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**70-534 PRACTICE EXAM**

**Architecting Microsoft Azure Solutions**

# **Product Questions: 203/10 Case Study**

## **Version: 13.0**

Case Study: 1

VanArsdel, Ltd

### **Overview**

VanArsdel, Ltd. builds skyscrapers, subways, and bridges. VanArsdel is a leader in using technology to do construction better.

### **Overview**

VanArsdel employees are able to use their own mobile devices for work activities because the company recognizes that this usage enables employee productivity. Employees also access Software as a Service (SaaS) applications, including DocuSign, Dropbox, and Citrix. The company continues to evaluate and adopt more SaaS applications for its business. VanArsdel uses Azure Active Directory (AD) to authenticate its employees, as well as Multi-Factor Authentication (MFA). Management enjoys the ease with which MFA can be enabled and disabled for employees who use cloud-based services. VanArsdel's on-premises directory contains a single forest.

### **Helpdesk:**

VanArsdel creates a helpdesk group to assist its employees. The company sends email messages to all its employees about the helpdesk group and how to contact it. Configuring employee access for SaaS applications is often a time-consuming task. It is not always obvious to the helpdesk group which users should be given access to which SaaS applications. The helpdesk group must respond to many phone calls and email messages to solve this problem, which takes up valuable time. The helpdesk group is unable to meet the needs of VanArsdel's employees.

However, many employees do not work with the helpdesk group to solve their access problems. Instead, these employees contact their co-workers or managers to find someone who can help them. Also, new employees are not always told to contact the helpdesk group for access problems. Some employees report that they cannot see all the applications in the Access Panel that they have access to. Some employees report that they must re-enter their passwords when they access cloud applications, even though they have already authenticated.

### **Bring your own device (BYOD):**

VanArsdel wants to continue to support users and their mobile and personal devices, but the company is concerned about how to protect corporate assets that are stored on these devices. The company does not have a strategy to ensure that its data is removed from the devices when employees leave the company.

### **Customer Support**

VanArsdel wants a mobile app for customer profile registration and feedback. The company would like to keep track of all its previous, current, and future customers worldwide. A profile system using third-party authentication is required as well as feedback and support sections for the mobile app.

### **Migration:**

VanArsdel plans to migrate several virtual machine (VM) workloads into Azure. They also plan to extend their on-premises Active Directory into Azure for mobile app authentication.

### **Business Requirements**

#### **Hybrid Solution:**

- A single account and credentials for both on-premises and cloud applications
- Certain applications that are hosted both in Azure and on-site must be accessible to both VanArsdel employees and partners
- The service level agreement (SLA) for the solution requires an uptime of 99.9%
- The partners all use Hotmail.com email addresses

#### **Mobile App:**

VanArsdel requires a mobile app for project managers on construction job sites. The mobile app has the following requirements:

- The app must display partner information.
- The app must alert project managers when changes to the partner information occur.
- The app must display project information including an image gallery to view pictures of construction projects.
- Project managers must be able to access the information remotely and securely.

#### **Security:**

- VanArsdel must control access to its resources to ensure sensitive services and information are accessible only by authorized users and/or managed devices.
- Employees must be able to securely share data, based on corporate policies, with other VanArsdel employees and with partners who are located on construction job sites.
- VanArsdel management does NOT want to create and manage user accounts for partners.

### **Technical Requirements**

#### **Architecture:**

- VanArsdel requires a non-centralized stateless architecture fonts data and services where application, data, and computing power are at the logical extremes of the network.
- VanArsdel requires separation of CPU storage and SQL services

#### **Data Storage:**

VanArsdel needs a solution to reduce the number of operations on the contractor information table. Currently, data transfer rates are excessive, and queue length for read/write operations affects performance.

- A mobile service that is used to access contractor information must have automatically scalable, structured storage
- Images must be stored in an automatically scalable, unstructured form.

#### **Mobile Apps:**

- VanArsdel mobile app must authenticate employees to the company's Active Directory.
- Event-triggered alerts must be pushed to mobile apps by using a custom Node.js script.
- The customer support app should use an identity provider that is configured by using the Access Control Service for current profile registration and authentication.
- The customer support team will adopt future identity providers that are configured through Access Control Service.

#### **Security:**

- Active Directory Federated Server (AD FS) will be used to extend AD into Azure.
- Helpdesk administrators must have access to only the groups of Azure resources they are responsible for. Azure administration will be performed by a separate group.
- IT administrative overhead must be minimized.
- Permissions must be assigned by using Role Based Access Control (RBAC).
- Line of business applications must be accessed securely.

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## **Question: 1**

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You need to assign permissions for the Virtual Machine (VM) workloads that you migrate to Azure.

The solution must use the principal of least privileges.

What should you do?

- A. Create all VMs in the cloud service named Group1 and then connect to the Azure subscription. Run the following Windows PowerShell command: New-AzureRoleAssignment -Mail user1@vanarsdelltd.com -RoleDefinitionName Contributor -ResourceGroupName group1
- B. In the Azure portal, select an individual virtual machine and add an owner.
- C. In the Azure portal, assign read permission to the user at the subscription level.
- D. Create each VM in a separate cloud service and then connect to the Azure subscription. Run the following Windows PowerShell command: Get-AzureVM | New-AzureRoleAssignment -Mail user1@vanarsdelltd.com -RoleDefinitionName Contributor

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## **Answer: A**

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Explanation:

- \* Scenario: Permissions must be assigned by using Role Based Access Control (RBAC).
- \* Role-Based access control (RBAC) in the Azure Portal and Azure Resource Management API allows you to manage access to your subscription at a fine-grained level. With this feature, you can grant access for Active Directory users, groups, or service principals by assigning some roles to them at a particular scope.

Create a role assignment

Use New-AzureRoleAssignment to create a role assignment.

Example: This will create a role assignment for a group at a resource group level.

```
PS C:\> New-AzureRoleAssignment -ObjectId <group object ID> -RoleDefinitionName Reader -ResourceGroupName group1
```

References:

<https://azure.microsoft.com/en-gb/documentation/articles/role-based-access-control-powershell/>

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## **Question: 2**

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DRAG DROP

You need to recommend data storage mechanisms for the solution.

What should you recommend? To answer, drag the appropriate data storage mechanism to the correct information type. Each data 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.

### Data Storage Mechanisms

Table storage

Blob storage

Queue storage

MySQL

### Answer Area

Information Type	Data Storage Mechanism
Contractor information	Data Storage Mechanism
Project images	Data Storage Mechanism

### Answer:

### Data Storage Mechanisms

Table storage

Blob storage

Queue storage

MySQL

### Answer Area

Information Type	Data Storage Mechanism
Contractor information	Table storage
Project images	Blob storage

\* Use Table storage for Contractor information

\* Use Blob for Project Images

\* Scenario: VanArsdel needs a solution to reduce the number of operations on the contractor information table. Currently, data transfer rates are excessive, and queue length for read/write operations affects performance.

/ A mobile service that is used to access contractor information must have automatically scalable, structured storage

/ Images must be stored in an automatically scalable, unstructured form.

Note: Blob is an acronym for Binary Large object. Basically Blob is a sequence of bytes – just what an application needs. Blob can hold audio, video, email messages, archived files, zip files or a word processing document in a very general way.

References:

<http://www.thewindowsclub.com/understanding-blobqueueable-storage-windows-azure>

### Question: 3

You need to design the system that alerts project managers to data changes in the contractor information app. Which service should you use?

- A. Azure Mobile Service
- B. Azure Service Bus Message Queueing
- C. Azure Queue Messaging
- D. Azure Notification Hub

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**Answer: C**

Explanation:

\* Scenario:

- / Mobile Apps: Event-triggered alerts must be pushed to mobile apps by using a custom Node.js script.
  - / The service level agreement (SLA) for the solution requires an uptime of 99.9%
  - \* If you are already using Azure Storage Blobs or Tables and you start using queues, you are guaranteed 99.9% availability. If you use Blobs or Tables with Service Bus queues, you will have lower availability.
- Note: Microsoft Azure supports two types of queue mechanisms: Azure Queues and Service Bus Queues.
- / Azure Queues, which are part of the Azure storage infrastructure, feature a simple REST-based Get/Put/Peek interface, providing reliable, persistent messaging within and between services.
  - / Service Bus queues are part of a broader Azure messaging infrastructure that supports queuing as well as publish/subscribe, Web service remoting, and integration patterns.

References:

<https://msdn.microsoft.com/en-us/library/azure/hh767287.aspx>

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**Question: 4**

You need to recommend a solution that allows partners to authenticate.

Which solution should you recommend?

- A. Configure the federation provider to trust social identity providers.
- B. Configure the federation provider to use the Azure Access Control service.
- C. Create a new directory in Azure Active Directory and create a user account for the partner.
- D. Create an account on the VanArsdel domain for the partner and send an email message that contains the password to the partner.

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**Answer: B**

Explanation:

\* Scenario: The partners all use Hotmail.com email addresses.

\* In Microsoft Azure Active Directory Access Control (also known as Access Control Service or ACS), an identity provider is a service that authenticates user or client identities and issues security tokens that ACS consumes.

The ACS Management Portal provides built-in support for configuring Windows Live ID as an ACS Identity Provider.

Incorrect:

Not C, not D: Scenario: VanArsdel management does NOT want to create and manage user accounts for partners.

References:

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**Question: 5**

## HOTSPOT

You need to design the contractor information app.

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

### Answer Area

You must authenticate employees to the contractor information app.

Azure Password Sync  
Azure Mobile Services  
Azure Active Directory  
Azure Active Directory Sync

You must synchronize data with the contractor information app.

Azure Password Sync  
Azure Mobile Services  
Azure Active Directory  
Azure Active Directory Sync

### Answer:

### Answer Area

You must authenticate employees to the contractor information app.

Azure Password Sync  
Azure Mobile Services  
Azure Active Directory  
Azure Active Directory Sync

You must synchronize data with the contractor information app.

Azure Password Sync  
Azure Mobile Services  
Azure Active Directory  
Azure Active Directory Sync

/ They also plan to extend their on-premises Active Directory into Azure for mobile app authentication  
/ VanArsdel mobile app must authenticate employees to the company's Active Directory.

References:

<http://azure.microsoft.com/en-gb/documentation/articles/mobile-services-ios-get-started-offline-data/>

## Question: 6

You are designing a plan to deploy a new application to Azure.

The solution must provide a single sign-on experience for users.

You need to recommend an authentication type.

Which authentication type should you recommend?

- A. SAML credential tokens

- B. Azure managed access keys
- C. Windows Authentication
- D. MS-CHAP

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**Answer: A**

Explanation:

A Microsoft cloud service administrator who wants to provide their Azure Active Directory (AD) users with sign-on validation can use a SAML 2.0 compliant SP-Lite profile based Identity Provider as their preferred Security Token Service (STS) / identity provider. This is useful where the solution implementer already has a user directory and password store on-premises that can be accessed using SAML 2.0. This existing user directory can be used for sign-on to Office 365 and other Azure AD-secured resources.

References:

<https://msdn.microsoft.com/en-us/library/azure/dn641269.aspx?f=255&MSPPError=-2147217396>

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### **Question: 7**

You need to prepare the implementation of data storage for the contractor information app.  
What should you?

- A. Create a storage account and implement multiple data partitions.
- B. Create a Cloud Service and a Mobile Service. Implement Entity Group transactions.
- C. Create a Cloud Service and a Deployment group. Implement Entity Group transactions.
- D. Create a Deployment group and a Mobile Service. Implement multiple data partitions.

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**Answer: B**

Explanation:

\* Scenario:

/ VanArsdel needs a solution to reduce the number of operations on the contractor information table. Currently, data transfer rates are excessive, and queue length for read/write operations affects performance.  
/ A mobile service that is used to access contractor information must have automatically scalable, structured storage

\* The basic unit of deployment and scale in Azure is the Cloud Service.

References:

<https://msdn.microsoft.com/en-us/library/azure/dd894038.aspx>

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### **Question: 8**

You need to ensure that users do not need to re-enter their passwords after they authenticate to cloud applications for the first time.

What should you do?

- A. Enable Microsoft Account authentication.
- B. Set up a virtual private network (VPN) connection between the VanArsdel premises and the Azure datacenter. Set up a Windows Active Directory domain controller in Azure VM. Implement Integrated Windows authentication.
- C. Deploy ExpressRoute.
- D. Configure Azure Active Directory Sync to use single sign-on (SSO).

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**Answer: D**

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Explanation:

Single sign-on (SSO) is a property of access control of multiple related, but independent software systems. With this property a user logs in once and gains access to all systems without being prompted to log in again at each of them.

References:

[http://en.wikipedia.org/wiki/Single\\_sign-on](http://en.wikipedia.org/wiki/Single_sign-on)

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### **Question: 9**

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You need to configure availability for the virtual machines that the company is migrating to Azure. What should you implement?

- A. Traffic Manager
- B. Availability Sets
- C. Virtual Machine Autoscaling
- D. Cloud Services

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**Answer: D**

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Explanation:

Scenario: VanArsdel plans to migrate several virtual machine (VM) workloads into Azure.

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### **Question: 10**

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**DRAG DROP**

You are creating scripts to authenticate Azure monitoring tasks.

You need to authenticate according to the requirements. How should you complete the relevant Azure PowerShell script?

Develop the solution by selecting and arranging the required Azure PowerShell commands in the correct order. NOTE: You will not need all of the Azure PowerShell commands.

## **Actions**

```
Add-AzureAccount-Credential  
$credential
```

```
Select-AzureSubscription  
-SubscriptionName $subscription
```

```
Get-AzureAccount -Name $name
```

```
$credential = Get-AutomationPSCre-  
dential -Name $name
```

```
$credential = New-Object -TypeName  
System.Management.Automa-  
tion.PSCredential -ArgumentList  
$username, $password
```

```
Get-AzureSubscription -Subscription-  
Name $subscription
```

## **Answer Area**



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**Answer:**

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**Actions**

```
Get-AzureAccount -Name $name
```

```
$credential = Get-AutomationPSCredential -Name $name
```

```
Get-AzureSubscription -Subscription-Name $subscription
```

**Answer Area**

```
$credential = New-Object -TypeName System.Management.Automation.PSCredential -ArgumentList $username, $password
```



```
Add-AzureAccount-Credential  
$credential
```

```
Select-AzureSubscription  
-SubscriptionName $subscription
```



From Scenario: Permissions must be assigned by using Role Based Access Control (RBAC).

The following cmdlet is used to sign-in to Azure: Add-AzureAccount

If necessary, the following Azure cmdlets can be used to select the desired subscription:

Get-AzureSubscription

Select-AzureSubscription -SubscriptionName "SomeSubscription"

Set-AzureSubscription -SubscriptionName "SomeSubscription" `

References:

[https://blogs.msdn.microsoft.com/cloud\\_solution\\_architect/2015/05/14/using-a-service-principal-for-azure-powershell-authentication/](https://blogs.msdn.microsoft.com/cloud_solution_architect/2015/05/14/using-a-service-principal-for-azure-powershell-authentication/)

## Case Study: 2

### Trey Research

#### Background

#### Overview

Trey Research conducts agricultural research and sells the results to the agriculture and food industries. The company uses a combination of on-premises and third-party server clusters to meet its storage needs. Trey Research has seasonal demands on its services, with up to 50 percent drops in data capacity and bandwidth demand during low-demand periods. They plan to host their websites in an agile, cloud environment where the company can deploy and remove its websites based on its business requirements rather than the requirements of the hosting company.

A recent fire near the datacenter that Trey Research uses raises the management team's awareness of the

vulnerability of hosting all of the company's websites and data at any single location. The management team is concerned about protecting its data from loss as a result of a disaster.

### **Websites**

Trey Research has a portfolio of 300 websites and associated background processes that are currently hosted in a third-party datacenter. All of the websites are written in ASP.NET, and the background processes use Windows Services. The hosting environment costs Trey Research approximately \$25 million in hosting and maintenance fees.

### **Infrastructure**

Trey Research also has on-premises servers that run VMs to support line-of-business applications. The company wants to migrate the line-of-business applications to the cloud, one application at a time. The company is migrating most of its production VMs from an aging VMWare ESXi farm to a Hyper-V cluster that runs on Windows Server 2012.

### **Applications**

#### **DistributionTracking**

Trey Research has a web application named Distributiontracking. This application constantly collects realtime data that tracks worldwide distribution points to customer retail sites. This data is available to customers at all times.

The company wants to ensure that the distribution tracking data is stored at a location that is geographically close to the customers who will be using the information. The system must continue running in the event of VM failures without corrupting data.

a. The system is processor intensive and should be run in a multithreading environment.

#### **HRApp**

The company has a human resources (HR) application named HRApp that stores data in an on-premises SQL Server database. The database must have at least two copies, but data to support backups and business continuity must stay in Trey Research locations only. The data must remain on-premises and cannot be stored in the cloud.

HRApp was written by a third party, and the code cannot be modified. The human resources data is used by all business offices, and each office requires access to the entire database. Users report that HRApp takes all night to generate the required payroll reports, and they would like to reduce this time.

#### **MetricsTracking**

Trey Research has an application named MetricsTracking that is used to track analytics for the DistributionTracking web application. The data MetricsTracking collects is not customer-facing. Data is stored on an on-premises SQL Server database, but this data should be moved to the cloud. Employees at other locations access this data by using a remote desktop connection to connect to the application, but latency issues degrade the functionality.

Trey Research wants a solution that allows remote employees to access metrics data without using a remote desktop connection. MetricsTracking was written in-house, and the development team is available to make modifications to the application if necessary. However, the company wants to continue to use SQL Server for MetricsTracking.

### **Business Requirements**

#### **Business Continuity**

You have the following requirements:

- Move all customer-facing data to the cloud.
- Web servers should be backed up to geographically separate locations,

- If one website becomes unavailable, customers should automatically be routed to websites that are still operational.
- Data must be available regardless of the operational status of any particular website.
- The HRApp system must remain on-premises and must be backed up.
- The MetricsTracking data must be replicated so that it is locally available to all Trey Research offices.

### **Auditing and Security**

You have the following requirements:

- Both internal and external consumers should be able to access research results.
- Internal users should be able to access data by using their existing company credentials without requiring multiple logins.
- Consumers should be able to access the service by using their Microsoft credentials.
- Applications written to access the data must be authenticated.
- Access and activity must be monitored and audited.
- Ensure the security and integrity of the data collected from the worldwide distribution points for the distribution tracking application.

### **Storage and Processing**

You have the following requirements:

- Provide real-time analysis of distribution tracking data by geographic location.
- Collect and store large datasets in real-time data for customer use.
- Locate the distribution tracking data as close to the central office as possible to improve bandwidth.
- Co-locate the distribution tracking data as close to the customer as possible based on the customer's location.
- Distribution tracking data must be stored in the JSON format and indexed by metadata that is stored in a SQL Server database.
- Data in the cloud must be stored in geographically separate locations, but kept with the same political boundaries.

### **Technical Requirements**

#### **Migration**

You have the following requirements:

- Deploy all websites to Azure.
- Replace on-premises and third-party physical server clusters with cloud-based solutions.
- Optimize the speed for retrieving exiting JSON objects that contain the distribution tracking data.
- Recommend strategies for partitioning data for load balancing.

#### **Auditing and Security**

You have the following requirements:

- Use Active Directory for internal and external authentication.
- Use OAuth for application authentication.

#### **Business Continuity**

You have the following requirements:

- Data must be backed up to separate geographic locations.
- Web servers must run concurrent versions of all websites in distinct geographic locations.

- Use Azure to back up the on-premises MetricsTracking data.
- Use Azure virtual machines as a recovery platform for MetricsTracking and HRApp.
- Ensure that there is at least one additional on-premises recovery environment for the HRApp.

## Question: 11

### DRAG DROP

You need to ensure that customer data is secured both in transit and at rest.

Which technologies should you recommend? To answer, drag the appropriate technology to the correct security requirement. 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.

Technologies
Transparent Data Encryption
TLS/SSL
PGP key
Service Bus
Azure Rights Management service
Azure Import/Export service

Answer Area	Security requirement	Technology
Customer connections to the website or from the mobile app		Technology
SQL Server data migration for large datasets		Technology
Encryption management for data based on key exchanges between servers		Technology

### Answer:

#### Answer Area

Security requirement	Technology
Customer connections to the website or from the mobile app	Azure Rights Management service
SQL Server data migration for large datasets	Transparent Data Encryption
Encryption management for data based on key exchanges between servers	TLS/SSL

\* Azure Rights Management service

Azure Rights Management service uses encryption, identity, and authorization policies to help secure your files and email, and it works across multiple devices—phones, tablets, and PCs. Information can be protected both within your organization and outside your organization because that protection remains with the data, even when it leaves your organization's boundaries.

\* Transparent Data Encryption

Transparent Data Encryption (often abbreviated to TDE) is a technology employed by both Microsoft and Oracle to encrypt database files. TDE offers encryption at file level. TDE solves the problem of protecting

data at rest, encrypting databases both on the hard drive and consequently on backup media.

\* TLS/SSL

Transport Layer Security (TLS) and its predecessor, Secure Sockets Layer (SSL), are cryptographic protocols designed to provide communications security over a computer network. They use X.509 certificates and hence asymmetric cryptography to authenticate the counterparty with whom they are communicating, and to negotiate a symmetric key.

References:

<https://technet.microsoft.com/en-us/library/jj585004.aspx>

[http://en.wikipedia.org/wiki/Transparent\\_Data\\_Encryption](http://en.wikipedia.org/wiki/Transparent_Data_Encryption)

[http://en.wikipedia.org/wiki/Transport\\_Layer\\_Security](http://en.wikipedia.org/wiki/Transport_Layer_Security)

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## **Question: 12**

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HOTSPOT

You need to plan the business continuity strategy.

For each requirement, what should you recommend? To answer, select the appropriate option from each list in the answer area.

**Answer Area**

You must ensure that customer facing data is replicated geographically.

- Shard the database horizontally and place each shard in a different datacenter.
- Create multiple instances of the SQL Database. Replicate the data between the instances.
- Use SQL Azure's backup feature to create a BACPAC file. Place the file in Blob storage.
- Replicate the data by using asynchronous replication.

You must ensure that client connect to Azure websites that run in the region closest to them.

- Use Traffic Manager to route traffic between geographic instances.
- Configure a local endpoint in the Azure Load Balancer Server. Configure the endpoints to use the same IP address.
- Assign separate URLs to multiple website instances. Configure DNS records to resolve the URL for each instance.
- Configure the site in an Azure WebSite and configure a WebJob to automate the failover.

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## **Answer:**

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**Answer Area**

You must ensure that customer facing data is replicated geographically.

- Shard the database horizontally and place each shard in a different datacenter.
- Create multiple instances of the SQL Database. Replicate the data between the instances.**
- Use SQL Azure's backup feature to create a BACPAC file. Place the file in Blob storage.
- Replicate the data by using asynchronous replication.

You must ensure that client connect to Azure websites that run in the region closest to them.

- Use Traffic Manager to route traffic between geographic instances.
- Configure a local endpoint in the Azure Load Balancer Server. Configure the endpoints to use the same IP address.
- Assign separate URLs to multiple website instances. Configure DNS records to resolve the URL for each instance.**
- Configure the site in an Azure WebSite and configure a WebJob to automate the failover.

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## **Question: 13**

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HOTSPOT

You need to design a data storage strategy for each application.

In the table below, identify the strategy that you should use for each application. Make only one selection in each column.

Strategy	Human Resources Application	Metrics Application
Create separate SQL databases on individual virtual machines and partition appropriately.	<input type="radio"/>	<input type="radio"/>
Migrate the existing SQL database to a larger virtual machine.	<input type="radio"/>	<input type="radio"/>
Migrate the existing data to Azure table storage in the cloud.	<input type="radio"/>	<input type="radio"/>

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**Answer:**

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Strategy	Human Resources Application	Metrics Application
Create separate SQL databases on individual virtual machines and partition appropriately.	<input checked="" type="checkbox"/>	<input type="radio"/>
Migrate the existing SQL database to a larger virtual machine.	<input type="radio"/>	<input type="radio"/>
Migrate the existing data to Azure table storage in the cloud.	<input type="radio"/>	<input checked="" type="checkbox"/>

\* Scenario:

/ HRApp

The company has a human resources (HR) application named HRApp that stores data in an on-premises SQL Server database.

The data must remain on-premises and cannot be stored in the cloud.

The human resources data is used by all business offices, and each office requires access to the entire database.

/ Metrics application

Data is stored on an on-premises SQL Server database, but this data should be moved to the cloud.

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### **Question: 14**

**DRAG DROP**

You need to recommend a test strategy for the disaster recovery system.

What should you do? To answer, drag the appropriate test strategy to the correct business application. Each test strategy 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.

**Test Strategies**

On-premises to on-premises deployment

Use Azure's on-premises to Azure deployment

Use Azure's built-in cloud redundancy

**Answer Area**

<b>Business Application</b>	<b>Test Strategy</b>
Distribution Tracking	Test Strategy
Human Services	Test Strategy
Metrics System	Test Strategy

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**Answer:**

**Answer Area**

<b>Business Application</b>	<b>Test Strategy</b>
Distribution Tracking	Use Azure's on-premises to Azure deployment
Human Services	On-premises to on-premises deployment
Metrics System	Use Azure's built-in cloud redundancy

\* Distribution tracking

The company wants to ensure that the distribution tracking data is stored at a location that is geographically close to the customers who will be using the information.

\* / HRApp

The data must remain on-premises and cannot be stored in the cloud.

\* / Metrics application

Data is stored on an on-premises SQL Server database, but this data should be moved to the cloud.

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### **Question: 15**

You need to configure the distribution tracking application.

What should you do?

- A. Map each role to a single upgrade domain to optimize resource utilization.
- B. Design all services as stateless services.
- C. Configure operations to queue when a role reaches its capacity.
- D. Configure multiple worker roles to run on each virtual machine.

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**Answer: D**

Explanation:

- \* Scenario: distribution tracking application

The system is processor intensive and should be run in a multithreading environment.

References:

<http://mark.mymonster.nl/2013/01/29/running-multiple-workers-inside-one-windows-azure-worker-role>

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### **Question: 16**

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You need to recommend an authentication solution for the DistributionTracking application.

What should you include in the recommendation?

- A. a certificate
- B. a Graph API endpoint
- C. a security principal in Azure Active Directory
- D. a managed service account in Azure Active Directory

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**Answer: A**

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Explanation:

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### **Question: 17**

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You need to recommend a data storage solution that meets the business continuity requirements. Which two features should you recommend? Each correct answer presents part of the solution.

- A. SQL Database Standard
- B. Azure Backup
- C. SQL Database Premium
- D. SQL Database Express

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**Answer: A,B**

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Explanation:

From scenario: Disaster recovery and business continuity plans must use a single, integrated service that supports the following features:

- \* All VMs must be backed up to Azure.
- \* All on-premises data must be backed up off-site and available for recovery in the event of a disaster.
- \* Disaster testing must be performed to ensure that recovery times meet management guidelines.
- \* Fail-over testing must not impact production.

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### **Question: 18**

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You need to design the business continuity framework. Which technology should you use?

- A. Hyper-V Replica
- B. Azure Backup
- C. Azure Site Recovery
- D. Azure StoreSimple

---

**Answer: C**

Explanation:

Azure Site Recovery can protect Microsoft Hyper-V, VMware, and physical servers, and you can use Azure or your secondary datacenter as your recovery site.

From scenario: The company has a human resources (HR) application named HRApp that stores data in an on-premises SQL Server database. The database must have at least two copies, but data to support backups and business continuity must stay in Trey Research locations only. The data must remain on-premises and cannot be stored in the cloud.

References:

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

Case Study: 3

Contoso, Ltd

### **Background**

#### **Overview**

Contoso, Ltd., manufactures and sells golf clubs and golf balls. Contoso also sells golf accessories under the Contoso Golf and Odyssey brands worldwide.

Most of the company's IT infrastructure is located in the company's Carlsbad, California, headquarters. Contoso also has a sizable third-party colocation datacenter that costs the company USD \$30,000 to \$40,000 a month. Contoso has other servers scattered around the United States.

Contoso, Ltd., has the following goals:

- Move many consumer-facing websites, enterprise databases, and enterprise web services to Azure.
- Improve the performance for customers and resellers who are access company websites from around the world.
- Provide support for provisioning resources to meet bursts of demand.
- Consolidate and improve the utilization of website- and database-hosting resources.
- Avoid downtime, particularly that caused by web and database server updating.
- Leverage familiarity with Microsoft server management tools.

#### **Infrastructure**

Contoso's datacenters are filled with dozens of smaller web servers and databases that run on under-utilized hardware. This creates issues for data backup. Contoso currently backs up data to tape by using System Center Data Protection Manager. System Center Operations Manager is not deployed in the enterprise.

All of the servers are expensive to acquire and maintain, and scaling the infrastructure takes significant time. Contoso conducts weekly server maintenance, which causes downtime for some of its global offices. Special events, such as high-profile golf tournaments, create a large increase in site traffic. Contoso has difficulty

scaling the web-hosting environment fast enough to meet these surges in site traffic. Contoso has resellers and consumers in Japan and China. These resellers must use applications that run in a datacenter that is located in the state of Texas, in the United States. Because of the physical distance, the resellers experience slow response times and downtime.

### **Business Requirements**

#### **Management and Performance**

##### **Management**

- Web servers and databases must automatically apply updates to the operating system and products.
- Automatically monitor the health of worldwide sites, databases, and virtual machines.
- Automatically back up the website and databases.
- Manage hosted resources by using on-premises tools.

##### **Performance**

- The management team would like to centralize data backups and eliminate the use of tapes.
- The website must automatically scale without code changes or redeployment.
- Support changes in service tier without reconfiguration or redeployment.
- Site-hosting must automatically scale to accommodate data bandwidth and number of connections.
- Scale databases without requiring migration to a larger server.
- Migrate business critical applications to Azure.
- Migrate databases to the cloud and centralize databases where possible.

#### **Business Continuity and Support**

##### **Business Continuity**

- Minimize downtime in the event of regional disasters.
- Recover data if unintentional modifications or deletions are discovered.
- Run the website on multiple web server instances to minimize downtime and support a high service level agreement (SLA).

##### **Connectivity**

- Allow enterprise web services to access data and other services located on-premises.
- Provide and monitor lowest latency possible to website visitors.
- Automatically balance traffic among all web servers.
- Provide secure transactions for users of both legacy and modern browsers.
- Provide automated auditing and reporting of web servers and databases.
- Support single sign-on from multiple domains.

#### **Development Environment**

You identify the following requirements for the development environment:

- Support the current development team's knowledge of Microsoft web development and SQL Service tools.
- Support building experimental applications by using data from the Azure deployment and on-premises data sources.
- Mitigate the need to purchase additional tools for monitoring and debugging.
- System designers and architects must be able to create custom Web APIs without requiring any coding.
- Support automatic website deployment from source control.

- Support automated build verification and testing to mitigate bugs introduced during builds.
- Manage website versions across all deployments.
- Ensure that website versions are consistent across all deployments.

## **Technical Requirement**

### **Management and Performance**

#### **Management**

- Use build automation to deploy directly from Visual Studio.
- Use build-time versioning of assets and builds/releases.
- Automate common IT tasks such as VM creation by using Windows PowerShell workflows.
- Use advanced monitoring features and reports of workloads in Azure by using existing Microsoft tools.

#### **Performance**

- Websites must automatically load balance across multiple servers to adapt to varying traffic.
- In production, websites must run on multiple instances.
- First-time published websites must be published by using Visual Studio and scaled to a single instance to test publishing.
- Data storage must support automatic load balancing across multiple servers.
- Websites must adapt to wide increases in traffic during special events.
- Azure virtual machines (VMs) must be created in the same datacenter when applicable.

### **Business Continuity and Support**

#### **Business Continuity**

- Automatically co-locate data and applications in different geographic locations.
- Provide real-time reporting of changes to critical data and binaries.
- Provide real-time alerts of security exceptions.
- Unwanted deletions or modifications of data must be reversible for up to one month, especially in business critical applications and databases.
- Any cloud-hosted servers must be highly available.

#### **Enterprise Support**

- The solution must use stored procedures to access on-premises SQL Server data from Azure.
- A debugger must automatically attach to websites on a weekly basis. The scripts that handle the configuration and setup of debugging cannot work if there is a delay in attaching the debugger.

---

## **Question: 19**

### **DRAG DROP**

You need to deploy the virtual machines to Azure.

Which four Azure PowerShell scripts should you run in sequence? To answer, move the appropriate scripts from the list of scripts to the answer area and arrange them in the correct order.

**Scripts****Answer Area**

```
New-AzureStorageContainer  
$ContainerName -Permission  
Container
```

```
New-AzureStorageAccount -  
StorageAccountName  
$StorageAccountName -  
AffinityGroup $AffinityGroup
```

```
New-AzureResourceGroup -  
Name $Name -Location  
$Location -TemplateFile  
$TemplateJSONFile -  
TemplateParameterFile  
$ParmsJSONFile
```

```
Add-AzureWorkerRole  
MyWorkerRole -I 2
```

```
$AffinityGroup = New-  
AzureAffinityGroup -Name  
$Name -Location $Location -  
Description  
New-AzureResourceGroup -  
Name $Name -Location  
$Location -TemplateFile  
$TemplateJSONFile -  
TemplateParameterFile  
$ParmsJSONFile
```

```
$newVM = New-  
AzureVMConfig -name  
$vmname -InstanceSize  
$instancesize -ImageName  
$winimage | Add-  
AzureProvisioningConfig -  
Windows -AdminUsername  
$adminname -Password  
$adminpassword
```

---

**Answer:**

Box 1:

```
$AffinityGroup = New-AzureAffinityGroup -Name $Name -Location $Location -Description  
New-AzureResourceGroup -Name $Name -Location $Location -TemplateFile $TemplateJSONFile -TemplateParameterFile $TemplateParameterFile -ParmsJSONFile $ParmsJSONFile
```

Box 2:

```
New-AzureStorageAccount -StorageAccountName $StorageAccountName -AffinityGroup $AffinityGroup
```

Box 3:

```
New-AzureStorageContainer $ContainerName -Permission Container
```

Box 4:

```
$newVM = New-AzureVMConfig -name  
$vmname -InstanceSize  
$instancesize -ImageName  
$winimage | Add-AzureProvisioningConfig -  
Windows -AdminUsername  
$adminname -Password  
$adminpassword
```

```
New-AzureVM -ServiceName  
$Name -Location $Location -  
VMs $newVM -VNetName $vnet  
-WaitForBoot
```

Note:

\* In order to upload a VHD file to Azure, we need:

References:

### **Question: 20**

HOTSPOT

You need implement tools at the client's location for monitoring and deploying Azure resources.

Which tools should you use? To answer, select the appropriate on-premises tool for each task in the answer area.

<b>Task</b>	<b>On-premises tool</b>
Deployment	Azure Automation Operations Insight System Center Orchestrator System Center Operations Manager System Center Virtual Machine Manager
Application health	Azure Automation Operations Insight System Center Orchestrator System Center Operations Manager System Center Virtual Machine Manager

**Answer:**

<b>Task</b>	<b>On-premises tool</b>
Deployment	Azure Automation Operations Insight System Center Orchestrator System Center Operations Manager System Center Virtual Machine Manager
Application health	Azure Automation Operations Insight System Center Orchestrator System Center Operations Manager System Center Virtual Machine Manager

\* System Center Virtual Machine Manager (SCVMM) enables rapid provisioning of new virtual machines

by the administrator and end users using a self-service provisioning tool.

\* System Center Operations Manager (SCOM) is a cross-platform data center management system for operating systems and hypervisors. It uses a single interface that shows state, health and performance information of computer systems. It also provides alerts generated according to some availability, performance, configuration or security situation being identified.

The basic idea is to place a piece of software, an agent, on the computer to be monitored. The agent watches several sources on that computer, including the Windows Event Log, for specific events or alerts generated by the applications executing on the monitored computer.

\* Scenario:

Leverage familiarity with Microsoft server management tools.

Manage hosted resources by using on-premises tools.

Mitigate the need to purchase additional tools for monitoring and debugging.

Use advanced monitoring features and reports of workloads in Azure by using existing Microsoft tools.

References:

[http://en.wikipedia.org/wiki/System\\_Center\\_Operations\\_Manager](http://en.wikipedia.org/wiki/System_Center_Operations_Manager)

---

## **Question: 21**

You need to configure availability for the virtual machines that the company is migrating to Azure.

What should you implement?

- A. Traffic Manager
- B. Express Route
- C. Update Domains
- D. Cloud Services

---

**Answer: B**

---

Explanation:

ExpressRoute gives you a fast and reliable connection to Azure making it suitable for scenarios like periodic data migration, replication for business continuity, disaster recovery and other high availability strategies. It can also be a cost-effective option for transferring large amounts of data such as datasets for high performance computing applications or moving large VMs between your dev/test environment in Azure and on-premises production environment.

References:

<http://azure.microsoft.com/en-us/services/expressroute/>

---

## **Question: 22**

**DRAG DROP**

You need to recommend network connectivity solutions for the experimental applications.

What should you recommend? To answer, drag the appropriate solution to the correct network connection requirements. 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.

Solutions	Answer Area	
	Network connection requirements	Solution
ExpressRoute	A dedicated connection between one on-premises location and its development environment within Azure	Solution
point-to-site VPN	Encrypted Internet connection between one developer's server and the development environment within Azure	Solution
site-to-site VPN	Encrypted Internet connection between one on-premises location and its development environment within Azure	Solution
	Most secure, highest bandwidth, lowest latency option for connecting an on-premises network to Azure	Solution

---

**Answer:**

---

Answer Area	
Network connection requirements	Solution
A dedicated connection between one on-premises location and its development environment within Azure	ExpressRoute
Encrypted Internet connection between one developer's server and the development environment within Azure	point-to-site VPN
Encrypted Internet connection between one on-premises location and its development environment within Azure	point-to-site VPN
Most secure, highest bandwidth, lowest latency option for connecting an on-premises network to Azure	site-to-site VPN

Box 1: ExpressRoute

ExpressRoute gives you a fast and reliable connection to Azure making it suitable for scenarios like periodic data migration, replication for business continuity, disaster recovery and other high availability strategies. It can also be a cost-effective option for transferring large amounts of data such as datasets for high performance computing applications or moving large VMs between your dev/test environment in Azure and on-premises production environment.

Box 2: point-to-site VPN

**Box 3: point-to-site VPN**

A point-to-site VPN also allows you to create a secure connection to your virtual network. In a point-to-site configuration, the connection is configured individually on each client computer that you want to connect to the virtual network

**Box 4: site-to-site VPN**

A site-to-site VPN allows you to create a secure connection between your on-premises site and your virtual network. To create a site-to-site connection, a VPN device that is located on your on-premises network is configured to create a secure connection with the Azure Virtual Network Gateway. Once the connection is created, resources on your local network and resources located in your virtual network can communicate directly and securely. Site-to-site connections do not require you to establish a separate connection for each client computer on your local network to access resources in the virtual network.

\* Scenario: Support building experimental applications by using data from the Azure deployment and on-premises data sources.

References:

<http://azure.microsoft.com/en-us/services/expressroute/>

<https://msdn.microsoft.com/en-us/library/azure/dn133798.aspx>

---

**Question: 23**

You need to recommend a solution for publishing one of the company websites to Azure and configuring it for remote debugging.

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

- A. From Visual Studio, attach the debugger to the solution.
- B. Set the application logging level to Verbose and enable logging.
- C. Set the Web Server logging level to Information and enable logging.
- D. Set the Web Server logging level to Verbose and enable logging.
- E. From Visual Studio, configure the site to enable Debugger Attaching and then publish the site.

---

**Answer: A,E**

Explanation:

\* Scenario:

/ Mitigate the need to purchase additional tools for monitoring and debugging.

/A debugger must automatically attach to websites on a weekly basis. The scripts that handle the configuration and setup of debugging cannot work if there is a delay in attaching the debugger.

A: After publishing your application you can use the Server Explorer in Visual Studio to access your web sites.

After signing in you will see your Web Sites under the Windows Azure node in Server Explorer. Right click on the site that you would like to debug and select Attach Debugger.

E: When the processes appear in the Available Processes table, select w3wp.exe, and then click Attach.

Open a browser to the URL of your web app.

References:

<http://blogs.msdn.com/b/webdev/archive/2013/11/05/remote-debugging-a-windows-azure-web-site-with-visual-studio-2013.aspx>

## Case Study: 4

### Lucerne Publishing

#### **Background**

#### **Overview**

Lucerne Publishing creates, stores, and delivers online media for advertising companies. This media is streamed to computers by using the web, and to mobile devices around the world by using native applications. The company currently supports the iOS, Android, and Windows Phone 8.1 platform.

Lucerne Publishing uses proprietary software to manage its media workflow. This software has reached the end of its lifecycle. The company plans to move its media workflows to the cloud. Lucerne Publishing provides access to its customers, who are third-party companies, so that they can download, upload, search, and index media that is stored on Lucerne Publishing servers.

#### **Apps and Applications**

Lucerne Publishing develops the applications that customers use to deliver media. The company currently provides the following media delivery applications:

- Lucerne Media W - a web application that delivers media by using any browser
- Lucerne Media M - a mobile app that delivers media by using Windows Phone 8.1
- Lucerne Media A - a mobile app that delivers media by using an iOS device
- Lucerne Media N - a mobile app that delivers media by using an Android device
- Lucerne Media D - a desktop client application that customer's install on their local computer

#### **Business Requirements**

Lucerne Publishing's customers and their consumers have the following requirements:

- Access to media must be time-constricted once media is delivered to a consumer.
- The time required to download media to mobile devices must be minimized.
- Customers must have 24-hour access to media downloads regardless of their location or time zone.
- Lucerne Publishing must be able to monitor the performance and usage of its customer-facing app.

Lucerne Publishing wants to make its asset catalog searchable without requiring a database redesign.

- Customers must be able to access all data by using a web application. They must also be able to access data by using a mobile app that is provided by Lucerne Publishing.
- Customers must be able to search for media assets by key words and media type.
- Lucerne Publishing wants to move the asset catalog database to the cloud without formatting the source data.

#### **Other Requirements**

#### **Development**

Code and current development documents must be backed up at all times. All solutions must be automatically built and deployed to Azure when code is checked in to source control.

#### **Network Optimization**

Lucerne Publishing has a .NET web application that runs on Azure. The web application analyzes storage and the distribution of its media assets. It needs to monitor the utilization of the web application. Ultimately, Lucerne Publishing hopes to cut its costs by reducing data replication without sacrificing its quality of service to its customers. The solution has the following requirements:

- Optimize the storage location and amount of duplication of media.

- Vary several parameters including the number of data nodes and the distance from node to customers.
- Minimize network bandwidth.
- Lucerne Publishing wants to be notified of exceptions in the web application.

## **Technical Requirements**

### **Data Mining**

Lucerne Publishing constantly mines its data to identify customer patterns. The company plans to replace the existing on-premises cluster with a cloud-based solution. Lucerne Publishing has the following requirements:

#### **Virtual machines:**

- The data mining solution must support the use of hundreds to thousands of processing cores.
- Minimize the number of virtual machines by using more powerful virtual machines. Each virtual machine must always have eight or more processor cores available.
- Allow the number of processor cores dedicated to an analysis to grow and shrink automatically based on the demand of the analysis.
- Virtual machines must use remote memory direct access to improve performance.

#### **Task scheduling:**

The solution must automatically schedule jobs. The scheduler must distribute the jobs based on the demand and available resources.

#### **Data analysis results:**

The solution must provide a web service that allows applications to access the results of analyses.

## **Other Requirements**

### **Feature Support**

- Ad copy data must be searchable in full text.
- Ad copy data must be indexed to optimize search speed.
- Media metadata must be stored in Azure Table storage.
- Media files must be stored in Azure BLOB storage.
- The customer-facing website must have access to all ad copy and media.
- The customer-facing website must automatically scale and replicate to locations around the world.
- Media and data must be replicated around the world to decrease the latency of data transfers.
- Media uploads must have fast data transfer rates (low latency) without the need to upload the data offline.

### **Security**

- Customer access must be managed by using Active Directory.
- Media files must be encrypted by using the PlayReady encryption method.
- Customers must be able to upload media quickly and securely over a private connection with no opportunity for internet snooping.

---

## **Question: 24**

You need to analyze Lucerne's performance monitoring solution.

Which three applications should you monitor? Each correct answer presents a complete solution.

- A. The Lucerne Media-D application
- B. The data mining application
- C. The Lucerne Media-W application
- D. The Lucerne Media-M app
- E. The Lucerne Media-N app

---

**Answer: C,D,E**

Explanation:

Monitor the web application and the mobile apps.

C: Lucerne Media W – a web application that delivers media by using any browser

D: Lucerne Media M – a mobile app that delivers media by using Windows Phone 8.1

E: Lucerne Media N – a mobile app that delivers media by using an Android device

\* Scenario:

/ Lucerne Publishing must be able to monitor the performance and usage of its customer-facing app.

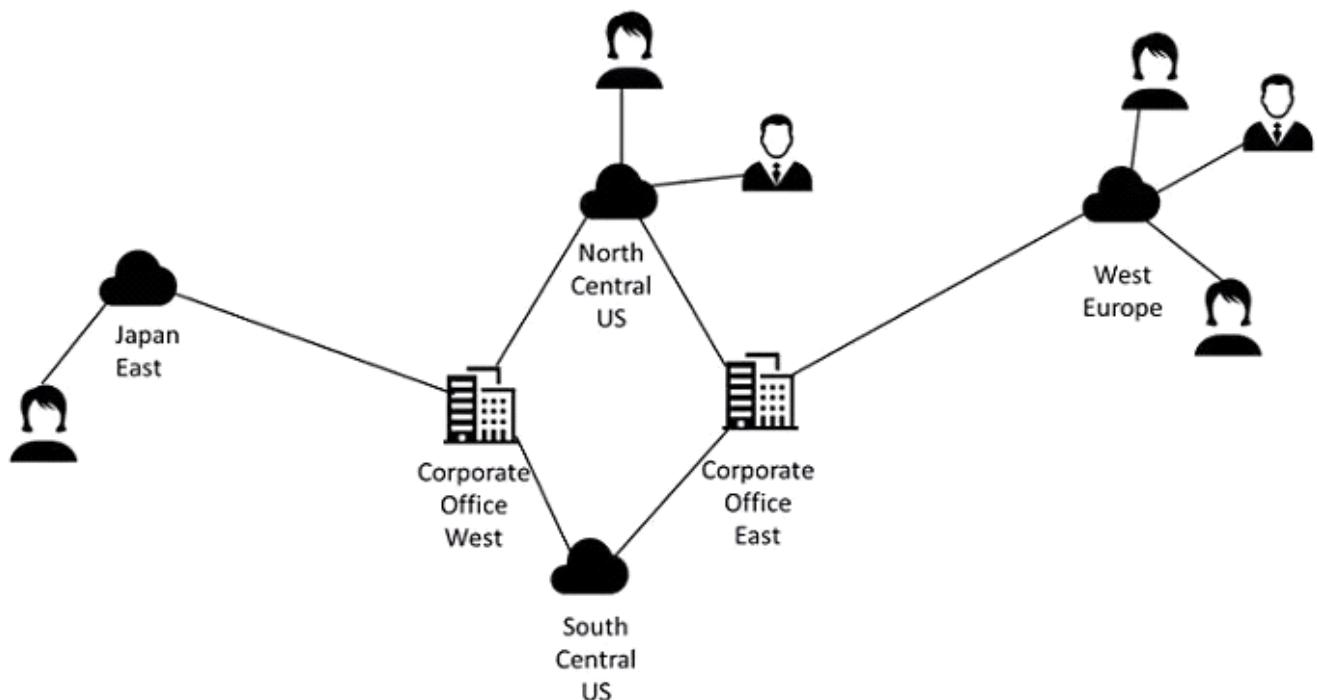
/ Customers must be able to access all data by using a web application. They must also be able to access data by using a mobile app that is provided by Lucerne Publishing.

---

### **Question: 25**

HOTSPOT

The company has two corporate offices. Customers will access the websites from datacenters around the world.



You need to architect the global website strategy to meet the business requirements. Use the drop-down menus to select the answer choice that answers each question.

### Answer Area

Where should you deploy the websites?

South Central US  
Corporate Office West and Corporate Office East  
East Asia, North Central US, and West Europe

Where should you store the media?

South Central US  
Corporate Office West and Corporate Office East  
East Asia, North Central US, and West Europe

Where should you deploy the data warehouse?

South Central US  
East Asia, North Central US, and West Europe  
Corporate Office West and Corporate Office East

---

### Answer:

---

### Answer Area

Where should you deploy the websites?

South Central US  
Corporate Office West and Corporate Office East  
East Asia, North Central US, and West Europe

Where should you store the media?

South Central US  
Corporate Office West and Corporate Office East  
East Asia, North Central US, and West Europe

Where should you deploy the data warehouse?

South Central US  
East Asia, North Central US, and West Europe  
Corporate Office West and Corporate Office East

\* Scenario: The customer-facing website must have access to all ad copy and media.

---

### Question: 26

---

#### HOTSPOT

You need to recommend strategies for storing data.

Which services should you recommend? To answer, select the appropriate storage technology for each data type in the answer area.

Data Type	Storage Technology
Media metadata	Azure Queue Storage service Azure Media Services Azure Mobile Services Database using REST
Images	Azure Queue Storage service Azure Media Services Azure Mobile Services SQL Database using REST
Audio	Azure Queue Storage service Azure Media Services Azure Mobile Services SQL Database using REST
Video	Azure Queue Storage service Azure Media Services Azure Mobile Services SQL Database using REST

---

**Answer:**

---

Data Type	Storage Technology
Media metadata	Azure Queue Storage service Azure Media Services Azure Mobile Services Database using REST
Images	Azure Queue Storage service Azure Media Services Azure Mobile Services SQL Database using REST
Audio	Azure Queue Storage service Azure Media Services Azure Mobile Services SQL Database using REST
Video	Azure Queue Storage service Azure Media Services Azure Mobile Services SQL Database using REST

\* Media metadata: Azure Queue Storage Service

Scenario: Media metadata must be stored in Azure Table storage.

Azure Queues provide a uniform and consistent programming model across queues, tables, and BLOBS – both for developers and for operations teams.

\* Images: Azure Mobile Services

Scenario: Media files must be stored in Azure BLOB storage.

You can use Azure Mobile Services to access images from mobile devices.

\* Audio: Azure Media Services

\* Video: Azure Media Services

Microsoft Azure Media Services is an extensible cloud-based platform that enables developers to build scalable media management and delivery applications. Media Services is based on REST APIs that enable you to securely upload, store, encode and package video or audio content for both on-demand and live streaming delivery to various clients (for example, TV, PC, and mobile devices).

References:

<https://azure.microsoft.com/en-us/documentation/articles/media-services-overview/>

---

### **Question: 27**

You need to configure the deployment of the storage analysis application.

What should you do?

- A. Create a new Mobile Service.
- B. Configure the deployment from source control.
- C. Add a new deployment slot.
- D. Turn on continuous integration.

---

**Answer: B**

Explanation:

Scenario: Data analysis results:

The solution must provide a web service that allows applications to access the results of analysis.

---

### **Question: 28**

You need to recommend an appropriate solution for the data mining requirements.

Which solution should you recommend?

- A. Design a schedule process that allocates tasks to multiple virtual machines, and use the Azure Portal to create new VMs as needed.
- B. Use Azure HPC Scheduler Tools to schedule jobs and automate scaling of virtual machines.
- C. Use Traffic Manager to allocate tasks to multiple virtual machines, and use the Azure Portal to spin up new virtual machines as needed.
- D. Use Windows Server HPC Pack on-premises to schedule jobs and automate scaling of virtual machines in Azure.

---

**Answer: B**

Explanation:

\* Scenario:

Virtual machines:

- The data mining solution must support the use of hundreds to thousands of processing cores.
- Minimize the number of virtual machines by using more powerful virtual machines. Each virtual machine must always have eight or more processor cores available.

- Allow the number of processor cores dedicated to an analysis to grow and shrink automatically based on the demand of the analysis.
- Virtual machines must use remote memory direct access to improve performance.

Task scheduling:

The solution must automatically schedule jobs. The scheduler must distribute the jobs based on the demand and available resources.

---

### **Question: 29**

---

You need to ensure that the website scales.

What should you do?

- A. Deploy Traffic Manager and configure it to route user traffic to specified endpoints to other Azure datacenters.
- B. Enter multiple DNS entries in each virtual network to route requests to other Azure datacenters.
- C. Set up a new Azure datacenter to Azure datacenter VPN to enable the solution to communicate across regions.
- D. Use a virtual network to route network traffic in a single Azure datacenter.

---

### **Answer: C**

---

Explanation:

Scenario: The customer-facing website must automatically scale and replicate to locations around the world. Azure ExpressRoute enables you to create private connections between Azure datacenters and infrastructure that's on your premises or in a colocation environment. ExpressRoute connections do not go over the public Internet, and offer more reliability, faster speeds, lower latencies and higher security than typical connections over the Internet. In some cases, using ExpressRoute connections to transfer data between on-premises and Azure can also yield significant cost benefits.

References:

<http://azure.microsoft.com/en-us/services/expressroute/>

---

### **Question: 30**

---

You need to recommend an appropriate solution for the data mining requirements.

Which solution should you recommend?

- A. Design a schedule process that allocates tasks to multiple virtual machines, and use the Azure Portal to create new VMs as needed.
- B. Use Azure Batch to schedule jobs and automate scaling of virtual machines.
- C. Use Traffic Manager to allocate tasks to multiple virtual machines, and use the Azure Portal to spin up new virtual machines as needed.
- D. Use Microsoft HPC Pack on-premises to schedule jobs and automate scaling of virtual machines in Azure.

---

**Answer: B**

Explanation:

---

**Question: 31**

You need to select the appropriate solution for monitoring the .NET application.  
What should you recommend?

- A. Visual Studio IntelliTrace
- B. Application Insights
- C. Data Factory
- D. Microsoft Analytics Platform

---

**Answer: B**

Explanation:

---

**Question: 32**

You need to encrypt a media file.  
Which type of encryption should you use?

- A. secure token service
- B. envelope
- C. PlayReady
- D. storage

---

**Answer: C**

Explanation:

---

**Question: 33**

You need to upload video to the company's Azure environment.  
What should you do?

- A. Create a site-to-site VPN connection.
- B. Write directly to the storage REST APIs.
- C. Create an ExpressRoute connection.
- D. Use the Azure Import/Export service to move the data.

---

**Answer: C**

Explanation:

- / Media files must be stored in Azure BLOB storage.
- / Media uploads must have fast data transfer rates (low latency) without the need to upload the data offline.

---

**Question: 34**

You need to recommend the appropriate strategy for the data mining application. What should you recommend?

- A. Configure multiple on-premises cluster that runs multiple Azure virtual machines to connect by using an Azure virtual private network (VPN).
- B. Configure an on-premises cluster that runs multiple Azure virtual machines that is located in the central office.
- C. Configure a cluster of high-performance computing virtual machines (VMs) that use the largest number of cores. Ensure that the VMs are instantiated in different Azure datacenters that are distributed across the same affinity group.
- D. Configure a cluster of high-performance computing virtual machines (VMs) that use the largest number of cores. Ensure that the VMs are instantiated in the same Azure datacenter.

---

**Answer: B**

Explanation:

Scenario: Data Mining

Lucerne Publishing constantly mines its data to identify customer patterns. The company plans to replace the existing on-premises cluster with a cloud-based solution.

- \* The data mining solution must support the use of hundreds to thousands of processing cores.
- \* Minimize the number of virtual machines by using more powerful virtual machines. Each virtual machine must always have eight or more processor cores available.
- \* Allow the number of processor cores dedicated to an analysis to grow and shrink automatically based on the demand of the analysis.
- \* Virtual machines must use remote memory direct access to improve performance.

---

**Question: 35**

You need to ensure that the customer-facing website meets the scaling and deployment requirements. What should you do?

- A. Use Traffic Manager with load balancing enabled. Deploy websites in a single region.
- B. Use Traffic Manager with load balancing enabled. Deploy web apps in multiple regions that are nearest to the website visitor populations
- C. Implement operational procedures to quickly deploy additional local instances of the web apps when you

are notified by Traffic Manager

D. Deploy and maintain multiple web app instances in the largest Azure datacenters in North America, Europe, and Asia.

---

**Answer: B**

---

Explanation:

From scenario: Customers must have 24-hour access to media downloads regardless of their location or time zone.

## Case Study: 5

### Northwind Electric Cars

#### **Background**

#### **Overview**

Northwind Electric Cars is the premier provider of private, low-cost transportation in Denver. Northwind drivers are company employees who work together as a team. The founding partners believe that by hiring their drivers as employees, their drivers focus on providing a great customer experience. Northwind Electric Cars has a reputation for offering fast, reliable, and friendly service, due largely to their extensive network of drivers and their proprietary dispatching software named NorthRide.

Northwind Electric Cars drivers depend on frequent, automatic updates for the NorthRide mobile app. The Northwind management team is concerned about unplanned system downtime and slow connection speeds caused by high usage. Additionally, Northwind's in-house data storage solution is unsustainable because of the new influx of customer data that is retained. Data backups are made periodically on DVDs and stored on-premises at corporate headquarters.

#### **Apps**

#### **NorthRide App**

Northwind drivers use the NorthRide app to meet customer pickup requests. The app uses a GPS transponder in each Northwind vehicle and Bing Maps APIs to monitor the location of each vehicle in the fleet in real time. NorthRide allows Northwind dispatchers to optimize their driver coverage throughout the city.

When new customers call, the dispatcher enters their pickup locations into NorthRide. NorthRide identifies the closest available driver. The dispatcher then contacts the driver with the pick-up details. This process usually results in a pick-up time that is far faster than the industry average.

Drivers use NorthRide to track the number of miles they drive and the number of customers they transport. Drivers also track their progress towards their established goals, which are measured by using key performance indicators (KPIs).

#### **NorthRide App 2.0**

Northwind Electric Cars is growing quickly. New callers often wait for their calls to be answered because the dispatchers are contacting their drivers to arrange pickups for other customers.

To support the growth of the business, Northwind's development team completes an overhaul of the NorthRide system that it has named NorthRide 2.0. When a dispatcher enters a customer's pickup location, the address and driving directions are automatically sent to the driver who is closest to the customer's pickup location.

Drivers indicate their availability on the NorthRide mobile app and can view progress towards their KPI's in real time. Drivers can also record customer ratings and feedback for each pickup.

## **Business Requirements**

### **Apps**

#### **NorthRideFinder App**

Northwind Electric Cars needs a customer-facing website and mobile app that allows customers to schedule pickups. Customers should also be able to create profiles that will help ensure the customer gets a ride faster by storing customer information.

#### **Predictor App**

Northwind Electric Cars needs a new solution named Predictor. Predictor is an employee-facing mobile app. The app predicts periods of high usage and popular pickup locations and provides various ways to view this predictive data. Northwind uses this information to better distribute its drivers. Northwind wants to use the latest Azure technology to create this solution.

### **Other Requirements**

- On-premises data must be constantly backed up.
- Mobile data must be protected from loss, even if connectivity with the backend is lost.
- Dispatch offices need to have seamless access to both their primary data center and the applications and services that are hosted in the Azure cloud.
- Connectivity needs to be redundant to on-premises and cloud services, while providing a way for each dispatch office to continue to operate even if one or all of the connection options fail.
- The management team requires that operational data is accessible 24/7 from any office location.

## **Technical Requirements**

### **Apps and Website**

#### **NorthRide / NorthRideFinder Apps:**

- The solution must support on-premises and Azure data storage.
- The solution must scale as necessary based on the current number of concurrent users.
- Customer pickup requests from NorthRideFinder must be asynchronous.
- The customer pickup request system will be high in volume, and each request will have a short life span.
- Data for NorthRideFinder must be protected during a loss of connectivity.
- NorthRide users must authenticate to the company's Azure Active Directory.

#### **Northwind Public Website**

- The customer website must use a WebJob to process profile images into thumbnails
- The customer website must be developed with lowest cost and difficulty in mind.
- The customer website must automatically scale to minimize response times for customers.

### **Other Requirements**

#### **Data Storage:**

- The data storage must interface with an on-premises Microsoft SQL backend database.
- A disaster recovery system needs to be in place for large amounts of data that will backup to Azure.
- Backups must be fully automated and managed the Azure Management Portal.
- The recovery system for company data must use a hybrid solution to back up both the on-premises Microsoft SQL backend and any Azure storage.

**Predictive Routing:**

- An Azure solution must be used for prediction systems.
- Predictive analytics must be published as a web service and accessible by using the REST API.

**Security:**

- The NorthRide app must use an additional level of authentication other than the employee's password.
- Access must be secured in NorthRide without opening a firewall port.
- Company policy prohibits inbound connections from internet callers to the on-premises network.
- Customer usernames in NorthRideFinder cannot exceed 10 characters.
- Customer data in NorthRideFinder can be received only by the user ID that is associated with the data.

---

**Question: 36**

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You need to design the authentication solution for the NorthRide app. Which solution should you use?

- A. Azure Active Directory Basic with multi-factor authentication for the cloud and on-premises users.
- B. Active Directory Domain Services with mutual authentication
- C. Azure Active Directory Premium and add multi-factor authentication for cloud users
- D. Active Directory Domain Services with multi-factor authentication

---

**Answer: C**

---

**Explanation:**

- \* Scenario: The NorthRide app must use an additional level of authentication other than the employee's password.
- \* Azure Multi-Factor Authentication is the multi-factor authentication service that requires users to also verify sign-ins using a mobile app, phone call or text message. It is available to use with Azure Active Directory, to secure on-premise resources with the Azure Multi-Factor Authentication Server, and with custom applications and directories using the SDK.

**References:**

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**Question: 37**

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**DRAG DROP**

You need to provide a data access solution for the NorthRide app.

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

**Actions**

**Answer Area**

Obtain the default management credentials for the namespace.

Create a service namespace under Service Bus.

Configure the Service Bus to consume a web service.

Configure Service Bus Queue.

Configure the application to use Service Bus Relay.

---

**Answer:**

Box 1: Create a service namespace under Service Bus

Box 2: Obtain the default management credentials for the namespace.

Box 3: Configure the application to use Service Bus Relay

Box 4: Configure Service Bus Queue

Note:

Box 1: Create a service namespace under Service Bus

To begin using Service Bus queues in Azure, you must first create a service namespace. A namespace provides a scoping container for addressing Service Bus resources within your application.

Box 2: Obtain the default management credentials for the namespace.

In order to perform management operations, such as creating a queue on the new namespace, you must obtain the management credentials for the namespace.

Box 3: Configure the application to use Service Bus Relay

When you create an application that uses Service Bus, you must add a reference to the Service Bus assembly and include the corresponding namespaces.

The Service Bus NuGet package is the easiest way to get the Service Bus API and to configure your application with all of the Service Bus dependencies.

After installing this package you are now ready to write code for Service Bus.

Box 4: Configure Service Bus Queue

This would include:

\* set up a Service Bus connection string

\* create a queue

\* provide code to send/receive messages from the queue

References:

<https://azure.microsoft.com/en-gb/documentation/articles/service-bus-dotnet-how-to-use-queues/>

---

### **Question: 38**

You need to recommend the appropriate technology to provide the predictive analytics for passenger pickup. What should you do?

- A. Use Power BI to analyze the traffic data and PowerPivot to categorize the results.
- B. Use HDInsight to analyze the traffic data and write a .NET program to categorize the results.
- C. Use Machine Learning Studio to create a predictive model and publish the results as a web service.
- D. Use Hadoop on-premises to analyze the traffic and produce a report that shows high traffic zones.

---

### **Answer: C**

Explanation:

\* Scenario: Predictive Routing:

/ An Azure solution must be used for prediction systems.

/ Predictive analytics must be published as a web service and accessible by using the REST API.

\* Microsoft Azure Machine Learning Studio is a collaborative visual development environment that enables you to build, test, and deploy predictive analytics solutions that operate on your data. The Machine Learning service and development environment is cloud-based, provides compute resource and memory flexibility, and eliminates setup and installation concerns because you work through your web browser.

References:

<https://azure.microsoft.com/en-us/documentation/articles/machine-learning-what-is-ml-studio/>

---

### **Question: 39**

**DRAG DROP**

You need to design the notification service for the customer-facing mobile app.

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

**Actions****Answer Area**

Update the mobile service script to send push notifications.

Connect the mobile app to the mobile service.

Push a notification to the target applications.

Configure a notification hub.

Connect the mobile app to the notification hub.

Configure Mobile Services for push notifications.

**Answer:****Answer Area**

1 Configure a notification hub.

2 Connect the mobile app to the notification hub.

3 Update the mobile service script to send push notifications.

Azure Notification Hubs provide an easy-to-use infrastructure that enables you to send mobile push notifications from any backend (in the cloud or on-premises) to any mobile platform.

Configuration steps include:

1. Configure your Notification Hub
2. Connecting your app to the Notification Hub
3. Send notification from your back-end

You can send notifications using Notification Hubs from any back-end using the REST interface. You do this through a script, not a configuration of Mobile Services. Use Java or PHP for the script.

References:

<https://azure.microsoft.com/en-us/documentation/articles/notification-hubs-windows-store-dotnet-get-started/#send-notification-from-your-back-end>

---

### **Question: 40**

You need to recommend a technology for processing customer pickup requests.  
Which technology should you recommend?

- A. Notification hub
- B. Queue messaging
- C. Mobile Service with push notifications
- D. Service Bus messaging

---

**Answer: D**

Explanation:

Service Bus queues are part of a broader Azure messaging infrastructure that supports queuing as well as publish/subscribe, Web service remoting, and integration patterns.

Service Bus Queue support Push-style API (while Azure Queue messaging does not).

Incorrect:

Not A: Notification Hub is only used to push notification, not for processing requests.

Not B As a solution architect/developer, you should consider using Azure Queues when:

- \* Your application must store over 80 GB of messages in a queue, where the messages have a lifetime shorter than 7 days.
- \* Your application wants to track progress for processing a message inside of the queue. This is useful if the worker processing a message crashes. A subsequent worker can then use that information to continue from where the prior worker left off.

You require server side logs of all of the transactions executed against your queues.

Not C: To process the messages we do not need push notification.

References:

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### **Question: 41**

You need to recommend a solution that meets the requirements for data storage for the NorthRide app.  
What should you include in the recommendation?

- A. Azure Remote App
- B. Azure Service Bus
- C. Azure Connect
- D. Azure SQL Database

---

**Answer: B**

Explanation:

Service Bus queues are part of a broader Azure messaging infrastructure that supports queuing as well as publish/subscribe, Web service remoting, and integration patterns.

Service Bus Queue support Push-style API (while Azure Queue messaging does not).

References:

<https://msdn.microsoft.com/en-us/library/azure/hh767287.aspx>

---

### **Question: 42**

You need to configure the Northwind website.

Which two solutions should you use? Each correct answer presents part of the solution.

- A. Configure a hybrid connection to the database.
- B. Create Azure virtual machines that run Windows and Linux servers in Azure data centers.
- C. Use Azure Zone Redundant Storage to provide redundancy across Azure global data centers.
- D. Deploy the Northwind site to an Azure web app.
- E. Implement Azure ExpressRoute to increase the bandwidth for users of the Northwind public website.

---

**Answer: A,D**

Explanation:

---

### **Question: 43**

DRAG DROP

You need to recommend the steps required to deploy the Northwind Electric Cars website.

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

**Actions**

Publish an application with a WebJob backend to an Azure web app.

Scale the WebJob separately from the website to spread web traffic loads.

Publish a frontend site to an Azure web app, and publish a WebJob backend to a separate Azure web app.

Schedule the WebJob to run at non-peak times.

Create an Azure storage account.

**Answer Area**



---

**Answer:****Actions**

Publish an application with a WebJob backend to an Azure web app.

Scale the WebJob separately from the website to spread web traffic loads.

Publish a frontend site to an Azure web app, and publish a WebJob backend to a separate Azure web app.

Schedule the WebJob to run at non-peak times.

Create an Azure storage account.

**Answer Area**

Create an Azure storage account.

Publish a frontend site to an Azure web app, and publish a WebJob backend to a separate Azure web app.



Scale the WebJob separately from the website to spread web traffic loads.

**References:**

<https://docs.microsoft.com/en-us/azure/app-service-web/websites-dotnet-webjobs-sdk-get-started>

---

**Question: 44****HOTSPOT**

You need to design the mobile service storage architecture for NorthRideFinder.

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

Objective	Service
Add users	Custom table Insert operation
	Custom table Read operation
	Custom BLOB Insert operation
	Custom BLOB Read operation
Access profile data	Custom table Insert operation
	Custom table Read operation
	Custom BLOB Insert operation
	Custom BLOB Read operation

---

**Answer:**

Objective	Service
Add users	Custom table Insert operation
	Custom table Read operation
	Custom BLOB Insert operation
	Custom BLOB Read operation
Access profile data	Custom table Insert operation
	Custom table Read operation
	Custom BLOB Insert operation
	Custom BLOB Read operation

From scenario: NorthRideFinder App

Northwind Electric Cars needs a customer-facing website and mobile app that allows customers to schedule pickups. Customers should also be able to create profiles that will help ensure the customer gets a ride faster by storing customer information.

### Question: 45

DRAG DROP

You need to set up the traffic prediction system. Which four actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

ACTIONS

ANSWER AREA

Create a machine learning workspace.
Create a new experiment that uses an algorithm to predict future customer demand.
Train and evaluate data models.
Create a new experiment that uses an algorithm to minimize driving time.
Upload historical employee timesheet data.
Upload Historical customer pickup data.

Answer:

## ANSWER AREA

Create a machine learning workspace.

Upload Historical customer pickup data.

Create a new experiment that uses an algorithm to predict future customer demand.

Train and evaluate data models.

To create this credit risk assessment solution, we follow these steps:

- Create a Machine Learning workspace
- Upload existing data
- Create an experiment
- Train and evaluate the models
- Deploy the web service
- Access the web service

From scenario:

Predictive Routing:

- \* An Azure solution must be used for prediction systems.
- \* Predictive analytics must be published as a web service and accessible by using the REST API.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/machine-learning-walkthrough-develop-predictive-solution>

Case Study: 6

Fourth Coffee

### Background

You are the new cloud architect for Fourth Coffee. The company hosts an on-premises ASP.NET MVC web application to allow online purchases and to support their retail store operations.

The new chief information officer (CIO) has announced several initiatives for the new year, including a new mobile application, online training for retail store employees, and moving the current web application and other services to the cloud.

The marketing team hopes to see an increase in the up-time for the web application. The team would also like to allow users to use social-Nogms in addition to the current username and password system.

Fourth Coffee has chosen Microsoft Azure to support their initiatives.

### Current environment

In the Azure portal, you create an Azure Mobile App for the API. You create a Service Bus queue in Azure

and install the Azure Storage SDK for Nodejs.

### **Problem statements**

The mobile team attempts to use continuous deployment with the Azure App Service and the new API project. They receive the following error message: "Unable to access '<http://fourthcoffeeapi.azurewebsites.net/>': Failed to connect to <https://fourthcoffeeapi.scm.azurewebsites.net/>'"

### **Business requirement**

#### **Web Application**

\*You must increase up-time for the application.

\*The application must support additional regions and languages.

\*Marketing must be able to validate the web application before updates to the application are published to the production environment.

#### **Mobile**

\*The marketing team must be able to send frequent and timely updates to specific users and devices including Apple iPad, iPhone, Android, Windows, and Windows Phone devices.

\*Users must be able to use their social accounts to sign in to the application. You must support LinkedIn, Facebook and Google logons.

\*The application must remain responsive, even during peak periods.

#### **Training**

Video streaming content must be made available and streamed to employee's browsers. Training content must only include on-demand streaming. There will be no live content.

### **Technical requirement**

#### **Web Application**

\*You must update the deployment process to support cloud deployments.

\*All data must be formatted as JSON during transport.

\*You must implement Team Foundation Version Control (TFVC) as the version control system for the web application.

\*Incoming messages to the API must be persisted to queue storage to ensure they are delivered and processed. You must restrict the size of messages between the mobile app and the API to no more than 5 gigabytes (GB).

\*The web application must use geo-redundant replication.

#### **Mobile**

\*You must use Node.js as a technology platform. You must support all mobile initiatives when possible.

\*You must implement Git as the version control system for the mobile app.

\*You must develop a REST API by using Node.js, Express, and MongoDB. You must use the Mobile Apps feature of the Azure App Service to host the API in Standard mode.

\*You must implement the following Push Notification Services by using Azure Media Services:

\*Apple Push Notification Service (APNS) for iPad and iPhone devices

\*Google Cloud Messaging service (GCM) for Android devices

\*Windows Notification Service (WNS) for Windows devices

\*Microsoft Push Notification Service (MPNS) for Windows Phone devices

### **Security and Disaster Recovery**

\*You must integrate the on-premises Active Directory Domain Services with Azure Active Directory (Azure AD).

\*You must implement the latest federated identity standards to provide authentication and authorization to applications.

\*You must implement Multi-Factor Authentication.

\*The web application and the API must be able to recover from a disaster.

### **Scaling**

The web application and API must auto-scale according to the following rules:

- \*Scale up by one instance if CPU is above 70%.
- \*Scale down by one instance if CPU is below 50%.

### Training

- \*Streaming must include Content Delivery Network (CDN) capabilities to support global *locations*.
- \*Content must be encrypted and protected by using AES and PlayReady.
- \*Streaming must include one gigabit (GB) per second of dedicated egress capacity.
- \*All videos must use adaptive bitrate MP4 encoded content and include a streaming manifest file (.ism).
- \*You must support the following streaming formats for video files: MPEG DASH, H264, Smooth Streaming, HDS. You must not need to re-encode the content.

### Question: 46

DRAG DROP

You need to scale the API.

In the Azure portal, which four actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

#### Actions

Select the web application, then select **Scale Up** on the settings tab.

Select the web application, then select **Scale Out** on the settings tab.

Update the minimum **Target range** to 50 and maximum **Target range** to 70

Save the scale settings

Update the minimum **Target range** to 25 and maximum **Target range** to 100

Add a new rule for the memory percentage metric.

Update the values for **Scale by** to **CPU Percentage**.

Update the values for **Scale by** to an instance count that I enter manually.

#### Answer Area



Answer:

**Actions**

Select the web application, then select **Scale Up** on the settings tab.

Select the web application, then select **Scale Out** on the settings tab.

Update the minimum **Target range** to 50 and maximum **Target range** to 70

Save the scale settings

Update the minimum **Target range** to 25 and maximum **Target range** to 100

Add a new rule for the memory percentage metric.

Update the values for **Scale by** to **CPU Percentage**.

Update the values for **Scale by** to an instance count that I enter manually.

**Answer Area**

Select the web application, then select **Scale Out** on the settings tab.

Update the values for **Scale by** to **CPU Percentage**.



Update the minimum **Target range** to 50 and maximum **Target range** to 70



Save the scale settings

**Question: 47**

DRAG DROP

You need to persist the API messages.

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

### Actions

Use Windows PowerShell to obtain the Node.js packages.

Import the modules and assign values to the namespace and access key environment.

Set the queue size limit to 10 gigabytes (GB). Then, call the sendQueueMessage and receiveQueueMessage methods.

Set the queue size limit to 5 gigabytes (GB). Then, call the sendQueueMessage and receiveQueueMessage methods.

Create a ServiceBusService object.

Call the createQueueNotExists method.

Use Windows PowerShell to obtain the Python packages.

### Answer Area



### Answer:

### Actions

Use Windows PowerShell to obtain the Node.js packages.

Import the modules and assign values to the namespace and access key environment.

Set the queue size limit to 10 gigabytes (GB). Then, call the sendQueueMessage and receiveQueueMessage methods.

Set the queue size limit to 5 gigabytes (GB). Then, call the sendQueueMessage and receiveQueueMessage methods.

Create a ServiceBusService object.

Call the createQueueNotExists method.

Use Windows PowerShell to obtain the Python packages.

### Answer Area

Use Windows PowerShell to obtain the Node.js packages.

Import the modules and assign values to the namespace and access key environment.

Create a ServiceBusService object.

Set the queue size limit to 5 gigabytes (GB). Then, call the sendQueueMessage and receiveQueueMessage methods.

Call the createQueueNotExists method.

### Question: 48

You need to support the disaster recovery requirements of the web application and API. Which two actions should you perform? Each correct answer presents part of the solution.

- A. Deploy the API and web application to multiple locations.
- B. Configure automated backups of the API and web application.
- C. Create a new Azure SQL Data Warehouse and connect it to the web application and API.
- D. Enable Application Insights for the web application and API.
- E. Create an Azure Redis Cache for the web application and API.

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**Answer: A,B**

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Explanation:

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**Question: 49**

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You need to choose an Azure service for the training initiative.

Which two services should you use? Each correct answer presents part of the solution.

- A. Azure SQL Data Warehouse
- B. Media Services
- C. Azure AD Connect
- D. Notification Hubs
- E. App Service

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**Answer: B,D**

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Explanation:

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**Question: 50**

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DRAG DROP

You need to build and deploy the API.

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

### Actions

Create a new controller and include the Authorize attribute

Create a new directory. Initialize Git and Node Package Manager (npm).

Publish the changes

Create instances for an Express App and a Mobile App. Attach the Mobile App to the Express App.

In TFVC, create a new build and publish the project

Install azure-mobile-apps and the Express packages

Create a new directory to include a new ASP.NET Web API project

### Answer Area



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### Answer:

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### Actions

Create a new controller and include the Authorize attribute

Create a new directory. Initialize Git and Node Package Manager (npm).

Publish the changes

Create instances for an Express App and a Mobile App. Attach the Mobile App to the Express App.

In TFVC, create a new build and publish the project

Install azure-mobile-apps and the Express packages

Create a new directory to include a new ASP.NET Web API project

### Answer Area

Create a new directory. Initialize Git and Node Package Manager (npm).

Install azure-mobile-apps and the Express packages



Create instances for an Express App and a Mobile App. Attach the Mobile App to the Express App.



Publish the changes



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### Question: 51

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**DRAG DROP**

Marketing is ready to start their web application validations and is excited to be expanding globally.

You need to support the global web application requirements.

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

**Actions**

Create and deploy new web applications to a valid geo-location.

Create a new Azure Traffic Manager with the Load Balancing method set to Failover.

Create a new Azure Traffic Manager with the Load Balancing method set to Performance.

Create a new Azure Traffic Manager with the Load Balancing method set to Round Robin.

Add new endpoints and update the CNAME record for the web application to point to the Azure Traffic Manager.

Add new endpoints and update the A record for the web application to point to the Azure Traffic Manager.

**Answer Area**



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**Answer:**

### **Actions**

Create and deploy new web applications to a valid geo-location.

Create a new Azure Traffic Manager with the Load Balancing method set to Failover.

Create a new Azure Traffic Manager with the Load Balancing method set to Performance.

Create a new Azure Traffic Manager with the Load Balancing method set to Round Robin.

Add new endpoints and update the CNAME record for the web application to point to the Azure Traffic Manager.

Add new endpoints and update the A record for the web application to point to the Azure Traffic Manager.

### **Answer Area**

Create and deploy new web applications to a valid geo-location.

Add new endpoints and update the CNAME record for the web application to point to the Azure Traffic Manager.



Create a new Azure Traffic Manager with the Load Balancing method set to Performance.



---

### **Question: 52**

You need to support web and mobile application secure logons.

Which technology should you use?

- A. Azure Active Directory B2B
- B. OAuth 1.0
- C. LDAP
- D. Azure Active Directory B2C

---

**Answer: D**

Explanation:

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### **Question: 53**

#### **DRAG DROP**

You are training a new developer.

You need to describe the process flow for sending a notification.

Which three actions must 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.

### Actions

A request is sent to the notification service in XML format. The request is authenticated and sent by the push notification service.

A request is sent to the notification service in JSON format. The request is authenticated and sent by the push notification service.

The application stores a device specific handle in the application back-end.

The devices contact the push notification service to request a device token.

The devices contact the push notification service to request a ChannelURI.

### Answer Area



### Actions

A request is sent to the notification service in XML format. The request is authenticated and sent by the push notification service.

A request is sent to the notification service in JSON format. The request is authenticated and sent by the push notification service.

The application stores a device specific handle in the application back-end.

The devices contact the push notification service to request a device token.

The devices contact the push notification service to request a ChannelURI.

### Answer Area

The devices contact the push notification service to request a device token.

The application stores a device specific handle in the application back-end.

A request is sent to the notification service in JSON format. The request is authenticated and sent by the push notification service.



## Case Study: 7

### Mix Questions

#### Question: 54

You are designing an Azure web application. The solution will be used by multiple customers. Each

customer has different business logic and user interface requirements. Not all customers use the same version of the .NET runtime.

You need to recommend a deployment strategy.

What should you recommend?

- A. Deploy with multiple web role instances.
- B. Deploy each application in a separate tenant.
- C. Deploy all applications in one tenant.
- D. Deploy with multiple worker role instances.

---

**Answer: B**

---

Explanation:

There are two types of tenant environments. The simplest type is a single-tenant application where one customer has 100% dedicated access to an application's process space. A single Tenant Applications has a separate, logical instance of the application for each customer or client. A single tenant application is much more predictable and stable by its nature since there will never be more than one dedicated customer at any point in time in that VM. That customer has all of its users accessing that dedicated instance of the application.

References:

<http://sanganakauthority.blogspot.in/2011/12/multi-tenancy-and-windows-azure.html>

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### **Question: 55**

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You design an Azure application that processes images. The maximum size of an image is 10 MB. The application includes a web role that allows users to upload images and a worker role with multiple instances that processes the images. The web role communicates with the worker role by using an Azure Queue service.

You need to recommend an approach for storing images that minimizes storage transactions.

What should you recommend?

- A. Store images in Azure Blob service. Store references to the images in the queue.
- B. Store images in the queue.
- C. Store images in OneDrive attached to the worker role instances. Store references to the images in the queue.
- D. Store images in local storage on the web role instance. Store references to the images in the queue.

---

**Answer: A**

---

Explanation:

Azure Queues provide a uniform and consistent programming model across queues, tables, and BLOBS – both for developers and for operations teams.

Microsoft Azure blob storage can be used to store the image data, the application can use a worker role in

Azure to perform background processing tasks on the images, how the application may use shared access signatures to control access to the images by users.

Azure blobs provide a series of containers aimed at storing text or binary data. Block blob containers are ideal for streaming data, while page blob containers can be used for random read/write operations.

References:

<https://msdn.microsoft.com/en-gb/library/ff803365.aspx>

<https://msdn.microsoft.com/en-us/library/azure/hh767287.aspx>

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### **Question: 56**

You are designing a Windows Azure application. The application includes two web roles and three instances of a worker role. The web roles will send requests to the worker role through one or more Windows Azure Queues. You have the following requirements:

-Ensure that each request is processed exactly one time.

-Minimize the idle time of each worker role instance.

-Maximize the reliability of request processing.

You need to recommend a queue design for sending requests to the worker role.

What should you recommend?

A. Create a queue for each combination of web roles and worker role instances. Send requests to all worker role instances based on the sending web role.

B. Create a single queue. Send all requests on the single queue.

C. Create a queue for each worker role instance. Send requests on each worker queue by using a round robin rotation.

D. Create a queue for each web role. Send requests on all queues at the same time.

---

### **Answer: B**

Explanation:

To communicate with the worker role, a web role instance places messages on to a queue. A worker role instance polls the queue for new messages, retrieves them, and processes them. There are a couple of important things to know about the way the queue service works in Azure. First, you reference a queue by name, and multiple role instances can share a single queue. Second, there is no concept of a typed message; you construct a message from either a string or a byte array. An individual message can be no more than 64 kilobytes (KB) in size.

References:

<https://msdn.microsoft.com/en-gb/library/ff803365.aspx>

<http://azure.microsoft.com/en-gb/documentation/articles/cloud-services-dotnet-multi-tier-app-using-service-bus-queues/>

---

### **Question: 57**

You are designing an Azure application that will use a worker role. The worker role will create temporary

files.

You need to minimize storage transaction charges.

Where should you create the files?

- A. In Azure local storage
- B. In Azure Storage page blobs
- C. On an Azure Drive
- D. In Azure Storage block blobs

---

**Answer: A**

---

Explanation:

Local storage is temporary in Azure. So, if the virtual machine supporting your role dies and cannot recover, your local storage is lost! Therefore, Azure developers will tell you, only volatile data should ever be stored in local storage of Azure.

References:

<http://www.intertech.com/Blog/windows-azure-local-file-storage-how-to-guide-and-warnings/>

<http://blog.codingoutloud.com/2011/06/12/azure-faq-can-i-write-to-the-file-system-on-windows-azure/>

---

### **Question: 58**

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You are designing an Azure Web App that will use one worker role. The Web App does not use SQL Database.

You have the following requirements:

- \*Maximize throughput and system resource availability
- \*Minimize downtime during scaling

You need to recommend an approach for scaling the application.

Which approach should you recommend?

- A. Increase the role instance size.
- B. Set up horizontal partitioning.
- C. Increase the number of role instances.
- D. Set up vertical partitioning.

---

**Answer: C**

---

Explanation:

On the Scale page of the Azure Management Portal, you can manually scale your application or you can set parameters to automatically scale it. You can scale applications that are running Web Roles, Worker Roles, or Virtual Machines. To scale an application that is running instances of Web Roles or Worker Roles, you add or remove role instances to accommodate the work load.

References:

<http://azure.microsoft.com/en-gb/documentation/articles/cloud-services-how-to-scale/>

---

### **Question: 59**

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You are evaluating an Azure application. The application includes the following elements:

- \*A web role that provides the ASP.NET user interface and business logic
- \*A single SQL database that contains all application data

Each webpage must receive data from the business logic layer before returning results to the client. Traffic has increased significantly. The business logic is causing high CPU usage.

You need to recommend an approach for scaling the application.

What should you recommend?

- A. Store the business logic results in Azure Table storage.
- B. Vertically partition the SQL database.
- C. Move the business logic to a worker role.
- D. Store the business logic results in Azure local storage.

---

### **Answer: C**

---

Explanation:

For Cloud Services in Azure applications need both web and worker roles to scale well.

References:

<https://msdn.microsoft.com/en-us/library/azure/dn574746.aspx>

---

### **Question: 60**

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You are planning an upgrade strategy for an existing Azure application. Multiple instances of the application run in Azure. The management team is concerned about application downtime, due to a business service level agreement (SLA).

You are evaluating which change in your environment will require downtime.

You need to identify the changes to the environment that will force downtime.

Which change always requires downtime?

- A. Adding an HTTPS endpoint to a web role
- B. Upgrading the hosted service by deploying a new package
- C. Changing the value of a configuration setting
- D. Changing the virtual machine size

---

### **Answer: A**

---

Explanation:

If you change the number of endpoints for your service, for example by adding a HTTPS endpoint for your existing Web Role, it will require downtime.

References:

<http://blog.toddysm.com/2010/06/re-deploying-your-windows-azure-service-without-incurring-downtime.html>

---

### **Question: 61**

You are designing an Azure application that processes graphical image files. The graphical Images are processed in batches by remote applications that run on multiple servers.

You have the following requirements:

- \*The application must remain operational during batch-processing operations.
- \*Users must be able to roll back each image to a previous version.

You need to ensure that each remote application has exclusive access to an image while the application processes the image. Which type of storage should you use to store the images?

- A. Table service
- B. Queue service
- C. Blob service
- D. A single Azure VHD that is attached to the web role

---

### **Answer: C**

Explanation:

\* Blob Leases allow you to claim ownership to a Blob. Once you have the lease you can then update the Blob or delete the Blob without worrying about another process changing it underneath you. When a Blob is leased, other processes can still read it, but any attempt to update it will fail. You can update Blobs without taking a lease first, but you do run the chance of another process also attempting to modify it at the same time.

\* You can opt to use either optimistic or pessimistic concurrency models to manage access to blobs and containers in the blob service.

References:

<http://justazure.com/azure-blob-storage-part-8-blob-leases/>

<http://www.azurefromthetrenches.com/?p=1371>

---

### **Question: 62**

You are designing an Azure application that stores data.

You have the following requirements:

- \* The data storage system must support storing more than 500 GB of data.
- a.
- \* Data retrieval must be possible from a large number of parallel threads.
- \* Threads must not block each other.

You need to recommend an approach for storing data.

What should you recommend?

- A. Azure Notification Hubs
- B. A single SQL database in Azure
- C. Azure Queue storage
- D. Azure Table storage

---

**Answer: D**

Explanation:

- \* Azure Table Storage can be useful for applications that must store large amounts of nonrelational data, and need additional structure for that data. Tables offer key-based access to unschematized data at a low cost for applications with simplified data-access patterns. While Azure Table Storage stores structured data without schemas, it does not provide any way to represent relationships between the data.
- \* As a solution architect/developer, consider using Azure Table Storage when:
  - / Your application stores and retrieves large data sets and does not have complex relationships that require server-side joins, secondary indexes, or complex server-side logic.
  - / You need to achieve a high level of scaling without having to manually shard your dataset.

References:

<https://msdn.microsoft.com/en-us/library/azure/jj553018.aspx>

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### Question: 63

HOTSPOT

You have an Azure website that runs on several instances. You have a WebJob that provides additional functionality to the website.

The WebJob must run on all instances of the website.

You need to ensure that the WebJob runs even when the website is idle for long periods of time.

How should you create and configure the WebJob object? To answer, select the appropriate options in the answer area.

#### Answer Area

Requirement	Action
Create the WebJob object	<ul style="list-style-type: none"> <li>– Create the WebJob as a scheduled task.</li> <li>– Create the WebJob as an on-demand task.</li> <li>– Create the WebJob as a continuously running task.</li> </ul>
Configure the WebJob object	<ul style="list-style-type: none"> <li>– Enable AlwaysOn for the website.</li> <li>– Enable AlwaysOn for the database.</li> <li>– Configure the WebJob to run continuously.</li> </ul>

---

**Answer:****Answer Area**

Requirement	Action
Create the WebJob object	<ul style="list-style-type: none"> <li>- Create the WebJob as a scheduled task.</li> <li>- Create the WebJob as an on-demand task.</li> <li>- <b>Create the WebJob as a continuously running task.</b></li> </ul>
Configure the WebJob object	<ul style="list-style-type: none"> <li>- <b>Enable AlwaysOn for the website.</b></li> <li>- Enable AlwaysOn for the database.</li> <li>- Configure the WebJob to run continuously.</li> </ul>

\* You can run programs or scripts in WebJobs in your App Service web app in three ways: on demand, continuously, or on a schedule.

\* For continuous WebJobs there is an important feature called "always on" which is only available for a Standard Website, this will make sure your Website and WebJob are always up.

References:

<http://azure.microsoft.com/en-us/documentation/articles/web-sites-create-web-jobs/>

---

**Question: 64**

An application currently resides on an on-premises virtual machine that has 2 CPU cores, 4 GB of RAM, 20 GB of hard disk space, and a 10 megabit/second network connection.

You plan to migrate the application to Azure. You have the following requirements:

- \* You must not make changes to the application.
- \* You must minimize the costs for hosting the application.

You need to recommend the appropriate virtual machine instance type.

Which virtual machine tier should you recommend?

- A. Network Optimized (A Series)
- B. General Purpose Compute, Basic Tier (A Series)
- C. General Purpose Compute, Standard Tier (A Series)
- D. Optimized Compute (D Series)

---

**Answer: B**

Explanation:

General purpose compute: Basic tier

An economical option for development workloads, test servers, and other applications that don't require load

balancing, auto-scaling, or memory-intensive virtual machines.

CPU core range: 1-8

RAM range: 0.75 – 14 GB

Disk size: 20-240 GB

References:

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### **Question: 65**

You are designing an Azure web application 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.

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

---

### **Answer: B,C**

Explanation:

B: 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

C: 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

References:

<https://azure.microsoft.com/en-gb/documentation/articles/cdn-how-to-use/>

<https://github.com/Azure/azure-content/blob/master/articles/cdn-map-content-to-custom-domain.md>

<https://github.com/Azure/azure-content/blob/master/articles/cdn-map-content-to-custom-domain.md>

---

### **Question: 66**

You are designing an Azure development environment. Team members learn Azure development techniques by training in the development environment.

The development environment must automatically scale and load balance additional virtual machine (VM) instances.

You need to recommend the most cost-effective compute-instance size that allows team members to work with Azure in the development environment.

What should you recommend?

- A. Azure A1 standard VM Instance
- B. Azure A2 basic VM Instance
- C. Azure A3 basic VM Instance
- D. Azure A9 standard VM Instance

---

**Answer: A**

---

Explanation:

Azure A1 standard VM Instance would be cheapest with 1 CPU core, 0.75 GB RAM, and 40 GB HD. It would be good enough for training purposes.

References:

<http://azure.microsoft.com/en-us/pricing/details/virtual-machines/>

---

**Question: 67**

---

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 to the Azure Service Bus by using a custom service that uses relay binding.
- C. Expose the business services externally.
- D. Move all business service functionality to Azure.

---

**Answer: B**

---

Explanation:

The Service Bus relay service enables you to build hybrid applications that run in both an Azure datacenter and your own on-premises enterprise environment. The Service Bus relay facilitates this by enabling you to securely expose Windows Communication Foundation (WCF) 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.

References:

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

---

### **Question: 68**

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You design an Azure web application. The web application is accessible by default as a standard cloudapp.net URL.

You need to recommend a DNS resource record type that will allow you to configure access to the web application by using a custom domain name.

Which DNS record type should you recommend?

- A. SRV
- B. MX
- C. CNAME
- D. A

---

**Answer: C**

---

Explanation:

A CNAME record maps a specific domain, such as contoso.com or www.contoso.com, to a canonical domain name. In this case, the canonical domain name is the <myapp>.cloudapp.net domain name of your Azure hosted application. Once created, the CNAME creates an alias for the <myapp>.cloudapp.net. The CNAME entry will resolve to the IP address of your <myapp>.cloudapp.net service automatically, so if the IP address of the cloud service changes, you do not have to take any action.

Incorrect:

Not D:

- \* Since an A record is mapped to a static IP address, it cannot automatically resolve changes to the IP address of your Cloud Service.

- \* An A record maps a domain, such as contoso.com or www.contoso.com, or a wildcard domain such as \*.contoso.com, to an IP address. In the case of an Azure Cloud Service, the virtual IP of the service. So the main benefit of an A record over a CNAME record is that you can have one entry that uses a wildcard, such as \*.contoso.com, which would handle requests for multiple sub-domains such as mail.contoso.com, login.contoso.com, or www.contoso.com.

References:

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### **Question: 69**

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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 Service Bus

- D. A web service in an Azure role that relays data to the internal web services

---

**Answer: C**

---

Explanation:

The Service Bus Relay is designed for the use-case of taking existing Windows Communication Foundation (WCF) web services and making those services securely accessible to solutions that reside outside the corporate perimeter without requiring intrusive changes to the corporate network infrastructure. Such Service Bus relay services are still hosted inside their existing environment, but they delegate listening for incoming sessions and requests to the cloud-hosted Service Bus.

References:

<http://azure.microsoft.com/en-gb/documentation/articles/cloud-services-dotnet-hybrid-app-using-service-bus-relay/>

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### Question: 70

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DRAG DROP

You have a website that displays text, pictures, video files, and audio files. The website processes requests from countries and regions all over the world. You plan to migrate the website to the Azure platform.

The website has the following requirements:

- \* Encode, store, and stream audio and video at scale.
- \* Load-balance communications with the website instance that is closest to the user's location.
- \* Deliver content with high-bandwidth and low latency.

You need to recommend the technologies to implement the solution.

Which technologies should you recommend? To answer, drag the appropriate technology to the correct requirement. 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.

Technologies	Answer Area
TrafficManager	
MediaServices	
Multifactor Authentication	
Service Bus	
Azure Active Directory	
Azure Content Delivery Network	
Windows Network Load Balancing	
Azure Blob Service	
Requirement	Technology
Encode media	Technology
Load-balanced communication	Technology
Deliver content	Technology

**Answer:****Technologies**

TrafficManager

MediaServices

Multifactor Authentication

Service Bus

Azure Active Directory

Azure Content Delivery Network

Windows Network Load Balancing

Azure Blob Service

**Answer Area**

Requirement	Technology
Encode media	MediaServices
Load-balanced communication	TrafficManager
Deliver content	Azure Content Delivery Network

**\* MediaServices**

Azure Media Services is being used to power consumer and enterprise streaming solutions worldwide. Combining powerful and highly scalable cloud-based encoding, encryption and steaming components, Azure Media Services is helping customers with valuable and premium video content to easily reach larger audiences on today's most popular digital devices, such as tablets and mobile phones.

**\* TrafficManager****\* Azure Content Delivery Network**

The Azure Content Delivery Network (CDN) is designed to send audio, video, applications, images, and other files faster and more reliably to customers using servers that are closest to each user. This dramatically increases speed and availability, resulting in significant user experience improvements.

**References:**

<http://azure.microsoft.com/en-us/services/cdn/>

<http://azure.microsoft.com/en-gb/services/media-services/>

<http://azure.microsoft.com/en-us/services/traffic-manager/>

**Question: 71**

You are designing an Azure application. The application includes services hosted in different geographic locations. The service locations may change.

You must minimize the cost of communication between services.

You need to recommend an approach for data transmission between your application and Azure services. The solution must minimize administrative effort.

What should you recommend?

- A. Azure Table storage
- B. Service Bus queue
- C. Service Management API

D. Azure Queue storage

---

**Answer: B**

Explanation:

The cost of ACS transactions is insignificant when performing messaging operations against Service Bus queues. Service Bus acquires one ACS token per a single instance of the messaging factory object. The token is then reused until it expires, after about 20 minutes. Therefore, the volume of messaging operations in Service Bus is not directly proportional to the amount of ACS transactions required to support these operations.

References:

<https://msdn.microsoft.com/library/azure/hh767287.aspx>

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### **Question: 72**

You are designing a distributed application for Azure.

The application must securely integrate with on-premises servers.

You need to recommend a method of enabling Internet Protocol security (IPsec)-protected connections between on-premises servers and the distributed application.

What should you recommend?

- A. Azure Access Control
- B. Azure Content Delivery Network (CDN)
- C. Azure Service Bus
- D. Azure Site-to-Site VPN

---

**Answer: D**

Explanation:

IPsec can be used on Azure Site-to-Site VPN connections. Distributed applications can use the IPsec VPN connections to communicate.

References:

<https://msdn.microsoft.com/en-us/library/azure/dn133798.aspx>

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### **Question: 73**

A company has 10 on-premises SQL databases. The company plans to move the databases to SQL Server 2012 that runs in Azure Infrastructure-as-a-Service (IaaS). After migration, the databases will support a limited number of Azure websites in the same Azure Virtual Network.

You have the following requirements:

- \* You must restore copies of existing on-premises SQL databases to the SQL servers that run in Azure IaaS.
- \* You must be able to manage the SQL databases remotely.
- \* You must not open a direct connection from all of the machines on the on-premises network to Azure.

\* Connections to the databases must originate from only five Windows computers.

You need to configure remote connectivity to the databases.

Which technology solution should you implement?

- A. Azure Virtual Network site-to-site VPN
- B. Azure Virtual Network multi-point VPN
- C. Azure Virtual Network point-to-site VPN
- D. Azure ExpressRoute

---

**Answer: C**

---

Explanation:

A point-to-site VPN would meet the requirements.

References:

<https://azure.microsoft.com/en-us/documentation/articles/vpn-gateway-point-to-site-create/>

---

### **Question: 74**

---

You have several virtual machines (VMs) that run in Azure. You also have a single System Center 2012 R2 Configuration Manager (SCCM) primary site on-premises.

You have the following requirements:

- \* All VMs must run on the same virtual network.
- \* Network traffic must be minimized between the on-premises datacenter and Azure.
- \* The solution minimize complexity.

You need to use SCCM to collect inventory and deploy software to Azure VMs.

What should you do first?

- A. Configure client push for the Azure virtual network.
- B. Enable and configure Operations Insights in Azure.
- C. Install a cloud distribution point on an Azure VM.
- D. Install a secondary site underneath the primary site onto an Azure VM.

---

**Answer: C**

---

Explanation:

Cloud-based distribution Point, a Configuration Manager Site System Role in the Cloud

Much of the Configuration Manager topology is made up of distribution points, they are very helpful in many situations where bandwidth and geographical separation are the facts of life, but also hard to manage if you have hundreds or even thousands of them.

This feature started with the vision that it makes perfect sense to have big distribution points in the Windows Azure cloud where one should not worry about things like (but not limited to) size, performance, reliability, security, access from all around the world, hardware/software update issues etc.

Note: Content management in System Center 2012 Configuration Manager provides the tools for you to manage content files for applications, packages, software updates, and operating system deployment. Configuration Manager uses distribution points to store files that are required for software to run on client computers. These distribution points function as distribution centers for the content files and let users download and run the software. Clients must have access to at least one distribution point from which they can download the files.

References:

<http://blogs.technet.com/b/configmgrteam/archive/2013/01/31/new-distribution-points-in-configuration-manager-sp1.aspx>

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### **Question: 75**

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You are running a Linux guest in Azure Infrastructure-as-a-Service (IaaS).

You must run a daily maintenance task. The maintenance task requires native BASH commands.

You need to configure Azure Automation to perform this task.

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

- A. Create an automation account.
- B. Create an Orchestrator runbook.
- C. Create an asset credential.
- D. Run the Invoke-Workflow Azure PowerShell cmdlet.
- E. Import the SSH PowerShell Module.

---

**Answer: A,C,E**

---

Explanation:

A: An Automation Account is a container for your Azure Automation resources: it provides a way to separate your environments or further organize your workflows.

To create An Automation Account

1. Log in to the Azure Management Portal.
2. In the Management Portal, click Create an Automation Account.
3. On the Add a New Automation Account page, enter a name and pick a region for the account.

C:  
\* Asset credentials are either a username and password combination that can be used with Windows PowerShell commands or a certificate that is uploaded to Azure Automation.

\* The Assets page in Automation displays the various resources (also called “settings”) that are globally available to be used in or associated with a runbook, plus commands to import an integration module, add a new asset, or delete an asset. Assets include variables, schedules, credentials, and connections.

References:

<http://azure.microsoft.com/blog/2014/07/29/getting-started-with-azure-automation-automation-assets-2/>  
<http://blogs.technet.com/b/orchestrator/archive/2014/05/01/managing-ssh-enabled-linux-hosts-using-service-management-automation.aspx>  
<http://azure.microsoft.com/en-gb/documentation/articles/automation-create-runbook-from-samples/>

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### **Question: 76**

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A company has multiple Azure subscriptions. It plans to deploy a large number of virtual machines (VMs) into Azure.

You install the Azure PowerShell module, but you are unable connect to all of the company's Azure subscriptions.

You need to automate the management of the Azure subscriptions.

Which two Azure PowerShell cmdlets should you run?

- A. Get-AzurePublishSettingsFile
- B. Import-AzurePublishSettingsFile
- C. Add-AzureSubscription
- D. Import-AzureCertificate
- E. Get-AzureCertificate

---

### **Answer: A,B**

---

Explanation:

Before you start using the Windows Azure cmdlets to automate deployments, you must configure connectivity between the provisioning computer and Windows Azure. You can do this automatically by downloading the PublishSettings file from Windows Azure and importing it.

To download and import publish settings and subscription information

References:

<https://msdn.microsoft.com/en-us/library/dn385850%28v=nav.70%29.aspx>

---

### **Question: 77**

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**DRAG DROP**

You need to automate tasks with Azure by using Azure PowerShell workflows.

How should you complete the Azure PowerShell script? To answer, drag the appropriate cmdlet to the correct location. Each cmdlet 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.

**Azure PowerShell cmdlets**

```

Checkpoint-Workflow
New-AzureAutomationRunbook
Get-AutomationVariable
Get-AzureAutomationRunbook
Write-Output "Runbook Complete"

```

**Answer Area**

```

workflow Use-WorkflowCheckpointSample
{
    Set-AutomationVariable -Name 'HasBeenSuspended' -Value $False
    Write-Output "Before Checkpoint"

    Azure PowerShell cmdlet

    Write-Output "After Checkpoint"

    $HasBeenSuspended = `

        Azure PowerShell cmdlet -Name 'HasBeenSuspended'

    if (!$HasBeenSuspended) {
        Set-AutomationVariable -Name 'HasBeenSuspended' -Value $True
        1 + "abc"
    }

    Azure PowerShell cmdlet
}

```

**Answer:****Azure PowerShell cmdlets**

```

Checkpoint-Workflow
New-AzureAutomationRunbook
Get-AutomationVariable
Get-AzureAutomationRunbook
Write-Output "Runbook Complete"

```

**Answer Area**

```

workflow Use-WorkflowCheckpointSample
{
    Set-AutomationVariable -Name 'HasBeenSuspended' -Value $False
    Write-Output "Before Checkpoint"

    Checkpoint-Workflow Get-AutomationVariable -Name 'HasBeenSuspended'

    Write-Output "After Checkpoint"

    $HasBeenSuspended = `

        Get-AutomationVariable -Name 'HasBeenSuspended'

    if (!$HasBeenSuspended) {
        Set-AutomationVariable -Name 'HasBeenSuspended' -Value $True
        1 + "abc"
    }

    Write-Output "Runbook Complete"
}

```

workflow Use-WorkflowCheckpointSample

```

{
# An exception occurs if 'HasBeenSuspended' does not already exist.
# Exceptions that are not caught with a try/catch will cause the runbook to suspend.
Set-AutomationVariable -Name 'HasBeenSuspended' -Value $False
# This line occurs before the checkpoint. When the runbook is resumed after
# suspension, 'Before Checkpoint' will not be output a second time.
Write-Output "Before Checkpoint"
# A checkpoint is created.
Checkpoint-Workflow
# This line occurs after the checkpoint. The runbook will start here on resume.
Write-Output "After Checkpoint"
$HasBeenSuspended = Get-AutomationVariable -Name 'HasBeenSuspended'
# If branch only executes if the runbook has not previously suspended.

```

```
if (!$HasBeenSuspended) {  
Set-AutomationVariable -Name 'HasBeenSuspended' -Value $True  
# This will cause a runtime exception. Any runtime exception in a runbook  
# will cause the runbook to suspend.  
1 + "abc"  
}  
Write-Output "Runbook Complete"  
}  
References:  
https://gallery.technet.microsoft.com/scriptcenter/How-to-use-workflow-cd57324f
```

---

### **Question: 78**

#### HOTSPOT

A company uses Azure for several virtual machine (VM) and website workloads. The company plans to assign administrative roles to a specific group of users. You have a resource group named GROUP1 and a virtual machine named VM2.

The users have the following responsibilities:

User	Responsibility
Admin1	Control access to VM2.
Admin2	Prepare reports with billing and usage information.
Admin3	Maintain all resources in the GROUP1 resource group.

You need to assign the appropriate level of privileges to each of the administrators by using the principle of least privilege.

What should you do? To answer, select the appropriate target objects and permission levels in the answer area.

**Answer Area**

Administrator Name	Target Object	Permission Level
Admin1	VM2 GROUP1 SUBSCRIPTION	Reader Owner Contributor
Admin2	VM2 GROUP1 SUBSCRIPTION	Reader Owner Contributor
Admin3	VM2 GROUP1 SUBSCRIPTION	Reader Owner Contributor

**Answer:****Answer Area**

Administrator Name	Target Object	Permission Level
Admin1	VM2 GROUP1 SUBSCRIPTION	Reader <b>Owner</b> Contributor
Admin2	VM2 GROUP1 <b>SUBSCRIPTION</b>	Reader <b>Owner</b> Contributor
Admin3	VM2 <b>GROUP1</b> SUBSCRIPTION	Reader Owner <b>Contributor</b>

\* Owner can manage everything, including access.

\* Contributors can manage everything except access.

Note: Azure role-based access control allows you to grant appropriate access to Azure AD users, groups, and services, by assigning roles to them on a subscription or resource group or individual resource level.

References:

<http://azure.microsoft.com/en-us/documentation/articles/role-based-access-control-configure/>

### Question: 79

#### HOTSPOT

Resources must authenticate to an identity provider.

You need to configure the Azure Access Control service.

What should you recommend? To answer, select the appropriate responses for each requirement in the answer area.

#### Answer Area

Action	Requirement
You must distribute an authorization token to a client when it authenticates against Windows Live ID.	<ul style="list-style-type: none"> <li>Distribute an Identity Provider (IDP) token.</li> <li>Distribute an Access Control Service token.</li> <li>Distribute an Application Programming Interface (API) token.</li> </ul>
You must integrate an application with the Azure Access Control service.	<ul style="list-style-type: none"> <li>Use WS-Trust.</li> <li>Use Kerberos.</li> </ul>

#### Answer:

Explanation:

#### Answer Area

Action	Requirement
You must distribute an authorization token to a client when it authenticates against Windows Live ID.	<ul style="list-style-type: none"> <li>Distribute an Identity Provider (IDP) token.</li> <li>Distribute an Access Control Service token.</li> <li>Distribute an Application Programming Interface (API) token.</li> </ul>
You must integrate an application with the Azure Access Control service.	<ul style="list-style-type: none"> <li>Use WS-Trust.</li> <li>Use Kerberos.</li> </ul>

Box 1:

\* Token – A user gains access to an RP application by presenting a valid token that was issued by an authority that the RP application trusts.

\* Identity Provider (IP) – An authority that authenticates user identities and issues security tokens, such as Microsoft account (Windows Live ID), Facebook, Google, Twitter, and Active Directory. When Azure Access Control (ACS) is configured to trust an IP, it accepts and validates the tokens that the IP issues. Because ACS can trust multiple IPs at the same time, when your application trusts ACS, your application can offer users the option to be authenticated by any of the IPs that ACS trusts on behalf.

Box 2: WS-Trust is a web service (WS-\*) specification and Organization for the Advancement of Structured Information Standards (OASIS) standard that deals with the issuing, renewing, and validating of security

tokens, as well as with providing ways to establish, assess the presence of, and broker trust relationships between participants in a secure message exchange. Azure Access Control (ACS) supports WS-Trust 1.3.

Incorrect: ACS does not support Kerberos.

References:

---

### **Question: 80**

Contoso, Ltd., uses Azure websites for public-facing customer websites. The company has a mobile app that requires customers sign in by using a Contoso customer account.

Customers must be able to sign on to the websites and mobile app by using a Microsoft, Facebook, or Google account. All transactions must be secured in-transit regardless of device.

You need to configure the websites and mobile app to work with external identity providers.

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

- A. Request a certificate from a domain registrar for the website URL, and enable TLS/SSL.
- B. Configure IPsec for the websites and the mobile app.
- C. Configure the KerberosTokenProfile 1.1 protocol.
- D. Configure OAuth2 to connect to an external authentication provider.
- E. Build an app by using MVC 5 that is hosted in Azure to provide a framework for the underlying authentication.

---

**Answer: A,D,E**

Explanation:

DE: This tutorial shows you how to build an ASP.NET MVC 5 web application that enables users to log in using OAuth 2.0 with credentials from an external authentication provider, such as Facebook, Twitter, LinkedIn, Microsoft, or Google.

A:

\* You will now be redirected back to the Register page of the MvcAuth application where you can register your Google account. You have the option of changing the local email registration name used for your Gmail account, but you generally want to keep the default email alias (that is, the one you used for authentication). Click Register.

\* To connect to authentication providers like Google and Facebook, you will need to set up IIS-Express to use SSL.

References:

<http://www.asp.net/mvc/overview/security/create-an-aspnet-mvc-5-app-with-facebook-and-google-oauth2-and-openid-sign-on>

---

### **Question: 81**

You are designing a solution that will interact with non-Windows applications over unreliable network connections. You have a security token for each non-Windows application.

You need to ensure that non-Windows applications retrieve messages from the solution.

Where should you retrieve messages?

- A. An Azure Queue
- B. The Azure Service Bus Queue
- C. An Azure blob storage container that has a private access policy
- D. Azure Table storage

---

**Answer: B**

Explanation:

Any Microsoft or non-Microsoft applications can use a Service Bus REST API to manage and access messaging entities over HTTPS.

By using REST applications based on non-Microsoft technologies (e.g. Java, Ruby, etc.) are allowed not only to send and receive messages from the Service Bus, but also to create or delete queues, topics and subscription in a given namespace.

References:

<https://code.msdn.microsoft.com/windowsazure/service-bus-explorer-f2abca5a>

---

### **Question: 82**

You are the administrator for a company named Contoso, Ltd.

Contoso also has an Azure subscription and uses many on-premises Active Directory products as roles in Windows Server including the following:

Contoso must use the directory management services available in Azure Active Directory.

You need to provide information to Contoso on the similarities and differences between Azure Active Directory and the Windows Server Active Directory family of services.

Which feature does Azure Active Directory and on-premises Active Directory both support?

- A. Using the GraphAPI to query the directory
- B. Issuing user certificates
- C. Supporting single sign-on (SSO)
- D. Querying the directory with LDAP

---

**Answer: C**

Explanation:

AD FS supports Web single-sign-on (SSO) technologies, and so does Azure Active Directory.

If you want single sign on we usually suggest using ADFS if you're a Windows shop. Going forward though, Azure Active Directory is another alternative you can use.

References:

<https://samlman.wordpress.com/2015/03/02/using-azure-active-directory-for-single-sign-on-with-yammer/>

---

### **Question: 83**

**DRAG DROP**

Contoso, Ltd., uses Azure websites for their company portal sites.

Admin users need enough access to effectively perform site monitoring or management tasks. Management tasks do not include assigning permissions to other users.

You need to grant admin access to a group of 10 users.

How should you configure the connection? To answer, drag the role or object to the correct connection setting. Each item 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.

**Connection Settings**

Contributor
Reader
Website
Application
Azure Active Directory
Active Directory Domain Services

**Answer Area**

Connection Setting	Role or Object
Role	Connection Setting
Resource	Connection Setting
Provider	Connection Setting

**Connection Settings**

Contributor
Reader
Website
Application
Azure Active Directory
Active Directory Domain Services

**Answer Area**

Connection Setting	Role or Object
Role	Contributor
Resource	Website
Provider	Azure Active Directory

References:

<http://azure.microsoft.com/blog/2015/01/05/rbac-and-azure-websites-publishing/>

**Question: 84**

A company has a very large dataset that includes sensitive information. The dataset is over 30 TB in size.

You have a standard business-class ISP internet connection that is rated at 100 megabits/second.

You have 10 4-TB hard drives that are approved to work with the Azure Import/Export Service. You need to migrate the dataset to Azure. The solution must meet the following requirements:

- \* The dataset must be transmitted securely to Azure.
- \* Network bandwidth must not increase.
- \* Hardware costs must be minimized.

What should you do?

- A. Prepare the drives with the Azure Import/Export tool and then create the import job. Ship the drives to Microsoft via a supported carrier service.
- B. Create an export job and then encrypt the data on the drives by using the Advanced Encryption Standard (AES). Create a destination Blob to store the export data.
- C. Create an import job and then encrypt the data on the drives by using the Advanced Encryption Standard (AES). Create a destination Blob to store the import data.
- D. Prepare the drives by using Sysprep.exe and then create the import job. Ship the drives to Microsoft via a supported carrier service.

---

**Answer: A**

---

Explanation:

You can use the Microsoft Azure Import/Export service to transfer large amounts of file data to Azure Blob storage in situations where uploading over the network is prohibitively expensive or not feasible.

References:

<http://azure.microsoft.com/en-gb/documentation/articles/storage-import-export-service/>

---

**Question: 85**

---

DRAG DROP

You are migrating Active Directory Domain Services (AD DS) domains to Azure.

You need to recommend the least complex directory synchronization solution.

What should you recommend? To answer, drag the appropriate solution to the correct client requirement. 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.

**Solutions**

Directory Sync (DirSync) with Password Sync

Directory Sync (DirSync) with single sign-on (SSO)

Azure Access Control Service

**Answer Area**

<b>Client requirements</b>	<b>Solution</b>
Customize the user sign-in page.	Solution
Enable users to sign in and access cloud services using their on-premises password.	Solution
Ensure user authentications occur in the on-premises Active Directory.	Solution
Control password policies from the on-premises Active Directory.	Solution

**Answer:****Solutions**

Directory Sync (DirSync) with Password Sync

Directory Sync (DirSync) with single sign-on (SSO)

Azure Access Control Service

**Answer Area**

<b>Client requirements</b>	<b>Solution</b>
Customize the user sign-in page.	Azure Access Control Service
Enable users to sign in and access cloud services using their on-premises password.	Directory Sync (DirSync) with Password Sync
Ensure user authentications occur in the on-premises Active Directory.	Directory Sync (DirSync) with single sign-on (SSO)
Control password policies from the on-premises Active Directory.	Directory Sync (DirSync) with Password Sync

**Question: 86****DRAG DROP**

You have a web application on Azure.

The web application does not employ Secure Sockets Layer (SSL).

You need to enable SSL for your production deployment web application on Azure.

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

**Actions**

Upload the deployment package and certificate.

Get an SSL certificate from a certification authority (CA).

Self-sign the SSL certificate.

Modify the service definition and configuration files.

Connect to the role instance by using HTTPS.

**Answer Area****Answer:**

Box 1:

Get an SSL certificate from a certification authority (CA).

Box 2:

Modify the service definition and configuration files.

Box 3:

Upload the deployment package and certificate.

Box 4:

Connect to the role instance by using HTTPS.

References:

<http://azure.microsoft.com/en-gb/documentation/articles/cloud-services-configure-ssl-certificate/>

---

### **Question: 87**

You are designing an Azure Web App.

All users must authenticate by using Active Directory Domain Services (AD DS) credentials.

You need to recommend an approach to enable single sign-on to the application for domain-authenticated users.

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

- A. Use Forms authentication to generate claims.
- B. Use the SQL membership provider in the web application.
- C. Use Windows Identity Foundation in the web application.
- D. Use Active Directory Federation Services (AD FS) to generate claims.

---

**Answer: C,D**

Explanation:

References:

<https://msdn.microsoft.com/en-us/library/ee748475.aspx>

<https://msdn.microsoft.com/en-us/library/azure/dn441213.aspx>

---

### **Question: 88**

DRAG DROP

You are the Azure architect for an organization. You are working with C-level management to assign Azure role-based access control roles to a team within the organization. A single director oversees two teams, a development team and a test team. The director is wholly responsible for the organization's Azure account,

including billing, infrastructure, and access control. The director is the only member of the team with the ability to alter access controls.

You have the following requirements:

- \* Members of the development team must be able to view or alter Azure infrastructure to support application development.

- \* Members of the test team must be able to view Azure infrastructure to support test cases.

You need to assign built-in Azure role-based access control roles to team members within the organization.

Which role should you assign to each team member? To answer, drag the appropriate role to the correct team member. Each role 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.

### Roles

Owner
Contributor
Reader
Editor
Publisher

### Answer Area

Team Member	Role
The director	<input type="text"/>
Members of the development team	<input type="text"/>
Members of the test team	<input type="text"/>

---

**Answer:**

### Answer Area

Team Member	Role
The director	<input type="text"/> Owner
Members of the development team	<input type="text"/> Contributor
Members of the test team	<input type="text"/> Reader

References:

<http://azure.microsoft.com/en-us/documentation/articles/role-based-access-control-configure/>

---

**Question: 89**

You are designing an Azure application that provides online backup storage for hundreds of media files. Each file is larger than 1GB.

The data storage solution has the following requirements:

- \* Be capable of storing an average of 2 terabytes (TB) of data for each user.
- \* Support sharing of data between all Microsoft Azure instances
- \* Provide random read/write access

You need to recommend a durable data storage solution.

What should you recommend?

- A. Store data in the VHD file
- B. Azure Page Blob service
- C. Azure Block Blob service
- D. Local storage on the VM

---

**Answer: B**

---

Explanation:

References:

<https://msdn.microsoft.com/en-us/library/azure/ee691964.aspx>

---

### **Question: 90**

---

You design an Azure web application. The web application is accessible by default as a standard cloudapp.net URL.

You need to recommend DNS resource record types that allow you to configure access to the web application by using a custom domain name.

Which two DNS record types should you recommend?

- A. SRV
- B. CNAME
- C. MX
- D. A

---

**Answer: B,D**

---

Explanation:

---

### **Question: 91**

---

You plan to implement Multi-Factor Authentication (MFA).

Administrators must be able to protect user accounts with MF

- A. You must implement text messages or telephone calls as a second factor.

You need to recommend a MFA solution that minimize costs.

What should you recommend?

- A. Azure Active Directory Premium

- B. an on-premises solution
- C. a Microsoft Office 365 subscription
- D. the Enterprise Mobility Suite

---

**Answer: A**

Explanation:

---

**Question: 92**

**HOTSPOT**

You plan to deploy four Infrastructure as a Service (IaaS) virtual machines in Azure. All IaaS virtual machines will reside on the same IP subnet.

You need to design an Azure virtual network that can accommodate the deployment. The design must meet the following requirements:

- \* Minimize the size of the IP subnet.
- \* Provide the ability to restrict both internal and Internet traffic.
- \* Ensure that the IP addresses of the virtual machines remain the same.

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

**Answer Area**

Virtual network subnet mask:

/28
/29
/30

Cmdlet to configure IP addresses:

New-AzureReservedIP
Set-AzureStaticVNetIP

Method to restrict traffic:

Access control lists (ACL)
Network security groups
Traffic Manager
ExpressRoute

---

**Answer:**

**Answer Area**

Virtual network subnet mask:

/28
/29
/30

Cmdlet to configure IP addresses:

New-AzureReservedIP
Set-AzureStaticVNetIP

Method to restrict traffic:

Access control lists (ACL)
Network security groups
Traffic Manager
ExpressRoute

Not /29.

/29 would normally provide up to 8 IP addresses which should be enough for four VMs. However, Azure reserves five IP addresses so for four VMs, you need a subnet with at least 9 IP addresses.

**Question: 93****HOTSPOT**

You administer the virtual environment for Contoso, Ltd. You configure and provision a new virtual machine (VM).

You need to add the existing VM to an existing availability set.

How should you complete the Azure PowerShell command? To answer, select the appropriate Azure PowerShell cmdlet from each list in the answer area.

**Answer Area**

-ServiceName contosodc1 -Name contosodc 1
Get-AzureVM
New-AzureVM
Update-AzureVM

Set-AzureAvailabilitySet
Set-AzureAffinityGroup
Update-AzureVMIImage

-AvailabilitySetName contosodcs |

Get-AzureVM
New-AzureVM
Update-AzureVM

**Answer:**

**Answer Area**

The image shows four separate PowerShell command completion dropdowns arranged in a 2x2 grid. The top-left dropdown contains the command `-ServiceName contosodc1 -Name contosodc 1 |` followed by a list of cmdlets: `Get-AzureVM`, `New-AzureVM`, and `Update-AzureVM`. The top-right dropdown contains the command `-Set-AzureAvailabilitySet` followed by a list of cmdlets: `Set-AzureAffinityGroup` and `Update-AzureVMIImage`. The bottom-left dropdown contains the command `-AvailabilitySetName contosodcs |` followed by a list of cmdlets: `Get-AzureVM`, `New-AzureVM`, and `Update-AzureVM`. The bottom-right dropdown is empty.

---

**Question: 94****HOTSPOT**

You have an Azure subscription. You plan to deploy five virtual machines that will have similar configurations and will run the same workload.

You need to recommend a solution to ensure the availability of the virtual machines during Azure maintenance periods. At any given time, only one virtual machine can be offline for maintenance.

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

## Answer Area

Number of cloud services:

0	▲	▼
1		
2		
3		
4		
5		

Number of availability sets:

0	▲	▼
1		
2		
3		
4		
5		

Number of upgrade domains:

0	▲	▼
1		
2		
3		
4		
5		

---

Answer:

---

## **Answer Area**

**Number of cloud services:**

1		
---	--	--

**Number of availability sets:**

1		
---	--	--

**Number of upgrade domains:**

5		
---	--	--

---

### **Question: 95**

You have an Azure subscription that contains 10 VMs. All of the VMs are set to use the Basic VM tier and are located in the West US region. The storage account used for the VMs is set to Locally Redundant replication. The VMs are in an availability set.

You plan to deploy several web apps in Azure that will retrieve data from the virtual machines. The web apps will use a new App Service plan.

You need to ensure that the web apps remain available if the hardware in data center fails. The solution must minimize the Azure costs associated with bandwidth utilization.

What should you include in the solution?

- A. Create a new storage account that is set to Geo-Redundant replication. Move the virtual machines to the new storage account. Set the App Service for the web apps to use the default app service.
- B. Set the App Service plan for the web apps to any region other than West US region.
- C. Create a new storage account that is set to Zone Redundant replication. Move the virtual machines to the new storage account. Set the App Service plan for the web apps to use the default app service.
- D. Set the App Service plan for the web apps to use the default app service. Configure ExpressRoute for the Azure subscription.

---

**Answer: A**

---

Explanation:

---

### **Question: 96**

#### **HOTSPOT**

You plan to implement a predictive analytics solution in Azure Machine Learning Studio (ML Studio). You intend to train the solution by using existing data that resides on-premises. The on-premises data is a collection of delimited text files that total 5 GB in size.

You need to identify the process of adding the existing data to the solution.

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

## Answer Area

Upload data into:

ML Studio
an Azure SQL Database

In ML Studio, create:

a DataSet
an experiment

In ML Studio, consume data by using the:

Add Rows module
Enter Data module
Reader module

---

Answer:

---

## Answer Area

Upload data into:

ML Studio
an Azure SQL Database

In ML Studio, create:

a DataSet
an experiment

In ML Studio, consume data by using the:

Add Rows module
Enter Data module
Reader module

---

## Question: 97

You manage a cloud service that has one Web Role instance, and several Worker Role instances. The cloud service has multiple tiers. Different groups develop and maintain each tier.

You need to ensure that the cloud service remains highly available and responsive when the Worker Roles are performing extensive work.

What should you do?

- A. Create an availability set for each tier of the application.
- B. Implement auto-scaling for the Worker Roles.
- C. Create a resource group.
- D. Create an availability set with two or more virtual machines.

---

**Answer: B**

Explanation:

---

### **Question: 98**

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

---

**Answer: A**

Explanation:

---

### **Question: 99**

Your company has an Azure subscription.

The company plans to implement an Azure Web App named WebApp1.

You need to recommend a solution to optimize the compute resources consumed by the Web App. The solution must minimize costs and provide a separation of resources.

Which service should you recommend?

- A. Basic
- B. Free
- C. Shared
- D. Premium
- E. Standard

---

**Answer: D**

Explanation:

Only the Premium service provides App Service Environments which provide the required isolation (separation of resources).

---

### **Question: 100**

You are designing an Azure application that provides online backup storage for hundreds of media files. Each file is larger than 1GB.

The data storage solution has the following requirements:

- \* be capable of storing an average of 2 terabytes (TB) of data for each user
- \* support sharing of data between all Microsoft Azure instances
- \* provide random read/write access

You need to recommend a durable data storage solution.

What should you recommend?

- A. store data in a VHD file
- B. Azure Page Blob
- C. Azure Block Blob
- D. local storage on the VM

---

**Answer: B**

---

### **Question: 101**

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.

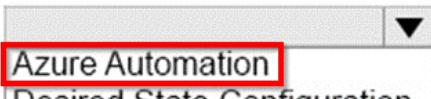
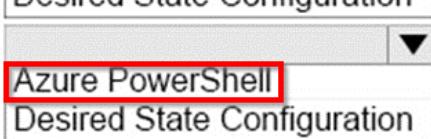
#### **Answer Area**

<b>Use case</b>	<b>Tool</b>
Automate a portfolio of scripts.	<input type="checkbox"/> Azure Automation <input type="checkbox"/> Desired State Configuration
Create an ad hoc script to add a virtual machine.	<input type="checkbox"/> Azure PowerShell <input type="checkbox"/> Desired State Configuration

---

**Answer:**

## Answer Area

Use case	Tool
Automate a portfolio of scripts.	 Azure Automation Desired State Configuration
Create an ad hoc script to add a virtual machine.	 Azure PowerShell Desired State Configuration

## Question: 102

DRAG DROP

You are developing an application that will send push notifications to registered devices. You perform the following actions:

- \*set up a notification hub with the correct push credentials
- \*register the device application with the platform notification system and the hub
- \*update the back-end to send notifications.

You need to debug push notifications by sending test notifications to registered devices in a controlled way.

For each action, which tool should you implement? To answer, drag the appropriate tool to the correct action. Each tool 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.

### Tools

Azure Portal
Microsoft Visual Studio Server Explorer
Service Bus Explorer tool
Azure SDK

### Answer Area

Action
Use several metric for monitoring
Run per-platform diagnostics
Limit test notifications to 10 clients at a time

### Tool

tool
tool
tool

## Answer:

### Tools

Azure Portal
Microsoft Visual Studio Server Explorer
Service Bus Explorer tool
Azure SDK

### Answer Area

Action	Tool
Use several metric for monitoring	Azure Portal
Run per-platform diagnostics	Azure Portal
Limit test notifications to 10 clients	Microsoft Visual Studio Server Explorer

References:

<https://msdn.microsoft.com/library/dn530751.aspx>

---

### **Question: 103**

You develop an ASP.NET Web API that is hosted as an Azure Web App. The API uses a WebJob to process information. The WebJob has a very long start up time.

You configure the WebJob to run continuously. You observe that the WebJob is not running and processing information as expected.

You need to ensure the WebJob runs continuously.

What should you do?

- A. Enable the Always On configuration setting for the Web App.
- B. Update the API self-host by using the Open Web Interface for .NET (OWIN). Migrate the API to Azure Service Fabric.
- C. Schedule the WebJob by using the Azure Scheduler.
- D. Include a settings.job JSON file at the root of the WebJob zip file and include a valid CRON expression.

---

**Answer: A**

---

Explanation:

---

### **Question: 104**

#### **DRAG DROP**

You are the administrator for a company that has an Azure Premium Storage account.

You receive a .vhdx file from the development team. You plan to create one unique Azure virtual machine (VM) from the file. You plan to run the VM as a domain controller.

You need to upload the .vhdx file to Azure.

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

#### **Actions**

Create a new DS series Azure VM instance

Register the .vhdx file as an Azure OS disk

Run Sysprep

Upload the file to an Azure Storage account

Register the .vhdx file as an Azure VM image

Run the following Azure PowerShell cmdlet:  
**Convert-VHD**

#### **Answer Area**



---

**Answer:**

---

**Actions**

- Create a new DS series Azure VM instance
- Register the .vhdx file as an Azure OS disk
- Run Sysprep
- Upload the file to an Azure Storage account
- Register the .vhdx file as an Azure VM image
- Run the following Azure PowerShell cmdlet:  
Convert-VHD

**Answer Area**

Run the following Azure PowerShell cmdlet:  
Convert-VHD



Upload the file to an Azure Storage account



Register the .vhdx file as an Azure OS disk



Create a new DS series Azure VM instance

**Question: 105****DRAG DROP**

You need to implement resource security and authentication.

For each requirement, which solution should you implement? To answer, drag the appropriate solution to the correct requirement. 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.

**Solutions**

- Azure Active Directory Connect
- Microsoft Account Authentication
- Azure Active Directory B2C
- Active Directory Federations Services

**Answer Area****Requirement**

- Enable user sign in for employees
- Enable user sign in for partners
- Enable datacenter connectivity for the DataViewer application

**Solution**

- Solution
- Solution
- Solution

**Solutions**

- Azure Active Directory Connect
- Microsoft Account Authentication
- Azure Active Directory B2C
- Active Directory Federations Services

**Answer Area****Requirement**

- Enable user sign in for employees
- Enable user sign in for partners
- Enable datacenter connectivity for the DataViewer application

**Solution**

- Azure Active Directory Connect
- Active Directory Federations Services
- Active Directory Federations Services

**Question: 106****HOTSPOT**

You are developing a Web App that uses Azure Search. You deploy the Web App to the Standard service tier. You need to add resources to the Azure Search service.

What should you do? To answer, select the appropriate resource from each list in the answer area.

**Answer:**

## Answer Area

Requirement	Action
Increase the document count.	<div style="border: 1px solid #ccc; padding: 5px; width: fit-content;">           Add partitions.            Add replicas.         </div>
Implement a high availability service.	<div style="border: 1px solid #ccc; padding: 5px; width: fit-content;">           Add partitions.            Add replicas.         </div>
Increase query throughput.	<div style="border: 1px solid #ccc; padding: 5px; width: fit-content;">           Add partitions.            Add replicas.         </div>

---

**Answer:**

## Answer Area

Requirement	Action
Increase the document count.	<div style="border: 1px solid #ccc; padding: 5px; width: fit-content;"> <b>Add partitions.</b>            Add replicas.         </div>
Implement a high availability service.	<div style="border: 1px solid #ccc; padding: 5px; width: fit-content;">           Add partitions.  <b>Add replicas.</b> </div>
Increase query throughput.	<div style="border: 1px solid #ccc; padding: 5px; width: fit-content;">           Add partitions.  <b>Add replicas.</b> </div>

Case Study: 8

Woodgrove Bank

### 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

that Woodgrove Bank is using. 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 (ADDS). The company depends on the following mission-critical apps: WGBLoanMaster, WGBLeaseLeader, and WGCreditCruncher 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 WGCreditCruncher 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.

## **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.

### **WGCreditCruncher 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 modeling feature that they can include in the WGCreditCruncher 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 features run 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 computer nodes to enable high performance computing and updating of the financial risk models.

## Key security area

Name	Description
Area 1	Uses Role-Based Access Control (RBAC)
Area 2	Uses Azure Monitoring Agent (ASMAgentLauncher.exe) and the Azure Security Monitoring extension (ASMMonitoringAgent.exe) and is a main cost of Azure Security Center
Area 3	Customizes your company's security requirements and the type of apps of sensitivity of the data. Propagates to all resource groups within the Azure subscription
Area 4	Allows you to detect, assess, and diagnose attacks
Area 5	Prevents and detects future security changes. Changes to the environment are automatically enabled as resources are added

### Question: 107

DRAG DROP

You need to configure Azure Security Center to assist the CSIRT team.

Which services should you implement? To answer, drag the appropriate Azure Security Center services to the correct key security area

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

### Azure Security Center services

Security Roles and Access Controls

Security Policies and Recommendations

Data Collection and Storage

Ongoing Security Monitoring

Incident Response

### Answer Area

#### Key security area

Area 1

Area 2

Area 3

Area 4

Area 5

#### Azure Security Center Service

Answer:

## Azure Security Center services

Security Roles and Access Controls

Security Policies and Recommendations

Data Collection and Storage

Ongoing Security Monitoring

Incident Response

## Answer Area

### Key security area

Area 1

Area 2

Area 3

Area 4

Area 5

### Azure Security Center Service

Incident Response

Data Collection and Storage

Security Policies and Recommendations

Security Roles and Access Controls

Ongoing Security Monitoring

## Question: 108

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

Which technology should you use?

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

**Answer: C**

Explanation:

## Question: 109

### DRAG DROP

You need to deploy the WGBLoanMaster app by using Azure PowerShell.

Which four Azure PowerShell cmdlets should you run in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

**Azure PowerShell cmdlets**

**Test-AzureRmResourceGroup-Deployment**

**Set-AzureRmCurrentStorage-Account**

**New-AzureRmStorageAccount**

**Add-AzureRmAccount**

**New-AzureRmResourceGroup-Deployment**

**New-AzureRmResourceGroup**

**Answer Area****Azure PowerShell cmdlets**

**Test-AzureRmResourceGroup-Deployment**

**Set-AzureRmCurrentStorage-Account**

**New-AzureRmStorageAccount**

**Add-AzureRmAccount**

**New-AzureRmResourceGroup-Deployment**

**New-AzureRmResourceGroup**

**Answer Area**

**New-AzureRmStorageAccount**

**New-AzureRmResourceGroup**

**Question: 110**

DRAG DROP

You are implementing the new security requirements for the WGCreditCruncher app.

You need to explain the security process flow to another developer. You start by navigating to the web app as it is presented to the user.

Which five actions must 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.

**Actions****Answer Area**

OAuth creates an ID token and returns it to the application's HTTPS Reply URL.



Azure AD validates the Reply URL against the registered Reply URL that was configured in the Azure Portal.

The browser sends a GET to the AzureAD authorization endpoint to request an ID token to include the client ID and reply URL in the query parameters.

The user initiates a sign in to the app by clicking a sign in link.

The JavaScript client extracts the token from the response.

Azure AD creates an ID token and returns it to the application's HTTPS Reply URL.

The browser sends a POST to the Azure AD authorization endpoint to request a claim token to include the client ID and reply URL in the query parameters.

---

**Answer:**

---

**Actions**

OAuth creates an ID token and returns it to the application's HTTPS Reply URL.

Azure AD validates the Reply URL against the registered Reply URL that was configured in the Azure Portal.

The browser sends a GET to the AzureAD authorization endpoint to request an ID token to include the client ID and reply URL in the query parameters.

The user initiates a sign in to the app by clicking a sign in link.

The JavaScript client extracts the token from the response.

Azure AD creates an ID token and returns it to the application's HTTPS Reply URL.

The browser sends a POST to the Azure AD authorization endpoint to request a claim token to include the client ID and reply URL in the query parameters.

**Answer Area**

The user initiates a sign in to the app by clicking a sign in link.

The browser sends a GET to the AzureAD authorization endpoint to request an ID token to include the client ID and reply URL in the query parameters.

Azure AD validates the Reply URL against the registered Reply URL that was configured in the Azure Portal.



Azure AD creates an ID token and returns it to the application's HTTPS Reply URL.

The JavaScript client extracts the token from the response.

**References:**

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

**Question: 111**

You need to support processing for the WGBLeaseLeader app.

Which technology should you use?

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

---

**Answer: D**

---

**Explanation:****References:**

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

compared-contrasted

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### **Question: 112**

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You need to generate the report for the WGBLeaseLeader app.  
Which Azure service should you use?

- A. Azure Scheduler
- B. Azure Data Lake Store
- C. Azure Storage Queue
- D. Azure Stream Analytics

---

**Answer: A**

---

Explanation:

---

### **Question: 113**

---

DRAG DROP

You need to deploy WGBLoanMaster app by using the Azure Command-line Interface (CLI).  
Which five commands should you run in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

#### **Commands**

```
azure group template  
validate
```

```
azure config mode asm
```

```
azure group deployment  
create
```

```
azure group create
```

```
azure login
```

```
azure group deployment  
show
```

```
azure config mode arm
```

#### **Answer Area**



---

Answer:

## Commands

```
azure group template validate
```

```
azure config mode asm
```

```
azure group deployment create
```

```
azure group create
```

```
azure login
```

```
azure group deployment show
```

```
azure config mode arm
```

## Answer Area

```
azure login
```

```
azure config mode arm
```



```
azure group create
```

```
azure group template validate
```

```
azure group deployment create
```



References:

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-template-deploy-cli>

---

## Question: 114

You need to support loan processing for the WGBLoanMaster app.

Which technology should you use?

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

---

Answer: D

Explanation:

Case Study: 9

Trey Research Case B

### Background

#### General

Trey Research is the global leader in analytical data collection and research. Trey Research houses its servers

in a highly secure server environment. The company has continuous monitoring, surveillance, and support to prevent unauthorized access and data security.

The company uses advanced security measures including firewalls, security guards, and surveillance to ensure the continued service and protection of data from natural disaster, intruders, and disruptive events.

Trey Research has recently expanded its operations into the cloud by using Microsoft Azure. The company creates an Azure virtual network and a Virtual Machine (VM) for moving on-premises Subversion repositories to the cloud. Employees access Trey Research applications hosted on-premises and in the cloud by using credentials stored on-premises.

### **Applications**

Trey Research hosts two mobile apps on Azure, DataViewer and DataManager. The company uses Azure-hosted web apps for internal and external users. Federated partners of Trey Research have a single sign-on (SSO) experience with the DataViewer application.

### **Architecture**

You have an Azure Virtual Network (VNET) named TREYRESEARCH\_VNET. The VNET includes all hosted VMs. The virtual network includes a subnet named Frontend and a subnet named RepoBackend. A resource group has been created to contain the TREYRESEARCH\_VNET, DataManager and DataViewer. You manage VMs by using System Center VM Manager (SCVMM). Data for specific high security projects and clients are hosted on-premises. Data for other projects and clients are hosted in the cloud.

### **Azure Administration**

User Tier	Role
Tier 1	Manages everything, including resources.
Tier 2	Manages virtual machines, without access to them or their virtual networks and storage accounts.
Tier 3	Manages websites, without access to them.
Tier 4	Access Control.

### **DataManager**

The DataManager app connects to a RESTful service. It allows users to retrieve, update, and delete Trey Research data.

#### **Requirements**

#### **General**

You have the following general requirements:

- Azure deployment tasks must be automated by using Azure Resource Manager (ARM).
- Azure tasks must be automated by using Azure PowerShell.

#### **Disaster recovery**

Disaster recovery and business continuity plans must use a single, integrated service that supports the following features:

- All VMs must be backed up to Azure.
- All on-premises data must be backed up off-site and available for recovery in the event of a disaster.
- Disaster testing must be performed to ensure that recovery times meet management guidelines.
- Fail-over testing must not impact production.

## **Security**

You identify the following security requirements:

- You host multiple subversion (SVN) repositories in the RepoBackend subnet. The SVN servers on this subnet must use inbound and outbound TCP at port 8443.
- Any configuration changes to account synchronization must be tested without disrupting the services.
- High availability is required for account synchronization services.
- Employees must never have to revert to old passwords.
- Usernames and passwords must not be passed in plain text.
- Any identity solution must support Kerberos authentication protocol. You must use Security Assertion Markup Language (SAML) claims to authenticate to on-premises data resources. You must implement an on-premises password policy.
- Users must be able to reset their passwords in the cloud.
- Users must be able to access all of the applications and resources that they need in order to do business by signing in only using a single user account.

## **Subversion server**

### **Subversion Server Sheet**

TREYRESEARCH\_SVN\_VM

Azure Virtual Machine – Window Server Technical Preview 2016

Installed SVN Server

Outbound TCP 8443

Resource group – TREYRESEARCHVM\_RG

Location – West US

Computer name – TREYRESEARCHSVNVM

User name – admin

Size – Standard A2

Disk type – Standard

Storage account – (new) TREYRESEARCHstore

Virtual network – TREY RESEARCH\_VNET

Subnet – RepoBackend (10.0.2.0/24)

Public IP address – (new) TREYRESEARCHSVNVM

Network security group – (new) TREYRESEARCHSVNVM

Availability set – None

Diagnostics – Enabled

Diagnostics storage account – (new) TREYRESEARCHstore

---

## **Question: 115**

You need to implement the security requirements.

What should you implement?

- A. the GraphAPI to query the directory
- B. LDAP to query the directory

- C. single sign-on
- D. user certificates

---

**Answer: C**

Explanation:

References:

<https://blogs.msdn.microsoft.com/plankytronixx/2010/11/27/single-sign-on-between-on-premise-apps-windows-azure-apps-and-office-365-services/>

---

### **Question: 116**

You need to configure identity synchronization.

What should you create?

- A. a second Azure Active Directory Connect sync server
- B. backups of all on-premises server farms
- C. backups of all Azure VMs
- D. a second Azure Active Directory Connect staging server
- E. a second Azure Active Directory directory

---

**Answer: D**

Explanation:

/ High availability is required for account synchronization services.

/ Any configuration changes to account synchronization must be tested without disrupting the services.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/connect/active-directory-aadconnect-topologies#staging-server>

---

### **Question: 117**

**DRAG DROP**

You need to implement testing for the DataManager mobile application.

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

**Actions**

Create a URL ping test in Application Insights.

In the Microsoft Visual Studio, create a web test.

Open the .webtest file and start recording.

Create a multi-step web test and upload a .webtest file to Application Insights.

Open the URL ping test and set test locations.

Upload a URL ping list to Application Insights.

In Microsoft Visual Studio, create a web performance test project.

**Answer Area**



---

**Answer:**

---

## Actions

Create a URL ping test in Application Insights.

In the Microsoft Visual Studio, create a web test.

Open the .webtest file and start recording.

Create a multi-step web test and upload a .webtest file to Application Insights.

Open the URL ping test and set test locations.

Upload a URL ping list to Application Insights.

In Microsoft Visual Studio, create a web performance test project.

## Answer Area

In Microsoft Visual Studio, create a web performance test project.

Open the .webtest file and start recording.



Create a multi-step web test and upload a .webtest file to Application Insights.

## References:

<https://docs.microsoft.com/en-us/azure/application-insights/app-insights-monitor-web-app-availability#multi-step-web-tests>

## Question: 118

You need to assign permissions for tier four employees.

Which role should you assign?

- A. Security Manager
- B. Website Contributor
- C. Owner
- D. Network Contributor

**Answer: A**

## Explanation:

## Question: 119

### DRAG DROP

You need to allow network traffic to the Trey Research subversion system.

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

**Actions**

Add a new TCP endpoint for TREYRESEARCH SVN VM on port 80.

Add new inbound and outbound security rules for TCP on port 8443.

Add a new TCP endpoint for TREYRESEARCH SVN VM on port 8443.

Create a new Network Access Control list.

Create a new Network Security group.

Associate with the RepoBackend subnet of TREYRESEARCH\_VNET.

Associate with the TREYRESEARCH\_VM network interface.

Create a new Security Center policy.

**Answer Area**



---

**Answer:**

---

**Actions**

- Add a new TCP endpoint for TREYRESEARCH SVN VM on port 80.
- Add new inbound and outbound security rules for TCP on port 8443.
- Add a new TCP endpoint for TREYRESEARCH SVN VM on port 8443.
- Create a new Network Access Control list.
- Create a new Network Security group.
- Associate with the RepoBackend subnet of TREYRESEARCH\_VNET.
- Associate with the TREYRESEARCH\_VM network interface.
- Create a new Security Center policy.

**Answer Area**

- Create a new Network Security group.
- Add new inbound and outbound security rules for TCP on port 8443.
- Associate with the RepoBackend subnet of TREYRESEARCH\_VNET.



/ You host multiple subversion (SVN) repositories in the RepoBackend subnet. The SVN servers on this subnet must use inbound and outbound TCP at port 8443.

References:

<http://theithollow.com/2016/08/03/azure-network-security-groups/>

Case Study: 10

Mix Questions B

### **Question: 120**

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 the deployment of resources in Azure.

You plan to use templates to customize deployment options.

You need to ensure that Azure services are deployed and updated identically.

Solution: You customize the \$schema element of the template.

Does the solution meet the goal?

A. Yes

B. No

---

**Answer: A**

---

Explanation:

---

### **Question: 121**

---

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 the deployment of resources in Azure.

You plan to use templates to customize deployment options.

You need to ensure that Azure services are deployed and updated identically.

Solution: You customize the output element of the template.

Does the solution meet the goal?

A. Yes

B. No

---

**Answer: B**

---

Explanation:

---

### **Question: 122**

---

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 the deployment of resources in Azure.

You plan to use templates to customize deployment options.

You need to ensure that Azure services are deployed and updated identically.

Solution: You customize the parameters element of the template.

Does the solution meet the goal?

- A. Yes  
B. No

---

**Answer: B**

---

Explanation:

---

### Question: 123

---

#### HOTSPOT

You plan to acquire a secure connection between a data center and Azure for disaster recovery purposes. The company anticipates moving more than 5 terabytes (TB) of data during each failover instance. You have the following requirements:

- \* You must be able to monitor connection throughput and all network traffic.
- \* You must minimize the time it takes to transfer data after a failover.

You need to recommend the correct configuration.

What should you recommend? To answer, select the appropriate connection and routing gateway from the lists on the answer area.

### Answer Area

Connection
point-to-site VPN
site-to-site VPN
ExpressRoute

Routing gateway
static
dynamic
dedicated

---

**Answer:**

---

### Answer Area

Connection
point-to-site VPN
site-to-site VPN
ExpressRoute

Routing gateway
static
dynamic
dedicated

**Question: 124****DRAG DROP**

You are developing an ASP.NET Web API that you will host by using the Open Web Interface for .NET (OWIN) libraries. The API is used by an ASP.NET MVC Web App that is hosted in Azure.

You need to secure the API by using Azure Active Directory (Azure AD) B2C.

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.

**Actions**

Create an Azure AD B2C tenant.

Install the OWIN OAuth authentication pipeline and enter your B2C details.

Add an OWIN startup class, configure OAuth 2.0 authentication, and secure controllers with the Authorize attribute.

Register the application with Azure AD B2C.

Create policies to support the consumer identity experiences.

**Answer Area****Actions**

Create an Azure AD B2C tenant.

Install the OWIN OAuth authentication pipeline and enter your B2C details.

Add an OWIN startup class, configure OAuth 2.0 authentication, and secure controllers with the Authorize attribute.

Register the application with Azure AD B2C.

Create policies to support the consumer identity experiences.

**Answer Area**

Create an Azure AD B2C tenant.

Register the application with Azure AD B2C.

Create policies to support the consumer identity experiences.

Install the OWIN OAuth authentication pipeline and enter your B2C details.

Add an OWIN startup class, configure OAuth 2.0 authentication, and secure controllers with the Authorize attribute.

**Question: 125****HOTSPOT**

You are migrating an on-premises application to Azure. The application requires secure storage of database

connection strings. When the application is running locally, the connection strings are encrypted with an X509 certificate prior to being stored on disk. The X509 certificate is part of a trust chain to allow the certificate to be revoked by the Certificate Authority if a security breach is suspected.

The application must run on Azure. The X509 certificate must never be stored on disk or in RAM memory. A Certificate Authority must be able to revoke the certificate.

You need to configure Azure Key value.

How should you construct the Azure PowerShell script? To answer, select the appropriate Azure PowerShell commands in the answer area.

### **Answer Area**

```
param (
    [SecureString]$connectionString,
    [SecureString]$pfxPassword
)
New-AzureRmKeyVault -VaultName 'VT' -ResourceGroupName 'RG' -Location 'East Asia' -SKU 'Premium'
New-AzureRmKeyVault -VaultName 'VT' -ResourceGroupName 'RG' -Location 'East Asia' -EnabledForDiskEncryption

Add-AzureKeyVaultKey -VaultName 'VT' -Name 'VK' -Destination HSM -KeyFilePath 'c:\key.pfx' -KeyFilePassword $pfxPassword
Add-AzureKeyVaultKey -VaultName 'VT' -Name 'VK' -Destination Software -KeyOps @('decrypt', 'sign')

Set-AzureKeyVaultSecret -VaultName 'VT' -Name 'ConnStr' -SecretValue $connectionString
Set-AzureKeyVaultSecret -VaultName 'VT' -Name $connectionString -SecretValue $pfxPassword
```

---

### **Answer:**

### **Answer Area**

```
param (
    [SecureString]$connectionString,
    [SecureString]$pfxPassword
)
New-AzureRmKeyVault -VaultName 'VT' -ResourceGroupName 'RG' -Location 'East Asia' -SKU 'Premium'
New-AzureRmKeyVault -VaultName 'VT' -ResourceGroupName 'RG' -Location 'East Asia' -EnabledForDiskEncryption

Add-AzureKeyVaultKey -VaultName 'VT' -Name 'VK' -Destination HSM -KeyFilePath 'c:\key.pfx' -KeyFilePassword $pfxPassword
Add-AzureKeyVaultKey -VaultName 'VT' -Name 'VK' -Destination Software -KeyOps @('decrypt', 'sign')

Set-AzureKeyVaultSecret -VaultName 'VT' -Name 'ConnStr' -SecretValue $connectionString
Set-AzureKeyVaultSecret -VaultName 'VT' -Name $connectionString -SecretValue $pfxPassword
```

---

### **Question: 126**

#### **HOTSPOT**

You have an on-premises Active Directory Domain Services domain. You are considering moving your infrastructure to Azure Active Directory.

You need to describe the features that each directory service provides.

For each feature, what should you implement? To answer, select the appropriate option from each list in the answer area.

**Answer Area**

Feature	Active Directory Domain Services	Azure Active Directory
Query the directory	LDAP Graph API	LDAP Graph API
Authentication	SAML, WS-Federation, OAuth, and Kerberos Kerberos only	SAML, WS-Federation, OAuth, and Kerberos Kerberos only

**Answer:****Answer Area**

Feature	Active Directory Domain Services	Azure Active Directory
Query the directory	LDAP Graph API	LDAP Graph API
Authentication	SAML, WS-Federation, OAuth, and Kerberos Kerberos only	SAML, WS-Federation, OAuth, and Kerberos Kerberos only

**Question: 127****HOTSPOT**

Your company plans to migrate its on-premises Microsoft SQL Server databases to Azure. You are considering using SQL Server 2014 on Azure virtual machines and Azure SQL Database. The planned migration must support the following data security features:

- \* Database-level firewall rules
- \* Dynamic Data Masking
- \* Transparent data encryption (TDE)

You need to identify the data security features supported by each product.

Which feature should you identify? To answer, select the appropriate options in the answer area.

## Answer Area

Database-level firewall rules:

Only Azure SQL Database
Only SQL Server 2014 on the Azure virtual machines
Both

Dynamic Data Masking:

Only Azure SQL Database
Only SQL Server 2014 on the Azure virtual machines
Both

Transparent data encryption (TDE):

Only Azure SQL Database
Only SQL Server 2014 on the Azure virtual machines
Both

---

**Answer:**

## Answer Area

Database-level firewall rules:

Only Azure SQL Database
Only SQL Server 2014 on the Azure virtual machines
Both

Dynamic Data Masking:

Only Azure SQL Database
Only SQL Server 2014 on the Azure virtual machines
Both

Transparent data encryption (TDE):

Only Azure SQL Database
Only SQL Server 2014 on the Azure virtual machines
Both

Dynamic Data Masking is available in SQL Server 2016 (both as an Azure SQL database and SQL Server 2016 on an Azure virtual machine) but not SQL Server 2014.

---

**Question: 128**

DRAG DROP

Contoso, Ltd., uses Azure web apps for their company portal sites.

Admin users need enough access to effectively perform site monitoring or management tasks. Management

tasks do not include assigning permissions to other users.

You need to grant admin access to a group of 10 users.

How should you configure the connection? To answer, drag the role or object to the correct connection setting. Each item 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.

### Connection Settings

Contributor
Reader
Web app
Azure Active Directory
Active Directory Domain Services

### Answer Area

Connection Setting	Role or Object
Role	Connection Setting
Resource	Connection Setting
Provider	Connection Setting

### Connection Settings

Contributor
Reader
Web app
Azure Active Directory
Active Directory Domain Services

### Answer Area

Connection Setting	Role or Object
Role	Contributor
Resource	Web app
Provider	Azure Active Directory

### Answer:

### Question: 129

A company uses Azure to host all resources and uses Microsoft Visual Studio Team Services to manage product life cycles.

You need to ensure the team can start runbooks from Visual Studio Team Services.

Which solution should you use?

- A. Azure Portal
- B. Hybrid Runbook Workers

- C. Azure Automation API
- D. Schedule
- E. Webhook

---

**Answer: E**

Explanation:

References:

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

---

### **Question: 130**

You are planning an application to run on Azure virtual machines (VMs). The VMs will be backed up using Azure Backup.

The application maintains its state in three binary files stored on disk. Changes in application state require that all three files be updated on disk. If only one or two of the files are updated on disk, work is lost and the system is in an inconsistent state.

You need to ensure that when a backup occurs, the application's data is always in a consistent state.

What should you do?

- A. Disable caching for the VMs virtual hard disks.
- B. Use Premium Storage for the VMs virtual hard disks.
- C. Implement the Volume Shadow Copy Service (VSS) API in the application.
- D. Store the application files on an Azure File Service network share.

---

**Answer: C**

Explanation:

---

### **Question: 131**

**DRAG DROP**

You are designing the deployment of Azure Site Recovery with Hyper-V Replic

a. The environment does not have System Center Virtual Machine Manager (VMM) deployed.

You need to instruct an implementation team to prepare the Azure environment for deployment.

Which three actions should you recommend to 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.

**Actions**

Create a Hyper-V failover cluster.

Define the source and target replicas.

Create an Azure Recovery Services vault.

Install System Center VMM.

Enable replication for the virtual machines (VMs).

**Answer Area****Answer:****Actions**

Create a Hyper-V failover cluster.

Define the source and target replicas.

Create an Azure Recovery Services vault.

Install System Center VMM.

Enable replication for the virtual machines (VMs).

**Answer Area**

Create an Azure Recovery Services vault.

Enable replication for the virtual machines (VMs).

**Question: 132**

You are designing a web app deployment in Azure.

You need to ensure that inbound requests to the web app are routed based on the endpoint that has the lowest latency.

What should you use?

- A. Azure health probes

- B. Azure Fabric Controller
- C. Azure Load Balancer
- D. Azure Traffic Manager

---

**Answer: D**

Explanation:

---

### **Question: 133**

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. Microsoft Azure Pack
- B. Service Management Automation
- C. System Center 2016 Orchestrator
- D. Azure Automation

---

**Answer: D**

Explanation:

---

### **Question: 134**

#### **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.

a. 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.

**Storage option**

Queue storage

Blob storage

Premium storage

Table storage

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**

Storage option

Storage option

Storage option

Storage option

Storage option

**Answer:****Storage option**

Queue storage

Blob storage

Premium storage

Table storage

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**

Blob storage

Table storage

Queue storage

File storage

Blob storage

References:

<https://docs.microsoft.com/en-us/azure/storage/storage-introduction>**Question: 135**

DRAG DROP

You are designing the deployment for Linux virtual machines (VMs) in Azure. The VMs will be used for a

web app that will run in Azure.

The web app must be able to run Bash scripts on demand. Parallel workloads must also be set to scale automatically based on use.

You need to design the environment for the Bash scripts and parallel workloads.

Which processing type should you use for each component? To answer, drag the appropriate processing types to the correct components. Each processing 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.

### Processing types

Azure Batch

Azure WebJobs

Azure Functions

Azure Scheduler

### Answer Area

#### Component

Bash scripts

Parallel workloads

#### Processing type

Processing type

Processing type

---

**Answer:**

---

### Processing types

Azure Batch

Azure WebJobs

Azure Functions

Azure Scheduler

### Answer Area

#### Component

Bash scripts

Parallel workloads

#### Processing type

Azure WebJobs

Azure Batch

---

**Question: 136**

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HOTSPOT

## **Case Study**

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### **To start the case study**

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### **Background**

#### **General**

Trey Research is the global leader in analytical data collection and research. Trey Research houses its servers in a highly secure server environment. The company has continuous monitoring, surveillance, and support to prevent unauthorized access and data security.

The company uses advanced security measures including firewalls, security guards, and surveillance to ensure the continued service and protection of data from natural disaster, intruders, and disruptive events.

Trey Research has recently expanded its operations into the cloud by using Microsoft Azure. The company creates an Azure virtual network and a Virtual Machine (VM) for moving on-premises Subversion repositories to the cloud. Employees access Trey Research applications hosted on-premises and in the cloud by using credentials stored on-premises.

### **Applications**

Trey Research hosts two mobile apps on Azure, DataViewer and DataManager. The company uses Azure-hosted web apps for internal and external users. Federated partners of Trey Research have a single sign-on (SSO) experience with the DataViewer application.

### **Architecture**

You have an Azure Virtual Network (VNET) named TREYRESEARCH\_VNET. The VNET includes all hosted VMs. The virtual network includes a subnet Frontend and a subnet named RepoBackend. A resource group has been created to contain the TREYRESEARCH\_VNET, DataManager and DataViewer. You manage VMs by using System Center VM Manager (SCVMM). Data for specific high security projects and clients are hosted on-premises. Data for other projects and clients are hosted in the cloud.

### **Azure Administration**

User Tier	Role
Tier 1	Manages everything, including resources.
Tier 2	Manages virtual machines, without access to them or their virtual networks and storage accounts.
Tier 3	Manages websites, without access to them.
Tier 4	Access Control.

## DataManager

The DataManager app connects to a RESTful service. It allows users to retrieve, update, and delete Trey Research data.

### Requirements

#### General

You have the following general requirements:

#### Disaster recovery

Disaster recovery and business continuity plans must use a single, integrated service that supports the following features:

#### Security

You identify the following security requirements:

#### Subversion server

#### Subversion Server Sheet

TREYRESEARCH\_SVN\_VM

Azure Virtual Machine – Window Server Technical Preview 2016

Installed SVN Server

Outbound TCP 8443

Resource group – TREYRESEARCHVM\_RG

Location – West US

Computer name – TREYRESEARCHSVNVM

User name – admin

Size – Standard A2

Disk type – Standard

Storage account – (new) TREYRESEARCHstore

Virtual network – TREY RESEARCH\_VNET

Subnet – RepoBackend (10.0.2.0/24)

Public IP address – (new) TREYRESEARCHSVNVM

Network security group – (new) TREYRESEARCHSVNVM

Availability set – None

Diagnostics – Enabled

Diagnostics storage account – (new) TREYRESEARCHstore

You need to enforce the security requirements for all subversion servers.

How should you configure network security? To answer, select the appropriate answer from each list in the

answer area.

## Answer Area

Question	Answer
Which Network Security Group will be applied to TREYRESEARCH SVN VM?	the default Network Security Group created with the VM a new Network Security Group
Which association will the Network Security Group have?	virtual machine Network Interface Card subnet

---

**Answer:**

---

## Answer Area

Question	Answer
Which Network Security Group will be applied to TREYRESEARCH SVN VM?	the default Network Security Group created with the VM a new Network Security Group
Which association will the Network Security Group have?	virtual machine Network Interface Card subnet

/ You host multiple subversion (SVN) repositories in the RepoBackend subnet. The SVN servers on this subnet must use inbound and outbound TCP at port 8443.

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### Question: 137

#### Case Study

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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 that Woodgrove Bank is using. 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 regulations 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 (ADDS). 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.

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 modeling 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 features run 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:

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:

#### **WGBCreditCruncher app**

The app must:

Key security area

Name	Description
Area 1	Uses Role-Based Access Control (RBAC)
Area 2	Uses Azure Monitoring Agent (ASMAgentLauncher.exe) and the Azure Security Monitoring extension (ASMMonitoringAgent.exe) and is a main cost of Azure Security Center
Area 3	Customizes your company's security requirements and the type of apps of sensitivity of the data. Propagates to all resource groups within the Azure subscription
Area 4	Allows you to detect, assess, and diagnose attacks
Area 5	Prevents and detects future security changes. Changes to the environment are automatically enabled as resources are added

You need to run the script for a new release.

Which technology should you use?

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

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**Answer: B**

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Explanation:

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### **Question: 138**

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**DRAG DROP**

**Case Study**

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### Overview

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### Security

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Woodgrove Bank has several apps with regulates 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 (ADDS). 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.

### 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.

#### **WGCreditCruncher 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 modeling feature that they can include in the WGCreditCruncher 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 features run 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**

#### **WGLoanMaster 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:

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:

#### **WGCreditCruncher app**

The app must:

Key security area

<b>Name</b>	<b>Description</b>
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Area 5	Prevents and detects future security changes. Changes to the environment are automatically enabled as resources are added

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.

## 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

---

**Answer:**

## 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 WebJob

Azure Scheduler

Azure Batch

---

**Question: 139**

DRAG DROP

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#### **Technical Requirements**

##### **WGBLoanMaster app**

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##### **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:

##### **WGBCreditCruncher app**

The app must:

Key security area

Name	Description
Area 1	Uses Role-Based Access Control (RBAC)
Area 2	Uses Azure Monitoring Agent (ASMAgentLauncher.exe) and the Azure Security Monitoring extension (ASMMonitoringAgent.exe) and is a main cost of Azure Security Center
Area 3	Customizes your company's security requirements and the type of apps of sensitivity of the data. Propagates to all resource groups within the Azure subscription
Area 4	Allows you to detect, assess, and diagnose attacks
Area 5	Prevents and detects future security changes. Changes to the environment are automatically enabled as resources are added

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.

### Prevention policies

- next generation firewall
- vulnerability assessment
- SQL transparent data encryption
- network security groups (NSGs)
- disk encryption
- web application firewall (WAF)

### Answer Area

App	Policy
LoanMaster	Prevention policy
LeaseLeader	Prevention policy
CreditCruncher	Prevention policy

---

**Answer:**

### Prevention policies

- next generation firewall
- vulnerability assessment
- SQL transparent data encryption
- network security groups (NSGs)
- disk encryption
- web application firewall (WAF)

### Answer Area

App	Policy
LoanMaster	network security groups (NSGs)
LeaseLeader	SQL transparent data encryption
CreditCruncher	next generation firewall

---

## **Question: 140**

### **Case Study**

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

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

At the end of this case study, a review screen will appear. This screen allows you to review your answers and to make changes before you move to the next sections 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 on 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**

##### **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 that Woodgrove Bank is using. 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 regulates 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 (ADDS). The company depends on following mission-critical apps: WGBLoanMaster, WGBLeaseLeader, and WGCreditCruncher 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.

#### **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 modeling 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 features run 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:

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:

##### **WGBCreditCruncher app**

The app must:

Key security area

Name	Description
Area 1	Uses Role-Based Access Control (RBAC)
Area 2	Uses Azure Monitoring Agent (ASMAgentLauncher.exe) and the Azure Security Monitoring extension (ASMMonitoringAgent.exe) and is a main cost of Azure Security Center
Area 3	Customizes your company's security requirements and the type of apps of sensitivity of the data. Propagates to all resource groups within the Azure subscription
Area 4	Allows you to detect, assess, and diagnose attacks
Area 5	Prevents and detects future security changes. Changes to the environment are automatically enabled as resources are added

You need to recommend a business continuity and disaster recovery solution for all of the existing line of business applications.

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

- A. Create new virtual machines (VMs) in Azure and migrate the line of business applications to the VMs. Migrate any backend databases to SQL Database.
- B. Migrate the virtual machines to the Hyper-V cluster and enable Hyper-V replica.
- C. Configure ExpressRoute to enable migration to Azure.
- D. Install the Azure Backup agent on the virtual machines.

---

**Answer: A,B**

---

Explanation:

References:

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

---

### Question: 141

---

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 sections, 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 File Storage in the design.

Does the solution meet the goal?

- A. Yes  
B. No

---

**Answer: B**

Explanation:

---

**Question: 142**

**DRAG DROP**

You are migrating a company's infrastructure to Azure.

You need to implement all required services.

For each solution, which object or service should you implement? To answer, drag the appropriate Azure object or service to the correct solution. Each service may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content

<b>Objects and Services</b>	<b>Answer Area</b>
Azure Active Directory	
Virtual Machine	
Virtual Interface Card	
Security Center	
API Management	
Virtual Network	
Network Security Group	
<b>Solution</b>	<b>Object or service</b>
Allows the creation of a perimeter network	object or service
Identity solution for cloud resources	object or service
Firewall restrictions for Azure resources	object or service
Identity solution for on-premises resources	object or service

---

**Answer:**

**Objects and Services**

Azure Active Directory

Virtual Machine

Virtual Interface Card

Security Center

API Management

Virtual Network

Network Security Group

**Answer Area****Solution**

Allows the creation of a perimeter network

Identity solution for cloud resources

Firewall restrictions for Azure resources

Identity solution for on-premises resources

**Object or service**

Virtual Network

Azure Active Directory

Network Security Group

Azure Active Directory

**Question: 143**

Your company has a hybrid solution for development and production. You have an Azure virtual network that includes the following subnets:

Subnet	Location	Description
SN_01256	on-premises	RESTful services that provide data for other resources on subnet SN_01256
SN_01257	Azure virtual machines	RESTful services that provide data to public-facing and private-facing Azure Web Apps

You synchronize an on-premises Active Directory farm by using Azure Active Directory Connect. Employees sign in to company facing Web Apps with their on-premises active directory passwords. You need to allow traffic to RESTful services that require it.

Which Azure service should you implement?

- A. Active Directory
- B. Security Center
- C. Active Directory Federation Services
- D. Network Security Groups
- E. Windows Server Firewall

**Answer: D**

Explanation:

**Question: 144**

You are developing a web application that connects to an existing virtual network. The web application needs to access a database that runs on a virtual machine.

In the Azure portal, you use the virtual network integration user interface to select from a list of virtual networks. The virtual network that the web application needs to connect to is not selectable. You need to update the existing virtual network so you can connect to it. What should you do?

- A. Enable ExpressRoute.
- B. Enable site-to-site VPN.
- C. Enable point-to-site VPN with a dynamic routing gateway.
- D. Enable point-to-site VPN with a static routing gateway.

---

**Answer: B**

---

Explanation:

---

### **Question: 145**

---

You manage a hybrid environment for a company. The company plans to manage the environment by using Microsoft System Center 2012 R2.

You need to deploy the correct component to enable management across the environment. Which component should you deploy?

- A. Windows Azure SQL Database Management Pack
- B. System Center Management Pack for Windows Azure Pack
- C. Cross Platform Audit Collection Services Management Pack
- D. System Center Management Pack for Windows Server Cluster

---

**Answer: B**

---

Explanation:

---

### **Question: 146**

---

#### **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.
  - a. App1 must store data on 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.

### Storage solutions

- Azure Blob Storage
- Azure Data Lake Store
- Azure Site Recovery
- Azure File Storage
- Azure StorSimple virtual device

### Answer Area

App	Storage solution
App1	Storage solution
App2	Storage solution
...	...
...	...

---

**Answer:**

---

### Storage solutions

- Azure Blob Storage
- Azure Data Lake Store
- Azure Site Recovery
- Azure File Storage
- Azure StorSimple virtual device

### Answer Area

App	Storage solution
App1	Azure Data Lake Store
App2	Azure Blob Storage
...	...
...	...

---

**Question: 147**

---

You administer an application that has an Azure Active Directory (Azure AD) B2C tenant named contosob2c.onmicrosoft.com.

Users must be able to use their existing Facebook account to sign in to the application.

You need to register Facebook with your Azure AD B2C tenant.

What should you do?

- A. a sign-up policy
- B. a custom user attribute
- C. a local account
- D. a built-in user attribute
- E. an identity provider

---

**Answer: E**

Explanation:

---

**Question: 148**

You are building an Azure Web App that uses Azure Active Directory B2C for identity. The app will use social providers such as Facebook, Microsoft Account, and LinkedIn. The Web App has a customized home page that is based on the user's name. The Web App does not function if the user's name cannot be retrieved. You need to retrieve the user's name and email address when they authenticate with one of the supported identity providers.

What should you do?

- A. Perform a Graph API query of the identity provider.
- B. Query the underlying Active Directory provided by Azure Active Directory.
- C. Retrieve the values from the Scope of the authentication request.
- D. Inspect the Claims in the authorization token.

---

**Answer: D**

Explanation:

---

**Question: 149**

You are designing an Azure Web App.

All users must authenticate by using Active Directory Domain Services (AD DS) credentials.

You need to recommend an approach to enable single sign-on to the application for domain-authenticated users.

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

- A. Use Forms authentication to generate claims.
- B. Use the SQL membership provider in the web application.
- C. Use the Azure AD Authentication library in the web application
- D. Use Active Directory Federation Services (AD FS) to generate claims.

---

**Answer: C,D**

Explanation:

---

**Question: 150**

You are responsible for mobile app development for a company. The company develops apps on Windows

Phone, 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.

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

---

**Answer: A,C**

---

Explanation:

---

### Question: 151

---

HOTSPOT

You are reviewing an Azure Resource Manager (ARM) template that is used to deploy a Web App to multiple regions. The template contains the following JSON code:

```
{  
    "$schema": "http://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",  
    "contentVersion": "1.0.0.0",  
    "parameters": {  
        "siteLocations": {  
            "type": "array",  
            "defaultValue": [  
                "West Europe", "East US", "West US"  
            ]  
        }  
    },  
    "resources": [  
        {  
            "apiVersion": "2014-06-01",  
            "name": "[concat('site',copyIndex())]",  
            "type": "Microsoft.Web/sites",  
            "location": "parameters('siteLocations')[mod(copyIndex(),3)]",  
            "properties": {  
                "name": "[concat('site',copyIndex())]",  
            },  
            "copy": {  
                "name": "siteCopy",  
                "count": "[mul(length(parameters('siteLocations')),4)]"  
            }  
        }  
    ]  
}
```

How should you implement the deployment configuration? To answer, select the appropriate option in the answer area.

## Answer Area

To how many regions will the Web App be deployed?

9
12
15
81

To which region will two sites named Site5 and Site8 be deployed?

West Europe
East US
West US

---

**Answer:**

---

## Answer Area

To how many regions will the Web App be deployed?

9
12
15
81

To which region will two sites named Site5 and Site8 be deployed?

West Europe
East US
West US

---

## Question: 152

You are designing a Windows Azure application. The application includes processes that communicate by using Windows Communications Foundation (WCF) services. The WCF services must support streaming. You need to recommend a host for the processes and a WCF binding. Which two actions should you recommend? (Each correct answer presents part of the solution. Choose two.)

- A. Host the processes in web roles.
- B. Host the processes in worker roles.
- C. Use NetTcpBinding for the WCF services.
- D. Use WSHttpBinding for the WCF services.

---

**Answer: B,C**

---

Explanation:

References:

<http://www.biztalkgurus.com/blogs/msft-biztalk-community/wcf-nettcprelaybinding-streaming-gotcha>

---

### **Question: 153**

You are designing a Windows Azure application. Messages will be placed into a Windows Azure Queue and then processed by a worker role. There is no requirement for adherence to the Windows Azure Service Level Agreement (SLA).

You need to recommend an approach for concurrently processing messages while minimizing compute cost. What should you recommend?

- A. A single role instance that processes messages individually
- B. A single role instance with multithreaded request processing
- C. Multiple role instances that process messages individually
- D. Multiple role instances, each with multithreaded request processing

---

### **Answer: B**

Explanation:

Threads: When the request for the background work comes in, the web role starts as many threads as necessary (or queues the individual work items to the thread pool). In this option, we would configure a larger instance during the heavy workload, because these threads could require a lot of memory.

Incorrect:

Not C, not D: SLA would require multiple role instances.

References:

<https://stackoverflow.com/questions/12891678/orchestrating-a-windows-azure-web-role-to-cope-with-occasional-high-workload>

---

### **Question: 154**

You are designing a Windows Azure application that will use a worker role. The worker role will create temporary files. You need to recommend an approach for creating the temporary files that minimizes storage transactions.

What should you recommend?

- A. Create the files on a Windows Azure Drive.
- B. Create the files in Windows Azure local storage.
- C. Create the files in Windows Azure Storage page blobs.
- D. Create the files in Windows Azure Storage block blobs.

---

### **Answer: B**

Explanation:

A local storage resource is a reserved directory in the file system of the virtual machine in which an instance of a role is running. Code running in the instance can write to the local storage resource when it needs to write to or read from a file. For example, a local storage resource can be used to cache data that may need to be accessed again while the service is running in Windows Azure.

References:

<https://docs.microsoft.com/en-us/azure/vs-azure-tools-configure-roles-for-cloud-service>

---

### **Question: 155**

You are designing a Windows Azure application that will use Windows Azure Table storage. The application will allow teams of users to collaborate on projects. Each user is a member of only one team. You have the following requirements:

- Ensure that each user can efficiently query records related to his or her team's projects.
- Minimize data access latency.

You need to recommend an approach for partitioning table storage entities. What should you recommend?

- A. Partition by user
- B. Partition by team
- C. Partition by project
- D. Partition by the current date

---

### **Answer: B**

Explanation:

Partitions represent a collection of entities with the same PartitionKey values. Partitions are always served from one partition server and each partition server can serve one or more partitions. A partition server has a rate limit of the number of entities it can serve from one partition over time.

References:

<https://docs.microsoft.com/en-us/rest/api/storageservices/Designing-a-Scalable-Partitioning-Strategy-for-Azure-Table-Storage?redirectedfrom=MSDN>

---

### **Question: 156**

You are designing a Windows Azure application that will store data in two SQL Azure databases. The application will insert data in both databases as part of a single logical operation.

You need to recommend an approach for maintaining data consistency across the databases. What should you recommend?

- A. Execute database calls on parallel threads
- B. Wrap the database calls in a single transaction scope.
- C. Use Microsoft Distributed Transaction Coordinator (MSDTC).
- D. Handle errors resulting from the database calls by using compensatory logic.

---

**Answer: B**

Explanation:

The TransactionScope class establishes an ambient transaction in .NET. (An “ambient transaction” is one that lives in the current thread.) All connections opened within the TransactionScope participate in the transaction. If different databases participate, the transaction is automatically elevated to a distributed transaction. The outcome of the transaction is controlled by setting the scope to complete to indicate a commit.

Note: Elastic database transactions for SQL DB enable applications to make atomic changes to data stored in several different SQL Databases.

Elastic database transactions targets the following scenarios:

\* Multi-database applications in Azure: With this scenario, data is vertically partitioned across several databases in SQL DB such that different kinds of data reside on different databases. Some operations require changes to data which is kept in two or more databases. The application uses elastic database transactions to coordinate the changes across databases and ensure atomicity.

Etc.

References:

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

---

**Question: 157**

You are designing a plan for testing a Windows Azure service. The service runs in the development fabric but fails on Windows Azure.

You need to recommend an approach for identifying errors that occur when the service runs on Windows Azure. What should you recommend?

- A. Attach a debugger to the Windows Azure role instance.
- B. Analyze debugging information captured by Windows Azure Diagnostics.
- C. Modify the service configuration for the Windows Azure role to access development storage.
- D. Analyze debugging information written to the output window of the Windows Azure role instance.

---

**Answer: B**

Explanation:

You can use Azure Diagnostics to log detailed information from code running within roles, whether the roles are running in the development environment or in Azure.

References:

<https://docs.microsoft.com/en-us/azure/vs-azure-tools-debugging-cloud-services-overview>

---

**Question: 158**

You are designing a plan to migrate an existing application to Windows Azure. The application currently

resides on a server that has 20 GB of hard disk space.

You need to recommend the smallest compute instance size that provides local storage equivalent to that of the existing server. Which size should you recommend?

- A. ExtraSmall
- B. ExtraLarge
- C. Small
- D. Large

---

**Answer: A**

---

**Explanation:**

ExtraSmall provides the required 20 GB of hard disk space.

**References:**

<https://docs.microsoft.com/en-us/azure/cloud-services/cloud-services-sizes-specs>

---

### **Question: 159**

---

You manage an Azure virtual network that hosts 15 virtual machines (VMs) on a single subnet, which is used for testing a line of business (LOB) application.

The application is deployed to a VM named TestWebServiceVM. You need to ensure that TestWebServiceVM always starts by using the same IP address.

You need to achieve this goal by using the least amount of administrative effort. What should you do?

- A. Use the Management Portal to configure TestWebServiceVM
- B. Use RDP to configure TestWebServiceVM.
- C. Run the Set-AzureStaticVNetIP PowerShell cmdlet.
- D. Run the Get-AzureReservedIP PowerShell cmdlet.

---

**Answer: C**

---

**Explanation:**

The Set-AzureStaticVNetIP cmdlet sets the static virtual network (VNet) IP address information for a virtual machine object.

**References:**

<https://docs.microsoft.com/en-us/powershell/module/azure/set-azurestaticvnetip?view=azuresmps-4.0.0>

---

### **Question: 160**

---

You administer of a set of virtual machine (VM) guests hosted in Hyper-V on Windows Server 2012 R2. The virtual machines run the following operating systems:

- \* Windows Server 2008
- \* Windows Server 2008 R2

\* Linux (openSUSE 13.1)

All guests currently are provisioned with one or more network interfaces with static bindings and VHDX disks. You need to move the VMs to Azure Virtual Machines hosted in an Azure subscription. Which three actions should you perform?

Each correct answer presents part of the solution.

- A. Install the WALinuxAgent on Linux servers.
- B. Ensure that all servers can acquire an IP by means of Dynamic Host Configuration Protocol (DHCP).
- C. Upgrade all Windows VMs to Windows Server 2008 R2 or higher.
- D. Sysprep all Windows servers
- E. Convert the existing virtual disks to the virtual hard disk (VHD) format.

---

**Answer: A,B,E**

---

Explanation:

The Azure Linux Agent is installed on the Linux VM and is responsible to communicate with the Azure Fabric Controller.

It is a prerequisite that the Virtual Machines can receive ip addresses from DHCP.

Azure does not use VHDX, only VHD. We are required to convert VHDX to VHD.

---

### **Question: 161**

---

A company creates an API and makes it accessible on an Azure website. External partners use the API occasionally. The website uses the Standard web hosting plan.

Partners report that the first API call in a sequence of API calls occasionally takes longer than expected to run. Subsequent API calls consistently perform as expected.

You need to ensure that all API calls perform consistently. What should you do?

- A. Configure the website to use the Basic web hosting plan
- B. Enable Always On support.
- C. Configure the website to automatically scale.
- D. Add a trigger to the web.config file for the website that causes the website to recycle periodically.

---

**Answer: B**

---

Explanation:

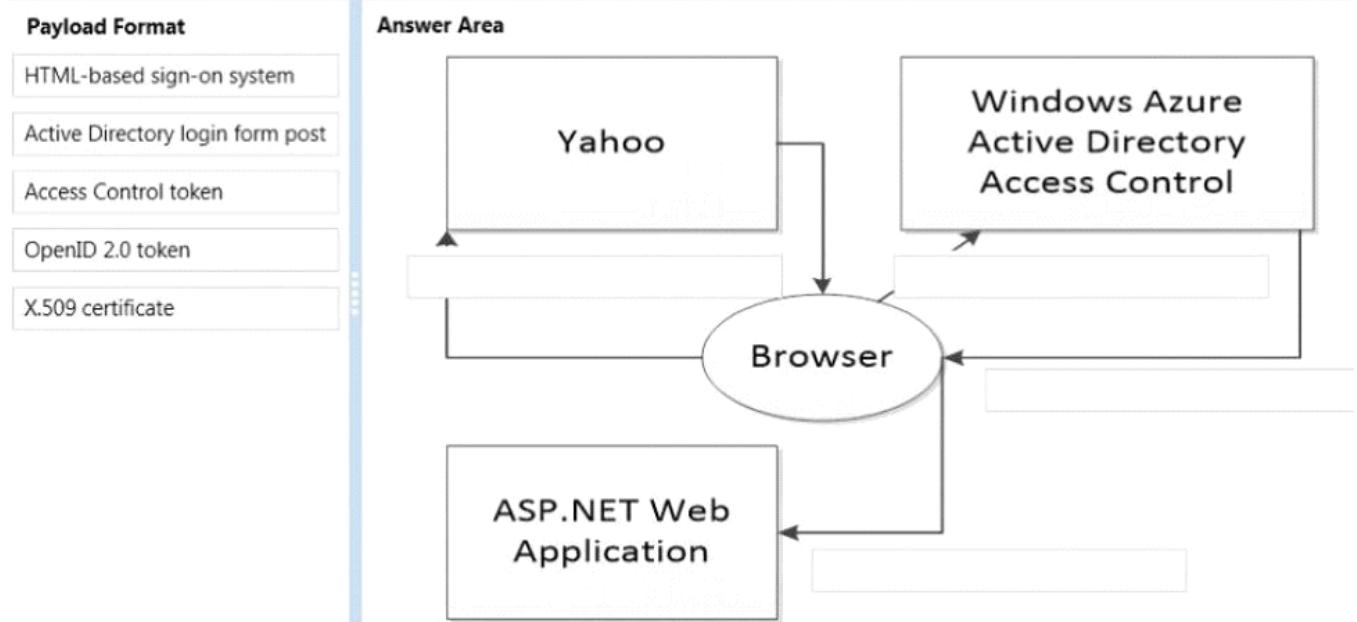
By default, web apps are unloaded if they are idle for some period of time. This lets the system conserve resources. In Basic or Standard mode, you can enable Always On to keep the app loaded all the time. If your app runs continuous WebJobs or runs WebJobs triggered using a CRON expression, you should enable Always On, or the web jobs may not run reliably.

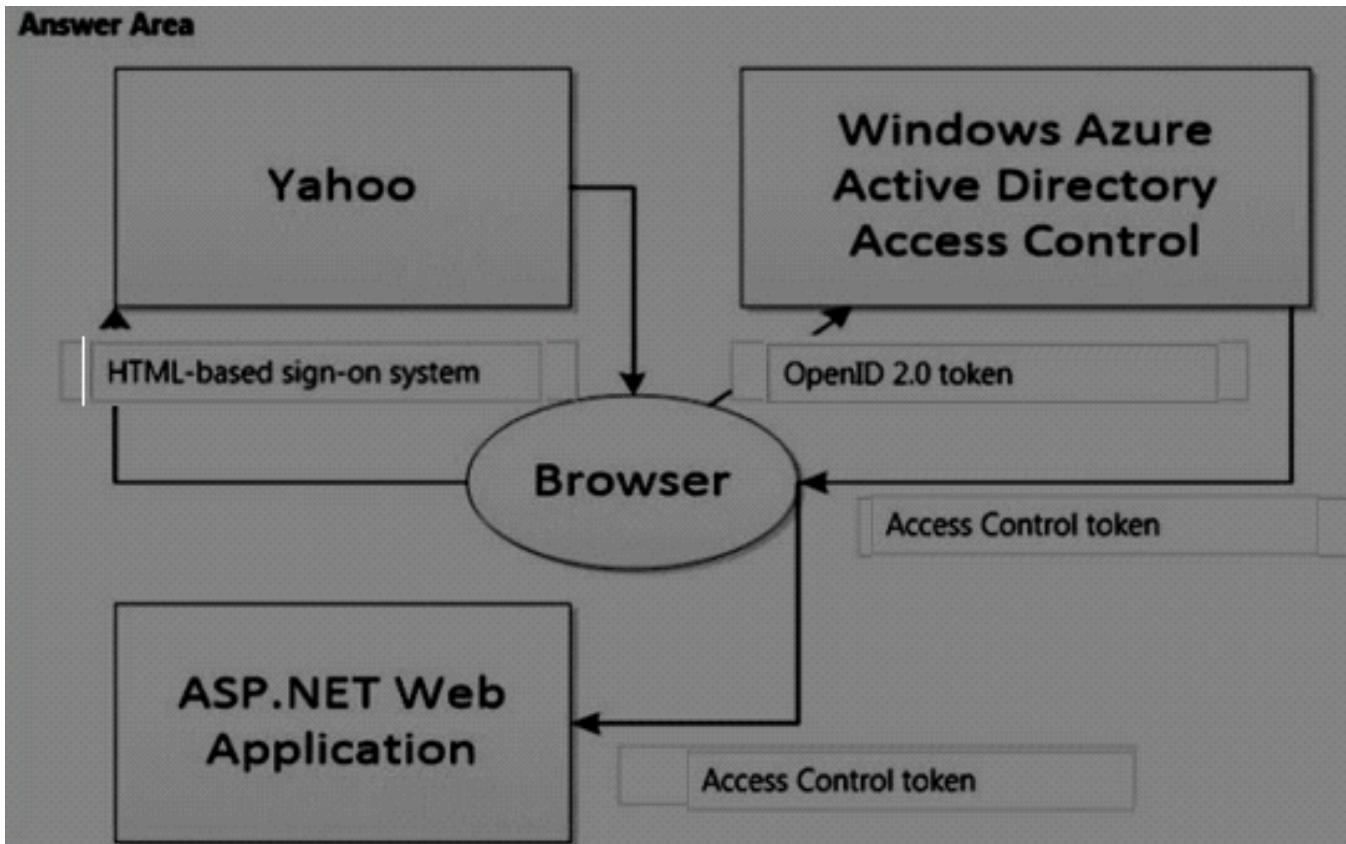
References:

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

**Question: 162****DRAG DROP**

You are converting an existing ASP.NET web application to use the Azure Active Directory (AD) Access Control service for authentication. The application will authenticate users by using their Yahoo account credentials. You need to determine the correct payload for each stage of the authentication process. What should you do? To answer, drag the appropriate payload format to the correct location on the dialog box. Each payload format 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.

**Answer:**



Azure AD can support password-based single sign on for any cloud-based app that has an HTML-based sign-in page. By using a custom browser plugin, AAD automates the user's sign in process via securely retrieving application credentials such as the username and the password from the directory, and enters these credentials into the application's sign in page on behalf of the user.

Microsoft Azure Active Directory Access Control (also known as Access Control Service or ACS) supports federation with Yahoo! as an identity provider using the OpenID 2.0 authentication protocol.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/active-directory-appssoaccess-whatis>

<https://msdn.microsoft.com/en-us/library/azure/gg185921.aspx>

### Question: 163

#### HOTSPOT

You have a cloud service that runs an external process that is named MyStartupTask.cmd. The cloud service runs this external process when the web role starts. The external process writes information to the Windows registry.

You set the value of an environment variable named MyID to the deployment ID for the current web role instance. The external process must complete writing the information to the Windows registry before the web role starts to accept web traffic.

You need to configure the cloud service. How should you complete the relevant markup? To answer, select the appropriate option or options in the answer area.

**Answer Area**

```

<Startup>
  <Task commandLine="MyStartupTask.cmd"
        executionContext="elevated" taskType="simple"
        executionContext="limited" taskType="foreground"
        executionContext="elevated" taskType="foreground"
        executionContext="elevated" taskType="background">

    <Environment>
      <Variable name="MyId">
        <RoleInstanceValue xpath="/RoleEnvironment/Deployment/@id"/>
        <RoleInstanceValue xpath="/DeploymentId"/>
        <RoleEnvironment.DeploymentId></value>
        <value>@DeploymentId</value>
      </Variable>
    </Environment>
  </Task>
</Startup>

```

**Answer:****Answer Area**

```

<Startup>
  <Task commandLine="MyStartupTask.cmd"
        executionContext="elevated" taskType="simple"
        executionContext="limited" taskType="foreground"
        executionContext="elevated" taskType="foreground"
        executionContext="elevated" taskType="background">

    <Environment>
      <Variable name="MyId">
        <RoleInstanceValue xpath="/RoleEnvironment/Deployment/@id"/>
        <RoleInstanceValue xpath="/DeploymentId"/>
        <RoleEnvironment.DeploymentId></value>
        <value>@DeploymentId</value>
      </Variable>
    </Environment>
  </Task>
</Startup>

```

Target 1: executionContext ="elevated" taskType="simple"

executionContext - Specifies the privilege level for the startup task. The privilege level can be limited or elevated:

Elevated: The startup task runs with administrator privileges. This allows startup tasks to install programs, make IIS configuration changes, perform registry changes, and other administrator level tasks, without increasing the privilege level of the role itself.

### Question: 164

#### HOTSPOT

You have an Azure SQL Database named Contosodb. Contosodb is running in the Standard/S2 tier and has a service level objective of 99 percent.

You review the service tiers in Microsoft Azure SQL Database as well as the results of running performance queries for the usage of the database for the past week as shown in the exhibits. (Click the Exhibits button.)

Average CPU Utilization In Percent	Maximum CPU Utilization In Percent	Average Physical Data Read Utilization In Percent	Maximum Physical Data Read Utilization In Percent	Average Log Write Utilization In Percent	Maximum Log Write Utilization In Percent
23.4	93.1	21.0	48.0	21.7	61.0

CPU Fit Percent	Log Write Fit Percent	Physical Data Read Fit Percent
99.7	99.8	99.6

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

Yes

No

The database can be moved to the Basic tier without compromising performance.



The database can be moved to the Standard/S1 tier without compromising performance.



The database must be moved to the Premium/P1 tier to satisfy the service level objective.



**Answer:**

Yes      No

The database can be moved to the Basic tier without compromising performance.



The database can be moved to the Standard/S1 tier without compromising performance.



The database must be moved to the Premium/P1 tier to satisfy the service level objective.



References:

<https://docs.microsoft.com/en-us/azure/sql-database/sql-database-service-tiers>

### Question: 165

You manage a virtual Windows Server 2012 web server that is hosted by an on-premises Windows Hyper-V server. You plan to use the virtual machine (VM) in Azure.

You need to migrate the VM to Azure Storage to add it to your repository. Which Azure Power Shell cmdlet should you use?

- A. Import-AzureVM
- B. New-AzureVM
- C. Add-AzureDisk
- D. Add-AzureWebRole
- E. Add-AzureVhd

---

**Answer: E**

---

Explanation:

The Add-AzureVhd cmdlet uploads on premise Virtual hard disk (VHD) images to a blob storage account as fixed .vhd images.

References:

<https://docs.microsoft.com/en-us/powershell/module/Azure/Add-AzureVhd?view=azuresmps-4.0.0>

---

### Question: 166

---

Your company network has two physical locations configured in a geo-clustered environment. You create a Blob storage account in Azure that contains all the data associated with your company. You need to ensure that the data remains available in the event of a site outage. Which storage option should you enable?

- A. Locally redundant storage
- B. Geo-redundant storage
- C. Zone-redundant storage
- D. Read-only geo-redundant storage

---

**Answer: D**

---

Explanation:

Read-access geo-redundant storage (RA-GRS) maximizes availability for your storage account, by providing read-only access to the data in the secondary location, in addition to the replication across two regions provided by GRS.

When you enable read-only access to your data in the secondary region, your data is available on a secondary endpoint, in addition to the primary endpoint for your storage account.

References:

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

---

**Question: 167**

---

You manage several Azure virtual machines (VMs). You create a custom image to be used by employees on the development team.

You need to ensure that the custom image is available when you deploy new servers. Which Azure Power Shell cmdlet should you use?

- A. Update-AzureVMImage
- B. Add-AzureVhd
- C. Add-AzureVMImage
- D. Update-AzureDisk
- E. Add-AzureDataDis

---

**Answer: C**

---

Explanation:

The Add-AzureVMImage cmdlet adds a new operating system image or a new virtual machine image to the image repository. The image is a generalized operating system image, using either Sysprep for Windows or, for Linux, using the appropriate tool for the distribution.

References:

<https://docs.microsoft.com/en-us/powershell/module/azure/add-azurevmimage?view=azuresmps-4.0.0>

---

**Question: 168**

---

You administer an Azure Storage account named contosostorage. The account has a blob container to store image files. A user reports being unable to access an image file.

You need to ensure that anonymous users can successfully read image files from the container.

Which log entry should you use to verify access?

- A. 1.0;2014-06-19T01:33:54.0926521Z;GetBlob;AnonymousSuccess;201;197;54;anonymous;contosostorage;contosostorage;blob;"https://contosostorage.blob.core.windows.net/images/00001.jpg";/contosostorage/images/00001.jpg";a200be85-1c98-4dd9-918ef13d8c0538e0;0;192.100.0.102:4362;2014-02-14;460;23;225;0;23;"DrP06z1f00SCsomhaf+J/A==";"DrP06z1f00SCsomhaf+J/A==";"0x8D15975AA456EA4";"Thursday, 19-Jun-14 01:33:53 GMT;";"WA-Storage/4.0.1 (.NET CLR 4.0.30319.34014; Win32NT 6.3.9600.0)";;"1fe6814a-e4cb-4195-a3cf-837dc7120f68"
  
- B. 1.0;2014-06-19T01:33:54.0926521Z;GetBlobProperties;AnonymousSuccess;201;197;54;anonymous;contosostorage;contosostorage;blob;"https://contosostorage.blob.core.windows.net/images/00001.jpg";/contosostorage/images/00001.jpg";a200be85-1c98-4dd9-918ef13d8c0538e0;0;192.100.0.102:4362;2014-02-14;460;23;225;0;23;"DrP06z1f00SCsomhaf+J/A==";"DrP06z1f00SCsomhaf+J/A==";"0x8D15975AA456EA4";"Thursday, 19-Jun-14 01:33:53 GMT;";"WA-Storage/4.0.1 (.NET CLR 4.0.30319.34014; Win32NT 6.3.9600.0)";;"1fe6814a-e4cb-4195-a3cf-837dc7120f68"
  
- C. 1.0;2014-06-19T01:33:54.0926521Z;GetBlob;Success;201;197;54;authenticated;contosostorage;contosostorage;blob;"https://contosostorage.blob.core.windows.net/images/00001.jpg";/contosostorage/images/00001.jpg";a200be85-1c98-4dd9-918ef13d8c0538e0;0;192.100.0.102:4362;2014-02-14;460;23;225;0;23;"DrP06z1f00SCsomhaf+J/A==";"DrP06z1f00SCsomhaf+J/A==";"0x8D15975AA456EA4";"Thursday, 19-Jun-14 01:33:53 GMT;";"WA-Storage/4.0.1 (.NET CLR 4.0.30319.34014; Win32NT 6.3.9600.0)";;"1fe6814a-e4cb-4195-a3cf-837dc7120f68"
  
- D. 1.0;2014-06-19T01:33:54.0926521Z;GetBlobProperties;Success;201;197;54;authenticated;contosostorage;contosostorage;blob;"https://contosostorage.blob.core.windows.net/images/00001.jpg";/contosostorage/images/00001.jpg";a200be85-1c98-4dd9-918ef13d8c0538e0;0;192.100.0.102:4362;2014-02-14;460;23;225;0;23;"DrP06z1f00SCsomhaf+J/A==";"DrP06z1f00SCsomhaf+J/A==";"0x8D15975AA456EA4";"Thursday, 19-Jun-14 01:33:53 GMT;";"WA-Storage/4.0.1 (.NET CLR 4.0.30319.34014; Win32NT 6.3.9600.0)";;"1fe6814a-e4cb-4195-a3cf-837dc7120f68"

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: A**

---

Explanation:

Option A includes AnonymousSuccess.

References:

<https://blogs.msdn.microsoft.com/windowsazurestorage/2011/08/02/windows-azure-storage-logging-using-logs-to-track-storage-requests/>

---

### **Question: 169**

You manage a software-as-a-service application named SaaSApp1 that provides user management features in a multi-directory environment. You plan to offer SaaSApp1 to other organizations that use Azure Active Directory.

You need to ensure that SaaSApp1 can access directory objects. What should you do?

- A. Configure the Federation Metadata URL
- B. Register SaaSApp1 as a native client application
- C. Register SaaSApp1 as a web application
- D. Configure the Graph API

---

**Answer: D**

Explanation:

The Azure Active Directory Graph API provides programmatic access to Azure AD through REST API endpoints. Applications can use the Graph API to perform create, read, update, and delete (CRUD) operations on directory data and objects.

References:

<http://msdn.microsoft.com/en-us/library/azure/hh974476.aspx>

---

### **Question: 170**

DRAG DROP

Drag and Drop Question

You plan to deploy a cloud service named contosoapp that has a web role named contosoweb and a worker role named contosoimagepurge. You need to ensure the service meets the following requirements:

- \* Contosoweb can be accessed over the Internet by using http.
- \* Contosoimagepurge can only be accessed through tcp port 5001 from contosoweb.
- \* Contosoimagepurge cannot be accessed directly over the Internet.

Which configuration should you use? To answer, drag the appropriate configuration setting to the correct location in the service configuration file. Each configuration setting 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.

**Configuration Settings**

```
<InputEndpoint name="Endpoint1" protocol="http" port="80" />
```

```
<InternalEndpoint name="Endpoint1" protocol="http" port="80" />
```

```
<InputEndpoint name="Endpoint1" protocol="tcp" port="5001" />
```

```
<Destinations>
  <RoleEndpoint endpointName="EndPoint1" roleName="contosoimagepurge"/>
</Destinations>
<WhenSource matches="AnyRule">
  <FromRole roleName="contosoweb"/>
</WhenSource>
```

```
<Destinations>
  <RoleEndpoint endpointName="EndPoint1" roleName="contosoimagepurge"/>
</Destinations>
<AllowAllTraffic/>
```

**Service Configuration File**

```
<ServiceDefinition name="contosoapp"
  <WebRole name="contosoweb" vmsize="Small">
```

Configuration setting

```
</Endpoints>
</WebRole>
<WorkerRole name="contosoimagepurge" vmsize="Small">
  <Endpoints>
```

Configuration setting

```
</Endpoints>
</WorkerRole>
<NetworkTrafficRules>
  <OnlyAllowTrafficTo>
```

Configuration setting

```
</OnlyAllowTrafficTo>
</NetworkTrafficRules>
</ServiceDefinition>
```

**Answer:****Configuration Settings**

```
<InternalEndpoint name="Endpoint1" protocol="http" port="80" />
```

```
<Destinations>
  <RoleEndpoint endpointName="EndPoint1" roleName="contosoimagepurge"/>
</Destinations>
<AllowAllTraffic/>
```

**Service Configuration File**

```
<ServiceDefinition name="contosoapp"
  <WebRole name="contosoweb" vmsize="Small">
```

Configuration setting

```
<InputEndpoint name="Endpoint1" protocol="http" port="80" />
```

```
</Endpoints>
</WebRole>
<WorkerRole name="contosoimagepurge" vmsize="Small">
  <Endpoints>
```

Configuration setting

```
<InputEndpoint name="Endpoint1" protocol="tcp" port="5001" />
```

```
</Endpoints>
</WorkerRole>
<NetworkTrafficRules>
  <OnlyAllowTrafficTo>
```

```
<Destinations>
  <RoleEndpoint endpointName="EndPoint1" roleName="contosoimagepurge"/>
</Destinations>
<WhenSource matches="AnyRule">
  <FromRole roleName="contosoweb"/>
</WhenSource>
```

```
</OnlyAllowTrafficTo>
</NetworkTrafficRules>
</ServiceDefinition>
```

Box 1: <InputEndpoint name="Endpoint1" protocol="http" port="80" />

Contosoweb can be accessed over the Internet by using http.

Box 2: <InputEndpoint name="Endpoint1" protocol="tcp" port="5001" />

Contosoimagepurge can only be accessed through tcp port 5001 from contosoweb.

Box 3: <RoleEndpoint endpointName="Endpoint1" roleName="contosoimagepurge"/>  
/Destinations>  
WhenSource matches="AnyRule">  
FromRole roleName="contosoweb"/>  
/WhenSource>

---

### **Question: 171**

Your company is launching a public website that allows users to stream videos. You upload multiple video files to an Azure storage container.

You need to give anonymous users read access to all of the video files in the storage container. What should you do?

- A. Edit each blob's metadata and set the access policy to Public Blob.
- B. Edit the container metadata and set the access policy to Public Container.
- C. Move the files into a container sub-directory and set the directory access level to Public Blob.
- D. Edit the container metadata and set the access policy to Public Blob.

---

### **Answer: D**

---

Explanation:

You can enable anonymous, public read access to a container and its blobs in Azure Blob storage. By doing so, you can grant read-only access to these resources without sharing your account key, and without requiring a shared access signature (SAS).

To set permissions to public read access for blobs only, set the PublicAccess property to BlobContainerPublicAccessType.Blob.

References:

<https://docs.microsoft.com/en-us/azure/storage/storage-manage-access-to-resources>

---

### **Question: 172**

**DRAG DROP**

Your development team has created a new solution that is deployed in a virtual network named fabDevVNet. Your testing team wants to begin testing the solution in a second Azure subscription.

You need to create a virtual network named fabTestVNet that is identical to fabDevVNet. You want to achieve this goal by using the least amount of administrative effort.

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

Action	Answer Area
In the Management Portal, rename the virtual network to fabTestVNet in the testing subscription.	
In the development subscription, import the network configuration.	
In the testing subscription, import the network configuration.	
In the development subscription, export the network configuration.	
Create a virtual network by using the Management Portal in the testing subscription.	
In the network configuration file, set the name attribute of the VirtualNetworkSite to fabTestVNet.	
In the testing subscription, export the network configuration.	

---

**Answer:**

---

Action	Answer Area
In the Management Portal, rename the virtual network to fabTestVNet in the testing subscription.	In the development subscription, export the network configuration.
In the development subscription, import the network configuration.	In the network configuration file, set the name attribute of the VirtualNetworkSite to fabTestVNet.
Create a virtual network by using the Management Portal in the testing subscription.	In the testing subscription, import the network configuration
In the testing subscription, export the network configuration.	

Step 1: In the development subscription, export the network configuration  
First export network configuration from the development subscription.

Step 2:

Rename the configuration file.

Step 3:

Import the network configuration.

### **Question: 173**

**DRAG DROP**

You have a solution deployed into a virtual network in Azure named fabVNet. The fabVNet virtual network has three subnets named Apps, Web, and DB that are configured as shown in the exhibit. (Click the Exhibits button.)

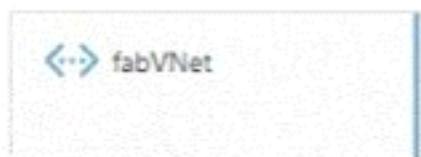
## virtual network address spaces

ADDRESS SPACE	STARTING IP	CIDR (ADDRESS COUNT)	USABLE ADDRESS RANGE
10.0.0.0/23	10.0.0.0	/23 (507)	10.0.0.4 - 10.0.1.254
<b>SUBNETS</b>			
Apps	10.0.0.0	/26 (59)	10.0.0.4 - 10.0.0.62
Web	10.0.0.64	/29 (3)	10.0.0.68 - 10.0.0.70
DB	10.0.0.72	/29 (3)	10.0.0.76 - 10.0.0.78
<b>add subnet</b>			
<b>add address space</b>			

## fabvnet

DASHBOARD   CONFIGURE   CERTIFICATES

## virtual network



## resources

NAME	ROLE	IP ADDRESS	SUBNET NAME	
fabApps1	Virtual Machine	10.0.0.4	Apps	
fabDB1	Virtual Machine	10.0.0.76	DB	
fabDB2	Virtual Machine	10.0.0.77	DB	
Svc2WebRole_IIN_0	Svc2WebRole	10.0.0.68	Web	

You want to deploy two new VMs to the DB subnet. You need to modify the virtual network to expand the size of the DB subnet to allow more IP addresses.

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

Action	Answer Area
Empty and delete the Web Subnet.	
Empty and reconfigure the DB subnet to be larger.	
Empty and delete the Virtual Network.	
Empty and reconfigure the Web subnet to be larger.	
Recreate the Virtual Network as now required.	
Create the Web subnet to be larger.	
Empty and delete the DB Subnet.	
Create the DB subnet to be larger.	

---

**Answer:**

Answer Area
Empty and delete the DB Subnet.
Create the DB subnet to be larger.
Recreate the Virtual Network as now required.

References:

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

---

**Question: 174**

Your network environment includes remote employees. You need to create a secure connection for the remote employees who require access to your Azure virtual network. What should you do?

- A. Deploy Windows Server 2012 RRAS
- B. Configure a point-to-site VPN

- C. Configure an ExpressRoute
- D. Configure a site-to-site VPN

---

**Answer: B**

---

Explanation:

Virtual Network is a service that allows you to create a private, isolated network in Windows Azure and treat it as an extension of your datacenter. You can assign private IP addresses to virtual machines inside a virtual network, specify DNS, and connect it to your on-premises infrastructure using a Cisco or Juniper hardware VPN device in a ‘site-to-site’ manner.

References:

<https://azure.microsoft.com/en-us/blog/virtual-network-adds-new-capabilities-for-cross-premises-connectivity/>

---

### Question: 175

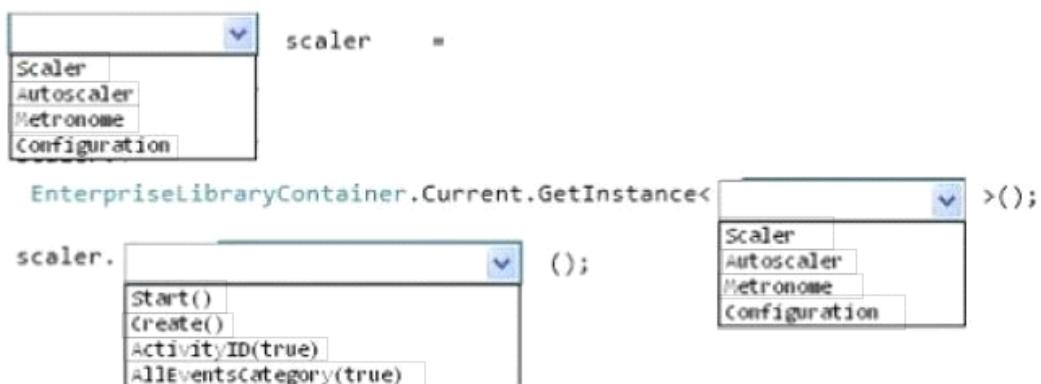
---

HOTSPOT

A company creates an Azure worker role to manage products. The number of customers who inquire about how many products are in inventory rapidly increases. You need to ensure that the worker role can scale to accommodate the increased workload.

How should you complete the relevant code? To answer, select the appropriate option or options in the answer area.

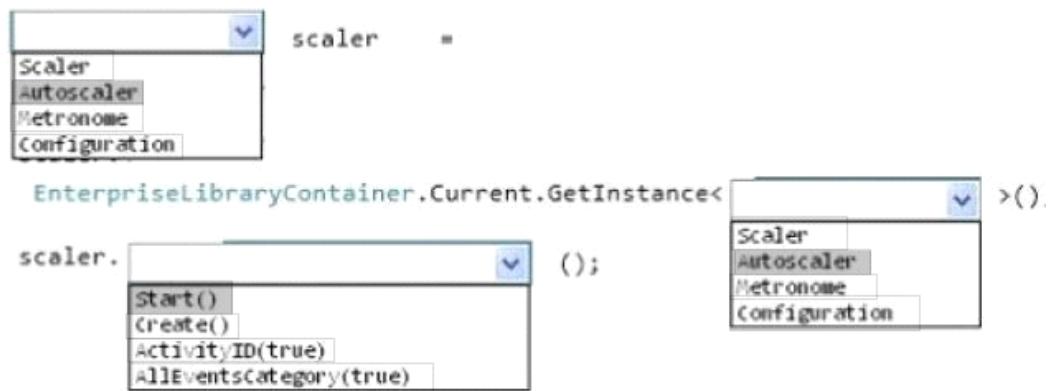
**Answer Area**




---

**Answer:**

---

**Answer Area**

Example code:

```
autoscaler =
EnterpriseLibraryContainer.Current.GetInstance<Autoscaler>();
autoscaler.Start();
```

References:

[https://msdn.microsoft.com/en-us/library/hh680914\(v=pandp.50\).aspx](https://msdn.microsoft.com/en-us/library/hh680914(v=pandp.50).aspx)

**Question: 176**

You administer an Azure Storage account with a blob container. You enable Storage account logging for read, write and delete requests. You need to reduce the costs associated with storing the logs. What should you do?

- A. Execute Delete Blob requests over https.
- B. Create an export job for your container.
- C. Set up a retention policy.
- D. Execute Delete Blob requests over http.

---

**Answer: C**

---

Explanation:

There are two ways to delete Storage Analytics data: by manually making deletion requests or by setting a data retention policy. Manual requests to delete Storage Analytics data are billable, but delete requests resulting from a retention policy are not billable.

References:

<https://docs.microsoft.com/en-us/rest/api/storageservices/Setting-a-Storage-Analytics-Data-Retention-Policy?redirectedfrom=MSDN>

**Question: 177**

You connect to an existing service over the network by using HTTP. The service listens on HTTP port 80. You plan to create a test environment for this existing service by using an Azure virtual machine (VM) that runs Windows Server.

The service must be accessible from the public Internet over HTTP port 8080. You need to configure the test

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

- A. Configure an endpoint to route traffic from port 8080 to port 80.
- B. Configure an endpoint to route traffic from port 80 to port 8080.
- C. Ensure that the public IP address is configured as a static IP address.
- D. Configure the Windows Server firewall to allow incoming and outgoing traffic on port 8080.
- E. Configure the Windows Server firewall to allow incoming and outgoing traffic on port 80.

---

**Answer: A,E**

---

Explanation:

### **Question: 178**

---

#### **DRAG DROP**

Your company manages several Azure Web Sites that are running in an existing web- hosting plan named plan1. You need to move one of the websites, named contoso, to a new web-hosting plan named plan2. Which Azure PowerShell cmdlet should you use with each PowerShell command line? To answer, drag the appropriate Azure PowerShell cmdlet to the correct location in the PowerShell code. Each PowerShell cmdlet 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.

#### **PowerShell cmdlets**

New-AzureResource
Set-AzureResource
plan1
plan2
Microsoft.Web/serverFarms
Microsoft.Web/sites

#### **PowerShell code**

```
PS C:\> $props = @("serverfarm" = " plan1")  
PS C:\> New-AzureResource -name contoso  
-ResourceGroup group1 -PropertyObject $props -ResourceType  
Microsoft.Web/sites -apiversion 2014-04-01
```

---

**Answer:**

---

**PowerShell cmdlets**

New-AzureResource

plan1

Microsoft.Web/serverFarms

**PowerShell code**

```
PS C:\> $props = @("serverfarm" = "plan2")
PS C:\> Set-AzureResource -name contoso
-ResourceGroup group1 -PropertyObject $props -ResourceType
Microsoft.Web/sites -apiversion 2014-04-01
```

**Question: 179****HOTSPOT**

You manage an Azure Web Site for a consumer-product company. The website runs in Standard mode on a single medium instance. You expect increased traffic to the website due to an upcoming sale during a holiday weekend.

You need to ensure that the website performs optimally when user activity is at its highest. Which option should you select? To answer, select the appropriate option in the answer area.

INSTANCE SIZE: Small (1 core, 1.75 GB Memory)

SCALE BY METRIC: NONE

set up schedule times

**Answer:**

INSTANCE SIZE: Small (1 core, 1.75 GB Memory)

SCALE BY METRIC: NONE

set up schedule times

**Question: 180**

Your company network includes two branch offices. Users at the company access internal virtual machines (VMs). You want to ensure secure communications between the branch offices and the internal VMs and

network.

You need to create a site-to-site VPN connection. What are two possible ways to achieve this goal? Each correct answer presents a complete solution

- A. a private IPv4 IP address and a compatible VPN device
- B. a private IPv4 IP address and a RRAS running on Windows Server 2012
- C. a public-facing IPv4 IP address and a compatible VPN device
- D. a public-facing IPv4 IP address and a RRAS running on Windows Server 2012

---

**Answer: C,D**

---

Explanation:

You must have an externally facing IPv4 IP address and a VPN device or RRAS to configure a site-to-site VPN connection.

References:

<https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-vpn-faq>

---

### **Question: 181**

---

You administer a DirSync server configured with Azure Active Directory (Azure AD). You need to provision a user in Azure AD without waiting for the default DirSync synchronization interval.

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

- A. Restart the DirSync server
- B. Run the Start-OnlineCoexistenceSync PowerShell cmdlet.
- C. Run the Enable-SyncShare PowerShell cmdlet.
- D. Run the Azure AD Sync tool Configuration Wizard.
- E. Replicate the Directory in Active Directory Sites and Services.

---

**Answer: B,D**

---

Explanation:

References:

<https://docs.microsoft.com/en-us/azure/active-directory/connect/active-directory-aadconnect>

---

### **Question: 182**

---

An application sends Azure push notifications to a client application that runs on Windows Phone, iOS, and Android devices. Users cannot use the application on some devices. The authentication mechanisms that the application uses are the source of the problem.

You need to monitor the number of notifications that failed because of authentication errors. Which three metrics should you monitor? Each correct answer presents part of the solution

- A. Microsoft Push Notification Service (MPNS) authentication errors
- B. External notification system errors
- C. Apple Push Notification Service (APNS) authentication errors
- D. Channel errors
- E. Windows Push Notification Services (WNS) authentication errors
- F. Google Cloud Messaging (GCM) authentication errors

---

**Answer: A,C,F**

Explanation:

You must provision your app with one or more of the following services:  
Microsoft Push Notification Service (MPNS) for Windows Phone devices  
Apple Push Notification Service (APNS) for iPad and iPhone devices  
Google Cloud Messaging service (GCM) for Android devices  
Windows Notification Service (WNS) for Windows devices

References:

<https://msdn.microsoft.com/en-us/magazine/dn879353.aspx>

---

### **Question: 183**

You administer an Azure Active Directory (Azure AD) tenant that has a SharePoint web application named TeamSite1. TeamSite1 accesses your Azure AD tenant for user information. The application access key for TeamSite1 has been compromised.

You need to ensure that users can continue to use TeamSite1 and that the compromised key does not allow access to the data in your Azure AD tenant. Which two actions should you perform? Each correct answer presents part of the solution.

- A. Remove the compromised key from the application definition for TeamSite1.
- B. Delete the application definition for TeamSite1.
- C. Generate a new application key for TeamSite1
- D. Generate a new application definition for TeamSite1.
- E. Update the existing application key.

---

**Answer: A,C**

Explanation:

References:

<https://docs.microsoft.com/en-us/azure/active-directory/develop/active-directory-integrating-applications>

---

### **Question: 184**

You manage a cloud service on two instances. The service name is Service1 and the role name is ServiceRole1. Service1 has performance issues during heavy traffic periods.

You need to increase the existing deployment of Service1 to three instances. Which Power Shell cmdlet should you use?

- A. PS C:\>Set-AzureService -ServiceName "Service1" -Label "ServiceRole1" -Description "Instance count=3"
- B. PS C:\>Set-AzureRole -ServiceName "Service1" -Slot "Production" -RoleName "ServiceRole1" -Count 3
- C. PS C:\>Add-AzureWebRole -Name 'ServiceRole1' -Instances 3
- D. PS C:\> \$instancecount = New-Object Hashtable\$settings['INSTANCECOUNT=3] PS C:\> Set-AzureWebsite -AppSettings \$instancecount ServiceRole1

---

**Answer: B**

---

Explanation:

The Set-AzureRole cmdlet sets the number of instances of a specified role to run in an Azure deployment.

References:

<https://docs.microsoft.com/en-us/powershell/module/Azure/Set-AzureRole?view=azuresmps-4.0.0>

---

### **Question: 185**

---

HOTSPOT

You deploy a new version of a cloud-service application to a staging slot. The application consists of one web role. You prepare to swap the new version of the application into the production slot.

Your Azure account has access to multiple Azure subscriptions. You load the Azure PowerShell cmdlets into the Windows PowerShell command shell. The command shell is NOT configured for certificate-based authentication.

You must use the Windows PowerShell command window to configure the application. You need to create five instances of the web role. How should you configure the relevant Windows PowerShell script?

## Answer Area

```
$subscription = 'mysubscription'  
$service = 'myservice'  
$rolename = 'myrole'
```

```
Add-AzureAccount  
Get-AzureAccount -Name $subscription  
Get-AzureAccount
```

```
Select-AzureSubscription -SubscriptionName $subscription  
Set-AzureSubscription -SubscriptionName $subscription  
Set-AzureSubscription -SubscriptionId $subscription
```

```
Set-AzureRole -ServiceName $service -Slot Staging -RoleName $rolename -Count 5  
Set-AzureRole -ServiceName $service -RoleName $rolename -Count 5  
Set-AzureRole -ServiceName $service -Slot Production -RoleName $rolename -Count 5  
Add-AzureWebRole -Name $service -Instances 5
```

Answer:

---

## Answer Area

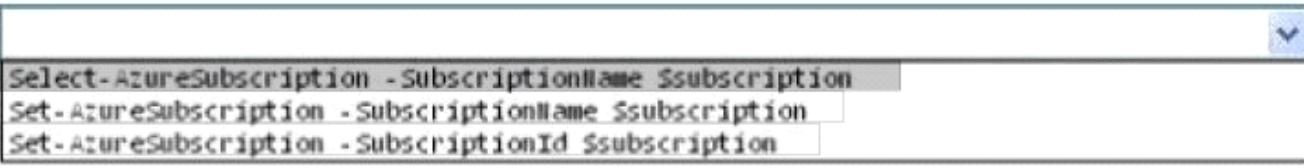
```
$subscription = 'mysubscription'
$service = 'myservice'
$rolename = 'myrole'
```



```
Add-AzureAccount
```

```
Get-AzureAccount -Name $subscription
```

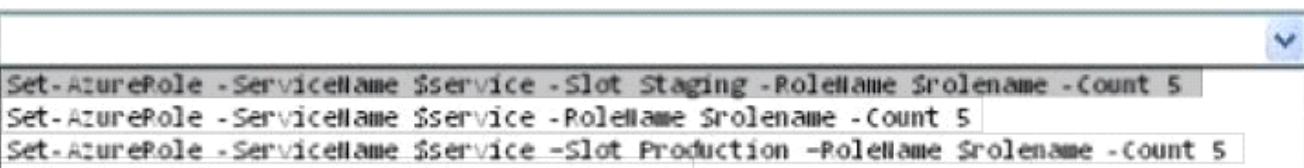
```
Get-AzureAccount
```



```
Select-AzureSubscription -SubscriptionName $subscription
```

```
Set-AzureSubscription -SubscriptionName $subscription
```

```
Set-AzureSubscription -SubscriptionId $subscription
```



```
Set-AzureRole -ServiceName $service -Slot Staging -RoleName $rolename -Count 5
```

```
Set-AzureRole -ServiceName $service -RoleName $rolename -Count 5
```

```
Set-AzureRole -ServiceName $service -Slot Production -RoleName $rolename -Count 5
```

```
Add-AzureWebRole -Name $service -Instances 5
```

Step1: Add-AzureAccount

Create a new account

Step 2: Select-AzureSubscription

Change the name of the subscription

Step 3: Set-AzureRole -ServiceName -slot Staging

The Set-AzureRole cmdlet sets the number of instances of a specified role to run in an Azure deployment.

-Slot specifies the deployment environment of the deployment to modify. The acceptable values for this parameter are: Production Staging

References:

<https://cann0nf0dder.wordpress.com/2015/03/07/handling-azure-powershell-with-multiple-azure-subscriptions/>

<https://docs.microsoft.com/en-us/powershell/module/azure/set-azurerole?view=azuresmps-4.0.0>

---

### Question: 186

Your company has a subscription to Azure. You configure your contoso.com domain to use a private Certificate Authority. You deploy a web site named MyApp by using the Shared (Preview) web hosting plan. You need to ensure that clients are able to access the MyApp website by using https. What should you do?

- Back up the Site and import into a new website.
- Use the internal Certificate Authority and ensure that clients download the certificate chain.
- Add custom domain SSL support to your current web hosting plan.

D. Change the web hosting plan to Standard

---

**Answer: D**

Explanation:

The Basic or the Standard plan is required for SSL support for custom domains.

References:

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

---

### **Question: 187**

You manage a cloud service that hosts a customer-facing application. The application allows users to upload images and create collages. The cloud service is running in two medium instances and utilizes Azure Queue storage for image processing.

The storage account is configured to be locally redundant. The sales department plans to send a newsletter to potential clients. As a result, you expect a significant increase in global traffic.

You need to recommend a solution that meets the following requirements:

- \* Configure the cloud service to ensure the application is responsive to the traffic increase.
- \* Minimize hosting and administration costs.

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

- A. Configure the cloud service to run in two Large instances.
- B. Configure the cloud service to auto-scale to three instances when processor utilization is above 80%.
- C. Configure the storage account to be geo-redundant
- D. Deploy a new cloud service in a separate data center. Use Azure Traffic Manager to load balance traffic between the cloud services.
- E. Configure the cloud service to auto-scale when the queue exceeds 1000 entries per machine.

---

**Answer: B,E**

Explanation:

An autoscaling solution reduces the amount of manual work involved in dynamically scaling an application. It can do this in two different ways: either preemptively by setting constraints on the number of role instances based on a timetable, or reactively by adjusting the number of role instances in response to some counter(s) or measurement(s) that you can collect from your application or from the Azure environment.

References:

[https://msdn.microsoft.com/en-us/library/hh680945\(v=pandp.50\).aspx](https://msdn.microsoft.com/en-us/library/hh680945(v=pandp.50).aspx)

---

### **Question: 188**

You manage an application running on Azure Web Sites Standard tier. The application uses a substantial amount of large image files and is used by people around the world. Users from Europe report that the load time of the site is slow.

You need to implement a solution by using Azure services. Which two actions will achieve the goal? Each correct answer presents a complete solution.

- A. Configure Azure blob storage with a custom domain.
- B. Configure Azure CDN to cache all responses from the application web endpoint.
- C. Configure Azure Web Site auto-scaling to increase instances at high load.
- D. Configure Azure CDN to cache site images and content stored in Azure blob storage.

---

**Answer: A,D**

---

Explanation:

You can configure a custom domain for accessing blob data in your Azure storage account.

You can map a custom domain to a CDN endpoint in order to use your own domain name in URLs to cached content rather than using a subdomain of azureedge.net.

References:

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

<https://docs.microsoft.com/en-us/azure/cdn/cdn-map-content-to-custom-domain>

---

### **Question: 189**

---

HOTSPOT

You manage a public-facing web application which allows authenticated users to upload and download large files. On the initial public page there is a promotional video.

You plan to give users access to the site content and promotional video. In the table below, identify the access method that should be used for the anonymous and authenticated parts of the application.

Make only one selection in each column.

Access Method	Anonymous	Authenticated
Create an Access Policy per user and provide Read and Write access to the blob files by using Shared Access Signatures.	<input type="radio"/>	<input type="radio"/>
Create Ad-Hoc Shared Access Signatures to provide read-only access to the blob files.	<input type="radio"/>	<input type="radio"/>
Create Ad-Hoc Shared Access Signatures to provide Read and Write access to the blob files.	<input type="radio"/>	<input type="radio"/>
Make the blob container public.	<input type="radio"/>	<input type="radio"/>

---

**Answer:**

---

Access Method	Anonymous	Authenticated
Create an Access Policy per user and provide Read and Write access to the blob files by using Shared Access Signatures.	<input type="radio"/>	<input checked="" type="radio"/>
Create Ad-Hoc Shared Access Signatures to provide read-only access to the blob files.	<input type="radio"/>	<input type="radio"/>
Create Ad-Hoc Shared Access Signatures to provide Read and Write access to the blob files.	<input type="radio"/>	<input type="radio"/>
Make the blob container public.	<input checked="" type="radio"/>	<input type="radio"/>

Anonymous: If a SAS is published publicly, it can be used by anyone in the world.

Authenticated: Create an Access Policy..

Not Ad-Hoc: Ad-Hoc would have to have a time limit.

References:

<https://docs.microsoft.com/en-in/azure/storage/storage-dotnet-shared-access-signature-part-1>

## Question: 190

### HOTSPOT

You are developing an Azure cloud service for a company. The cloud service monitors a queue for incoming messages and then processes invoices based on the contents of these messages. Some messages are formed incorrectly and cause exceptions.

There is no time limit for how long the service takes to process an individual message. All messages must be processed at least once by using the ProcessMessage method. Messages must not be processed more than twice by using the ProcessMessage method.

Messages that fail normal processing must be processed by using the ProcessPoisonMessage method. You need to configure message processing. How should you complete the relevant code? To answer, select the appropriate option or options in the answer area.

## Answer Area

```
private bool ProcessNextQueueMessage(CloudQueue cloudQueue)
{
    var msg = cloudQueue.GetMessage();

    if (msg == null) return false;
    if (msg.DequeueCount > 0) return false;
    if (msg.PopReceipt == null) return false;
    if (msg.ExpirationTime.HasValue) return false;

    if (msg == null)
        if (msg.DequeueCount > 0)
            if (msg.DequeueCount > 2)
                if (msg.PopReceipt == null)

        ProcessPoisonMessage(msg);
    else
        ProcessMessage(msg);

    cloudQueue.Delete();
    cloudQueue.DeleteMessageInMsg();
    cloudQueue.EndAddMessage(null);
    cloudQueue.DeleteMessage(null);

    return true;
}
```

---

Answer:

---

**Answer Area**

```

private bool ProcessNextQueueMessage(CloudQueue cloudQueue)
{
    var msg = cloudQueue.GetMessage();

    if (msg == null) return false;
    if (msg.DequeueCount > 0) return false;
    if (msg.PopReceipt == null) return false;
    if (msg.ExpirationTime.HasValue) return false;

    if (msg == null)
        if (msg.DequeueCount > 0)
            if (msg.DequeueCount > 2)
                if (msg.PopReceipt == null)

        ProcessPoisonMessage(msg);
    else
        ProcessMessage(msg);

    cloudQueue.Delete();
    cloudQueue.DeleteMessage(msg);
    cloudQueue.EndAddMessage(null);
    cloudQueue.DeleteMessage(null);

    return true;
}

```

Step 1:

Check if msg is null.

Step 2:

Messages must not be processed more than twice by using the ProcessMessage method.

Step 3:

Delete the message after successful processing.

**Question: 191**

HOTSPOT

You manage an Internet Information Services (IIS) 6 website named contososite1. Contososite1 runs a legacy ASP.NET 1.1 application named LegacyApp1. LegacyApp1 does not contain any integration with any other systems or programming languages. You deploy contososite1 to Azure Web Sites. You need to

configure Azure Web Sites. You have the following requirements:

- \* LegacyApp1 runs correctly.
- \* The application pool does not recycle.

Which settings should you configure to meet the requirements? To answer, select the appropriate settings in the answer area.

## general

---

.NET FRAMEWORK VERSION



---

PHP VERSION



---

JAVA VERSION



---

PYTHON VERSION



---

MANAGED PIPELINE MODE



---

PLATFORM



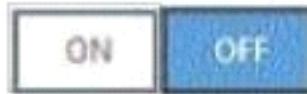
---

WEB SOCKETS



---

ALWAYS ON



---

**Answer:**

---

## general

---

.NET FRAMEWORK VERSION



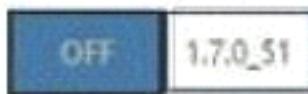
---

PHP VERSION



---

JAVA VERSION



---

PYTHON VERSION



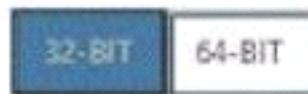
---

MANAGED PIPELINE MODE



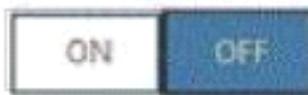
---

PLATFORM



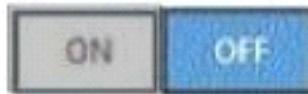
---

WEB SOCKETS



---

ALWAYS ON



NET FRAMEWORK VERSION: Change to V3.5

PHP Version: Change to OFF

JAVA VERSION: Keep Off

PYTHON Version: Keep Off

MANAGED PIPELINE MODE: Change to CLASSIC

PLATFORM: Keep 32-BIT

WEB SOCKETS: Keep Off

ALWYS ON: Change to ON

---

### **Question: 192**

You plan to deploy an application as a cloud service. The application uses a virtual network to extend your on-premises network into Azure. You need to configure a site-to-site VPN for cross-premises network connections.

Which two objects should you configure? Each correct answer presents part of the solution.

- A. Dynamic routing gateway
- B. VPN gateway
- C. External-facing IPv6 address
- D. External-facing IPv4 address

---

**Answer: B,D**

Explanation:

---

### **Question: 193**

HOTSPOT

You have a WebJob object that runs as part of an Azure website. The WebJob object uses features from the Azure SDK for .NET.

You use a well-formed but invalid storage key to create the storage account that you pass into the UploadDataToAzureStorage method.

The WebJob object contains the following code segment. Line numbers are included for reference only.

```
01 void UploadDataToAzureStorage(CloudStorageAccount storageAccount,
    string storageContainerName, string blobpath, string localpath)
02 {
03     var blobClient = storageAccount.CreateCloudBlobClient();
04     var container = blobClient.GetContainerReference(storageContainerName);
05     CloudBlockBlob blockBlob = container.GetBlockBlobReference(blobpath);
06     blockBlob.UploadFromFile(localpath, FileMode.Open);
07 }
```

**Answer Area**

Yes	No
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>

If the storage container does not already exist when the code runs, a file can still be uploaded successfully.

If a transient fault occurs when the code segment on line 06 runs, the Azure SDK will attempt to upload the file again.

The code segment at line 06 will fail when the code runs.

**Answer:****Answer Area**

Yes	No
<input type="radio"/>	<input checked="" type="radio"/>
<input checked="" type="radio"/>	<input type="radio"/>
<input checked="" type="radio"/>	<input type="radio"/>

If the storage container does not already exist when the code runs, a file can still be uploaded successfully.

If a transient fault occurs when the code segment on line 06 runs, the Azure SDK will attempt to upload the file again.

The code segment at line 06 will fail when the code runs.

For blob storage, there is a retry policy implemented by default, so if you do nothing, it will do what's called exponential retries. It will fail, then wait a bit of time and try again; if it fails again, it will wait a little longer and try again, until it hits the maximum retry count.

**References:**

<https://www.simple-talk.com/cloud/platform-as-a-service/azure-blob-storage-part-3-using-the-storage-client-library/>

**Question: 194****DRAG DROP**

You administer an Azure Virtual Machine (VM) named CON-CL1. CON-CL1 is in a cloud service named ContosoService1. You want to create a new VM named MyApp that will have a fixed IP address and be hosted by an Azure Datacenter in the US West region.

You need to assign a fixed IP address to the MyApp VM. Which Azure Power Shell cmdlets and values should you use? To answer, drag the appropriate cmdlet or value to the correct location in the PowerShell command.

Each cmdlet or 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.

cmdlets and values	PowerShell Command
West US	PS C:\> \$ cmdlet or value = cmdlet or value - ReservedIPName "MyApp" -Label
Central US	"WebAppMyApp" -Location " cmdlet or value "
New-AzureReservedIP	PS C:\> New-AzureVMConfig -Name "WebAppVM" -InstanceSize Small -ImageName \$images[60].ImageName   Add-AzureProvisioningConfig -Windows -AdminUsername Administrator -Password Admin\$Pwd
New-AzureInstanceLevelIP	New-AzureVM -ServiceName "MyWebApp" cmdlet or value
ReservedIP	\$ReservedIP -location " cmdlet or value "
ReservedIPName	
Set-AzureReservedIP	
Set-AzureInstanceLevelIP	

---

**Answer:**

---

Box 1: ReservedIP

Set the variable ReservedIP, which is later used in the third statement.

Box 2: New-AzureReservedIP

The New-AzureReservedIP cmdlet creates a reserved IP address.

You want to create a new VM named MyApp that will have a fixed IP address.

Box 3: West US

You want to create a new VM named MyApp that will have a fixed IP address and be hosted by an Azure Datacenter in the US West region.

Box 4: ReservedIPName

The -ReservedIPName parameter, of the New-AzureVM command, specifies the name of the reserved IP address.

Box 5: West US

The location should West US, just as in Box 3.

References:

---

**Question: 195**

---

You manage an Azure subscription with virtual machines (VMs) that are running in Standard mode. You need to reduce the storage costs associated with the VMs. What should you do?

- A. Locate and remove orphaned disks
- B. Add the VMs to an affinity group.
- C. Change VMs to the Basic tier.
- D. Delete the VHD container

---

**Answer: C**

---

Explanation:

Removing orphaned disks would reduce storage, and the cost of storage.

---

### **Question: 196**

You manage a web application published to Azure Cloud Services. Your service level agreement (SLA) requires that you are notified in the event of poor performance from customer locations in the US, Asia, and Europe.

You need to configure the Azure Management Portal to notify you when the SLA performance targets are not met. What should you do?

- A. Create an alert rule to monitor web endpoints
- B. Create a Notification Hub alert with response time metrics.
- C. Add an endpoint monitor and alert rule to the Notification Hub.
- D. Configure the performance counter on the cloud service.

---

**Answer: A**

Explanation:

References:

<https://docs.microsoft.com/en-us/azure/monitoring-and-diagnostics/insights-alerts-portal>

---

### **Question: 197**

Your company has recently signed up for Azure. You plan to register a Data Protection Manager (DPM) server with the Azure Backup service. You need to recommend a method for registering the DPM server with the Azure Backup vault.

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

- A. Import a self-signed certificate created using the makecert tool.
- B. Import a self-signed certificate created using the createcert tool.
- C. Import an X.509 v3 certificate with valid clientauthentication EKU.
- D. Import an X.509 v3 certificate with valid serverauthentication EKU.

---

**Answer: A,C**

Explanation:

The certificate used for the backup vault in Azure must fulfill the following prerequisites:

References:

<https://blogs.technet.microsoft.com/hybridcloud/2014/03/16/using-azure-backup-with-dpm/>

---

### **Question: 198**

Your company plans to migrate from On-Premises Exchange to Exchange Online in Office 365.

You plan to integrate your existing Active Directory Domain Services (AD DS) infrastructure with Azure AD.

You need to ensure that users can log in by using their existing AD DS accounts and passwords. You need to achieve this goal by using minimal additional systems.

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

- A. Configure Password Sync.
- B. Set up a DirSync Server
- C. Set up an Active Directory Federation Services Server
- D. Set up an Active Directory Federation Services Proxy Server

---

**Answer: A,B**

---

**Explanation:**

Azure AD supports the following four directory integration scenarios:

\* DirSync with Password Sync – Used when you want to enable your users to sign in to Azure AD and other services using the same user name and password as they use to log onto your corporate network and resources. Password sync is a feature of the Directory Sync tool.

Etc.

**References:**

<https://msdn.microsoft.com/en-us/library/azure/jj573653.aspx>

---

### **Question: 199**

---

**HOTSPOT**

You administer an Azure Active Directory (Azure AD) tenant. You add a custom application to the tenant. The application must be able to:

- \* Read data from the tenant directly.
- \* Write data to the tenant on behalf of a user.

In the table below, identify the permission that must be granted to the application. Make only one selection in each column.

Permission	Application Permission	Delegated Permission
Read and write directory data.	<input type="radio"/>	<input type="radio"/>
Read directory data.	<input type="radio"/>	<input type="radio"/>
Access your organization's directory.	<input type="radio"/>	<input type="radio"/>
Enable sign-on and read users' profiles.	<input type="radio"/>	<input type="radio"/>

---

**Answer:**

---

Permission	Application Permission	Delegated Permission
Read and write directory data.	<input type="radio"/>	<input checked="" type="radio"/>
Read directory data.	<input checked="" type="radio"/>	<input type="radio"/>
Access your organization's directory.	<input type="radio"/>	<input type="radio"/>
Enable sign-on and read users' profiles.	<input type="radio"/>	<input type="radio"/>

Application Permission: Read directory data

The application must be able to Read data from the tenant directly.

Delegated Permission: Read and write Directory Data

The application must be able to write data to the tenant on behalf of a user.

As an administrator, you can also consent to an application's delegated permissions on behalf of all the users in your tenant. This will prevent the consent dialog from appearing for every user in the tenant. You can do this from the Azure portal from your application page. From the Settings blade for your application, click Required Permissions and click on the Grant Permissions button.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/develop/active-directory-integrating-applications>

### Question: 200

DRAG DROP

You deploy an application as a cloud service to Azure. The application contains a web role to convert temperatures between Celsius and Fahrenheit. The application does not correctly convert temperatures.

You must use Microsoft Visual Studio to determine why the application does not correctly convert temperatures. You need to debug the source code in Azure.

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

Actions	Answer Area
Attach the debugger to the role instance of the cloud service.	
Publish the application.	
In the Microsoft Azure Publish Settings dialog, set the build configuration to <b>Release</b> and enable the remote debugger for all roles.	
In the Windows Azure Publish Settings dialog, set the build configuration to <b>Debug</b> .	
In the Microsoft Azure Publish Settings dialog, enable Remote Desktop for cloud configuration and enable the remote debugger for all roles.	

---

**Answer:**

---

Answer Area
In the Microsoft Azure Publish Settings dialog, set the build configuration to <b>Release</b> and enable the remote debugger for all roles.
Publish the application.
Attach the debugger to the role instance of the cloud service.

Step 1:

To debug a cloud service from a remote machine, you must enable that functionality explicitly when you deploy your cloud service so that required services (msvsmon.exe, for example) are installed on the virtual machines that run your role instances.

You can choose the Release configuration.

Step 2:

If you didn't enable remote debugging when you published the service, you have to republish the service with remote debugging enabled.

Step 3:

If you debug a role, the Visual Studio debugger attaches to each instance of that role.

References:

---

**Question: 201**

---

You develop a set of Power Shell scripts that will run when you deploy new virtual machines (VMs). You need to ensure that the scripts are executed on new VMs.

You want to achieve this goal by using the least amount of administrative effort. What should you do?

- A. Create a new GPO to execute the scripts as a logon script.
- B. Create a SetupComplete.cmd batch file to call the scripts after the VM starts.
- C. Create a new virtual hard disk (VHD) that contains the scripts.
- D. Load the scripts to a common file share accessible by the VMs.
- E. Set the VMs to execute a custom script extension.

---

**Answer: E**

---

Explanation:

Custom Script Extension can automatically download scripts and files from Azure Storage and launch a PowerShell script on the VM which in turn can install additional software components. And just like with any other VM Extension, this can be added during VM creation or after the VM has been running.

References:

<https://azure.microsoft.com/en-us/blog/automating-vm-customization-tasks-using-custom-script-extension/>

---

### **Question: 202**

---

You administer an Azure Web Site named contosoweb that is used to sell various products. Contosoweb experiences heavy traffic during weekends.

You need to analyze the response time of the product catalog page during peak times, from different locations. What should you do?

- A. Configure endpoint monitoring
- B. Add the Requests metric
- C. Turn on Failed Request Tracing
- D. Turn on Detailed Error Messages

---

**Answer: A**

---

Explanation:

As we want to analyze response times from different locations, we should use endpoint monitoring.

References:

<https://docs.microsoft.com/en-us/azure/app-service-web/web-sites-monitor#webendpointstatus>

---

### **Question: 203**

---

HOTSPOT

You are developing a messaging solution for a financial services company named Adatum. The solution must integrate an application named Enrollment and an application named Activation.

The Enrollment application is used to enroll new customers. The Activation application is used to activate accounts for new customers.

You need to ensure that each message that the Enrollment application sends is stored in a queue for ten

minutes before the Activation application uses the message.

How should you complete the relevant code? To answer, select the appropriate option or options in the answer area.

### Answer Area

```
var address =  
    ServiceBusEnvironment.CreateServiceUri("sb  
adatum.activation  
adatum.servicebus.windows.net/activate",  
                                         string.Empty);  
  
var ns = new NamespaceManager(address, new NamespaceManagerSettings()  
                                         {  
                                             OperationTimeout =  
                                                 TimeSpan.FromSeconds(10)  
                                         });  
ns.CreateQueue("ActivationQueue");
```

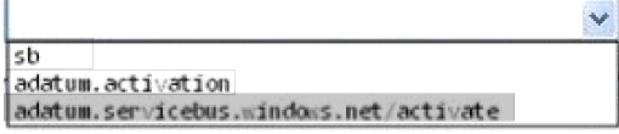
---

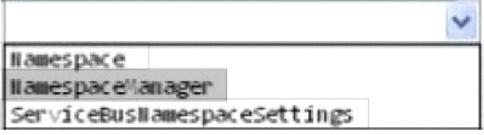
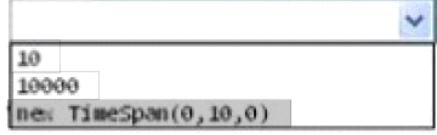
Answer:

---

**Answer Area**

```

var address =
    ServiceBusEnvironment.CreateServiceUri("",
        
        ",
        "",
        
        ", string.Empty);

var ns = new 
    (address, new NamespaceManagerSettings())
{
    OperationTimeout =
        
    });
    ns.CreateQueue("ActivationQueue");

```

Box 1: sb

Servicebus

Box 2: adatum.servicebus.windows.net/activate

This is a proper service bus URI.

Note: CreateServiceUri(String, String, String) constructs the Service Bus URI for an application, using the specified scheme, service namespace, and service path.

Parameters:

Box 3: NamespaceManager

Box 4: New TimeSpan(0,10,0)

TimeSpan(Int32,Int32,