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# SKILLCERTPRO

IT CERTIFICATION TRAININGS



Microsoft Azure / By SkillCertPro

## Practice Set 12

Your results are here!! for" Microsoft Azure AZ-305 Practice Test 12 "

20 of 35 questions answered correctly

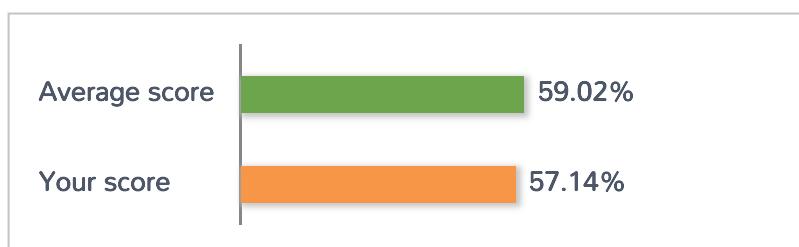
Your time: 01:24:21

Your Final Score is : 20

You have attempted : 35

Number of Correct Questions : 20 and scored 20

Number of Incorrect Questions : 15 and Negative marks 0



You can review your answers by clicking on "View Answers" option.

**Important Note :** Open Reference Documentation Links in New Tab (Right Click and Open in New Tab).

[Restart Test](#)

[View Answers](#)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34

35

 Answered  Review

## 1. Question

You plan to move a web app named App1 from an on-premises datacenter to Azure.

App1 depends on a custom COM component that is installed on the host server.

You need to recommend a solution to host App1 in Azure. The solution must meet the following requirements:

App1 must be available to users if an Azure datacenter becomes unavailable.

Costs must be minimized.

What should you include in the recommendation?

- In two Azure regions, deploy a load balancer and a web app.
- In two Azure regions, deploy a load balancer and a virtual machine scale set.
- Deploy a load balancer and a virtual machine scale set across two availability zones.
- In two Azure regions, deploy an Azure Traffic Manager profile and a web app.

### Correct

“App1 depends on a custom COM component that is installed on the host server“ that sounds like you will need an actual VM.

## 2. Question

You have an Azure subscription that contains a Basic Azure virtual WAN named VirtualWAN1 and the virtual hubs shown in the following table.

Name	Azure region
Hub1	US East
Hub2	US West

You have an ExpressRoute circuit in the US East Azure region.

You need to create an ExpressRoute association to VirtualWAN1.

What should you do first?

- Upgrade VirtualWAN1 to Standard.
- Create a gateway on Hub1.
- Enable the ExpressRoute premium add-on.

- Create a hub virtual network in US East.

### Correct

A basic Azure virtual WAN does not support express route. You have to upgrade to standard.

Reference:

<https://docs.microsoft.com/en-us/azure/virtual-wan/virtual-wan-about>

### 3. Question

You have an on-premises network and an Azure subscription. The on-premises network has several branch offices.

A branch office in Toronto contains a virtual machine named VM1 that is configured as a file server. Users access the shared files on VM1 from all the offices.

You need to recommend a solution to ensure that the users can access the shared files as quickly as possible if the Toronto branch office is inaccessible.

What should you include in the recommendation?

- a Recovery Services vault and Windows Server Backup
- Azure blob containers and Azure File Sync
- a Recovery Services vault and Azure Backup
- an Azure file share and Azure File Sync

### Correct

an Azure file share and Azure File Sync. You need Azure File sync to sync your file share on-prem to Azure File share so users can access it from Azure.

Reference:

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

### 4. Question

Case Study –

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Existing Environment –

Technical Environment –

The on-premises network contains a single Active Directory domain named contoso.com.

Contoso has a single Azure subscription.

Business Partnerships –

Contoso has a business partnership with Fabrikam, Inc. Fabrikam users access some Contoso applications over the internet by using Azure Active Directory

(Azure AD) guest accounts.

Requirements –

Planned Changes –

Contoso plans to deploy two applications named App1 and App2 to Azure.

App1 –

App1 will be a Python web app hosted in Azure App Service that requires a Linux runtime. Users from Contoso and Fabrikam will access App1.

App1 will access several services that require third-party credentials and access strings. The credentials and access strings are stored in Azure Key Vault.

App1 will have six instances: three in the East US Azure region and three in the West Europe Azure region.

App1 has the following data requirements:

Each instance will write data to a data store in the same availability zone as the instance.

Data written by any App1 instance must be visible to all App1 instances.

App1 will only be accessible from the internet. App1 has the following connection requirements:

Connections to App1 must pass through a web application firewall (WAF).

Connections to App1 must be active-active load balanced between instances.

All connections to App1 from North America must be directed to the East US region. All other connections must be directed to the West Europe region.

Every hour, you will run a maintenance task by invoking a PowerShell script that copies files from all the App1 instances. The PowerShell script will run from a central location.

App2 –

App2 will be a .NET app hosted in App Service that requires a Windows runtime. App2 has the following file storage requirements:

Save files to an Azure Storage account.

Replicate files to an on-premises location.

Ensure that on-premises clients can read the files over the LAN by using the SMB protocol.

You need to monitor App2 to analyze how long it takes to perform different transactions within the application. The solution must not require changes to the application code.

#### Application Development Requirements

Application developers will constantly develop new versions of App1 and App2. The development process must meet the following requirements:

A staging instance of a new application version must be deployed to the application host before the new version is used in production.

After testing the new version, the staging version of the application will replace the production version.

The switch to the new application version from staging to production must occur without any downtime of the application.

#### Identity Requirements –

Contoso identifies the following requirements for managing Fabrikam access to resources:

Every month, an account manager at Fabrikam must review which Fabrikam users have access permissions to App1. Accounts that no longer need permissions must be removed as guests.

The solution must minimize development effort.

#### Security Requirement –

All secrets used by Azure services must be stored in Azure Key Vault.

Services that require credentials must have the credentials tied to the service instance. The credentials must NOT be shared between services.

#### QUESTION

You need to recommend a solution to ensure that App1 can access the third-party credentials and access strings. The solution must meet the security requirements.

What should you include in the recommendation? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Authenticate App1 by using:

A certificate
A service principal
A system-assigned managed identity
A user-assigned managed identity

Authorize App1 to retrieve Key Vault secrets by using:

An access policy
A connected service
A private link
A role assignment

- A certificate
- A private link
- A service principal
- A role assignment
- A system-assigned managed identity
- A connected service

Incorrect

**Answer Area**

Authenticate App1 by using:

A certificate
A service principal
A system-assigned managed identity
A user-assigned managed identity

Authorize App1 to retrieve Key Vault secrets by using:

An access policy
A connected service
A private link
A role assignment

**Scenario: Security Requirement –**

All secrets used by Azure services must be stored in Azure Key Vault.

Services that require credentials must have the credentials tied to the service instance. The credentials must NOT be shared between services.

**Box 1: A service principal –**

A service principal is a type of security principal that identifies an application or service, which is to say, a piece of code rather than a user or group. A service principal's object ID is known as its client ID and acts like its username. The service principal's client secret acts like its password.

Note: Authentication with Key Vault works in conjunction with Azure Active Directory (Azure AD), which is responsible for authenticating the identity of any given security principal.

A security principal is an object that represents a user, group, service, or application that's requesting access to Azure resources. Azure assigns a unique object

ID to every security principal.

**Box 2: A role assignment –**

You can provide access to Key Vault keys, certificates, and secrets with an Azure role-based access control.

Reference:

<https://docs.microsoft.com/en-us/azure/key-vault/general/authentication>

## 5. Question

**Case Study –**

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**Overview –**

Fabrikam, Inc. is an engineering company that has offices throughout Europe. The company has a main office in London and three branch offices in Amsterdam, Berlin, and Rome.

Existing Environment:

Active Directory Environment

The network contains two Active Directory forests named corp.fabrikam.com and rd.fabrikam.com. There are no trust relationships between the forests.

Corp.fabrikam.com is a production forest that contains identities used for internal user and computer authentication.

Rd.fabrikam.com is used by the research and development (R&D) department only. The R&D department is restricted to using on-premises resources only.

Existing Environment:

Network Infrastructure

Each office contains at least one domain controller from the corp.fabrikam.com domain. The main office contains all the domain controllers for the rd.fabrikam.com forest.

All the offices have a high-speed connection to the internet.

An existing application named WebApp1 is hosted in the data center of the London office. WebApp1 is used by customers to place and track orders. WebApp1 has a web tier that uses Microsoft Internet Information Services (IIS) and a database tier that runs Microsoft SQL Server 2016. The web tier and the database tier are deployed to virtual machines that run on Hyper-V.

The IT department currently uses a separate Hyper-V environment to test updates to WebApp1.

Fabrikam purchases all Microsoft licenses through a Microsoft Enterprise Agreement that includes Software Assurance.

Existing Environment:

Problem Statements

The use of WebApp1 is unpredictable. At peak times, users often report delays. At other times, many resources for WebApp1 are underutilized.

Requirements: Planned Changes –

Fabrikam plans to move most of its production workloads to Azure during the next few years, including virtual machines that rely on Active Directory for authentication.

As one of its first projects, the company plans to establish a hybrid identity model, facilitating an upcoming Microsoft 365 deployment.

All R&D operations will remain on-premises.

Fabrikam plans to migrate the production and test instances of WebApp1 to Azure.

Requirements:

Technical Requirements

Fabrikam identifies the following technical requirements:

Website content must be easily updated from a single point.

User input must be minimized when provisioning new web app instances.

Whenever possible, existing on-premises licenses must be used to reduce cost.

Users must always authenticate by using their corp.fabrikam.com UPN identity.

Any new deployments to Azure must be redundant in case an Azure region fails.

Whenever possible, solutions must be deployed to Azure by using the Standard pricing tier of Azure App Service.

An email distribution group named IT Support must be notified of any issues relating to the directory synchronization services.

In the event that a link fails between Azure and the on-premises network, ensure that the virtual machines hosted in Azure can authenticate to Active Directory.

Directory synchronization between Azure Active Directory (Azure AD) and corp.fabrikam.com must not be affected by a link failure between Azure and the on-premises network.

Requirements:

Database Requirements

Fabrikam identifies the following database requirements:

Database metrics for the production instance of WebApp1 must be available for analysis so that database administrators can optimize the performance settings.

To avoid disrupting customer access, database downtime must be minimized when databases are migrated.

Database backups must be retained for a minimum of seven years to meet compliance requirements.

Requirements:

Security Requirements

Fabrikam identifies the following security requirements:

Company information including policies, templates, and data must be inaccessible to anyone outside the company.

Users on the on-premises network must be able to authenticate to corp.fabrikam.com if an internet link fails.

Administrators must be able authenticate to the Azure portal by using their corp.fabrikam.com credentials.

All administrative access to the Azure portal must be secured by using multi-factor authentication (MFA).

The testing of WebApp1 updates must not be visible to anyone outside the company.

QUESTION

You are evaluating the components of the migration to Azure that require you to provision an Azure Storage account.

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Statements	Yes	No
You must provision an Azure Storage account for the SQL Server database migration.	<input type="radio"/>	<input type="radio"/>
You must provision an Azure Storage account for the Web site content storage.	<input type="radio"/>	<input type="radio"/>
You must provision an Azure Storage account for the Database metric monitoring.	<input type="radio"/>	<input type="radio"/>

YES

NO

YES

 YES

YES

NO

 NO

YES

YES

 NO

NO

NO

## Correct

Box1: No

1: You can use the Database Migration service to carry out an online migration. Here you don't need to have a storage account.

Box2: No

2: You can migrate the web site content as it, and you don't need a separate storage account for this.

Box3: No

3:00

Also for SQL Server on Azure VMs it is possible to send metrics to 3 services:

- a) Log Analytics workspace in Azure Monitor
- b) Azure Event Hub
- c) Azure Storage

<https://docs.microsoft.com/en-us/azure/azure-sql/database/monitor-tune-overview>

<https://docs.microsoft.com/en-us/azure/azure-monitor/logs/quick-create-workspace>

<https://docs.microsoft.com/en-us/azure/azure-monitor/insights/azure-sql>

## 6. Question

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Whenever possible, solutions must be deployed to Azure by using the Standard pricing tier of Azure App Service.

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Directory synchronization between Azure Active Directory (Azure AD) and corp.fabrikam.com must not be affected by a link failure between Azure and the on-premises network.

Requirements:

Database Requirements

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Requirements:

Security Requirements

Fabrikam identifies the following security requirements:

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Users on the on-premises network must be able to authenticate to corp.fabrikam.com if an internet link fails.

Administrators must be able authenticate to the Azure portal by using their corp.fabrikam.com credentials.

All administrative access to the Azure portal must be secured by using multi-factor authentication (MFA).

The testing of WebApp1 updates must not be visible to anyone outside the company.

QUESTION

What should you include in the identity management strategy to support the planned changes?

Deploy domain controllers for corp.fabrikam.com to virtual networks in Azure.

- Move all the domain controllers from corp.fabrikam.com to virtual networks in Azure.
- Deploy a new Azure AD tenant for the authentication of new R&D projects.
- Deploy domain controllers for the rd.fabrikam.com forest to virtual networks in Azure.

**Correct**

Directory synchronization between Azure Active Directory (Azure AD) and corp.fabrikam.com must not be affected by a link failure between Azure and the on-premises network. (This requires domain controllers in Azure).

Users on the on-premises network must be able to authenticate to corp.fabrikam.com if an Internet link fails. (This requires domain controllers on-premises).

## 7. Question

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Existing Environment –

Azure Environment –

Litware has 10 Azure subscriptions that are linked to the Litware.com tenant and five Azure subscriptions that are linked to the dev.litware.com tenant. All the subscriptions are in an Enterprise Agreement (EA). The litware.com tenant contains a custom Azure role-based access control (Azure RBAC) role named Role1 that grants the DataActions read permission to the blobs and files in Azure Storage.

### On-Premises Environment –

The on-premises network of Litware contains the resources shown in the following table.

Name	Type	Configuration
SERVER1 SERVER2 SERVER3	Ubuntu 18.04 virtual machines hosted on Hyper-V	The virtual machines host a third-party app named App1. App1 uses an external storage solution that provides Apache Hadoop-compatible data storage. The data storage supports POSIX access control list (ACL) file-level permissions.
SERVER10	Server that runs Windows Server 2016	The server contains a Microsoft SQL Server instance that hosts two databases named DB1 and DB2.

### Network Environment –

Litware has ExpressRoute connectivity to Azure.

### Planned Changes and Requirements

Litware plans to implement the following changes:

Migrate DB1 and DB2 to Azure.

Migrate App1 to Azure virtual machines.

Migrate the external storage used by App1 to Azure Storage.

Deploy the Azure virtual machines that will host App1 to Azure dedicated hosts.

### Authentication and Authorization Requirements

Litware identifies the following authentication and authorization requirements:

Only users that manage the production environment by using the Azure portal must connect from a hybrid Azure AD-joined device and authenticate by using

Azure Multi-Factor Authentication (MFA).

The Network Contributor built-in RBAC role must be used to grant permissions to the network administrators for all the virtual networks in all the Azure subscriptions.

To access the resources in Azure, App1 must use the managed identity of the virtual machines that will host the app.

RBAC roles must be applied at the highest level possible.

### Resiliency Requirements –

Litware identifies the following resiliency requirements:

Once migrated to Azure, DB1 and DB2 must meet the following requirements:

- Maintain availability if two availability zones in the local Azure region fail.
- Fail over automatically.
- Minimize I/O latency.

App1 must meet the following requirements:

- Be hosted in an Azure region that supports availability zones.
- Be hosted on Azure virtual machines that support automatic scaling.
- Maintain availability if two availability zones in the local Azure region fail.

### Security and Compliance Requirements

Litware identifies the following security and compliance requirements:

Once App1 is migrated to Azure, you must ensure that new data can be written to the app, and the modification of new and existing data is prevented for a period of three years.

On-premises users and services must be able to access the Azure Storage account that will host the data in App1.

Access to the public endpoint of the Azure Storage account that will host the App1 data must be prevented.

All Azure SQL databases in the production environment must have Transparent Data Encryption (TDE) enabled.

App1 must NOT share physical hardware with other workloads.

Business Requirements –

Litware identifies the following business requirements:

Minimize administrative effort.

Minimize costs.

#### QUESTION

You plan to migrate App1 to Azure.

You need to recommend a storage solution for App1 that meets the security and compliance requirements.

Which type of storage should you recommend, and how should you recommend configuring the storage?

To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

### Answer Area

Storage account type:

Premium page blobs	
Premium file shares	
Standard general-purpose v2	

Configuration:

NFSv3	
Large file shares	
Hierarchical namespace	

Premium page blobs

Large file shares

Standard general-purpose v2

NFSv3

Premium file shares

Large file shares

Standard general-purpose v2

Hierarchical namespace

Incorrect

Correct Answer:

## Answer Area

Storage account type:

	▼
Premium page blobs	▼
Premium file shares	▼
Standard general-purpose v2	▼

Configuration:

	▼
NFSv3	▼
Large file shares	▼
Hierarchical namespace	▼

Box 1: Standard general-purpose v2

Standard general-purpose v2 supports Blob Storage.

Azure Storage provides data protection for Blob Storage and Azure Data Lake Storage Gen2.

Scenario:

Litware identifies the following security and compliance requirements:

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Access to the public endpoint of the Azure Storage account that will host the App1 data must be prevented.

All Azure SQL databases in the production environment must have Transparent Data Encryption (TDE) enabled.

App1 must NOT share physical hardware with other workloads.

Box 2: NFSv3 –

Scenario: Plan: Migrate App1 to Azure virtual machines.

Blob storage now supports the Network File System (NFS) 3.0 protocol. This support provides Linux file system compatibility at object storage scale and prices and enables Linux clients to mount a container in Blob storage from an Azure Virtual Machine (VM) or a computer on-premises.

Reference:

<https://docs.microsoft.com/en-us/azure/storage/blobs/data-protection-overview>

## 8. Question

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SERVER3		
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To access the resources in Azure, App1 must use the managed identity of the virtual machines that will host the app.

RBAC roles must be applied at the highest level possible.

#### Resiliency Requirements –

Litware identifies the following resiliency requirements:

Once migrated to Azure, DB1 and DB2 must meet the following requirements:

- Maintain availability if two availability zones in the local Azure region fail.
- Fail over automatically.
- Minimize I/O latency.

App1 must meet the following requirements:

- Be hosted in an Azure region that supports availability zones.
- Be hosted on Azure virtual machines that support automatic scaling.
- Maintain availability if two availability zones in the local Azure region fail.

#### Security and Compliance Requirements

Litware identifies the following security and compliance requirements:

Once App1 is migrated to Azure, you must ensure that new data can be written to the app, and the modification of new and existing data is prevented for a period of three years.

On-premises users and services must be able to access the Azure Storage account that will host the data in App1.

Access to the public endpoint of the Azure Storage account that will host the App1 data must be prevented.

All Azure SQL databases in the production environment must have Transparent Data Encryption (TDE) enabled.

App1 must NOT share physical hardware with other workloads.

#### Business Requirements –

Litware identifies the following business requirements:

Minimize administrative effort.

Minimize costs.

#### QUESTION

You plan to migrate App1 to Azure.

You need to recommend a network connectivity solution for the Azure Storage account that will host the

App1 data. The solution must meet the security and compliance requirements.

What should you include in the recommendation?

- Microsoft peering for an ExpressRoute circuit
- Azure public peering for an ExpressRoute circuit
- a service endpoint that has a service endpoint policy
- a private endpoint

### Incorrect

Private Endpoint securely connect to storage accounts from on-premises networks that connect to the VNet using VPN or ExpressRoutes with private-peering.

Private Endpoint also secure your storage account by configuring the storage firewall to block all connections on the public endpoint for the storage service.

Incorrect Answers:

A: Microsoft peering provides access to Azure public services via public endpoints with public IP addresses, which should not be allowed.

B: Azure public peering has been deprecated.

C: By default, Service Endpoints are enabled on subnets configured in Azure virtual networks. Endpoints can't be used for traffic from your premises to Azure services.

Reference:

<https://docs.microsoft.com/en-us/azure/expressroute/expressroute-circuit-peerings>

## 9. Question

Case Study –

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Existing Environment –

Azure Environment –

Litware has 10 Azure subscriptions that are linked to the Litware.com tenant and five Azure subscriptions that are linked to the dev.litware.com tenant. All the subscriptions are in an Enterprise Agreement (EA).

The litware.com tenant contains a custom Azure role-based access control (Azure RBAC) role named Role1 that grants the DataActions read permission to the blobs and files in Azure Storage.

On-Premises Environment –

The on-premises network of Litware contains the resources shown in the following table.

Name	Type	Configuration
SERVER1 SERVER2 SERVER3	Ubuntu 18.04 virtual machines hosted on Hyper-V	The virtual machines host a third-party app named App1. App1 uses an external storage solution that provides Apache Hadoop-compatible data storage. The data storage supports POSIX access control list (ACL) file-level permissions.
SERVER10	Server that runs Windows Server 2016	The server contains a Microsoft SQL Server instance that hosts two databases named DB1 and DB2.

Network Environment –

Litware has ExpressRoute connectivity to Azure.

Planned Changes and Requirements

Litware plans to implement the following changes:

Migrate DB1 and DB2 to Azure.

Migrate App1 to Azure virtual machines.

Migrate the external storage used by App1 to Azure Storage.

Deploy the Azure virtual machines that will host App1 to Azure dedicated hosts.

Authentication and Authorization Requirements

Litware identifies the following authentication and authorization requirements:

Only users that manage the production environment by using the Azure portal must connect from a hybrid Azure AD-joined device and authenticate by using

Azure Multi-Factor Authentication (MFA).

The Network Contributor built-in RBAC role must be used to grant permissions to the network administrators for all the virtual networks in all the Azure subscriptions.

To access the resources in Azure, App1 must use the managed identity of the virtual machines that will host the app.

RBAC roles must be applied at the highest level possible.

Resiliency Requirements –

Litware identifies the following resiliency requirements:

Once migrated to Azure, DB1 and DB2 must meet the following requirements:

- Maintain availability if two availability zones in the local Azure region fail.
- Fail over automatically.
- Minimize I/O latency.

App1 must meet the following requirements:

- Be hosted in an Azure region that supports availability zones.
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Litware identifies the following security and compliance requirements:

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On-premises users and services must be able to access the Azure Storage account that will host the data in App1.

Access to the public endpoint of the Azure Storage account that will host the App1 data must be prevented.

All Azure SQL databases in the production environment must have Transparent Data Encryption (TDE) enabled.

App1 must NOT share physical hardware with other workloads.

Business Requirements –

Litware identifies the following business requirements:

Minimize administrative effort.

Minimize costs.

#### QUESTION

You need to implement the Azure RBAC role assignments for the Network Contributor role. The solution must meet the authentication and authorization requirements.

What is the minimum number of assignments that you must use?

1

2

5

10

15

#### Incorrect

There are 2 tenants (10 + 5 subscriptions), so we need to do it on both (at tenant root group level).

Scenario: The Network Contributor built-in RBAC role must be used to grant permissions to the network administrators for all the virtual networks in all the Azure subscriptions.

RBAC roles must be applied at the highest level possible.

## 10. Question

You have an Azure subscription that contains a storage account.

An application sometimes writes duplicate files to the storage account.

You have a PowerShell script that identifies and deletes duplicate files in the storage account. Currently, the script is run manually after approval from the operations manager.

You need to recommend a serverless solution that performs the following actions:

Runs the script once an hour to identify whether duplicate files exist

Sends an email notification to the operations manager requesting approval to delete the duplicate files

Processes an email response from the operations manager specifying whether the deletion was approved

Runs the script if the deletion was approved

What should you include in the recommendation?

Azure Logic Apps and Azure Event Grid

Azure Logic Apps and Azure Functions

Azure Pipelines and Azure Service Fabric

Azure Functions and Azure Batch

### Correct

You can schedule a powershell script with Azure Logic Apps.

When you want to run code that performs a specific job in your logic apps, you can create your own function by using Azure Functions. This service helps you create Node.js, C#, and F# functions so you don't have to build a complete app or infrastructure to run code. You can also call logic apps from inside Azure functions.

Reference:

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

## 11. Question

Case Study –

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All Azure SQL databases in the production environment must have Transparent Data Encryption (TDE) enabled.

App1 must NOT share physical hardware with other workloads.

Business Requirements –

Litware identifies the following business requirements:

Minimize administrative effort.

Minimize costs.

## QUESTION

After you migrate App1 to Azure, you need to enforce the data modification requirements to meet the security and compliance requirements.

What should you do?

Create an access policy for the blob service.

Implement Azure resource locks.

Create Azure RBAC assignments.

Modify the access level of the blob service.

Incorrect

Immutable storage for Azure Blob Storage enables users to store business-critical data in a WORM (Write Once, Read Many) state. While in a WORM state, data cannot be modified or deleted for a user-specified interval. By configuring immutability policies for blob data, you can protect your data from overwrites and deletes.

Reference:

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

## 12. Question

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Overview –

Fabrikam, Inc. is an engineering company that has offices throughout Europe. The company has a main office in London and three branch offices in Amsterdam, Berlin, and Rome.

Existing Environment:

Active Directory Environment

The network contains two Active Directory forests named corp.fabrikam.com and rd.fabrikam.com. There are no trust relationships between the forests.

Corp.fabrikam.com is a production forest that contains identities used for internal user and computer authentication.

Rd.fabrikam.com is used by the research and development (R&D) department only. The R&D department is restricted to using on-premises resources only.

Existing Environment:

Network Infrastructure

Each office contains at least one domain controller from the corp.fabrikam.com domain. The main office contains all the domain controllers for the rd.fabrikam.com forest.

All the offices have a high-speed connection to the internet.

An existing application named WebApp1 is hosted in the data center of the London office. WebApp1 is used by customers to place and track orders. WebApp1 has a web tier that uses Microsoft Internet Information Services (IIS) and a database tier that runs Microsoft SQL Server 2016. The web tier and the database tier are deployed to virtual machines that run on Hyper-V.

The IT department currently uses a separate Hyper-V environment to test updates to WebApp1.

Fabrikam purchases all Microsoft licenses through a Microsoft Enterprise Agreement that includes Software Assurance.

Existing Environment:

Problem Statements

The use of WebApp1 is unpredictable. At peak times, users often report delays. At other times, many resources for WebApp1 are underutilized.

Requirements: Planned Changes –

Fabrikam plans to move most of its production workloads to Azure during the next few years, including virtual machines that rely on Active Directory for authentication.

As one of its first projects, the company plans to establish a hybrid identity model, facilitating an upcoming Microsoft 365 deployment.

All R&D operations will remain on-premises.

Fabrikam plans to migrate the production and test instances of WebApp1 to Azure.

Requirements:

Technical Requirements

Fabrikam identifies the following technical requirements:

Website content must be easily updated from a single point.

User input must be minimized when provisioning new web app instances.

Whenever possible, existing on-premises licenses must be used to reduce cost.

Users must always authenticate by using their corp.fabrikam.com UPN identity.

Any new deployments to Azure must be redundant in case an Azure region fails.

Whenever possible, solutions must be deployed to Azure by using the Standard pricing tier of Azure App Service.

An email distribution group named IT Support must be notified of any issues relating to the directory synchronization services.

In the event that a link fails between Azure and the on-premises network, ensure that the virtual machines hosted in Azure can authenticate to Active Directory.

Directory synchronization between Azure Active Directory (Azure AD) and corp.fabrikam.com must not be affected by a link failure between Azure and the on-premises network.

Requirements:

Database Requirements

Fabrikam identifies the following database requirements:

Database metrics for the production instance of WebApp1 must be available for analysis so that database

administrators can optimize the performance settings.

To avoid disrupting customer access, database downtime must be minimized when databases are migrated.

Database backups must be retained for a minimum of seven years to meet compliance requirements.

Requirements:

Security Requirements

Fabrikam identifies the following security requirements:

Company information including policies, templates, and data must be inaccessible to anyone outside the company.

Users on the on-premises network must be able to authenticate to corp.fabrikam.com if an internet link fails.

Administrators must be able authenticate to the Azure portal by using their corp.fabrikam.com credentials.

All administrative access to the Azure portal must be secured by using multi-factor authentication (MFA).

The testing of WebApp1 updates must not be visible to anyone outside the company.

QUESTION

You need to recommend a solution to meet the database retention requirements.

What should you recommend?

Configure a long-term retention policy for the database.

Configure Azure Site Recovery.

Use automatic Azure SQL Database backups.

Configure geo-replication of the database.

**Correct**

In Azure SQL Database, you can configure a database with a long-term backup retention policy (LTR) to automatically retain the database backups in separate Azure Blob storage containers for up to 10 years.

Reference:

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

### 13. Question

Case Study –

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Existing Environment –

Technical Environment –

The on-premises network contains a single Active Directory domain named contoso.com.

Contoso has a single Azure subscription.

Business Partnerships –

Contoso has a business partnership with Fabrikam, Inc. Fabrikam users access some Contoso applications over the internet by using Azure Active Directory

(Azure AD) guest accounts.

Requirements –

Planned Changes –

Contoso plans to deploy two applications named App1 and App2 to Azure.

App1 –

App1 will be a Python web app hosted in Azure App Service that requires a Linux runtime. Users from Contoso and Fabrikam will access App1.

App1 will access several services that require third-party credentials and access strings. The credentials and access strings are stored in Azure Key Vault.

App1 will have six instances: three in the East US Azure region and three in the West Europe Azure region.

App1 has the following data requirements:

Each instance will write data to a data store in the same availability zone as the instance.

Data written by any App1 instance must be visible to all App1 instances.

App1 will only be accessible from the internet. App1 has the following connection requirements:

Connections to App1 must pass through a web application firewall (WAF).

Connections to App1 must be active-active load balanced between instances.

All connections to App1 from North America must be directed to the East US region. All other connections must be directed to the West Europe region.

Every hour, you will run a maintenance task by invoking a PowerShell script that copies files from all the App1 instances. The PowerShell script will run from a central location.

App2 –

App2 will be a .NET app hosted in App Service that requires a Windows runtime. App2 has the following file storage requirements:

Save files to an Azure Storage account.

Replicate files to an on-premises location.

Ensure that on-premises clients can read the files over the LAN by using the SMB protocol.

You need to monitor App2 to analyze how long it takes to perform different transactions within the application. The solution must not require changes to the application code.

#### Application Development Requirements

Application developers will constantly develop new versions of App1 and App2. The development process must meet the following requirements:

A staging instance of a new application version must be deployed to the application host before the new version is used in production.

After testing the new version, the staging version of the application will replace the production version.

The switch to the new application version from staging to production must occur without any downtime of the application.

#### Identity Requirements –

Contoso identifies the following requirements for managing Fabrikam access to resources:

Every month, an account manager at Fabrikam must review which Fabrikam users have access permissions to App1. Accounts that no longer need permissions must be removed as guests.

The solution must minimize development effort.

#### Security Requirement –

All secrets used by Azure services must be stored in Azure Key Vault.

Services that require credentials must have the credentials tied to the service instance. The credentials must NOT be shared between services.

#### QUESTION

What should you implement to meet the identity requirements? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

## Answer Area

Service:

Azure AD Identity Governance
Azure AD Identity Protection
Azure AD Privilege Access Management (PIM)
Azure Automation

Feature:

Access packages
Access reviews
Approvals
Runbooks

Azure AD Identity Governance

Access reviews

Azure Automation

Runbooks

Azure AD Identity Protection

Access reviews

Azure AD Privilege Access Management (PIM)

Access packages

Incorrect

Requirements: Identity Requirements

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The solution must minimize development effort.

Box 1: Azure AD Identity Governance

Accounts that no longer need permissions must be removed as guests.

“ PIM does not meet life cycle requirements.

When should you use access reviews?

Too many users in privileged roles: It's a good idea to check how many users have administrative access, how many of them are Global Administrators, and if

there are any invited guests or partners that have not been removed after being assigned to do an administrative task. You can recertify the role assignment users in Azure AD roles such as Global

Administrators, or Azure resources roles such as User Access Administrator in the Azure AD Privileged Identity

Management (PIM) experience.

Box 2: Access reviews –

Azure Active Directory (Azure AD) access reviews enable organizations to efficiently manage group memberships, access to enterprise applications, and role assignments. User's access can be reviewed on a regular basis to make sure only the right people have continued access.

Reference:

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

<https://docs.microsoft.com/en-us/azure/active-directory/governance/create-access-review#create-one-or-more-access-reviews>

## 14. Question

You have an Azure subscription that contains a custom application named Application1. Application1 was developed by an external company named Fabrikam,

Ltd. Developers at Fabrikam were assigned role-based access control (RBAC) permissions to the Application1 components. All users are licensed for the Microsoft 365 E5 plan.

You need to recommend a solution to verify whether the Fabrikam developers still require permissions to Application1. The solution must meet the following requirements:

To the manager of the developers, send a monthly email message that lists the access permissions to Application1.

If the manager does not verify an access permission, automatically revoke that permission.

Minimize development effort.

What should you recommend?

In Azure Active Directory (Azure AD), create an access review of Application1.

Create an Azure Automation runbook that runs the Get-AzRoleAssignment cmdlet.

In Azure Active Directory (Azure AD) Privileged Identity Management, create a custom role assignment for the Application1 resources.

Create an Azure Automation runbook that runs the Get-AzureADUserAppRoleAssignment cmdlet.

Correct

Reference:

<https://docs.microsoft.com/en-us/azure/active-directory/governance/manage-user-access-with-access-reviews>

## 15. Question

You have an Azure subscription. The subscription has a blob container that contains multiple blobs.

Ten users in the finance department of your company plan to access the blobs during the month of April.

You need to recommend a solution to enable access to the blobs during the month of April only.

Which security solution should you include in the recommendation?

shared access signatures (SAS)

Conditional Access policies

certificates

access keys

### Correct

Shared Access Signatures (SAS) allows for limited-time fine grained access control to resources. So you can generate URL, specify duration (for month of April) and disseminate URL to 10 team members. On May 1, the SAS token is automatically invalidated, denying team members continued access.

Reference:

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

## 16. Question

You have an Azure Active Directory (Azure AD) tenant that syncs with an on-premises Active Directory domain.

You have an internal web app named WebApp1 that is hosted on-premises. WebApp1 uses Integrated Windows authentication.

Some users work remotely and do NOT have VPN access to the on-premises network.

You need to provide the remote users with single sign-on (SSO) access to WebApp1.

Which two features should you include in the solution? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

Azure AD Application Proxy

Azure AD Privileged Identity Management (PIM)

Conditional Access policies

Azure Arc

Azure AD enterprise applications

Azure Application Gateway

### Correct

Application Proxy is a feature of Azure AD that enables users to access on-premises web applications from a remote client. Application Proxy includes both the

Application Proxy service which runs in the cloud, and the Application Proxy connector which runs on an

on-premises server.

You can configure single sign-on to an Application Proxy application.

Azure App proxy for connecting without VPN and Enterprise App for SSO.

As mentioned in question “Some users work remotely and do NOT have VPN access to the on-premises network.“

Authentication on an on-premises domain is not possible. Register for Azure AD enterprise applications to enable SSO

Reference:

<https://docs.microsoft.com/en-us/azure/active-directory/app-proxy/application-proxy-config-sso-how-to>

<https://docs.microsoft.com/en-us/azure/active-directory/develop/active-directory-how-applications-are-added#what-are-service-principals-and-where-do-they-come-from>

<https://docs.microsoft.com/en-us/azure/active-directory/app-proxy/application-proxy-config-sso-how-to>

<https://docs.microsoft.com/en-us/azure/active-directory/app-proxy/application-proxy-deployment-plan>

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Application Development Requirements

Application developers will constantly develop new versions of App1 and App2. The development process must meet the following requirements:

A staging instance of a new application version must be deployed to the application host before the new version is used in production.

After testing the new version, the staging version of the application will replace the production version.

The switch to the new application version from staging to production must occur without any downtime of the application.

Identity Requirements –

Contoso identifies the following requirements for managing Fabrikam access to resources:

Every month, an account manager at Fabrikam must review which Fabrikam users have access permissions to App1. Accounts that no longer need permissions must be removed as guests.

The solution must minimize development effort.

Security Requirement –

All secrets used by Azure services must be stored in Azure Key Vault.

Services that require credentials must have the credentials tied to the service instance. The credentials must NOT be shared between services.

#### QUESTION

You need to recommend a solution that meets the file storage requirements for App2.

What should you deploy to the Azure subscription and the on-premises network? To answer, drag the appropriate services to the correct locations. Each service may be used once, more than once, or not at all.

You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:

#### Services

Azure Blob Storage

Azure Data Box

Azure Data Box Gateway

Azure Data Lake Storage

Azure File Sync

Azure Files

#### Answer Area

Azure subscription:

Service

On-premises network:

Service



Azure Files

Azure File Sync

Azure Data Box

Azure Data Box Gateway

Azure Data Lake Storage

Azure File Sync

Azure Blob Storage

Azure File Sync

Correct

Correct Answer:

Services	Answer Area
Azure Blob Storage	Azure subscription: <b>Azure Files</b>
Azure Data Box	On-premises network: <b>Azure File Sync</b>
Azure Data Box Gateway	
Azure Data Lake Storage	

Box 1: Azure Files –

Scenario: App2 has the following file storage requirements:

Save files to an Azure Storage account.

Replicate files to an on-premises location.

Ensure that on-premises clients can read the files over the LAN by using the SMB protocol.

Box 2: Azure File Sync –

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. You can use any protocol that's available on Windows Server to access your data locally, including SMB, NFS, and FTPS. You can have as many caches as you need across the world.

Reference:

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

## 18. Question

Case Study –

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To start the case study –

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Existing Environment –

Technical Environment –

The on-premises network contains a single Active Directory domain named contoso.com.

Contoso has a single Azure subscription.

Business Partnerships –

Contoso has a business partnership with Fabrikam, Inc. Fabrikam users access some Contoso applications over the internet by using Azure Active Directory

(Azure AD) guest accounts.

Requirements –

Planned Changes –

Contoso plans to deploy two applications named App1 and App2 to Azure.

App1 –

App1 will be a Python web app hosted in Azure App Service that requires a Linux runtime. Users from Contoso and Fabrikam will access App1.

App1 will access several services that require third-party credentials and access strings. The credentials and access strings are stored in Azure Key Vault.

App1 will have six instances: three in the East US Azure region and three in the West Europe Azure region.

App1 has the following data requirements:

Each instance will write data to a data store in the same availability zone as the instance.

Data written by any App1 instance must be visible to all App1 instances.

App1 will only be accessible from the internet. App1 has the following connection requirements:

Connections to App1 must pass through a web application firewall (WAF).

Connections to App1 must be active-active load balanced between instances.

All connections to App1 from North America must be directed to the East US region. All other connections must be directed to the West Europe region.

Every hour, you will run a maintenance task by invoking a PowerShell script that copies files from all the App1 instances. The PowerShell script will run from a central location.

App2 –

App2 will be a .NET app hosted in App Service that requires a Windows runtime. App2 has the following file storage requirements:

Save files to an Azure Storage account.

Replicate files to an on-premises location.

Ensure that on-premises clients can read the files over the LAN by using the SMB protocol.

You need to monitor App2 to analyze how long it takes to perform different transactions within the application. The solution must not require changes to the application code.

#### Application Development Requirements

Application developers will constantly develop new versions of App1 and App2. The development process must meet the following requirements:

A staging instance of a new application version must be deployed to the application host before the new version is used in production.

After testing the new version, the staging version of the application will replace the production version.

The switch to the new application version from staging to production must occur without any downtime of the application.

#### Identity Requirements –

Contoso identifies the following requirements for managing Fabrikam access to resources:

Every month, an account manager at Fabrikam must review which Fabrikam users have access permissions to App1. Accounts that no longer need permissions must be removed as guests.

The solution must minimize development effort.

#### Security Requirement –

All secrets used by Azure services must be stored in Azure Key Vault.

Services that require credentials must have the credentials tied to the service instance. The credentials must NOT be shared between services.

#### QUESTION

You need to recommend a solution that meets the data requirements for App1.

What should you recommend deploying to each availability zone that contains an instance of App1?

an Azure Cosmos DB that uses multi-region writes

an Azure Data Lake store that uses geo-zone-redundant storage (GZRS)

an Azure SQL database that uses active geo-replication

an Azure Storage account that uses geo-zone-redundant storage (GZRS)

#### Incorrect

Scenario: App1 has the following data requirements:

Each instance will write data to a data store in the same availability zone as the instance.

Data written by any App1 instance must be visible to all App1 instances.

Azure Cosmos DB: Each partition across all the regions is replicated. Each region contains all the data partitions of an Azure Cosmos container and can serve reads as well as serve writes when multi-region writes is enabled.

Incorrect Answers:

B, D: GZRS protects against failures. Geo-redundant storage (with GRS or GZRS) replicates your data to another physical location in the secondary region to protect against regional outages. However, that data is available to be read only if the customer or Microsoft initiates a failover from the primary to secondary region.

C: Active geo-replication is designed as a business continuity solution that lets you perform quick disaster recovery of individual databases in case of a regional disaster or a large scale outage. Once geo-replication is set up, you can initiate a geo-failover to a geo-secondary in a different Azure region. The geo-failover is initiated programmatically by the application or manually by the user.

Reference:

<https://docs.microsoft.com/en-us/azure/cosmos-db/high-availability>

## 19. Question

Your company has 300 virtual machines hosted in a VMware environment. The virtual machines vary in size and have various utilization levels.

You plan to move all the virtual machines to Azure.

You need to recommend how many and what size Azure virtual machines will be required to move the current workloads to Azure. The solution must minimize administrative effort.

What should you use to make the recommendation?

- Azure Pricing calculator
- Azure Cost Management
- Azure Advisor
- Azure Migrate

### Incorrect

“Metadata discovered by the Azure Migrate appliance helps you to figure out whether servers are ready for migration to Azure, right-size servers, plans costs, and analyze application dependencies”.

<https://docs.microsoft.com/en-us/azure/migrate/migrate-appliance#collected-data---vmware>

<https://docs.microsoft.com/en-us/azure/migrate/migrate-appliance>

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

## 20. Question

You plan provision a High Performance Computing (HPC) cluster in Azure that will use a third-party scheduler.

You need to recommend a solution to provision and manage the HPC cluster node.

What should you include in the recommendation?

Azure Automation Azure CycleCloud Azure Purview Azure Lighthouse

### Incorrect

You can dynamically provision Azure HPC clusters with Azure CycleCloud.

Azure CycleCloud is the simplest way to manage HPC workloads.

Note: Azure CycleCloud is an enterprise-friendly tool for orchestrating and managing High Performance Computing (HPC) environments on Azure. With

CycleCloud, users can provision infrastructure for HPC systems, deploy familiar HPC schedulers, and automatically scale the infrastructure to run jobs efficiently at any scale. Through CycleCloud, users can create different types of file systems and mount them to the compute cluster nodes to support HPC workloads.

Reference:

<https://docs.microsoft.com/en-us/azure/cyclecloud/overviewCommunity> vote distributionB (100%)

## 21. Question

You are designing an Azure App Service web app.

You plan to deploy the web app to the North Europe Azure region and the West Europe Azure region.

You need to recommend a solution for the web app. The solution must meet the following requirements:

Users must always access the web app from the North Europe region, unless the region fails.

The web app must be available to users if an Azure region is unavailable.

Deployment costs must be minimized.

What should you include in the recommendation? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Request routing method:

	▼
A Traffic Manager profile	
Azure Application Gateway	
Azure Load Balancer	

Request routing configuration:

	▼
Cookie-based session affinity	
Performance traffic routing	
Priority traffic routing	
Weighted traffic routing	

 A Traffic Manager profile

Priority traffic routing

 Azure Load Balancer

Weighted traffic routing

 Azure Application Gateway

Performance traffic routing

 Azure Application Gateway

Cookie-based session affinity

Correct

**Answer Area**

Request routing method:

	▼
A Traffic Manager profile	
Azure Application Gateway	
Azure Load Balancer	

Request routing configuration:

	▼
Cookie-based session affinity	
Performance traffic routing	
Priority traffic routing	
Weighted traffic routing	

Box-1: Traffic manager

Box-2: Priority traffic routing

Traffic manager and priority based routing.

<https://docs.microsoft.com/en-us/azure/traffic-manager/traffic-manager-routing-methods>

## 22. Question

Your company has the infrastructure shown in the following table.

Location	Resource
Azure	<ul style="list-style-type: none"><li>Azure subscription named Subscription1</li><li>20 Azure web apps</li></ul>
On-premises datacenter	<ul style="list-style-type: none"><li>Active Directory domain</li><li>Server running Azure AD Connect</li><li>Linux computer named Server1</li></ul>

The on-premises Active Directory domain syncs to Azure Active Directory (Azure AD).

Server1 runs an application named Appl that uses LDAP queries to verify user identities in the on-premises Active Directory domain.

You plan to migrate Server1 to a virtual machine in Subscription1.

A company security policy states that the virtual machines and services deployed to Subscription1 must be prevented from accessing the on-premises network.

You need to recommend a solution to ensure that Appl continues to function after the migration. The solution must meet the security policy.

What should you include in the recommendation?

Azure AD Domain Services (Azure AD DS)

- an Azure VPN gateway
- the Active Directory Domain Services role on a virtual machine
- Azure AD Application Proxy

Correct

<https://docs.microsoft.com/en-us/azure/active-directory-domain-services/overview>

Azure Active Directory Domain Services (Azure AD DS) provides managed domain services such as domain join, group policy, lightweight directory access protocol (LDAP), and Kerberos/NTLM authentication

Azure AD Domain Services (Azure AD DS) – This one could work since AAD DS will bring in the existing accounts from Azure AD which in turn are synchronized from on-premise AD over AD connect. However, you would probably need to reconfigure the app and update the LDAP connection

Azure Active Directory (Azure AD) supports LDAP Authentication via Azure AD Domain Services (AD DS).

<https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/auth-ldap>

<https://docs.microsoft.com/en-us/azure/active-directory-domain-services/synchronization>

## 23. Question

### Case Study –

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### To start the case study –

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### Existing Environment –

#### Azure Environment –

Litware has 10 Azure subscriptions that are linked to the Litware.com tenant and five Azure subscriptions that are linked to the dev.litware.com tenant. All the subscriptions are in an Enterprise Agreement (EA).

The litware.com tenant contains a custom Azure role-based access control (Azure RBAC) role named Role1 that grants the DataActions read permission to the blobs and files in Azure Storage.

#### On-Premises Environment –

The on-premises network of Litware contains the resources shown in the following table.

Name	Type	Configuration
SERVER1 SERVER2 SERVER3	Ubuntu 18.04 virtual machines hosted on Hyper-V	The virtual machines host a third-party app named App1. App1 uses an external storage solution that provides Apache Hadoop-compatible data storage. The data storage supports POSIX access control list (ACL) file-level permissions.
SERVER10	Server that runs Windows Server 2016	The server contains a Microsoft SQL Server instance that hosts two databases named DB1 and DB2.

#### Network Environment –

Litware has ExpressRoute connectivity to Azure.

#### Planned Changes and Requirements

Litware plans to implement the following changes:

Migrate DB1 and DB2 to Azure.

Migrate App1 to Azure virtual machines.

Migrate the external storage used by App1 to Azure Storage.

Deploy the Azure virtual machines that will host App1 to Azure dedicated hosts.

#### Authentication and Authorization Requirements

Litware identifies the following authentication and authorization requirements:

Only users that manage the production environment by using the Azure portal must connect from a hybrid Azure AD-joined device and authenticate by using Azure Multi-Factor Authentication (MFA).

The Network Contributor built-in RBAC role must be used to grant permissions to the network administrators for all the virtual networks in all the Azure subscriptions.

To access the resources in Azure, App1 must use the managed identity of the virtual machines that will host the app.

RBAC roles must be applied at the highest level possible.

#### Resiliency Requirements –

Litware identifies the following resiliency requirements:

Once migrated to Azure, DB1 and DB2 must meet the following requirements:

- Maintain availability if two availability zones in the local Azure region fail.
- Fail over automatically.
- Minimize I/O latency.

App1 must meet the following requirements:

- Be hosted in an Azure region that supports availability zones.
- Be hosted on Azure virtual machines that support automatic scaling.
- Maintain availability if two availability zones in the local Azure region fail.

#### Security and Compliance Requirements

Litware identifies the following security and compliance requirements:

Once App1 is migrated to Azure, you must ensure that new data can be written to the app, and the modification of new and existing data is prevented for a period of three years.

On-premises users and services must be able to access the Azure Storage account that will host the data in App1.

Access to the public endpoint of the Azure Storage account that will host the App1 data must be prevented.

All Azure SQL databases in the production environment must have Transparent Data Encryption (TDE) enabled.

App1 must NOT share physical hardware with other workloads.

#### Business Requirements –

Litware identifies the following business requirements:

Minimize administrative effort.

Minimize costs.

#### QUESTION

You plan to migrate App1 to Azure. The solution must meet the authentication and authorization

requirements.

Which type of endpoint should App1 use to obtain an access token?

- Azure Instance Metadata Service (IMDS)
- Azure AD
- Azure Service Management
- Microsoft identity platform

#### Incorrect

Scenario: To access the resources in Azure, App1 must use the managed identity of the virtual machines that will host the app.

Managed identities provide an identity for applications to use when connecting to resources that support Azure Active Directory (Azure AD) authentication.

Applications may use the managed identity to obtain Azure AD tokens.

Reference:

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

## 24. Question

You have an Azure Active Directory (Azure AD) tenant named contoso.com that has a security group named Group1.

Group1 is configured for assigned membership. Group1 has 50 members, including 20 guest users.

You need to recommend a solution for evaluating the membership of Group1. The solution must meet the following

requirements:

The evaluation must be repeated automatically every three months.

Every member must be able to report whether they need to be in Group1.

Users who report that they do not need to be in Group1 must be removed from Group1 automatically.

Users who do not report whether they need to be in Group1 must be removed from Group1 automatically.

What should you include in the recommendation?

- Implement Azure AD Identity Protection.
- Change the Membership type of Group1 to Dynamic User.
- Create an access review.
- Implement Azure AD Privileged Identity Management (PIM).

#### Incorrect

Have reviews recur periodically: You can set up recurring access reviews of users at set frequencies such as weekly, monthly, quarterly or annually, and the reviewers will be notified at the start of each review. Reviewers can approve or deny access with a friendly interface and with the help of smart recommendations.

Reference:

<https://docs.microsoft.com/en-us/azure/active-directory/governance/access-reviews-overview#learn-about-accessreviews>

## 25. Question

You need to ensure that users managing the production environment are registered for Azure MFA and must authenticate by using Azure MFA when they sign in to the Azure portal. The solution must meet the authentication and authorization requirements.

What should you do? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

### Answer Area

To register the users for Azure MFA, use:

Azure AD Identity Protection
Security defaults in Azure AD
Per-user MFA in the MFA management UI

To enforce Azure MFA authentication, configure:

Grant control in capolicy1
Session control in capolicy1
Sign-in risk policy in Azure AD Identity Protection for the Litware.com tenant

Azure AD Identity Protection

Grant control in capolicy1

Security defaults in Azure AD

Session control in capolicy1

Per-user MFA in the MFA management UI

Grant control in capolicy1

### Incorrect

Box1: Azure AD Identity Protection

Litware.com has Conditional Access Policy. Don't enable or enforce per-user Azure AD Multi-Factor Authentication if you use Conditional Access policies.

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

Therefor it should NOT be Per user MFA

Box2: Grant control in capolicy1

Enabling Azure AD Multi-Factor Authentication using Conditional Access policies is the recommended approach to protect users. Conditional Access is an Azure AD Premium P1 or P2 feature that lets you apply rules to require MFA as needed in certain scenarios. Grant Control is one step in process to enable MFA in Conditional Access Policy.

## 26. Question

Case Study –

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Existing Environment –

Azure Environment –

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On-Premises Environment –

The on-premises network of Litware contains the resources shown in the following table.

Name	Type	Configuration
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SERVER10	Server that runs Windows Server 2016	The server contains a Microsoft SQL Server instance that hosts two databases named DB1 and DB2.

Network Environment –

Litware has ExpressRoute connectivity to Azure.

Planned Changes and Requirements

Litware plans to implement the following changes:

Migrate DB1 and DB2 to Azure.

Migrate App1 to Azure virtual machines.

Migrate the external storage used by App1 to Azure Storage.

Deploy the Azure virtual machines that will host App1 to Azure dedicated hosts.

Authentication and Authorization Requirements

Litware identifies the following authentication and authorization requirements:

Only users that manage the production environment by using the Azure portal must connect from a hybrid Azure AD-joined device and authenticate by using

Azure Multi-Factor Authentication (MFA).

The Network Contributor built-in RBAC role must be used to grant permissions to the network

administrators for all the virtual networks in all the Azure subscriptions.

To access the resources in Azure, App1 must use the managed identity of the virtual machines that will host the app.

RBAC roles must be applied at the highest level possible.

Resiliency Requirements –

Litware identifies the following resiliency requirements:

Once migrated to Azure, DB1 and DB2 must meet the following requirements:

- Maintain availability if two availability zones in the local Azure region fail.
- Fail over automatically.
- Minimize I/O latency.

App1 must meet the following requirements:

- Be hosted in an Azure region that supports availability zones.
- Be hosted on Azure virtual machines that support automatic scaling.
- Maintain availability if two availability zones in the local Azure region fail.

Security and Compliance Requirements

Litware identifies the following security and compliance requirements:

Once App1 is migrated to Azure, you must ensure that new data can be written to the app, and the modification of new and existing data is prevented for a period of three years.

On-premises users and services must be able to access the Azure Storage account that will host the data in App1.

Access to the public endpoint of the Azure Storage account that will host the App1 data must be prevented.

All Azure SQL databases in the production environment must have Transparent Data Encryption (TDE) enabled.

App1 must NOT share physical hardware with other workloads.

Business Requirements –

Litware identifies the following business requirements:

Minimize administrative effort.

Minimize costs.

#### QUESTION

You plan to migrate App1 to Azure.

You need to recommend a high-availability solution for App1. The solution must meet the resiliency requirements.

What should you include in the recommendation? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

#### Answer Area

Number of host groups:

1
2
3
6

Number of virtual machine scale sets:

0
1
3

1

1

3

3

2

3

6

1

## Correct

Box 1: 3 –

Scenario: App1 must meet the following requirements:

Be hosted in an Azure region that supports availability zones.

Maintain availability if two availability zones in the local Azure region fail.

A host group is a resource that represents a collection of dedicated hosts. You create a host group in a region and an availability zone, and add hosts to it.

Use Availability Zones for fault isolation

Availability zones are unique physical locations within an Azure region. Each zone is made up of one or more datacenters equipped with independent power, cooling, and networking. A host group is created in a single availability zone. Once created, all hosts will be placed within that zone. To achieve high availability across zones, you need to create multiple host groups (one per zone) and spread your hosts accordingly.

Box 2: 3 –

When using Virtual Machine Scale Sets with Dedicated Hosts, they must be linked to a Host Group. Thus if we have 3 Host Groups we also need 3 Scale Sets.

[https://docs.microsoft.com/en-us/azure/virtual-machines/dedicated-hosts-how-to?  
tabs=portal%2Cportal2#create-a-scale-set](https://docs.microsoft.com/en-us/azure/virtual-machines/dedicated-hosts-how-to?tabs=portal%2Cportal2#create-a-scale-set)

## 27. Question

Case Study –

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Existing Environment –

#### Azure Environment –

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SERVER10	Server that runs Windows Server 2016	The server contains a Microsoft SQL Server instance that hosts two databases named DB1 and DB2.

#### Network Environment –

Litware has ExpressRoute connectivity to Azure.

#### Planned Changes and Requirements

Litware plans to implement the following changes:

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Migrate App1 to Azure virtual machines.

Migrate the external storage used by App1 to Azure Storage.

Deploy the Azure virtual machines that will host App1 to Azure dedicated hosts.

#### Authentication and Authorization Requirements

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Only users that manage the production environment by using the Azure portal must connect from a hybrid Azure AD-joined device and authenticate by using

Azure Multi-Factor Authentication (MFA).

The Network Contributor built-in RBAC role must be used to grant permissions to the network administrators for all the virtual networks in all the Azure subscriptions.

To access the resources in Azure, App1 must use the managed identity of the virtual machines that will host the app.

RBAC roles must be applied at the highest level possible.

#### Resiliency Requirements –

Litware identifies the following resiliency requirements:

Once migrated to Azure, DB1 and DB2 must meet the following requirements:

- Maintain availability if two availability zones in the local Azure region fail.
- Fail over automatically.
- Minimize I/O latency.

App1 must meet the following requirements:

- Be hosted in an Azure region that supports availability zones.
- Be hosted on Azure virtual machines that support automatic scaling.
- Maintain availability if two availability zones in the local Azure region fail.

#### Security and Compliance Requirements

Litware identifies the following security and compliance requirements:

Once App1 is migrated to Azure, you must ensure that new data can be written to the app, and the modification of new and existing data is prevented for a period of three years.

On-premises users and services must be able to access the Azure Storage account that will host the data in App1.

Access to the public endpoint of the Azure Storage account that will host the App1 data must be prevented.

All Azure SQL databases in the production environment must have Transparent Data Encryption (TDE) enabled.

App1 must NOT share physical hardware with other workloads.

#### Business Requirements –

Litware identifies the following business requirements:

Minimize administrative effort.

Minimize costs.

#### QUESTION

#### HOTSPOT –

How should the migrated databases DB1 and DB2 be implemented in Azure?

Hot Area:

## Answer Area

Database:

A single Azure SQL database
Azure SQL Managed Instance
An Azure SOL Database elastic pool

Service tier:

Hyperscale
Business Critical
General Purpose

Azure SQL Managed Instance

Business Critical

A single Azure SQL database

General Purpose

An Azure SOL Database elastic pool

Hyperscale

Azure SQL Managed Instance

General Purpose

Correct

## Answer Area

Database:

A single Azure SQL database

Azure SQL Managed Instance

An Azure SOL Database elastic pool

Service tier:

Hyperscale

Business Critical

General Purpose

Box 1: SQL Managed Instance –

Scenario: Once migrated to Azure, DB1 and DB2 must meet the following requirements:

Maintain availability if two availability zones in the local Azure region fail.

Fail over automatically.

Minimize I/O latency.

The auto-failover groups feature allows you to manage the replication and failover of a group of databases on a server or all databases in a managed instance to another region. It is a declarative abstraction on top of the existing active geo-replication feature, designed to simplify deployment and management of geo-replicated databases at scale. You can initiate a geo-failover manually or you can delegate it to the Azure service based on a user-defined policy. The latter option allows you to automatically recover multiple related databases in a secondary region after a catastrophic failure or other unplanned event that results in full or partial loss of the SQL Database or SQL Managed Instance availability in the primary region.

Box 2: Business critical –

SQL Managed Instance is available in two service tiers:

General purpose: Designed for applications with typical performance and I/O latency requirements.

Business critical: Designed for applications with low I/O latency requirements and minimal impact of underlying maintenance operations on the workload.

**Reference:**

<https://docs.microsoft.com/en-us/azure/azure-sql/database/auto-failover-group-overview>

<https://docs.microsoft.com/en-us/azure/azure-sql/managed-instance/sql-managed-instance-paas-overview>

## 28. Question

**Case Study –**

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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.

**Existing Environment –****Azure Environment –**

Litware has 10 Azure subscriptions that are linked to the Litware.com tenant and five Azure subscriptions that are linked to the dev.litware.com tenant. All the subscriptions are in an Enterprise Agreement (EA). The litware.com tenant contains a custom Azure role-based access control (Azure RBAC) role named Role1 that grants the DataActions read permission to the blobs and files in Azure Storage.

**On-Premises Environment –**

The on-premises network of Litware contains the resources shown in the following table.

Name	Type	Configuration
SERVER1 SERVER2 SERVER3	Ubuntu 18.04 virtual machines hosted on Hyper-V	The virtual machines host a third-party app named App1. App1 uses an external storage solution that provides Apache Hadoop-compatible data storage. The data storage supports POSIX access control list (ACL) file-level permissions.
SERVER10	Server that runs Windows Server 2016	The server contains a Microsoft SQL Server instance that hosts two databases named DB1 and DB2.

Network Environment –

Litware has ExpressRoute connectivity to Azure.

Planned Changes and Requirements

Litware plans to implement the following changes:

Migrate DB1 and DB2 to Azure.

Migrate App1 to Azure virtual machines.

Migrate the external storage used by App1 to Azure Storage.

Deploy the Azure virtual machines that will host App1 to Azure dedicated hosts.

Authentication and Authorization Requirements

Litware identifies the following authentication and authorization requirements:

Only users that manage the production environment by using the Azure portal must connect from a hybrid Azure AD-joined device and authenticate by using

Azure Multi-Factor Authentication (MFA).

The Network Contributor built-in RBAC role must be used to grant permissions to the network

administrators for all the virtual networks in all the Azure subscriptions.

To access the resources in Azure, App1 must use the managed identity of the virtual machines that will host the app.

RBAC roles must be applied at the highest level possible.

Resiliency Requirements –

Litware identifies the following resiliency requirements:

Once migrated to Azure, DB1 and DB2 must meet the following requirements:

- Maintain availability if two availability zones in the local Azure region fail.
- Fail over automatically.
- Minimize I/O latency.

App1 must meet the following requirements:

- Be hosted in an Azure region that supports availability zones.
- Be hosted on Azure virtual machines that support automatic scaling.
- Maintain availability if two availability zones in the local Azure region fail.

Security and Compliance Requirements

Litware identifies the following security and compliance requirements:

Once App1 is migrated to Azure, you must ensure that new data can be written to the app, and the modification of new and existing data is prevented for a period of three years.

On-premises users and services must be able to access the Azure Storage account that will host the data in App1.

Access to the public endpoint of the Azure Storage account that will host the App1 data must be prevented.

All Azure SQL databases in the production environment must have Transparent Data Encryption (TDE) enabled.

App1 must NOT share physical hardware with other workloads.

Business Requirements –

Litware identifies the following business requirements:

Minimize administrative effort.

Minimize costs.

#### QUESTION

You need to configure an Azure policy to ensure that the Azure SQL databases have TDE enabled. The solution must meet the security and compliance requirements.

Which three actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

Select and Place:

Actions	Answer Area
Create an Azure policy definition that uses the deployIfNotExists effect.	
Create a user-assigned managed identity.	
Invoke a remediation task.	 
Create an Azure policy assignment.	
Create an Azure policy definition that uses the Modify effect.	

Create an Azure policy definition that uses the deployIfNotExists effect.

Create an Azure policy assignment.

Invoke a remediation task

Create a user-assigned managed identity.

Create an Azure policy assignment.

Invoke a remediation task.

Create a user-assigned managed identity.

Create an Azure policy definition that uses the Modify effect.

Create an Azure policy definition that uses the deployIfNotExists effect.

**Correct**

Correct Answer:

**Actions**

Create a user-assigned managed identity.

Create an Azure policy definition that uses the Modify effect.

**Answer Area**

Create an Azure policy definition that uses the deployIfNotExists effect.

Create an Azure policy assignment.

Invoke a remediation task.



Scenario: All Azure SQL databases in the production environment must have Transparent Data Encryption (TDE) enabled.

Step 1: Create an Azure policy definition that uses the deployIfNotExists identity.

The first step is to define the roles that deployIfNotExists and modify needs in the policy definition to successfully deploy the content of your included template.

Step 2: Create an Azure policy assignment

When creating an assignment using the portal, Azure Policy both generates the managed identity and grants it the roles defined in roleDefinitionIds.

Step 3: Invoke a remediation task

Resources that are non-compliant to a deployIfNotExists or modify policy can be put into a compliant state through Remediation. Remediation is accomplished by instructing Azure Policy to run the deployIfNotExists effect or the modify operations of the assigned policy on your existing resources and subscriptions, whether that assignment is to a management group, a subscription, a resource group, or an individual resource.

During evaluation, the policy assignment with deployIfNotExists or modify effects determines if there are non-compliant resources or subscriptions. When non-compliant resources or subscriptions are found, the details are provided on the Remediation page.

Reference:

<https://docs.microsoft.com/en-us/azure/governance/policy/how-to/remediate-resources>

29. Question

### Case Study –

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### To start the case study –

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### Existing Environment –

#### Azure Environment –

Litware has 10 Azure subscriptions that are linked to the Litware.com tenant and five Azure subscriptions that are linked to the dev.litware.com tenant. All the subscriptions are in an Enterprise Agreement (EA). The litware.com tenant contains a custom Azure role-based access control (Azure RBAC) role named Role1 that grants the DataActions read permission to the blobs and files in Azure Storage.

#### On-Premises Environment –

The on-premises network of Litware contains the resources shown in the following table.

Name	Type	Configuration
SERVER1	Ubuntu 18.04 virtual machines hosted on Hyper-V	The virtual machines host a third-party app named App1. App1 uses an external storage solution that provides Apache Hadoop-compatible data storage. The data storage supports POSIX access control list (ACL) file-level permissions.
SERVER2		
SERVER3		
SERVER10	Server that runs Windows Server 2016	The server contains a Microsoft SQL Server instance that hosts two databases named DB1 and DB2.

### Network Environment –

Litware has ExpressRoute connectivity to Azure.

### Planned Changes and Requirements

Litware plans to implement the following changes:

Migrate DB1 and DB2 to Azure.

Migrate App1 to Azure virtual machines.

Migrate the external storage used by App1 to Azure Storage.

Deploy the Azure virtual machines that will host App1 to Azure dedicated hosts.

#### Authentication and Authorization Requirements

Litware identifies the following authentication and authorization requirements:

Only users that manage the production environment by using the Azure portal must connect from a hybrid Azure AD-joined device and authenticate by using

Azure Multi-Factor Authentication (MFA).

The Network Contributor built-in RBAC role must be used to grant permissions to the network administrators for all the virtual networks in all the Azure subscriptions.

To access the resources in Azure, App1 must use the managed identity of the virtual machines that will host the app.

RBAC roles must be applied at the highest level possible.

#### Resiliency Requirements –

Litware identifies the following resiliency requirements:

Once migrated to Azure, DB1 and DB2 must meet the following requirements:

- Maintain availability if two availability zones in the local Azure region fail.
- Fail over automatically.
- Minimize I/O latency.

App1 must meet the following requirements:

- Be hosted in an Azure region that supports availability zones.
- Be hosted on Azure virtual machines that support automatic scaling.
- Maintain availability if two availability zones in the local Azure region fail.

#### Security and Compliance Requirements

Litware identifies the following security and compliance requirements:

Once App1 is migrated to Azure, you must ensure that new data can be written to the app, and the modification of new and existing data is prevented for a period of three years.

On-premises users and services must be able to access the Azure Storage account that will host the data in App1.

Access to the public endpoint of the Azure Storage account that will host the App1 data must be prevented.

All Azure SQL databases in the production environment must have Transparent Data Encryption (TDE) enabled.

App1 must NOT share physical hardware with other workloads.

#### Business Requirements –

Litware identifies the following business requirements:

Minimize administrative effort.

Minimize costs.

#### QUESTION

You plan to migrate App1 to Azure.

You need to estimate the compute costs for App1 in Azure. The solution must meet the security and

compliance requirements.

What should you use to estimate the costs, and what should you implement to minimize the costs? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

## Answer Area

To estimate the costs, use:

- Azure Advisor
- The Azure Cost Management Power BI app
- The Azure Total Cost of Ownership (TCO) calculator

Implement:

- Azure Reservations
- Azure Hybrid Benefit
- Azure Spot Virtual Machine pricing

The Azure Total Cost of Ownership (TCO) calculator

Azure Hybrid Benefit

Azure Advisor

Azure Spot Virtual Machine pricing

The Azure Cost Management Power BI app

Azure Reservations

Incorrect

## Answer Area

To estimate the costs, use:

- Azure Advisor
- The Azure Cost Management Power BI app
- The Azure Total Cost of Ownership (TCO) calculator

Implement:

- Azure Reservations
- Azure Hybrid Benefit
- Azure Spot Virtual Machine pricing

### Box 1: The Azure Total Cost of Ownership (TCO) Calculator

The Total Cost of Ownership (TCO) Calculator estimates the cost savings you can realize by migrating your workloads to Azure.

Note: The TCO Calculator recommends a set of equivalent services in Azure that will support your applications. Our analysis will show each cost area with an estimate of your on-premises spend versus your spend in Azure. There are several cost categories that either decrease or go away completely when you move workloads to the cloud.

### Box 2: Azure Hybrid Benefit –

Azure Hybrid Benefit is a licensing benefit that helps you to significantly reduce the costs of running your workloads in the cloud. It works by letting you use your on-premises Software Assurance-enabled Windows Server and SQL Server licenses on Azure. And now, this benefit applies to RedHat and SUSE Linux subscriptions, too.

Scenario:

Litware identifies the following security and compliance requirements:

Once App1 is migrated to Azure, you must ensure that new data can be written to the app, and the modification of new and existing data is prevented for a period of three years.

On-premises users and services must be able to access the Azure Storage account that will host the data in App1.

Access to the public endpoint of the Azure Storage account that will host the App1 data must be prevented.

All Azure SQL databases in the production environment must have Transparent Data Encryption (TDE) enabled.

App1 must not share physical hardware with other workloads.

Reference:

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

<https://azure.microsoft.com/en-us/pricing/hybrid-benefit/>

## 30. Question

Case Study –

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Existing Environment –

Azure Environment –

Litware has 10 Azure subscriptions that are linked to the Litware.com tenant and five Azure subscriptions that are linked to the dev.litware.com tenant. All the subscriptions are in an Enterprise Agreement (EA).

The litware.com tenant contains a custom Azure role-based access control (Azure RBAC) role named Role1 that grants the DataActions read permission to the blobs and files in Azure Storage.

On-Premises Environment –

The on-premises network of Litware contains the resources shown in the following table.

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SERVER2	Server that runs Windows Server 2016	The server contains a Microsoft SQL Server instance that hosts two databases named DB1 and DB2.
SERVER3		
SERVER10		

Network Environment –

Litware has ExpressRoute connectivity to Azure.

Planned Changes and Requirements

Litware plans to implement the following changes:

Migrate DB1 and DB2 to Azure.

Migrate App1 to Azure virtual machines.

Migrate the external storage used by App1 to Azure Storage.

Deploy the Azure virtual machines that will host App1 to Azure dedicated hosts.

Authentication and Authorization Requirements

Litware identifies the following authentication and authorization requirements:

Only users that manage the production environment by using the Azure portal must connect from a hybrid Azure AD-joined device and authenticate by using

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The Network Contributor built-in RBAC role must be used to grant permissions to the network administrators for all the virtual networks in all the Azure subscriptions.

To access the resources in Azure, App1 must use the managed identity of the virtual machines that will host the app.

RBAC roles must be applied at the highest level possible.

#### Resiliency Requirements –

Litware identifies the following resiliency requirements:

Once migrated to Azure, DB1 and DB2 must meet the following requirements:

- Maintain availability if two availability zones in the local Azure region fail.
- Fail over automatically.
- Minimize I/O latency.

App1 must meet the following requirements:

- Be hosted in an Azure region that supports availability zones.
- Be hosted on Azure virtual machines that support automatic scaling.
- Maintain availability if two availability zones in the local Azure region fail.

#### Security and Compliance Requirements

Litware identifies the following security and compliance requirements:

Once App1 is migrated to Azure, you must ensure that new data can be written to the app, and the modification of new and existing data is prevented for a period of three years.

On-premises users and services must be able to access the Azure Storage account that will host the data in App1.

Access to the public endpoint of the Azure Storage account that will host the App1 data must be prevented.

All Azure SQL databases in the production environment must have Transparent Data Encryption (TDE) enabled.

App1 must NOT share physical hardware with other workloads.

#### Business Requirements –

Litware identifies the following business requirements:

Minimize administrative effort.

Minimize costs.

#### QUESTION

You migrate App1 to Azure.

You need to ensure that the data storage for App1 meets the security and compliance requirements.

What should you do?

Create Azure RBAC assignments.

Create an access policy for the blob service.

Modify the access level of the blob service.

Implement Azure resource locks.

#### Incorrect

“Once App1 is migrated to Azure, you must ensure that new data can be written to the app, and the modification of new and existing data is prevented for a period of three years.”

**Reference:**

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

### 31. Question

You need to design a solution that will execute custom C# code in response to an event routed to Azure Event Grid. The solution must meet the following requirements:

The executed code must be able to access the private IP address of a Microsoft SQL Server instance that runs on an Azure virtual machine.

Costs must be minimized.

What should you include in the solution?

- Azure Logic Apps in the Consumption plan
- Azure Functions in the Premium plan
- Azure Functions in the Consumption plan
- Azure Logic Apps in the integrated service environment

#### Incorrect

Consumption plan cannot access Virtual Network Integration features.

Virtual network integration allows your function app to access resources inside a virtual network.

**Reference:**

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

### 32. Question

You have an Azure subscription named Subscription1 that is linked to a hybrid Azure Active Directory (Azure AD) tenant.

You have an on-premises datacenter that does NOT have a VPN connection to Subscription1. The datacenter contains a computer named Server1 that has

Microsoft SQL Server 2016 installed. Server is prevented from accessing the internet.

An Azure logic app resource named LogicApp1 requires write access to a database on Server1.

You need to recommend a solution to provide LogicApp1 with the ability to access Server1.

What should you recommend deploying on-premises and in Azure? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

On-premises:

A Web Application Proxy for Windows Server
An Azure AD Application Proxy connector
An On-premises data gateway
Hybrid Connection Manager

Azure:

A connection gateway resource
An Azure Application Gateway
An Azure Event Grid domain
An enterprise application

 Hybrid Connection Manager

An Azure Application Gateway

 A Web Application Proxy for Windows Server

An enterprise application

 An Azure AD Application Proxy connector

An Azure Event Grid domain

 A connection gateway resource

An On-premises data gateway

Correct

**Answer Area**

On-premises:

A Web Application Proxy for Windows Server
An Azure AD Application Proxy connector
An On-premises data gateway
Hybrid Connection Manager

Azure:

A connection gateway resource
An Azure Application Gateway
An Azure Event Grid domain
An enterprise application

Box 1: An on-premises data gateway

For logic apps in global, multi-tenant Azure that connect to on-premises SQL Server, you need to have the on-premises data gateway installed on a local computer and a data gateway resource that's already

created in Azure.

Box 2: A connection gateway resource

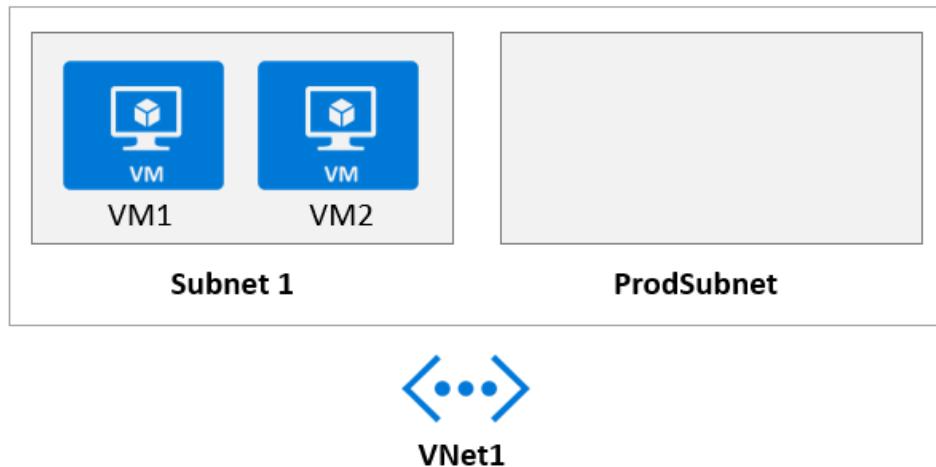
Reference:

<https://docs.microsoft.com/en-us/azure/connectors/connectors-create-api-sqlazure>

### 33. Question

Your company develops a web service that is deployed to an Azure virtual machine named VM1. The web service allows an API to access real-time data from VM1.

The current virtual machine deployment is shown in the Deployment exhibit.



The chief technology officer (CTO) sends you the following email message: “Our developers have deployed the web service to a virtual machine named VM1.

Testing has shown that the API is accessible from VM1 and VM2. Our partners must be able to connect to the API over the Internet. Partners will use this data in applications that they develop.“

You deploy an Azure API Management (APIM) service. The relevant API Management configuration is shown in the API exhibit.

Virtual network	Off	External	Internal	
Location	Virtual network			Subnet
West Europe	VNet1			ProdSubnet

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Statements	Yes	No
------------	-----	----

The API is available to partners over the internet.

The APIM instance can access real-time data from VM1.

A VPN gateway is required for partner access.

YES

NO

YES

YES

YES

NO

NO

YES

YES

YES

NO

NO

Correct

**Answer Area**

Statements	Yes	No
------------	-----	----

The API is available to partners over the internet.

The APIM instance can access real-time data from VM1.

A VPN gateway is required for partner access.

Reference:

<https://docs.microsoft.com/en-us/azure/api-management/api-management-using-with-vnet>

34. Question

Your company has an existing web app that runs on Azure virtual machines.

You need to ensure that the app is protected from SQL injection attempts and uses a layer-7 load balancer.

The solution must minimize disruptions to the code of the app.

What should you recommend? To answer, drag the appropriate services to the correct targets. Each service may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:

**Services**

Web Application Firewall (WAF)

Azure Application Gateway

Azure Load Balancer

Azure Traffic Manager

SSL offloading

URL-based content routing

**Answer Area**

Azure service:

Service

Feature:

Service

Azure Application Gateway

Web Application Firewall (WAF)

URL-based content routing

SSL offloading

Web Application Firewall (WAF)

Azure Load Balancer

URL-based content routing

Azure Traffic Manager

Correct

Services	Answer Area
Web Application Firewall (WAF)	Azure service: <b>Azure Application Gateway</b>
Azure Application Gateway	Feature: <b>Web Application Firewall (WAF)</b>
Azure Load Balancer	
Azure Traffic Manager	
SSL offloading	
URL-based content routing	

#### Box 1: Azure Application Gateway

The Azure Application Gateway Web Application Firewall (WAF) provides protection for web applications. These protections are provided by the Open Web Application Security Project (OWASP) Core Rule Set (CRS).

#### Box 2: Web Application Firewall (WAF)

Reference:

<https://docs.microsoft.com/en-us/azure/web-application-firewall/ag/application-gateway-customize-waf-rules-portal>

### 35. Question

You are designing a microservices architecture that will be hosted in an Azure Kubernetes Service (AKS) cluster. Apps that will consume the microservices will be hosted on Azure virtual machines. The virtual machines and the AKS cluster will reside on the same virtual network.

You need to design a solution to expose the microservices to the consumer apps. The solution must meet the following requirements:

Ingress access to the microservices must be restricted to a single private IP address and protected by using mutual TLS authentication.

The number of incoming microservice calls must be rate-limited.

Costs must be minimized.

What should you include in the solution?

- Azure App Gateway with Azure Web Application Firewall (WAF)
- Azure API Management Standard tier with a service endpoint
- Azure Front Door with Azure Web Application Firewall (WAF)
- Azure API Management Premium tier with virtual network connection

**Correct**

One option is to deploy APIM (API Management) inside the cluster VNet.

The AKS cluster and the applications that consume the microservices might reside within the same VNet, hence there is no reason to expose the cluster publicly as all API traffic will remain within the VNet. For these scenarios, you can deploy API Management into the cluster VNet. API Management Premium tier supports

VNet deployment.

Reference:

<https://docs.microsoft.com/en-us/azure/api-management/api-management-kubernetes>

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