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

DRAG DROP -

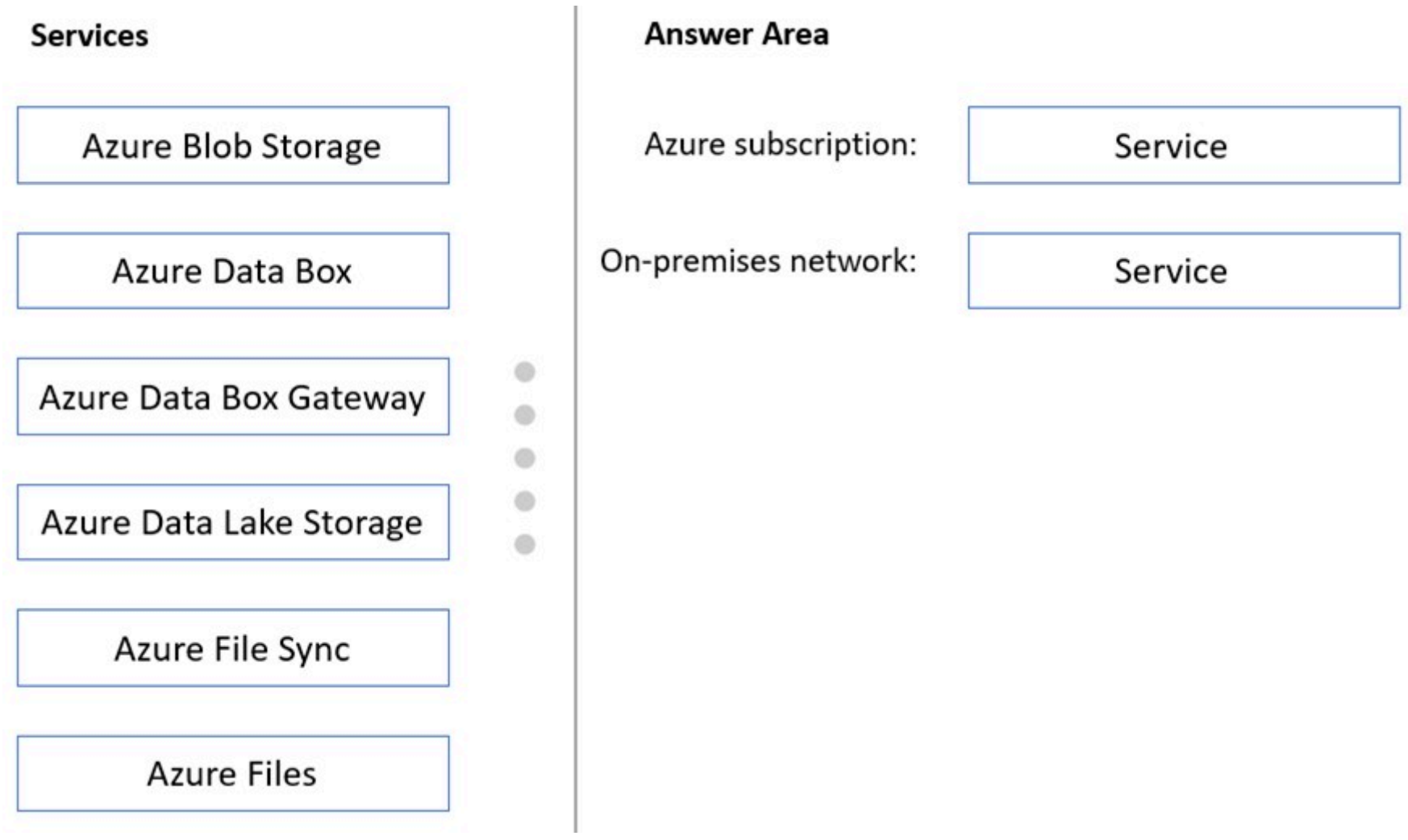
You need to recommend a solution that meets the file storage requirements for App2.

What should you deploy to the Azure subscription and the on-premises network? To answer, drag the appropriate services to the correct locations.

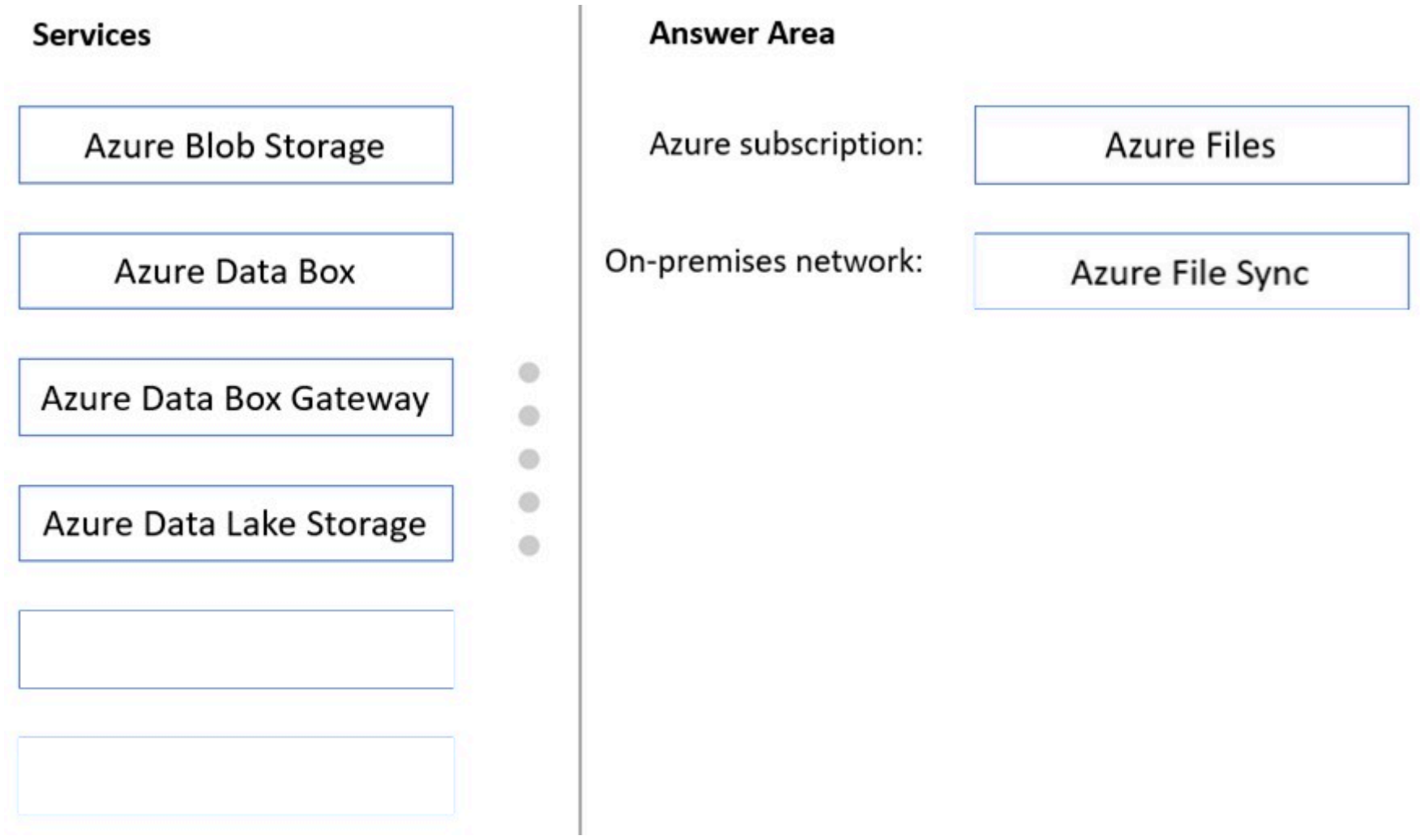
Each service may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:



Correct Answer:



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

Introductory Info

Case Study -

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

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

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

To start the case study -

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

Overview -

Contoso, Ltd. is a research company that has a main office in Montreal.

Existing Environment: Technical Environment

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

Contoso has a single Azure subscription.

Existing Environment: 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.

Requirements: 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.

Requirements: 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?

A. an Azure Cosmos DB that uses multi-region writes

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

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

Correct Answer: *A*
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

Community vote distribution

A (100%)

Topic 14 - Testlet 7

Question #1 *Topic 14*

Introductory Info

Case Study -

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

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

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

To start the case study -

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

Overview -

Contoso, Ltd. is a research company that has a main office in Montreal.

Existing Environment: Technical Environment

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

Contoso has a single Azure subscription.

Existing Environment: 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.

Requirements: 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.

Requirements: 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

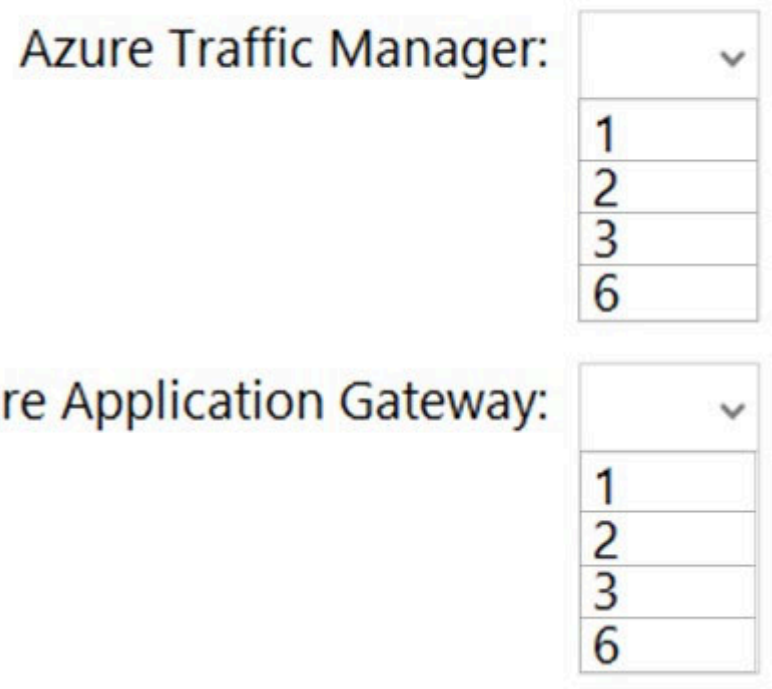
changes to the application code.
Application Development Requirements
Application developers will constantly develop new versions of App1 and App2. The development process must meet the following requirements:
A staging instance of a new application version must be deployed to the application host before 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.

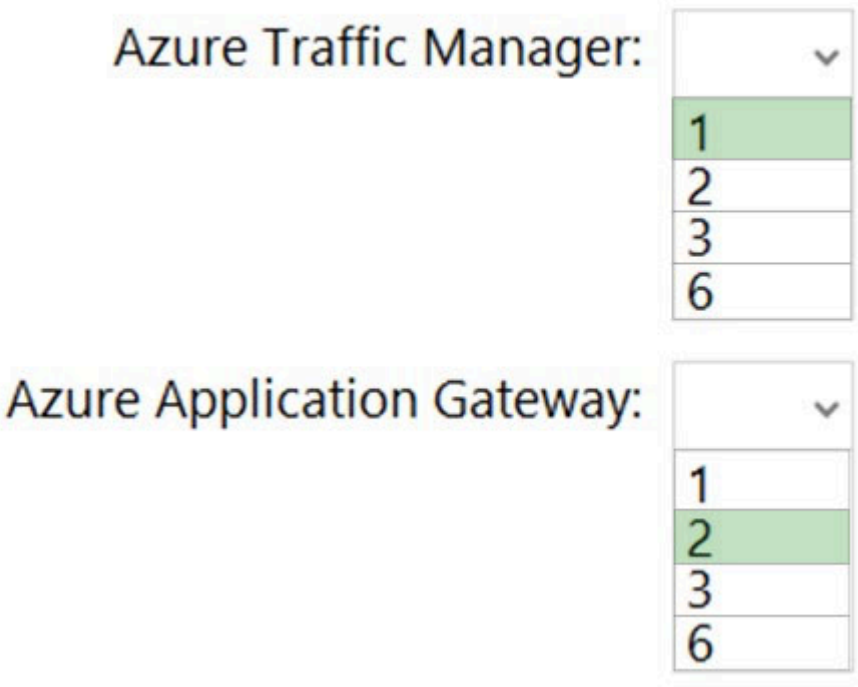
Question
HOTSPOT -
You are evaluating whether to use Azure Traffic Manager and Azure Application Gateway to meet the connection requirements for App1.
What is the minimum numbers of instances required for each service? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.
Hot Area:

Answer Area



Answer Area

Correct Answer:



Box 1: 1 -
App1 will only be accessible from the internet. App1 has the following connection requirements:
ג€¢ Connections to App1 must be active-active load balanced between instances.
ג€¢ 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.
App1 will have six instances: three in the East US Azure region and three in the West Europe Azure region.
Note: Azure Traffic Manager is a DNS-based traffic load balancer. This service allows you to distribute traffic to your public facing applications across the global
Azure regions.

Box 2: 2 -
For production workloads, run at least two gateway instances.
A single Application Gateway deployment can run multiple instances of the gateway.
Use one Application Gateway in East US Region, and one in the West Europe region.
Reference:
https://docs.microsoft.com/en-us/azure/architecture/high-availability/reference-architecture-traffic-manager-application-gateway

Topic 15 - Testlet 8

Question #1 *Topic 15*

Introductory Info

Case Study -

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

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

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

To start the case study -

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

Overview -

Litware, Inc. is a medium-sized finance company that has a main office in Boston.

Existing Environment -

Identity Environment -

The network contains an Active Directory forest named litware.com that is linked to an Azure Active Directory (Azure AD) tenant named litware.com. All users have Azure Active Directory Premium P2 licenses.

Litware has a second Azure AD tenant named dev.litware.com that is used as a development environment.

The litware.com tenant has a Conditional Access policy named Capolicy1. Capolicy1 requires that when users manage the Azure subscription for a production environment by using the Azure portal, they must connect from a hybrid Azure AD-joined device.

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

Planned Changes -
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 to management groups.

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

Answer Area

Database:

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

Correct Answer:

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