



NETAPP TECHNICAL REPORT

NEARSTORE[®] VTL1400 HIGH-AVAILABILITY CONFIGURATION WITH SYMANTEC[®] NETBACKUP[™]

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EXECUTIVE SUMMARY

NearStore VTL configurations can be made highly available by using Symantec[®] NetBackup[™] 6.0 “storage unit groups.” If a NearStore VTL controller fails, backup jobs will utilize the next storage unit on the storage unit group list and will automatically be directed toward the surviving NearStore VTL controller for highly available data protection configurations. Operator intervention is required to bring a failed tape drive up once it has been restored to service, so storage unit groups are an important configuration option in any highly available NetBackup data protection configuration.

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1 NETBACKUP STORAGE UNIT GROUPS

NetBackup utilizes logical “storage units” to virtualize physical hardware so that NetBackup can manage which backups will go to a specific tape drive and keep all of the tape drives busy during a backup window.

NetBackup has the ability to make data protection more resilient using standard physical tape libraries by utilizing storage unit groups. Instead of pointing a backup policy toward a specific storage unit, it can be configured to use storage units in a list, with priority being given to the first storage unit on the list. If “Storage unit selection” is set to “Failover,” then the remaining storage unit(s) will be used only if the primary storage unit is down. This same storage unit group facility can also be used to increase the availability of NearStore Virtual Tape Libraries.

2 NEARSTORE VTL1400 OVERVIEW

A NearStore VTL1400 utilizes two independent controllers:

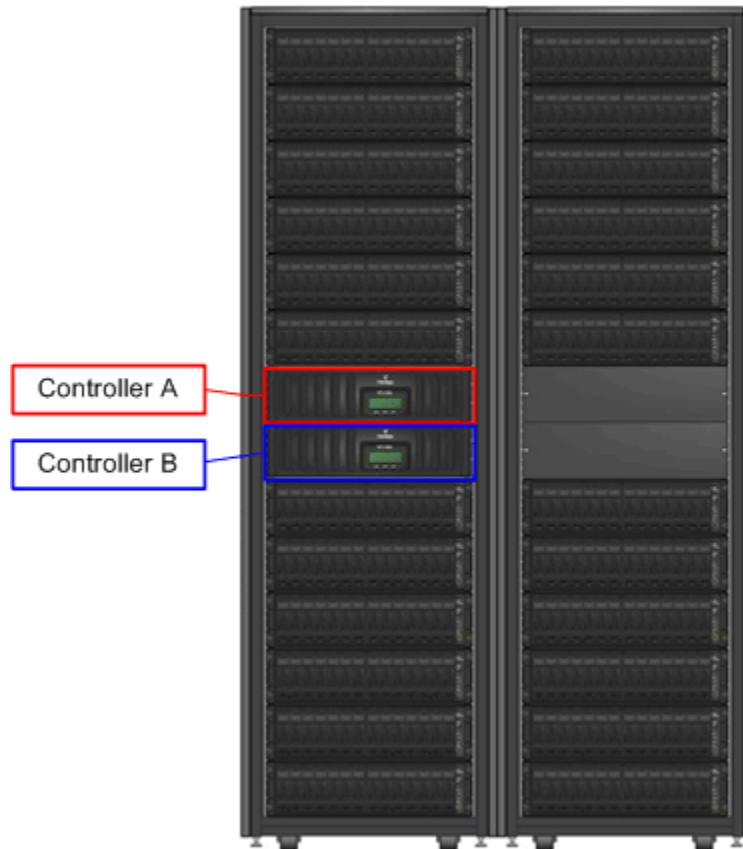


Figure 1) NearStore VTL1400 front view.¹

NetBackup storage unit groups can allow failover to the second controller should one fail, making the backup infrastructure more resilient.

¹ NearStore VTL1400 with a 24-disk shelf configuration (*in this example*).



Note: NetBackup 6.0 MP4 was used in testing failover with NetBackup storage unit groups. Please reference the [NetBackup 6.0 MP4 Release Notes](#) for details.

2.1 CONFIGURATION EXAMPLE

Figure 2 depicts a NearStore VTL1400 presenting a virtual library from each controller to a NetBackup server.

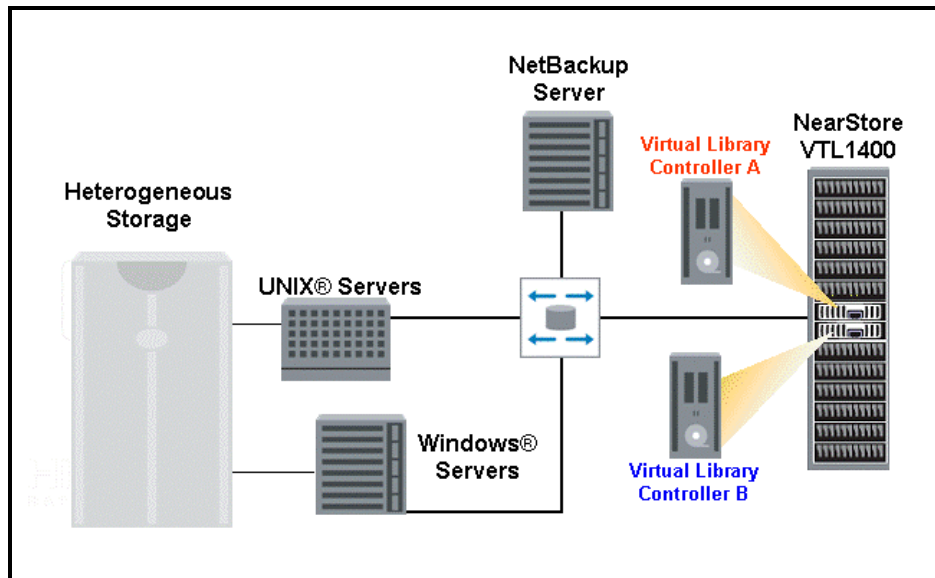


Figure 2) Example configuration conceptual diagram.

2.2 BASE STORAGE UNIT CONFIGURATION

Both virtual libraries are configured to NetBackup² as storage units “nbu01-hcart-robot-tld-0” and “nbu01-hcart-robot-tld-1” (see Figure 3).

Storage Units - nbu01 - NetBackup Administration Console

Name	Storage Unit Type	Density	Max Concurr...	Robot...	Robot N...	On Dem...
nbu01-hcart-robot-tld-0	Media Manager	hcart	2	TLD	0	No
nbu01-hcart-robot-tld-1	Media Manager	hcart	2	TLD	1	No

Figure 3) Storage unit configuration.

² As viewed from Windows OS-based NetBackup Administrative Console.

2.3 STORAGE UNIT GROUP CONFIGURATION

From the NetBackup Administration Console, expand “NetBackup Management” and then expand “Storage Units” so that “Storage Unit Groups” are displayed. Highlight “Storage Unit Groups,” then select “New Storage Unit Group.”

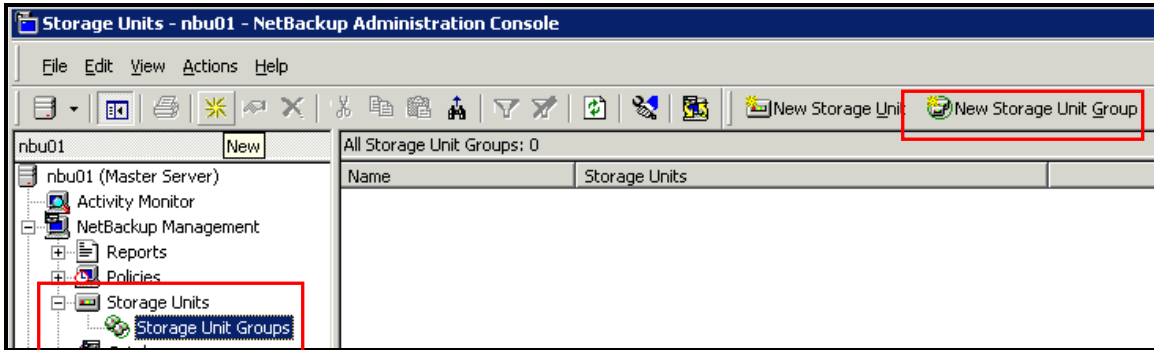


Figure 4) New storage unit group.

2.3.1 New Storage Unit Groups

The first storage unit on the list is the default, and backups will run on it unless it fails; then backups will run on the next storage unit on the list.

2.3.1.1 Storage Unit Group Setup for GroupA

Populate the blank form with the group name and add storage units in the order of use. Configure the selection criterion.

The form should look like this once configured (nbu01-hcart-robot-tld-0 has priority, and failover is the selection criterion).

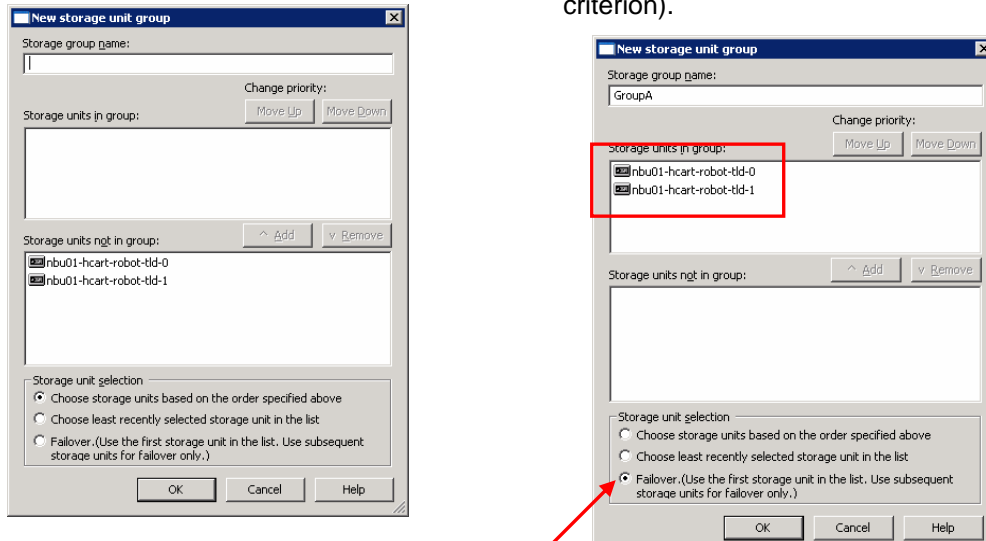


Figure 5) New storage unit group form.

2.3.1.2 Storage Unit Group Setup for GroupB

The second storage unit group will give priority to the other storage unit (“nbu01-hcart-robot-tld-1”).

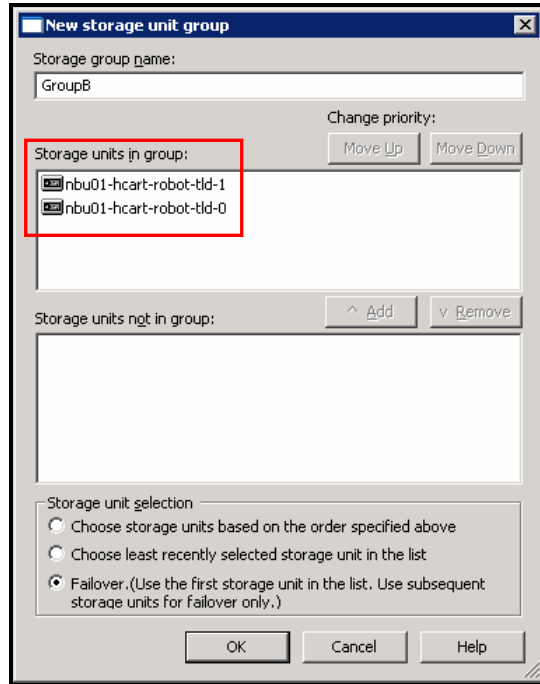


Figure 6) Storage unit group configuration for GroupB.

2.4 NETBACKUP POLICY CONFIGURATION

Change the NetBackup PolicyA to use GroupA instead of a specific storage unit. From the NetBackup Administrative Console expand “Policies” and double-click the policy that you wish to change (PolicyA in this example).

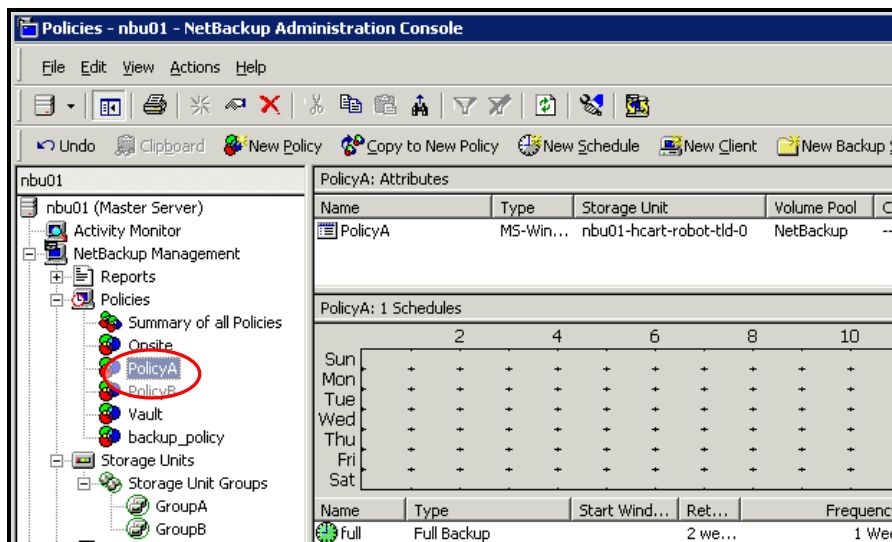


Figure 7) Change NetBackup policy.

2.4.1 Change NetBackup PolicyA to Use Policy Storage Unit GroupA

Pull down the button to the right of “Policy storage unit” and select the desired group (GroupA in this example).

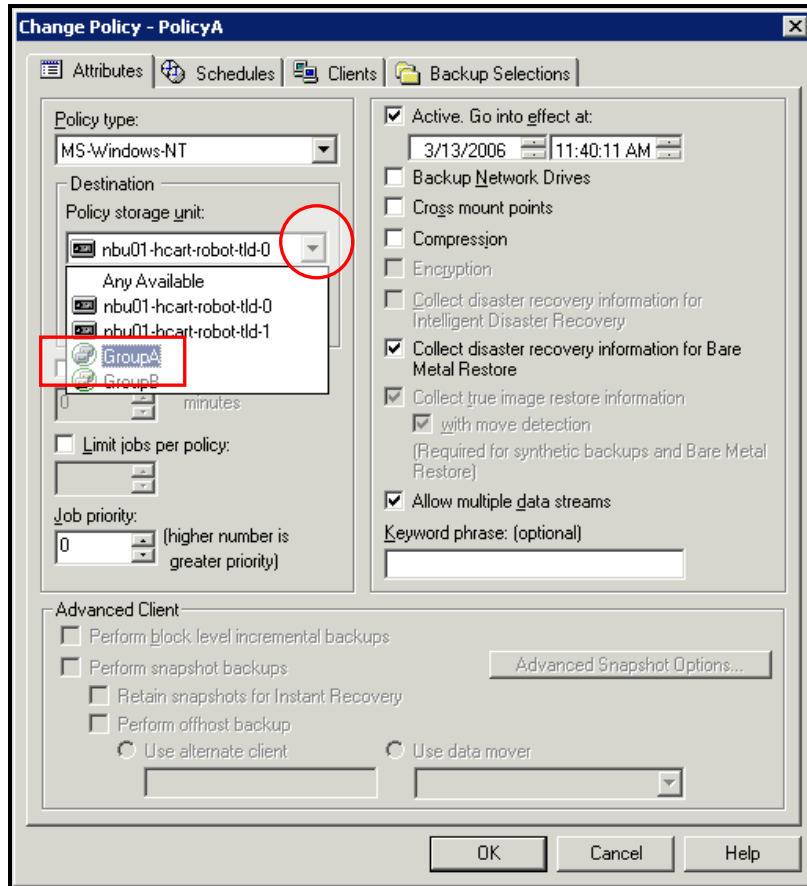


Figure 8) NetBackup PolicyA configuration.

2.4.2 Change NetBackup PolicyB to Use Storage Unit GroupB

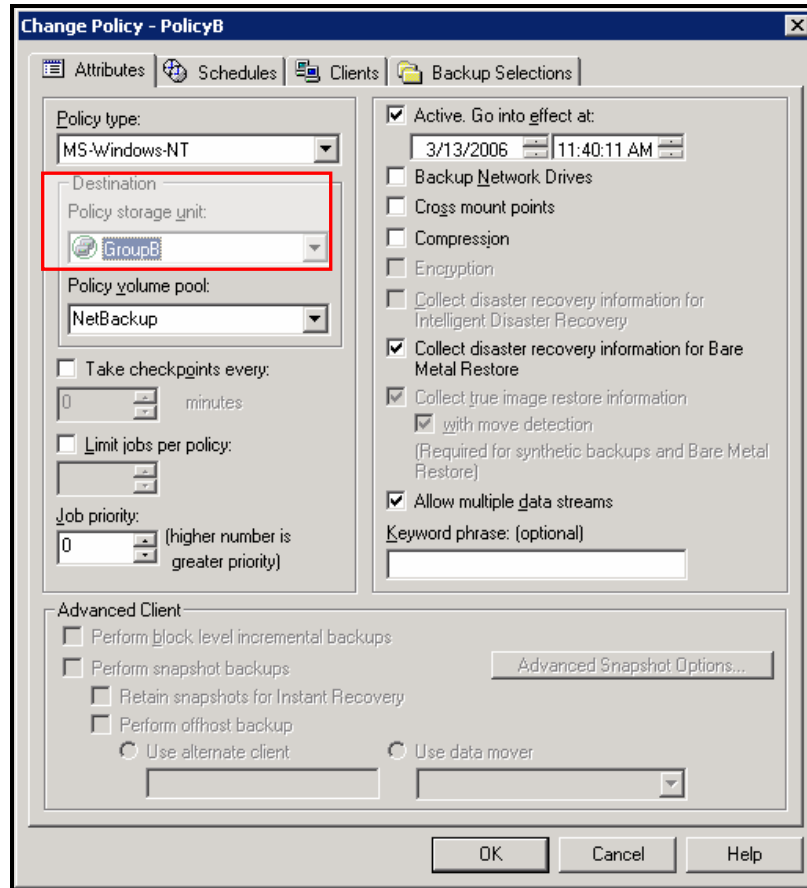


Figure 9) NetBackup PolicyB configuration.

2.4.3 Backups Configured on PolicyA Normally Run on nbu01-hcart-robot-tld-0

The screenshot displays the NetBackup Administration Console for nbu01. The left-hand navigation pane shows a tree structure with 'Policies' expanded to 'PolicyA'. The main window shows a topology diagram with 'nbu01' connected to 'TLD (0)' and 'TLD (1)'. Below the diagram, a summary bar indicates '3 Jobs (0 Queued, 3 Active, 0 Waiting for Retry, 0 Suspended, 0 Incomplete, 0 Done)'. A table below this bar lists active backup jobs for PolicyA.

Job ID	Type	Job State	Status	Policy	Sche...	Client	Storage Unit	Kilobytes	KB Per Second	Media
1031	Backup	Active		PolicyA	full	nbu01	nbu01-hcart-robot-tld-0	1680896	48832	nbu0
1030	Backup	Active		PolicyA	full	nbu01	nbu01-hcart-robot-tld-0	1981056	53050	nbu0
1029	Backup	Active		PolicyA	-	nbu01	nbu01-hcart-robot-tld-0			nbu0

Figure 10) Backups for PolicyA normally use TLD(0).

2.4.4 Backups Configured on PolicyB Normally Run on nbu01-hcart-robot-tld-1

The screenshot displays the NetBackup Administration Console for the master server nbu01. The left-hand navigation pane shows a tree structure with 'Policies' expanded to 'PolicyB'. The main window shows a topology diagram with 'nbu01' connected to two TLD nodes: 'TLD (0)' and 'TLD (1)'. Below the topology, a summary bar indicates '6 Jobs (0 Queued, 3 Active, 0 Waiting for Retry, 0 Suspended, 0 Incomplete, 3 Done)'. The job status table below shows the following data:

Job ID	Type	Job State	Status	Policy	Sche...	Client	Storage Unit	Kilobytes	KB Per Second	Media
1034	Backup	Active		PolicyB	full	nbu01	nbu01-hcart-robot-tld-1	1320704	49085	nbu0
1033	Backup	Active		PolicyB	full	nbu01	nbu01-hcart-robot-tld-1	1500800	53871	nbu0
1032	Backup	Active		PolicyB	-	nbu01	nbu01-hcart-robot-tld-1			nbu0
1031	Backup	Done	0	PolicyA	full	nbu01	nbu01-hcart-robot-tld-0	3282926	49705	nbu0
1030	Backup	Done	0	PolicyA	full	nbu01	nbu01-hcart-robot-tld-0	3278825	53273	nbu0
1029	Backup	Done	0	PolicyA	-	nbu01	nbu01-hcart-robot-tld-0			nbu0

Figure 11) Backups for PolicyB normally use TLD(1).

2.5 FAILOVER

If storage unit nbu01-hcart-robot-tld-1 is down, PolicyB will use nbu01-hcart-robot-tld-0. Alternately, if storage unit nbu01-hcart-robot-tld-0 is down, PolicyA will use nbu01-hcart-robot-tld-1.

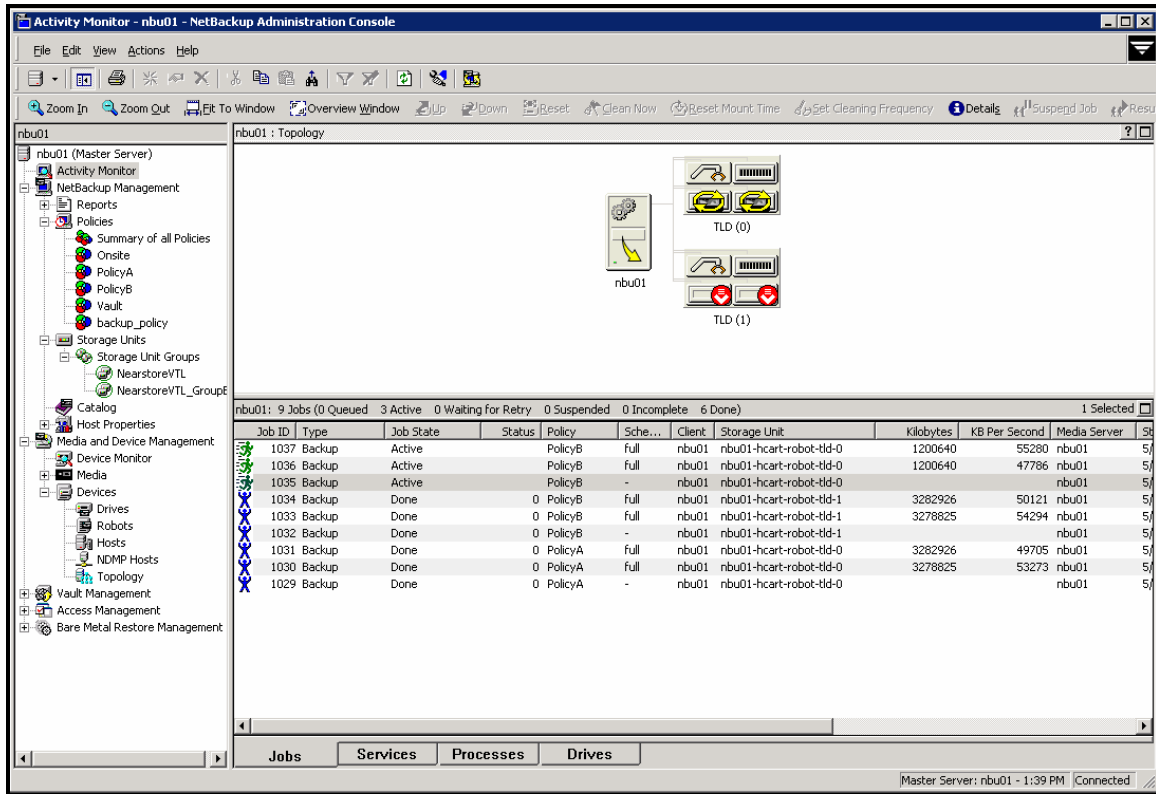


Figure 12) Failover of TLD(1) to TLD(0).

3 CAVEATS

Storage unit groups can only be used with Media Manager–type storage units (physical tape and virtual tape devices) and will not work for “on-demand only” storage units. On-demand only storage units are specifically configured in the backup policy (see pages 47 and 79 in the [VERITAS NetBackup™ 6.0 System Administrator’s Guide, Volume I](#)).

- SnapVault® and NearStore³ storage units cannot be included in storage unit groups.
- Since NDMP-based storage units are on-demand only, they cannot be used in conjunction with storage unit groups.

³ A NearStore storage unit is a disk storage unit and is different than a NearStore VTL storage unit. For more information, see page 28 in the Veritas™ NetBackup Systems Administrative Guide (see References section).

3.1 BACKUP RETRIES ARE CONFIGURABLE AS GLOBAL ATTRIBUTES UNDER MASTER SERVER HOST PROPERTIES

The number of retries for a backup is configurable in the global settings under the NetBackup master server “host properties.”

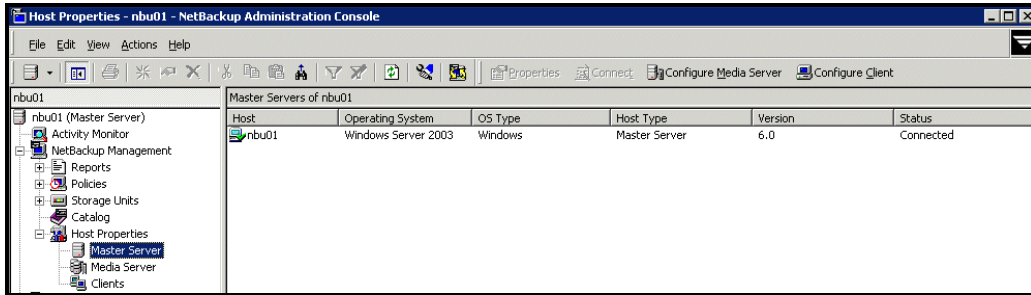


Figure 13) Master server host properties.

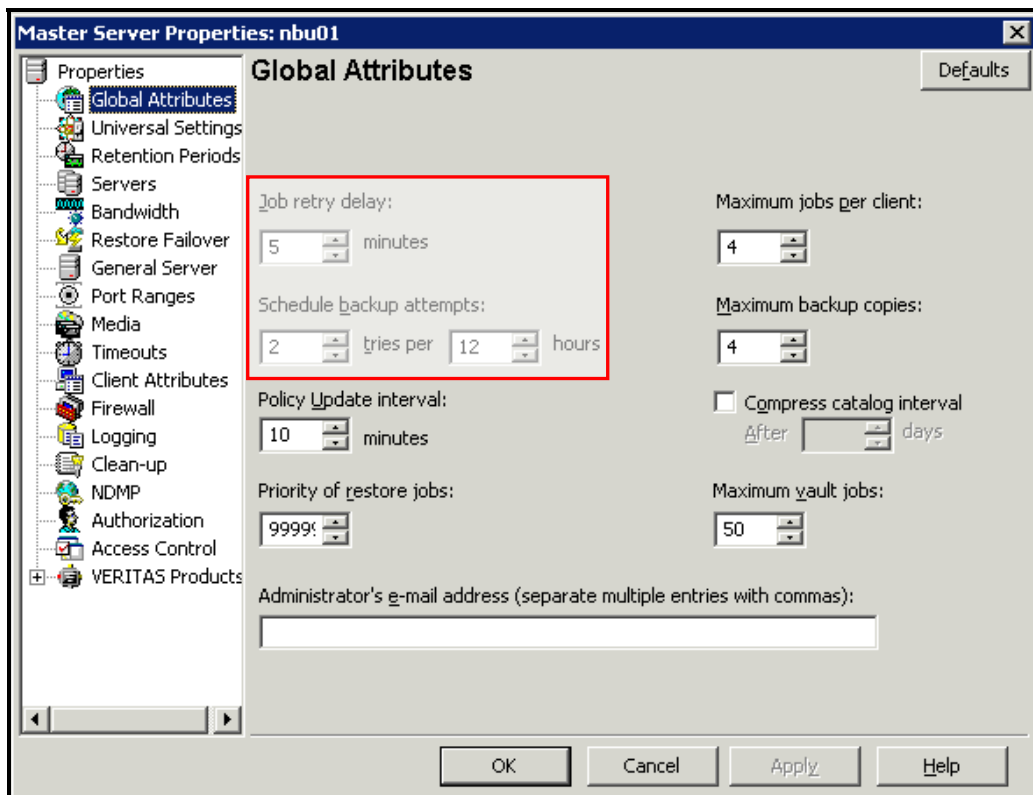


Figure 14) Host properties > global attributes.

4 CONCLUSION

NetBackup storage unit groups can make NearStore VTL controllers highly available to ensure that backups will run on retry during a backup window that typically runs unattended outside of business hours. This configuration will make NearStore VTL1400s highly available and will ensure that backups will run in the event of single NearStore VTL controller failure.

5 REFERENCES

5.1 VERITAS NETBACKUP 6.0 SYSTEMS ADMINISTRATOR'S GUIDE FOR WINDOWS, VOLUME 1

http://ftp.support.veritas.com/pub/support/products/NetBackup_Enterprise_Server/279265.pdf

5.2 NETBACKUP 6.0 MP4 RELEASE NOTES

<http://support.veritas.com/docs/285962>



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