# Online Resources

[Pluralsight - Learning Path - Microsoft Azure Architect Design (AZ-301)](https://app.pluralsight.com/paths/skills/microsoft-azure-architect-design-az-301)

# [Determine Workload Requirements (10-15%)](https://www.microsoft.com/en-us/learning/exam-az-301.aspx#syllabus-1)

## Gather Information and Requirements

* Identify compliance requirements,
* identity and access management infrastructure, and service-oriented architectures (e.g., integration patterns, service design, service discoverability);
* identify accessibility (e.g. Web Content Accessibility Guidelines), availability (e.g. Service Level Agreement), capacity planning and scalability, deploy-ability (e.g., repositories, failback, slot-based deployment), configurability, governance, maintainability (e.g. logging, debugging, troubleshooting, recovery, training), security (e.g. authentication, authorization, attacks), and sizing (e.g. support costs, optimization) requirements;
* recommend changes during project execution (ongoing);
* evaluate products and services to align with solution;
* create testing scenarios

[Pluralsight - Gathering Information About Existing Enterprise Architecture in Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-enterprise-architecture-information-gathering/table-of-contents)

[Pluralsight - Gathering Non-functional Requirements for Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-non-functional-requirements-gathering/table-of-contents)

[Pluralsight - Determining Feasibility and Refining Requirements for Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-feasibility-determining-requirements-refining)

[Azure - Trust Center](https://www.microsoft.com/en-us/trustcenter/cloudservices/azure)

## Optimize Consumption Strategy

* Optimize app service, compute, identity, network, and storage costs

[Pluralsight - Estimating One-time and Recurring Costs for Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-one-time-costs-estimating-recurring)

[Pluralsight - Design a Compute Strategy for Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-compute-strategy-design)

[App Service Pricing](https://azure.microsoft.com/en-au/pricing/details/app-service/windows/)

## Design an Auditing and Monitoring Strategy

* Define logical groupings (tags) for resources to be monitored;
  + [Use tags to organize your Azure resources](https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-using-tags)
* determine levels and storage locations for logs;
  + [Collect and consume log data from your Azure resources](ghttps://docs.microsoft.com/en-us/azure/azure-monitor/platform/diagnostic-logs-overview)
  + [Azure logging and auditing](https://docs.microsoft.com/en-us/azure/security/azure-log-audit)
* plan for integration with monitoring tools;
  + [Azure Monitor overview](https://docs.microsoft.com/en-us/azure/azure-monitor/overview)
  + [End-to-end monitoring solutions in Azure for Apps and Infrastructure](https://azure.microsoft.com/en-ca/blog/revamped-solutions-in-azure-for-application-and-infrastructure-monitoring/)
  + [What is Application Insights?](https://docs.microsoft.com/en-us/azure/azure-monitor/app/app-insights-overview)
* recommend appropriate monitoring tool(s) for a solution;
  + [Event Grid](https://azure.microsoft.com/en-ca/services/event-grid/)
  + [What is Azure Event Grid?](https://docs.microsoft.com/en-us/azure/event-grid/overview)
  + [Stream Azure Diagnostic Logs to an event hub](https://docs.microsoft.com/en-us/azure/azure-monitor/platform/diagnostic-logs-stream-event-hubs)
* specify mechanism for event routing and escalation;
  + [Archive activity log](https://docs.microsoft.com/en-us/azure/azure-monitor/platform/archive-activity-log)
  + [Archive diagnostic logs](https://docs.microsoft.com/en-us/azure/azure-monitor/platform/archive-diagnostic-logs)
  + [Store diagnostic logs](https://docs.microsoft.com/en-us/azure/azure-monitor/platform/diagnostic-logs-stream-log-store)
  + [Azure resource data to Event Hub](https://docs.microsoft.com/en-us/azure/azure-monitor/platform/stream-monitoring-data-event-hubs)
  + [Stream activity log to Event Hubs](https://docs.microsoft.com/en-us/azure/azure-monitor/platform/activity-logs-stream-event-hubs)
  + [Diagnostic logs to Event Hub](https://docs.microsoft.com/en-us/azure/azure-monitor/platform/diagnostic-logs-stream-event-hubs)
  + [Application data to Log Analytics](https://docs.microsoft.com/en-us/azure/azure-monitor/platform/app-insights-connector)
* design auditing for compliance requirements;
  + [Compliance and supporting information for Azure Information Protection](https://docs.microsoft.com/en-us/azure/information-protection/compliance)
* design auditing policies and traceability requirements
  + [Azure logging and auditing](https://docs.microsoft.com/en-us/azure/security/azure-log-audit)

[Pluralsight - Designing a Monitoring Strategy for a Solution in Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-monitoring-strategy-solution-designing)

[Pluralsight - Design Auditing for Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-auditing-design)

# [Design for Identity and Security (20-25%)](https://www.microsoft.com/en-us/learning/exam-az-301.aspx#syllabus-2)

## Design Identity Management

* Choose an identity management approach;
  + [Azure Identity Management and access control security best practices](https://docs.microsoft.com/en-us/azure/security/azure-security-identity-management-best-practices)
  + [Identity and access management (IAM)](https://azure.microsoft.com/en-us/product-categories/identity/)
* design an identity delegation strategy, identity repository (including directory, application, systems, etc.);
  + [When to Use Identity Delegation](https://docs.microsoft.com/en-us/windows-server/identity/ad-fs/design/when-to-use-identity-delegation)
  + [Azure AD Connect and federation](https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-fed-whatis)
* design self-service identity management and user and persona provisioning;
  + [Managing user account provisioning for enterprise apps in the Azure portal](https://docs.microsoft.com/en-us/azure/active-directory/manage-apps/configure-automatic-user-provisioning-portal)
  + [How to configure self-service application assignment](https://docs.microsoft.com/en-us/azure/active-directory/manage-apps/manage-self-service-access)
* define personas and roles;
* recommend appropriate access control strategy (e.g., attribute-based, discretionary access, history-based, identity-based, mandatory, organization-based, role-based, rule-based, responsibility-based)
  + [What is role-based access control (RBAC) for Azure resources?](https://docs.microsoft.com/en-us/azure/role-based-access-control/overview)
  + [What is Azure AD Privileged Identity Management?](https://docs.microsoft.com/en-us/azure/active-directory/privileged-identity-management/pim-configure)
  + [How To: Configure the sign-in risk policy](https://docs.microsoft.com/en-us/azure/active-directory/identity-protection/howto-sign-in-risk-policy)
  + [What is conditional access in Azure Active Directory?](https://docs.microsoft.com/en-us/azure/active-directory/conditional-access/overview)
  + [How it works: Azure Multi-Factor Authentication](https://docs.microsoft.com/en-us/azure/active-directory/authentication/concept-mfa-howitworks)

[Pluralsight - Design Identity Management in Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-identity-management-design)

[Azure Active Directory (AD) Domain Services](https://docs.microsoft.com/en-us/azure/active-directory-domain-services/active-directory-ds-overview)

[How to decide if Azure AD Domain Services is right for your use-case](https://docs.microsoft.com/en-us/azure/active-directory-domain-services/active-directory-ds-comparison)

[Topologies for Azure AD Connect](https://docs.microsoft.com/en-us/azure/active-directory/hybrid/plan-connect-topologies)

[The Four Pillars of Identity - Identity Management in the Age of Hybrid IT](https://social.technet.microsoft.com/wiki/contents/articles/15530.the-four-pillars-of-identity-identity-management-in-the-age-of-hybrid-it.aspx)

## Design Authentication

* Choose an authentication approach;
  + [What is authentication?](https://docs.microsoft.com/en-us/azure/active-directory/develop/authentication-scenarios)
  + [Choose the right authentication method for your Azure Active Directory hybrid identity solution](https://docs.microsoft.com/en-us/azure/security/azure-ad-choose-authn)
  + [What are authentication methods?](https://docs.microsoft.com/en-us/azure/active-directory/authentication/concept-authentication-methods)
* design a single-sign on approach; logon, multi-factor, network access, and remote authentication
  + [Single sign-on to applications in Azure Active Directory](https://docs.microsoft.com/en-us/azure/active-directory/manage-apps/what-is-single-sign-on)
  + [How it works: Azure Multi-Factor Authentication](https://docs.microsoft.com/en-us/azure/active-directory/authentication/concept-mfa-howitworks)
  + [What is conditional access in Azure Active Directory?](https://docs.microsoft.com/en-us/azure/active-directory/conditional-access/overview)

[Pluralsight - Design Authentication for Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-authentication-design)

[Application types for v2.0](https://docs.microsoft.com/en-us/azure/active-directory/develop/v2-app-types)

[About Microsoft identity platform](https://docs.microsoft.com/en-us/azure/active-directory/develop/about-microsoft-identity-platform)

## Design Authorization

* Choose an authorization approach;
* [Identity and access management (IAM)](https://azure.microsoft.com/en-us/product-categories/identity/)
* [What is role-based access control (RBAC) for Azure resources](https://docs.microsoft.com/en-us/azure/role-based-access-control/overview)
* define access permissions and privileges;
* design secure delegated access (e.g., oAuth, OpenID, etc.);
* [How to recognize differences between delegated and application permissions](https://docs.microsoft.com/en-us/azure/active-directory/develop/delegated-and-app-perms)
* [Authorize access to Azure Active Directory web applications using the OAuth 2.0 code grant flow](https://docs.microsoft.com/en-us/azure/active-directory/develop/v1-protocols-oauth-code)
* [v2.0 Protocols - OAuth 2.0 authorization code flow](https://docs.microsoft.com/en-us/azure/active-directory/develop/v2-oauth2-auth-code-flow)
* recommend when and how to use API Keys.
* [Protect an API by using OAuth 2.0 with Azure Active Directory and API Management](https://docs.microsoft.com/en-us/azure/api-management/api-management-howto-protect-backend-with-aad)

[Pluralsight - Design Authorization for Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-authorization-design)

## Design for Risk Prevention for Identity

* Design a risk assessment strategy (e.g., access reviews, RBAC policies, physical access);
  + [What are Azure AD Access Reviews?](https://docs.microsoft.com/en-us/azure/active-directory/governance/access-reviews-overview)
* evaluate agreements involving services or products from vendors and contractors;
* update solution design to address and mitigate changes to existing security policies, standards, guidelines and procedures

[Pluralsight - Design for Risk Prevention in Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-risk-prevention-design)

[Azure Active Directory risk events](https://docs.microsoft.com/en-us/azure/active-directory/reports-monitoring/concept-risk-events)

[Microsoft Password Guidance](https://www.microsoft.com/en-us/research/wp-content/uploads/2016/06/Microsoft_Password_Guidance-1.pdf)

## Design a Monitoring Strategy for Identity and Security

* Design for alert notifications;
* design an alert and metrics strategy;
* recommend authentication monitors

[Pluralsight - Design a Monitoring Strategy for Identity and Security in Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-monitoring-strategy-identity-security-design)

[Create, view, and manage metric alerts using Azure Monitor](https://docs.microsoft.com/en-us/azure/azure-monitor/platform/alerts-metric)

# [Design a Data Platform Solution (15-20%)](https://www.microsoft.com/en-us/learning/exam-az-301.aspx#syllabus-3)

## Design a Data Management Strategy

* Choose between managed and unmanaged data store;
  + IaaS vs. PaaS offering understanding.
* choose between relational and non-relational databases;
  + [Choose the right SQL Server option in Azure](https://docs.microsoft.com/en-us/azure/sql-database/sql-database-paas-vs-sql-server-iaas)
  + [Choose the right data store](https://docs.microsoft.com/en-us/azure/architecture/guide/technology-choices/data-store-overview)
  + [Criteria for choosing a data store](https://docs.microsoft.com/en-us/azure/architecture/guide/technology-choices/data-store-comparison)
  + <https://docs.microsoft.com/en-us/azure/sql-database/sql-database-features>
* design data auditing and caching strategies;
  + [Caching](https://docs.microsoft.com/en-us/azure/architecture/best-practices/caching)
  + [Azure Cache for Redis](https://docs.microsoft.com/en-us/azure/azure-cache-for-redis/)
  + [Content Delivery Network](https://azure.microsoft.com/en-ca/services/cdn/)
* identify data attributes (e.g., relevancy, structure, frequency, size, durability, etc.);
* recommend Database Transaction Unit (DTU) sizing;
  + [Service tiers in the DTU-based purchase model](https://docs.microsoft.com/en-us/azure/sql-database/sql-database-service-tiers-dtu)
  + [Resource limits for single databases using the DTU-based purchasing model](https://docs.microsoft.com/en-us/azure/sql-database/sql-database-dtu-resource-limits-single-databases)
* design a data retention policy;
  + [Manage Azure SQL Database long-term backup retention](https://docs.microsoft.com/en-us/azure/sql-database/sql-database-long-term-backup-retention-configure)
  + [Azure Blob Storage lifecycle management in public preview](https://azure.microsoft.com/en-ca/blog/azure-blob-storage-lifecycle-management-public-preview/)
* design for data availability, consistency, and durability;
* design a data warehouse strategy
  + [What is Azure SQL Data Warehouse?](https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-overview-what-is)

[Pluralsight - Design a Data Management Strategy for Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-data-management-strategy-design)

[Pluralsight - Plan for Data Warehousing with Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-data-warehousing-plan)

## Design a Data Protection Strategy

* Recommend geographic data storage;
  + [Azure Storage redundancy](https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy)
  + [Locally redundant storage](https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy-lrs?toc=%2fazure%2fstorage%2fblobs%2ftoc.json)
  + [Zone-redundant storage](https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy-zrs?toc=%2fazure%2fstorage%2fblobs%2ftoc.json)
  + [Geo-redundant storage](https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy-grs?toc=%2fazure%2fstorage%2fblobs%2ftoc.json)
  + [Disaster recovery and failover](https://docs.microsoft.com/en-us/azure/storage/common/storage-disaster-recovery-guidance?toc=%2fazure%2fstorage%2fblobs%2ftoc.json)
  + [Designing HA Apps using RA-GRS](https://docs.microsoft.com/en-us/azure/storage/common/storage-designing-ha-apps-with-ragrs?toc=%2fazure%2fstorage%2fblobs%2ftoc.json)
* design an encryption strategy for data at rest, for data in transmission, and for data in use;
  + [Azure Data Encryption-at-Rest](https://docs.microsoft.com/en-us/azure/security/azure-security-encryption-atrest)
  + [Azure encryption overview](https://docs.microsoft.com/en-us/azure/security/security-azure-encryption-overview)
* design a scalability strategy for data;
  + [Scalability Checklist](https://docs.microsoft.com/en-us/azure/architecture/checklist/scalability)
* design secure access to data;
  + [Azure Data Security and Encryption Best Practices](https://docs.microsoft.com/en-us/azure/security/azure-security-data-encryption-best-practices)
  + [Virtual Network Service Endpoints](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-service-endpoints-overview)
* design a data loss prevention (DLP) policy
  + [Data loss prevention (DLP) policies](https://docs.microsoft.com/en-us/flow/prevent-data-loss)
  + [Azure Information Protection](https://azure.microsoft.com/en-ca/services/information-protection/)

[Pluralsight - Design a Data Protection Strategy with Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-data-protection-strategy-design)

## Design and Document Data Flows

* Identify data flow requirements;
* create a data flow diagram;
* design a data flow to meet business requirements;
* design a data import and export strategy
  + [What is Azure Import/Export service?](https://docs.microsoft.com/en-us/azure/storage/common/storage-import-export-service)
  + [Azure Data Box](https://azure.microsoft.com/en-us/services/databox/)
  + [Azure Data Box for offline data transfer](https://azure.microsoft.com/en-ca/services/databox/data/)

[Pluralsight - Design and Document Data Flows with Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-data-flows-document-design)

## Design a Monitoring Strategy for the Data Platform

* Design for alert notifications;
* design an alert and metrics strategy

# [Design a Business Continuity Strategy (15-20%)](https://www.microsoft.com/en-us/learning/exam-az-301.aspx#syllabus-4)

## Design a Site Recovery Strategy

* Design a recovery solution;
  + [Site Recovery Documentation](https://docs.microsoft.com/en-us/azure/site-recovery/)
* design a site recovery replication policy;
  + [Replicate Azure virtual machines to another Azure region](https://docs.microsoft.com/en-us/azure/site-recovery/azure-to-azure-how-to-enable-replication)
* design for site recovery capacity and for storage replication;
  + [Plan capacity for Hyper-V VM disaster recovery](https://docs.microsoft.com/en-us/azure/site-recovery/site-recovery-capacity-planner)
  + [Plan capacity and scaling for VMware disaster recovery to Azure](https://docs.microsoft.com/en-us/azure/site-recovery/site-recovery-plan-capacity-vmware)
  + [Azure Site Recovery capacity-planning guide for migrations](https://docs.microsoft.com/en-us/azure/cloud-solution-provider/migration/on-premises-to-azure-csp/asr-capacity-planning)
* design site failover and failback (planned/unplanned);
  + [Run a disaster recovery drill to Azure](https://docs.microsoft.com/en-us/azure/site-recovery/site-recovery-test-failover-to-azure)
  + [Fail over VMs and physical servers](https://docs.microsoft.com/en-us/azure/site-recovery/site-recovery-failover)
* design the site recovery network; recommend recovery objectives (e.g., Azure, on-prem, hybrid, Recovery Time Objective (RTO), Recovery Level Objective (RLO), Recovery Point Objective (RPO));
  + [About Site Recovery](https://docs.microsoft.com/en-us/azure/site-recovery/site-recovery-overview)
* identify resources that require site recovery;
* identify supported and unsupported workloads;
  + [Support matrix for disaster recovery of VMware VMs and physical servers to Azure](https://docs.microsoft.com/en-us/azure/site-recovery/vmware-physical-azure-support-matrix)
  + [Support matrix for disaster recovery of on-premises Hyper-V VMs to Azure](https://docs.microsoft.com/en-us/azure/site-recovery/hyper-v-azure-support-matrix)
* recommend a geographical distribution strategy
  + [Reduce RTO by using Azure Traffic Manager with Azure Site Recovery](https://azure.microsoft.com/en-us/blog/reduce-rto-by-using-azure-traffic-manager-with-azure-site-recovery/)(old)

[Pluralsight - Designing a Site Recovery Strategy on Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-site-recovery-strategy-designing)

## Design for High Availability

* Design for application redundancy, auto-scaling, data center and fault domain redundancy, and network redundancy;
  + [Manage the availability of Windows virtual machines in Azure](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/manage-availability)
  + [Availability Set, Fault Domains And Update Domains In Azure Virtual Machine](https://www.c-sharpcorner.com/article/availability-set-fault-domains-and-update-domains-in-azure-virtual-machie/)
  + [Azure Autoscale](https://azure.microsoft.com/en-ca/features/autoscale/)
* identify resources that require high availability; identify storage types for high availability
  + [Azure Storage redundancy](https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy)
  + [Regions and availability for virtual machines in Azure](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/regions-and-availability)

[Pluralsight - Designing for High Availability on Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-high-availability-designing)

[Creating and using active geo-replication](https://docs.microsoft.com/en-us/azure/sql-database/sql-database-active-geo-replication)

[Use auto-failover groups to enable transparent and coordinated failover of multiple databases](https://docs.microsoft.com/en-us/azure/sql-database/sql-database-auto-failover-group)

## Design a disaster recovery strategy for individual workloads

* Design failover/failback scenario(s);
  + [Run a disaster recovery drill to Azure](https://docs.microsoft.com/en-us/azure/site-recovery/site-recovery-test-failover-to-azure)
  + [Fail over VMs and physical servers](https://docs.microsoft.com/en-us/azure/site-recovery/site-recovery-failover)
* document recovery requirements;
* identify resources that require backup;
* recommend a geographic availability strategy

[Pluralsight - Designing a Disaster Recovery Strategy on Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-disaster-recovery-strategy-designing)

[Business continuity and disaster recovery (BCDR): Azure Paired Regions](https://docs.microsoft.com/en-us/azure/best-practices-availability-paired-regions)

[Azure Region Pairs Explained](https://buildazure.com/2017/01/06/azure-region-pairs-explained/)

## Design a Data Archiving Strategy

* Recommend storage types and methodology for data archiving;
  + [Azure Archive Storage](https://azure.microsoft.com/en-us/services/storage/archive/)
  + [Azure Blob storage: hot, cool, and archive access tiers](https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-storage-tiers)
  + [Managing the Azure Blob Storage Lifecycle](https://docs.microsoft.com/en-us/azure/storage/blobs/storage-lifecycle-management-concepts)
* identify requirements for data archiving and business compliance requirements for data archiving;
* identify SLA(s) for data archiving

[Pluralsight - Designing a Data Archiving Strategy on Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-data-archiving-strategy-designing)

# [Design for Deployment, Migration, and Integration (10-15%)](https://www.microsoft.com/en-us/learning/exam-az-301.aspx#syllabus-5)

## Design Deployments

* Design a compute, container, data platform, messaging solution, storage, and web app and service deployment strategy

[Pluralsight - Designing Deployments in Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-deployments-designing)

[Building microservices on Azure](https://docs.microsoft.com/en-us/azure/architecture/microservices/)

[Azure Reference Architectures](https://docs.microsoft.com/en-us/azure/architecture/reference-architectures/)

Design Review Framework

* [Design for resiliency](https://docs.microsoft.com/en-us/azure/architecture/resiliency/)
* [Failure mode analysis](https://docs.microsoft.com/en-us/azure/architecture/resiliency/failure-mode-analysis)
* [Availability checklist](https://docs.microsoft.com/en-us/azure/architecture/checklist/availability)
* [DevOps checklist](https://docs.microsoft.com/en-us/azure/architecture/checklist/dev-ops)
* [Resiliency checklist (general)](https://docs.microsoft.com/en-us/azure/architecture/checklist/resiliency)
* [Resiliency checklist (Azure services)](https://docs.microsoft.com/en-us/azure/architecture/checklist/resiliency-per-service)
* [Scalability checklist](https://docs.microsoft.com/en-us/azure/architecture/checklist/scalability)

## Design Migrations

* Recommend a migration strategy;
  + [Azure migration center](https://azure.microsoft.com/en-us/migration/)
  + [Start your cloud migration process](https://azure.microsoft.com/en-us/migration/get-started/)
* design data import/export strategies during migration;
  + [What is Azure Import/Export service?](https://docs.microsoft.com/en-us/azure/storage/common/storage-import-export-service)
  + [Azure Data Box](https://azure.microsoft.com/en-us/services/databox/)
  + [Azure Data Box for offline data transfer](https://azure.microsoft.com/en-ca/services/databox/data/)
* determine the appropriate application migration, data transfer, and network connectivity method;
* determine migration scope, including redundant, related, trivial, and outdated data;
  + [Using Service Map solution in Azure](https://docs.microsoft.com/en-us/azure/azure-monitor/insights/service-map)
* determine application and data compatibility
  + [Microsoft Assessment and Planning Toolkit](https://www.microsoft.com/en-ca/download/details.aspx?id=7826)
  + [Migrate to Azure App Service](https://migrate4.azurewebsites.net/)
  + [Download Migration Assistant](https://appmigration.microsoft.com/readiness)
  + [Overview of Data Migration Assistant](https://docs.microsoft.com/en-us/sql/dma/dma-overview?view=sql-server-2017)

[Pluralsight - Designing Migrations for Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-migrations-designing)

CosmosDB Content:

* <https://datamigration.microsoft.com/scenario/mongo-to-cosmos?step=1>
* <https://azure.microsoft.com/en-ca/resources/videos/using-mongodb-tools-with-azure-cosmos-db/>
* <https://docs.microsoft.com/en-us/azure/cosmos-db/mongodb-introduction>

## Design an API Integration Strategy

[API Management documentation](https://docs.microsoft.com/en-us/azure/api-management/)

* Design an API gateway strategy;
  + [API Management](https://azure.microsoft.com/en-ca/services/api-management/)
* determine policies for internal and external consumption of APIs;
  + [API Management Policies](https://docs.microsoft.com/en-us/azure/api-management/api-management-policies)
  + [How to use Azure API Management with virtual networks](https://docs.microsoft.com/en-us/azure/api-management/api-management-using-with-vnet)
  + [Azure DDoS Protection: Best practices and reference architectures](https://docs.microsoft.com/en-us/azure/security/azure-ddos-best-practices)
* recommend a hosting structure for API management

[Pluralsight - Designing an API Management Strategy for Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-api-management-strategy-designing/table-of-contents)

# [Design an Infrastructure Strategy (15-20%)](https://www.microsoft.com/en-us/learning/exam-az-301.aspx#syllabus-6)

## Design a Storage Strategy

* Design a storage provisioning strategy;
  + [Introduction to Azure Storage](https://docs.microsoft.com/en-us/azure/storage/common/storage-introduction)
* design storage access strategy; identify storage requirements;
  + [Deciding when to use Azure Blobs, Azure Files, or Azure Disks](https://docs.microsoft.com/en-us/azure/storage/common/storage-decide-blobs-files-disks)
* recommend a storage solution and storage management tools
  + Azure Storage Explorer
  + Azure Blobs/queues/files/tables
  + AzCopy

[Pluralsight - Design a Storage Strategy for Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-storage-strategy-design)

## Design a Compute Strategy

* Design compute provisioning and secure compute strategies;
* determine appropriate compute technologies (e.g., virtual machines, functions, service fabric, container instances, etc.);
  + [Overview of Azure compute options](https://docs.microsoft.com/en-us/azure/architecture/guide/technology-choices/compute-overview)
  + [Decision tree for Azure compute services](https://docs.microsoft.com/en-us/azure/architecture/guide/technology-choices/compute-decision-tree)
  + <https://docs.microsoft.com/en-us/azure/architecture/guide/technology-choices/compute-comparison>
  + [Azure Service Fabric Documentation](https://docs.microsoft.com/en-ca/azure/service-fabric/)
  + [Azure Kubernetes Service (AKS)](https://docs.microsoft.com/en-us/azure/aks/)
  + [Azure Container Instances Documentation](https://docs.microsoft.com/en-ca/azure/container-instances/)
  + [Azure Functions](https://docs.microsoft.com/en-us/azure/azure-functions/)
* design an Azure HPC environment;
  + [Big Compute: HPC & Batch](https://azure.microsoft.com/en-us/solutions/big-compute/)
  + [Azure CycleCloud](https://azure.microsoft.com/en-ca/features/azure-cyclecloud/)
* identify compute requirements;
* recommend management tools for compute

[Pluralsight - Design a Compute Strategy for Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-compute-strategy-design)

## Design a Networking Strategy

* Design network provisioning and network security strategies;
  + Network Components
    - Vnets
    - Virtual Network Gateways
    - ExpressRoute
    - VNet peering
    - Global Peering
  + Security
    - Azure Firewall
    - Azure NSGs
    - Network Virtual Appliances
    - Application Gateways
* determine appropriate network connectivity technologies;
  + S2S
  + P2S
  + ExpressRoute
  + VNet peering
* identify networking requirements;
* recommend network management tools
  + Azure Network Watcher
  + Azure Network Performance Monitor

[Pluralsight - Design a Networking Strategy for Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-networking-strategy-design)

## Design a Monitoring Strategy for Infrastructure

* Design for alert notifications;
* Design an alert and metrics strategy

[Overview of alerts in Microsoft Azure](https://docs.microsoft.com/en-us/azure/azure-monitor/platform/alerts-overview)

[Monitoring data collected by Azure Monitor](https://docs.microsoft.com/en-us/azure/azure-monitor/platform/data-collection)

[Pluralsight - Design a Monitoring Strategy for Infrastructure in Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-monitoring-strategy-infrastructure-design)