



Vendor: Microsoft

Exam Code: DP-201

Exam Name: Designing an Azure Data Solution

Version: DEMO

Case Study 1 - Trey Research (QUESTION 1 - QUESTION 11)

Background

Trey Research is a technology innovator. The company partners with regional transportation department office to build solutions that improve traffic flow and safety.

QUESTION 1

You need to design the vehicle images storage solution.

What should you recommend?

- A. Azure Media Services
- B. Azure Premium Storage account
- C. Azure Redis Cache
- D. Azure Cosmos DB

Answer: B

Explanation:

Premium Storage stores data on the latest technology Solid State Drives (SSDs) whereas Standard Storage stores data on Hard Disk Drives (HDDs). Premium Storage is designed for Azure Virtual Machine workloads which require consistent high IO performance and low latency in order to host IO intensive workloads like OLTP, Big Data, and Data Warehousing on platforms like SQL Server, MongoDB, Cassandra, and others. With Premium Storage, more customers will be able to lift-and-shift demanding enterprise applications to the cloud.

Scenario: Traffic sensors will occasionally capture an image of a vehicle for debugging purposes. You must optimize performance of saving/storing vehicle images.

The impact of vehicle images on sensor data throughout must be minimized.

References:

<https://azure.microsoft.com/es-es/blog/introducing-premium-storage-high-performance-storage-for-azure-virtual-machine-workloads/>

Case Study 2 (QUESTION 12 - QUESTION 19)

Requirements

Business

The company identifies the following business requirements:

- You must transfer all images and customer data to cloud storage and remove on-premises servers.
- You must develop an analytical processing solution for transforming customer data.
- You must develop an image object and color tagging solution.

QUESTION 2

You need to recommend a solution for storing customer data.

What should you recommend?

- A. Azure SQL Data Warehouse
- B. Azure Stream Analytics
- C. Azure Databricks
- D. Azure SQL Database

Answer: C

Explanation:

From the scenario:

Customer data must be analyzed using managed Spark clusters.

All cloud data must be encrypted at rest and in transit. The solution must support: parallel processing of customer data.

References:

<https://www.microsoft.com/developerblog/2019/01/18/running-parallel-apache-spark-notebook-workloads-on-azure-databricks/>

Case Study 3 (QUESTION 20 - QUESTION 25)

Background

Current environment

The company has the following virtual machines (VMs):

VM	Roles	Database size	VM type	Destination
CONT_SQL1	Microsoft SQL Server	2 TB	Hyper-V	Azure SQL Database
CONT_SQL2	Microsoft SQL Server	2 TB	Hyper-V	Azure SQL Database
CONT_SQL3	Microsoft SQL Server	100 GB	Hyper-V	Azure VM
CONT_SAP1	SAP	1 TB	Vmware	On-premises
CONT_SAP2	SAP	1 TB	Vmware	On-premises
CPNT_SSRS	Microsoft SQL Server Reporting Services	1 TB	Hyper-V	Azure VM

QUESTION 3

You need to recommend an Azure SQL Database service tier.

What should you recommend?

- A. Business Critical
- B. General Purpose
- C. Premium
- D. Standard
- E. Basic

Answer: C

Explanation:

The data engineers must set the SQL Data Warehouse compute resources to consume 300 DWUs.

Note: There are three architectural models that are used in Azure SQL Database:

General Purpose/Standard

Business Critical/Premium

Hyperscale

Incorrect Answers:

A: Business Critical service tier is designed for the applications that require low-latency responses from the underlying SSD storage (1-2 ms in average), fast recovery if the underlying infrastructure fails, or need to off-load reports, analytics, and read-only queries to the free of charge readable secondary replica of the primary database.

References:

<https://docs.microsoft.com/en-us/azure/sql-database/sql-database-service-tier-business-critical>

QUESTION 4

You are evaluating data storage solutions to support a new application.

You need to recommend a data storage solution that represents data by using nodes and relationships in graph structures.

Which data storage solution should you recommend?

- A. Blob Storage
- B. Cosmos DB
- C. Data Lake Store
- D. HDInsight

Answer: B

Explanation:

For large graphs with lots of entities and relationships, you can perform very complex analyses very quickly. Many graph databases provide a query language that you can use to traverse a network of relationships efficiently.

Relevant Azure service: Cosmos DB

References:

<https://docs.microsoft.com/en-us/azure/architecture/guide/technology-choices/data-store-overview>

QUESTION 5

You are designing a data processing solution that will implement the lambda architecture pattern. The solution will use Spark running on HDInsight for data processing.

You need to recommend a data storage technology for the solution.

Which two technologies should you recommend? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A. Azure Cosmos DB
- B. Azure Service Bus
- C. Azure Storage Queue
- D. Apache Cassandra
- E. Kafka HDInsight

Answer: A

Explanation:

To implement a lambda architecture on Azure, you can combine the following technologies to accelerate real-time big data analytics:

Azure Cosmos DB, the industry's first globally distributed, multi-model database service.

Apache Spark for Azure HDInsight, a processing framework that runs large-scale data analytics applications

Azure Cosmos DB change feed, which streams new data to the batch layer for HDInsight to process

The Spark to Azure Cosmos DB Connector

E: You can use Apache Spark to stream data into or out of Apache Kafka on HDInsight using DStreams.

References:

<https://docs.microsoft.com/en-us/azure/cosmos-db/lambda-architecture>

QUESTION 6

A company manufactures automobile parts. The company installs IoT sensors on manufacturing machinery.

You must design a solution that analyzes data from the sensors.

You need to recommend a solution that meets the following requirements:

- Data must be analyzed in real-time.
- Data queries must be deployed using continuous integration.
- Data must be visualized by using charts and graphs.
- Data must be available for ETL operations in the future.
- The solution must support high-volume data ingestion.

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

NOTE: Each correct selection is worth one point.

- A. Use Azure Analysis Services to query the data. Output query results to Power BI.
- B. Configure an Azure Event Hub to capture data to Azure Data Lake Storage.
- C. Develop an Azure Stream Analytics application that queries the data and outputs to Power BI. Use Azure Data Factory to deploy the Azure Stream Analytics application.
- D. Develop an application that sends the IoT data to an Azure Event Hub.
- E. Develop an Azure Stream Analytics application that queries the data and outputs to Power BI. Use Azure Pipelines to deploy the Azure Stream Analytics application.
- F. Develop an application that sends the IoT data to an Azure Data Lake Storage container.

Answer: BCD

QUESTION 7

A company installs IoT devices to monitor its fleet of delivery vehicles. Data from devices is collected from Azure Event Hub.

The data must be transmitted to Power BI for real-time data visualizations.

You need to recommend a solution.

What should you recommend?

- A. Azure HDInsight with Spark Streaming
- B. Apache Spark in Azure Databricks
- C. Azure Stream Analytics
- D. Azure HDInsight with Storm

Answer: C

Explanation:

Step 1: Get your IoT hub ready for data access by adding a consumer group.

Step 2: Create, configure, and run a Stream Analytics job for data transfer from your IoT hub to your Power BI account.

Step 3: Create and publish a Power BI report to visualize the data.

References:

<https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-live-data-visualization-in-power-bi>

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