**Questions:**

Question 1 You host a service with two Azure virtual machines. You discover that occasional outages cause your service to fail. What two actions can you do to minimize the impact of the outages?

 Add a load balancer.

 Put the virtual machines in an availability set.

 Put the virtual machines in a scale set.

 Add a network gateway.

 Add a third instance of the virtual machine.

Question 2 You are researching Microsoft Azure for your company. The company is considering deploying Windows-based VMs in Azure. However, before moving forward, the management team has asked you to research the costs associated with Azure VMs. You need to document the configuration options that are likely to save the company money on their Azure VMs. Which options should you document? (Each answer presents part of the solution. Choose four.)

 Use HDD instead of SSD for VM storage.

 Use unmanaged premium storage instead of managed standard storage.

 Bring your own Windows custom images.

 Use different Azure regions.

 Use the least powerful VMs that meet your requirements.

 Place all VMs in the same resource group.

 Bring your own Windows license for each VM.

Question 3 You are planning to deploy several Linux VMs in Azure. The security team issues a policy that Linux VMs must use an authentication system other than passwords. You need to deploy an authentication method for the Linux VMs to meet the requirement. Which authentication method should you use? Select one.

 SSH key pair

 Azure multi-factor authentication

 Access keys

 Shared access signature

 Security vault certificate

Question 4 You deploy a new VM with default settings to a resource group named RG1. You validate that you can connect to it by using Remote Desktop Connection. However, when you attempt to connect to it through PowerShell remoting, the connection fails. You need to ensure that you can manage the VM by using PowerShell remoting. What should you do? Select one.

 Create an inbound security rule to allow TCP port 80 and TCP port 443.

 Create an inbound security rule to allow TCP port 5985 and TCP port 5986.

 Create an inbound security rule to allow TCP port 3389.

 Create an inbound security rule to allow TCP port 20 and TCP port 21.

Question 5 Your company has Windows Server 2012 R2 VMs and Ubuntu Linux VMs in Microsoft Azure. The company has a new project to standardize the configuration of servers across the Azure environment. The company opts to use Desired State Configuration (DSC) across all VMs. You need to ensure that DSC can be used across all the VMs. What two things should you do?

 Replace the Ubuntu VMs with Red Hat Enterprise Linux VMs.

 Deploy the DSC extension for Windows Server VMs.

 Deploy the DSC extension for Linux VMs.

 Replace the Windows Server 2012 R2 VMs with Windows Server 2016 VMs.

Question 6 Another IT administrator creates an Azure virtual machine scale set with 5 VMs. Later, you notice that the VMs are all running at max capacity with the CPU being fully consumed. However, additional VMs are not deploying in the scale set. You need to ensure that additional VMs are deployed when the CPU is 75% consumed. What should you do? Select one.

 Enable the autoscale option.

 Increase the instance count.

 Add the scale set automation script to the library.

 Deploy the scale set automation script.

Question 7 Your company is preparing to deploy an application to Microsoft Azure. The app is a self-contained unit that runs independently on several servers. The company is moving the app to the cloud to provide better performance. To get better performance, the team has the following requirements:

● If the CPU across the servers goes above 85%, a new VM should be deployed to provide additional resources.

● If the CPU across the servers drops below 15%, an Azure VM running the app should be decommissioned to reduce costs.

You need to deploy a solution to meet the requirements while minimizing the administrative overhead to implement and manage the solution. What should you do? Select one.

 Deploy the app in a virtual machine scale set.

 Deploy the app in a virtual machine availability set.

 Deploy the app by using a resource manager template.

 Deploy the app and use PowerShell Desired State Configuration (DSC).

Question 8 Your company is deploying a critical business application to Microsoft Azure. The uptime of the application is of utmost importance. The application has the following components:

● 2 web servers

● 2 application servers

● 2 database servers

You need to design the layout of the VMs to meet the following requirements:

● Each VM in a tier must run on different hardware

● Uptime for the application must be maximized

You need to deploy the VMs to meet the requirements. What should you do? Select one.

 Deploy 1 VM from each tier into one availability set and the remaining VMs into a separate availability set.

 Deploy the VMs from each tier into a dedicated availability set for the tier.

 Deploy the application and database VMs in one availability set and the web VMs into a separate availability set.

 Deploy a load balancer for the web VMs and an availability set to hold the application and database VMs.

Question 9 You deploy an Azure VM into an availability set. The VM is the only VM in the availability set. The VM runs an application named App1. The VM has the following characteristics:

● The VM uses Azure standard storage.

● The VM does not have any data disks.

● The VM was built with a custom image.

During an Azure planned maintenance event, the VM experiences downtime. The company issues a new requirement for App1: ● App1 must remain available during Azure planned maintenance events

You need to reconfigure your environment to meet the new requirements. What should you do? (Each answer presents a complete solution. Choose two.)

 Deploy a second Azure VM and add it to the same availability set.

 Deploy a second Azure VM and add it to the same update domain.

 Deploy a second Azure VM and add it to the same fault domain.

 Convert the VM storage to premium storage.

 Convert the VM to a Standard size or higher.

 Convert the VM storage to use zone redundant storage.

Question 10 You begin a new job at a company. You are exploring the existing Microsoft Azure implementation with a plan to document it. First, you are documenting the virtual machine details. You need to go gather the details of the VM data disks. Which type of storage should you review for the data disks? Select one.

 Azure CDN

 Blob storage

 Table storage

 Queue storage

**Links:**

PowerShell DSC

<https://docs.microsoft.com/en-us/powershell/dsc/overview/overview>

if you guys wants to understand the template and its flow, I would recommend to check below link.

<https://github.com/PowerShell/DscResource.Tests>

Best Practices for Autoscale –

<https://docs.microsoft.com/en-us/azure/monitoring-and-diagnostics/insights-autoscale-best-practices>

Virtual machine extensions and features for Windows –

<https://docs.microsoft.com/en-us/azure/virtual-machines/extensions/features-windows?toc=%2Fazure%2Fvirtual-machines%2Fwindows%2Ftoc.json>

Virtual machine extensions and features for Linux –

<https://docs.microsoft.com/en-us/azure/virtual-machines/extensions/features-linux>

Built-In Windows PowerShell Desired State Configuration Resources –

<https://docs.microsoft.com/en-us/powershell/dsc/resources/resources#built-in-resources>

Linux virtual machines (Documentation) –

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

Azure Pricing Calculator

<https://azure.microsoft.com/en-in/pricing/calculator/>

<https://azprice.info/>

GET [https://management.azure.com/{scope}/providers/Microsoft.Consumption/usageDetails?api-version=2019-01-01](https://management.azure.com/%7bscope%7d/providers/Microsoft.Consumption/usageDetails?api-version=2019-01-01)

SSH key (how public and private key works)

<https://www.ssh.com/ssh/public-key-authentication>

Storage

the default endpoints for your storage account are:

● Blob service: <http://mystorageaccount.blob.core.windows.net>

● Table service: <http://mystorageaccount.table.core.windows.net>

● Queue service: <http://mystorageaccount.queue.core.windows.net>

● File service: <http://mystorageaccount.file.core.windows.net>

**Create a storage account using PowerShell**

Use the following code to create a storage account using PowerShell. Swap out the storage types and names to suit your requirements.

Get-AzLocation | select Location

$location = "westus"

$resourceGroup = "storage-demo-resource-group"

New-AzResourceGroup -Name $resourceGroup -Location $location

New-AzStorageAccount -ResourceGroupName $resourceGroup -Name "storagedemo" -Location $location -SkuName Standard\_LRS -Kind StorageV2

**Create a storage account using Azure CLI**

Use the following code to create a storage account using Azure CLI. Change the storage types and names to suit your requirements.

az group create --name storage-resource-group --location westus

az account list-locations --query "[].{Region:name}" --out table

az storage account create --name storagedemo --resource-group storage-resource-group --location westus --sku Standard\_LRS --kind StorageV2

Download and install Azure Storage Explorer –

<https://azure.microsoft.com/en-us/features/storage-explorer>

What is Azure Files?-

<https://docs.microsoft.com/en-us/azure/storage/files/storage-files-introduction>

Creating a file share (PowerShell) You can also use PowerShell to create a file share.

# Retrieve storage account and storage account key

$storageContext = New-AzStorageContext <storage-account-name> <storage-account-key>

# Create the file share, in this case “logs”

$share = New-AzStorageShare logs -Context $storageContext

Secure file transfer:

how to use PowerShell and the EnableHttpsTrafficOnly parameter.

Set-AzStorageAccount -Name <StorageAccountName> -ResourceGroupName <ResourceGroupName> -EnableHttpsTrafficOnly $True

Demonstration - File Shares In this demonstration, we will work with files shares and snapshots.

Note: These steps require a storage account.

Create a file share and upload a file

1. Access your storage account, and click Files.

2. Click + File share and give your new file share a Name and a Quota.

3. After your file share is created Upload a file.

4. Notice the ability to Add a directory, Delete share, and edit the Quota.

Manage snapshots

1. Access your file share.

2. Select Create Snapshot.

3. Select View Snapshots and verify your snapshot was created.

4. Click the snapshot and verify it includes your uploaded file.

5. Click the file that is part of the snapshot and review the File properties.

6. Notice the choices to Download and Restore the snapshot file.

7. Access the file share and delete the file you previously uploaded.

8. Restore the file from the snapshot.

Create a file share (PowerShell)

1. Create a context for your storage account and key The context encapsulates the storage account name and account key.

$storageContext = New-AzStorageContext storage-account-name storage-account-key

1. Create the file share. The name of your file share must be all lowercase.

$share = New-AzStorageShare logs -Context $storageContext

Mount a file share (PowerShell)

Note: Run the following commands from a regular (i.e. not an elevated) PowerShell session to mount the Azure file share. Remember to replace <your-resource-group-name>, <your-storage-account-name>, <your-file-share-name>, and desired-drive-letter with the proper information.

$resourceGroupName = "your-resource-group-name"

$storageAccountName = "your-storage-account-name"

$fileShareName = "your-file-share-name"

# These commands require you to be logged into your Azure account, run Login-AzAccount if you haven't # already logged in.

$storageAccount = Get-AzStorageAccount -ResourceGroupName $resourceGroupName -Name $storageAccountName $storageAccountKeys = Get-AzStorageAccountKey -ResourceGroupName $resourceGroupName -Name $storageAccountName $fileShare = Get-AzStorageShare -Context $storageAccount.Context | Where-Object { $\_.Name -eq $fileShareName -and $\_.IsSnapshot -eq $false }

if ($fileShare -eq $null) { throw [System.Exception]::new("Azure file share not found") }

# The value given to the root parameter of the New-PSDrive cmdlet is the host address for the storage account, # storage-account.file.core.windows.net for Azure Public Regions.

$fileShare. StorageUri.PrimaryUri.Host is # used because non-Public Azure regions, such as sovereign clouds or Azure Stack deployments, will have different

# hosts for Azure file shares (and other storage resources).

$password = ConvertTo-SecureString -String $storageAccountKeys[0].Value -AsPlainText -Force $credential = New-Object System.Management.Automation.PSCredential -ArgumentList "AZURE\$($storageAccount.StorageAccountName)", $password New-PSDrive -Name desired-drive-letter -PSProvider FileSystem -Root

"\\$($fileShare.StorageUri.PrimaryUri.Host)\$($fileShare.Name)" -Credential $credential -Persist

When finished, you can dismount the file share by running the following command:

Remove-PSDrive -Name desired-drive-letter MCT

What is a shared access signature? –

<https://docs.microsoft.com/en-us/azure/storage/common/storage-dotnet-shared-access-signature-part-1?toc=%2fazure%2fstorage%2fblobs%2ftoc.Json#what-is-a-shared-access-signature>

Configuring SAS Parameters

PowerShell Options Create a storage account level SAS with full permissions.

New-AzStorageAccountSASToken -Service Blob,File,Table,Queue -ResourceType Service,Container,Object -Permission "racwdlup"

Create a Blob level SAS will full permisions.

New-AzStorageBlobSASToken -Container "ContainerName" -Blob "BlobName" -Permission rwd

Here is an example URI. Each part is described in the table below. https://myaccount.blob.core.windows.net/?restype=service&comp=properties&sv=2015-04-05&ss=bf&srt=s&st=2015-04-29T22%3A18%3A26Z&se=2015-0430T02%3A23%3A26Z&sr=b&sp=rw&sip=168.1.5.60-168.1.5.70&spr=https &sig=F%6GRVAZ5Cdj2Pw4txxxxx

Shared access signature parameters –

<https://docs.microsoft.com/en-us/azure/storage/common/storage-dotnet-shared-access-signature-part-1?toc=%2fazure%2fstorage%2fblobs%2ftoc.json#shared-access-signature-parameters>

Lab and Review Questions

Lab - Implement and Manage Storage Scenario Adatum Corporation wants to leverage Azure Storage for hosting its data

Objectives

After completing this lab, you will be able to:

● Deploy an Azure VM by using an Azure Resource Manager template.

● Implement and use Azure Blob Storage.

● Implement and use Azure File Storage.

Exercise 0: Prepare the lab environment. The main task for this exercise is as follows:

● Deploy an Azure VM by using an Azure Resource Manager template.

Result: After you completed this exercise, you have initiated template deployment of an Azure VM az1000201-vm1 that you will use in the second exercise of this lab.

Exercise 1: Implement and use Azure Blob Storage.

● The main tasks for this exercise are as follows:

● Create Azure Storage accounts.

● Review configuration settings of Azure Storage accounts.

● Manage Azure Storage Blob Service.

● Copy a container and blobs between Azure Storage accounts.

● Use a Shared Access Signature (SAS) key to access a blob.

Result: After you completed this exercise, you have created two Azure Storage accounts, reviewed their configuration settings, created a blob container, uploaded blobs into the container, copied the container and blobs between the storage accounts, and used a SAS key to access one of the blobs.

Exercise 2: Implement and use Azure File Storage. The main tasks for this exercise are as follows:

● Create an Azure File Service share.

● Map a drive to the Azure File Service share from an Azure VM.

Result: After you completed this exercise, you have created an Azure File Service share, mapped a drive to the file share from an Azure VM, and used File Explorer from the Azure VM to create a folder and a file in the file share.

Module Review Questions

Question 1 You work for an open source development company. You use Microsoft Azure for a variety of storage needs. Up to now, all the storage was used for internal purposes only. It is organized in block blobs. Each block blob is in its own container. Each container is set to default settings. In total, you have 50 block blobs. The company has decided to provide read access to the data in the block blobs, as part of releasing more information about their open source development efforts. You need to reconfigure the storage to meet the following requirements:

● All block blobs must be readable by anonymous internet users.

You need to configure the storage to meet the requirements. What should you do? Select one.

 Create a new container, move all the blobs to the new container, and then set the public access level to Blob.

 Set the public access level to Blob on all the existing containers.

 Create a new shared access signature for the storage account and then set the allowed permissions to Read, set the allowed resource types to Object, and set the allowed services to Blob.

 Create a new access key for the storage account and then provide the connection string in the storage connectivity information to the public. Review

Question 2 Your company is planning to storage log data, crash dump files, and other diagnostic data for Azure VMs in Azure. The company has issued the following requirements for the storage:

● Administrators must be able to browse to the data in File Explorer..

● Access over SMB 3.0 must be supported.

● The storage must support quotas.

You need to choose the storage type to meet the requirements. Which storage type should you use? Select one.

 Azure Files

 Table storage

 Blob storage

 Queue storage

Review Question 3 Your company provides cloud software to audit administrative access in Microsoft Azure resources. The software logs all administrative actions (including all clicks and text input) to log files. The software is about to be released from beta and the company is concerned about storage performance. You need to deploy a storage solution for the log files to maximize performance. What should you do? Select one.

 Deploy Azure Files using SMB 3.0.

 Deploy Azure Table Storage.

 Deploy Azure Queues Storage.

 Deploy blob storage using block blobs.

 Deploy blob storage using append blobs.

Review Question 4 Your company is building an app in Azure. The app has the following storage requirements:

● Storage must be reachable programmatically through a REST API.

● Storage must be globally redundant.

● Storage must be accessible privately within the company's Azure environment.

● Storage must be optimal for unstructured data.

Which type of Azure storage should you use for the app? Select one.

 Azure Data Lake store

 Azure Table Storage

 Azure Blob Storage

 Azure File Storage

Review Question 5 You use a Microsoft Azure storage account for storing large numbers of video and audio files. You create containers to store each type of file and want to limit access to those files for specific periods. Additionally, the files can only be accessed through shared access signatures (SAS). You need the ability to revoke access to the files and to change the period for which users can access the files. What should you do in order to accomplish this in the most simple and effective way? Select one.

 Create an SAS for each user and delete the SAS when you want to prevent access.

 Use Azure Rights Management Services (RMS) to control access to each file.

 Implement stored access policies for each container to enable revocation of access or change of duration.

 Periodically regenerate the account key to control access to the files.

Review Question 6 You need to provide a contingent staff employee temporary read-only access to the contents of an Azure storage account container named media. It is important that you grant access while adhering to the security principle of least-privilege. What should you do? Select one.

 Set the public access level to Container.

 Generate a shared access signature (SAS) token for the container.

 Share the container entity tag (Etag) with the contingent staff member.

 Configure a Cross-Origin Resource Sharing (CORS) rule for the storage account.

Review Question 7 When you created a virtual machine you selected standard storage because the data was accessed infrequently. The data is now being used for a Business Intellilgence application and you need better performance. What should you do? Select one.

 Create a new storage account with premium storage and copy the data there.

 Change the standard storage to premium storage.

 Create a general-purpose v2 account and use that for the data.

 Create a blob storage account and use that for the data.

Review Question 8 Your company requires all data to be encrypted with 256-bit AES encryption. What should you do? Select one.

 Enable storage service encryption.

 Enable customer managed keys.

 Enable shared access signatures.

 You do not need to do anything.

Review Question 9 You are using blob storage. Which of the following is true? Select one.

 The cool access tier is for frequent access of objects in the storage account.

 The hot access tier is for storing large amounts of data that is infrequently accessed.

 The performance tier you select does not affect pricing.

 You can switch between hot and cool performance tiers at any time.

Review Question 10 You are planning a delegation model for your Azure storage. The company has issued the following requirements for Azure storage access:

● Apps in the non-production environment must have automated time-limited access

● Apps in the production environment must have unrestricted access to storage resources

You need to configure storage access to meet the requirements. What should you do? (Each answer presents part of the solution. Choose two.)

 Use shared access signatures for the non-production apps.

 Use shared access signatures for the production apps.

 Use access keys for the non-production apps.

 Use access keys for the production apps.

 Use Stored Access Policies for the production apps.

 Use Cross Origin Resource Sharing for the non-production apps.