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**Exam** : **AZ-120**

**Title** : Planning and Administering  
Microsoft Azure for SAP  
Workloads

**Version** : DEMO

## 1. Testlet 1

### 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.

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.

**Answer:** C

**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/>

## 2. Testlet 2

### 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.

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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

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 ⓘ  
 ✓

**Backup schedule**

\* Frequency      \* Time      \* Timezone  
 ▾     ▾     ▾

**Instant Restore ⓘ**

---

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

**Retention range**

---

Retention of daily backup point.

\* At      For  
 ▾     ✓ Day(s)

---

Retention of weekly backup point.

\* On      \* At      For  
 ▾     ▾     ✓ Week(s)

---

Retention of monthly backup point.

Week Based     Day Based

\* On      \* Day      \* At      For  
 ▾     ▾     ▾     ✓ Month(s)

---

Retention of yearly backup point.

Week Based     Day Based

\* In      \* On      \* Day      \* At      For  
 ▾     ▾     ▾     ▾     ✓ 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')]"
            }
        }
    }
]
}

```

**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.

## 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 deleted file can be restored to the running virtual machine one year after the file was deleted.	<input type="radio"/>	<input type="radio"/>

Answer:

## 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"/>

### 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>

### 3.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.

## Answer 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:

## 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"/>

### 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/>

4. Question Set 3

You are migrating SAP to Azure. The ASCS application servers are in one Azure zone, and the SAP database server in 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

**Answer:** CDE

**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>

5.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

**Answer:** C

**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-sqlserver-management-studio>