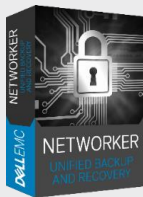


DELL EMC PowerScale: Data Protection with DELL EMC NetWorker using NDMP

DELL EMC PowerScale scale-out NAS storage with DELL EMC NetWorker software provide flexible and scalable backup



NDMP Features with DELL EMC NetWorker

Multistreaming: NetWorker 9.0.1 and later supports multistreaming for Isilon OneFS 8.0 and later backups, up to 32 streams.

NetWorker uses the client parallelism value that is defined for an PowerScale client to determine how many backups run concurrently.

IPv6: NetWorker storage nodes support IPv6 communications with a NetWorker server.

By default, NDMP backup and recovery operations use IPv6 to create the data connection between the NDMP data server and mover server.

Checkpoint restart: The PowerScale filers create a snapshot of the file system before the backup. The save set is generated from the snapshot.

Volume Based Backup (vbb) supports: Data Access in Real Time (DART) version 5.5 and later.

Direct Access Recovery (DAR) and Dynamic Direct Access Recovery (DDAR): DAR and DDAR send file information from the NAS filer to the NetWorker server.

DELL EMC NetWorker for PowerScale data protection

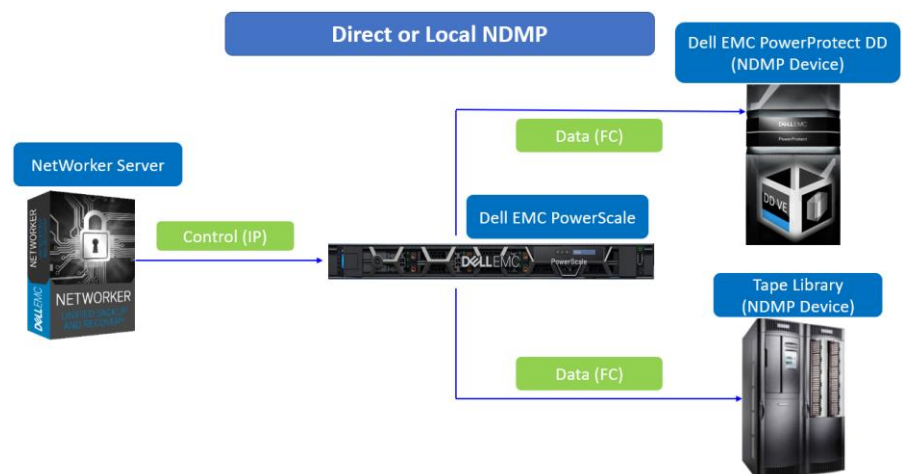
DELL EMC™ NetWorker™ is an enterprise-class cross-platform data protection software solution for file servers, application servers, and database management systems across the network. NetWorker supports wide range of data protection options including NDMP Support for NAS storage devices. DELL EMC PowerScale™ NAS storage integration with NetWorker software provides esteemed data protection and recovery capabilities for enterprises of all sizes in a secure way.

NetWorker software uses Network Data Management Protocol (NDMP) functionality to enable access to storage in a heterogeneous network environment. NDMP uses TCP/IP to control the movement of the data and specifies various device drivers to store the data on devices.

Three main components support NDMP data operations with the NetWorker software: **NDMP Data Server** (PowerScale), **NDMP Tape Server** that is the host with the backup device to which NetWorker writes the NDMP data, and the **Data Management Agent (DMA)** in which the NetWorker server is the DMA.

Methods to configure the NDMP Data Server and the NDMP Tape Server to perform backups and recoveries

NDMP local backup (Direct-NDMP): In an NDMP local backup (Direct-NDMP), the NDMP Data Server (NAS) sends data to a locally attached tape device or library.



NDMP backups to non-NDMP devices

(NDMP-DSA): NetWorker software writes NDMP data to non-NDMP devices, including tape, virtual tape, AFTD, and Dell EMC PowerProtect DD series appliances. Back up NDMP data to a non-NDMP device is performed in one of two ways:

- NDMP data sent to non-NDMP devices that are local to the NetWorker server
- NDMP data sent to non-NDMP devices that reside on a NetWorker storage node

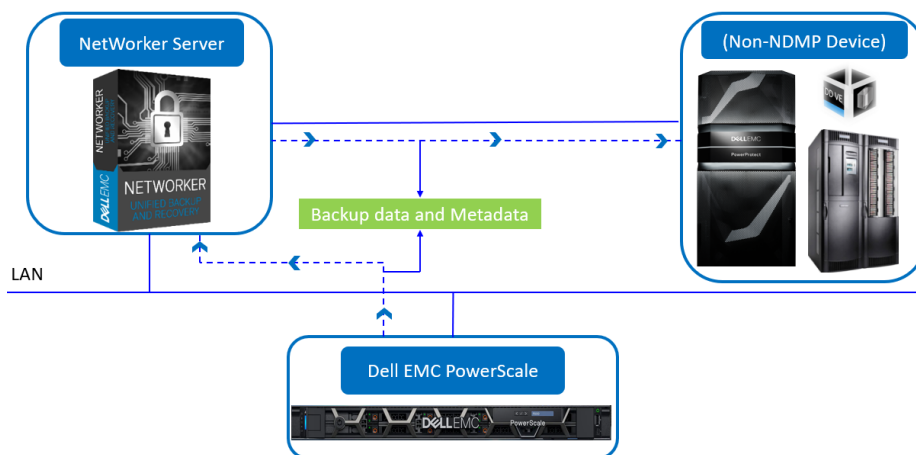
NDMP data sent to non-NDMP devices that are local to the NetWorker servers has the following characteristics:

- The backup data traverses the network between the NetWorker server and the NDMP data server.
- The metadata, the NDMP control information, and the file history (FH) remain local to the NetWorker server and still traverses the network.

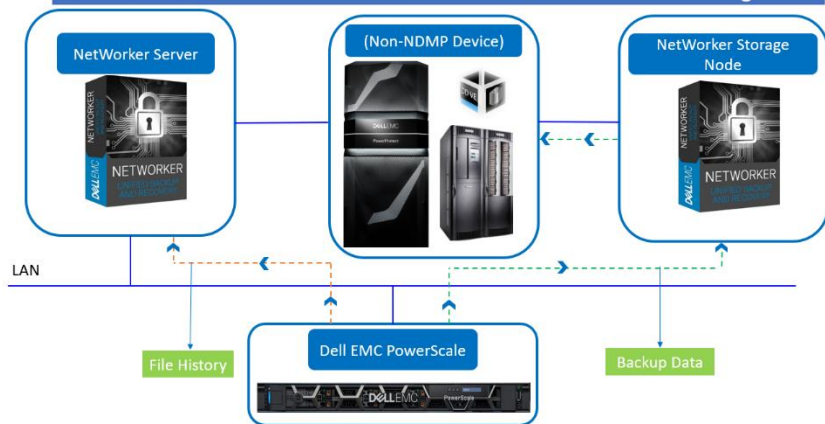
NDMP backups can be configured to write data to a NetWorker storage node in one of two ways:

- Immediate save (nsrdsa_save runs on storage node)
- Non-immediate save (nsrdsa_save runs on NetWorker Server)

NDMP data sent to non-NDMP devices that are local to the NetWorker server



NDMP data sent to non-NDMP devices that reside on a NetWorker storage node



Immediate save (nsrdsa_save runs on storage node)

The nsrdsa_save backup command runs on the NetWorker storage node. The NetWorker software uses TCP/IP and shared memory to communicate between the nsrdsa_save and nsrmmid processes.

Non-immediate save (nsrdsa_save runs on NetWorker Server)

By default, NDMP backups to a non-NDMP device use non-immediate save. The nsrdsa_save backup command runs on the NetWorker server. The nsrdsa_save process uses TCP/IP to read the data in a local buffer. The nsrdsa_save process transmits the data to the nsrmmid process on the storage node and nsrmmid process writes the data to the storage device.

Three-party backup: A three-party or three-way backup sends NDMP data to an NDMP Tape Server, but the NDMP Data Server and the NDMP Tape Server are not the same physical host.

There are mainly two types of three-party backups:

- **In the first scenario,** NetWorker sends the NDMP data to non-NDMP devices (NDMP-DSA). The NDMP Data Server and the NDMP Tape Server reside on different physical hosts. The NDMP Tape Server is always a NetWorker Server or a NetWorker Storage Node. Hence, NDMP-DSA is also a three-way NDMP backup.
- **In the second scenario,** NetWorker sends NDMP data to NDMP devices. The data flows from the NDMP Data Server to the NDMP Tape Server, and then to a library that is locally attached to the NDMP Tape Server. In this configuration, the NDMP save sets cannot be archived

Dynamic drive sharing

Dynamic Drive Sharing (DDS) is a feature that provides NetWorker software with the ability to recognize shared physical tape drives.

DDS enables NetWorker software to perform the following operations:

- Skip the shared tape drives that are in use
- Route the backups or recoveries to other available shared tape drives

Benefits of DDS

Enabling DDS on a NetWorker system provides these benefits:

- Reduces storage costs
- Reduces LAN traffic
- Provides fault tolerance
- Provides configuration over a greater distance

Separate browse and retention time

Browse and retention time can be configured separately for traditional and NDMP backup and clone actions from the following interfaces:

- **User Interface (UI)** - NetWorker Management Console (NMC), NetWorker Management Web UI (NWUI) and REST API
- **Command-line interface (CLI)** - nsrpolicy, save, nsrclone, and nsradmin

For detailed information about configuring NetWorker NDMP backup with PowerScale, see the configuration white paper [Dell EMC NetWorker - Network Data Management Protocol \(NDMP\) User Guide](#).



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