# Backup Solution Testing on UCS B-Series Server for Small-Medium Range Customers (Disk to Tape) – Acronis Backup Advanced Suite 11.5

**First Published:** March 16, 2015

**Last Modified:** March 19, 2015

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# Backup Solution Testing

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## Overview

This program (Backup Testing - Backup to Disk and Replicate to Tape/Acronis Cloud) validates data backup from the Windows and Linux operating systems on the Cisco UCS environment and the backup data stored in the Local HDD and replicated to HP StoreEver LTO-5 Ultrium 3280, HP StoreEver LTO-6 Ultrium 6650, HP StoreEver LTO-6 Ultrium 6250 SAS External Tape Drives and Acronis Cloud. The objective of Backup Testing is to verify the Backup and Restore of Data, entire Disks of Linux RHEL/SLES, Full Virtual machines, MS SQL, P2V, V2P by the backup software (Acronis Backup Advanced Suite) with the data repository models, which are covered in the features Tested section.

**Acronyms**

| Acronym | Description |
|---------|-------------|
| 10GbE | 10 Gigabit Ethernet |
| ABAS | Acronis Backup Advanced Suite |
| AES | Advanced Encryption Standards |
| AMS | Acronis Management Server |
| ASN | Acronis Storage Node |
| CNA | Converged Network Adapter |
| HDD | Hard Disk Drive |
| JOS | Japanese Operating System |
| LVM | Logical Volume Manager |
| MS | Microsoft |
| OS | Operating System |

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| Acronym | Description |
|---------|-------------|
| P2V | Physical To Virtual |
| PCI | Peripheral Component Interface |
| PCIe | Peripheral Component Interface Express |
| RAID | Redundant Array of Independent Disks |
| RHEL | Red Hat Enterprise Linux |
| SLES | SUSE Linux Enterprise Server |
| SQL | Structured Query Language |
| UCS | Unified Computing System |
| UCSM | Unified Computing System Manager |
| V2P | Virtual To Physical |
| VIC | Virtual Interface Card |
| VM | Virtual Machine |

# Backup Testing Strategy

The requirements gathered for Backup Testing (Backup to Disk and Replicate to Tape/Acronis Cloud) are specific to the Japanese usage and market.

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

- Virtual Machines are available on ESXi 5.5, which is installed in the Cisco UCS B Series Servers(B460 M4)

- Japanese SUSE Linux Enterprise Server 11.3 installed directly on the Cisco UCS B Series Server(B460 M4) for Disaster Recovery

- Japanese RHEL 6.6 (x64 ) installed directly on the Cisco UCS B Series Server(B460 M4) for Disaster Recovery

- Acronis Backup Advanced Suite 11.5 is used as Backup software.

- Acronis Backup Advanced Suite 11.5 installed on top of the Windows Server 2012 R2 Japanese Operating System, which is installed on the local HDD of C Series Server. The Server also acts as AMS (Acronis Management Server)

- Backup server is connected to HP StoreEver LTO-5 Ultrium 3280, HP StoreEver LTO-6 Ultrium 6650 , HP StoreEver LTO-6 Ultrium 6250 SAS External Tape Drive by SAS connectivity using External LSI 9286 CV-8e MegaRAID Controller Card.

- The internal RAID controller used on Cisco UCS C Series Server is LSI 9361-8i MegaRAID Controller Card.

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- Backup data is stored in C Series Server Local HDD and then Replicated to HP StoreEver LTO-5 Ultrium 3280, HP StoreEver LTO-6 Ultrium 6650 , HP StoreEver LTO-6 Ultrium 6250 SAS External Tape Drives using Acronis Backup Advanced Suite 11.5 .

- Backup the Full Virtual Machines from the ESXi 5.5 Server which is installed on UCS B Series server(B460 M4 ). Virtual Machines are installed with Windows 8.1, RHEL 6.6 .

- Data backup from the Windows 8.1 and RHEL 6.6 Japanese Operating Systems that are installed as Virtual machines. Data files include Microsoft Excel, Microsoft Word and PDF of size 500 MB.

- Database backup from MS SQL Server 2012 SP2 on the Windows Server 2012 R2 Japanese Operating System that is installed as a Virtual Machine.

- Select files from Windows or Linux operating system and schedule a backup job from AMS (Acronis Management Server).

- Backup job is done from Windows/Linux Operating systems to Local HDD (1st location) and replicate it to HP StoreEver LTO-5 Ultrium 3280, HP StoreEver LTO-6 Ultrium 6650 , HP StoreEver LTO-6 Ultrium 6250 SAS External Tape Drives / Acronis Cloud(2nd Location).

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# Test Topology and Environment Matrix

# Test Topology

*Figure 1: Topology in Use*



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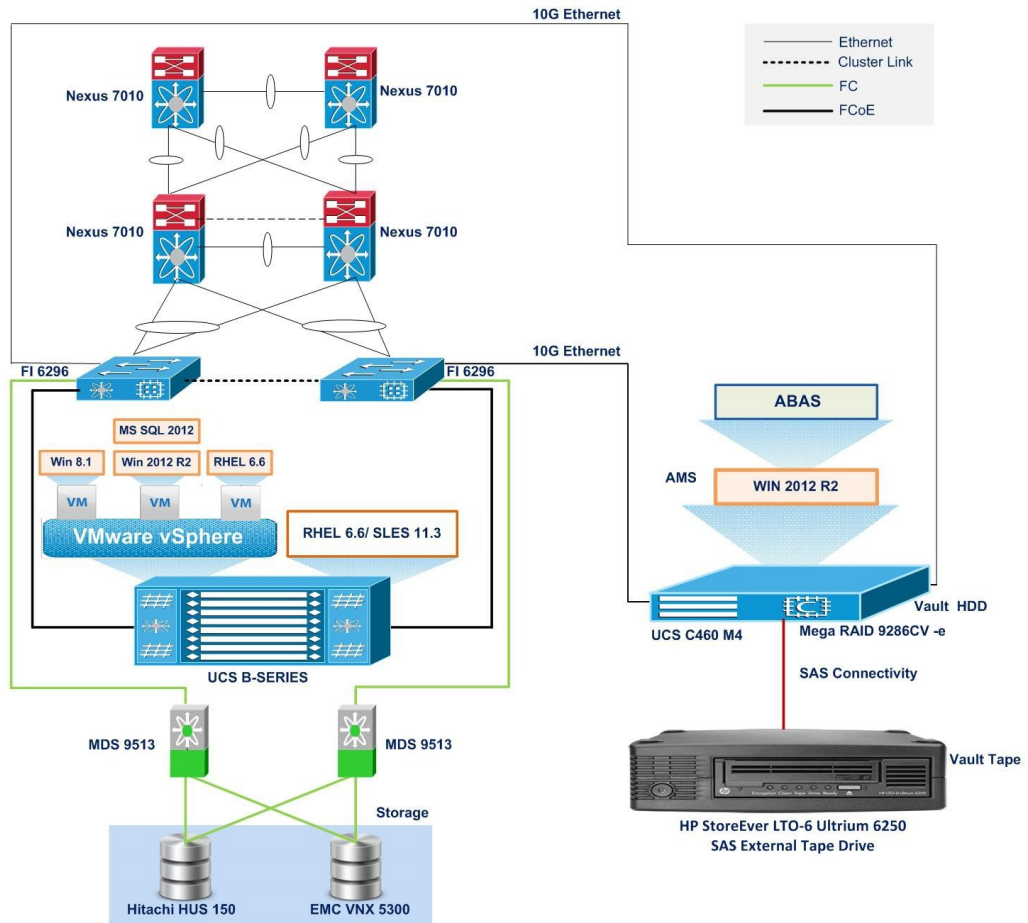
### Figure 2: Topology in Use
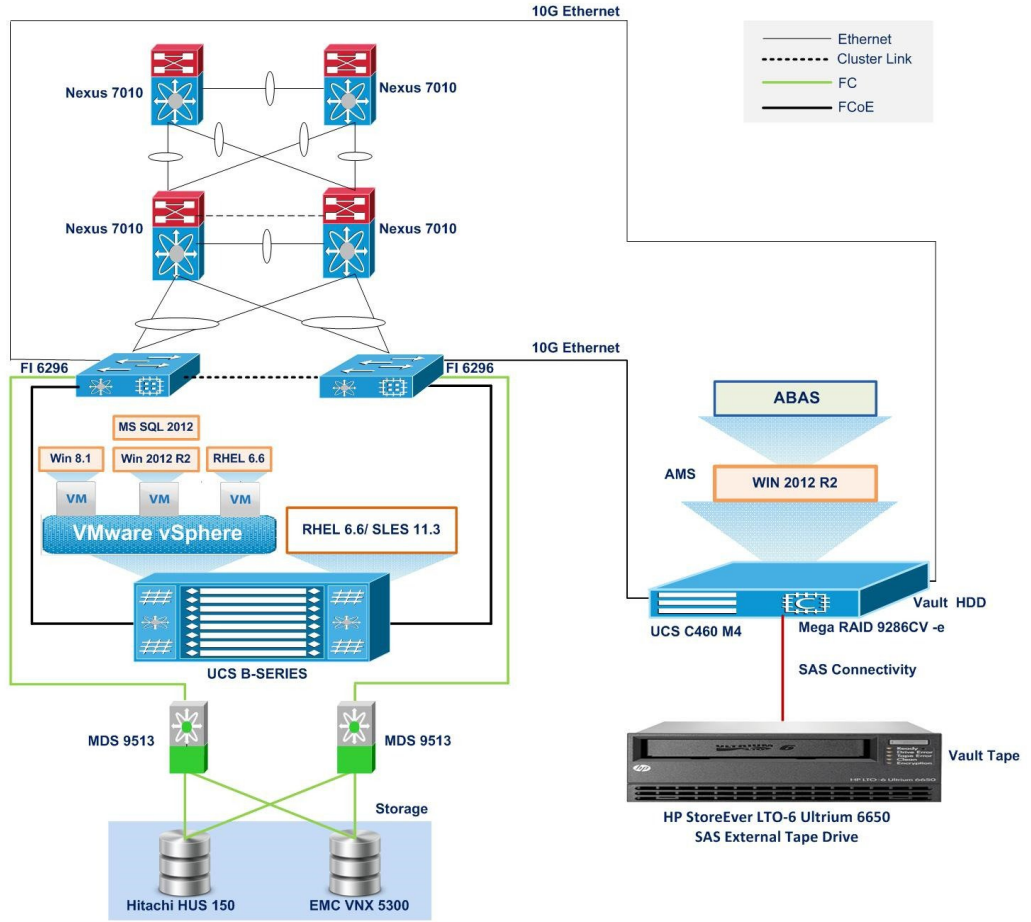
*Figure 3: Topology in Use*
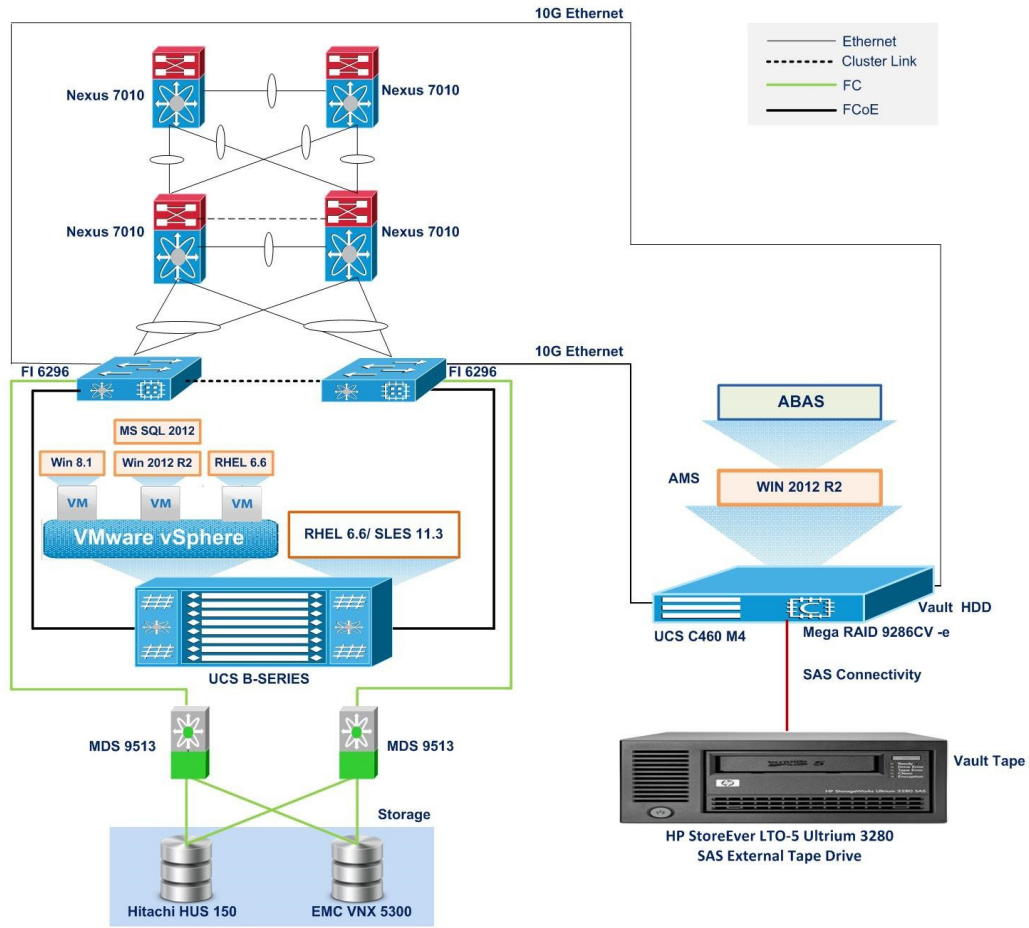


# Environment Matrix

| Component | Version |
|---|---|
| **UCS** | |
| Blade servers | Cisco UCS B460 M4 |
| Rack Server | Cisco UCS C460 M4 |
| UCSM | 2.2(3d) |
| **Infra** | |
| Nexus 7010 | 6.2(2) |
| **Backup Software** | |
| Acronis Backup Advanced Suite | 11.5 Build No - 38929 |

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| Component | Version |
|---|---|
| **Operating Systems** | |
| Windows OS | Windows 8.1 Enterprise 64 (Japanese) |
| Windows Server OS | Windows Server 2012 R2 x64 (Japanese) |
| RHEL | Redhat Enterprise Linux 6.6 x64 (Japanese) |
| SLES | SUSE Linux Enterprise Server 11.3 (Japanese) |
| **Data Base** | |
| MS SQL server | Microsoft SQL Server 2012 Service Pack 2 Enterprise x64(Japanese) |
| **Hypervisor** | |
| ESXi | VMware ESXi 5.5 1331820 |
| **Tape Library** | |
| HP StoreEver LTO-5 Ultrium 3280 | NA |
| HP StoreEver LTO-6 Ultrium 6650 | NA |
| HP StoreEver LTO-6 Ultrium 6250 | NA |
| **PCI Adapter** | |
| Cisco UCS VIC 1225 | 2.2(3d) |

**Test Topology and Environment Matrix**

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# Implementation and Features Tested

## Design and Implementation

This program verifies and validates the functionality of Acronis Backup Advanced Suite 11.5 features on Cisco UCS Servers for Japanese environment.

Backup Server components (Server and Client) are installed on JOS and backup scheduled from Cisco UCS B Series Server to the Local HDD of C Series Server and replicate to Tape Library/Acronis Cloud.

The following activities were involved in the Implementation phase:

- Installed VMware ESXi 5.5 on the UCS B Series Servers(B460 M4) that are configured to boot from Local HDD.

- Installed the Windows Server 2012 R2 Japanese operating system in the C Series Server on a Local HDD that is configured with RAID 5 (single parity). This C Series Server acts as a Backup Server and AMS (Acronis Management Server), which is the Centralized Management console for taking the Backup and Restore of machines.

- On the B Series Server installed with ESXi 5.5, three virtual machines were created and installed with the following Japanese Operating Systems respectively:
  ◦ Windows 8.1 Enterprise x64
  ◦ Windows Server 2012 R2 x64
  ◦ Red Hat Enterprise Linux 6.6 x64

- Cisco UCS C Series Server is directly connected to Fabric Interconnect and managed through UCS Manager. Cisco UCS VIC 1225 PCIe Adapter is used for direct connectivity.

- LSI 9286CV-8e MegaRAID Controller External Card is used for SAS Connectivity between Backup Servers and HP StoreEver LTO-5 Ultrium 3280, HP StoreEver LTO-6 Ultrium 6650, HP StoreEver LTO-6 Ultrium 6250.

- C Series Server installed with Windows Server 2012 R2 x64 Japanese Operating System and Acronis Backup Advanced Suite 11.5.

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- Acronis Backup Advanced Suite 11.5 Agent for Core, Agent for Windows, Agent for Management Console are Installed on the Windows 8.1Virtual Machines.

- Acronis Backup Advanced Suite 11.5 Agent is also installed on RHEL 6.6 Virtual Machines by installing the Required Packages such as (kernel, kernel-devel and GCC ).

- Acronis Backup Advanced Suite 11.5 Agent for SQL is also installed on top of Windows Server 2012 R2 machine and by adding required privilege to the Acronis Agent.

- Acronis Backup Advanced Suite 11.5 Agent for VMware vSphere ESXi enables backup and recovery of ESXi virtual machines without installing agents into the guest systems. The Agent for VMware vSPhere ESXi (Virtual Appliance) is deployed directly to the VMware ESXi host.

- Linux Operating System RHEL 6.6 and SLES 11.3 are installed on the UCS B Series Blades (UCS B460 M4) for Bare Metal Disaster Recovery using Acronis Backup Advanced Suite 11.5.

# 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 resulting 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.

**Archive protection**

This option defines whether the archive will be protected with a password and whether the archive's content will be encrypted. This option is effective for both Windows and Linux Operating System

**Do not encrypt** - the archive will be protected with the password only

**AES 128** - the archive will be encrypted using the Advanced Encryption Standard (AES) algorithm with a 128-bit key

**AES 192** - the archive will be encrypted using the AES algorithm with a 192-bit key

**AES 256** - the archive will be encrypted using the AES algorithm with a 256-bit key

The larger the key size, the longer it will take for the program to encrypt the archive and the more secure data will be. The encryption key is then encrypted with AES-256 using a SHA-256 hash of the password as a key. The password itself is not stored anywhere on the disk or in the backup file; the password hash is used for verification purposes. With this two-level security, the backup data is protected from any unauthorized access, but recovering a lost password is not possible.

**Backup priority**

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The Following Priority are mentioned while creating the Backup Plan

- **High** - to maximize the backup process speed by taking resources from other processes.

**Compression level**

The option defines the level of compression applied to the data being backed up. This applies to both Windows & Linux Operating System. The optimal data compression level depends on the type of data being backed up.

- **None** - the data will be copied as is, without any compression. The resulting backup size will be maximal.

- **Normal** - recommended in most cases.

- **High** - the resulting backup size will typically be less than for the **Normal** level.

- **Maximum** - the data will be compressed as much as possible. The backup duration will be maximal. You may want to select maximum compression when backing up to removable media to reduce the number of blank disks required

**Volume Shadow Copy Service**

These options are effective only for Windows operating systems.

The option defines whether a Volume Shadow Copy Service (VSS) provider has to notify VSS-aware applications that the backup is about to start. This ensures the consistent state of all data used by the applications; in particular, completion of all database transactions at the moment of taking the data snapshot by Acronis Backup & Recovery 11.5.

**Bootable media**

Bootable media is physical media (CD, DVD, USB flash drive or other removable media supported by a machine BIOS as a boot device) that boots on any PC-compatible machine and enables you to run Acronis Backup & Recovery 11.5 Agent either in a Linux-based environment or Windows Pre-installation Environment (WinPE), without the help of an operating system. Bootable media is most often used to:

- recover an operating system that cannot start

- access and back up the data that has survived in a corrupted system

- deploy an operating system on bare metal

- create basic or dynamic volumes on bare metal

- back up sector-by-sector a disk with an unsupported file system

- backup offline any data that cannot be backed up online because of restricted access, being permanently locked by the running applications or for any other reason.

**Microsoft SQL Server with single-pass backup**

A single-pass backup operation creates an application-aware disk backup which enables browsing and recovery of the backed-up application data without recovering the entire disk or volume. The disk or volume can also be recovered as a whole. This means that a single solution and a single backup plan can be used for both the disaster recovery and data protection purposes. The application logs can be truncated after the backup, if necessary

The single-pass backup functionality becomes available by installing Acronis Backup & Recovery 11.5 Agent for Microsoft SQL Server (single-pass).

**Virtual Appliance for ESXi Host**

Acronis believes that virtualization and transition to the cloud are not only a better way of doing computing, but also allow for achieving less downtimes and faster recoveries while reducing costs.

Acronis is firmly committed to helping its customers and channel partners get most of virtualization, and intend to set a new standard of backup and recovery in virtualized environments through:

- Reducing IT operating and maintenance costs to help business performance by providing technology that is easy to use and easy to implement.

- Minimizing overhead and getting most benefits from VMware vSphere environments by providing a backup and recovery solution specially designed for virtualized environments.

- Minimize risk of data loss by storing backup offsite in Acronis Cloud Storage.

Acronis Backup for VMware software could be installed directly on an ESX(i) host. Specify the desired ESX(i) server or vCenter access credentials. Set your Appliance (VM) name, choose the ESX(i) host and datastore as a target for deploying the Acronis Backup for VMware software.

### P2V

Migration of a disk image, created with the program (.tib image file), to a virtual disk file of the type you select (.vmdk, .vhd, .hdd). You will then be able to add the disk to a virtual machine of compatible type (VMware, MS Hyper-V or Virtual Server, Citrix XenServer, Parallels virtual machine).

### V2P

Migration of an operating system (OS), application programs and data from a VMware virtual machine into a physical machine, even if it has dissimilar x86 hardware and drivers to the original machine. It supports both 32-bit and 64-bit x86 hardware, VMware virtualization software which makes it a very complete and universal proposal.

### LVM

This option is effective only for Linux operating systems when you back up volumes managed by Linux Logical Volume Manager (LVM). Such volumes are also called logical volumes. Acronis Backup & Recovery 11 will use Linux Logical Volume Manager to take the snapshot and to work with it during backup. This way, backing up the volume may be less efficient than when using Acronis's mechanism.

### Acronis Cloud

Acronis Cloud provides Encryption, Redundant Power and Networks, Availability, Data Transfer Security, Fire Detection and Suppression, onsite monitoring and security.

The Cloud high-level data privacy is critical, by using AES-256 encryption as a standard feature. We can also create a unique password, ensuring authorized access only. For maximum availability, your backup data is split between multiple servers similar to RAID, with additional Reed-Solomon error correction.
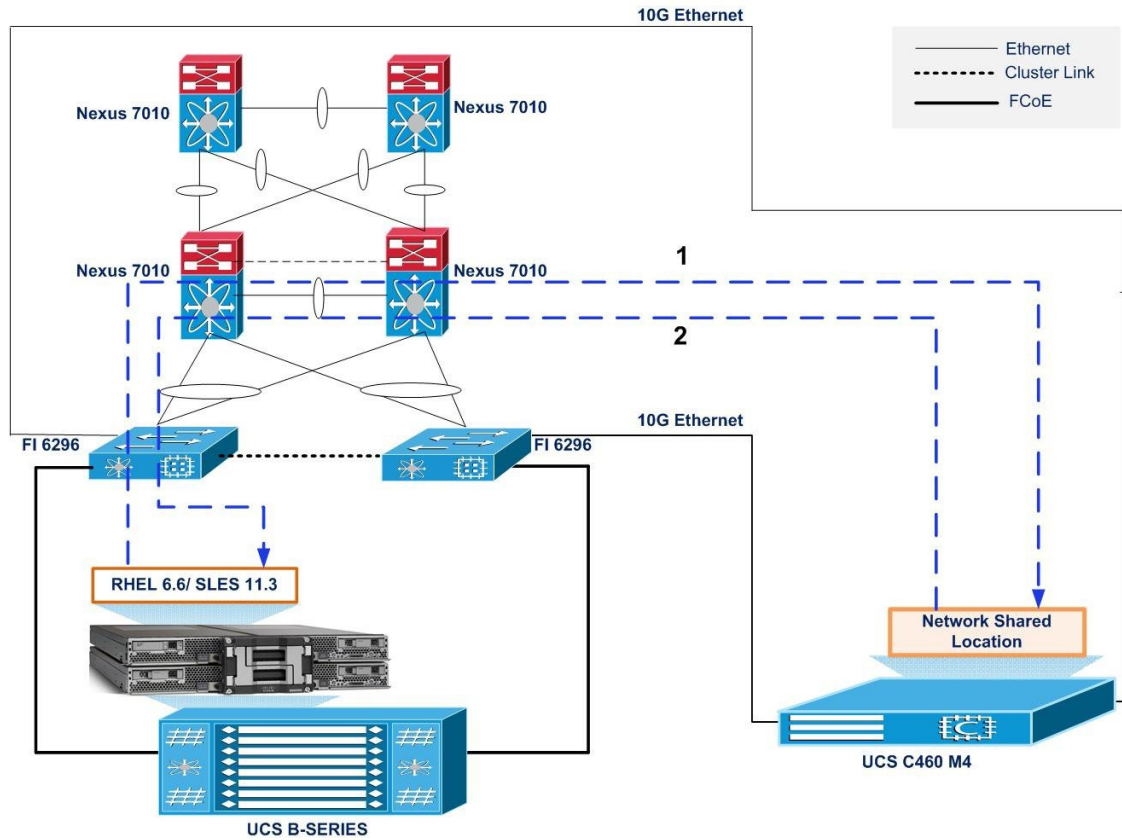
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# Test Scenarios for UCS with Acronis Backup Advanced Suite 11.5

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# Disaster Recovery for Similar Hardware

*Figure 4: Topology in use*



| Backup data flows: | | |
|---|---|---|
| **Step** | **From** | **To** |
| 1 | Backup of B Series Server(Entire Disks) | Network Share |
| 2 | Network Share | B Series Server |

**Description**

- Backup of Entire Disks from Japanese SLES 11.3 and RHEL 6.6 Operating System to Network Share Location
- Restore the Entire Disks from Network Share location to the Similar hardware from Acronis Backup Advanced Suite 11.5 Recover Option
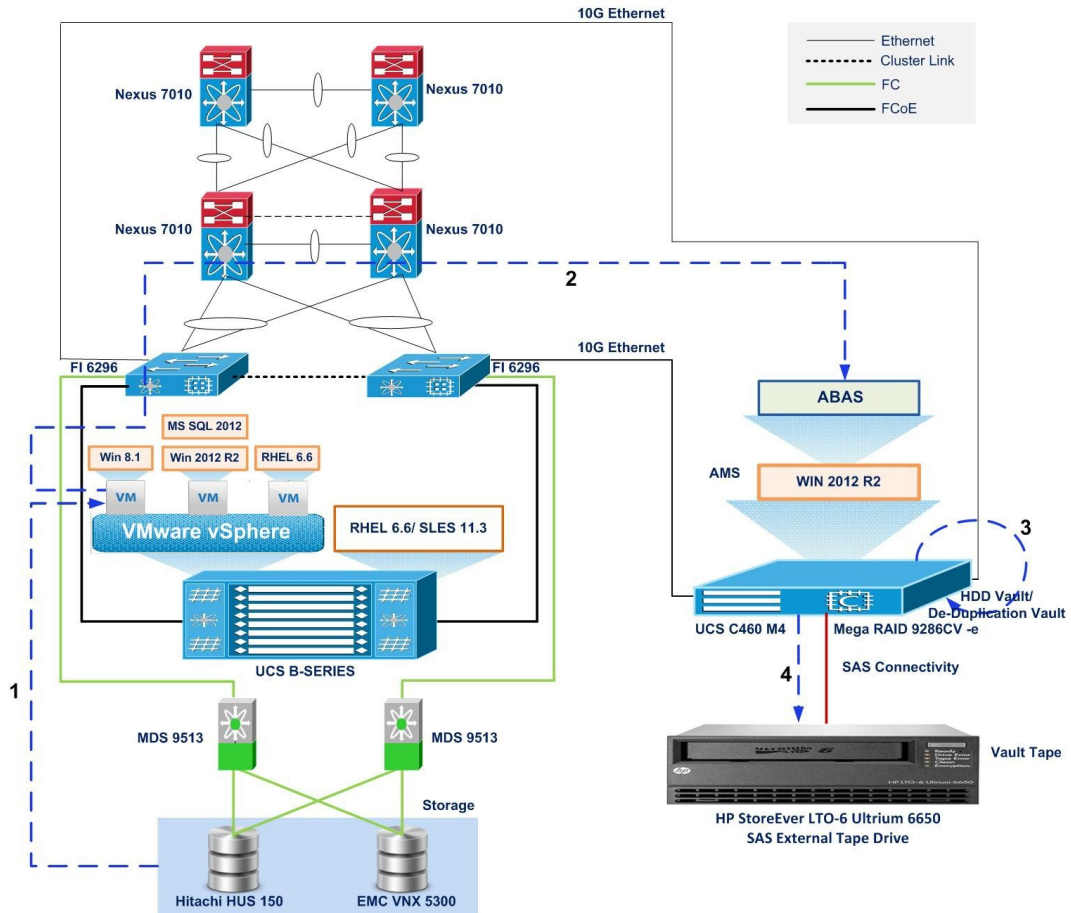
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# VM Backup

*Figure 5: Topology in Use*



| Backup data flows: | | |
| --- | --- | --- |
| Step | From | To |
| 1 | Disk Array (Hitachi HUS & EMC VNX) | VM in B series SAN based server (Backup client) |
| 2 | VM in B series SAN based server (Backup client) | Acronis Management server |
| 3 | Acronis Management server | Backup Server Disk |
| 4 | Backup Server Disk | HP StoreEver LTO-6 Ultrium 6250 |

*Figure 6: Topology in Use*



| Backup data flows: | | |
|---|---|---|
| **Step** | **From** | **To** |
| 1 | Disk Array (Hitachi HUS & EMC VNX) | VM in B series SAN based server (Backup client) |
| 2 | VM in B series SAN based server (Backup client) | Acronis Management server |
| 3 | Acronis Management server | Backup Server Disk |
| 4 | Backup Server Disk | HP StoreEver LTO-6 Ultrium 6650 |

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**Figure 7: Topology in Use**



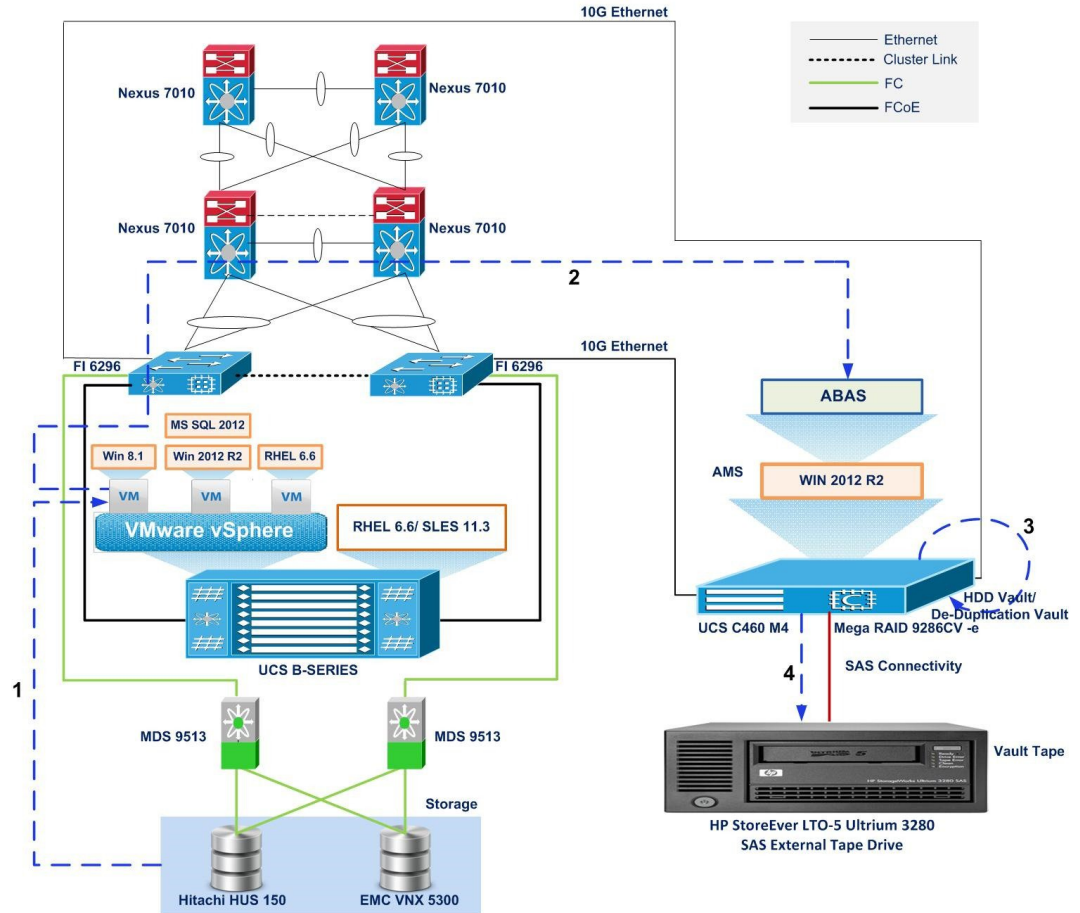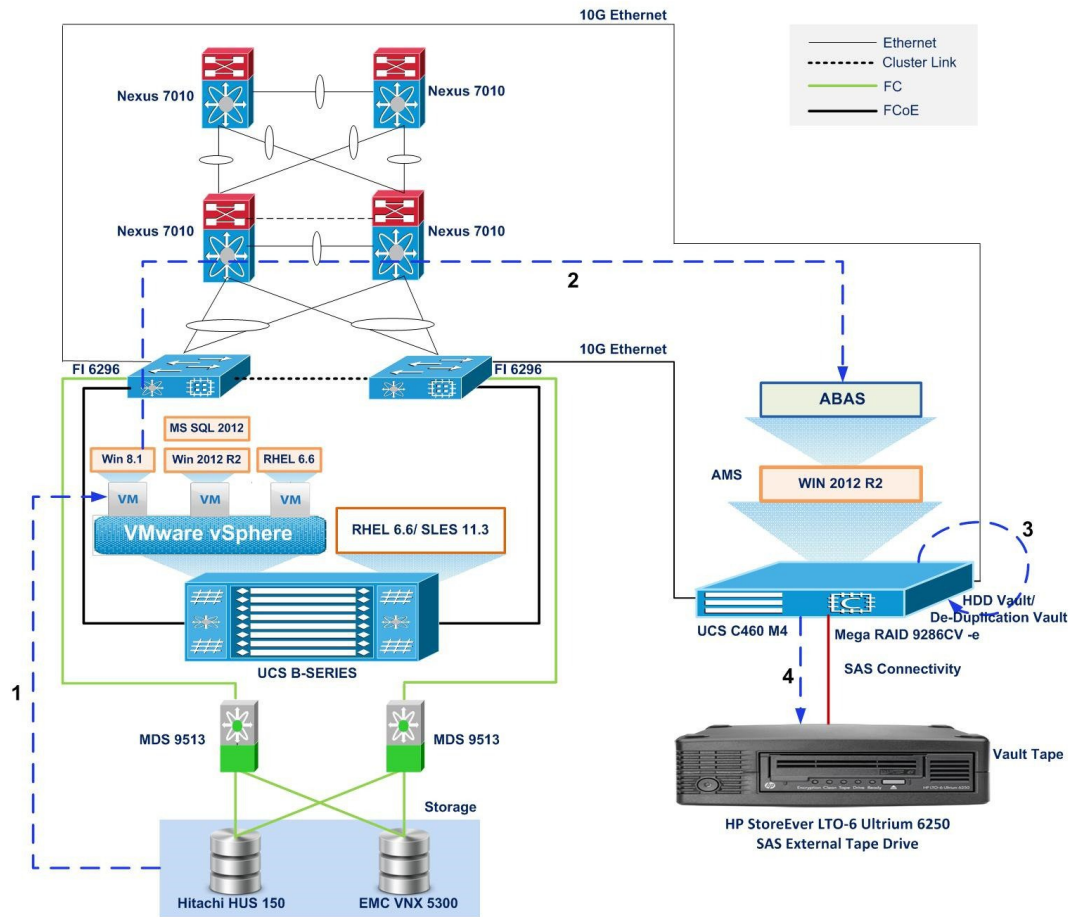| Backup data flows: | | |
|---|---|---|
| **Step** | **From** | **To** |
| 1 | Disk Array (Hitachi HUS & EMC VNX) | VM in B series SAN based server (Backup client) |
| 2 | VM in B series SAN based server (Backup client) | Acronis Management server |
| 3 | Acronis Management server | Backup Server Disk |
| 4 | Backup Server Disk | HP StoreEver LTO-5 Ultrium 3280 |

**Description**

- Select the Virtual Machine to be backed up using Acronis Backup Advanced Suite 11.5.

- Run the Backup Job and Backup of Virtual Machine is Successful.

- Select the Archive and create Recovery Plan.

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- Specify where to recover as "New Virtual Machine "in Recovery Plan.

- Run the Recovery Job and the Restore of Virtual Machine is successful.

- Restored Virtual Machine possesses different VM Version.

# Windows File / Folders Backup

*Figure 8: Topology in Use*



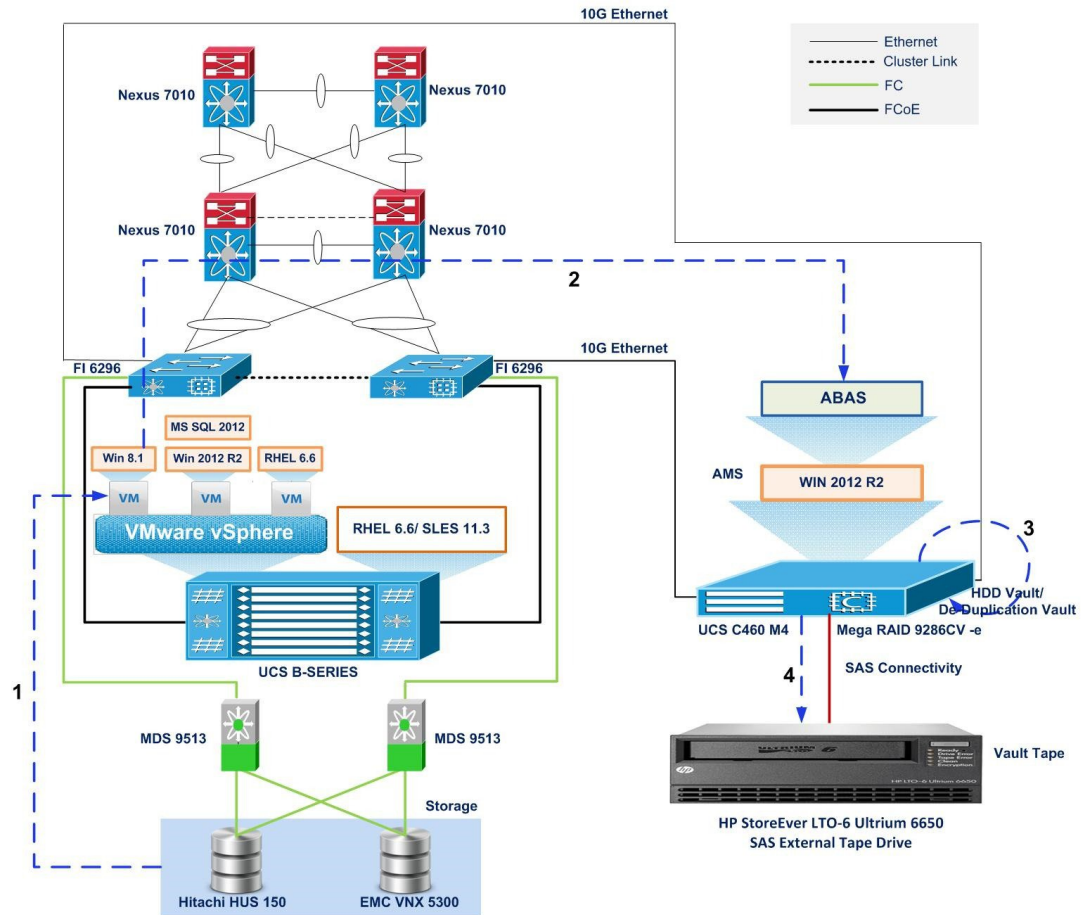| Backup data flows: | | |
|---|---|---|
| Step | From | To |
| 1 | Disk Array (Hitachi HUS & EMC VNX) | VM in B series SAN based server (Backup client) |
| 2 | VM in B series SAN based server (Backup client) | Acronis Management server |
| 3 | Acronis Management server | Backup Server Disk |

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| Backup data flows: | | |
| --- | --- | --- |
| Step | From | To |
| 4 | Backup Server Disk | HP StoreEver LTO-6 Ultrium 6250 |

**Description**

- Backup of data files (Word, PDF, and Excel) from Windows 8.1 Japanese Operating System to C Series Server Local HDD and then Replicate the same to HP StoreEver LTO-6 Ultrium 6250 using Acronis Backup Advanced Suite 11.5 software.

- Recover the Files either from Local HDD or HP StoreEver LTO-6 Ultrium 6250 by using various Recovery Options available on Acronis Backup Advanced Suite 11.5 Software.
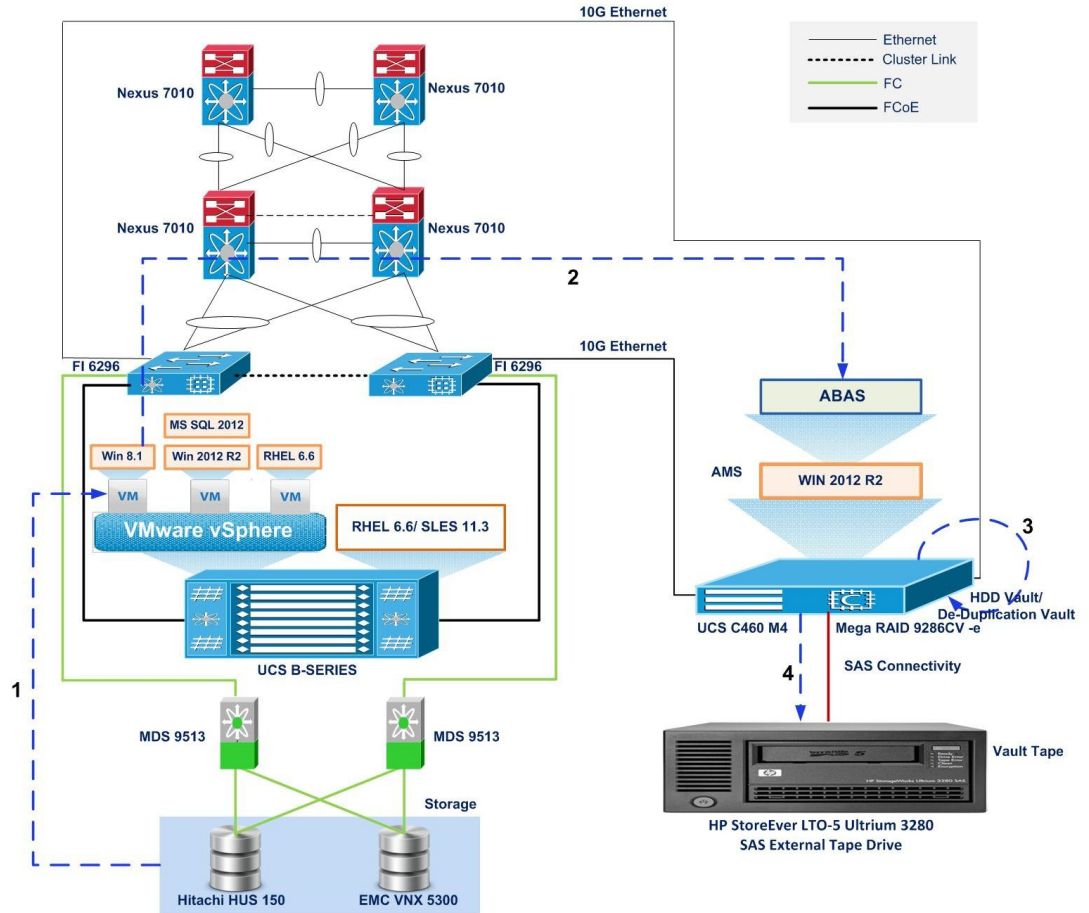
*Figure 9: Topology in Use*



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| Backup data flows: | | |
|---|---|---|
| **Step** | **From** | **To** |
| 1 | Disk Array (Hitachi HUS & EMC VNX) | VM in B series SAN based server (Backup client) |
| 2 | VM in B series SAN based server (Backup client) | Acronis Management server |
| 3 | Acronis Management server | Backup Server Disk |
| 4 | Backup Server Disk | HP StoreEver LTO-6 Ultrium 6650 |

**Description**

- Backup of data files (Word, PDF, and Excel) from Windows7 Japanese Operating System to C Series Server Local HDD and then Replicate the same to HP StoreEver LTO-6 Ultrium 6650 using Acronis Backup Advanced Suite 11.5 Software.

- Recover the Files either from Local HDD or HP StoreEver LTO-6 Ultrium 6650 by using various Recovery Options available on Acronis Backup Advanced Suite 11.5 Software.

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*Figure 10: Topology in Use*



**Backup data flows:**

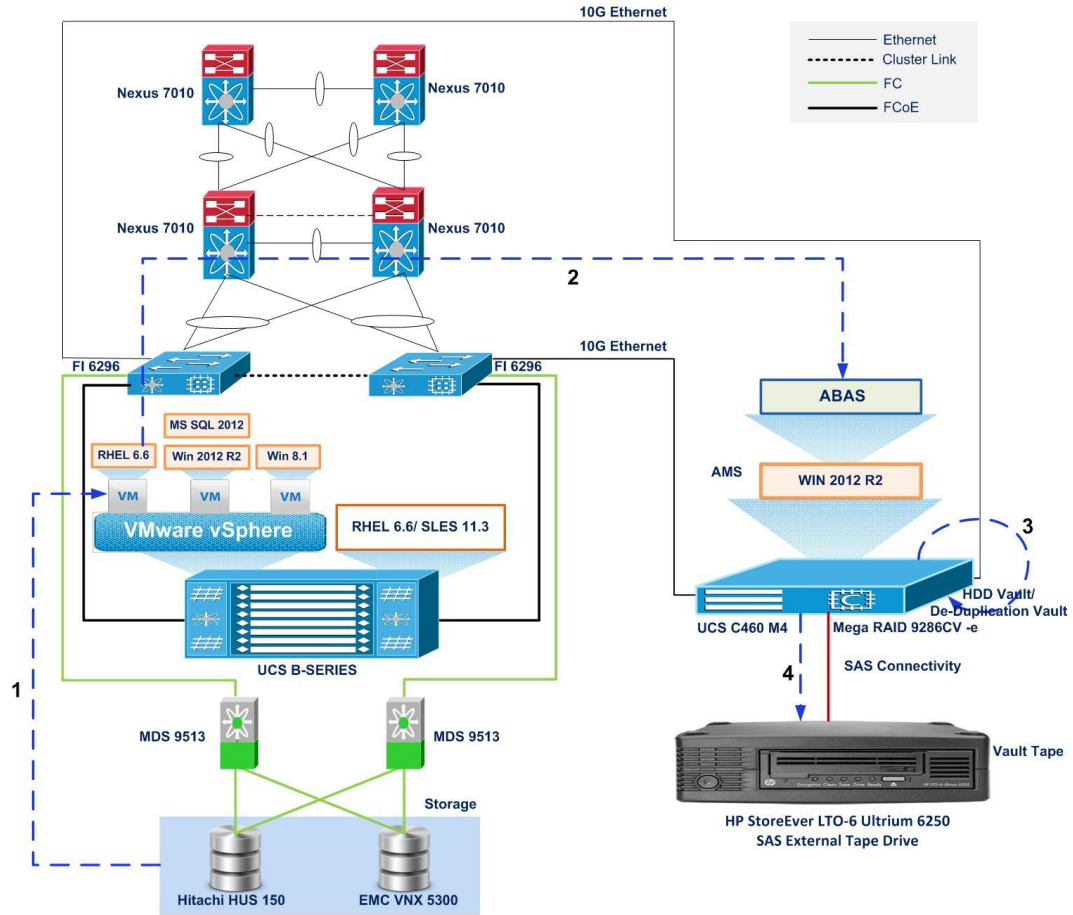| Step | From | To |
|---|---|---|
| 1 | Disk Array (Hitachi HUS & EMC VNX) | VM in B series SAN based server (Backup client) |
| 2 | VM in B series SAN based server (Backup client) | Acronis Management server |
| 3 | Acronis Management server | Backup Server Disk |
| 4 | Backup Server Disk | HP StoreEver LTO-5 Ultrium 3280 |

**Description**

- Backup of data files (Word, PDF, and Excel) from Windows7 Japanese Operating System to C Series Server Local HDD and then Replicate the same to HP StoreEver LTO-5 Ultrium 3280 using Acronis Backup Advanced Suite 11.5 Software.

• Recover the Files either from Local HDD or HP StoreEver LTO-5 Ultrium 3280 by using various
Recovery Options available on Acronis Backup Advanced Suite 11.5 Software.

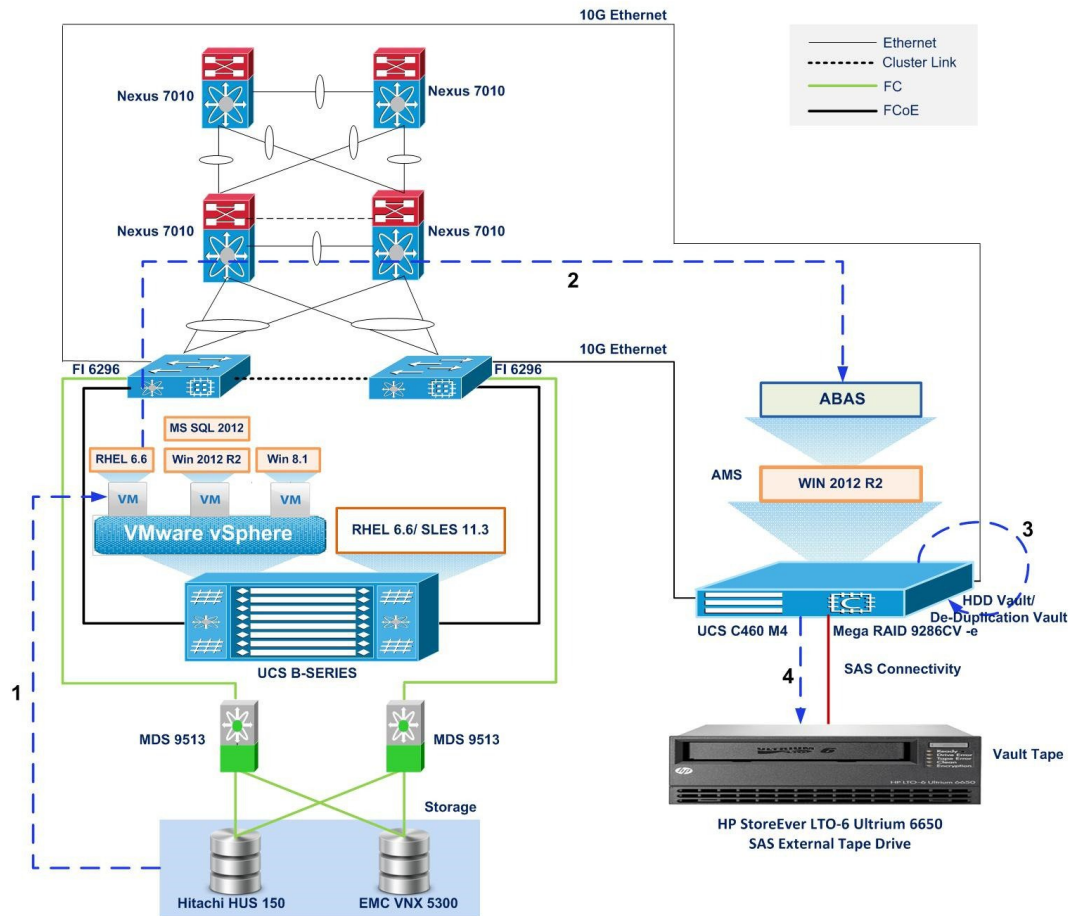# Linux File / Folders Backup

*Figure 11: Topology in Use*



| Backup data flows: | | |
|---|---|---|
| **Step** | **From** | **To** |
| 1 | Disk Array (Hitachi HUS & EMC VNX) | VM in B series SAN based server (Backup client) |
| 2 | VM in B series SAN based server (Backup client) | Acronis Management server |
| 3 | Acronis Management server | Backup Server Disk |
| 4 | Backup Server Disk | HP StoreEver LTO-6 Ultrium 6250 |

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**Description**

- Backup of data files (Word, PDF, and Excel) from RHEL 6.6 to C Series Server Local HDD and then Replicate the same to HP StoreEver LTO-6 Ultrium 6250 using Acronis Backup Advanced Suite 11.5 Software.

- Recover the Files either from Local HDD or HP StoreEver LTO-6 Ultrium 6250 by using various Recovery Options available on Acronis Backup Advanced Suite 11.5 Software.

*Figure 12: Topology in Use*



| Backup data flows: | | |
|---|---|---|
| **Step** | **From** | **To** |
| 1 | Disk Array (Hitachi HUS & EMC VNX) | VM in B series SAN based server (Backup client) |
| 2 | VM in B series SAN based server (Backup client) | Acronis Management server |

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| Backup data flows: | | |
|---|---|---|
| **Step** | **From** | **To** |
| 3 | Acronis Management server | Backup Server Disk |
| 4 | Backup Server Disk | HP StoreEver LTO-6 Ultrium 6650 |

**Description**

- Backup of data files (Word, PDF, and Excel) from RHEL 6.6 to C Series Server Local HDD and then Replicate the same to HP StoreEver LTO-6 Ultrium 6650 using Acronis Backup Advanced Suite 11.5 Software.

- Recover the Files either from Local HDD or HP StoreEver LTO-6 Ultrium 6650 by using various Recovery Options available on Acronis Backup Advanced Suite 11.5 Software.
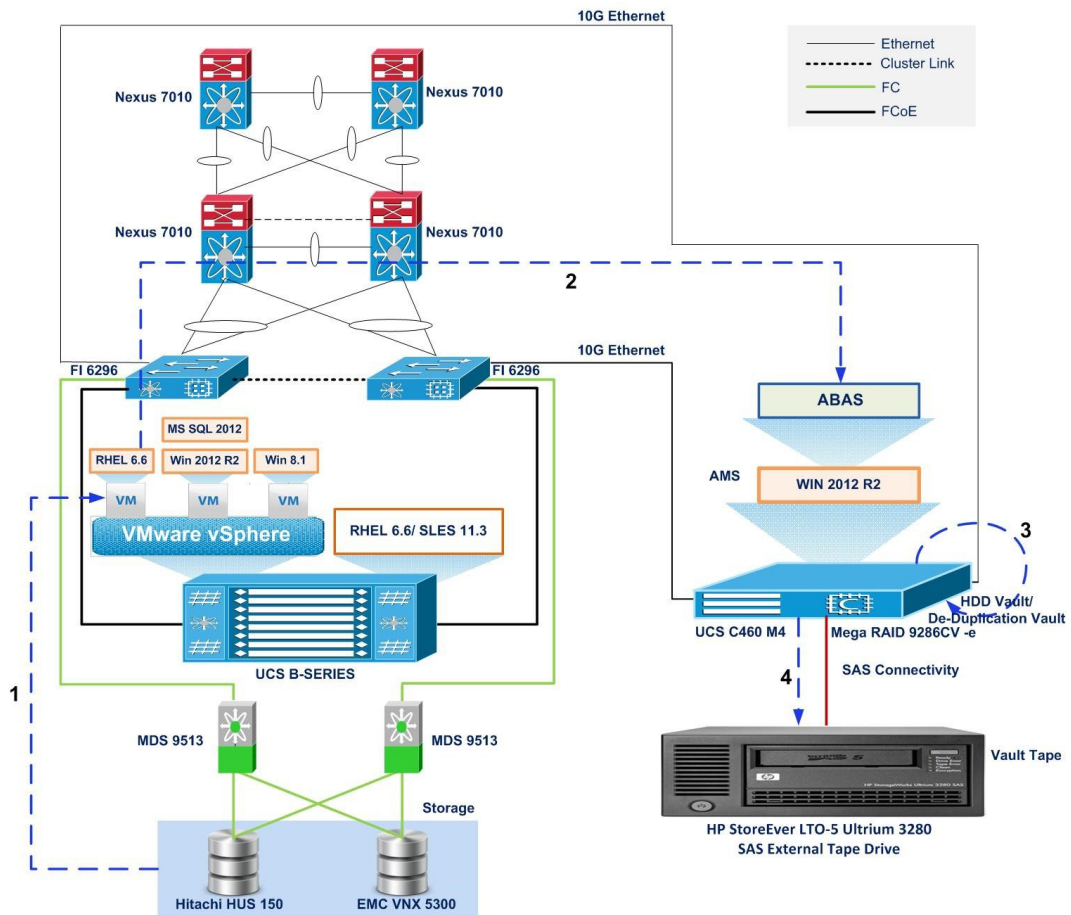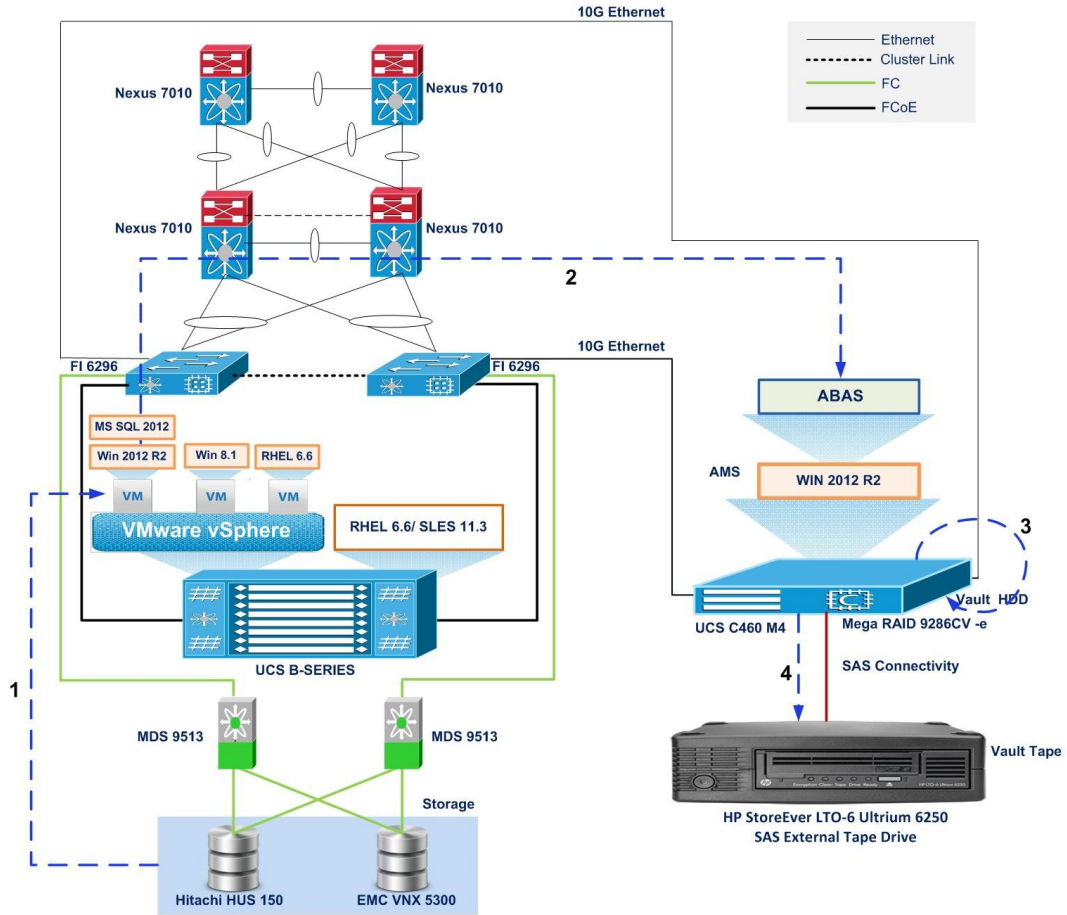
**Figure 13: Topology in Use**

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| Backup data flows: | | |
| --- | --- | --- |
| **Step** | **From** | **To** |
| 1 | Disk Array (Hitachi HUS & EMC VNX) | VM in B series SAN based server (Backup client) |
| 2 | VM in B series SAN based server (Backup client) | Acronis Management server |
| 3 | Acronis Management server | Backup Server Disk |
| 4 | Backup Server Disk | HP StoreEver LTO-5 Ultrium 3280 |

**Description**

- Backup of data files (Word, PDF, and Excel) from RHEL 6.6 to C Series Server Local HDD and then Replicate the same to HP StoreEver LTO-5 Ultrium 3280 using Acronis Backup Advanced Suite 11.5 Software.

- Recover the Files either from Local HDD or HP StoreEver LTO-5 Ultrium 3280 by using various Recovery Options available on Acronis Backup Advanced Suite 11.5 Software.
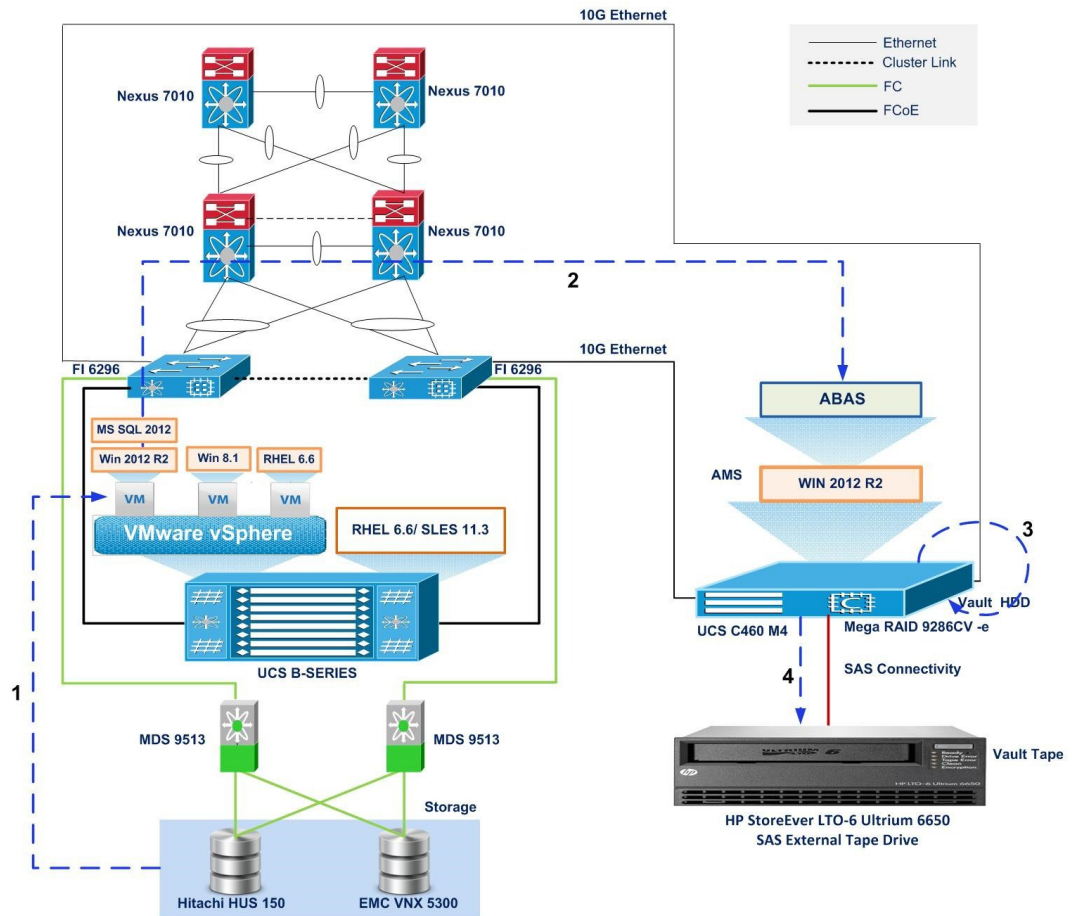
# SQL Backup

*Figure 14: Topology in Use*



| **Backup data flows:** | | |
|---|---|---|
| Step | From | To |
| 1 | Disk Array (HUS & EMC) | SQL in B series SAN based server (Backup client) |
| 2 | SQL in B series SAN based server (Backup client) | Acronis Management server |
| 3 | Acronis Management server | Backup Server Disk |
| 4 | Backup Server Disk | HP StoreEver LTO-6 Ultrium 6250 |

**Description**

■ **Backup Solution Testing on UCS B-Series Server for Small-Medium Range Customers (Disk to Tape) – Acronis Backup Advanced Suite 11.5**

**28**

- Backup SQL Database using Acronis Single-Pass Backup for taking the Database on Windows Server 2012 R2 to C Series Server Local HDD and then Replicate the Database to HP StoreEver LTO-6 Ultrium 6250

- Recover the Database either from Local HDD or HP StoreEver LTO-6 Ultrium 6250 by using various Recovery Options available on Acronis Backup Advanced Suite 11.5 Software

*Figure 15: Topology in Use*



| Backup data flows: | | |
|---|---|---|
| Step | From | To |
| 1 | Disk Array (HUS & EMC) | SQL in B series SAN based server (Backup client) |
| 2 | SQL in B series SAN based server (Backup client) | Acronis Management server |
| 3 | Acronis Management server | Backup Server Disk |
| 4 | Backup Server Disk | HP StoreEver LTO-6 Ultrium 6650 |

**Backup Solution Testing on UCS B-Series Server for Small-Medium Range Customers (Disk to Tape) – Acronis Backup Advanced Suite 11.5**

**29**

**Description**

- Backup SQL Database using Acronis Single-Pass Backup for taking the Database on Windows Server 2012 R2 to C Series Server Local HDD and then Replicate the Database to HP StoreEver LTO-6 Ultrium 6650

- Recover the Database either from Local HDD or HP StoreEver LTO-6 Ultrium 6650 by using various Recovery Options available on Acronis Backup Advanced Suite 11.5 Software.
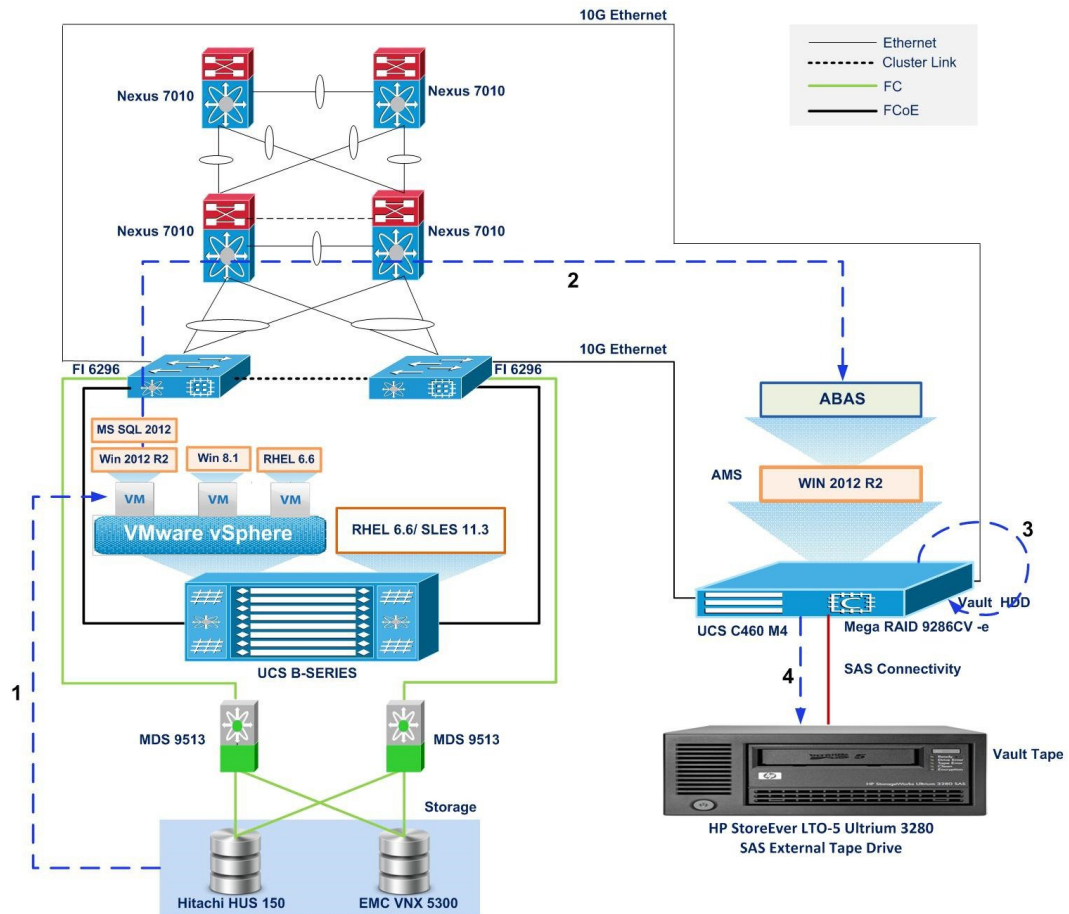
*Figure 16: Topology in Use*



| Backup data flows: | | |
|---|---|---|
| Step | From | To |
| 1 | Disk Array (HUS & EMC) | SQL in B series SAN based server (Backup client) |
| 2 | SQL in B series SAN based server (Backup client) | Acronis Management server |
| 3 | Acronis Management server | Backup Server Disk |

**Backup Solution Testing on UCS B-Series Server for Small-Medium Range Customers (Disk to Tape) – Acronis Backup Advanced Suite 11.5**

**30**

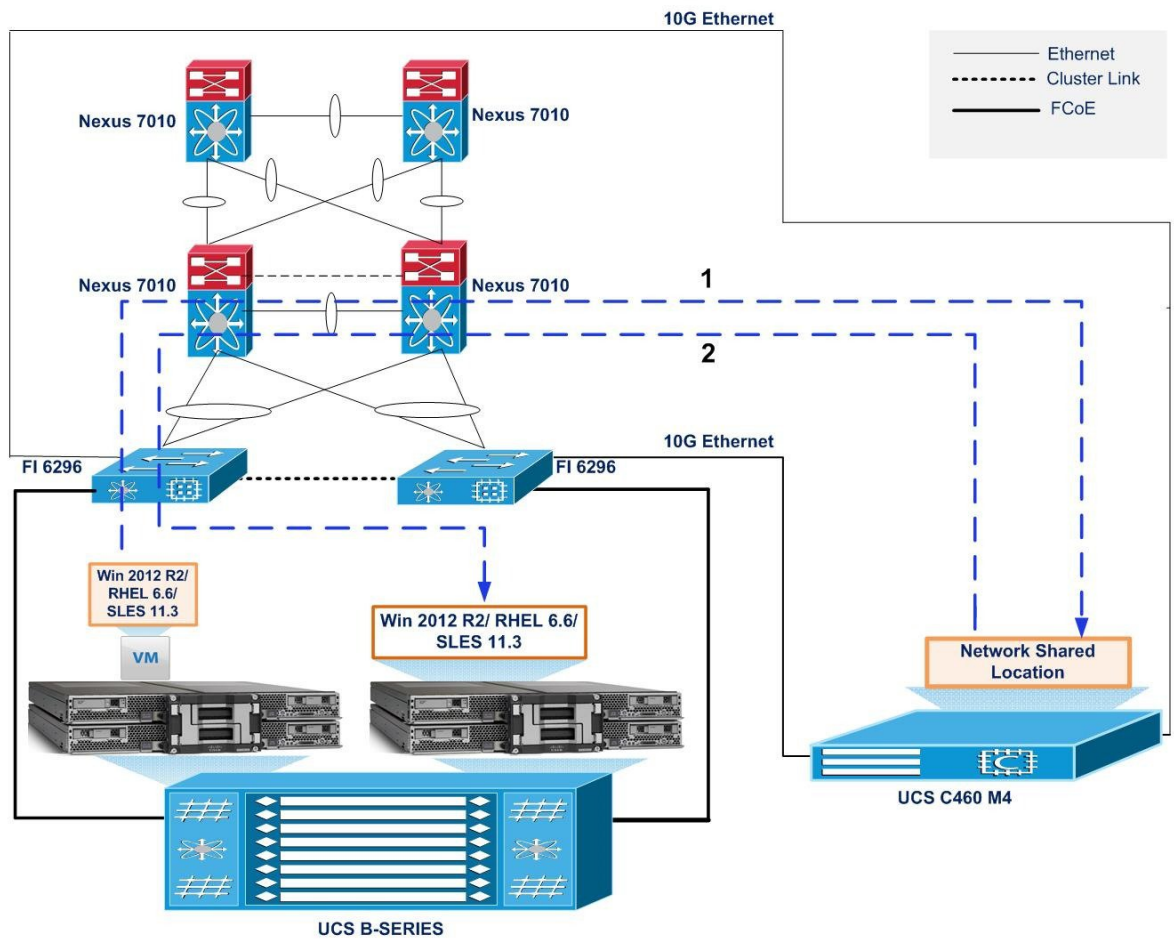| Backup data flows: | | |
|---|---|---|
| 4 | Backup Server Disk | HP StoreEver LTO-5 Ultrium3280 |

**Description**

- Backup SQL Database using Acronis Single-Pass Backup for taking the Database on Windows Server 2012 R2 to C Series Server Local HDD and then Replicate the Database to HP StoreEver LTO-5 Ultrium 3280

- Recover the Database either from Local HDD or HP StoreEver LTO-5 Ultrium 3280 by using various Recover Option available on Acronis Advanced Backup and Recovery 11.5
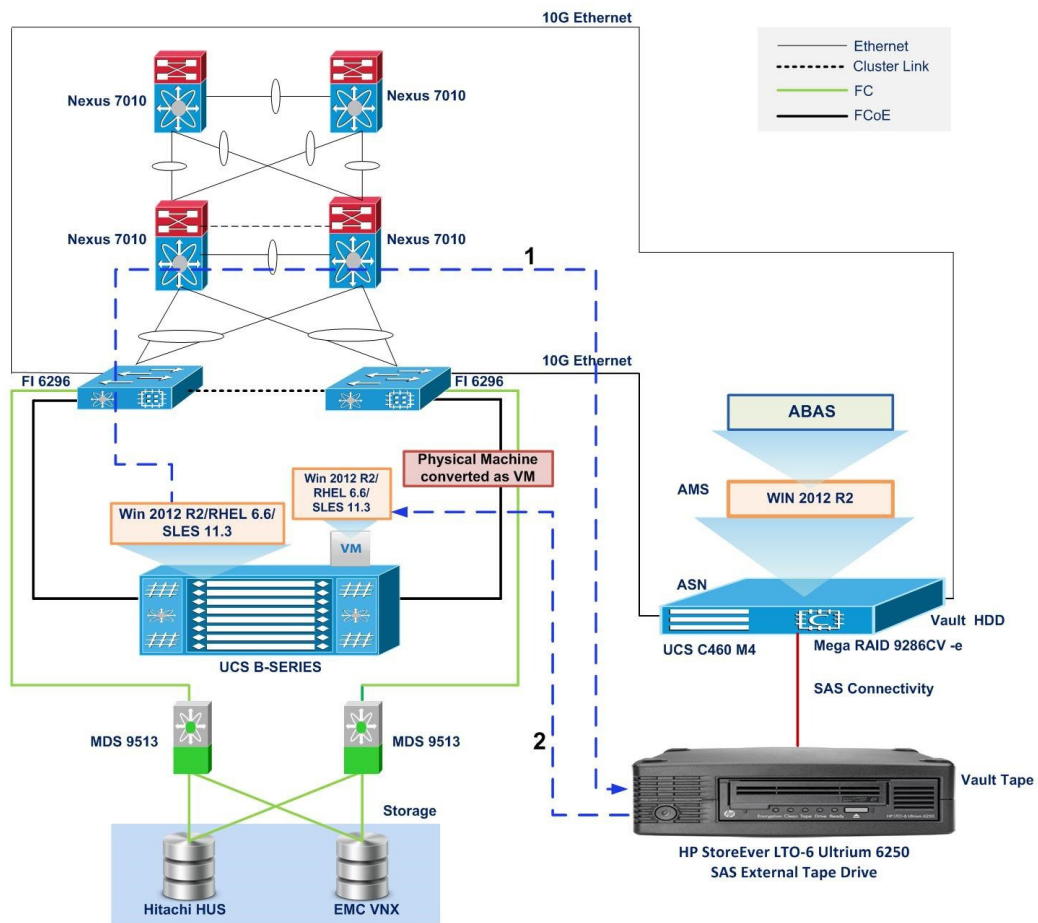
# V2P

**Figure 17: Topology in Use**

**Backup Solution Testing on UCS B-Series Server for Small-Medium Range Customers (Disk to Tape) – Acronis Backup Advanced Suite 11.5**

**31**

| Backup data flows: | | |
|---|---|---|
| Step | From | To |
| 1 | Disk Array | Network Share |
| 2 | Network Share | Converted as Physical Machine and Restored to B460 M4 baremetal. |

### Description

- Backup a Virtual Machine to Network share and while restoring convert the same to Physical machine on B460 M4 server baremetal using Acronis Backup Advanced Suite 11.5 Software.

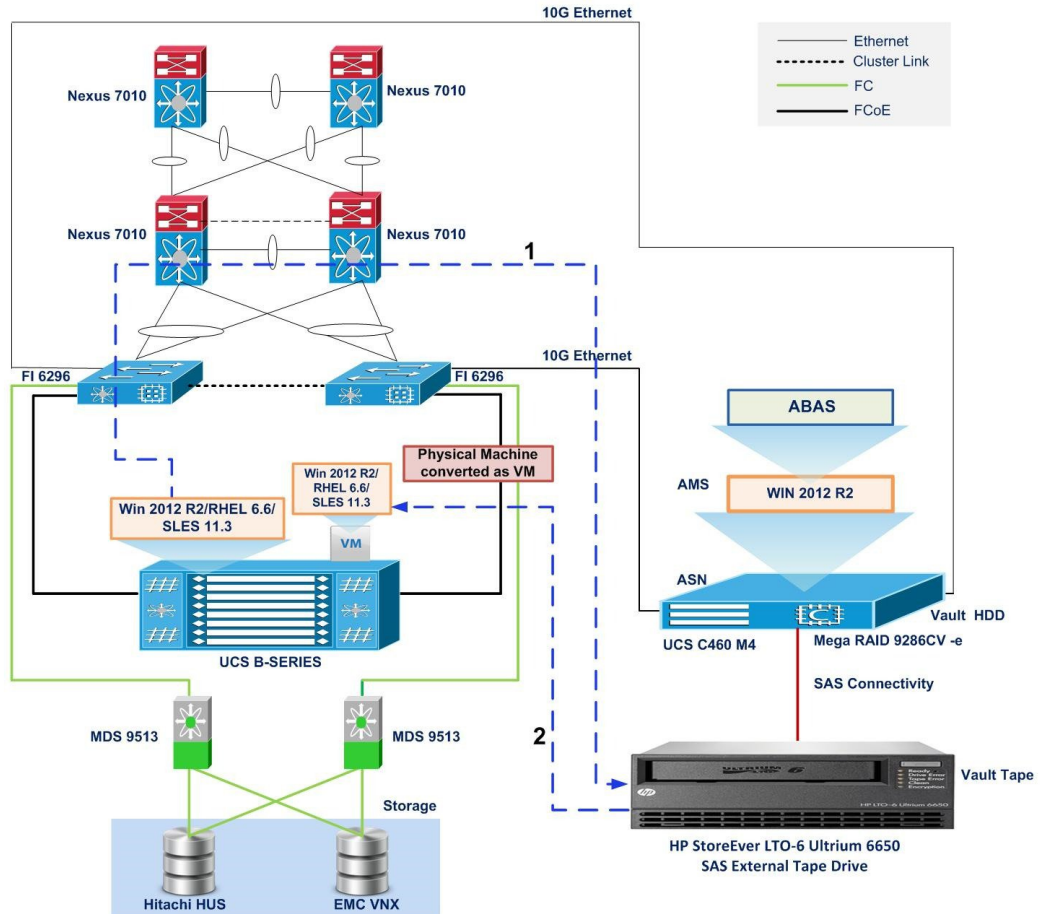# Open Issue (P2V)

*Figure 18: Topology in Use*

**Backup Solution Testing on UCS B-Series Server for Small-Medium Range Customers (Disk to Tape) – Acronis Backup Advanced Suite 11.5**

**32**

| Backup data flows: | | |
| --- | --- | --- |
| **Step** | **From** | **To** |
| 1 | Bare Metal Windows 2012 R2 server/ RHEL 6.6 server ( Backup Client ) | HP StoreEver LTO-6 Ultrium 6250 |
| 2 | HP StoreEver LTO-6 Ultrium 6250 | Converted as VM and Restored in an ESXi Host |

**Description**

- Backup a physical server to HP StoreEver LTO-6 Ultrium 6250 and while restoring convert the same to Virtual machine using Acronis Backup Advanced Suite 11.5 Software.

*Figure 19: Topology in Use*



**Backup Solution Testing on UCS B-Series Server for Small-Medium Range Customers (Disk to Tape) – Acronis Backup Advanced Suite 11.5**

**33**

| Backup data flows: | | |
| --- | --- | --- |
| **Step** | **From** | **To** |
| 1 | Bare Metal Windows 2012 R2 server/ RHEL 6.6 server ( Backup Client ) | HP StoreEver LTO-6 Ultrium 6650 |
| 2 | HP StoreEver LTO-6 Ultrium 6650 | Converted as VM and Restored in an ESXi Host |

### Description

- Backup a physical server to HP StoreEver LTO-6 Ultrium 6650 and while restoring convert the same to Virtual machine using Acronis Backup Advanced Suite 11.5 Software.
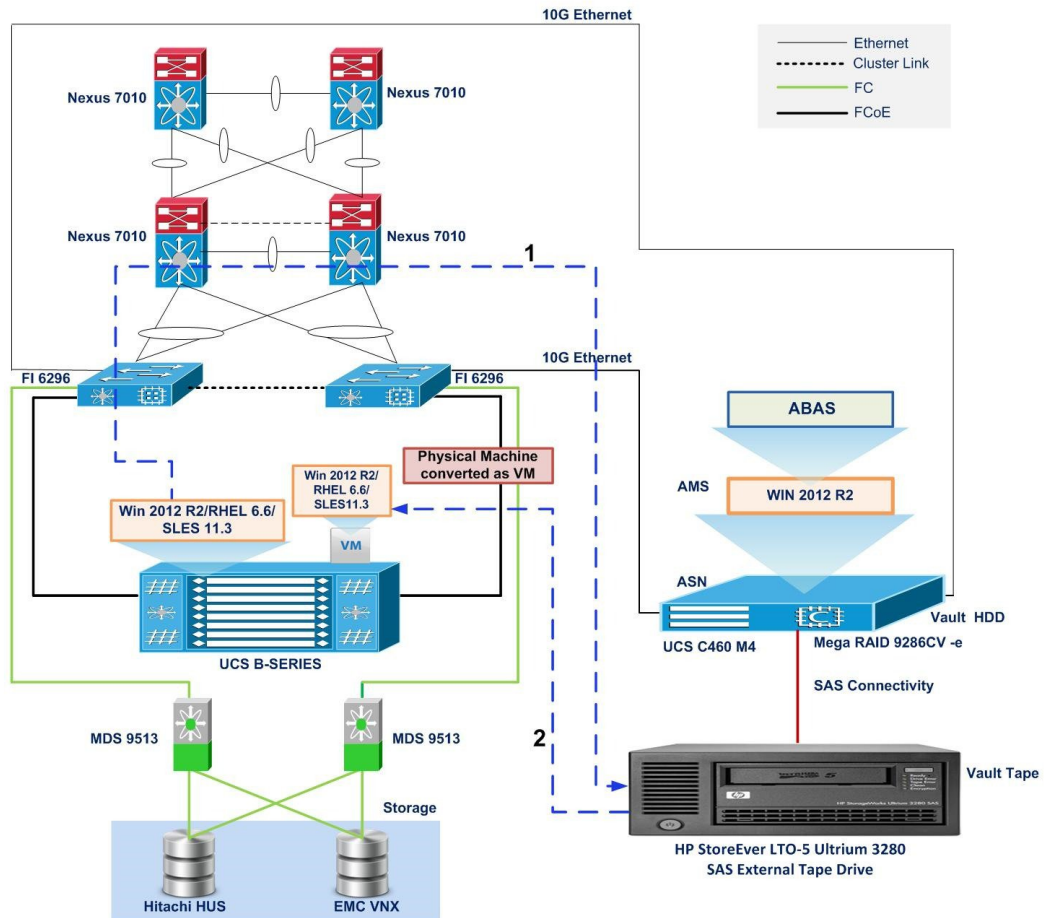
*Figure 20: Topology in Use*

**Backup Solution Testing on UCS B-Series Server for Small-Medium Range Customers (Disk to Tape) – Acronis Backup Advanced Suite 11.5**

**34**

| Backup data flows: | | |
|---|---|---|
| **Step** | **From** | **To** |
| 1 | Bare Metal Windows 2012 R2 server/ RHEL 6.6 server ( Backup Client ) | HP StoreEver LTO-5 Ultrium 3280 |
| 2 | HP StoreEver LTO-5 Ultrium 3280 | Converted as VM and Restored in an ESXi Host |

**Description**

- Backup a physical server to HP StoreEver LTO-5 Ultrium 3280 and while restoring convert the same to Virtual machine using Acronis Backup Advanced Suite 11.5 Software.

# Related Documentation

**Cisco Servers -Unified Computing**

http://www.cisco.com/en/US/products/ps10265/index.html

**LSI MegaRAID SAS 9286-8e**

http://www.lsi.com/products/storagecomponents/Pages/MegaRAIDSAS9286-8e.aspx

**Acronis Backup & Recovery 11.5 Advanced Version for Windows**

http://www.acronis.com/en-us/business/backup/windows-server/

**Acronis Backup & Recovery 11.5 Advanced Version for Linux**

http://www.acronis.com/en-us/business/backup/linux-server/

**Acronis Backup & Recovery 11.5 Advanced Version for VMware**

http://www.acronis.com/en-us/business/backup/virtual-machine/

**Acronis Backup to Cloud**

http://www.acronis.com/en-us/cloud/backup/

**Backup Solution Testing on UCS B-Series Server for Small-Medium Range Customers (Disk to Tape) – Acronis Backup Advanced Suite 11.5**

**35**

**Backup Solution Testing on UCS B-Series Server for Small-Medium Range Customers (Disk to Tape) – Acronis Backup Advanced Suite 11.5**

**36**