

- **Vendor: Microsoft**
- **Exam Code: DP-300**
- **Exam Name: Administering Relational Databases on Microsoft Azure**
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QUESTION 62

Case Study 1 - Litware, Inc

Overview

Litware, Inc. is a renewable energy company that has a main office in Boston. The main office hosts a sales department and the primary datacenter for the company.

Physical Locations

Existing Environment

Litware has a manufacturing office and a research office is separate locations near Boston. Each office has its own datacenter and internet connection.

The manufacturing and research datacenters connect to the primary datacenter by using a VPN.

Network Environment

The primary datacenter has an ExpressRoute connection that uses both Microsoft peering and private peering. The private peering connects to an Azure virtual network named HubVNet.

Identity Environment

Litware has a hybrid Azure Active Directory (Azure AD) deployment that uses a domain named litwareinc.com. All Azure subscriptions are associated to the litwareinc.com Azure AD tenant.

Database Environment

The sales department has the following database workload:

- An on-premises named SERVER1 hosts an instance of Microsoft SQL Server 2012 and two 1-TB databases.
- A logical server named SalesSrv01A contains a geo-replicated Azure SQL database named SalesSQLDb1. SalesSQLDb1 is in an elastic pool named SalesSQLDb1Pool. SalesSQLDb1 uses database firewall rules and contained database users.
- An application named SalesSQLDb1App1 uses SalesSQLDb1.

The manufacturing office contains two on-premises SQL Server 2016 servers named SERVER2 and SERVER3. The servers are nodes in the same Always On availability group. The availability group contains a database named ManufacturingSQLDb1

Database administrators have two Azure virtual machines in HubVnet named VM1 and VM2 that run Windows Server 2019 and are used to manage all the Azure databases.

Licensing Agreement

Litware is a Microsoft Volume Licensing customer that has License Mobility through Software Assurance.

Current Problems

SalesSQLDb1 experiences performance issues that are likely due to out-of-date statistics and frequent blocking queries.

Requirements

Planned Changes

Litware plans to implement the following changes:

- Implement 30 new databases in Azure, which will be used by time-sensitive manufacturing apps that have varying usage patterns. Each database will be approximately 20 GB.
- Create a new Azure SQL database named ResearchDB1 on a logical server named ResearchSrv01. ResearchDB1 will contain Personally Identifiable Information (PII) data.
- Develop an app named ResearchApp1 that will be used by the research department to populate and access ResearchDB1.

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- Migrate ManufacturingSQLDb1 to the Azure virtual machine platform.
- Migrate the SERVER1 databases to the Azure SQL Database platform.

Technical Requirements

Litware identifies the following technical requirements:

- Maintenance tasks must be automated.
- The 30 new databases must scale automatically.
- The use of an on-premises infrastructure must be minimized.
- Azure Hybrid Use Benefits must be leveraged for Azure SQL Database deployments.
- All SQL Server and Azure SQL Database metrics related to CPU and storage usage and limits must be analyzed by using Azure built-in functionality.

Security and Compliance Requirements

Litware identifies the following security and compliance requirements:

- Store encryption keys in Azure Key Vault.
- Retain backups of the PII data for two months.
- Encrypt the PII data at rest, in transit, and in use.
- Use the principle of least privilege whenever possible.
- Authenticate database users by using Active Directory credentials.
- Protect Azure SQL Database instances by using database-level firewall rules.
- Ensure that all databases hosted in Azure are accessible from VM1 and VM2 without relying on public endpoints.

Business Requirements

Litware identifies the following business requirements:

- Meet an SLA of 99.99% availability for all Azure deployments.
- Minimize downtime during the migration of the SERVER1 databases.
- Use the Azure Hybrid Use Benefits when migrating workloads to Azure.
- Once all requirements are met, minimize costs whenever possible.

What should you do after a failover of SalesSQLDb1 to ensure that the database remains accessible to SalesSQLDb1App1?

- A. Configure SalesSQLDb1 as writable.
- B. Update the connection strings of SalesSQLDb1App1.
- C. Update the firewall rules of SalesSQLDb1.
- D. Update the users in SalesSQLDb1.

Answer: C

Explanation:

Scenario: SalesSQLDb1 uses database firewall rules and contained database users.

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- Develop an app named ResearchApp1 that will be used by the research department to populate and access ResearchDB1.
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- Migrate the SERVER1 databases to the Azure SQL Database platform.

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- Protect Azure SQL Database instances by using database-level firewall rules.
- Ensure that all databases hosted in Azure are accessible from VM1 and VM2 without relying on public endpoints.

Business Requirements

Litware identifies the following business requirements:

- Meet an SLA of 99.99% availability for all Azure deployments.
- Minimize downtime during the migration of the SERVER1 databases.
- Use the Azure Hybrid Use Benefits when migrating workloads to Azure.
- Once all requirements are met, minimize costs whenever possible.

Hotspot Question

You need to recommend the appropriate purchasing model and deployment option for the 30 new databases. The solution must meet the technical requirements and the business requirements.

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

NOTE: Each correct selection is worth one point.

Answer Area

Purchasing model: ▼

Azure virtual machine reserved instances
DTU
vCore

Deployment option: ▼

An Azure SQL Database elastic pool
An Azure SQL Database managed instance
A SQL Server Always On availability group

Answer:

Answer Area

Purchasing model: ▼

Azure virtual machine reserved instances
DTU
vCore

Deployment option: ▼

An Azure SQL Database elastic pool
An Azure SQL Database managed instance
A SQL Server Always On availability group

Explanation:

Box 1: DTU

Scenario:

The 30 new databases must scale automatically.

Once all requirements are met, minimize costs whenever possible.

You can configure resources for the pool based either on the DTU-based purchasing model or the vCore- based purchasing model.

In short, for simplicity, the DTU model has an advantage. Plus, if you're just getting started with Azure SQL Database, the DTU model offers more options at the lower end of performance, so you can get started at a lower price point than with vCore.

Box 2: An Azure SQL database elastic pool

Azure SQL Database elastic pools are a simple, cost-effective solution for managing and scaling multiple databases that have varying and unpredictable usage demands. The databases in an elastic pool are on a single server and share a set number of resources at a set price. Elastic pools in Azure SQL Database enable SaaS developers to optimize the price performance for a group of databases within a prescribed budget while delivering performance elasticity for each

database.

Reference:

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

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

QUESTION 64

Case Study 1 - Litware, Inc

Overview

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Physical Locations

Existing Environment

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Network Environment

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Identity Environment

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Licensing Agreement

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Current Problems

SalesSQLDb1 experiences performance issues that are likely due to out-of-date statistics and frequent blocking queries.

Requirements

Planned Changes

Litware plans to implement the following changes:

- Implement 30 new databases in Azure, which will be used by time-sensitive manufacturing apps that have varying usage patterns. Each database will be approximately 20 GB.
- Create a new Azure SQL database named ResearchDB1 on a logical server named ResearchSrv01. ResearchDB1 will contain Personally Identifiable Information (PII) data.
- Develop an app named ResearchApp1 that will be used by the research department to populate and access ResearchDB1.
- Migrate ManufacturingSQLDb1 to the Azure virtual machine platform.
- Migrate the SERVER1 databases to the Azure SQL Database platform.

Technical Requirements

Litware identifies the following technical requirements:

- Maintenance tasks must be automated.
- The 30 new databases must scale automatically.
- The use of an on-premises infrastructure must be minimized.
- Azure Hybrid Use Benefits must be leveraged for Azure SQL Database deployments.

• All SQL Server and Azure SQL Database metrics related to CPU and storage usage and limits must be analyzed by using Azure built-in functionality.

Security and Compliance Requirements

Litware identifies the following security and compliance requirements:

- Store encryption keys in Azure Key Vault.
- Retain backups of the PII data for two months.
- Encrypt the PII data at rest, in transit, and in use.
- Use the principle of least privilege whenever possible.
- Authenticate database users by using Active Directory credentials.
- Protect Azure SQL Database instances by using database-level firewall rules.
- Ensure that all databases hosted in Azure are accessible from VM1 and VM2 without relying on public endpoints.

Business Requirements

Litware identifies the following business requirements:

- Meet an SLA of 99.99% availability for all Azure deployments.
- Minimize downtime during the migration of the SERVER1 databases.
- Use the Azure Hybrid Use Benefits when migrating workloads to Azure.
- Once all requirements are met, minimize costs whenever possible.

Drag and Drop Question

You need to configure user authentication for the SERVER1 databases. The solution must meet the security and compliance requirements.

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

Actions	Answer Area
Modify the Azure SQL server administrator account.	
Create database users.	
Create a user in the master database.	⤴
Create an Azure AD administrator for the logical server.	⤵
Connect to the databases by using an Azure AD account.	

Answer:

Actions

Modify the Azure SQL server administrator account.

Create a user in the master database.

Answer Area

Create an Azure AD administrator for the logical server.

Create database users.

Connect to the databases by using an Azure AD account.

Explanation:

Scenario: Authenticate database users by using Active Directory credentials.

The configuration steps include the following procedures to configure and use Azure Active Directory authentication.

1. Create and populate Azure AD.
2. Optional: Associate or change the active directory that is currently associated with your Azure Subscription.
3. Create an Azure Active Directory administrator. (Step 1)
4. Configure your client computers.
5. Create contained database users in your database mapped to Azure AD identities. (Step 2)
6. Connect to your database by using Azure AD identities. (Step 3)

Reference:

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

QUESTION 65

Case Study 1 - Litware, Inc

Overview

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Physical Locations

Existing Environment

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Network Environment

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Identity Environment

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Database Environment

The sales department has the following database workload:

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- An application named SalesSQLDb1App1 uses SalesSQLDb1.

The manufacturing office contains two on-premises SQL Server 2016 servers named SERVER2 and SERVER3. The servers are nodes in the same Always On availability group. The availability group contains a database named ManufacturingSQLDb1

Database administrators have two Azure virtual machines in HubVnet named VM1 and VM2 that run Windows Server 2019 and are used to manage all the Azure databases.

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Current Problems

SalesSQLDb1 experiences performance issues that are likely due to out-of-date statistics and frequent blocking queries.

Requirements

Planned Changes

Litware plans to implement the following changes:

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- Create a new Azure SQL database named ResearchDB1 on a logical server named ResearchSrv01. ResearchDB1 will contain Personally Identifiable Information (PII) data.
- Develop an app named ResearchApp1 that will be used by the research department to populate and access ResearchDB1.
- Migrate ManufacturingSQLDb1 to the Azure virtual machine platform.
- Migrate the SERVER1 databases to the Azure SQL Database platform.

Technical Requirements

Litware identifies the following technical requirements:

- Maintenance tasks must be automated.
- The 30 new databases must scale automatically.
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Security and Compliance Requirements

Litware identifies the following security and compliance requirements:

- Store encryption keys in Azure Key Vault.
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- Authenticate database users by using Active Directory credentials.
- Protect Azure SQL Database instances by using database-level firewall rules.
- Ensure that all databases hosted in Azure are accessible from VM1 and VM2 without relying on public endpoints.

Business Requirements

Litware identifies the following business requirements:

- Meet an SLA of 99.99% availability for all Azure deployments.
- Minimize downtime during the migration of the SERVER1 databases.
- Use the Azure Hybrid Use Benefits when migrating workloads to Azure.
- Once all requirements are met, minimize costs whenever possible.

Drag and Drop Question

You need to implement statistics maintenance for SalesSQLDb1. The solution must meet the technical requirements. Which four actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

Actions

- Create and configure a schedule.
- Create a SQL Server Agent job.
- Publish the runbook.
- Create an Azure Automation account.
- Import the SqlServer module.
- Create a runbook that runs a PowerShell script.
- Run `sp_add_jobserver`.

Answer Area



Answer:

Actions

Create a SQL Server Agent job.

Publish the runbook.

Run `sp_add_jobserver`.

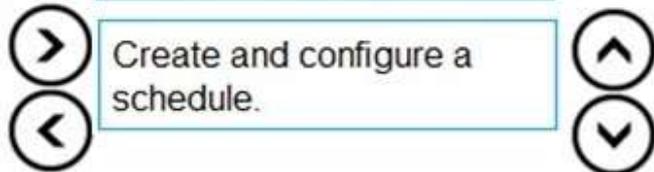
Answer Area

Create an Azure Automation account.

Import the SqlServer module.

Create a runbook that runs a PowerShell script.

Create and configure a schedule.



Explanation:

Automating Azure SQL DB index and statistics maintenance using Azure Automation:

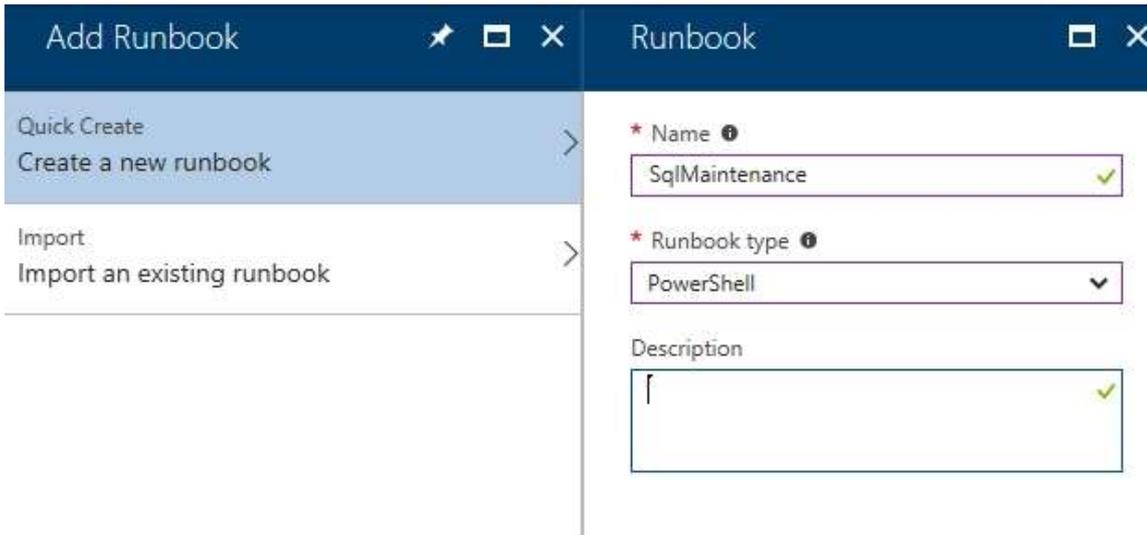
1. Create Azure automation account (Step 1)
2. Import SQLServer module (Step 2)
3. Add Credentials to access SQL DB

This will use secure way to hold login name and password that will be used to access Azure SQL DB

4. Add a runbook to run the maintenance (Step 3)

Steps:

1. Click on "runbooks" at the left panel and then click "add a runbook"
2. Choose "create a new runbook" and then give it a name and choose "Powershell" as the type of the runbook and then click on "create"



The screenshot shows the 'Add Runbook' dialog box. The left pane is titled 'Add Runbook' and contains two options: 'Quick Create' (Create a new runbook) and 'Import' (Import an existing runbook). The right pane is titled 'Runbook' and contains the following fields:

- Name**: A text box containing 'SqlMaintenance' with a green checkmark.
- Runbook type**: A dropdown menu showing 'PowerShell'.
- Description**: A text area with a green checkmark.

5. Schedule task (Step 4)

Steps:

1. Click on Schedules
2. Click on "Add a schedule" and follow the instructions to choose existing schedule or create a new schedule.

Reference:

<https://techcommunity.microsoft.com/t5/azure-database-support-blog/automating-azure-sql-db-index-and-statistics-maintenance-using/ba-p/368974>

QUESTION 66

Case Study 1 - Litware, Inc

Overview

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Physical Locations

Existing Environment

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Network Environment

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Current Problems

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Requirements

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Business Requirements

Litware identifies the following business requirements:

- Meet an SLA of 99.99% availability for all Azure deployments.
- Minimize downtime during the migration of the SERVER1 databases.
- Use the Azure Hybrid Use Benefits when migrating workloads to Azure.
- Once all requirements are met, minimize costs whenever possible.

Hotspot Question

You need to recommend a configuration for ManufacturingSQLDb1 after the migration to Azure. The solution must meet the business requirements.

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.

Answer Area

Quorum mode:

	▼
Node majority with witness	
Node majority	
No majority	

Azure resource for the availability group listener:

	▼
Azure Application Gateway	
Azure Basic Load Balancer	
Azure Standard Load Balancer	

Answer:

Answer Area

Quorum mode:

	▼
Node majority with witness	
Node majority	
No majority	

Azure resource for the availability group listener:

	▼
Azure Application Gateway	
Azure Basic Load Balancer	
Azure Standard Load Balancer	

Explanation:

Box 1: Node majority with witness

As a general rule when you configure a quorum, the voting elements in the cluster should be an odd number.

Therefore, if the cluster contains an even number of voting nodes, you should configure a disk witness or a file share witness.

Note: Mode: Node majority with witness (disk or file share) Nodes have votes. In addition, a quorum witness has a vote.

The cluster quorum is the majority of voting nodes in the active cluster membership plus a witness vote. A quorum witness can be a designated disk witness or a designated file share witness.

Box 2: Azure Standard Load Balancer

Microsoft guarantees that a Load Balanced Endpoint using Azure Standard Load Balancer, serving two or more Healthy Virtual Machine Instances, will be available 99.99% of the time.

Scenario: Business Requirements

Litware identifies business requirements include: meet an SLA of 99.99% availability for all Azure deployments.

Incorrect Answers:

Basic Balancer: No SLA is provided for Basic Load Balancer.

Note: There are two main options for setting up your listener: external (public) or internal. The external (public) listener uses an internet facing load balancer and is associated with a public Virtual IP (VIP) that is accessible over the internet. An internal listener uses an internal load balancer and only supports clients within the same Virtual Network.

Reference:

<https://technet.microsoft.com/windows-server-docs/failover-clustering/deploy-cloud-witness>

https://azure.microsoft.com/en-us/support/legal/sla/load-balancer/v1_0/

QUESTION 67**Case Study 2 - Contoso, Ltd Case Study 2 - Contoso, Ltd****Overview****Existing Environment**

Contoso, Ltd. is a financial data company that has 100 employees. The company delivers financial data to customers.

Active Directory

Contoso has a hybrid Azure Active Directory (Azure AD) deployment that syncs to on-premises Active Directory.

Database Environment

Contoso has SQL Server 2017 on Azure virtual machines shown in the following table.

Name	Role
SQL1	Primary data warehouse
SQL2	Secondary data warehouse
SQL3	Extract, transform, and load (ETL) server

SQL1 and SQL2 are in an Always On availability group and are actively queried. SQL3 runs jobs, provides historical data, and handles the delivery of data to customers.

The on-premises datacenter contains a PostgreSQL server that has a 50-TB database.

Current Business Model

Contoso uses Microsoft SQL Server Integration Services (SSIS) to create flat files for customers. The customers receive the files by using FTP.

Requirements**Planned Changes**

Contoso plans to move to a model in which they deliver data to customer databases that run as platform as a service (PaaS) offerings. When a customer establishes a service agreement with Contoso, a separate resource group that contains an Azure SQL database will be provisioned for the customer. The database will have a complete copy of the financial data. The data to which each customer will have access will depend on the service agreement tier. The customers can change tiers by changing their service agreement.

The estimated size of each PaaS database is 1 TB.

Contoso plans to implement the following changes:

- Move the PostgreSQL database to Azure Database for PostgreSQL during the next six months.
- Upgrade SQL1, SQL2, and SQL3 to SQL Server 2019 during the next few months.
- Start onboarding customers to the new PaaS solution within six months.

Business Goals

Contoso identifies the following business requirements:

- Use built-in Azure features whenever possible.
- Minimize development effort whenever possible.
- Minimize the compute costs of the PaaS solutions.
- Provide all the customers with their own copy of the database by using the PaaS solution.
- Provide the customers with different table and row access based on the customer's service agreement.
- In the event of an Azure regional outage, ensure that the customers can access the PaaS solution with minimal downtime. The solution must provide automatic failover.
- Ensure that users of the PaaS solution can create their own database objects but be prevented from modifying any of the existing database objects supplied by Contoso.

Technical Requirements

Contoso identifies the following technical requirements:

- Users of the PaaS solution must be able to sign in by using their own corporate Azure AD credentials or have Azure AD credentials supplied to them by Contoso. The solution must avoid using the internal Azure AD of Contoso to minimize guest users.
- All customers must have their own resource group, Azure SQL server, and Azure SQL database. The deployment of resources for each customer must be done in a consistent fashion.
- Users must be able to review the queries issued against the PaaS databases and identify any new objects created.
- Downtime during the PostgreSQL database migration must be minimized.

Monitoring Requirements

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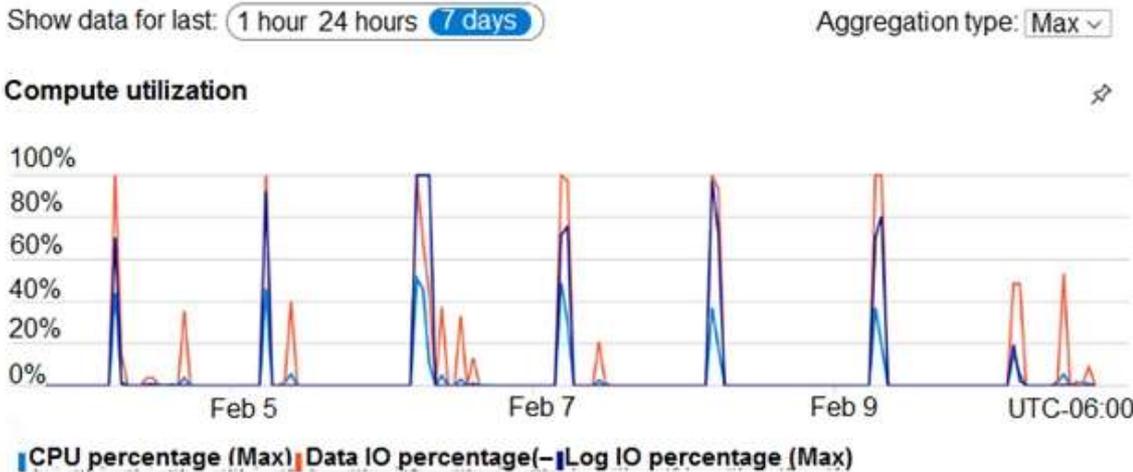
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Contoso identifies the following monitoring requirements:

- Notify administrators when a PaaS database has a higher than average CPU usage.
- Use a single dashboard to review security and audit data for all the PaaS databases.
- Use a single dashboard to monitor query performance and bottlenecks across all the PaaS databases.
- Monitor the PaaS databases to identify poorly performing queries and resolve query performance issues automatically whenever possible.

PaaS Prototype

During prototyping of the PaaS solution in Azure, you record the compute utilization of a customer's Azure SQL database as shown in the following exhibit.



Role Assignments

For each customer's Azure SQL Database server, you plan to assign the roles shown in the following exhibit.

+ Add Edit columns Refresh Remove Got feedback?

Check access **Role assignments** Deny assignments Classic administrators Roles

Manage access to Azure resources for users, groups, service principals and managed identities at this scope by creating role assignments. [Learn more](#)

Number of role assignments for this subscription ⊖

15 / 2000

Name Type Groups ▾ Role 2 selected ▾ Scope All scopes ▾

Group by Role ▾

i Showing a filtered set of results. Total number of role assignments: 15

2 items (2 Groups)

<input type="checkbox"/>	Name	Type	Role	Scope
<input type="checkbox"/>	DB DBAGroup1	Group	Contributor ⊖	This resource
<input type="checkbox"/>	DB DBAGroup2	Group	SQL DB Contributor ⊖	This resource

Based on the PaaS prototype, which Azure SQL Database compute tier should you use?

- A. Business Critical 4-vCore
- B. Hyperscale

- C. General Purpose v-vCore
- D. Serverless

Answer: A

Explanation:

There are CPU and Data I/O spikes for the PaaS prototype. Business Critical 4-vCore is needed.

Incorrect Answers:

B: Hyperscale is for large databases

Reference:

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

QUESTION 68

Case Study 2 - Contoso, Ltd

Overview

Existing Environment

Contoso, Ltd. is a financial data company that has 100 employees. The company delivers financial data to customers.

Active Directory

Contoso has a hybrid Azure Active Directory (Azure AD) deployment that syncs to on-premises Active Directory.

Database Environment

Contoso has SQL Server 2017 on Azure virtual machines shown in the following table.

Name	Role
SQL1	Primary data warehouse
SQL2	Secondary data warehouse
SQL3	Extract, transform, and load (ETL) server

SQL1 and SQL2 are in an Always On availability group and are actively queried. SQL3 runs jobs, provides historical data, and handles the delivery of data to customers.

The on-premises datacenter contains a PostgreSQL server that has a 50-TB database.

Current Business Model

Contoso uses Microsoft SQL Server Integration Services (SSIS) to create flat files for customers. The customers receive the files by using FTP.

Requirements

Planned Changes

Contoso plans to move to a model in which they deliver data to customer databases that run as platform as a service (PaaS) offerings. When a customer establishes a service agreement with Contoso, a separate resource group that contains an Azure SQL database will be provisioned for the customer. The database will have a complete copy of the financial data. The data to which each customer will have access will depend on the service agreement tier. The customers can change tiers by changing their service agreement.

The estimated size of each PaaS database is 1 TB.

Contoso plans to implement the following changes:

- Move the PostgreSQL database to Azure Database for PostgreSQL during the next six months.
- Upgrade SQL1, SQL2, and SQL3 to SQL Server 2019 during the next few months.
- Start onboarding customers to the new PaaS solution within six months.

Business Goals

Contoso identifies the following business requirements:

- Use built-in Azure features whenever possible.
- Minimize development effort whenever possible.
- Minimize the compute costs of the PaaS solutions.
- Provide all the customers with their own copy of the database by using the PaaS solution.
- Provide the customers with different table and row access based on the customer's service agreement.
- In the event of an Azure regional outage, ensure that the customers can access the PaaS solution with minimal downtime. The solution must provide automatic failover.
- Ensure that users of the PaaS solution can create their own database objects but he prevented from modifying any of the existing database objects supplied by Contoso.

Technical Requirements

[DP-300 Exam Dumps](#) [DP-300 Exam Questions](#) [DP-300 PDF Dumps](#) [DP-300 VCE Dumps](#)

<https://www.braindump2go.com/dp-300.html>

Contoso identifies the following technical requirements:

- Users of the PaaS solution must be able to sign in by using their own corporate Azure AD credentials or have Azure AD credentials supplied to them by Contoso. The solution must avoid using the internal Azure AD of Contoso to minimize guest users.
- All customers must have their own resource group, Azure SQL server, and Azure SQL database. The deployment of resources for each customer must be done in a consistent fashion.
- Users must be able to review the queries issued against the PaaS databases and identify any new objects created.
- Downtime during the PostgreSQL database migration must be minimized.

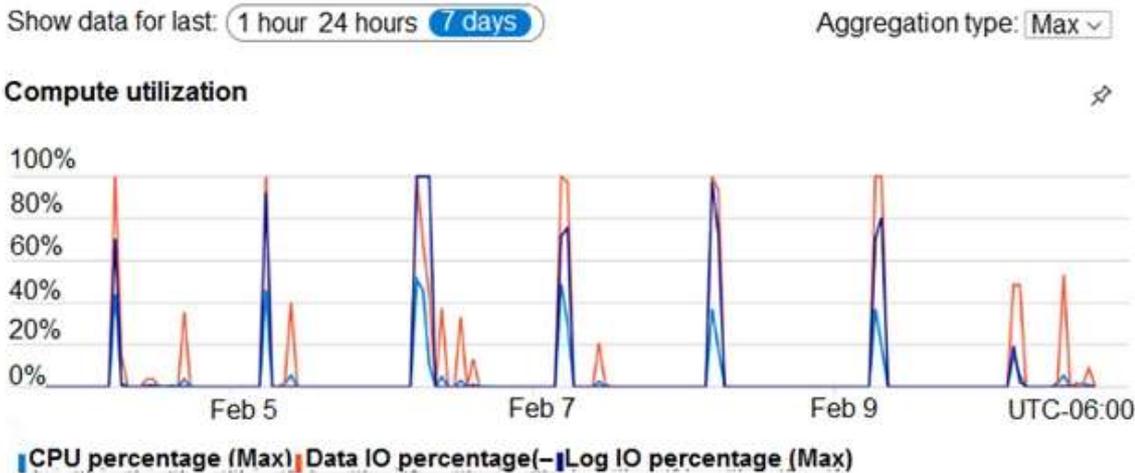
Monitoring Requirements

Contoso identifies the following monitoring requirements:

- Notify administrators when a PaaS database has a higher than average CPU usage.
- Use a single dashboard to review security and audit data for all the PaaS databases.
- Use a single dashboard to monitor query performance and bottlenecks across all the PaaS databases.
- Monitor the PaaS databases to identify poorly performing queries and resolve query performance issues automatically whenever possible.

PaaS Prototype

During prototyping of the PaaS solution in Azure, you record the compute utilization of a customer's Azure SQL database as shown in the following exhibit.



Role Assignments

For each customer's Azure SQL Database server, you plan to assign the roles shown in the following exhibit.

+ Add Edit columns Refresh Remove Got feedback?

Check access **Role assignments** Deny assignments Classic administrators Roles

Manage access to Azure resources for users, groups, service principals and managed identities at this scope by creating role assignments. [Learn more](#)

Number of role assignments for this subscription

15 / 2000

Name: Search by name or email Type: Groups Role: 2 selected Scope: All scopes

Group by: Role

Showing a filtered set of results. Total number of role assignments: 15

2 items (2 Groups)

<input type="checkbox"/>	Name	Type	Role	Scope
<input type="checkbox"/>	 DBAGroup1	Group	Contributor	This resource
<input type="checkbox"/>	 DBAGroup2	Group	SQL DB Contributor	This resource

Which audit log destination should you use to meet the monitoring requirements?

- A. Azure Storage
- B. Azure Event Hubs
- C. Azure Log Analytics

Answer: C

Explanation:

Scenario: Use a single dashboard to review security and audit data for all the PaaS databases.

With dashboards can bring together operational data that is most important to IT across all your Azure resources, including telemetry from Azure Log Analytics.

Note: Auditing for Azure SQL Database and Azure Synapse Analytics tracks database events and writes them to an audit log in your Azure storage account, Log Analytics workspace, or Event Hubs.

Reference:

<https://docs.microsoft.com/en-us/azure/azure-monitor/visualize/tutorial-logs-dashboards>

QUESTION 69

Case Study 2 - Contoso, Ltd

Overview

Existing Environment

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Active Directory

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Database Environment

Contoso has SQL Server 2017 on Azure virtual machines shown in the following table.

Name	Role
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SQL1 and SQL2 are in an Always On availability group and are actively queried. SQL3 runs jobs, provides historical data, and handles the delivery of data to customers.

The on-premises datacenter contains a PostgreSQL server that has a 50-TB database.

Current Business Model

Contoso uses Microsoft SQL Server Integration Services (SSIS) to create flat files for customers. The customers receive the files by using FTP.

Requirements

Planned Changes

Contoso plans to move to a model in which they deliver data to customer databases that run as platform as a service (PaaS) offerings. When a customer establishes a service agreement with Contoso, a separate resource group that contains an Azure SQL database will be provisioned for the customer. The database will have a complete copy of the financial data. The data to which each customer will have access will depend on the service agreement tier. The customers can change tiers by changing their service agreement.

The estimated size of each PaaS database is 1 TB.

Contoso plans to implement the following changes:

- Move the PostgreSQL database to Azure Database for PostgreSQL during the next six months.
- Upgrade SQL1, SQL2, and SQL3 to SQL Server 2019 during the next few months.
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Business Goals

Contoso identifies the following business requirements:

- Use built-in Azure features whenever possible.
- Minimize development effort whenever possible.
- Minimize the compute costs of the PaaS solutions.
- Provide all the customers with their own copy of the database by using the PaaS solution.
- Provide the customers with different table and row access based on the customer's service agreement.
- In the event of an Azure regional outage, ensure that the customers can access the PaaS solution with minimal downtime. The solution must provide automatic failover.
- Ensure that users of the PaaS solution can create their own database objects but be prevented from modifying any of the existing database objects supplied by Contoso.

Technical Requirements

Contoso identifies the following technical requirements:

- Users of the PaaS solution must be able to sign in by using their own corporate Azure AD credentials or have Azure AD credentials supplied to them by Contoso. The solution must avoid using the internal Azure AD of Contoso to minimize guest users.
- All customers must have their own resource group, Azure SQL server, and Azure SQL database. The deployment of resources for each customer must be done in a consistent fashion.
- Users must be able to review the queries issued against the PaaS databases and identify any new objects created.
- Downtime during the PostgreSQL database migration must be minimized.

Monitoring Requirements

Contoso identifies the following monitoring requirements:

- Notify administrators when a PaaS database has a higher than average CPU usage.
- Use a single dashboard to review security and audit data for all the PaaS databases.
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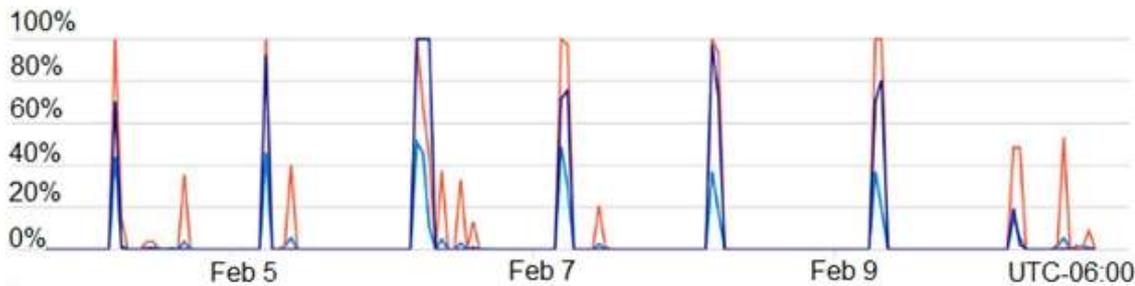
PaaS Prototype

During prototyping of the PaaS solution in Azure, you record the compute utilization of a customer's Azure SQL database as shown in the following exhibit.

Show data for last: 1 hour 24 hours 7 days

Aggregation type: Max ▾

Compute utilization ↗



█ CPU percentage (Max) █ Data IO percentage █ Log IO percentage (Max)

Role Assignments

For each customer's Azure SQL Database server, you plan to assign the roles shown in the following exhibit.

+ Add
≡ Edit columns
↻ Refresh
🗑 Remove
❤ Got feedback?

Check access
Role assignments
Deny assignments
Classic administrators
Roles

Manage access to Azure resources for users, groups, service principals and managed identities at this scope by creating role assignments. [Learn more](#)

Number of role assignments for this subscription ⓘ

15
2000

Name ⓘ

Type ⓘ

Groups ▾

Role ⓘ

2 selected ▾

Scope ⓘ

All scopes ▾

Group by ⓘ

Role ▾

i Showing a filtered set of results. Total number of role assignments: 15

2 items (2 Groups)

<input type="checkbox"/>	Name	Type	Role	Scope
Contributor				
<input type="checkbox"/>	DB DBAGroup1	Group	Contributor ⓘ	This resource
SQL DB Contributor				
<input type="checkbox"/>	DB DBAGroup2	Group	SQL DB Contributor ⓘ	This resource

What should you implement to meet the disaster recovery requirements for the PaaS solution?

- A. Availability Zones
- B. failover groups
- C. Always On availability groups
- D. geo-replication

Answer: B

Explanation:

Scenario: In the event of an Azure regional outage, ensure that the customers can access the PaaS solution with minimal downtime. The solution must provide automatic failover. The auto-failover groups feature allows you to manage the replication and failover of a group of databases on a server or all databases in a managed instance to another region. It is a declarative abstraction on top of the existing active

geo-replication feature, designed to simplify deployment and management of geo-replicated databases at scale. You can initiate failover manually or you can delegate it to the Azure service based on a user-defined policy. The latter option allows you to automatically recover multiple related databases in a secondary region after a catastrophic failure or other unplanned event that results in full or partial loss of the SQL Database or SQL Managed Instance availability in the primary region.

Reference:

<https://docs.microsoft.com/en-us/azure/azure-sql/database/auto-failover-group-overview>

QUESTION 70

Case Study 2 - Contoso, Ltd

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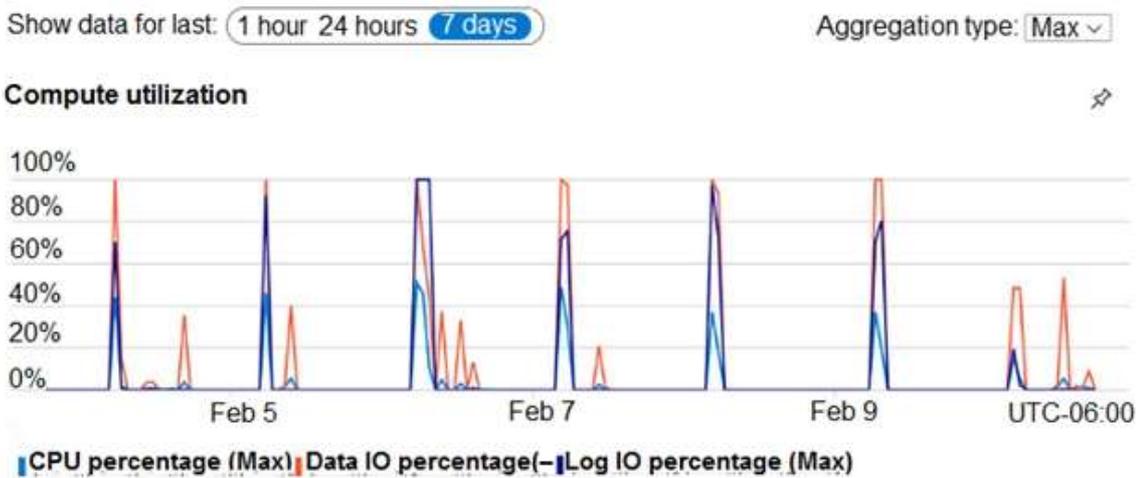
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PaaS Prototype

During prototyping of the PaaS solution in Azure, you record the compute utilization of a customer's Azure SQL database as shown in the following exhibit.



Role Assignments

For each customer's Azure SQL Database server, you plan to assign the roles shown in the following exhibit.

+ Add Edit columns Refresh Remove Got feedback?

[Check access](#) **Role assignments** [Deny assignments](#) [Classic administrators](#) [Roles](#)

Manage access to Azure resources for users, groups, service principals and managed identities at this scope by creating role assignments. [Learn more](#)

Number of role assignments for this subscription ⌵

15 / **2000**

Name ⓘ Type ⓘ Role ⓘ Scope ⓘ

Group by ⓘ

ⓘ Showing a filtered set of results. Total number of role assignments: 15

2 items (2 Groups)

<input type="checkbox"/>	Name	Type	Role	Scope
<input type="checkbox"/>	DB DBAGroup1	Group	Contributor ⌵	This resource
<input type="checkbox"/>	DB DBAGroup2	Group	SQL DB Contributor ⌵	This resource

Hotspot Question

You are evaluating the role assignments.

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
DBAGroup1 will be able to sign in to each customer's Azure SQL database by using Azure Data Studio.	<input type="radio"/>	<input type="radio"/>
DBAGroup1 will be able to assign the SQL DB Contributor role to other users.	<input type="radio"/>	<input type="radio"/>
DBAGroup2 will be able to create a new Azure SQL database on each customer's Azure SQL Database server.	<input type="radio"/>	<input type="radio"/>

Answer:

Answer Area

Statements	Yes	No
DBAGroup1 will be able to sign in to each customer's Azure SQL database by using Azure Data Studio.	<input checked="" type="radio"/>	<input type="radio"/>
DBAGroup1 will be able to assign the SQL DB Contributor role to other users.	<input type="radio"/>	<input checked="" type="radio"/>
DBAGroup2 will be able to create a new Azure SQL database on each customer's Azure SQL Database server.	<input checked="" type="radio"/>	<input type="radio"/>

Explanation:

Box 1: Yes

DBAGroup1 is member of the Contributor role.

The Contributor role grants full access to manage all resources, but does not allow you to assign roles in Azure RBAC, manage assignments in Azure Blueprints, or share image galleries.

Box 2: No

Box 3: Yes

DBAGroup2 is member of the SQL DB Contributor role.

The SQL DB Contributor role lets you manage SQL databases, but not access to them. Also, you can't manage their security-related policies or their parent SQL servers. As a member of this role you can create and manage SQL databases.

Reference:

<https://docs.microsoft.com/en-us/azure/role-based-access-control/built-in-roles>

QUESTION 71

You have a Microsoft SQL Server 2019 database named DB1 that uses the following database-level and instance-level features.

- Clustered columnstore indexes
- Automatic tuning
- Change tracking
- PolyBase

You plan to migrate DB1 to an Azure SQL database.

What feature should be removed or replaced before DB1 can be migrated?

- A. Clustered columnstore indexes
- B. PolyBase
- C. Change tracking
- D. Automatic tuning

Answer: B

Explanation:

This table lists the key features for PolyBase and the products in which they're available.

Feature	SQL Server (Beginning with 2016)	Azure SQL Database	Azure Synapse Analytics	Parallel Data Warehouse
Query Hadoop data with Transact-SQL	Yes	No	No	Yes
Import data from Hadoop	Yes	No	No	Yes
Export data to Hadoop	Yes	No	No	Yes
Query, import from, export to Azure HDInsight	No	No	No	No
Push down query computations to Hadoop	Yes	No	No	Yes
Import data from Azure Blob storage	Yes	Yes*	Yes	Yes
Export data to Azure Blob storage	Yes	No	Yes	Yes
Import data from Azure Data Lake Store	No	No	Yes	No
Export data to Azure Data Lake Store	No	No	Yes	No
Run PolyBase queries from Microsoft BI tools	Yes	No	Yes	Yes

Incorrect Answers:

C: Change tracking is a lightweight solution that provides an efficient change tracking mechanism for applications. It applies to both Azure SQL Database and SQL Server.

D: Azure SQL Database and Azure SQL Managed Instance automatic tuning provides peak performance and stable workloads through continuous performance tuning based on AI and machine learning.

Reference:

<https://docs.microsoft.com/en-us/sql/relational-databases/polybase/polybase-versioned-feature-summary>

QUESTION 72

You have 40 Azure SQL databases, each for a different customer. All the databases reside on the same Azure SQL Database server.

You need to ensure that each customer can only connect to and access their respective database.

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

NOTE: Each correct selection is worth one point.

- A. Implement row-level security (RLS).
- B. Create users in each database.
- C. Configure the database firewall.
- D. Configure the server firewall.
- E. Create logins in the master database.
- F. Implement Always Encrypted.

Answer: BC

Explanation:

Manage database access by adding users to the database, or allowing user access with secure connection strings. Database-level firewall rules only apply to individual databases.

Incorrect Answers:

B: Server-level IP firewall rules apply to all databases within the same server.

Reference:

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