Microsoft

Exam Questions DP-420

Designing and Implementing Cloud-Native Applications Using Microsoft Azure Cosmos DB

NEW QUESTION 1
- (Exam Topic 1)
You configure multi-region writes for account1.
You need to ensure that App1 supports the new configuration for account1. The solution must meet the business requirements and the product catalog requirements.
What should you do?

A. Set the default consistency level of accountl to bounded staleness.
B. Create a private endpoint connection.
C. Modify the connection policy of App1.
D. Increase the number of request units per second (RU/s) allocated to the con-product and con-productVendor containers.

Answer: D

Explanation:
App1 queries the con-product and con-productVendor containers.
Note: Request unit is a performance currency abstracting the system resources such as CPU, IOPS, and memory that are required to perform the database operations supported by Azure Cosmos DB.
Scenario:
Develop an app named App1 that will run from all locations and query the data in account1.
Once multi-region writes are configured, maximize the performance of App1 queries against the data in account1.
Whenever there are multiple solutions for a requirement, select the solution that provides the best performance, as long as there are no additional costs associated.
Reference:
https://docs.microsoft.com/en-us/azure/cosmos-db/consistency-levels

NEW QUESTION 2
- (Exam Topic 1)
You need to provide a solution for the Azure Functions notifications following updates to con-product. The solution must meet the business requirements and the product catalog requirements.
Which two actions should you perform? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. Configure the trigger for each function to use a different leaseCollectionPrefix
B. Configure the trigger for each function to use the same leaseCollectionNair.e
C. Configure the trigger for each function to use a different leaseCollectionName
D. Configure the trigger for each function to use the same leaseCollectionPrefix

Answer: AB

Explanation:
leaseCollectionPrefix: when set, the value is added as a prefix to the leases created in the Lease collection for this Function. Using a prefix allows two separate Azure Functions to share the same Lease collection by using different prefixes.
Scenario: Use Azure Functions to send notifications about product updates to different recipients. Trigger the execution of two Azure functions following every update to any document in the con-product
container.
Reference:
https://docs.microsoft.com/en-us/azure/azure-functions/functions-bindings-cosmosdb-v2-trigger

NEW QUESTION 3
- (Exam Topic 1)
You need to identify which connectivity mode to use when implementing App2. The solution must support the planned changes and meet the business requirements.
Which connectivity mode should you identify?

A. Direct mode over HTTPS
B. Gateway mode (using HTTPS)
C. Direct mode over TCP

Answer: C

Explanation:
Scenario: Develop an app named App2 that will run from the retail stores and query the data in account2. App2 must be limited to a single DNS endpoint when accessing account2.
By using Azure Private Link, you can connect to an Azure Cosmos account via a private endpoint. The private endpoint is a set of private IP addresses in a subnet within your virtual network.
When you're using Private Link with an Azure Cosmos account through a direct mode connection, you can use only the TCP protocol. The HTTP protocol is not currently supported.
Reference:
https://docs.microsoft.com/en-us/azure/cosmos-db/how-to-configure-private-endpoints

NEW QUESTION 4
- (Exam Topic 2)
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 an Azure Cosmos DB Core (SQL) API account named account 1 that uses autoscale throughput. You need to run an Azure function when the normalized request units per second for a container in account1 exceeds a specific value.

Solution: You configure the function to have an Azure CosmosDB trigger. Does this meet the goal?

A. Yes
B. No

Answer: B

Explanation:
Instead configure an Azure Monitor alert to trigger the function.
You can set up alerts from the Azure Cosmos DB pane or the Azure Monitor service in the Azure portal. Reference: https://docs.microsoft.com/en-us/azure/cosmos-db/create-alerts

NEW QUESTION 5
- (Exam Topic 2)
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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 container named container1 in an Azure Cosmos DB Core (SQL) API account.
You need to make the contents of container1 available as reference data for an Azure Stream Analytics job. Solution: You create an Azure Synapse pipeline that uses Azure Cosmos DB Core (SQL) API as the input and Azure Blob Storage as the output.
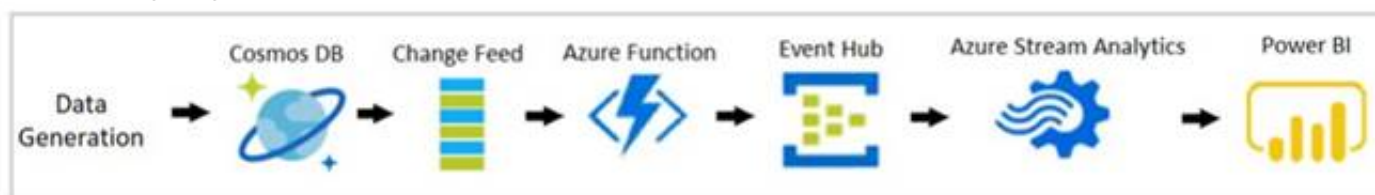Does this meet the goal?

A. Yes
B. No

Answer: B

Explanation:
Instead create an Azure function that uses Azure Cosmos DB Core (SQL) API change feed as a trigger and Azure event hub as the output.
The Azure Cosmos DB change feed is a mechanism to get a continuous and incremental feed of records from an Azure Cosmos container as those records are being created or modified. Change feed support works by listening to container for any changes. It then outputs the sorted list of documents that were changed in the order in which they were modified.
The following diagram represents the data flow and components involved in the solution:

C:\Users\Admin\Desktop\Data\Odt data\Untitled.jpg
Reference: https://docs.microsoft.com/en-us/azure/cosmos-db/sql/changefeed-ecommerce-solution

NEW QUESTION 6
- (Exam Topic 2)
You have the following query.
SELECT * FROM
WHERE c.sensor = "TEMP1"
AND c.value < 22
AND c.timestamp >= 1619146031231
You need to recommend a composite index strategy that will minimize the request units (RUs) consumed by the query.
What should you recommend?

A. a composite index for (sensor ASC, value ASC) and a composite index for (sensor ASC, timestamp ASC)
B. a composite index for (sensor ASC, value ASC, timestamp ASC) and a composite index for (sensor DESC, value DESC, timestamp DESC)
C. a composite index for (value ASC, sensor ASC) and a composite index for (timestamp ASC, sensor ASC)
D. a composite index for (sensor ASC, value ASC, timestamp ASC)

Answer: A

Explanation:
If a query has a filter with two or more properties, adding a composite index will improve performance. Consider the following query:
SELECT * FROM c WHERE c.name = "Tim" and c.age > 18
In the absence of a composite index on (name ASC, and age ASC), we will utilize a range index for this query. We can improve the efficiency of this query by creating a composite index for name and age.
Queries with multiple equality filters and a maximum of one range filter (such as >,<, <=, >=, !=) will utilize the composite index.
Reference:
https://azure.microsoft.com/en-us/blog/three-ways-to-leverage-composite-indexes-in-azure-cosmos-db/

NEW QUESTION 7
- (Exam Topic 2)
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 container named container1 in an Azure Cosmos DB Core (SQL) API account.
You need to make the contents of container1 available as reference data for an Azure Stream Analytics job. Solution: You create an Azure Data Factory pipeline that uses Azure Cosmos DB Core (SQL) API as the input and Azure Blob Storage as the output.
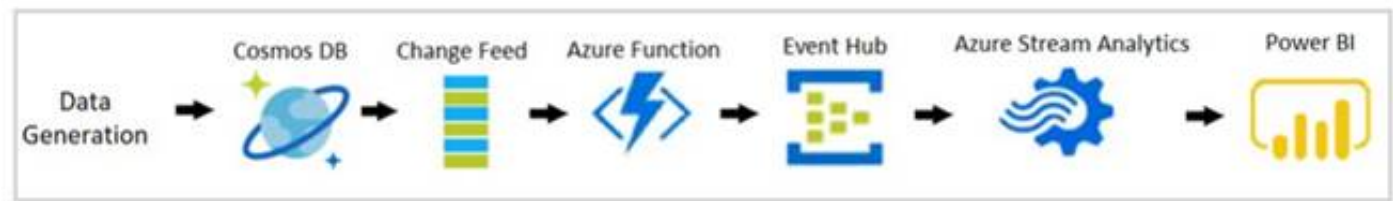Does this meet the goal?

A. Yes

B. No

Answer: B

Explanation:
Instead create an Azure function that uses Azure Cosmos DB Core (SQL) API change feed as a trigger and Azure event hub as the output.
The Azure Cosmos DB change feed is a mechanism to get a continuous and incremental feed of records from an Azure Cosmos container as those records are being created or modified. Change feed support works by listening to container for any changes. It then outputs the sorted list of documents that were changed in the order in which they were modified.
The following diagram represents the data flow and components involved in the solution:

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Reference: https://docs.microsoft.com/en-us/azure/cosmos-db/sql/changefeed-ecommerce-solution
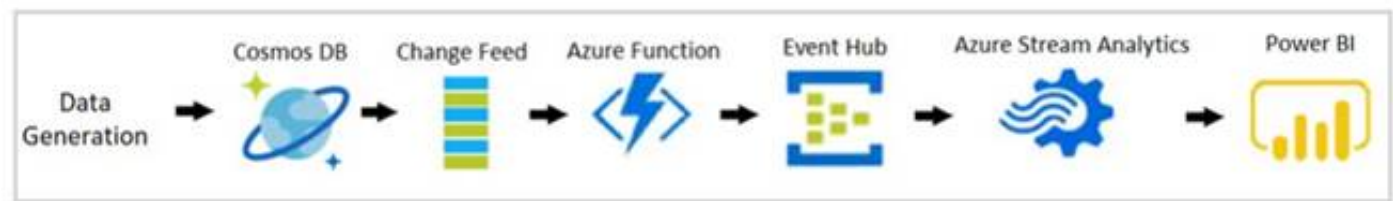
NEW QUESTION 8
- (Exam Topic 2)
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After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.
You have a container named container1 in an Azure Cosmos DB Core (SQL) API account.
You need to make the contents of container1 available as reference data for an Azure Stream Analytics job. Solution: You create an Azure function that uses Azure Cosmos DB Core (SQL) API change feed as a trigger
and Azure event hub as the output.
Does this meet the goal?

A. Yes
B. No

Answer: A

Explanation:
The Azure Cosmos DB change feed is a mechanism to get a continuous and incremental feed of records from an Azure Cosmos container as those records are being created or modified. Change feed support works by listening to container for any changes. It then outputs the sorted list of documents that were changed in the order in which they were modified.
The following diagram represents the data flow and components involved in the solution:

C:\Users\Admin\Desktop\Data\Odt data\Untitled.jpg
Reference: https://docs.microsoft.com/en-us/azure/cosmos-db/sql/changefeed-ecommerce-solution

NEW QUESTION 9
- (Exam Topic 2)
The settings for a container in an Azure Cosmos DB Core (SQL) API account are configured as shown in the following exhibit.

Which statement describes the configuration of the container?

A. All items will be deleted after one year.
B. Items stored in the collection will be retained always, regardless of the items time to live value.
C. Items stored in the collection will expire only if the item has a time to live value.
D. All items will be deleted after one hour.

Answer: C

Explanation:
When DefaultTimeToLive is -1 then your Time to Live setting is On (No default)
Time to Live on a container, if present and the value is set to "-1", it is equal to infinity, and items don't expire by default.
Time to Live on an item:
This Property is applicable only if DefaultTimeToLive is present and it is not set to null for the parent container.
If present, it overrides the DefaultTimeToLive value of the parent container. Reference: https://docs.microsoft.com/en-us/azure/cosmos-db/sql/time-to-live

NEW QUESTION 10
- (Exam Topic 2)
You have the indexing policy shown in the following exhibit.

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

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Box 1: ORDER BY c.name DESC, c.age DESC
Queries that have an ORDER BY clause with two or more properties require a composite index.
The following considerations are used when using composite indexes for queries with an ORDER BY clause with two or more properties:
If the composite index paths do not match the sequence of the properties in the ORDER BY clause, then the composite index can't support the query.
The order of composite index paths (ascending or descending) should also match the order in the ORDER BY clause.
The composite index also supports an ORDER BY clause with the opposite order on all paths. Box 2: At the same time as the item creation
Azure Cosmos DB supports two indexing modes:
Consistent: The index is updated synchronously as you create, update or delete items. This means that the consistency of your read queries will be the consistency configured for the account.

None: Indexing is disabled on the container.
Reference: https://docs.microsoft.com/en-us/azure/cosmos-db/index-policy

NEW QUESTION 10
- (Exam Topic 2)
You have an Azure Cosmos DB Core (SQL) API account named account1 that has the disableKeyBasedMetadataWriteAccess property enabled.
You are developing an app named App1 that will be used by a user named DevUser1 to create containers in account1. DevUser1 has a non-privileged user account in the Azure Active Directory (Azure AD) tenant.
You need to ensure that DevUser1 can use App1 to create containers in account1. What should you do? To answer, select the appropriate options in the answer area. NOTE: Each correct selection is worth one point.

Answer Area

Grant permissions to create containers by using: [▼]
- Account keys
- Resource tokens
- Role-based access control (RBAC)

Create containers by using the: [▼]
- Azure AD Graph API
- Azure Resource Manager API
- SQL (Core) API

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Box 1: Resource tokens
Resource tokens provide access to the application resources within a database. Resource tokens:
Provide access to specific containers, partition keys, documents, attachments, stored procedures, triggers, and UDFs.
Box 2: Azure Resource Manager API
You can use Azure Resource Manager to help deploy and manage your Azure Cosmos DB accounts, databases, and containers.
Reference:
https://docs.microsoft.com/en-us/azure/cosmos-db/secure-access-to-data https://docs.microsoft.com/en-us/rest/api/resources/

NEW QUESTION 11
- (Exam Topic 2)
You are designing an Azure Cosmos DB Core (SQL) API solution to store data from IoT devices. Writes from the devices will be occur every second.
The following is a sample of the data.

```
{
    "id" : "03c1ca5a-db18-4231-908f-09a9bc7a7c3e",
    "deviceManufacturer" : "Contoso, Ltd",
    "deviceId" : "f460df85-799f-4d58-b051-67561b4993c6",
    "timestamp" : "2021-09-19T13:47:45",
    "sensor1Value" : true,
    "sensor2Value" : "75",
    "sensor3Value" : "4554",
    "sensor4Value" : "454",
    "sensor5Value" : "42128"
}
```

You need to select a partition key that meets the following requirements for writes: Minimizes the partition skew
Avoids capacity limits Avoids hot partitions What should you do?

A. Use timestamp as the partition key.
B. Create a new synthetic key that contains deviceId and sensor1Value.
C. Create a new synthetic key that contains deviceId and deviceManufacturer.
D. Create a new synthetic key that contains deviceId and a random number.

Answer: D

Explanation:
Use a partition key with a random suffix. Distribute the workload more evenly is to append a random number at the end of the partition key value. When you distribute items in this way, you can perform parallel write operations across partitions.
Reference: https://docs.microsoft.com/en-us/azure/cosmos-db/sql/synthetic-partition-keys

NEW QUESTION 15
- (Exam Topic 2)
You are implementing an Azure Data Factory data flow that will use an Azure Cosmos DB (SQL API) sink to write a dataset. The data flow will use 2,000 Apache Spark partitions.
You need to ensure that the ingestion from each Spark partition is balanced to optimize throughput. Which sink setting should you configure?

A. Throughput
B. Write throughput budget

C. Batch size
D. Collection action

Answer: C

Explanation:
Batch size: An integer that represents how many objects are being written to Cosmos DB collection in each batch. Usually, starting with the default batch size is sufficient. To further tune this value, note:
Cosmos DB limits single request's size to 2MB. The formula is "Request Size = Single Document Size * Batch Size". If you hit error saying "Request size is too large", reduce the batch size value.
The larger the batch size, the better throughput the service can achieve, while make sure you allocate enough RUs to empower your workload.
Reference: https://docs.microsoft.com/en-us/azure/data-factory/connector-azure-cosmos-db

NEW QUESTION 17
- (Exam Topic 2)
You plan to deploy two Azure Cosmos DB Core (SQL) API accounts that will each contain a single database. The accounts will be configured as shown in the following table.

Name	Description
development	• Supports the development of new application features • Used intermittently as needed during development
shipments	• Captures over 100,000 updates per second generated at unpredictable rimes throughout the business day • Used with Azure Synapse Link for analytics

How should you provision the containers within each account to minimize costs? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

development:
- Serverless capacity mode
- Provisioned throughput capacity mode and manual throughput
- Provisioned throughput capacity mode and autoscale throughput

shipments:
- Serverless capacity mode
- Provisioned throughput capacity mode and manual throughput
- Provisioned throughput capacity mode and autoscale throughput

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Box 1: Serverless capacity mode
Azure Cosmos DB serverless best fits scenarios where you expect intermittent and unpredictable traffic with long idle times. Because provisioning capacity in such situations isn't required and may be cost-prohibitive, Azure Cosmos DB serverless should be considered in the following use-cases:
Getting started with Azure Cosmos DB
Running applications with bursty, intermittent traffic that is hard to forecast, or low (<10%) average-to-peak traffic ratio
Developing, testing, prototyping and running in production new applications where the traffic pattern is unknown
Integrating with serverless compute services like Azure Functions
Box 2: Provisioned throughput capacity mode and autoscale throughput The use cases of autoscale include:
Variable or unpredictable workloads: When your workloads have variable or unpredictable spikes in usage, autoscale helps by automatically scaling up and down based on usage. Examples include retail websites that have different traffic patterns depending on seasonality; IOT workloads that have spikes at various times during the day; line of business applications that see peak usage a few times a month or year, and more. With autoscale, you no longer need to manually provision for peak or average capacity.
Reference:
https://docs.microsoft.com/en-us/azure/cosmos-db/serverless
https://docs.microsoft.com/en-us/azure/cosmos-db/provision-throughput-autoscale#use-cases-of-autoscale

NEW QUESTION 20
- (Exam Topic 2)
You have an Azure Cosmos DB Core (SQL) account that has a single write region in West Europe. You run the following Azure CLI script.

```
az cosmosdb update -n $accountName -g $resourceGroupName \
    --locations regionName='West Europe' failoverPriority=0 isZoneRedundant-False \
    --locations regionName='North Europe' failoverPriority=1 isZoneRedundant-False

az cosmosdb failover-priority-change -n $accountName -g $resourceGroupName \
    --failover-policies 'North Europe=0' 'West Europe=1'
```

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
After running the script, there will be an instance of Azure Cosmos DB in North Europe that is writable	○	○
After running the script, the Azure Cosmos DB instance in West Europe will be writable	○	○
The cost of the Azure Cosmos DB account is unaffected by running the script	○	○

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Box 1: Yes
The Automatic failover option allows Azure Cosmos DB to failover to the region with the highest failover priority with no user action should a region become unavailable.
Box 2: No
West Europe is used for failover. Only North Europe is writable. To Configure multi-region set UseMultipleWriteLocations to true.
Box 3: Yes
Provisioned throughput with single write region costs $0.008/hour per 100 RU/s and provisioned throughput with multiple writable regions costs $0.016/per hour per 100 RU/s.
Reference:
https://docs.microsoft.com/en-us/azure/cosmos-db/sql/how-to-multi-master https://docs.microsoft.com/en-us/azure/cosmos-db/optimize-cost-regions

NEW QUESTION 23
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