



Vendor: Microsoft

Exam Code: 70-465

Exam Name: Designing Database Solutions for Microsoft SQL Server 2012

Version: Demo

Topic 1, Litware, Inc

Overview

You are a database administrator for a company named Litware, Inc. Litware is a book publishing house.

Litware has a main office and a branch office.

You are designing the database infrastructure to support a new web-based application that is being developed. The web application will be accessed at www.litwareinc.com. Both internal employees and external partners will use the application.

You have an existing desktop application that uses a SQL Server 2008 database named App1_DB. App1_DB will remain in production.

Requirements

Planned Changes

You plan to deploy a SQL Server 2014 instance that will contain two databases named Database1 and Database2. All database files will be stored in a highly available SAN.

Database1 will contain two tables named Orders and OrderDetails. Database1 will also contain a stored procedure named usp_UpdateOrderDetails. The stored procedure is used to update order information. The stored procedure queries the Orders table twice each time the procedure executes. The rows returned from the first query must be returned on the second query unchanged along with any rows added to the table between the two read operations.

Database1 will contain several queries that access data in the Database2 tables.

Database2 will contain a table named Inventory. Inventory will contain over 100 GB of data. The Inventory table will have two indexes: a clustered index on the primary key and a nonclustered index. The column that is used as the primary key will use the identity property.

Database2 will contain a stored procedure named usp_UpdateInventory. Usp_UpdateInventory will manipulate a table that contains a self-join that has an unlimited number of hierarchies.

All data in Database2 is recreated each day and does not change until the next data creation process.

Data from Database2 will be accessed periodically by an external application named Application1. The data from Database2 will be sent to a database named App1_Db1 as soon as changes occur to the data in Database2.

Litware plans to use offsite storage for all SQL Server 2014 backups.

Business Requirements

You have the following requirements:

- Costs for new licenses must be minimized.
- Private information that is accessed by Application must be stored in a secure format.
- Development effort must be minimized whenever possible.
- The storage requirements for databases must be minimized.
- System administrators must be able to run real-time reports on disk usage.
- The databases must be available if the SQL Server service fails.
- Database administrators must receive a detailed report that contains allocation errors and data corruption.

- Application developers must be denied direct access to the database tables. Applications must be denied direct access to the tables.
- You must encrypt the backup files to meet regulatory compliance requirements. The encryption strategy must minimize changes to the databases and to the applications.

QUESTION 1

During performance testing, you discover that database INSERT operations against the Inventory table are slow. You need to recommend a solution to reduce the amount of time it takes to complete the INSERT operations. What should you recommend?

- A. Partition the nonclustered index.
- B. Partition the Inventory table.snapshot replication
- C. Create a column store index.Master Data Services
- D. Drop the clustered index.change data capture

Correct Answer: A

Explanation:

Scenario: Database2 will contain a table named Inventory. Inventory will contain over 100 GB of data. The Inventory table will have two indexes: a clustered index on the primary key and a nonclustered index. The column that is used as the primary key will use the identity property.

QUESTION 2

You need to recommend a solution to allow application users to perform tables. The solution must meet the business requirements. What should you recommend?

- A. Create a Policy-Based Management Policy.
- B. Create a user-defined database role and add users to the role.
- C. Create stored procedures that use EXECUTE AS clauses.
- D. Create functions that use EXECUTE AS clauses.

Correct Answer: D

Explanation:

*cClause (Transact-SQL)

In SQL Server you can define the execution context of the following user-defined modules: functions (except inline table-valued functions), procedures, queues, and triggers.

Using EXECUTE AS in Modules

QUESTION 3

You need to recommend a feature to support your backup solution. What should you include in the recommendation?

- A. Transparent Data Encryption (TDE)
- B. Column-level encryption
- C. An NTFS file permission
- D. A Secure Sockets Layer (SSL)

Correct Answer: A

Explanation:

* Scenario:

You must encrypt the backup files to meet regulatory compliance requirements. The encryption strategy must minimize changes to the databases and to the applications.

* Transparent data encryption (TDE) performs real-time I/O encryption and decryption of the data and log files. The encryption uses a database encryption key (DEK), which is stored in the database boot record for availability during recovery.

Transparent Data Encryption (TDE)

QUESTION 4

You need to recommend a solution for Application1 that meets the security requirements. What should you include in the recommendation?

- A. Signed stored procedures
- B. Certificate Authentication
- C. Encrypted columns
- D. Secure Socket Layer (SSL)

Correct Answer: A

Explanation:

* Scenario:

/ Data from Database2 will be accessed periodically by an external application named Application1

/ Application developers must be denied direct access to the database tables. Applications must be denied direct access to the tables.

Tutorial: Signing Stored Procedures with a Certificate

QUESTION 5

You need to recommend a disk monitoring solution that meets the business requirements. What should you include in the recommendation?

- A. An audit
- B. A dynamic management view
- C. A maintenance plan
- D. A SQL Server Agent alert

Correct Answer: B

Explanation:

Dynamic Management Views and Functions (Transact-SQL)

QUESTION 6

You need to recommend a solution to improve the performance of usp.UpdateInventory. The solution must minimize the amount of development effort. What should you include in the recommendation?

- A. A table variable
- B. A common table expression
- C. A subquery
- D. A cursor

Correct Answer: A

Explanation:

*Scenario:

Database2 will contain a stored procedure named usp_UpdateInventory. Usp_UpdateInventory will manipulate a table that contains a self-join that has an unlimited number of hierarchies.

* A table variable can be very useful to store temporary data and return the data in the table format.

Table

* Example: The following example uses a self-join to find the products that are supplied by more than one vendor.

Because this query involves a join of the ProductVendor table with itself, the ProductVendor table appears in two roles. To distinguish these roles, you must give the ProductVendor table two different aliases (pv1 and pv2) in the FROM clause. These aliases are used to qualify the column names in the rest of the query. This is an example of the self-join Transact-SQL statement:

```
USE AdventureWorks2008R2;
```

```
GO
```

```
SELECT DISTINCT pv1.ProductID, pv1.VendorID
```

```
FROM Purchasing.ProductVendor pv1
```

```
INNER JOIN Purchasing.ProductVendor pv2
```

```
ON pv1.ProductID = pv2.ProductID
```

```
AND pv1.VendorID <> pv2.VendorID
```

```
ORDER BY pv1.ProductID
```

Incorrect:

Not B: Using a CTE offers the advantages of improved readability and ease in maintenance of complex queries. The query can be divided into separate, simple, logical building blocks. These simple blocks can then be used to build more complex, interim CTEs until the final result set is generated.

QUESTION 7

You need to recommend a solution for the deployment of SQL Server 2014. The solution must meet the business requirements. What should you include in the recommendation?

- A. Create a new instance of SQL Server 2014 on the server that hosts the SQL Server 2008 instance.
- B. Upgrade the existing SQL Server 2008 instance to SQL Server 2014.
- C. Deploy two servers that have SQL Server 2014 installed and implement Failover Clustering.
- D. Deploy two servers that have SQL Server 2014 installed and implement database mirroring.

Correct Answer: C

Explanation:

Scenario:

The databases must be available if the SQL Server service fails.

Failover Clustering Overview

Windows Server Failover Clustering (WSFC) with SQL Server

QUESTION 8

You need to recommend a solution to synchronize Database2 to App1_Db1. What should you recommend?

- A. Change data capture
- B. Snapshot replication
- C. Master Data Services
- D. Transactional replication

Correct Answer: D

Explanation:

Scenario:

* Data from Database2 will be accessed periodically by an external application named Application1. The data from Database2 will be sent to a database named App1_Db1 as soon as changes occur to the data in Database2.

* All data in Database2 is recreated each day and does not change until the next data creation process.

Transactional Replication

QUESTION 9

You need to recommend a database reporting solution that meets the business requirements. What should you include in the recommendation?

- A. Data collection
- B. Performance Monitor
- C. A maintenance plan
- D. A dynamic management view

Correct Answer: A

Explanation:

* Scenario:

System administrators must be able to run real-time reports on disk usage.

* The data collector provides an historical report for each of the System Data collection sets.

Each of the following reports use data that is stored in the management data warehouse:

Disk Usage Summary

Query Statistics History

Server Activity History

You can use these reports to obtain information for monitoring system capacity and troubleshooting system performance.

System Data Collection Set Reports

QUESTION 10

You need to recommend an isolation level for usp_UpdateOrderDetails. Which isolation level should recommend?

- A. Read committed
- B. Repeatable read
- C. Read uncommitted
- D. Serializable

Correct Answer: B

Explanation:

* Scenario:

Databasel will also contain a stored procedure named usp_UpdateOrderDetails. The stored procedure is used to update order information. The stored procedure queries the Orders table twice each time the procedure executes. The rows returned from the first query must be returned on the second query unchanged along with any rows added to the table between the two read operations.

* REPEATABLE READ

Specifies that statements cannot read data that has been modified but not yet committed by other transactions and that no other transactions can modify data that has been read by the current transaction until the current transaction completes.

Transaction Isolation Levels

Topic 2, Contoso Ltd

Overview

Application Overview

Contoso, Ltd., is the developer of an enterprise resource planning (ERP) application. Contoso is designing a new version of the ERP application. The previous version of the ERP application used SQL Server 2008 R2. The new version will use SQL Server 2014. The ERP application relies on an import process to load supplier data. The import process updates thousands of rows simultaneously, requires exclusive access to the database, and runs daily.

You receive several support calls reporting unexpected behavior in the ERP application. After analyzing the calls, you conclude that users made changes directly to the tables in the database.

Tables

The current database schema contains a table named OrderDetails. The OrderDetails table contains information about the items sold for each purchase order. OrderDetails stores the product ID, quantities, and discounts applied to each product in a purchase order. The product price is stored in a table named Products.

The Products table was defined by using the SQL_Latin1_General_CI_AS collation. A column named ProductName was created by using the varchar data type.

The database contains a table named Orders. Orders contains all of the purchase orders from the last 12 months. Purchase orders that are older than 12 months are stored in a table named OrdersOld.

Stored Procedures

The current version of the database contains stored procedures that change two tables. The following shows the relevant portions of the two stored procedures:

```
CREATE PROC Sales.Proc1
AS
BEGIN TRAN
UPDATE Sales.Table1 ...
UPDATE Sales.Table2 ...
COMMIT TRAN
GO
```

```
CREATE PROC Sales.Proc2
AS
BEGIN TRAN
UPDATE Sales.Table2 ...
UPDATE Sales.Table1 ...
COMMIT TRAN
GO
```

Customer Problems

Installation Issues

The current version of the ERP application requires that several SQL Server logins be set up to function correctly. Most customers set up the ERP application in multiple locations and must create logins multiple times.

Index Fragmentation Issues

Customers discover that clustered indexes often are fragmented. To resolve this issue, the

customers defragment the indexes more frequently.

All of the tables affected by fragmentation have the following columns that are used as the clustered index key:

Column	Data type
id	uniqueidentifier
lastModified	datetime
modifiedBy	varchar(200)

Backup Issues

Customers who have large amounts of historical purchase order data report that backup time is unacceptable.

Search Issues

Users report that when they search product names, the search results exclude product names that contain accents, unless the search string includes the accent.

Missing Data Issues

Customers report that when they make a price change in the Products table, they cannot retrieve the price that the item was sold for in previous orders.

Query Performance Issues

Customers report that query performance degrades very quickly. Additionally, the customers report that users cannot run queries when SQL Server runs maintenance tasks.

Import Issues

During the monthly import process, database administrators receive many supports call from users who report that they cannot access the supplier data. The database administrators want to reduce the amount of time required to import the data.

Design Requirements

File Storage Requirements

The ERP database stores scanned documents that are larger than 2 MB. These files must only be accessed through the ERP application. File access must have the best possible read and write performance.

Data Recovery Requirements

If the import process fails, the database must be returned to its prior state immediately.

Security Requirements

You must provide users with the ability to execute functions within the ERP application, without having direct access to the underlying tables.

Concurrency Requirements

You must reduce the likelihood of deadlocks occurring when Sales.Proc1 and Sales.Proc2 execute.

QUESTION 11

You need to recommend a solution that resolves the missing data issue. The solution must minimize the amount of development effort. What should you recommend?

- A. Denormalize the Products table.
- B. Denormalize the OrderDetails table.
- C. Normalize the OrderDetails table.
- D. Normalize the Products table.

Correct Answer: D

Explanation:

* Scenario:

/ Missing Data Issues

Customers report that when they make a price change in the Products table, they cannot retrieve the price that the item was sold for in previous orders. / The current database schema contains a table named OrderDetails. The OrderDetails table contains information about the items sold for each purchase order. OrderDetails stores the product ID, quantities, and discounts applied to each product in a purchase order. The product price is stored in a table named Products.

[http://technet.microsoft.com/en-us/library/aa933055\(v=sql.80\).aspx](http://technet.microsoft.com/en-us/library/aa933055(v=sql.80).aspx)

QUESTION 12

You need to recommend a solution that addresses the index fragmentation and index width issue. What should you include in the recommendation? (Each correct answer presents part of the solution. Choose all that apply.)

- A. Change the data type of the lastModified column to smalldatetime.
- B. Remove the lastModified column from the clustered index.
- C. Change the data type of the modifiedBy column to tinyint.
- D. Change the data type of the id column to bigint.
- E. Remove the modifiedBy column from the clustered index.
- F. Remove the id column from the clustered index.

Correct Answer: BE

Explanation:

Scenario:

Index Fragmentation Issues Customers discover that clustered indexes often are fragmented. To resolve this issue, the customers defragment the indexes more frequently.

All of the tables affected by fragmentation have the following columns that are used as the clustered index key:

Column	Data type
id	uniqueidentifier
lastModified	datetime
modifiedBy	varchar(200)

QUESTION 13

You need to recommend a solution that reduces the time it takes to import the supplier data. What should you include in the recommendation?

- A. Enable instant file initialization.
- B. Reorganize the indexes.
- C. Disable Resource Governor.
- D. Enable Auto Update Statistics.

Correct Answer: C

Explanation:

* The ERP application relies on an import process to load supplier data. The import process updates thousands of rows simultaneously, requires exclusive access to the database, and runs daily.

Resource Governor

QUESTION 14

You need to recommend a solution that meets the data recovery requirement. What should you include in the recommendation?

- A. A differential backup
- B. A transaction log backup
- C. Snapshot isolation
- D. A database snapshot

Correct Answer: D

Explanation:

How Database Snapshots Work

QUESTION 15

You need to recommend a solution that addresses the file storage requirements. What should you include in the recommendation?

- A. FileStream
- B. FileTable
- C. The varbinary data type
- D. The image data type

Correct Answer: B

Explanation:

* Scenario:

File Storage Requirements The ERP database stores scanned documents that are larger than 2 MB. These files must

only be accessed through the ERP application. File access must have the best possible read and write performance.

* FileTables remove a significant barrier to the use of SQL Server for the storage and management of unstructured data that is currently residing as files on file servers. Enterprises can move this data from file servers into FileTables to take advantage of integrated administration and services provided by SQL Server. At the same time, they can maintain Windows application compatibility for their existing Windows applications that see this data as files in the file system. FileTables (SQL Server)

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70-332	70-414	70-485	70-649
70-336	70-417	70-486	70-668
70-337	70-461	70-487	70-680
70-341	70-462	70-488	70-687
70-342	70-463	70-489	70-688
70-346	70-464	70-513	70-689

