Veritas NetBackup on Cisco UCS S3260 Storage Server



This document provides an introduction to the process for deploying the Veritas NetBackup master server and media server on the Cisco UCS[®] S3260 Storage Server.



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Introduction

This document describes at a high level the installation and configuration steps for deploying Veritas NetBackup on the Cisco UCS S3260 Storage Rack Server to build a data protection solution. This document does not provide a detailed step-by-step guide, and not every task is documented. The document focuses on the steps that are relevant to the specific use case under discussion. To complete the deployment, you should be familiar with the following:

- Cisco Unified Computing System™ (Cisco UCS) configuration
- Microsoft Windows and Linux installation and configuration
- Veritas NetBackup configuration

Technology overview

This section introduces the technologies used in the solution described in this document.

Cisco Unified Computing System

Cisco UCS is a state-of-the-art data center platform that unites computing, network, storage access, and virtualization resources into a single cohesive system.

The main components of Cisco UCS are described here:

- **Computing:** The system is based on an entirely new class of computing system that incorporates rack-mount and blade servers using Intel[®] Xeon[®] processor CPUs. The Cisco UCS servers offer the patented Cisco[®] Extended Memory Technology to support applications with large data sets and allow more virtual machines per server.
- **Network:** The system is integrated onto a low-latency, lossless, 10- or 40-Gbps unified network fabric. This network foundation consolidates LANs, SANs, and high-performance computing (HPC) networks, which are separate networks today. The unified fabric lowers costs by reducing the number of network adapters, switches, and cables, and by decreasing the power and cooling requirements.
- Virtualization: The system unleashes the full potential of virtualization by enhancing the scalability, performance, and operational control of virtual environments. Cisco security, policy enforcement, and diagnostic features are now extended into virtualized environments to better support changing business and IT requirements.
- **Storage access:** The system provides consolidated access to both SAN storage and network-attached storage (NAS) over the unified fabric. By unifying the storage access layer, Cisco UCS can access storage over Ethernet (with Network File System [NFS] or Small Computer System Interface over IP [iSCSI]), Fibre Channel, and Fibre Channel over Ethernet (FCoE). This approach provides customers with choice for storage access and investment protection. In addition, server administrators can pre-assign storage-access policies for system connectivity to storage resources, simplifying storage connectivity and management for increased productivity.

Figure 1. Cisco UCS Manager



The Cisco UCS consists of the following components:

- <u>Cisco UCS Manager</u> provides unified, embedded management of all Cisco UCS software and hardware components (Figure 1).
- <u>Cisco UCS 6000 Series Fabric Interconnects</u> are line-rate, low-latency, lossless, 10-Gbps Ethernet and FCoE interconnect switches providing the management and communication backbone for Cisco UCS.
- <u>Cisco UCS 5100 Series Blade Server Chassis</u> supports up to eight blade servers and up to two fabric extenders in a sixrack unit (6RU) enclosure.
- <u>Cisco UCS B-Series Blade Servers</u> increase performance, efficiency, versatility, and productivity with Intel-based blade servers.
- <u>Cisco UCS C-Series Rack Servers</u> deliver unified computing in an industry-standard form factor to reduce total cost of ownership (TCO) and increase agility.
- <u>Cisco UCS S-Series Storage Servers</u> deliver unified computing in an industry-standard form factor to address dataintensive workloads with reduced TCO and increased agility.
- <u>Cisco UCS adapters</u>, with wire-once architecture, offer a range of options to converge the fabric, optimize virtualization, and simplify management.

Cisco UCS is designed to deliver:

- Reduced TCO and increased business agility
- Increased IT staff productivity through just-in-time provisioning and mobility support
- A cohesive, integrated system that unifies the technology in the data center
- Industry standards supported by a partner ecosystem of industry leaders
- Unified, embedded management for easy-to-scale infrastructure

Cisco UCS S3260 Storage Server

The Cisco UCS S3260 Storage Server (Figure 2) is a modular, high-density, high-availability dual-node rack server well suited for service providers, enterprises, and industry-specific environments. It addresses the need for dense, cost-effective storage for the ever-growing amounts of data. Designed for a new class of cloud-scale applications and data-intensive workloads, it is simple to

deploy and excellent for big data, software-defined storage, and data protection environments such as IBM Spectrum Protect and IBM Cloud Object Storage and unstructured data repositories, media streaming, and content distribution.

Figure 2. Cisco UCS S3260 Storage Server



Extending the capabilities of the Cisco UCS C3000 platform, the S3260 helps you achieve the highest levels of data availability. With a dual-node capability that is based on the Intel Xeon processor E5-2600 v4 series, it offers up to 600 terabytes (TB) of local storage in a compact 4-rack-unit (4RU) form factor. All hard-disk drives (HDDs) can be asymmetrically split between the dual nodes and are individually hot-swappable. The drives can be built in an enterprise-class Redundant Array of Independent Disks (RAID) redundant design or used in pass-through mode.

This high-density rack server easily fits in a standard 32-inch-depth rack, such as the Cisco R42610 Rack.

Cisco UCS S-Series Storage Servers can be deployed as standalone servers or as part of a Cisco UCS managed environment to take advantage of Cisco's standards-based unified computing innovations that help reduce customers' TCO and increase their business agility.

The S3260 uses a modular server architecture that, using Cisco's blade technology expertise, allows you to upgrade the computing or network nodes in the system without the need to migrate data from one system to another. It delivers:

- Dual server nodes
- Up to 36 computing cores per server node
- Up to 60 drives, mixing a large form factor (LFF) with up to 28 solid-state disk (SSD) drives plus 2 SSD SATA boot drives per server node
- Up to 512 GB of memory per server node (1 TB total)
- Support for 12-Gbps serial-attached SCSI (SAS) drives
- A system I/O controller with a Cisco UCS Virtual Interface Card (VIC) 1300 platform embedded chip supporting dual-port 40-Gbps connectivity

High reliability, availability, and serviceability (RAS) features with tool-free server nodes, system I/O controller, easy-to-use latching lid, and hot-swappable and hot-pluggable components.

Veritas NetBackup

Veritas NetBackup offers enterprise-class data protection. Recognized as the market leader in enterprise backup and recovery software for more than a decade, Veritas NetBackup is built to protect the largest and most demanding data center environments. NetBackup delivers breakthrough capabilities for virtualized and cloud-based deployments that go well beyond what traditional backup software can achieve.

- **Comprehensive:** As a single, unified solution to protect all of your data assets, NetBackup provides support for almost every popular server, storage, hypervisor, database, application, and cloud platform used in enterprises today.
- Scalable: High performance, intelligent automation, and centralized management based on a flexible, multitier architecture enables NetBackup to adapt to the growing needs of a fast-paced, modern enterprise. More information is available at https://www.veritas.com/product/backup-and-recovery/backup-benchmark.
- **Integrated:** From backup appliances to cloud storage, NetBackup integrates at every point in the technology stack to improve reliability and performance.
- **Innovative:** With hundreds of patents awarded in areas including backup, recovery, virtualization, deduplication, and snapshot management, NetBackup continues a long tradition of bringing advanced technologies to market first.
- **Proven:** For more than a decade, NetBackup has led the industry as the most popular enterprise data protection software by market share and is used by many of the largest enterprises in the world. When you need your data back, you can trust NetBackup.

Solution design and suggested configuration

Cisco UCS with Veritas NetBackup addresses the data protection needs of modern data centers. The increasing percentage of virtualized workloads, the dramatic increase in the size and amount of data, and the changes in the ways that companies do business and work with data have had an immense impact on data protection solutions. With the time requirement for backup operations reduced to minutes and recovery point objective (RPO) and recovery time objective (RTO) requirements in the range of minutes to one hour, technologies such as compression, deduplication, replication, and backup to disk are essential in every design. The features and functions provided by Veritas NetBackup, combined with the features and functions provided by Cisco UCS servers, create a powerful solution for fast backup and fast restore operations. For long retention periods and for less frequently accessed data, tape libraries or object storage on Cisco UCS S3260 Storage Servers can be used. With the combination of Cisco and Veritas technology, you can easily scale from tens of terabytes (TB) up to multiple petabytes (PB) of protected data.

Disks are now common backup media, and data backup on disk generally provides faster restore operations. Disk-based storage can be useful if you have many incremental backups and the percentage of data change is small. If the volume of data in incremental copies is insufficient to help ensure efficient writing to tape, consider disk storage. After writing the data to disk, you can use staging or storage lifecycle policies to copy batches of images to tape. This arrangement can produce faster backup operations and prevent wear and tear on your tape drives.

Consider the following factors when backing up a data set to disk or tape:

- Disks are well suited for short retention periods; tape is better suited for longer retention periods.
- Disks are well suited for staging; tape is good for long-term storage.
- Disks are better suited for low-volume incremental backups.
- Synthetic full backups are faster when incremental backup copies are stored on disk.
- Restoration from disk is usually faster than from tape.
- If client backup operations are too slow to keep the tape in motion, send the backups to disk.
- If the backups are small, send the backups to disk.
- Staging or lifecycle policies can later move the backup images to tape.

There is no "best" position in the infrastructure to install a Veritas NetBackup media server. Many different options are available regardless of how big a data center is. One option is to position the NetBackup servers in a central place in the physical network so that it can be accessed from everywhere with the required bandwidth. With this approach, the number of required NetBackup servers will be small, but the amount of network traffic will be high. Another option is to place the NetBackup servers as close as possible to the data source. With this approach, the number of NetBackup servers will be greater, but the amount of network traffic on the core network will be much less.

With most data transferred from the backup client to the server and not directly from storage, and with the unique design of Cisco UCS, the use of one NetBackup server per Cisco UCS domain will limit the required network bandwidth dramatically. This option also allows Cisco UCS Manager to manage all NetBackup servers.

Suggested hardware configurations

Based on the sizing rules for the NetBackup master server and media server components, Cisco has defined suggested configurations (Tables 1 and 2) for different scale options. The configurations for the NetBackup master server cannot be used to configure the NetBackup media server. However, the configurations for the NetBackup media server can be used to deploy a single server with both functions.

As a deployment option, the Veritas NetBackup master server can run virtualized to manage the physical NetBackup media server. The recommended approach is to use two or more NetBackup media servers per NetBackup domain.

Table 1. Suggested Cisco UCS configurations for NetBackup master server

	Cisco UCS C200 platform	Cisco UCS C200 platform	Cisco UCS B200 platform	Cisco UCS C480 platform	Cisco UCS B480 platform	Cisco UCS C880 platform
Maximum number of managed media servers	80	120	120	250	250	750
Maximum number of backup jobs per day	8000	12,000	12,000	25,000	25,000	75,000
Cisco UCS rack servers	C220 M5 and C240 M5	C220 M5 and C240 M5	B200 M5	C480 M5	B480 M5	C880 M5
СРИ	2 Intel Xeon processor 5118 (12 cores, 2.3 GHz, and 105W)	2 Intel Xeon processor 6148 (20 cores, 2.4 GHz, and 150W)	2 Intel Xeon processor 6148 (20 cores, 2.4 GHz, and 150W)	4 Intel Xeon processor 6148 (20 cores, 2.4 GHz, and 150W)	4 Intel Xeon processor 6148 (20 cores, 2.4 GHz, and 150W)	8 Intel Xeon processor 8176 (28 cores, 2.1 GHz, and 165W)
Memory	64 GB	128 GB	128 GB	256 GB	256 GB	512 GB
LOM ports	2 x 10 Gbps	2 x 10 Gbps	2 x 40 Gbps	2 x 10 Gbps	2 x 40 Gbps	2 x 40 Gbps

 Table 2.
 Suggested Cisco UCS configurations for NetBackup media server

	Cisco UCS C240 with 4 TB	Cisco UCS C240 with 6 TB	Cisco UCS S3260 with 6 TB	Cisco UCS S3260 with 10 TB
Boot disks	2 x 480-GB SSDs	2 x 480-GB SSDs	Cisco UCS S3260 with 6 TB	Cisco UCS S3260 with 10 TB
Data disks	12 x 4-TB SAS	12 x 6-TB SAS	2 x 480-GB SSDs	2 x 480-GB SSDs
Raw capacity	48 TB	72 TB	 14 x 6-TB SAS 28 x 6-TB SAS 42 x 6-TB SAS 56 x 6-TB SAS 	 14 x 10-TB SAS 28 x 10-TB SAS 42 x 10-TB SAS 56 x 10-TB SAS
Average usable capacity	36 TB	54 TB	 66 TB 132 TB 198 TB 264 TB 	 110TB 220 TB 330 TB 440 TB
Cisco UCS rack servers	C240 M5 LFF	C240 M5 LFF	S3260 M4	S3260 M4
CPU	Intel Xeon processor 5118 (12 cores, 2.3 GHz, and 105W)	Intel Xeon processor 6148 (20 cores, 2.4 GHz, and 150W)	Intel Xeon processor E5- 2650 v4 (12 cores, 2.2 GHz, and 105W)	Intel Xeon processor E5- 2695 v4 (18 cores, 2.1 GHz, and 120W)
Memory	64 GB	128 GB	256 GB	256 GB
RAID cache	1 GB	1 GB	4GB	4 GB
RAID	RAID 6	RAID 6	RAID 6 and RAID 60	RAID 6 and RAID 60
Maximum Fibre Channel ports	4 x 16 Gbps	8 x 16 Gbps	4 x 16 Gbps	4 x 16 Gbps
LOM ports	2 x 10 Gbps	2 x 40 Gbps	2 x 40 Gbps	2 x 40 Gbps

The suggested configurations based on the Cisco UCS C240 are "as-is" configurations with no option to scale within the chassis. The design is for small deployments and remote-office and branch-office (ROBO) deployments or for staging units for backup to disk and then to tape or backup to disk and then to cloud.

The suggested configuration based on the S3260 with 6- and 10-TB drives provides the option to choose 14, 28, 42, or 56 drives at the time of ordering and to scale to 56 drives later. The configuration with 6-TB drives provides better throughput per terabyte, and the configuration with 10-TB drives provides lower cost per terabyte.

NetBackup provides a data deduplication function, which requires a deduplication database. You can place the deduplication database on the same storage device as the storage unit. However, a better and more performant option is to use dedicated flash-memory storage for the deduplication database. The flash storage options for the suggested configurations are listed in Table 3.



	Cisco UCS C240 with 4 TB	Cisco UCS C240 with 6 TB	Cisco UCS S3260 with 6 TB	Cisco UCS S3260 with 10 TB
Memory	64 GB	128 GB	256 GB	256 GB
Storage for deduplication database	1 x 3.8-TB half-height, half-length NVMe	1 x 6.4-TB half-height, half-length NVMe	 1 x 3.2-TB 2.5-inch NVMe 2 x 3.2-TB 2.5- inchNVMe 3 x 3.2-TB 2.5-inch NVMe 3 x 3.2-TB 2.5-inch NVMe 	 1 x 3.2-TB 2.5-inch NVMe 2 x 3.2-TB 2.5-inch NVMe 3 x 3.2-TB 2.5-inch NVMe 3 x 3.2-TB 2.5-inch NVMe

Cisco UCS configuration

This document covers the use of the Cisco UCS S3260 Storage Server to install the Veritas NetBackup media server or master server with a media management role.

The basic steps for connecting a Cisco UCS S3260 server to a Cisco UCS domain are described in the S3260 installation guide.

Note: The design and configuration principles can be used for unmanaged installations. The Cisco Integrated Management Controller (IMC) is used for the storage and network configurations as well as for the operating system installation.

A RAID group with the two SSDs in the back of the chassis is used to install the operating system.



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Choose Storage Area > Storage Policy > Disk Group Policy. Select two slots from the range 201 to 204.

All top-loaded drives are used in one disk group policy with the RAID level RAID 6 Striped Dual Parity for 14 disks or RAID 60 Striped Dual Parity for 28, 42, or 56 disks as capacity drives.

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The logical unit numbers (LUNs) for the OS and the NetBackup disk-storage area are configured in Storage > Storage Profiles. For the OS, a LUN using all available space on the rear drives is used. You do not need to know the exact size; select Expand To Available, and the system will allocate the available space in the selected disk group.



For the NetBackup storage unit, one LUN using all available space in the RAID 6 or 60 disk group is used.





A unique feature of the Cisco UCS S3260 is the option to manage the top-loaded drives in a highly flexible way. Choose Chassis > Policies > Disk Zoning Policy. Here, all available disks are zoned for Server 1 in dedicated mode.

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Finally, the operating system of choice is installed with basic settings. The setup described in this document uses Microsoft Windows Server 2012 R2 and Red Hat Enterprise Linux (RHEL) 7.3.





Veritas NetBackup installation on Linux

This section describes the installation process on Linux.

Veritas NetBackup master server installation

NetBackup services require a Linux group and user to exist before the software installation starts. Both can be created in a command shell with the following commands:

- # groupadd nbwebgrp
- # useradd -g nbwebgrp nbwebsvc

This installation uses one partition in the RAID 6 LUN and XFS as the file system mounted under /nbu.

To install NetBackup on a Linux system, open the Netbackup_8.0_LunuxR_x86_64 DVD or directory and start ./install. Follow the instructions on the screen.

This installation is for a combined master server and media server. Therefore, you need to answer the question about installing the media manager files with y (for yes).



Enter the license key to proceed with the installation.

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root@localhost:/nbu/NetBackup_8.0_LinuxR_x86_64		÷		*
File Edit View Search Terminal Help				94
Starting the NetBackup Remote Monitoring Management System. Starting the NetBackup Key Management daemon. Starting the NetBackup Service Layer. Starting the NetBackup Indexing Manager. Starting the NetBackup Agent Request Server. Starting the NetBackup Bare Metal Restore daemon. Starting the NetBackup Web Management Console. Starting the NetBackup Vault daemon. Starting the NetBackup CloudStore Service Container. Starting the NetBackup Service Monitor. Starting the NetBackup Service Monitor. Starting the NetBackup Bare Metal Restore Boot Server daemon. Deploying Server Certificate. This may take a few minutes.				
OpsCenter is the next-generation monitoring, reporting and administrative solution designed to contrally menage one or more NetBackup installations from a web browser.				
If an OpsCenter server already exists in your environment or you plan to install one, enter the real hostname of that OpsCenter server here. Do not use a virtual name. If you do not want this local machine to be an OpsCenter server, enter NONE.				
Enter the OpsCenter server (default: NONE):				
NotBackup server installation complete.				
File /usr/openv/tmp/install_trace,18086 contains a trace of this install. That file can be deleted after you are sure the install was successful. [rost@localhost NetBackup_8.6_inuxR_x86_64]#				1
🌉 mot@localhust/nbu/NetBackup 🧕 🥹 DOCUMENTATION: Minimum Q/5 🔟 mot@localhust/nbu/NetBackup	achage		1/4	0

The installation of NetBackup is now complete.

Veritas NetBackup media server installation

To also install a NetBackup media server, the installation process differs in some steps. The process for installing a NetBackup media server on RHEL is described here.

The NetBackup services require a Linux group and user to exist before the software installation starts. Both can be created in a command shell with the following commands:

- # groupadd nbwebgrp
- # useradd -g nbwebgrp nbwebsvc

This installation uses one partition in the RAID 6 LUN and XFS as the file system mounted under /nbu.

To install NetBackup on a Linux system, open the Netbackup_8.0_LunuxR_x86_64 DVD or directory and start ./install. Follow the instructions on the screen.

This installation is for a media server only. Therefore, you need to answer the question about the master server with n (for no) and the question about installing the media manager files with y (for yes).



Applications * Places * Places *	de =	Thu 10:15	40)	0
root@nbu~media:/nbu/NetBackup_8.0_LinuxR_x86_64				×
File Edit View Search Terminal Help				
ok remote_emm: NotBackup is not installed: skipping ok be nb same host: inapplicable on linux: skipping ok unsupported platform: Passed checks for unsupported platforms. ok wsl account: Inapplicable for non - Master Server: skipping ok nbdb_ntfs_dir_symlink; inapplicable on linux: skipping ok nbdb_maintenance_space: no NBDB maintenance required on new install: skipping				
Checking for recommended system conditions				
<pre>not ok ulimit nofiles: nofiles ulimit 1024 is too low. NatBackup Master and Media Server processes may run slower if they are limited to fewer than 8000 open file descriptors. This test runs 'ulimit -n' and checks that the result is at least 8000 on NetBackup servers. See https://www.veritas.com/support/en_US/article.TECH75332 for more information. ok os_update_level: inapplicable on linux: skipping not ok semaphore limits: too low: Performance of NetBackup Master and Media Servers can be affected adversely if the system is configured with low semaphore limits. This test checks whether the current semaphore limits are set as</pre>				
recommended. See https://www.veritas.com/support/en_US/article.TECH203866 for details.				
The current SEMMNI setting is 128; at least 1024 is recommended. The current SEMMSL setting is 250; at least 300 is recommended. The current SEMMNS setting is 32000; at least 307200 is recommended. ok hotfix_auditor: NetBackup is not installed or there is no hotfix or EEB data prese check.	nt. Sk	ipping HF/EEB	Auc	litor
WARNING: One or more non-critical preinstall checks have failed.				
The NetBackup and Media Manager software is built for use on LINUX RH X86 hardware. Do you want to install NetBackup and Media Manager files? [y,n] [y] ∎				
Coot Boburnedia/abi/Net Backup			1/	4 16

Enter the license key to proceed with the installation.

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root@nbu-media:/nbu/NetBackup_8.0_LinuxR_x86_64			÷		1	ĸ
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testing: /tmp/pdde_pkg_dir 7044 Checking for SYMCpddea package Checking for VRTSpddea package Package VRTSpddea found.						
NetBackup Deduplication software is installed.						
NatBackup Deduplication is not yet configured. Checking for SYMCpddes package Checking for YMTSpddes package Checking for SYMCpddea package Checking for SYMCpddea package Extracting package VRTSpddes in /tmp/pdde_pkg_dir_7044. Package VRTSpddes extracted to /tmp/pdde_pkg_dir_7044. Installing package vRTSpddes. Package VRTSpddes installed. Running NetBackup Deduplication upgrade script (server mode) NetBackup Deduplication install finished successfully. Version now installed: Full NetBackup Deduplication installation log saved to: /var/log/puredisk/2017-06-29_1 Installing VRTSnbcfg.rpm Installation of VRTSnbcfg.rpm was successful. Check /tmp/install_VRTSnbcfg.rpm_trace.6	0:17-; 918 fr	odde-insta or details	u.ı	og		
Done executing NB.inst.						
If you ran NB,inst instead of ≪cdrom_path>/install, you m⊍st run /usr/openv/netbackup/bin/install_bp Running /usr/openv/netbackup/bin/install_bp						
A NatBackup Server or Enterprise Server license key is needed for installation to continue.						
Enter license key:						
🔟 root@nbu-media/hbu/NetBackup				111	4	2

Confirm the server name for this media server and enter the host name for the NetBackup master server.

Applications * Places *	minal T		de = Thu 10:20		H(1)	0 -
	root@nbu-media:/nbu/NetBao	ckup_8.0_LinuxR_x86_64		-		×
File Edit View Search Terminal	Help					
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DB2 extension	sion					
MS SQL Server extension	ension					
MS Exchange extens	sion					
Shared Storage Opt	tion					
Additional clients	s					
has been registered.						
ll additional keys should be Jo you want to add additional	added at this time. license keys now? [y,n] (y)	n.				
Jse /usr/openv/netbackup/bin/a to add, delete or list license	admincmd/get_license_key e keys at a later time,					
(nstalling NetBackup Enterpris	se Server version: 8.0					
If this machine will be using default (hbu-media), the name as the configured server name cluster, the virtual name shoi	a different network interfac of the preferred interface s . If this machine will be pa uld be used as the configured	e than the hould be used irt of a i server name.				
The domainname of this maching You may choose to use this dom name, or simply use "nbu-media	e appears to be "wdf02-4-dmz. mainname in your configured N a" as the configured NetBacku	local". letBackup server p server name.				
Would you like to use "nbu-me NetBackup server name of this	dia.wdf02-4-dmz.local" as the machine? [y,n] (y)	configured				
what is the fully qualified n	ame of the master server? nbu	-master.wdf02-4-dmz.local				
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Applications * Places *	minal T		de = Thu 10.21	п	10)	(1) =
	root@nhu-media/nhu/NetBar	clain 3.0 LinuxR v86 64		-		*
File Edit View Search Terminal	Help					
Successfully updated the sess:	ion cache parameters. tication daemon					
Starting the NetBackup network	k daemon.					
tarting the NetBackup client	daemon.					
Starting the NetBackup SAN CL	ient Fibre Transport daemon. prv Framework					
reating /usr/openv/tmp/sqlan	y					
Installed SQL Anywhere Version Installation completed success	n 16.0.0.2322					
	sfully					
his is not a EMM and Master :	sfully server, exiting					
This is not a EMM and Master : Starting the NetBackup Event !	sfully server, exiting Manager.					
This is not a EMM and Master : Starting the NetBackup Event I Starting the NetBackup Dedupl. Starting the NetBackup Dedupl. Starting the MetBackup compat Starting the MedBa Manager de	sfully Server, exiting Manager. ication Manager. ication Engine, ibility daemon. uice daemon processes.					
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After the installation of the NetBackup media server software is complete, open the NetBackup Administration Console. Open the Properties pane for the NetBackup master server, choose Servers > Media Servers, and click Add.

	1 1 1 1 1 1 1	N 20		Logit Activi	4 -
NBU-MASTER.wdf02-4-dmz.local (Master Server)	1 Media Server		Media Server Properties: nbu-master.wdf02-4-dmz.local	reh	2
NBU-MASTER wdf02-4-dm2.local (Master Server) Backup, Archive, and Restore Adivity Monitor	Ho Hou-master.w	Properties	Servers Defautte	Status ctera	
 NetBackup Management. Reports 		General Server	Master server:		
Policies		0 Port Ranges	nbu-master.wdf02-4-dmz.local		
Catalog		- D Timeouts	Additional Servers Media Servers		
Master Servers		- Firewall	Servers configured on the currently selected host		
The Cherth		Access Control	Add		
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		Preferred Network	Remove		
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o- Q. Credentials		B Scalable Storage			
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		4 4			
		(mark)			

Enter the name of the new NetBackup media server and click OK.

5	Media Server Properties: nbu-master.wd	f02-4-dmz.local	x
Properties	Servers		Defaults
- Servers	Master server:		
Orit Ranges	nbu-master.wdf02-4-dmz.local		
- 🖨 Media - 🞲 Timeouts	Additional Servers Media Servers		
- 🖗 Firewall	Servers configured on the currently selected host		
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- 😰 Login Banner Contigu		A	tdd to Ajl
Preferred Network			R <u>e</u> move
		i ii	1
		<u>OK</u> <u>Cancel</u> Apply	Help

Ø Veritas NetBackup™ File Edit View Actions Help 772918 Login Activity 👻
 NBU-MASTER.wd
 Properties...

 NBU-MASTER
 \$1 Configure Media Server...

 Backup. Ard
 Configure Client...

 Activity Monitor
 Configure Client...
 0 Media Servers for NBU-MASTER.wdf02-4-dmz.local (0 selected) Search. Host Operating System OS Type Host Type Version Inbu-master.wdf02-4-dmz.L. Microsoft Windows Server 8.0 kup Management torage atalog lost Properties Host Propert Master S Media Se Clients ervers e 📰 Ap oplications a and Device Manag levice Monitor yaun management
 Bare Metal Restore Management
 Logging Assistant х 5 Configure Media Server Choose the Media Server to edit properties: nbu-media.wdf02-4-dmz.local <u>0</u>K Cancel

In the main window, open the Actions menu and click Configure Media Server. Enter the media server name and click OK.

Configure the media server properties as required and click OK.

•	Media Server Properties: nbu-r	nedia.wdf02-4-dmz.local	x
Properties	Properties		Defaults
Servers	Properties	Value	
General Server General Server General Server General Firewall General Cogning	Host Operating System OS Type Host Type IP Address	nbu-media.wdf02-4-dmz.local Linux 3.10514.el7.x86_64 UNIX Media Server 172.20.0.103	
4	4		
	di	<u>OK</u> <u>C</u> ancel App	ly <u>H</u> elp

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	A ▼ # 2 9 8					Login	Activity 👻
NBU-MASTER.wdf02-4-dmz.local (Master Server)	2 Media Servers for NBU-MASTER	wdf02-4-dmiclocal (1 selected)				Search	8
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The storage units on the media server are configured in the same way as on the master server.

Veritas NetBackup installation on Microsoft Windows Server

This section describes the installation process on Microsoft Windows Server.

Veritas NetBackup master server installation

For NetBackup, the user account control settings should be disabled. Detailed documentation is available from Microsoft, but the basic process involves two steps.

The first step is in the control center.



The second step is in the Local Security Policy console.



Unallocated Primary partition

Next initialize the LUN for the NetBackup storage unit in the Disk Management console. The system described here uses the globally unique ID (GUID) partition table and the Microsoft Resilient File System (ReFS).

10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 53 59 3	< 🖓 📑 📑 🗉	3				
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= (C:)	Simple	Basic	NTFS	Healthy (B	445.61 GB	394.42 GB	89 %
CDROM (D:)	Simple	Basic	CDFS	Healthy (P	2.67 GB	0 MB	0 %
 System Rese 	rved Simple	Initialize Dick	AITEC	11 10 10	200.140	×	31 %
		Interanze Disk				~	
		You must initialize	e a disk before Lo	gical Disk Manag	er can access it.		
		Select disks:					
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		Lies the following	partition style for	the enlacted diels			
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		GPT (GUID F	Partition Table)				
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The NetBackup services require Windows group nbwebgrp and user nbwebsvc to exist before the software installation starts. The users can be local users created in the Computer Management console or domain users. The installation discussed here uses the local group and users.

The NetBackup installation process is documented in the Veritas NetBackup80_GettingStarted_Guide. The high-level steps for this installation are presented here.

On the NetBackup_8_0_Windows DVD or directory, start Brower.exe.



Run the Preinstallation Environment Checker.

Veritas Web Site	



Start the NetBackup server software installation.



🛃 Veritas NetBackup X Veritas NetBackup Installation Type Specify how you would like to install Veritas NetBackup, Welcome Install to this computer only. License Agmt $\ensuremath{\mathbb{C}}$ Install to multiple computers on your network. Install Type 🌈 Install a clustered Master Server. License Key If you choose the "Install to multiple computers on your network" option, the wizard prompts you to select from the available computers on your network. Options System Names Remote Hosts • Typical installation Clusters Perform a typical installation. Default settings will be used. . Instal Custom installation Perform a customized installation. Recommended for advanced users. Choose the settings with which NetBackup will be installed: - installation folder (currently C:\Program Files\Veritas) - service log on account and startup options - safe abort for reboot cases Technical Support Back Next Cancel VERITAS

Select "Install to this computer only" and "Typical installation." Click Next.

Enter the license key and click NetBackup Master Server.

👸 Veritas NetBackup	A REPORT OF A REPORT OF A	-	-	0	×	l
	NetBackup License Key and Server Type Enter your NetBackup license key and select the type of NetBackup installation to perform.					
Welcome License Agmt Install Type License Key Options System Names Remote Hosts Clusters Install	License Key: KNW-PBCN-WKA3-M263-6CPC-IR-4K-SOYK-Y7FF-YU6P-P License Type: NetBackup Enterprise Server Expiration Date: Monday, July 31, 2017 Image: Server Marker Server License Type: NetBackup Master Server Image: Server Antibackup Master Server is required for NetBackup to properly function. Image: Server to properly function.					
<u>Technical Support</u>						
VERITAS	<u>B</u> ack	Next		<u>C</u> anc	el	

Enter the password specified earlier for the nbwebsvc user.

🛃 Veritas NetBackup				
	NetBackup Web Specify NetBacku	ervices web service user account information.		
Welcome License Agmt	Contraction The back	NetBackup Master Server includes an active web server to suppo up operations. This web server operates under the user and gro unts that are provided below.	rt critical Nup	
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Doptions	http	://www.veritas.com/support/en_US/article.000081350		
System Names Remote Hosts	What types	of accounts should we use?		
Install	C Domain (Act	e Directory)		
	What are t	e existing local account details?		
	Local Group:	nbwebgrp		
	Local User:	nbwebsvc		
Technical Support	Password:	********		
VERITAS		<u>B</u> ack <u>N</u> ex	t	<u>Cancel</u>

Click Install to start the software installation.





The NetBackup master server installation on the Cisco UCS S3260 Storage Server is now finished. The next step is to define a storage unit on the NetBackup master server or to install a NetBackup media server.

Veritas NetBackup media server installation

Here are the steps for installing a NetBackup media server on Microsoft Windows Server.

For NetBackup, the user account control settings should be disabled. Detailed documentation is available from Microsoft, but the basic process involves two steps.

The first step is in the control center.

🎎 User Accounts						-	4	<.		
e + + & Control P	Panel + All Control Panel Items + User Account	its.			~ 0 Se	erch Control Panel	,	2		
Control Panel Home	Make changes to your user accou	Int						0		
Manage your credentials										
Create a password reset disk			~	Administration						
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The second step is in the Local Security Policy console.



Next initialize the LUN for the NetBackup storage unit in the Disk Management console. The recommended approach is to use the GUID partition table and ReFS.

Volume	Layout	Type	File System	Status	Capacity	Free Spa	% Free	
- (C:) CDROM (D:) System Reserv	Simple Simple ed Simple	Basic Basic Initialize Disk You must initial Select disks:	NTFS CDFS NTCC	Healthy (B Healthy (P gical Disk Manage	445.61 GB 2.67 GB	394.42 GB 0 MB	89 % 0 % 31 %	,
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*O Disk 1 Unknown 298022.25 GB Not Initialized	298022.25 Gi Unallocated	3						



The NetBackup installation process is documented in the Veritas NetBackup80_GettingStarted_Guide. The high-level steps for this installation are presented here.

On the NetBackup_8_0_Windows DVD or directory, start Brower.exe.

This PC	> Local	Disk (C:) + repo + NetBackup_8.0_Win +					v 0	Search NetBackup_8.0_Win	,p
		Name	Date modified	Type	Size				
Cuick access		Eddoor	5/20/2017 8:21 AM	Eile Kolmer					
E Desktop	*	Bin	6/20/2017 9:21 AM	File folder					
🕹 Downloads	*	DOCs	6/20/2017-8-21 AM	File folder					
Documents	+	PC Cint	6/20/2017 8/21 AM	File folder					
Pictures	*	Prerequisites	6/20/2017 8:21 AM	File folder					
		VxValidate	6/20/2017 0:21 AM	File folder					
This PC		x64	6/20/2017 8:22 AM	File folder					
Desktop		Autorun	9/18/2016 2:59 PM	Setup Information		1 KB			
Documents		Browser	9/18/2016 2:59 FM	Application		570 KB			
- Downloads		Browser	9/18/2016 2:59 PM	Configuration sett		T KB			
Music		Readme_Client	9/18/2016 2:59 PM	Text Document		0 KE			
E Pictures		Readme_Server	9/18/2016-2:59 PM	Text Document		à KE			
Videos		SHLWAPI.DLL	9/18/2016 2:59 PM	Application extens		366 KB			
Local Disk (C:)									
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- Disc-Nepo (re)									
Network									

Run the Preinstallation Environment Checker.



Start the NetBackup server software installation.



🛃 Veritas NetBackup × Veritas NetBackup Installation Type Specify how you would like to install Veritas NetBackup. Welcome Install to this computer only. License Agmt $\ensuremath{\mathbb{C}}$ Install to multiple computers on your network. Install Type 🧭 Install a clustered Master Server License Key If you choose the "Install to multiple computers on your network" option, the wizard prompts you to select from the available computers on your network. Options System Names Remote Hosts • Typical installation Clusters Perform a typical installation. Default settings will be used. . Instal C Custom installation Perform a customized installation. Recommended for advanced users. Choose the settings with which NetBackup will be installed: * - installation folder (currently C:\Program Files\Veritas) - service log on account and startup options - safe abort for reboot cases Technical Support Back Next Cancel VERITAS

Select "Install to this computer only" and "Typical installation." Click Next.

Enter the license key and click NetBackup Media Server.



Verify that all server names are listed and add more in the Additional Servers pane if installation of more NetBackup media servers is planned or to allow access from the NetBackup Administration Console installed on another system.

遇		Veritas NetBackup		- • ×
	NetBackup System Names Enter the names of the servers in	n your environment.		
Welcome License Agmt Instal Type License Key Options System Names Remote Hosts Clusters Instal	Media Server Name: Master Server Name: Additional Servers: Enter the names of all additional NetBackup master and media servers that communicate with this machine.	ribu-media2.wdf02-4-dmz.local	× ×	
Technical Support				

Click Install to start the software installation.



	Veritas NetBackup – 🗆 🗴
Welcome License Agmt Install Type License Key Options System Names Remote Hosts Clusters Instal	Installation Complete Veritas NetBackup was installed successfully. Please review the log file for details.
Technical Support	T Launch NetBackup Administration Console now.
VERITAS	Einish

After the installation of the NetBackup media server software is complete, open the NetBackup Administration Console. Open the Properties pane for the NetBackup master server, choose Servers > Media Servers, and click Add.

🔲 🗢 🗕 🛅 🖬 🚉 🎒 💥 🐮 🐚	•	Master Server Properties: NBU-MASTER.wdf02-4-dmz.local	×		Login Activ	vity 🔻
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- 📑 Applications	- 🕼 Timeouts		Remove			
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- Devices	- Strewall					
9- 🐺 Security Management	Clean-up					
Security Events	- 🏀 NDMP					
Access Management	- Pri VMware Access Host					
- 🐯 Vault Management	Network Settings					
- 🐼 Logging Assistant	Credential Access					
	Default Job Priorities Enterprise Vault Host					
	- R Login Banner Configu					
	- 🗿 Resource Limit					
	Throttle Bandwidth					
	Preferred Network Backient Network					
	- Lo SLP Parameters					
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	I	<u>QK</u> <u>Cancel</u> A	Apply <u>H</u> elp			
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				Alart Notifica	tion	



Enter the name of the new NetBackup media server and click OK.

In the main window, open the Actions menu and choose Configure Media Server. Enter the media server name and click OK.



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S Med	ia Server Properties: nbu-media	a2.wdf02-4-dmz.local		x				
Properties	1			Defaults				
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- General Server	Topenes	nbu-media2.wdf02-4-	imz.local					
Port Ranges Operating System	tem	Windows2012_R2 6						
Media OS Type		Windows						
Firewall IP Address		172 20 0 104						
- Logging - Access Control		112.20.0.104						
- 😨 Login Banner Configu - 😼 Network Settings								
- 🚰 Preferred Network - 🚂 Resilient Network								
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Credestiele	8							

Configure the media server properties as required and click OK.

The NetBackup media server installation on the Cisco UCS S3260 server is now finished. The next step is to define a storage unit on this system.

Storage unit configuration

This section describes the process for configuring the storage unit.

Basic disk storage unit

You use the NetBackup Administration Console to configure a storage unit.

Start the NetBackup 8.0 Administration Console from the Start menu by choosing Apps. Log on with a valid user name.



The NetBackup Administration Console opens and displays the screen with the configuration wizards.



In the selection tree at the left, choose NetBackup Management > Storage > Storage Units and select New Storage Unit.

- Enter a storage unit name and select BasicDisk as the disk type.
- Select the media server for this storage unit and enter the absolute path name to the RAID 6 LUN (in the following example, a Microsoft Windows system is shown on the left, and a Linux system is shown on the right).
- Increase the maximum concurrent jobs to 10 or more.

uluilu cisco

Storage unit name:		
Master-Disk1		
Storage unit type:		
Disk		 On demand only
Disk type:		
BasicDisk		-
Properties and Server Se	election	
Media server:		
nbu-master.wdf02-4-dm	z.local 💌	
Absolute pathname to dir	rectory:	
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CALL TANK AND A DATE	aging Area. Copy the data	to its final destination
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NBU-MASTER.wdf02-4-dmz.local (Master Server)	1 Storage Units (0	selected)						(Filter Applied [2]) disk1	X	1
NBU-MASTER.wdf02-4-dmz.local (Master Server)	Name	Media Servers	Storage Un.	. Disk Type	Robot Type Robot Num	Density	On Demand Fragme	ent S., Multiplexing Max. Conc.	L. Path	Ca
Backup, Archive, and Restore	Master-Disk1	nbu-master.wdf02-4-dmz.local	Disk	BasicDisk			No	2,000	N:N	
 NetBackup Management ► Prots Policies ♥ Policies ♥ Storage Units ♥ Media Servers ■ Storage Storage ♥ Media and Device Management 	Media-Disk1	nbu-media.wdf02-4-dmz.local	Disk	BasicDisk			No 52	4.288	/nbu/Disk1/	

Deduplication storage unit

The deduplication storage pool and storage unit are not available for every backup type or for backup jobs configured with Any Available as the policy storage. If only one media server is available, you should use BasicDisk or Advanced Disk, or configure BasicDisk and Deduplication Storage Unit on the same server.

You use the NetBackup Administration Console for this configuration.

Start the NetBackup 8.0 Administration Console from the Start menu by choosing Apps. Log on with a valid user name.

NetBackup Adm	inistration Console		14	~
Veritas	NetBackup™			
<>	You may administer NetBackup on any NetBackup login, enter the username and password for the sp NetBackup host.	host. To ecified	þ	
	NBU	_	-	
			- Line	
	User name:	_	-	
	For a Windows host, specify the domain name along with th For example, domain name/user name. Password:	e user n	are	
	Use Active Directory login credentials	<u>H</u> el	p up**	
	Copyright © 2016 Veritas Technologies LLC. All right	s reser	ved.	
	This Veritas product may contain open source and o materials that are subject to a separate license. Plet applicable Third Party Notice at	ther thir ase see	d party the	

The NetBackup Administration Console appears and displays the screen with the configuration wizards.

Click Configure Disk Storage Servers.

Select Media Server Deduplication Pool.



Select the NetBackup media server used for the deduplication pool and define the new credentials for the deduplication database.

Add Storage Server		
Provide storage serv	er aetalis.	
Select the media server core NetBackup Deduplic server.	that connects to the storage. The media serve cation Engine components and functions as th	er runs the le storage
<u>M</u> edia server:	nbu-media2.wdf02-4-dmz.local	•
S <u>t</u> orage server type:	Media Server Deduplication Pool	
Storage server name:	nbu-media2.wdf02-4-dmz.local	
Define credentials		
<u>U</u> ser name:	nbu-dedupe	
Password:		
Confirm password:	••••••	

If only one server is used as the master server and the media server, a warning appears.

5	Storage Server Configuration Wizard - NetBackup
Ţ	Warning: You have selected the master server. The deduplication engine requires significant resources, such as memory, which can have a negative impact on the master server operations. Consequently, we do not recommend configuring the master server as a deduplication storage server. Would you like to continue?
	Yes No

Specify the absolute path name for the RAID 6 LUN as the storage path.

Select "Use alternate path for deduplication database" and specify a separate path either on the same RAID 6 LUN or on the flash storage LUN.

In the following example, a Microsoft Windows system is shown on the left, and a Linux system is shown on the right.

S	torage Server Configuration Wizard	x	S	torage Server Configuration Wizard	x	
Storage Server Propert Provide storage ser	ies ver properties.	G	Storage Server Propert Provide storage ser	Storage Server Properties Provide storage server properties.		
Storage path:	N:\Disk1	27	Storage path:	/nbu/Disk1/		
Note: The location on t reside is called storag	he storage server where the deduplicated e path.	l backup images	Note: The location on t reside is called storag	ne storage server where the deduplicated backu e path.	p images	
✓ Use alternate path	for deduplication database for performan	ce optimization	Use alternate path	for deduplication database for performance optir	nization	
Deduplication data	base path: N:\DedupeDB		Deduplication data	base path: /nbu/DD-Database/	2**	
deduplication databas you can store the dedu	pication database path, by default, the six e path are the same. But if you want an op iplication database on a faster disk stora rk interface	orage pain and the timized performance, ge system.	deduplication databas you can store the dedu	maanon aaaaaase pau, sy defailit, ille storage p path are the same. But if you want an optimized plication database on a faster disk storage syste rk interface	em and the I performance, em.	
Interface;			Interface:			
Note: A NetBackup me default the Operating s connect through a spe interface.	dia server can have more than one netwo System determines which one to use. To f crific network interface, specify the netwo	rk interface and by orce NetBackup to vrk host name of that	Note: A NetBackup me default the Operating s connect through a spe interface.	dia server can have more than one network inter ystem determines which one to use. To force Ne cific network interface, specify the network host	face and by etBackup to t name of that	
Once you define them. For more	the storage server details on this screen information, click Help.	ı, you cannot modify	Once you define them. For more	the storage server details on this screen, you ca information, click Help.	annot modify	
1.000	< Back Next >	<u>Cancel H</u> elp		< <u>Back</u> <u>Next></u> <u>Cancel</u>	Help	

Select "Create a disk pool" if this option in not already selected. Then click Next.

		Ste	orage Se	erver Config	guration Wi	zard	
Storage ! Perfo	Server C rm requ	onfiguration ired tas	ation Stat k to creat	us te storage se	rver.		Ċ
Status	Creati Addin Config	ng stora g creder guring m	Perfo ige server itials for s iedia serv	rming tasks. nbu-media2 erver nbu-me er deduplicat	wdf02-4-dmz. dia2.wdf02-4- ion pool nbu-r	lo .d n	Details
4	server "	nbu-me	dia2.wdf0	12.4.dm7.loc:	ויי וק פוורראפפ	fully created	•
₹ Storage s ✔ Creat	server " e a disk	nbu-mër	dia2.wdf0	III 2-4-dmz.loca xorage serve	I" is success	fully created. a just created	•
◀ Storage s ✔ Creat	server " e a disk se to co	nbu-mei pool us mplete t	dia2.wdf0 ing the st	2-4-dmz.loca oorage serve	I" is success that you have	fully created. a just created	i i izard.

Select the storage server volume that was created by the wizard in the first step.

Volume Selection Select volumes to us Storage server: nb Storage server type: Pu Select storage server vo Volume Name Volume Name PureDiskVolu 38	e in the disk pool. nu-media2.wdf02-4 ireDisk lumes to add to th Available Space	4-dmz.local ne disk pool.	
Storage server: nb Storage server type: Pu Select storage server vo Volume Name ☑ PureDiskVolu 38	u-media2.wdf02-4 ireDisk ilumes to add to th Available Space	4-dmz.local ne disk pool.	
Volume Name	Available Space	Daw Cire	
PureDiskVolu 38		Kaw 5178	Replication
	v.o GB	382.82 GB	None
Disk Pool Size Total available space:	380.80 GB		
Total raw size:	382.82 GB		
Before selecting a vo	olume, you must ve	alidate if it is shared	I among the storage

Enter a name for the disk pool.

	Storage Server Configuration Wizard	x
Additional Disk Poo Provide addition	I Information al disk pool information.	
Storage server:	nbu-media2.wdf02-4-dmz.local	
Storage server typ	e: PureDisk	
Disk Pool Size		
Total available sp	ace: 380.80 GB	
Total raw size:	382.82 GB	
Disk Pool name: M	edia2-DD1	
_		
High <u>w</u> ater mark:	98 🗊 %	
High <u>w</u> ater mark: Low water mark:	98 - %	
High <u>w</u> ater mark: Low water mark: Maximum I/O Stre	98 3 % 80 3 %	
High water mark: Low water mark: Maximum I/O Stre Concurrent	98 1% 80 % ams read and write jobs affect disk performance.	
High water mark: Low water mark: Maximum I/O Stre Concurrent Limit I/O stream	98 1% 80 % ams read and write jobs affect disk performance. s to prevent disk overload.	
High water mark: Low water mark: Maximum I/O Stre Concurrent Limit I/O stream	ams read and write jobs affect disk performance. Is to prevent disk overload. Ims: per volume	
High water mark: Low water mark: Maximum I/O Stree Concurrent Limit I/O stream	98 % 80 % ams ** read and write jobs affect disk performance. s to prevent disk overload. Ims: per volume	

Select "Create a storage unit" if this option is not already selected. Then click Next.

	Storage Server Configuration Wizard
Disk Pool Con Perform d	figuration Status isk pool creation task.
Status	Performing tasks
Disk pool "Me ☑ Create a s	dia2-DD1" is successfully created. torage unit using the disk pool that you have just created
Click 'Close' t	o complete the disk pool configuration and close the wizard.

Enter a storage unit name, select the local server as the only media server, and increase the maximum number of concurrent jobs to 10 or more.

Otomore Harth Conselling		
Storage Unit Creation Enter details to cre	ate storage unit.	
Disk pool:	Media2-DD1	
Storage server type:	PureDisk	
Storage unit name:	Media2-DD1-stu	
Media Server		
⊖ <u>U</u> se any avai	lable media server to transport data	
Only use the	selected media servers:	
	Media Servers	
Mou-me	diaz.wdi02-4-0Hiz.iocai	
Maximum concurren	tiobs:	
Maximum concurren	t jobs: 20 size: 51200 Megabytes	
Maximum concurren	t jobs: 20 + size: 51200 Megabytes	
Maximum fragment s	t jobs: 20 . size: 51200 Megabytes	
Maximum concurren Maximum fragment s	t jobs: 20 \$	
Maximum concurren Maximum fragment s	t jobs: 20 + size: 51200 Megabytes	
Maximum concurren Maximum fragment s	t jobs: 20 + Galactical	

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NBU-MASTER.wdf02-4-dmz.local (Master Server)	4 Storage Units (0 s	elected)						(Filte	er Applied [2]) DD		7
NBU-MASTER.wdf02-4-dmz.local (Master Server)	Name	Media Servers	Storage Un.	Disk Type	Robot Type Robot Num	Density	On Demand Frage	ment S., I	Multiplexing Max. Concu	Path	Ca
Activity Monitor	DD-Pool-1-stu	nbu-media.wdf02-4-dmz.local	Disk	PureDisk			Yes	51,200			
♥ NetBackup Management ● Peptits ● Storage Units ● Storage Unit Groups ● Host Properties ● Host Properties ● Media Sarvers ● Applications ● Applications ● Applications	Media2-OD1-stu	nbu-media2.wdf02-4-dmz.local	Disk	OpenStora			Yes	51,200			

The deduplication storage unit is now configured and ready to use.



Veritas NetBackup Catalog backup policy

The NetBackup Catalog is the most important part of a NetBackup domain. It contains all the information about the configurations and the data that is backed up and where the backed-up data is located. To be able to restore the catalog in the event of a disaster or corruption of the catalog, a regular backup process is essential.

In the Configuration Wizard overview window, open Configure the Catalog Backup.



Enter an obvious name such as Catalog-Backup for the NetBackup Catalog backup policy





Change the frequency and retention level as required for your landscape.

Backup Policy Configuration	on Wizard	X
Frequency and Retention Select backup frequency and image retention period. Start a full backup every:	Retain full backups for:	
1 🗘 weeks 💌	2 weeks (Retention Level 1)	-
Start an incremental backup	Retain incremental backups for:	
By frequency, every:	2 weeks (Retention Level 1)	Ŧ
After every backup session Start a transaction log backup every:	Retain transaction log backups for	:
To configure a calendar based backup schedule NetBackup Administration Console.	; modify this policy with the Policies U	Itility in the
	< Back Next > C	ancel <u>H</u> elp

Allow NetBackup Catalog Backup to run all day.

	E	Backup Po	olicy Configuration	on Wizai	rd		x
A	2 4	6	8 10	12	14 16	18 20	22 24
	Sun Mon + + + +	+ + +	• • • • •	+ +	+ + +	+ + + + +	* * *
	Tue	+ + +	* * * *	+ +	+ + +	* * * * *	+ + -
	Thu + + + +	+ + + + + +	• + + + + • + + + +	+ +	* * *	* * * * * *	* * *
	Sat	+ + +	* * * *	+ +	+ + +	* * * * *	+ + +
	Scheduled window		User Backer	er		Custom Settin	gs
	◯ <u>O</u> ff hours		O Off hours			Day	
	O Working hours		O Working	nours			
) <u>A</u> ll day		O All day			<u>Stari</u> I	turation
	O Custó <u>m</u>		() Cusiom				
					Back	Next > Cancel	Help
	C CONT		2 custom		Back	Next > Cancel	Help

Specify a location for the Catalog Disaster Recovery file, if possible on a remote storage unit.

Backup Pol	licy Configuration Wizard	X
Catalog Disaster Recovery File Specify a file location to save the dis Path:	saster recovery information.	
H:\Catalog\	Browse	
Logon:	Password:	
the NetBackup catalog.	nerated for each catalog backup contains information needed to re	cover
Record the location of this file	e so that the NetBackup catalog can be recovered if necessary.	
	c Pack Next> Cancel	

3	NetBackup Catalog Backup Policy Create a policy to perform a catalog backup.
N	Existing catalog backup policies:
	Policy name:
	Catalog-Backup
	Existing policies can be modified from Policy Management.
	Create a new catalog backup policy

The NetBackup Catalog backup policy configuration is now complete.

Backup policy

This section discusses the processes for configuring Windows and Linux OS backup policy.

Microsoft Windows OS backup policy

In the Configuration Wizard overview window, open Create a Policy.

In the Backup Policy Configuration Wizard, select File systems, databases, applications.



Enter an obvious name such as Windows-OS for this backup policy.

6	Backup Policy Configuration Wizard
	Policy Name and Type Specify the policy name and policy type. Policy name:
	Windows-OS The policy type determines the types of clients that can be backed up by this policy or the type of backups that this policy will perform on those clients. Select the policy type:
	MS-Windows
	< Back Next> Cancel Help

Add all clients to be backed up. Currently, in this example, only the master server is available.

	Backup Policy Co	onfiguration Wizard		x
Client List List all clients in this NetBackup will back t policy. NetBackup clie server is also a client For easier manageme of work.	s policy. up these clients accord ents must be in at least for backups. ent, fill the client list wit	ing to the backup selection i one policy and can be in mo h clients that have similar co	list, schedules, and attr re than one policy. The onfigurations and perfor	butes for the NetBackup m the same type
Client Name	Hardware	Operating System	Resiliency	Add
📕 nbu	Windows-x64	Windows		Change
				Delete
4		1	Þ	
Paris I.				
		< Back	<u>N</u> ext > <u>C</u> an	cel <u>H</u> elp

Many backup selection options are available, and the best option depends on the local situation. The easiest option for protecting the Windows OS and local files is to use the ALL_LOCAL_DRIVES directive. With this setting, all drives, the repository, and other system components are backed up. To exclude application data, use the Exclude list in the client properties. Another option is to use C: and the directive Shadow Copy components:\ if Windows is always installed on drive C:.

5	Client List List all clients in this NetBackup will back i policy. NetBackup clie server is also a client For easier manageme of work.	s policy. up these clients accord ents must be in at least for backups. ent, fill the client list wit	ing to the backup selection I one policy and can be in mo h clients that have similar co	ist, schedules, and attr re than one policy. The nfigurations and perfor	ibutes for the NetBackup rm the same ty
	Client Name	Hardware	Operating System	Resiliency	Add
	📕 nbu	Windows-x64	Windows		Muum
					Change
					Deiere

Leave the backup type unchanged.



Specify the frequency and retention period as required for your landscape.

Backup Policy Confi	guration Wizard	x
Frequency and Retention Select backup frequency and image retention p	ieriod.	
Start a luji backup every:	Retain full backups for:	
1 weeks	2 weeks (Retention Level 1)	
Start an incremental backup every:	Retain incremental backups for:	
1 🗘 days 💌	2 weeks (Retention Level 1)	
Start a transaction log backup every:	Retain transaction log back <u>u</u> ps for:	
Verk-	and a (MARENDARY) aref 1).	
To configure a calendar based backup se NetBackup Administration Console.	chedule, modify this policy with the Policies Utility in th	he
	< <u>Back</u> <u>Next></u> <u>Cancel</u>	Help

Change the backup window to times that best fit your landscape.





If a deduplication storage unit is used for the backup policy, change the policy storage in the policy properties.

Samor MBI			
Server: NOU	Cliente V De Deckup Selections		
Attributes Schedules q	Clients Backup Selections		
Policy type: MS_Windows		Go into effect at: Jun 27, 2017 2:26:21 P	PM ·
- Destination		Backup network drives	
Data classification: <no o<="" td=""><td>lata classification></td><td>Cross mount points</td><td></td></no>	lata classification>	Cross mount points	
Delicu storogo	akd atu	Compress	
Policy storage:	ISK1-Stu	Encrypt	
Policy yolume pool:	iowp 💌	Collect disaster recovery information for:	
Take checkpoints even	minutas	Bare Metal Restore	
Take checkpoints every.		Collect true image restore information	
Limit jobs per policy:		L with move detection	
Job priority: 0 🗘 (hig	her number is greater priority)	Allow multiple data streams	
Media Owner:	14	Disable client-side deduplication	
Englished Client and Deplication Di	reator	Enable granular recovery	
Perform block level incrementa	i backups	Use Accelerator	
Use Replication Director		Enable optimized backup of Windows deduplicated volumes	
Perform snapshot backups	Options	Keyword phrase (optional):	
Retain snapshot for Instant R	ecovery or SLP management	Microsoft Exchange Server Attributes	
Hyper-V server:			
Perform off-host backup		Database backup source:	
Use:	+	Preferred server list.	
Machine:		(Exchange DAG only)	
		QK Cancel	Help
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Veritas NetBackup™ gat View Actions Help	All Policies NUU (Master Server) Summary of All Policies Catalog-Backup Catalog-Backup Windows-OS	QK Cancel 2 Policies (0 selected) Name Type Data Class Storage Volume Catalog, NBU-Catal	Help Login Act Pool Media Owner Checkpoint. Joos Policy Priority Active Effective Da. Co Ba. Any - 1 O Yes Jun 27, 20 up Any 0 - O Yes Jun 27, 20. No
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After the backup policy definition is complete, initiate a manual backup to see if everything works as expected.

In the Activity Monitor, you can see the progress and final status of every backup job. The configuration is successful if the backup jobs finish with a status of 0 or 1.

Ø Veritas NetBackup™															
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NBU (Master Server)	13 Jobs (0 Queued 0 Act	ove 0 Warting 1	for Retry 0 Suspen	ded 0 Inco	mplete 13 Done	1 selected						343	urch	
Backup Archive and Restore	Job	d Type	State	State Details	Status	Job Policy	Job Sched	Client	Media Server	Start Time	Elapsed Ti.	End Time	Storage Unit	Attempt	Operation
D Activity Monitor	X	15 Image Cle	Done			0				Jun 27, 20	00:00:00	Jun 27,		1	
NetBackup Management	X	14 Backup	Done			0 Windows-OS	Full	nbu	nbu	Jun 27, 20	00:04:24	Jun 27	DD-Disk1-stu	1	
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	Backup P	olicy Configuration Wizard	
(P)	Catalog Disaster Recovery File Specify a file location to save the d	isaster recovery information.	
	Path:	Browse	
	Logon:	Dassword	
	Logon.	Fussword.	
	1		
	The disaster recovery file g	enerated for each catalog backup contains information	n needed to recover
	The disaster recovery file g the NetBackup catalog.	enerated for each catalog backup contains information	n needed to recover
	The disaster recovery file growthe NetBackup catalog.	enerated for each catalog backup contains information	n needed to recover
	The disaster recovery file growthe NetBackup catalog. Record the location of this f	enerated for each catalog backup contains information ile so that the NetBackup catalog can be recovered if n	n needed to recover Necessary.
	The disaster recovery file g the NetBackup catalog. Record the location of this f	enerated for each catalog backup contains information Tile so that the NetBackup catalog can be recovered if r	n needed to recover recessary.
	The disaster recovery file g the NetBackup catalog. Record the location of this f	enerated for each catalog backup contains information ile so that the NetBackup catalog can be recovered if r	n needed to recover lecessary.

Linux OS backup policy

To test your system, a backup policy is required. A Linux OS backup is required for the NetBackup hosts, so start by configuring this backup.

In the Configuration Wizard, select File systems, databases, applications.



Enter an obvious name such as Linux-OS for this backup policy.

	Backup Policy Configuration Wizard	×							
9	Policy Name and Type Specify the policy name and policy type. Policy name:								
	Linux-OS The policy type determines the types of clients that can be backed up by this policy or the type of backups this policy will perform on those clients. Select the policy type:								
	Standard	x							
	<back next=""> Cancel</back>	Help							

Add all clients to be backed up. Currently, in this example, only the master server is available.

	i i	Backup Policy Co	onfiguration Wizard		x
C.	Client List List all clients in this NetBackup will back to policy. NetBackup clie server is also a client For easier manageme of work.	s policy. Ip these clients accord Ints must be in at least for backups. ent, fill the client list wit	ing to the backup selection I one policy and can be in mo h clients that have similar cc	ist, schedules, and attri re than one policy. The l onfigurations and perfor	butes for the letBackup m the same type
	Client Name	Hardware	Operating System	Resiliency	Add
	📕 nbu	Linux	RedHat2.6.18		Chang <u>e</u>
					Delete
	1		- M	Þ	
			< <u>B</u> ack	<u>N</u> ext > <u>C</u> an	cel <u>H</u> elp

The backup selection you choose depends on the local situation. The easiest option for protecting the Linux OS and local files is to use the ALL_LOCAL_DRIVES directive. To exclude application data, use the Exclude list in the client properties.

JF.	Backup Policy Configuration Wizard	X
C.	Backup Selections Specify the files or directories to back up. The backup selection list identifies the files and directories to be backed up by scheduled back in this policy. NetBackup uses the same selection list for all clients in the policy, but all the file have to exist on all clients. This selection list is ignored by user directed backups because in those instances the user se back up.	kups for the clients s and folders do not lects the files to
	Backup Selection List	<u>A</u> dd.
	ALL_LOCAL_DRIVES	Insert
		Change
		Delete
	< Back Next> C	incel <u>H</u> elp

Leave the backup type unchanged.



Specify the frequency and retention period as required for your landscape.

Tr.	Backup Policy Confi	guration Wizard	×
	Frequency and Retention Select backup frequency and image retention p	period.	
	Start a full backup every:	Retain full backups for:	
	1 weeks	2 weeks (Retention Level 1)	
	Start an incremental backup every:	Retain incremental backups for:	
	1 🗘 days 💌	2 weeks (Retention Level 1)	
	Start a transaction log backup every:	Retain transaction log backups for:	
	week-	and a product of the second se	
	To configure a calendar based backup se NetBackup Administration Console.	chedule, modify this policy with the Policies Utility in the	
		< Back Next> Cancel	Help
-			

Change the backup window to the times that are best for you.





5 Change Policy - Linux-OS x Server: NBU-MASTER.wdf02-4-dmz.local 🖪 Attributes 🕲 Schedules 📲 Clients 📲 Backup Selections Go into effect at: Jun 29, 2017 12:07:16 PM 🗧 🧱 Policy type: Standard -Eollow NFS Destination: Cross mount points <No data classification> -Data classification: Compress Policy storage: DD-Pool-1-stu -Encrypt Policy yolume pool: Collect disaster recovery information for: Bare Metal Restore minutes Take checkpoints every: with move detection Limit jobs per policy: Job priority: 0 (higher number is greater priority) Allow multiple data streams Media Owner: Disable client-side deduplication Enable granular recovery Snapshot Client and Replication Director Use Accelerator Perform block level incremental backups Enable optimized backup of Windows deduplicated volumes Use Replication Director Keyword phrase (optional): Options.... Perform snapshot backups Microsoft Exchange Server Attributes Retain snapshol for Instant Recovery or SLP management Hyper-V server; Database backup source: Perform off-host backup Use: Preferred server list... (Exchange DAG only) Machine: OK Cancel Help

In the policy properties, select the new deduplication storage unit.

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								Log	gin Activity	vity 🔻	
NBU-MASTER.wdf02-4-dmz.local (Master Server)	All Policies	4 Policies (0 selected)						Search	1	Y	
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- Activity Monitor	- Summary of All Policies	Daily-Catalog-Back.	. NBU-Catal	-	<any></any>	CatalogBa	Any	1	0) Yes	
NetBackup Management	NetBackup Management	Windows-OS	MS-Windows	-	DD-Pool-1-stu	NetBackup	Any 0	-	C) Yes	
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After the backup policy is defined, initiate a manual backup to see if everything works as expected.

In the Activity Monitor, you can see the progress and final status of every backup job. The configuration is successful if the backup jobs finish with a status of 0 or 1.

Ø Veritas NetBackup™										
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NBU-MASTER.wdf02-4-dmz.local (Master Server)	1 123 Jobs (17 Queued 2 Activ	ve 0 Waiting	for Retry 0 Suspe	ended 0 Inc	omplete 104 Do	ine - O selecter	1)	Search	5	7
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o Storane	205 Dackup	Queued	Limit has bee		inux-05	Full	nbu-media.wdf02-4-dmz.local			luc
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- 🛃 Media Servers	377 Backup	Queued	Limit has bee	1	inux-OS	Full	nhu-media wdf02-4-dmz local			luc
e Clients	376 Backup	Queued	Limit has bee	1	inux-OS	Full	nbu-media wdf02-4-dmz local			Jun
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- Media	371 Backup	Done		01	inux-OS	Full	nbu-media.wdf02-4-dmz.local	nbu-media.wdf02-4-dmz.local	DD-Pool-1-stu	Jur
- Devices	370 Backup	Done		01	inux-OS	Full	nbu-media.wdf02-4-dmz.local	nbu-media.wdf02-4-dmz.local	DD-Pool-1-stu	Jur
🕈 🕵 Credentials	369 Backup	Done		01	inux-OS	Full	nbu-media.wdf02-4-dmz.local	nbu-media.wdf02-4-dmz.local	DD-Pool-1-stu	Jun
📑 Disk Array Hosts	368 Backup	Done		01	inux-OS	Full	nbu-media.wdf02-4-dmz.local	nbu-media.wdf02-4-dmz.local	DD-Pool-1-stu	Jun
NDMP Hosts	367 Backup	Done		01	inux-OS	Full	nbu-media.wdf02-4-dmz.local	nbu-media.wdf02-4-dmz.local	DD-Pool-1-stu	Jun
Storage Servers	X 366 Backup	Done		01	inux-OS	Full	nbu-media.wdf02-4-dmz.local	nbu-media.wdf02-4-dmz.local	DD-Pool-1-stu	Jur
- m Virtual Machine Servers	365 Backup	Active		1	inux-OS		nbu-media.wdf02-4-dmz.local	nbu-media.wdf02-4-dmz.local	DD-Pool-1-stu	Jur
- 😪 WebSocket Servers	361 Image Cleanup	Done		0						Jun
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For more information

For additional information, see the following:

- <u>Cisco UCS S3260 Storage Server</u>
- <u>Cisco UCS 6000 Series Fabric Interconnects</u>
- <u>Cisco UCS Manager</u>
- Achieve Optimal Network Throughput on the Cisco UCS S3260 Storage Server (Cisco white paper)
- Veritas NetBackup

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Printed in USA