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Question #13

Topic 2

DRAG DROP -

You are developing a web service that will run on Azure virtual machines that use Azure Storage. You configure all virtual machines to use managed identities.

You have the following requirements:

- ⇒ Secret-based authentication mechanisms are not permitted for accessing an Azure Storage account.
- ⇒ Must use only Azure Instance Metadata Service endpoints.

You need to write code to retrieve an access token to access Azure Storage. To answer, drag the appropriate code segments to the correct locations. Each code segment may be used once or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:

Code segment 1

`http://localhost:50342/oauth2/token`

`http://169.254.169.254:50432/oauth2/token`

`http://localhost/metadata/identity/oauth2/token`

`http://169.254.169.254/metadata/identity/oauth2/token`

Code segment 2

`XDocument.Parse(payload);`

`new MultipartContent(payload);`

`new NetworkCredential("Azure", payload);`

`JsonConvert.DeserializeObject<Dictionary<string, string>>(payload);`

Answer Area

```
var url = " Code segment 1 " ;  
  
var queryString = "...";  
var client = new HttpClient();  
var response = await client.GetAsync(url + queryString);  
var payload = await response.Content.ReadAsStringAsync();  
  
return Code segment 2
```

Correct Answer:

Code segment 1

`http://localhost:50342/oauth2/token`

`http://169.254.169.254:50432/oauth2/token`

`http://localhost/metadata/identity/oauth2/token`

Code segment 2

`XDocument.Parse(payload);`

`new MultipartContent(payload);`

`new NetworkCredential("Azure", payload);`

Answer Area

```
var url = " http://169.254.169.254/metadata/identity/oauth2/token " ;  
  
var queryString = "...";  
var client = new HttpClient();  
var response = await client.GetAsync(url + queryString);  
var payload = await response.Content.ReadAsStringAsync();  
  
return JsonConvert.DeserializeObject<Dictionary<string, string>>(payload);
```

Azure Instance Metadata Service endpoints "/oauth2/token"

Box 1: `http://169.254.169.254/metadata/identity/oauth2/token`

Sample request using the Azure Instance Metadata Service (IMDS) endpoint (recommended):

```
GET 'http://169.254.169.254/metadata/identity/oauth2/token?api-version=2018-02-01&resource=https://management.azure.com/' HTTP/1.1

Metadata: true
Box 2: JsonConvert.DeserializeObject<Dictionary<string,string>>(payload);
Deserialized token response; returning access code.
Reference:
https://docs.microsoft.com/en-us/azure/active-directory/managed-identities-azure-resources/how-to-use-vm-token
https://docs.microsoft.com/en-us/azure/service-fabric/how-to-managed-identity-service-fabric-app-code
```

DRAG DROP -

You are developing a new page for a website that uses Azure Cosmos DB for data storage. The feature uses documents that have the following format:

```
{
  "name": "John",
  "city" : "Seattle"
}
```

You must display data for the new page in a specific order. You create the following query for the page:

```
SELECT*
FROM People p
ORDER BY p.name, p.city DESC
```

You need to configure a Cosmos DB policy to support the query.

How should you configure the policy? To answer, drag the appropriate JSON segments to the correct locations. Each JSON segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:

JSON segments

orderBy

sortOrder

ascending

descending

compositeIndexes

Answer Area

```
{
  "automatic": true,
  "ngMode": "Consistent",
  "includedPaths": [
    {
      "path": "/*"
    }
  ], "excludedPaths": [],
  "": [
    {
      "path": "/name", "order": "descending"
    },
    {
      "path": "/city", "order": " "
    }
  ]
}
```

Correct Answer:

JSON segments

- orderBy
- sortOrder
- ascending
- descending
- compositeIndexes

Answer Area

```
{
  "automatic": true,
  "ngMode": "Consistent",
  "includedPaths": [
    {
      "path": "/*"
    }
  ],
  "excludedPaths": [],
  "compositeIndexes": [
    {
      "path": "/name", "order": "descending"
    },
    {
      "path": "/city", "order": "descending"
    }
  ]
}
```

Box 1: compositeIndexes -
You can order by multiple properties. A query that orders by multiple properties requires a composite index.

Box 2: descending -
Example: Composite index defined for (name ASC, age ASC):
It is optional to specify the order. If not specified, the order is ascending.

```
{
  "automatic":true,
  "indexingMode":"Consistent",
  "includedPaths":[
    {
      "path": "/*"
    }
  ],
  "excludedPaths":[],
  "compositeIndexes":[
    {
      "path":"/name",
    },
    {
      "path":"/age",
    }
  ]
}
```

HOTSPOT -

You are building a traffic monitoring system that monitors traffic along six highways. The system produces time series analysis-based reports for each highway.

Data from traffic sensors are stored in Azure Event Hub.

Traffic data is consumed by four departments. Each department has an Azure Web App that displays the time series-based reports and contains a WebJob that processes the incoming data from Event Hub. All Web Apps run on App Service Plans with three instances.

Data throughput must be maximized. Latency must be minimized.

You need to implement the Azure Event Hub.

Which settings should you use? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Setting	Value
Number of partitions	<div></div>
	3
	4
	6
	12
Partition Key	<div></div>
	Highway
	Department
	Timestamp
	VM name

Answer Area

	Setting	Value
Correct Answer:	Number of partitions	<div></div>
		3
		4
		6
		12
	Partition Key	<div></div>
		Highway
		Department
		Timestamp
		VM name

Box 1: 6 -

The number of partitions is specified at creation and must be between 2 and 32.

There are 6 highways.

Box 2: Highway -

Reference:

<https://docs.microsoft.com/en-us/azure/event-hubs/event-hubs-features>

DRAG DROP -

You are developing a microservices solution. You plan to deploy the solution to a multinode Azure Kubernetes Service (AKS) cluster.

You need to deploy a solution that includes the following features:

- reverse proxy capabilities
- configurable traffic routing
- TLS termination with a custom certificate

Which components should you use? To answer, drag the appropriate components to the correct requirements. Each component may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:

Answer Area

Components	Action	Component
Helm		
Draft	Deploy solution.	
Brigade		
KubeCtl	View cluster and external IP addressing.	
Ingress Controller	Implement a single, public IP endpoint that is routed to multiple microservices.	
CoreDNS		
Virtual Kubelet		

Question #17

Topic 2

DRAG DROP -

You are implementing an order processing system. A point of sale application publishes orders to topics in an Azure Service Bus queue. The Label property for the topic includes the following data:

Property	Description
ShipLocation	the country/region where the order will be shipped
CorrelationId	a priority value for the order
Quantity	a user-defined field that stores the quantity of items in an order
AuditedAt	a user-defined field that records the date an order is audited

The system has the following requirements for subscriptions:

Subscription type	Comments
FutureOrders	This subscription is reserved for future use and must not receive any orders
HighPriorityOrders	Handle all high priority orders and international orders
InternationalOrders	Handle orders where the country/region is not United States
HighQuantityOrders	Handle only orders with quantities greater than 100 units
AllOrders	This subscription is used for auditing purposes. This subscription must receive every single order. AllOrders has an Action defined that updates the AuditedAt property to include the date and time it was received by the subscription.

You need to implement filtering and maximize throughput while evaluating filters.

Which filter types should you implement? To answer, drag the appropriate filter types to the correct subscriptions. Each filter type may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:

Filter types

SQLFilter

CorrelationFilter

No Filter

Answer Area

Subscription

FutureOrders

HighPriorityOrders

InternationalOrders

HighQuantityOrders

AllOrders

Filter type

filter type

filter type

filter type

filter type

filter type

Filter types

SQLFilter

CorrelationFilter

No Filter

Correct Answer:

Answer Area

Subscription

FutureOrders

HighPriorityOrders

InternationalOrders

HighQuantityOrders

AllOrders

Filter type

SQLFilter

CorrelationFilter

SQLFilter

SQLFilter

No Filter

FutureOrders: SQLFilter -

HighPriortyOrders: CorrelationFilter

CorrelationID only -

InternationalOrders: SQLFilter -

Country NOT USA requires an SQL Filter

HighQuantityOrders: SQLFilter -

Need to use relational operators so an SQL Filter is needed.

AllOrders: No Filter -

SQL Filter: SQL Filters - A SqlFilter holds a SQL-like conditional expression that is evaluated in the broker against the arriving messages' user-defined properties and system properties. All system properties must be prefixed with sys. in the conditional expression. The SQL-language subset for filter conditions tests for the existence of properties (EXISTS), as well as for null-values (IS NULL), logical NOT/AND/OR, relational operators, simple numeric arithmetic, and simple text pattern matching with LIKE.

Correlation Filters - A CorrelationFilter holds a set of conditions that are matched against one or more of an arriving message's user and system properties. A common use is to match against the CorrelationId property, but the application can also choose to match against ContentType, Label, MessageId, ReplyTo,

ReplyToSessionId, SessionId, To, and any user-defined properties. A match exists when an arriving message's value for a property is equal to the value specified in the correlation filter. For string expressions, the comparison is case-sensitive. When specifying multiple match properties, the filter combines them as a logical

AND condition, meaning for the filter to match, all conditions must match.

Boolean filters - The TrueFilter and FalseFilter either cause all arriving messages (true) or none of the arriving messages (false) to be selected for the subscription.

Reference:

<https://docs.microsoft.com/en-us/azure/service-bus-messaging/topic-filters>

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