Microsoft Azure Fundamentals Certification and Beyond

Preface:

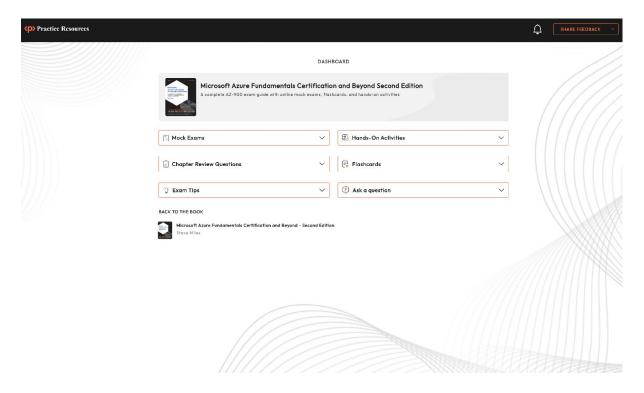


Figure 0.1 – Exam AZ-900: Microsoft Azure Fundamentals Online exam-prep platform



Chapter 1: Introduction to Cloud Computing

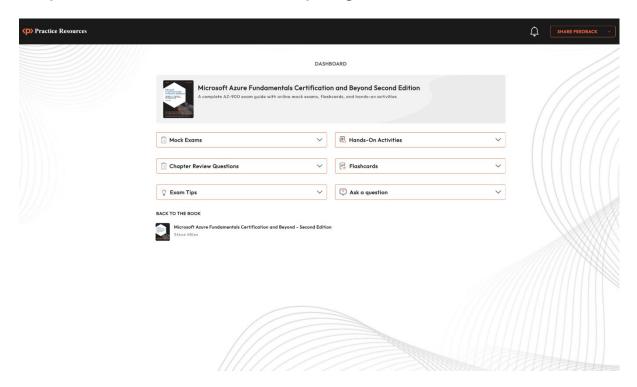


Figure 1.1: Dashboard interface of the online practice resources

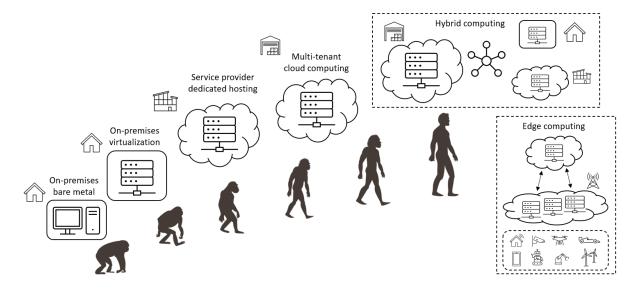


Figure 1.2 – Evolution of cloud computing

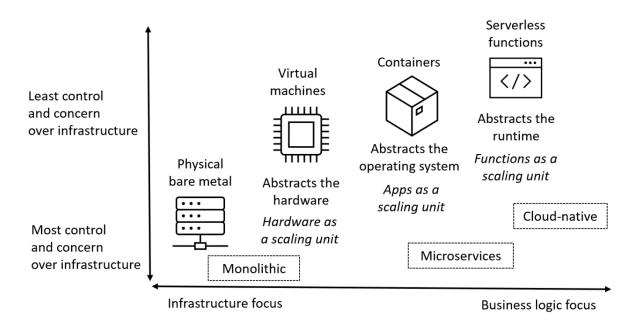


Figure 1.3 – Cloud computing architectures

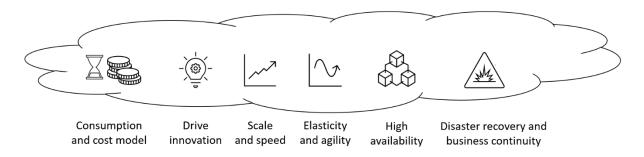


Figure 1.4 - Benefits of cloud computing

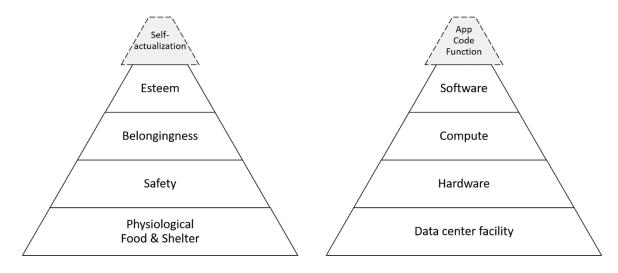


Figure 1.5 – Maslow's hierarchy versus the cloud computing hierarchy of needs

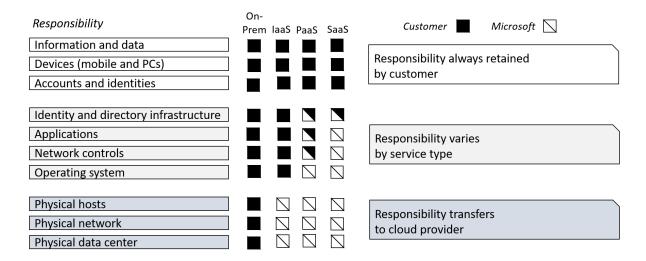


Figure 1.6 – Shared responsibility model

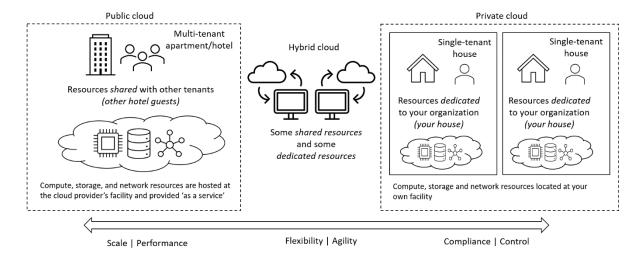


Figure 1.7 - Cloud computing delivery models

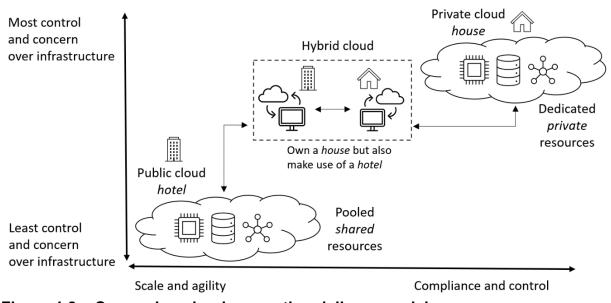


Figure 1.8 - Comparing cloud computing delivery models

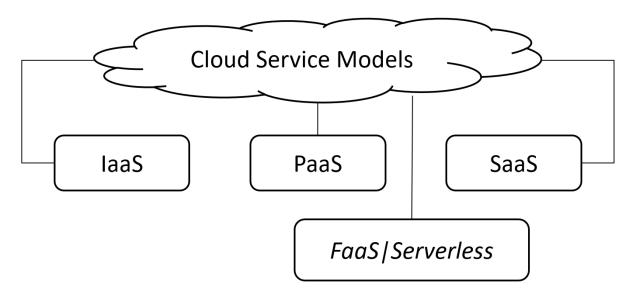


Figure 1.9 - Cloud computing service models

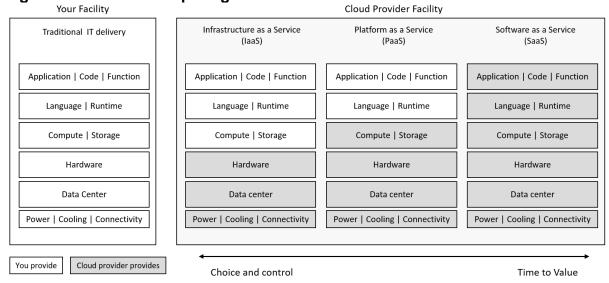


Figure 1.10 - Cloud computing service models—layer providers

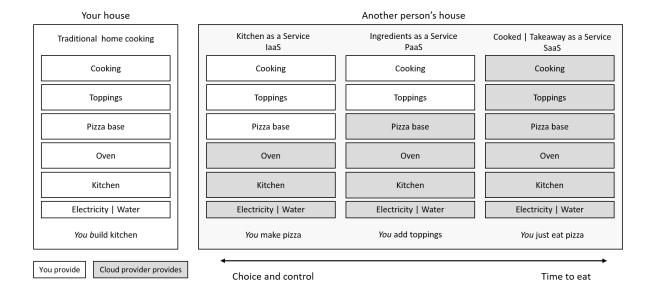


Figure 1.11 – Cloud computing service models—layer analogy of pizza processing

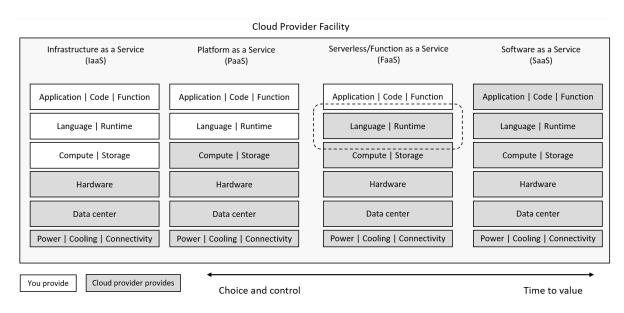


Figure 1.12 - Cloud computing service models—compare and contrast

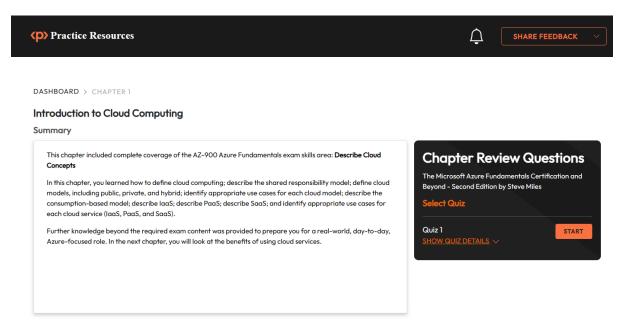


Figure 1.13 - Chapter Review Questions for Chapter 1

Chapter 2: Benefits of Using Cloud Services

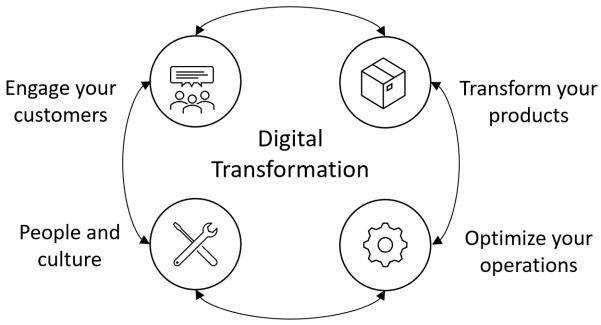


Figure 2.1 – Cloud computing as a digital transformation enabler

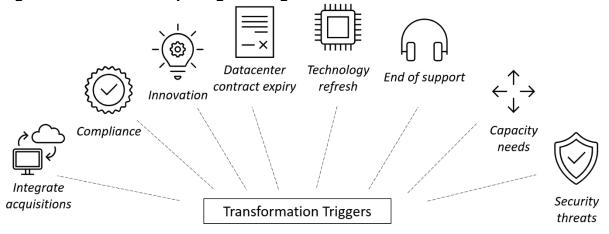


Figure 2.2 – Digital transformation triggers

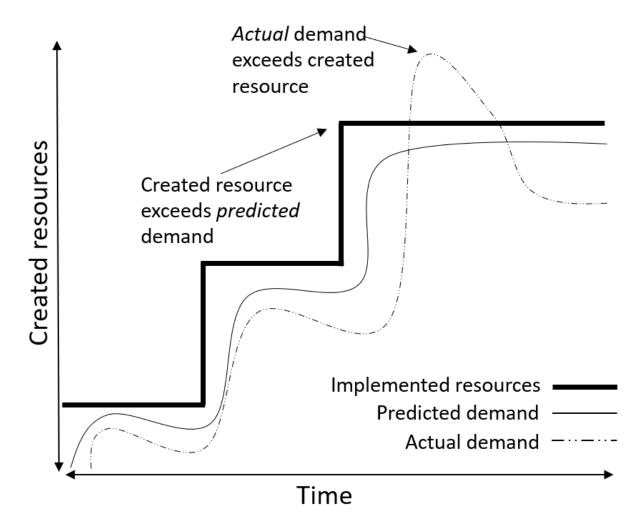


Figure 2.3 – Cloud computing resource demand model

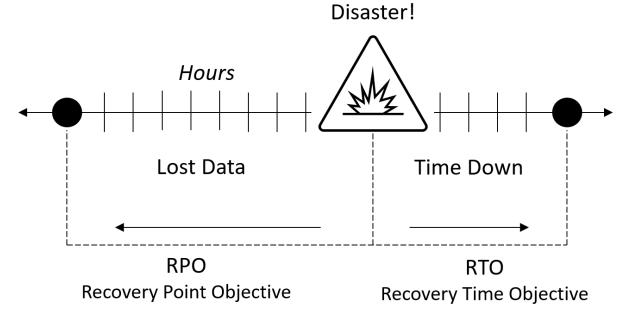


Figure 2.4 - RTO and RPO

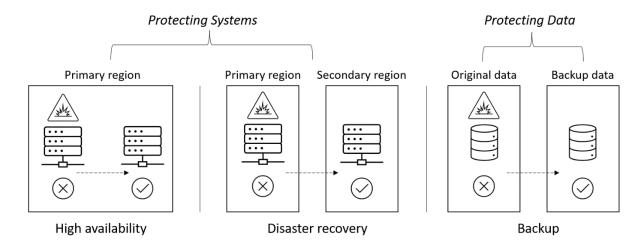


Figure 2.5 – Comparing backup, high availability, and disaster recovery

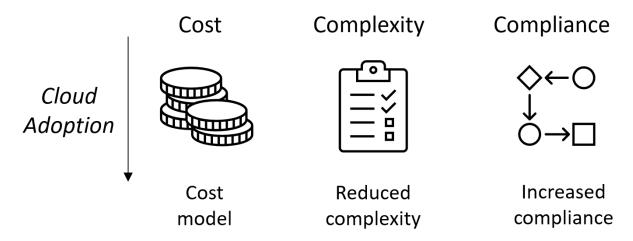


Figure 2.6 - Challenges to implementing business continuity

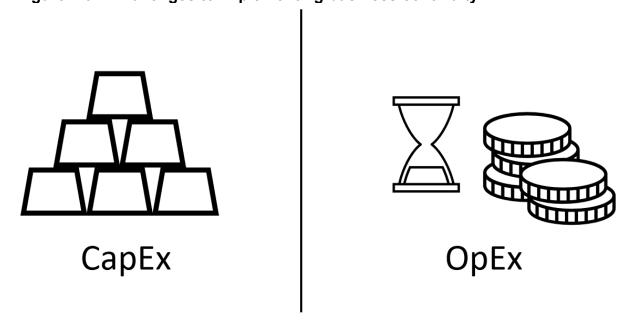


Figure 2.7 – Cost expenditure models

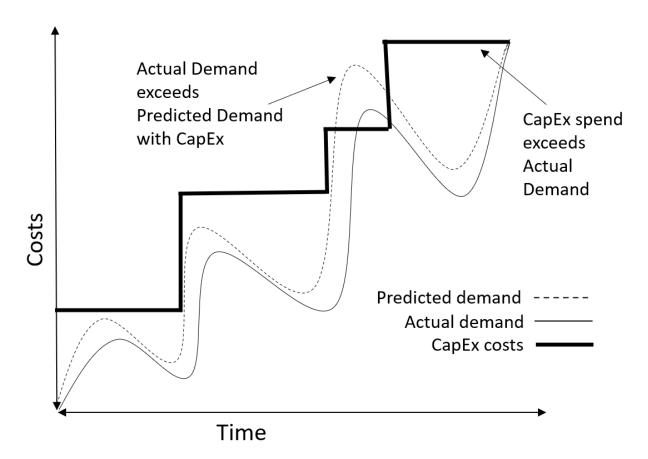


Figure 2.8 - Application of cost expenditure models

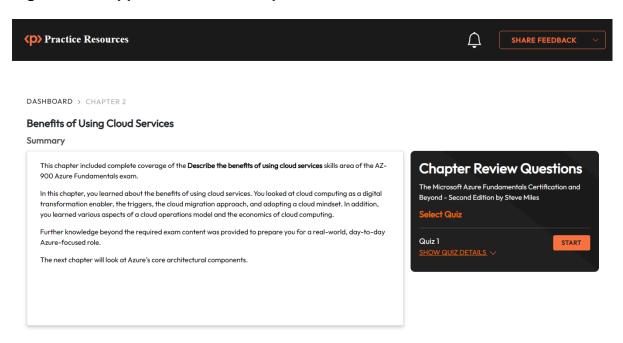


Figure 2.10 – Chapter Review Questions for Chapter 2

Chapter 3: Azure Core Architectural Components

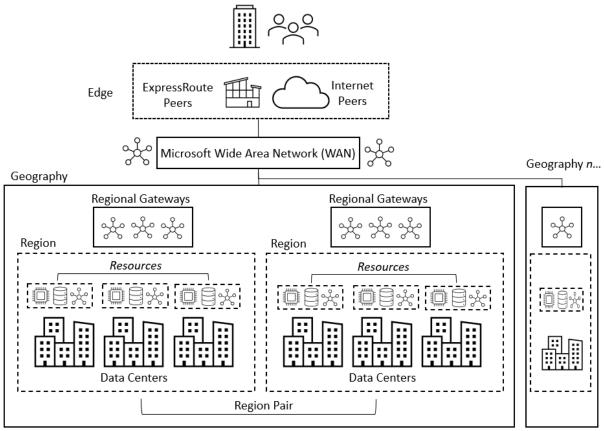


Figure 3.1 – Azure global infrastructure key component topology

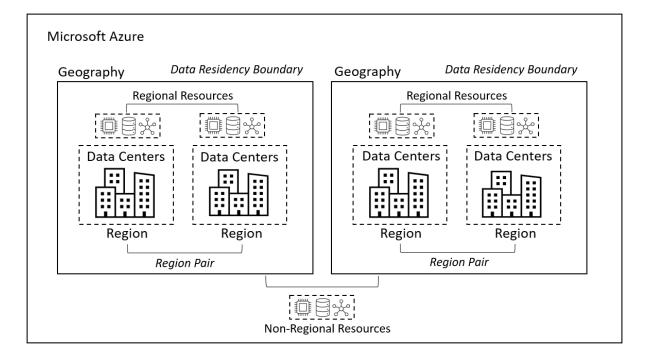


Figure 3.2 – Azure regions and geographies relationship

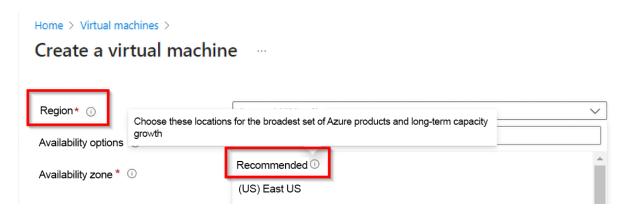


Figure 3.3 – Azure region selection for creating resources

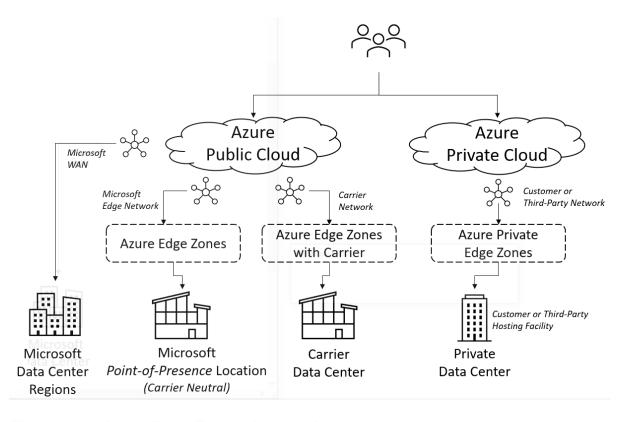


Figure 3.4 – Azure Edge Zone relationships

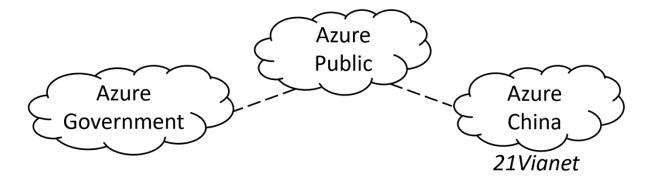


Figure 3.5 – Provided Azure sovereign regions

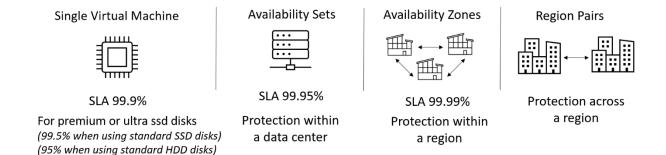


Figure 3.6 – Azure availability components relationship

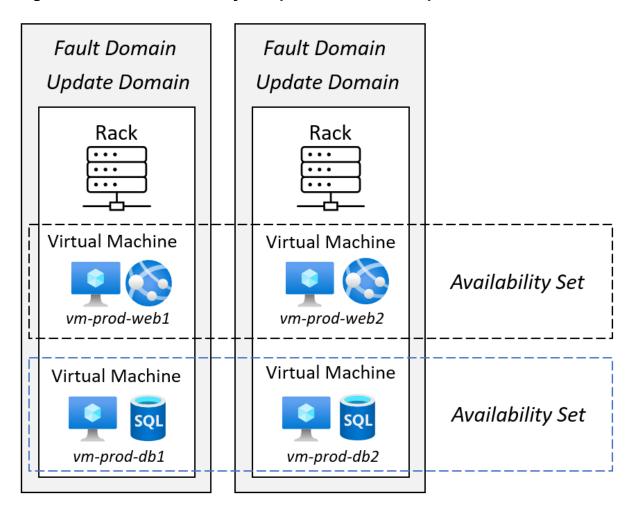


Figure 3.7 - Providing Azure availability set functionality in a solution

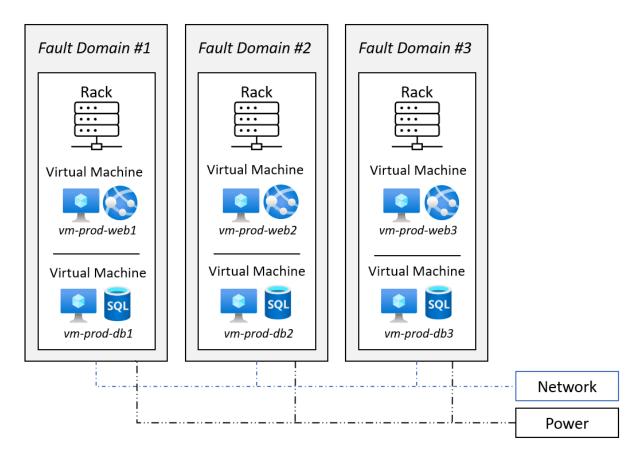


Figure 3.8 – Providing availability set fault domain functionality in a solution

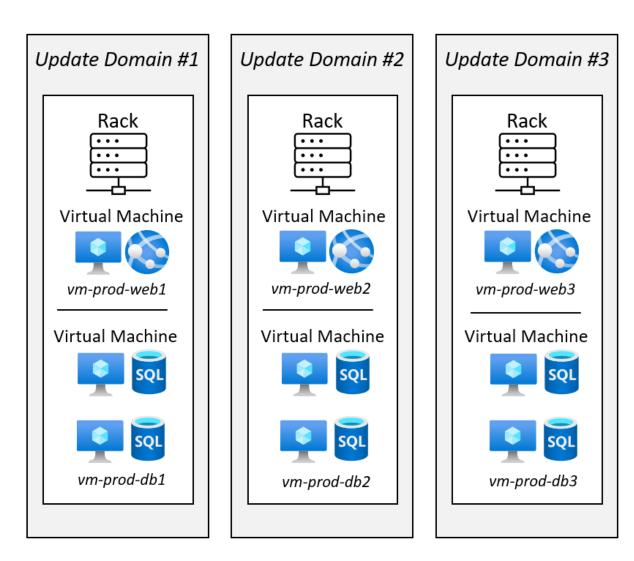


Figure 3.9 – Providing availability set update domain functionality in a solution

Region 1

Region 2

Availability Zone 1

Customer resources available in each zone; but not in another region

Availability Zone 3

Availability Zone Region

Figure 3.10 – Azure availability zones providing redundancy within a region

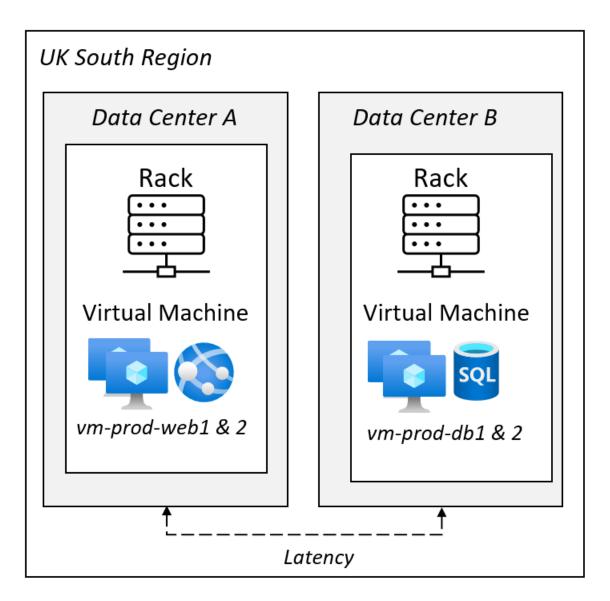


Figure 3.11 – Providing virtual machine placement without proximity placement groups in a solution

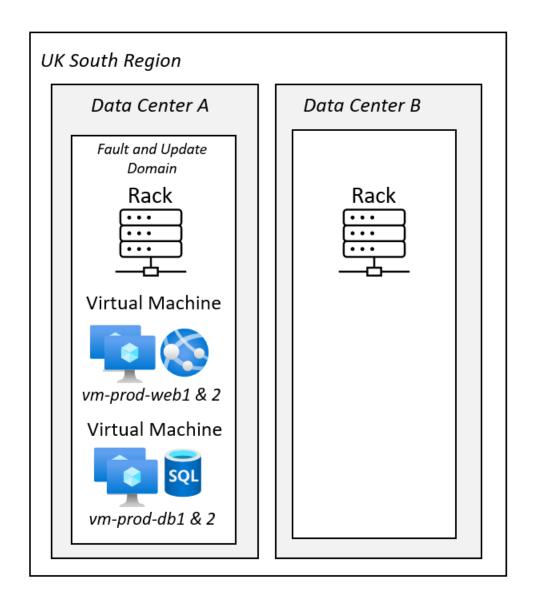


Figure 3.12 – Providing virtual machine placement with proximity placement groups in a solution

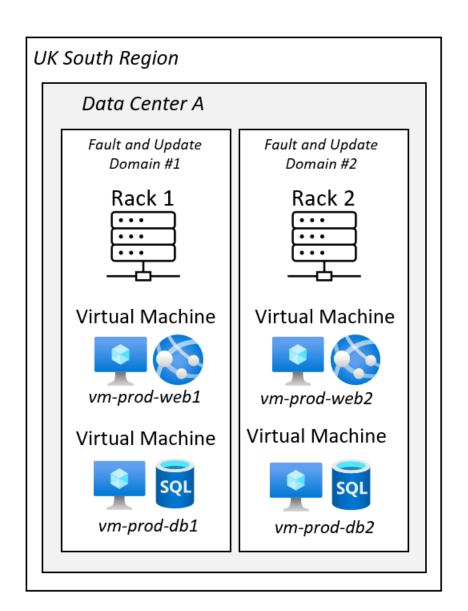


Figure 3.13 – Providing proximity placement groups and availability sets in a solution

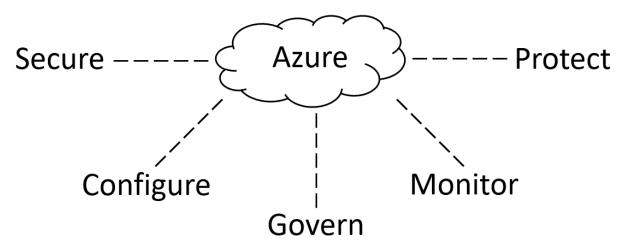


Figure 3.14 – Azure resource management

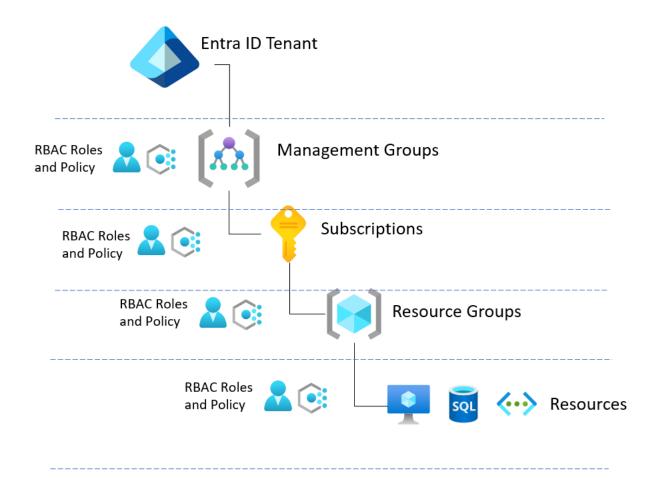


Figure 3.15 – Azure management scopes relationship

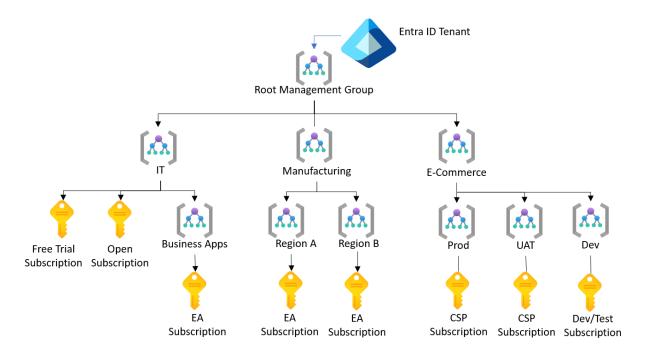


Figure 3.16 – Azure management group and subscription relationships

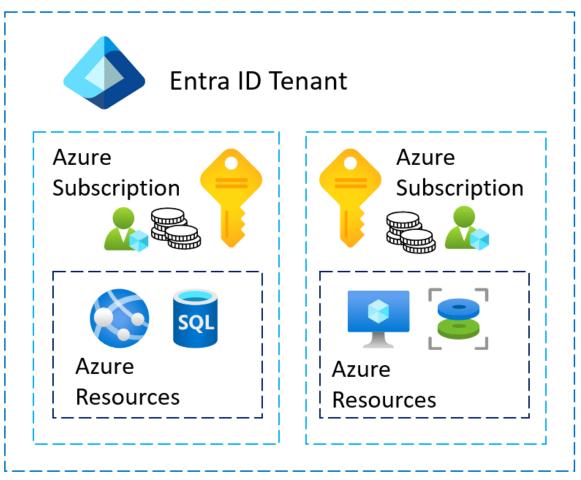


Figure 3.17 – Relationship between Azure subscriptions and resources within a tenant

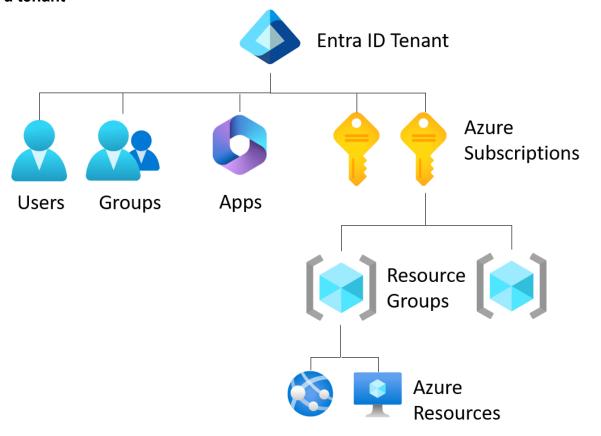


Figure 3.18 – Azure subscription and tenant relationship

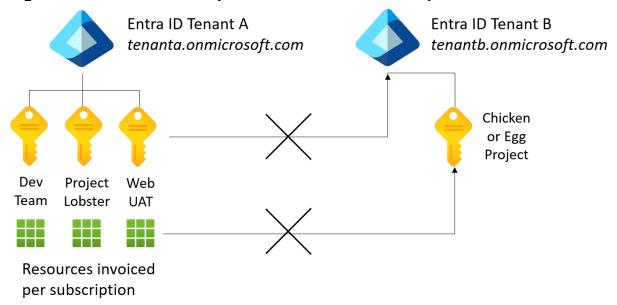


Figure 3.19 - Multiple Azure subscriptions

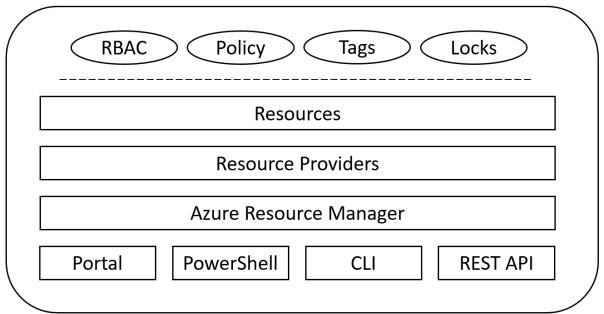
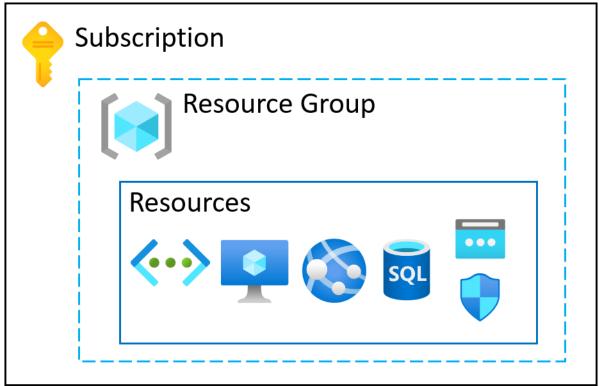


Figure 3.20 – ARM architecture showing the relationship between its

components 8



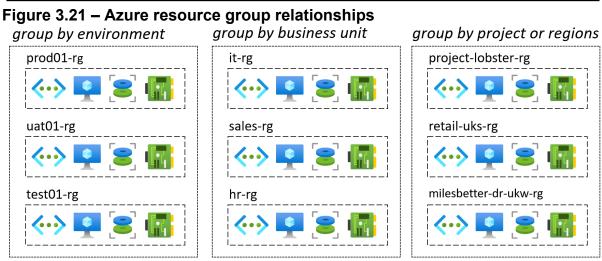


Figure 3.22 – Azure resource group organization showing grouping methodologies

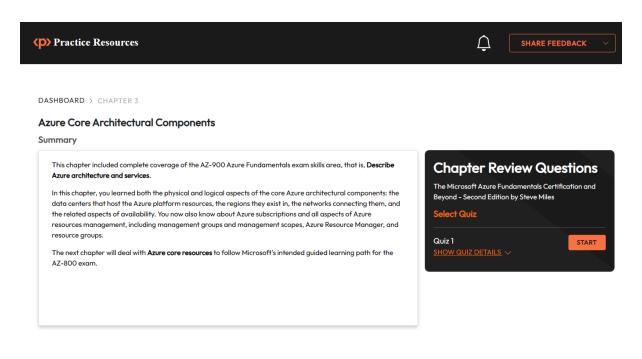


Figure 3.23 – Chapter Review Questions for Chapter 3 Practice Resources SHARE FEEDBACK DASHBOARD > AZURE SUBSCRIPTIONS **Azure Subscriptions** Book: Microsoft Azure Fundamentals Certification and Progress: 0% completed Beyond - Second Edition Description: In this activity, you will work with an Azure subscription. The tasks performed in this activity alian 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 REQUIREMENTS Not Started OPEN REQUIREMENTS Task 1 Not Started OPEN TASK

Figure 3.25: Tasks in Azure Subscriptions activity

Chapter 4: Azure Core Resources

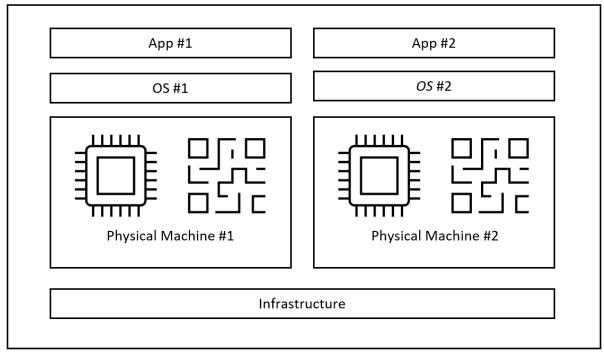


Figure 4.1 – Traditional approach supporting a single app per physical machine

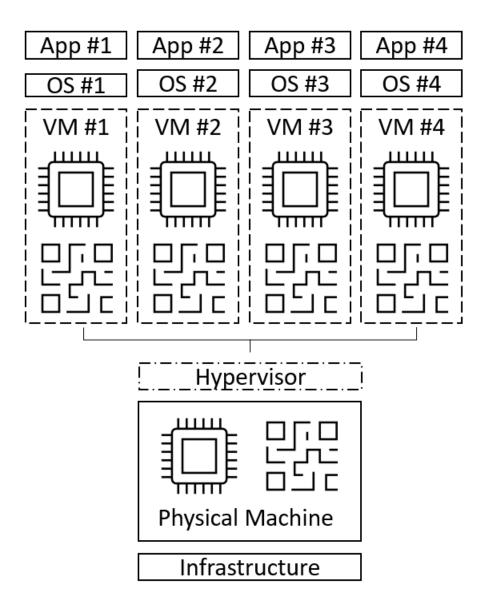


Figure 4.2 – Virtualization approach supporting multiple apps per physical machine

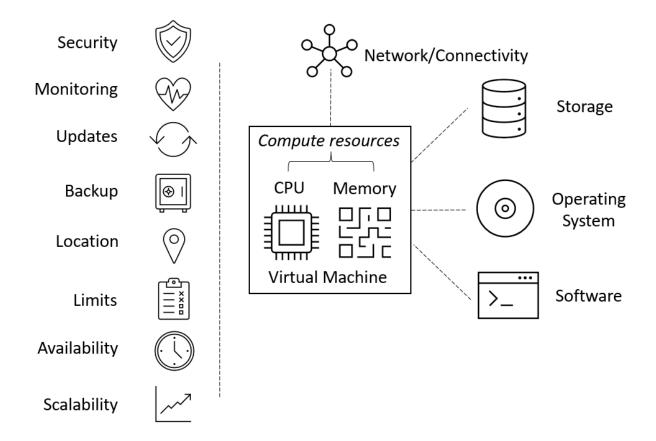


Figure 4.3 – VM components and considerations

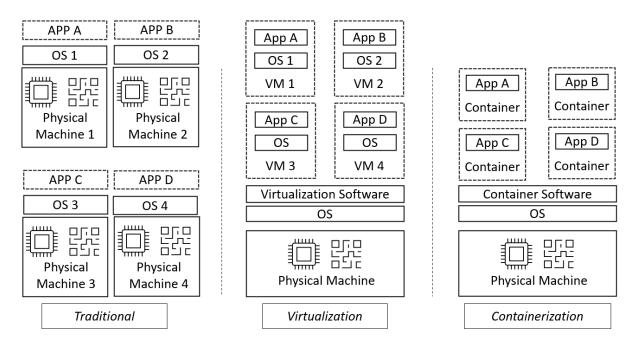


Figure 4.4 – Concept differences in traditional versus virtualization versus containerization

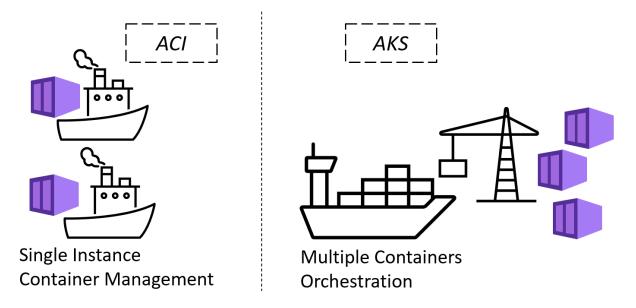


Figure 4.5 – ACI versus AKS for containerization compute services

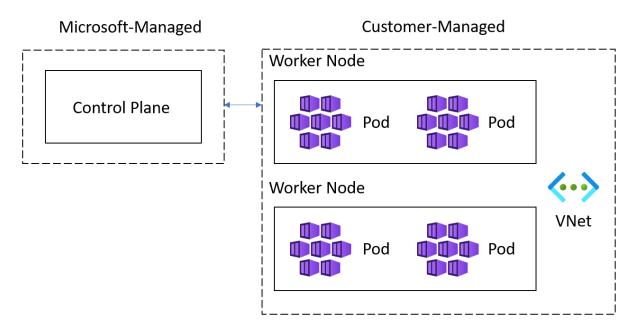


Figure 4.6 – AKS high-level service architecture showing Microsoft's responsibilities versus the customer-managed components

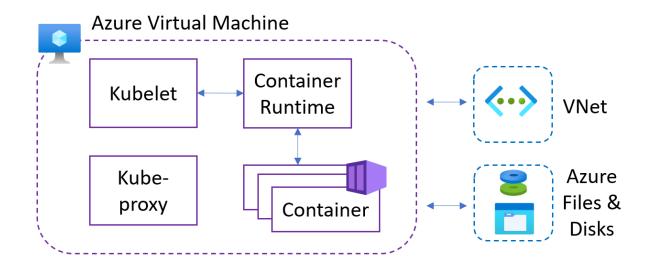


Figure 4.7 – Worker node high-level service architecture

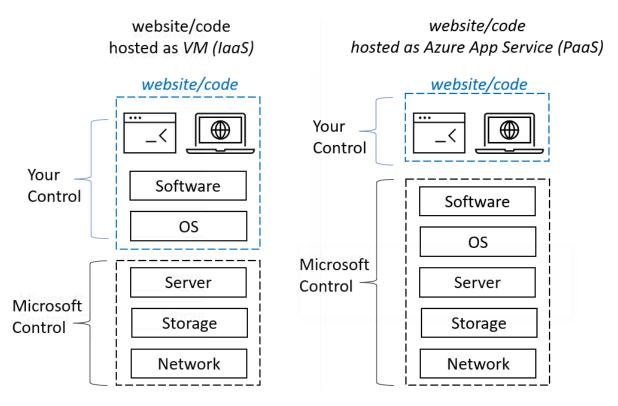


Figure 4.8 – laaS hosting with Azure VM versus PaaS hosting with Azure App Service]bt6ygh

Azure App Service (PaaS) Your website/code App Service Plan Compute Storage Networking The platform running your website/code Database Service Cache Service Cache Service Cache Service

Figure 4.9 – Azure App Service plan components relationship

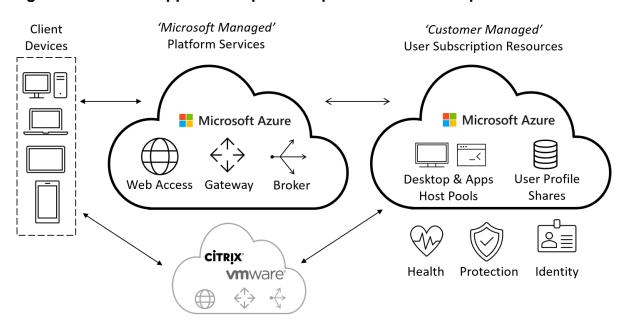


Figure 4.10 – Azure Virtual Desktop service providing access from virtually anywhere

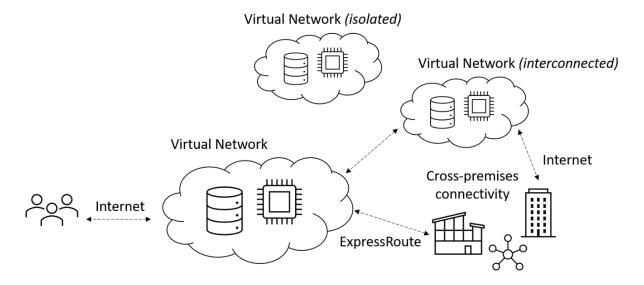


Figure 4.11 – Azure virtual networks schema showing communication between resources

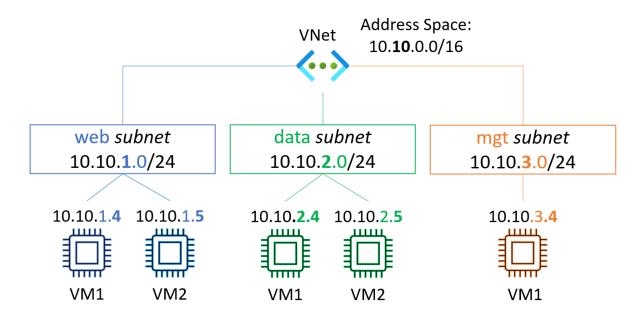


Figure 4.12 – The concept of segmenting a VNet into subnets

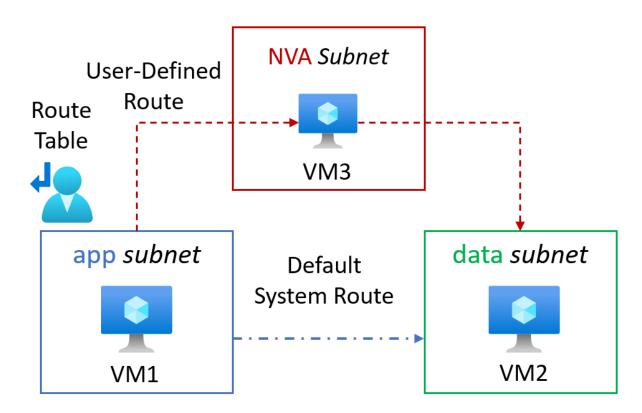


Figure 4.13 – VNet showing internal routing and segmentation through the use of an NVA

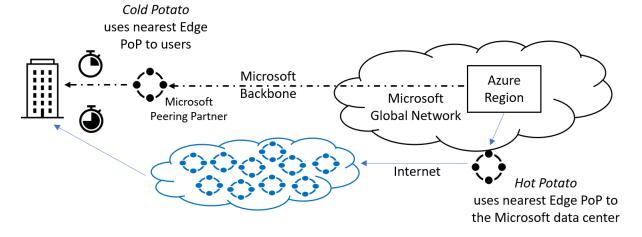


Figure 4.14 – Hot- versus cold-potato routing to carry traffic to its destination

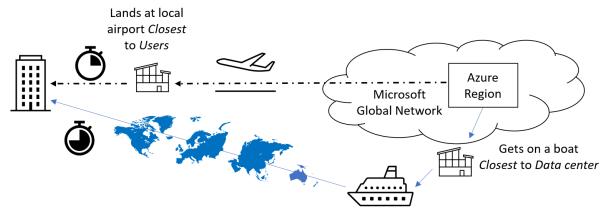
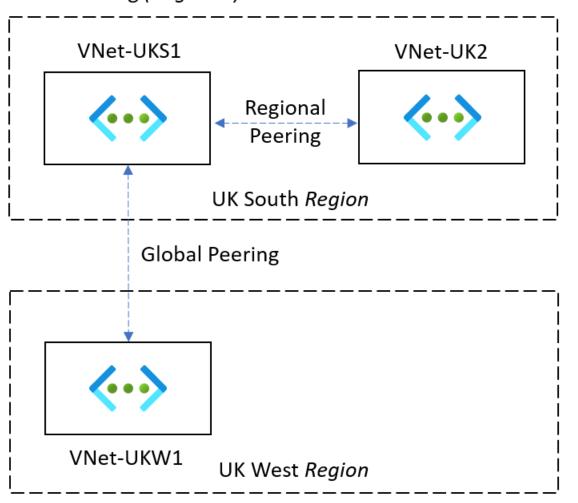


Figure 4.15 – Air travel versus shipping routes—similar to hot- versus cold-potato routing

VNet Peering (Regional)



VNet Peering (Global)

Figure 4.16 – Inter-VNet connectivity shown using peering

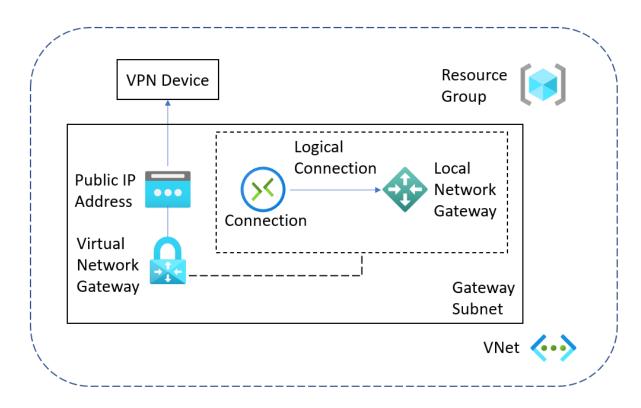


Figure 4.17 – VPN gateway resources allowing encrypted traffic to be sent through secure connections

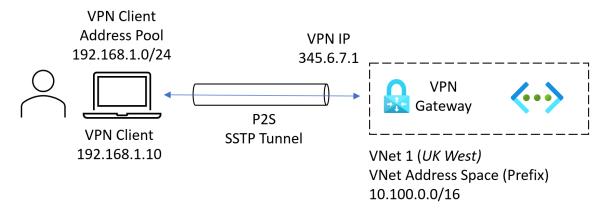


Figure 4.18 – Point-to-Site VPN

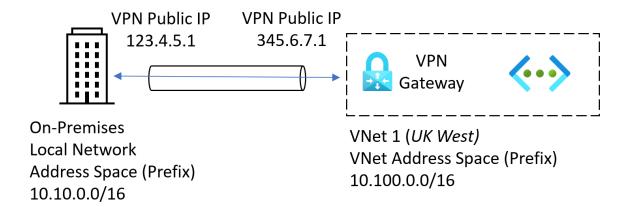


Figure 4.19 - Site-to-Site VPN

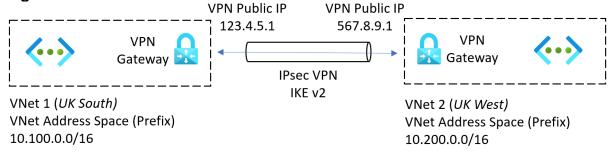


Figure 4.20 - VNet-to-VNet VPN

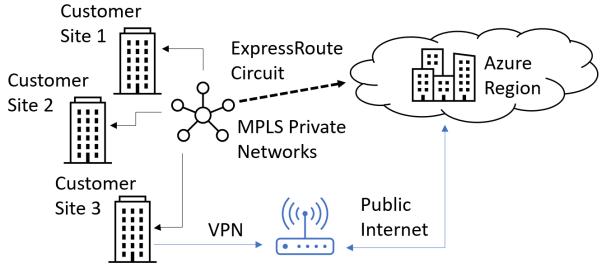


Figure 4.21 – ExpressRoute showing the connection for cross-premises to Azure resources

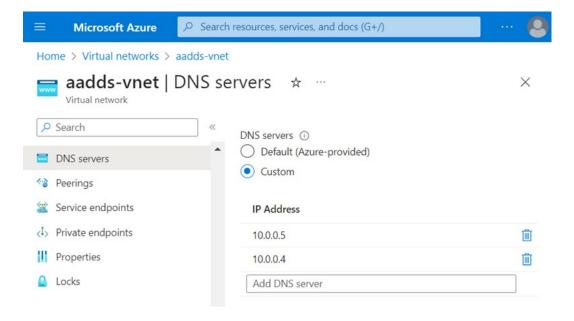


Figure 4.22 - Custom DNS server setting

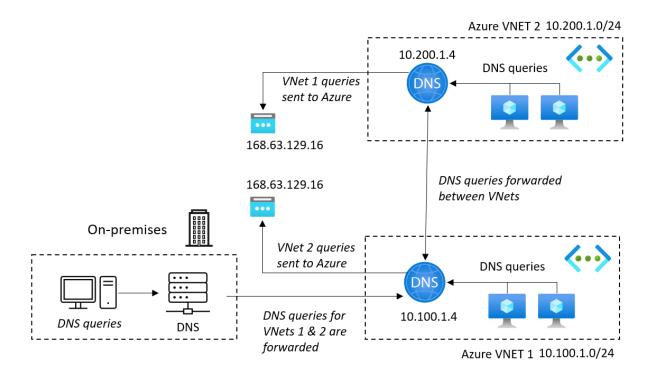


Figure 4.23 – An example solution demonstrating the hybrid name resolution approach



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.



Figure 4.24 - Creating a storage account in Azure

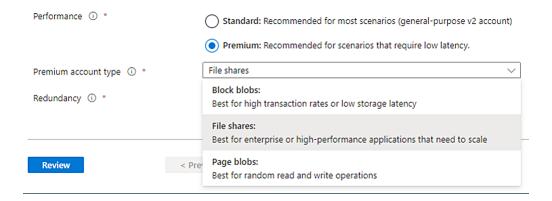


Figure 4.25 – Storage account types

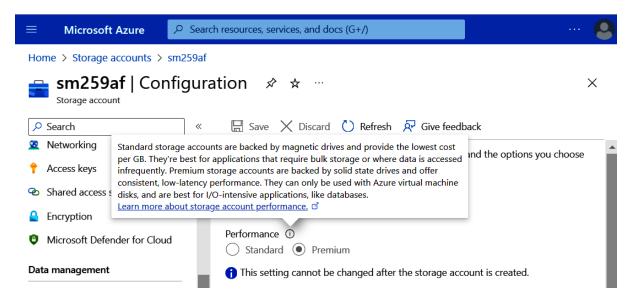


Figure 4.26 – Storage account performance type setting

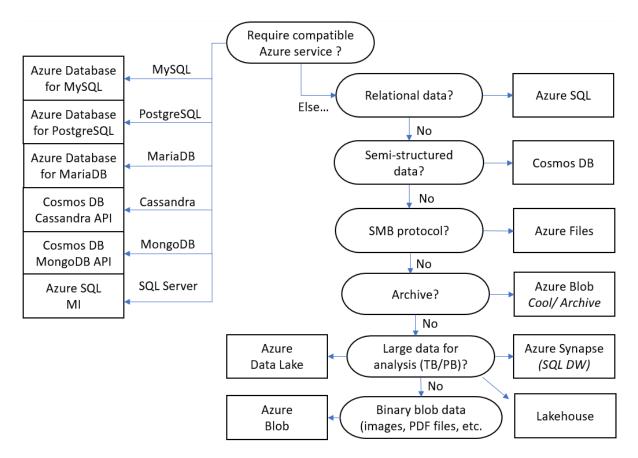


Figure 4.27 - The flow for choosing a data store

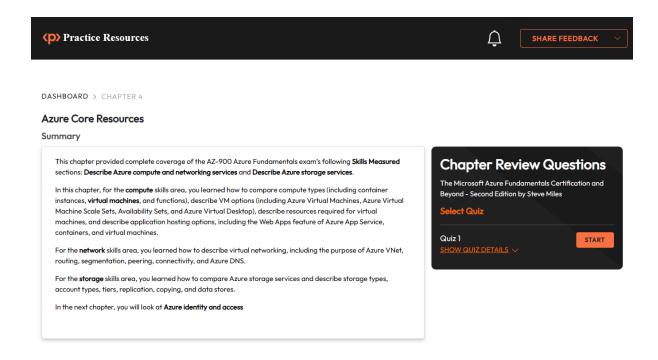


Figure 4.28 - Chapter Review Questions for Chapter 4

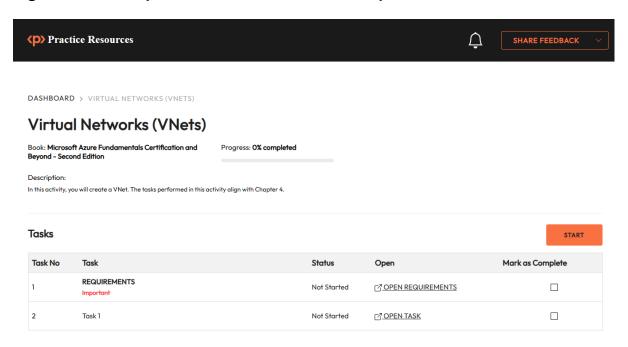


Figure 4.29: Tasks in Virtual Networks (VNets) activity

Chapter 5: Azure Identity and Access

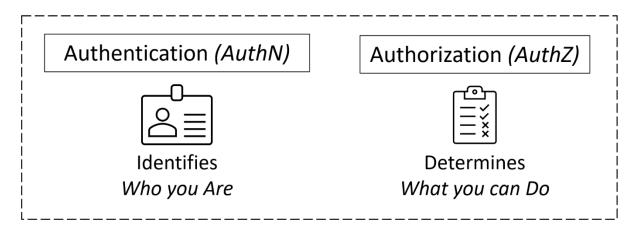


Figure 5.1 – The concepts of authentication and authorization

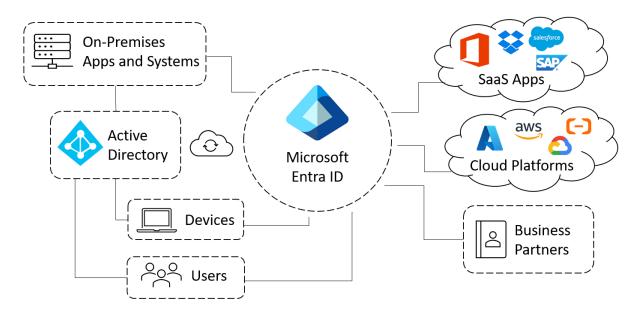


Figure 5.2 - Microsoft Entra ID as a centralized cloud IDP

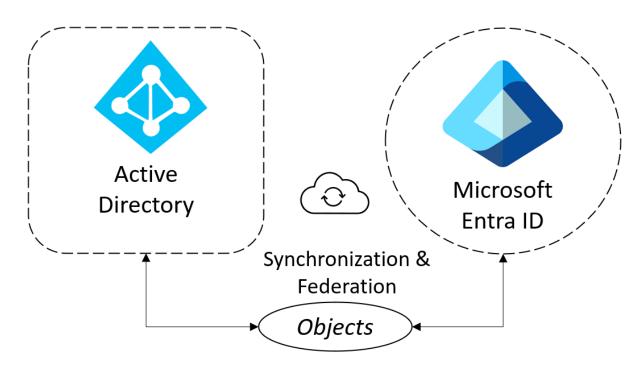
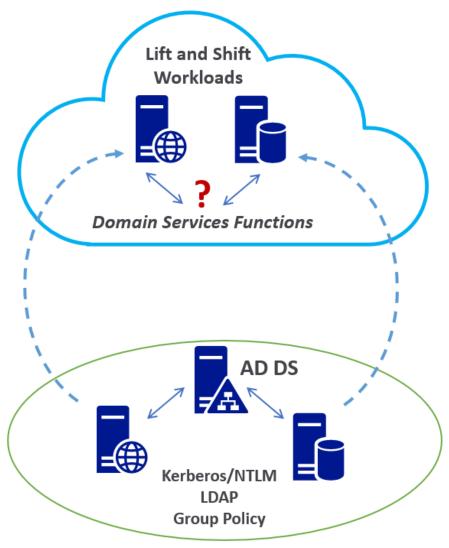


Figure 5.3 – Connection between AD and Microsoft Entra ID



On-Premises Hosted Workloads

Figure 5.4 – Providing AD Domain Services functions for Azure workloads

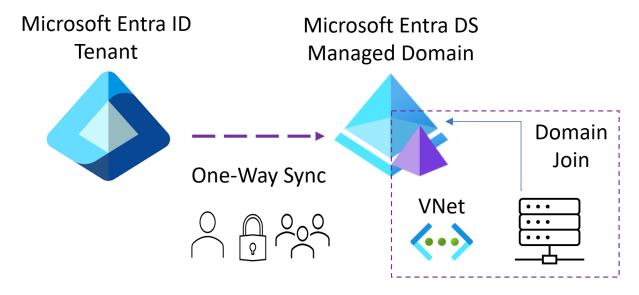


Figure 5.5 – Making changes effective by synchronizing Microsoft Entra ID to the managed domain

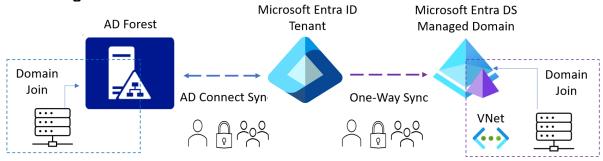


Figure 5.6 – Hybrid identity scenario showing the connection between AD, Microsoft Entra ID, and the Microsoft Entra DS managed domain

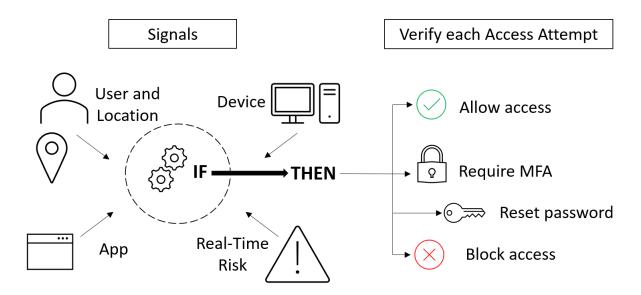


Figure 5.7 – Granting access using conditional access based on the information collected from the sign-in process

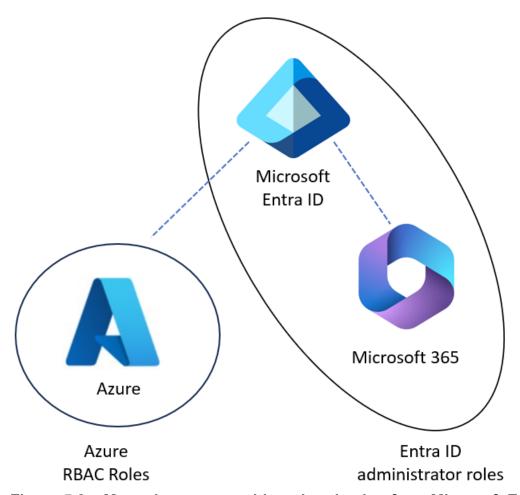


Figure 5.8 – Managing access with authentication from Microsoft Entra ID, and authorization from Azure RBAC

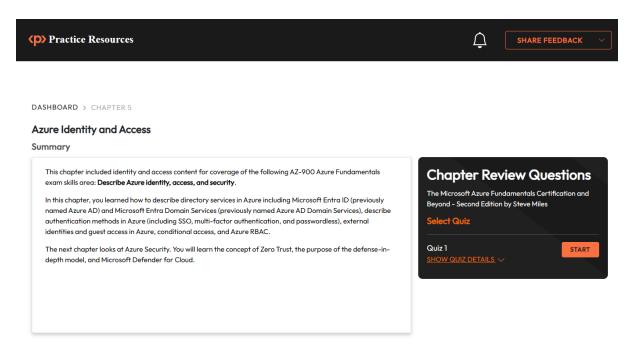


Figure 5.9 - Chapter Review Questions for Chapter 5

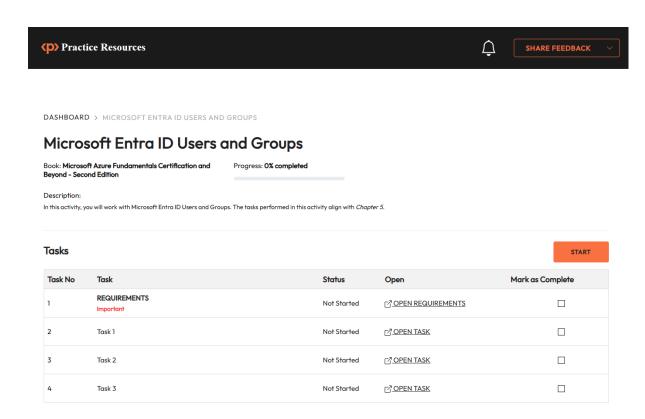


Figure 5.10: Tasks in Microsoft Entra ID Users and Groups activity

Chapter 6: Azure Security

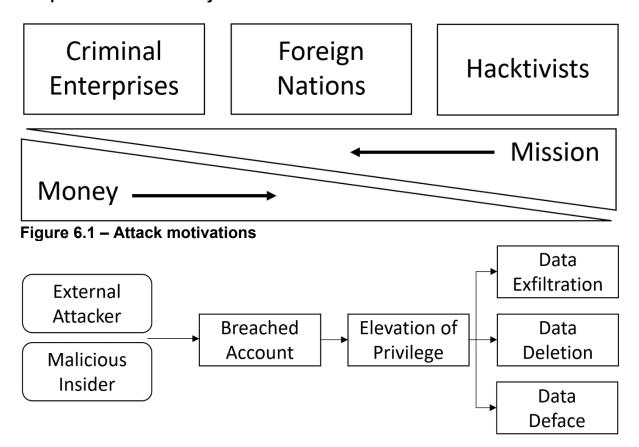


Figure 6.2 – An attack chain showing the sequence of an attack

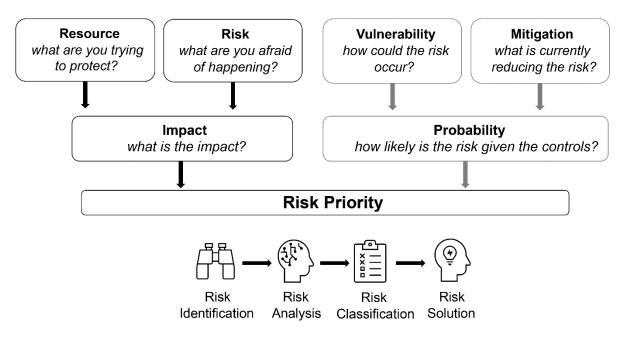


Figure 6.3 – Threat priority model showing the adopted risk solution based on risk priority

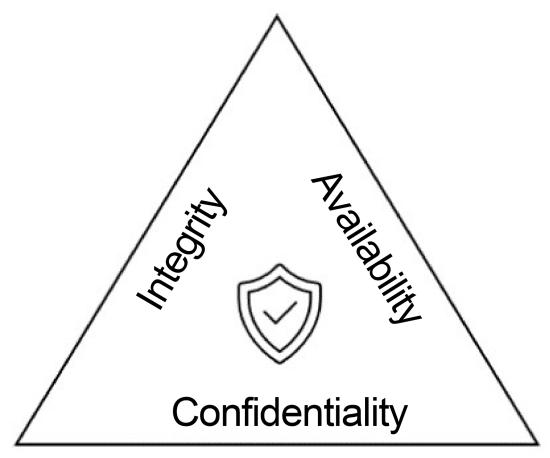


Figure 6.4 – A security posture CIA triangle

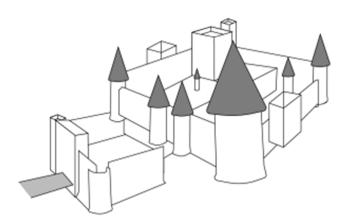


Figure 6.5 – The medieval castle defense approach

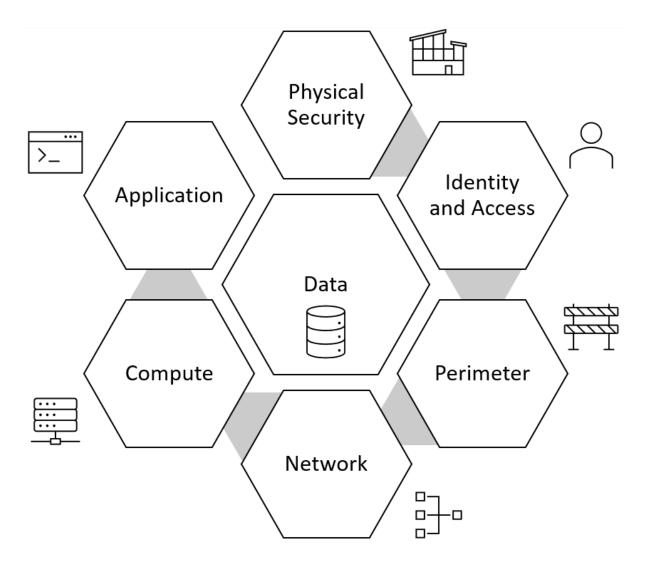


Figure 6.6 - The DiD approach layers

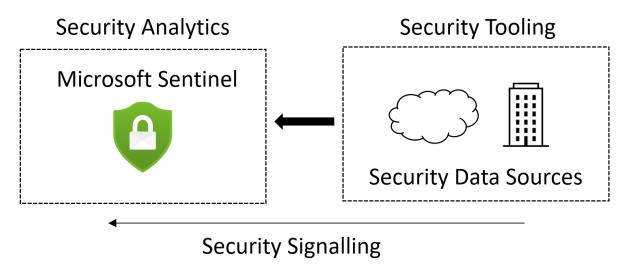


Figure 6.7 – The relationship between the security analytics of Microsoft Sentinel and the security signalling

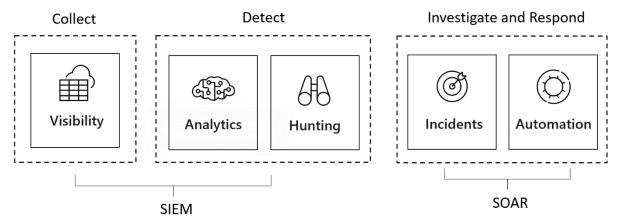


Figure 6.8 – A Sentinel security operations proposition

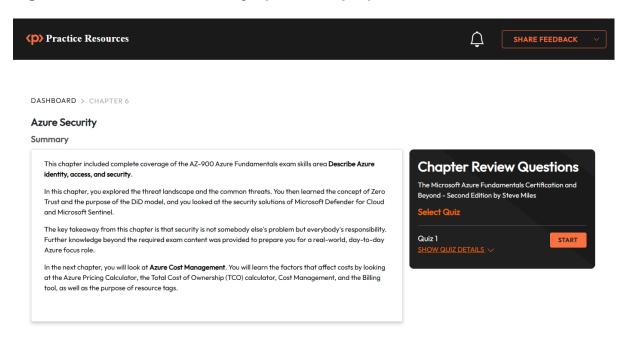


Figure 6.9 - Chapter Review Questions for Chapter 6

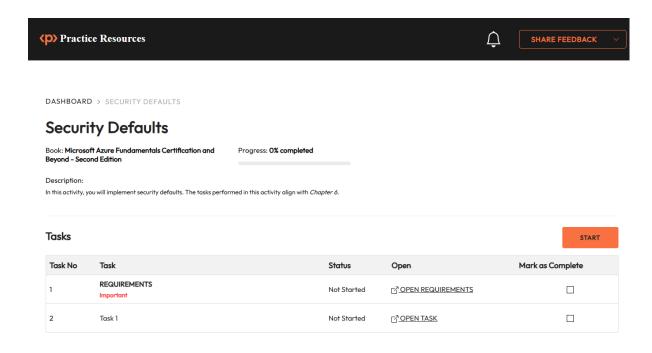


Figure 6.10: Tasks in Security Defaults activity

Chapter 7: Azure Cost Management

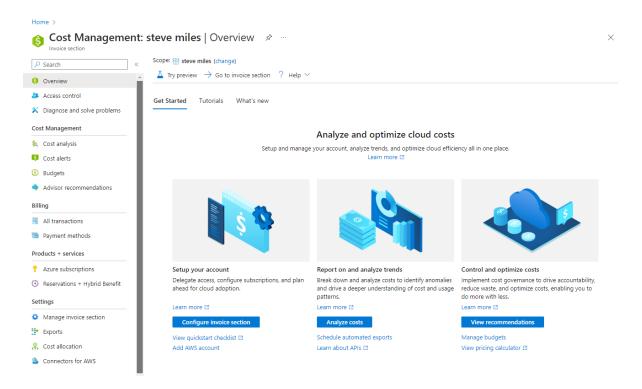


Figure 7.1 – Managing costs associated with Azure services using Azure Cost Management

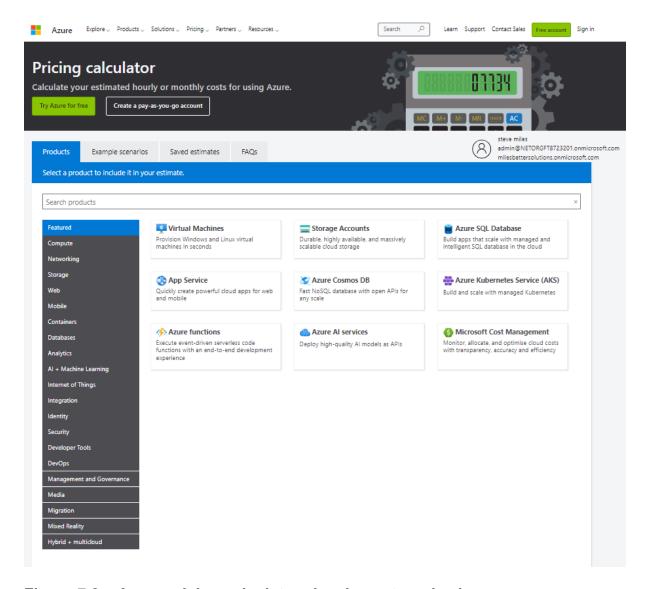
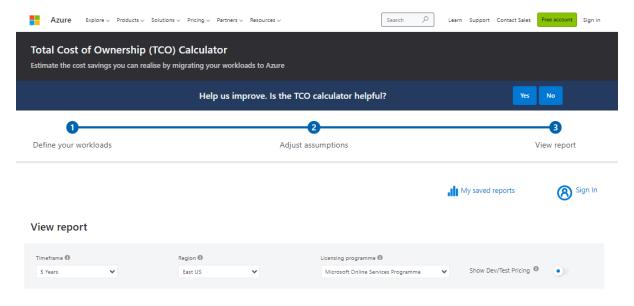


Figure 7.2 – Azure pricing calculator showing categorized resources



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

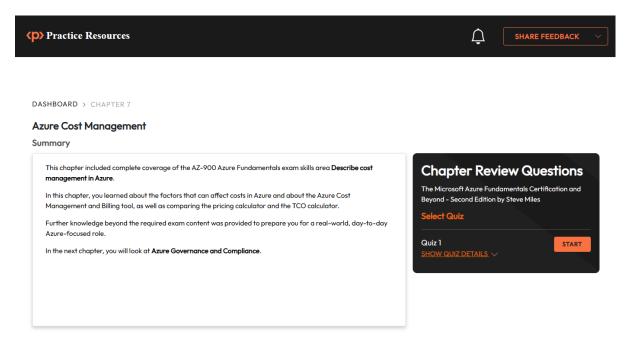


Figure 7.4 – Chapter Review Questions for Chapter 7

Chapter 8: Azure Governance and Compliance

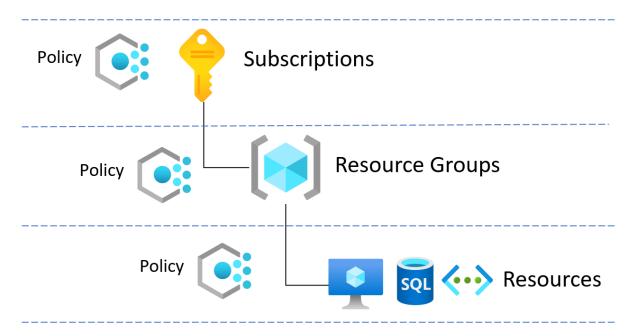


Figure 8.1 – Azure Policy scope level

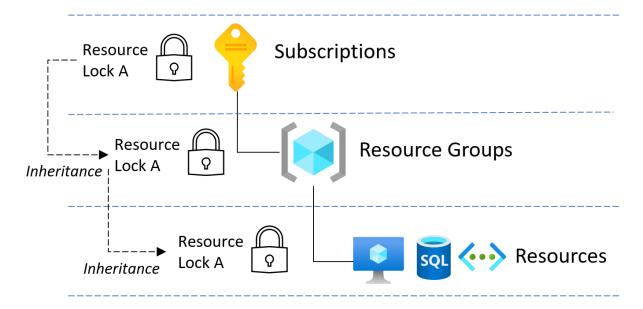


Figure 8.2 – Azure resource locks preventing accidental deletion of resources

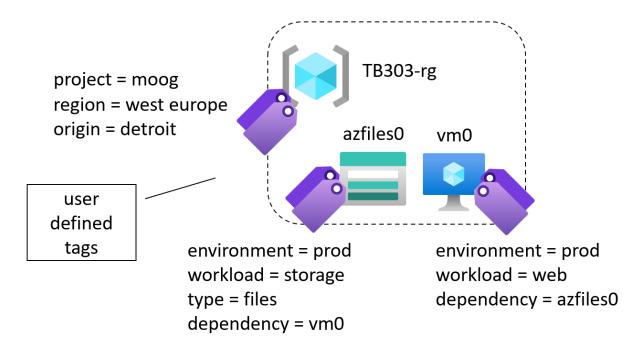


Figure 8.3 – Tags used for resource metadata

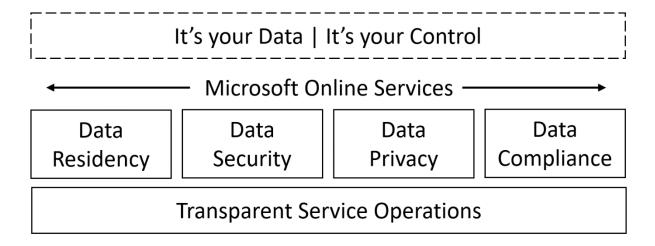


Figure 8.4 – Microsoft trusted cloud principles

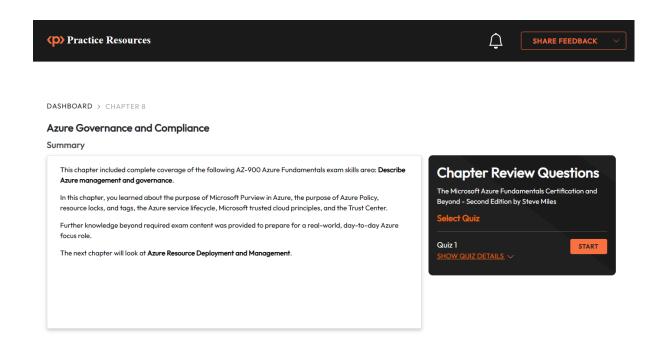


Figure 8.5 – Chapter Review Questions for Chapter 8

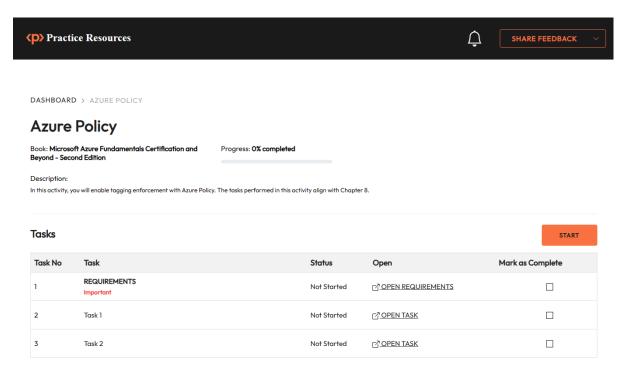


Figure 8.6: Tasks in Azure Policy activity.

Chapter 9: Azure Resource Deployment and Management

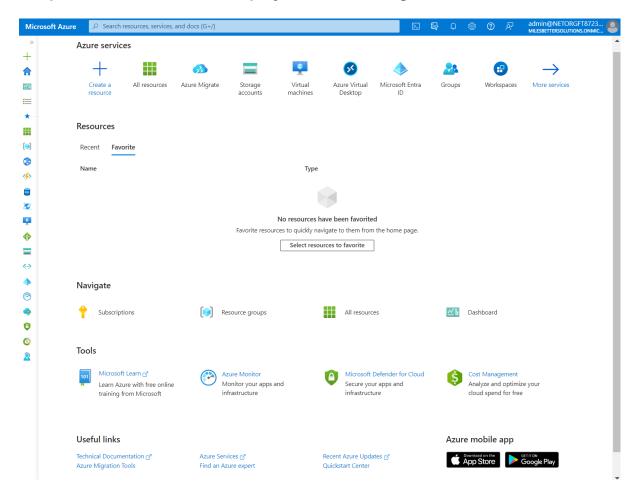


Figure 9.1 – The Azure portal

```
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:\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

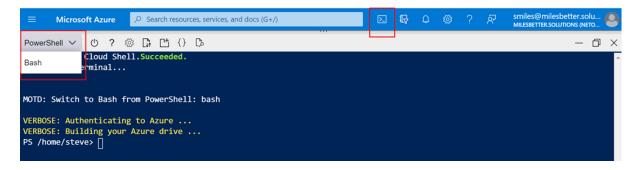


Figure 9.4 – Azure Cloud Shell with the PowerShell interface via the Azure portal

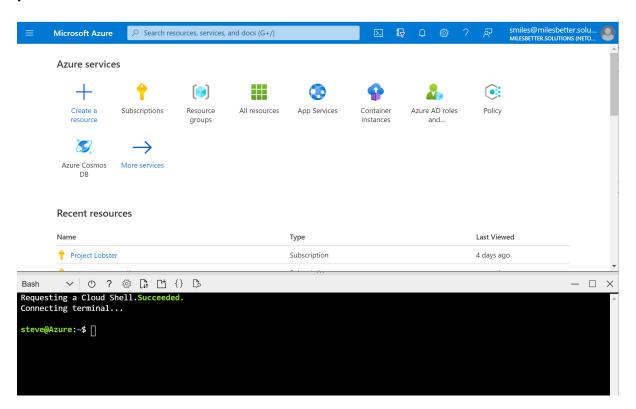


Figure 9.5 – Azure Cloud Shell with the Bash interface via the Azure portal

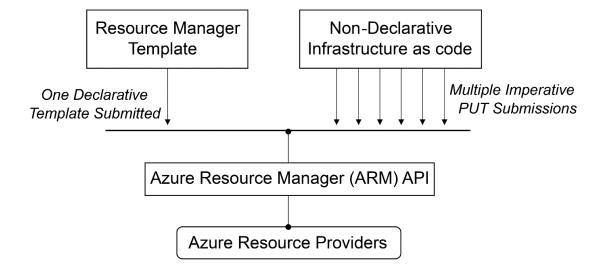


Figure 9.6 - ARM template declarative approach

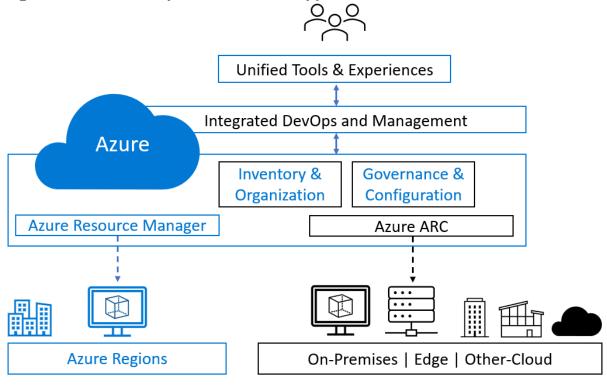


Figure 9.7 - Azure Arc for servers

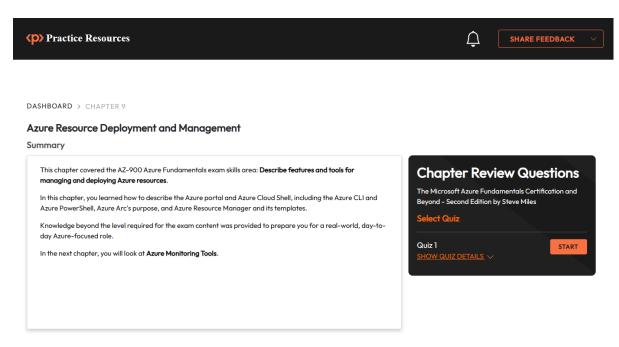


Figure 9.8 - Chapter Review Questions for Chapter 9

Chapter 10: Azure Monitoring and Tools

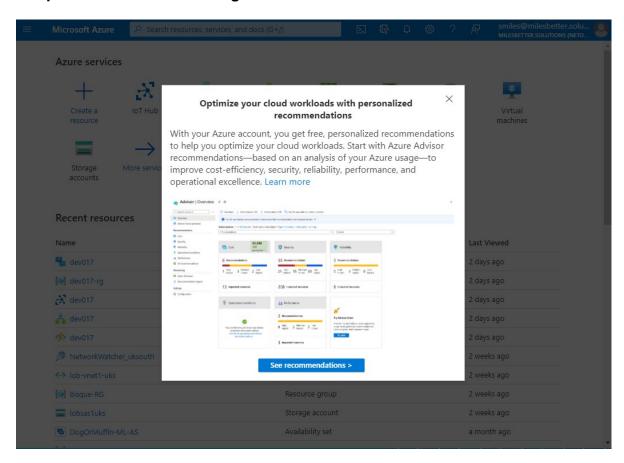


Figure 10.1 – Azure Advisor recommendations prompt screen

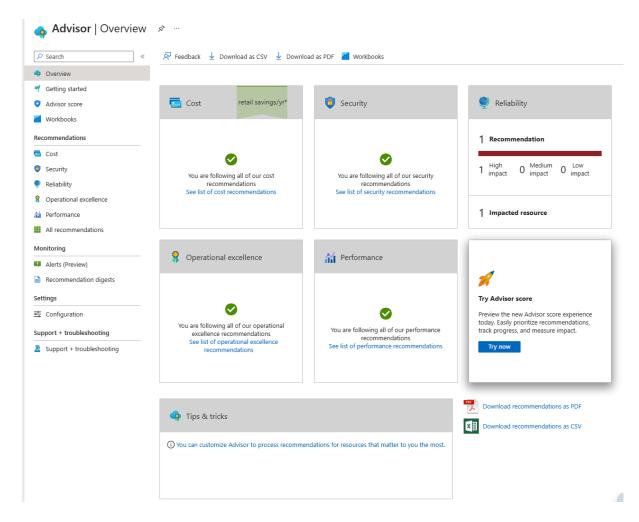


Figure 10.2 – Azure Advisor recommendations being displayed on the dashboard

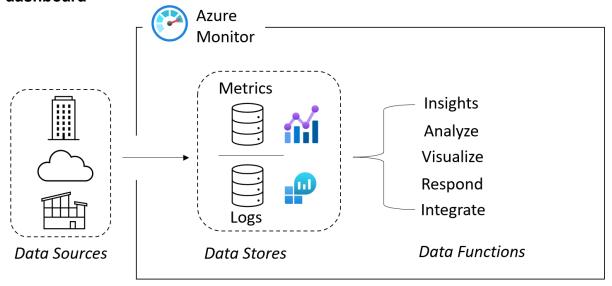


Figure 10.3 – Azure Monitor components architecture

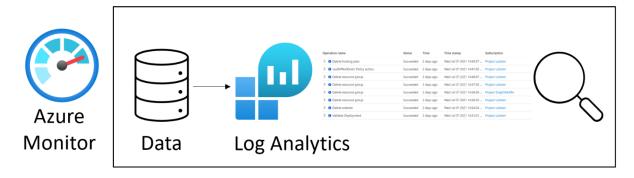


Figure 10.4 – Azure Monitor log analytics showing ingested log data

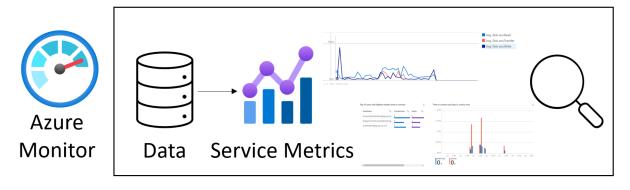


Figure 10.5 – Azure Monitor service metrics showing ingested metrics data

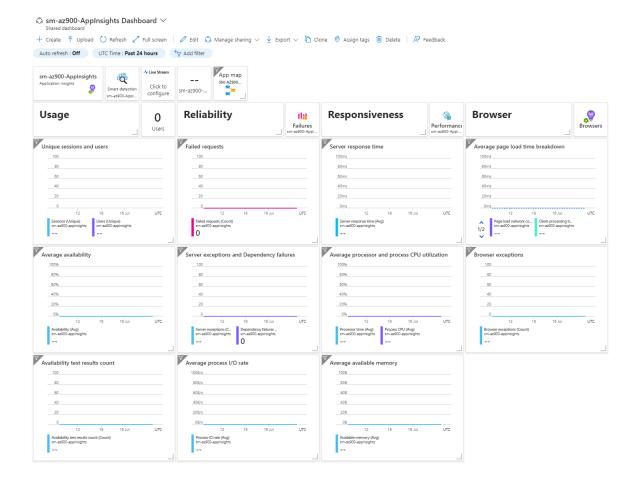


Figure 10.6 – Application Insights dashboard showing application performance and health at a glance

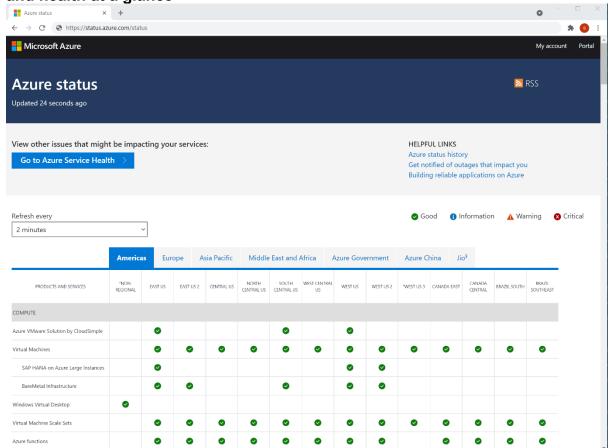


Figure 10.7 – Linking the Azure status page with Azure Service Health to view issues

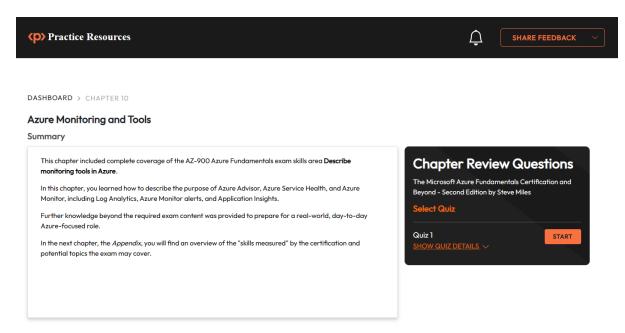


Figure 10.8 - Chapter Review Questions for Chapter 10

Chapter 11: Accessing the online practice resources

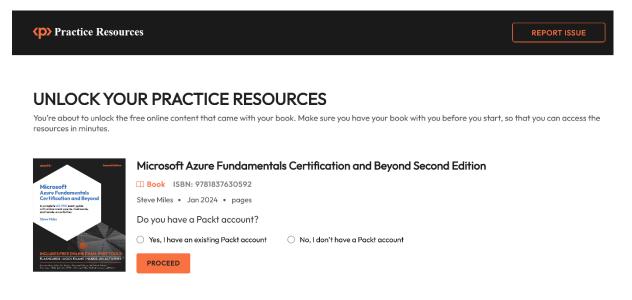


Figure 11.2 – Unlock page for the online practice resources

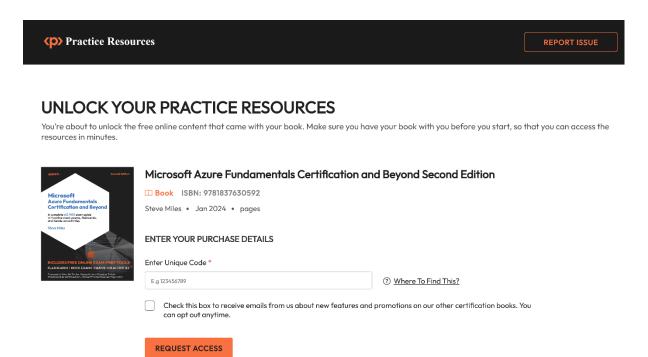


Figure 11.3 – Enter your unique sign-up code to unlock the resources

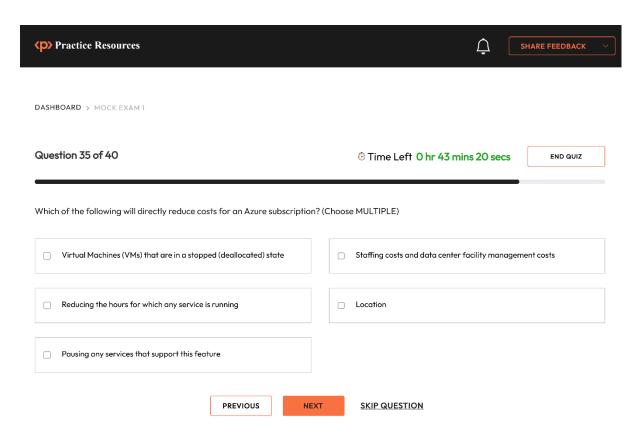


Figure 11.4 – Page that shows up after a successful unlock

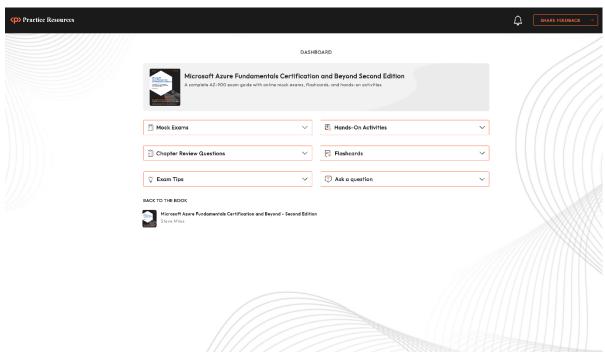


Figure 11.5 - Dashboard page for AZ-900 practice resources

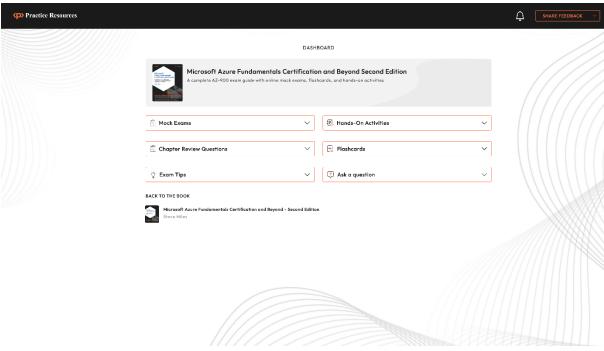
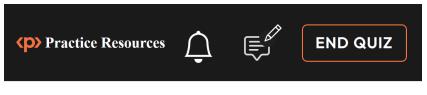


Figure 11.7 – Dashboard interface on a desktop device

Practice Resources	\$\hfrac{\tag{\tag{SHARE FEEDBACK}}}{\tag{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 11.8 – Practice Questions Interface on a desktop device



DASHBOARD > MOCK EXAM 2

Questio	n 18 of 40 Time Left Ohr 44 mins 6 secs
How doe	es Azure handle disaster recovery?
0	Azure provides a minimum of two regions in a pair per geography.
0	Azure provides a minimum of three regions in a pair per geography.
0	Azure provides two geographies in a pair.
0	a pair per geography.

PREVIOUS

NEXT

SKIP QUESTION

Figure 11.9 – Quiz interface on a mobile device

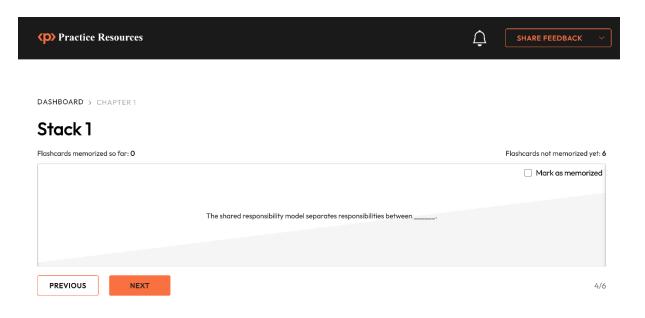


Figure 11.10 – Flashcards interface

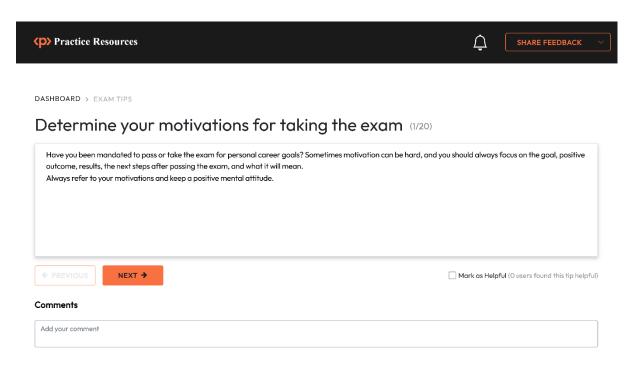


Figure 11.11 – Exam Tips Interface

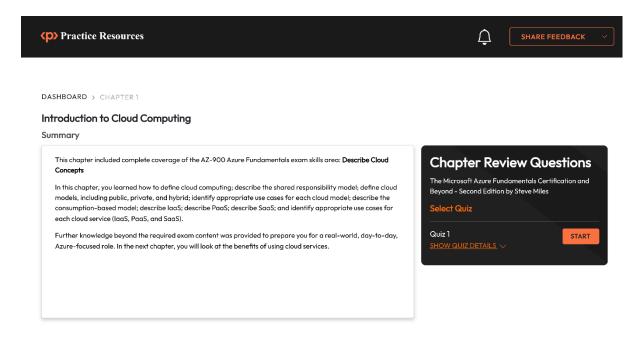


Figure 11.12 - Chapter Review Questions Page

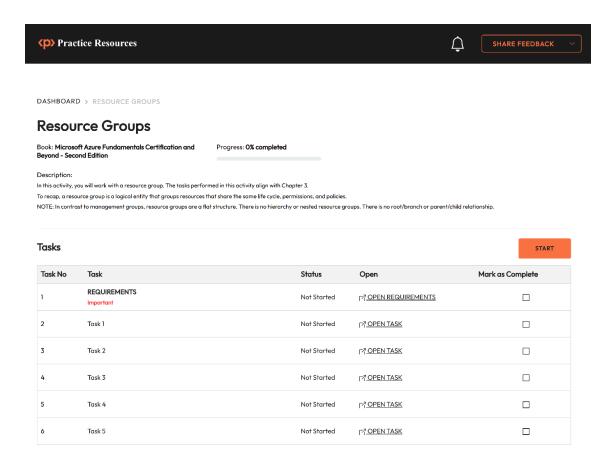


Figure 11.13 – Example of a hands-on activity

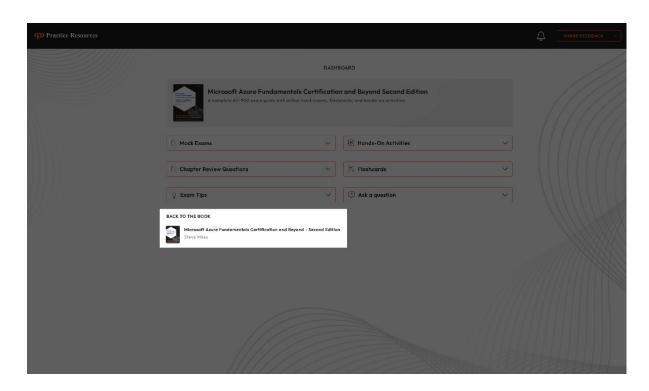


Figure 11.14 – Jump back to the book from the dashboard