

Unified Backup and Recovery with EMC NetWorker

A Detailed Review

Abstract

EMC[®] NetWorker[®] unified backup and recovery software helps organizations lower costs through centralized management of data protection operations. By enabling multiple levels of data protection, including next-generation options such as deduplication, under control of a single application, IT departments can deliver higher levels of backup and recovery services and keep pace with round-the-clock business operations. This white paper provides an overview of NetWorker features and options that together deliver a comprehensive data protection solution.

March 2010

Copyright © 2006, 2010 EMC Corporation. All rights reserved.

EMC believes the information in this publication is accurate as of its publication date. The information is subject to change without notice.

THE INFORMATION IN THIS PUBLICATION IS PROVIDED “AS IS.” EMC CORPORATION MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WITH RESPECT TO THE INFORMATION IN THIS PUBLICATION, AND SPECIFICALLY DISCLAIMS IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Use, copying, and distribution of any EMC software described in this publication requires an applicable software license.

For the most up-to-date listing of EMC product names, see EMC Corporation Trademarks on EMC.com

Part number h3399.1 S11891206V1

Table of Contents

| | |
|---|-----------|
| Executive summary | 4 |
| Introduction | 4 |
| Audience | 4 |
| Comprehensive environment protection | 4 |
| Wide-ranging operating system and virtualization support..... | 4 |
| Extensive business application and database support..... | 5 |
| Features that drive performance and scalability..... | 5 |
| Storage nodes..... | 5 |
| Multiplexing | 6 |
| Backup to disk..... | 6 |
| Snapshot-assisted backup..... | 7 |
| Block-based backup..... | 7 |
| NDMP-based backup..... | 8 |
| Backup to tape | 8 |
| Vaulting to cloud-based storage | 8 |
| Integrated next-generation data protection | 9 |
| Deduplication with EMC Avamar | 9 |
| Deduplication with EMC Data Domain..... | 10 |
| Centralized control | 10 |
| Wizard-driven configuration | 11 |
| Customizable user interface | 11 |
| Management flexibility | 12 |
| VMware management features..... | 14 |
| Security | 15 |
| Conclusion | 16 |

Executive summary

Today's information technology environments encompass a wide range of systems and applications that serve the needs of the business. These resources are driving explosive data growth for organizations of all sizes and as a result, protecting data against loss is a challenge. In a competitive business environment, the assurance of a reliable backup to enable fast recovery is critical. It can help prevent the unnecessary loss of revenue, avoid interruption to user productivity, and even avert damage to a company's reputation. Customers are increasingly leveraging new approaches to data protection that help ensure not only that data is backed up and ready for restore, but that also lower costs compared to traditional approaches to traditional backup.

EMC® NetWorker® helps organizations unify backup and recovery operations into one central solution. Its broad support for leading IT platforms ensures you can simplify data protection with a single tool while managing larger and more complex environments without adding staff. With NetWorker you can safely adopt next-generation backup capabilities such as deduplication blended with traditional backup to achieve common control – and the freedom to leverage more than one approach to data protection and deliver higher levels of recovery services than ever before.

Introduction

This white paper highlights the scope of NetWorker features that enable users to flexibly combine different backup and recovery technologies and techniques to meet both common use cases as well as unique data protection demands. It highlights NetWorker advancements in key areas such as ease of use as well as integration with other EMC backup and recovery products that solve key data protection problems and lower overall costs.

This white paper was formerly titled *Backup and Recovery Made Simple with EMC NetWorker*.

Audience

The intended audience for this paper is IT administrators who want to gain insight into the range of features available with the NetWorker backup and recovery software solution.

Comprehensive environment protection

NetWorker provides protection across a wide range of applications, operating systems, and storage environments, enabling IT managers to evolve their business without concern for the backup and recovery application's ability to keep pace.

Wide-ranging operating system and virtualization support

The operating system protection afforded by NetWorker includes UNIX, Windows, Linux, NetWare, OpenVMS, and Macintosh. NetWorker features built-in cluster awareness and enables NetWorker to successfully protect clustered servers and ensure backup integrity. Virtual environment protection coverage includes virtualization leader VMware® but also extends to Microsoft Hyper-V, Xen, Solaris Zones, and more. Specifically for VMware, NetWorker has been qualified with options such as VMotion, Distributed Resource Scheduler, and High Availability to ensure that there will be no interruption of backup service when virtual machines move from one VMware ESX server to another. The ability of NetWorker to protect data and applications running in both physical and virtual environments with a full range of protection options sets it apart from other backup and recovery solutions.

Extensive business application and database support

Major applications supported by NetWorker include Oracle, SAP, Microsoft SQL Server and Exchange, DB2, Informix, Lotus, Sybase, EMC Documentum®, and MEDITECH. NetWorker application modules integrate with these business applications to perform online, zero-downtime backup so that business-critical systems remain in production mode even as backups occur. Recovery options for applications provide both disaster recovery – restoring an entire system in the case of catastrophic loss – and operational recovery – restoring at a granular level such as a file, a folder, a log, or database. This ensures a swift return to service in the face of any production data loss.

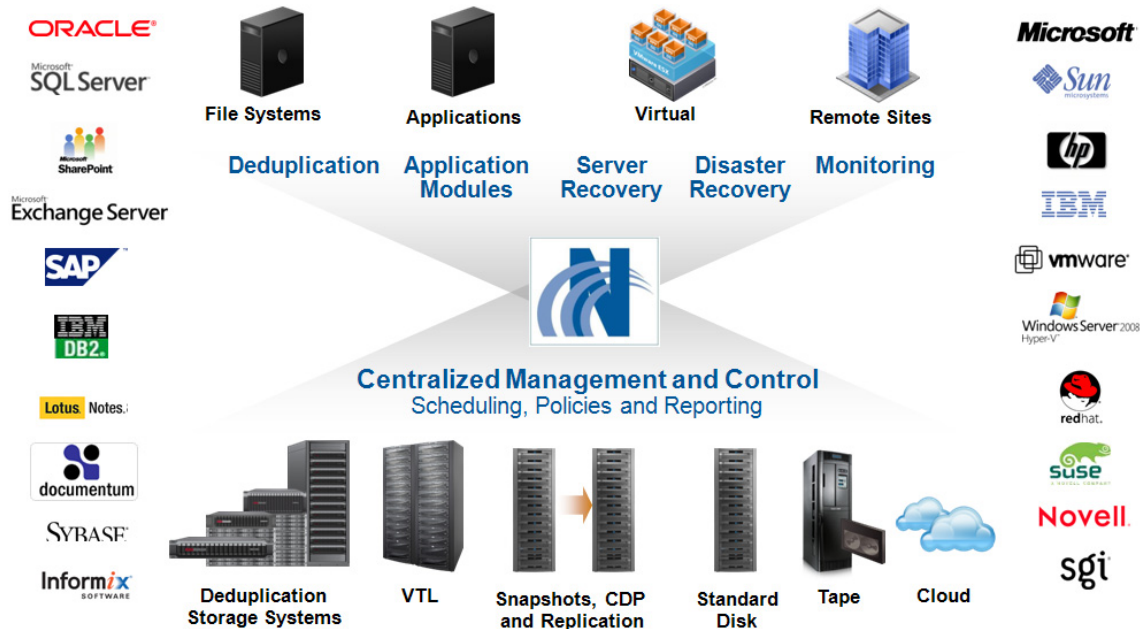


Figure 1. NetWorker provides complete environment protection

Features that drive performance and scalability

NetWorker is designed to deliver high-performance backup and recovery. Users leverage NetWorker's combination of integrated capabilities to meet service level agreements (SLAs) for recovery time objectives (RTOs) and recovery point objectives (RPOs).

Storage nodes

A single NetWorker server can protect an information environment. However, to grow and scale the environment, many users employ secondary servers called storage nodes that act as conduits for additional processing power in the environment. Storage nodes can share the workload to ensure a large number of backup clients can be protected within a reasonable backup window. Many users configure storage node resources on large critical servers, protecting data directly from an application server to direct- or SAN-attached backup targets, eliminating the need to route data over a local area network. For example, an organization with a large Oracle database server can use a dedicated storage node resource to efficiently back up data to a SAN-mounted virtual tape library (VTL). As an environment grows, users do not need to add more backup servers. Instead, additional storage nodes can be added to enhance performance and scalability all under the management of a single backup server.

As Figure 2 shows, storage nodes are deployed in and around the information environment to serve backup and recovery operations under the control of the NetWorker server.

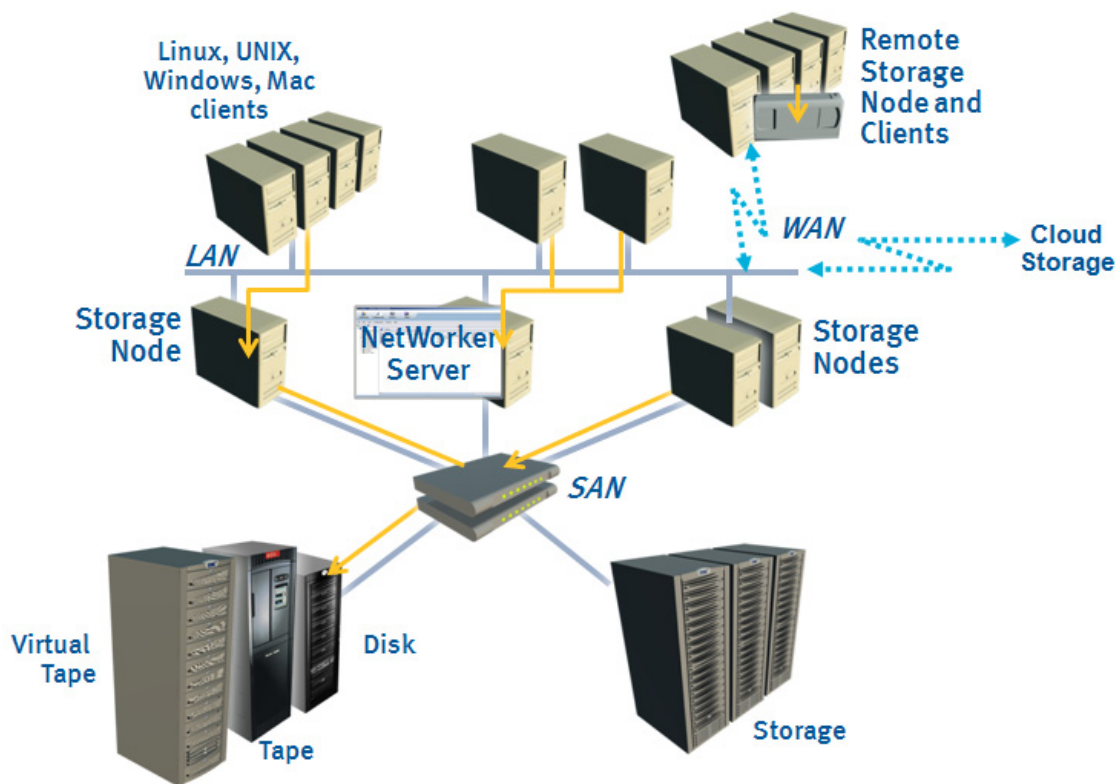


Figure 2. Storage nodes add processing power and help quickly move data

Storage nodes move data to backup storage and send index information to the main NetWorker backup server for tracking. NetWorker's client file index and media database catalog the data that has been protected, the client to which it belongs, and the location where it is stored. These databases are high performing and save significant time over systems that use non-intelligent tracking methods that slow the entire process with lengthy searches for information.

Multiplexing

NetWorker goes beyond serial movement of data by leveraging multiplexing capabilities. Backups are launched simultaneously from multiple client sources and ingested simultaneously by the backup server and/or storage nodes. In the case where tape is the main backup target, this keeps the media spinning at maximum speeds, making the best use of these resources. No matter what backup target is in use – disk or tape – NetWorker efficiently processes backup streams from backup clients and intelligently routes the data in a manner that optimizes the use of back-end resources. With the maximum amount of data streaming between production and backup systems, users can meet increasingly stricter backup windows.

Backup to disk

The NetWorker DiskBackup Option provides performance improvements over tape by leveraging the inherent capabilities of disk. By enabling functions including simultaneous backup, recovery, and cloning as well as automated staging from disk to tape, NetWorker helps users craft more reliable and efficient backup operations. In fact, cloning from disk to tape with NetWorker is up to 50 percent faster than tape-to-tape cloning. As soon as a backup save set is captured, NetWorker allows the cloning process to begin without the administrator having to wait for the entire backup group or all backup jobs to complete. This potentially saves multiple hours per day on cloning operations. With this improvement in cloning performance IT can more easily meet daily service-level agreements to send tapes offsite to a vaulting

Unified Backup and Recovery with EMC NetWorker

A Detailed Review

provider. Additionally, no matter where the data resides when recovery is needed, NetWorker always enables a single-step recovery for a fast return to service.

NetWorker also improves performance by integrating with leading VTLs. VTLs help IT meet higher service levels by delivering the performance and reliability benefits of disk-based backup and recovery in an easy-to-adopt solution. Unlike using standard disk arrays for backup, VTLs emulate tape infrastructure and actually “look like” tape. Therefore, the operational processes that IT has built around a tape environment do not need to be changed in order to benefit from the flexibility, speed, and reliability of disk. It also allows a backup operations team to quickly and easily adopt disk for data protection without requiring array management skills.

Snapshot-assisted backup

NetWorker supports command and control of array-based and software-based replication technologies to create and use snapshots for quick recovery and nondisruptive off-host backup. It does so in conjunction with the NetWorker client and application module software to ensure consistent snapshot backups of file systems and applications.

NetWorker performs snapshot management by policy, specifying how many snapshots to create, how long to retain the snapshots, when to expire the snapshots, and when to perform backups to secondary media such as tape from specified snapshots. For example, a snapshot policy can dictate that eight snapshots of an Oracle database be taken per day, with the four most recent snapshots retained, and the last daily snapshot mounted and backed up to tape.

In conjunction with SAN-attached arrays, NetWorker also supports backup of snapshots to secondary media from non-production hosts – typically referred to as proxy servers – which remove the impact of backup from the production client. Figure 3 highlights snapshot management with a proxy-server implementation and the resulting recovery options.

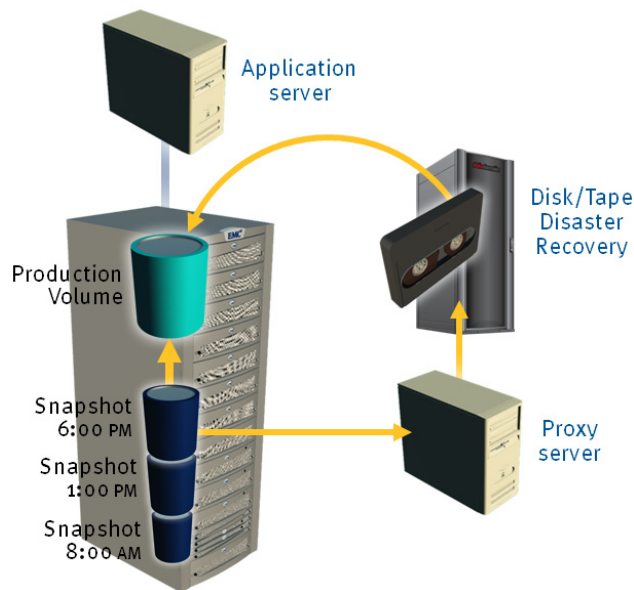


Figure 3. NetWorker snapshot management and off-host backup

Block-based backup

Another NetWorker add-on capability, the SnapImage™ Module, complements backup and recovery by enabling NetWorker to move data at the block level rather than at the file level. This results in a significantly faster backup of volumes while retaining an index to allow individual file restores. Backup

administrators typically leverage SnapImage for file servers that contain millions of files and directories and pose a challenge to fast backup. They simply take a block-based snapshot of these volumes to use for data movement and drastically reduce the backup window—up to 10 times faster.

NDMP-based backup

Network Data Management Protocol (NDMP) is a protocol that specifies how network components talk to each other for the purpose of moving data for backup and recovery and is primarily used to simplify and speed the protection of NAS devices. Data is copied from disk to tape or disk media, regardless of the operating system or platform on which the data originated. Tracking information is also passed to and from the backup software by using the same protocol.

NetWorker features extensive support for NDMP in performing backups, cloning, and recoveries. NetWorker NDMP features include library sharing, drive sharing, and library management in NAS environments. NetWorker also supports the following configurations:

- Local backup to a tape device attached to a NAS server where the data resides
- Three-party backup—the backup is performed from one NAS/NDMP server to another NAS/NDMP server
- Storage node—the backup is performed from an NAS/NDMP host to any media type attached to a NetWorker storage node

Backup to tape

NetWorker supports a wide range of tape formats, drives, and libraries and provides unique capabilities for performing backup to tape through its Open Tape Format (OTF). OTF is the structure that allows interleaved, heterogeneous data to reside on the same tape and assures cross-platform portability of tapes. For example, an organization that traditionally has backed up to a Solaris-based backup server may wish to migrate to a Windows server instead. Tapes written by NetWorker on Solaris are fully supported with NetWorker on Windows.

OTF also provides the best chance for recovery from tape media even in the event that there are damaged or unreadable sections of tape. This is possible because of the way that NetWorker saves data to tape. With NetWorker, backup data is captured and indexed in the form of save sets. Save sets are like data containers that NetWorker then arranges on what can be thought of as a virtual pallet that is assigned a media record number. NetWorker organizes these pallets onto a tape volume and notes their specific position on that volume by file mark. On restore, NetWorker will use file marks to quickly jump to the area on the tape volume where the data resides to ensure fast access and recovery. In the event that there are bad portions of tape where file marks can no longer be read, NetWorker is designed to skip those portions and continue operations with the good (readable) portions. Other backup solutions leave no chance for recovery of data residing on latter portions of the tape that may still be readable due to the fact that they will stop operations immediately when encountering bad tape and abandon any further reads or writes. With OTF, NetWorker offers the most complete tape-based recovery possible.

Vaulting to cloud-based storage

To provide an alternative to tapes for offsite data protection, NetWorker enables use of EMC Atmos[®]-based cloud storage as a backup target. As shown in Figure 4, when used in conjunction with disk backup on premise, easy cloning to internet-based storage eliminates the costs of tape shipping and management, while a local disk copy ensures quick recovery. Purpose-built features targeted at making vaulting to the cloud more manageable and secure are available with the cloud backup option. This includes bandwidth throttling to give you control of the network bandwidth used for backup at any given time, and 256-bit AES RSA encryption to ensure that any data sent offsite is secure.

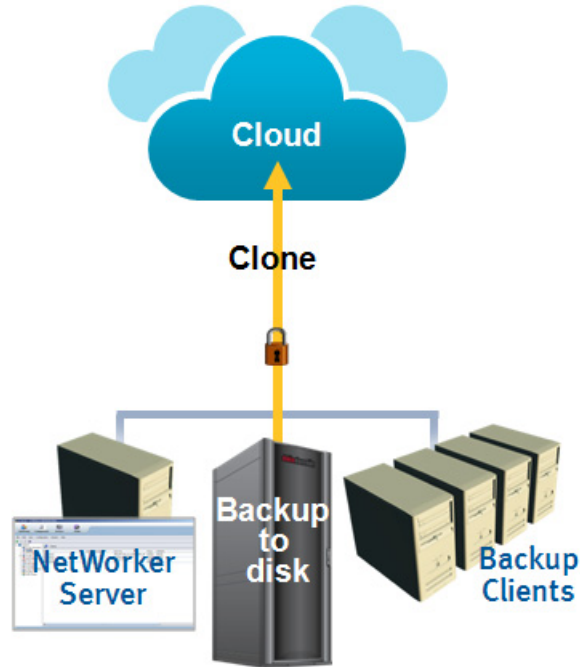


Figure 4. Local disk backup and cloning to cloud storage

Integrated next-generation data protection

Unprecedented data growth is overwhelming existing data protection infrastructures and presents challenges that make it difficult for traditional backup to maintain pace. The increasing shift from physical to virtual computing environments is also driving new requirements for backup and recovery. To ensure you can protect the growing amount of data in both physical and virtual environments while controlling costs, NetWorker integrates with two unique data deduplication solutions available from EMC. Avamar[®] and Data Domain[®] both help customers increase the efficiency and performance of backup operations. With deduplication you can retain more data on less disk space – a reduction of 10x-30x in storage required compared to traditional methods. You can also reduce bandwidth requirements by sending less data for backup and for offsite data protection.

Deduplication with EMC Avamar

Through integration with Avamar, NetWorker enables organizations to address mounting backup challenges with global source data deduplication. Deduplication intelligence at the client level identifies unique data segments across sites and servers and transfers only new data during the backup process, resulting in fast and efficient backup and recovery. This is especially ideal for:

- Virtual environments that rely on shared physical resources
- File servers that typically have a significant percentage of redundant data
- Remote and branch offices with insufficient networking resources to route daily traditional backups to a central data center and lack of staff to support a local backup solution

Deployment of Avamar deduplication in a NetWorker environment is simple. NetWorker provides a single client software footprint that supports both deduplication and traditional backup – or both. To take advantage of Avamar deduplication, an Avamar server is managed as a deduplication node in the NetWorker environment. There are two physical deployment options — the Avamar Data Store, a complete prepackaged solution that integrates Avamar software with EMC-certified hardware for streamlined deployment, and EMC Avamar software, which can be deployed on a range of certified, industry-standard servers. For environments using a VMware virtual infrastructure, Avamar Virtual Edition delivers Avamar

Unified Backup and Recovery with EMC NetWorker

A Detailed Review

software deployed as a virtual appliance. Once installed, all daily backup operations are handled through NetWorker, providing a seamless user experience. Deduplication with NetWorker and Avamar is supported in conjunction with file servers as well as application servers including Exchange, SQL, SharePoint, Oracle, SAP, DB2, Sybase, Lotus Notes, and Informix.

Deduplication with EMC Data Domain

One of the easiest ways to take advantage of deduplication in a NetWorker environment is to leverage EMC Data Domain deduplication storage systems to dramatically reduce the amount of disk storage needed to retain and protect enterprise data. By identifying redundant files and data as they are being stored, Data Domain systems provide a storage footprint that is 10x-30x smaller, on average, than the original dataset. Backup data can then be efficiently replicated and retrieved over existing networks for streamlined disaster recovery and consolidated tape operations. This provides a huge advantage over traditional tape and disk targets for backup, reducing power, cooling, and space requirements but also lowering administrative costs. Data Domain systems support two integration methods with NetWorker, either via network file system mounts or as a standalone VTL. This provides the flexibility to integrate the Data Domain system in the way that best matches your NetWorker installation and skillsets.

Centralized control

NetWorker performance is not only based on superior data movement capabilities but also from streamlining management tasks that backup administrators must perform. NetWorker provides a web-based interface to control the configuration, management, and reporting for all backup operations. EMC continues to simplify the NetWorker user experience to ensure total protection, easy daily monitoring, and efficient recovery.

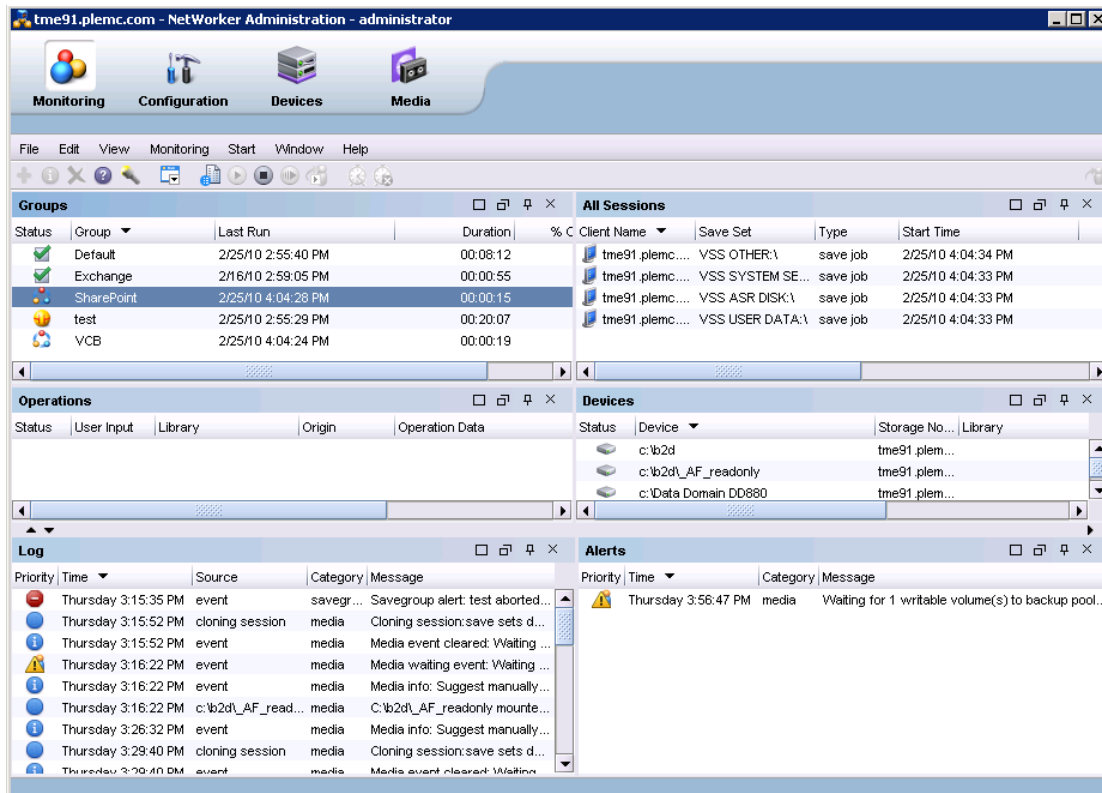


Figure 5. NetWorker Management Console

Wizard-driven configuration

NetWorker features built-in configuration wizards to guide and simplify setup and modification of backup operations. This is available for both file system and application backup jobs. The wizard presents relevant selections to the backup administrator depending on the resource being defined. This includes configuration options for:

- Data selection
- Backup group and schedule
- Browse and retention policies
- Storage node specification
- VMware backup including guest level and VCB
- Client-side deduplication
- Cluster backup settings
- Application backup settings

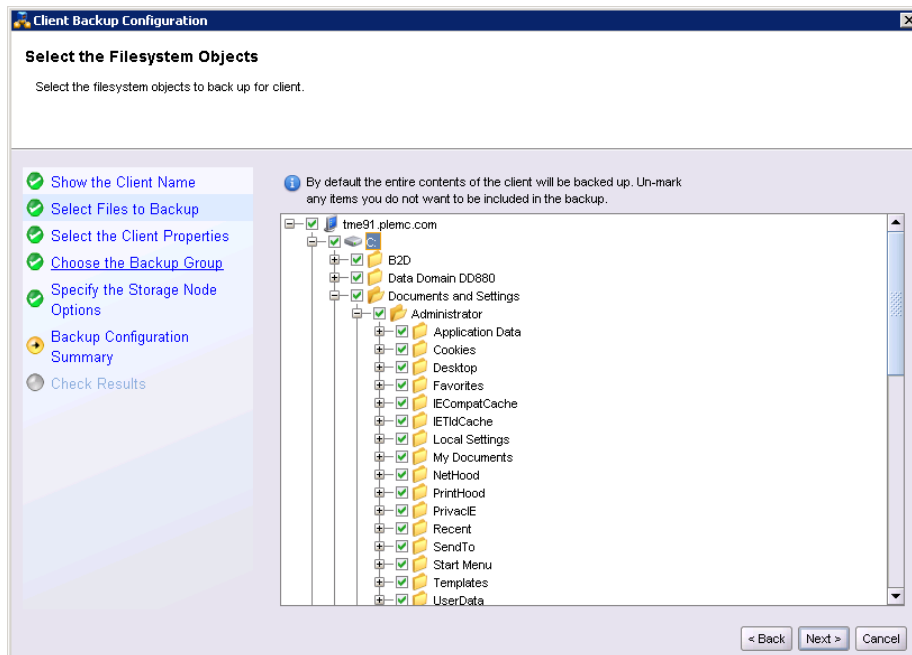


Figure 6. Click-through backup configuration wizard

Customizable user interface

The NetWorker interface features customizable docking panels that enable you to build a quick watch panel that shows relevant activity, alerts, logs, and any other monitoring operation desired – all in a single pane. These panels can be undocked and placed anywhere on the working desktop. This makes better use of screen real estate – including any space on the desktop.

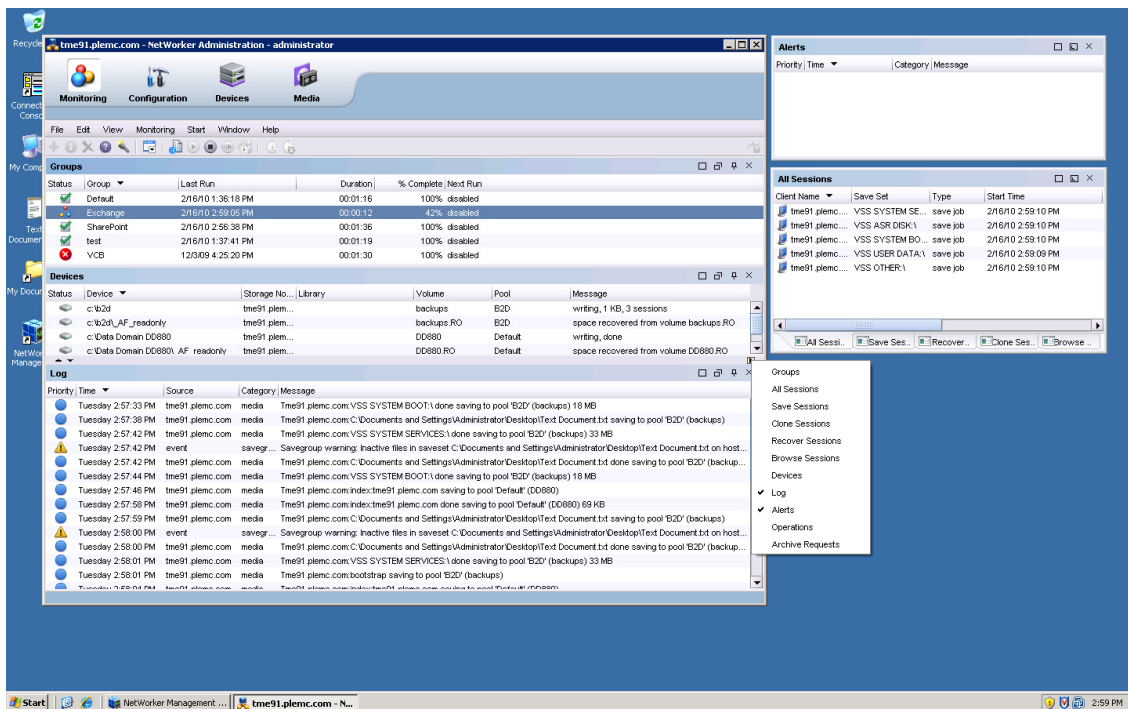


Figure 7. Interface customization

Management flexibility

NetWorker provides flexibility in managing backup and recovery operations through the management features listed next. These features are easy to use through the intuitive NetWorker Management Console (see Figure 5 on page 10). The ability to unify and easily manage the information environment helps to speed backup and recovery.

Scheduling

With NetWorker, administrators can set up calendar-based schedules to automate backup operations. Backup clients are organized into groups that are started at a designated time. Group properties can be set to specify parameters such as the number of retries and the backup window within which the backups should run.

Backup levels

NetWorker supports different backup levels that enable backup administrators to design a backup schedule to fit the needs of their data, taking into account change rates and the frequency of protection required. Options include:

- Full backup of an entire data set
- Differential, or “level 1-9”, backup for only the data that has changed since a lower-numbered backup level (with the full being a level 0 backup)
- Incremental backup for the data that has changed since the last backup, regardless of level
- Skip level, which skips the scheduled backup. For example, users can skip a backup on a holiday if no one will be available to change or add more media volumes

Event-based backup

NetWorker enables the triggering of backups based on events or conditions as opposed to schedule alone. Event-based backups are made possible through NetWorker’s probe feature. Instead of automatically running a backup on a predefined schedule, NetWorker can instead run a probe to check the status of a

predefined condition. If the condition is met, a backup is executed. For example, a backup administrator can define a probe of a database client to check for a specific number of redo logs stored and/or the file system capacity percentage. If the right conditions exist, a backup is run followed by a purge of the log space. In this way, the resources required for the backup are only utilized when needed.

Browse and retention policies

Users can set policies for data presentation and retention in NetWorker in a number of ways, based upon the best practices for their individual environments and business requirements. Browse and retention policies control how long data remains searchable and available for recovery and help administrators manage the growth of the client file index and the media database. The browse policy determines how long files are maintained in the client's file index on the NetWorker server. During the period of the browse policy, users can click through and browse backup data and select individual files, folders, or entire file systems for recovery. The retention policy determines how long backup save sets are maintained in the NetWorker server's media database and protected from an accidental overwrite. Individual retention policies can be set for original and clone copies of data providing flexibility for the management of data onsite, offsite, and on different forms of media.

Restore levels

Administrators can turn back the clock to a specific point in time and retrieve the desired data, whether it is at the file level, at the directory level, or the entire save set. You can browse a file system to select and recover data, or you can recover data at the save set level. Recovery can be executed using the NetWorker graphical user interface or command line if preferred. NetWorker application modules present application-specific recovery options such as database recovery, log replay, site restore, and mailbox recovery – all of the operational and disaster recovery options needed for the most efficient restore. When snapshot management is used with NetWorker you have the added option of using advanced array-based restore operations such as rollback to recover data.

Directed recovery

Directed recovery allows a NetWorker administrator to remotely recover backup data from one NetWorker client to another NetWorker client. This is a useful feature for transferring data to a new system or to a standby server to enable quick resumption of service.

Cloning

NetWorker cloning copies and tracks secondary copies of backup data on alternate media. This allows for secure offsite storage while maintaining a copy onsite as well. Cloning can be performed on individual save sets and media volumes. Save sets can be cloned individually or cloning can be configured to run for an entire group. This can be done automatically or a backup administrator can manually choose what and when to clone. Volume cloning reproduces all of the save sets from a storage volume to a clone volume.

Staging

Staging is the process of transferring backup data from disk to another medium – typically tape. For example, an initial backup data can be directed to a network-attached Data Domain system reduced by taking advantage of a file or advanced file type device. At a later time, outside of the regular backup period, the data can be moved to a less expensive but more permanent storage medium, such as magnetic tape. After the backup data is moved, the initial backup data can be deleted from the file or advanced file type device so that sufficient disk space is available for the next backup. Staging policies let you specify how the movement of data is initiated. Available options include:

- Time-based – automatically moving save sets to the next device after a certain number of days (such as 30 days)
- Watermark-based – moving save sets when disk space in the staging pool reaches a set threshold (such as 90% full)
- Manual - the administrator can manually select save sets to stage

Search and sort

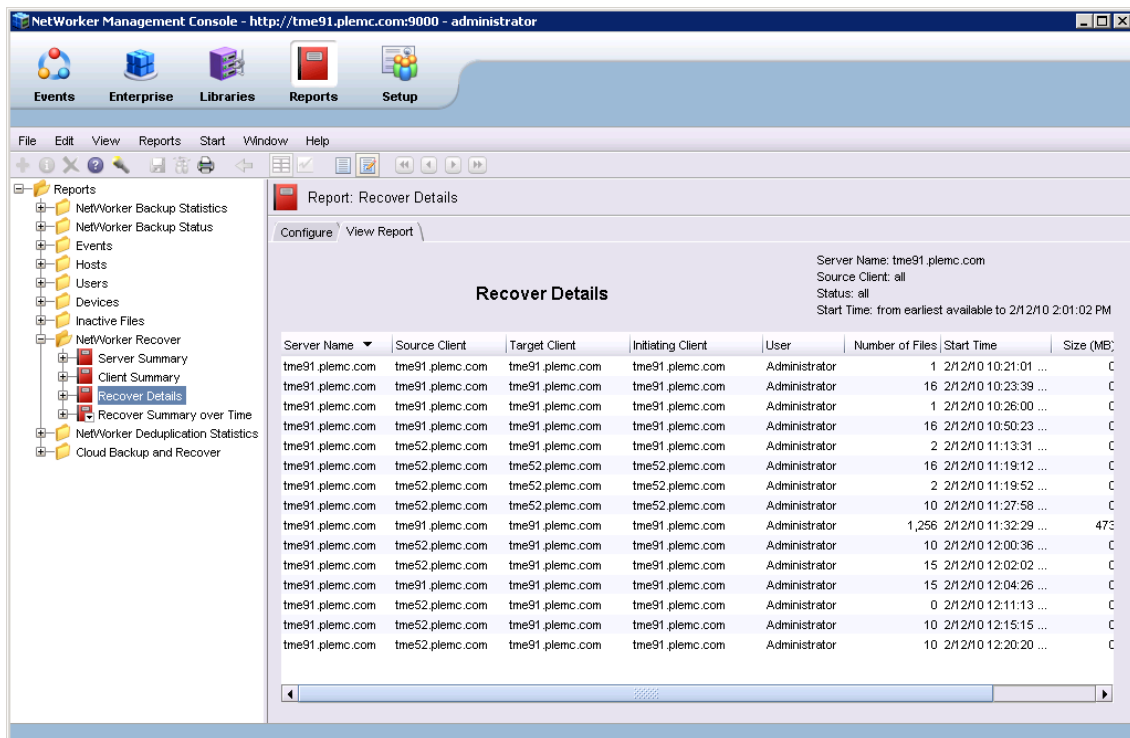
A search feature allows a backup operator to search on relevant words to quickly locate any instances in the NetWorker interface. The ability to search and then sort results helps speed up the time it takes to locate and see information or perform an operation.

Directives

Directives are resources that contain special instructions that control how the NetWorker server processes files and directories during backup and recovery. NetWorker directives include functions such as encryption, data compression, and skip (omit certain files from backup). NetWorker administrators can use and create directives to customize the NetWorker software to meet specific needs, maximize the efficiency of backups, and apply special handling to individual files or directories.

Reporting

NetWorker includes over 65 built-in reports that provide administrators with insight into backup and recovery operations. These include reports on backup status, backup data, device utilization, recovery statistics, deduplication, user activity, and inactive files. NetWorker also integrates with other external reporting tools such as EMC Data Protection Advisor and supports export of data to other framework-type products.



NetWorker Management Console - http://tme91.plemc.com:9000 - administrator

Events Enterprise Libraries Reports Setup

File Edit View Reports Start Window Help

Reports

- NetWorker Backup Statistics
- NetWorker Backup Status
- Events
- Hosts
- Users
- Devices
- Inactive Files
- NetWorker Recover
 - Server Summary
 - Client Summary
 - Recover Details
 - Recover Summary over Time
- NetWorker Deduplication Statistics
- Cloud Backup and Recover

Report: Recover Details

Configure View Report

Server Name: tme91.plemc.com
Source Client: all
Status: all
Start Time: from earliest available to 2/12/10 2:01:02 PM

| Server Name | Source Client | Target Client | Initiating Client | User | Number of Files | Start Time | Size (MB) |
|-----------------|-----------------|-----------------|-------------------|---------------|-----------------|----------------------|-----------|
| tme91.plemc.com | tme91.plemc.com | tme91.plemc.com | tme91.plemc.com | Administrator | 1 | 2/12/10 10:21:01 ... | C |
| tme91.plemc.com | tme91.plemc.com | tme91.plemc.com | tme91.plemc.com | Administrator | 16 | 2/12/10 10:23:39 ... | C |
| tme91.plemc.com | tme91.plemc.com | tme91.plemc.com | tme91.plemc.com | Administrator | 1 | 2/12/10 10:26:00 ... | C |
| tme91.plemc.com | tme91.plemc.com | tme91.plemc.com | tme91.plemc.com | Administrator | 16 | 2/12/10 10:50:23 ... | C |
| tme91.plemc.com | tme52.plemc.com | tme91.plemc.com | tme91.plemc.com | Administrator | 2 | 2/12/10 11:13:31 ... | C |
| tme91.plemc.com | tme52.plemc.com | tme52.plemc.com | tme52.plemc.com | Administrator | 16 | 2/12/10 11:19:12 ... | C |
| tme91.plemc.com | tme52.plemc.com | tme52.plemc.com | tme52.plemc.com | Administrator | 2 | 2/12/10 11:19:52 ... | C |
| tme91.plemc.com | tme52.plemc.com | tme52.plemc.com | tme52.plemc.com | Administrator | 10 | 2/12/10 11:27:58 ... | C |
| tme91.plemc.com | tme91.plemc.com | tme91.plemc.com | tme91.plemc.com | Administrator | 1,256 | 2/12/10 11:32:29 ... | 475 |
| tme91.plemc.com | tme52.plemc.com | tme91.plemc.com | tme91.plemc.com | Administrator | 10 | 2/12/10 12:00:36 ... | C |
| tme91.plemc.com | tme52.plemc.com | tme91.plemc.com | tme91.plemc.com | Administrator | 15 | 2/12/10 12:02:02 ... | C |
| tme91.plemc.com | tme91.plemc.com | tme91.plemc.com | tme91.plemc.com | Administrator | 15 | 2/12/10 12:04:26 ... | C |
| tme91.plemc.com | tme52.plemc.com | tme91.plemc.com | tme91.plemc.com | Administrator | 0 | 2/12/10 12:11:13 ... | C |
| tme91.plemc.com | tme52.plemc.com | tme91.plemc.com | tme91.plemc.com | Administrator | 10 | 2/12/10 12:15:15 ... | C |
| tme91.plemc.com | tme52.plemc.com | tme91.plemc.com | tme91.plemc.com | Administrator | 10 | 2/12/10 12:20:20 ... | C |

Figure 8. NetWorker reports provide insight into backup and recovery operations

VMware management features

NetWorker supports a full range of backup and recovery options for VMware. This includes both in-guest and proxy-based backup. The VMware protection configuration is simplified with NetWorker's wizard interface. Within the NetWorker user interface there are purpose-built features for managing data protection in VMware environments.

Autodiscovery and visualization

The NetWorker Management Console integrates with VMware vCenter to autodiscover virtual machines in an ESX server environment. This allows a backup administrator to quickly recognize new virtual machines that are deployed in the environment and ensure they are protected. It also enables NetWorker's VMware visualization feature, which provides a graphical representation of the VMware environment and the relationship of virtual machines to NetWorker backup groups. This makes it easy for an administrator to not only see new virtual machines and details about current configurations, but it also helps visualize whether adjustments should be made to distribute the backup workload in the virtual environment.

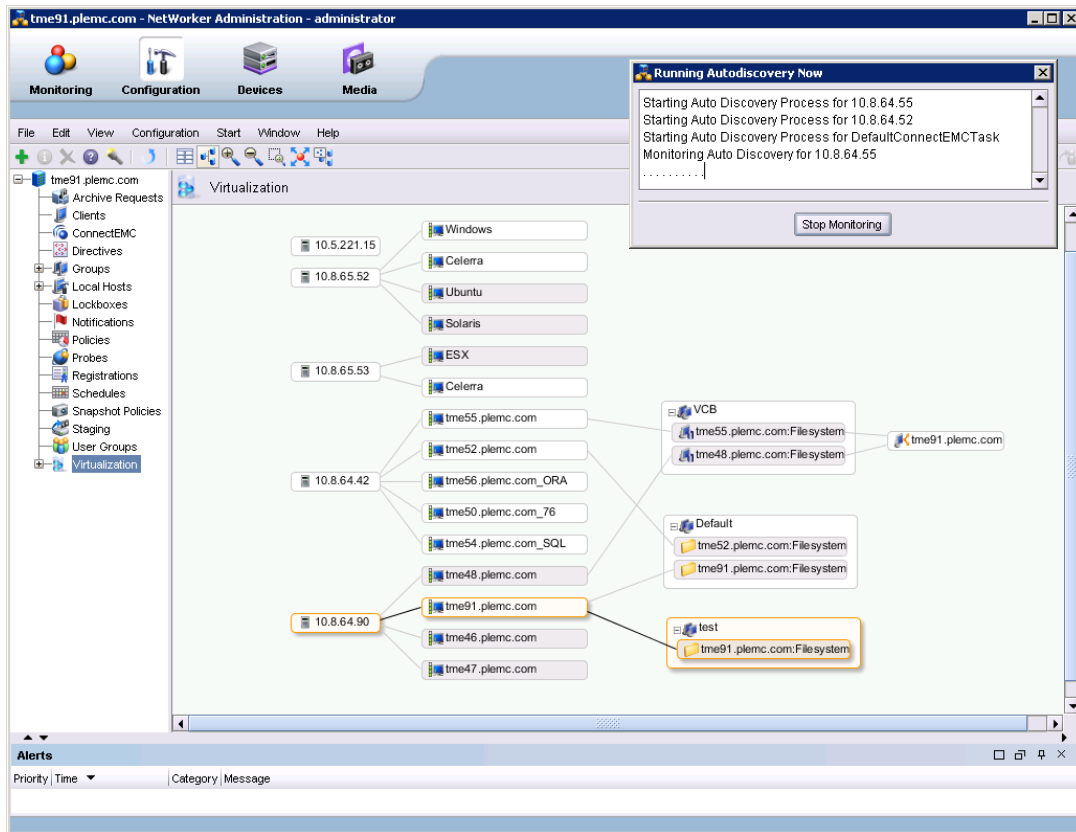


Figure 9. NetWorker's VMware visualization feature

Security

Backup data requires similar levels of security as those of production data. Loss or theft of backup data can be equally devastating in protecting a company's valuable intellectual property and reputation. NetWorker provides security features that help protect system and data access.

Authentication and encryption

NetWorker access is protected by secure login and authentication. NetWorker hosts and daemons are authenticated using strong authentication based on the Secure Sockets Layer (SSL) protocol RSA 1024-bit private keys. Communication is encrypted using AES-128. For added security of data in-flight as well as at rest, NetWorker provides a robust 256-bit AES encryption that can be applied to data at the client before sending the backup.

Lockboxes

The NetWorker server provides NetWorker modules and other NetWorker features such as AES encryption with a secure facility for storing and retrieving passwords over a network. This is done through a lockbox

Unified Backup and Recovery with EMC NetWorker
A Detailed Review

mechanism that helps users securely access passphrases used to access and manage data. With the lockbox, administrators can designate the users who will have permission to store, retrieve, and delete passwords.

LDAP and Active Directory authentication

For ease of user and access management, NetWorker allows you to set up user authentication with LDAP authentication, which enables you to log in to the NetWorker Management Console server with usernames and passwords that are maintained on a centralized LDAP version 3 compliant server such as a Microsoft Active Directory server. NetWorker user privileges are controlled by mapping LDAP user roles or LDAP usernames to console user roles. In this way, there is no need to add separate usernames and passwords within the NetWorker Management Console server.

Conclusion

EMC NetWorker provides a unified, common platform that brings together a complete set of data protection capabilities including broad, heterogeneous platform support. Backup is an evolving art and needs to operate across a diverse IT landscape. To meet the needs of growing and thriving businesses, NetWorker has also evolved. With it you can safely transform backup, blending traditional and next-generation capabilities such as deduplication all under centralized management. At home in both large enterprise environments as well as small and growing businesses, with NetWorker you can be assured that your data is protected securely with maximum efficiency.