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**Exam Code: 70-535**

**Exam Name: Architecting Microsoft Azure Solutions**

**Certification Provider: Microsoft**

**Corresponding Certification: MCP**

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## Testlet 1

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### Background

You are an architect for Trey Research Inc., a software as a service (SaaS) company. The company is developing a new product named **Tails핀** for consumer and small business financial monitoring. The product will be offered as an API to banks and financial institutions. Banks and financial institutions will integrate Tails핀 into their own online banking offerings.

All employees of Trey Research are members of an Active Directory Domain Services (AD DS) group named TREY.

### Technical Requirement

#### Architecture

The Tails핀 product will be implemented in ASP.NET Web API that runs in an Azure Web App.

All application and customer data will be stored in Azure SQL Database instances.

API calls that modify data will be implemented as queue messages in an Azure Storage Queue. Queue messages must expire after 90 minutes.

#### Security

The solution has the following security requirements:

- Common security issues such as SQL injection and XSS must be prevented.
- Database-related security issues must not result in customers' data being exposed.
- Exposure of application source code and deployment artifacts must not result in customer data being exposed.
- Every 90 days, all application code must undergo a security review to ensure that new or changed code does not introduce a security risk.

- Remote code execution in the Web App must not result in the loss of security secrets.

### **Auditing, Monitoring, Alerting**

The solution has the following requirements for auditing, monitoring, and alerting:

- Changes to administrative group membership must be auditable.
- Operations involving encryption keys must be auditable by users in the Azure Key Vault Auditors user role.
- Resources must have monitoring and alerting configured in Azure Security Center.

### **Authorization, authentication**

The solution has the following authentication and authorization requirements:

- Azure Active Directory (Azure AD) must be used to authenticate users.
- Compromised user accounts should be disabled as quickly as possible.
- Only employees of Trey Research Inc. should be able to address automated security recommendations.

### **Service Level agreement**

Failure of any one Azure region must not impact service availability. Customer data must not be lost once accepted by the application.

### **Performance, resource utilization**

The solution must meet the following performance and resource usage requirements:

- Azure costs must be minimized.
- Application performance must remain level, regardless of the geographic location of users.
- All application diagnostic and activity logs must be captured without loss.
- Compute resources must be shared across all databases used by the solution.

### **QUESTION 1**

You need to ensure that authentication requirements are met.

What should you do?

- A. Enable multi-factor authentication.
- B. Enable Azure AD Identity Protection.
- C. Require users to authenticate by using Windows Hello for Business.
- D. Require users to authenticate by using certificate-based authentication.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/multi-factor-authentication/multi-factor-authentication>

## QUESTION 2

You are developing the application security review document.

You need to ensure that application data security requirements are met.

What should you verify?

- A. Azure SQL connections use an account that does have administrative access.
- B. Connection strings use encryption and not trust server certificates.
- C. Azure SQL connections use Azure Key Vault certificates for TLS.
- D. Connection strings are not stored in application code.

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/sql-database/sql-database-security-tutorial>

## QUESTION 3

You need to design the multi-tenant model for storing application and customer data.

Which pattern should you recommend?

- A. Shared database-single
- B. Database-per-tenant with elastic pools
- C. Database-per-tenant without elastic pools
- D. Shared database-sharded

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/sql-database/saas-tenancy-app-design-patterns>

**QUESTION 4**  
DRAG DROP

You need to design the application architecture for each region.

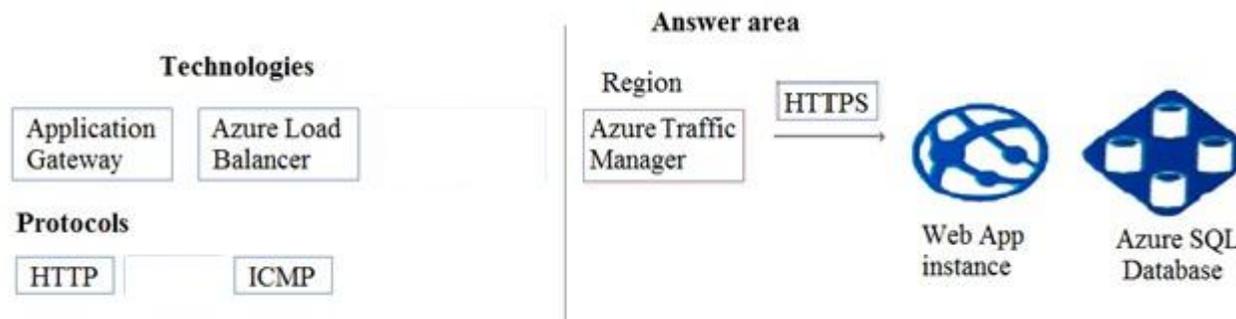
What should you recommend? To answer, drag the appropriate technologies or protocols to the correct locations. Each technology or protocol may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

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

**Select and Place:**



**Correct Answer:**



**Section: [none]**  
**Explanation**

**Explanation/Reference:**

**QUESTION 5**  
HOTSPOT

You need to ensure that source code and deployment artifact security requirements are met.

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

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

**Hot Area:**

**Answer Area**

| Component                                 | Technology  |
|---|---|
| Mechanism to retrieve users and passwords | <div style="border: 1px solid black; padding: 2px;"> <div style="text-align: right; padding-right: 5px;">▼</div> <div style="padding: 2px;">Managed Service Identity</div> <div style="padding: 2px;">TLS mutual authentication</div> <div style="padding: 2px;">X.509 certificate</div> </div> |
| Location of data users and passwords      | <div style="border: 1px solid black; padding: 2px;"> <div style="text-align: right; padding-right: 5px;">▼</div> <div style="padding: 2px;">Azure Key Vault</div> <div style="padding: 2px;">Secret Manager tool</div> <div style="padding: 2px;">Application configuration file</div> </div>   |

**Correct Answer:**

**Answer Area**

| Component                                 | Technology  |
|---|---|
| Mechanism to retrieve users and passwords | <div style="border: 1px solid black; padding: 2px;"><div style="text-align: right; padding-right: 5px;">▼</div><div style="background-color: #e0f2f1; padding: 2px;">Managed Service Identity</div><div style="padding: 2px;">TLS mutual authentication</div><div style="padding: 2px;">X.509 certificate</div></div> |
| Location of data users and passwords      | <div style="border: 1px solid black; padding: 2px;"><div style="text-align: right; padding-right: 5px;">▼</div><div style="background-color: #e0f2f1; padding: 2px;">Azure Key Vault</div><div style="padding: 2px;">Secret Manager tool</div><div style="padding: 2px;">Application configuration file</div></div>   |

**Section: [none]**

**Explanation**

**Explanation/Reference:**

**QUESTION 6**

You need to ensure that the logging, monitoring, and alerting requirements are met.

What should you recommend?

- A. Azure Storage Queue
- B. Azure Cosmos DB
- C. Azure Table storage
- D. Azure Event Hub

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

#### QUESTION 7

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

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

You need to prevent security attacks based on the Tabular Data Stream (TDS) Protocol.

Solution: Enable token-based multi-factor authentication without a gateway appliance.

Does the solution meet the goal?

A. Yes

B. No



**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Anyone using TLS must be mindful of how certificates are validated. The first thing an attacker is likely to try against any TLS implementation is to conduct a man-in-the-middle attack that presents self-signed or otherwise forged certificates to TLS clients (and servers, if client certificates are in use). To its credit, Microsoft's implementation of TDS is safe in the sense that it enables certificate validation by default, which prevents this attack.

From Scenario: Common security issues such as SQL injection and XSS must be prevented. Database-related security issues must not result in customers' data being exposed.

Note:

TDS depends on Transport Layer Security (TLS)/Secure Socket Layer (SSL) for network channel encryption.

The Tabular Data Stream (TDS) Protocol is an application-level protocol used for the transfer of requests and responses between clients and database server systems. In such systems, the client will typically establish a long-lived connection with the server. Once the connection is established using a transport-level

protocol, TDS messages are used to communicate between the client and the server. A database server can also act as the client if needed, in which case a separate TDS connection has to be established.

References:

<https://summitinfosec.com/2017/12/19/advanced-sql-server-mitm-attacks/>

<https://msdn.microsoft.com/en-us/library/dd304492.aspx>

### QUESTION 8

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

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

You need to prevent security attacks based on the Tabular Data Stream (TDS) Protocol.

Solution: Isolate connection to Azure Web Apps and Azure SQL Database instances by implementing a virtual network.

Does the solution meet the goal?

A. Yes

B. No



**Correct Answer: B**

**Section: [none]**

**Explanation**

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

Explanation:

Anyone using TLS must be mindful of how certificates are validated. The first thing an attacker is likely to try against any TLS implementation is to conduct a man-in-the-middle attack that presents self-signed or otherwise forged certificates to TLS clients (and servers, if client certificates are in use). To its credit, Microsoft's implementation of TDS is safe in the sense that it enables certificate validation by default, which prevents this attack.

From Scenario: Common security issues such as SQL injection and XSS must be prevented.

Database-related security issues must not result in customers' data being exposed.

Note:

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separate TDS connection has to be established.

References:

<https://summitinfosec.com/2017/12/19/advanced-sql-server-mitm-attacks/>

<https://msdn.microsoft.com/en-us/library/dd304492.aspx>

### QUESTION 9

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

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

You need to prevent security attacks based on the Tabular Data Stream (TDS) Protocol.

Solution: Use certificate-based authentication for all Azure SQL instances.

Does the solution meet the goal?

A. Yes

B. No

**Correct Answer: A**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

Explanation:

Anyone using TLS must be mindful of how certificates are validated. The first thing an attacker is likely to try against any TLS implementation is to conduct a man-in-the-middle attack that presents self-signed or otherwise forged certificates to TLS clients (and servers, if client certificates are in use). To its credit, Microsoft's implementation of TDS is safe in the sense that it enables certificate validation by default, which prevents this attack.

From Scenario: Common security issues such as SQL injection and XSS must be prevented.

Database-related security issues must not result in customers' data being exposed.

Note:

TDS depends on Transport Layer Security (TLS)/Secure Socket Layer (SSL) for network channel encryption.

The Tabular Data Stream (TDS) Protocol is an application-level protocol used for the transfer of requests and responses between clients and database server systems. In such systems, the client will typically establish a long-lived connection with the server. Once the connection is established using a transport-level protocol, TDS messages are used to communicate between the client and the server. A database server can also act as the client if needed, in which case a separate TDS connection has to be established.

References:

<https://summitinfosec.com/2017/12/19/advanced-sql-server-mitm-attacks/>

<https://msdn.microsoft.com/en-us/library/dd304492.aspx>

**QUESTION 10**

**HOTSPOT**

You need to configure the Azure SQL Database failover group.

Which values should you recommend for each setting? To answer, select the appropriate options in the answer area.

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

**Hot Area:**



## Answer Area

### Configuration Setting

### Value

Failure-condition level

|                                 | ▼ |
|---------------------------------|---|
| OnServerDown                    |   |
| OnServerUnresponsive            |   |
| OnCriticalServerError           |   |
| OnModerateServerError           |   |
| OnAnyQualifiedFailureConditions |   |

Grace period with data loss

|   | ▼ |
|---|---|
| 1 |   |
| 2 |   |
| 3 |   |
| 4 |   |
| 5 |   |

**Correct Answer:**

## Answer Area

### Configuration Setting

### Value

Failure-condition level

|                                 |   |
|---------------------------------|---|
|                                 | ▼ |
| OnServerDown                    |   |
| OnServerUnresponsive            |   |
| OnCriticalServerError           |   |
| OnModerateServerError           |   |
| OnAnyQualifiedFailureConditions |   |

Grace period with data loss

|   |   |
|---|---|
|   | ▼ |
| 1 |   |
| 2 |   |
| 3 |   |
| 4 |   |
| 5 |   |

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Failure Condition: OnCriticalServerError

This is level 3.

On critical server error. Specifies that an automatic failover is initiated on critical SQL Server internal errors, such as orphaned spinlocks, serious write-access violations, or too much dumping.

This is the default level.

Grace period with data loss: 3

Because the primary and secondary databases are synchronized using asynchronous replication, the failover may result in data loss. You can customize the automatic failover policy to reflect your application's tolerance to data loss. By configuring `GracePeriodWithDataLossHours`, you can control how long the system waits before initiating the failover that is likely to result data loss.

From scenario: Failure of any one Azure region must not impact service availability. Customer data must not be lost once accepted by the application.

References:

<https://docs.microsoft.com/en-us/sql/database-engine/availability-groups/windows/flexible-automatic-failover-policy-availability-group?view=sql-server-2017#FClevel>

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

### **QUESTION 11**

**DRAG DROP**

You need to design the application architecture.

What should you do? To answer, drag the appropriate technologies or protocols to the correct locations. Each technology or protocol 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:**

**Protocols**

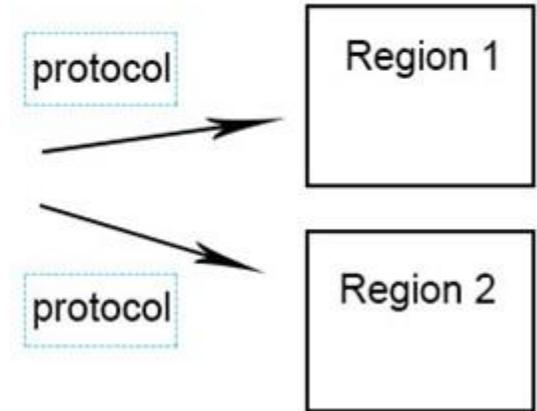
HTTP    HTTPS    ICMP

**Technologies**

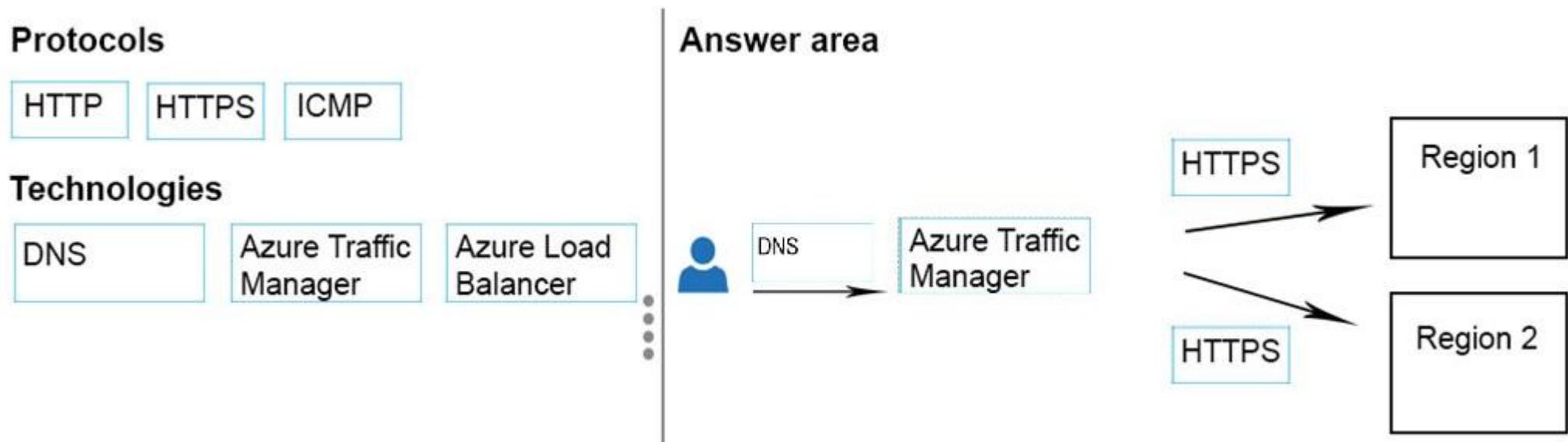
DNS    Azure Traffic Manager    Azure Load Balancer

**Answer area**

 protocol    technology



**Correct Answer:**



**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Microsoft Azure Traffic Manager allows you to control the distribution of user traffic for service endpoints in different datacenters. Service endpoints supported by Traffic Manager include Azure VMs, Web Apps, and cloud services.

Traffic Manager uses the Domain Name System (DNS) to direct client requests to the most appropriate endpoint based on a traffic-routing method and the health of the endpoints.

Scenario:

Failure of any one Azure region must not impact service availability. Customer data must not be lost once accepted by the application. Application performance must remain level, regardless of the geographic location of users.

Incorrect Answers:

Not Load Balancer: The Load Balancer works at the TCP/UDP level.

Reference: <https://docs.microsoft.com/en-us/azure/traffic-manager/traffic-manager-overview>

**QUESTION 12**  
DRAG DROP

You need to ensure that the alerting requirements are met.

To which role should members of the TREY group be added? To answer, drag the appropriate terms to the correct locations. Each term 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:

**Terms**

- Security Reader
- Security Admin
- Monitoring Reader
- RBAC role
- Active Directory group
- Monitoring Contributor

**Answer area**

|  |                                   |
|--|-----------------------------------|
| <input checked="" type="checkbox"/> <b>Security role</b><br>Term | <b>Authorization type</b><br>Term |
|--|-----------------------------------|

**Correct Answer:**

## Terms

Security Reader

Monitoring Reader

Active Directory group

Monitoring Contributor

## Answer area

### Security role

RBAC role

### Authorization type

Security Admin

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

There are two specific Security Center RBAC roles:

**Security Reader:** A user that belongs to this role has viewing rights to Security Center. The user can view recommendations, alerts, a security policy, and security states, but cannot make changes.

**Security Administrator:** A user that belongs to this role has the same rights as the Security Reader and can also update the security policy and dismiss alerts and recommendations.

Scenario:

All employees of Trey Research are members of an Active Directory Domain Services (AD DS) group named TREY.

Only employees of Trey Research Inc. should be able to address automated security recommendations.

The solution has the following requirements for auditing, monitoring, and alerting:  
Changes to administrative group membership must be auditable.  
Operations involving encryption keys must be auditable by users in the Azure Key Vault Auditors user role.  
Resources must have monitoring and alerting configured in Azure Security Center.

Reference: <https://docs.microsoft.com/en-us/azure/security-center/security-center-permissions>

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### Background

You are a software architect for Trey Research Inc., a Software-as-a-Service (SaaS) company that provides text analysis services. Trey Research Inc. has a service that scans text documents and analyzes the content to determine content similarities. These similarities are referred to as categories, and indicate groupings on authorship, opinions, and group affiliation.

The document scanning solution has an Azure Web App that provides the user interface. The web app includes the following pages:

- Document Uploads: This page allows customers to upload documents manually.
- Document Inventory: This page shows a list of all processed documents provided by a customer. The page can be configured to show documents for a selected category.
- Document Upload Sources: This page shows a map and information about the geographic distribution of uploaded documents. This page allows users to filter the map based on assigned categories.

The web application is instrumented with Azure Application Insights. The solution uses Cosmos DB for data storage.

Changes to the web application and data storage are not permitted.

The solution contains an endpoint where customers can directly upload documents from external systems.

### Document processing

## Source Documents

Documents must be in a specific format before they are uploaded to the system. The first four lines of the document must contain the following information. If any of the first four lines are missing or invalid, the document must not be processed.

- the customer account number
- the user who uploaded the document
- the IP address of the person who created the document
- the date and time the document was created

The remaining portion of the documents contain the content that must be analyzed. Prior to processing by the Azure Data Factory pipeline, the document text must be normalized so that words have spaces between them.

## Document Uploads

During the document upload process, the solution must capture information about the geographic location where documents originate. Processing of documents must be automatically triggered when documents are uploaded. Customers must be notified when analysis of their uploaded documents begins.

Uploaded documents must be processed using Azure Machine Learning Studio in an Azure Data Factory pipeline. The machine learning portion of the pipeline is updated once a quarter.

When document processing is complete, the documents and the results of the analysis process must be visible.

## Other requirements

### Business Analysts

Trey Research Inc. business analysts must be able to review processed documents, and analyze data by using Microsoft Excel. Business analysts must be able to discover data across the enterprise regardless of where the data resides.

### Data Science

Data scientists must be able to analyze results without changing the deployed application. The data scientists must be able to analyze results without being connected to the Internet.

### Security and Personally Identifiable Information (PII)

- Access to the analysis results must be limited to the specific customer account of the user that originally uploaded the documents.
- All access and usage of analysis results must be logged. Any unusual activity must be detected.
- Documents must not be retained for more than 100 hours.

## Operations

- All application logs, diagnostic data, and system monitoring must be available in a single location.
- Logging and diagnostic information must be reliably processed.
- The document upload time must be tracked and monitored.

### QUESTION 1

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

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

You need to design the system that handles uploaded documents.

Solution: Use an Azure Data Lake Store as the location to upload documents. Use Azure Event Grid for user notification and to start processing.

Does the solution meet the goal?

- A. Yes
- B. No



**Correct Answer: B**

**Section: [none]**

**Explanation**

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

Explanation:

An Azure Blob Container, which uses an object store with flat namespace, is better than an Azure Data Lake Store, which uses Azure Data Lake uses an Hierarchical file system.

Scenario: Document Uploads

During the document upload process, the solution must capture information about the geographic location where documents originate. Processing of documents must be automatically triggered when documents are uploaded. Customers must be notified when analysis of their uploaded documents begins.

Uploaded documents must be processed using Azure Machine Learning Studio in an Azure Data Factory pipeline. The machine learning portion of the pipeline is updated once a quarter.

When document processing is complete, the documents and the results of the analysis process must be visible.

Reference: <https://docs.microsoft.com/en-us/azure/data-lake-store/data-lake-store-comparison-with-blob-storage>

## QUESTION 2

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

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

You need to design the system that handles uploaded documents.

Solution: Use an Azure Blob Container as the location to upload documents. Use Azure Service Bus for user notification and to start processing.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer: A**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

Explanation:

An Azure Blob Container, which uses an object store with flat namespace, is good for this scenario.

A service bus is needed to meet the requirements.

Scenario: Document Uploads

During the document upload process, the solution must capture information about the geographic location where documents originate. Processing of documents must be automatically triggered when documents are uploaded. Customers must be notified when analysis of their uploaded documents begins.

Uploaded documents must be processed using Azure Machine Learning Studio in an Azure Data Factory pipeline. The machine learning portion of the pipeline is updated once a quarter.

When document processing is complete, the documents and the results of the analysis process must be visible.

Reference: <https://docs.microsoft.com/en-us/azure/event-grid/compare-messaging-services>

## QUESTION 3

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

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

You need to design the system that handles uploaded documents.

Solution: Use an Azure Blob Container as the location to upload documents. Use Azure Event Grid for user notification and to start processing.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer: B**  
**Section: [none]**  
**Explanation**

**Explanation/Reference:**

Explanation:

An Azure Blob Container, which uses an object store with flat namespace, is good for this scenario.

However, a service bus is needed to meet the requirements, not an Event grid.

Scenario: Document Uploads

During the document upload process, the solution must capture information about the geographic location where documents originate. Processing of documents must be automatically triggered when documents are uploaded. Customers must be notified when analysis of their uploaded documents begins.

Uploaded documents must be processed using Azure Machine Learning Studio in an Azure Data Factory pipeline. The machine learning portion of the pipeline is updated once a quarter.

When document processing is complete, the documents and the results of the analysis process must be visible.

Reference: <https://docs.microsoft.com/en-us/azure/event-grid/compare-messaging-services>

**QUESTION 4**

You need to ensure that documents are ready to be processed.

Which API should you use?

- A. Linguistic Analysis API
- B. Translator Text API
- C. Text Analytics API
- D. Web Language Model API

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

With the Web Language Model automate a variety of standard natural language processing tasks using state-of-the-art language modeling APIs.

Scenario: **Source Documents**

Documents must be in a specific format before they are uploaded to the system. The first four lines of the document must contain the following information. If any of the first four lines are missing or invalid, the document must not be processed.

- the customer account number
- the user who uploaded the document
- the IP address of the person who created the document
- the date and time the document was created



The remaining portion of the documents contain the content that must be analyzed. Prior to processing by the Azure Data Factory pipeline, the document text must be normalized so that words have spaces between them.

Reference: <https://azure.microsoft.com/en-us/services/cognitive-services/web-language-model/>

#### **QUESTION 5**

You need to ensure that data security requirements are met.

What should you do?

- A. Enable Role-Based Access Control (RBAC) for each database.
- B. Use Azure Key Vault HSM for encrypting the results of the analysis
- C. Ensure that all applications use Cosmos DB secondary master keys.
- D. Generate Cosmos DB resource tokens for each collection.

**Correct Answer:** D

**Section:** [none]

## Explanation

### Explanation/Reference:

Explanation:

Resource tokens provide access to the application resources within a database. Resource tokens:

Provide access to specific collections, partition keys, documents, attachments, stored procedures, triggers, and UDFs.  
Are created when a user is granted permissions to a specific resource.

You can use a resource token (by creating Cosmos DB users and permissions) when you want to provide access to resources in your Cosmos DB account to a client that cannot be trusted with the master key.

### Scenario: **Security and Personally Identifiable Information (PII)**

- Access to the analysis results must be limited to the specific customer account of the user that originally uploaded the documents.

Reference: <https://docs.microsoft.com/en-us/azure/cosmos-db/secure-access-to-data#resource-tokens>

## QUESTION 6

DRAG DROP

You need to ensure that operational and security requirements are met.

What should you recommend? To answer, drag the appropriate log approaches to the correct locations. Each log approach 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:**

### Log approaches

Log to Azure Event Hub

Log to local storage

Process logs with PowerShell

Process logs with Azure Functions

Log to Azure Data Catalog

### Answer area

#### Data

Cosmos DB

Azure Data Factory

### Log approach

Log approach

Log approach

Correct Answer:

## Log approaches

|                              |
|------------------------------|
|                              |
| Log to local storage         |
| Process logs with PowerShell |
|                              |
| Log to Azure Data Catalog    |

## Answer area

### Data

Cosmos DB

Azure Data Factory

### Log approach

Log to Azure Event Hub

Process logs with Azure Functions

**Section:** [none]

**Explanation**

### Explanation/Reference:

Explanation:

Box 1: Log to Azure Event Hubs

Cosmos DB logs can be sent to Azure Storage, can be streamed to Azure Event Hubs, and be exported to Azure Log Analytics.

Box 2: Process Logs with Azure functions

Azure Data Factory Diagnostic logs

- Save them to a Storage Account for auditing or manual inspection. You can specify the retention time (in days) using the diagnostic settings.
- Stream them to Event Hubs for ingestion by a third-party service or custom analytics solution such as PowerBI.
- Analyze them with Log Analytics

Scenario:

All application logs, diagnostic data, and system monitoring must be available in a single location.

Logging and diagnostic information must be reliably processed.

**Security and Personally Identifiable Information (PII)**

- All access and usage of analysis results must be logged. Any unusual activity must be detected.

Reference:

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

<https://docs.microsoft.com/en-us/azure/data-factory/monitor-using-azure-monitor>

### QUESTION 7

You need to ensure that the data scientists can analyze the results.

What should you recommend?

- A. Azure Analytics Services
- B. Azure HDInsight
- C. Azure Data Catalog
- D. Azure SQL Data Warehouse

**Correct Answer: C**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

Explanation:

Azure Data Catalog is a fully managed cloud service whose users can discover the data sources they need and understand the data sources they find. At the same time, Data Catalog helps organizations get more value from their existing investments.

With Data Catalog, any user (analyst, data scientist, or developer) can discover, understand, and consume data sources.

The Azure Data Catalog can use an offline data source.

Scenario: Data scientists must be able to analyze results without changing the deployed application. The data scientists must be able to analyze results without being connected to the Internet.

Reference: <https://docs.microsoft.com/en-us/azure/data-catalog/data-catalog-dsr>

### QUESTION 8

DRAG DROP

Testing has indicated there are performance issues with the user interface.

You need to recommend methods to improve the performance of the user interface.

What should you recommend? To answer, drag the appropriate technologies to the correct user interface components. Each technology 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:**

### Terms

HDInsight

Microsoft Excel

Azure Cosmos DB Index

Azure Search Index

Azure Redis Cluster

### Answer area

#### UI component

List of documents

 **Geographic information**  
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#### Technology

Term

Term

**Correct Answer:**

## Terms

HDInsight

Microsoft Excel

Azure Redis Cluster

## Answer area

### UI component

List of documents

Geographic information

### Technology

Azure Search Index

Azure Cosmos DB Index

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Box 1: Azure Search Index

In Azure Search, an index is a persistent store of documents and other constructs used by an Azure Search service. A document is a single unit of searchable data in your index. For example, an e-commerce retailer might have a document for each item they sell, a news organization might have a document for each article, and so forth. Mapping these concepts to more familiar database equivalents: an index is conceptually similar to a table, and documents are roughly equivalent to rows in a table.

When you add/upload documents and submit search queries to Azure Search, you submit your requests to a specific index in your search service.

Scenario: Document Inventory: This page shows a list of all processed documents provided by a customer. The page can be configured to show documents for a selected category.

Box 2: Azure Cosmos DB Index

Azure Cosmos DB supports indexing and querying of geospatial point data that's represented using the GeoJSON specification. GeoJSON data structures are

always valid JSON objects, so they can be stored and queried using Azure Cosmos DB without any specialized tools or libraries. The Azure Cosmos DB SDKs provide helper classes and methods that make it easy to work with spatial data.

Scenario: The solution uses Cosmos DB for data storage.

Document Upload Sources: This page shows a map and information about the geographic distribution of uploaded documents. This page allows users to filter the map based on assigned categories.

Reference:

<https://docs.microsoft.com/en-us/azure/search/search-what-is-an-index>

## Testlet 1

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 answer 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.

## Background

### Security

The security team at Tailspin Toys plans to eliminate legacy authentication methods that are in use, including NTLM and Windows pass-through authentication.

Tailspin Toys needs to share resources with several business partners. You are investigating options to securely share corporate data.

Tailspin Toys has several databases that contain personally identifiable information (PII). User access PII only through the Tailspin Toys e-commerce website.

You secure apps by using on-premises Active Directory Domain Services (AD DS) credentials or Microsoft SQL Server logins.

### Apps

The Tailspin Toys e-commerce site is hosted on multiple on-premises virtual machines (VMs). The VM runs either Internet Information Server (IIS) or SQL Server 2012 depending on role. The site is published to the Internet by using a single endpoint that balances the load across web servers. The site does not encrypt traffic between database servers and web servers.

The Tailspin Toys Customer Analyzer app analyzes e-commerce transactions to identify customer buying patterns, and outputs recommended product sale pricing. The app runs large processing jobs that run for 75-120 minutes several times each day. The application development team plans to replace the current solution with a parallel processing solution that scales based on computing demands.

The Tailspin Toys Human Resources (HR) app is an in-house developed app that hosts sensitive employee data. The app uses SQL authentication for Role-Based Access Control (RBAC).

**Problem statement**

The Tailspin Toys IT Leadership Team plans to address deficiencies in access control, data security, performance, and availability requirements. All applications must be updated to meet any new standards that are defined.

The Tailspin Toys e-commerce site was recently targeted by a cyberattack. In the attack, account information was stolen from the customer database. Transactions that were in progress during the attack were not completed. Forensic investigation of the attack has revealed that the stolen customer data was captured in-transit from the database to a compromised web server.

The HR team reports that unauthorized IT employees can view sensitive employee data by using service or application accounts.

**Business Requirements****Tailspin Toys e-commerce site**

The business has requested that security and availability of the e-commerce site is improved to meet the following requirements.

- Communication between site components must be secured to stop data breaches. If servers are breached, the data must not be readable.
- The site must be highly available at each application tier, as well as the published endpoint.
- Customers must be able to authenticate to the e-commerce site with their existing social media accounts.

**Tailspin Toys Customer Analyzer app**

The business requires that processing time be reduced from 75-120 minutes to 5-15 minutes.

**Tailspin Toys HR app**

Only authorized employees and business partners are allowed to view sensitive employee data. HR has requested a mobile experience for end users.

**Technical Requirements****Security**

The security team has established the following requirements for role-separation and RBAC:

- Log on hours defined in AD DS must be enforced for users that access cloud resources.
- IT operations team members must be able to deploy and manage all resources in Azure, but must not be able to grant permissions to others.
- Application development team members must be able to deploy and manage Azure Web Apps.
- SQL database administrators must be able to deploy and manage SQL databases used by TailSpin Toys applications.
- Application support analysts must be able to manage resources for the application(s) for which they are responsible.
- Service desk analysts must be able to view service status and component settings.
- Role assignment should use the principle of least privilege.

**Tailspin Toys e-commerce site**

The application is currently using a pair of hardware load balancers behind a single published endpoint to load balance traffic. Customer data is hosted in a SQL Server 2012 database. Customer user accounts are stored in an AD DS instance.

The updated application and supporting infrastructure must:

- Provide high availability in the event of failure in a single Azure SQL Database instance.
- Allow secure web traffic on port 443 only.
- Enable customers to authentication with Facebook, Microsoft Live ID or other social media identities.
- Encrypt SQL data at-rest.
- Encrypt data in motion between back-end SQL database instances and web application instances.
- Prevent administrator and service accounts from viewing PII data.
- Mask account and PII data presented to end user.
- Minimize outage duration in event of an Azure datacenter failure.
- The site should scale automatically to meet customer demand.
- The site should continue to serve requests, even in the event of failure of an Azure datacenter.
- Optimize site response time by auto-directing to the closest datacenter based on customer's geographic location.

Operations must be able to deploy the solution using an Azure Resource Manager (ARM) template.

### **Tailspin Toys Customer Analyzer app**

The app uses several compute-intensive tasks that create long-running requests to the system, processing large amounts of data. The app runs on two large VMs that are scaled to max capacity in the corporate datacenter. The VMs cannot be scaled up or out to meet processing demands.

The new solution must meet the following requirements:

- Schedule processing of a large amount of pricing data on an hourly basis.
- Provide parallel processing and scale-on-demand computing resources to provide additional capacity as required.
- Processing times must meet the 5-15 minute processing requirement.
- Use simultaneous compute nodes to enable high performance computing for analysis.
- Minimal administrative efforts and custom development.

Operations must be able to deploy the solution using an Azure Resource Manager (ARM) template.

### **Tailspin Toys HR app**

The solution architecture must meet the following requirements:

- Integrate with Azure Active Directory (Azure AD).
- Encrypt data at rest and in-transit.
- Limit access based on location, filtered by IP addresses for corporate sites and authorized business partners.
- Mask data presented to employees.
- Must be available on mobile devices.

Operations must be able to deploy the solution using an Azure Resource Manager (ARM) template.

## **QUESTION 1**

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

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

You need to recommend a solution architecture for the Tailspin Toys e-commerce website for app tier, data tier, and user authentication.

Solution:

- Web site based on Azure App Service
- App data stored in Azure SQL Database
- Authentication provided through Azure AD business-to-consumer (B2C)
- Solution deployed to multiple Azure regional datacenters
- Load balancing with Azure Traffic Manager

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**



## QUESTION 2

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

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

You need to recommend a solution architecture for the Tailspin Toys e-commerce website for app tier, data tier, and user authentication.

Solution:

- Web App hosted in Azure virtual machines
- App data stored in Azure SQL Server 2016, hosted in Azure virtual machines
- Authentication provided through Azure AD business-to-consumer (B2C)
- Solution deployed to multiple Azure regional datacenters
- Load balancing with Azure Traffic Manager

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

### QUESTION 3

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

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

You need to recommend a solution architecture for the Tailspin Toys e-commerce website for app tier, data tier, and user authentication.

Solution:

- Mobile App based on Azure App Service
- App data stored in DocumentDB
- Authentication provided through Azure AD business-to-business (B2B)
- Solution deployed to multiple Azure regional datacenters
- Load balancing with a virtual appliance



Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

### QUESTION 4

DRAG DROP

You need to meet the data requirements for the Tailspin Toys e-commerce website.

What should you do recommend? To answer, drag the appropriate recommendations to the correct requirements. Each recommendation 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:**

|                                 |   | Answer Area    |                |
|---------------------------------|---|----------------|----------------|
| Recommendations                 | Requirement                                 | Recommendation | Recommendation |
| Azure AD B2B                    | User authentication                         |                | Recommendation |
| Azure AD B2C                    | Access to PII                               |                | Recommendation |
| Azure AD                        | SQL data security at-rest                   |                | Recommendation |
| SQL Transparent Data Encryption | SQL data security at the presentation layer |                | Recommendation |
| SQL Always Encrypted            |   |                |                |
| SQL Dynamic Data Masking        |   |                |                |
| Row-level Security              |   |                |                |

**Correct Answer:**

| Answer Area        |   |                                 |
|--------------------|---|---------------------------------|
| Recommendations    | Requirement                                 | Recommendation                  |
| Azure AD B2B       | User authentication                         | Azure AD                        |
| Azure AD B2C       | Access to PII                               | SQL Dynamic Data Masking        |
|                    | SQL data security at-rest                   | SQL Transparent Data Encryption |
|                    | SQL data security at the presentation layer | SQL Always Encrypted            |
|                    |   |                                 |
| Row-level Security |   |                                 |

**Section:** [none]

**Explanation**

**Explanation/Reference:**



**QUESTION 5**

DRAG DROP

You need to recommend a directory service and identity provider for the Tailspin Toys HR app.

What should you recommend? To answer, drag the appropriate recommendations to the correct requirements. Each recommendation 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.

**Select and Place:**

**Recommendations**

- Implement Azure AD business-to-business (B2B).
- Implement Azure AD business-to-consumer (B2C).
- Configure Facebook as an identity provider.
- Implement Active Directory Domain Services.
- Add business-to-business (B2B) collaboration guest users.
- Configure a Microsoft account as an identity provider.

**Answer Area**

| Requirement                 | Recommendation |
|-----------------------------|----------------|
| Directory service           | Recommendation |
| Configure identity provider | Recommendation |

Correct Answer:

**Recommendations**

- 
- Implement Azure AD business-to-consumer (B2C).
- Configure Facebook as an identity provider.
- Implement Active Directory Domain Services.
- 
- Configure a Microsoft account as an identity provider.

| Requirement                 | Recommendation  |
|-----------------------------|---|
| Directory service           | Implement Azure AD business-to-business (B2B).            |
| Configure identity provider | Add business-to-business (B2B) collaboration guest users. |

Section: [none]

**Explanation****Explanation/Reference:****QUESTION 6**

You need to select Azure components to meet site performance and availability requirements for the Tailspin Toys e-commerce site.

Which components should you use?

- A. Azure Batch and Azure Traffic Manager
- B. Virtual Machine Scale Set and Azure Load Balancer
- C. Azure App Service and Azure Traffic Manager
- D. Azure Virtual Machines and Azure Load Balancer

**Correct Answer:** C

**Section:** [none]

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

Explanation:

You can use Azure Traffic Manager to control how requests from web clients are distributed to apps in Azure App Service. When App Service endpoints are added to an Azure Traffic Manager profile, Azure Traffic Manager keeps track of the status of your App Service apps (running, stopped, or deleted) so that it can decide which of those endpoints should receive traffic.

Scenario: The site must be highly available at each application tier, as well as the published endpoint.

Reference: <https://docs.microsoft.com/en-us/azure/app-service/web-sites-traffic-manager>

**QUESTION 7**

You need to select an Azure compute provider for the Tailspin Toys Customer Analyzer app.

What should you use?

- A. Virtual Machine Scale Sets (VMSS)
- B. Azure Virtual Machines
- C. Azure Logic Apps
- D. Azure Functions

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Azure virtual machine scale sets let you create and manage a group of identical, load balanced VMs. The number of VM instances can automatically increase or decrease in response to demand or a defined schedule. Scale sets provide high availability to your applications, and allow you to centrally manage, configure, and update a large number of VMs. With virtual machine scale sets, you can build large-scale services for areas such as compute, big data, and container workloads.

Scenario: The Tailspin Toys Customer Analyzer app analyzes e-commerce transactions to identify customer buying patterns, and outputs recommended product sale pricing. The app runs large processing jobs that run for 75-120 minutes several times each day. The application development team plans to replace the current solution with a parallel processing solution that scales based on computing demands.

Reference: <https://docs.microsoft.com/en-us/azure/virtual-machine-scale-sets/overview>

**QUESTION 8**

**DRAG DROP**

You need to recommend a solution architecture for the Tailspin Toys Customer Analyzes app.

What should you recommend? To answer, drag the appropriate solutions to the correct components. Each solution 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:**

**Answer Area**

**Solutions**

- Azure Automation
- Azure Functions
- Azure Batch
- SQL Server in Azure virtual machines
- Azure SQL Database
- Azure Data Lake store

**Component**

Tailspin Toys Customer Analyzer  
app processing

Tailspin Toys Customer Analyzer  
app data

**Solution**

Solution

Solution

**Correct Answer:**

| Solutions                            | Answer Area                                    | Solution           |
|--------------------------------------|--|--------------------|
| Azure Automation                     | Tailspin Toys Customer Analyzer app processing | Azure Batch        |
| Azure Functions                      |  |                    |
| SQL Server in Azure virtual machines | Tailspin Toys Customer Analyzer app data       | Azure SQL Database |
| Azure Data Lake store                |  |                    |

**Section:** [none]  
**Explanation**

**Explanation/Reference:**

**QUESTION 9**

You need to select an Azure identity provider for the Tailspin Toys e-commerce website.

What should you use?

- A. Azure AD business-to-consumer (B2C)
- B. Azure AD business-to-business (B2B)
- C. Microsoft account
- D. Azure AD

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Azure Active Directory (Azure AD) B2C is an identity management service that enables you to customize and control how customers sign up, sign in, and manage their profiles when using your applications. This includes applications developed for iOS, Android, and .NET, among others. Azure AD B2C enables these actions while protecting your customer identities at the same time.

For instance, a B2C sign-up policy allows you to control behaviors by configuring the following settings:  
Social accounts that the customer can use to sign up for the application

Scenario: Customers must be able to authenticate to the e-commerce site with their existing social media accounts.

Reference: <https://docs.microsoft.com/en-us/azure/active-directory-b2c/active-directory-b2c-overview>

**QUESTION 10**

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

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

You need to recommend a solution architecture for the Tailspin Toys e-commerce website for app tier, data tier, and user authentication.

Solution:

- Web site based on Azure App Service
- App data stored in Azure SQL Database
- Authentication provided through Azure AD business-to-business (B2B)
- Solution deployed to multiple Azure regional datacenters
- Load balancing with Azure Traffic Manager

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

Explanation:

Authentication should be provided through Azure AD business-to-consumer (B2C), not through Azure AD business-to-business (B2B).

#### QUESTION 11

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

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

You need to recommend a solution architecture for the Tailspin Toys e-commerce website for app tier, data tier, and user authentication.

Solution:

- Mobile App based on Azure App Service
- App data stored in CosmosDB
- Authentication provided through Azure AD business-to-business (B2B)
- Solution deployed to multiple Azure regional datacenters
- Load balancing with a virtual appliance

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

## Testlet 1

### Background

#### Overview

Woodgrove Bank has 20 regional offices and operates 1,500 branch office locations. Each regional office hosts the servers, infrastructure, and applications that support that region.

Woodgrove Bank plans to move all of their on-premises resources to Azure, including virtual machine (VM)-based, line-of-business workloads, and SQL databases. You are the owner of the Azure subscription for Woodgrove Bank. Your team is using Git repositories hosted on GitHub for source control.

#### Security

Currently, Woodgrove Bank's Computer Security Incident Response Team (CSIRT) has a problem investigating security issues due to the lack of security intelligence integrated with their current incident response tools. This lack of integration introduces a problem during the detection (too many false positives), assessment, and diagnose stages. You decide to use Azure Security Center to help address this problem.

Woodgrove Bank has several apps with regulated data such as Personally Identifiable Information (PII) that require a higher level of security. All apps are currently secured by using an on-premises Active Directory Domain Services (AD DS). The company depends on following mission-critical apps: WGBLoanMaster, WGBLeaseLeader, and WGBCreditCruncher apps. You plan to move each of these apps to Azure as part of an app migration project.

#### Apps

The WGBLoanMaster app has been audited for transaction loss. Many transactions have been lost in processing and monetary write-offs have cost the bank. The app runs on two VMs that include several public endpoints.

The WGBLeaseLeader app has been audited for several data breaches. The app includes a SQL Server database and a web-based portal. The portal uses an ASP.NET Web API function to generate a monthly aggregate report from the database.

The WGBCreditCruncher app runs on a VM and is load balanced at the network level. The app includes several stateless components and must accommodate scaling of increased credit processing. The app runs on a nightly basis to process credit transactions that are batched during the day. The app includes a web-based portal where customers can check their credit information. A mobile version of the app allows users to upload check images.

Your team is using Git repositories for source control. The repositories are hosted on GitHub.

#### Business Requirements

##### WGBLoanMaster app

The app audit revealed a need for zero transaction loss. The business is losing money due to the app losing and not processing loan information. In addition, transactions fail to process after running for a long time. The business has requested the aggregation processing to be scheduled for 01:00 to prevent system

slowdown.

### **WGBLeaseLeader app**

The app should be secured to stop data breaches. If the data is breached, it must not be readable. The app is continuing to see increased volume and the business does not want the issues presented in the WGBLoanMaster app. Transaction loss is unacceptable, and although the lease monetary amounts are smaller than loans, they are still an important profit center for Woodgrove Bank. The business would also like the monthly report to be automatically generated on the first of the month. Currently, a user must log in to the portal and click a button to generate the report.

### **WGBCreditCruncher app**

The web-based portal area of the app must allow users to sign in with their Facebook credentials. The bank would like to allow this feature to enable more users to check their credit within the app.

Woodgrove Bank needs to develop a new financial risk moderating feature that they can include in the WGBCreditCruncher app. The financial risk modeling feature has not been developed due to costs associated with processing, transforming, and analyzing the large volumes of data that are collected. You need to find a way to implement parallel processing to ensure that the feature runs efficiently, reliably and quickly. The feature must scale based on computing demand to process the large volumes of data and output several financial risk models.

### **Technical Requirements**

#### **WGBLoanMaster app**

The app uses several compute-intensive tasks that create long-running requests to the system. The app is critical to the business and must be scalable to increased loan processing demands. The VMs that run the app include a Windows Task Scheduler task that aggregates loan information from the app to send to a third party. This task runs a console app on the VM.

The app requires a messaging system to handle transaction processing. The messaging system must meet the following requirements:

- Allow messages to reside in the queue for up to a month
- Be able to publish and consume batches of messages
- Allow full integration with the Windows Communication Foundation (WCF) communication stack
- Provide a role-based access model to the queues, including different permissions for senders and receivers

You develop an Azure Resource Manager (ARM) template to deploy the VMs used to support the app. The template must be deployed to a new resource group and you must validate your deployment settings before creating actual resources.

#### **WGBLeaseLeader app**

The app must use Azure SQL Databases as a replacement to the current Microsoft SQL Server environment. The monthly report must be automatically generated.

The app requires a messaging system to handle transaction processing. The messaging system must meet the following requirements:

- Require server-side logs of all of the transactions run against your queues
- Track progress of a message within the queue
- Process the messages within 7 days
- Provide a differing timeout value per message

### **WGBCreditCruncher app**

The app must:

- Secure inbound and outbound traffic.
- Analyze inbound network traffic for vulnerabilities.
- Use an instance-level public IP and allow web traffic on port 443 only.
- Upgrade the portal to a Single Page Application (SPA) that uses JavaScript, Azure Active Directory (Azure AD), and the OAuth 2.0 implicit authorization grant to secure the Web API back end.
- Cache authentication and host the Web API back end using the Open Web Interface for .NET (OWIN) middleware.
- Immediately compress check images received from the mobile web app.
- Schedule processing of the batched credit transactions on a nightly basis.
- Provide parallel processing and scalable computing resources to output financial risk models.
- Use simultaneous compute nodes to enable high performance computing and updating of the financial risk models.
- 

### **Key security areas**

| Name  | Description   |
|-------|---|
| Area1 | Uses Role-Based Access Control (RBAC)   |
| Area2 | Uses Azure Monitoring Agent (ASMAgentLauncher.exe) and the Azure Security Monitoring extension (ASMMonitoringAgent.exe) and is a main cost of Azure Security Center |
| Area3 | Customizes your company's security requirements and the type of apps or sensitivity of the data. Propagates to all resource groups within the Azure subscription    |
| Area4 | Allows you to detect assess, and diagnose attacks   |
| Area5 | Prevents and detects future security changes. Changes to the environment are automatically enabled as resources are added   |

### Software releases

The business must receive notifications through several internal systems when a release is published from the development team.

The team's GitHub repository must run a script, written in F#, in response to a release. The script must alert several applications and systems that a release has been published.

### QUESTION 1

You need to ensure that the repository runs the script when new software is released.

Which technology should you use?

- A. Azure Function
- B. Azure App Service Logic App
- C. Azure App Service API App
- D. Azure WebJob

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Using Azure Functions with F#. Azure Functions is a solution for easily running small pieces of code, or "functions," in the cloud. You can write just the code you need for the problem at hand, without worrying about a whole application or the infrastructure to run it. Your functions are connected to events in Azure storage and other cloud-hosted resources. Data flows into your F# functions via function arguments. You can use your development language of choice, trusting Azure to scale as needed.

References: <https://docs.microsoft.com/en-us/dotnet/fsharp/using-fsharp-on-azure/>

**QUESTION 2**

You need to support loan processing for the WGBLoanMaster app.

What should you use?

- A. Azure Service Fabric
- B. Azure Queue Storage
- C. Azure Service Bus Queues
- D. Azure Event Hubs

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Whether an application or service runs in the cloud or on premises, it often needs to interact with other applications or services. To provide a broadly useful way to do this, Microsoft Azure offers Service Bus.

From Scenario: The WGBLoanMaster app has been audited for transaction loss. Many transactions have been lost in processing and monetary write-offs have cost the bank. The app runs on two VMs that include several public endpoints.

The app audit revealed a need for zero transaction loss. The business is losing money due to the app losing and not processing loan information. In addition, transactions fail to process after running for a long time. The business has requested the aggregation processing to be scheduled for 01:00 to prevent system slowdown.

References: <https://docs.microsoft.com/en-us/azure/service-bus-messaging/service-bus-fundamentals-hybrid-solutions>

**QUESTION 3**

You need to generate the report for the WGBLeaseLeader app.

Which Azure service should you use?

- A. Azure Data Lake Store
- B. Azure WebJob
- C. Azure Service Bus Queue
- D. Azure Stream Analytics

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

WebJobs is a feature of Azure App Service that enables you to run a program or script in the same context as a web app, API app, or mobile app. There is no additional cost to use WebJobs.

An Azure WebJob can be either continuous or triggered. In the latter case, it starts only when triggered manually or on a schedule.

From scenario: The WGBLeaseLeader app should be secured to stop data breaches. If the data is breached, it must not be readable.

The business would also like the monthly report to be automatically generated on the first of the month. Currently, a user must log in to the portal and click a button to generate the report.

VCE To PDF - Free Practice Exam

References: <https://docs.microsoft.com/en-us/azure/app-service/web-sites-create-web-jobs>

#### **QUESTION 4**

**DRAG DROP**

You need to secure the Woodgrove Bank apps.

Which prevention policy must you enable for each app? To answer, drag the appropriate policy to the correct app. Each policy 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:**

## Prevention policies

next generation firewall

vulnerability assessment

SQL transparent data encryption

network security groups (NSGs)

disk encryption

web application firewall (WAF)

## Answer area

### App

WGBLoanMaster

WGBLeaseLeader

WGBCredit Cruncher

### Policy

Prevention policy

Prevention policy

Prevention policy



**Correct Answer:**

## Prevention policies

|                                |
|--------------------------------|
|                                |
| vulnerability assessment       |
|                                |
|                                |
| disk encryption                |
| web application firewall (WAF) |

## Answer area

| App                | Policy                          |
|--------------------|---------------------------------|
| WGBLoanMaster      | network security groups (NSGs)  |
| WGBLeaseLeader     | SQL transparent data encryption |
| WGBCredit Cruncher | next generation firewall        |



**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

WGBLoanMaster: network security groups (NSGs)

From scenario: WGBLoanMaster must provide a role-based access model to the queues, including different permissions for senders and receivers.

WGBLeaseLeader: SQL transparent data encryption

Transparent Data Encryption (TDE) encrypts SQL Server, Azure SQL Database, and Azure SQL Data Warehouse data files, known as encrypting data at rest.

From scenario: The app should be secured to stop data breaches. If the data is breached, it must not be readable.

The app includes a SQL Server database and a web-based portal.

WGBCreditCruncher: next generation firewall

The web-based portal area of the app must allow users to sign in with their Facebook credentials.

The app includes several stateless components and must accommodate scaling of increased credit processing. The app runs on a nightly basis to process credit transactions that are batched during the day.

The app must:

- Secure inbound and outbound traffic.

References: <https://docs.microsoft.com/en-us/sql/relational-databases/security/encryption/transparent-data-encryption?view=sql-server-2017>

### QUESTION 5

You need to provide support for updating the financial risk models in the WGBCreditCruncher app.

Which technology should you use?

- A. a multi-threaded C# console app that uses an Azure Queue storage
- B. ASP.NET WebHooks that are triggered by Azure WebJobs
- C. a Message Passing Interface (MPI) application that runs in Azure Batch
- D. ASP.NET Web APIs that run in Azure Service Fabric

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

From scenario: Woodgrove Bank needs to develop a new financial risk moderating feature that they can include in the WGBCreditCruncher app. The financial risk modeling feature has not been developed due to costs associated with processing, transforming, and analyzing the large volumes of data that are collected. You need to find a way to implement parallel processing to ensure that the feature runs efficiently, reliably and quickly. The feature must scale based on computing demand to process the large volumes of data and output several financial risk models.

**QUESTION 6**

You need to implement the loan aggregation process for the WGBLoanMaster app.

Which technology should you use?

- A. Azure virtual machine
- B. Azure Batch
- C. Azure Cloud Service worker role
- D. Azure WebJob

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Use Batch to run large-scale parallel and high-performance computing (HPC) applications efficiently in the cloud. Define the Azure compute resources to execute your applications in parallel or at scale without manually configuring or managing infrastructure. Schedule compute-intensive tasks and dynamically add or remove compute resources based on your requirements.

Scenario: The app requires a messaging system to handle transaction processing. The messaging system must meet the following requirements:

- Be able to publish and consume batches of messages

References: <https://docs.microsoft.com/en-us/azure/batch/>

**QUESTION 7**

DRAG DROP

You are evaluating the architecture for the WGBCreditCruncher app.

You need to implement an Azure service to process each portion of the app data.

For each type of app data, what should you implement? To answer, drag the appropriate Azure services to the correct app data types. Each Azure 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:**

## Azure services

Azure Batch

Azure WebJob

Azure Scheduler

Azure IoT Hub

Azure DNS



## Answer area

### App data

Check images

Credit transactions

Financial risk models

### Azure service

Azure service

Azure service

Azure service

**Correct Answer:**

## Azure services

|               |
|---------------|
|               |
|               |
|               |
| Azure IoT Hub |
| Azure DNS     |

## Answer area

### App data

Check images

Credit transactions

Financial risk models

### Azure service

Azure WebJob

Azure Scheduler

Azure Batch



**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Check images: Azure WebJob

WebJobs is a feature of Azure App Service that enables you to run a program or script in the same context as a web app, API app, or mobile app.

Scenario: A mobile version of the app allows users to upload check images.

Credit transactions: Azure Scheduler

Scenario: The app runs on a nightly basis to process credit transactions that are batched during the day.

Financial risk models: Azure Batch

Scenario: Woodgrove Bank needs to develop a new financial risk moderating feature that they can include in the WGBCreditCruncher app. The financial risk modeling feature has not been developed due to costs associated with processing, transforming, and analyzing the large volumes of data that are collected. You need to find a way to implement parallel processing to ensure that the feature runs efficiently, reliably and quickly. The feature must scale based on computing demand to process the large volumes of data and output several financial risk models.

Incorrect Answers:

Not IoT hub: IoT Hub is a managed service, hosted in the cloud, that acts as a central message hub for bi-directional communication between your IoT application and the devices it manages.

Not DNS: The Domain Name System, or DNS, is responsible for translating (or resolving) a website or service name to its IP address. Azure DNS is a hosting service for DNS domains, providing name resolution using Microsoft Azure infrastructure.

References: <https://docs.microsoft.com/en-us/azure/app-service/web-sites-create-web-jobs>

## Question Set 1

### QUESTION 1

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

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

A company has custom ASP.net and Java applications that run on old versions of Windows and Linux. The company plans to place applications in containers.

You need to design a solution that includes networking, service discovery, and load balancing for the applications. The solution must support storage orchestration.

Solution: You create an Azure virtual network, a public IP address, and load balancer. Then add virtual machines (VMs) to the solution and deploy individual containers on them.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer: B**  
**Section: [none]**  
**Explanation**

**Explanation/Reference:**



### QUESTION 2

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

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

A company has custom ASP.net and Java applications that run on old versions of Windows and Linux. The company plans to place applications in containers.

You need to design a solution that includes networking, service discovery, and load balancing for the applications. The solution must support storage orchestration.

Solution: You deploy each application to an Azure Web App that has container support.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

### QUESTION 3

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

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

A company has custom ASP.net and Java applications that run on old versions of Windows and Linux. The company plans to place applications in containers.

You need to design a solution that includes networking, service discovery, and load balancing for the applications. The solution must support storage orchestration.

Solution: Deploy a Kubernetes cluster that has the desired number of instances of the applications.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/container-service/kubernetes/container-service-intro-kubernetes>

### QUESTION 4

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

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

You are designing a storage solution to support on-premises resources and Azure-hosted resources.

You need to provide on-premises storage that has built-in replication to Azure.

Solution: You include Azure Table storage in the design.

Does this solution meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section: [none]**

**Explanation**

**Explanation/Reference:**



#### **QUESTION 5**

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

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

You are designing a storage solution to support on-premises resources and Azure-hosted resources.

You need to provide on-premises storage that has built-in replication to Azure.

Solution: You include Azure Blob storage in the design.

Does this solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

#### QUESTION 6

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

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

You are designing a storage solution to support on-premises resources and Azure-hosted resources.

You need to provide on-premises storage that has built-in replication to Azure.

Solution: You include Azure StorSimple storage in the design.

Does this solution meet the goal?

A. Yes

B. No



**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/storsimple/storsimple-overview>

#### QUESTION 7

HOTSPOT

You manage a solution in Azure. You plan to add several new features to the solution.

You identify the following requirements:

- The deployment technology must support load balancing and service discovery.
- Trigger a Biztalk Server workflow to process Electronic Data Interchange (EDI) data.

You need to identify which technical implementation is suitable for each functionality.

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

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

**Hot Area:**



**Answer Area**

| Requirement                        | Technology   |
|------------------------------------|--|
| Trigger a BizTalk Server workflow. | <div data-bbox="1144 368 1668 443"></div> <div data-bbox="1144 443 1668 518">Azure API Management Service</div> <div data-bbox="1144 518 1668 593">Azure Container instances</div> <div data-bbox="1144 593 1668 668">Azure Functions</div> <div data-bbox="1144 668 1668 734">Azure Logic Apps</div> |
| Package the application.           | <div data-bbox="1144 815 1668 890"></div> <div data-bbox="1144 890 1668 965">Git repository</div> <div data-bbox="1144 965 1668 1040">Azure Container instances</div> <div data-bbox="1144 1040 1668 1115">NuGet package</div> <div data-bbox="1144 1115 1668 1181">Node Package Manager (NPM)</div>  |

**Correct Answer:**

**Answer Area**

| <b>Requirement</b>                 | <b>Technology</b>  |
|------------------------------------|--|
| Trigger a BizTalk Server workflow. | <div data-bbox="1142 367 1657 438"></div> <div data-bbox="1142 438 1657 510">Azure API Management Service</div> <div data-bbox="1142 510 1657 582">Azure Container instances</div> <div data-bbox="1142 582 1657 654">Azure Functions</div> <div data-bbox="1142 654 1657 726">Azure Logic Apps</div> |
| Package the application.           | <div data-bbox="1142 821 1657 893"></div> <div data-bbox="1142 893 1657 965">Git repository</div> <div data-bbox="1142 965 1657 1037">Azure Container instances</div> <div data-bbox="1142 1037 1657 1109">NuGet package</div> <div data-bbox="1142 1109 1657 1181">Node Package Manager (NPM)</div>  |

**Section: [none]**  
**Explanation**

**Explanation/Reference:**

References:

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

<https://docs.microsoft.com/en-us/javascript/api/overview/azure/logic-apps?view=azure-node-2.2.0#management-package>

**QUESTION 8**

You are designing an Azure Web App that includes many static content files.

The application is accessed from locations all over the world by using a custom domain name.

You need to recommend an approach for providing access to the static content with the least amount of latency.

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

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

- A. Place the static content in Azure Blob storage and enable Content Delivery Network (CDN) on the account.
- B. Place the static content in Azure Table storage.
- C. Configure a custom domain name that is an alias for the Azure Storage domain.
- D. Configure a CNAME DNS record for the Azure Content Delivery Network (CDN) domain.

**Correct Answer:** AD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

A: The Azure Content Delivery Network (CDN) offers developers a global solution for delivering high-bandwidth content by caching blobs and static content of compute instances at physical nodes in the United States, Europe, Asia, Australia and South America.

The benefits of using CDN to cache Azure data include:

- Better performance and user experience for end users who are far from a content source, and are using applications where many 'internet trips' are required to load content
- Large distributed scale to better handle instantaneous high load, say, at the start of an event such as a product launch

D: There are two ways to map your custom domain to a CDN endpoint.

1. Create a CNAME record with your domain registrar and map your custom domain and subdomain to the CDN endpoint
2. Add an intermediate registration step with Azure cdnverify

References:

<https://docs.microsoft.com/en-us/azure/architecture/best-practices/cdn>

### QUESTION 9

You are designing a microservices architecture that will support a web application.

The solution must meet the following requirements:

- Allow independent upgrades to each microservice.
- Deploy the solution on-premises and to Azure.
- Set policies for performing automatic repairs to the microservices.
- Support low-latency and hyper-scale operations.

You need to recommend a technology.

What should you recommend?

- A. Azure Container Instance
- B. Azure Container Service
- C. Azure Virtual Machine Scale Set
- D. Azure Service Fabric

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://msdn.microsoft.com/en-us/magazine/mt595752.aspx>

### QUESTION 10

DRAG DROP

A company runs multiple line-of-business applications in a Kubernetes container cluster. Source code for the applications resides in a version control repository which is a part of a continuous integration/continuous deployment (CI/CD) solution.

You must be able to upgrade containerized applications without downtime after all tests and reviews have completed successfully.

You need to recommend steps to go from source code to updated applications so that they can be automated in the CI/CD solution.

Which four actions should you recommend be performed 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 |
|---|-------------|
| Update the DNS CNAME record of the application. |             |
| Update the container.                           |             |
| Push the image to the registry.                 |             |
| Build the application.                          |             |
| Change the Azure Service Definition schema.     |             |
| Reconfigure the routing tables.                 |             |
| Change the Azure Service Configuration file.    |             |
| Build the container image with the application. |             |

**Correct Answer:**

| Actions   | Answer Area                                     |
|---|---|
| Update the DNS CNAME record of the application. | Build the application.                          |
|   | Build the container image with the application. |
|   | Push the image to the registry.                 |
|   | Update the container.                           |
| Change the Azure Service Definition schema.     |   |
| Reconfigure the routing tables.                 |   |
| Change the Azure Service Configuration file.    |   |
|   |   |

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/vsts/build-release/apps/cd/azure/deploy-container-kubernetes>

**QUESTION 11**

You have a customer database on your internal network. The database supports an application that your sales organization uses. You plan to migrate the application to the cloud.

All customer data must remain inside the corporate network.

You need to ensure that the application can access the customer data without affecting network security.

What should you do?

A. Open the ports required to access the database in the network firewall.

- B. Use Microsoft Azure Service Bus Relay to expose and consume a SOAP web service with TCP.
- C. Configure Direct Access on the virtual network.
- D. Create a Site-to-Site VPN connection.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/windows-server/remote/remote-access/directaccess/directaccess>

### QUESTION 12

You are designing an Azure Media Services solution. The solution must meet the following requirements:

- Allow only authenticated users to play back media.
- Ensure that media playback uses dynamic and envelope encryption.

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

NOTE: Each correct selection is worth one point.

- A. Configure the media encoder to use AES clear key encryption.
- B. Encode source files into single-bitrate MP4 files.
- C. Configure a content key authorization policy.
- D. Configure the media encoder to use DRM encryption.
- E. Configure an asset delivery policy.
- F. Encode source files into adaptive-bitrate MP4 files.
- G. Encrypt the files using AES 256 bit encryption and upload to Azure Storage.

**Correct Answer:** CEF

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://github.com/MicrosoftDocs/azure-docs/blob/master/articles/media-services/media-services-protect-with-aes128.md>

### QUESTION 13

## HOTSPOT

You are designing a solution that consist of Internet of Things (IoT) devices and external streams of data.

You need to provide near real-time functionality.

Which technologies should you implement? To answer, configure the appropriate options in the dialog box in the answer area.

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

**Hot Area:**



**Answer Area**

**Requirement**

**Technology**

Monitoring assets

- ▼
- Azure IoT Hub
- Azure Event Grid
- Azure Event Hubs
- Azure Time Series Insights
- Azure Stream Analytics

Telemetry ingestion

- ▼
- Azure IoT Hub
- Azure Event Grid
- Azure Event Hubs
- Azure Time Series Insights
- Azure Stream Analytics

Providing real time predictions

- ▼
- Azure IoT Hub
- Azure Event Grid
- Azure Event Hubs
- Azure Time Series Insights
- Azure Stream Analytics

Spotting anomalies on IoT data

- ▼

**Correct Answer:**



**Answer Area**

**Requirement**

**Technology**

Monitoring assets

- ▼
- Azure IoT Hub
- Azure Event Grid
- Azure Event Hubs
- Azure Time Series Insights
- Azure Stream Analytics

Telemetry ingestion

- ▼
- Azure IoT Hub
- Azure Event Grid
- Azure Event Hubs
- Azure Time Series Insights
- Azure Stream Analytics

Providing real time predictions

- ▼
- Azure IoT Hub
- Azure Event Grid
- Azure Event Hubs
- Azure Time Series Insights
- Azure Stream Analytics

Spotting anomalies on IoT data

- ▼

**Section: [none]**

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/iot-suite/iot-suite-options>

<https://azure.microsoft.com/en-us/services/stream-analytics/>

<https://azure.microsoft.com/en-us/services/time-series-insights/>

**QUESTION 14**

A company uses Microsoft Operations Management Suite (OMS) to manage 1,000 virtual machines (VMs) in Azure.

The security officer reports that VMs often are not updated. You recommend to the company that they implement the OMS Update Management solution.

You need to describe the OMS Update Management solution to the company.

Which functionality does the OMS Update Management solution provide?

- A. assessment of missing Windows and Linux updates on the VMs
- B. assessment of antimalware on the VMs
- C. overview of network activity on the VMs
- D. assessment of vulnerabilities in container images



**Correct Answer: A**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

Explanation:

The Update Management solution in Azure automation allows you to manage operating system updates for your Windows and Linux computers deployed in Azure, on-premises environments, or other cloud providers. You can quickly assess the status of available updates on all agent computers and manage the process of installing required updates for servers.

References:

<https://docs.microsoft.com/en-us/azure/operations-management-suite/oms-solution-update-management>

**QUESTION 15**

HOTSPOT

You are managing the automation of your company's Azure resources.

You need to choose the appropriate tool to automate specific use cases.

Which tool should you choose for each use case? To answer, select the appropriate tool from each list in the answer area.

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

**Hot Area:**

**Answer Area**

| Use case  | Tool   |
|---|--|
| Automate a portfolio of scripts.                  | <div data-bbox="1128 632 1619 703">▼</div> <div data-bbox="1128 703 1619 775">Azure Automation</div> <div data-bbox="1128 775 1619 844">Desired State Configuration</div>      |
| Create an ad hoc script to add a virtual machine. | <div data-bbox="1128 932 1619 1003">▼</div> <div data-bbox="1128 1003 1619 1075">Azure PowerShell</div> <div data-bbox="1128 1075 1619 1144">Desired State Configuration</div> |

**Correct Answer:**

**Answer Area**

| Use case  | Tool  |
|---|---|
| Automate a portfolio of scripts.                  | <div style="border: 1px solid black; padding: 2px;"> <div style="text-align: right; padding-right: 5px;">▼</div> <div style="background-color: #d9ead3; padding: 2px;">Azure Automation</div> <div style="padding: 2px;">Desired State Configuration</div> </div> |
| Create an ad hoc script to add a virtual machine. | <div style="border: 1px solid black; padding: 2px;"> <div style="text-align: right; padding-right: 5px;">▼</div> <div style="padding: 2px;">Azure PowerShell</div> <div style="background-color: #d9ead3; padding: 2px;">Desired State Configuration</div> </div> |

**Section: [none]**  
**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/automation/automation-intro>

<https://docs.microsoft.com/en-us/azure/virtual-machines/scripts/virtual-machines-windows-powershell-sample-create-iis-using-dsc-auto>

<https://docs.microsoft.com/en-us/azure/automation/automation-dsc-compile>

**QUESTION 16**

A company has a public-facing website that is being monitored using Microsoft Operations Management Suite (OMS). The OMS service map solution is deployed.

Customers report that the website displays error messages and is very slow to load pages each day at 04:00. The company plans to use the OMS Service Map solution to investigate the issues.

You need to recommend actions that the company should perform with OMS Service Map.

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

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

- A. View alerts that show critical CPU utilization.
- B. Install updates to the device that hosts the website.
- C. Create a backup of the web server.
- D. View the device that hosts the website.
- E. View the process that produced the alert.

**Correct Answer:** ADE

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/operations-management-suite/operations-management-suite-service-map>

#### **QUESTION 17**

You have business services that run on an on-premises mainframe server.

You must provide an intermediary configuration to support existing business services and Azure. The business services cannot be rewritten. The business services are not exposed externally.

You need to recommend an approach for accessing the business services.

What should you recommend?

- A. Connect to the on-premises server by using a custom service in Azure.
- B. Expose the business services externally.
- C. Expose the business services to the Azure Service Bus by using a custom service that uses relay binding.
- D. Move all business service functionality to Azure.

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<http://azure.microsoft.com/en-gb/documentation/articles/service-bus-dotnet-how-to-use-relay/>**QUESTION 18**

You are designing an Azure solution.

The network traffic for the solution must be securely distributed by providing the following features:

- HTTPS protocol
- Round robin routing
- SSL offloading

You need to recommend a load balancing option.

What should you recommend?

- A. Azure Internet Load Balancer (ILB)
- B. Azure Load Balancer
- C. Azure Traffic Manager
- D. Azure Application Gateway

**Correct Answer:** D**Section:** [none]**Explanation****Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/application-gateway/application-gateway-introduction>**QUESTION 19**

You use a virtual network to extend an on-premises IT environment into the cloud. The virtual network has two virtual machines (VMs) that store sensitive data.

The data must only be available using internal communication channels. Internet access to those VMs is not permitted.

You need to ensure that the VMs cannot access Internet.

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

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

- A. Azure ExpressRoute
- B. network interface (NIC)
- C. Source Network Address Translation (SNAT)
- D. Network Security Groups (NSG)

**Correct Answer:** AD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

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

<https://reticent.net.nz/prevent-internet-access-from-azure-virtual-machines/>

#### **QUESTION 20**

A company hosts a website and exposes web services on the company intranet. The intranet is secured by using a firewall. Company policies prohibit changes to firewall rules.

Devices outside the firewall must be able to access the web services.

You need to recommend an approach to enable inbound communication.

What should you recommend?

- A. the Azure Access Control Service
- B. Windows Azure Pack
- C. the Azure WCF Relay
- D. a web service in an Azure role that relays data to the internal web services

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/service-bus-relay/relay-what-is-it>

#### **QUESTION 21**

A partner manages on-premises and Azure environments. The partner deploys an on-premises solution that needs to use Azure services. The partner deploys a

virtual appliance.

All network traffic that is directed to a specific subnet must flow through the virtual appliance.

You need to recommend solutions to manage network traffic.

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

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

- A. Configure Azure Traffic Manager.
- B. Configure a routing table with forced tunneling.
- C. Implement an Azure virtual network.
- D. Implement Azure ExpressRoute.

**Correct Answer:** AD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

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

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

#### **QUESTION 22**

You manage on-premises network and Azure virtual networks.

You need a secure private connection between the on-premises networks and the Azure virtual networks. The connection must offer a redundant pair of cross connections to provide high availability.

What should you recommend?

- A. virtual network peering
- B. Azure Load Balancer
- C. VPN Gateway
- D. ExpressRoute

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/load-balancer/load-balancer-overview>

**QUESTION 23**

**DRAG DROP**

You are designing a solution that ingests, transforms, and stores streams of data from Internet of Things (IoT) devices.

The solution has the following requirements:

- Business users must be able to discover, understand, consume, and contribute to data creation.
- Transform data by using Spark.
- Data analysis must be performed by using a hub-and-spoke business intelligence model.

You need to choose the appropriate products for the solution.

Which technologies should you recommend? To answer, drag the appropriate technologies to the correct requirements. Each technology may be used once, more than one, 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:**

**Answer Area**

| Products                  | Requirement   | Product |
|---------------------------|---|---------|
| Azure Analysis Services   | Discover, understand, consume, and contribute data. | Product |
| Azure Data Factory        | Transform data                                      | Product |
| Azure Data Catalog        | Transform data analysis                             | Product |
| Azure Data Lake Analytics |   |         |

**Correct Answer:**

| Answer Area               |   |                    |
|---------------------------|---|--------------------|
| Products                  | Requirement   | Product            |
| Azure Analysis Services   | Discover, understand, consume, and contribute data. | Azure Data Catalog |
| Azure Data Factory        | Transform data                                      | Azure Data Factory |
| Azure Data Catalog        | Transform data analysis                             | Azure Data Factory |
| Azure Data Lake Analytics |   |                    |

**Section: [none]**  
**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/data-catalog/data-catalog-what-is-data-catalog>

<https://docs.microsoft.com/en-us/azure/data-factory/transform-data-using-spark>

<http://gcloud.world/the-cloud-in-the-news/announcing-azure-analysis-services-general-availability-2/>

**QUESTION 24**

DRAG DROP

You are designing an Azure storage solution for a company.

The company has the following storage requirements:

- An app named App1 uses data analytics on stored data. App1 must store data on a hierarchical file system that uses Azure Active Directory (Azure AD) access control lists.
- An app named App2 must have access to object-based storage. The storage must support role-based access control and use shared access signature keys.

You need to design the storage solution.

Which storage solution should you use for each app? To answer, drag the appropriate storage solutions to the correct apps. Each storage solution 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:

**Answer area**

| Storage solutions               | App  | Storage solution  |
|---------------------------------|------|-------------------|
| Azure Blob Storage              | App1 | Storage solutions |
| Azure File Storage              | App2 | Storage solutions |
| Azure Data Lake Store           |      |                   |
| Azure StorSimple virtual device |      |                   |
| Azure Site Recovery             |      |                   |



Correct Answer:

**Answer area**

| Storage solutions               | App  | Storage solution      |
|---------------------------------|------|-----------------------|
|                                 | App1 | Azure Data Lake Store |
| Azure File Storage              | App2 | Azure Blob Storage    |
|                                 |      |                       |
| Azure StorSimple virtual device |      |                       |
| Azure Site Recovery             |      |                       |

**Section:** [none]  
**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/data-lake-store/data-lake-store-comparison-with-blob-storage>

**QUESTION 25**

You are designing a solution that will aggregate and analyze data from Internet of Things (IoT) devices.

The solution must meet the following requirements:

- Store petabytes of data
- Use shared access policies to provide service connections to the IoT event source.
- Conduct analysis of data in near real-time.
- Provide ultra-low latency and highly scalable transaction processing.

You need to recommend a technology.

What should you recommend?

- A. Azure Data Lake Store
- B. Azure Redis Cache
- C. Azure Time Series Insights
- D. Azure Table storage

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://azure.microsoft.com/en-us/services/data-lake-store/>

#### **QUESTION 26**

Your company uses Office 365 for all employees. The company plans to create a website where customers can view and register technical support cases.

The solution must meet the following requirements:

- Provision customer identities by using social media accounts.
- Users must be able to access the website by using social media accounts including Facebook.
- Employees of the customer service department must be able to access the site to read the cases and resolve them.

You need to design an identity solution for the company.

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

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

- A. a custom policy to link internal store to the external store
- B. a new Azure Active Directory (Azure AD) business-to-business (B2B) tenant
- C. an Azure SQL data sync to link the internal store to the external one
- D. a new Azure Active Directory (Azure AD) business-to-consumer (B2C) tenant
- E. a new Azure Active Directory (Azure AD) tenant

**Correct Answer:** AD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/active-directory-b2c/active-directory-b2c-overview>

<https://docs.microsoft.com/en-us/azure/active-directory-b2c/active-directory-b2c-overview-custom>

**QUESTION 27**

**HOTSPOT**

You are building an application that will run in a virtual machine (VM). The application will use Managed Service Identity (MSI).

The application uses Azure Key Vault, Azure SQL Database, and Azure Cosmos DB.

You need to ensure the application can use secure credentials to access these services.

Which authorization method should you recommend? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

**Hot Area:**



**Answer area**

| Functionality   | Authorization method  |
|-----------------|---|
| Azure Key Vault | <div style="border: 1px solid black; padding: 2px;">▼</div> <div style="border: 1px solid black; padding: 2px;">Hash-based message authentication code (HMAC)</div> <div style="border: 1px solid black; padding: 2px;">Managed Service Identity (MSI)</div> <div style="border: 1px solid black; padding: 2px;">Role-based Access Controls (RBAC)</div> <div style="border: 1px solid black; padding: 2px;">HTTPS encryption</div> |
| Azure SQL       | <div style="border: 1px solid black; padding: 2px;">▼</div> <div style="border: 1px solid black; padding: 2px;">Hash-based message authentication code (HMAC)</div> <div style="border: 1px solid black; padding: 2px;">Managed Service Identity (MSI)</div> <div style="border: 1px solid black; padding: 2px;">Role-based Access Controls (RBAC)</div> <div style="border: 1px solid black; padding: 2px;">HTTPS encryption</div> |
| Cosmos DB       | <div style="border: 1px solid black; padding: 2px;">▼</div> <div style="border: 1px solid black; padding: 2px;">Hash-based message authentication code (HMAC)</div> <div style="border: 1px solid black; padding: 2px;">Managed Service Identity (MSI)</div> <div style="border: 1px solid black; padding: 2px;">Role-based Access Controls (RBAC)</div> <div style="border: 1px solid black; padding: 2px;">HTTPS encryption</div> |

**Correct Answer:**

**Answer area**

| <b>Functionality</b> | <b>Authorization method</b>  |
|----------------------|--|
| Azure Key Vault      | <div style="border: 1px solid black; padding: 2px;"> <div style="text-align: right; border-bottom: 1px solid black;">▼</div> <div style="border-bottom: 1px solid black;">Hash-based message authentication code (HMAC)</div> <div style="background-color: #e0f2f1; border-bottom: 1px solid black;">Managed Service Identity (MSI)</div> <div style="border-bottom: 1px solid black;">Role-based Access Controls (RBAC)</div> <div>HTTPS encryption</div> </div> |
| Azure SQL            | <div style="border: 1px solid black; padding: 2px;"> <div style="text-align: right; border-bottom: 1px solid black;">▼</div> <div style="border-bottom: 1px solid black;">Hash-based message authentication code (HMAC)</div> <div style="background-color: #e0f2f1; border-bottom: 1px solid black;">Managed Service Identity (MSI)</div> <div style="border-bottom: 1px solid black;">Role-based Access Controls (RBAC)</div> <div>HTTPS encryption</div> </div> |
| Cosmos DB            | <div style="border: 1px solid black; padding: 2px;"> <div style="text-align: right; border-bottom: 1px solid black;">▼</div> <div style="background-color: #e0f2f1; border-bottom: 1px solid black;">Hash-based message authentication code (HMAC)</div> <div style="border-bottom: 1px solid black;">Managed Service Identity (MSI)</div> <div style="border-bottom: 1px solid black;">Role-based Access Controls (RBAC)</div> <div>HTTPS encryption</div> </div> |

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/azure/active-directory/msi-tutorial-windows-vm-access-naaad>

<https://docs.microsoft.com/en-us/azure/active-directory/msi-tutorial-windows-vm-access-sql>  
<https://docs.microsoft.com/en-us/azure/cosmos-db/database-security>

#### QUESTION 28

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

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

A company has custom ASP.net and Java applications that run on old versions of Windows and Linux. The company plans to place applications in containers.

You need to design a solution that includes networking, service discovery, and load balancing for the applications. The solution must support storage orchestration.

Solution: You deploy each application to an Azure Container instance.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Azure Container Instances are really containers as a service. You request a container instance to be created based on an image and the container is created for you. You don't see an orchestrator, you don't see a VM, you don't see anything other than your container instance.

References: <https://azure.microsoft.com/en-us/services/container-instances/>

#### QUESTION 29

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

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

You are designing a storage solution to support on-premises resources and Azure-hosted resources.

You need to provide on-premises storage that has built-in replication to Azure.

Solution: You include Azure Files in the design.

Does this solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References: <https://azure.microsoft.com/en-us/services/container-instances/>

### QUESTION 30

You develop a new Azure Web App that uses multiple Azure blobs and static content. The Web App uses a large number of JavaScript files and cascading style sheets. Some of these files contain references to other files. Users are geographically dispersed.

You need to minimize the time to load individual pages.

What should you do?

- A. Migrate the Web App to Azure Service Fabric.
- B. Create a services layer by using an Azure-hosted ASP.NET web API.
- C. Use an Azure Content Delivery Network (CDN).
- D. Implement an Azure Redis Cache.
- E. Enable the Always On feature of the Web App.

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Azure Web Apps provides a great way of building and scale Web Apps. Adding a Redis Cache allows you serve data much faster to the user which increases the performance a lot. Redis Cache is an open source engine which has consistent low latency and high throughput.

References: <https://docs.microsoft.com/en-us/azure/redis-cache/cache-web-app-cache-aside-leaderboard>

**QUESTION 31**  
HOTSPOT

A company plans to implement an HTTP-based API to support a Web App. The Web App allows customers to check the status of their orders.

The API must meet the following requirements:

- Implement Azure Functions.
- Provide public read-only operations.
- Do not allow write operations.

You need to recommend configuration options.

What should you recommend? To answer, configure the appropriate options in the dialog box in the answer area.

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

**Hot Area:**



## Answer Area

| Topic                          | Value   |  |   |             |  |           |  |                   |  |                             |  |
|--------------------------------|---|--|---|-------------|--|-----------|--|-------------------|--|-----------------------------|--|
| Allowed authentication methods | <table border="1"><tr><td></td><td>▼</td></tr><tr><td colspan="2">All methods</td></tr><tr><td colspan="2">GET only</td></tr><tr><td colspan="2">GET and POST only</td></tr><tr><td colspan="2">GET, POST, and OPTIONS only</td></tr></table> |  | ▼ | All methods |  | GET only  |  | GET and POST only |  | GET, POST, and OPTIONS only |  |
|                                | ▼   |  |   |             |  |           |  |                   |  |                             |  |
| All methods                    |   |  |   |             |  |           |  |                   |  |                             |  |
| GET only                       |   |  |   |             |  |           |  |                   |  |                             |  |
| GET and POST only              |   |  |   |             |  |           |  |                   |  |                             |  |
| GET, POST, and OPTIONS only    |   |  |   |             |  |           |  |                   |  |                             |  |
| Authorization level            | <table border="1"><tr><td></td><td>▼</td></tr><tr><td colspan="2">Function</td></tr><tr><td colspan="2">Anonymous</td></tr><tr><td colspan="2">Admin</td></tr></table>  |  | ▼ | Function    |  | Anonymous |  | Admin             |  |                             |  |
|                                | ▼   |  |   |             |  |           |  |                   |  |                             |  |
| Function                       |   |  |   |             |  |           |  |                   |  |                             |  |
| Anonymous                      |   |  |   |             |  |           |  |                   |  |                             |  |
| Admin                          |   |  |   |             |  |           |  |                   |  |                             |  |

Correct Answer:

## Answer Area

| Topic                          | Value   |
|--------------------------------|---|
| Allowed authentication methods | <div style="border: 1px solid gray; padding: 2px;"> <div style="background-color: #cccccc; padding: 2px; text-align: right;">▼</div> <div style="padding: 2px;">All methods</div> <div style="background-color: #c8e6c9; padding: 2px;">GET only</div> <div style="padding: 2px;">GET and POST only</div> <div style="padding: 2px;">GET, POST, and OPTIONS only</div> </div> |
| Authorization level            | <div style="border: 1px solid gray; padding: 2px;"> <div style="background-color: #cccccc; padding: 2px; text-align: right;">▼</div> <div style="background-color: #c8e6c9; padding: 2px;">Function</div> <div style="padding: 2px;">Anonymous</div> <div style="padding: 2px;">Admin</div> </div>  |

**Section:** [none]  
**Explanation**

**Explanation/Reference:**  
Explanation:

Azure Functions is a solution for easily running small pieces of code, or "functions," in the cloud. You can write just the code you need for the problem at hand, without worrying about a whole application or the infrastructure to run it. Functions can make development even more productive, and you can use your development language of choice, such as C#, F#, Node.js, Java, or PHP.

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

### QUESTION 32

You have an Azure subscription named Subscription1.

You create several Azure virtual machines in Subscription1. All of the virtual machines belong to the same virtual network.

You have an on-premises Hyper-V server named Server1. Server1 hosts a virtual machine named VM1.

You plan to replicate VM1 to Azure.

You need to create additional objects in Subscription1 to support the planned deployment.

Which three objects should you create? Each correct answer presents part of the solution.

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

- A. storage account
- B. protection group
- C. Azure Traffic Manager instance
- D. endpoint
- E. Azure Site Recovery vault
- F. Hyper-V site

**Correct Answer:** AEF

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

You need to set up a Recovery Services vault to orchestrate and manage replication.

Make sure Hyper-V hosts are prepared for Site Recovery deployment.

You need a Microsoft Azure account, Azure networks, and storage accounts.

References: <https://docs.microsoft.com/en-us/azure/site-recovery/azure-to-azure-tutorial-enable-replication>

### QUESTION 33

You are designing the deployment of virtual machines (VMs) and web services that run in Azure.

You need to specify the desired state of a node and ensure that the node remains at that state.

What should you use?

- A. Azure Automation DSC
- B. Windows Azure Pack
- C. Service Management Automation
- D. System Center 2016 Orchestrator

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Azure Automation DSC is an Azure service that allows you to write, manage, and compile PowerShell Desired State Configuration (DSC) configurations, import DSC Resources, and assign configurations to target nodes, all in the cloud.

References: <https://docs.microsoft.com/en-us/azure/automation/automation-dsc-overview>

#### **QUESTION 34**

A company has a hybrid ASP.NET Web API application that is based on a software as a service (SaaS) offering.

Users report general issues with the data. You advise the company to implement live monitoring and use ad hoc queries on stored JSON data. You also advise the company to set up smart alerting to detect anomalies in the data.

You need to recommend a solution to set up smart alerting.

What should you recommend?

- A. Azure Security Center and Azure Data Lake Store
- B. Azure Data Lake Analytics and Microsoft Operations Management Suite.
- C. Azure Application Insights and Azure Log Analytics
- D. Azure Site Recovery and Microsoft Operations Management Suite

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

References: <https://azure.microsoft.com/en-us/blog/how-azure-security-center-helps-analyze-attacks-using-investigation-and-log-search/>

#### **QUESTION 35**

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

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

You need to recommend a solution that provides continued operations.

What should you recommend?

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

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Remember that replication from Azure to on-premises can happen only over the S2S VPN, or over the private peering of your ExpressRoute network. Ensure that enough bandwidth is available over that network channel.

References: <https://docs.microsoft.com/en-us/azure/expressroute/expressroute-faqs>

### **QUESTION 36**

You are designing an Azure solution.

The solution must meet the following requirements:

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

You need to recommend a solution to distribute network traffic.

Which technology should you recommend?

- A. Azure Load Balancer
- B. server-level firewall rules

- C. Azure Application Gateway
- D. Azure Traffic Manager

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Azure Application Gateway is a web traffic load balancer that enables you to manage traffic to your web applications.

Azure Application Gateway can be configured to terminate the Secure Sockets Layer (SSL) session at the gateway to avoid costly SSL decryption tasks to happen at the web farm. SSL offload also simplifies the front-end server setup and management of the web application.

References:

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

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

### QUESTION 37

A company receives over 1,000 emails each day through the general alias info@contoso.com. The emails originate from all over the world, and include complaints and sales inquiries. Many emails relate to random topics.

The company must be able to automatically categorize emails based upon the company location geographically closest to the sender.

You need to recommend a solution.

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

**NOTE:** Each correct selection presents a complete solution.

- A. Bing Web Search API
- B. Bot Builder SDK
- C. Text Analytics API
- D. Language Understanding Intelligent Service (LUIS) programmatic API

**Correct Answer:** BC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

The Microsoft Bot Framework provides just what you need to build and connect intelligent bots that interact naturally wherever your users are talking, from text/SMS to Skype, Slack, Office 365 mail and other popular services.

References: <https://blog.botframework.com/2018/05/07/build-a-microsoft-bot-framework-bot-with-the-bot-builder-sdk-v4/>

**QUESTION 38**

You are developing a hybrid solution for a video editing company. Videos are currently edited on-premises and stored in Server Message Block (SMB) protocol share. Due to legal regulations, videos must be stored on-premises.

You must distribute videos by using Azure Media Services.

You need to recommend a storage solution for the videos.

What should you recommend?

- A. Azure StorSimple
- B. Azure Blob storage
- C. Azure Table storage
- D. Azure Cosmos DB



**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

The Microsoft Azure StorSimple Virtual Array is an integrated storage solution that manages storage tasks between an on-premises virtual array running in a hypervisor and Microsoft Azure cloud storage.

The virtual array supports the iSCSI or Server Message Block (SMB) protocol. It runs on your existing hypervisor infrastructure and provides tiering to the cloud, cloud backup, fast restore, item-level recovery, and disaster recovery features.

References: <https://docs.microsoft.com/en-us/azure/storsimple/storsimple-ova-overview>

**QUESTION 39**

DRAG DROP

You manage a large number of on-premises applications. You plan to migrate the applications to Azure.

You need to implement Azure Storage for each type of data that the applications use.

For each type of data, which storage mechanism should you use? To answer, drag the appropriate storage mechanism to the correct type of data. Each storage mechanism 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.

Select and Place:

### Storage option

- Azure Queue storage
- Azure Blob storage
- Azure Premium Managed Disk storage
- Azure Table storage
- Azure File storage

### Answer area

| Type of data  | Storage option |
|---|----------------|
| Log files and other large datasets  | storage option |
| Flexible datasets, including user data for web applications               | storage option |
| Data associated with managing asynchronous tasks                          | storage option |
| Configuration files and diagnostic data including metrics and crash dumps | storage option |
| Virtual machine disk files  | storage option |

Correct Answer:

### Storage option

- Azure Queue storage
- Azure Blob storage
- Azure Premium Managed Disk storage
- Azure Table storage
- Azure File storage

### Answer area



#### Type of data

- Log files and other large datasets
- Flexible datasets, including user data for web applications
- Data associated with managing asynchronous tasks
- Configuration files and diagnostic data including metrics and crash dumps
- Virtual machine disk files

#### Storage option

- Azure Blob storage
- Azure Table storage
- Azure Queue storage
- Azure File storage
- Azure Blob storage

Section: [none]  
Explanation

Explanation/Reference:

#### QUESTION 40 HOTSPOT

You are designing a solution that uses Azure Storage. The solution will store the following information.

| Name    | Description  | Requirements   |
|---------|--|--|
| Product | The product catalog consumes at least one petabyte (PB) of storage.                | Store product data in hierarchical file system.  |
| User    | Stores transactional data. Each transaction consumes one kilobyte (KB) of storage. | Store user data as key/value pairs and support frequent read operations.               |
| IoT     | Stores data collected from thousands of sensors.                                   | Support high throughput write operations and provide near real-time trend information. |

You need to recommend storage technologies for the solution.

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

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

**Hot Area:**

## Answer Area

### Storage technology

### Data option

Azure Data Lake Store

|                     |   |
|---------------------|---|
|                     | ▼ |
| Store product data. |   |
| Store user data.    |   |
| Store IoT data.     |   |

Azure Redis Cache

|                     |   |
|---------------------|---|
|                     | ▼ |
| Store product data. |   |
| Store user data.    |   |
| Store IoT data.     |   |

Time Series Insights

|                     |   |
|---------------------|---|
|                     | ▼ |
| Store product data. |   |
| Store user data.    |   |
| Store IoT data.     |   |

**Correct Answer:**

## Answer Area

### Storage technology

### Data option

Azure Data Lake Store

|                     |   |
|---------------------|---|
|                     | ▼ |
| Store product data. |   |
| Store user data.    |   |
| Store IoT data.     |   |

Azure Redis Cache

|                     |   |
|---------------------|---|
|                     | ▼ |
| Store product data. |   |
| Store user data.    |   |
| Store IoT data.     |   |

Time Series Insights

|                     |   |
|---------------------|---|
|                     | ▼ |
| Store product data. |   |
| Store user data.    |   |
| Store IoT data.     |   |

Section: [none]

Explanation

Explanation/Reference:

#### QUESTION 41

A company plans to use Azure Cosmos DB as the document store for an application.

You need to estimate the request units required for the application.

Which variable should you include when calculating the estimate?

- A. item size
- B. consistency level
- C. cache size
- D. number of regions

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

When using data consistency levels of Strong or Bounded Staleness, additional units are consumed to read items.

References: <https://docs.microsoft.com/en-us/azure/cosmos-db/request-units>

**QUESTION 42**

HOTSPOT

You manage a hybrid Azure solution for a company.

You need to recommend Advanced Threat Detection solutions to guard against hacker attacks in different scenarios.

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

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

**Hot Area:**

## Answer Area

### Threat detection scenario

### Solution

Alerting about access to a privileged role

|  |
|--|
| ▼  |
| Azure AD Identity Protection                   |
| Azure AD Privileged Identity Management (PIM)  |
| Azure Security Center                          |
| Operations Management Suite Security and Audit |

These are the selections for the scenario Alerting about access to a privileged role

Analyzing attack patterns and trends

|  |
|--|
| ▼  |
| Azure AD Identity Protection                   |
| Azure AD Privileged Identity Management (PIM)  |
| Azure Security Center                          |
| Operations Management Suite Security and Audit |

Using conditional access policies to secure identities

|  |
|--|
| ▼  |
| Azure AD Identity Protection                   |
| Azure AD Privileged Identity Management (PIM)  |
| Azure Security Center                          |
| Operations Management Suite Security and Audit |

Visualizing real-time security alerts

|  |
|--|
| ▼  |
| Azure AD Identity Protection                   |
| Azure AD Privileged Identity Management (PIM)  |
| Azure Security Center                          |
| Operations Management Suite Security and Audit |

**Correct Answer:**



## Answer Area

### Threat detection scenario

### Solution

Alerting about access to a privileged role

|  |   |
|--|---|
|  | ▼ |
| Azure AD Identity Protection                   |   |
| Azure AD Privileged Identity Management (PIM)  |   |
| Azure Security Center                          |   |
| Operations Management Suite Security and Audit |   |

These are the selections for the scenario Alerting about access to a privileged role

Analyzing attack patterns and trends

|  |   |
|--|---|
|  | ▼ |
| Azure AD Identity Protection                   |   |
| Azure AD Privileged Identity Management (PIM)  |   |
| Azure Security Center                          |   |
| Operations Management Suite Security and Audit |   |

Using conditional access policies to secure identities

|  |   |
|--|---|
|  | ▼ |
| Azure AD Identity Protection                   |   |
| Azure AD Privileged Identity Management (PIM)  |   |
| Azure Security Center                          |   |
| Operations Management Suite Security and Audit |   |

Visualizing real-time security alerts

|  |   |
|--|---|
|  | ▼ |
| Azure AD Identity Protection                   |   |
| Azure AD Privileged Identity Management (PIM)  |   |
| Azure Security Center                          |   |
| Operations Management Suite Security and Audit |   |

**Section: [none]**

**Explanation**

**Explanation/Reference:**

Explanation:

Box 1 (Alerting about access to a privileged role): Azure Privileged Identity Management (PIM)

Azure Privileged Identity Management (PIM) generates alerts when there is suspicious or unsafe activity in your environment. When an alert is triggered, it shows up on the PIM dashboard.

Box 2 (Analyzing attack patterns and trends): Azure Security Center

Every second counts when you are under attack. Azure Security Center (ASC) uses advanced analytics and global threat intelligence to detect malicious threats, and the new capabilities empower you to respond quickly.

Box 3 (Using conditional access policies to secure identities): Azure AD Identity Protection

Security is a top concern for organizations using the cloud. A key aspect of cloud security is identity and access when it comes to managing your cloud resources. In a mobile-first, cloud-first world, users can access your organization's resources using a variety of devices and apps from anywhere. As a result of this, just focusing on who can access a resource is not sufficient anymore. In order to master the balance between security and productivity, IT professionals also need to factor how a resource is being accessed into an access control decision. With Azure AD conditional access, you can address this requirement. Conditional access is a capability of Azure Active Directory that enables you to enforce controls on the access to apps in your environment based on specific conditions from a central location.

Box 4 (Visualizing real-time security alerts): Operations Management Suite Security and Audit

The OMS Security and Audit solution provides a comprehensive view into your organization's IT security posture with built-in search queries for notable issues that require your attention. The Security and Audit dashboard is the home screen for everything related to security in OMS. It provides high-level insight into the security state of your computers. It also includes the ability to view all events from the past 24 hours, 7 days, or any other custom time frame.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/active-directory-privileged-identity-management-how-to-configure-security-alerts>

<https://azure.microsoft.com/en-us/blog/how-azure-security-center-helps-analyze-attacks-using-investigation-and-log-search/>

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

<https://docs.microsoft.com/en-us/azure/security-center/security-center-managing-and-responding-alerts>

### **QUESTION 43**

**HOTSPOT**

You manage an Azure solution that processes highly sensitive data.

Existing roles are not suited to the granular access control that is required for this data.

You need to recommend solutions to limit access to the data based on selected restrictions.

What should you recommend? To answer, drag the appropriate restrictions to the correct solutions. Each restriction 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.

Hot Area:

## Answer Area

| Restriction                          | Solution  |
|--------------------------------------|---|
| Automatic access expiration          | <div style="border: 1px solid gray; background-color: #f0f0f0; padding: 2px; text-align: right;">▼</div> <div style="border: 1px solid gray; padding: 2px;">Conditional Access for Azure management</div> <div style="border: 1px solid gray; padding: 2px;">Managed Service Identity (MSI)</div> <div style="border: 1px solid gray; padding: 2px;">Privileged Identity Management (PIM) with Role-Based Access Control (RBAC)</div> <div style="border: 1px solid gray; padding: 2px;">Role-Based Access Control (RBAC)</div>                                 |
| Time-based access restrictions       | <div style="border: 1px solid gray; background-color: #f0f0f0; padding: 2px; text-align: right;">VCE To PDF - Free Practice Exam ▼</div> <div style="border: 1px solid gray; padding: 2px;">Conditional Access for Azure management</div> <div style="border: 1px solid gray; padding: 2px;">Managed Service Identity (MSI)</div> <div style="border: 1px solid gray; padding: 2px;">Privileged Identity Management (PIM) with Role-Based Access Control (RBAC)</div> <div style="border: 1px solid gray; padding: 2px;">Role-Based Access Control (RBAC)</div> |
| Access to Azure Management endpoints | <div style="border: 1px solid gray; background-color: #f0f0f0; padding: 2px; text-align: right;">▼</div> <div style="border: 1px solid gray; padding: 2px;">Conditional Access for Azure management</div> <div style="border: 1px solid gray; padding: 2px;">Managed Service Identity (MSI)</div> <div style="border: 1px solid gray; padding: 2px;">Privileged Identity Management (PIM) with Role-Based Access Control (RBAC)</div> <div style="border: 1px solid gray; padding: 2px;">Role-Based Access Control (RBAC)</div>                                 |

**Correct Answer:**

## Answer Area

| Restriction                          | Solution   |
|--------------------------------------|--|
| Automatic access expiration          | ▼  |
|                                      | Conditional Access for Azure management                                    |
|                                      | Managed Service Identity (MSI)   |
|                                      | Privileged Identity Management (PIM) with Role-Based Access Control (RBAC) |
|                                      | Role-Based Access Control (RBAC)   |
| Time-based access restrictions       | ▼  |
|                                      | Conditional Access for Azure management                                    |
|                                      | Managed Service Identity (MSI)   |
|                                      | Privileged Identity Management (PIM) with Role-Based Access Control (RBAC) |
|                                      | Role-Based Access Control (RBAC)   |
| Access to Azure Management endpoints | ▼  |
|                                      | Conditional Access for Azure management                                    |
|                                      | Managed Service Identity (MSI)   |
|                                      | Privileged Identity Management (PIM) with Role-Based Access Control (RBAC) |
|                                      | Role-Based Access Control (RBAC)   |

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Automatic access expiration: Privileged Identity Management (PIM)

To protect privileged accounts from malicious cyber-attacks, you can use Azure Active Directory Privileged Identity Management (PIM) to lower the exposure time of privileges and increase your visibility into their use through reports and alerts.

You can now use PIM with Azure Role-Based Access Control (RBAC) to manage, control, and monitor access to Azure resources. PIM can manage the membership of built-in and custom roles to help you:

- Enable on-demand, "just in time" access to Azure resources
- Expire resource access automatically for assigned users and groups
- Assign temporary access to Azure resources for quick tasks or on-call schedules
- Get alerts when new users or groups are assigned resource access, and when they activate eligible assignments

Time-based access restrictions: Conditional Access

Conditional access is a capability of Azure Active Directory that enables you to enforce controls on the access to apps in your environment based on specific conditions from a central location.

Conditional Access App Control enables user app access and sessions to be monitored and controlled in real time based on access and session policies.

Access to Azure Management endpoints: Conditional Access

References:

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

<https://docs.microsoft.com/en-us/cloud-app-security/proxy-intro-aad>

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

#### **QUESTION 44**

##### **HOTSPOT**

A company requires secure communication between virtual machines (VMs) without exposing credentials. The security officer wants to perform proof-of-concept testing using managed service identities.

You need to recommend a solution for performing proof-of-concept testing.

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

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

**Hot Area:**

## Answer Area

| Step | Action  |
|------|---|
| 1    | <div style="background-color: #e0e0e0; padding: 2px; border: 1px solid #ccc; margin-bottom: 2px;">▼</div> <ul style="list-style-type: none"> <li>Enable Managed Service Identity on the VM.</li> <li>Activate Azure Key Vault for the VM.</li> <li>Create an Azure resource manager policy for the VM.</li> <li>Create a new user's database for the VM.</li> </ul>   |
| 2    | <div style="background-color: #e0e0e0; padding: 2px; border: 1px solid #ccc; margin-bottom: 2px;">▼</div> <ul style="list-style-type: none"> <li>Grant the VM access to a Resource Group in Azure Resource Manager.</li> <li>Create a service principal in Azure Active Directory (Azure AD).</li> <li>Add the Windows identity to your VM.</li> <li>Add a user to an Azure SQL database.</li> </ul>  |
| 3    | <div style="background-color: #e0e0e0; padding: 2px; border: 1px solid #ccc; margin-bottom: 2px;">▼</div> <ul style="list-style-type: none"> <li>Get an access token using the VM identity and call Azure Resource Manager.</li> <li>Copy the application key and use it to call Azure Resource Manager.</li> <li>Get the connection string and use it to call Azure Resource Manager.</li> <li>Paste the password hash and use it to call Azure Resource Manager.</li> </ul> |

**Correct Answer:**

## Answer Area

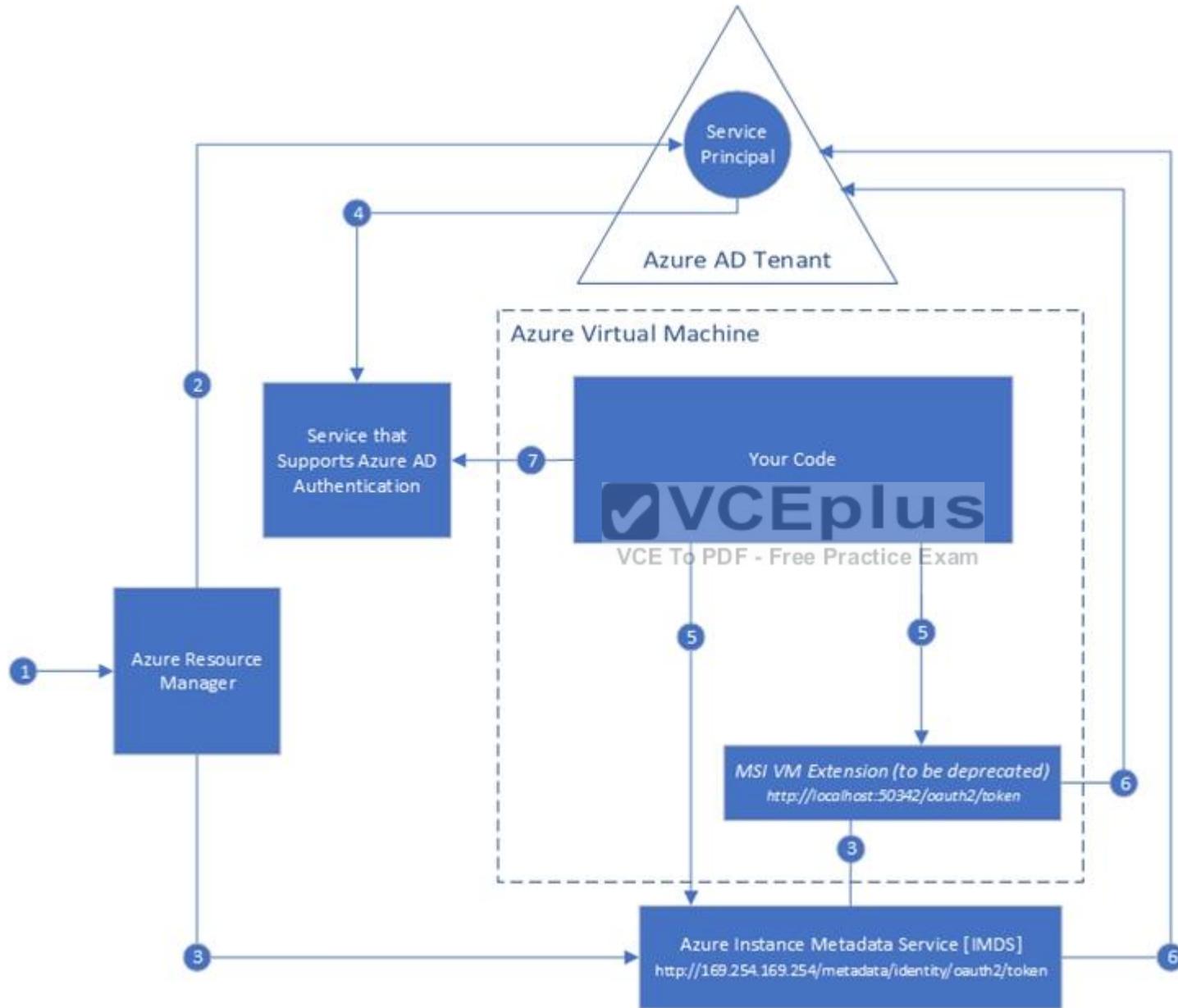
| Step | Action   |
|------|--|
| 1    | Enable Managed Service Identity on the VM.                                 |
|      | Activate Azure Key Vault for the VM.                                       |
|      | Create an Azure resource manager policy for the VM.                        |
|      | Create a new user's database for the VM.                                   |
| 2    | Grant the VM access to a Resource Group in Azure Resource Manager.         |
|      | Create a service principal in Azure Active Directory (Azure AD).           |
|      | Add the Windows identity to your VM.                                       |
|      | Add a user to an Azure SQL database.                                       |
| 3    | Get an access token using the VM identity and call Azure Resource Manager. |
|      | Copy the application key and use it to call Azure Resource Manager.        |
|      | Get the connection string and use it to call Azure Resource Manager.       |
|      | Paste the password hash and use it to call Azure Resource Manager.         |

**Section:** [none]  
**Explanation**

**Explanation/Reference:**  
Explanation:

Here's an example of how System Assigned Identities work with Azure Virtual Machines:





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

**QUESTION 45**

**HOTSPOT**

You manage a network that includes an on-premises Active Directory Domain Services domain and an Azure Active Directory (Azure AD).

Employees are required to use different accounts when using on-premises or cloud resources. You must recommend a solution that lets employees sign in to all company resources by using a single account. The solution must implement an identity provider.

You need provide guidance on the different identity providers.

How should you describe each identity provider? To answer, select the appropriate description from each list in the answer area.

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

**Hot Area:**



## Answer Area

### Identity provider      Description

synchronized identity

|   | ▼ |
|---|---|
| User management occurs on-premises. Azure AD authenticates employees by using on-premises password.       |   |
| User management occurs on-premises. The on-premises domain controller authenticates employee credentials. |   |
| Both user management and authentication occur in Azure AD.  |   |

federated identity

|   | ▼ |
|---|---|
| User management occurs on-premises. Azure AD authenticates employees by using on-premises passwords.      |   |
| User management occurs on-premises. The on-premises domain controller authenticates employee credentials. |   |
| Both user management and authentication occur in Azure AD.  |   |

Correct Answer:

## Answer Area

### Identity provider      Description

synchronized identity

|   |
|---|
| ▼   |
| User management occurs on-premises. Azure AD authenticates employees by using on-premises password.       |
| User management occurs on-premises. The on-premises domain controller authenticates employee credentials. |
| Both user management and authentication occur in Azure AD.  |

federated identity

|   |
|---|
| ▼   |
| User management occurs on-premises. Azure AD authenticates employees by using on-premises passwords.      |
| User management occurs on-premises. The on-premises domain controller authenticates employee credentials. |
| Both user management and authentication occur in Azure AD.  |

**Section:** [none]

**Explanation**

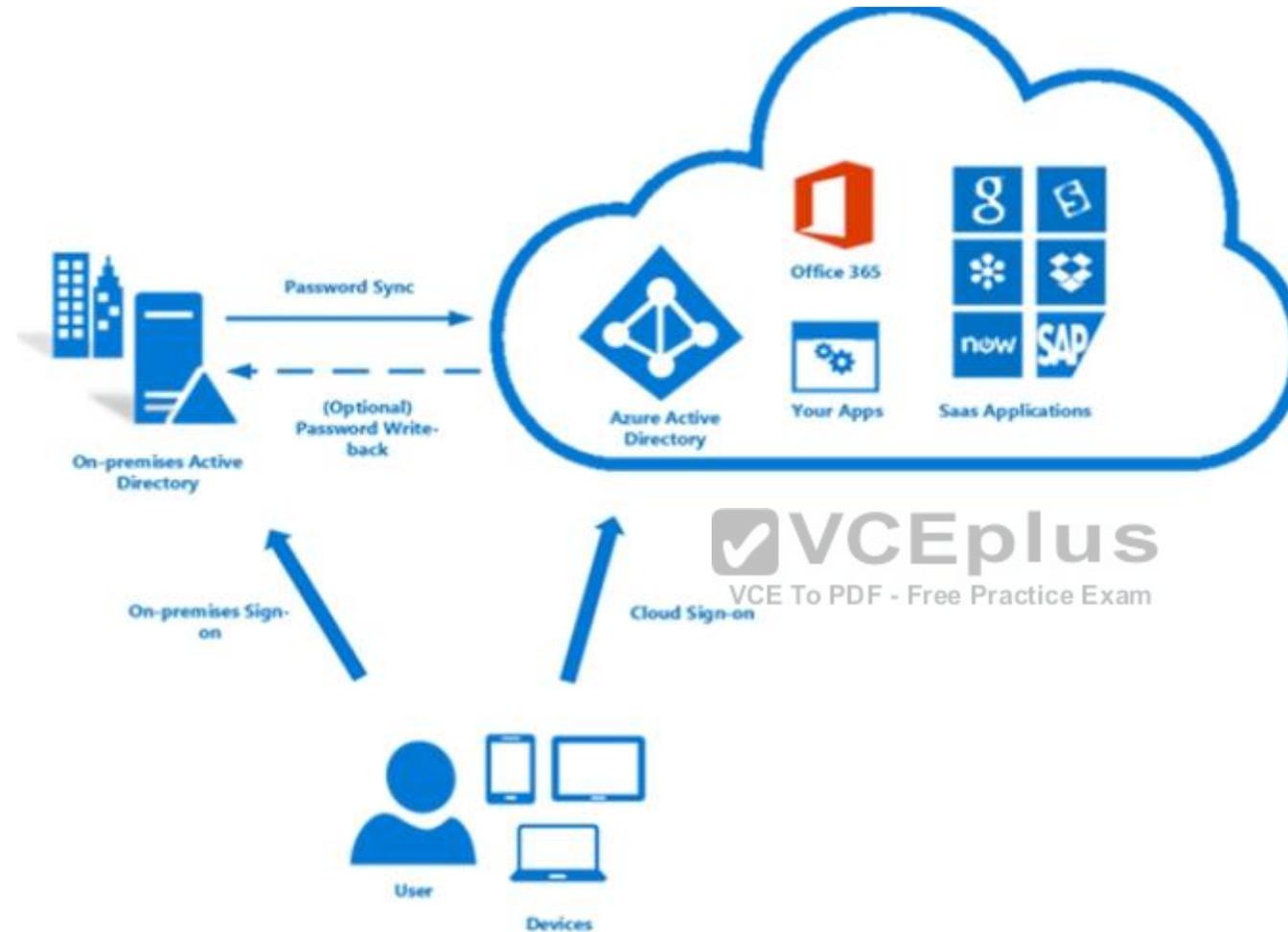
**Explanation/Reference:**

Explanation:

Synchronized identity is the simplest way to synchronize on-premises directory objects (users and groups) with Azure AD.

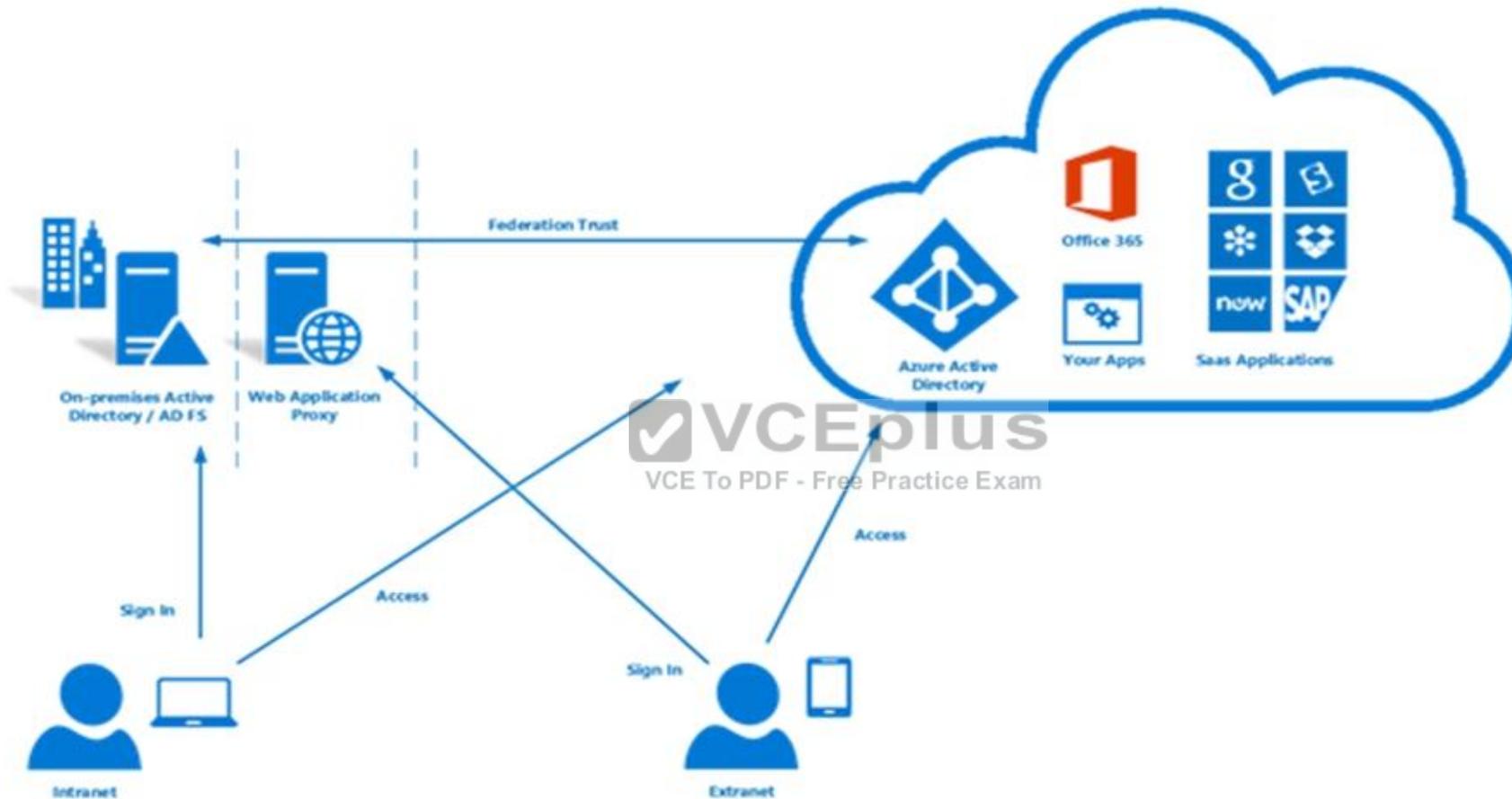
While synchronized identity is the easiest and quickest method, your users still need to maintain a separate password for cloud-based resources. To avoid this, you can also (optionally) synchronize a hash of user passwords to your Azure AD directory. Synchronizing password hashes enables users to log in to cloud-based organizational resources with the same user name and password that they use on-premises. Azure AD Connect periodically checks your on-premises directory for changes and keeps your Azure AD directory synchronized. When a user attribute or password is changed on-premises Active Directory, it is automatically

updated in Azure AD.



#### Federated identity:

For more control over how users access Office 365 and other cloud services, you can set up directory synchronization with single sign-on (SSO) using Active Directory Federation Services (AD FS). Federating your user's sign-ins with AD FS delegates authentication to an on-premises server that validates user credentials. In this model, on-premises Active Directory credentials are never passed to Azure AD.



Reference: <https://docs.microsoft.com/en-us/azure/active-directory/choose-hybrid-identity-solution#synchronized-identity>

#### QUESTION 46

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

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

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

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

You need to define public access to the VMs.

Solution: Implement an Azure Load Balancer.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

Public IP addresses are necessary because they provide the load balanced entry point for the virtual machines in the scale set. The public IP address will route traffic to the appropriate virtual machines in the scale set.

Reference: <https://mitra.computa.asia/articles/msdn-virtual-machine-scale-sets-it-really-about-protecting-your-applications-performance>

#### **QUESTION 47**

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

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

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

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

You need to define public access to the VMs.

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

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

All VMs do not need public IP addresses.

Public IP addresses are necessary because they provide the load balanced entry point for the virtual machines in the scale set. The public IP address will route traffic to the appropriate virtual machines in the scale set.

Reference: <https://mitra.computa.asia/articles/msdn-virtual-machine-scale-sets-it-really-about-protecting-your-applications-performance>

#### QUESTION 48

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

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

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

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

You need to define public access to the VMs.

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

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Public IP addresses are necessary because they provide the load balanced entry point for the virtual machines in the scale set. The public IP address will route

traffic to the appropriate virtual machines in the scale set.

Reference: <https://mitra.computa.asia/articles/msdn-virtual-machine-scale-sets-it-really-about-protecting-your-applications-performance>

#### QUESTION 49

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

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

You manage a solution in Azure. You configure Event Hubs to collect telemetry data from dozens of industrial machines. Hundreds of events per minute are logged in near real-time. You use this data to create dashboards for analysts.

The company is expanding their machinery and wants to know if the current telemetry solution will be sufficient to handle the volume of the increasing workload. The volume will increase 10 times by year end and on a regular basis thereafter. Latency will become more and more important as volume increases.

Messages must be retained for a week. Data must be captured automatically without price increase.

You need to recommend a solution.

Solution: Use single-tenant hosting in the dedicated tier to handle the increased volume.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer: A**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

Azure Event Hubs Dedicated is ideal for customers that need a single-tenant deployment to manage the most demanding requirements.

Note: The dedicated tier option involves Zero maintenance: The service manages load balancing, OS updates, security patches, and partitioning.

The following table compares the available service tiers of Event Hubs. The Event Hubs Dedicated offering is a fixed monthly price, compared to usage pricing for most features of Standard. The Dedicated tier offers all the features of the Standard plan, but with enterprise scale capacity for customers with demanding workloads.

| Feature   | Standard               | Dedicated                         |
|---|------------------------|-----------------------------------|
| Ingress events                                      | Pay per million events | Included                          |
| Throughput unit (1 MB/sec ingress, 2 MB/sec egress) | Pay per hour           | Included                          |
| Message Size  | 256 KB                 | 1 MB                              |
| Publisher policies                                  | Yes                    | Yes                               |
| Consumer groups                                     | 20                     | 20                                |
| Message replay                                      | Yes                    | Yes                               |
| Maximum throughput units                            | 20 (flexible to 100)   | 1 Capacity Unit (CU) $\approx$ 50 |

Reference: <https://docs.microsoft.com/en-us/azure/event-hubs/event-hubs-dedicated-overview>

#### QUESTION 50

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

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

You manage a solution in Azure. You configure Event Hubs to collect telemetry data from dozens of industrial machines. Hundreds of events per minute are logged in near real-time. You use this data to create dashboards for analysts.

The company is expanding their machinery and wants to know if the current telemetry solution will be sufficient to handle the volume of the increasing workload. The volume will increase 10 times by year end and on a regular basis thereafter. Latency will become more and more important as volume increases.

Messages must be retained for a week. Data must be captured automatically without price increase.

You need to recommend a solution.

Solution: Use the more flexible deployment model in the dedicated tier for the increased workload.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Azure Event Hubs Dedicated is ideal for customers that need a single-tenant deployment, not the flexible deployment model, to manage the most demanding requirements.

Reference: <https://docs.microsoft.com/en-us/azure/event-hubs/event-hubs-dedicated-overview>

#### QUESTION 51

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

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

You manage a solution in Azure. You configure Event Hubs to collect telemetry data from dozens of industrial machines. Hundreds of events per minute are logged in near real-time. You use this data to create dashboards for analysts.

The company is expanding their machinery and wants to know if the current telemetry solution will be sufficient to handle the volume of the increasing workload. The volume will increase 10 times by year end and on a regular basis thereafter. Latency will become more and more important as volume increases.

Messages must be retained for a week. Data must be captured automatically without price increase.

You need to recommend a solution.

Solution: Use the fully-managed platform as a service option in the dedicated tier to handle the increased volume.

Does the solution meet the goal?

- A. Yes
- B. No

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Azure Event Hubs Dedicated is ideal for customers that need a single-tenant deployment, not the fully-managed platform, to manage the most demanding requirements.

Reference: <https://docs.microsoft.com/en-us/azure/event-hubs/event-hubs-dedicated-overview>

**QUESTION 52**

Your company is developing an e-commerce Azure App Service Web App to support hundreds of restaurant locations around the world. You are designing the messaging solution architecture to support the e-commerce transactions and messages.

The e-commerce application has the following features and requirements:



| Feature                | Requirement   |
|------------------------|---|
| Shopping Cart          | <ul style="list-style-type: none"> <li>• Items in a shopping cart must be processed by an Azure Function within a specified number of minutes. Failure to process should move the items to a failed state for processing by a separate Azure Function.</li> <li>• Shopping cart transactions must not be lost and fault conditions must be processed separately.</li> <li>• Shopping cart transactions must be read by the inventory and sales systems for further processing.</li> </ul> |
| Inventory Distribution | <ul style="list-style-type: none"> <li>• Items sent to the inventory system must run a separate workflow for each item that includes warehouse, shipping, and order processing updates</li> <li>• Inventory uses Azure Blob storage to store inventory items and related information.</li> <li>• Inventory is processed by using an Azure Logic App.</li> </ul>   |
| Restaurant Telemetry   | <ul style="list-style-type: none"> <li>• Restaurants stream millions of daily events from all locations.</li> <li>• Restaurant data should be captured in Azure Blob storage for conditional processing.</li> <li>• Restaurant event data should expire after 24 hours.</li> </ul>  |

You need to choose the Azure messaging solution to support the Restaurant Telemetry feature.

Which Azure service should you use?

- A. Azure Event Hub
- B. Azure Service Bus
- C. Azure Event Grid
- D. Azure Relay

**Correct Answer:** A

**Section: [none]**

**Explanation**

**Explanation/Reference:**

Explanation:

Azure Event Hubs is a highly scalable data streaming platform and event ingestion service, capable of receiving and processing millions of events per second. Event Hubs can process and store events, data, or telemetry produced by distributed software and devices.

Capture enables you to capture Event Hubs streaming data and store it in an Azure Blob storage account.

Incorrect Answers:

D: The Azure Relay service facilitates hybrid applications by enabling you to securely expose services that reside within a corporate enterprise network to the public cloud, without having to open a firewall connection, or require intrusive changes to a corporate network infrastructure.

Reference: <https://docs.microsoft.com/en-us/azure/event-hubs/event-hubs-what-is-event-hubs>

**QUESTION 53**

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

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

You need to change the billing model to per-user.

What should you recommend?

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

**Correct Answer: C**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

The billing model is selected during resource creation and cannot be changed once the resource is provisioned. It's possible, however, to create a new Multi-Factor Authentication resource to replace the original. Please note that user settings and configuration options cannot be transferred to the new resource.

Reference: <https://azure.microsoft.com/en-us/pricing/details/multi-factor-authentication/>

**QUESTION 54****DRAG DROP**

You manage a bot in a serverless architecture.

The bot provides custom responses to questions based upon the identity of the user.

The bot must meet the following requirements:

- Identify the user by face.
- Provide text-to-speech reading of questions to the user.
- Analyze the text of the user's responses for patterns.

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

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

**Select and Place:**



## Solutions

Azure Bot service

Azure Container Instances

Azure Functions

Azure Cognitive Services

Azure Machine Learning

## Answer Area

### Scenario

Identify users by face.

Provide text-to-speech services.

Read questions to users.

### Solution

Solution

Solution

Solution

Correct Answer:

## Solutions

Azure Bot service

Azure Container Instances

Azure Functions

Azure Cognitive Services

Azure Machine Learning

## Answer Area

### Scenario

Identify users by face.

Provide text-to-speech services.

Read questions to users.

### Solution

Azure Cognitive Serv

Azure Cognitive Serv

Azure Functions

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Note: With Azure, built-in intelligence is within the reach of all app developers. Enable your serverless code or logic to use Machine Learning and Cognitive Services.

Box 1, Identify users by face: Azure Cognitive Services

Microsoft Face API, a cloud-based service that provides the most advanced face algorithms. Face API has two main functions: face detection with attributes and face recognition.

Box 2, Provide text-to-speech services: Azure Cognitive Services

Infuse your apps, websites and bots with intelligent algorithms to see, hear, speak, understand and interpret your user needs through natural methods of communication.

Example:

Speech: Convert spoken audio into text, use voice for verification, or add speaker recognition to your app.

Box 3, Read questions to users: Azure Functions  
Azure Functions is a serverless solution.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/face/overview>

<https://azure.microsoft.com/en-us/services/cognitive-services/>

### **QUESTION 55**

#### **HOTSPOT**

You are designing a virtual network to support a web application. The web application uses Blob storage to store large images. The web application will be deployed to an Azure App Service Web App.

You have the following requirements:

- Secure all communications by using Secured Sockets Layer (SSL).
- SSL encryption and decryption must be processed efficiently to support high traffic load on the web application.
- Protect the web application from web vulnerabilities and attacks without modification to backend code.
- Optimize web application responsiveness and reliability by routing HTTP request and responses to the endpoint with the lowest network latency for the client.

You need to configure the Azure components to meet the 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

| Requirement                             | Component   |
|---|---|
| SSL Encrypt/Decrypt'                    | <div style="border: 1px solid black; padding: 2px;">▼</div> <div style="border: 1px solid black; padding: 2px;">Azure Application Gateway</div> <div style="border: 1px solid black; padding: 2px;">Azure Monitor</div> <div style="border: 1px solid black; padding: 2px;">Azure Security Center</div> <div style="border: 1px solid black; padding: 2px;">Azure Network Watcher</div> |
| Protect from web vulnerabilities        | <div style="border: 1px solid black; padding: 2px;">▼</div> <div style="border: 1px solid black; padding: 2px;">Azure Application Gateway</div> <div style="border: 1px solid black; padding: 2px;">Azure Monitor</div> <div style="border: 1px solid black; padding: 2px;">Azure Security Center</div> <div style="border: 1px solid black; padding: 2px;">Azure Traffic Manager</div> |
| Optimize responsiveness and reliability | <div style="border: 1px solid black; padding: 2px;">▼</div> <div style="border: 1px solid black; padding: 2px;">Azure Application Gateway</div> <div style="border: 1px solid black; padding: 2px;">Azure Monitor</div> <div style="border: 1px solid black; padding: 2px;">Azure Traffic Manager</div> <div style="border: 1px solid black; padding: 2px;">Azure Network Watcher</div> |

Correct Answer:

## Answer Area

| Requirement                             | Component   |
|---|---|
| SSL Encrypt/Decrypt'                    | <div style="border: 1px solid gray; padding: 2px;"> <div style="background-color: #cccccc; padding: 2px; text-align: right;">▼</div> <div style="padding: 2px;"> <p style="background-color: #d9ead3; margin: 0;">Azure Application Gateway</p> <p style="margin: 0;">Azure Monitor</p> <p style="margin: 0;">Azure Security Center</p> <p style="margin: 0;">Azure Network Watcher</p> </div> </div> |
| Protect from web vulnerabilities        | <div style="border: 1px solid gray; padding: 2px;"> <div style="background-color: #cccccc; padding: 2px; text-align: right;">▼</div> <div style="padding: 2px;"> <p style="margin: 0;">Azure Application Gateway</p> <p style="margin: 0;">Azure Monitor</p> <p style="background-color: #d9ead3; margin: 0;">Azure Security Center</p> <p style="margin: 0;">Azure Traffic Manager</p> </div> </div> |
| Optimize responsiveness and reliability | <div style="border: 1px solid gray; padding: 2px;"> <div style="background-color: #cccccc; padding: 2px; text-align: right;">▼</div> <div style="padding: 2px;"> <p style="margin: 0;">Azure Application Gateway</p> <p style="margin: 0;">Azure Monitor</p> <p style="background-color: #d9ead3; margin: 0;">Azure Traffic Manager</p> <p style="margin: 0;">Azure Network Watcher</p> </div> </div> |

Section: [none]

## Explanation

### Explanation/Reference:

Explanation:

#### Box 1: Azure Application Gateway

Application gateway supports SSL termination at the gateway, after which traffic typically flows unencrypted to the backend servers. This feature allows web servers to be unburdened from costly encryption and decryption overhead. However, sometimes unencrypted communication to the servers is not an acceptable option. This could be due to security requirements, compliance requirements, or the application may only accept a secure connection. For such applications, application gateway supports end to end SSL encryption.

#### Box 2: Azure Security Center

Azure Security Center provides unified security management and advanced threat protection across hybrid cloud workloads. With Security Center, you can apply security policies across your workloads, limit your exposure to threats, and detect and respond to attacks.

#### Box 3: Azure Traffic Manager

Microsoft Azure Traffic Manager allows you to control the distribution of user traffic for service endpoints in different datacenters. Service endpoints supported by Traffic Manager include Azure VMs, Web Apps, and cloud services.

Reference:

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

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

<https://docs.microsoft.com/en-us/azure/security-center/security-center-intro>

## QUESTION 56

### HOTSPOT

You are working for a global company that has offices in many regions of the world. The company has strict policies that govern how and where application may be deployed.

You have an application that must be deployed to one specific region. The application requires premium storage.

You need to recommend the appropriate policies.

Which policies should you recommend? To answer, select the appropriate options in the answer area.

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

### Hot Area:

## Answer Area

| Requirement                       | Policy   |                              |                        |                              |
|-----------------------------------|--|------------------------------|------------------------|------------------------------|
| Enforce deployment in one region. | <div data-bbox="1301 381 1968 437" style="background-color: #cccccc; border: 1px solid #ccc; padding: 2px;">▼</div> <table border="1" data-bbox="1301 437 1912 608"><tr><td data-bbox="1301 437 1912 496">Allowed locations</td></tr><tr><td data-bbox="1301 496 1912 555">Enforce tag and value</td></tr><tr><td data-bbox="1301 555 1912 608">Allowed virtual machine SKUs</td></tr></table>           | Allowed locations            | Enforce tag and value  | Allowed virtual machine SKUs |
| Allowed locations                 |  |                              |                        |                              |
| Enforce tag and value             |  |                              |                        |                              |
| Allowed virtual machine SKUs      |  |                              |                        |                              |
| Enforce use of premium storage.   | <div data-bbox="1301 632 1968 687" style="background-color: #cccccc; border: 1px solid #ccc; padding: 2px;">▼</div> <table border="1" data-bbox="1301 687 1912 855"><tr><td data-bbox="1301 687 1912 746">Allowed storage account SKUs</td></tr><tr><td data-bbox="1301 746 1912 805">Allowed resource types</td></tr><tr><td data-bbox="1301 805 1912 855">Not allowed resource types</td></tr></table> | Allowed storage account SKUs | Allowed resource types | Not allowed resource types   |
| Allowed storage account SKUs      |  |                              |                        |                              |
| Allowed resource types            |  |                              |                        |                              |
| Not allowed resource types        |  |                              |                        |                              |

Correct Answer:

## Answer Area

| Requirement                       | Policy   |
|-----------------------------------|--|
| Enforce deployment in one region. | <div style="border: 1px solid gray; padding: 2px;"> <div style="background-color: #e0e0e0; padding: 2px; text-align: right;">▼</div> <div style="background-color: #d9ead3; padding: 2px;">Allowed locations</div> <div style="padding: 2px;">Enforce tag and value</div> <div style="padding: 2px;">Allowed virtual machine SKUs</div> </div>           |
| Enforce use of premium storage.   | <div style="border: 1px solid gray; padding: 2px;"> <div style="background-color: #e0e0e0; padding: 2px; text-align: right;">▼</div> <div style="background-color: #d9ead3; padding: 2px;">Allowed storage account SKUs</div> <div style="padding: 2px;">Allowed resource types</div> <div style="padding: 2px;">Not allowed resource types</div> </div> |

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Box 1: Allowed Locations

The Allowed Locations policy enables you to restrict the locations that your organization can specify when deploying resources. Its effect is used to enforce your geo-compliance requirements.

Box 2: Allowed Storage Account SKUs

Allowed Storage Account SKUs: This policy definition has a set of conditions/rules that determine if a storage account that is being deployed is within a set of SKU sizes. Its effect is to deny all storage accounts that do not adhere to the set of defined SKU sizes

Reference: <https://docs.microsoft.com/en-us/azure/azure-policy/azure-policy-introduction>

### QUESTION 57

You manage an Azure environment for a company. The environment has over 25,000 licensed users and 100 mission-critical applications.

You need to recommend a solution that provides advanced endpoint threat detection and remediation strategies.

What should you recommend?

- A. Azure Active Directory Federation Services (AD FS)
- B. Microsoft Identity Manager
- C. Azure Active Directory (Azure AD) Identity Protection
- D. Azure Active Directory (Azure AD) Connect
- E. Azure Active Directory (Azure AD) authentication

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Azure Active Directory Identity Protection is a feature of the Azure AD Premium P2 edition that enables you to:

Detect potential vulnerabilities affecting your organization's identities

Configure automated responses to detected suspicious actions that are related to your organization's identities

Investigate suspicious incidents and take appropriate action to resolve them

Reference: <https://docs.microsoft.com/en-us/azure/active-directory/active-directory-identityprotection>

**QUESTION 58**

**HOTSPOT**

A company runs Linux and Windows virtual machines (VMs) in a secured virtual network. You deploy Azure ExpressRoute.

You need to recommend a solution that allows the company to investigate unusual network traffic for layer-2 and layer-3 protocols and ports.

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

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

**Hot Area:**

## Answer Area

### Technology

### Component

Deploy

|   |
|---|
| ▼   |
| Deploy the Microsoft Dependency Agent to the VMs.<br>Install a network appliance and reconfigure routers. |

Monitor

|   |
|---|
| ▼                                       |
| Use Azure monitor                       |
| Use the OMS Wire Data solution          |
| Use the portal of the network appliance |

Correct Answer:

## Answer Area

### Technology

### Component

Deploy

|  |   |
|--|---|
|  | ▼ |
| Deploy the Microsoft Dependency Agent to the VMs.    |   |
| Install a network appliance and reconfigure routers. |   |

Monitor

|   |   |
|---|---|
|   | ▼ |
| Use Azure monitor                       |   |
| Use the OMS Wire Data solution          |   |
| Use the portal of the network appliance |   |

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Wire data is consolidated network and performance data collected from Windows-connected and Linux-connected computers with the OMS agent, including those monitored by Operations Manager in your environment. Network data is combined with your other log data to help you correlate data.

In addition to the OMS agent, the Wire Data solution uses Microsoft Dependency Agents that you install on computers in your IT infrastructure. Dependency Agents monitor network data sent to and from your computers for network levels 2-3 in the OSI model, including the various protocols and ports used. Data is then sent to Log Analytics using agents.

Box 1: Deploy the Microsoft Dependency Agent to the VMs

Box 2: Use the OMS Wire Data Solution

Not Azure Monitor: Azure Monitor provides base-level infrastructure metrics and logs for most services in Microsoft Azure

Reference: <https://docs.microsoft.com/en-us/azure/log-analytics/log-analytics-wire-data>

**QUESTION 59**

DRAG DROP

A company has an existing web application that runs on virtual machines (VMs) in Azure.

You need to ensure that the application is protected from SQL injection attempts and uses a layer-7 load balancer. The solution must minimize disruption to the code for the existing web application.

What should you recommend? To answer, drag the appropriate values to the correct items. Each value 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:

**Values**

- Web Application Firewall (WAF)
- Azure Application Gateway
- Azure Load Balancer
- Azure Traffic Manager
- SSL offloading
- URL-based content routing

**Answer Area**

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**Item**

**Value**

Azure service

Value

Feature

Value

Correct Answer:

## Values

- 
- 
- Azure Load Balancer
- Azure Traffic Manager
- SSL offloading
- URL-based content routing

## Answer Area

### Item

### Value

Azure service

Azure Application Gateway

Feature

Web Application Firewall

Section: [none]

Explanation

Explanation/Reference:

Explanation:

Web application firewall (WAF) is a feature of Application Gateway that provides centralized protection of your web applications from common exploits and vulnerabilities.

Web application firewall is based on rules from the OWASP core rule sets 3.0 or 2.2.9. Web applications are increasingly targets of malicious attacks that exploit common known vulnerabilities. Common among these exploits are SQL injection attacks, cross site scripting attacks to name a few.

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

**QUESTION 60**

HOTSPOT

A company plans to implement Azure Cosmos DB.

You need to recommend client network connection options to maximize performance.

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

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

**Hot Area:**



## Answer Area

| Option          | Value   |
|-----------------|---|
| Connection type | <input type="text" value=""/><br>Direct mode<br>Gateway mode<br>Policy-based<br>Route-based |
| Protocol        | <input type="text" value=""/><br>BGP<br>HTTPS<br>IPSec<br>TCP                               |

Correct Answer:

## Answer Area

| Option          | Value  |
|-----------------|--|
| Connection type | <input type="text" value=""/><br>▼<br>Direct mode<br>Gateway mode<br>Policy-based<br>Route-based |
| Protocol        | <input type="text" value=""/><br>▼<br>BGP<br>HTTPS<br>IPSec<br>TCP                               |

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Box 1: Direct mode

Connection policy: Use direct connection mode

Gateway Mode involves an additional network hop every time data is read or written to Azure Cosmos DB. Because of this, Direct Mode offers better performance

due to fewer network hops.

Box 2: TCP

Direct mode supports connectivity through TCP and HTTPS protocols. For best performance, use the TCP protocol when possible.

Reference: <https://docs.microsoft.com/en-us/azure/cosmos-db/performance-tips>

### QUESTION 61

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

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

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

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

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

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

**Correct Answer:** AC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

A: If your application demand increases, the load on the VM instances in your scale set increases. If this increased load is consistent, rather than just a brief demand, you can configure autoscale rules to increase the number of VM instances in the scale set.

C: Large scale sets require Azure Managed Disks.

Incorrect Answers:

B: By default, a scale set consists of a single placement group with a maximum size of 100 VMs. If a scale set property called `singlePlacementGroup` is set to false, the scale set can be composed of multiple placement groups and has a range of 0-1,000 VMs. When set to the default value of true, a scale set is

composed of a single placement group, and has a range of 0-100 VMs.

Reference: <https://docs.microsoft.com/en-us/azure/virtual-machine-scale-sets/virtual-machine-scale-sets-placement-groups>

**QUESTION 62**

DRAG DROP

You manage a solution in Azure.

The solution is performing poorly.

You need to recommend tools to determine causes for the performance issues.

What should you recommend? To answer, drag the appropriate monitoring solutions to the correct scenarios. Each monitoring solution 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:

**Monitoring solutions**

Azure Log Analytics    Azure Monitor

**Answer Area**

**Scenario**

- Metrics on Azure infrastructure
- Functionality of Azure infrastructure
- Security of Azure infrastructure

**Monitoring solution**

Monitoring solution

Monitoring solution

Monitoring solution

**Correct Answer:**

## Monitoring solutions

Azure Log Analytics

Azure Monitor

## Answer Area

### Scenario

Metrics on Azure infrastructure

Functionality of Azure infrastructure

Security of Azure infrastructure

## Monitoring solutions

Azure Log Analytics

Azure Monitor

Azure Log Analytics

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

Note:

Azure Monitor provides base-level infrastructure metrics and logs for most services in Microsoft Azure.

Azure Log Analytics plays a central role in Azure management by collecting telemetry and other data from a variety of sources and providing a query language and analytics engine that gives you insights into the operation of your applications and resources. You can either interact directly with Log Analytics data through log searches and views, or you may use analysis tools in other Azure services that store their data in Log Analytics such as Application Insights or Azure Security Center.

Reference:

<https://docs.microsoft.com/en-us/azure/log-analytics/log-analytics-overview>

<https://docs.microsoft.com/en-us/azure/monitoring-and-diagnostics/monitoring-overview-azure-monitor>

### QUESTION 63

You manage a solution in Azure.

You must collect usage data including MAC addresses from all devices on the network.

You need to recommend a monitoring solution.

What should you recommend?

- A. Activity Log Analytics
- B. Azure Wire Data
- C. Azure Application Gateway Analytics
- D. Azure Network Security Group Analytics
- E. Network Performance Monitor

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Wire data is consolidated network and performance data collected from Windows-connected and Linux-connected computers with the OMS agent, including those monitored by Operations Manager in your environment. Network data is combined with your other log data to help you correlate data.

When you search using wire data, you can filter and group data to view information about the top agents and top protocols. Or you can view when certain computers (IP addresses/MAC addresses) communicated with each other, for how long, and how much data was sent — basically, you view metadata about network traffic, which is search-based

Reference: <https://docs.microsoft.com/en-us/azure/log-analytics/log-analytics-wire-data>

#### **QUESTION 64**

You are responsible for mobile app development for a company. The company develops apps on Windows Mobile, iOS, and Android. You plan to integrate push notifications into every app.

You need to be able to send users alerts from a backend server.

Which two options can you use to achieve this goal? Each correct answer presents a complete solution.

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

- A. Azure Mobile App Service
- B. Azure SQL Database
- C. Azure Notification Hubs
- D. Azure Web App
- E. a virtual machine

**Correct Answer:** AC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

A: With the release of Social Cloud we got to use many different features of Windows Azure Mobile Services including Push Notifications. As a long time developer of mobile apps, leveraging push notifications is a great way to stay connected and engaged with your customers and Azure Mobile Services makes it really easy to implement without having the headache of deploying server infrastructure.

C: The Mobile Apps feature of Azure App Service uses Azure Notification Hubs to send pushes, so you will be configuring a notification hub for your mobile app.

Reference:

<https://docs.microsoft.com/en-us/azure/app-service-mobile/app-service-mobile-ios-get-started-push>

<http://www.redbitdev.com/implementing-push-notifications-with-azure-mobile-services/>

#### **QUESTION 65**

**DRAG DROP**

You are designing an automated process.

The process must automatically copy Twitter messages to an Azure SQL Database.

You need to design the solution.

What should you recommend? To answer, drag the appropriate resources to the correct flowchart shapes. Each resource 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.

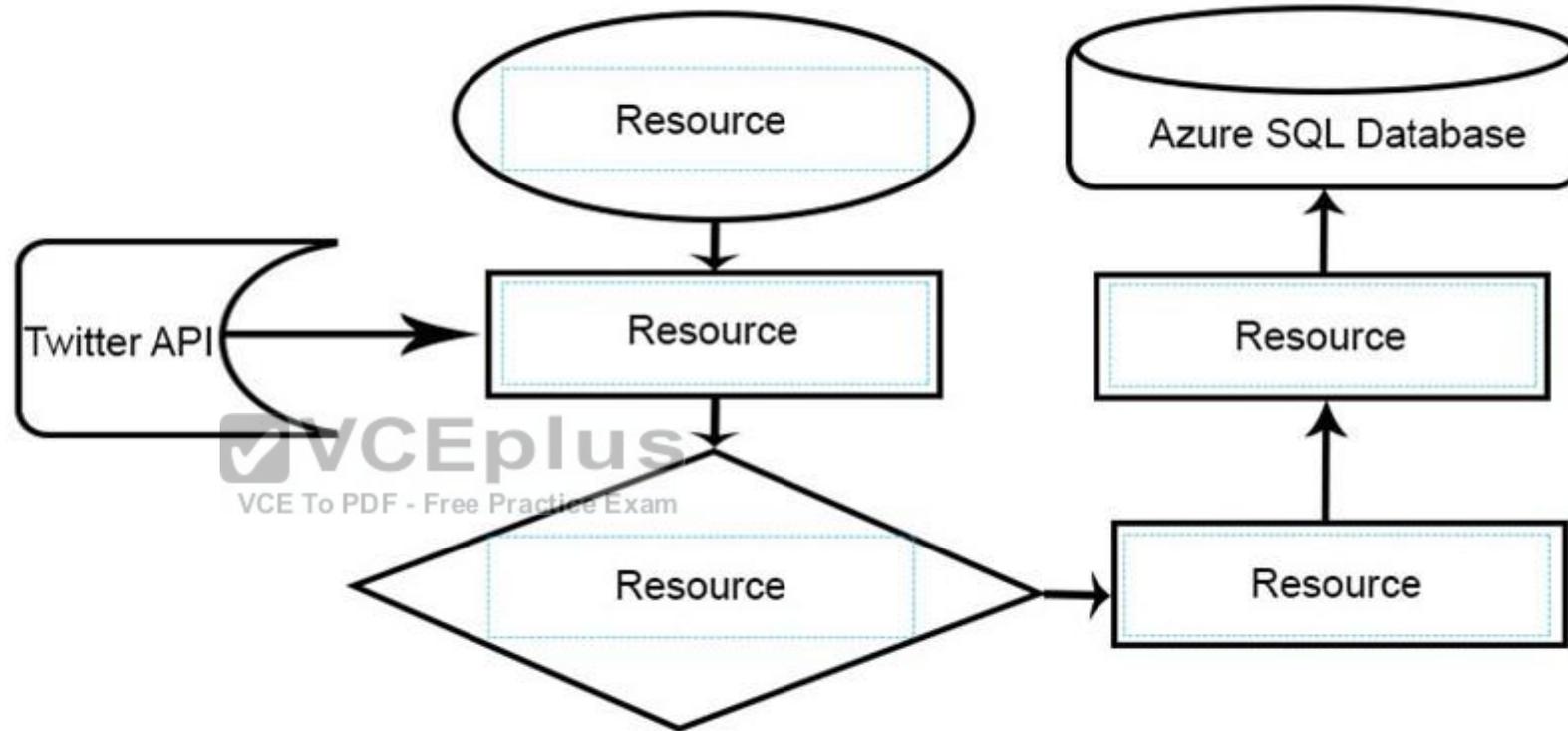
**NOTE:** Each correct selection is worth one point.

**Select and Place:**

Resources

- Twitter action
- Azure Function
- Azure Logic App
- Azure SQL Database Connector
- Event Hub Connector
- HTTP Action
- Twitter trigger
- Twitter connector

Answer area

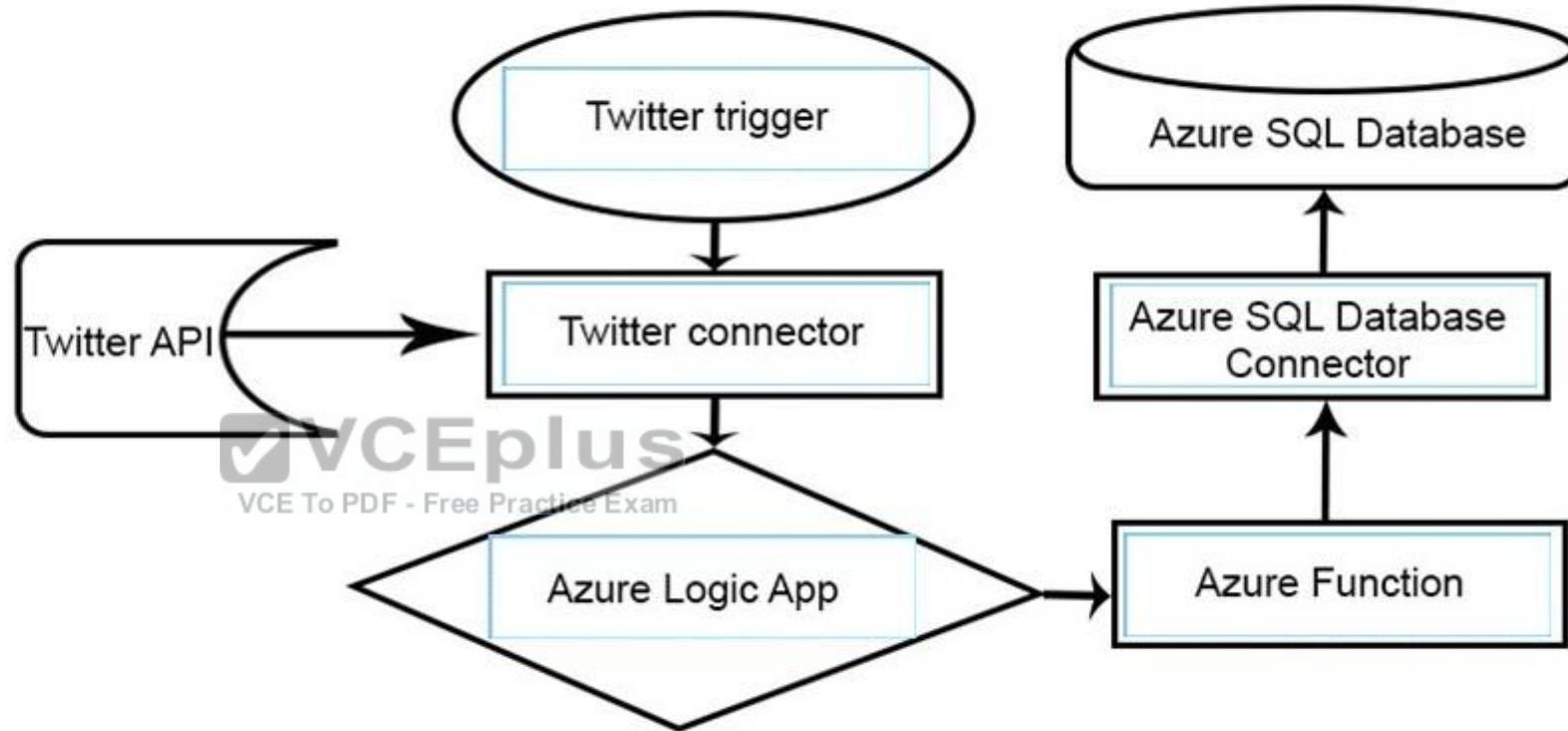


Correct Answer:

Resources

- Twitter action
- 
- 
- 
- Event Hub Connector
- HTTP Action
- 
- 

Answer area



Section: [none]  
Explanation

Explanation/Reference:

Explanation:

Reference:

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

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

### QUESTION 66

#### DRAG DROP

You are designing a solution that uses data located in multiple distributed data stores. The solution will use the following types of data:

- JSON data for reporting
- Properties-based data for customer information
- Schema-less data for product information

You must be able to quickly search and product information.

You need to choose the proper Azure Cosmos DB APIs.

Which APIs should you recommend to meet each requirement? To answer, drag the appropriate APIs to the correct requirements. Each API 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:**

**APIs**

|       |         |
|-------|---------|
| SQL   | MongoDB |
| Table | Graph   |

**Answer area**

**Requirement**

Provide real-time ad hoc SQL queries for reporting

Track customer preferences based on social network data

Provide customized product recommendation for customers

**API**

API

API

API

Correct Answer:

**APIs**

|       |  |
|-------|--|
|       |  |
| Table |  |

**Answer area**

**Requirement**

Provide real-time ad hoc SQL queries for reporting

Track customer preferences based on social network data

Provide customized product recommendation for customers

**API**

SQL

Graph

MongoDB

**Section: [none]**

**Explanation**

**Explanation/Reference:**

Explanation:

Box 1: SQL

Box 2: Graph

The Azure Cosmos DB Graph API provides:

Graph modeling.

Traversal APIs.

Etc.

Box 3: MongoDB

Incorrect Answers:

Azure Cosmos DB provides the Table API for applications that are written for Azure Table storage

Reference: <https://docs.microsoft.com/en-us/azure/cosmos-db/graph-introduction>

**QUESTION 67**

You are designing two Azure HDInsight clusters for a bank. The clusters will process millions of transactions each day.

The storage solution for the clusters must meet the following requirements:

- Ensure optimum performance of processing transactions.
- Store transactions in a hierarchical file system.
- Use the minimal number of storage accounts.

What should you recommend?

- A. Create only an Azure Blob storage account for both clusters.
- B. Create only an Azure Data Lake Store account for both clusters.
- C. Create separate Azure Data Lake Store accounts and Azure Blob storage accounts for each cluster.
- D. Create one Azure Data Lake Store account and one Azure Blob storage account. Use the accounts for both clusters.

**Correct Answer: B**

**Section: [none]**

## Explanation

### Explanation/Reference:

Azure Data Lake uses an Hierarchical file system.

Incorrect Answers:

A: Azure Blob storage uses an object store with flat namespace.

Reference: <https://docs.microsoft.com/en-us/azure/data-lake-store/data-lake-store-comparison-with-blob-storage>

## QUESTION 68

You are migrating an existing Windows application to an Azure virtual machine (VM) that runs Windows.

The application generates, stores, and retrieves a large number of small files. The performance of the application directly corresponds to the speed that these files can be loaded and saved.

You need to maximize application performance and storage efficiency.

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

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

- A. Premium Storage virtual hard disk (VHD)
- B. Standard Storage virtual hard disk (VHD)
- C. Standard Storage Blob storage
- D. Premium Storage Blob storage

**Correct Answer:** AD

**Section:** [none]

**Explanation**

### Explanation/Reference:

A: Azure Premium Storage delivers high-performance, low-latency disk support for virtual machines (VMs) with input/output (I/O)-intensive workloads. VM disks that use Premium Storage store data on solid-state drives (SSDs). To take advantage of the speed and performance of premium storage disks, you can migrate existing VM disks to Premium Storage.

Azure offers two ways to create premium storage disks for VMs:

- Unmanaged disks

The original method is to use unmanaged disks. In an unmanaged disk, you manage the storage accounts that you use to store the virtual hard disk (VHD) files that correspond to your VM disks. VHD files are stored as page blobs in Azure storage accounts.

- Managed disks

When you choose Azure Managed Disks, Azure manages the storage accounts that you use for your VM disks. You specify the disk type (Premium or Standard) and the size of the disk that you need. Azure creates and manages the disk for you.

Premium Storage supports page blobs.

Reference: <https://docs.microsoft.com/en-us/azure/virtual-machines/windows/premium-storage>