Gopinath S B

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Azure Case Study Questions

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1. Your team needs to deploy a VM in Azure portal or CLI to test a new software application. Here, the team has requested both Linux and Windows VMs.

I. How could you set up these VMs?

a. <u>Linux VM:</u>

- Go to the Azure Portal and click Create a resource.
- Select Virtual Machine.
- In the Basics tab, select Linux for the operating system and choose the distribution you want (e.g., Ubuntu, CentOS).
- Fill out other required details (e.g., VM size, region, authentication method).
- Review and create the VM.

b. <u>Windows VM:</u>

- Go to the Azure Portal and click Create a resource.
- select Windows in the Operating System section.
- Choose the specific Windows OS version.
- Complete the other necessary settings, such as VM size, region, and authentication.

II. What considerations are needed for pricing and licensing?

a. <u>VM Pricing:</u>

- Size: The pricing depends on the VM size, which is based on CPU, memory, and storage configuration.
- Region: Prices may vary depending on the region where the VM is deployed.
- Storage: You'll also pay for OS disk (managed disk) and any additional data disks attached to the VM.

- ❖ Network: Costs for inbound and outbound data transfer.

b. <u>Licensing:</u>

- ❖ Windows VMs:
  - ➢ Pay-As-You-Go: If you're using Windows Server VMs on Azure, you typically pay for the VM and the Windows Server license together, based on the instance size and region.
- ❖ Linux VMs:
  - ➢ Free of Charge: Azure does not charge for the Linux OS itself. You only pay for the underlying VM compute and storage costs. The price can vary depending on the Linux distribution you're using.
  - ➢ Bring Your Own License (BYOL): For certain premium distributions (like Red Hat or SUSE), you can bring your own subscription or use the marketplace subscription.
- ❖ Azure Hybrid Benefit:

  This is a licensing benefit that helps you save on Azure Virtual Machines, especially for Windows and SQL Server. It lets you use your existing on-premises licenses for Windows Server or SQL Server with Software Assurance and apply them to your Azure VMs.

2. The IT security team has requested that the sensitive data stored in an Azure storage account be encrypted to meet compliance requirements.

I. How could you store data in Azure Storage as encrypted?

a. Azure automatically encrypts data stored in Azure Storage accounts using Storage Service Encryption.
b. Client-Side Encryption.

II. What encryption types are available?

a. Storage Service Encryption (SSE) with Microsoft-managed keys.

b. Storage Service Encryption (SSE) with customer-managed keys.
c. Client-side encryption.

3. You are responsible for setting up a DevOps pipeline in Azure DevOps for your application. The pipelines must deploy the code to an Azure App Service and notify the team if the deployment fails.

I) How could you configure the pipelines to meet the requirements?

Create a Pipeline in Azure DevOps:

- Navigate to your Azure DevOps project.
- Go to the Pipelines section and click Create Pipeline.
- Select your repository (e.g., GitHub, Azure Repos Git, etc.).
- Choose the pipeline type (YAML or Classic Editor). For this example, let's assume you are using YAML.

Set up Failure Notifications:

To notify the team when the deployment fails, you can use the Email Notification feature or integrate with other notification tools.

- Go to Project Settings > Notifications in Azure DevOps.
- Set up a New Subscription to get notified when a pipeline fails. Choose the pipeline failure event and define the recipient (your team or distribution list).

4. Your organization is moving from an on-premises SQL database to Azure. The database must remain accessible during the migration with minimal downtime.

I) Which Azure service do you use?

Azure Database Migration Service (DMS):

- DMS provides a seamless migration path for SQL databases (including SQL Server) to Azure SQL Database or SQL Managed Instance. It allows you to perform both offline and online migrations.
- DMS supports migrations from SQL Server to Azure SQL Database or SQL Managed Instance, providing tools to manage the entire migration process.

II) How could you perform the migration?

- ❖ Prepare the Environment: Ensure the on-premises SQL database is supported and set up an Azure SQL Database or Managed Instance in the target region. Create a DMS instance.
- ❖ Configure the Migration: In DMS, create a migration project, specify the source and target databases, and install the DMS agent on the on-premises server.
- ❖ Initial Data Migration: Run the full migration to move the bulk of data while keeping the on-premises database accessible.
- ❖ Enable Continuous Data Replication: Sync ongoing changes between the on-premises database and Azure, minimizing downtime.
- ❖ Cut Over to Azure: Stop changes to the on-premises database, perform the final sync and switch to Azure.
- ❖ Post-Migration Testing: Test the Azure database to ensure functionality and monitor performance.

Considerations for Minimal Downtime:

- ❖ Continuous Replication: Keeps the databases in sync, minimizing downtime.
- ❖ Synchronization: Ensure final data sync is complete before cutover.
- ❖ Downtime Window: The downtime during cutover is typically short, lasting only minutes to a couple of hours.