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**Exam Code: AZ-120**  
**Exam Name: Planning and Administering Microsoft Azure for SAP Workloads**



## 01 - Migrate SAP Workloads to Azure

### Case Study

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

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

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

To start the case study

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

When you are ready to answer a question, click the Question button to return to the question.

### Overview

Litware, Inc. is an international manufacturing company that has 3,000 employees.

Litware has two main offices. The offices are located in Miami, FL, and Madrid, Spain.

### Existing Environment

#### Infrastructure

Litware currently uses a third-party provider to host a datacenter in Miami and a disaster recovery datacenter in Chicago, IL.

The network contains an Active Directory domain named litware.com. Litware has two third-party applications hosted in Azure.

Litware already implemented a site-to-site VPN connection between the on-premises network and Azure.

#### SAP Environment

Litware currently runs the following SAP products:

Enhancement Pack6 for SAP ERP Central Component 6.0 (SAP ECC 6.0)

SAP Extended Warehouse Management (SAP EWM)

SAP Supply Chain Management (SAP SCM)

SAP NetWeaver Process Integration (PI)

SAP Business Warehouse (SAP BW)

SAP Solution Manager

All servers run on the Windows Server platform. All databases use Microsoft SQL Server. Currently, you have 20 production servers.

You have 30 non-production servers including five testing servers, five development servers, five quality assurance (QA) servers, and 15 pre-production servers.

Currently, all SAP applications are in the litware.com domain.

#### Problem Statements

The current version of SAP ECC has a transaction that, when run in batches overnight, takes eight hours to complete. You confirm that upgrading to SAP Business Suite on HANA will improve performance because of code changes and the SAP HANA database platform.

Litware is dissatisfied with the performance of its current hosted infrastructure vendor. Litware experienced several hardware failures and the vendor struggled to adequately support its 24/7 business operations.

#### Requirements

##### Business Goals

Litware identifies the following business goals:

Increase the performance of SAP ECC applications by moving to SAP HANA. All other SAP databases will remain on SQL Server.

Move away from the current infrastructure vendor to increase the stability and availability of the SAP services.

Use the new Environment, Health and Safety (EH&S) in Recipe Management function.

Ensure that any migration activities can be completed within a 48-hour period during a weekend.

##### Planned Changes

Litware identifies the following planned changes:

Migrate SAP to Azure.

Upgrade and migrate SAP ECC to SAP Business Suite on HANA Enhancement Pack 8.

##### Technical Requirements



Litware identifies the following technical requirements:

Implement automated backups.

Support load testing during the migration.

Identify opportunities to reduce costs during the migration.

Continue to use the litware.com domain for all SAP landscapes.

Ensure that all SAP applications and databases are highly available.

Establish an automated monitoring solution to avoid unplanned outages.

Remove all SAP components from the on-premises network once the migration is complete.

Minimize the purchase of additional SAP licenses. SAP HANA licenses were already purchased.

Ensure that SAP can provide technical support for all the SAP landscapes deployed to Azure.

#### QUESTION 1

You are evaluating which migration method Litware can implement based on the current environment and the business goals. Which migration method will cause the least amount of downtime?

- A. Migrate SAP ECC to SAP Business Suite in HANA, and then migrate SAP to Azure.
- B. Use Near-Zero Downtime (NZDT) to migrate to SAP HANA and Azure during the same maintenance window.
- C. Use the Database Migration Option (DMO) to migrate to SAP HANA and Azure during the same maintenance window.
- D. Migrate SAP to Azure, and then migrate SAP ECC to SAP Business Suite on HANA.

**Correct Answer: C**

**Section:**

**Explanation:**

The SAP Database Migration Option (DMO) with System Move option of SUM, used as part of the migration allows customer the options to perform the migration in a single step, from source system on-premises, or to the target system residing in Microsoft Azure, minimizing overall downtime.

Reference:

<https://blogs.sap.com/2017/10/05/your-sap-on-azure-part-2-dmo-with-system-move/>



#### 02 - Migrate SAP Workloads to Azure

Case Study

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Overview

Contoso, Ltd. is a manufacturing company that has 15,000 employees.

The company uses SAP for sales and manufacturing.

Contoso has sales offices in New York and London and manufacturing facilities in Boston and Seattle.

Existing Environment

Active Directory

The network contains an on-premises Active Directory domain named ad.contoso.com. User email addresses use a domain name of contoso.com.

SAP Environment

The current SAP environment contains the following components:

SAP Solution Manager

SAP ERP Central Component (SAP ECC)

SAP Supply Chain Management (SAP SCM)

SAP application servers that run Windows Server 2008 R2

SAP HANA database servers that run SUSE Linux Enterprise Server 12 (SLES 12)

Problem Statements

Contoso identifies the following issues in its current environment:

The SAP HANA environment lacks adequate resources.

The Windows servers are nearing the end of support.

The datacenters are at maximum capacity.

Requirements

Planned Changes

Contoso identifies the following planned changes:

Deploy Azure Virtual WAN.

Migrate the application servers to Windows Server 2016.

Deploy ExpressRoute connections to all of the offices and manufacturing facilities.

Deploy SAP landscapes to Azure for development, quality assurance, and production.

All resources for the production landscape will be in a resource group named SAPProduction.

Business goals

Contoso identifies the following business goals:

Minimize costs whenever possible.

Migrate SAP to Azure without causing downtime.

Ensure that all SAP deployments to Azure are supported by SAP.

Ensure that all the production databases can withstand the failure of an Azure region.

Ensure that all the production application servers can restore daily backups from the last 21 days.

Technical Requirements

Contoso identifies the following technical requirements:

Inspect all web queries.

Deploy an SAP HANA cluster to two datacenters.

Minimize the bandwidth used for database synchronization.

Use Active Directory accounts to administer Azure resources.

Ensure that each production application server has four 1-TB data disks.

Ensure that an application server can be restored from a backup created during the last five days within 15 minutes. Implement an approval process to ensure that an SAP administrator is notified before another administrator attempts to make changes to the Azure virtual machines that host SAP.

It is estimated that during the migration, the bandwidth required between Azure and the New York office will be 1 Gbps. After the migration, a traffic burst of up to 3 Gbps will occur.

Proposed Backup Policy

An Azure administrator proposes the backup policy shown in the following exhibit.



\* Policy name ⓘ  
 SapPolicy ✓

**Backup schedule**

\* Frequency \* Time \* Timezone  
 Daily 3:30 AM (UTC) Coordinated Universal Time

**Instant Restore ⓘ**

Retain instant recovery snapshot(s) for  
 5 ✓ Day(s)

**Retention range**

Retention of daily backup point.

\* At For  
 3:30 AM 14 ✓ Day(s)

Retention of weekly backup point.

\* On \* At For  
 Sunday 3:30 AM 8 ✓ Week(s)

Retention of monthly backup point.

\* On \* Day \* At For  
 First Sunday 3:30 AM 12 ✓ Month(s)

Retention of yearly backup point.

\* In \* On \* Day \* At For  
 January First Sunday 3:30 AM 7 ✓ Year(s)



**Azure Resource Manager Template**

An Azure administrator provides you with the Azure Resource Manager template that will be used to provision the production application servers.

```

{
  "apiVersion": "2017-03-30",
  "type": "Microsoft.Compute/virtualMachines",
  "name": "[parameters('vmname')]",

  "location": "EastUS",
  "dependsOn": [
    "[resourceId('Microsoft.Network/networkInterfaces/', parameters('vmname'))]"
  ],
  "properties": {
    "hardwareProfile": {
      "vmSize": "[parameters('vmSize')]"
    },
    "osProfile": {
      "computerName": "[parameters('vmname')]",
      "adminUsername": "[parameters('adminUsername')]",
      "adminPassword": "[parameters('adminPassword')]"
    },
    "storageProfile": {
      "imageReference": {
        "publisher": "MicrosoftWindowsServer",
        "offer": "WindowsServer",
        "sku": "2016-datacenter",
        "version": "latest"
      },
      "osDisk": {
        "name": "[concat(parameters('vmname'), '-OS')]",
        "caching": "ReadWrite",
        "createOption": "FromImage",
        "diskSizeGB": 128,
        "managedDisk": {
          "storageAccountType": "[parameters('storageAccountType')]"
        }
      },
      "copy": [
        {
          "name": "DataDisks",
          "count": "[parameters('diskCount')]",
          "input": {
            "caching": "None",
            "diskSizeGB": 1024,
            "lun": "[copyIndex('datadisks')]"
          }
        }
      ]
    }
  }
}

```



```
        "name": "[concat(parameters('vmname'), '-DD',copyIndex('datadisks'))]",
        "createOption": "Empty"
    }
}
},
"networkProfile": {
    "networkInterfaces": [
        {
            "id": "[resourceId('Microsoft.Network/networkInterfaces', parameters('vmName'))]"
        }
    ]
}
},
"resources": [
    {
        "apiVersion": "2017-03-30",
        "type": "Microsoft.Compute/virtualMachines/extensions",
        "name": "[concat(parameters('VMName'), '/joindomain')]",
        "location": "eastus",
        "properties": {
            "publisher": "Microsoft.Compute",
            "type": "JsonADDomainExtension",
            "typeHandlerVersion": "1.3",
            "autoUpgradeMinorVersion": true,
            "settings": {
                "Name": "[parameters('domainName')]",
                "User": "[parameters('domainusername')]",
                "Restart": "true",
                "Options": "3"
            },
            "protectedsettings": {
                "Password": "[parameters('domainPassword')]"
            }
        }
    }
]
}
```



#### QUESTION 1

##### HOTSPOT

You are evaluating the proposed backup policy.

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

NOTE: Each correct selection is worth one point.

##### Hot Area:



Statements	Yes	No
The backup policy meets the technical requirements.	<input type="radio"/>	<input type="radio"/>
The backup policy meets the business requirements.	<input type="radio"/>	<input type="radio"/>
If the backup policy is implemented, a deleted file can be restored to the running virtual machine one year after the file was deleted.	<input type="radio"/>	<input type="radio"/>

Answer Area:

Statements	Yes	No
The backup policy meets the technical requirements.	<input checked="" type="radio"/>	<input type="radio"/>
The backup policy meets the business requirements.	<input type="radio"/>	<input checked="" type="radio"/>
If the backup policy is implemented, a deleted file can be restored to the running virtual machine one year after the file was deleted.	<input checked="" type="radio"/>	<input type="radio"/>

Section:

Explanation:

Box 1: Yes

Scenario: Technical requirements: Ensure that an application server can be restored from a backup created during the last five days within 15 minutes.

Instant Restore has 'The instance recovery snapshot(s) for 5 Day(s)'.

Box 2: No

Scenario: Ensure that all the production application servers can restore daily backups from the last 21 days.

The Retention of daily backup point is set to for 14 days only.

Box 3: Yes

Reference:

<https://docs.microsoft.com/en-us/azure/backup/backup-instant-restore-capability>

## QUESTION 2

### HOTSPOT

You are planning replication of the SAP HANA database for the disaster recovery environment in Azure.

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

NOTE: Each correct selection is worth one point.

Hot Area:



Statements	Yes	No
You must use synchronous replication.	<input type="radio"/>	<input type="radio"/>
You must use delta data shipping for operation mode.	<input type="radio"/>	<input type="radio"/>
You must configure an Azure Directory (Azure AD) application to manage the failover.	<input type="radio"/>	<input type="radio"/>

Answer Area:

Statements	Yes	No
You must use synchronous replication.	<input type="radio"/>	<input checked="" type="radio"/>
You must use delta data shipping for operation mode.	<input type="radio"/>	<input checked="" type="radio"/>
You must configure an Azure Directory (Azure AD) application to manage the failover.	<input checked="" type="radio"/>	<input type="radio"/>



Section:

Explanation:

Box 1: No

SAP HANA Replication consists of one primary node and at least one secondary node. Changes to the data on the primary node are replicated to the secondary node synchronously or asynchronously.

Box 2: No

Since SPS11 SAP HANA system replication can be run in two different operation modes:

delta\_datashipping

logreplay

Box 3: Yes

Reference:

<https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/sap-hana-high-availability-rhel>

<https://blogs.sap.com/2018/01/08/your-sap-on-azure-part-4-high-availability-for-sap-hana-using-system-replication/>

### QUESTION 3

HOTSPOT

You are evaluating the proposed backup policy.

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

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Statements	Yes	No
The backup policy meets the technical requirements.	<input type="radio"/>	<input type="radio"/>
The backup policy meets the business requirements.	<input type="radio"/>	<input type="radio"/>
If the backup policy is implemented, a file backed up on the first Sunday of a month can be restored one year after the file was deleted.	<input type="radio"/>	<input type="radio"/>

Answer Area:

**Answer Area**

Statements	Yes	No
The backup policy meets the technical requirements.	<input checked="" type="radio"/>	<input type="radio"/>
The backup policy meets the business requirements.	<input type="radio"/>	<input checked="" type="radio"/>
If the backup policy is implemented, a file backed up on the first Sunday of a month can be restored one year after the file was deleted.	<input checked="" type="radio"/>	<input type="radio"/>

**Section:**

**Explanation:**

Box 1: Yes

Scenario: Technical requirements: Ensure that an application server can be restored from a backup created during the last five days within 15 minutes.

Instant Restore has 'The instance recovery snapshot(s) for 5 Day(s)'.

Box 2: No

Scenario: Ensure that all the production application servers can restore daily backups from the last 21 days. The Retention of daily backup point is set to for 14 days only.

Box 3: Yes

Yes, the early backups are retained for 7 years.

Reference:

<https://docs.microsoft.com/en-us/azure/backup/backup-instant-restore-capability>

**03 - Migrate SAP Workloads to Azure**

### QUESTION 1

You are migrating SAP to Azure. The ASCS application servers are in one Azure zone, and the SAP database server in a different Azure zone. ASCS/ERS is configured for high availability. During performance testing, you discover increased response times in Azure, even though the Azure environment has better computer and memory configurations than the on-premises environment. During the initial analysis, you discover an increased wait time for Enqueue.

What are three possible causes of the increased wait time? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. a missing Enqueue profile
- B. disk I/O during Enqueue backup operations
- C. misconfigured load balancer rules and health check probes for Enqueue and ASCS
- D. active Enqueue replication
- E. network latency between the database server and the SAP application servers

**Correct Answer: C, D, E**

**Section:**

**Explanation:**

E: The network latency across Availability Zones is not the same in all Azure regions. In some cases, you can deploy and run the SAP application layer across different zones because the network latency from one zone to the active DBMS VM is acceptable. But in some Azure regions, the latency between the active DBMS VM and the SAP application instance, when deployed in different zones, might not be acceptable for SAP business processes.

References: <https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/sap-ha-availability-zones>

### QUESTION 2

You have an on-premises SAP environment that uses AIX servers and IBM DB2 as the database platform. You plan to migrate SAP to Azure. In Azure, the SAP workloads will use Windows Server and Microsoft SQL Server as the database platform. What should you use to export from DB2 and import the data to SQL Server?

- A. R3load
- B. Azure SQL Data Warehouse
- C. SQL Server Management Studio (SSMS)
- D. R3trans



**Correct Answer: C**

**Section:**

**Explanation:**

To migrate DB2 databases to SQL Server, you must connect to the DB2 database that you want to migrate. When you connect, SSMA obtains metadata about all DB2 schemas, and then displays it in the DB2 Metadata Explorer pane. References: <https://docs.microsoft.com/en-us/sql/ssma/db2/connecting-to-db2-database-db2tosql?view=sql-server-ver15> <https://docs.microsoft.com/en-us/biztalk/adapters-and-accelerators/adapter-sap/import-sap-data-using-sql-server-management-studio>

### QUESTION 3

You have an SAP environment that is managed by using VMware vCenter.

You plan to migrate the SAP environment to Azure.

You need to gather information to identify which compute resources are required in Azure.

What should you use to gather the information?

- A. Azure Migrate and SAP EarlyWatch Alert reports
- B. Azure Site Recovery and SAP Quick Sizer
- C. SAP Quick Sizer and SAP HANA system replication
- D. Azure Site Recovery Deployment Planner and SAP HANA Cockpit

**Correct Answer: A**

**Section:**

**Explanation:**

Azure Migrate is a Microsoft service that helps an enterprise assess how its on-premises workloads will perform, and how much they will cost to host, in the Azure public cloud. An enterprise can use Azure Migrate to discover information about the VMware VMs running within its own data center, including CPU and memory usage, as well as performance history.

SAP EarlyWatch Alert (EWA) is a monitoring service for SAP customers, to monitor SAP systems in the solution landscape.

Incorrect Answers:

D: SAP HANA Cockpit is an administrative tool with a web interface for a correspondingly named database engine, a part of SAP ERP software. It allows both offline and cloud operations for managing databases,

References:

<https://searchcloudcomputing.techtarget.com/definition/Azure-Migrate>

**QUESTION 4**

You plan to migrate an SAP ERP Central Component (SAP ECC) production system to Azure.

You are reviewing the SAP EarlyWatch Alert report for the system.

You need to recommend sizes for the Azure virtual machines that will host the system.

Which two sections of the report should you review? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. Hardware Capacity
- B. Patch Levels under SAP Software Configuration
- C. Hardware Configuration under Landscape
- D. Database and ABAP Load Optimization
- E. Data Volume Management

**Correct Answer: A, D**

**Section:**

**Explanation:**

It is important to note that there are 2 types of data collected for Hardware Capacity.

• Performance Data - e.g. CPU and Memory utilization data.

Performance Data - e.g. CPU and Memory utilization data.

Hardware Capacity data shown in the EWA is measuring CPU and Memory utilization data. This is known as Performance Data.

• Configuration Data - e.g. OS information, CPU type.

Configuration Data - e.g. OS information, CPU type.

It is also collecting system information about the host such as hardware manufacturer, CPU type etc. This is known as Configuration Data.

Incorrect Answers:

E: Data Volume Management focuses on whether the collection of DVM content for the EarlyWatch Alert report is not performed, not activated, or not possible because the SAP Solution Manager system does not meet the technical requirements.

References:

<https://wiki.scn.sap.com/wiki/display/SM/Hardware+Capacity+Checks+in+EWA>

**QUESTION 5**

You plan to migrate an SAP environment to Azure.

You need to recommend a solution to migrate the SAP application servers to Azure. The solution must minimize downtime and changes to the environments. What should you include in the recommendation?

- A. Azure Storage Explorer
- B. Azure Import/Export service
- C. AzCopy
- D. Azure Site Recovery

**Correct Answer: D**

**Section:**

**Explanation:**

Site Recovery is used to manage and orchestrate disaster recovery of on-premises machines and Azure VMs. However, it can also be used for migration. Migration uses the same steps as disaster recovery with one exception. In a migration, failing machines over from your on-premises site is the final step. Unlike disaster recovery, you can't fail back to on-premises in a migration scenario. References: <https://docs.microsoft.com/en-us/azure/site-recovery/migrate-tutorial-on-premises-azure>

#### QUESTION 6

You plan to migrate an on-premises SAP development system to Azure.

Before the migration, you need to check the usage of the source system hardware, such as CPU, memory, network, etc. Which transaction should you run from SAP GUI?

- A. SM51
- B. DB01
- C. DB12
- D. OS07N

**Correct Answer: D**

**Section:**

**Explanation:**

SAP transaction OS07N (Remote Operating System Activity) is classified in the Basis Component module under application component Operating System Monitors and runs Monitoring Operating System program RSHOST1N upon execution.

Incorrect Answers:

A: Transaction code SM51 is to display list of active application servers that have registered in the SAP message server.

B: DB01 is a transaction code used for Analyze Exclusive Lockwaits in SAP.

C: Transaction code DB12 is to collect and presents information that is necessary to monitor database backups.

References:

<http://www.saptransactions.com/codes/OS07N/>



#### QUESTION 7

Your company has an SAP environment that contains the following components:

SAP systems based on SAP HANA and SAP Adaptive Server Enterprise (SAP ASE) that run on SUSE Linux Enterprise Server 12 (SLES 12) Multiple SAP applications

The company plans to migrate all the applications to Azure.

You need to get a comprehensive list of all the applications that are part of the SAP environment.

What should you use?

- A. the SAP license information
- B. the SAP Solution Manager
- C. the data volume management report
- D. the network inventory and locations

**Correct Answer: B**

**Section:**

**Explanation:**

The SAP Solution Manager is a centralized robust application management and administration solution used to implement, support, operate and monitor your SAP enterprise solutions, SAP Solution Manager is a platform providing integrated content, tools, methodologies and access to SAP systems.

Incorrect Answers:

C: Data volume management is a framework that helps the solution operations team of an SAP-centric solution to balance the need of business' access to a wealth of data and IT efforts to monitor and control data growth and to minimize data volume.

References: <https://blogs.sap.com/2009/02/20/sap-solution-manager-overview-for-dummies/>

#### QUESTION 8

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 plan to migrate an SAP HANA instance to Azure.

You need to gather CPU metrics from the last 24 hours from the instance.

Solution: You query views from SAP HANA Studio.

Does this meet the goal?

A. Yes

B. No

**Correct Answer: B**

**Section:**

**Explanation:**

The SAP HANA cockpit provides a single point of access to a range of SAP HANA administration and monitoring tasks. It is used to monitor and ensure the overall health of the system. The HANA Monitoring dashboard also visualizes key HANA Metrics of SAP HANA system.

Reference:

<https://developers.sap.com/tutorials/dt-monitoring-hana-part1.html> <https://www.hanatutorials.com/p/hana-monitoring-dashboard.html>

#### QUESTION 9

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 plan to migrate an SAP HANA instance to Azure.

You need to gather CPU metrics from the last 24 hours from the instance.

Solution: You run SAP HANA Quick Sizer.

Does this meet the goal?

A. Yes

B. No

**Correct Answer: B**

**Section:**

**Explanation:**

The SAP HANA cockpit provides a single point of access to a range of SAP HANA administration and monitoring tasks. It is used to monitor and ensure the overall health of the system. The HANA Monitoring dashboard also visualizes key HANA Metrics of SAP HANA system.

Reference:

<https://developers.sap.com/tutorials/dt-monitoring-hana-part1.html> <https://www.hanatutorials.com/p/hana-monitoring-dashboard.html>

#### QUESTION 10

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

After you answer a question-in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen. You plan to migrate an SAP HANA instance to Azure.

You need to gather CPU metrics from the last 24 hours from the instance.

Solution: You use DBA Cockpit from SAP GUI.

Does this meet the goal?

A. Yes

B. No

**Correct Answer: A**



**Section:****Explanation:**

The SAP HANA cockpit provides a single point of access to a range of SAP HANA administration and monitoring tasks. It is used to monitor and ensure the overall health of the system. The HANA Monitoring dashboard also visualizes key HANA Metrics of SAP HANA system.

Reference: <https://developers.sap.com/tutorials/dt-monitoring-hana-part1.html> <https://help.sap.com/viewer/afa922439b204e9caf22c78b6b69e4f2/2.10.0.0/en-US> <https://www.hanatutorials.com/p/hana-monitoring-dashboard.html>

**QUESTION 11**

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

After you answer a question-in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen. You have a complex SAP environment that has both ABAP- and Java-based systems. The current on-premises landscapes are based on SAP NetWeaver 7.0 (Unicode and Non-Unicode) running on Windows Server and Microsoft SQL Server.

You need to migrate the SAP environment to a HANA-certified Azure environment.

Solution: You deploy a new environment to Azure that uses SAP NetWeaver 7.4. You export the databases from the on-premises environment, and then you import the databases into the Azure environment. Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section:****Explanation:**

Instead use Azure Site Recovery to migrate.

Reference:

<https://docs.microsoft.com/en-us/azure/site-recovery/vmware-azure-architecture>

**QUESTION 12**

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 have a complex SAP environment that has both ABAP- and Java-based systems. The current on-premises landscapes are based on SAP NetWeaver 7.0 (Unicode and Non-Unicode) running on Windows Server and Microsoft SQL Server.

You need to migrate the SAP environment to a HANA-certified Azure environment.

Solution: You upgrade to SAP NetWeaver 7.4, and then you migrate SAP to Azure by using Azure Site Recovery. Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: A**

**Section:****Explanation:**

We need upgrade to SAP NetWeaver 7.4 before the migration. Then Azure Site Recovery is used for the migration to Azure.

Reference:

<https://docs.microsoft.com/en-us/azure/site-recovery/vmware-azure-architecture>

**QUESTION 13**

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 have a complex SAP environment that has both ABAP- and Java-based systems. The current on-premises landscapes are based on SAP NetWeaver 7.0 (Unicode and Non-Unicode) running on Windows Server and Microsoft SQL Server.

You need to migrate the SAP environment to a HANA-certified Azure environment.



Solution: You migrate SAP to Azure by using Azure Site Recovery, and then you upgrade to SAP NetWeaver 7.4. Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section:**

**Explanation:**

We need upgrade to SAP NetWeaver 7.4 before the migration.

Reference: <https://docs.microsoft.com/en-us/azure/site-recovery/vmware-azure-architecture>

#### QUESTION 14

You have an on-premises SAP environment hosted on VMware vSphere that uses Microsoft SQL Server as the database platform. You plan to migrate the environment to Azure. The database platform will remain the same. You need gather information to size the target Azure environment for the migration.

What should you use?

- A. the SAP EarlyWatch report
- B. Azure Advisor
- C. the SAP HANA sizing report
- D. Azure Monitor

**Correct Answer: B**

**Section:**

**Explanation:**

Azure Advisor provides recommendations for Application Gateway, App Services, availability sets, Azure Cache, Azure Data Factory, Azure Database for MySQL, Azure Database for PostgreSQL, Azure Database for MariaDB, Azure ExpressRoute, Azure Cosmos DB, Azure public IP addresses, SQL Data Warehouse, SQL servers, storage accounts, Traffic Manager profiles, and virtual machines.

Note: Advisor is a personalized cloud consultant that helps you follow best practices to optimize your Azure deployments. It analyzes your resource configuration and usage telemetry and then recommends solutions that can help you improve the cost effectiveness, performance, high availability, and security of your Azure resources.

With Advisor, you can:

Get proactive, actionable, and personalized best practices recommendations.

Improve the performance, security, and high availability of your resources, as you identify opportunities to reduce your overall Azure spend. Get recommendations with proposed actions inline.

Incorrect Answers:

A: The SAP EarlyWatch report is a monitoring tool that monitors the essential administrative areas of SAP components and keeps you up to date on their performance and stability. SAP EarlyWatch Alert runs automatically to keep you informed, so you can react to issues proactively, before they become critical.

Reference:

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

#### QUESTION 15

HOTSPOT

You are designing the backup for an SAP database.

You have an Azure Storage account that is configured as shown in the following exhibit.

The cost of your storage account depends on the usage and the options you choose below.

[Learn more](#)

Account kind  
StorageV2 (general purpose v2)

Performance

Standard  Premium

\* Secure transfer required

Disabled  Enabled

Access tier (default)

Cool  Hot

Replication

Geo-redundant storage (GRS)

Azure Active Directory authentication for Azure Files (Preview)

Disabled  Enabled

Data Lake Storage Gen2

Hierarchical namespace

Disabled  Enabled

Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.  
NOTE: Each correct selection is worth one point.

**Hot Area:**

Data in the storage account is stored on  
**[answer choice]**.

- hard disk drives (HDDs)
- premium solid-state drives (SSDs)
- standard solid-state drives (SSDs)

Backups will be replicated  
**[answer choice]**.

- to a storage cluster in the same datacenter
- to another Azure region
- to another zone within the same Azure region

**Answer Area:**

Data in the storage account is stored on [answer choice].

▼
hard disk drives (HDDs)
premium solid-state drives (SSDs)
standard solid-state drives (SSDs)

Backups will be replicated [answer choice].

▼
to a storage cluster in the same datacenter
to another Azure region
to another zone within the same Azure region

**Section:**

**Explanation:**

Box 1: standard solid-state drives (SSDs)

Standard SSD Managed Disks, a low-cost SSD offering, are optimized for test and entry-level production workloads requiring consistent latency.

Box 2: to another Azure region

Geo-redundant storage (GRS) copies your data synchronously three times within a single physical location in the primary region using LRS. It then copies your data asynchronously to a single physical location in a secondary region that is hundreds of miles away from the primary region.

References:

<https://azure.microsoft.com/en-us/pricing/details/managed-disks/>

<https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy#geo-redundant-storage>



**QUESTION 16**

DRAG DROP

You migrate SAP ERP Central Component (SAP ECC) production and non-production landscapes to Azure.

You are licensed for SAP Landscape Management (LaMa).

You need to refresh from the production landscape to the non-production landscape.

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.

**Select and Place:**

### Actions

- From the Azure portal, create a service principal
- From the Cloud Managers tab in LaMa, add an adapter
- From SAP Solution Manager, deploy the LaMa adapter
- Add permissions to the service principal
- Install and configure LaMa on an SAP NetWeaver instance

### Answer Area



Correct Answer:

### Actions

- 
- 
- From SAP Solution Manager, deploy the LaMa adapter
- 
- 

### Answer Area



- From the Azure portal, create a service principal
- Add permissions to the service principal
- From the Cloud Managers tab in LaMa, add an adapter
- Install and configure LaMa on an SAP NetWeaver instance

Section:

Explanation:

Step 1: From the Azure portal, create a service principal

The Azure connector can use a Service Principal to authorize against Microsoft Azure. Follow these steps to create a Service Principal for SAP Landscape Management (LaMa).

Step 2: Add permissions to the service principal

The Service Principal does not have permissions to access your Azure resources by default. You need to give the Service Principal permissions to access them.

Step 3: From the Cloud Managers tab in LaMa, add an adapter

Create a new connector in SAP LaMa

Open the SAP LaMa website and navigate to Infrastructure. Go to tab Cloud Managers and click on Add. Select the Microsoft Azure Cloud Adapter

Step 4: Install and configure LaMA on an SAP NetWeater instance

Provision a new adaptive SAP system

You can manually deploy a new virtual machine or use one of the Azure templates in the quickstart repository. It contains templates for SAP NetWeaver ASCS, SAP NetWeaver application servers, and the database. You can also use these templates to provision new hosts as part of a system copy/clone etc.

Note: To support customers on their journey into a cloud model (hybrid or entirely public cloud), SAP and Microsoft partnered to create an adapter that integrates the SAP management capabilities of LaMa with the IaaS advantages of Microsoft Azure.

References:

<https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/lama-installation>

### QUESTION 17

HOTSPOT

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

NOTE: Each correct selection is worth one point.

Hot Area:

Statements	Yes	No
Oracle Real Application Clusters (RAC) can be used to provide high availability of SAP databases on Azure.	<input type="radio"/>	<input type="radio"/>
You can host SAP databases on Azure by using Oracle on a virtual machine that runs Windows Server 2016.	<input type="radio"/>	<input type="radio"/>
You can host SAP databases on Azure by using Oracle on a virtual machine that runs SUSE Linux Enterprise Server 12 (SLES 12).	<input type="radio"/>	<input type="radio"/>

Answer Area:



Statements	Yes	No
Oracle Real Application Clusters (RAC) can be used to provide high availability of SAP databases on Azure.	<input checked="" type="radio"/>	<input type="radio"/>
You can host SAP databases on Azure by using Oracle on a virtual machine that runs Windows Server 2016.	<input checked="" type="radio"/>	<input type="radio"/>
You can host SAP databases on Azure by using Oracle on a virtual machine that runs SUSE Linux Enterprise Server 12 (SLES 12).	<input checked="" type="radio"/>	<input type="radio"/>

**Section:**

**Explanation:**

Box 1: Yes

Box 2: Yes

Oracle Database 12c Release 2 (12.2) is certified on Microsoft Windows Server 2016 (Standard, Datacenter, and Essentials Editions), which includes support for the database client, server, and Oracle Real Application Clusters. Organizations can run SAP applications with Oracle databases on the same code base on Unix, Linux, and Windows operating systems.

Box 3: Yes

**References:**

<https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/oracle/oracle-overview>

<https://docs.oracle.com/en/database/oracle/oracle-database/12.2/ntdbn/index.html#>



**QUESTION 18**

**HOTSPOT**

A company named Contoso, Ltd. has users across the globe. Contoso is evaluating whether to migrate SAP to Azure.

The SAP environment runs on SUSE Linux Enterprise Server (SLES) servers and SAP HANA databases. The Suite on HANA database is 4 TB.

You need to recommend a migration solution to migrate SAP application servers and the SAP HANA databases. The solution must minimize downtime.

Which migration solutions should you recommend? To answer, select the appropriate options in the answer area. NOTE: Each correct selection is worth one point.

**Hot Area:**

SAP application servers:

	▼
AzCopy	
Azure Site Recovery	
SAP HANA system replication	
System Copy for SAP Systems	

SAP HANA databases:

	▼
AzCopy	
Azure Site Recovery	
SAP HANA system replication	
System Copy for SAP Systems	

**Answer Area:**

SAP application servers:

	▼
AzCopy	
Azure Site Recovery	
SAP HANA system replication	
System Copy for SAP Systems	

SAP HANA databases:

	▼
AzCopy	
Azure Site Recovery	
SAP HANA system replication	
System Copy for SAP Systems	

**Section:**

**Explanation:**

Box 1: Azure Site Recovery

Microsoft Azure Site Recovery (ASR) now supports SUSE Linux Enterprise Server 11 SP3/SP4 and SUSE Linux Enterprise Server 12 SP1/SP2/SP3. This is great for customers that are planning to migrate systems to Microsoft Azure or customers who need to have a business continuity strategy for their Azure deployments.

Azure Site Recovery enables SUSE customers to migrate their non-Azure virtual machines or physical servers to Microsoft Azure virtual machines.

Box 2: System Copy for SAP Systems

In order to migrate an existing SAP HANA system into Azure, a SAP homogeneous system copy can be performed.

Reference:

[https://www.suse.com/c/asr\\_supports\\_suse/](https://www.suse.com/c/asr_supports_suse/)

<https://www.netapp.com/us/media/tr-4746.pdf>

**QUESTION 19**

You have an existing SAP production landscape that uses SAP HANA databases.

You plan to migrate the landscape to Azure.

Which Azure virtual machine series will be Azure supported for the production SAP HANA database deployment?

- A. F-Series
- B. A-Series
- C. M-Series
- D. N-Series

**Correct Answer: C**

**Section:**

**QUESTION 20**

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 have a complex SAP environment that has both ABAP- and Java-based systems. The current on-premises landscapes are based on SAP NetWeaver 7.0 (Unicode and Non-Unicode) running on Windows Server and Microsoft SQL Server.

You need to migrate the SAP environment to an Azure environment.



Solution: You migrate the SAP environment as is to Azure by using Azure Site Recovery.  
Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section:**

**Explanation:**

We need upgrade to SAP NetWeaver 7.4 before the migration.

Reference:

<https://docs.microsoft.com/en-us/azure/site-recovery/vmware-azure-architecture>

#### **QUESTION 21**

HOTSPOT

You have an on-premises deployment of SAP HANA.

You plan to migrate the deployment to Azure.

You need to identify the following from the last six months:

The number of active users

The database performance

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

NOTE: Each correct selection is worth one point.

**Hot Area:**



## Answer Area

From:   
SAP GUI  
SAP Solution Manager  
A SAP Solution Manager work center

Run the:   
SAP Quick Sizer  
Transaction ST06  
SAP EarlyWatch report



Answer Area:

## Answer Area

From:   
SAP GUI  
SAP Solution Manager  
A SAP Solution Manager work center

Run the:   
SAP Quick Sizer  
Transaction ST06  
SAP EarlyWatch report

Vdumps

### Section:

### Explanation:

Reference:

<https://assets.cdn.sap.com/sapcom/docs/2019/09/0e8d0628-687d-0010-87a3-c30de2ffd8ff.pdf>

### 01 - Design an Azure Solution to Support SAP Workloads

#### Case Study

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

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

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

To start the case study

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

When you are ready to answer a question, click the Question button to return to the question.

#### Overview

Litware, Inc. is an international manufacturing company that has 3,000 employees.

Litware has two main offices. The offices are located in Miami, FL, and Madrid, Spain.

#### Existing Environment

#### Infrastructure

Litware currently uses a third-party provider to host a datacenter in Miami and a disaster recovery datacenter in Chicago, IL. The network contains an Active Directory domain named litware.com. Litware has two third-party applications hosted in Azure. Litware already implemented a site-to-site VPN connection between the on-premises network and Azure.

#### SAP Environment

Litware currently runs the following SAP products:

Enhancement Pack6 for SAP ERP Central Component 6.0 (SAP ECC 6.0)

SAP Extended Warehouse Management (SAP EWM)

SAP Supply Chain Management (SAP SCM)

SAP NetWeaver Process Integration (PI)

SAP Business Warehouse (SAP BW)

SAP Solution Manager

All servers run on the Windows Server platform. All databases use Microsoft SQL Server. Currently, you have 20 production servers.

You have 30 non-production servers including five testing servers, five development servers, five quality assurance (QA) servers, and 15 pre-production servers.

Currently, all SAP applications are in the litware.com domain.

#### Problem Statements

The current version of SAP ECC has a transaction that, when run in batches overnight, takes eight hours to complete. You confirm that upgrading to SAP Business Suite on HANA will improve performance because of code changes and the SAP HANA database platform.

Litware is dissatisfied with the performance of its current hosted infrastructure vendor. Litware experienced several hardware failures and the vendor struggled to adequately support its 24/7 business operations.

#### Requirements

##### Business Goals

Litware identifies the following business goals:

Increase the performance of SAP ECC applications by moving to SAP HANA. All other SAP databases will remain on SQL Server. Move away from the current infrastructure vendor to increase the stability and availability of the SAP services. Use the new Environment, Health and Safety (EH&S) in Recipe Management function.

Ensure that any migration activities can be completed within a 48-hour period during a weekend.

##### Planned Changes

Litware identifies the following planned changes:

Migrate SAP to Azure.

Upgrade and migrate SAP ECC to SAP Business Suite on HANA Enhancement Pack 8.

##### Technical Requirements

Litware identifies the following technical requirements:

Implement automated backups.

Support load testing during the migration.

Identify opportunities to reduce costs during the migration.

Continue to use the litware.com domain for all SAP landscapes.

Ensure that all SAP applications and databases are highly available.

Establish an automated monitoring solution to avoid unplanned outages.

Remove all SAP components from the on-premises network once the migration is complete.

Minimize the purchase of additional SAP licenses. SAP HANA licenses were already purchased.

Ensure that SAP can provide technical support for all the SAP landscapes deployed to Azure.

#### QUESTION 1

You are evaluating the migration plan.

Licensing for which SAP product can be affected by changing the size of the virtual machines?

- A. SAP ECC
- B. SAP Solution Manager
- C. PI
- D. SAP SCM



**Correct Answer: A**

**Section:**

**Explanation:**

Scenario: Increase the performance of SAP ECC applications by moving to SAP HANA.

References:

<https://azure.microsoft.com/en-us/pricing/details/virtual-machines/rhel-sap-hana/>

## 02 - Design an Azure Solution to Support SAP Workloads

### QUESTION 1

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

After you answer a question-in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen. You deploy SAP HANA on Azure (Large Instances).

You need to back up the SAP HANA database to Azure.

Solution: You create a Recovery Services vault and a backup policy.

Does this meet the goal?

A. Yes

B. No

**Correct Answer: A**

**Section:**

**Explanation:**

Backup architecture

The backup process begins by creating a Recovery services vault in Azure. This vault will be used to store the backups and recovery points created over time. The Azure VM running SAP HANA server is registered with the vault, and the databases to be backed-up are discovered. To enable the Azure Backup service to discover databases, a preregistration script must be run on the HANA server as a root user.

This script creates AZUREWLBACKUPHANAUSER DB user and a corresponding key with the same name in hdbuserstore. Refer to the setting up permissions section to understand more about what the script does. Azure Backup Service now installs the Azure Backup Plugin for HANA on the registered SAP HANA server. The AZUREWLBACKUPHANAUSER DB user created by the preregistration script is used by the Azure Backup Plugin for HANA to perform all backup and restore operations. If you attempt to configure backup for SAP HANA DBs without running this script, you might receive the following error: UserErrorHanaScriptNotRun.

To configure backup on the databases that are discovered, choose the required backup policy and enable backups. Once the backup is configured, Azure Backup service sets up the Backint parameters at the DATABASE level on the protected SAP HANA server. The Azure Backup Plugin for HANA maintains all the backup schedules and policy details. It triggers the scheduled backups and communicates with the HANA Backup Engine through the Backint APIs. The HANA Backup Engine returns a Backint stream with the data to be backed up.

All the scheduled backups and on-demand backups (triggered from the Azure portal) that are either full or differential are initiated by the Azure Backup Plugin for HANA. However, log backups are managed and triggered by HANA Backup Engineitself.

Reference:

<https://docs.microsoft.com/en-us/azure/backup/sap-hana-db-about>

<https://docs.microsoft.com/en-us/azure/backup/backup-azure-sap-hana-database#configure-backup>

### QUESTION 2

You have an SAP environment on Azure that uses multiple subscriptions.

To meet GDPR requirements, you need to ensure that virtual machines are deployed only to the West Europe and North Europe Azure regions. Which Azure components should you use?

A. Azure resource locks and the Compliance admin center

B. Azure resource groups and role-based access control (RBAC)

C. Azure management groups and Azure Policy

D. Azure Security Center and Azure Active Directory (Azure AD) groups

**Correct Answer: C**

**Section:**

**Explanation:**

Azure Policy enables you to set policies to conform to the GDPR. Azure Policy is generally available today at no additional cost to Azure customers. You can use Azure Policy to define and enforce policies that help your cloud environment become compliant with internal policies as well as external regulations.

Azure Policy is deeply integrated into Azure Resource Manager and applies across all resources in Azure. Individual policies can be grouped into initiatives to quickly implement multiple rules. You can also use Azure Policy in a wide range of compliance scenarios, such as ensuring that your data is encrypted or remains in a specific region as part of GDPR compliance. Microsoft is the only hyperscale cloud provider to offer this level of policy integration built in to the platform for no additional charge.

References: <https://azure.microsoft.com/de-de/blog/new-capabilities-to-enable-robust-gdpr-compliance/>

**QUESTION 3**

A customer that has a large enterprise SAP environment plans to migrate to Azure. The environment uses servers that run Windows Server 2016 and Microsoft SQL Server.

The environment is critical and requires a comprehensive business continuity and disaster recovery (BCDR) strategy that minimizes the recovery point objective (RPO) and the recovery time objective (RTO).

The customer wants a resilient environment that has a secondary site that is at least 250 kilometers away.

You need to recommend a solution for the customer.

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

NOTE: Each correct selection is worth one point.

- A. warm standby virtual machines in paired regions
- B. Azure Traffic Manager to route incoming traffic
- C. warm standby virtual machines in an Azure Availability Set that uses geo-redundant storage (GRS)
- D. an internal load balancer to route Internet traffic
- E. warm standby virtual machines in Azure Availability Zones

**Correct Answer: A, C**

**Section:**

**Explanation:**

A: An Azure Region Pair is a relationship between two Azure Regions within the same geographic region for disaster recovery purposes. If one of the regions were to experience a disaster or failure, then the services in that region will automatically failover to that regions secondary region in the pair.

C: For increased availability, you can deploy two VMs with two HANA instances within an Azure availability set that uses HANA system replication for availability. References: <https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/sap-hana-availability-one-region>

**QUESTION 4**

You plan to deploy an SAP environment on Azure that will use Azure Availability Zones.

Which load balancing solution supports the deployment?

- A. Azure Basic Load Balancer
- B. Azure Standard Load Balancer
- C. Azure Application Gateway v1 SKU

**Correct Answer: B**

**Section:**

**Explanation:**

When you deploy Azure VMs across Availability Zones and establish failover solutions within the same Azure region, some restrictions apply:

You can't use an Azure Basic Load Balancer to create failover cluster solutions based on Windows Server Failover Clustering or Linux Pacemaker. Instead, you need to use the Azure Standard Load Balancer SKU. References: <https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/sap-ha-availability-zones>

**QUESTION 5**

You have an Azure subscription.

Your company has an SAP environment that runs on SUSE Linux Enterprise Server (SLES) servers and SAP HANA. The environment has a primary site and a disaster recovery site. Disaster recovery is based on SAP HANA system replication. The SAP ERP environment is 4 TB and has a projected growth of 5% per month.

The company has an uptime Service Level Agreement (SLA) of 99.99%, a maximum recovery time objective (RTO) of four hours, and a recovery point objective (RPO) of 10 minutes. You plan to migrate to Azure. You need to design an SAP landscape for the company. Which options meet the company's requirements?

- A. Azure virtual machines and SLES for SAP application servers  
SAP HANA on Azure (Large Instances) that uses SAP HANA system replication for high availability and disaster recovery
- B. ASCS/ERS and SLES clustering that uses the Pacemaker fence agent  
SAP application servers deployed to an Azure Availability Zone  
SAP HANA on Azure (Large Instances) that uses SAP HANA system replication for database high availability and disaster recovery
- C. SAP application instances deployed to an Azure Availability Set  
SAP HANA on Azure (Large Instances) that uses SAP HANA system replication for database high availability and disaster recovery
- D. ASCS/ERS and SLES clustering that uses the Azure fence agent  
SAP application servers deployed to an Azure Availability Set  
SAP HANA on Azure (Large Instances) that uses SAP HANA system replication for database high availability and disaster recovery

**Correct Answer: B**

**Section:**

**Explanation:**

With Availability Zones, Azure offers industry best 99.99% VM uptime SLA.

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

#### QUESTION 6

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

After you answer a question-in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen. You deploy SAP HANA on Azure (Large Instances).

You need to back up the SAP HANA database to Azure.

Solution: You configure DB13 to back up directly to a local disk.

Does this meet the goal?

- A. Yes
- B. No

**Correct Answer: B**

**Section:**

**Explanation:**

You need to back up the SAP HANA database to Azure, not to a local disk.

References: <https://docs.microsoft.com/en-us/azure/backup/sap-hana-db-about> <https://docs.microsoft.com/en-us/azure/backup/backup-azure-sap-hana-database#configure-backup>

#### QUESTION 7

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 plan to migrate an SAP HANA instance to Azure.

You need to gather CPU metrics from the last 24 hours from the instance.

Solution: You use Monitoring from the SAP HANA Cockpit.

Does this meet the goal?

- A. Yes
- B. No



**Correct Answer: A**

**Section:**

**Explanation:**

The SAP HANA cockpit provides a single point of access to a range of SAP HANA administration and monitoring tasks. It is used to monitor and ensure the overall health of the system. The HANA Monitoring dashboard also visualizes key HANA Metrics of SAP HANA system.

Reference: <https://developers.sap.com/tutorials/dt-monitoring-hana-part1.html> <https://help.sap.com/viewer/afa922439b204e9caf22c78b6b69e4f2/2.10.0.0/en-US> <https://www.hanatutorials.com/p/hana-monitoring-dashboard.html>

**QUESTION 8**

You deploy an SAP environment on Azure.

You need to validate the load distribution to the application servers.

What should you use?

- A. SAPControl
- B. SAP Solution Manager
- C. Azure Monitor
- D. SAP Web Dispatcher

**Correct Answer: D**

**Section:**

**Explanation:**

Load balancers. These are used to distribute traffic to virtual machines in the application-tier subnet. For high availability, use the built-in SAP Web Dispatcher, Azure Load Balancer, or network appliances, depending on the traffic type (such as HTTP or SAPGUI) or the required network services, such as Secure Sockets Layer (SSL) termination.

Reference: <https://docs.microsoft.com/en-us/azure/architecture/reference-architectures/sap/sap-netweaver>

**QUESTION 9**

HOTSPOT

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

NOTE: Each correct selection is worth one point.

**Hot Area:**

Statements	Yes	No
SAP HANA certification for M-Series Azure virtual machines requires that Write Accelerator be enabled on the /hana/data volume.	<input type="radio"/>	<input type="radio"/>
SAP HANA certification for M-Series Azure virtual machines requires that Write Accelerator be enabled on the /hana/log volume.	<input type="radio"/>	<input type="radio"/>
To enable Write Accelerator, you must use Azure Premium managed disks.	<input type="radio"/>	<input type="radio"/>

**Answer Area:**

Statements	Yes	No
SAP HANA certification for M-Series Azure virtual machines requires that Write Accelerator be enabled on the /hana/data volume.	<input type="radio"/>	<input checked="" type="radio"/>
SAP HANA certification for M-Series Azure virtual machines requires that Write Accelerator be enabled on the /hana/log volume.	<input checked="" type="radio"/>	<input type="radio"/>
To enable Write Accelerator, you must use Azure Premium managed disks.	<input checked="" type="radio"/>	<input type="radio"/>

**Section:**

**Explanation:**

Box 1: No  
 Box 2: Yes  
 The minimum SAP HANA certified conditions for the different storage types are:  
 Azure Premium SSD - /hana/log is required to be cached with Azure Write Accelerator. The /hana/data volume could be placed on Premium SSD without Azure Write Accelerator or on Ultra disk

Box 3: Yes

References:

<https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/hana-vm-operations-storage>

**QUESTION 10**

**HOTSPOT**

You plan to deploy a highly available ASCS instance to SUSE Linux Enterprise Server (SLES) virtual machines in Azure. You are configuring an internal Azure Standard Load Balancer for the ASCS instance. How should you configure the internal Standard Load Balancer? To answer, select the appropriate options in the answer area.  
 NOTE: Each correct selection is worth one point.

**Hot Area:**

Session persistence:

Floating IP (direct server return):

**Answer Area:**

Session persistence:

	▼
Client IP	
Client IP and Protocol	
None	

Floating IP (direct server return):

	▼
Disabled	
Enabled	

**Section:**

**Explanation:**

Box 1: Client IP

The standard load balancer allows stateful sessions to remain as there are no IP address changes with this method.

Box 2: Enabled

Make sure to enable Floating IP.

References:

<https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/high-availability-guide-suse>

**QUESTION 11**

**HOTSPOT**

You have an Azure Availability Set that is configured as shown in the following exhibit.



```
PS Azure:\> get-azavailabilityset | Select Sku, PlatformFaultDomainCount, PlatformUpdateDomainCount, name, type | FL
Sku                : Aligned
PlatformFaultDomainCount : 2
PlatformUpdateDomainCount : 4
Name               : SAP-Databases-AS
Type               : Microsoft.Compute/availabilitySets
```

Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.

NOTE: Each correct selection is worth one point.

**Hot Area:**

Virtual machines that share [answer choice] will be susceptible to a storage outage.

	▼
aligned SKUs	
the same fault domain	
the same update domain	

Virtual machines in the Azure Availability Set can support [answer choice].

	▼
datacenter outages	
managed disks	
regional outages	

Answer Area:

Virtual machines that share [answer choice] will be susceptible to a storage outage.

	▼
aligned SKUs	
the same fault domain	
the same update domain	

Virtual machines in the Azure Availability Set can support [answer choice].

	▼
datacenter outages	
managed disks	
regional outages	

Section:

Explanation:

Box 1: the same fault domain

Fault domains define the group of virtual machines that share a common power source and network switch. If a storage fault domain fails due to hardware or software failure, only the VM instance with disks on the storage fault domain fails.

Box 2: managed disks

Managed disks provide better reliability for Availability Sets by ensuring that the disks of VMs in an Availability Set are sufficiently isolated from each other to avoid single points of failure. It does this by automatically placing the disks in different storage fault domains (storage clusters) and aligning them with the VM fault domain.

References:

<https://docs.microsoft.com/en-us/azure/virtual-machines/windows/manage-availability>

QUESTION 12

DRAG DROP

Your on-premises network contains an Active Directory domain.

You have an SAP environment on Azure that runs on SUSE Linux Enterprise Server (SLES) servers.

You configure the SLES servers to use domain controllers as their NTP servers and their DNS servers.

You need to join the SLES servers to the Active Directory domain.

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

Select and Place:

### Actions

Add realm details to `/etc/krb5.conf`  
and `/etc/samba/smb.conf`

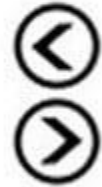
Shut down the following services: `smbd`,  
`nmbd`, and `winbindd`

Run `net ads join -U`  
`administrator`

Run `net rpc join -U`  
`administrator`

Install the `samba-winbind` package

### Answer Area



 **vdumps**

Correct Answer:



## Actions

Shut down the following services: smb, nmbd, and winbindd
Run net rpc join -U administrator

## Answer Area

	Install the samba-winbind package	
	Add realm details to /etc/krb5.conf and /etc/samba/smb.conf	
⏪	Run net ads join -U administrator	⏩
⏩		⏪

### Section:

### Explanation:

Step 1: Install the samba-winbind package

Install samba-winbind

Step 2: Add realm details to /etc/krb5.conf and /etc/samba/smb.conf

Edit files - best way to do this is to use yast on test machine and copy files from it

In following examples you need to replace EXAMPLE/EXAMPLE.COM/.example.com with your values/settings /etc/samba/smb.conf

[global]

workgroup = EXAMPLE

usershare allow guests = NO #disallow guests from sharing

idmap gid = 10000-20000

idmap uid = 10000-20000

kerberos method = secrets and keytab

realm = EXAMPLE.COM

security = ADS

template homedir = /home/%D/%U

template shell = /bin/bash

winbind offline logon = yes

winbind refresh tickets = yes

/etc/krb5.conf

[libdefaults]

default\_realm = EXAMPLE.COM

clockskew = 300

[realms]

EXAMPLE.COM = {

kdc = PDC.EXAMPLE.COM

default\_domain = EXAMPLE.COM

admin\_server = PDC.EXAMPLE.COM



}

..

Step 3: Run net ads join -U administrator

Join the SLES 12 Server to the AD domain

References:

<https://www.suse.com/support/kb/doc/?id=7018461>

### QUESTION 13

#### HOTSPOT

You have SAP ERP on Azure.

For SAP high availability, you plan to deploy ASCS/ERS instances across Azure Availability Zones and to use failover clusters.

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

NOTE: Each correct selection is worth one point.

#### Hot Area:

Statements	Yes	No
To create a failover solution, you can use an Azure Basic Load Balancer for Azure virtual machines deployed across the Azure Availability Zones.	<input type="radio"/>	<input type="radio"/>
You can deploy Azure Availability Sets within an Azure Availability Zone.	<input type="radio"/>	<input type="radio"/>
The solution must use Azure managed disks.	<input type="radio"/>	<input type="radio"/>



#### Answer Area:

Statements	Yes	No
To create a failover solution, you can use an Azure Basic Load Balancer for Azure virtual machines deployed across the Azure Availability Zones.	<input type="radio"/>	<input checked="" type="radio"/>
You can deploy Azure Availability Sets within an Azure Availability Zone.	<input checked="" type="radio"/>	<input type="radio"/>
The solution must use Azure managed disks.	<input checked="" type="radio"/>	<input type="radio"/>

#### Section:

#### Explanation:

Box 1: No

You can't use an Azure Basic Load Balancer to create failover cluster solutions based on Windows Server Failover Clustering or Linux Pacemaker. Instead, you need to use the Azure Standard Load Balancer SKU.

Box 2: Yes

Azure Availability Zones is one of the high-availability features that Azure provides. Using Availability Zones improves the overall availability of SAP workloads on Azure. The SAP application layer is deployed across one Azure availability set. For high availability of SAP Central Services, you can deploy two VMs in a separate availability set.

Box 3: Yes

You must use Azure Managed Disks when you deploy to Azure Availability Zones.



Reference:  
<https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/sap-ha-availability-zones>

**QUESTION 14**

**HOTSPOT**

You are deploying an SAP environment across Azure Availability Zones. The environment has the following components:

ASCS/ERS instances that use a failover cluster

SAP application servers across the Azure Availability Zones

Database high availability by using a native database solution

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

NOTE: Each correct selection is worth one point.

**Hot Area:**

Statements	Yes	No
Network latency is a limiting factor when deploying DBMS instances that use synchronous replication across the Azure Availability Zones.	<input type="radio"/>	<input type="radio"/>
The performance of SAP systems can be validated by using ABAPMeter.	<input type="radio"/>	<input type="radio"/>
To help identify the best Azure Availability Zones for deploying the SAP components, you can use NIPING to verify network latency between the zones.	<input type="radio"/>	<input type="radio"/>

**Answer Area:**

Statements	Yes	No
Network latency is a limiting factor when deploying DBMS instances that use synchronous replication across the Azure Availability Zones.	<input type="radio"/>	<input checked="" type="radio"/>
The performance of SAP systems can be validated by using ABAPMeter.	<input checked="" type="radio"/>	<input type="radio"/>
To help identify the best Azure Availability Zones for deploying the SAP components, you can use NIPING to verify network latency between the zones.	<input checked="" type="radio"/>	<input type="radio"/>

**Section:**

**Explanation:**

Box 1: No

Azure Availability Zones are physically separate locations within an Azure region protecting customers' applications and data from datacenter-level failures. It is good for applications that require low-latency synchronous replication with protection from datacenter-level failures.

Box 2: Yes

AAP application server to database server latency can be tested with ABAPMeter report /SSA/CAT.

Box 3: Yes

To analyze network issue or measure network metrics you can test the connection using SAP's NIPING program. You can use NIPING to analyze the network connection between any two machines running SAP software.

Reference:

<https://azure.microsoft.com/sv-se/blog/azure-availability-zones-expand-with-new-services-and-to-new-regions-in-europe-and-united-states/>

<https://azure.microsoft.com/en-us/blog/sap-on-azure-architecture-designing-for-performance-and-scalability/>

## 01 - Build and Deploy Azure SAP Workloads

### 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.

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To start the case study

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

When you are ready to answer a question, click the Question button to return to the question.

### Overview

Litware, Inc. is an international manufacturing company that has 3,000 employees.

Litware has two main offices. The offices are located in Miami, FL, and Madrid, Spain.

### Existing Environment

#### Infrastructure

Litware currently uses a third-party provider to host a datacenter in Miami and a disaster recovery datacenter in Chicago, IL.

The network contains an Active Directory domain named litware.com. Litware has two third-party applications hosted in Azure.

Litware already implemented a site-to-site VPN connection between the on-premises network and Azure.

### SAP Environment

Litware currently runs the following SAP products:

Enhancement Pack6 for SAP ERP Central Component 6.0 (SAP ECC 6.0)

SAP Extended Warehouse Management (SAP EWM)

SAP Supply Chain Management (SAP SCM)

SAP NetWeaver Process Integration (PI)

SAP Business Warehouse (SAP BW)

SAP Solution Manager

All servers run on the Windows Server platform. All databases use Microsoft SQL Server. Currently, you have 20 production servers.

You have 30 non-production servers including five testing servers, five development servers, five quality assurance (QA) servers, and 15 pre-production servers.

Currently, all SAP applications are in the litware.com domain.

### Problem Statements

The current version of SAP ECC has a transaction that, when run in batches overnight, takes eight hours to complete. You confirm that upgrading to SAP Business Suite on HANA will improve performance because of code changes and the SAP HANA database platform.

Litware is dissatisfied with the performance of its current hosted infrastructure vendor. Litware experienced several hardware failures and the vendor struggled to adequately support its 24/7 business operations.

### Requirements

#### Business Goals

Litware identifies the following business goals:

Increase the performance of SAP ECC applications by moving to SAP HANA. All other SAP databases will remain on SQL Server. Move away from the current infrastructure vendor to increase the stability and availability of the SAP services. Use the new Environment, Health and Safety (EH&S) in Recipe Management function.

Ensure that any migration activities can be completed within a 48-hour period during a weekend.

#### Planned Changes

Litware identifies the following planned changes:

Migrate SAP to Azure.

Upgrade and migrate SAP ECC to SAP Business Suite on HANA Enhancement Pack 8.

#### Technical Requirements

Litware identifies the following technical requirements:

Implement automated backups.



Support load testing during the migration.  
Identify opportunities to reduce costs during the migration.  
Continue to use the litware.com domain for all SAP landscapes.  
Ensure that all SAP applications and databases are highly available.  
Establish an automated monitoring solution to avoid unplanned outages.  
Remove all SAP components from the on-premises network once the migration is complete.  
Minimize the purchase of additional SAP licenses. SAP HANA licenses were already purchased.  
Ensure that SAP can provide technical support for all the SAP landscapes deployed to Azure.

#### QUESTION 1

You need to ensure that you can receive technical support to meet the technical requirements.  
What should you deploy to Azure?

- A. SAP Landscape Management (LaMa)
- B. SAP Gateway
- C. SAP Web Dispatcher
- D. SAPRouter

**Correct Answer: A**

**Section:**

**Explanation:**

Scenario: Ensure that SAP can provide technical support for all the SAP landscapes deployed to Azure. References: <https://blogs.sap.com/2019/07/22/sap-landscape-management-on-microsoft-azure-part-1/>

#### QUESTION 2

You need to recommend a solution to reduce the cost of the SAP non-production landscapes after the migration. What should you include in the recommendation?

- A. Configure scaling of Azure App Service
- B. Migrate the SQL Server databases to Azure SQL Data Warehouse
- C. Deallocate virtual machines when not in use
- D. Deploy non-production landscapes to Azure DevTest Labs

**Correct Answer: D**

**Section:**

**Explanation:**

Relevant use cases Dev/test environments for SAP workloads on Azure.

Noncritical SAP nonproduction workloads (such as sandbox, development, test, and quality assurance). Noncritical SAP business workloads. References: <https://docs.microsoft.com/en-us/azure/architecture/example-scenario/apps/sap-dev-test>

#### QUESTION 3

HOTSPOT

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

NOTE: Each correct selection is worth one point.

**Hot Area:**

Statements	Yes	No
After the migration, all user authentication to the SAP applications must be handled by Azure Active Directory (Azure AD).	<input type="radio"/>	<input type="radio"/>
The migration requires that the on-premises Active Directory domain syncs to Azure Active Directory (Azure AD).	<input type="radio"/>	<input type="radio"/>
After the migration users will be able to authenticate to the SAP applications by using their existing credentials in litware.com.	<input type="radio"/>	<input type="radio"/>

**Answer Area:**

Statements	Yes	No
After the migration, all user authentication to the SAP applications must be handled by Azure Active Directory (Azure AD).	<input checked="" type="radio"/>	<input type="radio"/>
The migration requires that the on-premises Active Directory domain syncs to Azure Active Directory (Azure AD).	<input checked="" type="radio"/>	<input type="radio"/>
After the migration users will be able to authenticate to the SAP applications by using their existing credentials in litware.com.	<input checked="" type="radio"/>	<input type="radio"/>

**Section:**

**Explanation:**

In a Hybrid-IT scenario, Active Directory from on-premises can be extended to serve as the authentication mechanism through an Azure deployed domain controller (as well as potentially using the integrated DNS). It is important to distinguish between traditional Active Directory Servers and Microsoft Azure Active Directory that provides only a subset of the traditional on-premises AD offering. This subset include Identity and Access Management, but does not have the full AD schema or services that many 3rd party application take advantage of. While Azure Active Directory IS a requirement to establish authentication for the Azure virtual machines in use, and it can synchronize users with customers' on-premises AD, the two are explicitly different and customers will likely continue to require full Active Directory servers deployed in Microsoft Azure. References: [https://www.suse.com/media/guide/sap\\_hana\\_on\\_azure\\_101.pdf](https://www.suse.com/media/guide/sap_hana_on_azure_101.pdf)

**02 - Build and Deploy Azure SAP Workloads**

Case Study

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Overview

Contoso, Ltd. is a manufacturing company that has 15,000 employees.

The company uses SAP for sales and manufacturing.

Contoso has sales offices in New York and London and manufacturing facilities in Boston and Seattle.

Existing Environment

Active Directory

The network contains an on-premises Active Directory domain named ad.contoso.com. User email addresses use a domain name of contoso.com.

## SAP Environment

The current SAP environment contains the following components:

SAP Solution Manager

SAP ERP Central Component (SAP ECC)

SAP Supply Chain Management (SAP SCM)

SAP application servers that run Windows Server 2008 R2

SAP HANA database servers that run SUSE Linux Enterprise Server 12 (SLES 12)

## Problem Statements

Contoso identifies the following issues in its current environment:

The SAP HANA environment lacks adequate resources.

The Windows servers are nearing the end of support.

The datacenters are at maximum capacity.

## Requirements

### Planned Changes

Contoso identifies the following planned changes:

Deploy Azure Virtual WAN.

Migrate the application servers to Windows Server 2016.

Deploy ExpressRoute connections to all of the offices and manufacturing facilities.

Deploy SAP landscapes to Azure for development, quality assurance, and production.

All resources for the production landscape will be in a resource group named SAPProduction.

### Business goals

Contoso identifies the following business goals:

Minimize costs whenever possible.

Migrate SAP to Azure without causing downtime.

Ensure that all SAP deployments to Azure are supported by SAP.

Ensure that all the production databases can withstand the failure of an Azure region.

Ensure that all the production application servers can restore daily backups from the last 21 days.

### Technical Requirements

Contoso identifies the following technical requirements:

Inspect all web queries.

Deploy an SAP HANA cluster to two datacenters.

Minimize the bandwidth used for database synchronization.

Use Active Directory accounts to administer Azure resources.

Ensure that each production application server has four 1-TB data disks.

Ensure that an application server can be restored from a backup created during the last five days within 15 minutes. Implement an approval process to ensure that an SAP administrator is notified before another administrator attempts to make changes to the Azure virtual machines that host SAP.

It is estimated that during the migration, the bandwidth required between Azure and the New York office will be 1 Gbps. After the migration, a traffic burst of up to 3 Gbps will occur.

### Proposed Backup Policy

An Azure administrator proposes the backup policy shown in the following exhibit.





\* Policy name ⓘ  
 SapPolicy ✓

**Backup schedule**

\* Frequency \* Time \* Timezone  
 Daily 3:30 AM (UTC) Coordinated Universal Time

**Instant Restore ⓘ**

Retain instant recovery snapshot(s) for  
 5 ✓ Day(s)

**Retention range**

Retention of daily backup point.

\* At For  
 3:30 AM 14 ✓ Day(s)

Retention of weekly backup point.

\* On \* At For  
 Sunday 3:30 AM 8 ✓ Week(s)

Retention of monthly backup point.

\* On \* Day \* At For  
 First Sunday 3:30 AM 12 ✓ Month(s)

Retention of yearly backup point.

\* In \* On \* Day \* At For  
 January First Sunday 3:30 AM 7 ✓ Year(s)



**Azure Resource Manager Template**

An Azure administrator provides you with the Azure Resource Manager template that will be used to provision the production application servers.



```

{
  "apiVersion": "2017-03-30",
  "type": "Microsoft.Compute/virtualMachines",
  "name": "[parameters('vmname')]",

  "location": "EastUS",
  "dependsOn": [
    "[resourceId('Microsoft.Network/networkInterfaces/', parameters('vmname'))]"
  ],
  "properties": {
    "hardwareProfile": {
      "vmSize": "[parameters('vmSize')]"
    },
    "osProfile": {
      "computerName": "[parameters('vmname')]",
      "adminUsername": "[parameters('adminUsername')]",
      "adminPassword": "[parameters('adminPassword')]"
    },
    "storageProfile": {
      "imageReference": {
        "publisher": "MicrosoftWindowsServer",
        "offer": "WindowsServer",
        "sku": "2016-datacenter",
        "version": "latest"
      },
      "osDisk": {
        "name": "[concat(parameters('vmname'), '-OS')]",
        "caching": "ReadWrite",
        "createOption": "FromImage",
        "diskSizeGB": 128,
        "managedDisk": {
          "storageAccountType": "[parameters('storageAccountType')]"
        }
      }
    },
    "copy": [
      {
        "name": "DataDisks",
        "count": "[parameters('diskCount')]",
        "input": {
          "caching": "None",
          "diskSizeGB": 1024,
          "lun": "[copyIndex('datadisks')]",

```



```

        "name": "[concat(parameters('vmname'), '-DD',copyIndex('datadisks'))]",
        "createOption": "Empty"
      }
    ]
  },
  "networkProfile": {
    "networkInterfaces": [
      {
        "id": "[resourceId('Microsoft.Network/networkInterfaces', parameters('vmName'))]"
      }
    ]
  }
},
"resources": [
  {
    "apiVersion": "2017-03-30",
    "type": "Microsoft.Compute/virtualMachines/extensions",
    "name": "[concat(parameters('VMName'), '/joindomain')]",
    "location": "eastus",
    "properties": {
      "publisher": "Microsoft.Compute",
      "type": "JsonADDomainExtension",
      "typeHandlerVersion": "1.3",
      "autoUpgradeMinorVersion": true,
      "settings": {
        "Name": "[parameters('domainName')]",
        "User": "[parameters('domainusername')]",
        "Restart": "true",
        "Options": "3"
      },
      "protectedsettings": {
        "Password": "[parameters('domainPassword')]"
      }
    }
  }
]
}

```



**QUESTION 1**

This question requires that you evaluate the underlined text to determine if it is correct.

You are planning for the administration of resources in Azure.

To meet the technical requirements, you must first implement Active Directory Federation Services (AD FS). Instructions: Review the underlined text. If it makes the statement correct, select "No change is needed". If the statement is incorrect, select the answer choice that makes the statement correct.

- A. No change is needed
- B. Azure AD Connect
- C. Azure AD join
- D. Enterprise State Roaming

**Correct Answer: A**

**Section:**

**Explanation:**

The SAP Cloud Platform Identity Authentication and Active Directory Federation Services enable you to implement SSO across applications or services that are protected by Azure AD (as an IdP) with SAP applications and services that are protected by SAP Cloud Platform Identity Authentication.

Scenario: Use Active Directory accounts to administer Azure resources.

Incorrect Answers:

Not D: With Windows 10, Azure Active Directory (Azure AD) users gain the ability to securely synchronize their user settings and application settings data to the cloud. Enterprise State Roaming provides users with a unified experience across their Windows devices and reduces the time needed for configuring a new device. Enterprise State Roaming operates similar to the standard consumer settings sync that was first introduced in Windows 8.

References: <https://docs.microsoft.com/en-us/azure/active-directory/saas-apps/sap-hana-cloud-platform-identity-authentication-tutorial>

**QUESTION 2**

HOTSPOT

Before putting the SAP environment on Azure into production, which command should you run to ensure that the virtual machine disks meet the business requirements? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

**Hot Area:**

`-resourcegroupname "SAPProduction" | Where {$_.Sku.Name -ne "`

Get-AzDisk
Get-AzVM
Get-AzVMImage

Premium_LRS
Standard_LRS
Standard_RAGRS
StandardsSSD_LRS

**Answer Area:**

`-resourcegroupname "SAPProduction" | Where {$_.Sku.Name -ne "`

Get-AzDisk
Get-AzVM
Get-AzVMImage

Premium_LRS
Standard_LRS
Standard_RAGRS
StandardsSSD_LRS

**Section:**

**Explanation:**

Scenario: Ensure that all the production databases can withstand the failure of an Azure region.

References:

<https://docs.microsoft.com/en-us/powershell/module/az.compute/get-azvmimage>

**QUESTION 3**

HOTSPOT

You need to provide the Azure administrator with the values to complete the Azure Resource Manager template.

Which values should you provide for diskCount, StorageAccountType, and domainName? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

**Hot Area:**

diskCount:

0
1
2
4

storageAccountType:

Premium_LRS
Standard_GRS
Standard_LRS

domainName:

ad.contoso.com
ad.contoso.onmicrosoft.com
contoso.com
contoso.onmicrosoft.com

Answer Area:

diskCount:

0
1
2
4

storageAccountType:

Premium_LRS
Standard_GRS
Standard_LRS

domainName:

ad.contoso.com
ad.contoso.onmicrosoft.com
contoso.com
contoso.onmicrosoft.com



Section:

**Explanation:**

Box 1: 4

Scenario: the Azure Resource Manager template that will be used to provision the production application servers. Ensure that each production application server has four 1-TB data disks.

Box 2: Standard\_LRS

Scenario: Minimize costs whenever possible.

Box 3: contoso.onmicrosoft.com

The network contains an on-premises Active Directory domain named ad.contoso.com.

The Initial domain: The default domain (onmicrosoft.com) in the Azure AD Tenant. For example, contoso.onmicrosoft.com.

References:

<https://docs.microsoft.com/en-us/azure/active-directory/hybrid/plan-connect-userprincipalname>

**02 - Operationalize Azure SAP Architecture****QUESTION 1**

You need direct connectivity from an on-premises network to SAP HANA (Large Instances). The solution must meet the following requirements:

Minimize administrative effort.

Provide the highest level of resiliency.

What should you use?

- A. ExpressRoute Global Reach
- B. Linux IPTables
- C. ExpressRoute
- D. NGINX as a reverse proxy

**Correct Answer: C**

**Section:**

**Explanation:**

The Azure network functionality used is:

Azure virtual networks are connected to the ExpressRoute circuit that connects to your on-premises network assets. An ExpressRoute circuit that connects on-premises to Azure should have a minimum bandwidth of 1 Gbps or higher. This minimal bandwidth allows adequate bandwidth for the transfer of data between on-premises systems and systems that run on VMs. It also allows adequate bandwidth for connection to Azure systems from on-premises users. All SAP systems in Azure are set up in virtual networks to communicate with each other.

Reference: <https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/hana-network-architecture>

**QUESTION 2**

You have an on-premises SAP environment hosted on VMware vSphere.

You plan to migrate the environment to Azure by using Azure Site Recovery.

You need to prepare the environment to support Azure Site Recovery.

What should you deploy first?

- A. an on-premises data gateway to vSphere
- B. Microsoft System Center Virtual Machine Manager (VMM)
- C. an Azure Backup server
- D. a configuration server to vSphere

**Correct Answer: D**

**Section:**

**Explanation:**

When you set up disaster recovery for on-premises VMware VMs, Site Recovery needs access to the vCenter Server/vSphere host so that the Site Recovery process server can automatically discover VMs, and fail them over as needed. By default the process server runs on the Site Recovery configuration server. Add an account for the configuration server to connect to the vCenter Server/vSphere host.



Reference: <https://docs.microsoft.com/en-us/azure/site-recovery/vmware-azure-manage-vcenter>

### QUESTION 3

This question requires that you evaluate the underlined text to determine if it is correct.

When deploying SAP HANA to an Azure virtual machine, you can enable Write Accelerator to reduce the latency between the SAP application servers and the database layer. Instructions: Review the underlined text. If it makes the statement correct, select "No change is needed". If the statement is incorrect, select the answer choice that makes the statement correct.

- A. No change is needed
- B. install the Mellanox driver
- C. start the NIPING service
- D. enable Accelerated Networking

**Correct Answer: D**

**Section:**

**Explanation:**

To further reduce network latency between Azure VMs, we [Microsoft] recommend that you choose Azure Accelerated Networking. Use it when you deploy Azure VMs for an SAP workload, especially for the SAP application layer and the SAP DBMS layer.

Incorrect Answers:

A: Write Accelerator is a disk capability for M-Series Virtual Machines (VMs) on Premium Storage with Azure Managed Disks exclusively. As the name states, the purpose of the functionality is to improve the I/O latency of writes against Azure Premium Storage.

B: Mellanox offers a robust and full set of protocol software and driver for Linux with the ConnectX EN family cards. Designed to provide a high performance support for Enhanced Ethernet with fabric consolidation over TCP/IP based LAN applications. The driver and software in conjunction with the Industry's leading ConnectX family of cards achieve full line rate, full duplex of up to 100Gbps performance per port. C: To analyze network issue or measure network metrics you can test the connection using SAP's NIPING program. You can use NIPING to analyze the network connection between any two machines running SAP software.

Reference: [https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/dbms\\_guide\\_general](https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/dbms_guide_general)

### QUESTION 4

You plan to deploy a high availability SAP environment that will use a failover clustering solution.

You have an Azure Resource Manager template that you will use for the deployment. You have the following relevant portion of the template.



```

"apiVersion": "2017-08-01",
"type": "Microsoft.Network/loadBalancers",
"name": "load_balancer1",
"location": "region",
"sku":
  { "name": "Standard"},
"properties": {
  "frontendIPConfigurations": [
    {
      "name": "frontend1",
      "zones": [ "1" ],
      "properties": {
        "subnet": {
          "Id": "[variables('subnetRef')]"
        },
        "privateIPAddress": "10.0.0.6",
        "privateIPAllocationMethod": "Static"
      }
    },
  ],
}

```



What is created by the template?

- A. a zone-redundant public IP address for the internal load balancer
- B. a zone-redundant frontend IP address for the internal Azure Basic Load Balancer
- C. a zone-redundant frontend IP address for the internal Azure Standard Load Balancer
- D. a zonal frontend IP address for the internal Azure Standard Load Balancer

**Correct Answer: C**

**Section:**

**Explanation:**

Reference: <https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/high-availability-guide-standard-load-balancer-outbound-connections>

#### QUESTION 5

##### HOTSPOT

You have an on-premises SAP environment.

Backups are performed by using tape backups. There are 50 TB of backups.


A Windows file server has BMP images of checks used by SAP Finance. There are 9 TB of images.

You need to recommend a method to migrate the images and the tape backups to Azure. The solution must maintain continuous replication of the images.

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


NOTE: Each correct selection is worth one point.

**Hot Area:**

 Tape backups:  AzCopy  
 Azure Data Box Edge  
 Azure Databox  
 Azure Storage Explorer

File server:  AzCopy  
 Azure Data Box Edge  
 Azure Databox  
 Azure Storage Explorer

**Answer Area:**

 Tape backups:  AzCopy  
 Azure Data Box Edge  
 Azure Databox  
 Azure Storage Explorer

File server:  AzCopy  
 Azure Data Box Edge  
 Azure Databox  
 Azure Storage Explorer



**Section:**

**Explanation:**

Tape backups: Azure DataBox

The Microsoft Azure Data Box cloud solution lets you send terabytes of data into Azure in a quick, inexpensive, and reliable way. The secure data transfer is accelerated by shipping you a proprietary Data Box storage device. Each storage device has a maximum usable storage capacity of 80 TB and is transported to your datacenter through a regional carrier. The device has a rugged casing to protect and secure data during the transit.

File server: Azure Storage Explorer

Azure Storage Explorer is an application which helps you to easily access the Azure storage account through any device on any platform, be it Windows, MacOS, or Linux. You can easily connect to your subscription and manipulate your tables, blobs, queues, and files.

Incorrect Answers:

Not Azure Data Box Edge: Azure Data Box Edge is rebranded as Azure Stack Edge. Azure Stack Edge is a Hardware-as-a-service solution. Microsoft ships you a cloud-managed device with a built-in Field Programmable Gate Array (FPGA) that enables accelerated AI-inferencing and has all the capabilities of a network storage gateway.

Reference:

<https://docs.microsoft.com/en-us/azure/databox/data-box-overview>

<https://github.com/MicrosoftDocs/azure-docs/blob/master/articles/vs-azure-tools-storage-manage-with-storage-explorer.md>

**QUESTION 6**

**HOTSPOT**

You have an on-premises SAP environment. Application servers run on SUSE Linux Enterprise Server (SLES) servers. Databases run on SLES servers that have Oracle installed.

You need to recommend a solution to migrate the environment to Azure. The solution must use currently deployed technologies whenever possible and support high availability.

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

NOTE: Each correct selection is worth one point.

**Hot Area:**

Application server operating system:  ▼

Oracle Linux
SLES
Windows Server 2016

Database server operating system:  ▼

Oracle Linux
SLES
Windows Server 2016

Database platform:  ▼

Azure SQL Database
Microsoft SQL Server
Oracle
SAP HANA

**Answer Area:**

Application server operating system:  ▼

Oracle Linux
SLES
Windows Server 2016

Database server operating system:  ▼

Oracle Linux
SLES
Windows Server 2016

Database platform:  ▼

Azure SQL Database
Microsoft SQL Server
Oracle
SAP HANA



**Section:**

**Explanation:**

**QUESTION 7**

DRAG DROP

You have an SAP environment on Azure.

You use Azure Recovery Services to back up an SAP application server.

You need to test the restoration process of a file on the server.

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

**Select and Place:**

**Actions**

- Download and run the mount disk executable
- From Azure Cloud Shell, run the Get-AzBackupItem cmdlet
- From Azure Recovery Vault, select **File Recovery**
- Recover the file and unmount the disk
- From Azure Cloud Shell, run the Get-AzBackupRecoveryPoint cmdlet

**Answer Area**

Navigation arrows: Left arrow, Right arrow, Up arrow, Down arrow

Correct Answer:

**Actions**

- From Azure Cloud Shell, run the Get-AzBackupItem cmdlet
- From Azure Cloud Shell, run the Get-AzBackupRecoveryPoint cmdlet

**Answer Area**

- From Azure Recovery Vault, select **File Recovery**
- Download and run the mount disk executable
- Recover the file and unmount the disk

Navigation arrows: Left arrow, Right arrow, Up arrow, Down arrow

**Section:**

**Explanation:**

- Step 1: From Azure Recover Vault, select File Recovery
- To restore files or folders from the recovery point, go to the virtual machine and choose the desired recovery point.
- Step 2: Download and run the mount disk executable
- Step 3: recover the file and unmount the disk



**QUESTION 8**

**HOTSPOT**

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

NOTE: Each correct selection is worth one point.

**Hot Area:**

 <b>Statements</b>	<b>Yes</b>	<b>No</b>
Enabling Accelerated Networking on an SAP application server will decrease CPU usage.	<input type="radio"/>	<input type="radio"/>
Enabling Accelerated Networking on an SAP application server will increase jitter.	<input type="radio"/>	<input type="radio"/>
You can enable Accelerated Networking on any Azure virtual machine.	<input type="radio"/>	<input type="radio"/>



Answer Area:

Statements	Yes	No
Enabling Accelerated Networking on an SAP application server will decrease CPU usage.	<input checked="" type="radio"/>	<input type="radio"/>
Enabling Accelerated Networking on an SAP application server will increase jitter.	<input checked="" type="radio"/>	<input type="radio"/>
You can enable Accelerated Networking on any Azure virtual machine.	<input type="radio"/>	<input checked="" type="radio"/>

Section:

Explanation:

Box 1: Yes

By moving much of Azure's software-defined networking stack off the CPUs and into FPGA-based SmartNICs, compute cycles are reclaimed by end user applications, putting less load on the VM, decreasing jitter and inconsistency in latency.

Box 2: Yes

Box 3: No

Accelerated Networking (AN) is generally available (GA) and widely available for Windows and the latest distributions of Linux

Reference:

<https://azure.microsoft.com/en-us/blog/maximize-your-vm-s-performance-with-accelerated-networking-now-generally-available-for-both-windows-and-linux/>

QUESTION 9

HOTSPOT

You have an SAP environment that contains the following components:

Enhancement Package 6 for SAP ERP Central Component 6.0 (SAP ECC 6.0)

Servers that run SUSE Linux Enterprise Server 12 (SLES 12)

Databases on IBM DB2 10.5

• SAP Solution Manager 7.1

SAP Solution Manager 7.1

You plan to migrate the SAP environment to Azure.

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

NOTE: Each correct selection is worth one point.

Hot Area:

Statements	Yes	No
The version of SAP Solution Manager supports deployment to Azure.	<input type="radio"/>	<input type="radio"/>
The version of SAP ECC supports deployment to Azure.	<input type="radio"/>	<input type="radio"/>
The DB2 databases must be migrated to a different database platform before migrating to Azure.	<input type="radio"/>	<input type="radio"/>

Answer Area:

Statements	Yes	No
The version of SAP Solution Manager supports deployment to Azure.	<input checked="" type="radio"/>	<input type="radio"/>
The version of SAP ECC supports deployment to Azure.	<input type="radio"/>	<input checked="" type="radio"/>
The DB2 databases must be migrated to a different database platform before migrating to Azure.	<input type="radio"/>	<input checked="" type="radio"/>

**Section:**

**Explanation:**

Box 1: Yes

Box 2: No

Upgrade to ECC 7.01 or later.

Box 3: No

With Microsoft Azure, you can migrate your existing SAP application running on IBM Db2 for Linux, UNIX, and Windows (LUW) to Azure virtual machines. With SAP on IBM Db2 for LUW, administrators and developers can still use the same development and administration tools, which are available on-premises.

Reference:

<https://docs.microsoft.com/en-us/azure/data-factory/connector-sap-table>

[https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/dbms\\_guide\\_ibm](https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/dbms_guide_ibm)

**QUESTION 10**

DRAG DROP

You have an on-premises SAP environment that runs on SUSE Linux Enterprise Server (SLES) servers and Oracle. The version of the SAP ERP system is 6.06 and the version of the portal is SAP NetWeaver 7.3.

You need to recommend a migration strategy to migrate the SAP ERP system and the portal to Azure. The solution must be hosted on SAP HANA.

What should you recommend? To answer, drag the appropriate tools to the correct components. 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.

NOTE: Each correct selection is worth one point.

**Select and Place:**

**Tools**

- SAP heterogeneous system copy
- Software Update Manager (SUM) Database Migration Option (DMO) with System Update
- Software Update Manager (SUM) Database Migration Option (DMO) with System Move
- Software Update Manager (SUM) Database Migration Option (DMO) without System Update

**Answer Area**

To migrate the SAP ERP system:

To migrate the portal:

**Correct Answer:**

**Tools**

SAP heterogeneous system copy

Software Update Manager (SUM) Database Migration Option (DMO) with System Move

**Answer Area**

To migrate the SAP ERP system: Software Update Manager (SUM) Database Migration Option (DMO) with System Update

To migrate the portal: Software Update Manager (SUM) Database Migration Option (DMO) without System Update

**Section:**

**Explanation:**

Box 1: Software Update Manager (SUM) Database Migration option (DMO) with System Update

The SAP ERP system is 6.06.

Box 2: Software Update Manager (SUM) Database Migration option (DMO) without System Update

The portal is SAP NetWeaver 7.3.

SAP ERP portal migrate azure Software update manager database

Reference:

<https://blogs.sap.com/2017/10/05/your-sap-on-azure-part-2-dmo-with-system-move/>

**QUESTION 11**

You deploy an SAP environment on Azure.

You need to ensure that incoming requests are distributed evenly across the application servers.

What should you use?

- A. SAP Web Dispatcher
- B. SAP Solution Manager
- C. SAP Control
- D. Azure Monitor

**Correct Answer: A**

**Section:**

**Explanation:**

The SAP Web Dispatcher (SWD) component is used as a load balancer for SAP traffic among the SAP application servers.

Reference:

<https://docs.microsoft.com/en-us/azure/architecture/reference-architectures/sap/sap-netweaver>

**QUESTION 12**

**HOTSPOT**

You have an SAP production landscape on Azure that contains the virtual machines shown in the following table.

Name	Location	Application
HANA1	East US	SAP HANA 2.0
HANA2	East US	SAP HANA 2.0
HANA3	South Central US	SAP HANA 2.0
App1	East US	SAP Web Dispatcher
App2	East US	SAP Web Dispatcher

You configure HANA system replication as shown in the following table.

Source	Destination	Mode
HANA1	HANA2	Sync
HANA2	HANA3	Sync

You configure two load balancers as shown in the following table.

Name	Location	Type	Pool
LB1	East US	Standard	HANA1, HANA2
LB2	East US	Basic	App1, App2

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

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Statements	Yes	No
HANA2 and HANA3 are in a supported configuration.	<input type="radio"/>	<input type="radio"/>
App1 and App2 are in a supported configuration.	<input type="radio"/>	<input type="radio"/>
Azure Site Recovery is in a supported configuration for App1 and App2 to fail over to the South Central US Azure region.	<input type="radio"/>	<input type="radio"/>

Answer Area:



## Answer Area

Statements	Yes	No
HANA2 and HANA3 are in a supported configuration.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
App1 and App2 are in a supported configuration.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Azure Site Recovery is in a supported configuration for App1 and App2 to fail over to the South Central US Azure region.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Section:

### Explanation:

Reference:

<https://help.sap.com/viewer/6b94445c94ae495c83a19646e7c3fd56/2.0.02/en-US/f730f308fede4040bcb5ccea6751e74d.html>

<https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/sap-hana-high-availability>

### Exam H

#### QUESTION 1

##### HOTSPOT

You have an on-premises deployment of SAP Business Suite on HANA that includes a CPU-intensive application tier and a 20-TB database tier.

You plan to migrate to SAP HANA on Azure.

You need to recommend a compute option to host the application and database tiers. The solution must minimize cost. What should you recommend for each tier? To answer, select the appropriate options in the answer area. NOTE: Each correct selection is worth one point.

### Hot Area:



**Answer Area**

Application:

	▼
Ev3-series of Azure virtual machines	
HANA on Azure (Large Instances)	
M-series of Azure virtual machines	

Database:

	▼
Ev3-series of Azure virtual machines	
HANA on Azure (Large Instances)	
M-series of Azure virtual machines	

Answer Area:

## Answer Area

Application:

	▼
Ev3-series of Azure virtual machines	
HANA on Azure (Large Instances)	
M-series of Azure virtual machines	

Database:

	▼
Ev3-series of Azure virtual machines	
HANA on Azure (Large Instances)	
M-series of Azure virtual machines	

### Section:

#### Explanation:

Box 1: Ev3 series M Azure virtual machines

The Ev3 series pricing is starting from \$58.40 /per month.

The E-series Azure VMs are optimized for heavy in-memory applications such as SAP HANA. These VMs are configured with high memory-to-core ratios, which makes them well-suited for memoryintensive enterprise applications, large relational database servers, in-memory analytics workloads etc.

The Ev3-series VMs range from 2 to 64 vCPUs and 16-432 GiB of RAM, respectively.

Example workloads include SAP HANA (e.g., E64s v3, E20ds v4, E32ds v4, E48ds v4, E64ds v4), SAP S/4 HANA application layer, SAP NetWeaver application layer, and more broadly memory-intensive enterprise applications, large relational database servers, data warehousing workloads, business intelligence applications, in-memory analytics workloads, and additional business-critical applications, including systems that process financial transactions of various nature... Incorrect Answers:

On price: The M-series family pricing is starting from \$1,121.65 /per month.

Note: The M-series family of Azure virtual machines are memory optimized and are ideal for heavy in-memory workloads such as SAP HANA. The M-Series offer up to 4 TB of RAM on a single VM. In addition, these VMs offer a virtual CPU count of up to 128 vCPUs on a single VM to enable high performance parallel processing.

Example workloads include SAP HANA, SAP S/4 HANA, SQL Hekaton and other large in-memory business critical workloads requiring massive parallel compute power.

Box 2: Hana on Azure (Large Instances)

The storage used in HANA Large Instances has a file size limitation. The size limitation is 16 TB per file.

Reference:

<https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/hana-storage-architecture>

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

### QUESTION 2

#### HOTSPOT

You are planning the deployment of a three-tier SAP landscape on Azure that will use SAP HANA. The solution must meet the following requirements:



Network latency between SAP NetWeaver and HANA must be minimized.

An SAP production landscape on Azure must be supported. Network performance must be validated regularly. What should you include in the solution? To answer, select the appropriate options in the answer area. NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Deploy HANA and NetWeaver to:

	▼
An availability set	
An availability zone	
A proximity placement group	

Networking configuration:

	▼
Enable Write Accelerator	
Deploy ExpressRoute Direct	
Enable Accelerated Networking	

Validate network performance by using:

	▼
ABAPMeter	
Apache JMeter	
Network Performance Monitor	

**Qdumps**

Answer Area:

**Answer Area**

Deploy HANA and NetWeaver to:

	▼
An availability set	
An availability zone	
A proximity placement group	

Networking configuration:

	▼
Enable Write Accelerator	
Deploy ExpressRoute Direct	
Enable Accelerated Networking	

Validate network performance by using:

	▼
ABAPMeter	
Apache JMeter	
Network Performance Monitor	

Section:

Explanation:

#### Box 1: A proximity placement group

Azure offers proximity placement groups. Proximity placement groups can be used to force grouping of different VM types into a single Azure datacenter to optimize the network latency between these different VM types to the best possible. In the process of deploying the first VM into such a proximity placement group, the VM gets bound to a specific datacenter. Note: SAP applications based on the SAP NetWeaver or SAP S/4HANA architecture are sensitive to network latency between the SAP application tier and the SAP database tier. This sensitivity is the result of most of the business logic running in the application layer. Because the SAP application layer runs the business logic, it issues queries to the database tier at a high frequency, at a rate of thousands or tens of thousands per second. In most cases, the nature of these queries is simple. They can often be run on the database tier in 500 microseconds or less.

#### Box 2: Enable Accelerated Networking

To further reduce network latency between Azure VMs, we recommend that you choose Azure Accelerated Networking. Use it when you deploy Azure VMs for an SAP workload, especially for the SAP application layer and the SAP DBMS layer. Incorrect Answers:

Azure Write Accelerator is a functionality that is available for Azure M-Series VMs exclusively. As the name states, the purpose of the functionality is to improve I/O latency of writes against the Azure premium storage. For SAP HANA, Write Accelerator is supposed to be used against the /hana/log volume only. Therefore, the /hana/data and /hana/log are separate volumes with Azure Write Accelerator supporting the /hana/log volume only.

#### Box 3: Network Performance Monitor

Network Performance Monitor (NPM) - a cloud-based network monitoring solution for cloud-only, on-premises, and hybrid networking environments.

Network Performance Monitor offers three broad capabilities:

Performance Monitor: You can monitor network connectivity across cloud deployments and on-premises locations, multiple data centers, and branch offices and mission-critical multitier applications or microservices. With Performance Monitor, you can detect network issues before users complain. Service Connectivity Monitor

ExpressRoute Monitor

Note 2: Azure Monitor for SAP Solutions is an Azure-native monitoring product for anyone running their SAP landscapes on Azure. It works with both SAP on Azure Virtual Machines and SAP on Azure Large Instances.

Incorrect Answers:

Apache JMeter is a free and open source tool for performance testing of web applications.

SAP application server to database server latency can be tested with ABAPMeter report /SSA/CAT. Latency between SAP application server and DBMS server can be tested using TCPping (Ping is not an accurate tool on Azure) or the SAP ABAP report /SSA/CAT -> ABAPMeter – columns DB Access and

E. DB Access.

Reference:

<https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/sap-proximity-placement-scenarios> [https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/dbms\\_guide\\_general](https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/dbms_guide_general)

<https://techcommunity.microsoft.com/t5/running-sap-applications-on-the/sap-on-azure-general-update-march-2019/bap/377456>

### QUESTION 3

#### HOTSPOT

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

NOTE: Each correct selection is worth one point.

#### Hot Area:



## Answer Area

### Statements

You must split data files and database logs between different Azure virtual disks to increase the database read/write performance

Yes

No

Enabling Accelerate Networking on virtual NICs for all SAP servers will reduce network latency between the servers

When you use SAP HANA on Azure (Large Instances), you should set the MTU on the primary network interface to match the MTU on SAP application servers to reduce CPU utilization and network latency

Answer Area:

## Answer Area

### Statements

You must split data files and database logs between different Azure virtual disks to increase the database read/write performance

Yes

No

Enabling Accelerate Networking on virtual NICs for all SAP servers will reduce network latency between the servers

When you use SAP HANA on Azure (Large Instances), you should set the MTU on the primary network interface to match the MTU on SAP application servers to reduce CPU utilization and network latency

Section:

Explanation:

Box 1: Yes

The following is a quick checklist of storage configuration best practices for running your SQL Server on Azure VM: Place data, log, and tempdb files on separate drives.

Box 2: Yes

Accelerated networking enables single root I/O virtualization (SR-IOV) to a VM, greatly improving its networking performance. This high-performance path bypasses the host from the data path, which reduces latency, jitter, and CPU utilization for the most demanding network workloads on supported VM types.



Box 3: No

Note: The maximum transmission unit (MTU) is the largest size frame (packet), specified in bytes, that can be sent over a network interface. The MTU is a configurable setting. The default MTU used on Azure VMs, and the default setting on most network devices globally, is 1,500 bytes.

Reference: <https://docs.microsoft.com/en-us/azure/virtual-network/create-vm-accelerated-networking-powershell> <https://docs.microsoft.com/en-us/azure/azure-sql/virtual-machines/windows/performance-guidelines-best-practices-checklist>

#### QUESTION 4

HOTSPOT

You have an SAP production landscape that uses SAP HANA databases.

You configure a metric alert for the primary HANA server as shown in the following exhibit.



You have an action group shown in the following exhibit.

### HANA Admins

Save Discard Refresh Delete

**Short name**  
HANA Admins

**Action group name**  
HANA Admins

**Resource group**  
default-activitylogalerts

**Subscription**  
Corporate Subscription

**Actions**

Action group name*	Action Type*	Status	Configure	Action
hanaadmins_email	Email/SMS/Push/Voice	Subscribed	<a href="#">Edit details</a>	X
amy_email	Email/SMS/Push/Voice	Subscribed	<a href="#">Edit details</a>	X

Unique name for the action

Select an action type

The amy\_email is configured as shown in the following exhibit.



## Email/SMS/Push/Voice

Add or edit an Email/SMS/Push/Voice action

Email

Email\* amy@contoso.com

SMS (Carrier charges may apply)

Country code 1

Phone number 1234567890

Azure app Push Notifications

Azure account email ⓘ email@example.com

Voice

Country code 1

Phone number 1234567890

Enable the common alert schema. [Learn more](#)

Yes No

OK

For each of the following statements, select Yes if the statement is true. Otherwise, select No.  
NOTE: Each correct selection is worth one point.

**Hot Area:**

 **vdumps**



### Answer Area

#### Statements

HANA Admins will be alerted by email if the server is at 85 percent for one minute, and then lowers to 40 percent

Yes	No
<input type="radio"/>	<input type="radio"/>

HANA Admins will be alerted if the server is at 95 percent for 15 minutes

<input type="radio"/>	<input type="radio"/>
-----------------------	-----------------------

Amy@contoso.com will be alerted by email if the server CPU cycles between 80 and 90 percent for 15 minutes

<input type="radio"/>	<input type="radio"/>
-----------------------	-----------------------

Answer Area:

### Answer Area

#### Statements

HANA Admins will be alerted by email if the server is at 85 percent for one minute, and then lowers to 40 percent

Yes	No
<input type="radio"/>	<input checked="" type="radio"/>

HANA Admins will be alerted if the server is at 95 percent for 15 minutes

<input checked="" type="radio"/>	<input type="radio"/>
----------------------------------	-----------------------

Amy@contoso.com will be alerted by email if the server CPU cycles between 80 and 90 percent for 15 minutes

<input checked="" type="radio"/>	<input type="radio"/>
----------------------------------	-----------------------

Section:

Explanation:

Box 1: No

The period is 15 minutes. Only alerts or emails will be sent.

Box 2: Yes

Box 3: Yes

#### QUESTION 5

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

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

You deploy SAP HANA on Azure (Large Instances).

You need to back up the SAP HANA database to Azure.

Solution: Back up directly to disk, copy the backups to an Azure virtual machine, and then copy the backup to an Azure Storage account.

Does this meet the goal?

A. Yes

B. No

**Correct Answer: B**

**Section:**

**Explanation:**

Instead you should create a Recovery Services vault and a backup policy.

Reference: <https://docs.microsoft.com/en-us/azure/backup/sap-hana-db-about> <https://docs.microsoft.com/en-us/azure/backup/backup-azure-sap-hana-database#configure-backup>

**QUESTION 6**

HOTSPOT

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

NOTE: Each correct selection is worth one point.

**Hot Area:**

**Answer Area**

Statements	Yes	No
When you deploy two standalone SAP Web Dispatchers to separate clustered virtual machines, you must deploy a load balancer to make the solution highly available	<input type="radio"/>	<input type="radio"/>
When you deploy Primary Application Server (PAS) and Additional Application Server (AAS) instances on separate virtual machines for SAP NetWeaver, you must deploy an Azure load balancer for high availability	<input type="radio"/>	<input type="radio"/>
When using an availability group listener for SAP application connectivity to Microsoft SQL Server servers in different Azure regions, you must deploy a load balancer in front of the disaster recovery SQL Server virtual machine	<input type="radio"/>	<input type="radio"/>

**Answer Area:**



**Answer Area**

**Statements**

**Yes**

**No**

When you deploy two standalone SAP Web Dispatchers to separate clustered virtual machines, you must deploy a load balancer to make the solution highly available

When you deploy Primary Application Server (PAS) and Additional Application Server (AAS) instances on separate virtual machines for SAP NetWeaver, you must deploy an Azure load balancer for high availability

When using an availability group listener for SAP application connectivity to Microsoft SQL Server servers in different Azure regions, you must deploy a load balancer in front of the disaster recovery SQL Server virtual machine

**Section:**

**Explanation:**

Box 1: No

Load balancers. Load balancers are used to distribute traffic to virtual machines in the application-tier subnet. For high availability, use the built-in SAP Web Dispatcher, Azure Load Balancer, or network appliances. Your choice depends on the traffic type (like HTTP or SAP GUI) or the required network services, like Secure Sockets Layer (SSL) termination. Box 2: Yes

Availability group listener SAP application SQL server load balancer disaster recovery Box 3: Yes

Reference: <https://docs.microsoft.com/en-us/azure/architecture/reference-architectures/sap/sap-netweaver> <https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/high-availability-guide-suse>

<https://blogs.sap.com/2020/10/20/sap-on-azure-sap-netweaver-7.5-on-ms-sql-server-2019-high-availability-and-disasterrecovery-with-4-nodes-alwayson-cluster/>

**QUESTION 7**

**DRAG DROP**

You have an Azure Active Directory (Azure AD) tenant and an SAP Cloud Platform Identity Authentication Service tenant. You need to ensure that users can use their Azure AD credentials to authenticate to SAP applications and services that trust the SAP Cloud Platform Identity Authentication Service tenant.

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

**Select and Place:**

**Actions**

- Download the SAP Cloud Platform Identity Authentication Service tenant metadata
- Download the single sign-on (SSO) metadata from the Azure AD tenant
- Create and configure an enterprise application in the Azure AD tenant
- Create and configure a corporate identity provider in the SAP Cloud Platform Identity Authentication Service tenant
- Upload the SAP Cloud Platform Identity Authentication Service tenant metadata to Azure AD tenant

**Answer Area**



Correct Answer:

**Actions**

- 
- 
- 
- 
- 

**Answer Area**



- Create and configure an enterprise application in the Azure AD tenant
- Download the single sign-on (SSO) metadata from the Azure AD tenant
- Create and configure a corporate identity provider in the SAP Cloud Platform Identity Authentication Service tenant
- Download the SAP Cloud Platform Identity Authentication Service tenant metadata
- Upload the SAP Cloud Platform Identity Authentication Service tenant metadata to Azure AD tenant

**Section:**

**Explanation:**

Step 1: Create and configure an enterprise application in the Azure AD tenant

To configure the integration of SAP Cloud Platform Identity Authentication into Azure AD, you need to add SAP Cloud Platform Identity Authentication from the gallery to your list of managed SaaS apps.

1. Sign in to the Azure portal using either a work or school account, or a personal Microsoft account.
2. On the left navigation pane, select the Azure Active Directory service.
3. Navigate to Enterprise Applications and then select All Applications.
4. To add new application, select New application.
5. In the Add from the gallery section, type SAP Cloud Platform Identity Authentication in the search box.
6. Select SAP Cloud Platform Identity Authentication from results panel and then add the app. Wait a few seconds while the app is added to your tenant.



Step 2: Download the single sign-on (SSO) metadata from the Azure AD tenant. Download single sign-on metadata from Azure Active Directory.

Step 3: Create and configure a corporate identity provider. Create corporate identity provider.

Step 4: Download the SAP Cloud Platform Identity Authentication Service tenant metadata. Download Identity Authentication service tenant metadata.

Step 5: Upload the SAP Cloud Platform Identity Authentication Service tenant metadata to Azure AD tenant. Upload Identity Authentication service tenant metadata to Azure Active Directory.

You have already uploaded the metadata file from Azure Active Directory to Identity Authentication service. It's time to do it the other way round now and upload the metadata of Identity Authentication service to Azure Active Directory.

Reference:

<https://developers.sap.com/tutorials/cp-ias-azure-ad.html>

## QUESTION 8

### HOTSPOT

You have an Azure subscription that contains a resource group named RG1. The role assignments for RG1 are shown in the following exhibit.

Azure:/

```
PS Azure:\> Get-AZRoleAssignment -ResourceGroupName | Select DisplayName, RoleDefinitionName | Select-Object -ExpandProperty RoleDefinitionName
```

-----

User3 User Access Administrator

User2 Backup Contributor

User1 Contributor

User4 Security Admin

Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.

NOTE: Each correct selection is worth one point.

**Hot Area:**



**Answer Area**

	▼
User1	
User2	
User3	
User4	

can create a Recovery Services vault in RG1

	▼
User1	
User2	
User3	
User4	

can assign User4 as an owner of RG1



Answer Area:

## Answer Area

	▼
User1	
User2	
User3	
User4	

can create a Recovery Services vault in RG1

	▼
User1	
User2	
User3	
User4	

can assign User4 as an owner of RG1



### Section:

### Explanation:

Box 1: User2

Management Operation	Minimum Azure role required	Scope Required
Create Recovery Services vault	Backup Contributor	Resource group containing the vault

### Note:

Backup Contributor - This role has all permissions to create and manage backup except deleting Recovery Services vault and giving access to others. Imagine this role as admin of backup management who can do every backup management operation.

Box 2: User3

The User Access Administrator role lets you manage user access to Azure resources.



**QUESTION 9**

**HOTSPOT**

You have an SAP landscape on Azure.

You plan to deploy a new SAP application server by using an Azure Resource Manager template.

You need to ensure that all new servers are deployed with Azure Disk Encryption enabled.

How should you complete the relevant component of the template? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

**Hot Area:**

```
"resources": [
  {
    "type": "Microsoft.Compute/virtualMachines/
    "name": "[concat(parameters
    ('vmName'), '/DiskEncryption')]",
    "location": [parameters('location')]",
    "apiVersion": "2017-03-30",
    "properties": {
      "publisher": "Microsoft.Azure.Security",
      "type":
      "typeHandlerVersion": "2.2",
      "autoUpgradeMinorVersion": true,
      "forceUpdateTag": "2",
      "settings": {
        "EncryptionOperation": "EnableEncryption",
        "KeyVaultURL": "[reference(parameters('keyVaultResourceID'), '2016-10-01').vaultUri]",
        "KeyVaultResourceId": "[parameters('keyVaultResourceID')]",
        "KeyEncryptionKeyURL": "[parameters('keyEncryptionKeyURL')]",
        "KeyVaultResourceID": "[parameters('keyVaultResourceID')]",
        "KeyEncryptionAlgorithm": "RSA-OAEP",
        "VolumeType": "All",
        "ResizeOSDisk": false
      }
    }
  }
]
```



Disk
KeyVault
Extensions
AzureDiskEncryption

Disk
KeyVault
Extensions
AzureDiskEncryption

**Udumps**

**Answer Area:**

```

"resources": [
  {
    "type": "Microsoft.Compute/virtualMachines/
    "name": "[concat(parameters
    ('vmName'), '/DiskEncryption')]",
    "location": [parameters('location')]",
    "apiVersion": "2017-03-30",
    "properties": {
      "publisher": "Microsoft.Azure.Security",
      "type":
      "typeHandlerVersion": "2.2",
      "autoUpgradeMinorVersion": true,
      "forceUpdateTag": "2",
      "settings": {
        "EncryptionOperation": "EnableEncryption",
        "KeyVaultURL": "[reference(parameters('keyVaultResourceID'), '2016-10-01').vaultUri]",
        "KeyVaultResourceID": "[parameters('keyVaultResourceID')]",
        "KeyEncryptionKeyURL": "[parameters('keyEncryptionKeyURL')]",
        "KeyVaultResourceID": "[parameters('keyVaultResourceID')]",
        "KeyEncryptionAlgorithm": "RSA-OAEP",
        "VolumeType": "All",
        "ResizeOSDisk": false
      }
    }
  }
]

```

Disk
KeyVault
Extensions
AzureDiskEncryption

Disk
KeyVault
Extensions
AzureDiskEncryption



**Section:**

**Explanation:**

Box 1: extensions

Azure Disk Encryption can be enabled via Azure PowerShell or Azure CLI. That is normally seen in remediation. In a real-world scenario you would like to see a virtual machine during its creation include disk encryption process. This is technically possible thanks to Disk Encryption VM extension.

Box 2: AzureDiskEncryption Example:

```

..
"type": "Microsoft.Compute/virtualMachines/extensions",
"name": "[concat(parameters('vmName'), '/diskEncryption')]",
"location": "[parameters('location')]",
"dependsOn": [
  "[resourceId('Microsoft.Compute/virtualMachines/', parameters('vmName'))]"
],
"properties": {
  "publisher": "Microsoft.Azure.Security",
  "type": "AzureDiskEncryption",
  ..

```

Reference: <https://azsec.azurewebsites.net/2019/12/28/azure-disk-encryption-arm-template-for-windows-vm/>

**QUESTION 10**



HOTSPOT

You have an Azure alert rule and action group as shown in the following exhibit.

```
PS Azure> Get-AzMetricAlertRuleV2 | Select WindowSize, EvaluationFrequency, Actions, ExpandProperty Criteria
WindowSize          : 00:05:00
EvaluationFrequency : 00:01:00
Actions              : [/subscriptions/66ee0657-3896-4f0b-bc04-1ea4da2de0c4/resourceGroups/resourcegroup1/provider/
                      microsoft.insights/actionGroups/admins]
Name                 : Metric1
MetricName           : PercentAvgCPU
MetricNamespace      : Microsoft.Gallery/VirtualMachines
OperatorProperty     : GreaterThan
TimeAggregation      : Average
Threshold            : 85
Dimensions           : {}
AdditionalProperties  : {}

PS Azure> Get-AzActionGroup | Select-ExpandProperty ResourceGroupName, Tags, Location
GroupShortName      : admins
Enabled             : True
EmailReceivers      : (admins_emailActions)
SMSReceivers         : 0
WebhookReceivers    : 0
Id                  : /subscriptions/66ee0657-3896-4f0b-bc04-1ea4da2de0c4/resourceGroups/resourcegroup1/provider/
                      microsoft.insights/actionGroups/admins
Name                : admins
Type                : Microsoft.Insights/ActionGroups

GroupShortName      : restartVM
Enabled             : True
EmailReceivers      : 0
SMSReceivers         : 0
WebhookReceivers    : 0
Id                  : /subscriptions/66ee0657-3896-4f0b-bc04-1ea4da2de0c4/resourceGroups/resourcegroup1/provider/
                      microsoft.insights/actionGroups/restartVM
Name                : restartVM
Type                : Microsoft.Insights/ActionGroups
```

Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.

Hot Area:

**Answer Area**

The admins action group will be notified if the average CPU usage rises above 85% for

▼
one minute
five minutes
one second

The [answer choice] when the alert is triggered

▼
admins action group will be emailed
restartVM action group will be emailed
virtual machines will restart

Answer Area:

### Answer Area

The admins action group will be notified if the average CPU usage rises above 85% for

	▼
one minute	
five minutes	
one second	

The [answer choice] when the alert is triggered

	▼
admins action group will be emailed	
restartVM action group will be emailed	
virtual machines will restart	

#### Section:

#### Explanation:

Box 1: five minutes Window Size is 5 minutes.

Box 2: admins action group will be emailed The admins1 actiongroup will be executed.

Reference: <https://docs.microsoft.com/en-us/azure/azure-monitor/alerts/alerts-metric-overview>

#### QUESTION 11

You deploy an SAP environment on Azure.

You need to monitor the performance of the SAP NetWeaver environment by using Azure Extension for SAP. What should you do first?

- A. From Azure CLI, install the Linux Diagnostic Extension
- B. From the Azure portal, enable the Custom Script Extension
- C. From Azure CLI, run the az vm aem set command
- D. From the Azure portal, enable the Azure Network Watcher Agent

**Correct Answer: D**

#### Section:

#### Explanation:

This solution requires the VM Agent to be installed in the Azure Virtual Machines you want to run SAP systems.

Reference:

<https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/vm-extension-for-sap>

#### QUESTION 12

You have an Azure virtual machine that runs SUSE Linux Enterprise Server (SLES). The virtual machine hosts a highly available deployment of SAP HANA. You need to validate whether Accelerated Networking is operational for the virtual machine,

What should you use?

- A. ethtool
- B. netsh
- C. iometer
- D. fio



**Correct Answer: A**

**Section:**

**Explanation:**

Check for activity on the VF (virtual function) with the `ethtool -S eth0 | grep vf_` command. If you receive output similar to the following sample output, accelerated networking is enabled and working.

`vf_rx_packets: 992956 vf_rx_bytes: 2749784180 vf_tx_packets: 2656684 vf_tx_bytes: 1099443970 vf_tx_dropped: 0` Accelerated Networking is now enabled for your VM.

Incorrect Answers:

B: Network shell (netsh) is a command-line utility that allows you to configure and display the status of various network communications server roles and components after they are installed on computers running Windows Server. C: Iometer is an I/O subsystem measurement and characterization tool for single and clustered systems. It is used as a benchmark and troubleshooting tool and is easily configured to replicate the behaviour of many popular applications. One commonly quoted measurement provided by the tool is IOPS.

D: FIO is a popular tool to benchmark storage on the Linux VMs. It has the flexibility to select different IO sizes, sequential or random reads and writes. It spawns worker threads or processes to perform the specified I/O operations. You can specify the type of I/O operations each worker thread must perform using job files

Reference:

<https://docs.microsoft.com/en-us/azure/virtual-network/create-vm-accelerated-networking-cli>

### QUESTION 13

HOTSPOT

You deploy an Azure Internal load balancer.

You deploy a node of an SAP NetWeaver 7.4 ABAP system named SP1.

You plan to deploy a second node.

You need to verify that the health probe port is configured for the cluster. The cluster IP address resource name is SAP SP1 IP.

How should you complete the command? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

“SAP SP1 IP” |

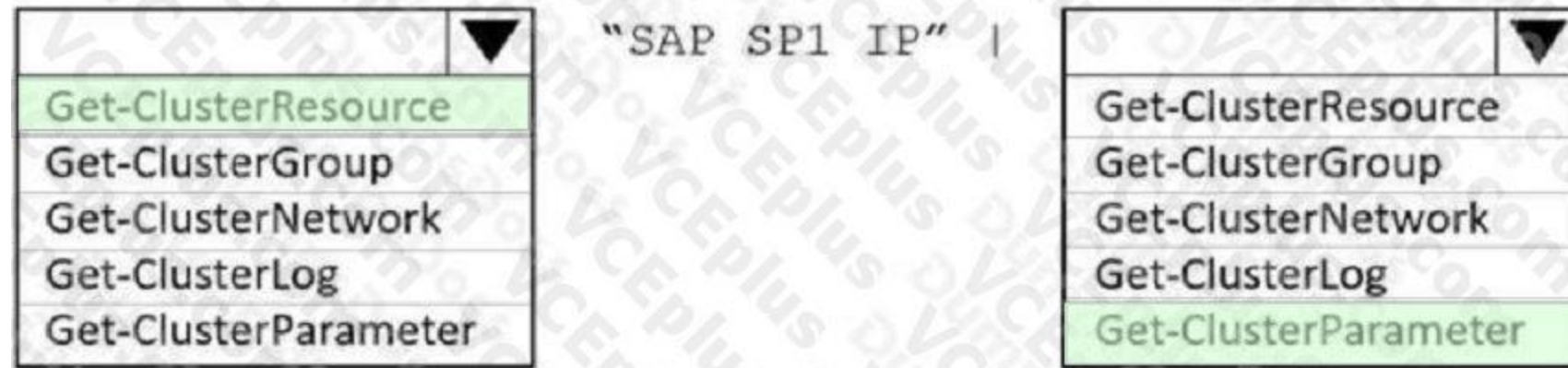
▼
Get-ClusterResource
Get-ClusterGroup
Get-ClusterNetwork
Get-ClusterLog
Get-ClusterParameter

▼
Get-ClusterResource
Get-ClusterGroup
Get-ClusterNetwork
Get-ClusterLog
Get-ClusterParameter

Answer Area:



## Answer Area



### Section:

### Explanation:

Box 1: Get-ClusterResource Example:

```
Get-ClusterResource -Name $SAPIResourceName | Get-ClusterParameter
```

```
Write-Output " "
```

```
Write-Output "Current probe port property of the SAP cluster resource '$SAPIResourceName' is '$OldProbePort'." Write-Output " "
```

```
Write-Output "Setting the new probe port property of the SAP cluster resource '$SAPIResourceName' to '$ProbePort' ..." Write-Output " "
```

```
Reference: https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/sap-high-availability-installation-wsfcshared-disk
```

### QUESTION 14

You plan to deploy an SAP landscape that will have virtual machines deployed to multiple Azure regions. You need to ensure that the virtual machines can communicate across the regions.

What should you configure?

- A. virtual network peering in Azure
- B. Azure Bastion hosts
- C. local network gateways
- D. Azure Relay

**Correct Answer: A**

### Section:

### Explanation:

Depending on the rules and restrictions you want to apply between the different virtual networks hosting VMs of different SAP systems, you should peer those virtual network

Note: Virtual network peering enables you to seamlessly connect two or more Virtual Networks in Azure. The virtual networks appear as one for connectivity purposes. The traffic between virtual machines in peered virtual networks uses the Microsoft backbone infrastructure. Like traffic between virtual machines in the same network, traffic is routed through Microsoft's private network only.

Azure supports the following types of peering:

Virtual network peering: Connect virtual networks within the same Azure region.

Global virtual network peering: Connecting virtual networks across Azure regions.

Incorrect Answers:

B: Azure Bastion is a fully managed service that provides more secure and seamless Remote Desktop Protocol (RDP) and Secure Shell Protocol (SSH) access to virtual machines (VMs) without any exposure through public IP addresses. D: The Azure Relay service enables you to securely expose services that run in your corporate network to the public cloud. You can do so without opening a port on your firewall, or making intrusive changes to your corporate network infrastructure.

Reference:

<https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/sap/hana-network-architecture>

**QUESTION 15**

**HOTSPOT**

You are deploying an SAP production landscape in Azure.

You need to create an Azure policy that meets the following requirements:

- Limits which applications can be installed on virtual machines
- Ensures that when a virtual machine is deployed, the virtual machine has the latest version of the extension to be installed

NOTE: Each correct selection is worth one point.

**Hot Area:**

**Answer Area**

```
"policyRule": {
  "if": {
    "allOf": [
      {
        "field": "type",
        "equals": "Microsoft.Compute/virtualMachines/extensions"
      },
      {
        "field": "Microsoft.Compute/virtualMachines/extensions/type",
        "notIn": [
          "Microsoft.Azure.Monitoring.DependencyAgent",
          "Microsoft.Azure.Monitor",
          "Microsoft.Azure.Monitoring.DependencyAgent",
          "Microsoft.GuestConfiguration",
          "Microsoft.HanaOnAzure/sapMonitors"
        ]
      }
    ]
  },
  "then": {
    "effect": [
      "DeployIfNotExists"
    ]
  }
}
```



**Answer Area:**

**Answer Area**

```
"policyRule": {
  "if": {
    "allOf": [
      {
        "field": "type",
        "equals": "Microsoft.Compute/virtualMachines/extensions"
      },
      {
        "field": "Microsoft.Compute/virtualMachines/extensions/type",
        "notIn": [
          "Microsoft.Azure.Monitoring.DependencyAgent",
          "Microsoft.Azure.Monitor",
          "Microsoft.Azure.Monitoring.DependencyAgent",
          "Microsoft.GuestConfiguration",
          "Microsoft.HanaOnAzure/sapMonitors"
        ]
      }
    ]
  },
  "then": {
    "effect": [
      "DeployIfNotExists"
    ]
  }
}
```

**Section:**

**Explanation:**

**QUESTION 16**

RAG DROP

You have an on-premises network and an Azure subscription.

You plan to deploy a standard three-tier SAP architecture to a new Azure virtual network.

You need to configure network isolation for the virtual network. The solution must meet the following requirements:

- Allow client access from the on-premises network to the presentation servers.
- Only allow the application servers to communicate with the database servers.
- Only allow the presentation servers to access the application servers.
- Block all other inbound traffic.

What is the minimum number of network security groups (NSGs) and subnets required? To answer, drag the appropriate number to the correct targets. Each number may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE Each correct selection is worth one point.

**Select and Place:**

Number		Answer Area	
1	2	NSGs:	
3	4	Subnets:	

**Correct Answer:**

Number		Answer Area	
1	2	NSGs:	3
3	4	Subnets:	3

**Section:**

**Explanation:**

**QUESTION 17**

You have an Azure subscription that contains a Recovery Services vault named RSV1 and a virtual machine named VM1. VM1 runs SUSE Enterprise Linux (SLES) and hosts an SAP HANA instance.

You need to configure a HANA 8ackint-based backup of the HANA databases.

You register VM1 with RSV1.

What should you do next?

- A. On VM1, install the Azure Backup Plugin for HANA.
- B. From RSV1, select the items to back up.
- C. On VM1, run the preregistration script.
- D. On VM1, stop the HANA instance.

**Correct Answer: C**

**Section:**



### QUESTION 18

You plan to deploy an SAP landscape on Azure that will use SAP HANA on Azure (Large Instances). You need to ensure that outbound traffic from the application tier can flow only to the database tier. What should you use?

- A. network virtual appliances (NVAs)
- B. network security groups (NSGs)
- C. application security groups
- D. Azure Firewall

**Correct Answer: C**

**Section:**

### QUESTION 19

DRAG DROP

You have an Azure virtual machine named VM1 that runs SUSE Linux Enterprise Server (SLE5) and hosts an SAP NetWeaver application server. You need to install the Azure VM extension for SAP solutions on VM1.

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

**Select and Place:**

**Actions**

- From Azure Cloud Shell, run `az extension add`.
- On VM1, run `curl http://127.0.0.1:11812/azure4sap/metrics`.
- From Azure Cloud Shell, run `az login`.
- From Azure Cloud Shell, run `az vm aem set`.
- On VM1, restart the SAP Host Agent.

**Answer Area**

**Correct Answer:**

**Actions**

- From Azure Cloud Shell, run `az extension add`.
- On VM1, run `curl http://127.0.0.1:11812/azure4sap/metrics`.

**Answer Area**

- From Azure Cloud Shell, run `az login`.
- From Azure Cloud Shell, run `az vm aem set`.
- On VM1, restart the SAP Host Agent.

**Section:**

**Explanation:**

### QUESTION 20

You have an SAP production landscape in Azure that is hosted on virtual machines that run Windows Server and Red Hat Enterprise Linux. You need to monitor the virtual machines. The solution must ensure that you can collect logs from the virtual machines by using data collection rules (DCRs). What should you install on each virtual machine?



- A. the Log Analytics agent
- B. the Guest Configuration extension
- C. the Azure Monitor agent
- D. the Azure Diagnostics extension

**Correct Answer: C**

**Section:**

**QUESTION 21**

You are designing an SAP production landscape on Azure.

The landscape must ensure service availability in the event of an Azure datacenter failure

What should you include in the design?

- A. an availability zone
- B. an availability set
- C. a fusion group
- D. a proximity placement group

**Correct Answer: A**

**Section:**

**QUESTION 22**

**HOTSPOT**

You plan to deploy an SAP NetWeaver landscape that will use SQL Server on Azure virtual machines.

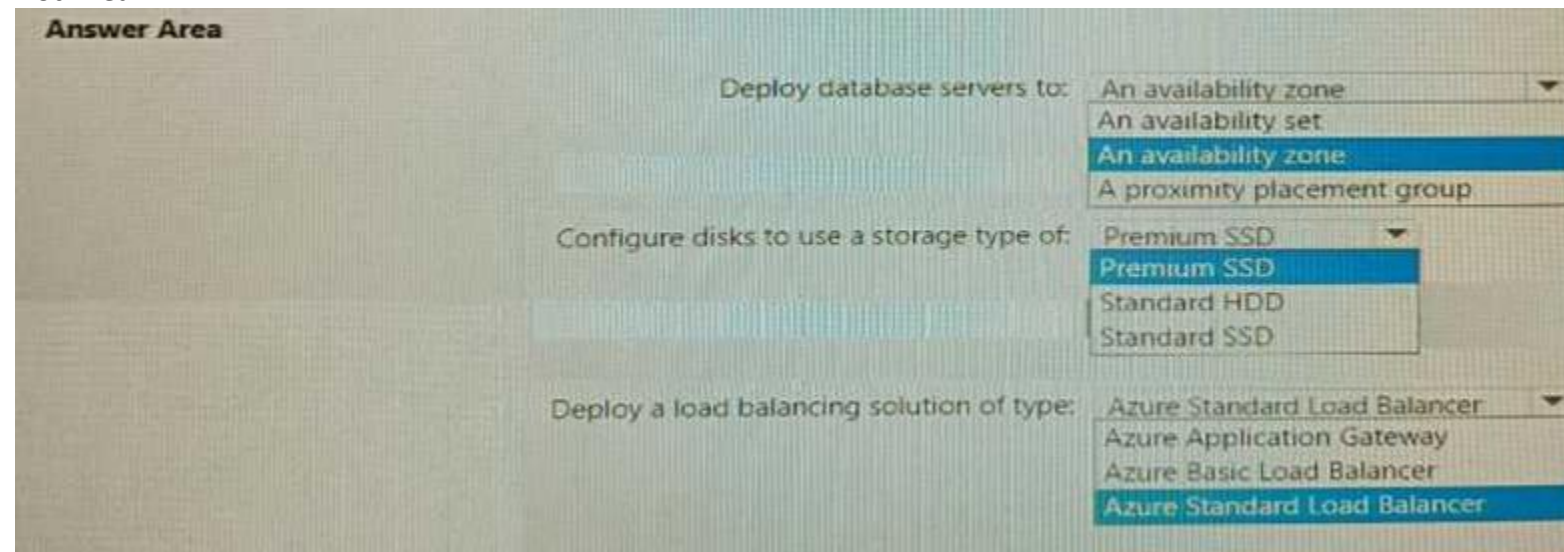
The database tier must meet the following requirement

- Maintain database availability in the event of a single Azure datacenter failure.
- Maximize IOPS

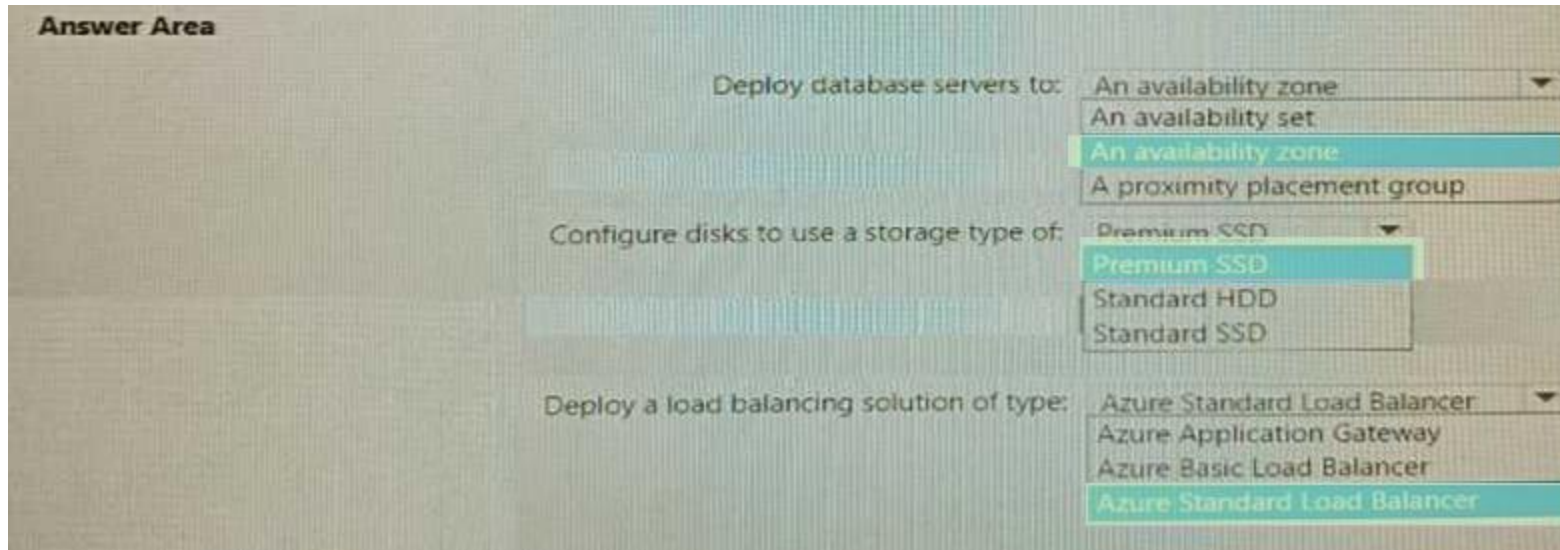
should you configure the database tier? To answer, select the appropriate options in the answer area.

NOTE Each correct selection is worth one point.

**Hot Area:**



**Answer Area:**



Section:

Explanation:

**QUESTION 23**

HOTSPOT

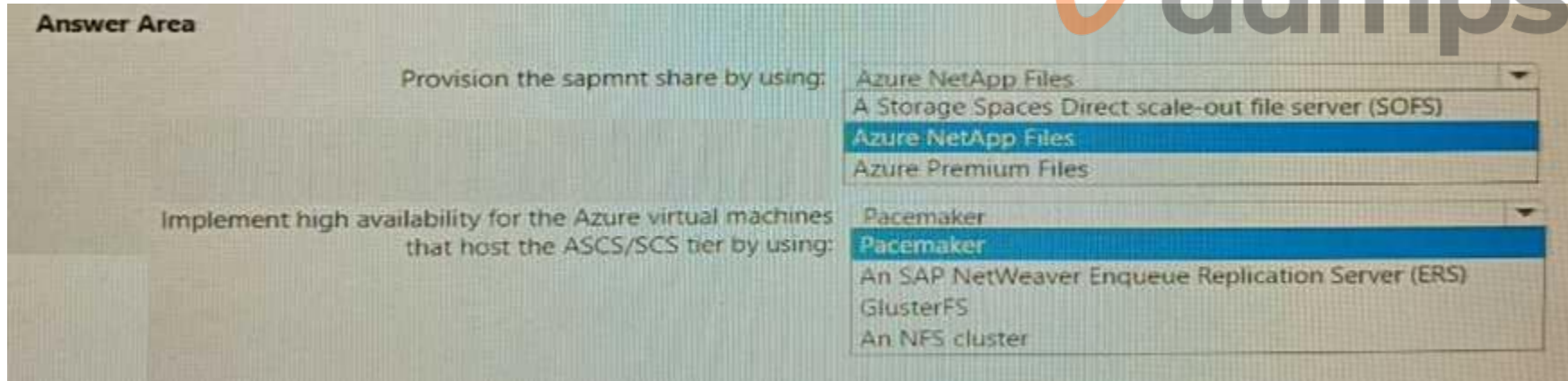
You plan to implement a highly available, three-tier deployment of an SAP NetWeaver landscape on Azure. The landscape will use SUSE Linux Enterprise Server (SLES).

You need to implement the SAP NetWeaver central services (ASCS/SCS) tier.

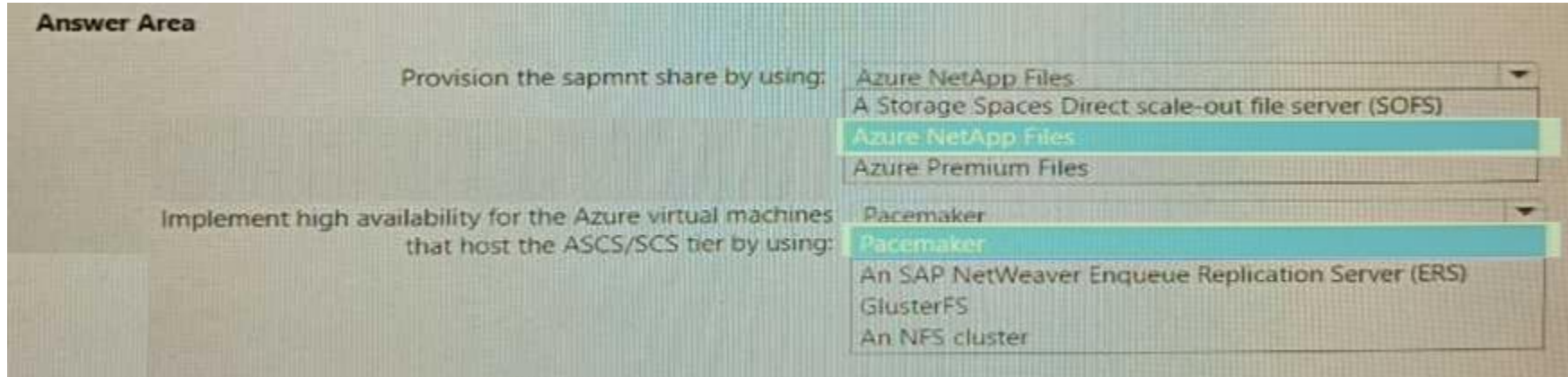
What should you do? To answer, select the appropriate options in the answer area.

NOTE Each correct selection is worth one point.

Hot Area:



Answer Area:



Section:

**Explanation:**

**QUESTION 24**

HOTSPOT

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

NOTE Each correct selection is worth one point.

**Hot Area:**

Statements	Yes	No
SAP supports both SAP HANA backup and storage snapshot options.	<input type="radio"/>	<input type="radio"/>
Before you can back up an SAP HANA database by using the snapshot option, you must stop the Azure virtual machines.	<input type="radio"/>	<input type="radio"/>
To ensure SAP HANA data consistency when taking storage snapshots, you must freeze the file system.	<input type="radio"/>	<input type="radio"/>

**Answer Area:**

Statements	Yes	No
SAP supports both SAP HANA backup and storage snapshot options.	<input checked="" type="radio"/>	<input type="radio"/>
Before you can back up an SAP HANA database by using the snapshot option, you must stop the Azure virtual machines.	<input type="radio"/>	<input checked="" type="radio"/>
To ensure SAP HANA data consistency when taking storage snapshots, you must freeze the file system.	<input type="radio"/>	<input checked="" type="radio"/>

**Section:**

**Explanation:**

**QUESTION 25**

HOTSPOT

You plan to implement a deployment of SAP NetWeaver on Azure. The deployment will be hosted on virtual machines that run a custom Windows Server 2022 Datacenter image.

You need to configure the virtual machines to support Secure Boot.

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

NOTE: Each correct selection is worth one point.

**Hot Area:**



**Answer Area**

Enable Secure Boot by:

Use virtual disk format:

Answer Area:

**Answer Area**

Enable Secure Boot by:

Use virtual disk format:

Section:

Explanation:

**QUESTION 26**

HOTSPOT

You have an SAP on Azure deployment that contains a production landscape and a non-production landscape. You have the virtual machines shown in the following table.

Name	Role	Size	Tier	Availability
HANA1	SAP HANA	M32ms	Production	24 x 7
SCS1	SAP Central Services (SCS)	D8s-v3	Non-production	09:00 – 17:00

You need to minimize the costs of the deployment for the next 12 months. The solution must meet the following requirements:

- \* Maintain SAP support
- \* Minimize application impact.

What should you do on each virtual machine? To answer, select the appropriate options in the answer area. NOTE: Each correct selection is worth one point.

Hot Area:



**Answer Area**

HANA1:   
Configure snoozing for non-business hours.  
Convert the disk storage type to HDD.  
Disable Accelerated Networking.  
**Purchase a reserved instance.**

SCS1:   
**Configure snoozing for non-business hours.**  
Convert the disk storage type to HDD.  
Disable Accelerated Networking.

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

HANA1:   
Configure snoozing for non-business hours.  
Convert the disk storage type to HDD.  
Disable Accelerated Networking.  
**Purchase a reserved instance.**

SCS1:   
**Configure snoozing for non-business hours.**  
Convert the disk storage type to HDD.  
Disable Accelerated Networking.

**Section:**  
**Explanation:**

**QUESTION 27**

You are designing an SAP HANA deployment.  
You estimate that the database will be 1.8 TB in three years.  
You need to ensure that the deployment supports 60,000 IOPS. The solution must minimize costs and provide the lowest latency possible.  
Which type of disk should you use?

- A. Standard HDD
- B. Premium SSD
- C. Ultra disk
- D. Standard SSD

**Correct Answer: C**  
**Section:**

**QUESTION 28**

**HOTSPOT**

You plan to deploy two SAP NetWeaver landscapes named Production1 and Production2 to Azure. Production1 will contain an SAP NetWeaver central services (ASCS/SCS) instance hosted on a Windows failover cluster. Production2 will contain an SAP ASCS/SCS instance hosted on a Linux Pacemaker cluster.

You need to recommend a shared storage solution for each landscape. The solutions must meet the following requirements:

- \* Minimize administrative effort.
- \* Minimize costs.

What should you include in the recommend? To answer, select the appropriate options in the answer area. NOTE: Each correct selection is worth one point.

**Hot Area:**

**Answer Area**

Production1:

Production2:

**Answer Area:**

**Answer Area**

Production1:

Production2:

**Section:**

**Explanation:**