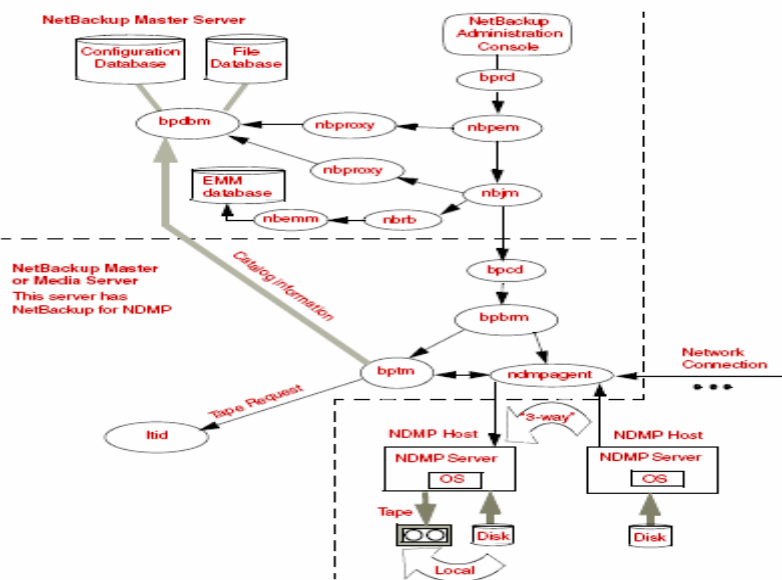
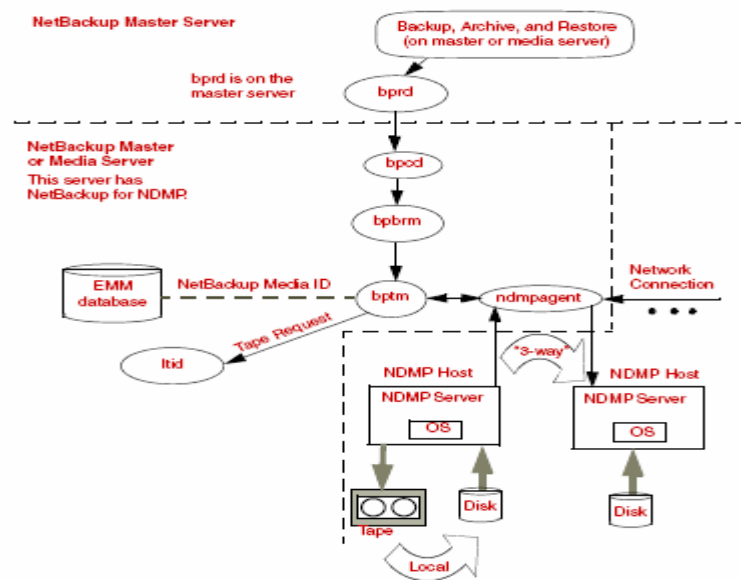


NetBackup Backup Processes.



NetBackup Restore Processes



1. From the EMM database, NetBackup obtains a media ID for the tape that will be used for the backup and sends a tape-mount request to Itid.
2. Itid on the NetBackup for NDMP server sends the NDMP (SCSI robotic) commands necessary to get the requested tape mounted on the storage device.
3. NetBackup sends the NDMP commands necessary to have the NDMP server application perform a backup to the tape. The backup data travels in one of two ways:
 - ◆ Between the local disk and tape drives on an NDMP host.
 - ◆ Over the network, from an NDMP host without its own storage device to a NDMP host (or NetBackup media server) with a locally attached storage device (three-way backup).
4. The NDMP server application sends information to the NetBackup for NDMP server about the files that were backed up. This information is stored in the NetBackup file database.
5. The NDMP server application sends status about the backup operation to the NetBackup for NDMP server.

1. The NetBackup for NDMP server looks in its EMM database for the tape that contains the backup, and asks Itid to mount that tape.
2. Itid on the NetBackup for NDMP server sends the NDMP commands necessary to get the requested tape loaded on the storage device.
3. NetBackup sends the NDMP commands necessary to have the NDMP server application perform a restore operation to the disk. The restore data travels in one of two ways:
 - ◆ From a tape drive to a local disk (tape drive and disk are on the same NDMP host)
 - ◆ Over the network, from an NDMP host (or NetBackup media server) with a locally attached storage device to another NDMP host (three-way backup/restore)
4. The NDMP server application sends status about the restore operation to the NetBackup for NDMP server.

NDMP Terminology

NDMP (Network Data Management Protocol)

Protocol through which an NDMP-conformant backup application can control the backups and restores for an NDMP host.

ndmpagent

A new NDMP Agent daemon that runs on a NetBackup Media Server and manages NDMP backups and restores.

NDMP Host

NAS system that runs an NDMP server application. In a NetBackup configuration, the NDMP host is considered a client of NetBackup. Also called a NAS filer.

NDMP Server Application

Runs on an NDMP host and executes backup, restore, and device control commands that it receives from an NDMP-conformant backup application.

NDMP Client

An NDMP-compliant backup application (also known as a Data Management Application or DMA) that is a client of an NDMP server application.

Direct Access Recovery (DAR)

Ability to restore a single file or group of files from a NetBackup NDMP backup image.

NDMP Backup Types

NDMP Local Backup

An NDMP backup to a tape device attached to the NDMP host client.

NDMP 3-Way Backup

An NDMP backup to a tape drive attached to an NDMP host other than the NDMP host client.

NDMP Remote Backup

An NDMP backup to NetBackup Media Server. Current implementation uses an NDMP storage unit that directs the backup to a daemon on the Media Server that acts as an NDMP Server.

NDMP Backup to Media Manager Storage Unit

Special case of an NDMP Remote backup using a Media Manager-type storage unit. This capability is new with this feature release.

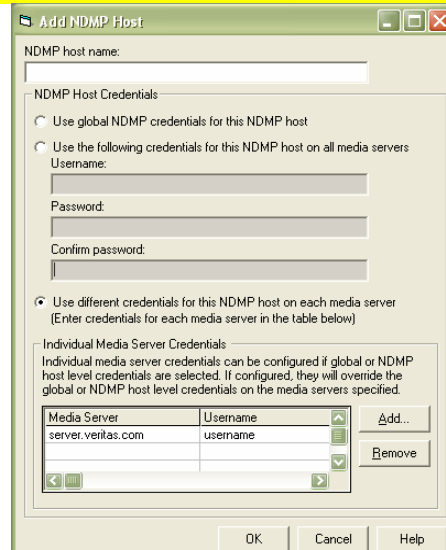
NDMP Credential Levels

Media and Device Management

- Devices
- NDMP Hosts

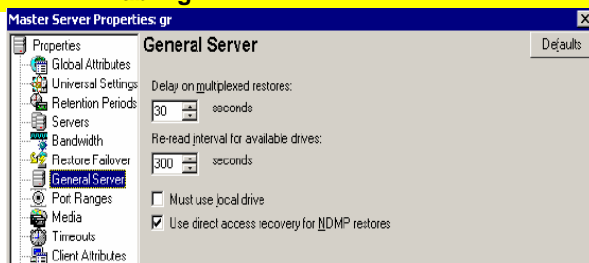
3 Levels:

1. NetBackup Host-to-Filer (set here)
2. Filer-wide credentials (set here)
3. Global default credentials (set in NDMP Global Credentials tab of Master Server Properties)



Enabling DAR

- Host Properties
- Master Server
- Properties
- General Server

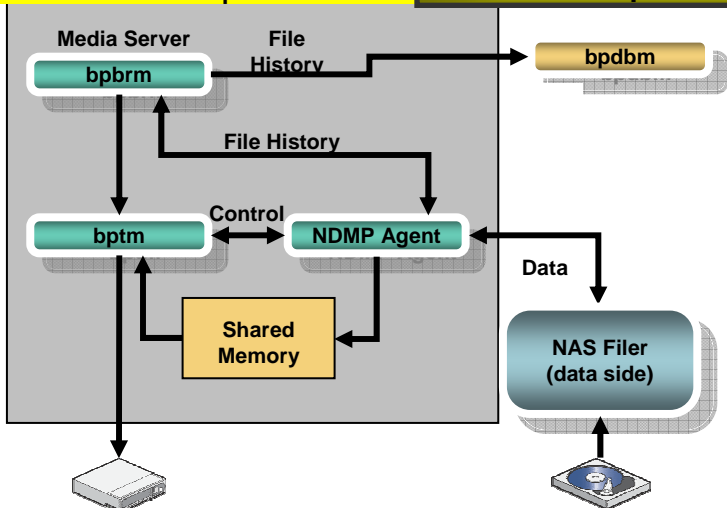


DAR Prerequisites

DAR must be supported by the NDMP host where the NDMP server application resides. The backup must have been made by NetBackup 4.5 GA or later, with the catalog in binary format (binary format is the default).

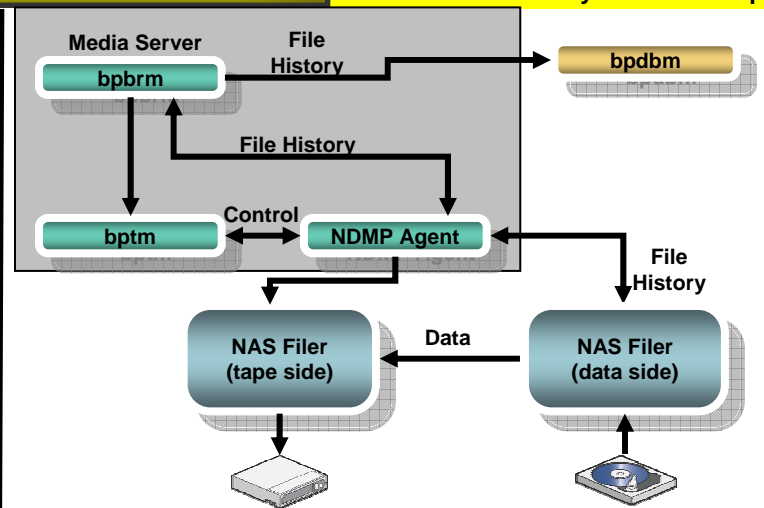


Remote NDMP Backups



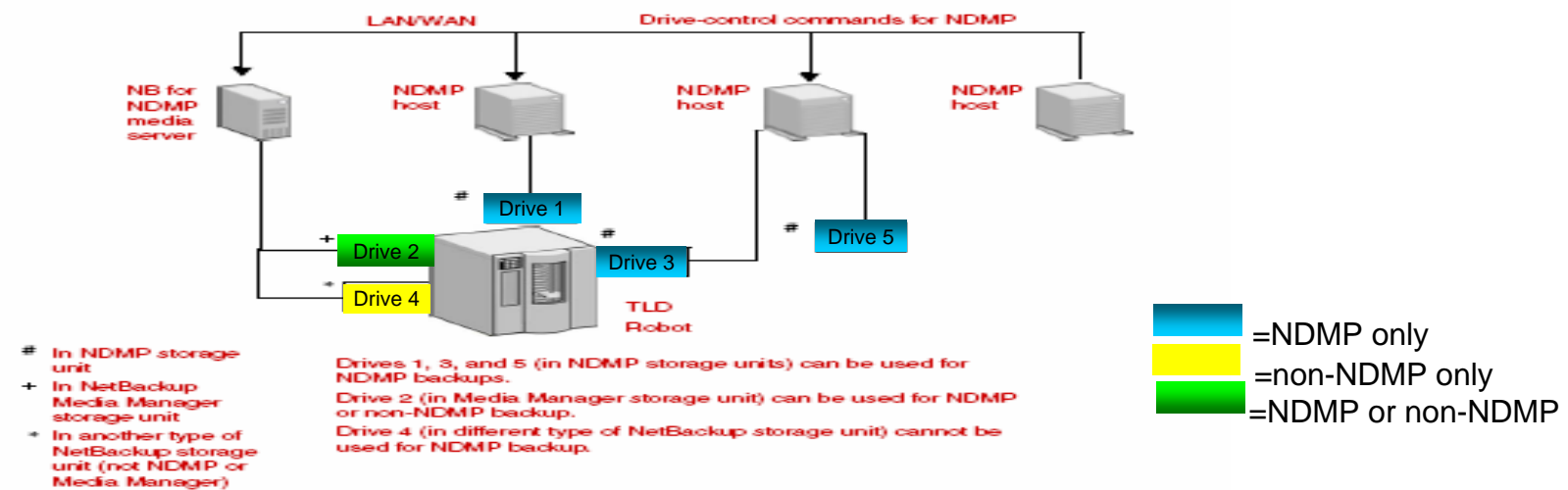
The NDMP Agent (ndmpagent) is started by bpbrm. The NDMP Agent serves as the controller for the NAS files. It processes file history and receives the data side information, such as the file list, from bpbrm. There is a new connection between bptm and ndmpagent for tape operations and control. bptm will continue to position the tape and read and write media and backup headers. As for NDMP backups, it needs to do that through an NDMP connection. There can be only one connection to the NAS file and since ndmpagent is connected to the NAS file for control, tape operations must be passed to ndmpagent and forwarded to the NAS file. This connection is also used to control and coordinate events such as EOM between bptm and ndmpagent. In NetBackup 6.0, bptm receives and sends data through shared memory in the same way it does for other backup agents. This means that in the case of Remote NDMP Backups, the NDMP Agent on the Media Server will gather the data from the NAS file and pass it to Shared Memory, from which it will be passed to bptm. After receiving the data from shared memory, bptm will then write to and read from the tape drive directly.

NetBackup™ 6.0 NDMP Reference Card



The NDMP Agent (ndmpagent) is started by bpbrm. The NDMP Agent serves as the controller for the NAS files. It processes file history and receives the data side information, such as the file list, from bpbrm. The new design has a new connection between bptm and ndmpagent for tape operations and control. bptm will continue to position the tape and read and write media and backup headers. As for NDMP, it needs to do that through an NDMP connection. There can be only one connection to the NAS file and since ndmpagent is connected to the NAS file for control, tape operations must be passed to ndmpagent and forwarded to the NAS file. This connection is also used to control and coordinate events such as EOM between bptm and ndmpagent.

NDMP and Non-NDMP Storage Units



NDMP Logging

ndmpagent Log

```
-VxUL originator ID 134
-set Diagnostic and Debug debug levels to 6
-example:
[Info] NDMP Agent program start, pid = 14565
ndmp_data_start_backup return 0 (NMDP_NO_ERR)
state change from STARTING to ACTIVE
[Info] Backup successfully completed, path = /vol/vol0/test
TO BRM: INF - EXIT STATUS requested
operation was successfully successfully completed
```

ndmp Log

```
-moved to VxUL originator ID 151
-netbackup\logs\ndmp and volmgr\database\ndmp_debug no longer used
-set Debug level to 6 to get all NDMP messages including File Handles
-Diagnostic level not used
```

bptm Log

```
-includes ndmpagent specific info
-ndmp_glue traces now in ndmpagent log
-example:
[14566] <2> NdmSession:
ndmp_xm_session_create: creating session
0x5044c8
[14566] <2> NdmSession: [2] Sending 3 (START)
[14566] <2> NdmSession: [3] Received 5 (SUCCESS)
```

Configure NDMP Host

```
tpconfig -add -nh filer1 -user_id <id> -password <pwd>
```



Verify NDMP Host Configuration

```
tpautoconf -verify filer1
```