



Microsoft

Exam Questions DP-420

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

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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 account1 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 2)

You have a container named container1 in an Azure Cosmos DB Core (SQL) API account. The container1 container has 120 GB of data.

The following is a sample of a document in container1.

```
{
  "customerId" : "5425",
  "orderId" : "9d7816e6-f401-42ba-ad05-0e03de35c0b8",
  "orderDate" : "2019-05-03",
  "orderDetails" : []
}
```

The orderId property is used as the partition key.

For each of the following statements, select Yes if the statement is true. Otherwise, select No. NOTE: Each correct selection is worth one point.

Statements	Yes	No
If you run the following query, the query will run as a cross-partition query SELECT * FROM c where c.orderDate = "2019-05-03"	☐	☐
If you run the following query, the query will run as a cross-partition query SELECT * FROM c where c.customerId = "5425"	☐	☐
If you run the following query, the query will run as a cross-partition query SELECT * FROM c where c.orderDate = "2019-05-03" and c.orderId = "9d7816e6-f401-42ba-ad05-0e03de35c0b8"	☐	☐

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Box 1: Yes

Records with different OrderIDs will match.

Box 2: Yes

Records with different OrderIDs will match.

Box 3: No

Only records with one specific OrderId will match

NEW QUESTION 3

- (Exam Topic 2)

You have an Azure Cosmos DB Core (SQL) API account named account1.

In account1, you run the following query in a container that contains 100GB of data. SELECT * FROM c

WHERE LOWER(c.categoryid) = "hockey"
You view the following metrics while performing the query.

Retrieved Document Count	:	45,654
Retrieved Document Size	:	543,765,234 bytes
Output Document Count	:	12
Output Document Size	:	451 bytes
Index Utilization	:	0.00 %
Total Query Execution Time	:	2,400.34 milliseconds
Query Preparation Times		
Query Compilation Time	:	0.09 milliseconds
Logical Plan Build Time	:	0.04 milliseconds
Physical Plan Build Time	:	0.03 milliseconds
Query Optimization Time	:	0.01 milliseconds
Index Lookup Time	:	0.00 milliseconds
Document Load Time	:	3,167.26 milliseconds
Runtime Execution Times		
Query Engine Times	:	299.16 milliseconds
System Function Execution Time	:	79.34 milliseconds
User-defined Function Execution Time	:	0.00 milliseconds
Document Write Time	:	0.01 milliseconds
Client Side Metrics		
Retry Count	:	0
Request Charge	:	3,898.95 RUs

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 query performs a cross-partition query	☐	☐
	The query uses an index	☐	☐
	Recreating the container with the partition key set to /categoryid will improve the performance of the query	☐	☐

- A. Mastered
B. Not Mastered

Answer: A

Explanation:

Box 1: No
Each physical partition should have its own index, but since no index is used, the query is not cross-partition.
Box 2: No
Index utilization is 0% and Index Look up time is also zero.
Box 3: Yes
A partition key index will be created, and the query will perform across the partitions. Reference: <https://docs.microsoft.com/en-us/azure/cosmos-db/sql/how-to-query-container>

NEW QUESTION 4

- (Exam Topic 2)
The following is a sample of a document in orders.

```
{
  "orderId" : "d4a91979b-5ead-43a3-b851-add9a71ac4b6",
  "customerId" : "f6e39103-bdc7-4346-9cfb-45daa4b2becf",
  "orderDate" : "2021-09-29",
  "orderItems" : [
    {
      "itemId" : "6c30412f-3cd7-4cab-813c-05942345720d",
      "name" : "blue pen",
      "type" : "pens",
      "count" : 10,
    },
    ...
  ],
  "total" : 12345,
  "status" : "ordered"
}
```

The orders container uses customerId as the partition key.
You need to provide a report of the total items ordered per month by item type. The solution must meet the following requirements:
Ensure that the report can run as quickly as possible. Minimize the consumption of request units (RUs). What should you do?

- A. Configure the report to query orders by using a SQL query.
B. Configure the report to query a new aggregate containe
C. Populate the aggregates by using the change feed.
D. Configure the report to query orders by using a SQL query through a dedicated gateway.
E. Configure the report to query a new aggregate containe

F. Populate the aggregates by using SQL queries that run daily.

Answer: B

Explanation:

You can facilitate aggregate data by using Change Feed and Azure Functions, and then use it for reporting.

Reference: <https://docs.microsoft.com/en-us/azure/cosmos-db/change-feed>

NEW QUESTION 5

- (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

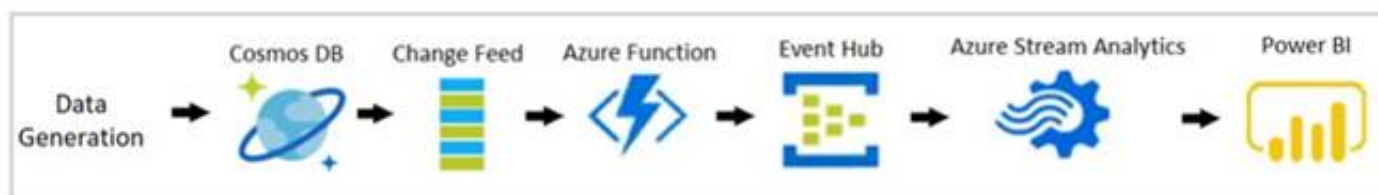
Answer: B

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:



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 an Azure Cosmos DB Core (SQL) API account that uses a custom conflict resolution policy. The account has a registered merge procedure that throws a runtime exception.

The runtime exception prevents conflicts from being resolved. You need to use an Azure function to resolve the conflicts. What should you use?

A. a function that pulls items from the conflicts feed and is triggered by a timer trigger

B. a function that receives items pushed from the change feed and is triggered by an Azure Cosmos DB trigger

C. a function that pulls items from the change feed and is triggered by a timer trigger

D. a function that receives items pushed from the conflicts feed and is triggered by an Azure Cosmos DB trigger

Answer: D

Explanation:

The Azure Cosmos DB Trigger uses the Azure Cosmos DB Change Feed to listen for inserts and updates across partitions. The change feed publishes inserts and updates, not deletions.

Reference: <https://docs.microsoft.com/en-us/azure/azure-functions/functions-bindings-cosmosdb>

NEW QUESTION 7

- (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.

Settings

Indexing Policy

Time to Live

- ☐ Off
- ☒ On (no default)
- ☐ On

Geospatial Configuration

- ☒ Geography
- ☐ Geometry

Partition key

/productName

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 8

- (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 account1 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 an application to use the change feed processor to read the change feed and you configure the application to trigger the function. 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 9

- (Exam Topic 2)

You have an app that stores data in an Azure Cosmos DB Core (SQL) API account The app performs queries that return large result sets.

You need to return a complete result set to the app by using pagination. Each page of results must return 80 items.

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

Configure MaxItemCount in QueryRequestOptions

Run the query and provide a continuation token

Configure MaxBufferedItemCount in QueryRequestOptions

Append the results to a variable

Run the query and increment MaxItemCount



- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Step 1: Configure the MaxItemCount in QueryRequestOptions

You can specify the maximum number of items returned by a query by setting the MaxItemCount. The MaxItemCount is specified per request and tells the query engine to return that number of items or fewer.

Box 2: Run the query and provide a continuation token

In the .NET SDK and Java SDK you can optionally use continuation tokens as a bookmark for your query's progress. Azure Cosmos DB query executions are stateless at the server side and can be resumed at any time using the continuation token.

If the query returns a continuation token, then there are additional query results.

Step 3: Append the results to a variable

Reference: <https://docs.microsoft.com/en-us/azure/cosmos-db/sql/sql-query-pagination>

NEW QUESTION 10

- (Exam Topic 2)

You have a container named container1 in an Azure Cosmos DB Core (SQL) API account.

You need to provide a user named User1 with the ability to insert items into container1 by using role-based access control (RBAC). The solution must use the principle of least privilege.

Which roles should you assign to User1?

- A. CosmosDB Operator only
- B. DocumentDB Account Contributor and Cosmos DB Built-in Data Contributor
- C. DocumentDB Account Contributor only
- D. Cosmos DB Built-in Data Contributor only

Answer: A

Explanation:

Cosmos DB Operator: Can provision Azure Cosmos accounts, databases, and containers. Cannot access any data or use Data Explorer.

Reference: <https://docs.microsoft.com/en-us/azure/cosmos-db/role-based-access-control>

NEW QUESTION 10

- (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 14

- (Exam Topic 2)

You need to implement a trigger in Azure Cosmos DB Core (SQL) API that will run before an item is inserted into a container.

Which two actions should you perform to ensure that the trigger runs? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- A. Append pre to the name of the JavaScript function trigger.
- B. For each create request, set the access condition in RequestOptions.
- C. Register the trigger as a pre-trigger.
- D. For each create request, set the consistency level to session in RequestOptions.
- E. For each create request, set the trigger name in RequestOptions.

Answer: C

Explanation:

C: When triggers are registered, you can specify the operations that it can run with.

F: When executing, pre-triggers are passed in the RequestOptions object by specifying PreTriggerInclude and then passing the name of the trigger in a List object.

Reference: <https://docs.microsoft.com/en-us/azure/cosmos-db/sql/how-to-use-stored-procedures-triggers-udfs>

NEW QUESTION 19

- (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 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 21

- (Exam Topic 2)

You have a container named container1 in an Azure Cosmos DB Core (SQL) API account. Upserts of items in container1 occur every three seconds.

You have an Azure Functions app named function1 that is supposed to run whenever items are inserted or replaced in container1.

You discover that function1 runs, but not on every upsert.

You need to ensure that function1 processes each upsert within one second of the upsert. Which property should you change in the Function.json file of function1?

- A. checkpointInterval
- B. leaseCollectionsThroughput
- C. maxItemsPerInvocation
- D. feedPollDelay

Answer: D

Explanation:

With an upsert operation we can either insert or update an existing record at the same time.

FeedPollDelay: The time (in milliseconds) for the delay between polling a partition for new changes on the feed, after all current changes are drained. Default is 5,000 milliseconds, or 5 seconds.

Reference: <https://docs.microsoft.com/en-us/azure/azure-functions/functions-bindings-cosmosdb-v2-trigger>

NEW QUESTION 25

- (Exam Topic 2)

You have a database in an Azure Cosmos DB Core (SQL) API account.

You need to create an Azure function that will access the database to retrieve records based on a variable named accountnumber. The solution must protect against SQL injection attacks.

How should you define the command statement in the function?

- A. cmd = "SELECT * FROM Persons pWHERE p.accountnumber = 'accountnumber'"
- B. cmd = "SELECT * FROM Persons pWHERE p.accountnumber = LIKE @accountnumber"
- C. cmd = "SELECT * FROM Persons pWHERE p.accountnumber = @accountnumber"
- D. cmd = "SELECT * FROM Persons pWHERE p.accountnumber = '' + accountnumber + ''"

Answer: C

Explanation:

Azure Cosmos DB supports queries with parameters expressed by the familiar @ notation. Parameterized SQL provides robust handling and escaping of user input, and prevents accidental exposure of data through SQL injection.

For example, you can write a query that takes lastName and address.state as parameters, and execute it for various values of lastName and address.state based on user input.

```
SELECT *
```

```
FROM Families f
```

```
WHERE f.lastName = @lastName AND f.address.state = @addressState
```

Reference: <https://docs.microsoft.com/en-us/azure/cosmos-db/sql/sql-query-parameterized-queries>

NEW QUESTION 30

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