

## **AZ-300**

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AZ-300

## Deploy and Configure Infrastructure

### Question Set 1

#### QUESTION 1

You have an Azure subscription named Subscription1 that is used by several departments at your company. Subscription1 contains the resources in the following table.

Name	Type
Storage1	Storage account
RG1	Resource group
Container1	Blob container
Share1	File share

Another administrator deploys a virtual machine named VM1 and an Azure Storage account named Storage2 by using a single Azure Resource Manager template.

You need to view the template used for the deployment.

From the Azure Portal, for which blade can you view the template that was used for the deployment?

- A. Container1
- B. VM1
- C. Storage2
- D. RG1

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

You can verify the deployment by exploring the resource group from the Azure portal

Reference:

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/deployment-manager-tutorial>

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/template-tutorial-create-first-template?tabs=azure-powershell>

#### QUESTION 2

You have two subscriptions named Subscription1 and Subscription2. Each subscription is associated to a different Azure AD tenant.

Subscription1 contains a virtual network named VNet1. VNet1 contains an Azure virtual machine named VM1 and has an IP address space of 10.0.0.0/16.

Subscription2 contains a virtual network named VNet2. Vnet2 contains an Azure virtual machine named VM2 and has an IP address space of 10.10.0.0/24.

You need to connect VNet1 to VNet2.

What should you do first?

- A. Modify the IP address space of VNet2.
- B. Move VM1 to Subscription2.
- C. Provision virtual network gateways.
- D. Move VNet1 to Subscription2.

**Correct Answer:** C

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

We require a virtual network gateway for VNet-to-VNet connectivity.

Incorrect Answers:

A: There is no need to modify the address space. If you update the address space for one VNet, the other VNet automatically knows to route to the updated address space.

Reference:

<https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-howto-vnet-vnet-cli>

### **QUESTION 3**

You have an Azure Active Directory (Azure AD) tenant.

You have an existing Azure AD conditional access policy named Policy1. Policy1 enforces the use of Azure AD-joined devices when members of the Global Administrators group authenticate to Azure AD from untrusted locations.

You need to ensure that members of the Global Administrators group will also be forced to use multi-factor authentication when authenticating from untrusted locations.

What should you do?

- A. From the Azure portal, modify session control of Policy1.
- B. From multi-factor authentication page, modify the user settings.
- C. From multi-factor authentication page, modify the service settings.
- D. From the Azure portal, modify grant control of Policy1.

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

We need to modify the grant control of Policy1.

The grant control can trigger enforcement of one or more controls.

- Require multi-factor authentication (Azure Multi-Factor Authentication)
- Require device to be marked as compliant (Intune)
- Require Hybrid Azure AD joined device
- Require approved client app
- Require app protection policy

Note: It is now possible to explicitly apply the Require MFA for admins rule.

Reference:

<https://docs.microsoft.com/en-us/azure/active-directory/conditional-access/untrusted-networks>

<https://docs.microsoft.com/en-us/azure/active-directory/conditional-access/concept-baseline-protection>

### **QUESTION 4**

You have an Azure subscription named Subscription1 that contains an Azure virtual machine named VM1. VM1 is in a resource group named RG1.

VM1 runs services that will be used to deploy resources to RG1.

You need to ensure that a service running on VM1 can manage the resources in RG1 by using the identity of VM1.

What should you do first?

- A. From the Azure portal, modify the Access control (IAM) settings of RG1.
- B. From the Azure portal, modify the Policies settings of RG1.
- C. From the Azure portal, modify the Access control (IAM) settings of VM1.
- D. From the Azure portal, modify the value of the Managed Service Identity option for VM1.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Through a create process, Azure creates an identity in the Azure AD tenant that's trusted by the subscription in use. After the identity is created, the identity can be assigned to one or more Azure service instances.

Reference:

<https://docs.microsoft.com/en-us/azure/app-service/overview-managed-identity>

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

### QUESTION 5

You configure Azure AD Connect for Azure Active Directory Seamless Single Sign-On (Azure AD Seamless SSO) for an on-premises network.

Users report that when they attempt to access myapps.microsoft.com, they are prompted multiple times to sign in and are forced to use an account name that ends with onmicrosoft.com.

You discover that there is a UPN mismatch between Azure AD and the on-premises Active Directory.

You need to ensure that the users can use single-sign on (SSO) to access Azure resources.

What should you do first?

- A. From on-premises network, deploy Active Directory Federation Services (AD FS).
- B. From Azure AD, add and verify a custom domain name.
- C. From on-premises network, request a new certificate that contains the Active Directory domain name.
- D. From the server that runs Azure AD Connect, modify the filtering options.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The UPN is used by Azure AD to allow users to sign-in. The UPN that a user can use, depends on whether or not the domain has been verified. If the domain has been verified, then a user with that suffix will be allowed to sign-in to Azure AD.

To do so, you need to add and verify a custom domain in Azure AD before you can start syncing the users.

Reference:

<https://docs.microsoft.com/en-us/azure/active-directory/hybrid/plan-connect-design-concepts#azure-ad-sign-in>

<https://docs.microsoft.com/en-us/azure/active-directory/hybrid/tshoot-connect-objectsync#detect-upn-mismatch-if-object-is-synced-to-azure-active-directory>

### QUESTION 6

You have an Active Directory forest named contoso.com.

You install and configure Azure AD Connect to use password hash synchronization as the single sign-on (SSO) method. Staging mode is enabled.

You review the synchronization results and discover that the Synchronization Service Manager does not display any sync jobs.

You need to ensure that the synchronization completes successfully.

What should you do?

- A. From Azure PowerShell, run **Start-AdSyncSyncCycle –PolicyType Initial**.
- B. Run Azure AD Connect and set the SSO method to Pass-through Authentication.
- C. From Synchronization Service Manager, run a full import.
- D. Run Azure AD Connect and disable staging mode.

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

In staging mode, the server is active for import and synchronization, but it does not run any exports. A server in staging mode is not running password sync or password writeback, even if you selected these features during installation. When you disable staging mode, the server starts exporting, enables password sync, and enables password writeback.

Reference:

<https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-sync-staging-server>

<https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-sync-operations>

## QUESTION 7

You have an Azure subscription that contains 100 virtual machines.

You regularly create and delete virtual machines.

You need to identify unattached disks that can be deleted.

What should you do?

- A. From Microsoft Azure Storage Explorer, view the Account Management properties.
- B. From Azure Cost Management, create a Cost Management report.
- C. From the Azure portal, configure the Advisor recommendations.
- D. From Azure Cost Management, open the **Optimizer** tab and create a report.

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

You can find unused disks in the Azure Storage Explorer console. Once you drill down to the Blob containers under a storage account, you can see the lease state of the residing VHD (the lease state determines if the VHD is being used by any resource) and the VM to which it is leased out. If you find that the lease state and the VM fields are blank, it means that the VHD in question is unused.

Note: The ManagedBy property stores the Id of the VM to which Managed Disk is attached to. If the ManagedBy property is \$null then it means that the Managed Disk is not attached to a VM

Reference:

<https://cloud.netapp.com/blog/reduce-azure-storage-costs>

## QUESTION 8

You have an Azure subscription that contains 10 virtual machines.

You need to ensure that you receive an email message when any virtual machines are powered off, restarted, or deallocated.

What is the minimum number of rules and action groups that you require?

- A. three rules and three action groups
- B. one rule and one action group
- C. three rules and one action group
- D. one rule and three action groups

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

We need a separate rule for each condition. We also need a separate action group for each action type that we want to fire when the rule is met.

In this scenario we have three conditions (when any virtual machines are powered off, restarted, or deallocated) and one action type (you are sent an email message).

References:

<https://docs.microsoft.com/en-us/azure/azure-monitor/platform/alerts-action-rules>

<https://docs.microsoft.com/en-us/azure/azure-monitor/platform/alerts-metric-overview>

<https://docs.microsoft.com/en-us/azure/azure-monitor/platform/action-groups>

#### **QUESTION 9**

You plan to automate the deployment of a virtual machine scale set that uses the Windows Server 2016 Datacenter image.

You need to ensure that when the scale set virtual machines are provisioned, they have web server components installed.

Which two actions should you perform? Each correct answer presents part of the solution.

**NOTE:** Each correct selection is worth one point.

- A. Upload a configuration script.
- B. Create an automation account.
- C. Create a new virtual machine scale set in the Azure portal.
- D. Create an Azure policy.
- E. Modify the `extensionProfile` section of the Azure Resource Manager template.

**Correct Answer: CE**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/virtual-machine-scale-sets/tutorial-install-apps-template>

#### **QUESTION 10**

You have an Azure subscription.

You have 100 Azure virtual machines.

You need to quickly identify underutilized virtual machines that can have their service tier changed to a less expensive offering.

Which blade should you use?

- A. Customer insights
- B. Monitor
- C. Advisor
- D. Metrics

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Advisor helps you optimize and reduce your overall Azure spend by identifying idle and underutilized resources. You can get cost recommendations from the Cost tab on the Advisor dashboard.

Reference:

<https://docs.microsoft.com/en-us/azure/advisor/advisor-cost-recommendations>

### QUESTION 11

An app uses a virtual network with two subnets. One subnet is used for the application server. The other subnet is used for a database server. A network virtual appliance (NVA) is used as a firewall.

Traffic destined for one specific address prefix is routed to the NVA and then to an on-premises database server that stores sensitive data. A Border Gateway Protocol (BGP) route is used for the traffic to the on-premises database server.

You need to recommend a method for creating the user-defined route.

Which two options should you recommend? Each correct answer presents a complete solution.

**NOTE:** Each correct selection is worth one point.

- A. For the virtual network configuration, use a VPN.
- B. For the next hop type, use a virtual network peering.
- C. For the virtual network configuration, use Azure ExpressRoute.
- D. For the next hop type, use a virtual network gateway.

**Correct Answer:** AD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

You can create custom, or user-defined, routes in Azure to override Azure's default system routes, or to add additional routes to a subnet's route table. You can specify the following next hop types when creating a user-defined route:

- Virtual appliance: A virtual appliance is a virtual machine that typically runs a network application, such as a firewall.
- Virtual network gateway: Specify when you want traffic destined for specific address prefixes routed to a virtual network gateway. The virtual network gateway must be created with type VPN. You cannot specify a virtual network gateway created as type ExpressRoute in a user-defined route because with ExpressRoute, you must use BGP for custom routes.
- None: Specify when you want to drop traffic to an address prefix, rather than forwarding the traffic to a destination.
- Virtual network: Specify when you want to override the default routing within a virtual network.
- Internet: Specify when you want to explicitly route traffic destined to an address prefix to the Internet, or if you want traffic destined for Azure services with public IP addresses kept within the Azure backbone network.

Incorrect Answers:

B: You cannot specify VNet peering or VirtualNetworkServiceEndpoint as the next hop type in user-defined routes. Routes with the VNet peering or VirtualNetworkServiceEndpoint next hop types are only created by

Azure, when you configure a virtual network peering, or a service endpoint.

C: You cannot specify a virtual network gateway created as type ExpressRoute in a user-defined route because with ExpressRoute, you must use BGP for custom routes.

Reference:

<https://docs.microsoft.com/en-us/azure/virtual-network/virtual-networks-udr-overview>

### QUESTION 12

You manage a solution in Azure that consists of a single application which runs on a virtual machine (VM). Traffic to the application has increased dramatically.

The application must not experience any downtime and scaling must be dynamically defined.

You need to define an auto-scale strategy to ensure that the VM can handle the workload.

Which three options should you recommend? Each correct answer presents a complete solution.

**NOTE:** Each correct selection is worth one point.

- A. Deploy application automatic vertical scaling.
- B. Create a VM availability set.
- C. Create a VM scale set.
- D. Deploy application automatic horizontal scaling.
- E. Deploy a custom auto-scale implementation.

**Correct Answer:** CDE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 13

You are implementing authentication for applications in your company. You plan to implement self-service password reset (SSPR) and multifactor authentication (MFA) in Azure Active Directory (Azure AD).

You need to select authentication mechanisms that can be used for both MFA and SSPR.

Which two authentication methods should you use? Each correct answer presents a complete solution.

**NOTE:** Each correct selection is worth one point.

- A. Short Message Service (SMS) messages
- B. Authentication app
- C. Email addresses
- D. Security questions
- E. App passwords

**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The following authentication mechanisms can be used for both MFA and SSPR:

- Short Message Service (SMS) messages
- Azure AD passwords
- Microsoft Authenticator app
- Voice call

Incorrect Answers:



C, D:

The following authentication mechanisms are used for SSPR only:

- Email addresses
- Security questions

E: App passwords authentication mechanisms can be used for MFA only, but only in certain cases.

Reference:

<https://docs.microsoft.com/en-us/azure/active-directory/authentication/concept-authentication-methods>

#### QUESTION 14

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure subscription that contains 10 virtual networks. The virtual networks are hosted in separate resource groups.

Another administrator plans to create several network security groups (NSGs) in the subscription.

You need to ensure that when an NSG is created, it automatically blocks TCP port 8080 between the virtual networks.

Solution: You create a resource lock, and then you assign the lock to the subscription.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

How can I freeze or lock my production/critical Azure resources from accidental deletion? There is way to do this with both ASM and ARM resources using Azure resource lock.

References:

<https://blogs.msdn.microsoft.com/azureedu/2016/04/27/using-azure-resource-manager-policy-and-azure-lock-to-control-your-azure-resources/>

#### QUESTION 15

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure subscription named Subscription1. Subscription1 contains a resource group named RG1. RG1 contains resources that were deployed by using templates.

You need to view the date and time when the resources were created in RG1.

Solution: From the RG1 blade, you click **Automation script**.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

From the RG1 blade, click Deployments

Reference:

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/template-tutorial-create-first-template?tabs=azure-powershell>

#### QUESTION 16

**Note:** This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure subscription named Subscription1. Subscription1 contains a resource group named RG1. RG1 contains resources that were deployed by using templates.

You need to view the date and time when the resources were created in RG1.

Solution: From the Subscription blade, you select the subscription, and then click **Resource providers**.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

From the RG1 blade, click Deployments

Reference:

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/template-tutorial-create-first-template?tabs=azure-powershell>

#### QUESTION 17

**Note:** This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure subscription named Subscription1. Subscription1 contains a resource group named RG1. RG1 contains resources that were deployed by using templates.

You need to view the date and time when the resources were created in RG1.

Solution: From the RG1 blade, you click **Deployments**.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

From the RG1 blade, click Deployments. You see a history of deployment for the resource group.

Reference:

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/template-tutorial-create-first-template?tabs=azure-powershell>

### QUESTION 18

You plan to use the Azure Import/Export service to copy files to a storage account.

Which two files should you create before you prepare the drives for the import job? Each correct answer presents part of the solution.

**NOTE:** Each correct selection is worth one point.

- A. a dataset CSV file
- B. an XML manifest file
- C. a driveset CSV file
- D. a PowerShell PS1 file
- E. a JSON configuration file

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

A: Modify the dataset.csv file in the root folder where the tool resides. Depending on whether you want to import a file or folder or both, add entries in the dataset.csv file

C: Modify the driveset.csv file in the root folder where the tool resides.

References:

<https://docs.microsoft.com/en-us/azure/storage/common/storage-import-export-data-to-files>

### QUESTION 19

You create an Azure Storage account named contosostorage.

You plan to create a file share named data.

Users need to map a drive to the data file share from home computers that run Windows 10.

Which outbound port should you open between the home computers and the data file share?

- A. 80
- B. 443
- C. 445
- D. 3389

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

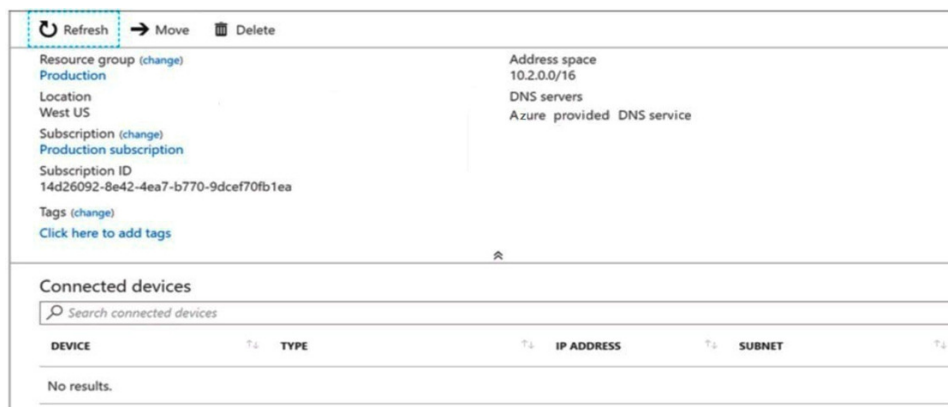
Ensure port 445 is open: The SMB protocol requires TCP port 445 to be open; connections will fail if port 445 is blocked.

References:

<https://docs.microsoft.com/en-us/azure/storage/files/storage-how-to-use-files-windows>

**QUESTION 20**

You have a virtual network named VNet1 as shown in the **exhibit**. (Click the Exhibit tab.)



No devices are connected to VNet1.

You plan to peer VNet1 to another virtual network named VNet2 in the same region. VNet2 has an address space of 10.2.0.0/16.

You need to create the peering.

What should you do first?

- A. Add a gateway subnet to VNet1.
- B. Create a subnet on VNet1 and VNet2
- C. Modify the address space of VNet1
- D. Configure a service endpoint on VNet2

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

The virtual networks you peer must have non-overlapping IP address spaces. The exhibit indicates that VNet1 has an address space of 10.2.0.0/16, which is the same as VNet2, and thus overlaps. We need to change the address space for VNet1.

References:

<https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-manage-peering#requirements-and-constraints>

**QUESTION 21**

You have an Azure tenant that contains two subscriptions named Subscription1 and Subscription2.

In Subscription1, you deploy a virtual machine named Server1 that runs Windows Server 2016. Server1 uses managed disks.

You need to move Server1 to Subscription2. The solution must minimize administration effort.

What should you do first?

- A. Create a new virtual machine in Subscription2
- B. In Subscription2, create a copy of the virtual disk
- C. Create a snapshot of the virtual disk
- D. From Azure PowerShell, run the Move-AzureRmResource cmdlet

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

To move existing resources to another resource group or subscription, use the Move-AzureRmResource cmdlet.

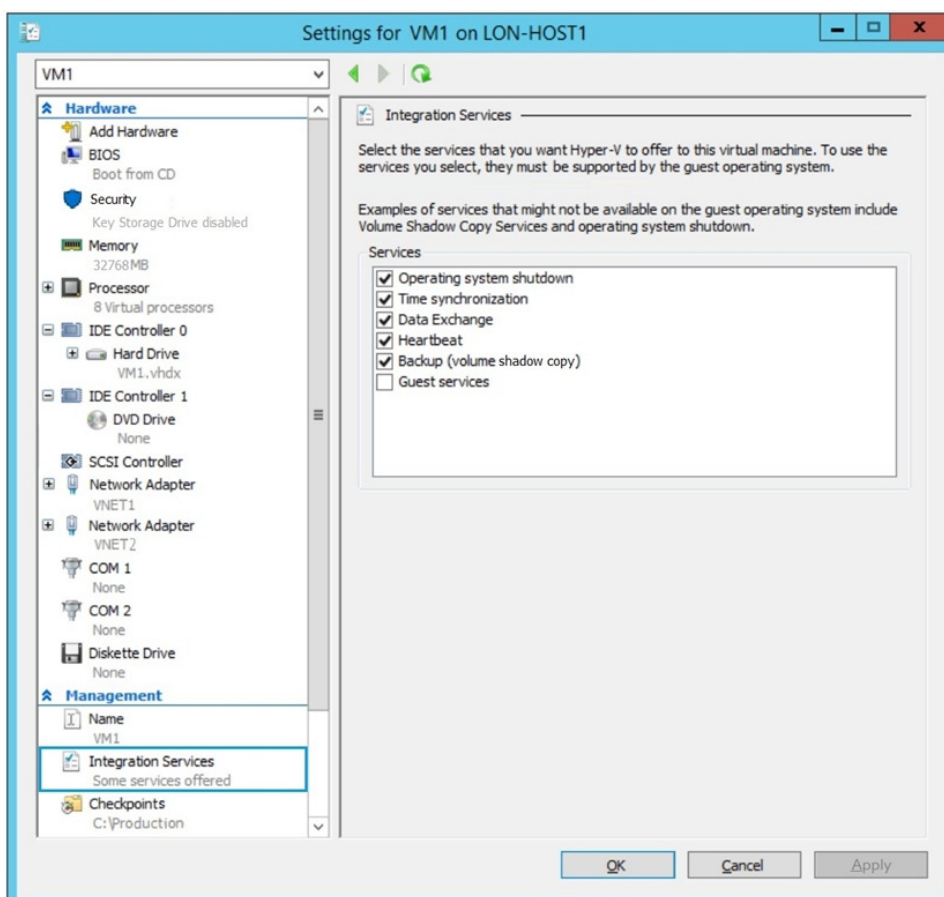
References:

<https://docs.microsoft.com/en-in/azure/azure-resource-manager/resource-group-move-resources#move-resources>

**QUESTION 22**

You have an Azure subscription.

You have an on-premises virtual machine named VM1. The settings for VM1 are shown in the exhibit. (Click the **Exhibit** tab.)



You need to ensure that you can use the disks attached to VM1 as a template for Azure virtual machines.

What should you modify on VM1?

- A. the processor
- B. the memory

- C. Integration Services
- D. the hard drive
- E. the network adapters

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

From the exhibit we see that the disk is in the VHDX format.

Before you upload a Windows virtual machines (VM) from on-premises to Microsoft Azure, you must prepare the virtual hard disk (VHD or VHDX). Azure supports only generation 1 VMs that are in the VHD file format and have a fixed sized disk. The maximum size allowed for the VHD is 1,023 GB. You can convert a generation 1 VM from the VHDX file system to VHD and from a dynamically expanding disk to fixed-sized.

References:

<https://docs.microsoft.com/en-us/azure/virtual-machines/windows/prepare-for-upload-vhd-image?toc=azure-virtual-machines-windows-toc.json>

### QUESTION 23

You have an Azure policy as shown in the following exhibit.

SCOPE

\* Scope (Learn more about setting the scope)

Subscription 1

Exclusions

Subscription 1/ContosoRG1

BASICS

\* Policy definition

Not allowed resource types

\* Assignment name ⓘ

Not allowed resource types

Assignment ID

/subscriptions/5eb8d0b6-ce3b-4ce0-a631-9f5321bedabb/providers/Microsoft.Authorization/policyAssignments/0e6fb866bf854f54accae2a9

Description

Assigned by

admin1@contoso.com

PARAMETERS

\* Not allowed resource types ⓘ

Microsoft.Sql/servers

What is the effect of the policy?

- A. You can create Azure SQL servers in any resource group within Subscription 1.
- B. You can create Azure SQL servers in ContosoRG1 only.
- C. You are prevented from creating Azure SQL Servers in ContosoRG1 only.
- D. You are prevented from creating Azure SQL servers anywhere in Subscription 1.

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

You are prevented from creating Azure SQL servers anywhere in Subscription 1 with the exception of ContosoRG1

### QUESTION 24

You have an Azure subscription that contains a resource group named RG1. RG1 contains 100 virtual machines.

Your company has three cost centers named Manufacturing, Sales, and Finance.

You need to associate each virtual machine to a specific cost center.

What should you do?

- A. Add an extension to the virtual machines
- B. Modify the inventory settings of the virtual machine
- C. Assign tags to the virtual machines
- D. Configure locks for the virtual machine

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

You apply tags to your Azure resources to logically organize them into a taxonomy. Each tag consists of a name and a value pair. After you apply tags, you can retrieve all the resources in your subscription with that tag name and value.

Tags enable you to retrieve related resources from different resource groups.

This approach is helpful when you need to organize resources for billing or management.

Reference:

<https://docs.microsoft.com/en-us/azure/billing/billing-getting-started>

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-using-tags>

#### **QUESTION 25**

You have an Azure subscription that contains two storage accounts named storagecontoso1 and storagecontoso2. Each storage account contains a queue service, a table service, and a blob service.

You develop two apps named App1 and App2. You need to configure the apps to store different types of data to all the storage services on both the storage accounts.

How many endpoints should you configure for each app?

- A. 2
- B. 3
- C. 6
- D. 12

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Each app needs a service endpoint in each Storage Account.

References:

<https://docs.microsoft.com/en-us/azure/storage/common/storage-network-security>

#### **QUESTION 26**

You have an Azure subscription that contains three virtual networks named VNet1, VNet2, and VNet3. VNet2 contains a virtual appliance named VM2 that operates as a router.

You are configuring the virtual networks in a hub and spoke topology that uses VNet2 as the hub network.

You plan to configure peering between VNet1 and VNet2 and between VNet2 and VNet3.

You need to provide connectivity between VNet1 and VNet3 through VNet2.

Which two configurations should you perform? Each correct answer presents part of the solution.

**NOTE:** Each correct selection is worth one point.

- A. On the peering connections, allow forwarded traffic
- B. Create a route filter
- C. On the peering connections, allow gateway transit
- D. Create route tables and assign the table to subnets
- E. On the peering connections, use remote gateways

**Correct Answer:** CE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Allow gateway transit: Check this box if you have a virtual network gateway attached to this virtual network and want to allow traffic from the peered virtual network to flow through the gateway.

The peered virtual network must have the Use remote gateways checkbox checked when setting up the peering from the other virtual network to this virtual network.

References:

<https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-manage-peering#requirements-and-constraints>

#### QUESTION 27

**Note:** This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You are planning to create a virtual network that has a scale set that contains six virtual machines (VMs).

A monitoring solution on a different network will need access to the VMs inside the scale set.

You need to define public access to the VMs.

Solution: Deploy a standalone VM that has a public IP address to the virtual network.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 28

**Note:** This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might



have more than one correct solution, while others might not have a correct solution.

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You are planning to create a virtual network that has a scale set that contains six virtual machines (VMs).

A monitoring solution on a different network will need access to the VMs inside the scale set.

You need to define public access to the VMs.

Solution: Implement an Azure Load Balancer.

Does the solution meet the goal?

A. Yes

B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 29**

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You are planning to create a virtual network that has a scale set that contains six virtual machines (VMs).

A monitoring solution on a different network will need access to the VMs inside the scale set.

You need to define public access to the VMs.

Solution: Design a scale set to automatically assign public IP addresses to all VMs.

Does the solution meet the goal?

A. Yes

B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 30**

You have an Azure Kubernetes Service (AKS) cluster named Clus1 in a resource group named RG1.

An administrator plans to manage Clus1 from an Azure AD-joined device.

You need to ensure that the administrator can deploy the YAML application manifest file for a container application.

You install the Azure CLI on the device.

Which command should you run next?

- A. `kubectl get nodes`
- B. `az aks install-cli`
- C. `kubectl apply -f appl.yaml`
- D. `az aks get-credentials --resource-group RG1 --name Clus1`

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

`kubectl apply -f appl.yaml` applies a configuration change to a resource from a file or stdin.

Incorrect Answers:

A: `kubectl get nodes` gets a list of all nodes.

B: `az aks install-cli` download and install the Kubernetes command-line tool.

D: `az aks get-credentials` gets access credentials for a managed Kubernetes cluster

References:

<https://kubernetes.io/docs/reference/kubectl/overview/>

<https://docs.microsoft.com/en-us/cli/azure/aks>

### QUESTION 31

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You are planning to create a virtual network that has a scale set that contains six virtual machines (VMs).

A monitoring solution on a different network will need access to the VMs inside the scale set.

You need to define public access to the VMs.

Solution: Use Remote Desktop Protocol (RDP) to connect to the VM in the scale set.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Instead, deploy a standalone VM that has a public IP address to the virtual network.

### QUESTION 32

You have an Azure subscription that contains the virtual networks shown in the following table.

Name	Address space	Location	Number of Azure virtual machines
VNET1	10.1.0.0/16	West US	100
VNET2	172.16.0.0/16	East US	400

You need to recommend a connectivity solution that will enable the virtual machines on VNET1 and VNET2 to communicate through the Microsoft backbone infrastructure.

What should you include in the recommendation?

- A. Azure ExpressRoute
- B. peering
- C. a site-to-site VPN
- D. a point-to-site VPN

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Virtual network peering enables you to seamlessly connect Azure virtual networks. Once peered, the virtual networks appear as one, for connectivity purposes. The traffic between virtual machines in the peered virtual networks is routed through the Microsoft backbone infrastructure, much like traffic is routed between virtual machines in the same virtual network, through private IP addresses only. Azure supports:

- VNet peering - connecting VNets within the same Azure region
- Global VNet peering - connecting VNets across Azure regions

References:

<https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-peering-overview>

### QUESTION 33

You create an Azure virtual machine named VM1 in a resource group named RG1.

You discover that VM1 performs slower than expected.

You need to capture a network trace on VM1.

What should you do?

- A. From Diagnostic settings for VM1, configure the performance counters to include network counters.
- B. From the VM1 blade, configure Connection troubleshoot.
- C. From the VM1 blade, install performance diagnostics and run advanced performance analysis
- D. From Diagnostic settings for VM1, configure the log level of the diagnostic agent.

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

The performance diagnostics tool helps you troubleshoot performance issues that can affect a Windows or Linux virtual machine (VM). Supported troubleshooting scenarios include quick checks on known issues and best practices, and complex problems that involve slow VM performance or high usage of CPU, disk space, or memory.

Advanced performance analysis, included in the performance diagnostics tool, includes all checks in the performance analysis, and collects one or more of the traces, as listed in the following sections. Use this scenario to troubleshoot complex issues that require additional traces. Running this scenario for longer periods will increase the overall size of diagnostics output, depending on the size of the VM and the trace options that are selected.

References:

<https://docs.microsoft.com/en-us/azure/virtual-machines/troubleshooting/performance-diagnostics>

### QUESTION 34

You have an Azure subscription that contains the resource groups shown in the following table.

Name	Region
RG1	East US
RG2	West US

The subscription contains the storage accounts shown in the following table.

Name	Resource group	Location	Account kind
Storage1	RG1	West US	BlobStorage
Storage2	RG2	West US	Storage (general purpose v1)
Storage3	RG1	East US	Storage V2 (general purpose v2)

You create a Recovery Services vault named Vault1 in RG1 in the West US location.

You need to identify which storage accounts can be used to archive the diagnostics logs of Vault1.

Which storage accounts should you identify?

- A. Storage1 only
- B. Storage2 only
- C. Storage3 only
- D. Storage1 or Storage2 only
- E. Storage1 or Storage3 only

**Correct Answer:** DE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The same region or the same resource group.

### QUESTION 35

You have an Azure subscription.

You create a custom role in Azure by using the following Azure Resource Manager template.

```
{
  "Name": "Role1",
  "Id": "888888888-8888-8888-888888888888",
  "IsCustom" : true,
  "Description" : "Role1 Description",
  "Actions" : [
    "Microsoft.Storage/*/read",
    "Microsoft.Network/*/read",
    "Microsoft.Compute/*/read",
    "Microsoft.Compute/virtualMachines/start/action",
    "Microsoft.Compute/virtualMachines/restart/action",
    "Microsoft.Authorization/*/read",
    "Microsoft.ResourceHealth/availabilityStatuses/read",
    "Microsoft.Resources/subscriptions/resourceGroups/read",
    "Microsoft.Insights/alertRules/*",
    "Microsoft.Insights/diagnosticSettings/*",
    "Microsoft.Support/*"
  ],
  "NotActions": [],
  "DataActions": [],
  "NotDataActions" : [],
  "AssignableScopes" : [
    "/subscriptions/981dd4bc-8cf4-46fc-9513-0c599648b44b"
  ]
}
```

You assign the role to a user named User1.

Which action can User1 perform?

- A. Delete virtual machines.
- B. Create resource groups.
- C. Create virtual machines.
- D. Create support requests.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The "Microsoft.Support/\*" operation will allow the user to create support tickets.

References:

<https://docs.microsoft.com/en-us/azure/role-based-access-control/tutorial-custom-role-powershell>

### QUESTION 36

A company plans to use third-party application software to perform complex data analysis processes. The software will use up to 500 identical virtual machines (VMs) based on an Azure Marketplace VM image.

You need to design the infrastructure for the third-party application server. The solution must meet the following requirements:

- The number of VMs that are running at any given point in time must change when the user workload changes.
- When a new version of the application is available in Azure Marketplace it must be deployed without causing application downtime.
- Use VM scale sets.
- Minimize the need for ongoing maintenance.

Which two technologies should you recommend? Each correct answer presents part of the solution.

**NOTE:** Each correct selection is worth one point.

- A. single storage account
- B. autoscale
- C. single placement group
- D. managed disks

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 37

You have an Azure subscription that contains the storage accounts shown in the following table.

Name	Account kind	Size
contosostorage1	General Purpose v1	15 TB
contosostorage2	General Purpose v1	1 TB
contosostorage3	General Purpose v2	15 TB
contosostorage4	General Purpose v2	1 TB
contosostorage5	blobstorage	5 TB

All storage accounts contain blobs only.

You need to implement several lifecycle management rules for all storage accounts.

What should you do first?

- A. Upgrade contosostorage1 and contosostorage2 to General Purpose V2 accounts.
- B. Move 5 TB of blob data from contosostorage3 to contosostorage4.
- C. Move 5 TB of blob data from contosostorage1 to contosostorage2.
- D. Recreate contosostorage5 as a General Purpose V2 account.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Microsoft recommends that you use a general-purpose v2 storage account for most scenarios. You can easily upgrade a general-purpose v1 or an Azure Blob storage account to a general-purpose v2 account with no downtime and without the need to copy data.

References:

<https://docs.microsoft.com/en-us/azure/storage/common/storage-scalability-targets>

### QUESTION 38

**Note:** This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure Active Directory (Azure AD) tenant named contoso.com.

A user named Admin1 attempts to create an access review from the Azure Active Directory admin center

and discovers that the Access reviews settings are unavailable. Admin1 discovers that all the other Identity Governance settings are available.

Admin1 is assigned the User administrator, Compliance administrator, and Security administrator roles.

You need to ensure that the Admin1 can create access reviews in contoso.com.

Solution: You consent to Azure AD Privileged Identity Management (PIM).

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

PIM essentially helps you manage the who, what, when, where, and why for resources that you care about.

Key features of PIM include:

- Conduct access reviews to ensure users still need roles

Note: Azure Active Directory (Azure AD) Privileged Identity Management (PIM) is a service that enables you to manage, control, and monitor access to important resources in your organization. This includes access to resources in Azure AD, Azure resources, and other Microsoft Online Services like Office 365 or Microsoft Intune.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/privileged-identity-management/pim-configure>

#### **QUESTION 39**

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure Active Directory (Azure AD) tenant named contoso.com.

A user named Admin1 attempts to create an access review from the Azure Active Directory admin center and discovers that the Access reviews settings are unavailable. Admin1 discovers that all the other Identity Governance settings are available.

Admin1 is assigned the User administrator, Compliance administrator, and Security administrator roles.

You need to ensure that the Admin1 can create access reviews in contoso.com.

Solution: You assign the Global administrator role to Admin1.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Instead use Azure AD Privileged Identity Management.

Note: PIM essentially helps you manage the who, what, when, where, and why for resources that you care about. Key features of PIM include:

- Conduct access reviews to ensure users still need roles

References:

<https://docs.microsoft.com/en-us/azure/active-directory/privileged-identity-management/pim-configure>

#### QUESTION 40

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure Active Directory (Azure AD) tenant named contoso.com.

A user named Admin1 attempts to create an access review from the Azure Active Directory admin center and discovers that the Access reviews settings are unavailable. Admin1 discovers that all the other Identity Governance settings are available.

Admin1 is assigned the User administrator, Compliance administrator, and Security administrator roles.

You need to ensure that the Admin1 can create access reviews in contoso.com.

Solution: You purchase an Azure Directory Premium P2 license for contoso.com.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Instead use Azure AD Privileged Identity Management.

Note: PIM essentially helps you manage the who, what, when, where, and why for resources that you care about. Key features of PIM include:

- Conduct access reviews to ensure users still need roles

References:

<https://docs.microsoft.com/en-us/azure/active-directory/privileged-identity-management/pim-configure>

#### QUESTION 41

You have a resource group named RG1 that contains the following:

- A virtual network that contains two subnets named Subnet1 and Subnet2
- An Azure Storage account named contososa1
- An Azure firewall deployed to Subnet2

You need to ensure that contososa1 is accessible from Subnet1 over the Azure backbone network.

What should you do?

- A. Deploy an Azure firewall to Subnet1.
- B. Remove the Azure firewall.
- C. Implement a virtual network service endpoint.



D. Create a stored access policy for contososa1.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Virtual Network (VNet) service endpoints extend your virtual network private address space and the identity of your VNet to the Azure services, over a direct connection. Endpoints allow you to secure your critical Azure service resources to only your virtual networks. Traffic from your VNet to the Azure service always remains on the Microsoft Azure backbone network.

References:

<https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-service-endpoints-overview>

#### QUESTION 42

Your company has the groups shown in the following table.

Group	Number of members
Managers	10
Sales	100
Development	15

The company has an Azure subscription that contains an Azure Active Directory (Azure AD) tenant named contoso.com.

An administrator named Admin1 attempts to enable Enterprise State Roaming for all the users in the Managers group.

Admin1 reports that the options for Enterprise State Roaming are unavailable from Azure AD.

You verify that Admin1 is assigned the Global administrator role.

You need to ensure that Admin1 can enable Enterprise State Roaming.

What should you do?

- A. Enforce Azure Multi-Factor Authentication (MFA) for Admin1.
- B. Purchase an Azure AD Premium P1 license for each user in the Managers group.
- C. Assign an Azure AD Privileged Identity Management (PIM) role to Admin1.
- D. Purchase an Azure Rights Management (Azure RMS) license for each user in the Managers group.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Enterprise State Roaming is available to any organization with an Azure AD Premium or Enterprise Mobility + Security (EMS) license.

References:

<https://docs.microsoft.com/bs-latn-ba/azure/active-directory/devices/enterprise-state-roaming-enable>

#### QUESTION 43

Your company has an office in Seattle.

You have an Azure subscription that contains a virtual network named VNET1.

You create a site-to-site VPN between the Seattle office and VNET1.

VNET1 contains the subnets shown in the following table.

Name	IP address space
Subnet1	10.1.1.0/24
GatewaySubnet	10.1.200.0/28

You need to redirect all Internet-bound traffic from Subnet1 to the Seattle office.

What should you create?

- A. a route for GatewaySubnet that uses the virtual network gateway as the next hop
- B. a route for GatewaySubnet that uses the local network gateway as the next hop
- C. a route for Subnet1 that uses the local network gateway as the next hop
- D. a route for Subnet1 that uses the virtual network gateway as the next hop

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

A route with the 0.0.0.0/0 address prefix instructs Azure how to route traffic destined for an IP address that is not within the address prefix of any other route in a subnet's route table. When a subnet is created, Azure creates a default route to the 0.0.0.0/0 address prefix, with the Internet next hop type. We need to create a custom route in Azure to use a virtual network gateway in the Seattle office as the next hop.

References:

<https://docs.microsoft.com/en-us/azure/virtual-network/virtual-networks-udr-overview>

## Deploy and Configure Infrastructure

### Testlet 2

#### Case Study

This is a case study. **Case studies are not timed separately. You can use as much exam time as you would like to complete each case.** However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.

To answer the questions included in a case study, you will need to reference information that is provided in the case study. Case studies might contain exhibits and other resources that provide more information about the scenario that is described in the case study. Each question is independent of the other questions in this case study.

At the end of this case study, a review screen will appear. This screen allows you to review your answers and to make changes before you move to the next section of the exam. After you begin a new section, you cannot return to this section.

#### To start the case study

To display the first question in this case study, click the **Next** button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirements, existing environment, and problem statements. If the case study has an **All Information** tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a **question**, click the Question button to return to the question.

#### Overview

Humongous Insurance is an insurance company that has three offices in Miami, Tokyo and Bangkok. Each office has 5,000 users.

#### Existing Environment

##### Active Directory Environment

Humongous Insurance has a single-domain Active Directory forest named humongousinsurance.com. The functional level of the forest is Windows Server 2012.

You recently provisioned an Azure Active Directory (Azure AD) tenant.

##### Network Infrastructure

Each office has a local data center that contains all the servers for that office. Each office has a dedicated connection to the Internet.

Each office has several link load balancers that provide access to the servers.

##### Active Directory Issue

Several users in humongousinsurance.com have UPNs that contain special characters.

You suspect that some of the characters are unsupported in Azure AD.

##### Licensing Issue

You attempt to assign a license in Azure to several users and receive the following error message: "Licenses not assigned. License agreement failed for one user."

You verify that the Azure subscription has the available licenses.

#### Requirements

##### Planned Changes

Humongous Insurance plans to open a new office in Paris. The Paris office will contain 1,000 users who will be hired during the next 12 months. All the resources used by the Paris office users will be hosted in Azure.

### **Planned Azure AD Infrastructure**

The on-premises Active Directory domain will be synchronized to Azure AD.

All client computers in the Paris office will be joined to an Azure AD domain.

### **Planned Azure Networking Infrastructure**

You plan to create the following networking resources in a resource group named All\_Resources:

- Default Azure system routes that will be the only routes used to route traffic
- A virtual network named Paris-VNet that will contain two subnets named Subnet1 and Subnet2
- A virtual network named ClientResources-VNet that will contain one subnet named ClientSubnet
- A virtual network named AllOffices-VNet that will contain two subnets named Subnet3 and Subnet4

You plan to enable peering between Paris-VNet and AllOffices-VNet. You will enable the **Use remote gateways** setting for the Paris-VNet peerings.

You plan to create a private DNS zone named humongousinsurance.local and set the registration network to the ClientResources-VNet virtual network.

### **Planned Azure Computer Infrastructure**

Each subnet will contain several virtual machines that will run either Windows Server 2012 R2, Windows Server 2016, or Red Hat Linux.

### **Department Requirements**

Humongous Insurance identifies the following requirements for the company's departments:

- Web administrators will deploy Azure web apps for the marketing department. Each web app will be added to a separate resource group. The initial configuration of the web apps will be identical. The web administrators have permission to deploy web apps to resource groups.
- During the testing phase, auditors in the finance department must be able to review all Azure costs from the past week.

### **Authentication Requirements**

Users in the Miami office must use Azure Active Directory Seamless Single Sign-on (Azure AD Seamless SSO) when accessing resources in Azure.

### **QUESTION 1**

You need to resolve the licensing issue before you attempt to assign the license again.

What should you do?

- A. From the Directory role blade, modify the directory role
- B. From the Groups blade, invite the user accounts to a new group
- C. From the Profile blade, modify the usage location

**Correct Answer: C**

**Section: (none)**

**Explanation**

#### **Explanation/Reference:**

Explanation:

License cannot be assigned to a user without a usage location specified.

Scenario: Licensing Issue

You attempt to assign a license in Azure to several users and receive the following error message: "Licenses not assigned. License agreement failed for one user."

You verify that the Azure subscription has the available licenses.

### **QUESTION 2**

You need to define a custom domain name for Azure AD to support the planned infrastructure.

Which domain name should you use?

- A. ad.humongousinsurance.com
- B. humongousinsurance.local
- C. humongousinsurance.com
- D. humongousinsurance.onmicrosoft.com

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Every Azure AD directory comes with an initial domain name in the form of domainname.onmicrosoft.com. The initial domain name cannot be changed or deleted, but you can add your corporate domain name to Azure AD as well. For example, your organization probably has other domain names used to do business and users who sign in using your corporate domain name. Adding custom domain names to Azure AD allows you to assign user names in the directory that are familiar to your users, such as 'alice@contoso.com.' instead of 'alice@domain name.onmicrosoft.com'.

Scenario:

Network Infrastructure: Each office has a local data center that contains all the servers for that office. Each office has a dedicated connection to the Internet.

Humongous Insurance has a single-domain Active Directory forest named humongousinsurance.com

Planned Azure AD Infrastructure: The on-premises Active Directory domain will be synchronized to Azure AD.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/add-custom-domain>

## Deploy and Configure Infrastructure

### Testlet 3

#### Case study

This is a case study. **Case studies are not timed separately. You can use as much exam time as you would like to complete each case.** However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.

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#### To start the case study

To display the first question in this case study, click the **Next** button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirements, existing environment, and problem statements. If the case study has an **All Information** tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a **question**, click the Question button to return to the question.

#### Overview

Contoso, Ltd. is a consulting company that has a main office in Montreal and two branch offices in Seattle and New York.

The Montreal office has 2,000 employees. The Seattle office has 1,000 employees. The New York office has 200 employees.

All the resources used by Contoso are hosted on-premises.

Contoso creates a new Azure subscription. The Azure Active Directory (Azure AD) tenant uses a domain named contoso.onmicrosoft.com. The tenant uses the P1 pricing tier.

#### Existing Environment

The network contains an Active Directory forest named contoso.com. All domain controllers are configured as DNS servers and host the contoso.com DNS zone.

Contoso has finance, human resources, sales, research, and information technology **departments**. Each department has an organizational unit (OU) that contains all the accounts of that respective department. All the user accounts have the department attribute set to their respective department. New users are added frequently.

Contoso.com contains a user named User1.

All the offices connect by using private links.

Contoso has data centers in the Montreal and Seattle offices. Each data center has a firewall that can be configured as a VPN device.

All infrastructure servers are virtualized. The virtualization environment contains the servers in the following table.

Name	Role	Contains virtual machine
Server1	VMWare vCenter server	VM1
Server2	Hyper-V host	VM2

Contoso uses two web applications named App1 and App2. Each instance on each web application requires 1GB of memory.

The Azure subscription contains the resources in the following table.

Name	Type
VNet1	Virtual network
VM3	Virtual machine
VM4	Virtual machine

The network security team implements several network security groups (NSGs).

### Planned Changes

Contoso plans to implement the following changes:

- Deploy Azure ExpressRoute to the Montreal office.
- Migrate the virtual machines hosted on Server1 and Server2 to Azure.
- Synchronize on-premises Active Directory to Azure Active Directory (Azure AD).
- Migrate App1 and App2 to two Azure web apps named WebApp1 and WebApp2.

### Technical Requirements

Contoso must meet the following technical requirements:

- Ensure that WebApp1 can adjust the number of instances automatically based on the load and can scale up to five instances.
- Ensure that VM3 can establish outbound connections over TCP port 8080 to the applications servers in the Montreal office.
- Ensure that routing information is exchanged automatically between Azure and the routers in the Montreal office.
- Enable Azure Multi-Factor Authentication (MFA) for the users in the finance department only.
- Ensure that webapp2.azurewebsites.net can be accessed by using the name app2.contoso.com
- Connect the New York office to VNet1 over the Internet by using an encrypted connection.
- Create a workflow to send an email message when the settings of VM4 are modified.
- Create a custom Azure role named Role1 that is based on the Reader role.
- Minimize costs whenever possible.

## Deploy and Configure Infrastructure

### Testlet 4

#### Case Study

This is a case study. **Case studies are not timed separately. You can use as much exam time as you would like to complete each case.** However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.

To answer the questions included in a case study, you will need to reference information that is provided in the case study. Case studies might contain exhibits and other resources that provide more information about the scenario that is described in the case study. Each question is independent of the other questions in this case study.

At the end of this case study, a review screen will appear. This screen allows you to review your answers and to make changes before you move to the next section of the exam. After you begin a new section, you cannot return to this section.

#### To start the case study

To display the first question in this case study, click the **Next** button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirements, existing environment, and problem statements. If the case study has an **All Information** tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a **question**, click the Question button to return to the question.

#### Overview

ADatum Corporation is a financial company that has two main offices in New York and Los Angeles. ADatum has a subsidiary named Fabrikam, Inc. that shares the Los Angeles office.

ADatum is conducting an initial deployment of Azure services to host new line-of-business applications and is preparing to migrate its existing on-premises workloads to Azure.

ADatum uses Microsoft Exchange Online for email.

#### Existing Environment

##### On-Premises Environment

The on-premises workloads run on virtual machines hosted in a VMware vSphere 6 infrastructure. All the virtual machines are members of an Active Directory forest named adatum.com and run Windows Server 2016.

The New York office uses an IP address space of 10.0.0.0/16. The Los Angeles office uses an IP address space of 10.10.0.0/16.

The offices connect by using a VPN provided by an ISP. Each office has one Azure ExpressRoute circuit that provides access to Azure services and Microsoft Online Services. Routing is implemented by using Microsoft peering.

The New York office has a virtual machine named VM1 that has the vSphere console installed.

##### Azure Environment

You provision the Azure infrastructure by using the Azure portal. The infrastructure contains the resources shown in the following table.



Name	Type	Azure region
ASRV1	Azure Site Recovery vault	East US
ASRV2	Azure Site Recovery vault	West US
ASE1	Azure App Service Environment	East US
AG1	Azure Application Gateway (internal)	East US
AG2	Azure Application Gateway (Internet-facing)	West US
ER1	ExpressRoute circuit	East US
ER2	ExpressRoute circuit	West US

AG1 has two backend pools named Pool11 and Pool12. AG2 has two backend pools named Pool21 and Pool22.

## Requirements

### Planned Changes

ADatum plans to migrate the virtual machines from the New York office to the East US Azure region by using Azure Site Recovery.

### Infrastructure Requirements

ADatum identifies the following infrastructure requirements:

- A new web app named App1 that will access third-parties for credit card processing must be deployed.
- A newly developed API must be implemented as an Azure function named App2. App2 will use a blob storage trigger. App2 must process new blobs immediately.
- The Azure infrastructure and the on-premises infrastructure must be prepared for the migration of the VMware virtual machines to Azure.
- The sizes of the Azure virtual machines that will be used to migrate the on-premises workloads must be identified.
- All migrated and newly deployed Azure virtual machines must be joined to the adatum.com domain.
- AG1 must load balance incoming traffic in the following manner:
  - http://corporate.adatum.com/video/\* will be load balanced across Pool11.
  - http://corporate.adatum.com/images/\* will be load balanced across Pool12.
- AG2 must load balance incoming traffic in the following manner:
  - http://www.adatum.com will be load balanced across Pool21.
  - http://fabrikam.com will be load balanced across Pool22.
- ER1 must route traffic between the New York office and platform as a service (PaaS) services in the East US Azure region, as long as ER1 is available.
- ER2 must route traffic between the Los Angeles office and the PaaS services in the West US region, as long as ER2 is available.
- ER1 and ER2 must be configured to fail over automatically.

### Application Requirements

App2 must be available to connect directly to the private IP addresses of the Azure virtual machines. App2 will be deployed directly to an Azure virtual network.

Inbound and outbound communications to App1 must be controlled by using NSGs.

### Pricing Requirements

ADatum identifies the following pricing requirements:

- The cost of App1 and App2 must be minimized
- The transactional charges of Azure Storage accounts must be minimized

## QUESTION 1

What should you create to configure AG2?

- A. multi-site listeners
- B. URL path-based routing rules

- C. basic routing rules
- D. an additional public IP address
- E. basic listeners

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

- AG2 must load balance incoming traffic in the following manner:
  - http://www.adatum.com will be load balanced across Pool21.
  - http://fabrikam.com will be load balanced across Pool22.

You need to configure an Azure Application Gateway with multi-site listeners to direct different URLs to different pools.

References:

<https://docs.microsoft.com/en-us/azure/application-gateway/multiple-site-overview>

## Implement Workloads and Security

### Question Set 1

#### QUESTION 1

You have an Azure subscription that contains the resources shown in the following table.

Name	Type	Address space
VNET1	Virtual network	10.1.1.0/24
Subnet1	Subnet	10.1.1.0/24
VM1	Virtual machine	<i>Not applicable</i>

Subnet1 is on VNET1. VM1 connects to Subnet1.

You plan to create a virtual network gateway on VNET1.

You need to prepare the environment for the planned virtual network gateway.

What are two ways to achieve this goal? Each correct answer presents a complete solution.

**NOTE:** Each correct selection is worth one point.

- A. Modify the address space used by VNET1.
- B. Modify the address space used by Subnet1.
- C. Create a subnet named GatewaySubnet on VNET1.
- D. Create a local network gateway.
- E. Delete Subnet1.

**Correct Answer:** AE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 2

A company hosts virtual machines (VMs) in an on-premises datacenter and in Azure. The on-premises and Azure-based VMs communicate using ExpressRoute.

The company wants to be able to continue regular operations if the ExpressRoute connection fails. Failover connections must use the Internet and must not require Multiprotocol Label Switching (MPLS) support.

You need to recommend a solution that provides continued operations.

What should you recommend?

- A. Set up a second ExpressRoute connection.
- B. Increase the bandwidth of the existing ExpressRoute connection.
- C. Increase the bandwidth for the on-premises internet connection.
- D. Set up a VPN connection.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/architecture/reference-architectures/hybrid-networking/expressroute-vpn-failover>

#### QUESTION 3

You have a web app named WebApp1 that uses an Azure App Service plan named Plan1. Plan1 uses the D1 pricing tier and has an instance count of 1.

You need to ensure that all connections to WebApp1 use HTTPS.

What should you do first?

- A. Scale up Plan1.
- B. Modify the connection strings for WebApp1.
- C. Scale out Plan1.
- D. Disable anonymous access to WebApp1.

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

The D1 (Shared) pricing tier does not support HTTPS.

#### QUESTION 4

You have an Azure subscription that contains an Azure Service Fabric cluster and a Service Fabric application named FabricApp.

You develop and package a Service Fabric application named AppPackage. AppPackage is saved in a compressed folder named AppPackage.zip.

You upload AppPackage.zip to an external store.

You need to register AppPackage in the Azure subscription.

What should you do first?

- A. Run the `New-ServiceFabricApplication` cmdlet.
- B. Repackage the application in a file named App.sfpkg.
- C. Create a new Service Fabric cluster.
- D. Copy AppPackage.zip to a blob storage account.

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/service-fabric/service-fabric-package-apps#create-an-sfpkg>

#### QUESTION 5

You develop an entertainment application where users can buy and trade virtual real estate. The application must scale to support thousands of users.

The current architecture includes five Azure virtual machines (VM) that connect to an Azure SQL Database for account information and Azure Table Storage for backend services. A user interacts with these components in the cloud at any given time.

- Routing Service – Routes a request to the appropriate service and must not persist data across sessions.
- Account Service – Stores and manages all account information and authentication and requires data to persist across sessions
- User Service – Stores and manages all user information and requires data to persist across sessions.
- Housing Network Service – Stores and manages the current real-estate economy and requires data to persist across sessions.
- Trade Service – Stores and manages virtual trade between accounts and requires data to persist across sessions.

Due to volatile user traffic, a microservices solution is selected for scale agility.

You need to migrate to a distributed microservices solution on Azure Service Fabric.

Solution: Create a Service Fabric Cluster with a stateful Reliable Service for each component.

Does the solution meet the goal?

A. Yes

B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

### QUESTION 6

You develop an entertainment application where users can buy and trade virtual real estate. The application must scale to support thousands of users.

The current architecture includes five Azure virtual machines (VM) that connect to an Azure SQL Database for account information and Azure Table Storage for backend services. A user interacts with these components in the cloud at any given time.

- Routing Service – Routes a request to the appropriate service and must not persist data across sessions.
- Account Service – Stores and manages all account information and authentication and requires data to persist across sessions
- User Service – Stores and manages all user information and requires data to persist across sessions.
- Housing Network Service – Stores and manages the current real-estate economy and requires data to persist across sessions.
- Trade Service – Stores and manages virtual trade between accounts and requires data to persist across sessions.

Due to volatile user traffic, a microservices solution is selected for scale agility.

You need to migrate to a distributed microservices solution on Azure Service Fabric.

Solution: Create a Service Fabric Cluster with a stateless Reliable Service for Routing Service. Create stateful Reliable Services for all other components.

Does the solution meet the goal?

A. Yes

B. No

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

### QUESTION 7

You develop an entertainment application where users can buy and trade virtual real estate. The application must scale to support thousands of users.

The current architecture includes five Azure virtual machines (VM) that connect to an Azure SQL Database for account information and Azure Table Storage for backend services. A user interacts with these components in the cloud at any given time.

- Routing Service – Routes a request to the appropriate service and must not persist data across sessions.
- Account Service – Stores and manages all account information and authentication and requires data to persist across sessions
- User Service – Stores and manages all user information and requires data to persist across sessions.
- Housing Network Service – Stores and manages the current real-estate economy and requires data to persist across sessions.
- Trade Service – Stores and manages virtual trade between accounts and requires data to persist across sessions.

Due to volatile user traffic, a microservices solution is selected for scale agility.

You need to migrate to a distributed microservices solution on Azure Service Fabric.

Solution: Create a Service Fabric Cluster with a stateful Reliable Service for Routing Service. Deploy a Guest Executable to Service Fabric for each component.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

### QUESTION 8

You create an Azure Time Series Insights event handler. You need to send data over the network as efficiently as possible and optimize query performance.

What should you do?

- A. Create a query plan
- B. Send all properties
- C. Use a Tag ID
- D. Use reference data

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/time-series-insights/how-to-shape-query-json>

### QUESTION 9

You are creating an IoT solution using Azure Time Series Insights.

You configure the environment to ensure that all data for the current year is available.

What should you do?

- A. Add a disaster recovery (DR) strategy.
- B. Set a value for the Data retention time setting.
- C. Change the pricing tier.
- D. Create a reference data set.

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 10**

You have an Azure subscription named Subscription1.

You have 5 TB of data that you need to transfer to Subscription1.

You plan to use an Azure Import/Export job.

What can you use as the destination of the imported data?

- A. an Azure Cosmos DB database
- B. Azure SQL Database
- C. Azure File Storage
- D. Azure Data Lake Store

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Azure Import/Export service is used to securely import large amounts of data to Azure Blob storage and Azure Files by shipping disk drives to an Azure datacenter.

References:

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

**QUESTION 11**

You have an Azure subscription that contains the resources in the following table.

Name	Type
RG1	Resource group
Store1	Azure Storage account
Sync1	Azure File Sync

Store1 contains a file share named Data. Data contains 5,000 files.

You need to synchronize the files in Data to an on-premises server named Server1.

Which three actions should you perform? Each correct answer presents part of the solution.

**NOTE:** Each correct selection is worth one point.

- A. Download an automation script
- B. Create a sync group
- C. Install the Azure File Sync agent on Server1
- D. Create a container instance
- E. Register Server1

**Correct Answer: BCE**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Step 1 (C): Install the Azure File Sync agent on Server1

The Azure File Sync agent is a downloadable package that enables Windows Server to be synced with an Azure file share

Step 2 (E): Register Server1.

Register Windows Server with Storage Sync Service

Registering your Windows Server with a Storage Sync Service establishes a trust relationship between your server (or cluster) and the Storage Sync Service.

Step 3 (B): Create a sync group and a cloud endpoint.

A sync group defines the sync topology for a set of files. Endpoints within a sync group are kept in sync with each other. A sync group must contain one cloud endpoint, which represents an Azure file share and one or more server endpoints. A server endpoint represents a path on registered server.

References:

<https://docs.microsoft.com/en-us/azure/storage/files/storage-sync-files-deployment-guide>

## QUESTION 12

You plan to back up an Azure virtual machine named VM1.

You discover that the Backup Pre-Check status displays a status of Warning.

What is a possible cause of the Warning status?

- A. VM1 does not have the latest version of WaAppAgent.exe installed
- B. A Recovery Services vault is unavailable
- C. VM1 has an unmanaged disk
- D. VM1 is stopped

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

The Warning state indicates one or more issues in VM's configuration that might lead to backup failures and provides recommended steps to ensure successful backups. Not having the latest VM Agent installed, for example, can cause backups to fail intermittently and falls in this class of issues.

References:

<https://azure.microsoft.com/en-us/blog/azure-vm-backup-pre-checks/>

## QUESTION 13

You have an Azure subscription named Subscription1. Subscription1 contains a virtual machine named VM1. You have a computer Computer1 that runs Windows 10. Computer1 is connected to the Internet.

You add a network interface named Interface1 to VM1 as shown in the exhibit. (Click the **Exhibit** tab.)



vm1134

Interface1

**Network Interface: Interface1**

[Effective security rules](#)

[Topology](#)

Virtual network/subnet: VMRD-vnet/default
Public IP: IP2
Private IP: 10.0.0.6

Accelerated networking: Disabled

**INBOUND PORT RULES**

Network security group VM1-nsg (attached to network interface: Interface1)  
Impacts 0 subnets, 2 network interfaces

Add inbound

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINA...	ACTION
1000	default-allow-...	3389	TCP	Any	Any	Allow ...
65000	AllowVnetInBound	Any	Any	VirtualN...	VirtualN...	Allow ...
65001	AllowAzureLoadB...	Any	Any	AzureLo...	Any	Allow ...
65500	DenyAllInBound	Any	Any	Any	Any	Deny ...

**OUTBOUND PORT RULES**

Network security group VM1-nsg (attached to network interface: Interface1)  
Impacts 0 subnets, 2 network interfaces

Add outbound

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINA...	ACTION
65000	AllowVnetOutBo...	Any	Any	VirtualN...	VirtualN...	Allow ...
65001	AllowInternetOut...	Any	Any	Any	Internet	Allow ...
65500	DenyAllOutBound	Any	Any	Any	Any	Deny ...

From Computer1, you attempt to connect to VM1 by using Remote Desktop, but the connection fails.

You need to establish a Remote Desktop connection to VM1.

What should you do first?

- A. Attach a network interface
- B. Start VM1
- C. Delete the DenyAllOutBound outbound port rule
- D. Delete the DenyAllInBound inbound port rule

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

The exclamation icon next to the inbound port rule for port 3389, which is used for Remote Desktop, indicates an underlying problem. Restart the VM to correct any underlying issues the VM itself is having.

Incorrect Answers:

A: The network interface has already been added to VM.

C: The DenyAllOutBound outbound port rule will not affect inbound Remote Desktop connectivity.

D: An inbound rule for port 3389, which is used for Remote Desktop has been added and has a higher priority than the DenyAllInBound inbound port rule.

Note: Rules are processed in priority order, with lower numbers processed before higher numbers, because lower numbers have higher priority. Processing stops once traffic matches a rule. As a result, any rules that exist with lower priorities (higher numbers) that have the same attributes as rules with higher priorities are not processed.

Reference:

<https://docs.microsoft.com/en-us/azure/virtual-network/security-overview>

#### QUESTION 14

You are designing an Azure solution.

The solution must meet the following requirements:

Distribute traffic to different pools of dedicated virtual machines (VMs) based on rules  
Provide SSL offloading capabilities

You need to recommend a solution to distribute network traffic.

Which technology should you recommend?

- A. server-level firewall rules
- B. Azure Application Gateway
- C. Azure Traffic Manager
- D. Azure Load Balancer

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

If you require "SSL offloading", application layer treatment, or wish to delegate certificate management to Azure, you should use Azure's layer 7 load balancer Application Gateway instead of the Load Balancer.

Incorrect Answers:

D: Because Load Balancer is agnostic to the TCP payload and TLS offload ("SSL") is not provided.

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

#### QUESTION 15

You develop an entertainment application where users can buy and trade virtual real estate. The application must scale to support thousands of users.

The current architecture includes five Azure virtual machines (VM) that connect to an Azure SQL Database for account information and Azure Table Storage for backend services. A user interacts with these components in the cloud at any given time.

- Routing Service – Routes a request to the appropriate service and must not persist data across sessions.
- Account Service – Stores and manages all account information and authentication and requires data to persist across sessions
- User Service – Stores and manages all user information and requires data to persist across sessions.
- Housing Network Service – Stores and manages the current real-estate economy and requires data to persist across sessions.
- Trade Service – Stores and manages virtual trade between accounts and requires data to persist across sessions.

Due to volatile user traffic, a microservices solution is selected for scale agility.

You need to migrate to a distributed microservices solution on Azure Service Fabric.

Solution: Deploy a Windows container to Azure Service Fabric for each component.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 16

You have an Azure subscription that contains the storage accounts shown in the following table.

Name	Contains
Storagecontoso1	A blob service and a table service
Storagecontoso2	A blob service and a file service
Storagecontoso3	A queue service
Storagecontoso4	A file service and a queue service
Storagecontoso5	A table service

You enable Azure Advanced Threat Protection (ATP) for all the storage accounts.

You need to identify which storage accounts will generate Azure ATP alerts.

Which two storage accounts should you identify? Each correct answer presents part of the solution.

**NOTE:** Each correct selection is worth one point.

- A. storagecontoso1
- B. storagecontoso2
- C. storagecontoso3
- D. storagecontoso4
- E. storagecontoso5

**Correct Answer:** AE

**Section:** (none)

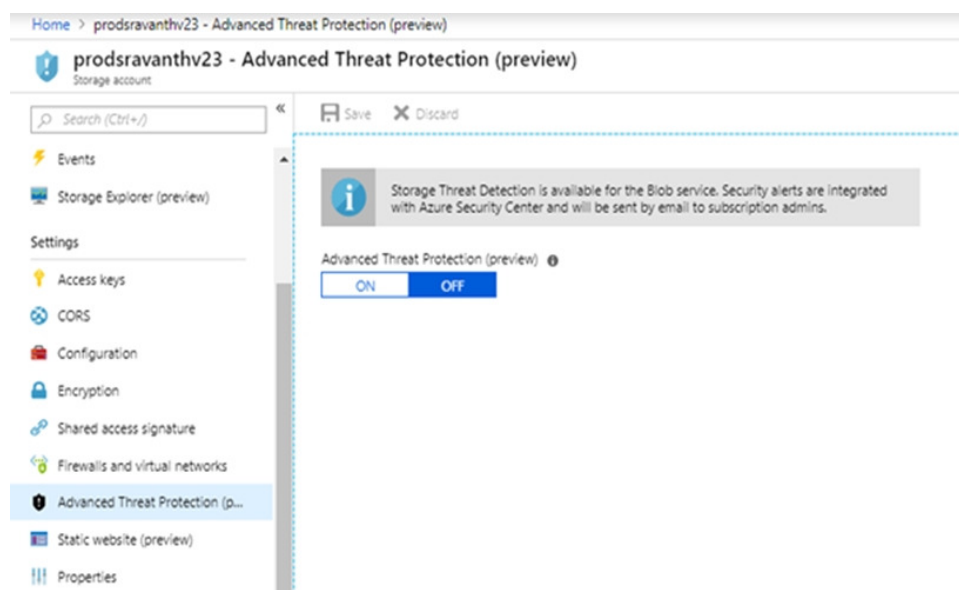
**Explanation**

**Explanation/Reference:**

Explanation:

Example:

Storage Threat Detection is available for the Blob Service.



References:

<https://azure.microsoft.com/en-us/blog/advanced-threat-protection-for-azure-storage-now-in-public-preview/>

#### QUESTION 17

**Note:** This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure Active Directory (Azure AD) tenant named Adatum and an Azure Subscription named Subscription1. Adatum contains a group named Developers. Subscription1 contains a resource group named Dev.

You need to provide the Developers group with the ability to create Azure logic apps in the Dev resource group.

Solution: On Subscription1, you assign the DevTest Labs User role to the Developers group.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The DevTest Labs User role lets you connect, start, restart, and shutdown your virtual machines in your Azure DevTest Labs.

References:

<https://docs.microsoft.com/en-us/azure/role-based-access-control/built-in-roles#devtest-labs-user>

#### QUESTION 18

**Note:** This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure Active Directory (Azure AD) tenant named Adatum and an Azure Subscription named Subscription1. Adatum contains a group named Developers. Subscription1 contains a resource group named Dev.

You need to provide the Developers group with the ability to create Azure logic apps in the Dev resource group.

Solution: On Dev, you assign the Logic App Contributor role to the Developers group.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The Logic App Contributor role lets you read, enable and disable logic app.

References:

<https://docs.microsoft.com/en-us/azure/role-based-access-control/built-in-roles#logic-app-contributor>

**QUESTION 19**

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure Active Directory (Azure AD) tenant named Adatum and an Azure Subscription named Subscription1. Adatum contains a group named Developers. Subscription1 contains a resource group named Dev.

You need to provide the Developers group with the ability to create Azure logic apps in the Dev resource group.

Solution: On Dev, you assign the Contributor role to the Developers group.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

The Contributor role lets you manage everything except access to resources. It allows you to create and manage resources of all types, including creating Azure logic apps.

References:

<https://docs.microsoft.com/en-us/azure/role-based-access-control/built-in-roles#contributor>

**QUESTION 20**

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

A company backs up data to on-premises servers at their main facility. The company currently has 30 TB of archived data that infrequently used. The facility has download speeds of 100 Mbps and upload speeds of 20 Mbps.

You need to securely transfer all backups to Azure Blob Storage for long-term archival. All backup data must be sent within seven days.

Solution: Backup data to local disks and use the Azure Import/Export service to send backups to Azure Blob Storage.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 21

**Note:** This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

A company backs up data to on-premises servers at their main facility. The company currently has 30 TB of archived data that infrequently used. The facility has download speeds of 100 Mbps and upload speeds of 20 Mbps.

You need to securely transfer all backups to Azure Blob Storage for long-term archival. All backup data must be sent within seven days.

Solution: Create a file share in Azure Files. Mount the file share to the server and upload the files to the file share. Transfer the files to Azure Blob Storage.

Does this meet the goal?

A. Yes

B. No

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 22

**Note:** This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

A company backs up data to on-premises servers at their main facility. The company currently has 30 TB of archived data that infrequently used. The facility has download speeds of 100 Mbps and upload speeds of 20 Mbps.

You need to securely transfer all backups to Azure Blob Storage for long-term archival. All backup data must be sent within seven days.

Solution: Use the **Set-AzureStorageBlobContent** Azure PowerShell command to copy all backups asynchronously to Azure Blob Storage.

Does this meet the goal?

A. Yes

B. No

**Correct Answer:** B

**Section:** (none)

## Explanation

### Explanation/Reference:

#### QUESTION 23

You have an on-premises network that contains a Hyper-V host named Host1. Host1 runs Windows Server 2016 and hosts 10 virtual machines that run Windows Server 2016.

You plan to replicate the virtual machines to Azure by using Azure Site Recovery.

You create a Recovery Services vault named ASR1 and a Hyper-V site named Site1.

You need to add Host1 to ASR1.

What should you do?

- A.
  - Download the installation file for the Azure Site Recovery Provider.
  - Download the storage account key.
  - Install the Azure Site Recovery Provider on each virtual machine and register the virtual machines.
- B.
  - Download the installation file for the Azure Site Recovery Provider.
  - Download the vault registration key.
  - Install the Azure Site Recovery Provider on Host1 and register the server.
- C.
  - Download the installation file for the Azure Site Recovery Provider.
  - Download the storage account key.
  - Install the Azure Site Recovery Provider on Host1 and register the server.
- D.
  - Download the installation file for the Azure Site Recovery Provider.
  - Download the vault registration key.
  - Install the Azure Site Recovery Provider on each virtual machine and register the virtual machines.

**Correct Answer: B**

**Section: (none)**

## Explanation

### Explanation/Reference:

References:

<https://docs.microsoft.com/en-us/azure/site-recovery/hyper-v-azure-tutorial>

#### QUESTION 24

You plan to migrate an on-premises Hyper-V environment to Azure by using Azure Site Recovery. The Hyper-V environment is managed by using Microsoft System Center Virtual Machine Manager (VMM).

The Hyper-V environment contains the virtual machines in the following table:

Name	Operating system (OS)	OS disk size	BitLocker Drive Encryption (BitLocker) enabled on OS disks.	Generation
DC1	Windows Server 2016	500 GB	No	2
FS1	Ubuntu 16.04 LTS	200 GB	No	2
CA1	Windows Server 2012 R2	1 TB	Yes	1
SQL1	Windows Server 2016	200 GB	No	1

Which virtual machine can be migrated by using Azure Site Recovery?

- A. FS1
- B. CA1
- C. DC1
- D. SQL1

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/site-recovery/hyper-v-azure-support-matrix#azure-vm-requirements>

#### QUESTION 25

You have an Azure subscription named Subscription1 that contains two Azure networks named VNet1 and VNet2. VNet1 contains a VPN gateway named VPNGW1 that uses static routing. There is a site-to-site VPN connection between your on-premises network and VNet1.

On a computer named Client1 that runs Windows 10, you configure a point-to-site VPN connection to VNet1.

You configure virtual network peering between VNet1 and VNet2. You verify that you can connect to VNet2 from the on-premises network. Client1 is unable to connect to VNet2.

You need to ensure that you can connect Client1 to VNet2.

What should you do?

- A. Select **Allow gateway transit** on VNet1.
- B. Download and re-install the VPN client configuration package on Client1.
- C. Enable BGP on VPNGW1.
- D. Select **Allow gateway transit** on VNet2.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Point-to-Site certificate authentication connections require the following prerequisites:

- A Dynamic VPN gateway.
- The public key (.cer file) for a root certificate, which is uploaded to Azure. This key is considered a trusted certificate and is used for authentication.
- A client certificate generated from the root certificate, and installed on each client computer that will connect. This certificate is used for client authentication.
- A VPN client configuration package must be generated and installed on every client computer that connects. The client configuration package configures the native VPN client that's already on the operating system with the necessary information to connect to the VNet.

Reference:

<https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-about-point-to-site-routing>

#### QUESTION 26

You have a Microsoft SQL Server Always On availability group on Azure virtual machines.

You need to configure an Azure internal load balancer as a listener for the availability group.

What should you do?

- A. Create an HTTP health probe on port 1433.
- B. Set Session persistence to **Client IP**.



- C. Set Session persistence to **Client IP and protocol**.
- D. Enable Floating IP.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/virtual-machines/windows/sql/virtual-machines-windows-portal-sql-alwayson-int-listener>

#### **QUESTION 27**

You set the multi-factor authentication status for a user named admin1@contoso.com to **Enabled**.

Admin1 accesses the Azure portal by using a web browser.

Which additional security verifications can Admin1 use when accessing the Azure portal?

- A. an app password, a text message that contains a verification code, and a verification code sent from the Microsoft Authenticator app
- B. a phone call, a text message that contains a verification code, and a notification or a verification code sent from the Microsoft Authenticator app
- C. a phone call, an email message that contains a verification code, and a text message that contains an app password
- D. an app password, a text message that contains a verification code, and a notification sent from the Microsoft Authenticator app

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The Microsoft Authenticator app can help prevent unauthorized access to accounts and stop fraudulent transactions by pushing a notification to your smartphone or tablet. Users view the notification, and if it's legitimate, select Verify. Otherwise, they can select Deny.

Reference:

<https://docs.microsoft.com/en-us/azure/active-directory/authentication/concept-authentication-methods>

#### **QUESTION 28**

You have an Azure Active Directory (Azure AD) tenant.

All administrators must enter a verification code to access the Azure portal.

You need to ensure that the administrators can access the Azure portal only from your on-premises network.

What should you configure?

- A. the default for all the roles in Azure AD Privileged Identity Management
- B. an Azure AD Identity Protection user risk policy
- C. an Azure AD Identity Protection sign-in risk policy
- D. the multi-factor authentication service settings

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/active-directory/authentication/howto-mfa-mfasettings>

### QUESTION 29

You have an Azure subscription named Subscription1 that contains a virtual network named VNet1. VNet1 is in a resource group named RG1.

Subscription1 has a user named User1. User1 has the following roles:

- Reader
- Security Admin
- Security Reader

You need to ensure that User1 can assign the Reader role for VNet1 to other users.

What should you do?

- A. Assign User1 the Owner role for VNet1.
- B. Assign User1 the Network Contributor role for VNet1.
- C. Remove User1 from the Security Reader and Reader roles for Subscription1. Assign User1 the Contributor role for Subscription1.
- D. Remove User1 from the Security Reader and Reader roles for Subscription1.

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

### QUESTION 30

You are building a custom Azure function app to connect to Azure Event Grid.

You need to ensure that resources are allocated dynamically to the function app. Billing must be based on the executions of the app.

What should you configure when you create the function app?

- A. the Windows operating system and the App Service plan hosting plan
- B. the Docker container and an App Service plan that uses the B1 pricing tier
- C. the Windows operating system and the Consumption plan hosting plan
- D. the Docker container and an App Service plan that uses the S1 pricing tier

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

References:

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

### QUESTION 31

You have an Azure Service Bus.

You need to implement a Service Bus queue that guarantees first-in-first-out (FIFO) delivery of messages.

What should you do?

- A. Enable partitioning
- B. Enable duplicate detection
- C. Set the Lock Duration setting to **10 seconds**
- D. Enable sessions

E. Set the Max Size setting of the queue to **5 GB**

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

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

### QUESTION 32

You have an Azure subscription that contains a policy-based virtual network gateway named GW1 and a virtual network named VNet1.

You need to ensure that you can configure a point-to-site connection from VNet1 to an on-premises computer.

Which two actions should you perform? Each correct answer presents part of the solution.

**NOTE:** Each correct selection is worth one point.

- A. Add a service endpoint to VNet1.
- B. Add a public IP address space to VNet1.
- C. Create a route-based virtual network gateway.
- D. Reset GW1.
- E. Delete GW1.
- F. Add a connection to GW1.

**Correct Answer:** CE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 33

You create a new Azure subscription. You create a resource group named RG1. In RG1, you create the resources shown in the following table.

Name	Type
VNET1	Virtual network
VM1	Virtual machine
GWSN1	Gateway subnet
VPNGW1	Virtual network gateway

You need to configure an encrypted tunnel between your on-premises network and VNET1.

Which two additional resources should you create in Azure? Each correct answer presents part of the solution.

**NOTE:** Each correct selection is worth one point.

- A. a site-to-site connection
- B. a VPN gateway
- C. a VNet-to- VNet connection
- D. a local network gateway
- E. a point-to-site configuration

**Correct Answer:** ABD

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

A Site-to-Site VPN gateway connection is used to connect your on-premises network to an Azure virtual network over an IPsec/IKE (IKEv1 or IKEv2) VPN tunnel. This type of connection requires a VPN device, a local network gateway, located on-premises that has an externally facing public IP address assigned to it.

Finally, create a Site-to-Site VPN connection between your virtual network gateway and your on-premises VPN device.

References:

<https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-howto-site-to-site-resource-manager-portal>

#### **QUESTION 34**

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure subscription.

You have an on-premises file server named Server1 that runs Windows Server 2019.

You manage Server1 by using Windows Admin Center.

You need to ensure that if Server1 fails, you can recover the data from Azure.

Solution: From the Azure portal, you create a Recovery Services vault. On VM1, you install the Azure Backup agent and you schedule a backup.

Does this meet the goal?

A. Yes

B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Instead use Azure Storage Sync service and configure Azure File.

Use Azure File Sync to centralize your organization's file shares in Azure Files, while keeping the flexibility, performance, and compatibility of an on-premises file server. Azure File Sync transforms Windows Server into a quick cache of your Azure file share.

References:

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

#### **QUESTION 35**

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure subscription.

You have an on-premises file server named Server1 that runs Windows Server 2019.

You manage Server1 by using Windows Admin Center.

You need to ensure that if Server1 fails, you can recover Server1 files from Azure.

Solution: You create a Recovery Services vault and configure a backup by using Windows Server Backup.

Does this meet the goal?

A. Yes

B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Instead use Azure Storage Sync service and configure Azure File.

Use Azure File Sync to centralize your organization's file shares in Azure Files, while keeping the flexibility, performance, and compatibility of an on-premises file server. Azure File Sync transforms Windows Server into a quick cache of your Azure file share.

References:

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

#### **QUESTION 36**

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure subscription.

You have an on-premises file server named Server1 that runs Windows Server 2019.

You manage Server1 by using Windows Admin Center.

You need to ensure that if Server1 fails, you can recover Server1 files from Azure.

Solution: You create an Azure Storage account and an Azure Storage Sync service. You configure Azure File Sync for Server1.

Does this meet the goal?

A. Yes

B. No

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Use Azure File Sync to centralize your organization's file shares in Azure Files, while keeping the flexibility, performance, and compatibility of an on-premises file server. Azure File Sync transforms Windows Server into a quick cache of your Azure file share.

Azure Files offers fully managed file shares in the cloud that are accessible via the industry standard Server Message Block (SMB) protocol. Azure file shares can be mounted concurrently by cloud or on-premises deployments of Windows, Linux, and macOS. Additionally, Azure file shares can be cached on Windows Servers with Azure File Sync for fast access near where the data is being used.

Azure file shares can be used to:

Replace or supplement on-premises file servers:

Azure Files can be used to completely replace or supplement traditional on-premises file servers or NAS devices. Popular operating systems such as Windows, macOS, and Linux can directly mount Azure file shares wherever they are in the world. Azure file shares can also be replicated with Azure File Sync to Windows Servers, either on-premises or in the cloud, for performance and distributed caching of the data where it's being used.

References:

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

<https://docs.microsoft.com/en-us/azure/storage/files/storage-sync-files-deployment-guide?tabs=azure-portal>

### QUESTION 37

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You have an Azure subscription.

You have an on-premises file server named Server1 that runs Windows Server 2019.

You manage Server1 by using Windows Admin Center.

You need to ensure that if Server1 fails, you can recover Server1 files from Azure.

Solution: You register Windows Admin Center in Azure and configure Azure Backup.

Does this meet the goal?

A. Yes

B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Instead use Azure Storage Sync service and configure Azure File.

Use Azure File Sync to centralize your organization's file shares in Azure Files, while keeping the flexibility, performance, and compatibility of an on-premises file server. Azure File Sync transforms Windows Server into a quick cache of your Azure file share.

Reference:

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

## Implement Workloads and Security

### Testlet 2

#### Case study

##### Overview

ADatum Corporation is a financial company that has two main offices in New York and Los Angeles. ADatum has a subsidiary named Fabrikam, Inc. that shares the Los Angeles office.

ADatum is conducting an initial deployment of Azure services to host new line-of-business applications and is preparing to migrate its existing on-premises workloads to Azure.

ADatum uses Microsoft Exchange Online for email.

##### Existing Environment

###### On-Premises Environment

The on-premises workloads run on virtual machines hosted in a VMware vSphere 6 infrastructure. All the virtual machines are members of an Active Directory forest named adatum.com and run Windows Server 2016.

The New York office uses an IP address space of 10.0.0.0/16. The Los Angeles office uses an IP address space of 10.10.0.0/16.

The offices connect by using a VPN provided by an ISP. Each office has one Azure ExpressRoute circuit that provides access to Azure services and Microsoft Online Services. Routing is implemented by using Microsoft peering.

The New York office has a virtual machine named VM1 that has the vSphere console installed.

###### Azure Environment

You provision the Azure infrastructure by using the Azure portal. The infrastructure contains the resources shown in the following table.

Name	Type	Azure Region
ASRV1	Azure Site Recovery vault	East US
ASRV2	Azure Site Recovery vault	West US
ASE1	Azure App Service Environment	East US
AG1	Azure Application Gateway (internal)	East US
AG2	Azure Application Gateway (Internet-facing)	West US
ER1	ExpressRoute circuit	East US
ER2	ExpressRoute circuit	West US

AG1 has two backend pools named Pool11 and Pool12. AG2 has two backend pools named Pool21 and Pool22.

##### Requirements

###### Planned Changes

ADatum plans to migrate the virtual machines from the New York office to the East US Azure region by using Azure Site Recovery.

###### Infrastructure Requirements

ADatum identifies the following infrastructure requirements:

- A new web app named App1 that will access third-parties for credit card processing must be deployed
- A newly developed API must be implemented as an Azure function named App2. App2 will use a blob storage trigger. App2 must process new blobs immediately.
- The Azure infrastructure and the on-premises infrastructure must be prepared for the migration of the VMware virtual machines to Azure.
- The sizes of the Azure virtual machines that will be used to migrate the on-premises workloads must be identified.
- All migrated and newly deployed Azure virtual machines must be joined to the adatum.com domain.
- AG1 must load balance incoming traffic in the following manner:
  1. http://corporate.adatum.com/video/\* will be load balanced across Pool11
  2. http://corporate.adatum.com/images/\* will be load balanced across Pool12
- AG2 must load balance incoming traffic in the following manner:
  1. http://www.adatum.com will be load balanced across Pool21
  2. http://www.fabrikam.com will be load balanced across Pool22
- ER1 must route traffic between the New York office and the platform as a service (PaaS) services in the East US Azure region, as long as ER1 is available.
- ER2 must route traffic between the Los Angeles office and the PaaS services in the West US region, as long as ER2 is available.
- ER1 and ER2 must be configured to fail over automatically.

### **Application Requirements**

App2 must be able to connect directly to the private IP addresses of the Azure virtual machines. App2 will be deployed directly to an Azure virtual network.

Inbound and outbound communications to App1 must be controlled by using NSGs.

### **Pricing Requirements**

ADatum identifies the following pricing requirements:

- The cost of App1 and App2 must be minimized.
- The transactional charges of Azure Storage accounts must be minimized.

### **QUESTION 1**

You need to configure AG1.

What should you create?

- A. a multi-site listener
- B. a basic routing rule
- C. a URL path-based routing rule
- D. a basic listener

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/application-gateway/application-gateway-create-url-route-portal>



## Implement Workloads and Security

### Testlet 3

#### Case study

This is a case study. **Case studies are not timed separately. You can use as much exam time as you would like to complete each case.** However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.

To answer the questions included in a case study, you will need to reference information that is provided in the case study. Case studies might contain exhibits and other resources that provide more information about the scenario that is described in the case study. Each question is independent of the other questions in this case study.

At the end of this case study, a review screen will appear. This screen allows you to review your answers and to make changes before you move to the next section of the exam. After you begin a new section, you cannot return to this section.

#### To start the case study

To display the first question in this case study, click the **Next** button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirements, existing environment, and problem statements. If the case study has an **All Information** tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a question, click the **Question** button to return to the question.

#### Overview

Contoso, Ltd. is a consulting company that has a main office in Montreal and two branch offices in Seattle and New York.

The Montreal office has 2,000 employees. The Seattle office has 1,000 employees. The New York office has 200 employees.

All the resources used by Contoso are hosted on-premises.

Contoso creates a new Azure subscription. The Azure Active Directory (Azure AD) tenant uses a domain named contoso.onmicrosoft.com. The tenant uses the P1 pricing tier.

#### Existing Environment

The network contains an Active Directory forest named contoso.com. All domain controllers are configured as DNS servers and host the contoso.com DNS zone.

Contoso has finance, human resources, sales, research, and information technology departments. Each department has an organizational unit (OU) that contains all the accounts of that respective department. All the user accounts have the **department** attribute set to their respective department. New users are added frequently.

Contoso.com contains a user named User1.

All the offices connect by using private links.

Contoso has data centers in the Montreal and Seattle offices. Each data center has a firewall that can be configured as a VPN device.

All infrastructure servers are virtualized. The virtualization environment contains the servers in the following table.

Name	Role	Contains virtual machine
Server1	VMWare vCenter server	VM1
Server2	Hyper-V host	VM2

Contoso uses two web applications named App1 and App2. Each instance on each web application requires 1GB of memory.

The Azure subscription contains the resources in the following table.

Name	Type
VNet1	Virtual network
VM3	Virtual machine
VM4	Virtual machine

The network security team implements several network security groups (NSGs).

### Planned Changes

Contoso plans to implement the following changes:

- Deploy Azure ExpressRoute to the Montreal office.
- Migrate the virtual machines hosted on Server1 and Server2 to Azure.
- Synchronize on-premises Active Directory to Azure Active Directory (Azure AD).
- Migrate App1 and App2 to two Azure web apps named WebApp1 and WebApp2.

### Technical Requirements

Contoso must meet the following technical requirements:

- Ensure that WebApp1 can adjust the number of instances automatically based on the load and can scale up to five instances.
- Ensure that VM3 can establish outbound connections over TCP port 8080 to the applications servers in the Montreal office.
- Ensure that routing information is exchanged automatically between Azure and the routers in the Montreal office.
- Enable Azure Multi-Factor Authentication (MFA) for the users in the finance department only.
- Ensure that webapp2.azurewebsites.net can be accessed by using the name app2.contoso.com
- Connect the New York office to VNet1 over the Internet by using an encrypted connection.
- Create a workflow to send an email message when the settings of VM4 are modified.
- Create a custom Azure role named Role1 that is based on the Reader role.
- Minimize costs whenever possible.

### QUESTION 1

You need to meet the technical requirement for VM4.

What should you create and configure?

- A. an Azure Logic App
- B. an Azure Service Bus
- C. an Azure Notification Hub
- D. an Azure Event Hub

**Correct Answer: D**

**Section: (none)**

**Explanation**

#### Explanation/Reference:

Explanation:

Scenario: Create a workflow to send an email message when the settings of VM4 are modified.

You can start an automated logic app workflow when specific events happen in Azure resources or third-party resources. These resources can publish those events to an Azure event grid. In turn, the event grid pushes those events to subscribers that have queues, webhooks, or event hubs as endpoints. As a subscriber, your logic app can wait for those events from the event grid before running automated workflows to perform tasks - without you writing any code.

References:

<https://docs.microsoft.com/en-us/azure/event-grid/monitor-virtual-machine-changes-event-grid-logic-app>

## Create and Deploy Apps

### Question Set 1

#### QUESTION 1

You have an Azure App Service API that allows users to upload documents to the cloud with a mobile device. A mobile app connects to the service by using REST API calls.

When a new document is uploaded to the service, the service extracts the document metadata. Usage statistics for the app show significant increases in app usage.

The extraction process is CPU-intensive. You plan to modify the API to use a queue.

You need to ensure that the solution scales, handles request spikes, and reduces costs between request spikes.

What should you do?

- A. Configure a CPU Optimized virtual machine (VM) and install the Web App service on the new instance.
- B. Configure a series of CPU Optimized virtual machine (VM) instances and install extraction logic to process a queue.
- C. Move the extraction logic into an Azure Function. Create a queue triggered function to process the queue.
- D. Configure Azure Container Service to retrieve items from a queue and run across a pool of virtual machine (VM) nodes using the extraction logic.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 2

You create a social media application that users can use to upload images and other content.

Users report that adult content is being posted in an area of the site that is accessible to and intended for young children.

You need to automatically detect and flag potentially offensive content. The solution must not require any custom coding other than code to scan and evaluate images.

What should you implement?

- A. Bing Visual Search
- B. Bing Image Search
- C. Custom Vision Search
- D. Computer Vision API

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 3

You have an Azure subscription named Subscription1. Subscription1 contains the resource groups in the following table.

RG1 has a web app named WebApp1. WebApp1 is located in West Europe.

Name	Azure region	Policy
RG1	West Europe	Policy1
RG2	North Europe	Policy2
RG3	France Central	Policy3

You move WebApp1 to RG2.

What is the effect of the move?

- A. The App Service plan for WebApp1 moves to North Europe. Policy1 applies to WebApp1.
- B. The App Service plan for WebApp1 remains in West Europe. Policy1 applies to WebApp1.
- C. The App Service plan for WebApp1 moves to North Europe. Policy2 applies to WebApp1.
- D. The App Service plan for WebApp1 remains in West Europe. Policy2 applies to WebApp1.

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

You can move an app to another App Service plan, as long as the source plan and the target plan are in the same resource group and geographical region.

The region in which your app runs is the region of the App Service plan it's in. However, you cannot change an App Service plan's region.

References:

<https://docs.microsoft.com/en-us/azure/app-service/app-service-plan-manage>

#### QUESTION 4

You create the following Azure role definition.

```
{
  "Name": "Role1",
  "Id": "80808080-8080-8080-8080-808080808080",
  "IsCustom": false,
  "Description": "",
  "Actions" : [
    "Microsoft.Storage/*/read",
    "Microsoft.Network/*/read",
    "Microsoft.Compute/*/read",
    "Microsoft.Compute/virtualMachines/start/action",
    "Microsoft.Compute/virtualMachines/restart/action",
    "Microsoft.Authorization/*/read"],
  "NotActions": [ ],
  "DataActions": [ ],
  "NotDataActions": [ ],
  "AssignableScopes": [ ]
}
```

You need to create Role1 by using the role definition.

Which two values should you modify before you create Role1? Each correct answer presents part of solution.

**NOTE:** Each correct selection is worth one point.

- A. IsCustom
- B. DataActions
- C. Id
- D. AssignableScopes

## E. Description

**Correct Answer:** AD

**Section:** (none)

**Explanation**

### Explanation/Reference:

Explanation:

Part of example:

"IsCustom": true,

```
"AssignableScopes": [  
  "/subscriptions/{subscriptionId1}",  
  "/subscriptions/{subscriptionId2}",  
  "/subscriptions/{subscriptionId3}"
```

The following shows what a custom role looks like as displayed in JSON format. This custom role can be used for monitoring and restarting virtual machines.

```
{  
  "Name": "Virtual Machine Operator",  
  "Id": "88888888-8888-8888-8888-888888888888",  
  "IsCustom": true,  
  "Description": "Can monitor and restart virtual machines.",  
  "Actions": [  
    "Microsoft.Storage/*/read",  
    "Microsoft.Network/*/read",  
    "Microsoft.Compute/*/read",  
    "Microsoft.Compute/virtualMachines/start/action",  
    "Microsoft.Compute/virtualMachines/restart/action",  
    "Microsoft.Authorization/*/read",  
    "Microsoft.ResourceHealth/availabilityStatuses/read",  
    "Microsoft.Resources/subscriptions/resourceGroups/read",  
    "Microsoft.Insights/alertRules/*",  
    "Microsoft.Insights/diagnosticSettings/*",  
    "Microsoft.Support/*"  
  ],  
  "NotActions": [],  
  "DataActions": [],  
  "NotDataActions": [],  
  "AssignableScopes": [  
    "/subscriptions/{subscriptionId1}",  
    "/subscriptions/{subscriptionId2}",  
    "/subscriptions/{subscriptionId3}"  
  ]  
}
```

References:

<https://docs.microsoft.com/en-us/azure/role-based-access-control/custom-roles>

## QUESTION 5

You have an Azure App Service named WebApp1.

You plan to add a WebJob named WebJob1 to WebApp1.

You need to ensure that WebJob1 is triggered every 15 minutes.

What should you do?

- A. Change the Web.config file to include the 1-31 1-12 1-7 0\*/15\* CRON expression
- B. From the properties of WebJob1, change the CRON expression to 0\*/15\*\*\*\*.
- C. Add a file named Settings.job to the ZIP file that contains the WebJob script. Add the 1-31 1-12 1-7 0\*/15\* CRON expression to the JOB file

D. Create an Azure Automation account and add a schedule to the account. Set the recurrence for the schedule

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

You can enter a CRON expression in the portal or include a settings.job file at the root of your WebJob .zip file, as in the following example:

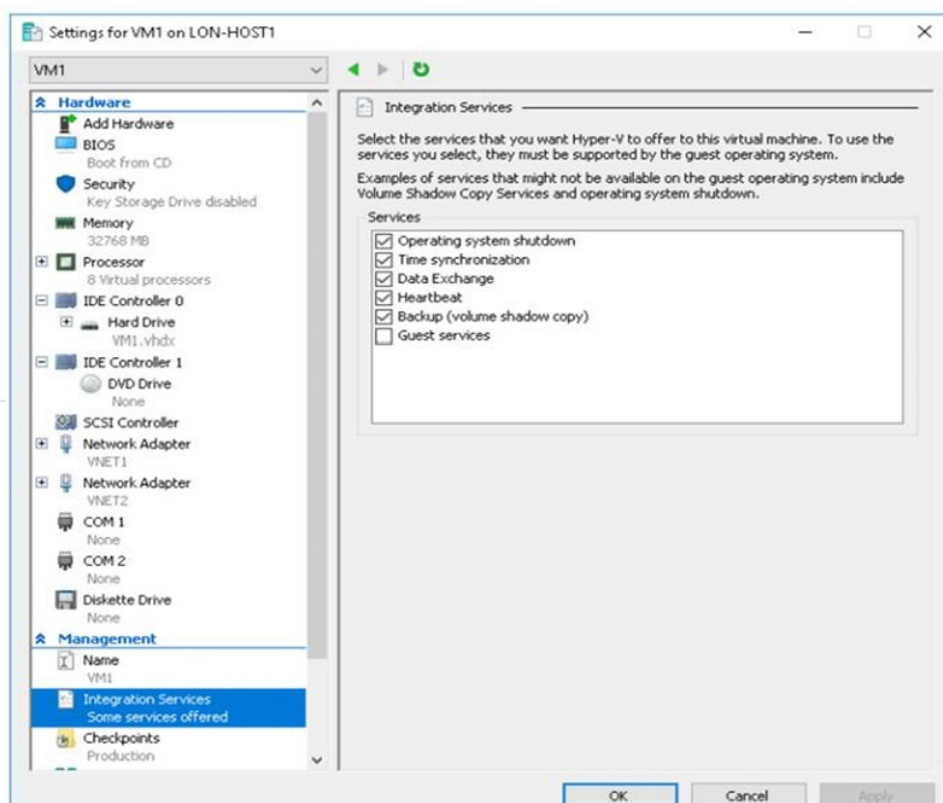
```
{
  "schedule": "0 */15 * * * *"
}
```

References:

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

## QUESTION 6

You have an on-premises virtual machine named VM1 configured as shown in the following exhibit.



VM is started.

You need to create a new virtual machine image in Azure from VM1.

Which three actions should you perform before you create the new image? Each correct answer presents part of the solution.

**NOTE:** Each correct selection is worth one point.

- A. Remove the Backup (volume shadow copy) integration service
- B. Generalize VM1
- C. Run Add-AzureRmVhd and specify a blob service container as the destination
- D. Run Add-AzureRmVhd and specify a file share as the destination

- E. Reduce the amount of memory to 16 GB
- F. Convert the disk type to VHD

**Correct Answer:** BCF

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

B: Sysprep removes all your personal account and security information, and then prepares the machine to be used as an image.

C, F: The Add-AzureRmVhd cmdlet uploads on-premises virtual hard disks, in .vhd file format, to a blob storage account as fixed virtual hard disks.

References:

<https://docs.microsoft.com/en-us/powershell/module/azurerm.compute/add-azurermvhd?view=azurerm-ps-6.13.0>

<https://docs.microsoft.com/en-us/azure/virtual-machines/windows/capture-image-resource>



## Create and Deploy Apps

### Testlet 2

#### Case study

##### Overview

ADatum Corporation is a financial company that has two main offices in New York and Los Angeles. ADatum has a subsidiary named Fabrikam, Inc. that shares the Los Angeles office.

ADatum is conducting an initial deployment of Azure services to host new line-of-business applications and is preparing to migrate its existing on-premises workloads to Azure.

ADatum uses Microsoft Exchange Online for email.

##### Existing Environment

###### On-Premises Environment

The on-premises workloads run on virtual machines hosted in a VMware vSphere 6 infrastructure. All the virtual machines are members of an Active Directory forest named adatum.com and run Windows Server 2016.

The New York office uses an IP address space of 10.0.0.0/16. The Los Angeles office uses an IP address space of 10.10.0.0/16.

The offices connect by using a VPN provided by an ISP. Each office has one Azure ExpressRoute circuit that provides access to Azure services and Microsoft Online Services. Routing is implemented by using Microsoft peering.

The New York office has a virtual machine named VM1 that has the vSphere console installed.

###### Azure Environment

You provision the Azure infrastructure by using the Azure portal. The infrastructure contains the resources shown in the following table.

Name	Type	Azure Region
ASRV1	Azure Site Recovery vault	East US
ASRV2	Azure Site Recovery vault	West US
ASE1	Azure App Service Environment	East US
AG1	Azure Application Gateway (internal)	East US
AG2	Azure Application Gateway (Internet-facing)	West US
ER1	ExpressRoute circuit	East US
ER2	ExpressRoute circuit	West US

AG1 has two backend pools named Pool11 and Pool12. AG2 has two backend pools named Pool21 and Pool22.

##### Requirements

###### Planned Changes

ADatum plans to migrate the virtual machines from the New York office to the East US Azure region by using Azure Site Recovery.

###### Infrastructure Requirements

ADatum identifies the following infrastructure requirements:

- A new web app named App1 that will access third-parties for credit card processing must be deployed
- A newly developed API must be implemented as an Azure function named App2. App2 will use a blob storage trigger. App2 must process new blobs immediately.
- The Azure infrastructure and the on-premises infrastructure must be prepared for the migration of the VMware virtual machines to Azure.
- The sizes of the Azure virtual machines that will be used to migrate the on-premises workloads must be identified.
- All migrated and newly deployed Azure virtual machines must be joined to the adatum.com domain.
- AG1 must load balance incoming traffic in the following manner:
  1. http://corporate.adatum.com/video/\* will be load balanced across Pool11
  2. http://corporate.adatum.com/images/\* will be load balanced across Pool12
- AG2 must load balance incoming traffic in the following manner:
  1. http://www.adatum.com will be load balanced across Pool21
  2. http://www.fabrikam.com will be load balanced across Pool22
- ER1 must route traffic between the New York office and the platform as a service (PaaS) services in the East US Azure region, as long as ER1 is available.
- ER2 must route traffic between the Los Angeles office and the PaaS services in the West US region, as long as ER2 is available.
- ER1 and ER2 must be configured to fail over automatically.

### **Application Requirements**

App2 must be able to connect directly to the private IP addresses of the Azure virtual machines. App2 will be deployed directly to an Azure virtual network.

Inbound and outbound communications to App1 must be controlled by using NSGs.

### **Pricing Requirements**

ADatum identifies the following pricing requirements:

- The cost of App1 and App2 must be minimized.
- The transactional charges of Azure Storage accounts must be minimized.

## Create and Deploy Apps

### Testlet 3

#### Case Study

This is a case study. **Case studies are not timed separately. You can use as much exam time as you would like to complete each case.** However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.

To answer the questions included in a case study, you will need to reference information that is provided in the case study. Case studies might contain exhibits and other resources that provide more information about the scenario that is described in the case study. Each question is independent of the other questions in this case study.

At the end of this case study, a review screen will appear. This screen allows you to review your answers and to make changes before you move to the next section of the exam. After you begin a new section, you cannot return to this section.

#### To start the case study

To display the first question in this case study, click the **Next** button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirements, existing environment, and problem statements. If the case study has an **All Information** tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a question, click the **Question** button to return to the question.

#### Overview

Contoso, Ltd. is a consulting company that has a main office in Montreal and two branch offices in Seattle and New York.

The Montreal office has 2,000 employees. The Seattle office has 1,000 employees. The New York office has 200 employees.

All the resources used by Contoso are hosted on-premises.

Contoso created a new Azure subscription. The Azure Active Directory (Azure AD) tenant uses a domain named contoso.onmicrosoft.com. The tenant uses the P1 pricing tier.

#### Existing Environment

The network contains an Active Directory forest named contoso.com. All domain controllers are configured as DNS servers and host the contoso.com DNS zone.

Contoso has finance, human resources, sales, research, and information technology departments. Each department has an organizational unit (OU) that contains all the accounts of that respective department. All the user accounts have the department attribute set to their respective department. New users are added frequently.

Contoso.com contains a user named User1.

All the offices connect by using private links.

Contoso has data centers in the Montreal and Seattle offices. Each data center has a firewall that can be configured as a VPN device.

All infrastructure servers are virtualized. The virtualization environment contains the servers in the following table.

Name	Role	Contains virtual machine
Server1	VMWare vCenter server	VM1
Server2	Hyper-V host	VM2

Contoso uses two web applications named App1 and App2. Each instance on each web application requires 1 GB of memory.

The Azure subscription contains the resources in the following table.

Name	Type
VNet1	Virtual network
VM3	Virtual network
VM4	Virtual network

The network security team implements several network security groups (NSGs).

## Requirements

### Planned Changes

Contoso plans to implement the following changes:

- Deploy Azure ExpressRoute to the Montreal office
- Migrate the virtual machine hosted on Server1 and Server2 to Azure
- Synchronize on-premises Active Directory to Azure Active Directory (Azure AD)
- Migrate App1 and App2 to two Azure web apps named WebApp1 and WebApp2.

### Technical Requirements

Contoso must meet the following technical requirements:

- Ensure that WebApp1 can adjust the number of instances automatically based on the load and can scale up to five instances
- Ensure that VM3 can establish outbound connections over TCP port 8080 to the applications servers in the Montreal office
- Ensure that routing information is exchanged automatically between Azure and the routers in the Montreal office
- Enable Azure Multi-Factor Authentication (MFA) for the users in the finance department only
- Ensure that webapp2.azurewebsites.net can be accessed by using the name app2.contoso.com
- Connect the New York office to VNet1 over the Internet by using an encrypted connection
- Create a workflow to send an email message when the settings of VM4 are modified
- Create a custom Azure role named Role1 that is based on the Reader role
- Minimize costs whenever possible

## QUESTION 1

You need to configure a host name for WebApp2.

What should you do first?

- A. In Azure AD, add contoso.com as a custom domain name
- B. In the public DNS zone of contoso.onmicrosoft.com, add an NS record
- C. In Azure AD, add webapp2.azurewebsites.net as a custom domain name
- D. In the public DNS zone of contoso.com, add a CNAME record

**Correct Answer: C**

**Section: (none)**

**Explanation**

### Explanation/Reference:

Explanation:

Scenario: Ensure that webapp2.azurewebsites.net can be accessed by using the name app2.contoso.com

When you create a Cloud Service, Azure assigns it to a subdomain of cloudapp.net. For example, if your Cloud Service is named "contoso", your users will be able to access your application on a URL like http://

contoso.cloudapp.net. Azure also assigns a virtual IP address.

However, you can also expose your application on your own domain name, such as contoso.com.

References:

<https://docs.microsoft.com/en-us/azure/cloud-services/cloud-services-custom-domain-name-portal>

## QUESTION 2

Which pricing tier should you recommend for WebApp1?

- A. D1
- B. P1v2
- C. S1
- D. B1

**Correct Answer: C**

**Section: (none)**

**Explanation**

### **Explanation/Reference:**

Explanation:

Standard supports up to 10 instances, and would be enough as the Standard plan includes auto scale that can automatically adjust the number of virtual machine instances running to match your traffic needs.

Scenario: Ensure that WebApp1 can adjust the number of instances automatically based on the load and can scale up to five instances

Incorrect Answers:

D: Basic supports only up to 3 instances.

References:

<https://azure.microsoft.com/en-us/pricing/details/app-service/windows/>

## Implement Authentication and Secure Data

### Question Set 1

#### QUESTION 1

Your company has an Azure subscription.

You enable multi-factor authentication (MFA) for all users.

The company's help desk reports an increase in calls from users who receive MFA requests while they work from the company's main office.

You need to prevent the users from receiving MFA requests when they sign in from the main office.

What should you do?

- A. From Azure Active Directory (Azure AD), configure organizational relationships.
- B. From the MFA service settings, create a trusted IP range.
- C. From Conditional access in Azure Active Directory (Azure AD), create a custom control.
- D. From Conditional access in Azure Active Directory (Azure AD), create a named location.

**Correct Answer:** B

**Section:** (none)

**Explanation**

#### Explanation/Reference:

Explanation:

The first thing you may want to do, before enabling Multi-Factor Authentication for any users, is to consider configuring some of the available settings. One of the most important features is a trusted IPs list. This will allow you to whitelist a range of IPs for your network. This way, when users are in the office, they will not get prompted with MFA, and when they take their devices elsewhere, they will. Here's how to do it:

Log in to your Azure Portal.

Navigate to Azure AD > Conditional Access > Named locations.

From the top toolbar select Configure MFA trusted IPs.

References:

<https://www.kraftkennedy.com/implementing-azure-multi-factor-authentication/>

#### QUESTION 2

You have an Azure virtual machine named VM1 that you use for testing. VM1 is protected by Azure Backup.

You delete VM1.

You need to remove the backup data stored for VM1.

What should you do first?

- A. Delete the storage account
- B. Stop the backup
- C. Modify the backup policy
- D. Delete the Recovery Services vault

**Correct Answer:** C

**Section:** (none)

**Explanation**

#### Explanation/Reference:

Explanation:

Azure Backup provides backup for virtual machines — created through both the classic deployment model and the Azure Resource Manager deployment model — by using custom-defined backup policies in a Recovery Services vault.

With the release of backup policy management, customers can manage backup policies and model them to meet their changing requirements from a single window. Customers can edit a policy, associate more virtual machines to a policy, and delete unnecessary policies to meet their compliance requirements.

Incorrect Answers:

D: You can't delete a Recovery Services vault if it is registered to a server and holds backup data. If you try to delete a vault, but can't, the vault is still configured to receive backup data.

References:

<https://azure.microsoft.com/en-in/updates/azure-vm-backup-policy-management/>

### QUESTION 3

You have an Azure subscription named Subscription1. You deploy a Linux virtual machine named VM1 to Subscription1.

You need to monitor the metrics and the logs of VM1.

What should you use?

- A. the AzurePerformanceDiagnostics extension
- B. Linux Diagnostic Extension (LAD) 3.0
- C. Azure Analysis Services
- D. Azure HDInsight

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

You can use extensions to configure diagnostics on your VMs to collect additional metric data. The basic host metrics are available, but to see more granular and VM-specific metrics, you need to install the Azure diagnostics extension on the VM. The Azure diagnostics extension allows additional monitoring and diagnostics data to be retrieved from the VM.

References:

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

### QUESTION 4

You have two Azure virtual machines named VM1 and VM2.

You have two Recovery Services vaults named RSV1 and RSV2. VM2 is protected by RSV1.

You need to use RSV2 to protect VM2.

What should you do first?

- A. From the RSV2 blade, click **Backup**. From the Backup blade, select the backup for the virtual machine, and then click **Backup**
- B. From the RSV1 blade, click **Backup items** and stop the VM2 backup
- C. From the VM2 blade, click **Disaster recovery**, click **Replication settings**, and then select RSV2 as the Recovery Services vault
- D. From the RSV1 blade, click **Backup Jobs** and export the VM2 job

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/backup/backup-azure-vms-first-look-arm>

### QUESTION 5

You have a resource group named RG1. RG1 contains an Azure Storage account named storageaccount1 and a virtual machine named VM1 that runs Windows Server 2016.

Storageaccount1 contains the disk files for VM1.

You apply a ReadOnly lock to RG1.

What can you do from the Azure portal?

- A. Start VM1
- B. Upload a blob to storageaccount1
- C. View the keys of storageaccount1
- D. generate an automation script for RG1

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

ReadOnly allows authorized users to read a resource, but they can't delete or update the resource. Applying this lock is similar to restricting all authorized users to the permissions granted by the Reader role.

References:

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-lock-resources>

### QUESTION 6

You download an Azure Resource Manager template based on an existing virtual machine. The template will be used to deploy 100 virtual machines.

You need to modify the template to reference an administrative password. You must prevent the password from being stored in plain text.

What should you create to store the password?

- A. an Azure Key Vault and an access policy.
- B. an Azure Storage account and an access policy.
- C. Azure Active Directory (AD) Identity Protection and an Azure policy.
- D. a Recovery Services vault and a backup policy.

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

### QUESTION 7

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

Your network contains an Active Directory forest named fabrikam.com. The forest contains two child



domains named corp.fabrikam.com and research.fabrikam.com.

You have an Azure subscription that contains an Azure Active Directory (Azure AD) tenant named contoso.com.

You install Azure AD Connect and sync all the on-premises user accounts to the Azure AD tenant. You implement seamless single sign-on (SSO).

You plan to change the source of authority for all the user accounts in research.fabrikam.com to Azure AD.

You need to prevent research.fabrikam.com from resyncing to Azure AD.

Solution: From the Azure Active Directory admin center, you delete a custom domain.

Does this meet the goal?

A. Yes

B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Instead you should customize the default synchronization rule.

Note:

To delete a custom domain name, you must first ensure that no resources in your directory rely on the domain name. You can't delete a domain name from your directory if:

- Any user has a user name, email address, or proxy address that includes the domain name.
- Any group has an email address or proxy address that includes the domain name.
- Any application in your Azure AD has an app ID URI that includes the domain name.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-create-custom-sync-rule>

## QUESTION 8

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

Your network contains an Active Directory forest named fabrikam.com. The forest contains two child domains named corp.fabrikam.com and research.fabrikam.com.

You have an Azure subscription that contains an Azure Active Directory (Azure AD) tenant named contoso.com.

You install Azure AD Connect and sync all the on-premises user accounts to the Azure AD tenant. You implement seamless single sign-on (SSO).

You plan to change the source of authority for all the user accounts in research.fabrikam.com to Azure AD.

You need to prevent research.fabrikam.com from resyncing to Azure AD.

Solution: You use the Synchronization Service Manager.

Does this meet the goal?

A. Yes

B. No

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Instead you should customize the default synchronization rule.

Note: The Synchronization Service Manager UI is used to configure more advanced aspects of the sync engine and to see the operational aspects of the service.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-create-custom-sync-rule>

### QUESTION 9

You have an Azure solution that uses Multi-Factor Authentication for added security when users are outside of the office. The usage model has been set to Per Authentication.

Your company acquires another company and adds the new staff to Azure Active Directory (Azure AD). New staff members must use Multi-Factor Authentication.

You need to change the usage model to Per Enabled User.

What should you recommend?

- A. Create a new Multi-Factor Authentication provider and reconfigure the usage model.
- B. Create a new Multi-Factor Authentication provider with a backup from the current Multi-Factor Authentication provider data.
- C. Use the Azure portal to change the current usage model.
- D. Use Azure CLI to change the current usage model.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Since it is not possible to change the usage model of an existing provider as it is right now, you have to create a new one and reactivate your existing server with activation credentials from the new provider.

References:

<https://365lab.net/2015/04/11/switch-usage-model-in-azure-multi-factor-authentication-server/>

### QUESTION 10

Your network contains an on-premises Active Directory and an Azure Active Directory (Azure AD) tenant.

You deploy Azure AD Connect and configure pass-through authentication?

Your Azure subscription contains several web apps that are accessed from the Internet.

You plan to enable Azure Multi-Factor Authentication (MFA) for the Azure tenant.

You need to recommend a solution to prevent users from being prompted for Azure MFA when they access the web apps from the on-premises network.

What should you include in the recommendation?

- A. a site-to-site VPN between the on-premises network and Azure
- B. an Azure policy
- C. an Azure ExpressRoute circuit

D. trusted IPs

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The Trusted IPs feature of Azure Multi-Factor Authentication is used by administrators of a managed or federated tenant. The feature bypasses two-step verification for users who sign in from the company intranet. The feature is available with the full version of Azure Multi-Factor Authentication, and not the free version for administrators.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/authentication/howto-mfa-mfasettings#trusted-ips>

### QUESTION 11

You are the global administrator for an Azure Active Directory (Azure AD) tenant named adatum.com.

You need to enable two-step verification for Azure users.

What should you do?

- A. Create an Azure AD conditional access policy.
- B. Configure a playbook in Azure Security Center.
- C. Enable Azure AD Privileged Identity Management.
- D. Install an MFA Server.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/active-directory/authentication/howto-mfa-getstarted>

### QUESTION 12

**Note:** This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

Your network contains an Active Directory forest named fabrikam.com. The forest contains two child domains named corp.fabrikam.com and research.fabrikam.com.

You have an Azure subscription that contains an Azure Active Directory (Azure AD) tenant named contoso.com.

You install Azure AD Connect and sync all the on-premises user accounts to the Azure AD tenant. You implement seamless single sign-on (SSO).

You plan to change the source of authority for all the user accounts in research.fabrikam.com to Azure AD.

You need to prevent research.fabrikam.com from resyncing to Azure AD.

Solution: You use the Azure AD Connect wizard.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Instead you should customize the default synchronization rule.

Note: The Synchronization Service Manager UI is used to configure more advanced aspects of the sync engine and to see the operational aspects of the service.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-create-custom-sync-rule>

### QUESTION 13

You have a Recovery Service vault that you use to test backups. The test backups contain two protected virtual machines.

You need to delete the Recovery Services vault.

What should you do first?

- A. From the Recovery Service vault, delete the backup data
- B. Modify the disaster recovery properties of each virtual machines
- C. Modify the locks of each virtual machine
- D. From the Recovery Service vault, stop the backup of each backup item

**Correct Answer: D**

**Section: (none)**

**Explanation**

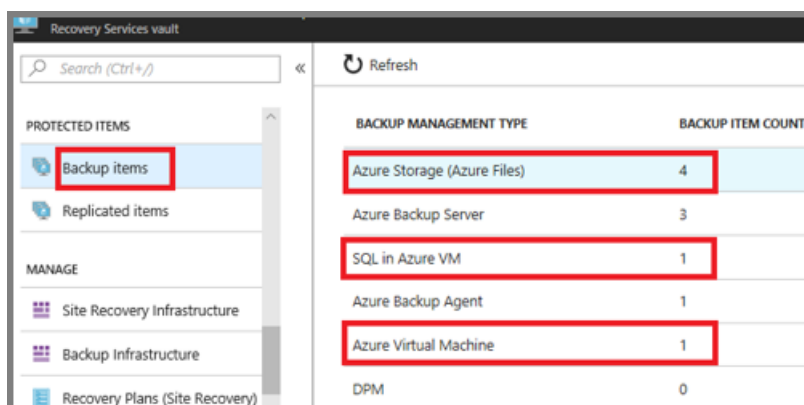
**Explanation/Reference:**

Explanation:

You can't delete a Recovery Services vault if it is registered to a server and holds backup data. If you try to delete a vault, but can't, the vault is still configured to receive backup data.

Remove vault dependencies and delete vault

In the vault dashboard menu, scroll down to the Protected Items section, and click Backup Items. In this menu, you can stop and delete Azure File Servers, SQL Servers in Azure VM, and Azure virtual machines.



References:

<https://docs.microsoft.com/en-us/azure/backup/backup-azure-delete-vault>

### QUESTION 14

**Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.**

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

Your network contains an Active Directory forest named fabrikam.com. The forest contains two child domains named corp.fabrikam.com and research.fabrikam.com.

You have an Azure subscription that contains an Azure Active Directory (Azure AD) tenant named contoso.com.

You install Azure AD Connect and sync all the on-premises user accounts to the Azure AD tenant. You implement seamless single sign-on (SSO).

You plan to change the source of authority for all the user accounts in research.fabrikam.com to Azure AD.

You need to prevent research.fabrikam.com from resyncing to Azure AD.

Solution: You use Active Directory Domains and Trusts from a computer joined to fabrikam.com.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Instead you should customize the default synchronization rule.

Note:

To delete a custom domain name, you must first ensure that no resources in your directory rely on the domain name. You can't delete a domain name from your directory if:

- Any user has a user name, email address, or proxy address that includes the domain name.
- Any group has an email address or proxy address that includes the domain name.
- Any application in your Azure AD has an app ID URI that includes the domain name.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-create-custom-sync-rule>

## QUESTION 15

You have the Azure virtual machines shown in the following table.

Name	Azure region
VM1	West Europe
VM2	West Europe
VM3	North Europe
VM4	North Europe

You have a Recovery Services vault that protects VM1 and VM2.

You need to protect VM3 and VM4 by using Recovery Services.

What should you do first?

- A. Create a new backup policy
- B. Create a new Recovery Services vault
- C. Configure the extensions for VM3 and VM4
- D. Create a storage account

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

A Recovery Services vault is a storage entity in Azure that houses data. The data is typically copies of data, or configuration information for virtual machines (VMs), workloads, servers, or workstations. You can use Recovery Services vaults to hold backup data for various Azure services

References:

<https://docs.microsoft.com/en-us/azure/site-recovery/azure-to-azure-tutorial-enable-replication>

#### QUESTION 16

You have an Azure Active Directory (Azure AD) domain that contains 5,000 user accounts. You create a new user account named AdminUser1.

You need to assign the User administrator administrative role to AdminUser1.

What should you do from the user account properties?

- A. From the Directory role blade, modify the directory role
- B. From the Licenses blade, assign a new license
- C. From the Groups blade, invite the user account to a new group

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Assign a role to a user

1. Sign in to the Azure portal with an account that's a global admin or privileged role admin for the directory.
2. Select Azure Active Directory, select Users, and then select a specific user from the list.
3. For the selected user, select Directory role, select Add role, and then pick the appropriate admin roles from the Directory roles list, such as Conditional access administrator.
4. Press Select to save.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/active-directory-users-assign-role-azure-portal>

#### QUESTION 17

You have an Azure subscription that contains the Azure virtual machines shown in the following table.

Name	Operating system	Location
VM1	Windows Server 2012 R2	East US
VM2	Windows Server 2016	East US
VM3	Windows Server 2019	West US
VM4	Ubuntu Server 18.04	East US

You create an Azure key vault named Vault1 in the East US location.

You need to identify which virtual machines can enable Azure Disk Encryption by using Vault1.

Which virtual machines should you identify?

- A. VM2 and VM3 only
- B. VM1, VM2, and VM4 only
- C. VM1, VM2, and VM3 only

D. VM3 only

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Your key vault and VMs must reside in the same Azure region and subscription.

References:

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

### QUESTION 18

You have two Azure Active Directory (Azure AD) tenants named contoso.com and fabrikam.com.

You have a Microsoft account that you use to sign in to both tenants.

You need to configure the default sign-in tenant for the Azure portal.

What should you do?

- A. From the Azure portal, configure the portal settings
- B. From the Azure portal, change the directory
- C. From Azure Cloud Shell, run `Set-AzureRmContext`
- D. From Azure Cloud Shell, run `Set-AzureRmSubscription`

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Change the subscription directory in the Azure portal.

The classic portal feature Edit Directory, that allows you to associate an existing subscription to your Azure Active Directory (AAD), is now available in Azure portal. It used to be available only to Service Admins with Microsoft accounts, but now it's available to users with AAD accounts as well.

To get started:

1. Go to Subscriptions.
2. Select a subscription.
3. Select Change directory.

Incorrect Answers:

C: The `Set-AzureRmContext` cmdlet sets authentication information for cmdlets that you run in the current session. The context includes tenant, subscription, and environment information.

References:

<https://azure.microsoft.com/en-us/updates/edit-directory-now-in-new-portal/>

### QUESTION 19

You sign up for Azure Active Directory (Azure AD) Premium.

You need to add a user named admin1@contoso.com as an administrator on all the computers that will be joined to the Azure AD domain.

What should you configure in Azure AD?

- A. Providers from the MFA Server blade
- B. General settings from the Groups blade
- C. Device settings from the Devices blade

D. User settings from the Users blade

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

When you connect a Windows device with Azure AD using an Azure AD join, Azure AD adds the following security principles to the local administrators group on the device:

- The Azure AD global administrator role
- The Azure AD device administrator role
- The user performing the Azure AD join

In the Azure portal, you can manage the device administrator role on the Devices page. To open the Devices page:

1. Sign in to your Azure portal as a global administrator or device administrator.
2. On the left navbar, click Azure Active Directory.
3. In the Manage section, click Devices.
4. On the Devices page, click Device settings.
5. To modify the device administrator role, configure Additional local administrators on Azure AD joined devices.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/devices/assign-local-admin>



## Implement Authentication and Secure Data

### Testlet 2

#### Case Study

This is a case study. **Case studies are not timed separately. You can use as much exam time as you would like to complete each case.** However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.

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#### To start the case study

To display the first question in this case study, click the **Next** button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirements, existing environment, and problem statements. If the case study has an **All Information** tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a question, click the **Question** button to return to the question.

#### Overview

Humongous Insurance is an insurance company that has three offices in Miami, Tokyo and Bangkok. Each office has 5,000 users.

#### Existing Environment

##### Active Directory Environment

Humongous Insurance has a single-domain Active Directory forest named humongousinsurance.com. The functional level of the forest is Windows Server 2012.

You recently provisioned an Azure Active Directory (Azure AD) tenant.

##### Network Infrastructure

Each office has a local data center that contains all the servers for that office. Each office has a dedicated connection to the Internet.

Each office has several link load balancers that provide access to the servers.

##### Active Directory Issue

Several users in humongousinsurance.com have UPNs that contain special characters.

You suspect that some of the characters are unsupported in Azure AD.

##### Licensing Issue

You attempt to assign a license in Azure to several users and receive the following error message: "Licenses not assigned. License agreement failed for one user."

You verify that the Azure subscription has the available licenses.

#### Requirements

##### Planned Changes

Humongous Insurance plans to open a new office in Paris. The Paris office will contain 1,000 users who will be hired during the next 12 months. All the resources used by the Paris office users will be hosted in Azure.

### Planned Azure AD Infrastructure

The on-premises Active Directory domain will be synchronized to Azure AD.

All client computers in the Paris office will be joined to an Azure AD domain.

### Planned Azure Networking Infrastructure

You plan to create the following networking resources in a resource group named All\_Resources:

- Default Azure system routes that will be the only routes used to route traffic
- A virtual network named Paris-VNet that will contain two subnets named Subnet1 and Subnet2
- A virtual network named ClientResources-VNet that will contain one subnet named ClientSubnet
- A virtual network named AllOffices-VNet that will contain two subnets named Subnet3 and Subnet4

You plan to enable peering between Paris-VNet and AllOffices-VNet. You will enable the **Use remote gateways** setting for the Paris-VNet peerings.

You plan to create a private DNS zone named humongousinsurance.local and set the registration network to the ClientResources-VNet virtual network.

### Planned Azure Computer Infrastructure

Each subnet will contain several virtual machines that will run either Windows Server 2012 R2, Windows Server 2016, or Red Hat Linux.

### Department Requirements

Humongous Insurance identifies the following requirements for the company's departments:

- Web administrators will deploy Azure web apps for the marketing department. Each web app will be added to a separate resource group. The initial configuration of the web apps will be identical. The web administrators have permission to deploy web apps to resource groups.
- During the testing phase, auditors in the finance department must be able to review all Azure costs from the past week.

### Authentication Requirements

Users in the Miami office must use Azure Active Directory Seamless Single Sign-on (Azure AD Seamless SSO) when accessing resources in Azure.

### QUESTION 1

You need to prepare the environment to meet the authentication requirements.

Which two actions should you perform? Each correct answer presents part of the solution

**NOTE:** Each correct selection is worth one point.

- A. Allow inbound TCP port 8080 to the domain controllers in the Miami office
- B. Install Azure AD Connect on a server in the Miami office and enable Pass-through Authentication
- C. Install the Active Directory Federation Services (AD FS) role on a domain controller in the Miami office
- D. Join the client computers in the Miami office to Azure AD
- E. Add <http://autologon.microsoftazuread-sso.com> to the intranet zone of each client computer in the Miami office.

**Correct Answer:** BE

**Section:** (none)

**Explanation**

#### Explanation/Reference:

Explanation:

B: Seamless SSO works with any method of cloud authentication - Password Hash Synchronization or Pass-through Authentication, and can be enabled via Azure AD Connect.

E: You can gradually roll out Seamless SSO to your users. You start by adding the following Azure AD URL to all or selected users' Intranet zone settings by using Group Policy in Active Directory: <https://autologon.microsoftazuread-sso.com>

Incorrect Answers:

A: Azure AD connect does not port 8080. It uses port 443.

C: Seamless SSO is not applicable to Active Directory Federation Services (ADFS).

D: Seamless SSO needs the user's device to be domain-joined, but doesn't need for the device to be Azure AD Joined.

Scenario: Users in the Miami office must use Azure Active Directory Seamless Single Sign-on (Azure AD Seamless SSO) when accessing resources in Azure.

Planned Azure AD Infrastructure include: The on-premises Active Directory domain will be synchronized to Azure AD.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/connect/active-directory-aadconnect-ss0-quick-start>

## QUESTION 2

Which blade should you instruct the finance department auditors to use?

- A. Partner information
- B. Cost analysis
- C. Resource providers
- D. Invoices

**Correct Answer: D**

**Section: (none)**

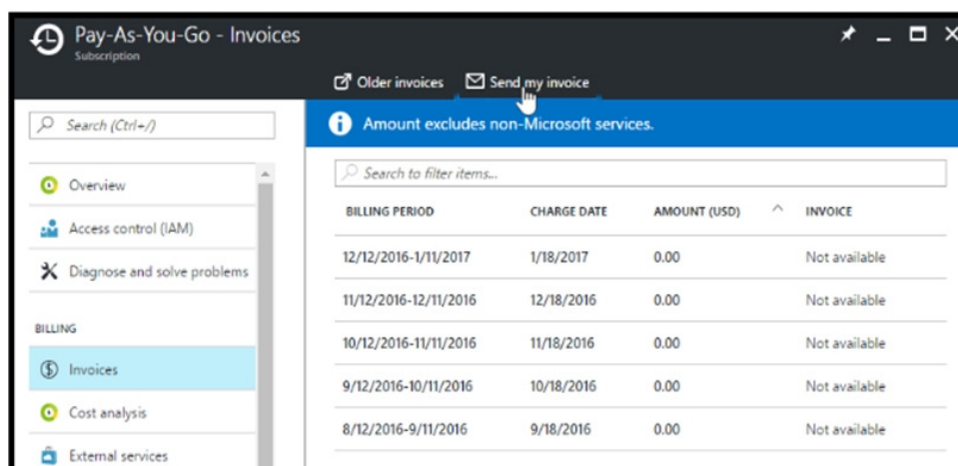
**Explanation**

### Explanation/Reference:

Explanation:

You can opt in and configure additional recipients to receive your Azure invoice in an email. This feature may not be available for certain subscriptions such as support offers, Enterprise Agreements, or Azure in Open.

1. Select your subscription from the Subscriptions page. Opt-in for each subscription you own. Click Invoices then Email my invoice.



2. Click Opt in and accept the terms.

Scenario: During the testing phase, auditors in the finance department must be able to review all Azure costs from the past week.

References:

<https://docs.microsoft.com/en-us/azure/billing/billing-download-azure-invoice-daily-usage-date>

## Implement Authentication and Secure Data

### Testlet 3

#### Case study

This is a case study. **Case studies are not timed separately. You can use as much exam time as you would like to complete each case.** However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.

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#### To start the case study

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#### Overview

Contoso, Ltd. is a consulting company that has a main office in Montreal and two branch offices in Seattle and New York.

The Montreal office has 2,000 employees. The Seattle office has 1,000 employees. The New York office has 200 employees.

All the resources used by Contoso are hosted on-premises.

Contoso creates a new Azure subscription. The Azure Active Directory (Azure AD) tenant uses a domain named contoso.onmicrosoft.com. The tenant uses the P1 pricing tier.

#### Existing Environment

The network contains an Active Directory forest named contoso.com. All domain controllers are configured as DNS servers and host the contoso.com DNS zone.

Contoso has finance, human resources, sales, research, and information technology departments. Each department has an organizational unit (OU) that contains all the accounts of that respective department. All the user accounts have the **department** attribute set to their respective department. New users are added frequently.

Contoso.com contains a user named User1.

All the offices connect by using private links.

Contoso has data centers in the Montreal and Seattle offices. Each data center has a firewall that can be configured as a VPN device.

All infrastructure servers are virtualized. The virtualization environment contains the servers in the following table.

Name	Role	Contains virtual machine
Server1	VMWare vCenter server	VM1
Server2	Hyper-V host	VM2

Contoso uses two web applications named App1 and App2. Each instance on each web application requires 1GB of memory.

The Azure subscription contains the resources in the following table.

Name	Type
VNet1	Virtual network
VM3	Virtual machine
VM4	Virtual machine

The network security team implements several network security groups (NSGs).

### Planned Changes

Contoso plans to implement the following changes:

- Deploy Azure ExpressRoute to the Montreal office.
- Migrate the virtual machines hosted on Server1 and Server2 to Azure.
- Synchronize on-premises Active Directory to Azure Active Directory (Azure AD).
- Migrate App1 and App2 to two Azure web apps named WebApp1 and WebApp2.

### Technical Requirements

Contoso must meet the following technical requirements:

- Ensure that WebApp1 can adjust the number of instances automatically based on the load and can scale up to five instances.
- Ensure that VM3 can establish outbound connections over TCP port 8080 to the applications servers in the Montreal office.
- Ensure that routing information is exchanged automatically between Azure and the routers in the Montreal office.
- Enable Azure Multi-Factor Authentication (MFA) for the users in the finance department only.
- Ensure that webapp2.azurewebsites.net can be accessed by using the name app2.contoso.com
- Connect the New York office to VNet1 over the Internet by using an encrypted connection.
- Create a workflow to send an email message when the settings of VM4 are modified.
- Create a custom Azure role named Role1 that is based on the Reader role.
- Minimize costs whenever possible.

### QUESTION 1

You need to recommend a solution to automate the configuration for the finance department users. The solution must meet the technical requirements.

What should you include in the recommendation?

- A. an Azure logic app and the Microsoft Identity Management (MIM) client
- B. Azure AD Identity Protection
- C. dynamic groups and conditional access policies
- D. Azure AD B2C

**Correct Answer: C**

**Section: (none)**

**Explanation**

#### Explanation/Reference:

Explanation:

Scenario: Enable Azure Multi-Factor Authentication (MFA) for the users in the finance department only.

The recommendation is to use conditional access policies that can then be targeted to groups of users, specific applications, or other conditions.

References:

## QUESTION 2

You discover that VM3 does **NOT** meet the technical requirements.

You need to verify whether the issue relates to the NSGs.

What should you use?

- A. Diagram in VNet1
- B. Diagnostic settings in Azure Monitor
- C. IP flow verify in Azure Network Watcher
- D. Diagnose and solve problems in Traffic Manager profiles
- E. the security recommendations in Azure Advisor

**Correct Answer: C**

**Section: (none)**

**Explanation**

### **Explanation/Reference:**

Explanation:

Scenario: Contoso must meet technical requirements including:

Ensure that VM3 can establish outbound connections over TCP port 8080 to the applications servers in the Montreal office.

IP flow verify checks if a packet is allowed or denied to or from a virtual machine. The information consists of direction, protocol, local IP, remote IP, local port, and remote port. If the packet is denied by a security group, the name of the rule that denied the packet is returned. While any source or destination IP can be chosen, IP flow verify helps administrators quickly diagnose connectivity issues from or to the internet and from or to the on-premises environment.

References:

<https://docs.microsoft.com/en-us/azure/network-watcher/network-watcher-ip-flow-verify-overview>

## Develop for the Cloud

### Testlet 1

#### Case Study

##### Background

Best For You Organics Company is a global restaurant franchise that has multiple locations. The company wants to enhance user experiences and vendor integrations. The company plans to implement automated mobile ordering and delivery services.

Best For You Organics hosts an Azure web app at the URL <https://www.bestforyouorganics.com>. Users can use the web app to browse restaurant location, menu items, nutritional information, and company information. The company developed and deployed a cross-platform mobile app.

##### Requirements

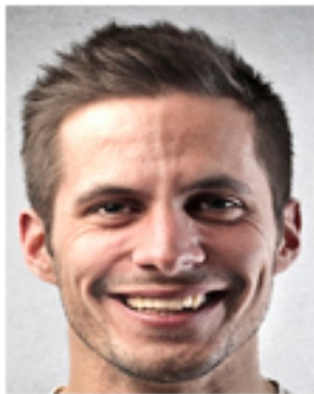
##### Chatbot

You must develop a chatbot by using the Bot Builder SDK and Language Understanding Intelligence Service (LUIS). The chatbot must allow users to order food for pickup or delivery.

The chatbot must meet the following requirements:

- Ensure that chatbot is secure by using the Bot Framework connector.
- Use natural language processing and speech recognition so that users can interact with the chatbot by using text and voice. Processing must be server-based.
- Alert users about promotions at local restaurants.
- Enable users to place an order for delivery or pickup by using their voice.
- Greet the user upon sign-in by displaying a graphical interface that contains action buttons.
- The chatbot greeting interface must match the formatting of the following example:

## Welcome to the Restaurant!



**John Doe**  
Sun, Aug 26, 2018

Welcome to Best For You Organics Company!  
How can we help you today?

**Specials:** Chicken Marsala

**Order Pickup    Order Delivery**

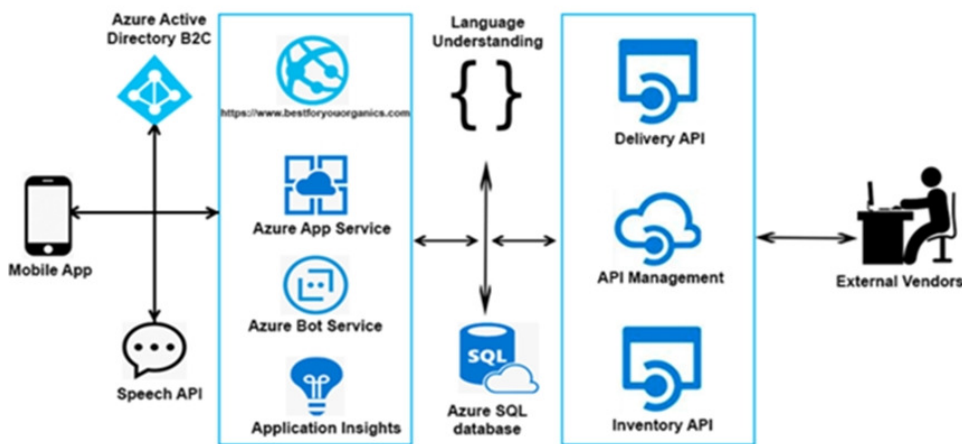
##### Vendor API

Vendors receive and provide updates for the restaurant inventory and delivery services by using Azure API Management hosted APIs. Each vendor uses their own subscription to access each of the APIs.

APIs must meet the following conditions:

- API usage must not exceed 5,000 calls and 50,000 kilobytes of bandwidth per hour per vendor.
- If a vendor is nearing the number of calls or bandwidth limit, the API must trigger email notifications to the vendor.
- API must prevent API usage spikes on a per-subscription basis by limiting the call rate to 100 calls per minute.
- The Inventory API must be written by using ASP.NET Core and Node.js.
- The API must be updated to provide an interface to Azure SQL Database objects must be managed by using code.
- The Delivery API must be protected by using the OAuth 2.0 protocol with Azure Active Directory (Azure AD) when called from the Azure web app. You register the Delivery API and web app in Azure AD. You enable OAuth 2.0 in the web app.
- The delivery API must update the Products table, the Vendor transactions table, and the Billing table in a single transaction.

The Best For You Organics Company architecture team has created the following diagram depicting the expected deployments into Azure:



## Architecture

## Issues

### Delivery API

The Delivery API intermittently throws the following exception:

```
"System.Data.Entity.Core.EntityCommandExecutionException: An error occurred while executing the command definition. See the inner exception for details. -->System.Data.SqlClient.SqlException: A transport-level error has occurred when receiving results from the server. (provider: Session Provider, error: 19 - Physical connection is not usable) "
```

### Chatbot greeting

The chatbot's greeting does not show the user's name. You need to debug the chatbot locally.

### Language processing

Users report that the bot fails to understand when a customer attempts to order dishes that use Italian names.

### App code

Relevant portions of the app files are shown below. Line numbers are included for reference only and include a two-character prefix that denotes the specific file to which they belong.



#### Startup.cs

```
SU01 namespace DeliveryApi
SU02 {
SU03     public class Startup
SU04     {
SU05         public Startup(IConfiguration configuration)
SU06         {
SU07             Configuration = configuration;
SU08         }
SU09         public IConfiguration Configuration { get; }
SU10         public void ConfigureServices(IServiceCollection services)
SU11         {
SU12             services.AddDbContext<RestaurantsContext>(opt =>
SU13                 opt.UseSqlServer(Configuration.GetSection("ConnectionStrings")
SU14                     ["RestaurantDatabase"],
SU15                     sqlServerOptionsAction: sqlOptions =>
SU16                     {
SU17                         . . .
SU18                     }));
SU19             services.AddMvc()
SU20                 .SetCompatibilityVersion(CompatibilityVersion.Version_2_1);
SU21         }
SU22         public void Configure(IApplicationBuilder app)
SU23         {
SU24             app.UseMvc();
SU25         }
SU26     }
```

#### QUESTION 1

**Note:** This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.

You need to meet the vendor notification requirement.

Solution: Update the Delivery API to send emails by using a Microsoft Office 365 SMTP server.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/api-management/api-management-howto-configure-notifications>

#### QUESTION 2

**Note:** This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.

You need to meet the vendor notification requirement.

Solution: Configure notifications in the Azure API Management instance.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/api-management/api-management-howto-configure-notifications>

### QUESTION 3

**Note:** This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.

You need to meet the vendor notification requirement.

Solution: Update the Delivery API to send emails by using a cloud-based email service.

Does the solution meet the goal?

A. Yes

B. No

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/api-management/api-management-howto-configure-notifications>

### QUESTION 4

You need to meet the vendor notification requirement.

Solution: Create and apply a custom outbound Azure API Management policy.

Does the solution meet the goal?

A. Yes

B. No

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/api-management/api-management-howto-configure-notifications>

### QUESTION 5

You need to resolve the delivery API error.

What should you do?

- A. Implement simple retry by using the **EnableRetryOnFailure** feature of Entity Framework.
- B. Implement exponential backoff by using the **EnableRetryOnFailure** feature of Entity Framework.
- C. Implement a Circuit Breaker pattern by using the **EnableRetryOnFailure** feature of Entity Framework.
- D. Invoke a custom execution strategy in Entity Framework.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/sql-database/sql-database-develop-error-messages>

**QUESTION 6**

You need to implement the purchase requirement.

What should you do?

- A. Use the Bot Framework REST API conversation operations to send the user's voice and the Speech Service API to recognize intents.
- B. Use the Direct Line REST API to send the user's voice and the Speech Service API to recognize intents.
- C. Use the Speech Service API to send the user's voice and the Bot Framework REST API conversation operations to recognize intents.
- D. Use the Bot Framework REST API attachment operations to send the user's voice and the Speech Service API to recognize intents.

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 7**

You need to meet the security requirements.

What should you use?

- A. HTTP Strict Transport Security (HSTS)
- B. Direct Line API
- C. Multi-Factor Authentication (MFA)
- D. Bot Framework Portal
- E. Bot Framework authentication

**Correct Answer: E**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

## Develop for the Cloud

### Question Set 2

#### QUESTION 1

Your company is developing an e-commerce Azure App Service Web App to support hundreds of restaurant locations around the world.

You are designing the messaging solution architecture to support the e-commerce transactions and messages. The solution will include the following features:

Feature	Requirement
Shopping Cart	<ul style="list-style-type: none"><li>Items in a shopping cart must be processed by an Azure Function within a specified number of minutes. Failure to process should move the items to a failed state for processing by a separate Azure Function</li><li>Shopping cart transactions must not be lost and fault conditions must be processed separately</li><li>Shopping cart transactions must be read by the inventory and sales systems for further processing</li></ul>
Inventory Distribution	<ul style="list-style-type: none"><li>Items sent to the inventory system must run a separate workflow for each item that includes warehouse, shipping, and order processing updates</li><li>Inventory uses Azure Blob storage to store inventory items and related information</li><li>Inventory is processed by using an Azure Logic App</li></ul>
Restaurant Telemetry	<ul style="list-style-type: none"><li>Restaurants stream millions of daily events from all locations</li><li>Restaurant data should be captured in Azure Blob storage for conditional processing</li><li>Restaurant event data should expire after 24 hours</li></ul>

You need to design a solution for the Inventory Distribution feature.

Which Azure service should you use?

- A. Azure Service Bus
- B. Azure Relay
- C. Azure Event Grid
- D. Azure Event Hub

**Correct Answer: A**

**Section: (none)**

**Explanation**

#### Explanation/Reference:

Explanation:

Microsoft Azure Service Bus is a fully managed enterprise integration message broker. Service Bus is most commonly used to decouple applications and services from each other, and is a reliable and secure platform for asynchronous data and state transfer.

One common messaging scenario is Messaging: transfer business data, such as sales or purchase orders, journals, or inventory movements.

Incorrect Answers:

B: The Azure Relay service enables you to securely expose services that run in your corporate network to the public cloud.

Reference:

<https://docs.microsoft.com/en-us/azure/service-bus-messaging/service-bus-messaging-overview>

#### QUESTION 2

You are responsible for mobile app development for a company. The company develops apps on Windows Mobile, IOS, and Android.

You plan to integrate push notifications into every app.

You need to be able to send users alerts from a backend server.

Which two options can you use to achieve this goal? Each correct answer presents a complete solution.

**NOTE:** Each correct selection is worth one point.

- A. Azure Web App
- B. Azure Mobile App Service
- C. Azure SQL Database
- D. Azure Notification Hubs
- E. a virtual machine

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The Mobile Apps client enables you to register for push notifications with Azure Notification Hubs.

The following platforms are supported:

- Xamarin Android releases for API 19 through 24 (KitKat through Nougat)
- Xamarin iOS releases for iOS versions 8.0 and later
- Universal Windows Platform
- Windows Phone 8.1
- Windows Phone 8.0 except for Silverlight applications

References:

<https://docs.microsoft.com/en-us/azure/app-service-mobile/app-service-mobile-dotnet-how-to-use-client-library>

### QUESTION 3

You are developing an app that references data which is sharded across multiple Azure SQL databases.

The app must guarantee transactional consistency for changes across several different sharding key values.

You need to manage the transactions.

What should you implement?

- A. Elastic database transactions with horizontal partitioning.
- B. Distributed transactions coordinated by Microsoft Distributed Transaction Coordinator (MSDTC).
- C. Server-coordinated transactions from .NET application.
- D. Elastic database transactions with vertical partitioning.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/mt-mt/azure/sql-database/sql-database-elastic-transactions-overview?view=azurermps-6.13.0>

### QUESTION 4

You are developing a speech-enabled home automation control bot.

The bot interprets some spoken words incorrectly.

You need to improve the spoken word recognition for the bot.

What should you implement?

- A. The Skype for Business Channel and use scorable dialogs for improving conversation flow.
- B. The Web Chat Channel and Speech priming using a Bing Speech Service and LUIS app.
- C. The Skype Channel and use scorable dialogs for improving conversation flow.
- D. The Cortana Channel and use scorable dialogs for improving conversation flow.

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

### QUESTION 5

A company is migrating an existing on-premises third-party website to Azure. The website is stateless.

The company does not have access to the source code for the website. They do not have the original installer.

The number of visitors at the website varies throughout the year. The on-premises infrastructure was resized to accommodate peaks but the extra capacity was not used.

You need to implement a virtual machine scale set instance.

What should you do?

- A. Use an autoscale setting to scale instances vertically
- B. Create 100 autoscale settings per resource
- C. Scale out by one instance when the average CPU usage of one of the instances is over 80 percent
- D. Use Azure Monitor to create autoscale settings using custom metrics
- E. Use an autoscale setting with unlimited maximum number of instances
- F. Use a webhook to log autoscale failures

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Azure Monitor autoscale can be used on Virtual Machine Scale Sets.

References:

<https://docs.microsoft.com/en-us/azure/azure-monitor/platform/autoscale-custom-metric>

### QUESTION 6

You have an Azure subscription named Subscription1.

You create several Azure virtual machines in Subscription1. All of the virtual machines belong to the same virtual network.

You have an on-premises Hyper-V server named Server1. Server1 hosts a virtual machine named VM1.

You plan to replicate VM1 to Azure.

You need to create additional objects in Subscription1 to support the planned deployment.

Which three objects should you create? Each correct answer presents part of the solution.

**NOTE:** Each correct selection is worth one point.

- A. Hyper-V site
- B. Azure Recovery Services Vault
- C. storage account
- D. replication policy
- E. Azure Traffic Manager instance
- F. endpoint

**Correct Answer:** ABD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 7

Your company is developing an e-commerce Azure App Service Web App to support hundreds of restaurant locations around the world.

You are designing the messaging solution architecture to support the e-commerce transactions and messages. The e-commerce application has the following features and requirements:

Feature	Requirement
Shopping Cart	<ul style="list-style-type: none"><li>Items in a shopping cart must be processed by an Azure Function within a specified number of minutes. Failure to process should move the items to a failed state for processing by a separate Azure Function</li><li>Shopping cart transactions must not be lost and fault conditions must be processed separately</li><li>Shopping cart transactions must be read by the inventory and sales systems for further processing</li></ul>
Inventory Distribution	<ul style="list-style-type: none"><li>Items sent to the inventory system must run a separate workflow for each item that includes warehouse, shipping, and order processing updates</li><li>Inventory uses Azure Blob storage to store inventory items and related information</li><li>Inventory is processed by using an Azure Logic App</li></ul>
Restaurant Telemetry	<ul style="list-style-type: none"><li>Restaurants stream millions of daily events from all locations</li><li>Restaurant data should be captured in Azure Blob storage for conditional processing</li><li>Restaurant event data should expire after 24 hours</li></ul>

You need to choose the Azure messaging solution to support the Restaurant Telemetry feature.

Which Azure service should you use?

- A. Azure Relay
- B. Azure Event Grid
- C. Azure Event Hub
- D. Azure Service Bus

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Azure Event Hubs is a big data pipeline. It facilitates the capture, retention, and replay of telemetry and event stream data. The data can come from many concurrent sources. Event Hubs allows telemetry and event data to be made available to a variety of stream-processing infrastructures and analytics services. It is

available either as data streams or bundled event batches. This service provides a single solution that enables rapid data retrieval for real-time processing as well as repeated replay of stored raw data. It can capture the streaming data into a file for processing and analysis.

It has the following characteristics:

- low latency
- capable of receiving and processing millions of events per second
- at least once delivery

Note: Comparison of services

Service	Purpose	Type	When to use
Event Grid	Reactive programming	Event distribution (discrete)	React to status changes
Event Hubs	Big data pipeline	Event streaming (series)	Telemetry and distributed data streaming
Service Bus	High-value enterprise messaging	Message	Order processing and financial transactions

References:

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

### QUESTION 8

A company is migrating an existing on-premises third-party website to Azure. The website is stateless.

The company does not have access to the source code for the website. They have the original installer.

The number of visitors at the website varies throughout the year. The on-premises infrastructure was resized to accommodate peaks but the extra capacity was not used.

You need to implement a virtual machine scale set instance.

What should you do

- A. Use a webhook to log autoscale failures.
- B. Use an autoscale setting to scale instances vertically.
- C. Use only default diagnostics metrics to trigger autoscaling
- D. Use an autoscale setting to define more profiles that have one or more autoscale rules.

**Correct Answer: C**

**Section: (none)**

**Explanation**

#### **Explanation/Reference:**

Explanation:

In-guest VM metrics with the Azure diagnostics extension

The Azure diagnostics extension is an agent that runs inside a VM instance. The agent monitors and saves performance metrics to Azure storage. These performance metrics contain more detailed information about the status of the VM, such as AverageReadTime for disks or PercentIdleTime for CPU. You can create autoscale rules based on a more detailed awareness of the VM performance, not just the percentage of CPU usage or memory consumption.

Reference:

<https://docs.microsoft.com/en-us/azure/virtual-machine-scale-sets/virtual-machine-scale-sets-autoscale-overview>

### QUESTION 9

**Note: This question is part of series of questions that present the same scenario. Each question in**



the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure Cosmos DB database that contains a container named Container1. The partition key for Container1 is set to /day. Container1 contains the items shown in the following table.

Name	Content
Item1	{ "id": "1", "day": "Mon", "value" : "10" }
Item2	{ "id": "2", "day": "Mon", "value" : "15" }
Item3	{ "id": "3", "day": "Tue", "value" : "10" }
Item4	{ "id": "4", "day": "Wed", "value" : "15" }

You need to programmatically query Azure Cosmos DB and retrieve Item1 and Item2 only.

Solution: You run the following query.

```
SELECT day
WHERE value = "10"
```

You set the EnableCrossPartitionQuery property to False.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Returns Item1 only as EnableCrossPartitionQuery property to False. If EnableCrossPartitionQuery property is set to true, it will return Item1 and Item3.

Reference:

<https://docs.microsoft.com/en-us/azure/cosmos-db/sql-query-where>

<https://docs.microsoft.com/en-us/dotnet/api/microsoft.azure.documents.client.feedoptions.enablecrosspartitionquery?view=azure-dotnet>

**QUESTION 10**

**Note:** This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure Cosmos DB database that contains a container named Container1. The partition key for Container1 is set to /day. Container1 contains the items shown in the following table.

Name	Content
Item1	{ "id": "1", "day": "Mon", "value" : "10" }
Item2	{ "id": "2", "day": "Mon", "value" : "15" }
Item3	{ "id": "3", "day": "Tue", "value" : "10" }
Item4	{ "id": "4", "day": "Wed", "value" : "15" }

You need to programmatically query Azure Cosmos DB and retrieve Item1 and Item2 only.

Solution: You run the following query.

```
SELECT day FROM c
WHERE c.value = "10" OR c.value = "15"
```

You set the `EnableCrossPartitionQuery` property to `True`.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Returns Item1, Item2, Item3, and Item4.

Reference:

<https://docs.microsoft.com/en-us/azure/cosmos-db/sql-query-where>

<https://docs.microsoft.com/en-us/dotnet/api/microsoft.azure.documents.client.feedoptions.enablecrosspartitionquery?view=azure-dotnet>

## QUESTION 11

**Note:** This question is part of series of questions that present the same scenario. Each question in

the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure Cosmos DB database that contains a container named Container1. The partition key for Container1 is set to /day. Container1 contains the items shown in the following table.

Name	Content
Item1	{ "id": "1", "day": "Mon", "value" : "10" }
Item2	{ "id": "2", "day": "Mon", "value" : "15" }
Item3	{ "id": "3", "day": "Tue", "value" : "10" }
Item4	{ "id": "4", "day": "Wed", "value" : "15" }

You need to programmatically query Azure Cosmos DB and retrieve Item1 and Item2 only.

Solution: You run the following query.

```
SELECT id FROM c
WHERE c.day = "Mon"
```

You set the `EnableCrossPartitionQuery` property to `True`.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Returns Item1 and Item2 only.

Reference:

<https://docs.microsoft.com/en-us/azure/cosmos-db/sql-query-where>

<https://docs.microsoft.com/en-us/dotnet/api/microsoft.azure.documents.client.feedoptions.enablecrosspartitionquery?view=azure-dotnet>

## QUESTION 12

**Note:** This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure Cosmos DB database that contains a container named Container1. The partition key for Container1 is set to /day. Container1 contains the items shown in the following table.

Name	Content
Item1	{ "id": "1", "day": "Mon", "value" : "10" }
Item2	{ "id": "2", "day": "Mon", "value" : "15" }
Item3	{ "id": "3", "day": "Tue", "value" : "10" }
Item4	{ "id": "4", "day": "Wed", "value" : "15" }

You need to programmatically query Azure Cosmos DB and retrieve Item1 and Item2 only.

Solution: You run the following query.

```
SELECT id FROM c
WHERE c.day = "Mon" OR c.day = "Tue"
```

You set the `EnableCrossPartitionQuery` property to `False`.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

Returns Item1 only as `EnableCrossPartitionQuery` property to `False`. If `EnableCrossPartitionQuery` property is set to `true`, it will return Item1, Item2, and Item3.

Reference:

<https://docs.microsoft.com/en-us/azure/cosmos-db/sql-query-where>

<https://docs.microsoft.com/en-us/dotnet/api/microsoft.azure.documents.client.feedoptions.enablecrosspartitionquery?view=azure-dotnet>

### QUESTION 13

You have an Azure SQL database named DB1.

You plan to create the following four tables in DB1 by using the following code.

Table1.

```
CREATE TABLE Table1
(
    StudentId INT IDENTITY PRIMARY KEY,
    PersonId INT REFERENCES Table4 (PersonId),
    Email NVARCHAR(256)
)
```

Table2.

```
CREATE TABLE Table2
(
    StudentId INT REFERENCES Table1 (StudentId),
    CourseId INT REFERENCES Table3 (CourseId),
    Grade DECIMAL(5,2) CHECK (Grade <= 100.00),
    Attempt TINYINT
)
```

Table3.

```
CREATE TABLE Table3
(
    CourseId INT IDENTITY PRIMARY KEY,
    Name NVARCHAR(50) NOT NULL,
    Teacher NVARCHAR(256) NOT NULL
)
```

Table4.

```
CREATE TABLE Table4
(
    PersonId INT IDENTITY PRIMARY KEY,
    FirstName NVARCHAR(128) NOT NULL,
    MiddleInitial NVARCHAR(10),
    LastName NVARCHAR(128) NOT NULL,
    DateOfBirth DATE NOT NULL
)
```

You need to identify which table must be created last.

What should you identify? To answer, select the appropriate options in the answer area.

**NOTE:** Each correct selection is worth one point.

- A. Table1
- B. Table2
- C. Table3
- D. Table4

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Table1 references Table4. Therefore Table4 must be created before Table1.

Table2 references Table1 and Table3. Therefore Table1 and Table3 must be created before Table2.

Note: FOREIGN KEY REFERENCES is a constraint that provides referential integrity for the data in the column or columns. FOREIGN KEY constraints require that each value in the column exists in the corresponding referenced column or columns in the referenced table. FOREIGN KEY constraints can reference only columns that are PRIMARY KEY or UNIQUE constraints in the referenced table or columns referenced in a UNIQUE INDEX on the referenced table.

Incorrect Answers:

A: Table1 is referenced by Table2 and should be crated before Table2.  
C: Table3 is referenced by Table2 and should be crated before Table2.  
D: Table4 is referenced by Table1 and should be crated before Table1.

Reference:

<https://docs.microsoft.com/en-us/sql/t-sql/statements/create-table-transact-sql?view=sql-server-ver15>

#### QUESTION 14

You have an Azure subscription that contains the resource groups shown in the following table.

Name	Region
RG1	West US
RG2	West US
RG3	East US

You have the Azure SQL servers shown in the following table.

Name	Region	In resource group
Sql1	West US	RG1
Sql2	East US	RG2
Sql3	West US	RG3
Sql4	West US	RG1

You create an Azure SQL database named DB1 on Sql1 in an elastic pool named Poo11.

You need to create an Azure SQL database named DB2 in Poo11.

Where should you deploy DB2?

- A. Sql1
- B. Sql2
- C. Sql3
- D. Sql4

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

The databases in an elastic pool are on a single Azure SQL Database server and share a set number of resources at a set price.

Reference:

<https://docs.microsoft.com/en-us/azure/sql-database/sql-database-elastic-pool>

#### QUESTION 15

Your company is developing an e-commerce Azure App Service Web App to support hundreds of restaurant locations around the world.

You are designing the messaging solution architecture to support the e-commerce transactions and messages. The e-commerce application has the following features and requirements:

Feature	Requirement
Shopping Cart	<ul style="list-style-type: none"> <li>Items in a shopping cart must be processed by an Azure Function within a specified number of minutes. Failure to process should move the items to a failed state for processing by a separate Azure Function</li> <li>Shopping cart transactions must not be lost and fault conditions must be processed separately</li> <li>Shopping cart transactions must be read by the inventory and sales systems for further processing</li> </ul>
Inventory Distribution	<ul style="list-style-type: none"> <li>Items sent to the inventory system must run a separate workflow for each item that includes warehouse, shipping, and order processing updates</li> <li>Inventory uses Azure Blob storage to store inventory items and related information</li> <li>Inventory is processed by using an Azure Logic App</li> </ul>
Restaurant Telemetry	<ul style="list-style-type: none"> <li>Restaurants stream millions of daily events from all locations</li> <li>Restaurant data should be captured in Azure Blob storage for conditional processing</li> <li>Restaurant event data should expire after 24 hours</li> </ul>

You need to choose the Azure messaging solution to support the Shopping Cart feature.

Which Azure service should you use?

- A. Azure Service Bus
- B. Azure Relay
- C. Azure Event Grid
- D. Azure Event Hub

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Microsoft Azure Service Bus is a fully managed enterprise integration message broker. Service Bus is most commonly used to decouple applications and services from each other, and is a reliable and secure platform for asynchronous data and state transfer.

One common messaging scenario is Messaging: transfer business data, such as sales or purchase orders, journals, or inventory movements.

Incorrect Answers:

B: The Azure Relay service enables you to securely expose services that run in your corporate network to the public cloud.

References:

<https://docs.microsoft.com/en-us/azure/service-bus-messaging/service-bus-messaging-overview>