Developing Solutions for Microsoft Azure

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TESTLET-1.

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Windows Server 2016 virtual machine
This virtual machine (VM) runs BizTalk Server 2016. The VM runs the following workflows:

- Ocean Transport – This workflow gathers and validates container information including container contents and arrival notices at various shipping ports.

- Inland Transport – This workflow gathers and validates trucking information including fuel usage, number of stops, and routes.
The VM supports the following REST API calls:

- Container API – This API provides container information including weight, contents, and other attributes.

- Location API – This API provides location information regarding shipping ports of call and trucking stops.

- Shipping REST API – This API provides shipping information for use and display on the shipping website.

Shipping Data

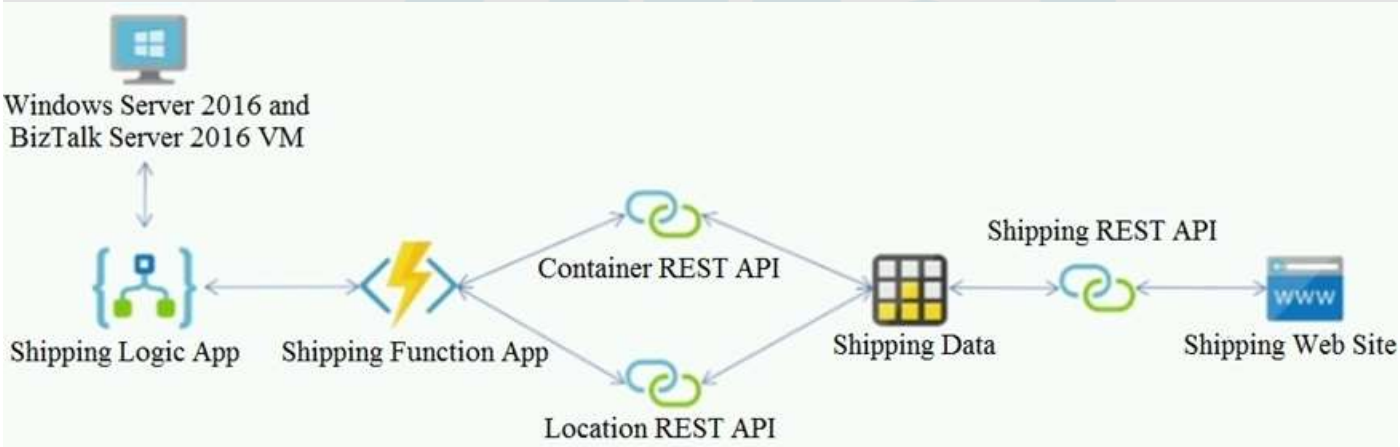
The application uses MongoDB JSON document storage database for all container and transport information.

Shipping Web Site

The site displays shipping container tracking information and container contents. The site is located at http://shipping.wideworldimporters.com/

Proposed solution

The on-premises shipping application must be moved to Azure. The VM has been migrated to a new Standard_D16s_v3 Azure VM by using Azure Site Recovery and must remain running in Azure to complete the BizTalk component migrations. You create a Standard_D16s_v3 Azure VM to host BizTalk Server. The Azure architecture diagram for the proposed solution is shown below:



Requirements

Shipping Logic app

The Shipping Logic app must meet the following requirements:

- Support the ocean transport and inland transport workflows by using a Logic App.

- Support industry-standard protocol X12 message format for various messages including vessel content details and arrival notices.

- Secure resources to the corporate VNet and use dedicated storage resources with a fixed costing model.

- Maintain on-premises connectivity to support legacy applications and final BizTalk migrations.

Shipping Function app

Implement secure function endpoints by using app-level security and include Azure Active Directory (Azure AD).

REST APIs
The REST API’s that support the solution must meet the following requirements:

- Secure resources to the corporate VNet.

- Allow deployment to a testing location within Azure while not incurring additional costs.

- Automatically scale to double capacity during peak shipping times while not causing application downtime.

- Minimize costs when selecting an Azure payment model.
Shipping data
Data migration from on-premises to Azure must minimize costs and downtime.
Shipping website
Use Azure Content Delivery Network (CDN) and ensure maximum performance for dynamic content while minimizing latency and costs.
Issues
Windows Server 2016 VM
The VM shows high network latency, jitter, and high CPU utilization. The VM is critical and has not been backed up in the past. The VM must enable a quick restore from a 7-day snapshot to include in-place restore of disks in case of failure.
Shipping website and REST APIs
The following error message displays while you are testing the website:
Failed to load http://test-shippingapi.wideworldimporters.com/: No 'Access-Control-Allow-Origin' header is present on the requested resource. Origin 'http://test.wideworldimporters.com/' is therefore not allowed access.

Question 1

HOTSPOT
You need to configure Azure CDN for the Shipping web site.
Which configuration options should you use? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.
Hot Area:

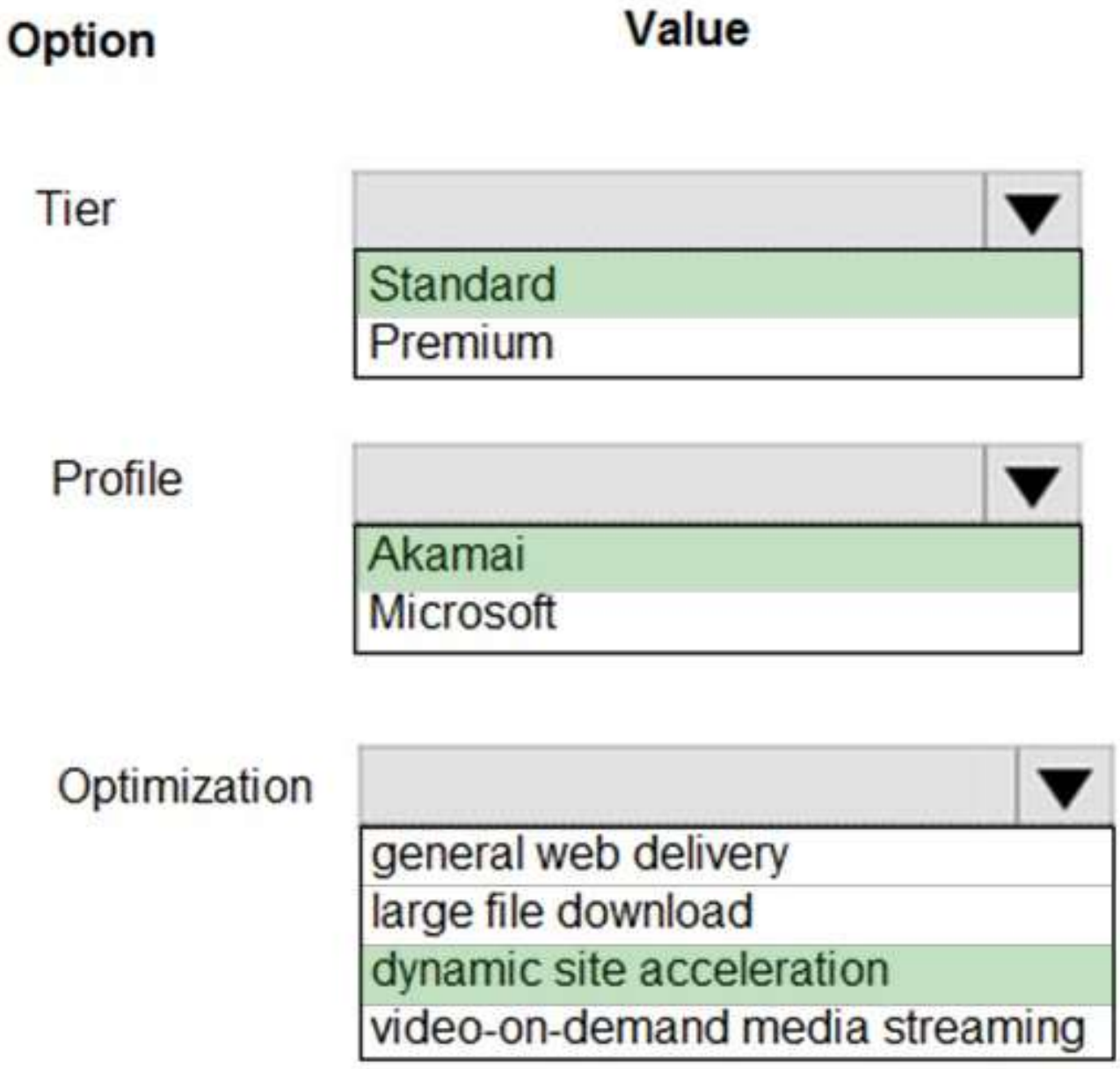
Answer Area

Option	Value
Tier	Standard / Premium
Profile	Akamai / Microsoft
Optimization	general web delivery / large file download / dynamic site acceleration / video-on-demand media streaming

Options:

A.

Answer Area



Answer: A

Explanation:
:

Explanation:
Scenario: Shipping website
Use Azure Content Delivery Network (CDN) and ensure maximum performance for dynamic content while minimizing latency and costs.
Tier: Standard
Profile: Akamai

Optimization: Dynamic site acceleration
Dynamic site acceleration (DSA) is available for Azure CDN Standard from Akamai, Azure CDN Standard from Verizon, and Azure CDN Premium from Verizon profiles.
DSA includes various techniques that benefit the latency and performance of dynamic content. Techniques include route and network optimization, TCP optimization, and more.
You can use this optimization to accelerate a web app that includes numerous responses that aren't cacheable. Examples are search results, checkout transactions, or real-time data. You can continue to use core Azure CDN caching capabilities for static data.
Reference:
https://docs.microsoft.com/en-us/azure/cdn/cdn-optimization-overview

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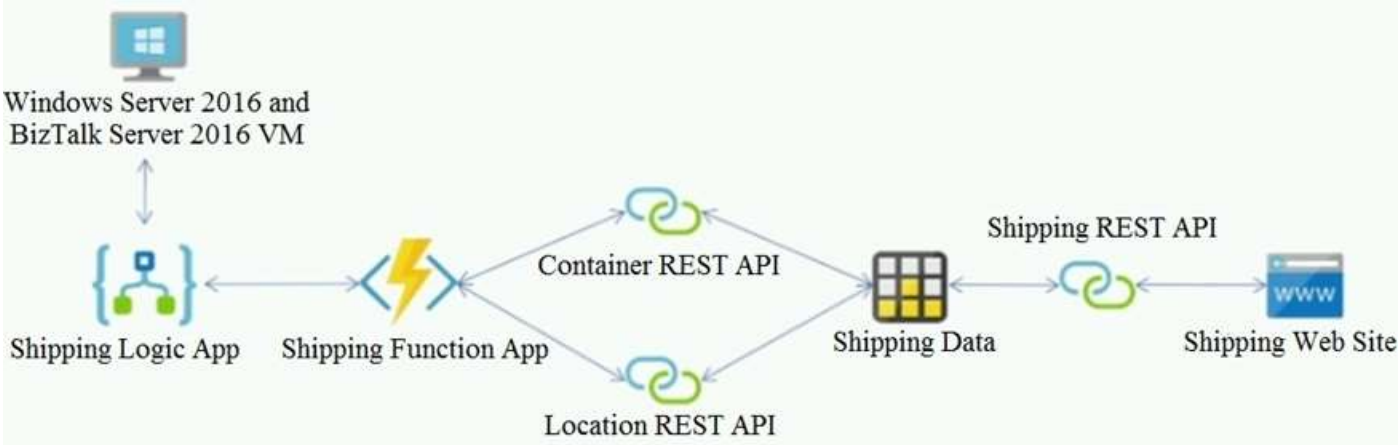

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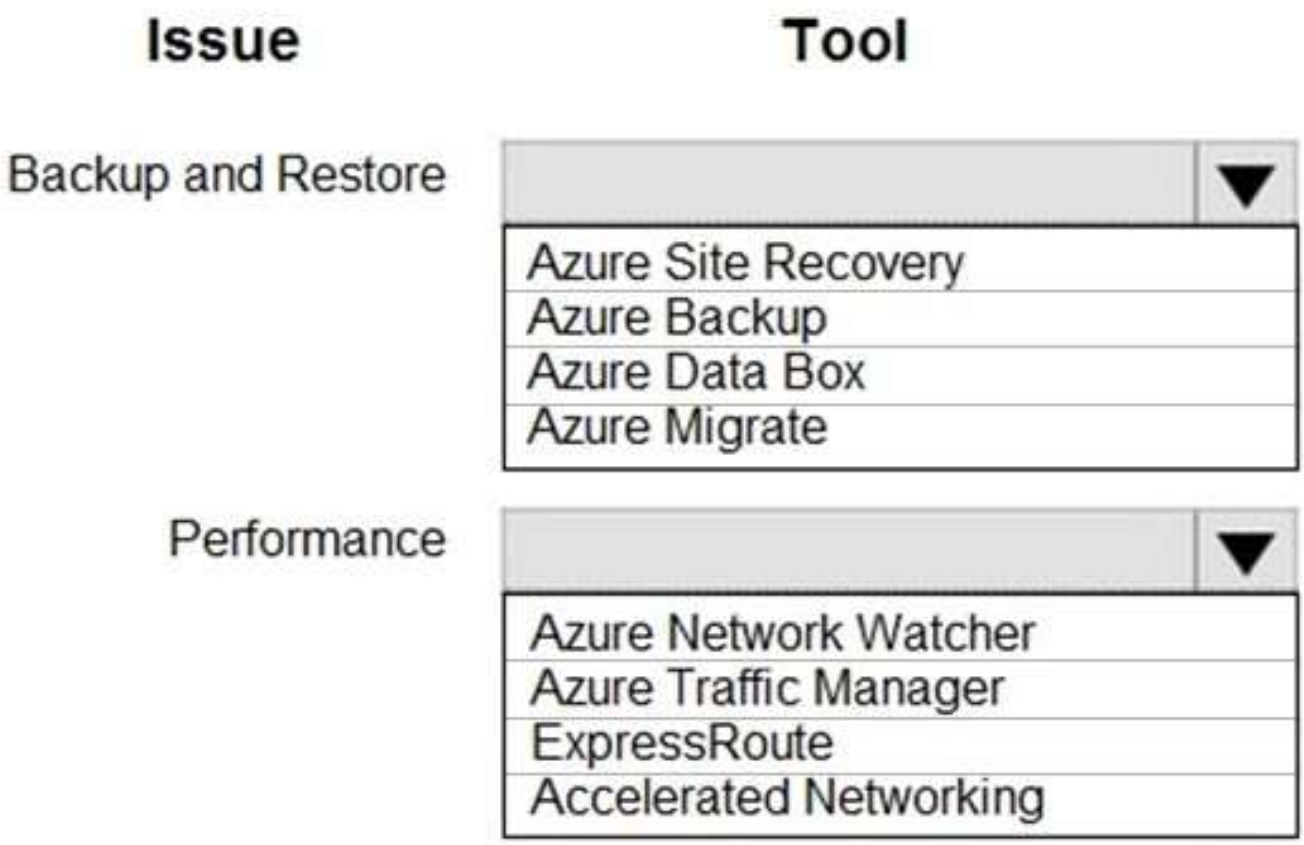
Question 2

HOTSPOT
You need to correct the VM issues.
Which tools should you use? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.
Hot Area:

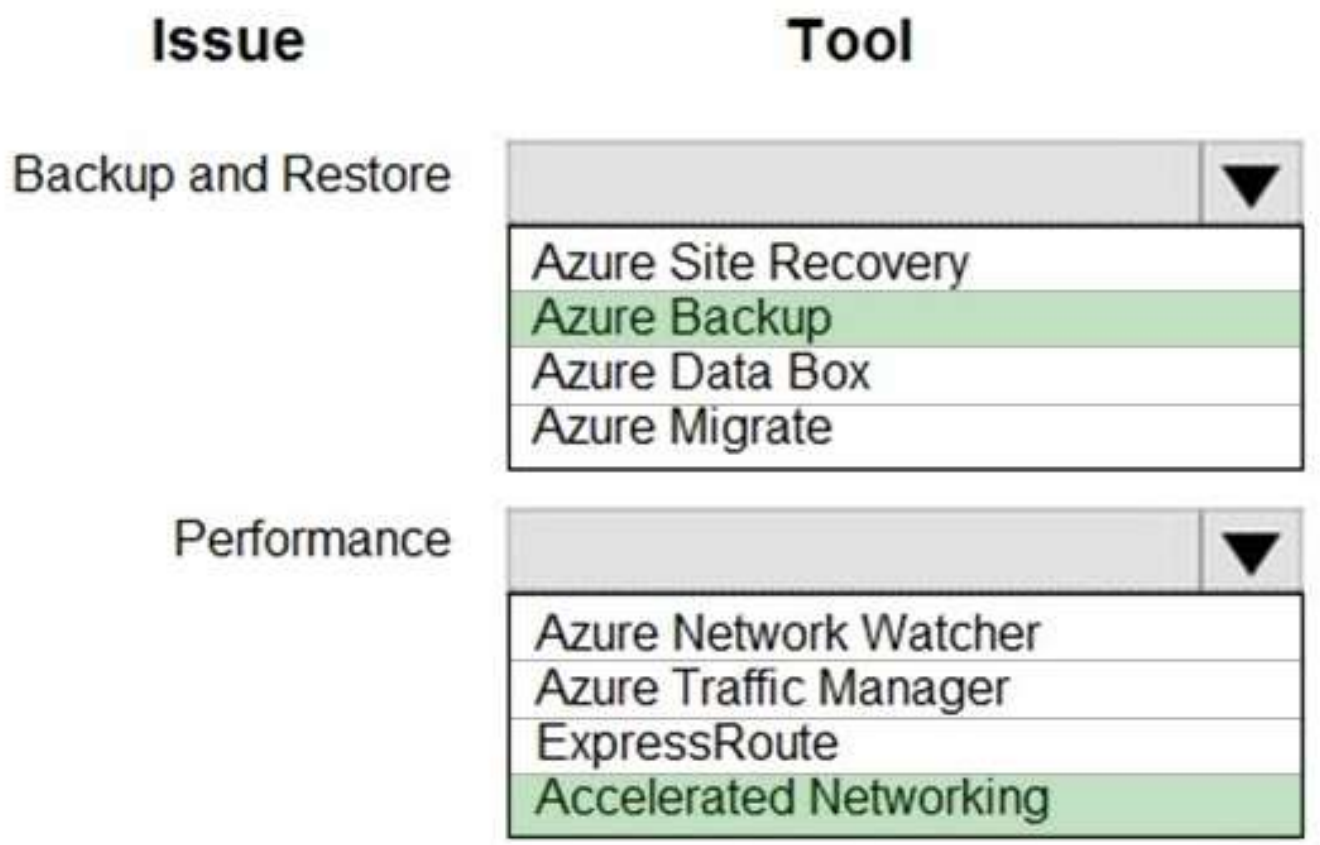
Answer Area



Options:

A.

Answer Area



Answer: A

Explanation:
:

Box 1: Azure Backup
The VM is critical and has not been backed up in the past. The VM must enable a quick restore from a 7-day snapshot to include in-place restore of disks in case of failure.
In-Place restore of disks in IaaS VMs is a feature of Azure Backup.
Performance: Accelerated Networking
Scenario: The VM shows high network latency, jitter, and high CPU utilization.
Box 2: Accelerated networking
The VM shows high network latency, jitter, and high CPU utilization.
Accelerated networking enables single root I/O virtualization (SR-IOV) to a VM, greatly improving its networking performance. This high-performance path bypasses the host from the datapath, reducing latency, jitter, and CPU utilization, for use with the most demanding network workloads on supported VM types.
Reference:
https://azure.microsoft.com/en-us/blog/an-easy-way-to-bring-back-your-azure-vm-with-in-place-restore/

Develop Azure compute solutions

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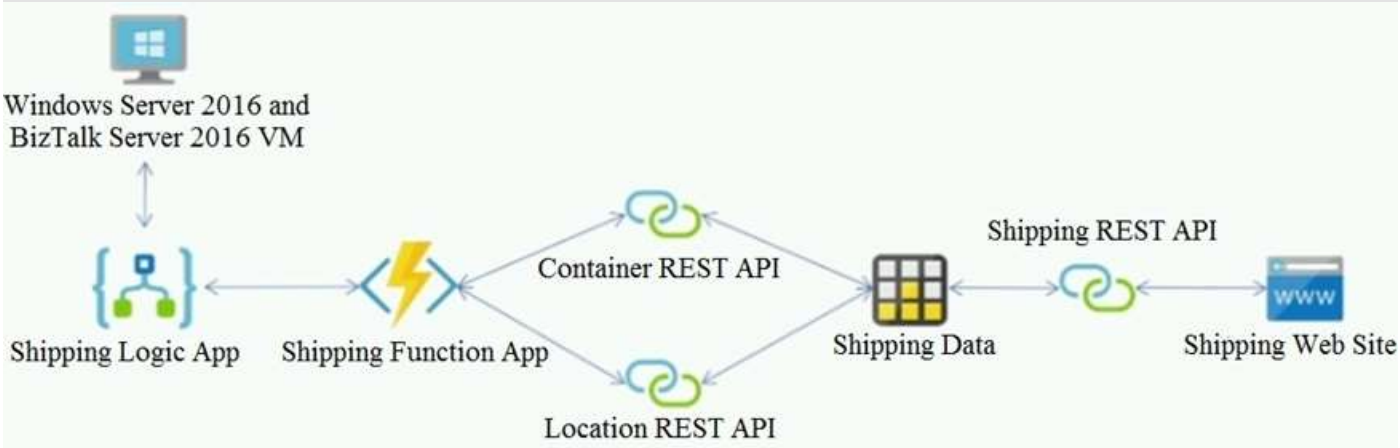

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Shipping data

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Question 3

You need to correct the RequestUserApproval Function app error.
What should you do?

Options:

A. Update line RA13 to use the async keyword and return an HttpRequest object value.

B. Configure the Function app to use an App Service hosting plan. Enable the Always On setting of the
hosting plan.

C. Update the function to be stateful by using Durable Functions to process the request payload.

D. Update the functionTimeout property of the host.json project file to 15 minutes.

Answer: C

Explanation:
Explanation:
Async operation tracking
The HTTP response mentioned previously is designed to help implement long-running HTTP async APIs with Durable Functions. This pattern is sometimes referred to as the polling consumer pattern.
Both the client and server implementations of this pattern are built into the Durable Functions HTTP APIs.
Function app
You perform local testing for the RequestUserApproval function. The following error message displays: 'Timeout value of 00:10:00 exceeded by function: RequestUserApproval'
The same error message displays when you test the function in an Azure development environment when you run the following Kusto query:
FunctionAppLogs
| where FunctionName = = "RequestUserApproval"
References:
https://docs.microsoft.com/en-us/azure/azure-functions/durable/durable-functions-http-features
Develop Azure compute solutions
Question Set 3

Question 4

You are developing an application that uses Azure Blob storage.
The application must read the transaction logs of all the changes that occur to the blobs and the blob metadata in the storage account for auditing purposes. The changes must be in the order in which they occurred, include only create, update, delete, and copy operations and be retained for compliance reasons.

You need to process the transaction logs asynchronously.
What should you do?

Options:

A. Process all Azure Blob storage events by using Azure Event Grid with a subscriber Azure Function app.

B. Enable the change feed on the storage account and process all changes for available events.

C. Process all Azure Storage Analytics logs for successful blob events.

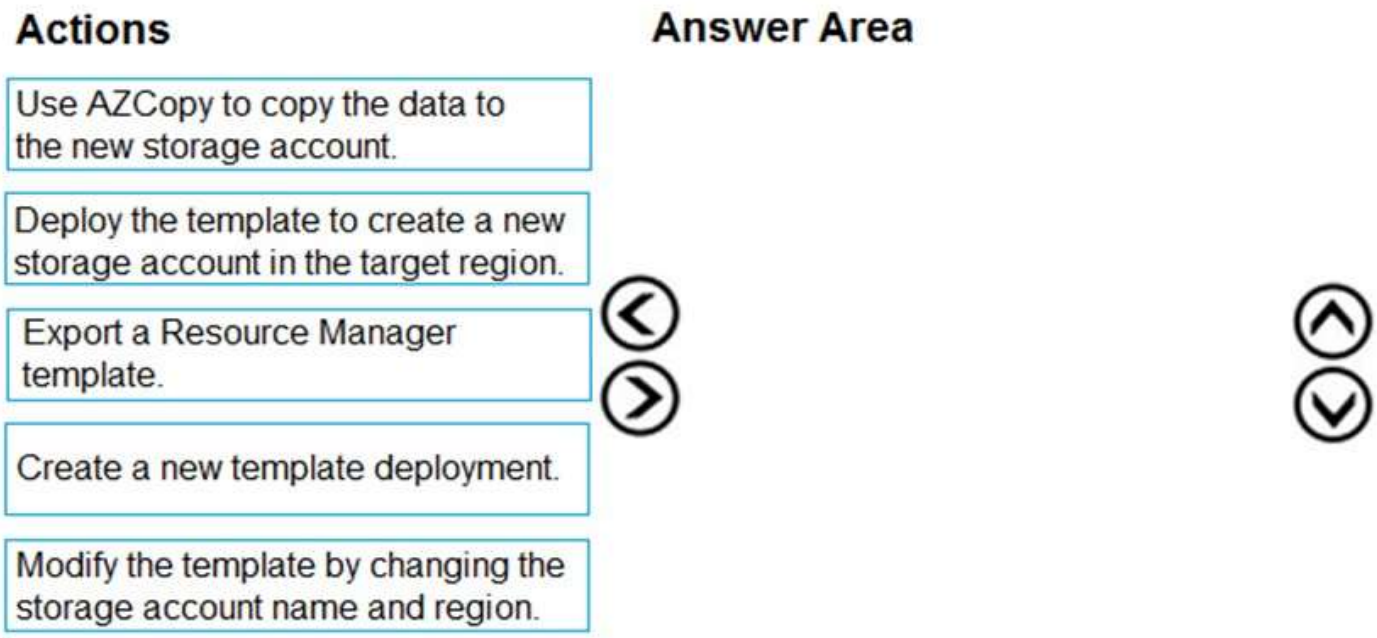
D. Use the Azure Monitor HTTP Data Collector API and scan the request body for successful blob events.

Answer: B

Explanation:
Explanation:
Change feed support in Azure Blob Storage
The purpose of the change feed is to provide transaction logs of all the changes that occur to the blobs and the blob metadata in your storage account. The change feed provides ordered, guaranteed, durable, immutable, read-only log of these changes. Client applications can read these logs at any time, either in streaming or in batch mode. The change feed enables you to build efficient and scalable solutions that process change events that occur in your Blob Storage account at a low cost.
Reference:
https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-change-feed

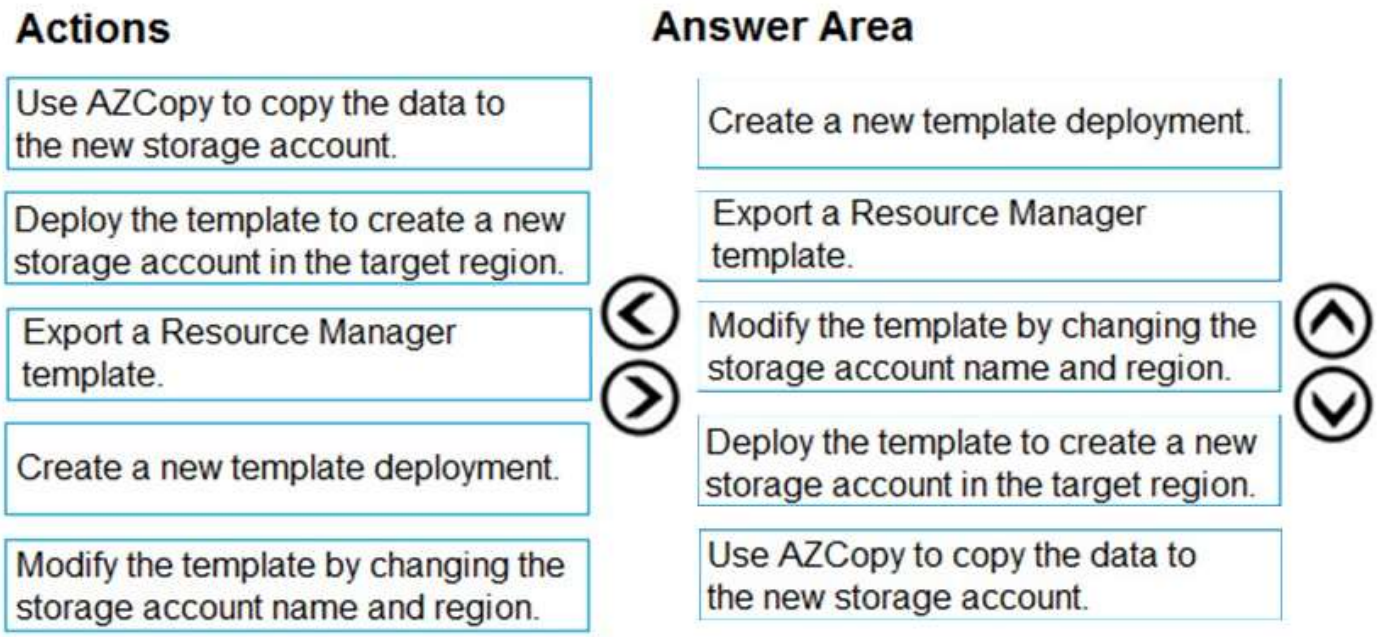
Question 5

DRAG DROP
You are developing an application to use Azure Blob storage. You have configured Azure Blob storage to include change feeds.
A copy of your storage account must be created in another region. Data must be copied from the current storage account to the new storage account directly between the storage servers.
You need to create a copy of the storage account in another region and copy the data.
In which order should you perform the actions? To answer, move all actions from the list of actions to the answer area and arrange them in the correct order.
Select and Place:



Options:

A.



Answer: A

Explanation:
:

Explanation:
To move a storage account, create a copy of your storage account in another region. Then, move your data to that account by using AzCopy, or another tool of your choice.
The steps are:

- Export a template.

- Modify the template by adding the target region and storage account name.

- Deploy the template to create the new storage account.

- Configure the new storage account.

- Move data to the new storage account.

- Delete the resources in the source region.

Note: You must enable the change feed on your storage account to begin capturing and recording changes.

You can enable and disable changes by using Azure Resource Manager templates on Portal or Powershell.

Reference:

https://docs.microsoft.com/en-us/azure/storage/common/storage-account-move

https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-change-feed

Question 6

HOTSPOT

You are developing an ASP.NET Core web application. You plan to deploy the application to Azure Web App for Containers.

The application needs to store runtime diagnostic data that must be persisted across application restarts.

You have the following code:

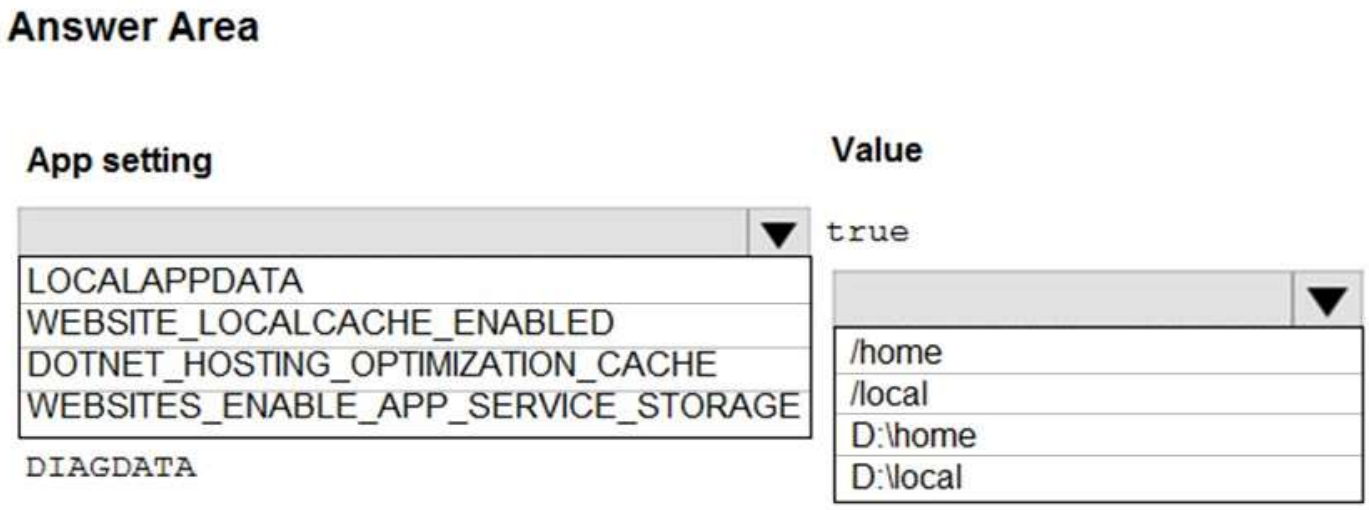
```
public void SaveDiagData(string data)
{
    var path = Environment.GetEnvironmentVariable("DIAGDATA");
    File.WriteAllText(Path.Combine(path, "data"), data);
}
```

You need to configure the application settings so that diagnostic data is stored as required.

How should you configure the web app's settings? To answer, select the appropriate options in the answer area.

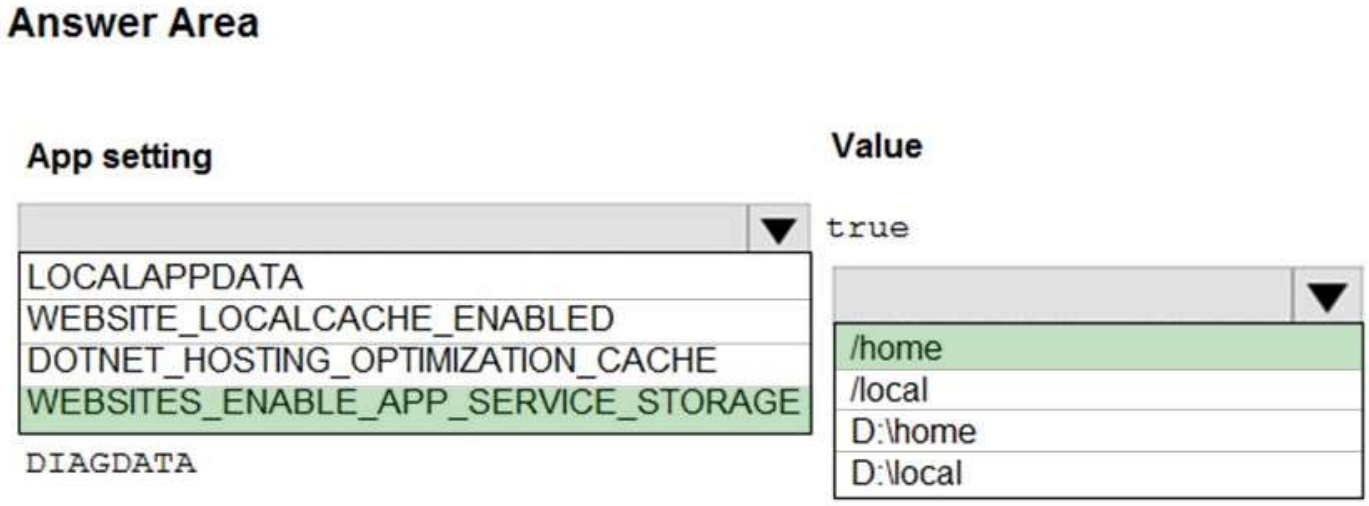
NOTE: Each correct selection is worth one point.

Hot Area:



Options:

A.



Answer: A

Explanation:

:

Explanation:
Box 1: If WEBSITES_ENABLE_APP_SERVICE_STORAGE
If WEBSITES_ENABLE_APP_SERVICE_STORAGE setting is unspecified or set to true, the /home/ directory will be shared across scale instances, and files written will persist across restarts
Box 2: /home
Reference:
https://docs.microsoft.com/en-us/azure/app-service/containers/app-service-linux-faq

Question 7

You are developing a web app that is protected by Azure Web Application Firewall (WAF). All traffic to the web app is routed through an Azure Application Gateway instance that is used by multiple web apps. The web app address is contoso.azurewebsites.net.
All traffic must be secured with SSL. The Azure Application Gateway instance is used by multiple web apps.
You need to configure the Azure Application Gateway for the web app.
Which two actions should you perform? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

Options:

A. In the Azure Application Gateway's HTTP setting, enable the Use for App service setting.

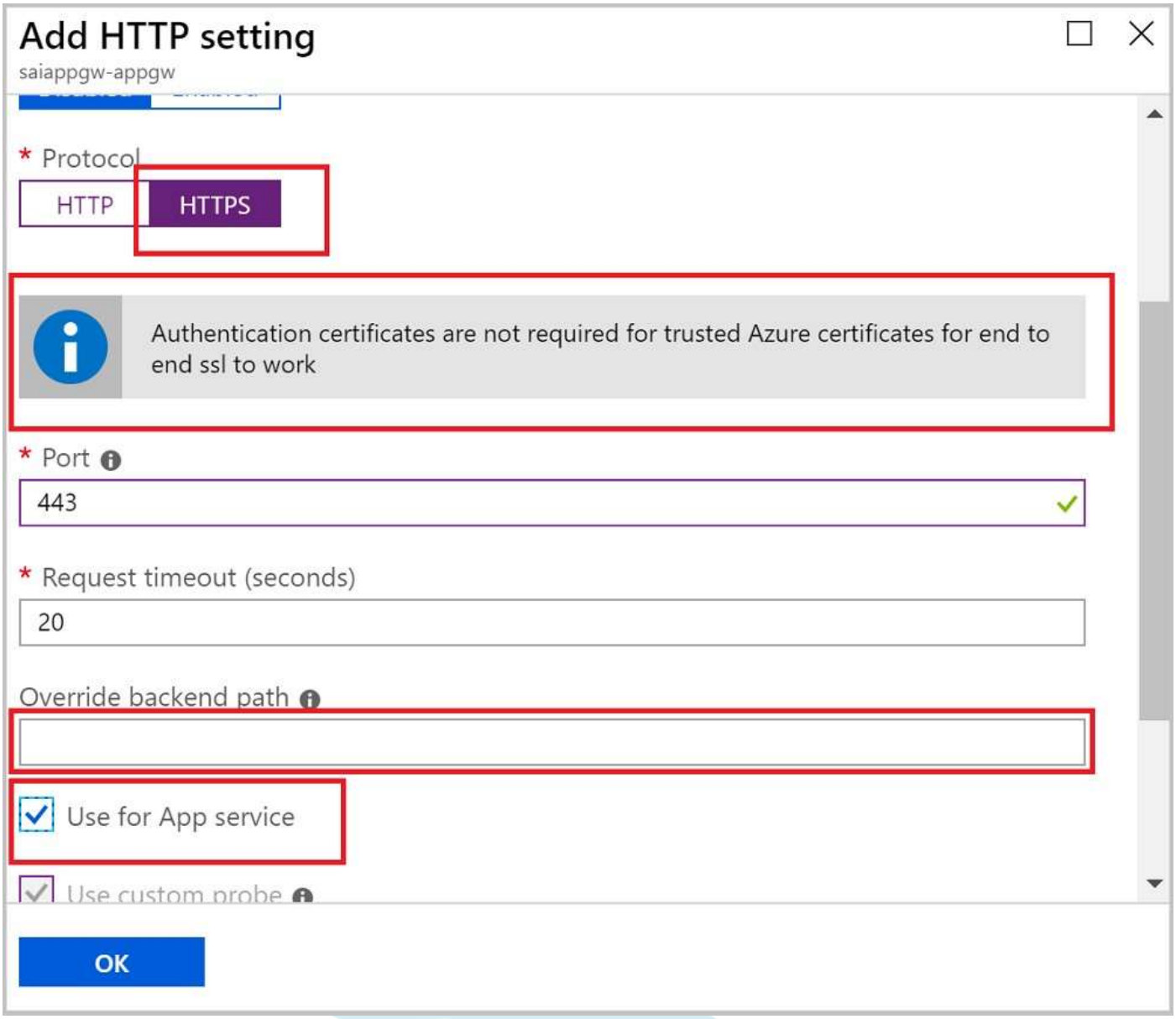
B. Convert the web app to run in an Azure App service environment (ASE).

C. Add an authentication certificate for contoso.azurewebsites.net to the Azure Application Gateway.

D. In the Azure Application Gateway's HTTP setting, set the value of the Override backend path option to
contoso22.azurewebsites.net.

Answer: A, D

Explanation:
Explanation:
D: The ability to specify a host override is defined in the HTTP settings and can be applied to any back-end pool during rule creation.
The ability to derive the host name from the IP or FQDN of the back-end pool members. HTTP settings also provide an option to dynamically pick the host name from a back-end pool member's FQDN if configured with the option to derive host name from an individual back-end pool member.
A (not C): SSL termination and end to end SSL with multi-tenant services.
In case of end to end SSL, trusted Azure services such as Azure App service web apps do not require whitelisting the backends in the application gateway. Therefore, there is no need to add any authentication certificates.



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

Question 8

HOTSPOT
You are implementing a software as a service (SaaS) ASP.NET Core web service that will run as an Azure Web App. The web service will use an on-premises SQL Server database for storage. The web service also
includes a WebJob that processes data updates. Four customers will use the web service.

- Each instance of the WebJob processes data for a single customer and must run as a singleton instance.

- Each deployment must be tested by using deployment slots prior to serving production data.

- Azure costs must be minimized.

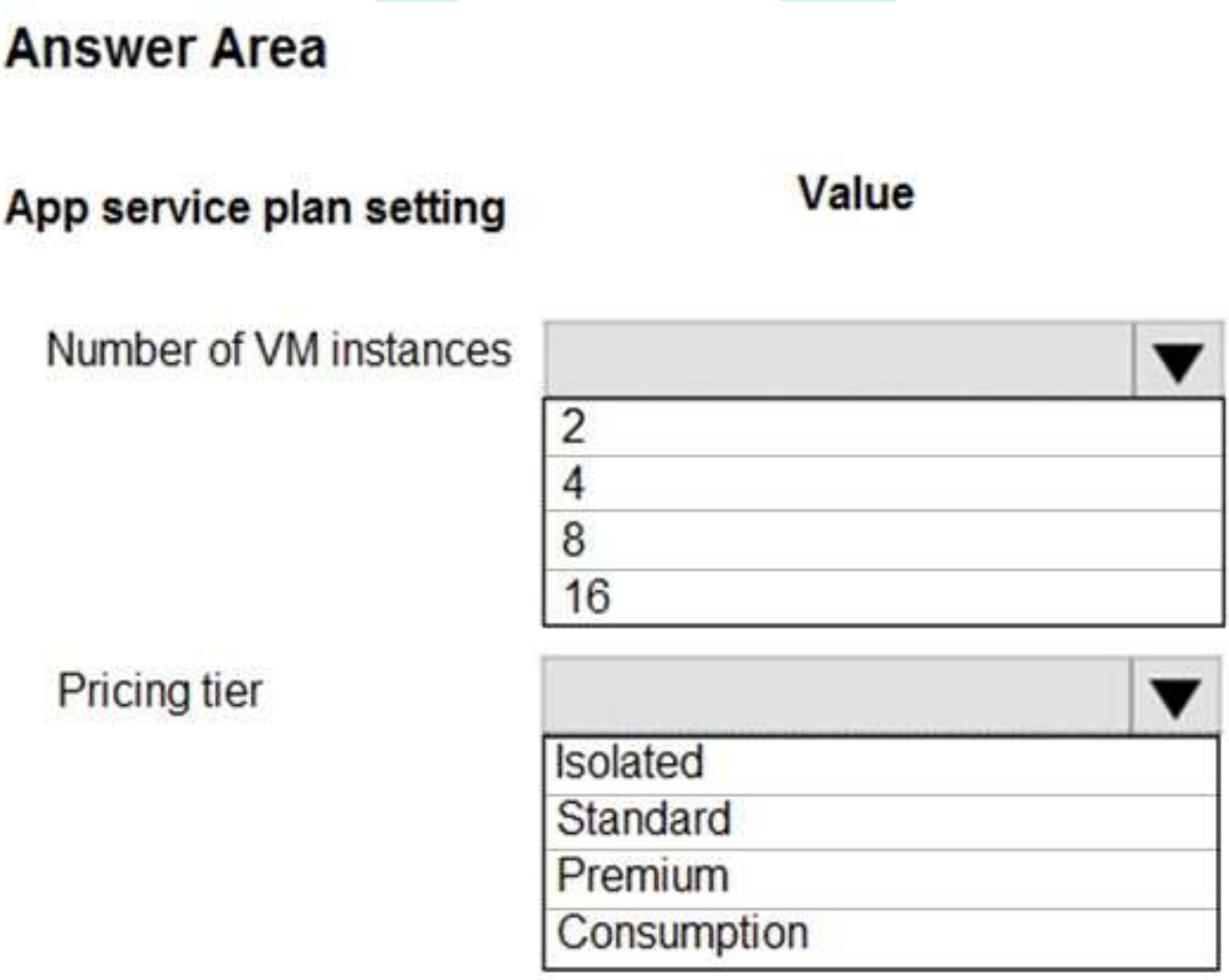
- Azure resources must be located in an isolated network.

You need to configure the App Service plan for the Web App.

How should you configure the App Service plan? To answer, select the appropriate settings in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:



Options:

A.

Answer Area

App service plan setting	Value
Number of VM instances	2 **4** 8 16
Pricing tier	**Isolated** Standard Premium Consumption

Answer: A

Explanation:
:

Number of VM instances: 4
You are not charged extra for deployment slots.
Pricing tier: Isolated
The App Service Environment (ASE) is a powerful feature offering of the Azure App Service that gives network isolation and improved scale capabilities. It is essentially a deployment of the Azure App Service into a subnet of a customer's Azure Virtual Network (VNet).
Reference:
https://azure.microsoft.com/sv-se/blog/announcing-app-service-isolated-more-power-scale-and-ease-of-use/

Question 9

DRAG DROP

You are a developer for a software as a service (SaaS) company that uses an Azure Function to process orders. The Azure Function currently runs on an Azure Function app that is triggered by an Azure Storage queue.

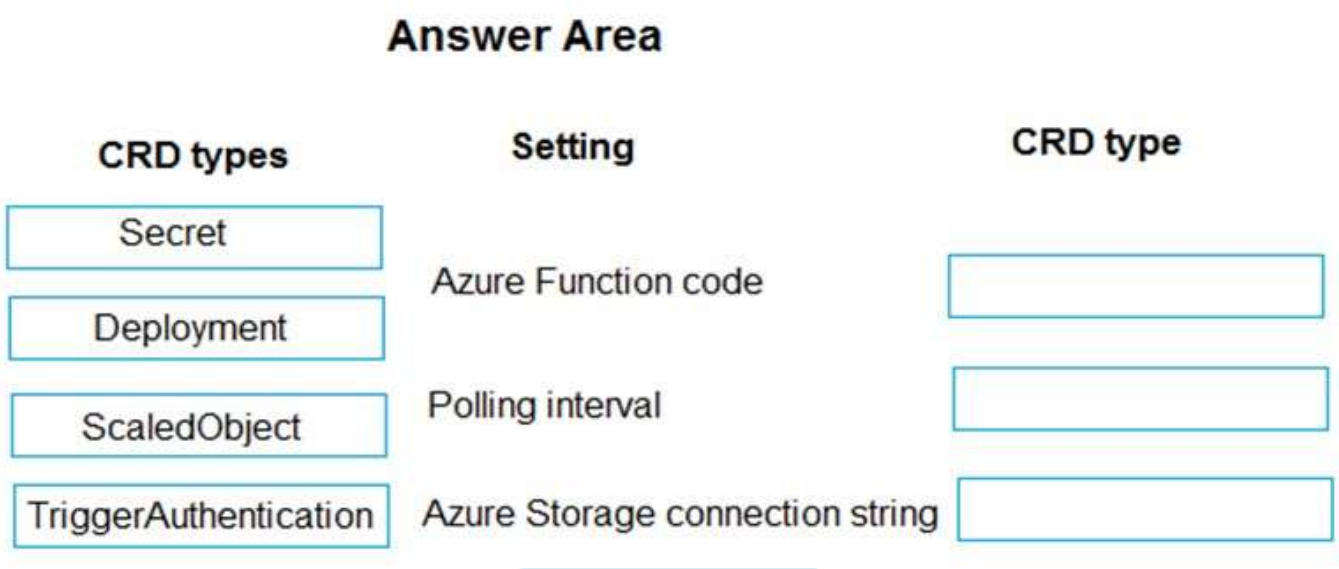
You are preparing to migrate the Azure Function to Kubernetes using Kubernetes-based Event Driven Autoscaling (KEDA).

You need to configure Kubernetes Custom Resource Definitions (CRD) for the Azure Function.

Which CRDs should you configure? To answer, drag the appropriate CRD types to the correct locations. Each CRD type 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:



Options:

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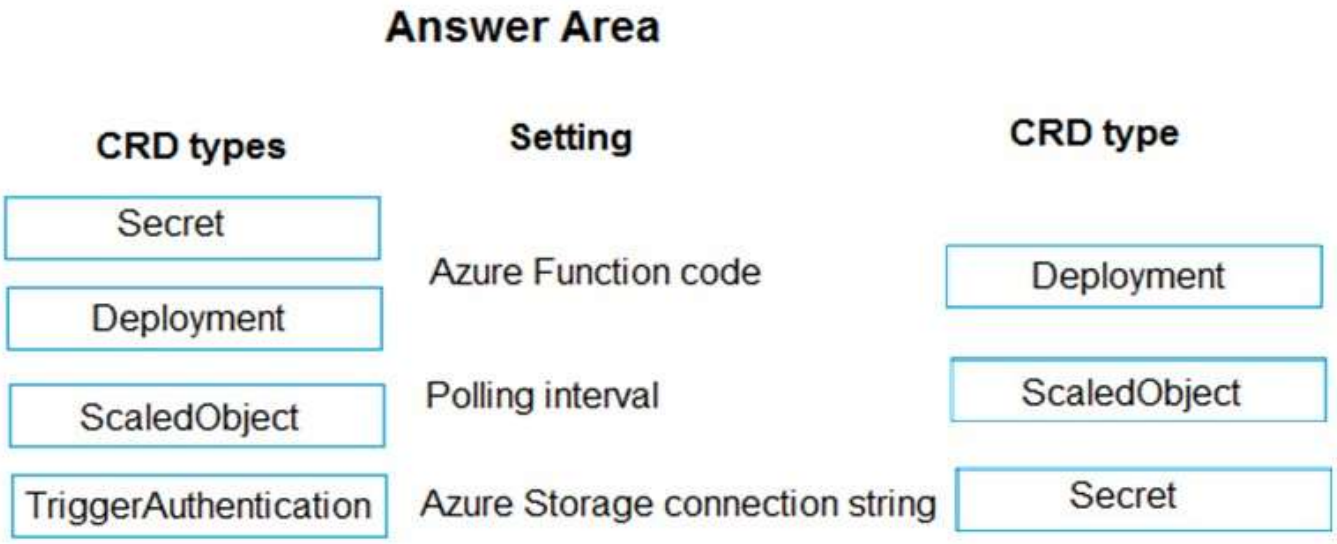


Answer: A

Explanation:
:

Explanation:
Box 1: Deployment
To deploy Azure Functions to Kubernetes use the func kubernetes deploy command has several attributes that directly control how our app scales, once it is deployed to Kubernetes.
Box 2: ScaledObject
With --polling-interval, we can control the interval used by KEDA to check Azure Service Bus Queue for messages.
Example of ScaledObject with polling interval
apiVersion: keda.k8s.io/v1alpha1
kind: ScaledObject
metadata:
name: transformer-fn
namespace: tt
labels:
deploymentName: transformer-fn
spec:
scaleTargetRef:
deploymentName: transformer-fn
pollingInterval: 5
minReplicaCount: 0
maxReplicaCount: 100
Box 3: Secret
Store connection strings in Kubernetes Secrets.
Example: to create the Secret in our demo Namespace:
create the k8s demo namespace

```
kubectl create namespace tt
# grab connection string from Azure Service Bus
KEDA_SCALER_CONNECTION_STRING=$(az servicebus queue authorization-rule keys list \
-g $RG_NAME \
--namespace-name $SBN_NAME \
--queue-name inbound \
-n keda-scaler \
--query "primaryConnectionString" \
-o tsv)
# create the kubernetes secret
kubectl create secret generic tt-keda-auth \
--from-literal KedaScaler=$KEDA_SCALER_CONNECTION_STRING \
--namespace tt
```

Reference:
https://www.thinktecture.com/en/kubernetes/serverless-workloads-with-keda/

Question 10

HOTSPOT

You are creating a CLI script that creates an Azure web app and related services in Azure App Service. The
web app uses the following variables:

Variable name	Value
$gitrepo	https://github.com/Contos/webapp
$webappname	Webapp1103

You need to automatically deploy code from GitHub to the newly created web app.
How should you complete the script? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.
Hot Area:

Answer Area

```
az group create --location westeurope --name myResourceGroup
```

[▼] `--name $webappname --resource-group myResourceGroup --sku FREE`

- az webapp
- az appservice plan create
- az webapp deployment
- az group delete

[▼] `--name $webappname --resource-group myResourceGroup`

- az webapp create
- az appservice plan create
- az webapp deployment
- az group delete

[▼]

- --repo-url $gitrepo --branch master --manual-integration
- git clone $gitrepo
- --plan $webappname

[▼] `source config --name $webappname`

- az webapp
- az appservice plan create
- az webapp deployment
- az group delete

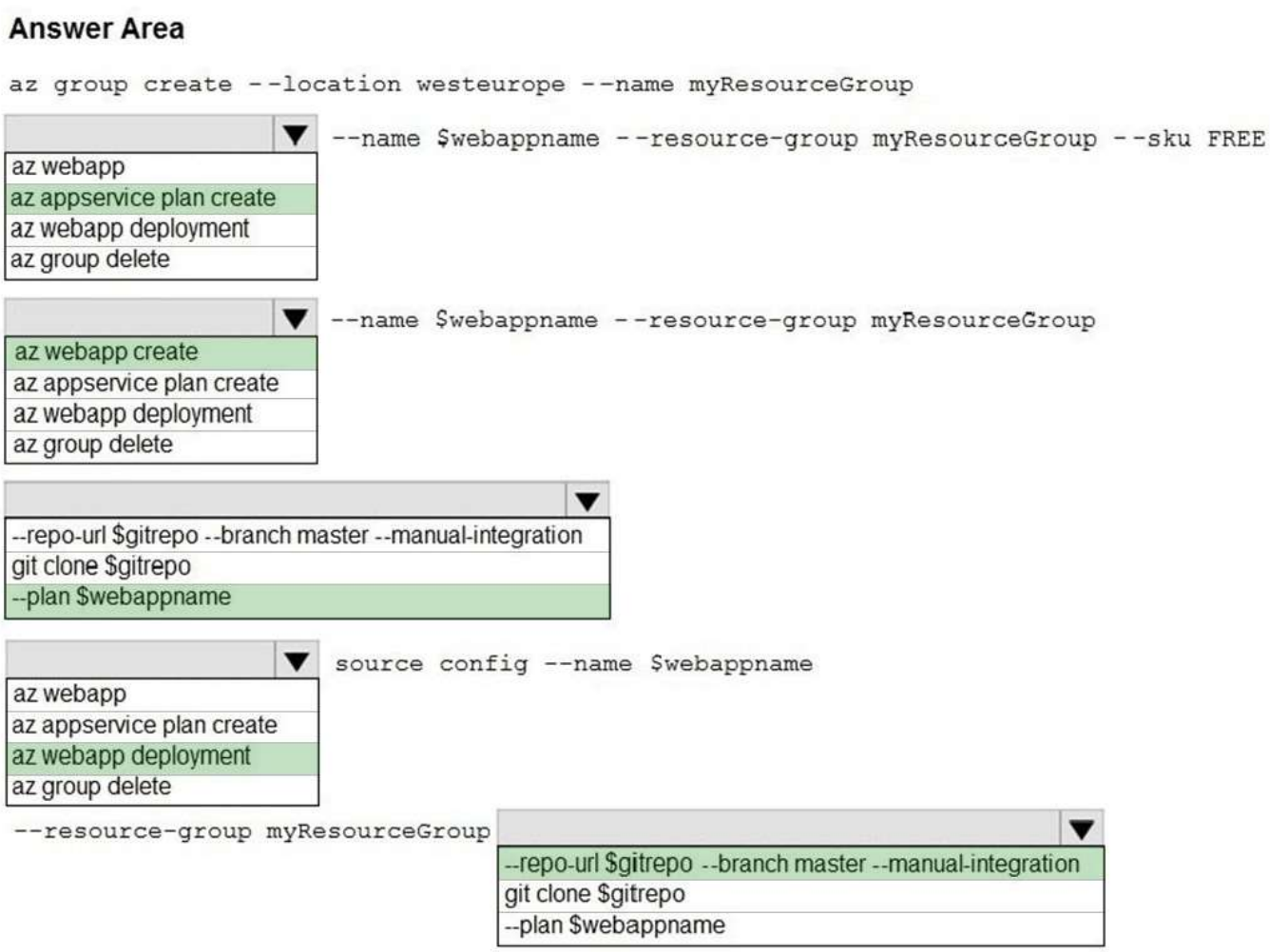
`--resource-group myResourceGroup` [▼]

- --repo-url $gitrepo --branch master --manual-integration
- git clone $gitrepo
- --plan $webappname

Options:

A.

Answer Area



Answer: A

Explanation:

:

Box 1: az appservice plan create

The azure group creates command successfully returns JSON result. Now we can use resource group to create a azure app service plan

Box 2: az webapp create

Create a new web app..

Box 3: --plan $webappname

..with the serviceplan we created in step 1.

Box 4: az webapp deployment

Continuous Delivery with GitHub. Example:

az webapp deployment source config --name firstsamplewebsite1 --resource-group websites--repo-url $gitrepo --branch master --git-token $token

Box 5: --repo-url $gitrepo --branch master --manual-integration

Reference:

https://medium.com/@satish1v/devops-your-way-to-azure-web-apps-with-azure-cli-206ed4b3e9b1

Would you like to see more? Don't miss our AZ-204 PDF file at:

https://www.certification-questions.com/microsoft-pdf/az-204-pdf.html