**Manage Azure subscriptions and resources (15-20%)**

**Manage Azure subscriptions**

* Assign administrator permissions;
  + <https://docs.microsoft.com/en-us/azure/billing/billing-add-change-azure-subscription-administrator>
* Configure cost center quotas and tagging;
  + <https://buildazure.com/2017/06/14/azure-subscription-resource-limits-and-quotas/>
  + <https://docs.microsoft.com/en-us/azure/billing/billing-getting-started>
  + <http://resource.onlinetech.com/manage-your-azure-spend-by-cost-center/>
* Configure Azure subscription policies at Azure subscription level
  + <https://docs.microsoft.com/en-us/azure/governance/policy/overview>
  + [Azure enterprise scaffold: Prescriptive subscription governance](https://docs.microsoft.com/en-ca/azure/architecture/cloud-adoption/appendix/azure-scaffold?wt.mc_id=itshowcase-codeapps)
  + [Examples of implementing Azure enterprise scaffold](https://docs.microsoft.com/en-ca/azure/architecture/cloud-adoption/appendix/azure-scaffold-examples)
  + [Organizing subscriptions and resource groups within the Enterprise](https://azure.microsoft.com/en-us/blog/organizing-subscriptions-and-resource-groups-within-the-enterprise/)
* Use multiple Azure subscriptions
  + [Windows Azure tutorial Part 1: Set up and manage subscriptions](https://www.computerweekly.com/tip/Windows-Azure-tutorial-Part-1-Set-up-and-manage-subscriptions)
  + [Blog - Subscription Management](https://azure.microsoft.com/en-us/blog/tag/subscription-management/)

[Pluralsight - Managing Microsoft Azure Subscriptions](https://www.pluralsight.com/courses/microsoft-azure-subscriptions-managing)

**Analyze resource utilization and consumption**

* Configure diagnostic settings on resources;
  + [Automatically enable Diagnostic Settings at resource creation using a Resource Manager template](https://docs.microsoft.com/en-us/azure/monitoring-and-diagnostics/monitoring-enable-diagnostic-logs-using-template)
  + [MANAGING MULTIPLE AZURE DIAGNOSTIC SETTINGS USING AZURE CLI INSTEAD OF POWERSHEL](http://techgenix.com/azure-diagnostic-settings/)
  + [Collect and consume log data from your Azure resources](https://docs.microsoft.com/en-us/azure/azure-monitor/platform/diagnostic-logs-overview)
  + <https://docs.microsoft.com/en-us/azure/azure-monitor/platform/diagnostics-extension-overview>
  + [Monitoring data collected by Azure Monitor](https://docs.microsoft.com/en-us/azure/azure-monitor/platform/data-collection)
* create baseline for resources;
  + [Manage Azure resources with these top tips of 2017](https://searchcloudcomputing.techtarget.com/feature/Manage-Azure-resources-with-these-top-tips-of-2017)
  + [Use Cloudyn reports](https://docs.microsoft.com/en-us/azure/cost-management/use-reports)
  + [Prevent unexpected charges with Azure billing and cost management](https://docs.microsoft.com/en-us/azure/billing/billing-getting-started)
* create and test alerts; analyze alerts across subscription;
  + [Unified alerts in Azure Monitor](https://docs.microsoft.com/en-us/azure/monitoring-and-diagnostics/monitoring-overview-unified-alerts?toc=/azure/azure-monitor/toc.json)
  + [Respond to events with Azure Monitor Alerts](https://docs.microsoft.com/en-us/azure/log-analytics/log-analytics-tutorial-response)
  + [Create, view, and manage metric alerts using Azure Monitor](https://docs.microsoft.com/en-us/azure/monitoring-and-diagnostics/alert-metric)
  + [Azure logging and auditing](https://docs.microsoft.com/en-us/azure/security/azure-log-audit)
* analyze metrics across subscription;
  + [Azure Monitor Metrics Explorer](https://docs.microsoft.com/en-us/azure/monitoring-and-diagnostics/monitoring-metric-charts)
* create action groups;
  + [Create and manage action groups in the Azure portal](https://docs.microsoft.com/en-us/azure/monitoring-and-diagnostics/monitoring-action-groups?toc=/azure/azure-monitor/toc.json)
* monitor for unused resources; monitor spend; report on spend;
* utilize Log Search query functions;
  + [**Log Analytics Examples**](https://github.com/MicrosoftDocs/LogAnalyticsExamples/tree/master/log-analytics)
* view alerts in Log Analytics

**Manage resource groups**

* Use Azure policies for resource groups;
  + [Create and manage policies to enforce compliance](https://docs.microsoft.com/en-us/azure/azure-policy/create-manage-policy)
* configure resource locks; configure resource policies;
  + [Lock resources to prevent unexpected changes](https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-lock-resources)
* implement and set tagging on resource groups;
  + [Use tags to organize your Azure resources](https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-using-tags)
  + <https://www.pluralsight.com/courses/microsoft-azure-subscriptions-managing>
  + <https://docs.microsoft.com/en-us/azure/architecture/best-practices/naming-conventions>
* move resources across resource groups;
  + [Move resources to new resource group or subscription](https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-move-resources)
  + [Azure: How to move resources between subscriptions under different tenants?](https://social.technet.microsoft.com/wiki/contents/articles/51360.azure-how-to-move-resources-between-subscriptions-under-different-tenants.aspx)
  + [Remove-AzureRmResourceGroup](https://docs.microsoft.com/en-us/powershell/module/azurerm.resources/remove-azurermresourcegroup?view=azurermps-6.10.0)
  + Understand limitations
* remove resource groups
  + <https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-delete>
  + <https://docs.microsoft.com/en-us/powershell/module/azurerm.resources/remove-azurermresourcegroup?view=azurermps-6.13.0>

**Managed role based access control (RBAC)**

* Create a custom role,
  + [Custom roles in Azure](https://docs.microsoft.com/en-us/azure/role-based-access-control/custom-roles)
* configure access to Azure resources by assigning roles,
  + [Manage access using RBAC and the Azure portal](https://docs.microsoft.com/en-us/azure/role-based-access-control/role-assignments-portal)
  + [Manage access using RBAC and Azure Resource Manager templates](https://docs.microsoft.com/en-us/azure/role-based-access-control/role-assignments-template)
* configure management access to Azure,
* troubleshoot RBAC,
  + [Troubleshoot RBAC in Azure](https://docs.microsoft.com/en-us/azure/role-based-access-control/troubleshooting)
* implement RBAC policies,
  + [What is role-based access control (RBAC)?](https://docs.microsoft.com/en-us/azure/role-based-access-control/overview)
* assign RBAC Roles

[Pluralsight - Managing Identities in Microsoft Azure Active Directory](https://app.pluralsight.com/library/courses/microsoft-azure-active-directory-managing-identities/table-of-contents)

# Implement and manage storage (5-10%)

## Create and configure storage accounts

* Configure network access to the storage account;
  + [Configure Azure Storage Firewalls and Virtual Networks](https://docs.microsoft.com/en-us/azure/storage/common/storage-network-security)
  + [Virtual Network Service Endpoints and Firewalls for Azure Storage now generally available](https://azure.microsoft.com/en-us/blog/virtual-network-service-endpoints-and-firewalls-for-azure-storage-now-generally-available/)
* create and configure storage account;
  + [Create a storage account](https://docs.microsoft.com/en-us/azure/storage/common/storage-create-storage-account)
  + [Introduction to Azure Storage](https://docs.microsoft.com/en-us/azure/storage/common/storage-introduction)
  + <https://docs.microsoft.com/en-us/azure/storage/common/storage-quickstart-create-account?tabs=azure-portal>
  + <https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-create-account-block-blob>
  + <https://docs.microsoft.com/en-us/azure/storage/common/storage-account-manage?toc=%2fazure%2fstorage%2fblobs%2ftoc.json>
* generate shared access signature;
  + [Using shared access signatures (SAS)](https://docs.microsoft.com/en-us/azure/storage/common/storage-dotnet-shared-access-signature-part-1)
  + [Shared Access Signatures, Part 2: Create and use a SAS with Blob storage](https://docs.microsoft.com/en-us/azure/storage/blobs/storage-dotnet-shared-access-signature-part-2)
* install and use Azure Storage Explorer;
  + <https://azure.microsoft.com/en-ca/features/storage-explorer/>
  + <https://docs.microsoft.com/en-us/azure/vs-azure-tools-storage-manage-with-storage-explorer?tabs=windows>
* manage access keys;
  + [Using shared access signatures (SAS)](https://docs.microsoft.com/en-us/azure/storage/common/storage-dotnet-shared-access-signature-part-1)
  + [Shared Access Signatures, Part 2: Create and use a SAS with Blob storage](https://docs.microsoft.com/en-us/azure/storage/blobs/storage-dotnet-shared-access-signature-part-2)
* monitor activity log by using Log Analytics;
  + [Storage Analytics](https://docs.microsoft.com/en-us/rest/api/storageservices/storage-analytics)
* implement Azure storage replication
  + <https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy>
  + [Locally-redundant storage (LRS): Low-cost data redundancy for Azure Storage](https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy-lrs)
  + [Zone-redundant storage (ZRS): Highly available Azure Storage applications](https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy-zrs)
  + [Geo-redundant storage (GRS): Cross-regional replication for Azure Storage](https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy-grs)
  + [Azure Storage scalability and performance targets](https://docs.microsoft.com/en-us/azure/storage/common/storage-scalability-targets)
  + [Designing highly available applications using RA-GRS Storage](https://docs.microsoft.com/en-us/azure/storage/storage-designing-ha-apps-with-ragrs)
  + [Microsoft Azure Storage redundancy options and read access geo redundant storage](http://blogs.msdn.com/b/windowsazurestorage/archive/2013/12/11/introducing-read-access-geo-replicated-storage-ra-grs-for-windows-azure-storage.aspx)

**Import and export data to Azure**

* Create export from Azure job;
  + [What is Azure Import/Export service?](https://docs.microsoft.com/en-us/azure/storage/common/storage-import-export-service)
  + [Azure Import/Export system requirements](https://docs.microsoft.com/en-us/azure/storage/common/storage-import-export-requirements)
  + [Use Azure Import/Export service to import data to Azure Files](https://docs.microsoft.com/en-us/azure/storage/common/storage-import-export-data-to-files)
* create import into Azure job;
  + <https://docs.microsoft.com/en-us/azure/storage/common/storage-import-export-creating-an-import-job?toc=%2fazure%2fstorage%2fblobs%2ftoc.json>
* Use Azure Data Box;
  + <https://docs.microsoft.com/en-us/azure/databox/data-box-overview>
* configure and use Azure blob storage;
  + [Create a storage account](https://docs.microsoft.com/en-us/azure/storage/common/storage-create-storage-account)
  + [Introduction to Azure Storage](https://docs.microsoft.com/en-us/azure/storage/common/storage-introduction)
* configure Azure content delivery network (CDN) endpoints
  + [What is a content delivery network on Azure?](https://docs.microsoft.com/en-us/azure/cdn/cdn-overview)
  + [Quickstart: Create an Azure CDN profile and endpoint](https://docs.microsoft.com/en-us/azure/cdn/cdn-create-new-endpoint)
  + [Create an Azure CDN endpoint](https://docs.microsoft.com/en-us/azure/cdn/cdn-create-endpoint-how-to)
  + [Using the Azure CDN to access blobs with custom domains over HTTPS](https://docs.microsoft.com/en-us/azure/storage/blobs/storage-https-custom-domain-cdn)
  + <https://docs.microsoft.com/en-us/azure/storage/blobs/storage-custom-domain-name>

## Configure Azure files

* Create Azure file share;
  + [Introduction to Azure Files](https://docs.microsoft.com/en-us/azure/storage/files/storage-files-introduction)
  + [Create a file share in Azure Files](https://docs.microsoft.com/en-us/azure/storage/files/storage-how-to-create-file-share)
  + [Use an Azure file share with Windows](https://docs.microsoft.com/en-us/azure/storage/files/storage-how-to-use-files-windows)
* create Azure File Sync service;
  + [Deploy Azure File Sync](https://docs.microsoft.com/en-us/azure/storage/files/storage-sync-files-deployment-guide?tabs=portal)
  + [STEP-BY-STEP GUIDE: GETTING STARTED WITH AZURE FILE SYNC SERVICE](http://techgenix.com/azure-file-sync/)
  + [Prepare Windows Server to use with Azure File Sync](https://docs.microsoft.com/en-us/azure/storage/files/storage-sync-files-deployment-guide?tabs=portal#prepare-windows-server-to-use-with-azure-file-sync)
* create Azure sync group;
  + [Create a sync group and a cloud endpoint](https://docs.microsoft.com/en-us/azure/storage/files/storage-sync-files-deployment-guide?tabs=portal#create-a-sync-group-and-a-cloud-endpoint)
* troubleshoot Azure File Sync
  + [Troubleshoot Azure File Sync](https://docs.microsoft.com/en-us/azure/storage/files/storage-sync-files-troubleshoot?tabs=portal1%2Cportal)

## Implement Azure backup

* Configure and review backup reports;
  + [Configure Azure Backup reports](https://docs.microsoft.com/en-us/azure/backup/backup-azure-configure-reports)
* perform backup operation;
  + [Back up a Windows Server or client to Azure using the Resource Manager deployment model](https://docs.microsoft.com/en-us/azure/backup/backup-configure-vault)
* create Recovery Services Vault;
  + [Recovery Services vaults overview](https://docs.microsoft.com/en-us/azure/backup/backup-azure-recovery-services-vault-overview)
  + [Monitor and manage Recovery Services vaults](https://docs.microsoft.com/en-us/azure/backup/backup-azure-manage-windows-server)
  + [Set up disaster recovery for Azure VMs to a secondary Azure region](https://docs.microsoft.com/en-us/azure/site-recovery/azure-to-azure-tutorial-enable-replication).
  + [Delete a Recovery Services vault](https://docs.microsoft.com/en-us/azure/backup/backup-azure-delete-vault)
* create and configure backup policy;
  + [Defining a backup policy](https://docs.microsoft.com/en-us/azure/backup/backup-azure-vms-first-look-arm#defining-a-backup-policy)
* perform a restore operation
  + [Restore files to a Windows server or Windows client machine using Resource Manager deployment model](https://docs.microsoft.com/en-us/azure/backup/backup-azure-restore-windows-server)
  + [Use the Azure portal to restore virtual machines](https://docs.microsoft.com/en-us/azure/backup/backup-azure-arm-restore-vms)
  + [Restore An Azure VM to an Availability Set From Azure Backup in the Azure Portal](http://www.aidanfinn.com/?p=20454)
  + [Restore Azure Virtual Machines to an Availability Set Using PowerShell](https://www.petri.com/restore-azure-virtual-machines-availability-set-using-powershell)
  + [Using templates to customize restored VMs from Azure Backup](https://azure.microsoft.com/en-ca/blog/azure-backup-restore-template/)

# Deploy and manage virtual machines (VMs) (20-25%)

## Create and configure a VM for Windows and Linux

* Configure high availability;
  + [Understanding Azure Availability Sets](https://www.petri.com/understanding-azure-availability-sets)
  + [Tutorial: Create and deploy highly available virtual machines with Azure PowerShell](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/tutorial-availability-sets)
  + [Manage the availability of Windows virtual machines in Azure](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/manage-availability)
  + [Regions and availability for virtual machines in Azure](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/regions-and-availability)
  + [Design for Virtual Machines with High Availability Using Azure](https://dzone.com/articles/design-for-virtual-machines-with-high-availability)
  + [High availability in Azure](https://4sysops.com/archives/high-availability-in-azure/)
* configure **monitoring**, networking, storage, and virtual machine size;
  + [How to monitor virtual machines in Azure](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/monitor)
  + [Rich insights for virtual machines from Azure Monitor](https://azure.microsoft.com/en-ca/blog/rich-insights-for-virtual-machines-from-azure-monitor/)
  + [Microsoft Azure Virtual Machine Monitoring with Azure Diagnostics Extension](https://azure.microsoft.com/en-us/blog/windows-azure-virtual-machine-monitoring-with-wad-extension/)
  + <https://docs.microsoft.com/en-us/azure/virtual-machines/windows/tutorial-monitoring>
* configure monitoring, networking, storage, and **virtual machine size**;
  + [Resize virtual machines](https://azure.microsoft.com/en-ca/blog/resize-virtual-machines/)
  + [Resize a Windows VM](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/resize-vm) (Powershell)
  + [Notes on changing Azure VM size](https://thuansoldier.net/6515/)
  + <https://blogs.msdn.microsoft.com/madan/2016/09/28/resize-azure-resource-manager-arm-vm-os-data-disk-using-azure-portal/>
  + [How to expand the OS drive of a virtual machine](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/expand-os-disk)
  + [Expand virtual hard disks on a Linux VM with the Azure CLI](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/expand-disks)
  + [Overview of Windows virtual machines in Azure](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/overview)
  + [Quickstart: Create a Windows virtual machine in the Azure portal](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/quick-create-portal)
  + [Tutorial: Create and Manage Windows VMs with Azure PowerShell](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/tutorial-manage-vm)
* deploy and configure scale sets
  + [Understanding Azure Virtual Machine Scale Sets (Part 1)](https://www.itprotoday.com/microsoft-azure/understanding-azure-virtual-machine-scale-sets-part-1)
  + [Understanding Azure Virtual Machine Scale Sets (Part 2)](https://www.itprotoday.com/industry-perspectives/understanding-azure-virtual-machine-scale-sets-part-2)
  + [Virtual Machine Scale Sets](https://azure.microsoft.com/en-ca/services/virtual-machine-scale-sets/)
  + [What are virtual machine scale sets?](https://docs.microsoft.com/en-us/azure/virtual-machine-scale-sets/overview)
  + [Quickstart: Create a virtual machine scale set in the Azure portal](https://docs.microsoft.com/en-us/azure/virtual-machine-scale-sets/quick-create-portal)

## Automate deployment of VMs

* Modify Azure Resource Manager (ARM) template;
  + [Create a Windows virtual machine from a Resource Manager template](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/ps-template)
  + [Azure Quickstart Templates](https://github.com/Azure/azure-quickstart-templates) see 101-vm-\*
* configure location of new VMs;
* configure VHD template;
  + [Creating Virtual Machine Templates in VMM](https://docs.microsoft.com/en-us/previous-versions/system-center/virtual-machine-manager-2007/bb963734(v=technet.10))
  + [How to Create a Template from a Virtual Hard Disk](https://docs.microsoft.com/en-us/previous-versions/system-center/virtual-machine-manager-2008-r2/cc956136(v=technet.10))
  + [How to Create a Virtual Machine Template](https://docs.microsoft.com/en-us/previous-versions/system-center/virtual-machine-manager-2007/bb740832(v=technet.10))
* deploy from template;
  + [Understand the structure and syntax of Azure Resource Manager Templates](https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-authoring-templates)
  + [Deploy resources with Resource Manager templates and Azure PowerShell](https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-template-deploy)
* save a deployment as an ARM template;
  + [Export an Azure Resource Manager template from existing resources](https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-manager-export-template)
* deploy Windows and Linux VMs
  + [Quickstart: Create a Linux virtual machine in the Azure portal](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/quick-create-portal)
  + [Quickstart: Create a Windows virtual machine in the Azure portal](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/quick-create-portal)
  + [New-AzureQuickVM cmdlet](https://docs.microsoft.com/en-us/powershell/module/servicemanagement/azure/new-azurequickvm?view=azuresmps-4.0.0)

## Manage Azure VM

* Add data discs;
  + [Attach a managed data disk to a Windows VM by using the Azure portal](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/attach-managed-disk-portal)
  + [Use the portal to attach a data disk to a Linux VM](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/attach-disk-portal)
  + [Disks FAQs](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/faq-for-disks)
  + [Add a disk](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/attach-disk-portal)
  + [Detach a disk](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/detach-disk)
  + [Resize a disk](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/expand-disks)
  + [Snapshot a disk](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/snapshot-copy-managed-disk)
  + [Back up unmanaged disks](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/incremental-snapshots)
  + [Convert to Managed Disks](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/convert-unmanaged-to-managed-disks)
  + [Convert disk between Standard and Premium](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/convert-disk-storage)
  + [Copy files to a VM](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/copy-files-to-linux-vm-using-scp)
  + [Migrate to Premium storage with Azure Site Recovery](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/migrate-to-premium-storage-using-azure-site-recovery)
  + [Find unattached disks](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/find-unattached-disks)
  + [Use File storage](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/mount-azure-file-storage-on-linux-using-smb)
  + [Deploy disks with template](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/using-managed-disks-template-deployments)
* add network interfaces;
  + [Add network interfaces to or remove network interfaces from virtual machines](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-network-interface-vm)
* automate configuration management by using PowerShell Desired State; Configuration (DSC) and VM Agent by using custom script extensions;
  + [Azure Automation State Configuration Overview (and sub-pages)](https://docs.microsoft.com/en-us/azure/automation/automation-dsc-overview)
  + [Custom Script Extension for Windows](https://docs.microsoft.com/en-us/azure/virtual-machines/extensions/custom-script-windows)
  + [201-vm-custom-script-windows](https://github.com/Azure/azure-quickstart-templates/tree/master/201-vm-custom-script-windows)
* manage VM sizes;
  + [Resize virtual machines](https://azure.microsoft.com/en-ca/blog/resize-virtual-machines/)
  + [Resize a Windows VM](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/resize-vm) (Powershell)
  + [Notes on changing Azure VM size](https://thuansoldier.net/6515/)
  + <https://blogs.msdn.microsoft.com/madan/2016/09/28/resize-azure-resource-manager-arm-vm-os-data-disk-using-azure-portal/>
  + [How to expand the OS drive of a virtual machine](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/expand-os-disk)
  + [Expand virtual hard disks on a Linux VM with the Azure CLI](https://docs.microsoft.com/en-us/azure/virtual-machines/linux/expand-disks)
* move VMs from one resource group to another;
  + [Move a Windows VM to another Azure subscription or resource group](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/move-vm)
  + [Migrate Azure VMs to another region](https://docs.microsoft.com/en-us/azure/site-recovery/azure-to-azure-tutorial-migrate)
  + [Move resources to new resource group or subscription](https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-move-resources)
* redeploy VMs
  + R[edeploy Windows virtual machine to new Azure node](https://docs.microsoft.com/en-us/azure/virtual-machines/troubleshooting/redeploy-to-new-node-windows)
  + [Redeploy Linux virtual machine to new Azure node](https://docs.microsoft.com/en-us/azure/virtual-machines/troubleshooting/redeploy-to-new-node-linux)
  + [Set-AzureRmVM -redeploy](https://docs.microsoft.com/en-us/powershell/module/azurerm.compute/set-azurermvm?view=azurermps-6.12.0)

## Manage VM backups

* Configure VM backup;
  + [Plan your VM backup infrastructure in Azure](https://docs.microsoft.com/en-us/azure/backup/backup-azure-vms-introduction)
  + [Deploy a Windows VM and enable backup using Azure Backup](https://azure.microsoft.com/en-gb/resources/templates/101-recovery-services-create-vm-and-configure-backup/)
* define backup policies;
  + [Defining a backup policy](https://docs.microsoft.com/en-us/azure/backup/backup-azure-vms-first-look-arm#defining-a-backup-policy)
* implement backup policies;
  + <https://docs.microsoft.com/en-us/azure/backup/backup-azure-manage-vms>
* perform VM restore;
  + [Use the Azure portal to restore virtual machines](https://docs.microsoft.com/en-us/azure/backup/backup-azure-arm-restore-vms)
* Azure Site Recovery
  + <https://docs.microsoft.com/en-us/azure/site-recovery/>

# Configure and manage virtual networks (20-25%)

## connectivity between virtual networks

* Create and configure VNET peering;
  + [Virtual network peering](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-peering-overview)
  + [Tutorial: Connect virtual networks with virtual network peering using the Azure portal](https://docs.microsoft.com/en-us/azure/virtual-network/tutorial-connect-virtual-networks-portal)
  + [Create, change, or delete a virtual network peering](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-manage-peering)
  + <https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-peering-gateway-transit?toc=%2fazure%2fvirtual-network%2ftoc.json>
* create and configure VNET to VNET; create virtual network gateway
  + [Configure a VNet-to-VNet VPN gateway connection using the Azure portal](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-howto-vnet-vnet-resource-manager-portal)
  + [What is VPN Gateway?](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-about-vpngateways)
  + [Create a Site-to-Site connection in the Azure portal](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-howto-site-to-site-resource-manager-portal)
  + [Step-By-Step: Configuring a site-to-site VPN Gateway between Azure and On-Premise](https://blogs.technet.microsoft.com/canitpro/2017/06/28/step-by-step-configuring-a-site-to-site-vpn-gateway-between-azure-and-on-premise/)
  + [Configure Network Performance Monitor for ExpressRoute](https://docs.microsoft.com/en-us/azure/expressroute/how-to-npm)
  + [ExpressRoute FAQ](https://docs.microsoft.com/en-us/azure/expressroute/expressroute-faqs)
  + [ExpressRoute Premium Add-on & Pricing](https://azure.microsoft.com/en-ca/pricing/details/expressroute/)
* verify virtual network connectivity;
  + [Verify a VPN Gateway connection](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-verify-connection-resource-manager)

## Implement and manage virtual networking

* Configure private and public IP addresses,
  + [Configure private IP addresses for a virtual machine using the Azure portal](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-networks-static-private-ip-arm-pportal)
  + [Create a virtual machine with a static public IP address using the Azure portal](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-deploy-static-pip-arm-portal)
  + [IP address types and allocation methods in Azure](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-ip-addresses-overview-arm)
* network routes,
  + [Virtual network traffic routing](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-networks-udr-overview)
* network interface, subnets, and virtual network
  + [Create, change, or delete a network interface](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-network-interface)
  + [Add, change, or delete a virtual network subnet](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-manage-subnet)

## Configure name resolution

* Configure Azure DNS;
  + [Azure DNS Documentation](https://docs.microsoft.com/en-us/azure/dns/)
  + [What is Azure DNS?](https://docs.microsoft.com/en-us/azure/dns/dns-overview)
  + [Overview of DNS zones and records](https://docs.microsoft.com/en-us/azure/dns/dns-zones-records)
  + [Azure DNS FAQ](https://docs.microsoft.com/en-us/azure/dns/dns-faq)
  + [Delegation of DNS zones with Azure DNS](https://docs.microsoft.com/en-us/azure/dns/dns-domain-delegation)
  + [Tutorial: Create DNS records in a custom domain for a web app](https://docs.microsoft.com/en-us/azure/dns/dns-web-sites-custom-domain)
* configure custom DNS settings;
  + [Name resolution for resources in Azure virtual networks](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-networks-name-resolution-for-vms-and-role-instances)
  + [Create, change, or delete a network interface](https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-network-interface)
* configure private and public DNS zones
  + [How to manage DNS Zones in the Azure portal](https://docs.microsoft.com/en-us/azure/dns/dns-operations-dnszones-portal)
  + [Manage DNS records and recordsets in Azure DNS using Azure PowerShell](https://docs.microsoft.com/en-us/azure/dns/dns-operations-recordsets)

## Create and configure a Network Security Group (NSG)

* Create security rules;
  + [Create, change, or delete a network security group](https://docs.microsoft.com/en-us/azure/virtual-network/manage-network-security-group)
  + [Security groups](https://docs.microsoft.com/en-us/azure/virtual-network/security-overview)
  + [Azure Network Security Groups (NSG) – Best Practices and Lessons Learned](https://blogs.msdn.microsoft.com/igorpag/2016/05/14/azure-network-security-groups-nsg-best-practices-and-lessons-learned/)
  + [Filter network traffic with a network security group using PowerShell](https://docs.microsoft.com/en-us/azure/virtual-network/tutorial-filter-network-traffic-powershell)
* associate NSG to a subnet or network interface;
  + [Step by Step Azure network security groups NSG – Security Center](https://robertsmit.wordpress.com/2017/09/11/step-by-step-azure-network-security-groups-nsg-security-center-azure-nsg-network/)
  + [Associate network interfaces to an ASG](https://docs.microsoft.com/en-us/azure/virtual-network/tutorial-filter-network-traffic#associate-network-interfaces-to-an-asg)
  + [Associate network security group to subnet](https://docs.microsoft.com/en-us/azure/virtual-network/tutorial-filter-network-traffic#associate-network-security-group-to-subnet)
* identify required ports;
  + [Diagnose a virtual machine network traffic filter problem](https://docs.microsoft.com/en-us/azure/virtual-network/diagnose-network-traffic-filter-problem)
  + [Automate NSG auditing with Azure Network Watcher Security group view](https://docs.microsoft.com/en-us/azure/network-watcher/network-watcher-nsg-auditing-powershell)
* evaluate effective security rules
  + <https://docs.microsoft.com/en-us/azure/virtual-network/diagnose-network-traffic-filter-problem>
  + <https://blogs.msdn.microsoft.com/igorpag/2016/05/14/azure-network-security-groups-nsg-best-practices-and-lessons-learned/>

## Implement Azure load balancer

* Configure internal load balancer,
  + [What is Azure Load Balancer?](https://docs.microsoft.com/en-us/azure/load-balancer/load-balancer-overview)
  + [Internal Load Balancing](https://azure.microsoft.com/en-ca/blog/internal-load-balancing/)
  + [Tutorial: Balance internal traffic load with a Basic load balancer in the Azure portal](https://docs.microsoft.com/en-us/azure/load-balancer/tutorial-load-balancer-basic-internal-portal)
  + [Using Azure Resource Manager Support with Azure Load Balancer](https://docs.microsoft.com/en-us/azure/load-balancer/load-balancer-arm)
* configure load balancing rules,
  + [Azure Load Balancer Standard overview](https://docs.microsoft.com/en-us/azure/load-balancer/load-balancer-standard-overview)
  + [Load balance internet traffic to VMs](https://docs.microsoft.com/en-us/azure/load-balancer/tutorial-load-balancer-standard-manage-portal)
  + [Load balance internal traffic to VMs](https://docs.microsoft.com/en-us/azure/load-balancer/tutorial-load-balancer-basic-internal-portal)
  + [Load balance VMs across availability zones](https://docs.microsoft.com/en-us/azure/load-balancer/tutorial-load-balancer-standard-public-zone-redundant-portal)
  + [Load balance VM within a specific availability zone](https://docs.microsoft.com/en-us/azure/load-balancer/tutorial-load-balancer-standard-public-zonal-portal)
  + [Configure port fowarding in Load Balancer](https://docs.microsoft.com/en-us/azure/load-balancer/tutorial-load-balancer-port-forwarding-portal)
  + <https://docs.microsoft.com/en-us/azure/load-balancer/load-balancer-outbound-connections>
* configure public load balancer,
  + <https://docs.microsoft.com/en-us/azure/load-balancer/quickstart-create-basic-load-balancer-portal>
* troubleshoot load balancing
  + <https://docs.microsoft.com/en-us/azure/load-balancer/load-balancer-troubleshoot>

[Pluralsight - Managing Network Load Balancing in Microsoft Azure](https://app.pluralsight.com/library/courses/microsoft-azure-network-load-balancing-managing/table-of-contents)

[Pluralsight - Architecting Azure Solutions (70-534): Infrastructure and Networking](https://app.pluralsight.com/library/courses/architecting-azure-solutions-70-534-infrastructure-networking/table-of-contents)

## Monitor and troubleshoot virtual networking

* Monitor on-premises connectivity,
  + [Diagnose on-premises connectivity via VPN gateways](https://docs.microsoft.com/en-ca/azure/network-watcher/network-watcher-diagnose-on-premises-connectivity)
  + [Create an Azure Network Watcher instance](https://docs.microsoft.com/en-ca/azure/network-watcher/network-watcher-create)
  + [View the topology of an Azure virtual network](https://docs.microsoft.com/en-ca/azure/network-watcher/view-network-topology)
  + [Network Performance Monitor’s Service Connectivity Monitor is now generally available](https://azure.microsoft.com/en-ca/blog/network-performance-monitor-s-service-connectivity-monitor-is-now-generally-available/)
* use Network resource monitoring,
  + [Network Watcher](https://azure.microsoft.com/en-ca/services/network-watcher/)
* use Network Watcher, troubleshoot external networking, troubleshoot virtual network connectivity
  + [Network connectivity](https://docs.microsoft.com/en-us/azure/azure-stack/azure-stack-network)
  + [Border connectivity](https://docs.microsoft.com/en-us/azure/azure-stack/azure-stack-border-connectivity)

[Pluralsight - Connecting Microsoft Azure Virtual Networks](https://app.pluralsight.com/library/courses/microsoft-azure-connecting-virtual-networks/table-of-contents)

[Pluralsight - Connecting On-premises Networks with Azure Virtual Networks](https://app.pluralsight.com/library/courses/microsoft-azure-on-premises-networks-virtual-networks-connecting/table-of-contents)

[Pluralsight - Architecting Azure Solutions (70-534): Infrastructure and Networking](https://app.pluralsight.com/library/courses/architecting-azure-solutions-70-534-infrastructure-networking/table-of-contents)

## Integrate on premises network with Azure virtual network

* Create and configure Azure VPN Gateway,
  + [What is VPN Gateway?](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-about-vpngateways)
  + [Create and manage a VPN gateway](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-tutorial-create-gateway-powershell)
  + [New-AzureRmLocalNetworkGateway](https://docs.microsoft.com/en-us/powershell/module/azurerm.network/new-azurermlocalnetworkgateway?view=azurermps-6.13.0)
  + Concepts
    - [Planning and design for VPN Gateway](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-plan-design)
    - [About VPN Gateway settings](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-about-vpn-gateway-settings)
    - [About VPN devices](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-about-vpn-devices)
    - [About cryptographic requirements](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-about-compliance-crypto)
    - [About BGP and VPN Gateway](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-bgp-overview)
    - [About highly available connections](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-highlyavailable)
    - [About Point-to-Site connections](https://docs.microsoft.com/en-us/azure/vpn-gateway/point-to-site-about)
    - [About Point-to-Site VPN routing](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-about-point-to-site-routing)
    - [About zone-redundant gateways for Availability Zones](https://docs.microsoft.com/en-us/azure/vpn-gateway/about-zone-redundant-vnet-gateways)
* create and configure site to site VPN,
  + [Create and manage S2S VPN connections](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-tutorial-vpnconnection-powershell)
* configure Express Route,
  + [Configure ExpressRoute and Site-to-Site coexisting connections using PowerShell](https://docs.microsoft.com/en-us/azure/expressroute/expressroute-howto-coexist-resource-manager?toc=%2fazure%2fvpn-gateway%2ftoc.json)
* verify on premises connectivity,
  + [Configuring and validating VNet or VPN connections](https://support.microsoft.com/en-gb/help/4032151/configuring-and-validating-vnet-or-vpn-connections)
  + [Diagnose on-premises connectivity via VPN gateways](https://docs.microsoft.com/en-us/azure/network-watcher/network-watcher-diagnose-on-premises-connectivity)
  + [How to validate VPN throughput to a virtual network](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-validate-throughput-to-vnet)
  + [iPerf - The ultimate speed test tool for TCP, UDP and SCTP](https://iperf.fr/iperf-doc.php)
  + [Troubleshooting: Azure Site-to-Site VPN disconnects intermittently](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-troubleshoot-site-to-site-disconnected-intermittently)
* troubleshoot on premises connectivity with Azure
  + [Troubleshooting: Azure Site-to-Site VPN disconnects intermittently](https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-troubleshoot-site-to-site-disconnected-intermittently)

# Manage identities (15-20%)

## Manage Azure Active Directory (AD)

* Add custom domains;
  + [How to: Add your custom domain name using the Azure Active Directory portal](https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/add-custom-domain)
  + [Managing custom domain names in your Azure Active Directory](https://docs.microsoft.com/en-us/azure/active-directory/users-groups-roles/domains-manage)
* Azure AD Join;
  + [Azure AD Join](https://aadguide.azurewebsites.net/aadjoin/)
  + [HOW TO JOIN A WINDOWS 10 COMPUTER TO YOUR AZURE ACTIVE DIRECTORY](https://tech.xenit.se/join-windows-10-computer-azure-active-directory/)
* configure self-service password reset;
  + [How it works: Azure AD self-service password reset](https://docs.microsoft.com/en-us/azure/active-directory/authentication/concept-sspr-howitworks)
  + [How to successfully roll out self-service password reset](https://docs.microsoft.com/en-us/azure/active-directory/authentication/howto-sspr-deployment)
  + [Quickstart: Self-service password reset](https://docs.microsoft.com/en-us/azure/active-directory/authentication/quickstart-sspr)
  + [Password management frequently asked questions](https://docs.microsoft.com/en-us/azure/active-directory/authentication/active-directory-passwords-faq)
* manage multiple directories;
  + [Creating and Managing Multiple Windows Azure Active Directories](https://techcommunity.microsoft.com/t5/Azure-Active-Directory-Identity/Creating-and-Managing-Multiple-Windows-Azure-Active-Directories/ba-p/243428)
  + [Manage your Azure Active Directory tenant](https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/active-directory-administer)

## Manage Azure AD objects (users, groups, and devices)

* Create users and groups; manage user and group properties;
  + [How to: Add or delete users using Azure Active Directory](https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/add-users-azure-active-directory)
  + [How to: Create a basic group and add members using Azure Active Directory](https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/active-directory-groups-create-azure-portal)
  + [Dynamic membership rules for groups in Azure Active Directory](https://docs.microsoft.com/en-us/azure/active-directory/users-groups-roles/groups-dynamic-membership)
  + [Dynamic membership rules for groups - Create a "Direct reports" rule](https://docs.microsoft.com/en-us/azure/active-directory/users-groups-roles/groups-dynamic-membership#create-a-direct-reports-rule)
* manage device settings;
  + [How to manage devices using the Azure portal](https://docs.microsoft.com/en-us/azure/active-directory/devices/device-management-azure-portal)
* perform bulk user updates;
  + [AZURE ACTIVE DIRECTORY - BULK UPDATING USER PROFILE ATTRIBUTES USING POWERSHELL](http://ericphan.net/blog/2017/9/26/azure-active-directory-bulk-updating-user-profile-attributes-using-powershell)
* manage guest accounts
  + <https://docs.microsoft.com/en-us/azure/active-directory/governance/manage-guest-access-with-access-reviews>
  + <https://predica.pl/blog/guests-in-the-cloud-how-to-safely-manage-external-users-using-azure-ad-b2b/>
  + <https://www.bocoprimeit.com/guest-user-access-in-office-365-and-azure-ad/>

## Implement and manage hybrid identities

* Install Azure AD Connect,
  + [Getting started with Azure AD Connect using express settings](https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-install-express)
  + [Custom installation of Azure AD Connect](https://docs.microsoft.com/en-us/azure/active-directory/connect/active-directory-aadconnect-get-started-custom)
* including password hash and pass-through synchronization;
  + [User sign-in with Azure Active Directory Pass-through Authentication](https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-pta)
  + [Azure Active Directory Pass-through Authentication: Quick start](https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-pta-quick-start)
* use Azure AD Connect to configure federation with on-premises Active Directory Domain Services (AD DS);
  + [Azure Active Directory Seamless Single Sign-On](https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-sso)
  + [How to configure federated single sign-on for an Azure AD Gallery application](https://docs.microsoft.com/en-us/azure/active-directory/application-config-sso-how-to-configure-federated-sso-gallery)
  + [What is application access and single sign-on with Azure Active Directory?](https://docs.microsoft.com/en-us/azure/active-directory/manage-apps/what-is-single-sign-on)
* manage Azure AD Connect;
  + [Implement password hash synchronization with Azure AD Connect sync](https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-password-hash-synchronization)
  + [Enable password synchronization to Azure Active Directory Domain Services](https://docs.microsoft.com/en-us/azure/active-directory-domain-services/active-directory-ds-getting-started-password-sync-synced-tenant)
  + [Hybrid identity and Microsoft identity solutions](https://docs.microsoft.com/en-us/azure/active-directory/hybrid/whatis-hybrid-identity)
  + [Azure AD Connect Health Agent Installation](https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-health-agent-install)
  + [ONE OR MORE ON-PREMISE AD OBJECTS DON'T SYNC TO OFFICE 365 (AAD)](https://www.techtask.com/one-or-more-on-premise-ad-objects-dont-sync-to-office-365-aad/?doing_wp_cron=1540865304.4335451126098632812500)
* manage password sync and password writeback
  + [How-to: Configure password writeback](https://docs.microsoft.com/en-us/azure/active-directory/authentication/howto-sspr-writeback)
  + [Azure AD Connect sync: Understanding the default configuration](https://docs.microsoft.com/en-us/azure/active-directory/hybrid/concept-azure-ad-connect-sync-default-configuration) Especially
    - IsPresent([isCriticalSystemObject]). Ensure many out-of-box objects in Active Directory, such as the built-in administrator account, are not synchronized.
  + [Install and run the Office 365 IdFix tool](https://docs.microsoft.com/en-us/office365/enterprise/install-and-run-idfix)
  + [Prepare directory attributes for synchronization with Office 365 by using the IdFix tool](https://docs.microsoft.com/en-us/office365/enterprise/prepare-directory-attributes-for-synch-with-idfix)

## Implement multi-factor authentication (MFA)

* Configure user accounts for MFA,
  + [Enforce multi-factor authentication (MFA) for subscription administrators](https://docs.microsoft.com/en-us/azure/security/azure-security-global-admin)
  + [Tutorial: Complete an Azure Multi-Factor Authentication pilot roll out](https://docs.microsoft.com/en-us/azure/active-directory/authentication/tutorial-mfa-applications)
  + [Manage app passwords for two-step verification](https://docs.microsoft.com/en-us/azure/active-directory/user-help/multi-factor-authentication-end-user-app-passwords)
* enable MFA by using bulk update,
  + <https://justidm.wordpress.com/2018/09/14/bulk-pre-register-mfa-for-users-without-enable-mfa-on-the-account/>
  + <https://docs.microsoft.com/en-us/azure/active-directory/authentication/howto-mfa-userstates>
  + <https://docs.microsoft.com/en-us/azure/active-directory/authentication/howto-sspr-authenticationdata>
  + <https://gallery.technet.microsoft.com/scriptcenter/POWERSHELL-TO-ENABLE-AZURE-a67dacdc>
* configure fraud alerts,
  + [Fraud alert](https://docs.microsoft.com/en-us/azure/active-directory/authentication/howto-mfa-mfasettings#fraud-alert)
* configure bypass options,
  + [One-time bypass](https://docs.microsoft.com/en-us/azure/active-directory/authentication/howto-mfa-mfasettings#one-time-bypass)
  + [Azure Conditional Access with “Skip MFA for Requests From Federated users on my intranet” option – Scenarios](http://azuredummies.com/2017/10/09/azure-conditional-access-with-skip-mfa-for-requests-from-federated-users-on-my-intranet-option-scenarios/comment-page-1/)
  + [Bypass Azure MFA and Azure AD Connect Pass-Through Authentication](https://techcommunity.microsoft.com/t5/Azure-Active-Directory/Bypass-Azure-MFA-and-Azure-AD-Connect-Pass-Through/td-p/109309)
* configure Trusted IPs,
  + [What is the location condition in Azure Active Directory conditional access?](https://docs.microsoft.com/en-us/azure/active-directory/conditional-access/location-condition)
  + [Trusted IPs](https://docs.microsoft.com/en-us/azure/active-directory/authentication/howto-mfa-mfasettings#trusted-ips)
* configure verification methods
  + [Verification methods](https://docs.microsoft.com/en-us/azure/active-directory/authentication/howto-mfa-mfasettings#verification-methods)
  + [What is conditional access in Azure Active Directory?](https://docs.microsoft.com/en-us/azure/active-directory/conditional-access/overview)

[Pluralsight - Implementing and Managing Azure Multi-factor Authentication](https://app.pluralsight.com/library/courses/azure-multi-factor-authentication-implementing-managing/table-of-contents)