Microsoft

Exam Questions DP-420

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

NEW QUESTION 1
- (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 2
- (Exam Topic 2)
You have an Azure Cosmos DB Core (SQL) API account named storage1 that uses provisioned throughput capacity mode.
The storage1 account contains the databases shown in the following table.

The databases contain the containers shown in the following table.

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

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Box 1: No
Four containers with 1000 RU/s each.
Box 2: No
Max 8000 RU/s for db2. 8 containers, so 1000 RU/s for each container.
Box 3: Yes
Max 8000 RU/s for db2. 8 containers, so 1000 RU/s for each container. Can very well add an additional container.
Reference:
https://docs.microsoft.com/en-us/azure/cosmos-db/plan-manage-costs https://azure.microsoft.com/en-us/pricing/details/cosmos-db/

NEW QUESTION 3
- (Exam Topic 2)
You have a database in an Azure Cosmos DB Core (SQL) API account.
You plan to create a container that will store employee data for 5,000 small businesses. Each business will have up to 25 employees. Each employee item will have an emailAddress value.
You need to ensure that the emailAddress value for each employee within the same company is unique.
To what should you set the partition key and the unique key? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Box 1: CompanyID
After you create a container with a unique key policy, the creation of a new or an update of an existing item resulting in a duplicate within a logical partition is prevented, as specified by the unique key constraint. The partition key combined with the unique key guarantees the uniqueness of an item within the scope of the container.
For example, consider an Azure Cosmos container with Email address as the unique key constraint and CompanyID as the partition key. When you configure the user's email address with a unique key, each item has a unique email address within a given CompanyID. Two items can't be created with duplicate email addresses and with the same partition key value.
Box 2: emailAddress
Reference: https://docs.microsoft.com/en-us/azure/cosmos-db/unique-keys

NEW QUESTION 4
- (Exam Topic 2)
You have a container in an Azure Cosmos DB Core (SQL) API account. The container stores telemetry data from IoT devices. The container uses telemetryId as the partition key and has a throughput of 1,000 request units per second (RU/s). Approximately 5,000 IoT devices submit data every five minutes by using the same telemetryId value.
You have an application that performs analytics on the data and frequently reads telemetry data for a single IoT device to perform trend analysis.
The following is a sample of a document in the container.

You need to reduce the amount of request units (RUs) consumed by the analytics application. What should you do?

A. Decrease the offerThroughput value for the container.
B. Increase the offerThroughput value for the container.
C. Move the data to a new container that has a partition key of deviceId.
D. Move the data to a new container that uses a partition key of date.

Answer: C

Explanation:
The partition key is what will determine how data is routed in the various partitions by Cosmos DB and needs to make sense in the context of your specific scenario. The IoT Device ID is generally the "natural" partition key for IoT applications.
Reference: https://docs.microsoft.com/en-us/azure/architecture/solution-ideas/articles/iot-using-cosmos-db

NEW QUESTION 5
- (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 6
- (Exam Topic 2)
You are developing an application that will use an Azure Cosmos DB Core (SQL) API account as a data source.
You need to create a report that displays the top five most ordered fruits as shown in the following table.

A collection that contains aggregated data already exists. The following is a sample document:

```
{
"name": "apple",
"type": ["fruit", "exotic"], "orders": 10000
}
```

Which two queries can you use to retrieve data for the report? Each correct answer presents a complete solution.
NOTE: Each correct selection is worth one point.
A)

B)

C)

D)

A. Option A
B. Option B
C. Option C
D. Option D

Answer: BD

Explanation:
ARRAY_CONTAINS returns a Boolean indicating whether the array contains the specified value. You can check for a partial or full match of an object by using a boolean expression within the command.
Reference: https://docs.microsoft.com/en-us/azure/cosmos-db/sql/sql-query-array-contains

NEW QUESTION 7
- (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 8
- (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 9
- (Exam Topic 2)
You plan to create an Azure Cosmos DB Core (SQL) API account that will use customer-managed keys stored in Azure Key Vault.
You need to configure an access policy in Key Vault to allow Azure Cosmos DB access to the keys. Which three permissions should you enable in the access policy? Each correct answer presents part of the
solution.
NOTE: Each correct selection is worth one point.

A. Wrap Key
B. Get
C. List
D. Update
E. Sign
F. Verify
G. Unwrap Key

Answer: ABG

Explanation:
Reference: https://docs.microsoft.com/en-us/azure/cosmos-db/how-to-setup-cmk

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 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 14
- (Exam Topic 2)
You have an Azure Cosmos DB Core (SQL) API account that is used by 10 web apps.
You need to analyze the data stored in the account by using Apache Spark to create machine learning models. The solution must NOT affect the performance of the web apps.
Which two actions should you perform? Each correct answer presents part of the solution. NOTE: Each correct selection is worth one point.

A. In an Apache Spark pool in Azure Synapse, create a table that uses cosmos.olap as the data source.
B. Create a private endpoint connection to the account.
C. In an Azure Synapse Analytics serverless SQL pool, create a view that uses OPENROWSET and the CosmosDB provider.
D. Enable Azure Synapse Link for the account and Analytical store on the container.
E. In an Apache Spark pool in Azure Synapse, create a table that uses cosmos.oltp as the data source.

Answer: AD

Explanation:
Reference:
https://github.com/microsoft/MCW-Cosmos-DB-Real-Time-Advanced-Analytics/blob/main/Hands-on%20lab/H

NEW QUESTION 16
- (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.

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

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 20
- (Exam Topic 2)
You have a database named telemetry in an Azure Cosmos DB Core (SQL) API account that stores IoT data. The database contains two containers named readings and devices.
Documents in readings have the following structure.
id
deviceid
timestamp
ownerid
measures (array)
- type
- value
- metricid
Documents in devices have the following structure.
id
deviceid
owner
- ownerid
- emailaddress
- name brand model
For each of the following statements, select Yes if the statement is true. Otherwise, select No. NOTE: Each correct selection is worth one point.

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Box 1: Yes
Need to join readings and devices.
Box 2: No
Only readings is required. All required fields are in readings.
Box 3: No
Only devices is required. All required fields are in devices.

NEW QUESTION 24
- (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 25
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