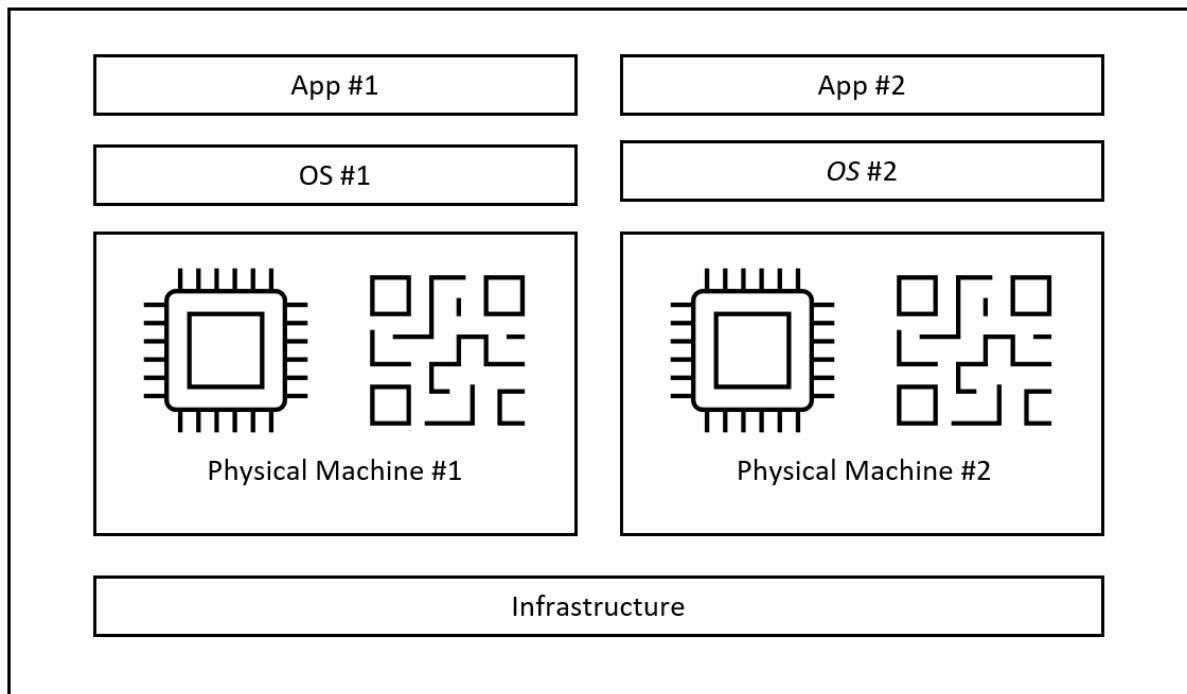


Figure 4.1 – Traditional approach supporting a single app per physical machine

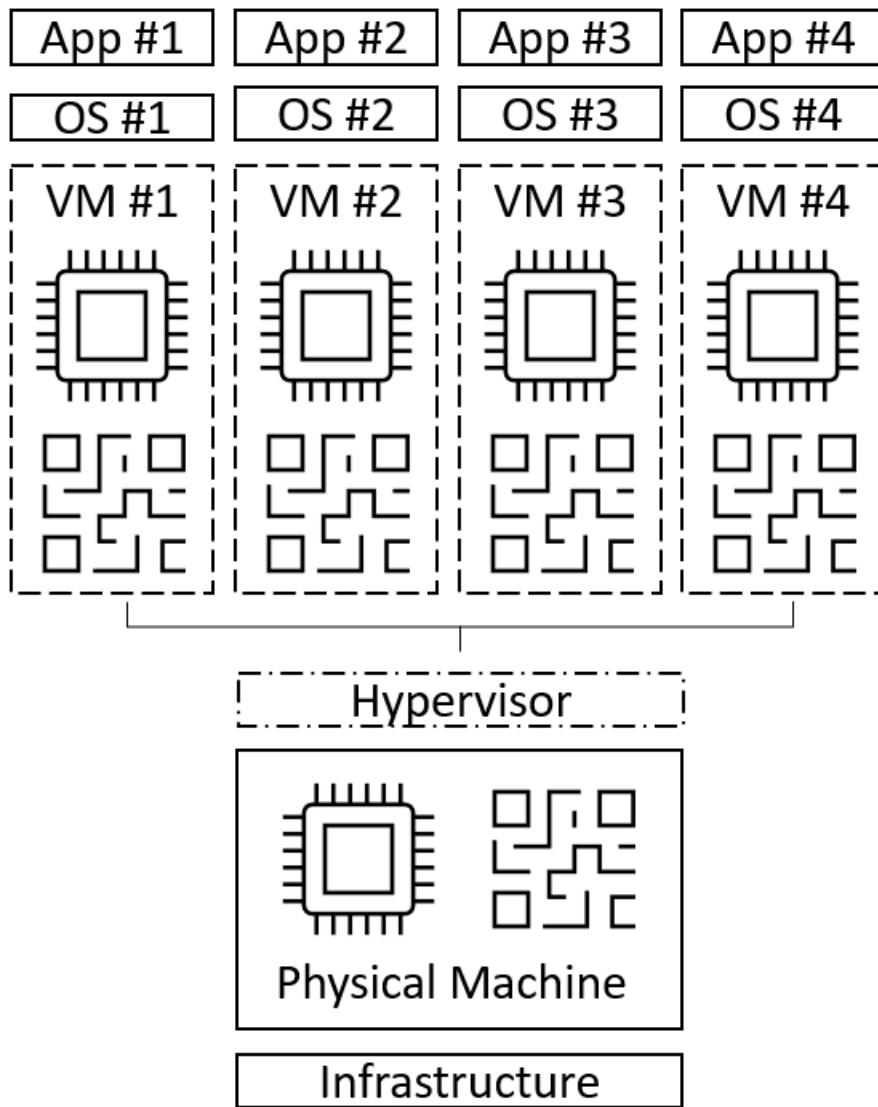


Figure 4.2 – Virtualization approach supporting multiple apps per physical machine

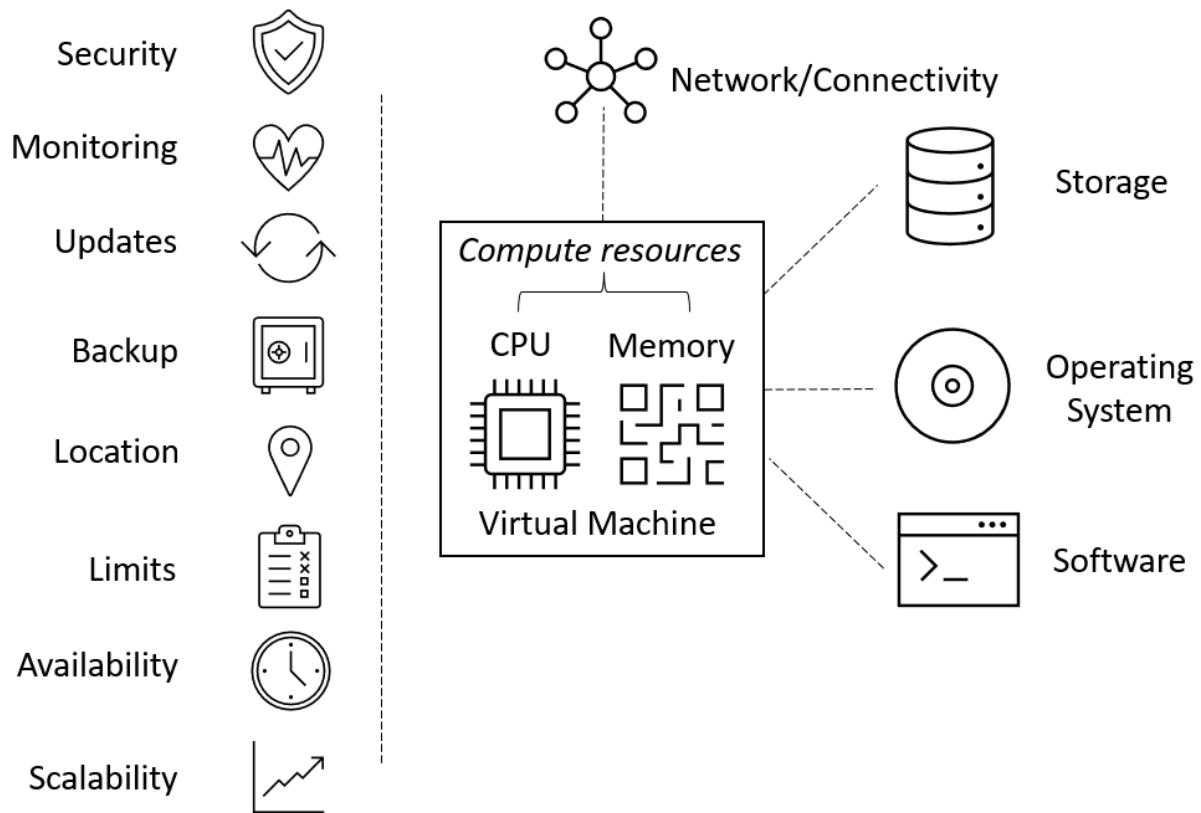


Figure 4.3 – VM components and considerations

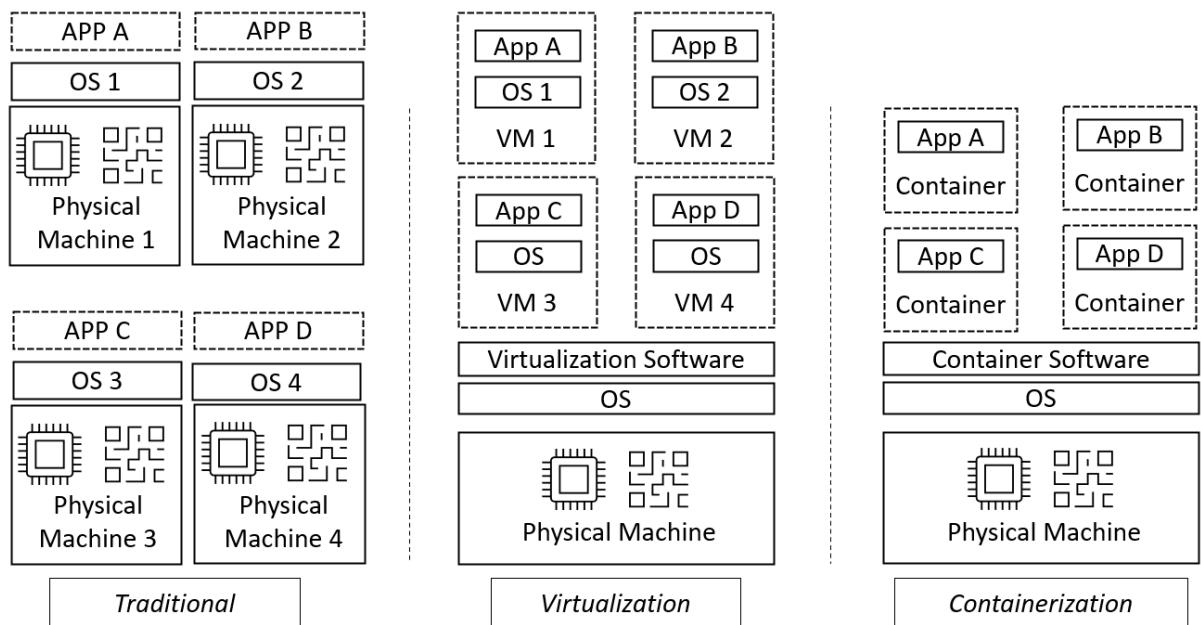


Figure 4.4 – Concept differences in traditional versus virtualization versus containerization

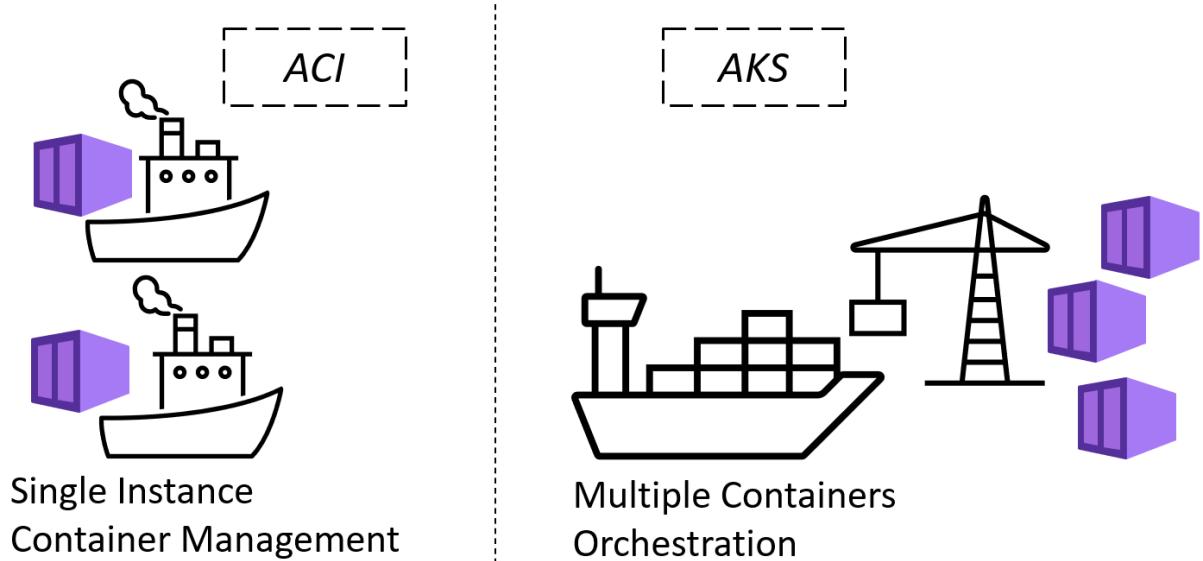


Figure 4.5 – ACI versus AKS for containerization compute services

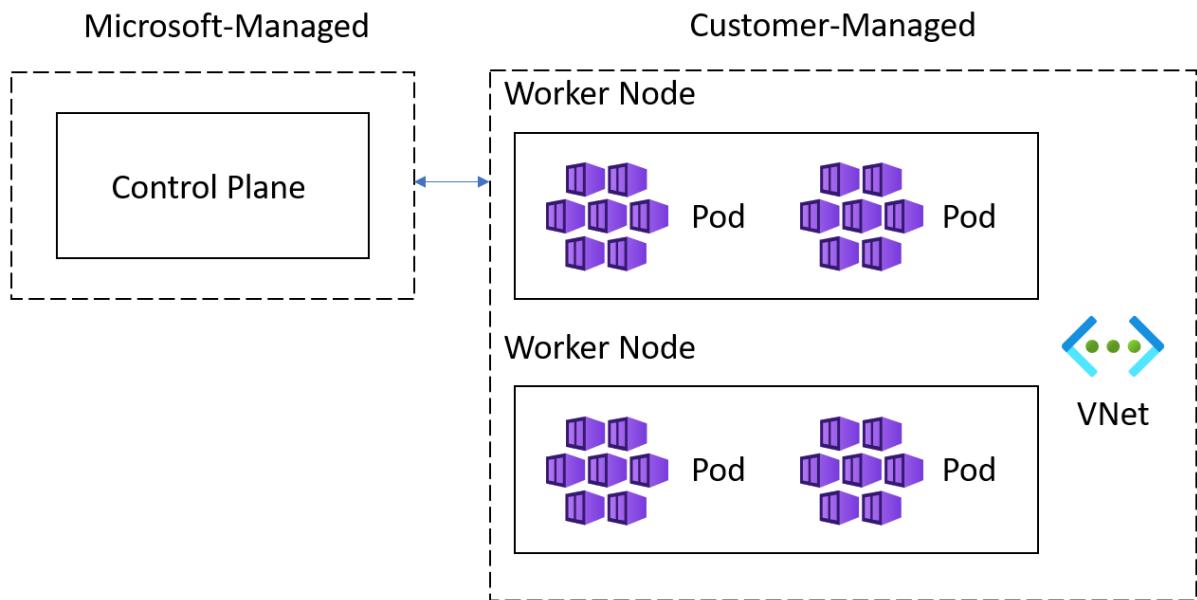


Figure 4.6 – AKS high-level service architecture showing Microsoft's responsibilities versus the customer-managed components

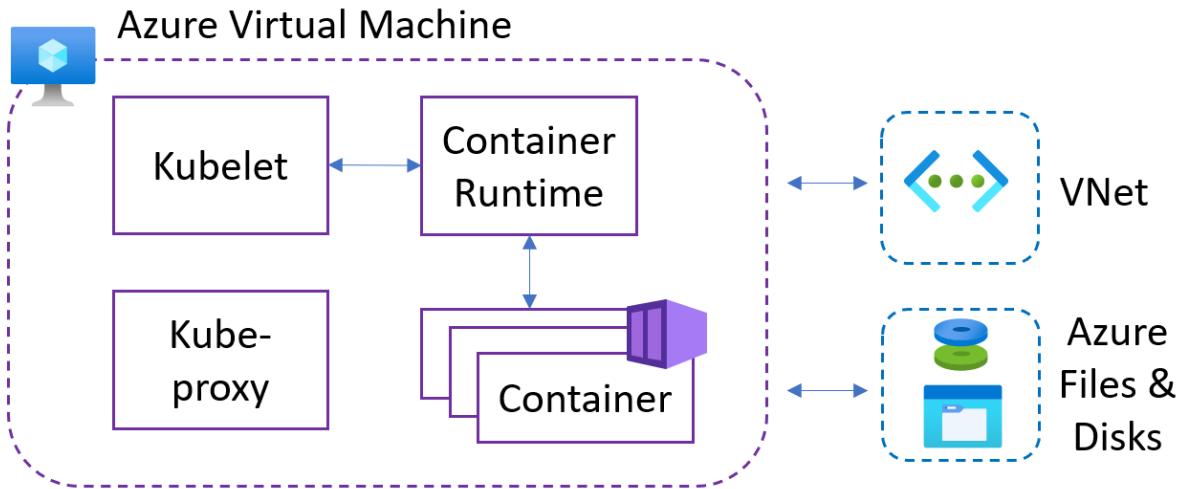


Figure 4.7 – Worker node high-level service architecture

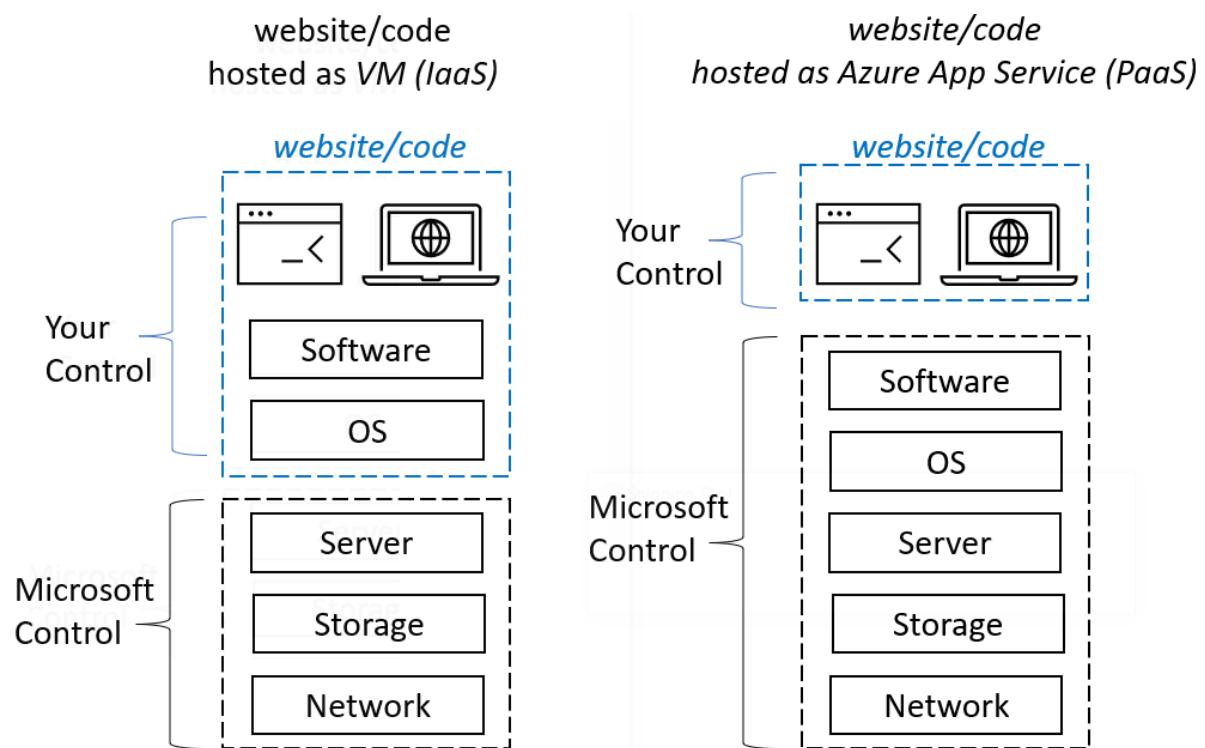


Figure 4.8 – IaaS hosting with Azure VM versus PaaS hosting with Azure App Service

Azure App Service (PaaS)

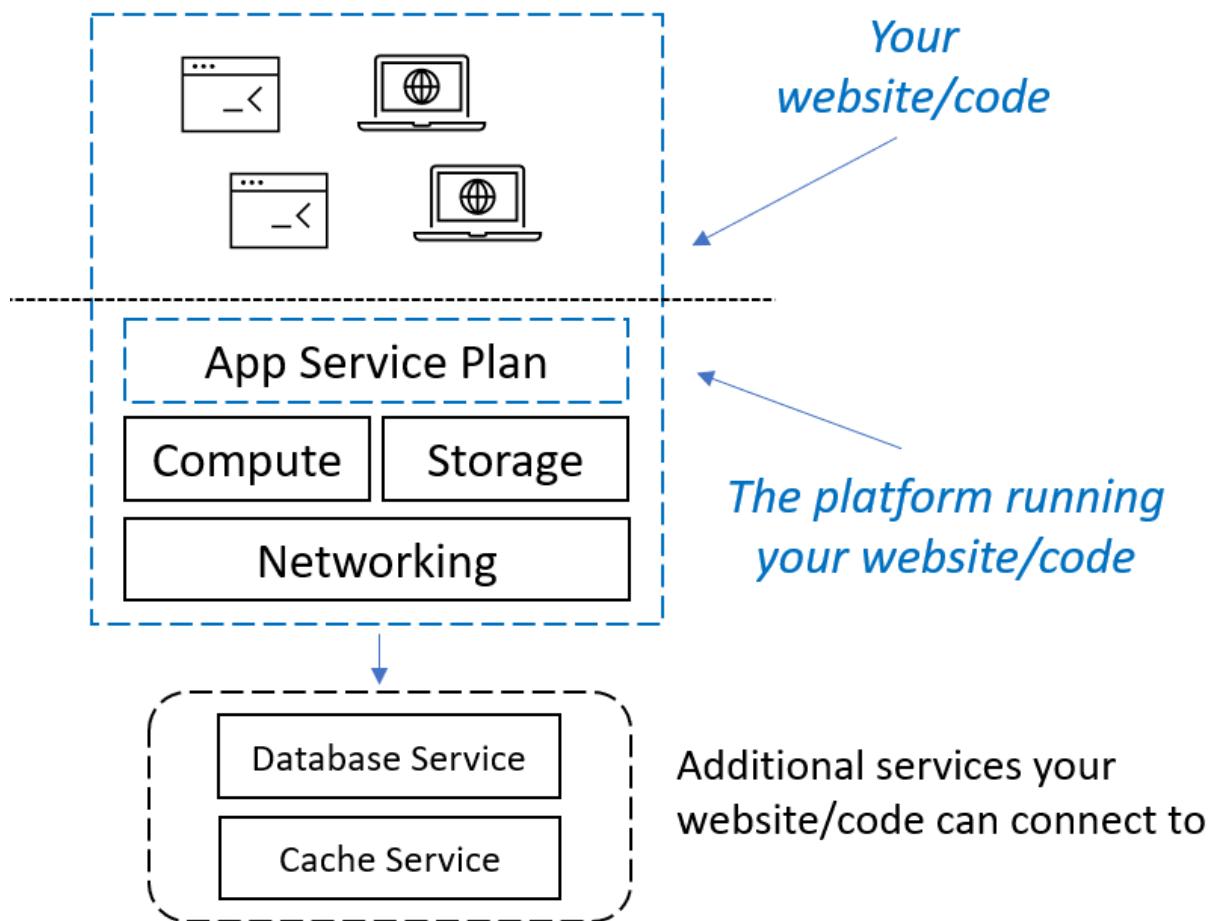


Figure 4.9 – Azure App Service plan components relationship

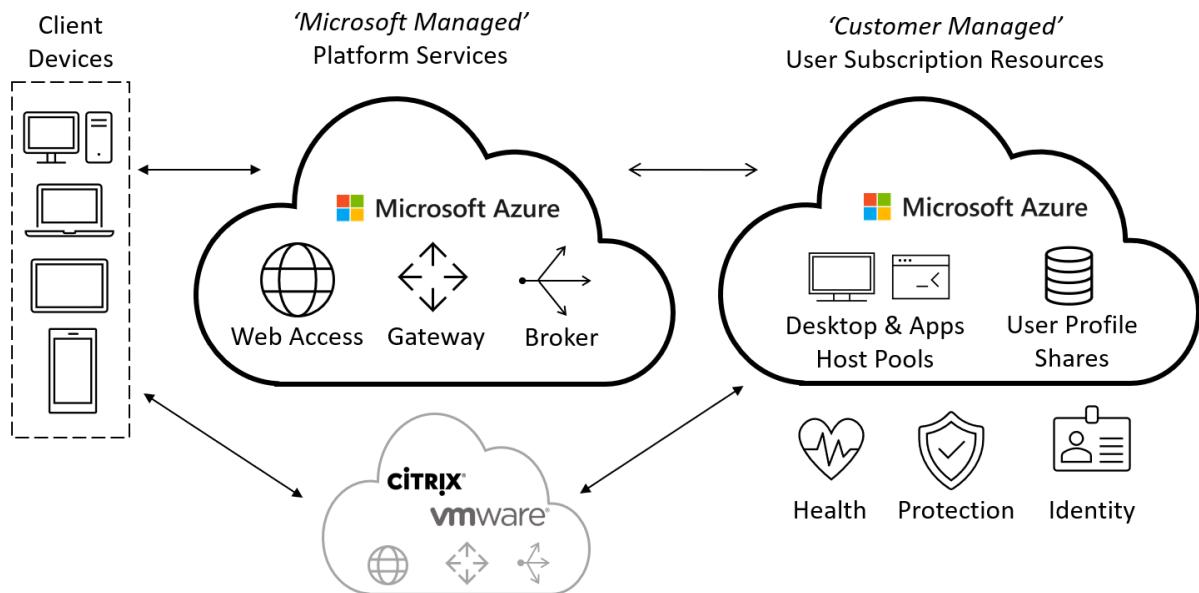


Figure 4.10 – Azure Virtual Desktop service providing access from virtually anywhere

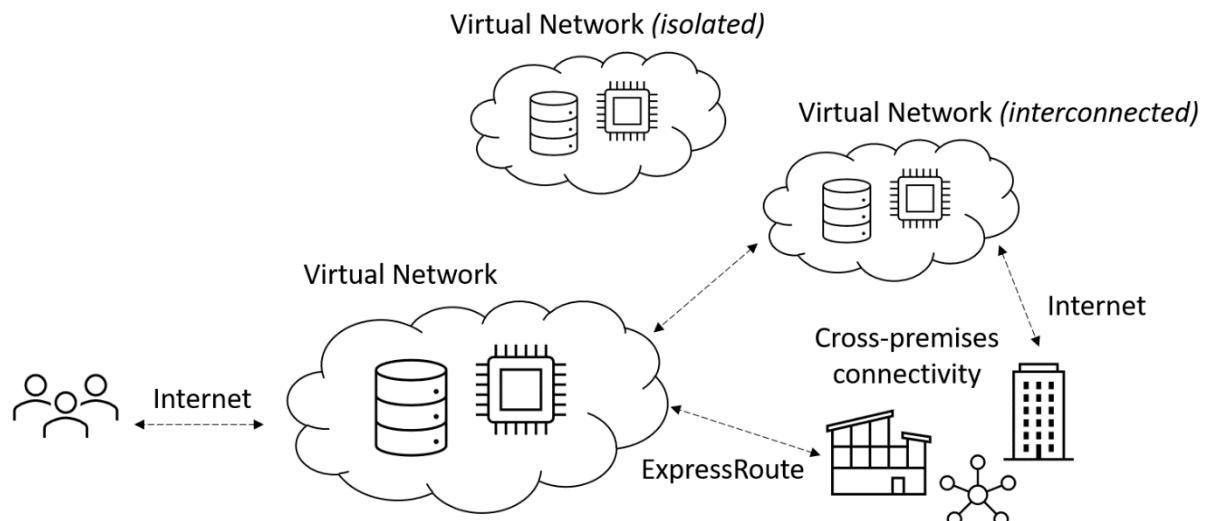


Figure 4.11 – Azure virtual networks schema showing communication between resources

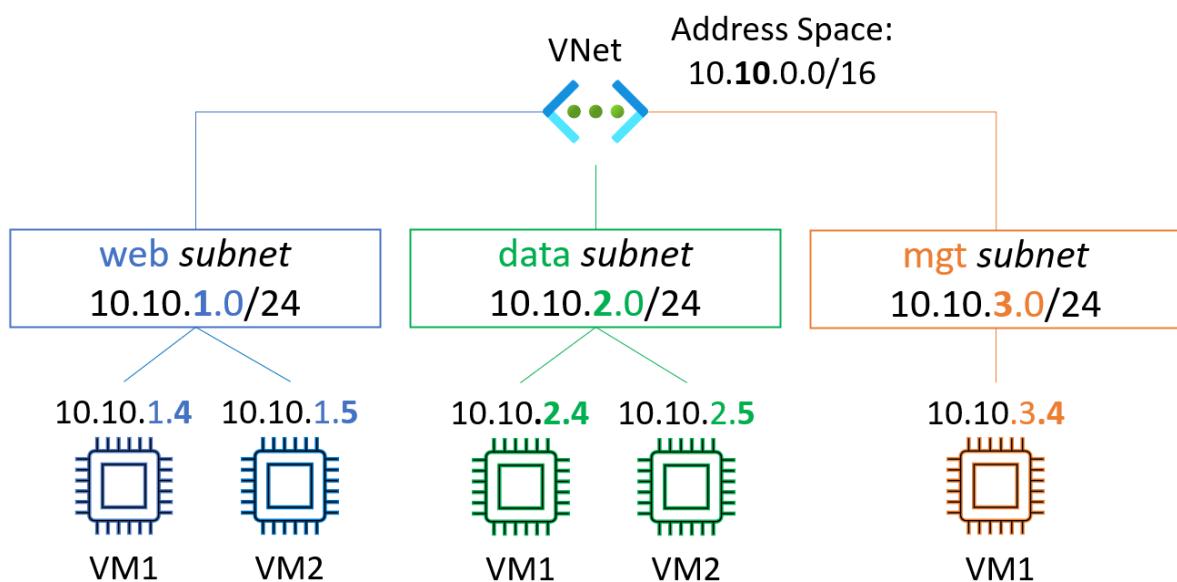


Figure 4.12 – The concept of segmenting a VNet into subnets

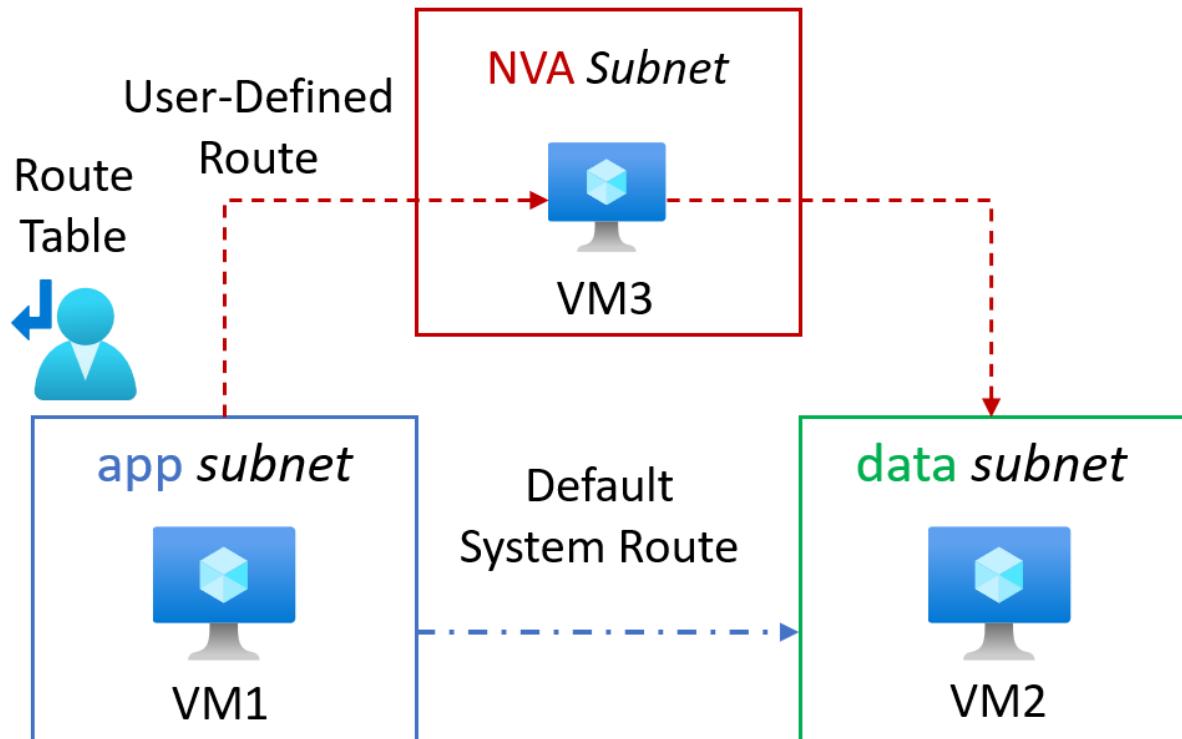


Figure 4.13 – VNet showing internal routing and segmentation through the use of an NVA

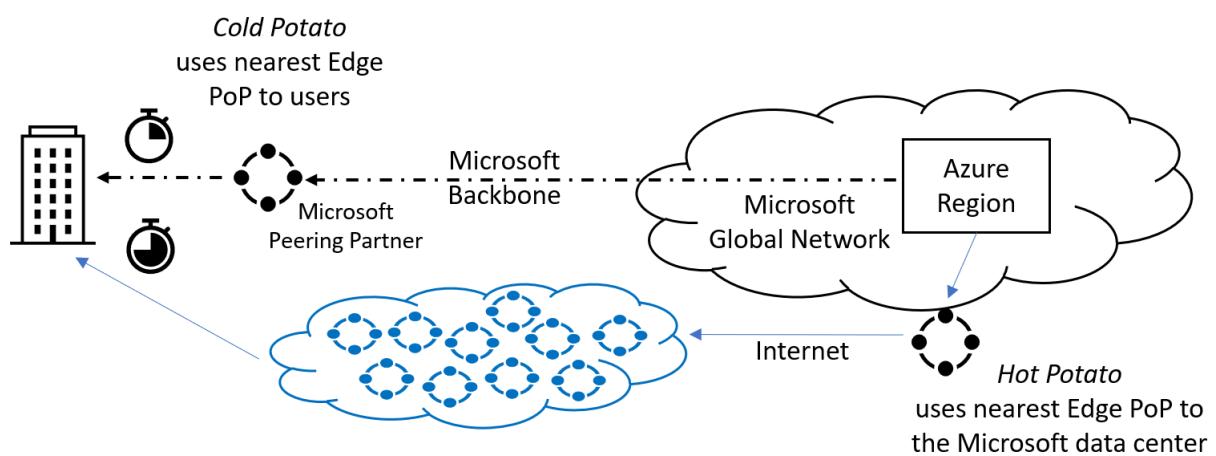


Figure 4.14 – Hot- versus cold-potato routing to carry traffic to its destination

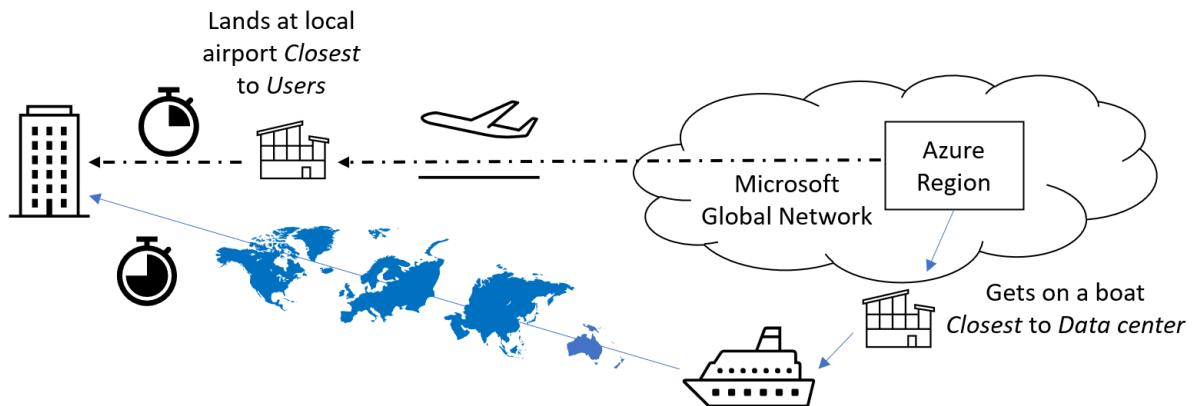
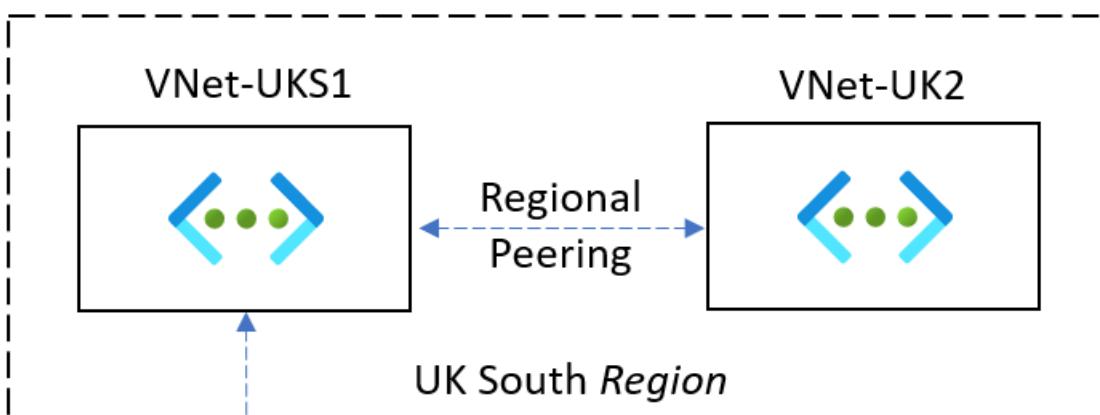
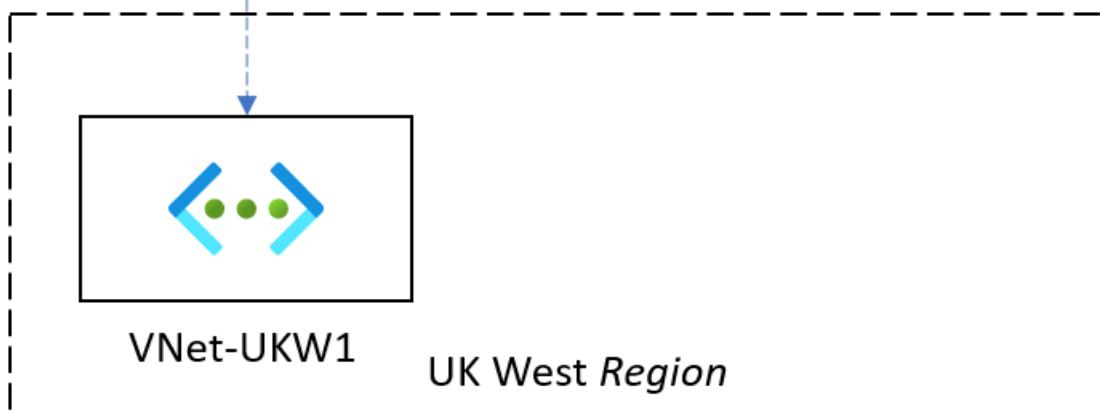


Figure 4.15 – Air travel versus shipping routes—similar to hot- versus cold-potato routing

VNet Peering (*Regional*)



Global Peering



VNet Peering (*Global*)

Figure 4.16 – Inter-VNet connectivity shown using peering

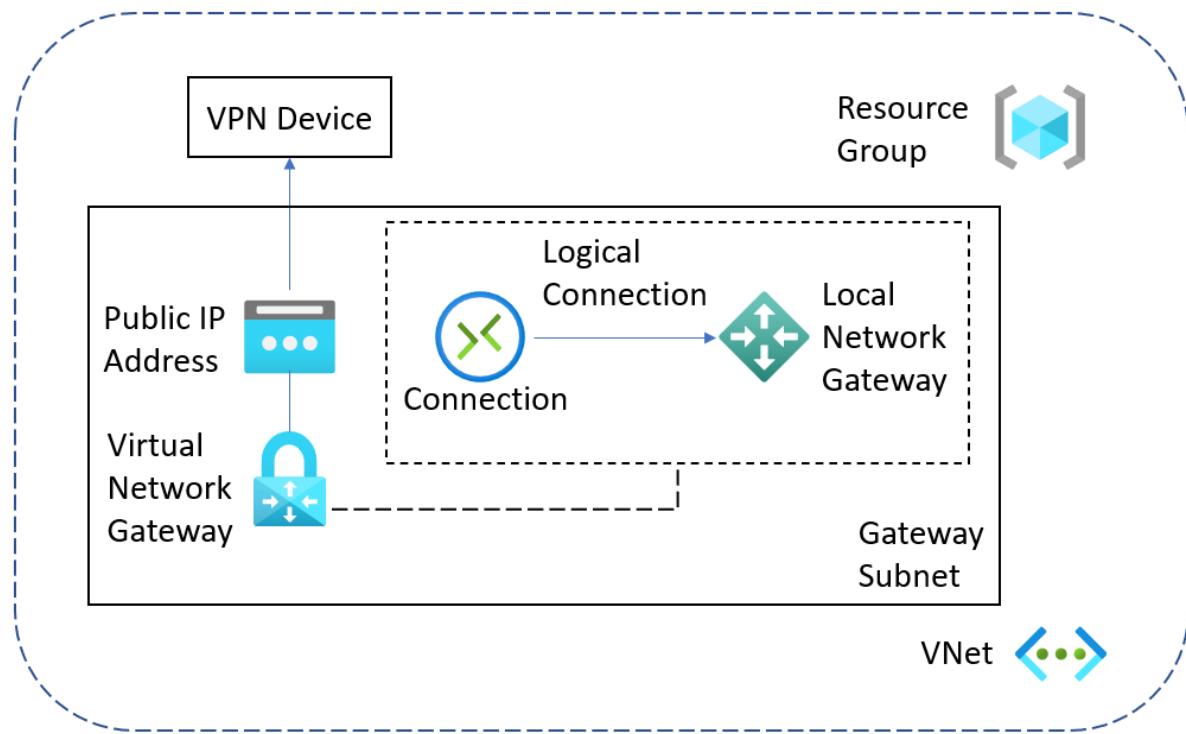


Figure 4.17 – VPN gateway resources allowing encrypted traffic to be sent through secure connections

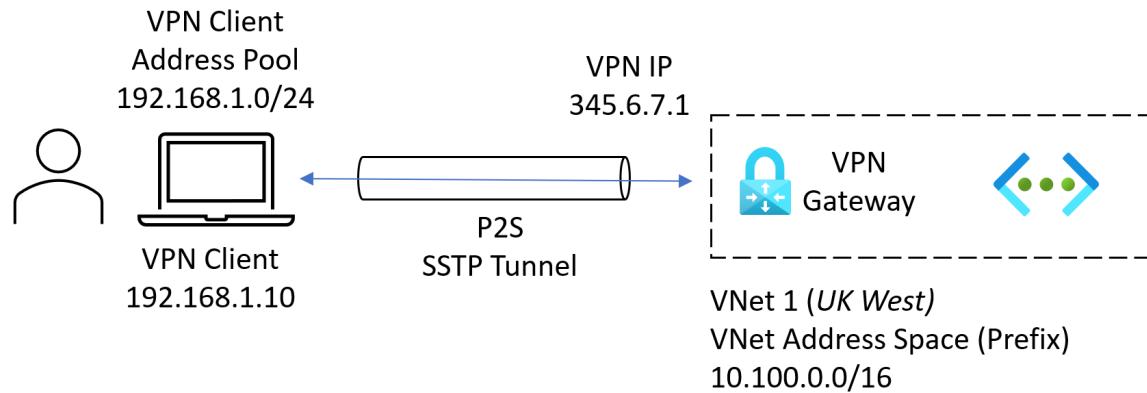


Figure 4.18 – Point-to-Site VPN

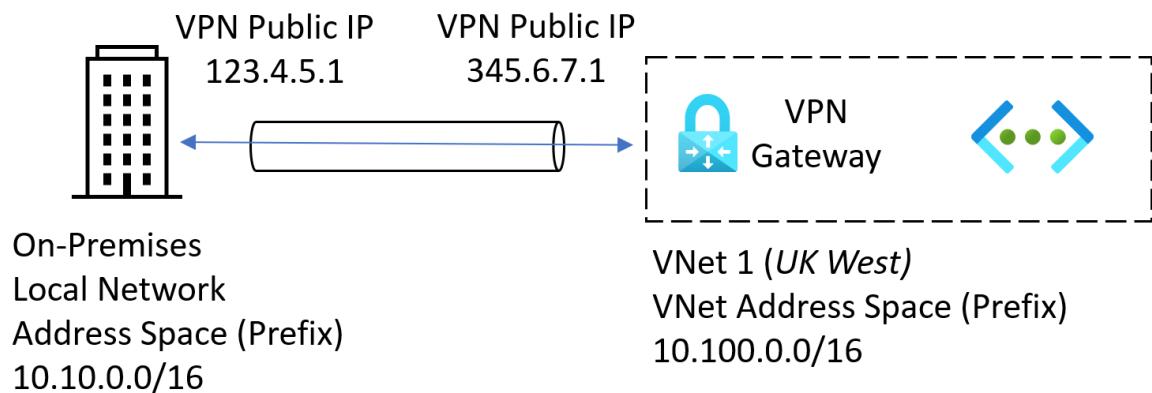


Figure 4.19 – Site-to-Site VPN

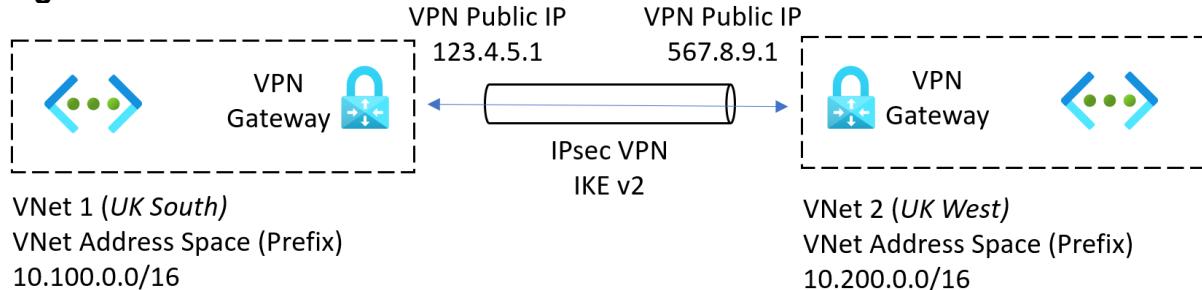


Figure 4.20 – VNet-to-VNet VPN

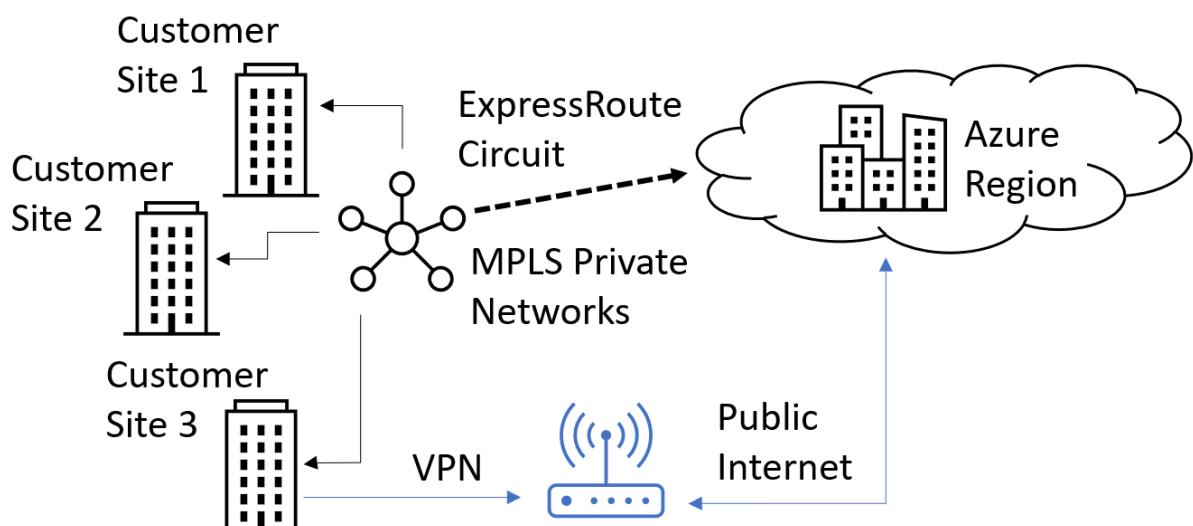


Figure 4.21 – ExpressRoute showing the connection for cross-premises to Azure resources

A screenshot of the Microsoft Azure portal interface, specifically the 'Virtual networks' section for a 'aadds-vnet' virtual network. The left sidebar shows navigation links like Home, Virtual networks, and aadds-vnet. The main content area displays the 'aadds-vnet | DNS servers' page. It includes a search bar, a navigation menu with 'DNS servers' selected, and a table for managing DNS servers. The table shows two entries: '10.0.0.5' and '10.0.0.4'. A 'Custom' radio button is selected under 'DNS servers'. The right side of the screen shows the 'IP Address' section with the same two entries and an 'Add DNS server' button.

Figure 4.22 – Custom DNS server setting

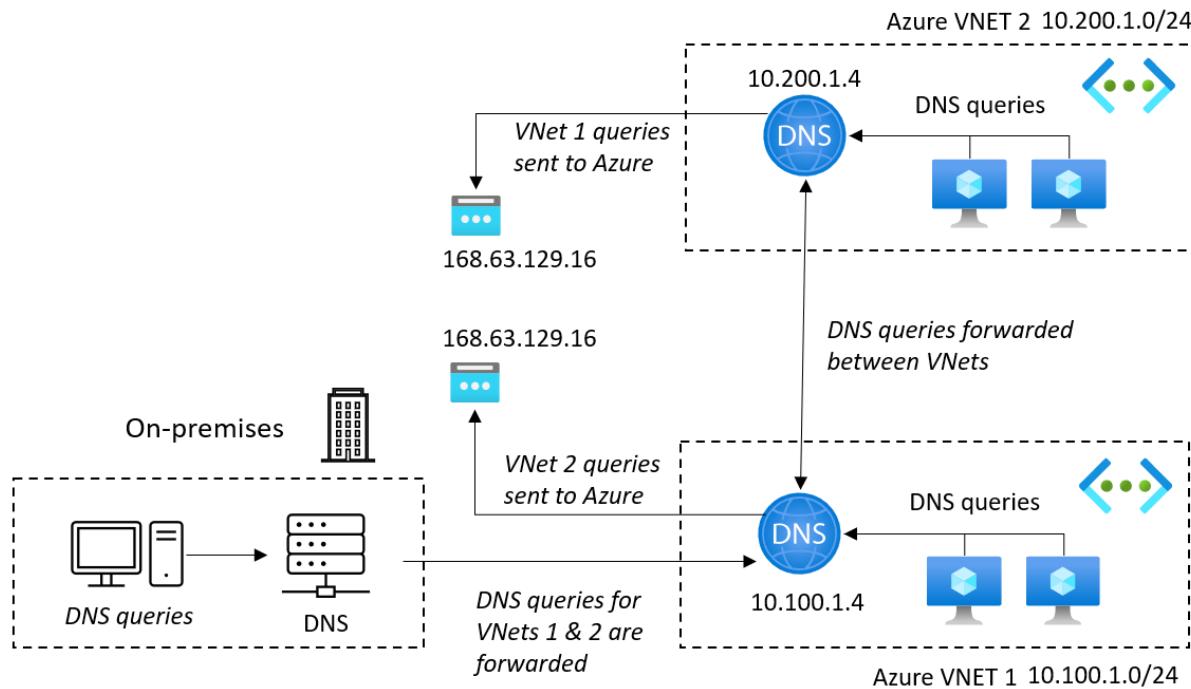


Figure 4.23 – An example solution demonstrating the hybrid name resolution approach



No storage accounts to display

Create a storage account to store up to 500TB of data in the cloud. Use a general-purpose storage account to store object data, use a NoSQL data store, define and use queues for message processing, and set up file shares in the cloud. Use the Blob storage account and the hot or cool access tiers to optimize your costs based on how frequently your object data is accessed.

[Create storage account](#)

[Learn more](#)

Figure 4.24 – Creating a storage account in Azure

Performance ⓘ *

Standard: Recommended for most scenarios (general-purpose v2 account)

Premium: Recommended for scenarios that require low latency.

Premium account type ⓘ *

Redundancy ⓘ *

[File shares](#)

Block blobs:
Best for high transaction rates or low storage latency

File shares:
Best for enterprise or high-performance applications that need to scale

Page blobs:
Best for random read and write operations

[Review](#)

Figure 4.25 – Storage account types

Standard storage accounts are backed by magnetic drives and provide the lowest cost per GB. They're best for applications that require bulk storage or where data is accessed infrequently. Premium storage accounts are backed by solid state drives and offer consistent, low-latency performance. They can only be used with Azure virtual machine disks, and are best for I/O-intensive applications, like databases.

[Learn more about storage account performance.](#)

This setting cannot be changed after the storage account is created.

Figure 4.26 – Storage account performance type setting

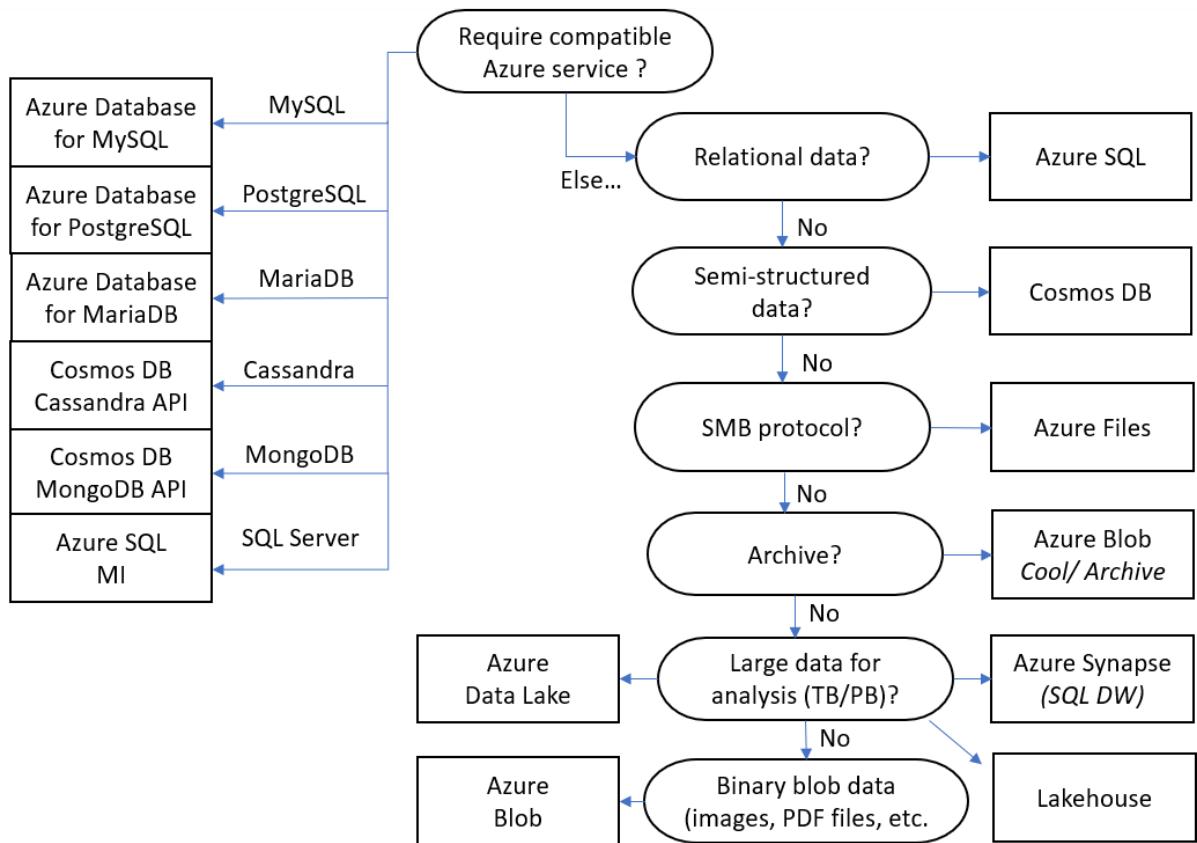


Figure 4.27 – The flow for choosing a data store

The screenshot shows the 'Practice Resources' interface. At the top, there's a dark header with the 'Practice Resources' logo and a bell icon. To the right of the bell is a 'SHARE FEEDBACK' button with a dropdown arrow. Below the header, the page title is 'DASHBOARD > CHAPTER 4'. Under 'Azure Core Resources', there's a 'Summary' section. It contains text about the chapter's coverage of AZ-900 exam skills, specifically 'Compute', 'Network', and 'Storage'. It also mentions the next chapter will cover 'Identity and access'. To the right, there's a 'Chapter Review Questions' section with a book title 'The Microsoft Azure Fundamentals Certification and Beyond - Second Edition by Steve Miles'. It includes a 'Select Quiz' dropdown, a 'Quiz 1' section with a 'START' button, and a 'SHOW QUIZ DETAILS' link.

Figure 4.28 – Chapter Review Questions for Chapter 4

The screenshot shows the 'Virtual Networks (VNets)' activity interface. At the top, it has the 'Practice Resources' header with a bell and share feedback buttons. Below the header, the page title is 'DASHBOARD > VIRTUAL NETWORKS (VNETS)'. The main section is titled 'Virtual Networks (VNets)'. It shows a progress bar for a book: 'Book: Microsoft Azure Fundamentals Certification and Beyond - Second Edition' with 'Progress: 0% completed'. Below the progress bar is a 'Description' section stating: 'In this activity, you will create a VNet. The tasks performed in this activity align with Chapter 4.' Underneath is a 'Tasks' section with a 'START' button. A table lists two tasks: 'REQUIREMENTS' (marked as 'Important') and 'Task 1'. Both tasks are listed as 'Not Started' with a 'OPEN' link and a checkbox for marking as complete.

Figure 4.29: Tasks in Virtual Networks (VNets) activity

Chapter 5: Azure Identity and Access

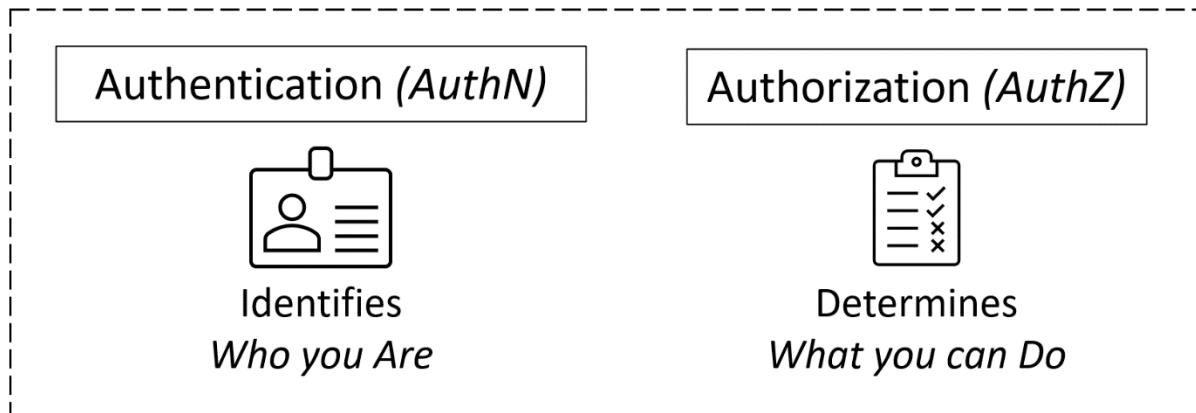


Figure 5.1 – The concepts of authentication and authorization

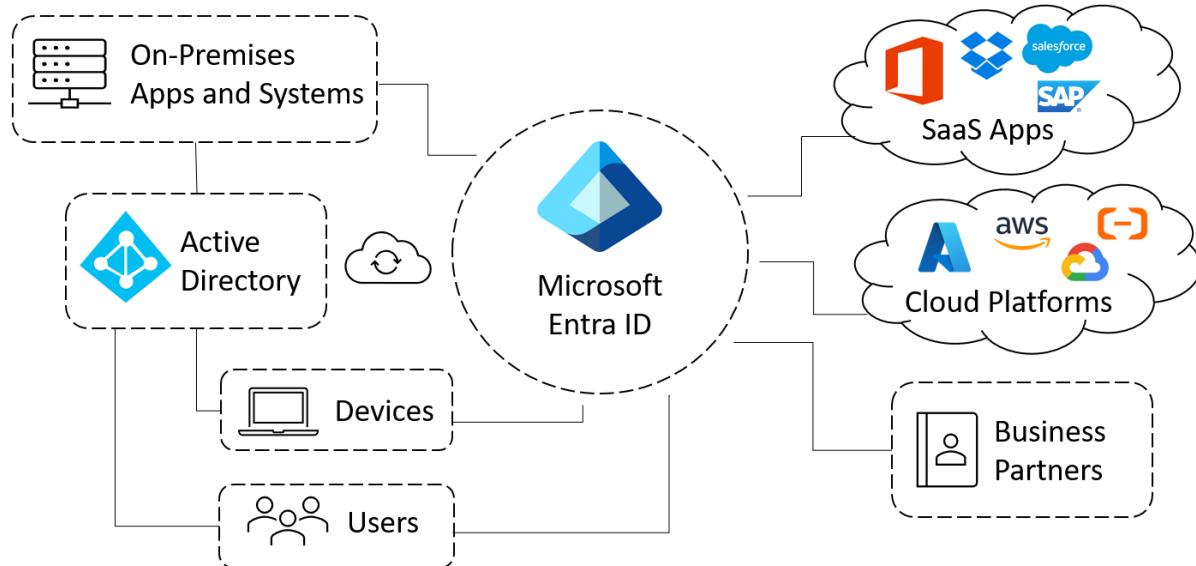


Figure 5.2 – Microsoft Entra ID as a centralized cloud IDP

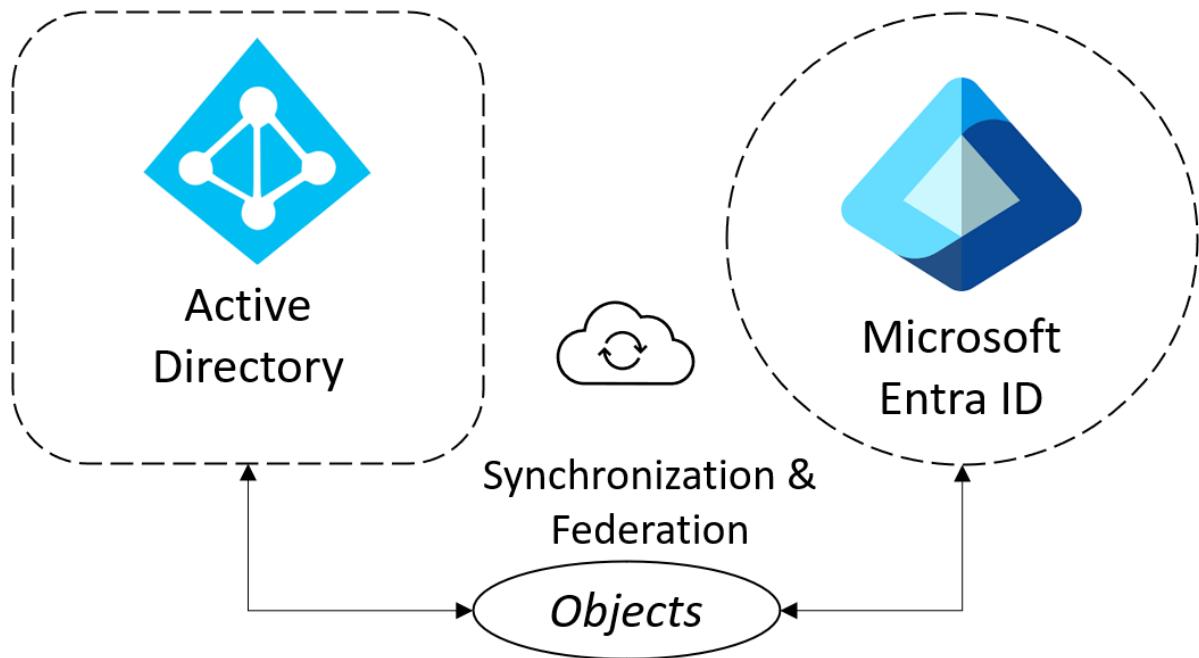


Figure 5.3 – Connection between AD and Microsoft Entra ID

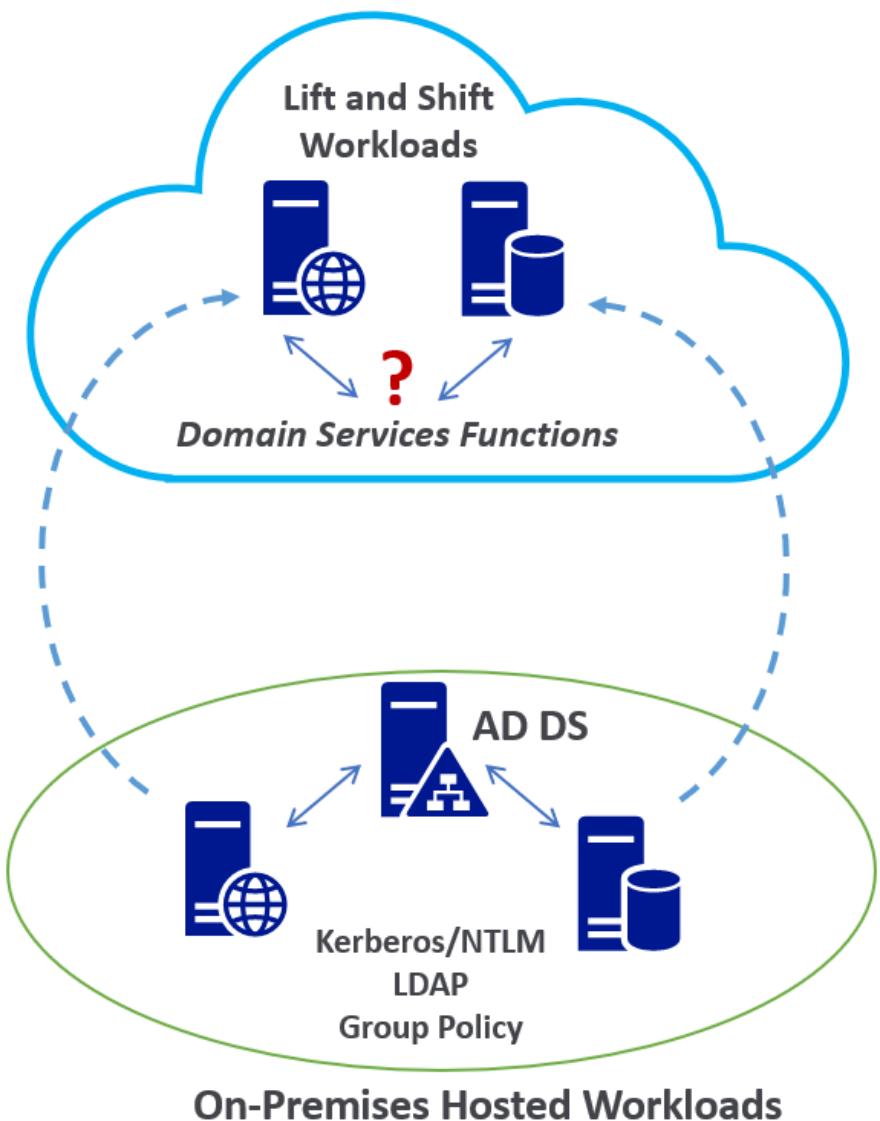


Figure 5.4 – Providing AD Domain Services functions for Azure workloads

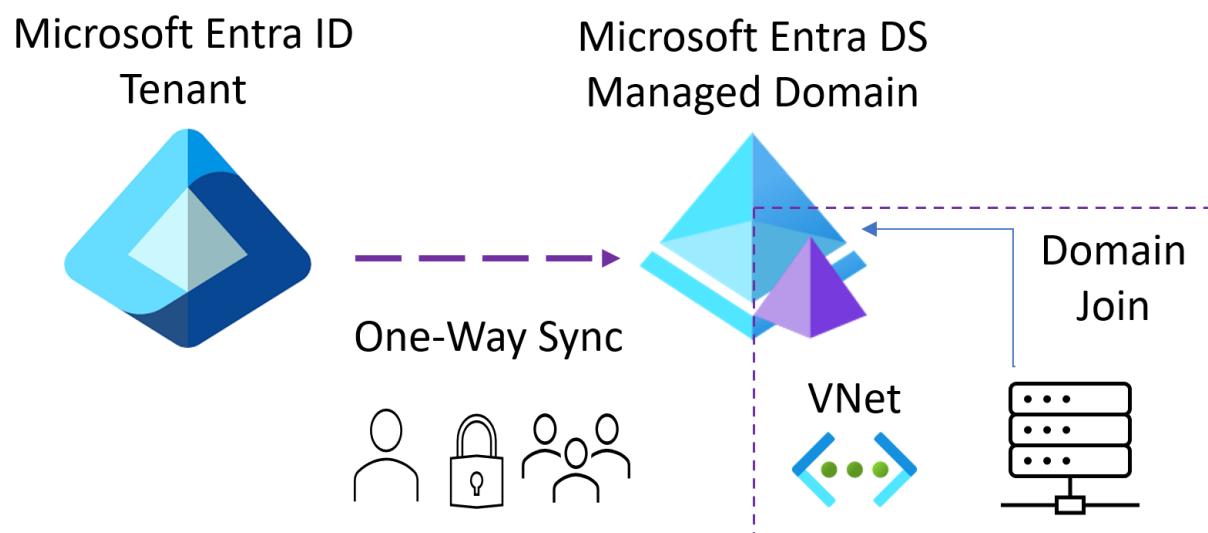


Figure 5.5 – Making changes effective by synchronizing Microsoft Entra ID to the managed domain

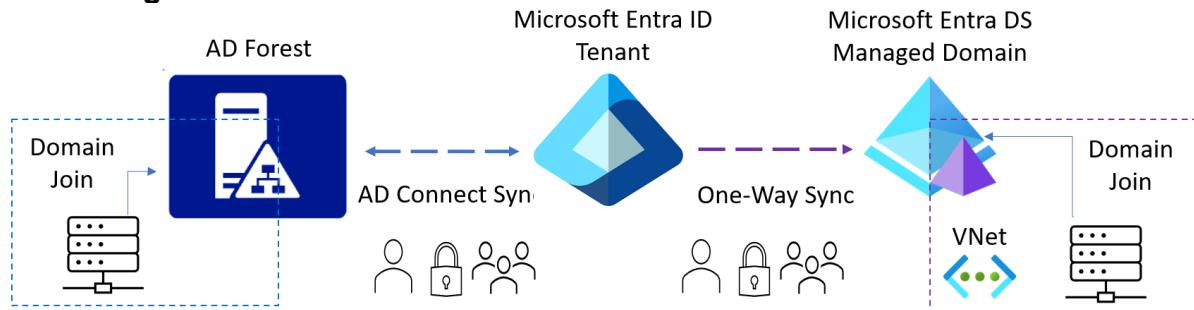


Figure 5.6 – Hybrid identity scenario showing the connection between AD, Microsoft Entra ID, and the Microsoft Entra DS managed domain

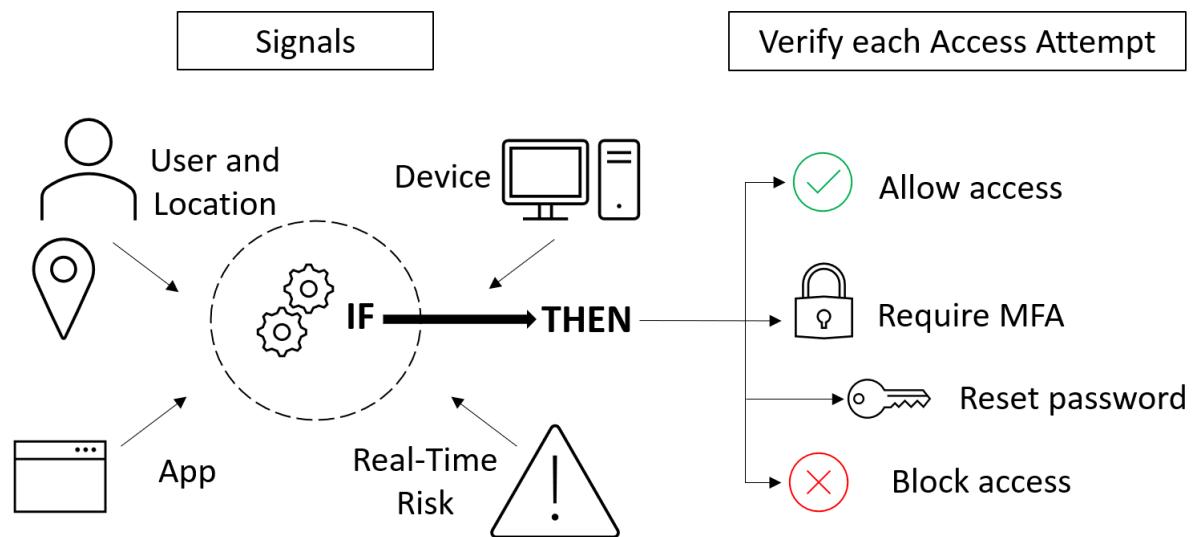


Figure 5.7 – Granting access using conditional access based on the information collected from the sign-in process

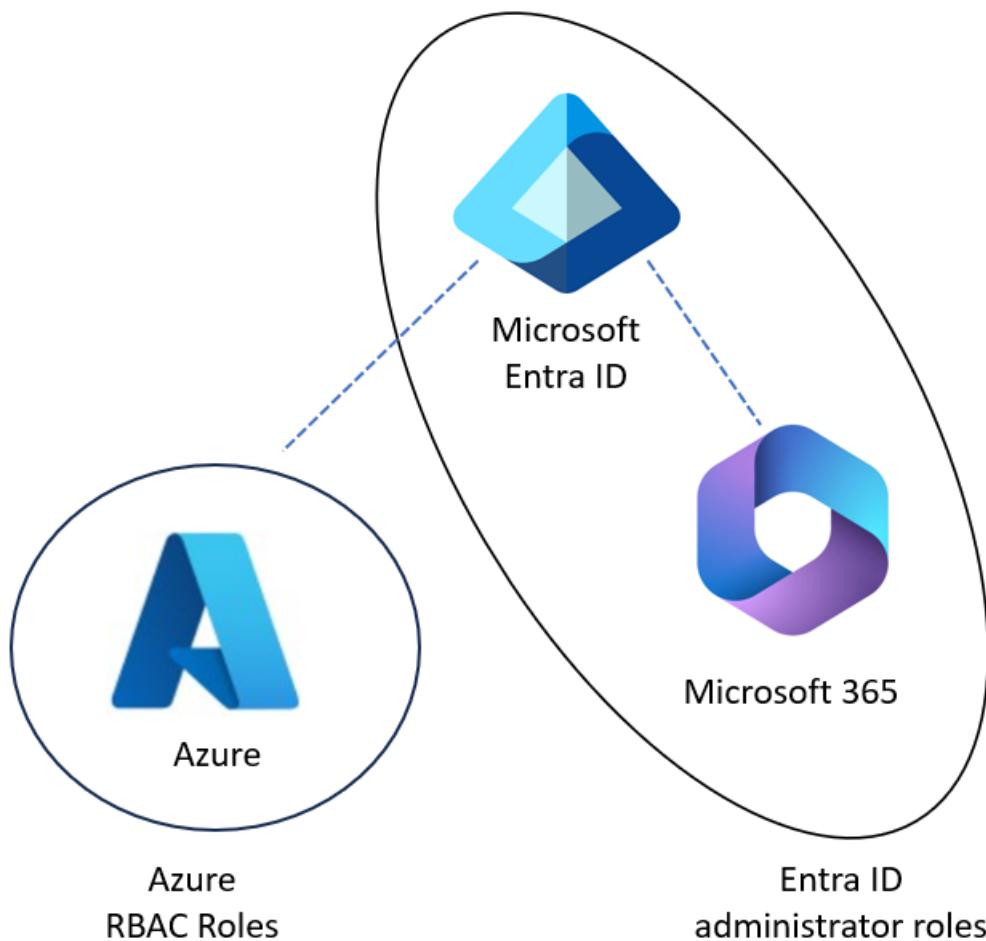


Figure 5.8 – Managing access with authentication from Microsoft Entra ID, and authorization from Azure RBAC

◀▶ Practice Resources
🔔
SHARE FEEDBACK ▾

[DASHBOARD](#) > [CHAPTER 5](#)

Azure Identity and Access

Summary

This chapter included identity and access content for coverage of the following AZ-900 Azure Fundamentals exam skills area: **Describe Azure identity, access, and security.**

In this chapter, you learned how to describe directory services in Azure including Microsoft Entra ID (previously named Azure AD) and Microsoft Entra Domain Services (previously named Azure AD Domain Services), describe authentication methods in Azure (including SSO, multi-factor authentication, and passwordless), external identities and guest access in Azure, conditional access, and Azure RBAC.

The next chapter looks at Azure Security. You will learn the concept of Zero Trust, the purpose of the defense-in-depth model, and Microsoft Defender for Cloud.

Chapter Review Questions

The Microsoft Azure Fundamentals Certification and Beyond - Second Edition by Steve Miles

Select Quiz

Quiz 1

[SHOW QUIZ DETAILS ▾](#)

START

Figure 5.9 – Chapter Review Questions for Chapter 5



DASHBOARD > MICROSOFT ENTRA ID USERS AND GROUPS

Microsoft Entra ID Users and Groups

Book: Microsoft Azure Fundamentals Certification and Beyond - Second Edition

Progress: 0% completed

Description:

In this activity, you will work with Microsoft Entra ID Users and Groups. The tasks performed in this activity align with *Chapter 5*.

Tasks

START

Task No	Task	Status	Open	Mark as Complete
1	REQUIREMENTS <i>Important</i>	Not Started	OPEN REQUIREMENTS	<input type="checkbox"/>
2	Task 1	Not Started	OPEN TASK	<input type="checkbox"/>
3	Task 2	Not Started	OPEN TASK	<input type="checkbox"/>
4	Task 3	Not Started	OPEN TASK	<input type="checkbox"/>

Figure 5.10: Tasks in Microsoft Entra ID Users and Groups activity

Chapter 6: Azure Security

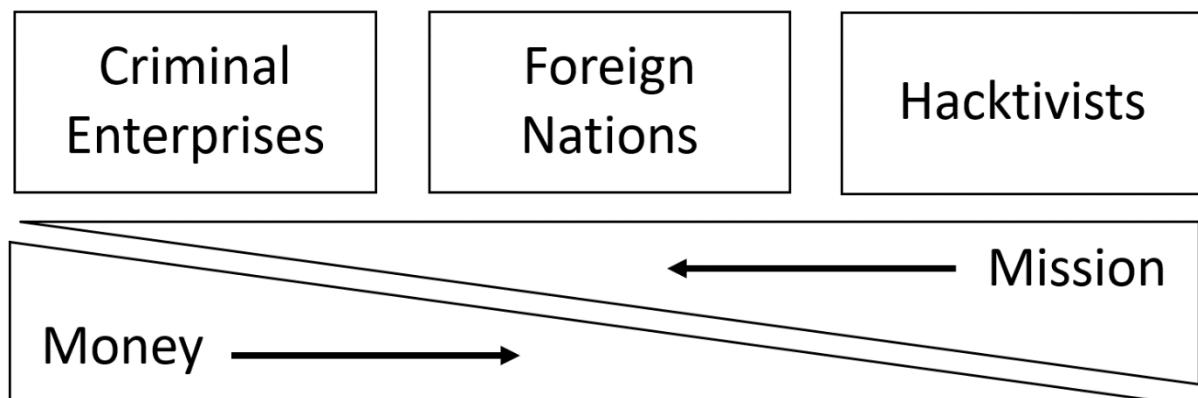


Figure 6.1 – Attack motivations

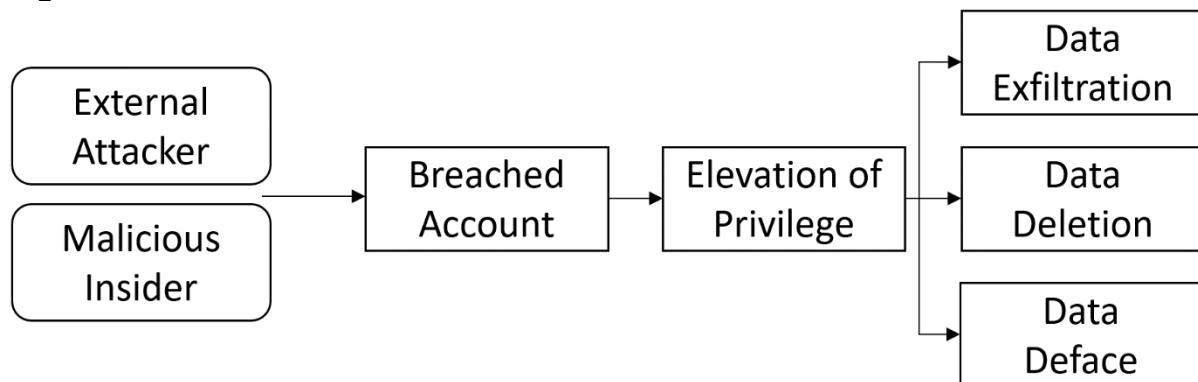


Figure 6.2 – An attack chain showing the sequence of an attack

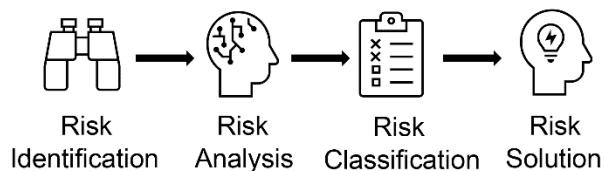
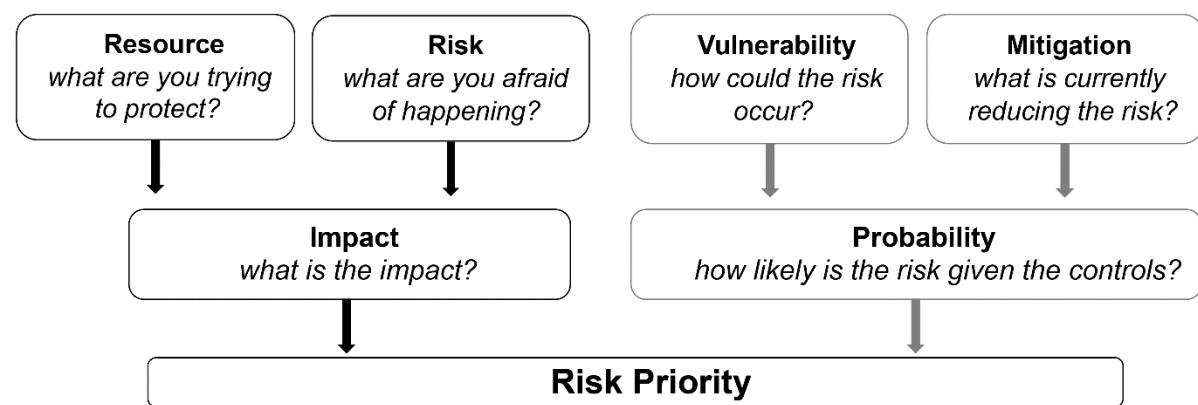


Figure 6.3 – Threat priority model showing the adopted risk solution based on risk priority

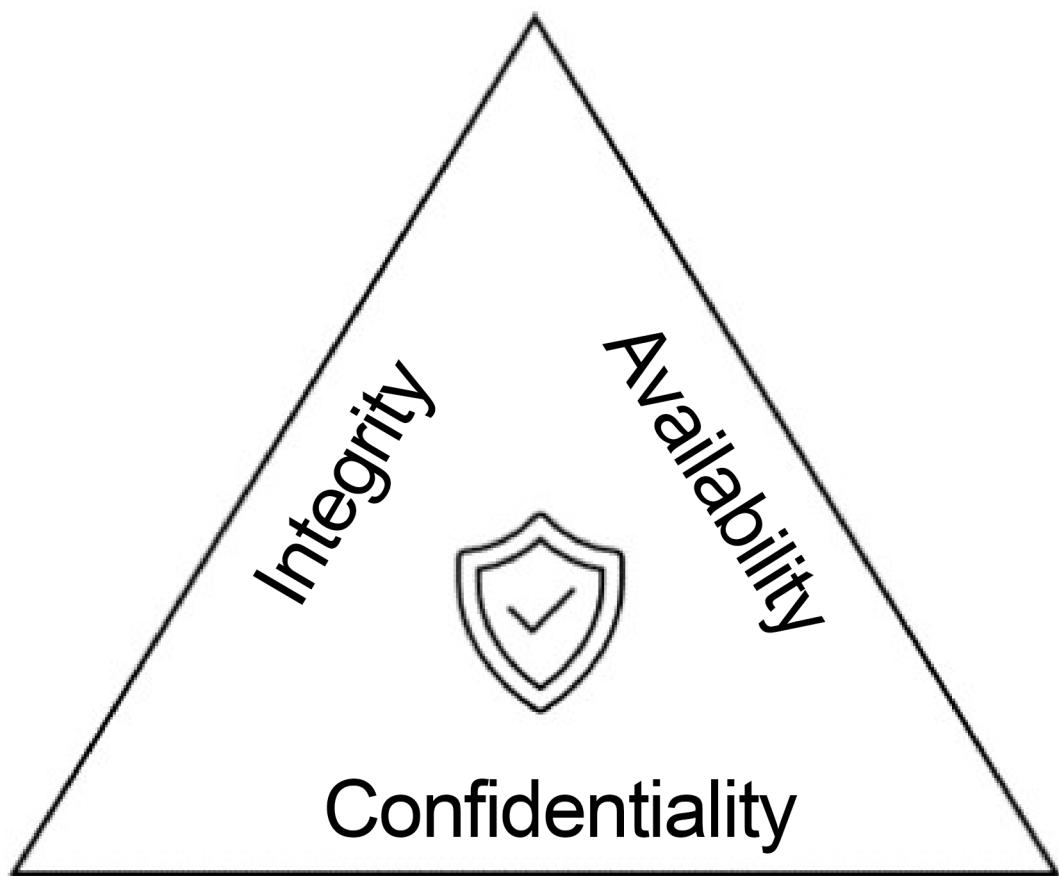


Figure 6.4 – A security posture CIA triangle

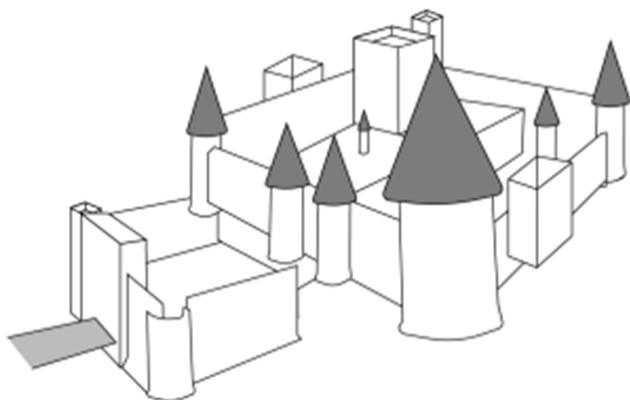


Figure 6.5 – The medieval castle defense approach

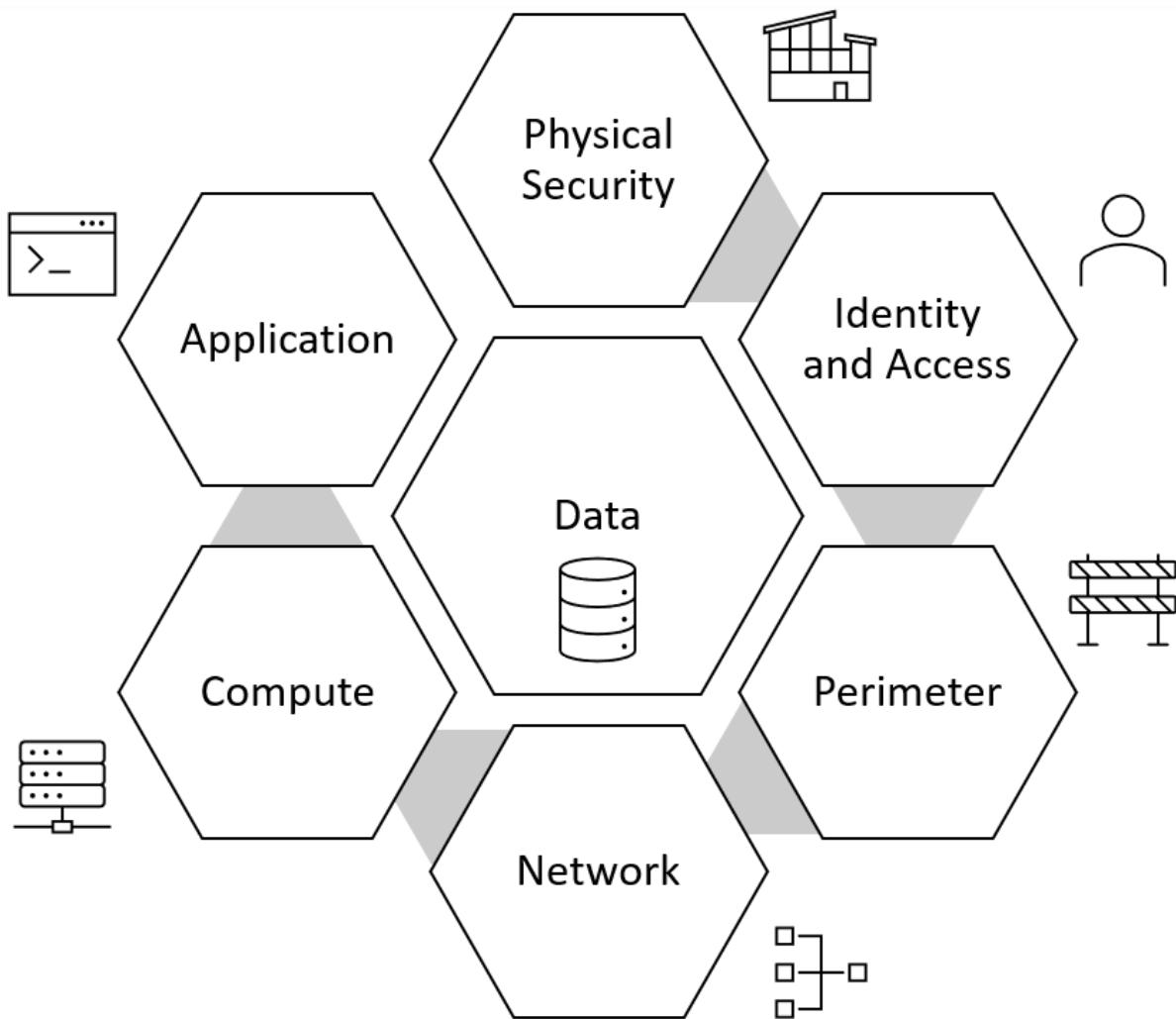


Figure 6.6 – The DiD approach layers

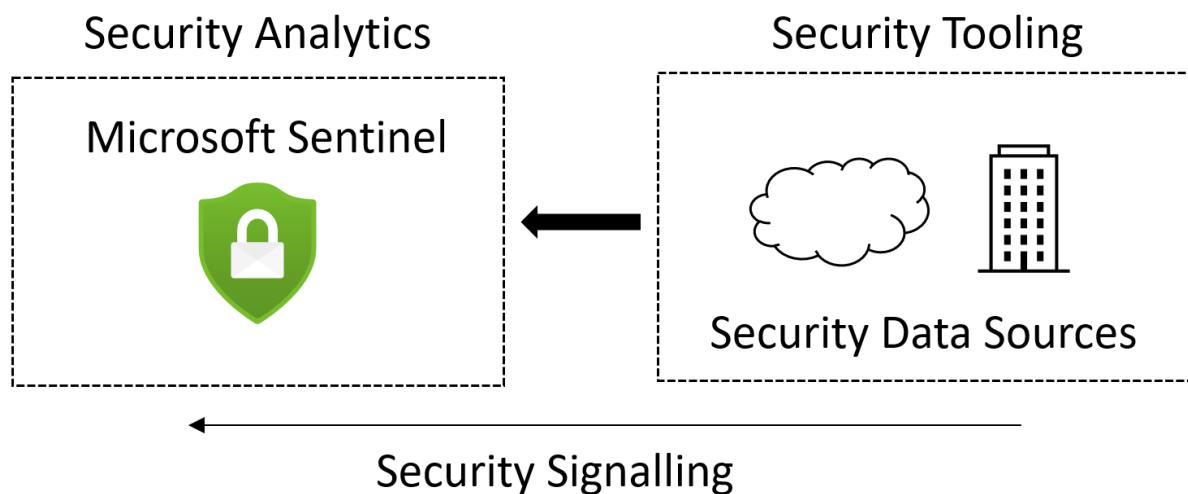


Figure 6.7 – The relationship between the security analytics of Microsoft Sentinel and the security signalling

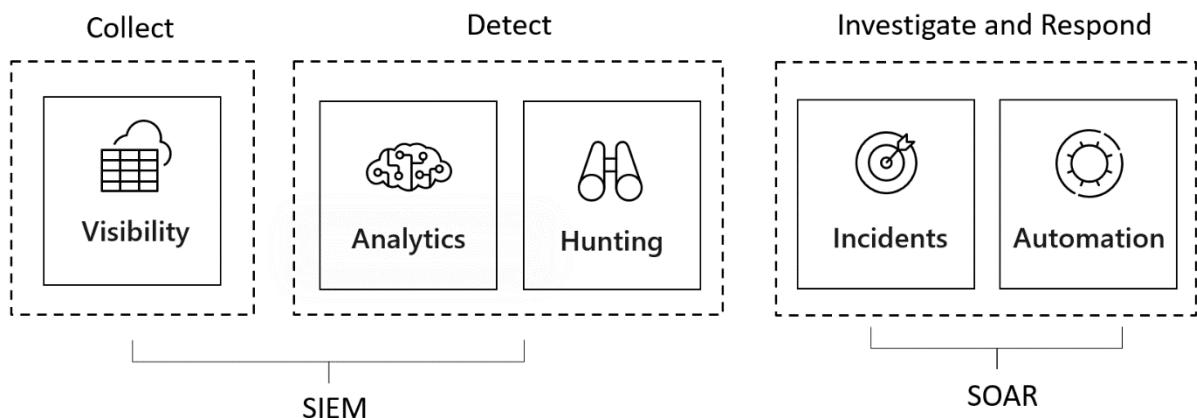


Figure 6.8 – A Sentinel security operations proposition

Practice Resources

SHARE FEEDBACK

DASHBOARD > CHAPTER 6

Azure Security

Summary

This chapter included complete coverage of the AZ-900 Azure Fundamentals exam skills area **Describe Azure identity, access, and security**.

In this chapter, you explored the threat landscape and the common threats. You then learned the concept of Zero Trust and the purpose of the DiD model, and you looked at the security solutions of Microsoft Defender for Cloud and Microsoft Sentinel.

The key takeaway from this chapter is that security is not somebody else's problem but everybody's responsibility. Further knowledge beyond the required exam content was provided to prepare you for a real-world, day-to-day Azure focus role.

In the next chapter, you will look at **Azure Cost Management**. You will learn the factors that affect costs by looking at the Azure Pricing Calculator, the Total Cost of Ownership (TCO) calculator, Cost Management, and the Billing tool, as well as the purpose of resource tags.

Chapter Review Questions

The Microsoft Azure Fundamentals Certification and Beyond - Second Edition by Steve Miles

Select Quiz

Quiz 1 [SHOW QUIZ DETAILS](#) [START](#)

Figure 6.9 – Chapter Review Questions for Chapter 6



DASHBOARD > SECURITY DEFAULTS

Security Defaults

Book: Microsoft Azure Fundamentals Certification and Beyond - Second Edition

Progress: 0% completed

Description:

In this activity, you will implement security defaults. The tasks performed in this activity align with *Chapter 6*.

Tasks

[START](#)

Task No	Task	Status	Open	Mark as Complete
1	REQUIREMENTS <i>Important</i>	Not Started	OPEN REQUIREMENTS	<input type="checkbox"/>
2	Task 1	Not Started	OPEN TASK	<input type="checkbox"/>

Figure 6.10: Tasks in Security Defaults activity

Chapter 7: Azure Cost Management

Home >

 Cost Management: steve miles | Overview X

Invoice section

Search ...

Scope: steve miles (change) Try preview Go to invoice section Help

Get Started Tutorials What's new

Analyze and optimize cloud costs
Setup and manage your account, analyze trends, and optimize cloud efficiency all in one place. [Learn more](#)



Setup your account
Delegate access, configure subscriptions, and plan ahead for cloud adoption.
[Learn more](#)



Report on and analyze trends
Break down and analyze costs to identify anomalies and drive a deeper understanding of cost and usage patterns.
[Learn more](#)



Control and optimize costs
Implement cost governance to drive accountability, reduce waste, and optimize costs, enabling you to do more with less.
[Learn more](#)

Configure invoice section

[View quickstart checklist](#) [Add AWS account](#)

Analyze costs

[Schedule automated exports](#) [Learn about APIs](#)

View recommendations

[Manage budgets](#) [View pricing calculator](#)

Cost Management

-  Cost analysis
-  Cost alerts
-  Budgets
-  Advisor recommendations

Billing

-  All transactions
-  Payment methods

Products + services

-  Azure subscriptions
-  Reservations + Hybrid Benefit

Settings

-  Manage invoice section
-  Exports
-  Cost allocation
-  Connectors for AWS

Figure 7.1 – Managing costs associated with Azure services using Azure Cost Management

The screenshot shows the Azure Pricing calculator page. At the top, there's a navigation bar with links for Explore, Products, Solutions, Pricing, Partners, and Resources. To the right are buttons for Search, Learn, Support, Contact Sales, a 'Free account' button, and 'Sign in'. Below the navigation is a banner with the title 'Pricing calculator' and a subtext 'Calculate your estimated hourly or monthly costs for using Azure.' It features two buttons: 'Try Azure for free' and 'Create a pay-as-you-go account'. To the right of the banner is a digital clock graphic with the time '07:34' and several gear icons.

Below the banner, there are tabs for 'Products', 'Example scenarios', 'Saved estimates', and 'FAQs'. On the right, a user profile is shown with the name 'steve miles', email 'admin@NETORGFT0723201.onmicrosoft.com', and another email 'milesbetterolutions.onmicrosoft.com'. A message 'Select a product to include it in your estimate.' is displayed above a search bar labeled 'Search products'.

The main content area is a grid of nine service cards:

- Virtual Machines**: Provision Windows and Linux virtual machines in seconds.
- Storage Accounts**: Durable, highly available, and massively scalable cloud storage.
- Azure SQL Database**: Build apps that scale with managed and intelligent SQL database in the cloud.
- App Service**: Quickly create powerful cloud apps for web and mobile.
- Azure Cosmos DB**: Fast NoSQL database with open APIs for any scale.
- Azure Kubernetes Service (AKS)**: Build and scale with managed Kubernetes.
- Azure functions**: Execute event-driven serverless code functions with an end-to-end development experience.
- Azure AI services**: Deploy high-quality AI models as APIs.
- Microsoft Cost Management**: Monitor, allocate, and optimise cloud costs with transparency, accuracy and efficiency.

On the left, a sidebar titled 'Featured' lists various Azure service categories: Compute, Networking, Storage, Web, Mobile, Containers, Databases, Analytics, AI + Machine Learning, Internet of Things, Integration, Identity, Security, Developer Tools, DevOps, Management and Governance, Media, Migration, Mixed Reality, and Hybrid + multicloud.

Figure 7.2 – Azure pricing calculator showing categorized resources

Define your workloads

Adjust assumptions

View report

My saved reports

Sign In

[View report](#)

Timeframe	Region	Licensing programme
5 Years	East US	Microsoft Online Services Programme

Show Dev/Test Pricing

Over 5 year(s) with Microsoft Azure, your estimated cost savings could be as much as **US\$200,890**

Figure 7.3 – Azure TCO calculator providing estimates using industry-average operational costs

Practice Resources



[SHARE FEEDBACK](#)

DASHBOARD > CHAPTER 7

Azure Cost Management

Summary

This chapter included complete coverage of the AZ-900 Azure Fundamentals exam skills area **Describe cost management in Azure**.

In this chapter, you learned about the factors that can affect costs in Azure and about the Azure Cost Management and Billing tool, as well as comparing the pricing calculator and the TCO calculator.

Further knowledge beyond the required exam content was provided to prepare you for a real-world, day-to-day Azure-focused role.

In the next chapter, you will look at [Azure Governance and Compliance](#).

Chapter Review Questions

The Microsoft Azure Fundamentals Certification and Beyond - Second Edition by Steve Miles

Select Quiz

Quiz 1
[SHOW QUIZ DETAILS](#)

[START](#)

Figure 7.4 – Chapter Review Questions for Chapter 7

Chapter 8: Azure Governance and Compliance

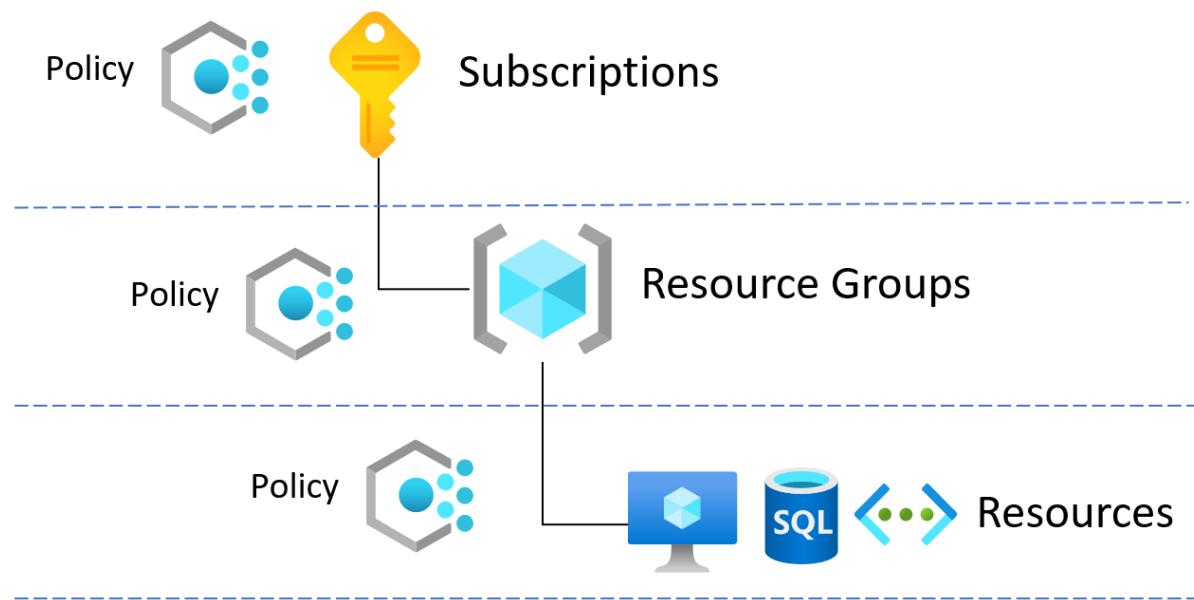


Figure 8.1 – Azure Policy scope level

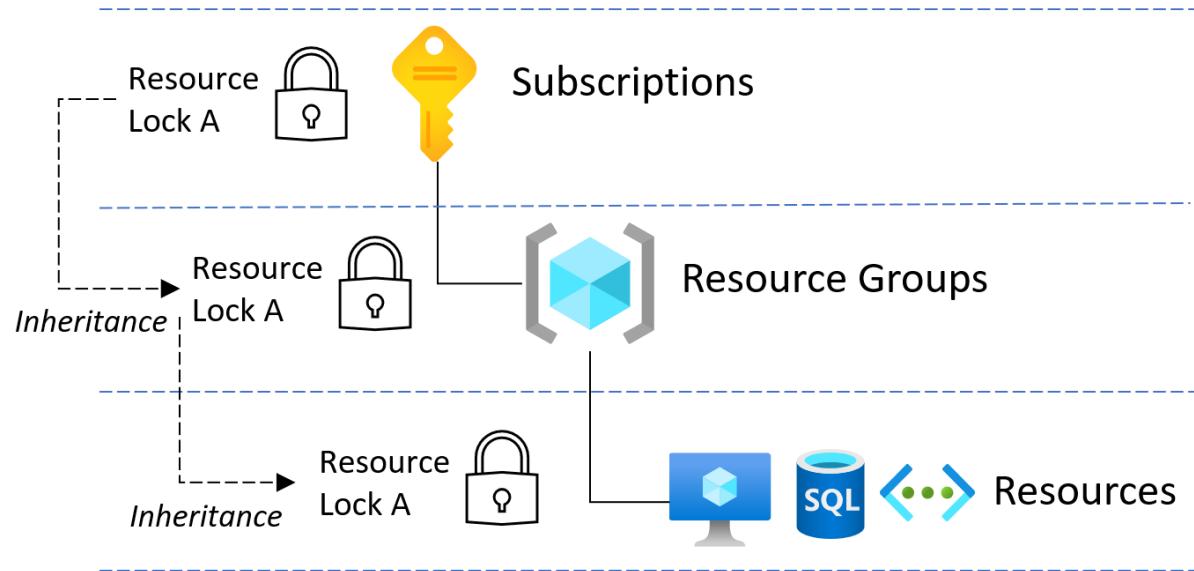


Figure 8.2 – Azure resource locks preventing accidental deletion of resources

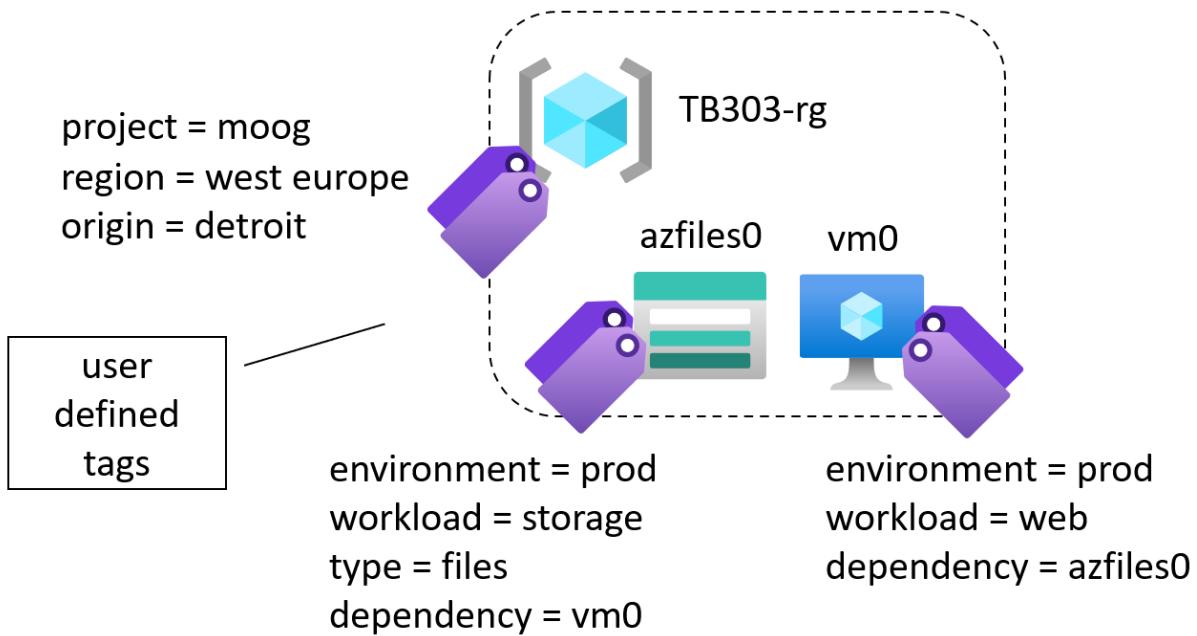


Figure 8.3 – Tags used for resource metadata

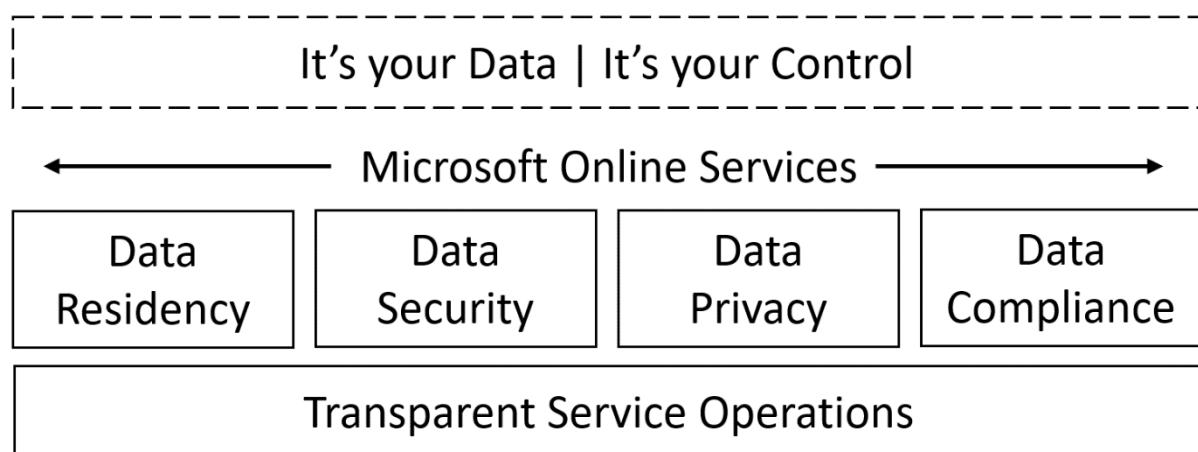


Figure 8.4 – Microsoft trusted cloud principles

The screenshot shows the 'Practice Resources' dashboard. At the top, there's a navigation bar with a bell icon and a 'SHARE FEEDBACK' button. Below the navigation bar, the path 'DASHBOARD > CHAPTER 8' is visible. The main content area is titled 'Azure Governance and Compliance' under the heading 'Summary'. It contains several paragraphs of text about Azure management and governance, Purview, Azure Policy, resource locks, tags, service lifecycle, Microsoft trusted cloud principles, and the Trust Center. It also mentions the next chapter on Azure Resource Deployment and Management. To the right, a dark box titled 'Chapter Review Questions' displays the book 'The Microsoft Azure Fundamentals Certification and Beyond - Second Edition by Steve Miles' and a 'Select Quiz' section with a 'Quiz 1' button and a 'SHOW QUIZ DETAILS' dropdown.

Figure 8.5 – Chapter Review Questions for Chapter 8

The screenshot shows the 'Azure Policy' activity page. At the top, there's a navigation bar with a bell icon and a 'SHARE FEEDBACK' button. Below the navigation bar, the path 'DASHBOARD > AZURE POLICY' is visible. The main content area is titled 'Azure Policy'. It shows a progress bar indicating '0% completed'. Below the progress bar, there's a 'Description' section stating that the activity involves enabling tagging enforcement with Azure Policy, aligning with Chapter 8. A table titled 'Tasks' lists three tasks: 'REQUIREMENTS' (marked as 'Important'), 'Task 1', and 'Task 2', all of which are currently 'Not Started'. Each task has a 'OPEN' link and a 'Mark as Complete' checkbox. A 'START' button is located at the top right of the table.

Figure 8.6: Tasks in Azure Policy activity.

Chapter 9: Azure Resource Deployment and Management

The screenshot shows the Microsoft Azure portal interface. At the top, there's a search bar and a user profile for 'admin@NETORGFT8723... MILESBETTERSOLUTIONS.ONMIC...'. Below the header, the 'Azure services' section includes links for 'Create a resource', 'All resources', 'Azure Migrate', 'Storage accounts', 'Virtual machines', 'Azure Virtual Desktop', 'Microsoft Entra ID', 'Groups', 'Workspaces', and 'More services'. The 'Resources' section has tabs for 'Recent' and 'Favorite', with a note that no resources have been favorited. It includes a 'Select resources to favorite' button and a 'Type' search field. The 'Navigate' section provides links to 'Subscriptions', 'Resource groups', 'All resources', and 'Dashboard'. The 'Tools' section features links to 'Microsoft Learn', 'Azure Monitor', 'Microsoft Defender for Cloud', and 'Cost Management'. The 'Useful links' section includes 'Technical Documentation', 'Azure Services', 'Recent Azure Updates', and 'Quickstart Center'. Finally, the 'Azure mobile app' section shows download links for the App Store and Google Play.

Figure 9.1 – The Azure portal

```
PS C:\Users\SteveMiles> az version
{
  "azure-cli": "2.25.0",
  "azure-cli-core": "2.25.0",
  "azure-cli-telemetry": "1.0.6",
  "extensions": {}
}
PS C:\Users\SteveMiles>
```

Figure 9.2 – The azure-cli version command in PowerShell

```
C:\> Command Prompt
C:\Users\SteveMiles> az version
{
  "azure-cli": "2.25.0",
  "azure-cli-core": "2.25.0",
  "azure-cli-telemetry": "1.0.6",
  "extensions": {}
}
C:\Users\SteveMiles>
```

Figure 9.3 – The azure-cli version command in Windows Command Prompt

The screenshot shows the Microsoft Azure Cloud Shell interface within the Azure portal. The top navigation bar includes the Microsoft Azure logo, a search bar, and user information (smiles@milesbetter.solu... MILESBETTER.SOLUTIONS (NETO...)). Below the navigation bar, there is a toolbar with icons for PowerShell, Bash, Cloud Shell, and other options. A red box highlights the 'Cloud Shell' icon. The main area displays a terminal window titled 'Bash' with the message 'Cloud Shell.Succeeded.' and 'Terminal...'. Below this, the terminal shows MOTD (Message of the Day) and some verbose authentication logs. The bottom of the terminal window shows a command prompt: PS /home/steve>.

Figure 9.4 – Azure Cloud Shell with the PowerShell interface via the Azure portal

This screenshot shows the Microsoft Azure Cloud Shell interface via the Azure portal, but it is set to the Bash interface. The top navigation bar and toolbar are identical to Figure 9.4. The main area features a 'Recent resources' section with a table showing a single item: 'Project Lobster' (Subscription type) last viewed 4 days ago. Below this is another terminal window titled 'Bash' with the message 'Requesting a Cloud Shell.Succeeded.' and 'Connecting terminal...'. The terminal prompt is steve@Azure:~\$.

Figure 9.5 – Azure Cloud Shell with the Bash interface via the Azure portal

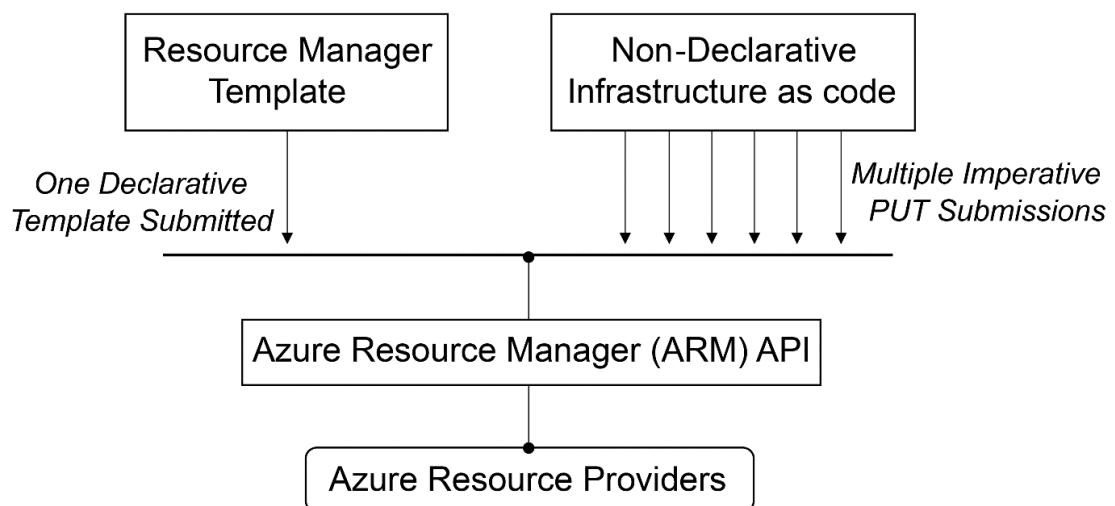


Figure 9.6 – ARM template declarative approach

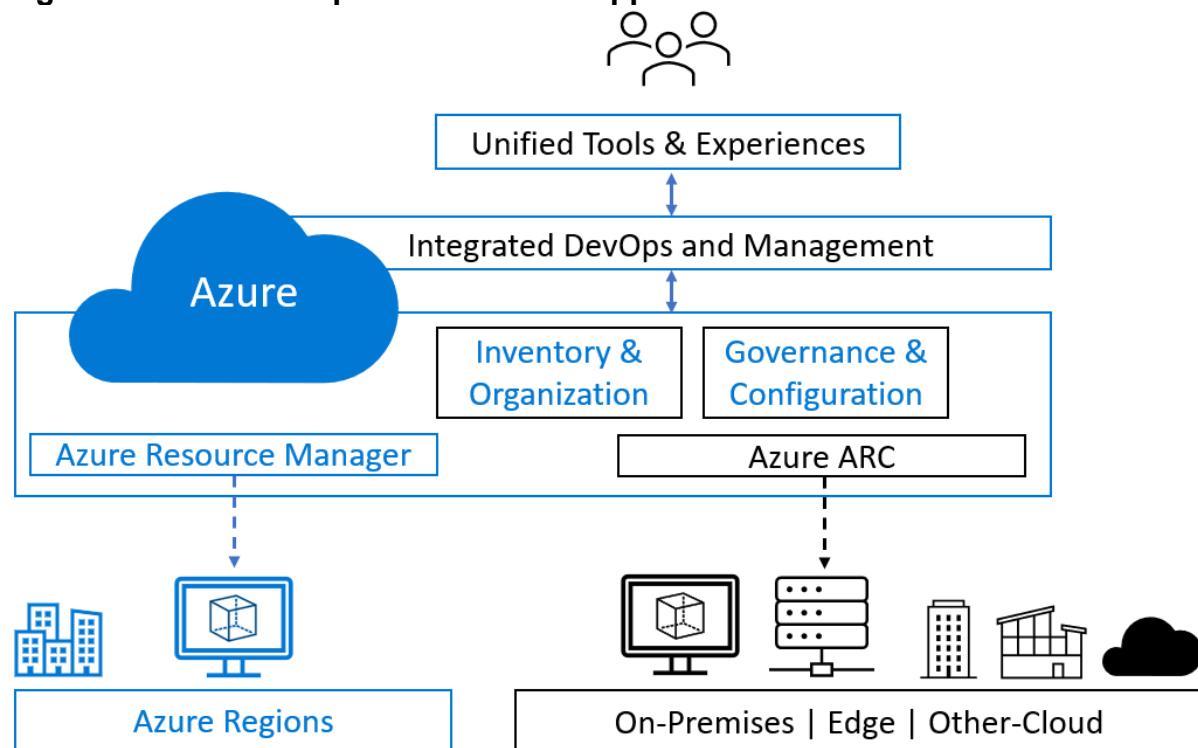


Figure 9.7 – Azure Arc for servers

This screenshot shows the 'Azure Resource Deployment and Management' chapter review page. At the top, there's a navigation bar with 'PRACTICE RESOURCES', a bell icon, and a 'SHARE FEEDBACK' button. Below the navigation bar, the page title is 'Azure Resource Deployment and Management' and the sub-section is 'Summary'. A summary text box contains the following information:
This chapter covered the AZ-900 Azure Fundamentals exam skills area: **Describe features and tools for managing and deploying Azure resources.**
In this chapter, you learned how to describe the Azure portal and Azure Cloud Shell, including the Azure CLI and Azure PowerShell, Azure Arc's purpose, and Azure Resource Manager and its templates.
Knowledge beyond the level required for the exam content was provided to prepare you for a real-world, day-to-day Azure-focused role.
In the next chapter, you will look at [Azure Monitoring Tools](#).

To the right, there's a 'Chapter Review Questions' sidebar. It includes the book title 'The Microsoft Azure Fundamentals Certification and Beyond - Second Edition by Steve Miles', a 'Select Quiz' button, and a 'Quiz 1' section with a 'SHOW QUIZ DETAILS' dropdown and a 'START' button.

Figure 9.8 – Chapter Review Questions for Chapter 9

Chapter 10: Azure Monitoring and Tools

The screenshot shows the Microsoft Azure portal interface. At the top, there's a search bar and a navigation bar with icons for Home, Notifications, Bell, Settings, Help, and Profile. The profile shows the email 'smiles@milesbetter.solu...' and the name 'MILESBETTER.SOLUTIONS (NETO...)'. On the left, there's a sidebar titled 'Azure services' with options like 'Create a resource', 'IoT Hub', 'Storage accounts', and 'More services'. Below that is a section titled 'Recent resources' listing various Azure resources with their names and icons. A central modal window is open, titled 'Optimize your cloud workloads with personalized recommendations'. It contains text about Azure Advisor recommendations and a screenshot of the 'Advisor | Overview' page. The 'Overview' page shows sections for Cost, Security, and Availability, each with a bar chart of recommendations. Below these are sections for Container availability, Performance, and Try Advisor Score. A blue button at the bottom of the modal says 'See recommendations >'. To the right of the modal, there's a 'Last Viewed' list with items like '2 days ago' and '2 weeks ago'.

Figure 10.1 – Azure Advisor recommendations prompt screen

The screenshot shows the Azure Advisor | Overview dashboard. On the left, there's a navigation sidebar with sections like Overview, Getting started, Advisor score, Workbooks, Recommendations (Cost, Security, Reliability, Operational excellence, Performance, All recommendations), Monitoring (Alerts (Preview), Recommendation digests), Settings (Configuration), and Support + troubleshooting (Support + troubleshooting). The main area has five cards:

- Cost**: Shows a green bar chart with "retail savings/yr*" and a green checkmark indicating "You are following all of our cost recommendations". A link "See list of cost recommendations" is provided.
- Security**: Shows a blue shield icon and a green checkmark indicating "You are following all of our security recommendations". A link "See list of security recommendations" is provided.
- Reliability**: Shows a blue microphone icon. It says "1 Recommendation" with 1 High impact, 0 Medium impact, and 0 Low impact. It also lists "1 Impacted resource".
- Operational excellence**: Shows a yellow lightbulb icon and a green checkmark indicating "You are following all of our operational excellence recommendations". A link "See list of operational excellence recommendations" is provided.
- Performance**: Shows a blue chart icon and a green checkmark indicating "You are following all of our performance recommendations". A link "See list of performance recommendations" is provided.

At the bottom right, there's a "Try Advisor score" section with a rocket icon, a "Download recommendations as PDF" button, and a "Download recommendations as CSV" button. A note says "You can customize Advisor to process recommendations for resources that matter to you the most."

Figure 10.2 – Azure Advisor recommendations being displayed on the dashboard

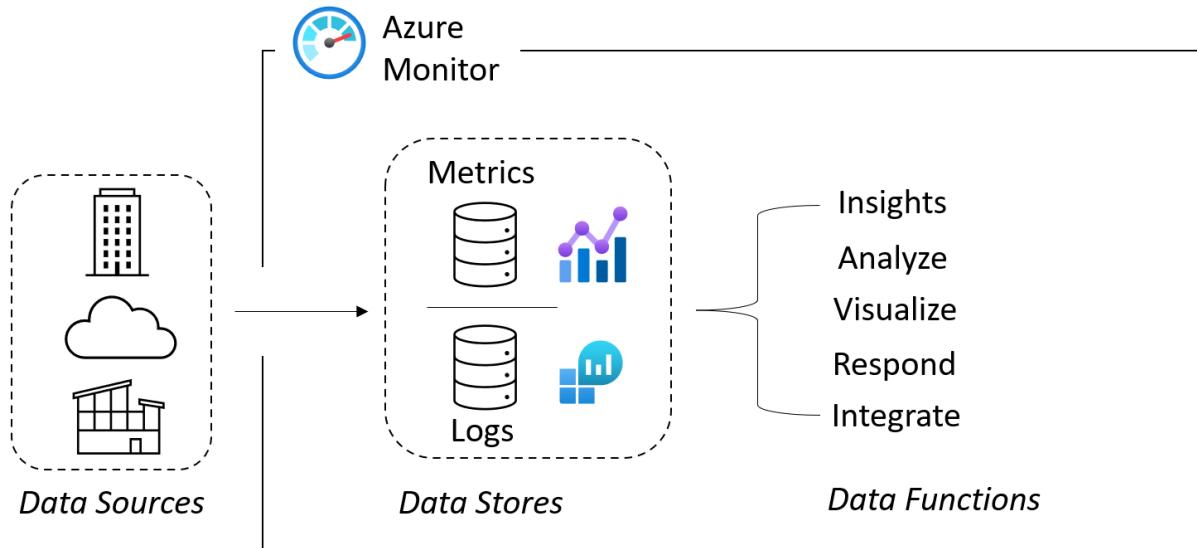


Figure 10.3 – Azure Monitor components architecture

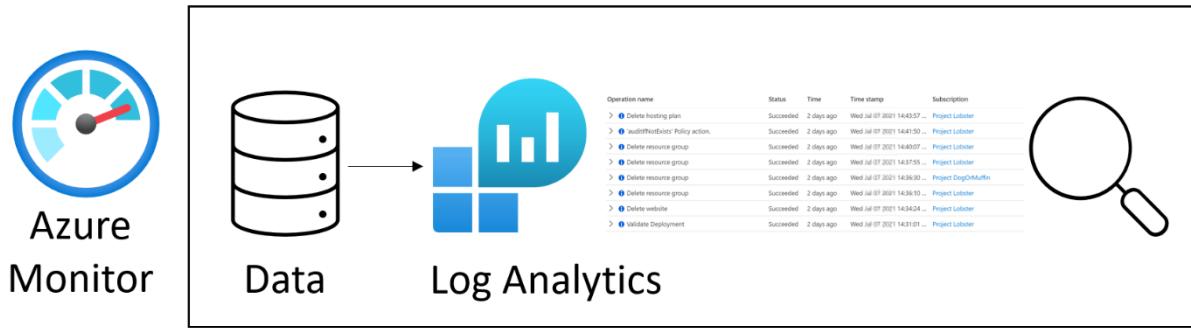


Figure 10.4 – Azure Monitor log analytics showing ingested log data

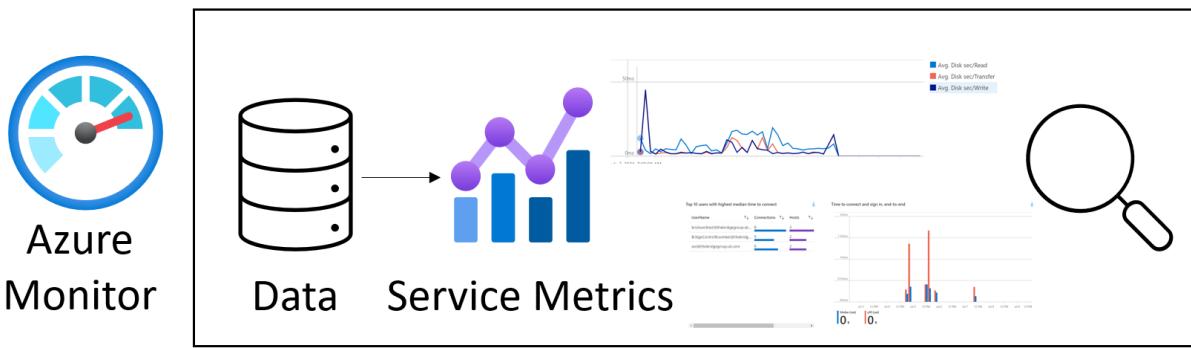


Figure 10.5 – Azure Monitor service metrics showing ingested metrics data

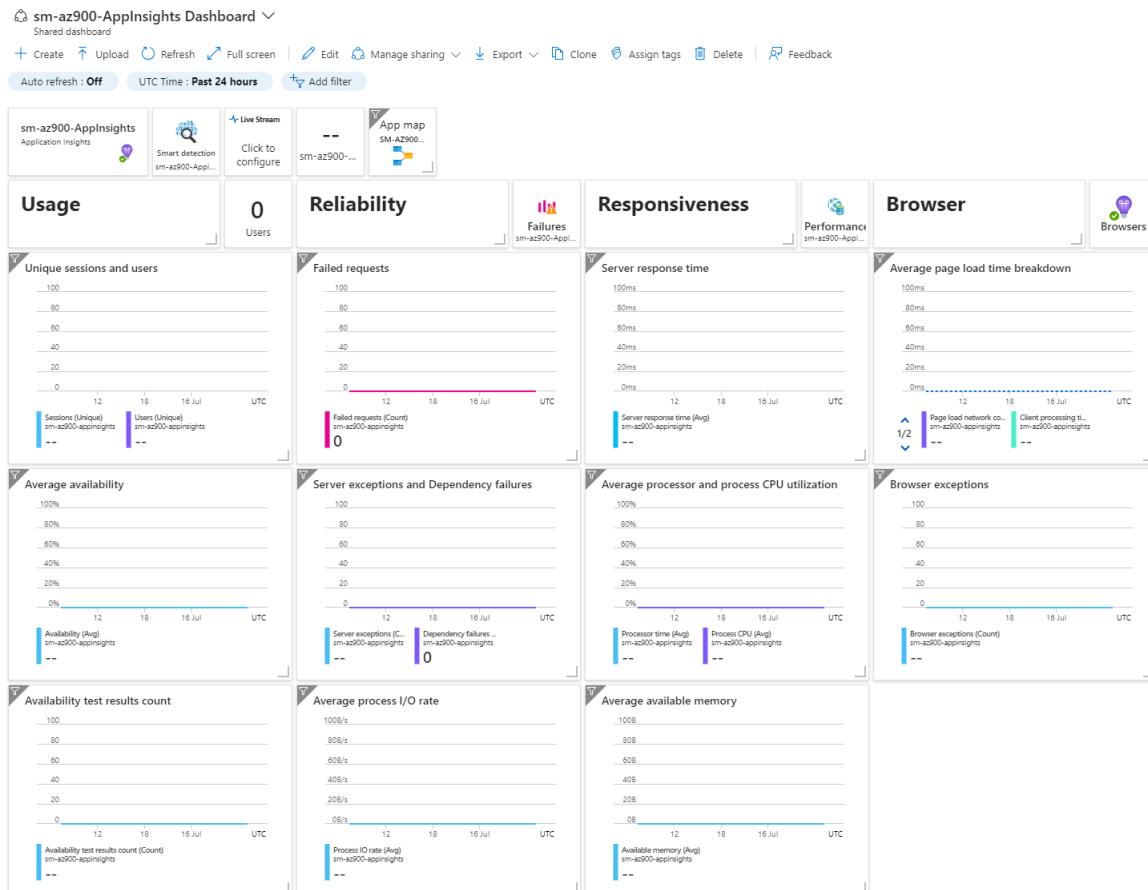


Figure 10.6 – Application Insights dashboard showing application performance and health at a glance

The screenshot shows the Azure status page at <https://status.azure.com/status>. The top navigation bar includes links for 'My account' and 'Portal'. Below the header, there's a section titled 'Azure status' with a message 'Updated 24 seconds ago'. A link 'Go to Azure Service Health' is present. On the right, there's a 'HELPFUL LINKS' section with links to 'Azure status history', 'Get notified of outages that impact you', and 'Building reliable applications on Azure'. Below this, a 'Refresh every' dropdown is set to '2 minutes'. A legend indicates four status levels: 'Good' (green checkmark), 'Information' (blue info icon), 'Warning' (orange exclamation mark), and 'Critical' (red X). A horizontal navigation bar allows switching between regions: Americas (selected), Europe, Asia Pacific, Middle East and Africa, Azure Government, Azure China, and Jio^b. The main content area displays a grid of services and their status across regions. Services listed include Azure VMWare Solution by CloudSimple, Virtual Machines, SAP HANA on Azure Large Instances, BareMetal Infrastructure, Windows Virtual Desktop, Virtual Machine Scale Sets, and Azure functions. Most services show green checkmarks across most regions.

Figure 10.7 – Linking the Azure status page with Azure Service Health to view issues

The screenshot shows the 'Chapter Review Questions' section for Chapter 10. At the top, there are 'Practice Resources' and a 'SHARE FEEDBACK' button. Below this, a 'DASHBOARD > CHAPTER 10' navigation path is shown. The main content area is divided into two sections: 'Azure Monitoring and Tools' (Summary) and 'Chapter Review Questions'. The 'Azure Monitoring and Tools' section contains a summary of the chapter's coverage of Azure Fundamentals exam skills, a note about learning Azure Advisor, Service Health, and Monitor, and a preview of knowledge beyond the exam content. It also mentions the Appendix for certification details. The 'Chapter Review Questions' section is for 'The Microsoft Azure Fundamentals Certification and Beyond - Second Edition' by Steve Miles. It features a 'Select Quiz' button, a 'Quiz 1' button, and a 'SHOW QUIZ DETAILS' dropdown menu. A 'START' button is located in the bottom right corner of this section.

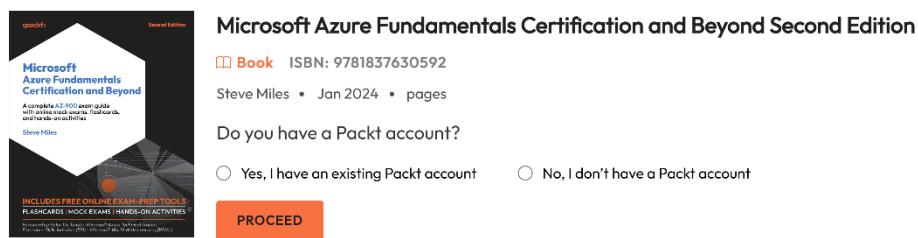
Figure 10.8 – Chapter Review Questions for Chapter 10

Chapter 11: Accessing the online practice resources



UNLOCK YOUR PRACTICE RESOURCES

You're about to unlock the free online content that came with your book. Make sure you have your book with you before you start, so that you can access the resources in minutes.



Microsoft Azure Fundamentals Certification and Beyond Second Edition

Book ISBN: 9781837630592

Steve Miles • Jan 2024 • pages

Do you have a Packt account?

Yes, I have an existing Packt account No, I don't have a Packt account

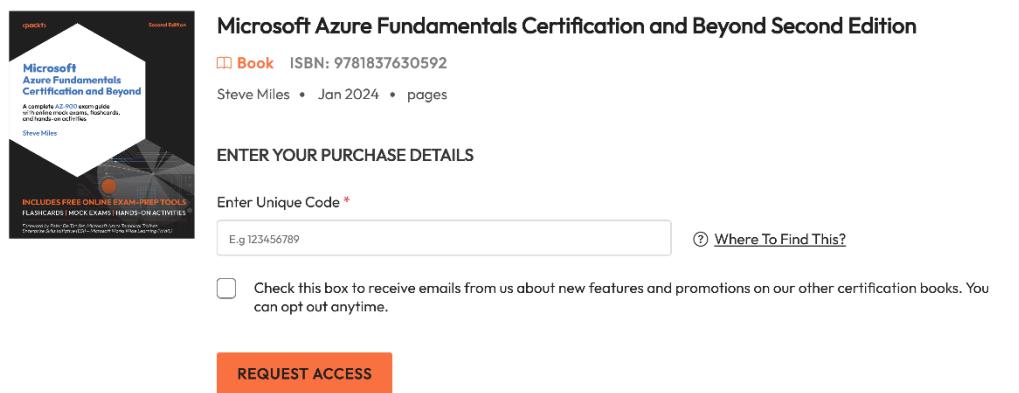
PROCEED **REPORT ISSUE**

Figure 11.2 – Unlock page for the online practice resources



UNLOCK YOUR PRACTICE RESOURCES

You're about to unlock the free online content that came with your book. Make sure you have your book with you before you start, so that you can access the resources in minutes.



Microsoft Azure Fundamentals Certification and Beyond Second Edition

Book ISBN: 9781837630592

Steve Miles • Jan 2024 • pages

ENTER YOUR PURCHASE DETAILS

Enter Unique Code: *

E.g 123456789 [Where To Find This?](#)

Check this box to receive emails from us about new features and promotions on our other certification books. You can opt out anytime.

REQUEST ACCESS **REPORT ISSUE**

Figure 11.3 – Enter your unique sign-up code to unlock the resources



SHARE FEEDBACK

DASHBOARD > MOCK EXAM 1

Question 35 of 40

⌚ Time Left 0 hr 43 mins 20 secs

END QUIZ

Which of the following will directly reduce costs for an Azure subscription? (Choose MULTIPLE)

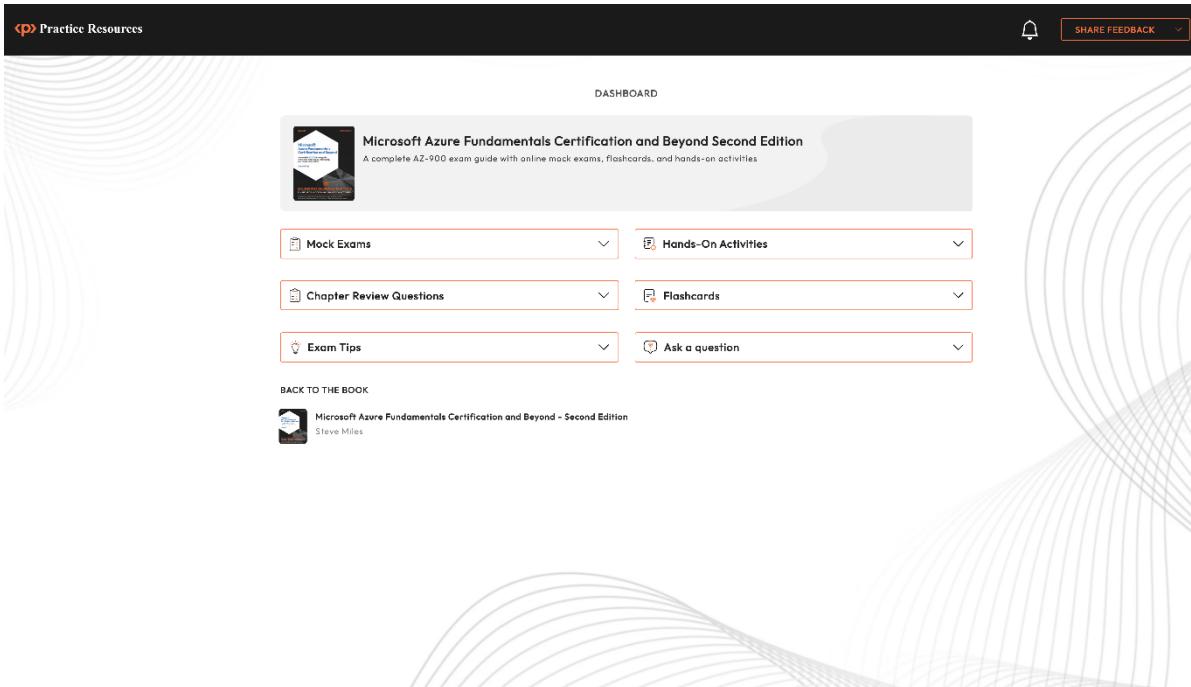
 Virtual Machines (VMs) that are in a stopped (deallocated) state Staffing costs and data center facility management costs Reducing the hours for which any service is running Location Pausing any services that support this feature

PREVIOUS

NEXT

SKIP QUESTION

Figure 11.4 – Page that shows up after a successful unlock



The dashboard page for AZ-900 practice resources features a header with the 'Practice Resources' logo, a bell icon, and a 'SHARE FEEDBACK' button. Below the header is a breadcrumb navigation: DASHBOARD > MOCK EXAM 1. The main content area includes a section for the 'Microsoft Azure Fundamentals Certification and Beyond Second Edition' book, followed by four dropdown menus: 'Mock Exams', 'Hands-On Activities', 'Chapter Review Questions', 'Flashcards', 'Exam Tips', and 'Ask a question'. At the bottom left is a link to 'BACK TO THE BOOK'.

Figure 11.5 – Dashboard page for AZ-900 practice resources

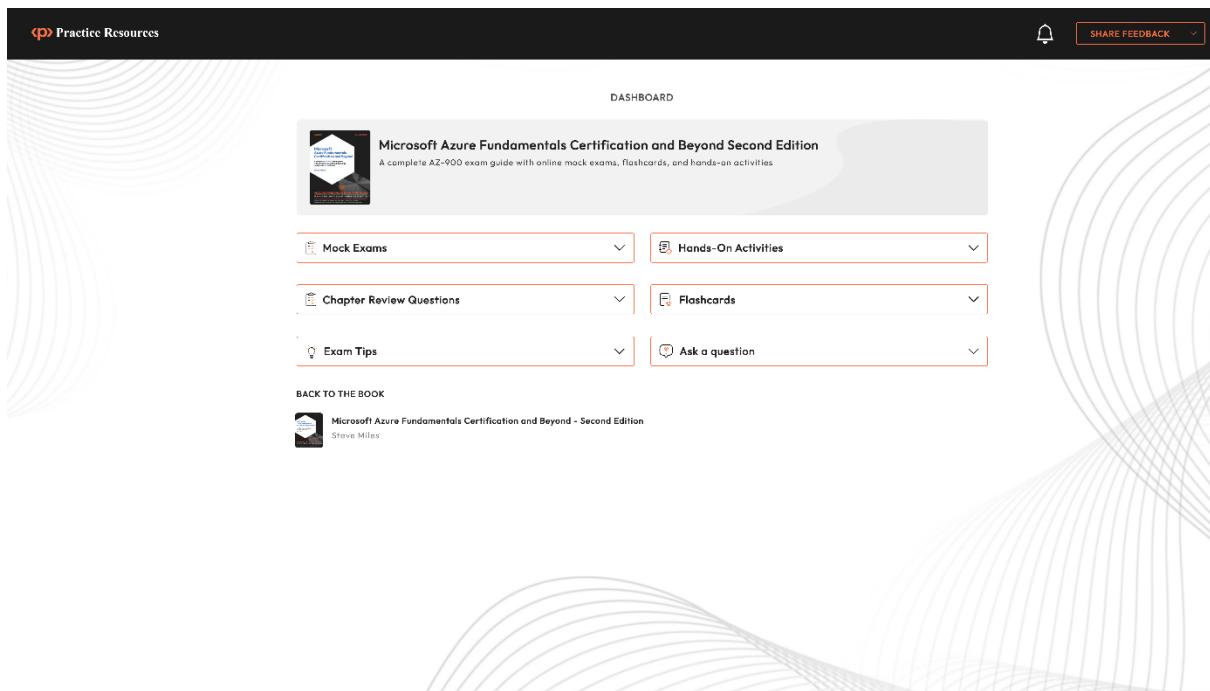


Figure 11.7 – Dashboard interface on a desktop device

The screenshot shows a 'Question 35 of 40' screen from a 'MOCK EXAM 1'. At the top, it displays 'DASHBOARD > MOCK EXAM 1', a 'Practice Resources' logo, a bell icon, and a 'SHARE FEEDBACK' button. On the right, it shows a timer 'Time Left 0 hr 43 mins 20 secs' and an 'END QUIZ' button. The main content area shows a question: 'Which of the following will directly reduce costs for an Azure subscription? (Choose MULTIPLE)'. Below the question are five multiple-choice options, each with a checkbox:

- Virtual Machines (VMs) that are in a stopped (deallocated) state
- Reducing the hours for which any service is running
- Pausing any services that support this feature
- Staffing costs and data center facility management costs
- Location

At the bottom, there are three navigation buttons: 'PREVIOUS', 'NEXT', and 'SKIP QUESTION'.

Figure 11.8 – Practice Questions Interface on a desktop device



DASHBOARD > MOCK EXAM 2

Question 18 of 40



Time Left 0 hr 44 mins 6 secs

How does Azure handle disaster recovery?



Azure provides a minimum of two regions in a pair per geography.



Azure provides a minimum of three regions in a pair per geography.



Azure provides two geographies in a pair.

[PREVIOUS](#)

[NEXT](#)

[SKIP QUESTION](#)

Figure 11.9 – Quiz interface on a mobile device

The screenshot shows a dark-themed user interface for 'Practice Resources'. At the top left is the logo 'cp Practice Resources'. On the right are a bell icon and a 'SHARE FEEDBACK' button with a dropdown arrow. Below the header, the text 'DASHBOARD > CHAPTER 1' is displayed. A large title 'Stack 1' is centered above a white rectangular area representing a stack of cards. Inside this area, the text 'Flashcards memorized so far: 0' is on the left and 'Flashcards not memorized yet: 6' is on the right. In the center, there is a question: 'The shared responsibility model separates responsibilities between _____.'. Below the stack are two orange buttons labeled 'PREVIOUS' and 'NEXT'. In the bottom right corner of the stack area, there is a small text '4/6'.

Figure 11.10 – Flashcards interface

The screenshot shows a dark-themed user interface for 'Exam Tips'. At the top left is the logo 'cp Practice Resources'. On the right are a bell icon and a 'SHARE FEEDBACK' button with a dropdown arrow. Below the header, the text 'DASHBOARD > EXAM TIPS' is displayed. A title 'Determine your motivations for taking the exam (1/20)' is shown. Below the title is a text box containing the following text: 'Have you been mandated to pass or take the exam for personal career goals? Sometimes motivation can be hard, and you should always focus on the goal, positive outcome, results, the next steps after passing the exam, and what it will mean. Always refer to your motivations and keep a positive mental attitude.' At the bottom of the text box are two orange buttons labeled '← PREVIOUS' and 'NEXT →'. To the right of the text box is a small text 'Mark as Helpful (0 users found this tip helpful)'. Below the text box is a section titled 'Comments' with a text input field containing the placeholder 'Add your comment'.

Figure 11.11 – Exam Tips Interface

The screenshot shows the 'Chapter Review Questions' section of the Practice Resources interface. At the top, there's a navigation bar with 'Practice Resources' and a bell icon. Below the navigation is a breadcrumb trail: DASHBOARD > CHAPTER 1. The main content area is titled 'Introduction to Cloud Computing' and has a 'Summary' section. The summary includes text about the chapter's coverage of cloud concepts and its relevance to the AZ-900 exam. To the right is a sidebar titled 'Chapter Review Questions' which lists the book 'The Microsoft Azure Fundamentals Certification and Beyond - Second Edition by Steve Miles' and a 'Select Quiz' section. A quiz titled 'Quiz 1' is shown with a 'START' button.

Figure 11.12 – Chapter Review Questions Page

The screenshot shows the 'Resource Groups' activity page. At the top, there's a navigation bar with 'Practice Resources' and a bell icon. Below the navigation is a breadcrumb trail: DASHBOARD > RESOURCE GROUPS. The main content area is titled 'Resource Groups'. It displays a progress bar showing '0% completed'. Below the progress bar is a 'Description' section with instructions for working with resource groups. A note states that resource groups are a flat structure with no hierarchy or nested groups. The page features a 'Tasks' table with six rows, each containing a task number, task name, status, an 'Open' button, and a 'Mark as Complete' checkbox. The tasks are: 1. REQUIREMENTS (Important), 2. Task 1, 3. Task 2, 4. Task 3, 5. Task 4, and 6. Task 5.

Task No	Task	Status	Open	Mark as Complete
1	REQUIREMENTS Important	Not Started	OPEN REQUIREMENTS	<input type="checkbox"/>
2	Task 1	Not Started	OPEN TASK	<input type="checkbox"/>
3	Task 2	Not Started	OPEN TASK	<input type="checkbox"/>
4	Task 3	Not Started	OPEN TASK	<input type="checkbox"/>
5	Task 4	Not Started	OPEN TASK	<input type="checkbox"/>
6	Task 5	Not Started	OPEN TASK	<input type="checkbox"/>

Figure 11.13 – Example of a hands-on activity

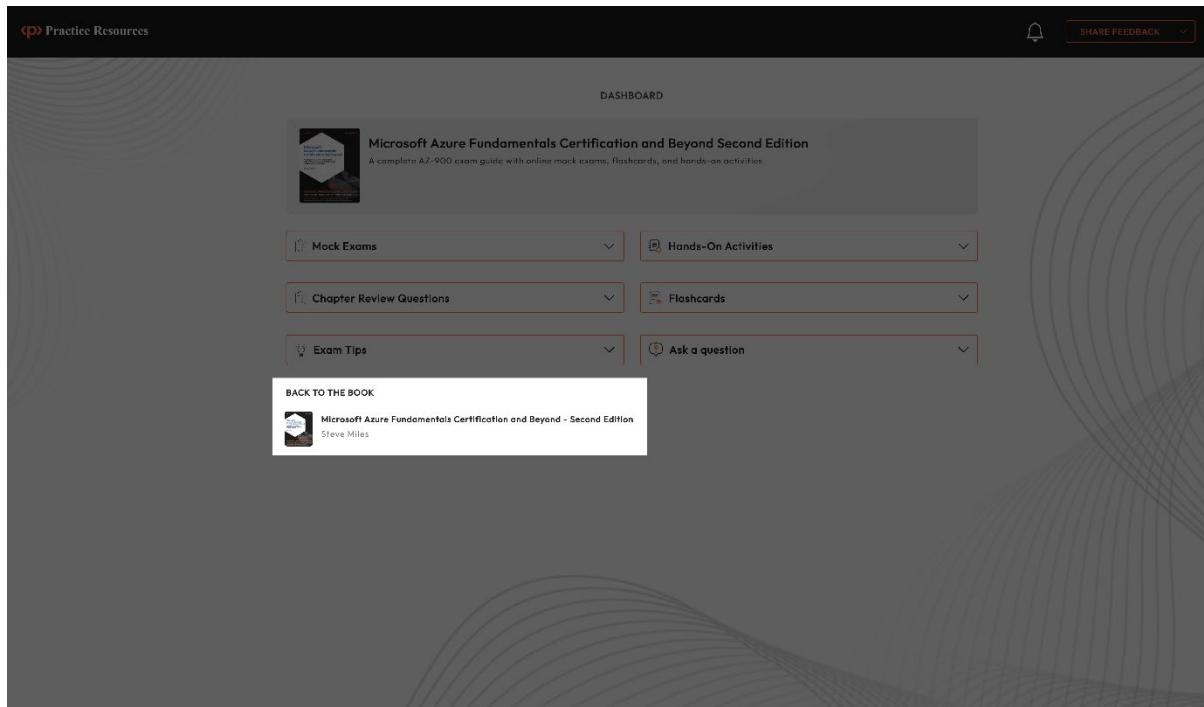


Figure 11.14 – Jump back to the book from the dashboard