Backup Solution Testing on UCS for Small–Medium Range Customers (Disk-to-Disk)

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Backup Solution Testing

Overview

This program (Backup Testing—Disk-to-Disk) validates data backup from the Windows and Linux operating systems on the Cisco UCS environment and the backup data stored in the local disk (Local HDD) of Cisco UCS C-Series.

The objective of Backup Testing is to verify the Backup and Restore of data/database by the backup software (NetVault Backup and CA ARCserve Backup) with the data repository models, which are covered in the Features Tested section.

Acronyms

Acronym	Description
10GbE	10 Gigabit Ethernet
APM	Application Plugin Module
CIMC	Cisco Integrated Management Controller
CNA	Converged Network Adapter
DB	Database
HDD	Hard Disk Drive
JOS	Japanese Operating System
MDS	Multilayer Director Switch
OS	Operating System
RAID	Redundant Array of Independent Disks
RHEL	Red Hat Enterprise Linux

Acronym	Description
SAN	Storage Area Network
SP	Service Pack
SQL	Structured Query Language
UCS	Unified Computing System
UCSM	Unified Computing System Manager
VDI	Virtual Device Interface
VM	Virtual Machine
VNIC	Virtual NIC
VSS	Volume Shadow Copy Service

Backup Testing Strategy

The requirements gathered for Backup Testing (Disk-to-Disk) are specific to the Japanese market.

The following requirements are derived based on the inputs and prioritization given by Cisco Japan Solution Engineers:

- Data backup from the MS Windows 7 and RHEL 6.1 Japanese operating systems that are installed as virtual machines. Data files include Microsoft Excel, Microsoft Word, and PDF.

- Database backup from MS SQL Server on the Windows Server 2008 R2 SP1 Japanese operating system that is installed as a virtual machine.

- Virtual machines are available on ESXi 5.0, which is installed in the Cisco UCS B-Series servers (B200 M2, B230 M2, and B250 M2).

- Quest NetVault Backup 8.6.3 and CA ARCserve Backup r16 are used.

- Backup data is stored in Local HDD of the Cisco UCS C-Series servers (C240 M3 and C220 M3).

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Test Topology and Environment

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Test Topology

Figure 1: Backup Testing (Disk-to-Disk) Topology
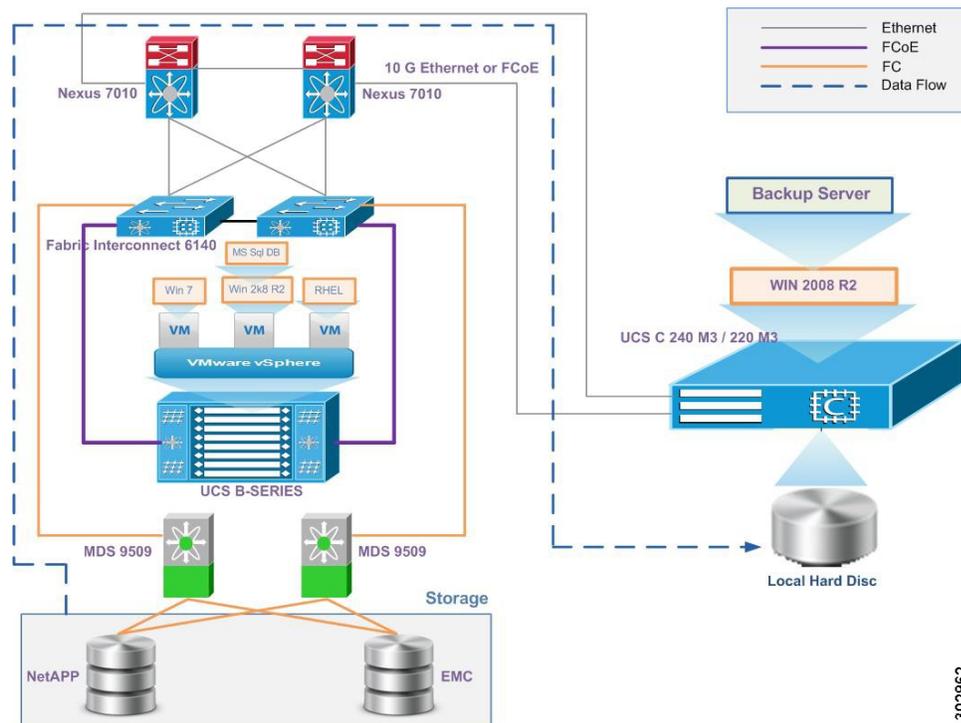
Environment Matrix

Component	Version/Product
UCS	
1. UCSM	2.0(3a)
2. Blade Servers	B200 M2, B230 M2, B250 M2
3. CNA	M81KR
4. Rack Mount Servers	C240 M3, C220 M3
5. CNA	P81E VIC
6. CIMC	1.4(4a)
Backup Software	
1. Quest NetVault Backup	8.6.3
2. CA ARCserve Backup	r16
Operating Systems	
1. Windows Server	Windows Server 2008 R2 SP1 x64 (Japanese OS)
2. Windows OS	Windows 7 Enterprise SP1 x64 (Japanese OS)
3. RHEL	Red Hat Enterprise Linux 6.1 x64 (Japanese)
Database	
MS SQL Server	Microsoft SQL Server 2008 R2 Enterprise x64 (Japanese)
Hypervisor	
ESXi	VMware ESXi 5.0 Update 1
Switches	
1. Nexus 7010	6.0(2)
2. MDS 9509	5.2(2a)
Storage	
1. EMC CX4-120	4.29.0.5.003
2. NetApp FAS3240	8.0.2

C H A P T E R 3

Implementation and Features Tested

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Design and Implementation

In this program, the team has validated and checked the functionality of the NetVault Backup and CA ARCserve Backup software features in the UCS servers for the Japanese environment by installing the backup server components such as Server and Client on the JOS base system and then, integrating and scheduling backup from the B-Series Server to the C-Series Server.

The following activities were involved in the Implementation phase:

- Installed VMware ESXi 5.0 U1 in the B-Series servers (B200 M2, B230 M2, and B250 M2) that are configured to boot from SAN.
- Installed the Windows Server 2008 R2 Japanese operating system in the C-Series servers (C240 M3 and C220 M3) on a local hard disk that is configured with RAID 5 (single parity).
- In the B-Series servers installed with ESXi 5.0, three virtual machines were created and installed with the following Japanese operating systems respectively:

  Windows 7 Enterprise SP1 x64

  Windows Server 2008 R2 SP1 x64

  Red Hat Enterprise Linux 6.1 x64

- 10 GbE connectivity from the C-Series CNA card (vNIC) was established to the B-Series Blade Server for backup data Read/Write operations.
- C-Series servers were installed with the Windows Server 2008 R2 SP1 x64 Japanese operating system; Quest NetVault Backup 8.6.3 and CA ARCserve Backup r16 Server software were installed on top of JOS.
- Virtual machines were installed with Quest NetVault Backup 8.6.3 and CA ARCserve Backup r16 software Client Agents.

- NetVault Backup software uses a specific plugin for Microsoft SQL database backup. SQL plugin was installed in the Microsoft Windows Server 2008 R2 Japanese operating system and Microsoft SQL Server 2008 R2 Japanese.

- In the C-Series servers installed with Quest NetVault Backup 8.6.3 and CA ARCserve Backup r16 software Server, the client agents were added to the backup software.

Features Tested

Data Backup was tested with the following backup methods.

Full Backup

Full backup is the starting point for all other types of backup and contains all the data in the folders and files that are selected to be backed up. Because full backup stores all files and folders, frequent full backups result in faster and simpler restore operations.

Differential Backup

Differential backup contains all files that have changed since the last FULL backup. The advantage of a differential backup is that it shortens restore time compared to a full backup or an incremental backup. However, if you perform the differential backup too many times, the size of the differential backup might grow to be larger than the baseline full backup.

Incremental Backup

Incremental backup stores all files that have changed since the last FULL, DIFFERENTIAL, or INCREMENTAL backup. The advantage of an incremental backup is that it takes the least time to complete. However, during a restore operation, each incremental backup must be processed, which could result in a lengthy restore job.

MS SQL Database was tested with the following backup methods and types.

NetVault SQL Server APM backup methods:

Online Virtual Device Interface (VDI)

Online VDI backups provide maximum reliability and flexibility when defining a backup strategy. This method supports the full range of backup types and options available with SQL Server's Transact-SQL language along with the ability to handle a number of recovery scenarios.

Volume Shadow Copy Service (VSS)

VSS allows volume backups to be performed while applications on the system continue to write to the volumes. With SQL Server 2005/2008, Microsoft provides a **SQL Writer** that permits backup programs such as SQL Server APM to copy SQL Server data while SQL Server is running.

NetVault SQL Server APM backup types:

Full Database Backup

A full database backup is a backup of the entire database. Full database backups consume more space and time per backup and are typically supplemented by differential backups, which are created more frequently. With full database backups, you can re-create an entire database in one step by restoring the database.

Differential Database Backup

With a differential database backup, you can back up only the data that has changed since the last FULL database backup. Differential backups are smaller and faster to create than the full backups. A differential database backup is useful if some of the database's tables are modified more frequently than others. In this case, differential database backups allow you to back up frequently without the overhead of full database backups.

Incremental Transaction Log Backup

SQL Server transaction logs are essential to data recovery and need to be backed up regularly. With transaction log backups, you can recover the database to a point-of-failure or a specific point-in-time. An incremental transaction log backup captures all the transaction logs including the transaction logs that have been generated since the last FULL database/file or filegroup backup, DIFFERENTIAL database/file or filegroup backup, or INCREMENTAL transaction log backup.

Full File and Filegroup Backup

A full file and filegroup backup backs up all the data in one or more files or filegroups. A complete set of full file and filegroup backups is equivalent to a full database backup.

Backup Types Comparison

Backup Type	Data Backed Up	Backup Time	Restore Time	Storage Space
Full Backup	All data	Slowest	Fast	High
Incremental Backup	Only newly modified files/folders	Fast	Moderate	Lowest
Differential Backup	All data since last FULL backup	Moderate	Fast	Moderate

C H A P T E R 4

Test Scenarios for UCS with NetVault Backup Software

Backup Data Files from Windows 7 Operating System—Standard Full Backup

Description

To verify that the backup of data files (Word, PDF, and Excel) from the Windows 7 operating system using NetVault Backup software is successful. The Windows 7 operating system is installed as a virtual machine on the UCS B-Series blade server. This scenario is tested in the following combinations.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install the backup software client in the Windows 7 machine.

2 Add the client to the backup server.

3 Configure the local disk of the C-Series server as a standalone drive in the backup server software.

Procedure

1 Select the data files to be backed up from the client machine.

2 Schedule a full backup in the backup server.

3 Run the backup job with the backup method as Standard and the backup option as Full.

4 Delete the files from the client machine.

5 Restore the data from the local disk of the C-Series server to the client machine.

Verification

  • Verify whether the backup is successful, and verify the same in the Status Console window.

  • Verify whether the restoration is successful, and verify the same in the Status Console window.

  • Verify whether the data is available in the client machine after restoration.

Backup Data Files from Windows 7 Operating System—Standard Incremental Backup

Description

To verify that the incremental backup of data files (Word, PDF, and Excel) from the Windows 7 operating system using NetVault Backup software is successful. The Windows 7 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install the backup software client in the Windows 7 machine.

2 Add the client to the backup server.

3 Configure the local disk of the C-Series server as a standalone drive in the backup server software.

4 Perform a full backup.

Procedure

1 Add some more data (PDF, Word, Excel) files in the backup location.

2 Select the data files to be backed up from the client machine.

3 Schedule an incremental backup in the backup server.

4 Run the incremental backup job with the backup method as Standard.

5 Repeat Steps 1 to 4 three times.

6 Perform the restore operation by selecting the latest save set.

7 Restore the data from the local disk of the C-Series server to the client machine.

Verification

• Verify whether only the recently added data is backed up successfully.

• Verify whether the restoration of the latest save set restores the data till the last backup.

• Verify whether the data is available in the client machine after restoration.

Backup Data Files from Windows 7 Operating System—Volume Shadow Copy Services—Full Backup

Description

To verify that the backup of data files (Word, PDF, and Excel) from the Windows 7 operating system using NetVault Backup software with the Volume Shadow Copy Services—Full Backup method is successful. The Windows 7 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install the backup software client in the Windows 7 machine.

2 Add the client to the backup server.

3 Configure the local disk of the C-Series server as a standalone drive in the backup server software.

Procedure

1 Select the data files to be backed up from the client machine.

2 Schedule a full backup in the backup server.

3 Run the backup job with the backup method as VSS and the backup option as Full.

4 Delete the files from the client machine.

5 Restore the data from the local disk of the C-Series server to the client machine.

Verification

- Verify whether the backup is successful, and verify the same in the Status Console window.

- Verify whether the restoration is successful, and verify the same in the Status Console window.

- Verify whether the data is available in the client machine after restoration.

Backup Data Files from Windows 7 Operating System—Volume Shadow Copy Services—Incremental Backup

Description

To verify that the backup of data files (Word, PDF, and Excel) from the Windows 7 operating system using NetVault Backup software with the Volume Shadow Copy Services—Incremental Backup method is successful. The Windows 7 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install the backup software client in the Windows 7 machine.

2 Add the client to the backup server.

3 Configure the local disk of the C-Series server as a standalone drive in the backup server software.

4 Perform a full backup.

Procedure

1 Add some more data (PDF, Word, Excel) files in the backup location.

2 Select the data files to be backed up from the client machine.

3 Schedule an incremental backup in the backup server.

4 Run the incremental backup job with the backup method as VSS.

5 Repeat Steps 1 to 4 three times.

6 Perform the restore operation by selecting the latest save set.

7 Restore the data from the local disk of the C-Series server to the client machine.

Verification

- Verify whether only the recently added data is backed up successfully.

- Verify whether the restoration of the latest save set restores the data till the last backup.

- Verify whether the data is available in the client machine after restoration.

Backup Data Files from Linux Operating System—Standard Full Backup

Description

To verify that the backup of documents from the RHEL 6.1 operating system using NetVault Backup software is successful. The RHEL 6.1 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install the backup software client in the RHEL 6.1 machine.

2 Add the client to the backup server.

3   Configure the local disk of the C-Series server as a standalone drive in the backup server software.

Procedure

1   Select the data files to be backed up from the client machine.

2   Schedule a full backup in the backup server.

3   Run the full backup job.

4   Delete the files from the client machine.

5   Restore the data from the local disk of the C-Series server to the client machine.

Verification

- Verify whether the backup is successful, and verify the same in the Status Console window.

- Verify whether the restoration is successful, and verify the same in the Status Console window.

- Verify whether the data is available in the client machine after restoration.

Backup Data Files from Linux Operating System—Incremental Backup

Description

To verify that the incremental backup of documents from the RHEL 6.1 operating system using NetVault Backup software is successful. The RHEL 6.1 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1   Install the backup software client in the RHEL 6.1 machine.

2   Add the client to the backup server.

3   Configure the local disk of the C-Series server as a standalone drive in the backup server software.

4   Perform a full backup.

Procedure

1   Add some more documents in the backup location.

2   Select the data files to be backed up from the client machine.

3   Schedule an incremental backup in the backup server.

4   Run the incremental backup job with the backup method as Standard.

5   Repeat Steps 1 to 4 three times.

6   Perform the restore operation by selecting the latest save sets.

7   Restore the data from the local disk of the C-Series server to the client machine.

Verification

• Verify whether only the recently added data is backed up successfully.

• Verify whether the restoration of the latest save set restores the data till the last backup.

• Verify whether the data is available in the client machine after restoration.

Backup MS SQL 2008 R2 Database—Online Virtual Device Interface—Full Backup

Description

To verify that the backup of MS SQL database using the Online Virtual Device Interface—Full Backup method is successful. The Windows 2008 R2 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install APM for MS SQL in the client machine.

2 Add the client to the backup server.

3 Configure the local disk of the C-Series server as a standalone drive in the backup server software.

Procedure

1 Add some more data into the database.

2 Select the backup method as Online VDI and the backup type as Full in the backup server software.

3 Run the full backup job.

4 Delete the database from the client machine.

5 Restore the database from the local disk of the C-Series server to the SQL client machine.

Verification

• Verify whether the backup is successful, and verify the same in the Status Console window.

• Verify whether the restoration is successful, and verify the same in the Status Console window.

• Verify whether the database is available in the client machine after restoration.

Backup MS SQL 2008 R2 Database—Online Virtual Device Interface—Differential Backup

Description

To verify that the backup of MS SQL database using the Online Virtual Device Interface—Differential Backup method is successful. The Windows 2008 R2 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1   Install APM for MS SQL in the client machine.

2   Add the client to the backup server.

3   Configure the local disk of the C-Series server as a standalone drive in the backup server software.

4   Perform a full backup of the database.

Procedure

1   Add some more data into the database.

2   Select the backup method as Online VDI and the backup type as Differential in the backup server software.

3   Run the differential backup job.

4   Delete the database from the client machine.

5   Restore the full backup save set.

6   Restore the differential backup save set.

Verification

- Verify whether only the recently added data is backed up successfully.

- Verify whether the restoration of the full and differential backup save sets is successful.

- Verify whether the database is available in the client machine after restoration.

Backup MS SQL 2008 R2 Database—Volume Shadow Copy Services—Full Backup

Description

To verify that the backup of MS SQL database using the Volume Shadow Copy Services—Full Backup method is successful. The Windows 2008 R2 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install APM for MS SQL in the client machine.

2 Add the client to the backup server.

3 Configure the local disk of the C-Series server as a standalone drive in the backup server software.

Procedure

1 Select the database instance to be backed up from the client machine.

2 Select the backup method as VSS and the backup type as Full in the backup server software.

3 Run the full backup job.

4 Delete the database from the client machine.

5 Restore the database from the local disk of the C-Series server to the SQL client machine.

Verification

• Verify whether the backup is successful, and verify the same in the Status Console window.

• Verify whether the restoration is successful, and verify the same in the Status Console window.

• Verify whether the database is available in the client machine after restoration.

Backup MS SQL 2008 R2 Database—Volume Shadow Copy Services—Differential Backup

Description

To verify that the backup of MS SQL database using the Volume Shadow Copy Services—Differential Backup method is successful. The Windows 2008 R2 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install APM for MS SQL in the client machine.

2 Add the client to the backup server.

3 Configure the local disk of the C-Series server as a standalone drive in the backup server software.

4 Perform a full backup.

Procedure

1 Add some more data into the database.

2 Select the backup method as VSS and the backup type as Differential in the backup server software.

3 Run the differential backup job.

4 Delete the database from the client machine.

5 Restore the full backup save set.

6 Restore the differential backup save set.

Verification

• Verify whether only the recently added data is backed up successfully.

• Verify whether the restoration of the full and differential backup save sets is successful.

• Verify whether the database is available in the client machine after restoration.

Backup MS SQL 2008 R2 Database—Incremental Transaction Log Backup

Description

To verify that the backup of MS SQL database using the backup method, Online VDI and the backup type, Incremental Transaction Log and the restoration by point-in-time is successful. The Windows 2008 R2 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install APM for MS SQL in the client machine.

2 Add the client to the backup server.

3 Configure the local disk of the C-Series server as a standalone drive in the backup server software.

4 Perform a full backup of the database.

Procedure

1 Add some more data into the database.

2 Select the backup method as Online VDI and the backup type as Incremental Transaction Log in the backup server software.

3 Run the backup job.

4 Perform the incremental transaction log backup two or three times.

5 Delete the database from the client machine.

6 Restore the database from the local disk of the C-Series server to the SQL client machine by point-in-time.

Verification

• Verify whether the incremental transaction log backup is successful.

• Verify whether the restoration of database by point-in-time is successful.

• Verify whether the database is available in the client machine after restoration.

Backup MS SQL 2008 R2 Database—Full File and Filegroup Backup

Description

To verify that the backup of MS SQL database using the backup method, Online VDI and the backup type, Full File/Filegroup and the restoration is successful. The Windows 2008 R2 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install APM for MS SQL in the client machine.

2 Add the client to the backup server.

3 Configure the local disk of the C-Series server as a standalone drive in the backup server software.

Procedure

1 Select the backup method as Online VDI and the backup type as Full File/Filegroup in the backup server software.

2 Run the backup job.

3 Delete some files from the client machine database.

4 Restore the database from the local disk of the C-Series server to the SQL client machine.

Verification

- Verify whether the full file and filegroup backup is successful.
- Verify whether the restoration of damaged files in the database is successful.
- Verify whether the database is available in the client machine after restoration.

C H A P T E R 5

Test Scenarios for UCS with CA ARCserve Backup Software

Backup Data Files from Windows 7 Operating System—Normal Full Backup

Description

To verify that the backup of data files (Word, PDF, and Excel) from the Windows 7 operating system using CA ARCserve Backup software is successful. The Windows 7 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install the backup client agent in the Windows 7 machine.

2 Add the client to the backup server.

3 Add the local disk of the C-Series server as a device group.

Procedure

1 Select the data files to be backed up from the client machine.

2 Schedule a full backup in the backup server software with the backup method as Normal and the backup option as Full.

3 Run the backup job.

4 Delete the files from the client machine.

5 Restore the data from the local disk of the C-Series server to the client machine.

Verification

• Verify whether the backup is successful, and verify the same in the Job Status/Logs Console window.

• Verify whether the restoration is successful, and verify the same in the Status Console/Logs window.

• Verify whether the data is available in the client machine after restoration.

Backup Data Files from Windows 7 Operating System—Normal Incremental Backup

Description

To verify that the backup of data files (Word, PDF, and Excel) from the Windows 7 operating system using CA ARCserve Backup software is successful. The Windows 7 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install the backup client agent in the Windows 7 machine.

2 Add the client to the backup server.

3 Add the local disk of the C-Series server as a device group.

4 Perform a full backup.

Procedure

1   Add some more data files into the backup location in the client machine.

2   Select the data files to be backed up from the client machine.

3   Schedule an incremental backup in the backup server software with the backup method as Normal and the backup option as Incremental.

4   Run the backup job.

5   Repeat Steps 1 to 4.

6   Delete the files from the client machine.

7   Restore the incremental save set from the local disk of the C-Series server to the client machine.

Verification

- Verify whether only the recently added data is backed up successfully using the Incremental Backup method.

- Verify whether the restoration is successful, and verify the same in the Status Console window.

- Verify whether the data is available in the client machine after restoration.

Backup Data Files from Windows 7 Operating System—Normal Differential Backup

Description

To verify that the backup of data files (Word, PDF, and Excel) from the Windows 7 operating system using CA ARCserve Backup software is successful. The Windows 7 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install the backup client agent in the Windows 7 machine.

2 Add the client to the backup server.

3 Add the local disk of the C-Series server as a device group.

4 Perform a full backup.

Procedure

1 Add some more data files into the backup location in the client machine.

2 Select the data files to be backed up from the client machine.

3 Schedule a differential backup in the backup server software with the backup method as Normal and the backup option as Differential.

4 Run the backup job.

5 Delete the files from the client machine.

6 Restore the differential save set from the local disk of the C-Series server to the client machine.

Verification

- Verify whether only the recently added data is backed up successfully using the Differential Backup method.

- Verify whether the restoration is successful, and verify the same in the Status Console window.

- Verify whether the data is available in the client machine after restoration.

Backup Data Files from Linux Operating System—Normal Full Backup

Description

To verify that the backup of documents from the RHEL 6.1 operating system using CA ARCserve Backup software is successful. The RHEL 6.1 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install the backup client agent in the RHEL 6.1 machine.

Note See Limitation 1, on page 39 for installation.

2 Add the client to the backup server.

3 Add the local disk of the C-Series server as a device group.

Procedure

1 Select the data files to be backed up from the client machine.

2 Schedule a full backup in the backup server with the backup method as Normal and the backup option as Full.

3 Run the backup job.

4 Delete the files from the client machine.

5 Restore the data from the local disk of the C-Series server to the client machine.

Verification

- Verify whether the backup is successful, and verify the same in the Job Status/Logs Console window.

- Verify whether the restoration is successful, and verify the same in the Status Console/Logs window.

- Verify whether the data is available in the client machine after restoration.

Backup Data Files from Linux Operating System—Normal Incremental Backup

Description

To verify that the backup of documents from the RHEL 6.1 operating system using CA ARCserve Backup software is successful. The RHEL 6.1 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install the backup client agent in the RHEL 6.1 machine.

Note See Limitation 1, on page 39 and Limitation 2, on page 39 for installation.

2 Add the client to the backup server.

3 Add the local disk of the C-Series server as a device group.

4 Perform a differential backup.

Procedure

1 Add some more data files into the backup location in the client machine.

2 Select the data files to be backed up from the client machine.

3 Schedule an incremental backup in the backup server with the backup method as Normal and the backup option as Incremental.

4 Run the backup job.

5 Repeat Steps 1 to 4.

6 Delete the files from the client machine.

7 Restore the incremental save set from the local disk of the C-Series server to the client machine.

Verification

- Verify whether only the recently added data is backed up successfully using the Incremental Backup method.
- Verify whether the restoration is successful, and verify the same in the Status Console window.
- Verify whether the data is available in the client machine after restoration.

Backup Data Files from Linux Operating System—Normal Differential Backup

Description

To verify that the backup of documents from the RHEL 6.1 operating system using CA ARCserve Backup software is successful. The RHEL 6.1 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1   Install the backup client agent in the RHEL 6.1 machine.

Note   See Limitation 1, on page 39 and Limitation 2, on page 39 for installation.

2   Add the client to the backup server.

3   Add the local disk of the C-Series server as a device group.

4   Perform a differential backup.

Procedure

1 Add some more data files into the backup location in the client machine.

2 Select the data files to be backed up from the client machine.

3 Schedule a differential backup in the backup server with the backup method as Normal and the backup option as Differential.

4 Run the backup job.

5 Delete the files from the client machine.

6 Restore the differential save set from the local disk of the C-Series server to the client machine.

Verification

- Verify whether only the recently added data is backed up successfully using the Differential Backup method.

- Verify whether the restoration is successful, and verify the same in the Status Console window.

- Verify whether the data is available in the client machine after restoration.

Backup MS SQL 2008 R2 Database—Full Backup

Description

To verify that the backup of MS SQL database using CA ARCserve Backup software with the Full Backup type is successful. The Windows 2008 R2 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install APM for MS SQL in the client machine.

2 Add the client to the backup server.

3 Add the local disk of the C-Series server as a device group.

Procedure

1 Select the database instance to be backed up from the client machine.

2 Select the backup type as Full in the backup server software.

3 Run the full backup job.

4 Delete the database from the client machine.

5 Restore the database from the local disk of the C-Series server to the SQL client machine.

Verification

- Verify whether the backup is successful, and verify the same in the Status Console window.

- Verify whether the restoration is successful, and verify the same in the Status Console window.

- Verify whether the database is available in the client machine after restoration.

Backup MS SQL 2008 R2 Database—Differential Backup

Description

To verify that the backup of MS SQL database using CA ARCserve Backup software with the Differential Backup type is successful. The Windows 2008 R2 operating system is installed as a virtual machine on the UCS B-Series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp FAS3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON CX4-120

Prerequisites

1 Install APM for MS SQL in the client machine.

2 Add the client to the backup server.

3 Add the local disk of the C-Series server as a device group.

4 Perform a full backup of the database.

Procedure

1 Add some more data into the database.

2 Select the backup type as Differential in the backup server software.

3 Run the differential backup job.

4 Delete the database from the client machine.

5 Restore the data from the local disk of the C-Series server to the SQL client machine.

Verification

- Verify whether only the recently added data is backed up successfully using the Differential Backup method.

• Verify whether the restoration is successful, and verify the same in the Status Console window.

• Verify whether the data is available in the client machine after restoration.

Limitation 1

The CA ARCserve r16 client agent failed to install using the default procedure mentioned in the CA ARCserve Linux Agent Installation Guide.

Error Message

Cannot locate the file: /root/Desktop/datamoverandagent/linux/./nls/C/install.msg! Exiting...

Procedure to Install the CA ARCserve Linux Agent

1 Install all the glibc packages from the Red Hat ISO image.

2 Copy the linux folder from the CA ARCserve installation ISO into the Linux VM.

3 Give full permission to that folder by issuing the command, **chmod -R 777 LINUX/**

4 Install two RPM files for the agent by issuing the following commands:

   rpm -ivh abcmagt.rpm -force (or) **rpm -ivh abcmagt.rpm -force -nodeps**

   rpm -ivh abagtux.rpm -force (or) **rpm -ivh abagtux.rpm -force -nodeps**

5 The CA ARCserve agent is installed successfully.

6 CA ARCserve agents can be started by the following commands:

   caagent enable all and **caagent start**

7 Stop the services using the command, **service iptables stop**

8 Add the IP address and the host name of the backup server in the host file available in the location /etc/hosts

9 Ping the backup server by issuing the host name (computer name of the backup server).

10 Add the client to the backup server. The Linux machine is successfully added as a client in the backup server.

Limitation 2

Issue Description

Differential backup on the Linux operating system misses the recently added/modified files to be backed up.

Resolution

1 Apply the patch file T5SO027 on the backup server.

2 Perform a differential backup. (After applying the patch file, the first differential backup will take a full backup.)

3 In the Linux OS, the CA ARCserve server does not take an archive bit-level backup.

4 Create a filter in the CA ARCserve server with the conditions "Files created after and on" and "Date".

5 The second differential backup will take a backup of the files that were added as per the conditions set.

Related Documentation

NetVault Backup

http://www.quest.com/netvault-backup/

Quest NetVault Backup 8.6.3 Administrators Guide

http://us-downloads.quest.com/Repository/support.quest.com/NetVault%20Backup/8.6.3/Documentation/Quest_NetVault_Backup_8.6.3_Administrators_Guide_English.pdf

Quest NetVault Backup 8.6.3 Configuration Guide

http://us-downloads.quest.com/Repository/support.quest.com/NetVault%20Backup/8.6.3/Documentation/Quest_NetVault_Backup_8.6.3_Configuration_Guide_English.pdf

CA ARCserve Backup

http://www.arcserve.com/us/products/backup.aspx

CA ARCserve Backup r16 Bookshelf

http://support.ca.com/cadocs/0/CA%20ARCserve%20%20Backup%20r16-ENU/Bookshelf.html