**Microsoft Azure Architecture Learning Class | References**

**INTRO**

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2. <https://docs.microsoft.com/learn/paths/az-104-administrator-prerequisites>
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<https://techcommunity.microsoft.com/t5/microsoft-learn-blog/reimagining-the-azure-solutions-architect-expert-certification/ba-p/2813695>

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<https://docs.microsoft.com/learn/certifications/exams/az-305>

1. The Learn modules are available from the course page

<https://docs.microsoft.com/learn/certifications/courses/az-305t00>

1. AZ-305 Case Study GitHub

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<https://docs.microsoft.com/azure/cloud-adoption-framework/ready/landing-zone/>

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1. Azure migration guide overview

<https://docs.microsoft.com/azure/cloud-adoption-framework/migrate/azure-migration-guide>

1. Azure cloud migration best practices checklist

<https://docs.microsoft.com/azure/cloud-adoption-framework/migrate/azure-best-practices>

1. Microsoft Cloud Adoption Framework for Azure

<https://docs.microsoft.com/learn/modules/microsoft-cloud-adoption-framework-for-azure/>

1. Microsoft Azure Well-Architected Framework

<https://docs.microsoft.com/azure/cloud-adoption-framework/>

1. Build great solutions with the Microsoft Azure Well-Architected Framework

<https://docs.microsoft.com/azure/architecture/framework/>

Online Azure Diagram Tool

[Online Azure Diagram Tool (visual-paradigm.com)](https://online.visual-paradigm.com/diagrams/features/azure-architecture-diagram-tool/)

There are a lot of resources to help you and the student learn about Azure. We recommend you bookmark these pages. The list is included in the Welcome section of the student materials.

* [Azure Architecture Center - Azure Architecture Center | Microsoft Learn](https://learn.microsoft.com/en-us/azure/architecture/)| Is guidance for architecting solutions on Azure using established patterns and practices.
* [Azure documentation | Microsoft Learn](https://learn.microsoft.com/en-us/azure/?product=popular) Stay informed on the latest products, tools, and features. Get

information on pricing, partners, support, and solutions.

* [Microsoft Customer Stories](https://customers.microsoft.com/en-us/home?sq=&ff=&p=0) Search customer stories to learn about how customers are

using Azure in their businesses.

* [Welcome to the Azure Community (microsoft.com)](https://techcommunity.microsoft.com/t5/azure/ct-p/Azure) The Azure forums are very active. You can search the threads for a specific area of interest. You can also browse categories like Azure Storage, Pricing and Billing,

Azure Virtual Machines, and Azure Migrate.

* [Microsoft Learn Blog - Microsoft Community Hub](https://techcommunity.microsoft.com/t5/microsoft-learn-blog/bg-p/MicrosoftLearnBlog). Get the latest information about the new learning

opportunities.

* [Azure Blog | Microsoft Azure](https://azure.microsoft.com/en-us/blog/) Keep current on what's happening in Azure, including what's now in

preview, generally available, news & updates, and more.

* [Azure Friday | Microsoft Learn](https://learn.microsoft.com/en-us/Shows/Azure-Friday/) Join Scott Hanselman, Donovan Brown, or Lara Rubbelke as they host the engineers who build Azure, demo it, answer questions, and share insights.

**MODULE 01 | Design a governance solution**

1. Design governance

<https://learn.microsoft.com/training/modules/design-governance/>

1. Why is governance important?

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/govern/methodology>

1. Azure governance documentation

<https://docs.microsoft.com/azure/governance/>

1. Overview of Azure subscriptions, management groups, and resources

<https://docs.microsoft.com/learn/modules/azure-architecture-fundamentals/overview>

1. Organize your Azure resources effectively

<https://docs.microsoft.com/azure/cloud-adoption-framework/ready/azure-setup-guide/organize-resources?tabs=AzureManagementGroupsAndHierarchy>

1. Should you go for a deeply nested hierarchy, or for a reasonably flat one? Why?

<https://docs.microsoft.com/azure/cloud-adoption-framework/ready/landing-zone/design-area/resource-org-management-groups>

1. Why should you consider a top-level management group?

<https://docs.microsoft.com/learn/modules/design-governance/3-design-for-management-groups>

1. How would you organize your management groups? By department/geography/product line/…

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/ready/landing-zone/design-area/resource-org-management-groups#management-groups-in-the-azure-landing-zone-accelerator>

1. How do you protect your management groups so that not everyone can create/update them?

<https://docs.microsoft.com//azure/governance/management-groups/overview#management-group-access>

1. What are Azure management groups?

<https://docs.microsoft.com/azure/governance/management-groups/overview>

1. Manage resources with Azure management groups

<https://docs.microsoft.com/azure/cloud-adoption-framework/migrate/azure-best-practices/migrate-best-practices-security-management#best-practice-manage-resources-with-azure-management-groups>

1. How will you decide how many subscriptions your organization needs?

<https://docs.microsoft.com/azure/cloud-adoption-framework/ready/azure-best-practices/scale-subscriptions>

1. Will you use a centralized or decentralized approach to subscriptions?

<https://docs.microsoft.com/azure/cloud-adoption-framework/manage/centralize-operations>

1. How will you enforce common policies and role assignments across several subscriptions?

<https://docs.microsoft.com/azure/cloud-adoption-framework/decision-guides/policy-enforcement/>

<https://docs.microsoft.com/azure/cloud-adoption-framework/ready/landing-zone/design-area/resource-org-management-groups>

1. Subscription decision guide

<https://docs.microsoft.com/azure/cloud-adoption-framework/decision-guides/subscriptions/>

1. What is Azure Resource Manager

<https://docs.microsoft.com/azure/azure-resource-manager/management/overview>

1. Name resource groups

<https://docs.microsoft.com/azure/cloud-adoption-framework/migrate/azure-best-practices/migrate-best-practices-security-management#best-practice-name-resource-groups>

1. Implement delete locks for resource groups

https://docs.microsoft.com/azure/cloud-adoption-framework/migrate/azure-best-practices/migrate-best-practices-s ecurity-management#best-practice-implement-delete-locks-for-resource-groups

1. Resource naming and tagging decision guide

<https://docs.microsoft.com/azure/cloud-adoption-framework/decision-guides/resource-tagging/>

1. Define your tagging strategy

<https://docs.microsoft.com/azure/cloud-adoption-framework/ready/azure-best-practices/resource-tagging>

1. Tag resources effectively

<https://docs.microsoft.com/azure/cloud-adoption-framework/migrate/azure-best-practices/migrate-best-practices-security-management#best-practice-tag-resources-effectively>

1. Resource tagging patterns

<https://docs.microsoft.com/azure/cloud-adoption-framework/decision-guides/resource-tagging/?toc=/azure/azure-resource-manager/management/toc.json#resource-tagging-patterns>

1. Tag limits:

<https://docs.microsoft.com/azure/azure-resource-manager/management/azure-subscription-service-limits>

1. How will you decide what resource tags your organization needs?

<https://docs.microsoft.com/azure/azure-resource-manager/management/tag-resources?tabs=json>

1. How will the resource tags be used? functional, classification, accounting, partnership, regulatory, or purpose

<https://docs.microsoft.com/azure/cloud-adoption-framework/decision-guides/resource-tagging/?toc=/azure/azure-resource-manager/management/toc.json>

1. Who will be responsible for creating and making changes to the tags?

<https://docs.microsoft.com/azure/azure-resource-manager/management/tag-resources?tabs=json>

1. Should resource tags be optional or required? Can you have too many tags?

<https://docs.microsoft.com/azure/cloud-adoption-framework/ready/azure-best-practices/resource-tagging>

1. How will you enforce required tagging?

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/management/tag-policies#policy-definitions>

1. What is Azure Policy

<https://docs.microsoft.com/azure/governance/policy/overview>

1. Azure Built-in Policy List

<https://docs.microsoft.com/azure/governance/policy/samples/built-in-policies#general>

1. Only grant the access users need

<https://docs.microsoft.com/azure/role-based-access-control/best-practices#only-grant-the-access-users-need>

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1. Limit the number of subscription owners

<https://docs.microsoft.com/azure/role-based-access-control/best-practices#limit-the-number-of-subscription-owners>

1. Use Azure AD Privileged Identity Management

<https://docs.microsoft.com/azure/role-based-access-control/best-practices#use-azure-ad-privileged-identity-management>

1. Assign roles to groups, not users

<https://docs.microsoft.com/azure/role-based-access-control/best-practices#assign-roles-to-groups-not-users>

1. Review subscriptions and resource permissions

<https://docs.microsoft.com/azure/cloud-adoption-framework/migrate/azure-best-practices/migrate-best-practices-security-management#best-practice-review-subscriptions-and-resource-permissions>

1. Azure Blueprints

<https://azure.microsoft.com/services/blueprints>

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<https://docs.microsoft.com/learn/modules/enterprise-governance/10-azure-blueprints>

1. What are Azure Landing Zones

<https://docs.microsoft.com/azure/cloud-adoption-framework/ready/landing-zone/>

1. Introduction to enterprise-scale landing zones in the Microsoft Cloud Adoption Framework for Azure

<https://docs.microsoft.com/learn/modules/enterprise-scale-introduction/>

1. Choose the best Azure landing zone to support your requirements for cloud operations

<https://docs.microsoft.com/learn/modules/cloud-adoption-framework-ready/>

**MODULE 02 | Design a compute solution**

1. Choose an Azure compute service for your application –

<https://docs.microsoft.com/azure/architecture/guide/technology-choices/compute-decision-tree>

1. What could be reasons to choose for Virtual Machines instead of PaaS services?

<https://docs.microsoft.com/azure/architecture/guide/technology-choices/compute-decision-tree>

1. Who is responsible for your VM? Microsoft or the customer?

<https://docs.microsoft.com/azure/security/fundamentals/shared-responsibility>

1. Can you run any VM in any region? What about pricing?

<https://docs.microsoft.com/azure/azure-resource-manager/troubleshooting/error-sku-not-available?tabs=azure-cli>

1. I need to run a database. Which VM size should I use?

<https://docs.microsoft.com/azure/virtual-machines/sizes>

1. Managed disks versus unmanaged disks?

<https://docs.microsoft.com/azure/virtual-machines/managed-disks-overview>

<https://docs.microsoft.com/azure/virtual-machines/faq-for-disks>

<https://buildwindows.wordpress.com/2017/05/31/azure-managed-vs-unmanaged-disks-the-choice/>

1. I need to set up a Linux server with an Apache web server, a MySQL Database and PHP installed already on it. What are my options?

<https://azuremarketplace.microsoft.com/>

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1. Why should I consider creating my own disk images? [doc] [doc]

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<https://docs.microsoft.com/azure/virtual-machines/windows/overview>

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<https://docs.microsoft.com/azure/virtual-machines/linux/overview>

1. Sizes for virtual machines in Azure –

<https://docs.microsoft.com/azure/virtual-machines/sizes>

1. There is a VM selector tool –

<https://aka.ms/vm-selector>

1. My VM Scale Set needs high availability. What are my options?

<https://docs.microsoft.com/azure/virtual-machines/availability?toc=/azure/virtual-machine-scale-sets/toc.json>

1. I need to deploy my application to VM Scale Set. What are my options?

<https://docs.microsoft.com/azure/virtual-machines/shared-image-galleries?toc=/azure/virtual-machine-scale-sets/windows/toc.json>

<https://docs.microsoft.com/azure/virtual-machines/extensions/custom-script-linux>

1. What is Azure Batch?

<https://docs.microsoft.com/azure/batch/batch-technical-overview>

1. Best practices - Azure Batch | Microsoft Docs.-

<https://docs.microsoft.com/azure/batch/best-practices>

1. What is it that I pay for with an Azure App Service?

<https://docs.microsoft.com/azure/app-service/overview-hosting-plans#how-much-does-my-app-service-plan-cost>

<https://docs.microsoft.com/azure/app-service/overview-manage-costs#understand-the-full-billing-model-for-azure-app-service>

1. Why would I consider deployment slots?

<https://docs.microsoft.com/azure/app-service/deploy-staging-slots>

1. My developers have difficulties implementing authentication and authorization. Can App Service provide this capability?

<https://docs.microsoft.com/azure/app-service/deploy-staging-slots>

1. I want to run a web app implemented in Go (Golang) in Azure App Service but find out that this language is not supported. What are my options?

<https://docs.microsoft.com/azure/app-service/quickstart-custom-container?tabs=dotnet&pivots=container-linux>

1. What are WebJobs? Why would I use WebJobs?

<https://docs.microsoft.com/azure/app-service/webjobs-create>

<https://docs.microsoft.com//azure/azure-functions/functions-compare-logic-apps-ms-flow-webjobs>

1. Azure Container Instances –

<https://docs.microsoft.com/azure/container-instances/container-instances-overview>

1. Security considerations for container instances –

<https://docs.microsoft.com/azure/container-instances/container-instances-image-security>

1. Containers vs. virtual machines –

<https://docs.microsoft.com/virtualization/windowscontainers/about/containers-vs-vm>

1. Who manages the Kubernetes cluster?

<https://docs.microsoft.com/azure/aks/concepts-clusters-workloads>

1. What do you pay for?

<https://azure.microsoft.com/pricing/details/kubernetes-service/>

1. Can you deploy multiple virtual machine sizes/types?

<https://docs.microsoft.com/azure/aks/use-multiple-node-pools>

1. What methods exist to scale your AKS application?

<https://docs.microsoft.com/azure/aks/concepts-scale>

1. How can I isolate workloads inside my AKS cluster?

<https://docs.microsoft.com/azure/aks/operator-best-practices-cluster-isolation>

<https://docs.microsoft.com/azure/aks/concepts-clusters-workloads#namespaces>

1. What technology can I use when my application requires persistent storage?

<https://docs.microsoft.com/azure/aks/concepts-storage>

1. What are two ways of synchronizing cluster storage?

<https://docs.microsoft.com/azure/aks/operator-best-practices-multi-region#infrastructure-based-asynchronous-replication>

<https://docs.microsoft.com/azure/aks/operator-best-practices-multi-region#application-based-asynchronous-replication>

1. Can my application running on AKS connect to on-premise resources?

<https://docs.microsoft.com/azure/aks/concepts-network>

1. I’m concerned about vulnerabilities and outdated base images. What can I do about this?

<https://docs.microsoft.com/azure/defender-for-cloud/defender-for-containers-introduction?tabs=defender-for-container-arch-aks>

<https://docs.microsoft.com/azure/aks/concepts-security>

1. Can I deploy multiple AKS clusters across non-paired regions?

<https://docs.microsoft.com/azure/aks/operator-best-practices-multi-region>

1. Persistent volumes follow pods even if the pods are moved to a different node inside the same cluster.

<https://docs.microsoft.com/azure/aks/operator-best-practices-multi-region#infrastructure-based-asynchronous-replication>

1. Azure Functions –

<https://docs.microsoft.com/azure/azure-functions/functions-overview>

1. Azure Functions code samples –

<https://docs.microsoft.com/samples/browse/?expanded=azure&languages=csharp&products=azure-functions>

1. Durable functions –

<https://docs.microsoft.com/azure/azure-functions/durable/durable-functions-overview?tabs=csharp>

1. Why would I consider Azure Functions? Do you have some scenarios?

<https://docs.microsoft.com/dotnet/architecture/serverless/>

<https://docs.microsoft.com/dotnet/architecture/serverless/serverless-design-examples>

<https://docs.microsoft.com/azure/architecture/reference-architectures/serverless/web-app>

1. What do I pay for when using Serverless Functions?

<https://docs.microsoft.com/azure/azure-functions/pricing>

1. What are durable functions and why should I consider these?

<https://docs.microsoft.com/dotnet/architecture/serverless/durable-azure-functions> <https://docs.microsoft.com/azure/azure-functions/durable/durable-functions-overview?tabs=csharp>

1. What are the different hosting plans available for Azure Functions and why should I choose for one over the other?

<https://docs.microsoft.com/azure/azure-functions/functions-scale>

1. Why would I consider to use a Premium plan for Azure Functions?

<https://docs.microsoft.com/azure/azure-functions/functions-premium-plan?tabs=portal>

1. Best practices for reliable Azure Functions –

<https://docs.microsoft.com/azure/azure-functions/functions-best-practices>

1. Relativity, an e-discovery company, is using Azure functions to identify and resolve performance issues

<https://customers.microsoft.com/story/relativity-partner-professional-services-azure>

1. Why would I consider Logic Apps? Do you have some scenarios?

<https://docs.microsoft.com/dotnet/architecture/serverless/logic-apps>

<https://docs.microsoft.com/azure/logic-apps/logic-apps-overview>

<https://docs.microsoft.com/azure/architecture/reference-architectures/enterprise-integration/basic-enterprise-integration>

<https://docs.microsoft.com/azure/architecture/example-scenario/integration/logic-apps-data-integration>

<https://docs.microsoft.com/azure/architecture/hybrid/gateway-logic-apps>

1. My application requires some complex business rules. Should I use Logic Apps?

<https://docs.microsoft.com/azure/logic-apps/logic-apps-serverless-overview>

1. What do I pay for when using Logic Apps?

<https://docs.microsoft.com/azure/logic-apps/logic-apps-pricing>

<https://azure.microsoft.com/pricing/details/logic-apps/>

1. Can I run a Logic App on a separate plan? Why would I do this?

<https://docs.microsoft.com/azure/logic-apps/single-tenant-overview-compare>

1. What are some differences between a Logic App and Durable Functions?

<https://docs.microsoft.com/azure/azure-functions/functions-compare-logic-apps-ms-flow-webjobs#compare-azure-functions-and-azure-logic-apps>

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1. Azure Integration Services –

<https://azure.microsoft.com/product-categories/integration/>

1. Built-in binding types –

<https://docs.microsoft.com/azure/azure-functions/functions-triggers-bindings>

1. Cramo is using Logic Apps –

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1. Choose the right integration and automation services in Azure –

<https://docs.microsoft.com/azure/azure-functions/functions-compare-logic-apps-ms-flow-webjobs>

**MODULE 03 | Design a non-relational data storage solution**

1. Design a non-relational data storage solution –

<https://learn.microsoft.com/training/modules/design-data-storage-solution-for-non-relational-data/>

1. Introduction to the core Azure Storage services –

<https://docs.microsoft.com/azure/storage/common/storage-introduction?toc=/azure/storage/blobs/toc.json>

1. How will you decide how many storage accounts you need?

<https://docs.microsoft.com/learn/modules/design-data-storage-solution-for-non-relational-data/3-design-for-azure-storage-accounts>

1. Which storage features would you consider to protect against data loss?

<https://docs.microsoft.com/azure/storage/common/storage-redundancy>

<https://docs.microsoft.com/azure/storage/common/storage-redundancy#redundancy-in-a-secondary-region>

<https://docs.microsoft.com/azure/storage/common/redundancy-migration?toc=%2Fazure%2Fstorage%2Fblobs%2Ftoc.json&tabs=portal>

<https://docs.microsoft.com/azure/storage/common/storage-disaster-recovery-guidance?toc=/azure/storage/blobs/toc.json>

1. Which storage features would affect your storage costs?

<https://docs.microsoft.com/azure/storage/blobs/access-tiers-overview>

1. Which storage policies would be most helpful in your organization?

<https://docs.microsoft.com/azure/storage/blobs/immutable-time-based-retention-policy-overview>

<https://docs.microsoft.com/azure/storage/blobs/immutable-legal-hold-overview>

1. Types of storage accounts -

<https://docs.microsoft.com/azure/storage/common/storage-account-overview#types-of-storage-accounts>

1. Performance tiers for block blob storage –

<https://docs.microsoft.com/azure/storage/blobs/storage-blob-performance-tiers#premium-performance>

1. Overview of Azure page blobs –

<https://docs.microsoft.com/azure/storage/blobs/storage-blob-pageblob-overview>

1. Azure storage –

<https://docs.microsoft.com/azure/storage/>

1. Azure storage redundancy –

<https://docs.microsoft.com/azure/storage/common/storage-redundancy>

1. Hot, cool, and archive access tiers for blob data –

<https://docs.microsoft.com/azure/storage/blobs/access-tiers-overview>

1. Optimize costs by automatically managing the data lifecycle

<https://docs.microsoft.com/azure/storage/blobs/lifecycle-management-overview>

1. Store business-critical blob data with immutable storage –

<https://docs.microsoft.com/azure/storage/blobs/immutable-storage-overview>

1. When would you use Azure Files instead of Azure Blob storage?

<https://learn.microsoft.com/azure/storage/common/storage-introduction#example-scenarios>

1. Which file storage tiers would you choose in different scenarios?

<https://learn.microsoft.com/azure/storage/files/storage-files-planning#storage-tiers>

1. Why would I consider Azure NetApp files?

<https://learn.microsoft.com/azure/azure-netapp-files/azure-netapp-files-introduction>

<https://learn.microsoft.com/azure/storage/files/storage-files-netapp-comparison>

1. Compare access to Azure Files, Blob Storage, and Azure NetApp Files with NFS –

<https://docs.microsoft.com/azure/storage/common/nfs-comparison>

1. Azure file share scale targets -

<https://docs.microsoft.com/azure/storage/files/storage-files-scale-targets#azure-file-share-scale-targets>

1. Management concepts

<https://docs.microsoft.com/azure/storage/files/storage-files-planning#management-concepts>

1. Identity –

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1. Networking –

<https://docs.microsoft.com/azure/storage/files/storage-files-planning#networking>

1. Encryption -

<https://docs.microsoft.com/azure/storage/files/storage-files-planning#encryption>

1. Data protection –

<https://docs.microsoft.com/azure/storage/files/storage-files-planning#data-protection>

1. Redundancy –

<https://docs.microsoft.com/azure/storage/files/storage-files-planning#redundancy>

1. Storage tiers –

<https://docs.microsoft.com/azure/storage/files/storage-files-planning#storage-tiers>

1. Solution architectures using Azure NetApp Files –

<https://docs.microsoft.com/azure/azure-netapp-files/azure-netapp-files-solution-architectures>

1. When to use Azure NetApp Files –

<https://docs.microsoft.com/learn/modules/introduction-to-azure-netapp-files/4-when-to-use-azure-netapp-files>

1. How will you decide which disk type to choose for your application?

<https://learn.microsoft.com/azure/virtual-machines/disks-types#disk-type-comparison>

1. How would you decide between the different types of disk encryption?

<https://learn.microsoft.com/azure/virtual-machines/disk-encryption-overview>

1. What features can you use to improve disk performance?

<https://learn.microsoft.com/azure/virtual-machines/premium-storage-performance#disk-striping>

1. Introduction to Azure managed disks –

<https://docs.microsoft.com/azure/virtual-machines/managed-disks-overview>

1. What disk types are available in Azure? –

<https://docs.microsoft.com/azure/virtual-machines/disks-types>

1. Overview of managed disk encryption options –

<https://docs.microsoft.com/azure/virtual-machines/disk-encryption-overview>

1. How will you decide between the different authentication methods? Why would you select one method over the other methods?

<https://learn.microsoft.com/azure/storage/common/storage-account-keys-manage?tabs=azure-portal>

<https://learn.microsoft.com/azure/storage/common/storage-sas-overview?toc=/azure/storage/blobs/toc.json>

1. What methods are available for protecting your storage account at the network level? Why would you select one method over the other methods?

<https://learn.microsoft.com/azure/storage/common/storage-network-security?toc=%2Fazure%2Fstorage%2Fblobs%2Ftoc.json&tabs=azure-portal>

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<https://learn.microsoft.com/azure/storage/common/transport-layer-security-configure-minimum-version?toc=%2Fazure%2Fstorage%2Fblobs%2Ftoc.json&tabs=portal>

<https://learn.microsoft.com/azure/storage/common/storage-require-secure-transfer?toc=/azure/storage/blobs/toc.json>

1. Grant limited access to Azure Storage resources using shared access signatures (SAS)

<https://docs.microsoft.com/azure/storage/common/storage-sas-overview>

1. Security recommendations for Blob storage –

<https://docs.microsoft.com/azure/storage/blobs/security-recommendations>

1. Use private endpoints for Azure Storage –

<https://docs.microsoft.com/azure/storage/common/storage-private-endpoints>

1. Customer-managed keys for Azure Storage encryption –

<https://docs.microsoft.com/azure/storage/common/customer-managed-keys-overview>

**MODULE 04 | Design a data storage solution for relational data**

1. Design a data storage solution for relational data –

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1. Introduction to the core Azure Storage services –

<https://docs.microsoft.com/azure/storage/common/storage-introduction?toc=/azure/storage/blobs/toc.json>

1. Discussion: When to use Relational vs. NoSQL data, possibly CAP theorem –

<https://docs.microsoft.com/dotnet/architecture/cloud-native/relational-vs-nosql-data>

1. Features comparison: Azure SQL Database and Azure SQL Managed Instance –

<https://docs.microsoft.com//azure/azure-sql/database/features-comparison>

1. This doc compares all three:

<https://docs.microsoft.com/azure/azure-sql/azure-sql-iaas-vs-paas-what-is-overview#comparison-table>

1. Azure SQL Database can be hosted in many ways. What could be my decision criteria?

<https://learn.microsoft.com/azure/azure-sql/azure-sql-iaas-vs-paas-what-is-overview?toc=/azure/cloud-adoption-framework/toc.json&bc=/azure/cloud-adoption-framework/_bread/toc.json>

1. How can Elastic pools help you achieve vertical scaling?

<https://learn.microsoft.com/azure/azure-sql/database/elastic-scale-introduction#horizontal-and-vertical-scaling>

1. When should I consider the serverless compute tier for Azure SQL Database?

<https://learn.microsoft.com/azure/azure-sql/database/serverless-tier-overview>

1. What is the difference between DTU and the vCore model?

<https://learn.microsoft.com/azure/azure-sql/database/service-tiers-dtu>

<https://learn.microsoft.com/azure/azure-sql/database/service-tiers-sql-database-vcore>

1. Service tiers in the Database Transaction Unit (DTU) based purchase model –

<https://docs.microsoft.com/azure/azure-sql/database/service-tiers-dtu>

1. vCore purchase model overview - Azure SQL Database –

<https://docs.microsoft.com/azure/azure-sql/database/service-tiers-sql-database-vcore>

1. Basic, Standard, and General Purpose service tier locally redundant availability –

<https://docs.microsoft.com/azure/azure-sql/database/high-availability-sla#basic-standard-and-general-purpose-service-tier-locally-redundant-availability>

1. Premium and Business Critical service tier locally redundant availability –

<https://docs.microsoft.com/azure/azure-sql/database/high-availability-sla#premium-and-business-critical-service-tier-locally-redundant-availability>

1. Why would I consider the Hyperscale tier instead of a Dedicated pool in Azure Synapse Analytics?

<https://learn.microsoft.com/azure/azure-sql/database/service-tier-hyperscale>

<https://learn.microsoft.com/azure/azure-sql/database/service-tier-hyperscale-frequently-asked-questions-faq#how-can-i-choose-between-azure-synapse-analytics-and-azure-sql-database-hyperscale->

1. This doc covers the comparison of SQL DB and SQL MI HA

<https://docs.microsoft.com/azure/azure-sql/database/high-availability-sla>

1. Why would I consider the Hyperscale tier instead of a Dedicated pool in Azure Synapse Analytics?

<https://learn.microsoft.com/azure/azure-sql/database/service-tier-hyperscale>

<https://learn.microsoft.com/azure/azure-sql/database/service-tier-hyperscale-frequently-asked-questions-faq#how-can-i-choose-between-azure-synapse-analytics-and-azure-sql-database-hyperscale->

1. Regions and zones –

<https://docs.microsoft.com/azure/availability-zones/az-overview>

1. Going further with availability –

<https://docs.microsoft.com/learn/modules/describe-high-availability-disaster-recovery-strategies/3-explore-high-availability-disaster-recovery-options>

<https://docs.microsoft.com/azure/azure-sql/database/service-tier-hyperscale>

1. Azure SQL Database offers the following capabilities for recovering from an outage. Why would I choose for one over the other?

<https://learn.microsoft.com/azure/azure-sql/database/disaster-recovery-guidance>

1. Azure encryption overview –

<https://docs.microsoft.com/azure/security/fundamentals/encryption-overview>

1. Security capabilities and tasks –

<https://docs.microsoft.com/learn/modules/azure-sql-secure-data/2-security-capabilities>

1. Protect your database –

<https://docs.microsoft.com/learn/modules/azure-sql-secure-data/6-data-protection>

1. What encryption mechanisms should I consider when data is at rest, in motion and in process [

<https://learn.microsoft.com/azure/azure-sql/database/security-overview#transport-layer-security-encryption-in-transit>

<https://learn.microsoft.com/azure/azure-sql/database/transparent-data-encryption-tde-overview?tabs=azure-portal>

<https://learn.microsoft.com/azure/azure-sql/database/always-encrypted-landing>

<https://learn.microsoft.com/azure/azure-sql/database/dynamic-data-masking-overview>

1. Azure SQL Database supports SQL authencation and Azure Active Directory authentication. Why should I consider AAD authentication?

<https://learn.microsoft.com/azure/azure-sql/database/authentication-aad-overview>

1. Authorizing database access to authenticated users to SQL Database and Azure Synapse Analytics using logins and user accounts –

<https://docs.microsoft.com/azure/sql-database/sql-database-manage-logins>

1. When would you consider to use Azure SQL Edge?

<https://learn.microsoft.com/azure/azure-sql-edge/overview>

<https://learn.microsoft.com/azure/architecture/solution-ideas/articles/data-storage-edge>

1. What technology do you need to deploy Azure SQL Edge on?

<https://learn.microsoft.com/azure/azure-sql-edge/disconnected-deployment>

<https://learn.microsoft.com/azure/azure-sql-edge/deploy-kubernetes>

1. Link to image page with explanation:

<https://docs.microsoft.com/azure/architecture/solution-ideas/articles/multi-region-web-app-cosmos-db-replication#architecture>

1. Choose an API in Azure Cosmos DB –

<https://docs.microsoft.com/azure/cosmos-db/choose-api>

<https://docs.microsoft.com/azure/cloud-adoption-framework/ready/considerations/data-options>

**MODULE 05 | Design a data integration solution**

1. Why would you consider Azure Data Factory over SSIS (SQL Server Integration Services)?

<https://learn.microsoft.com/azure/architecture/data-guide/technology-choices/pipeline-orchestration-data-movement>

<https://learn.microsoft.com/azure/architecture/reference-architectures/data/enterprise-bi-adf>

<https://learn.microsoft.com/azure/architecture/example-scenario/data/hybrid-etl-with-adf>

1. What do you pay for when using Azure Data Factory?

<https://learn.microsoft.com/azure/data-factory/plan-manage-costs>

<https://learn.microsoft.com/azure/data-factory/pricing-concepts>

1. What component of Azure Data Factory would you consider to perform data transformations? What alternatives are there?

<https://learn.microsoft.com/azure/data-factory/transform-data>

1. What is a Self-Hosted Integration Runtime and why do you need it?

<https://learn.microsoft.com/azure/data-factory/concepts-integration-runtime#self-hosted-integration-runtime>

<https://learn.microsoft.com/azure/data-factory/create-self-hosted-integration-runtime?tabs=data-factory>

1. Azure Data Lake is built on top of Azure Blob Storage. What does it add?

<https://learn.microsoft.com/azure/storage/blobs/data-lake-storage-introduction#key-features-of-data-lake-storage-gen2>

1. Why would I choose for a Data Lake, instead of regular Blob Storage? What could be my decision criteria?

<https://learn.microsoft.com/azure/storage/blobs/data-lake-storage-namespace>

<https://learn.microsoft.com/azure/architecture/data-guide/scenarios/data-lake>

1. Why would I choose for Blob Storage, instead of Data Lake?

<https://learn.microsoft.com/azure/storage/blobs/storage-feature-support-in-storage-accounts>

<https://learn.microsoft.com/azure/architecture/guide/technology-choices/data-store-decision-tree>

1. Why is it important to support RBAC down to the individual file level?

<https://learn.microsoft.com/azure/storage/blobs/data-lake-storage-access-control-model#access-control-lists-acls>

1. I need to organize my Data Lake. What are some common approaches?

<https://learn.microsoft.com/azure/storage/blobs/data-lake-storage-best-practices#directory-structure>

<https://learn.microsoft.com/azure/databricks/delta/delta-intro>

<https://learn.microsoft.com/training/modules/describe-azure-databricks-delta-lake-architecture/2-describe-bronze-silver-gold-architecture>

<https://docs.microsoft.com/azure/storage/blobs/storage-feature-support-in-storage-accounts#standard-general-purpose-v2-accounts>

1. What is the difference between a serverless pool and a dedicated pool?

<https://learn.microsoft.com/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-overview-what-is?context=/azure/synapse-analytics/context/context>

<https://learn.microsoft.com/azure/synapse-analytics/sql/on-demand-workspace-overview>

<https://learn.microsoft.com/azure/synapse-analytics/sql/overview-features>

1. What do I pay for with Synapse Analytics?

<https://azure.microsoft.com/en-us/pricing/details/synapse-analytics/>

1. Azure Synapse Analytics contains a component to set up pipelines and data flows, which is also part of Azure Data Factory. Why would I use this instead of ADF?

<https://learn.microsoft.com/azure/synapse-analytics/data-integration/concepts-data-factory-differences>

1. Azure Synapse Analytics allows you to setup Spark Pools to process your data. Why would I consider this instead of Azure Databricks?

<https://learn.microsoft.com/answers/questions/587071/differnce-between-synapse-and-databricks.html>

1. What is Azure Synapse Link for Azure Cosmos DB and what is the use case it tries to solve?

<https://learn.microsoft.com/azure/cosmos-db/synapse-link>

1. Available features in ADF & Azure Synapse Analytics –

<https://docs.microsoft.com/azure/synapse-analytics/data-integration/concepts-data-factory-differences#available-features-in-adf--azure-synapse-analytics>

1. Review this article:

<https://azure.microsoft.com/blog/4-common-analytics-scenarios-to-build-business-agility/>

**MODULE 06 | Design an application architecture solution**

1. How will you decide between using events or messages?

<https://learn.microsoft.com/azure/event-grid/compare-messaging-services#event-vs-message-services>

1. Events –

<https://docs.microsoft.com/azure/event-grid/compare-messaging-services#event>

1. Messages –

<https://docs.microsoft.com/azure/event-grid/compare-messaging-services#message>

1. Azure Queue storage –

<https://docs.microsoft.com/azure/storage/queues/storage-queues-introduction>

1. What will you consider when deciding between Azure Storage Queues and Azure Service Bus Queues?

<https://learn.microsoft.com/azure/service-bus-messaging/service-bus-azure-and-service-bus-queues-compared-contrasted>

1. In what scenarios would you use an Azure Service Bus Topic?

<https://learn.microsoft.com/azure/service-bus-messaging/service-bus-queues-topics-subscriptions#topics-and-subscriptions>

1. If the message payload is larger than 64 KB in size, what options do you have?

<https://learn.microsoft.com/azure/service-bus-messaging/service-bus-azure-and-service-bus-queues-compared-contrasted#capacity-and-quotas>

<https://learn.microsoft.com/azure/service-bus-messaging/service-bus-premium-messaging#large-messages-support>

1. Azure Service Bus topics –

<https://docs.microsoft.com/azure/service-bus-messaging/service-bus-queues-topics-subscriptions>

1. Storage queues and Service Bus queues - compared and contrasted –

<https://docs.microsoft.com/azure/service-bus-messaging/service-bus-azure-and-service-bus-queues-compared-contrasted#foundational-capabilities>

1. Overview of transaction processing in Azure Service Bus –

<https://docs.microsoft.com/azure/service-bus-messaging/service-bus-transactions>

1. Azure Event Hubs — A big data streaming platform and event ingestion service –

<https://docs.microsoft.com/azure/event-hubs/event-hubs-about>

1. Use event hub from Apache Kafka app –

<https://docs.microsoft.com/azure/event-hubs/event-hubs-for-kafka-ecosystem-overview>

1. Online retailer uses cloud database to deliver world-class shopping experiences –

<https://customers.microsoft.com/story/asos-retail-and-consumer-goods-azure>

1. Azure Event Grid –

<https://docs.microsoft.com/azure/event-grid/overview>

1. When to use IoT hub –

<https://docs.microsoft.com/learn/modules/introduction-to-iot-hub/4-when-to-use-iot-hub>

1. IoT Concepts and Azure IoT Hub –

<https://docs.microsoft.com/azure/iot-hub/iot-concepts-and-iot-hub>

1. Connecting IoT Devices to Azure: IoT Hub and Event Hubs –

<https://docs.microsoft.com/azure/iot-hub/iot-hub-compare-event-hubs>

1. When would you consider to use an Azure Cache for Redis?

<https://learn.microsoft.com/azure/azure-cache-for-redis/cache-overview>

1. What is Azure Cache Redis –

<https://docs.microsoft.com/learn/modules/intro-to-azure-cache-for-redis/2-what-is-azure-cache-for-redis>

1. Azure API Management –

<https://docs.microsoft.com/azure/api-management/api-management-key-concepts>

1. What is Infrastructure as Code?

<https://docs.microsoft.com/devops/deliver/what-is-infrastructure-as-code>

1. Azure Resource Manager (ARM) templates –

<https://docs.microsoft.com/azure/azure-resource-manager/templates/overview>

1. Bicep –

<https://docs.microsoft.com/azure/azure-resource-manager/bicep/overview>

1. Automation deployment –

<https://docs.microsoft.com/azure/virtual-machines/infrastructure-automation>

1. Azure DevOps documentation –

<https://docs.microsoft.com/azure/devops>

1. GitHub Actions –

<https://docs.github.com/actions>

1. Terraform by Hashicorp –

<https://www.terraform.io/>

1. Jenkins –

<https://www.jenkins.io/>

1. Python with Pulumi –

<https://devblogs.microsoft.com/devops/infrastructure-as-code-azure-python-wpulumi/>

1. Chef Automate –

<https://docs.chef.io/azure_marketplace/>

1. Ansible –

<https://docs.microsoft.com/azure/developer/ansible/overview>

1. Azure Chaos Studio –

<https://azure.microsoft.com/services/chaos-studio/>

1. Azure App Configuration –

<https://docs.microsoft.com/azure/azure-app-configuration/overview>

1. Serverless Functions reference architectures –

<https://docs.microsoft.com/azure/architecture/serverless-quest/reference-architectures>

**MODULE 07 | Design Authentication and Authorization Solutions**

1. Use this slide to introduction authentication and authorization. Zero Trust Model

<https://www.microsoft.com/security/business/zero-trust>

1. Azure identity management security overview –

<https://docs.microsoft.com/azure/security/fundamentals/identity-management-overview>

1. What is Azure Active Directory –

<https://docs.microsoft.com/azure/active-directory/fundamentals/active-directory-whatis>

1. Why would you consider Azure AD B2B?

<https://learn.microsoft.com/azure/active-directory/external-identities/compare-with-b2c>

1. When deciding to use Azure AD B2B, will you consider which identity providers are supported?

<https://learn.microsoft.com/azure/active-directory/external-identities/what-is-b2b#collaborate-with-any-partner-using-their-identities>

1. Can you enforce MFA for guest accounts, even when they do not have this configured?

<https://learn.microsoft.com/azure/active-directory/external-identities/b2b-tutorial-require-mfa>

1. Will you use a centralized or de-centralized approach? For example, inviting guests.

<https://learn.microsoft.com/azure/active-directory/external-identities/add-users-information-worker>

<https://learn.microsoft.com/azure/active-directory/external-identities/invite-internal-users>

<https://learn.microsoft.com/azure/active-directory/external-identities/add-user-without-invite>

1. How will you decide to use self-service sign-up flow?

<https://learn.microsoft.com/azure/active-directory/external-identities/self-service-sign-up-user-flow>

1. Azure Active Directory B2B best practices –

<https://docs.microsoft.com/azure/active-directory/external-identities/b2b-fundamentals>

1. Azure Active Directory B2B collaboration demonstration –

<https://azure.microsoft.com/resources/videos/azure-active-directory-b2b-collaboration-demo>

1. Why would you consider Azure AD B2C?

<https://learn.microsoft.com/azure/active-directory-b2c/overview>

<https://learn.microsoft.com/azure/active-directory/external-identities/compare-with-b2c?bc=/azure/active-directory-b2c/bread/toc.json&toc=/azure/active-directory-b2c/TOC.json#compare-external-identities-solutions>

1. When deciding to use Azure AD B2B, will you consider which identity providers are supported?

<https://learn.microsoft.com/azure/active-directory-b2c/technical-overview#sign-in-with-external-identity-providers>

1. How will you determine the user flow and if it should be customized?

<https://learn.microsoft.com/azure/active-directory-b2c/user-flow-overview>

1. What is Azure Active Directory B2C? –

<https://docs.microsoft.com/azure/active-directory-b2c/overview>

1. Conditional Access -

<https://docs.microsoft.com/azure/active-directory/conditional-access/overview>

1. What is identity protection?

<https://docs.microsoft.com/azure/active-directory/identity-protection/overview-identity-protection>

1. What are Azure AD access reviews? –

<https://docs.microsoft.com/azure/active-directory/governance/access-reviews-overview>

1. Managed identities –

<https://docs.microsoft.com/azure/active-directory/managed-identities-azure-resources/overview>

1. Infrastructure protection –

<https://docs.microsoft.com/learn/modules/azure-well-architected-security/4-infrastructure-protection>

1. Managed identities overview –

<https://docs.microsoft.com/azure/active-directory/managed-identities-azure-resources/overview>

1. Authenticate apps with managed identities –

<https://docs.microsoft.com/learn/modules/authenticate-apps-with-managed-identities/2-service-principals>

1. Application and service principal objects in Azure Active Directory –

<https://docs.microsoft.com/azure/active-directory/develop/app-objects-and-service-principals>

1. Azure Key Vault basic concepts –

<https://docs.microsoft.com/azure/key-vault/general/basic-concepts>

**MODULE 08 | Design a solution to log and monitor Azure resources**

1. Azure Monitor features –

<https://docs.microsoft.com/learn/modules/analyze-infrastructure-with-azure-monitor-logs/2-features-azure-monitor-log>

1. Best practices for monitoring cloud applications –

<https://docs.microsoft.com/azure/architecture/best-practices/monitoring>

1. Best practices for costing and sizing resources hosted in Azure –

<https://docs.microsoft.com/azure/cloud-adoption-framework/govern/cost-management/best-practices#best-practice-use-azure-cost-management--billing>

1. Azure Active Directory reporting –

<https://docs.microsoft.com/azure/active-directory/reports-monitoring/overview-reports>

1. Sources of monitoring data –

<https://docs.microsoft.com/en-us/azure/azure-monitor/agents/data-sources>

1. Overview of Log Analytics in Azure Monitor –

<https://docs.microsoft.com/azure/azure-monitor/logs/log-analytics-overview>

1. What are Azure Monitor Logs and Azure Monitor VM Insights?–

<https://docs.microsoft.com/learn/modules/monitor-performance-using-azure-monitor-for-vms/2-what-are-azure-monitor-logs-vms>

1. Designing your Azure Monitor Logs deployment -

<https://docs.microsoft.com/azure/azure-monitor/platform/design-logs-deployment>

1. Overview of Azure Monitor agents –

<https://docs.microsoft.com/azure/azure-monitor/platform/agents-overview>

1. Azure Monitor Workbooks –

<https://docs.microsoft.com/azure/azure-monitor/visualize/workbooks-overview>

1. What is Application Insights?

<https://docs.microsoft.com/azure/azure-monitor/app/app-insights-overview>

1. Enable Application Insights on an Azure web app –

<https://docs.microsoft.com/learn/modules/capture-page-load-times-application-insights/2-enable-application-insights>

1. Data Explorer –

<https://azure.microsoft.com/services/data-explorer/>

**MODULE 09 | Design a network infrastructure solution**

1. Why would you want to create multiple virtual networks or subnets?

<https://learn.microsoft.com/azure/architecture/reference-architectures/hybrid-networking/network-level-segmentation>

<https://learn.microsoft.com/azure/virtual-network/virtual-network-vnet-plan-design-arm>

1. Why is important that virtual network address ranges do not overlap?

<https://learn.microsoft.com/azure/cloud-adoption-framework/migrate/azure-best-practices/migrate-best-practices-networking#best-practice-plan-ip-addressing>

1. Should you allow spokes to communicate with each other directly? Why?

<https://learn.microsoft.com/azure/architecture/reference-architectures/hybrid-networking/hub-spoke?tabs=cli>

1. Plan virtual networks –

<https://docs.microsoft.com/azure/virtual-network/virtual-network-vnet-plan-design-arm>

1. What is ExpressRoute –

<https://docs.microsoft.com/azure/expressroute/expressroute-introduction>

1. Decision tree –

<https://docs.microsoft.com/azure/architecture/guide/technology-choices/load-balancing-overview#decision-tree-for-load-balancing-in-azure>

1. Point out that the Portal has information that will help you choose a solution

<https://portal.azure.com/?feature.customportal=false#blade/Microsoft_Azure_Network/LoadBalancingHubMenuBlade/overview>

1. What is Azure Load Balancer? –

<https://docs.microsoft.com/azure/load-balancer/load-balancer-overview>

1. What is Azure Application Gateway? –

<https://docs.microsoft.com/azure/application-gateway/overview>

1. What is a content delivery network on Azure? –

<https://docs.microsoft.com/azure/cdn/cdn-overview>

1. What is Azure Front Door? –

<https://docs.microsoft.com/azure/frontdoor/front-door-overview>

1. What is Traffic Manager? –

<https://docs.microsoft.com/azure/traffic-manager/traffic-manager-overview>

1. Azure Firewall (Learn) –

<https://docs.microsoft.com/learn/modules/introduction-azure-firewall/>

1. What is Azure Firewall? –

<https://docs.microsoft.com/azure/firewall/overview>

1. Web Application Firewall –

<https://docs.microsoft.com/azure/web-application-firewall/overview>

1. DDoS Protection –

<https://docs.microsoft.com/azure/ddos-protection/ddos-protection-reference-architectures>

1. Azure Bastion –

<https://docs.microsoft.com/azure/bastion/bastion-overview>

**MODULE 10 | Design a business continuity solution**

1. Why do you need both disaster recovery and backup?

<https://learn.microsoft.com/training/modules/describe-high-availability-disaster-recovery-strategies/3-explore-high-availability-disaster-recovery-options>

1. Why would you test your disaster recovery?
2. Enterprise-scale business continuity and disaster recovery –

<https://docs.microsoft.com/azure/cloud-adoption-framework/ready/enterprise-scale/business-continuity-and-disaster-recovery>

1. Backup and disaster recovery for Azure applications

<https://docs.microsoft.com/azure/architecture/framework/resiliency/backup-and-recovery>

1. In what scenarios can you use Azure Backup?

<https://learn.microsoft.com/azure/backup/backup-support-matrix>

<https://learn.microsoft.com/azure/backup/backup-azure-sql-database>

1. How will you determine the cost of backups?

<https://azure.microsoft.com/en-us/pricing/details/backup/>

1. What will you consider when determining what to backup and how long to retain backups?

<https://learn.microsoft.com/azure/backup/backup-azure-vm-backup-faq>

<https://learn.microsoft.com/azure/backup/archive-tier-support>

1. Why is it important to protect your Azure Backup? How can you accomplish this?

<https://learn.microsoft.com/azure/backup/guidance-best-practices#security-considerations>

1. Azure Backup –

https://docs.microsoft.com/azure/backup/backup-overview

1. Recovery Services vaults overview –

<https://docs.microsoft.com/azure/backup/backup-azure-recovery-services-vault-overview>

1. Vault considerations –

<https://docs.microsoft.com/azure/backup/guidance-best-practices#vault-considerations>

1. Backup policy considerations –

<https://docs.microsoft.com/azure/backup/guidance-best-practices#backup-policy-considerations>

1. What is Azure Backup? –

<https://docs.microsoft.com/learn/modules/intro-to-azure-backup/2-what-is-azure-backup>

1. What are the Azure Blob storage features you can use to recover data without Azure Backup?

<https://learn.microsoft.com/azure/storage/blobs/data-protection-overview>

1. What are your options for a Point-in-time restore on Azure Blob storage?

<https://learn.microsoft.com/azure/storage/blobs/point-in-time-restore-overview>

1. Container soft delete –

<https://docs.microsoft.com/azure/storage/blobs/soft-delete-container-enable>

1. Blob soft delete –

<https://docs.microsoft.com/azure/storage/blobs/soft-delete-blob-enable>

1. Blob versioning –

<https://docs.microsoft.com/azure/storage/blobs/versioning-enable>

1. Point-in-time restore for block blobs –

<https://docs.microsoft.com/azure/storage/blobs/point-in-time-restore-overview>

1. Overview of share snapshots for Azure Files –

<https://docs.microsoft.com/azure/storage/files/storage-snapshots-files>

1. What will you consider when planning a restore strategy for your virtual machines?
2. What is the difference between snapshot tier and vault tier?

<https://learn.microsoft.com/azure/backup/about-azure-vm-restore>

1. Azure virtual machines backups –

<https://docs.microsoft.com/azure/backup/backup-azure-vms-introduction>

1. Monitoring and Alerting considerations –

<https://docs.microsoft.com/azure/backup/guidance-best-practices#monitoring-and-alerting-considerations>

1. Support matrix for backup with Microsoft Azure Backup Server or System Center DPM –

<https://docs.microsoft.com/azure/backup/backup-support-matrix-mabs-dpm>

1. Backup cloud and on-premises workloads to cloud –

<https://docs.microsoft.com/azure/backup/guidance-best-practices>

1. Back up an Azure virtual machine by using Azure Backup –

<https://docs.microsoft.com/learn/modules/protect-virtual-machines-with-azure-backup/3-back-up-azure-virtual-machine>

1. What will you consider when determining how to backup your Azure SQL database?

<https://learn.microsoft.com/azure/azure-sql/database/automated-backups-overview?tabs=single-database>

1. What will you consider when determining how to restore your Azure SQL database?

<https://learn.microsoft.com/azure/azure-sql/database/business-continuity-high-availability-disaster-recover-hadr-overview>

1. Full backups –

<https://docs.microsoft.com/sql/relational-databases/backup-restore/full-database-backups-sql-server>

1. Differential backups –

<https://docs.microsoft.com/sql/relational-databases/backup-restore/differential-backups-sql-server>

1. Transaction log backups –

<https://docs.microsoft.com/sql/relational-databases/backup-restore/transaction-log-backups-sql-server>

1. Restore an existing database to a point in time in the past-

<https://docs.microsoft.com/azure/azure-sql/database/recovery-using-backups>

1. Restore a deleted database to the time of deletion –

<https://docs.microsoft.com//azure/azure-sql/database/recovery-using-backups>

1. Restore a database to another geographic region –

<https://docs.microsoft.com/azure/azure-sql/database/recovery-using-backups>

1. Restore a database from a specific long-term backup –

<https://docs.microsoft.com/azure/azure-sql/database/long-term-retention-overview>

1. Why would you choose Azure Site Recovery over another (3rd-party) solution?

<https://learn.microsoft.com/en-us/azure/site-recovery/site-recovery-overview>

1. Why would you combine Azure Site Recovery with Azure Backup?

<https://learn.microsoft.com/azure/site-recovery/site-recovery-backup-interoperability>

1. About Site Recovery –

<https://docs.microsoft.com/azure/site-recovery/site-recovery-overview>

1. Azure to Azure disaster recovery architecture –

<https://docs.microsoft.com/azure/site-recovery/azure-to-azure-architecture>

1. Azure Site Recovery overview

<https://docs.microsoft.com/learn/modules/protect-on-premises-infrastructure-with-azure-site-recovery/2-azure-site-recovery-overview>

**MODULE 11 | Design a migration solution**

1. The cloud adoption journey –

<https://azure.microsoft.com/cloud-adoption-framework/#cloud-adoption-journey>

1. Azure migration guide overview –

<https://docs.microsoft.com/azure/cloud-adoption-framework/migrate/azure-migration-guide>

1. Azure cloud migration best practices checklist –

<https://docs.microsoft.com/azure/cloud-adoption-framework/migrate/azure-best-practices>

1. Microsoft Cloud Adoption Framework for Azure –

<https://docs.microsoft.com/learn/modules/microsoft-cloud-adoption-framework-for-azure/>

1. Cloud Adoption Framework migration model –

<https://docs.microsoft.com/azure/cloud-adoption-framework/migrate/migration-considerations/>

1. The One Migrate approach to migrating the IT portfolio –

<https://docs.microsoft.com/azure/cloud-adoption-framework/scenarios>

1. Overview of application migration examples for Azure –

<https://docs.microsoft.com/azure/cloud-adoption-framework/migrate/azure-best-practices/contoso-migration-overview>

1. Plan your Azure migration –

<https://docs.microsoft.com/learn/modules/design-your-migration-to-azure/2-plan-your-azure-migration>

1. And more Integration Tools –

<https://docs.microsoft.com/azure/migrate/migrate-services-overview#integrated-tools>

1. Which migration tools will be used by your organization?

<https://learn.microsoft.com/azure/cloud-adoption-framework/migrate/azure-migration-guide/migrate?tabs=Tools>

1. When you use Azure Migrate (scenarios)?

<https://learn.microsoft.com/azure/cloud-adoption-framework/scenarios/>

1. What is the Azure App Service Migration Assistant?

<https://github.com/Azure/App-Service-Migration-Assistant/wiki>

<https://learn.microsoft.com/training/modules/migrate-app-service-migration-assistant/>

1. Why would you use Azure Resource Mover?

<https://learn.microsoft.com/azure/resource-mover/overview>

1. Which tool would you use to migrate the database schema?

<https://learn.microsoft.com/sql/dma/dma-overview?view=sql-server-ver15>

1. Which tool would you use to migrate the data?

<https://learn.microsoft.com/azure/dms/dms-overview>

1. Planning for an Azure File Sync deployment

<https://docs.microsoft.com/azure/storage/file-sync/file-sync-planning>

1. Migrate to Azure File Shares –

<https://docs.microsoft.com/azure/storage/files/storage-files-migration-overview>

1. When would you use Azure File Sync?

<https://learn.microsoft.com/azure/storage/files/storage-files-migration-overview?toc=/azure/storage/filesync/toc.json>

1. Storage Migration Service overview –

<https://docs.microsoft.com/windows-server/storage/storage-migration-service/overview>

1. When would you use the Windows Storage Migration Service?

<https://learn.microsoft.com/windows-server/storage/storage-migration-service/overview#why-use-storage-migration-service>

1. What is Azure Import/Export service? –

<https://docs.microsoft.com/azure/import-export/storage-import-export-service>

1. Export large amounts of data from Azure by using Azure Import/Export

<https://docs.microsoft.com/learn/modules/export-data-with-azure-import-export/>

1. What is Azure Data Box? –

<https://docs.microsoft.com/azure/databox/data-box-overview>

1. Migrate data offline to Azure File Sync with Azure Data Box –

<https://docs.microsoft.com/azure/storage/files/storage-files-migration-server-hybrid-databox>

1. Move large amounts of data to the cloud by using Azure Data Box family –

<https://docs.microsoft.com/learn/modules/move-data-with-azure-data-box/>

1. When would you use the Azure Import/Export service?

<https://learn.microsoft.com/azure/import-export/storage-import-export-service>

1. When would you use Data Box?

<https://learn.microsoft.com/azure/databox/data-box-overview>

1. What other tools can you use to import/export moderate volumes of data?

<https://learn.microsoft.com/azure/storage/common/storage-use-azcopy-v10>

***LINKS - references***

**MODULE 01 | Design a governance solution**

For more information, refer to the following links:

* Build a cloud governance strategy on Azure Learn | Microsoft Docs –
  + <https://docs.microsoft.com/learn/modules/build-cloud-governance-strategy-azure/>
* Describe core Azure architectural components Learn | Microsoft Docs –
  + <https://docs.microsoft.com/learn/modules/azure-architecture-fundamentals/>
* Microsoft Cloud Adoption Framework for Azure Learn | Microsoft Docs –
  + <https://docs.microsoft.com/learn/modules/microsoft-cloud-adoption-framework-for-azure/>
* Introduction to enterprise-scale landing zones in the Microsoft Cloud Adoption Framework for Azure
  + <https://docs.microsoft.com/learn/modules/enterprise-scale-introduction/>
* Choose the best Azure landing zone to support your requirements for cloud operations
  + <https://docs.microsoft.com/learn/modules/cloud-adoption-framework-ready/>

**MODULE 02 | Design a compute solution**

* Learn - https://docs.microsoft.com/learn/browse/
  + [Exercise - Create a web app in the Azure portal - Learn | Microsoft Docs](https://docs.microsoft.com/learn/modules/host-a-web-app-with-azure-app-service/3-exercise-create-a-web-app-in-the-azure-portal?pivots=csharp)
  + [Exercise - Create a Windows virtual machine - Learn | Microsoft Docs](https://docs.microsoft.com/learn/modules/create-windows-virtual-machine-in-azure/3-exercise-create-a-vm)
  + [Exercise - Create the social media tracker Logic App - Learn | Microsoft Docs](https://docs.microsoft.com/learn/modules/route-and-process-data-logic-apps/4-ex-create-social-media-tracker)
* Choose the best Azure service to automate your business processes - Learn | Microsoft Docs - <https://docs.microsoft.com/learn/modules/choose-azure-service-to-integrate-and-automate-business-processes/>
* Align requirements with cloud types and service models in Azure - Learn | Microsoft Docs - <https://docs.microsoft.com/learn/modules/align-requirements-in-azure/>
* Introduction to Azure virtual machines - Learn | Microsoft Docs –

<https://docs.microsoft.com/learn/modules/intro-to-azure-virtual-machines/>

* Create an Azure Batch account by using the Azure portal - Learn | Microsoft Docs - <https://docs.microsoft.com/learn/modules/create-batch-account-using-azure-portal/>
* Create serverless logic with Azure Functions - Learn | Microsoft Docs - <https://docs.microsoft.com/learn/modules/create-serverless-logic-with-azure-functions/>
* Introduction to Azure Logic Apps - Learn | Microsoft Docs –

<https://docs.microsoft.com/learn/modules/intro-to-logic-apps/>

* Host a web application with Azure App Service - Learn | Microsoft Docs - <https://docs.microsoft.com/learn/modules/host-a-web-app-with-azure-app-service/>
* Introduction to Azure Kubernetes Service - Learn | Microsoft Docs –

<https://docs.microsoft.com/learn/modules/intro-to-azure-kubernetes-service/>

**The Compute Solutions**

* There is a simple Linux and VM architecture.
* Run a Windows VM on Azure –
* <https://docs.microsoft.com/azure/architecture/reference-architectures/n-tier/windows-vm>
* Run a Linux VM on Azure –
* <https://docs.microsoft.com/azure/architecture/reference-architectures/n-tier/linux-vm>
* This scenario shows a workflow that uses Azure Batch.
* A computer-aided engineering service –
* <https://docs.microsoft.com/azure/architecture/example-scenario/infrastructure/video-rendering>
* This scenario shows a basic App Service plan and App Service web app. Focus on the components in this module.
* Basic web application –
* <https://docs.microsoft.com/azure/architecture/reference-architectures/app-service-web-app/basic-web-app>
* This scenario shows a pipeline with different components. Focus on the container parts.
* Pipeline for container-based workloads –
* <https://docs.microsoft.com/azure/architecture/example-scenario/apps/devops-with-aks>
* This scenario combines App Service Plan with Function App. It also address high availability. Front Door will be covered in Networking.
* Sharing location in real time using low-cost serverless Azure services –
* <https://docs.microsoft.com/azure/architecture/example-scenario/signalr/>

**MODULE 03 | Design a non-relational data storage solution**

* Optional hands-on exercise: Exercise - Create a storage account using the Azure portal - Learn | Microsoft Docs
* <https://docs.microsoft.com/learn/modules/create-azure-storage-account>

Learn more with self-paced training

* Choose the right disk storage for your virtual machine workload - Learn | Microsoft Docs –
* <https://docs.microsoft.com/learn/modules/choose-the-right-disk-storage-for-vm-workload/>
* Configure blob storage - Learn | Microsoft Docs –
* <https://docs.microsoft.com/learn/modules/configure-blob-storage/>
* Optimize performance and costs by using Azure Disk Storage - Learn | Microsoft Docs –
* <https://docs.microsoft.com/learn/modules/optimize-performance-and-costs-using-azure-disk-storage/>
* Caching and performance in Azure storage disks - Learn | Microsoft Docs –
* <https://docs.microsoft.com/learn/modules/caching-and-performance-azure-storage-and-disks/>
* Secure your Azure virtual machine disks - Learn | Microsoft Docs –
* <https://docs.microsoft.com/learn/modules/secure-your-azure-virtual-machine-disks/>
* Introduction to securing data at rest on Azure - Learn | Microsoft Docs –
* <https://docs.microsoft.com/learn/modules/secure-data-at-rest/>
* Introduction to Azure NetApp Files –
* <https://docs.microsoft.com/learn/modules/introduction-to-azure-netapp-files/>

**The Compute Solutions**

This scenario focuses on file services.

* Hybrid file services –
* <https://docs.microsoft.com/azure/architecture/hybrid/hybrid-file-services>
* Archive your on-premises data to Azure Blob storage –
* <https://docs.microsoft.com/azure/architecture/solution-ideas/articles/backup-archive-on-premises>

**MODULE 04 | Design a data storage solution for relational data**

Optional hands-on lab - Exercise - Create a SQL database - Learn | Microsoft Docs

* Choose the appropriate API for Azure Cosmos DB –
* https://docs.microsoft.com/learn/modules/choose-api-for-cosmos-db/
* Introduction to securing data at rest on Azure –
* https://docs.microsoft.com/learn/modules/secure-data-at-rest/
* Secure your Azure SQL database –
* https://docs.microsoft.com/learn/modules/secure-your-azure-sql-database/
* Scale multiple Azure SQL Databases with SQL elastic pools –
* https://docs.microsoft.com//learn/modules/scale-sql-databases-elastic-pools/
* Configure database authentication and authorization –
* https://docs.microsoft.com/learn/modules/configure-database-authentication-authorization/

**The Compute Solutions**

* Architecture diagram as explained in the reference page:
* https://docs.microsoft.com/azure/architecture/solution-ideas/articles/gaming-using-azure-database-for-mysql
* Architecture diagram as explained in the reference page:
* https://docs.microsoft.com/azure/architecture/solution-ideas/articles/multi-region-web-app-multi-writes-azure-table

**Extra compare of Azure table Storage vs Azure Cosmos DB**

Applications written for Azure Table storage can migrate to the Cosmos DB Table API with few code changes.

Azure Cosmos DB Table API and Azure Table storage share the same table data model and expose the same create, delete, update, and query operations through their SDKs.

If you currently use Azure Table Storage, you gain the following benefits by moving to the Azure Cosmos DB Table API:

Latency

* Azure Table Storage - Fast, but no upper bounds on latency.
* Azure Cosmos DB Table API - Single-digit millisecond latency for reads and writes, backed with <10-ms latency reads and <15-ms latency writes at the 99th percentile, at any scale, anywhere in the world.

Throughput

* Azure Table Storage - Variable throughput model. Tables have a scalability limit of 20,000 operations.
* Azure Cosmos DB Table API - Highly scalable with dedicated reserved throughput per table that's backed by SLAs. Accounts have no upper limit on throughput and support >10 million operations/s per table (in provisioned throughput mode).

Global distribution

* Azure Table Storage - Single region with one optional readable secondary read region for high availability.
* Azure Cosmos DB Table API - Turnkey global distribution from one to 30+ regions.

Indexing

* Azure Table Storage - Only primary index on PartitionKey and RowKey. No secondary indexes.
* Azure Cosmos DB Table API - Automatic and complete indexing on all properties, no index management.

Query

* Azure Table Storage - Query execution uses index for primary key, and scans otherwise.
* Azure Cosmos DB Table API - Queries can take advantage of automatic indexing on properties for fast query times.

Consistency

* Azure Table Storage - Strong within primary region.
* Azure Cosmos DB Table API - Five well-defined consistency levels to trade off availability, latency, throughput, and consistency.

**MODULE 05 | Design a data integration solution**

Learn more with self-paced training

* Data integration at scale Azure Data Factory - Learn | Microsoft Docs –

<https://docs.microsoft.com/learn/paths/data-integration-scale-azure-data-factory/>

* Explore Azure database and analytics services - Learn | Microsoft Docs –

<https://docs.microsoft.com/learn/modules/azure-database-fundamentals/>

* Explore concepts of data analytics - Learn | Microsoft Docs –

<https://docs.microsoft.com/learn/modules/explore-concepts-of-data-analytics/>

* Focus on how car dealerships, manufacturers, and insurance companies can use Microsoft Azure to gain predictive insights on vehicle health and driving habits using Azure managed services like Event Hub, Stream Analytics and Synapse Analytics. See the reference architecture here:

<https://docs.microsoft.com/azure/architecture/solution-ideas/articles/predictive-insights-with-vehicle-telematics>

**MODULE 06 | Design an application architecture solution**

Optional hands-on exercise –

<https://docs.microsoft.com/learn/modules/implement-message-workflows-with-service-bus/3-exercise-implement-a-service-bus-topic-and-queue>

Learn more with self-paced training

* Choose a messaging model in Azure to loosely connect your services - Learn –

<https://docs.microsoft.com/learn/modules/implement-message-workflows-with-service-bus/>

* Introduction to Azure API Management - Learn –

<https://docs.microsoft.com/learn/modules/introduction-to-azure-api-management/>

* Introduction to Event Hubs - Learn –

<https://docs.microsoft.com/learn/modules/intro-to-event-hubs/>

* Deploy Azure infrastructure by using JSON ARM templates - Learn –

<https://docs.microsoft.com/learn/modules/create-azure-resource-manager-template-vs-code/>

* Introduction to infrastructure as code using Bicep - Learn –

<https://docs.microsoft.com/learn/modules/introduction-to-infrastructure-as-code-using-bicep/>

* Message queues and stream processing - Learn –

<https://docs.microsoft.com/learn/modules/cmu-message-queues-streams/>

* Introduction to Azure Cache for Redis –

<https://docs.microsoft.com/learn/modules/intro-to-azure-cache-for-redis/>

**MODULE 07 | Design Authentication and Authorization Solutions**

* Plan, implement, and administer conditional access - Learn | Microsoft Docs –

<https://docs.microsoft.com/learn/modules/plan-implement-administer-conditional-access/>

* Plan, implement, and manage access review - Learn | Microsoft Docs –

<https://docs.microsoft.com/learn/modules/plan-implement-manage-access-review/>

* Create custom roles for Azure resources with Azure role-based access control (Azure RBAC) - Learn | Microsoft Docs -

<https://docs.microsoft.com/learn/modules/create-custom-azure-roles-with-rbac/>

* Enable secure external collaboration for your applications with Azure AD B2B - Learn | Microsoft Docs –

<https://docs.microsoft.com/learn/modules/enable-external-collaboration-with-b2b/>

* Enable secure access to apps for external users with Azure AD B2C - Learn | Microsoft Docs –

<https://docs.microsoft.com/learn/modules/enable-external-access-with-b2c/>

* Configure and manage secrets in Azure Key Vault –

<https://docs.microsoft.com/learn/modules/configure-and-manage-azure-key-vault/>

* Manage secrets in your server apps with Azure Key Vault –

<https://docs.microsoft.com/learn/modules/manage-secrets-with-azure-key-vault/>

* Authenticate apps to Azure services by using service principals and managed identities for Azure resources –

<https://docs.microsoft.com/learn/modules/authenticate-apps-with-managed-identities/>

**MODULE 08 | Design a solution to log and monitor Azure resources**

* Design a holistic monitoring strategy on Azure –

<https://docs.microsoft.com/learn/modules/design-monitoring-strategy-on-azure/>

* Analyze your Azure infrastructure by using Azure Monitor logs –

<https://docs.microsoft.com/learn/modules/analyze-infrastructure-with-azure-monitor-logs/>

* Choose the best monitoring service for visibility, insight, and outage mitigation –

<https://docs.microsoft.com/learn/modules/monitoring-fundamentals/>

* Monitor performance of virtual machines by using Azure Monitor VM Insights –

<https://docs.microsoft.com/learn/modules/monitor-performance-using-azure-monitor-for-vms/>

* Capture and view page load times in your Azure web app with Application Insights –

<https://docs.microsoft.com/learn/modules/capture-page-load-times-application-insights/>

**MODULE 09 | Design a network infrastructure solution**

Defense In Depth

* Identity and Access – (PIM, Conditional Access)
* Perimeter (DDoS Azure Firewall)
* Network (NSG, ASG, Micro-segmentation)
* Compute (Host security)
* Application (Container security)
* Data (Defender and Information Protection)

System Routes

* When you need traffic routed between VMs in the same virtual network or peered virtual networks
* You need communication between VMs using a VNet-to-VNet VPN
* You need site-to-site communication through ExpressRoute or a VPN gateway

User Defined Routes (UDRs)

* You want to enable filtering of Internet traffic via Azure Firewall or forced tunneling.
* You want traffic between subnets to flow though an NVA.
* You need to create routes to specify how packets should be routed in a virtual network.
* You need to create routes that control network traffic and specify the next hop in the traffic flow.

### Learn more with self-paced training

- Introduction to Azure Virtual Networks - Learn –

<https://docs.microsoft.com/learn/modules/introduction-to-azure-virtual-networks/>

- Design and implement Azure ExpressRoute - Learn –

<https://docs.microsoft.com/learn/modules/design-implement-azure-expressroute/>

- Introduction to Azure Virtual WAN -  Learn –

<https://docs.microsoft.com/learn/modules/introduction-azure-virtual-wan/>

- Design and implement hybrid networking - Learn –

<https://docs.microsoft.com/learn/modules/design-implement-hybrid-networking/>

- Design and implement private access to Azure Services - Learn –

<https://docs.microsoft.com/learn/modules/design-implement-private-access-to-azure-services/>

- Enhance your service availability and data locality by using Azure Traffic Manager - Learn - <https://docs.microsoft.com/learn/modules/distribute-load-with-traffic-manager/>

- Introduction to Azure Bastion - Learn –

<https://docs.microsoft.com/learn/modules/intro-to-azure-bastion/>

- Introduction to Azure Web Application Firewall - Learn –

<https://docs.microsoft.com/learn/modules/introduction-azure-web-application-firewall/>

- Introduction to Azure Firewall - Learn –

<https://docs.microsoft.com/learn/modules/introduction-azure-firewall/>

- Introduction to Azure Front Door - Learn –

<https://docs.microsoft.com/learn/modules/intro-to-azure-front-door/>

**The Network Solutions**

* Focus on the use of Front door and Azure CDN but tie together the application scalability and performance. See reference architecture here for explanations:
  + <https://docs.microsoft.com/azure/architecture/reference-architectures/app-service-web-app/scalable-web-app>
* Focus on the use of private endpoints but tie in the application architecture and compute choices. See reference architecture here for explanations:
  + <https://docs.microsoft.com/azure/architecture/solution-ideas/articles/serverless-event-processing-private-link>

**MODULE 10 | Design a business continuity solution**

This module does not have a case study. Use this slide to review the options.

You have Azure VMs running production workloads – Azure backup

You need application-consistent backups for Linux VM - azure backup

You need to cover disaster scenarios like an entire regional outage – Azure Site Recovery

You need a read-only full copy of a managed disk – snapshot

You need to back up your managed disks at any point in time – snapshot or azure backup

You need to back up on-premises machines and workloads – Azure Backup or MABS?

Learn - <https://docs.microsoft.com/learn/browse/>

Protect your virtual machines by using Azure Backup –

<https://docs.microsoft.com/learn/modules/implement-hybrid-backup-recovery-windows-server-iaas/>

Disaster recovery and backup –

<https://docs.microsoft.com/learn/modules/cmu-disaster-recovery-backup/>

Back up and restore your Azure SQL database –

<https://docs.microsoft.com/learn/modules/backup-restore-azure-sql/>

Protect your Azure infrastructure with Azure Site Recovery –

<https://docs.microsoft.com/learn/modules/protect-infrastructure-with-site-recovery/>

Protect your on-premises infrastructure from disasters with Azure Site Recovery - <https://docs.microsoft.com/learn/modules/protect-on-premises-infrastructure-with-azure-site-recovery/>

Design your site recovery solution in Azure –

<https://docs.microsoft.com/learn/modules/design-your-site-recovery-solution-in-azure/>

Configure file and folder backups –

<https://docs.microsoft.com/learn/modules/configure-file-folder-backups/>

Optional hands-on lab - Backup and restore your Azure SQL database - Learn | Microsoft Docs - <https://docs.microsoft.com/learn/modules/backup-restore-azure-sql/3-exercise-configure-backup>

**MODULE 11 | Design a migration solution**

Learn –

<https://docs.microsoft.com/learn/browse/>

Design your migration to Azure - Learn | Microsoft Docs –

<https://docs.microsoft.com/learn/modules/design-your-migration-to-azure/>

Accelerate your migration journey to Azure - Learn | Microsoft Docs - <https://docs.microsoft.com/learn/modules/accelerate-azure-migration-journey/>

Applications and infrastructure migration and modernization - Learn | Microsoft Docs - <https://docs.microsoft.com/learn/modules/app-and-infra-migration-and-modernization/>

Migrate your relational data stored in SQL Server to Azure SQL Database - Learn | Microsoft Docs - <https://docs.microsoft.com/learn/modules/migrate-sql-server-relational-data/>

Prepare on-premises workloads for migration to Azure - Learn | Microsoft Docs - <https://docs.microsoft.com/learn/modules/prepare-onpremises-workloads-migration-azure/>

Migrate on-premises workloads to Azure - Learn | Microsoft Docs - <https://docs.microsoft.com/learn/modules/migrate-on-premises-workloads-azure/>

Set up Azure Migrate for server migration - Learn | Microsoft Docs - <https://docs.microsoft.com/learn/modules/m365-azure-migrate-set-up/>

Export large amounts of data from Azure by using Azure Import/Export - - <https://docs.microsoft.com/learn/modules/export-data-with-azure-import-export/>

Export large amounts of data from Azure by using Data Box –

<https://docs.microsoft.com/learn/modules/move-data-with-azure-data-box/>

**Hands-on demonstrations and exercises**

• If you feel labs would benefit from demonstrations consider using these

interactive lab simulations:

o AZ-104 Lab Simulations - Microsoft Azure Administrator

[AZ-104 Exam Guide - Microsoft Azure Administrator (cloudguides.com)](https://mslabs.cloudguides.com/guides/AZ-104%20Exam%20Guide%20-%20Microsoft%20Azure%20Administrator)

o AZ-900 Lab Simulations - Microsoft Azure Fundamentals

[AZ-900 Exam Guide - Azure Fundamentals (cloudguides.com)](https://mslabs.cloudguides.com/en-us/guides/AZ-900%20Exam%20Guide%20-%20Azure%20Fundamentals)

Azure Architecture icons, if needed, can be downloaded here:

<https://docs.microsoft.com/azure/architecture/icons/>