

Exam Number/Code:70-487

Exam Name: Developing Microsoft
Azure and Web Services

Version: Demo

Topic 1, Scenario 1

Background

You are developing a flight information consolidation service. The service retrieves flight information from a number of sources and combines them into a single data set. The consolidated flight information is stored in a SQL Server database. Customers can query and retrieve the data by using a REST API provided by the service.

The service also offers access to historical flight information. The historical flight information can be filtered and queried in an ad hoc manner.

The service runs on a Windows Azure Web Role. SSL is not used.

Business Requirements

- A new data source for historical flight information is being developed by a contractor located on another continent.
- If a time zone is not specified, then it should be interpreted as Coordinated Universal Time (UTC).
- When you upgrade a service from a staging deployment to a production deployment, the time that the service is unavailable must be minimized.
- The default port must be used for HTTP.

Technical Requirements

The existing sources of flight information and the mechanism of exchange are listed below.

- Blue Yonder Airlines provides flight information in an XML file.
- Consolidated Messenger provides flight information in a Microsoft Access database that is uploaded every 12 hours to the service using SFTP. The company uses port 22 for SFTP.
- Margie's Travel provides and consumes flight information using serialized ADO.NET DataSets. Data is periodically synced between the service and Margie's Travel.
- Trey Research provides data from multiple sources serialized in proprietary binary formats. The data must be read by using .NET assemblies provided by Trey Research. The assemblies use a common set of dependencies. The current version of the Trey Research assemblies is 1.2.0.0. All assemblies provided by Trey Research are signed with a key pair contained in a file named Trey.snk, which Trey Research also supplies.
- The application specification requires that any third-party assemblies must have strong names.

Application Structure

FlightInfo.cs

```
public class FlightInfo
{
    string DataSource { get; set; }
    public string Airline { get; set; }
    public string Flight { get; set; }
    public DateTimeOffset Arrival { get; set; }
    public int Seats { get; set; }
    public bool WasLate { get; set; }
}
```

BlueYonderLoader.cs

```
public class BlueYonderLoader
{
    public IEnumerable<RawFlightData> LoadFlights(XDocument feed)
    {
        ...
    }

    private RawFlightData Parse(XElement flightElement)
    {
        ...
    }
}
```

HistoricalDataLoader.cs

```
public class HistoricalDataLoader
{
    public static IEnumerable<HistoricalFlightInfo> LoadHistoricalFlights()
    {
        ...
    }

    public void StreamHistoricalFlights(XmlWriter responseWriter, string airline)
    {
        ...
    }

    private XElement ConvertToHistoricalFlight(XElement flight)
    {
        return new XElement("Flight", flight);
    }

    private string GetAirline(XElement flightName)
    {
        return flightName.Value.Substring(0, 2);
    }

    IEnumerable<XElement> RemoteDataStream()
    {
        return XDocument.Load("").Elements();
    }
}
```

MargiesTravelSync.cs

```
public class MargiesTravelSync
{
    public void Sync()
    {
        ...
    }

    private DataSet LoadLocal()
    {
        var dataSet = new DataSet();
        dataSet.ReadXml("local");
        return dataSet;
    }

    private StreamWriter SendStream()
    {
        return new StreamWriter("SendStream");
    }

    private StreamReader ReceiveStream()
    {
        return new StreamReader("ReceiveStream");
    }
}
```

FlightInfoContext.cs

```
public class FlightInfoContext : DbContext
{
    public DbSet<FlightInfo> FlightInfo { get; set; }

    public override int SaveChanges()
    {
        return base.SaveChanges();
    }

    private bool IsTransient(int ex)
    {
        var errors = new[] { 10053, 10054, 64 };
        return errors.Contains(ex);
    }
}
```

FlightDataController.cs

```
public class FlightDataController : ApiController
{
    FlightInfoContext _Context;

    public FlightDataController()
    {
        _Context = new FlightInfoContext();
    }

    [HttpGet]
    public IEnumerable<FlightInfo> GetFlightInfo()
    {
        return _Context.FlightInfo.Select(x => x).AsEnumerable();
    }

    private IEnumerable<HistoricalFlightInfo> LoadHistorical()
    {
        return HistoricalDataLoader.LoadHistoricalFlights();
    }
}
```

QUESTION NO: 1

You need to configure the Windows Azure service definition to enable Consolidated Messenger to upload files.

What should you do? (To answer, drag the appropriate configuration items to the correct location or locations. Each configuration item 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.)

Answer Area

http

tcp

https

InternalEndpoint

InputEndpoint

80

22

3389

```

<Binding name="Website" endpointName="Website" />
<Binding name="Transfer" endpointName="Transfer" />
</Bindings>
</Site>
</Sites>
<Endpoints>
< [ ] name="Website"
    protocol=" [ ] "
    port=" [ ] " />
< [ ] name="Transfer"
    protocol=" [ ] "
    port=" [ ] " />
</Endpoints>
</WebRole>

```

Answer:

Answer Area

http

tcp

https

InternalEndpoint

InputEndpoint

80

22

3389

```

<Binding name="Website" endpointName="Website" />
<Binding name="Transfer" endpointName="Transfer" />
</Bindings>
</Site>
</Sites>
<Endpoints>
< InputEndpoint name="Website"
    protocol=" http "
    port=" 80 " />
< InputEndpoint name="Transfer"
    protocol=" tcp "
    port=" 22 " />
</Endpoints>
</WebRole>

```

Explanation:

```
<Binding name="Website" endpointName="Website" />
<Binding name="Transfer" endpointName="Transfer" />
</Bindings>
</Site>
</Sites>
<Endpoints>
< InputEndpoint name="Website"
    protocol=" http "
    port=" 80 " />
< InputEndpoint name="Transfer"
    protocol=" tcp "
    port=" 22 " />
</Endpoints>
</WebRole>
```

QUESTION NO: 2

You need to deploy the application to the Windows Azure production environment to meet the business requirements.

What should you do? (To answer, select the appropriate button in the answer area.)

The screenshot displays the Azure Management Portal interface. At the top, there are two main sections: 'Deployments' and 'Instances'. The 'Deployments' section includes buttons for Upgrade, Configure, Delete, Start, Stop, Swap VIP, and Configure OS. The 'Instances' section includes buttons for Reboot and Reimage. Below these sections is a 'Choose Columns' dropdown menu. The main content area is a table with three columns: Name, Type, and Environment. The table lists various components under a 'Main' subscription, including certificates, deployments, and instances.

Name	Type	Environment
Main	Subscription	
Main	Hosted Service	
Certificates		
Windows Azure Tools	Service Certificate	
Main Deployment	Deployment	Production
MvcWebRole1	Role	Production
MvcWebRole1_IN_0	Instance	Production
Main Deployment - staging	Deployment	Staging
MvcWebRole1	Role	Staging
MvcWebRole1_IN_0	Instance	Staging

Answer:

Name	Type	Environment
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Main Deployment - staging	Deployment	Staging
MvcWebRole1	Role	Staging
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Explanation:

Name	Type	Environment
Main	Subscription	
Main	Hosted Service	
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MvcWebRole1	Role	Production
MvcWebRole1_IN_0	Instance	Production
Main Deployment - staging	Deployment	Staging
MvcWebRole1	Role	Staging
MvcWebRole1_IN_0	Instance	Staging

QUESTION NO: 3

You need to recommend a data access technology to the contractor to retrieve data from the new data source.

Which data access technology should you recommend?

- A. LINQ to XML
- B. ADO.NET Entity Framework
- C. ADO.NET DataSets
- D. WCF Data Services

Answer: D

QUESTION NO: 4

Flight information data provided by Margie's Travel is updated both locally and remotely. When the

data is synced, all changes need to be merged together without causing any data loss or corruption.

You need to implement the Sync() method in the MargiesTravelSync.es file.

What should you do? (To answer, drag the appropriate code segments to the correct location or locations in the answer area. Each code 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.)

Answer Area

```
public void Sync()
{
    var sendStream = SendStream();
    var receiveStream = ReceiveStream();
    var local = LoadLocal();

    local.WriteXml(sendStream, );

    local.ReadXml(receiveStream, );
}
```

Answer:

```

Answer Area
public void Sync()
{
    var sendStream = SendStream();
    var receiveStream = ReceiveStream();
    var local = LoadLocal();

    local.WriteXml(sendStream, XmlWriteMode.DiffGram );
    local.ReadXml(receiveStream, XmlReadMode.DiffGram );
}

```

Explanation:

```

public void Sync()
{
    var sendStream = SendStream();
    var receiveStream = ReceiveStream();
    var local = LoadLocal();

    local.WriteXml(sendStream, XmlWriteMode.DiffGram );
    local.ReadXml(receiveStream, XmlReadMode.DiffGram );
}

```

<http://msdn.microsoft.com/en-us/library/ms135424.aspx>

QUESTION NO: 5

Historical flight information data will be stored in Windows Azure Table Storage using the FlightInfo class as the table entity.

There are millions of entries in the table. Queries for historical flight information specify a set of airlines to search and whether the query should return only late flights. Results should be ordered by flight name.

You need to specify which properties of the FlightInfo class should be used at the partition and row keys to ensure that query results are returned as quickly as possible.

What should you do? (To answer, drag the appropriate properties to the correct location or locations in the answer area. Each property 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.)

Answer Area

Airline Use the property as the partition key.

WasLate

Flight Use the property as the row key.

Arrival

Answer:

Answer Area

Airline Use the property as the partition key.

WasLate

Flight Use the property as the row key.

Arrival

Explanation:

Answer Area

Airline Use the property as the partition key.

WasLate

Flight Use the property as the row key.

Arrival

QUESTION NO: 6

The service has been deployed to Windows Azure.

Trey Research has provided version 1.3.0.0 of the assembly to support a change in the serialization format. The service must remain available during the transition to the new serialization format.

You need to ensure that the service is using the new assembly.

Which configuration setting should you add to the web.config? (To answer, drag the appropriate configuration elements to the correct location or locations in the answer area. Each configuration element 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.)

The screenshot shows a configuration editor with a list of elements on the left and a partial XML structure on the right. The elements are:

- `codeBase version="1.3.0.0" href="Trey.Serialization.dll"`
- `bindingRedirect oldVersion="1.2.5.0" newVersion="1.3.0.0"`
- `bindingRedirect oldVersion="1.2.0.0" newVersion="1.3.0.0"`
- `runtime`
- `location`

The XML structure on the right is:

```
<assemblyBinding xmlns="urn:schemas-microsoft-com:asm.v1">  
  <dependentAssembly>  
    <assemblyIdentity name="Trey.Serialization" />  
    < [Empty Element] />  
  </dependentAssembly>  
</assemblyBinding>
```

Answer:

```

codeBase version="1.3.0.0" href="Trey.Serialization.dll"
bindingRedirect oldVersion="1.2.5.0" newVersion="1.3.0.0"
bindingRedirect oldVersion="1.2.0.0" newVersion="1.3.0.0"
runtime
location

< runtime >

<assemblyBinding xmlns="urn:schemas-microsoft-com:asm.v1">
  <dependentAssembly>
    <assemblyIdentity name="Trey.Serialization" />

    < codeBase version="1.3.0.0" href="Trey.Serialization.dll"

  </dependentAssembly>
</assemblyBinding>

</ runtime >

```

Explanation:

```

< runtime >

<assemblyBinding xmlns="urn:schemas-microsoft-com:asm.v1">
  <dependentAssembly>
    <assemblyIdentity name="Trey.Serialization" />

    < bindingRedirect oldVersion="1.2.0.0" newVersion="1.3.0.0"

  </dependentAssembly>
</assemblyBinding>

</ runtime >

```

See: <http://msdn.microsoft.com/en-us/library/7wd6ex19.aspx>

QUESTION NO: 7

Errors occasionally occur when saving data using the FlightInfoContext ADO.NET Entity

Framework context. Updates to the data are being lost when an error occurs.

You need to ensure that data is still saved when an error occurs by retrying the operation. No more than five retries should be performed.

Which code segment should you use as the body of the SaveChanges() method in the FlightInfoContext.es file?

```
C A. for (var i = 0; i < 5; i++)
    {
        try
        {
            return base.SaveChanges();
        }
        catch (SqlException ex)
        {
            if (IsTransient(ex.Number))
            {
                continue;
            }
        }
    }
return base.SaveChanges();
```

```
C B. var exception = new EntitySqlException();
while (exception.Data != 0 && exception.Data.Count < 5)
{
    try
    {
        return base.SaveChanges();
    }
    catch (EntitySqlException ex)
    {
        if (IsTransient(ex.HResult))
        {
            exception = ex;
        }
    }
}
return base.SaveChanges();
```

```
C C. for (var i = 0; i < 5; i++)
    {
        try
        {
            return base.SaveChanges();
        }
        catch (SqlException ex)
        {
            if (IsTransient(ex.Number))
            {
                break;
            }
        }
    }
return base.SaveChanges();
```

```
C D. for (var i = 0; i < 5; i++)
    {
        try
        {
            return base.SaveChanges();
        }
        catch (SqlException ex)
        {
            if (!IsTransient(ex.Number))
            {
                continue;
            }
        }
    }
return base.SaveChanges();
```

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

Answer: A

QUESTION NO: 8

You are adding a new REST service endpoint to the FlightDataController controller. It returns

flights from the consolidated data sources only for flights that are late.

You need to write a LINQ to Entities query to extract the required data.

Which code segment should you use?

- A.

```
var historical = LoadHistorical();
var query = _Context.FlightInfo.AsQueryable()
    .Join(historical, x => x.Flight, y => y.Flight, (x, y) => new { Current = x,
    Historical = y })
    .Where(x => x.Historical.WasLate)
    .Select(x => x.Current);
```
- B.

```
var historical = LoadHistorical();
var query = _Context.FlightInfo.AsEnumerable()
    .Where(x => historical.All(y => y.WasLate && x.Flight == y.Flight))
    .Select(x => x);
```
- C.

```
var historical = LoadHistorical();
var query = _Context.FlightInfo.AsQueryable()
    .Where(x => historical.Select(y => y.Flight).Contains(x.Flight))
    .Where(x => historical.Any(y => y.WasLate))
    .Select(x => x);
```
- D.

```
var historical = LoadHistorical();
var query = _Context.FlightInfo.AsEnumerable()
    .Join(historical, x => x.Flight, y => y.Flight, (x, y) => new { Current = x,
    Historical = y })
    .Where(x => x.Historical.WasLate)
    .Select(x => x.Current);
```

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

Answer: D

Explanation: Explanation/Reference:

D is right because you send result as REST so if you use "AsQueryable" the result is deferred to the next enumeration of your result.

D is not optimized but will work.

A will break at runtime.

Credits to Rem

QUESTION NO: 9

Data provided by Consolidated Messenger is cached in the HttpContext.Cache object. You need to ensure that the cache is correctly updated when new data arrives.

What should you do?

- A. Ensure that the EffectivePrivateBytesLimit value is greater than the size of the database file.
- B. Change the sliding expiration of the cache item to 12 hours.
- C. Use the SqlCacheDependency type configured with a connection string to the database file.
- D. Use the CacheDependency type configured to monitor the SFTP target folder.

Answer: D

QUESTION NO: 10

You need to load flight information provided by Consolidated Messenger.

Which should you use?

- A. SQL Server Data Transformation Services (DTS)
- B. EntityTransaction and EntityCommand
- C. Office Open XML
- D. OleDbConnection and OleDbDataReader

Answer: D