Position Paper

Network Data Management through Storage Manager

opentext™

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Managing ever expanding network stored data involves a range of activities and responsibilities that when not given sufficient attention, can quickly lead to a variety of problems, including data glut, security risks, and budget fatigue.

"Data really powers everything that we do.[1]" It has been called the "raw material[2]" of business. That is why efficient data management is so important. But in a world where organizations that were storing gigabytes or terabytes of data only a few years ago are now storing petabytes or exabytes, how can organizations appropriately manage their data?

Managing ever-expanding network-stored data involves a range of activities and responsibilities that when not given sufficient attention, can quickly lead to a variety of problems, including data glut, security risks, and budget fatigue. Yet, inattention to data management seems to be the norm. According to Gartner, "…data and analytics are increasingly critical elements across nearly all industries, business functions and IT disciplines in both the private and public sector.[3]"

Detailing Data Management Problems

Chances are you have struggled with one or more of the following challenges:

- Automating data management tasks
- Enacting data management processing
- Data lifecycle management
- Migrating user and group data and associated rights from Novell or OpenText™ to Microsoft

These tasks, along with many others, when performed manually or without adequate software tools, can quickly burden the resources of an IT department and prevent personnel from focusing on larger projects. Moreover, there are monetary costs for performing these tasks that can add up to significant expenditures over time. An IDC report, for example, noted the findings from a 100,000+ combined student and faculty school district in Texas: "With students changing grades and often even schools every year, with students entering the school district and graduating, and with movement of staff and faculty, the district ascertained that they were spending $5 to set up a new user and $2 per each change applied to the system.[4]"

Introducing Storage Manager

For the network file system management challenges identified above, along with many others, we developed OpenText™ Storage Manager. Storage Manager automates and enacts OpenText™ Open Enterprise Server (OES) network file system tasks that are traditionally done manually, resulting in cost savings and assurance that tasks are being performed properly.

After nearly 20 years in the market, today Storage Manager enacts file system management tasks and manages the network storage of millions of users and groups in hundreds of accounts across all industries.

1 *Jeff Weiner, Chief Executive Officer, LinkedIn*
2 *Craing Mundie, Senior Advisor to the CEO, Microsoft*
3 *Gartner, 100 Data and Analytics Predictions Through 2024, G0072186, Graham Peters, Alan D. Duncan, 20 March 2020*
4 *IDC, Novell Delivers a New Way of Intelligently Managing Organizations' File-Based information, #216013, Noemi Greyzdorf, January 2009*

How Storage Manager Works

Storage Manager introduces management and structure to an unmanaged and unstructured OES network storage system. In the process, it automates the full lifecycle management of user and group storage. Leveraging NetIQ eDirectory by OpenText, Storage Manager automates or enables you to enact a comprehensive set of storage management tasks based on events, identity, and policies.

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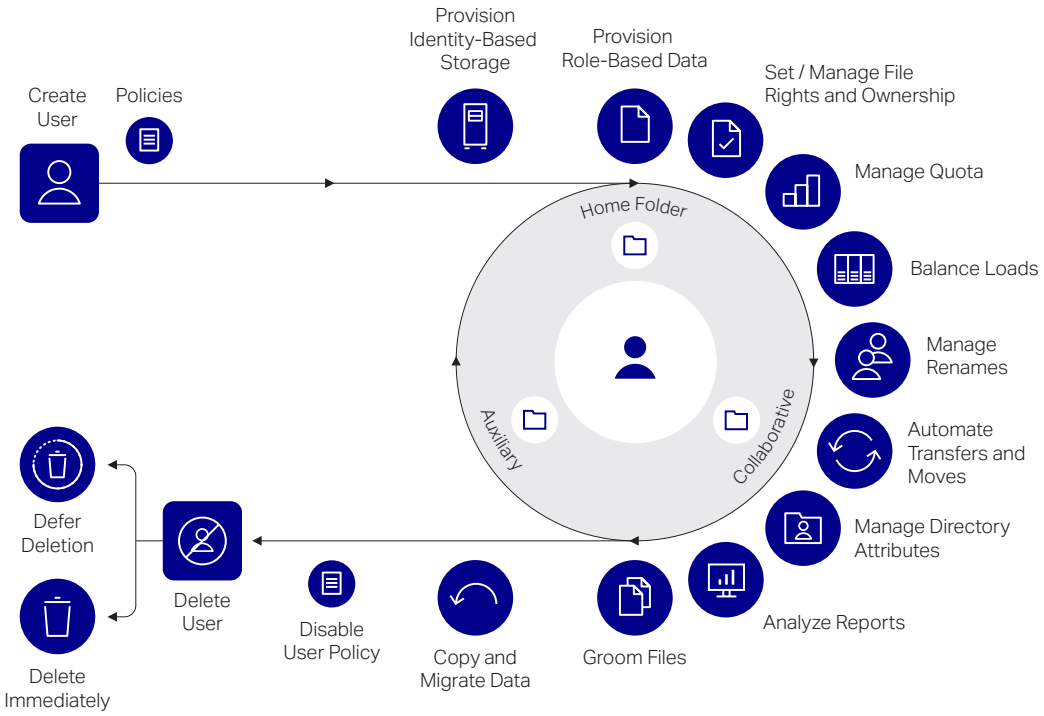

Figure 1. Storage Manager manages data through a lifecycle approach, beginning with the provisioning of user and group network storage and access to data archiving and disposal, long with a range of management tasks in between.

Integration with NetIQ eDirectory

NetIQ eDirectory stores the identity information about the users and groups that Storage Manager manages. When Storage Manager is installed, it adds or modifies user and group attributes in the directory so that user and group storage can be managed through Storage Manager.

Events

A directory event is anything that changes the status of a user or group residing in NetIQ eDirectory. Examples are the creation of a new user or group, the movement of one user in NetIQ eDirectory to another container, a renamed user, etc. When applicable events take place, Storage Manager takes action by following the specifications of the policy.

Storage Manager disperses the workload between an Engine, an Event Monitor, and Agents.

Policies

Policies within Storage Manager indicate what storage-specific actions to enact when an event in eDirectory takes place. These actions include creating user or collaborative storage when a new user is added to the directory, moving storage when a user is moved from one organizational unit or group to another, and archiving or deleting storage when a user is removed.

Storage Manager lets you create the following types of policies:

- **User Home Folder:** Manages network user home folders.
- **Container:** Manages the users located in an organizational unit.
- **Group:** Manages the users that are members of a group.
- **Auxiliary:** Manages one or more additional storage locations in association with the Home Folder policy.

Components of Storage Manager

Storage Manager disperses the workload between an Engine, an Event Monitor, and Agents.

Engine

The Engine performs actions based on events in NetIQ eDirectory and the defined Storage Manager policies. These actions include provisioning, moving, grooming, deleting, renaming, and vaulting in the file system. There is only a single Engine per directory tree.

Event Monitor

The Event Monitor monitors changes to NetIQ eDirectory based on create, move, rename, delete, add member to group, and delete user from group events. You install one Event Monitor per directory tree.

Agents

Agents perform copying, moving, grooming, deleting, and vaulting through directives from the Engine. For optimum performance, install Agents on all servers where Storage Manager is managing storage.

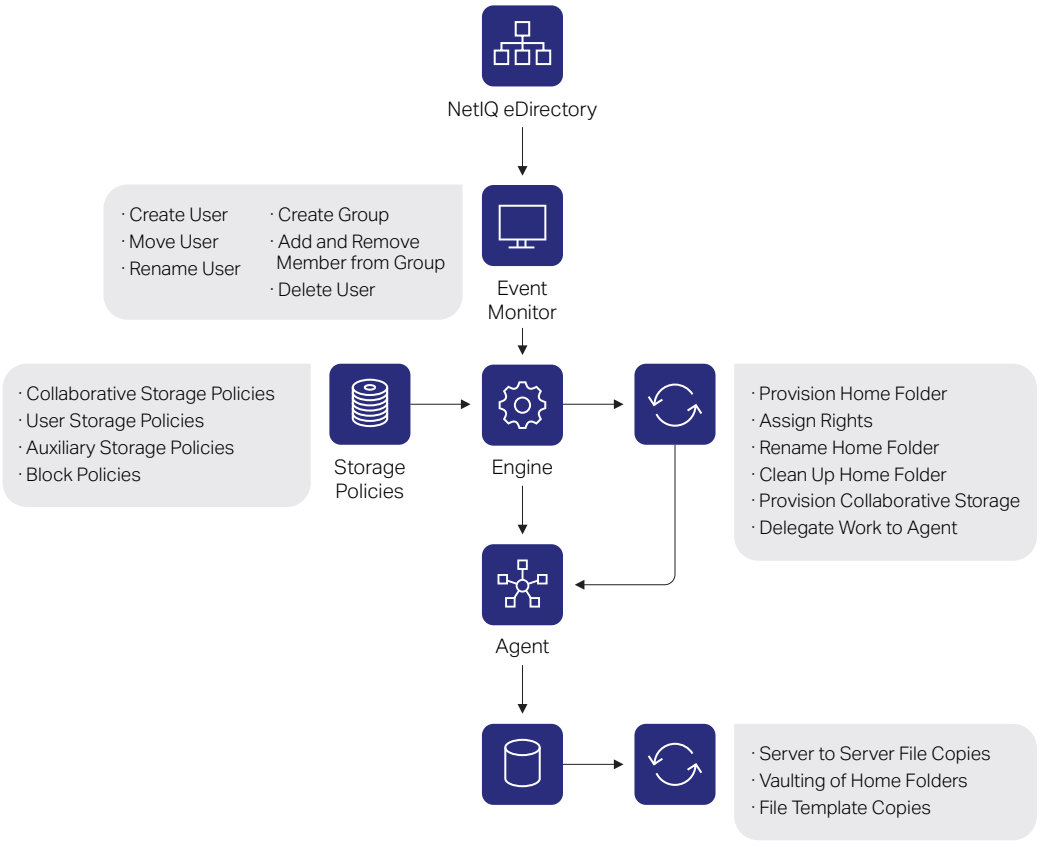

Figure 2. The components of Storage Manager and their functions.

Storage Manager can enact management processing through a simple mouse click. And unlike policy-based management actions, these management tasks are not limited to user and group storage but to all data in any location on the network.

Automating Data Management Tasks

Storage Manager manages according to specifications you establish in Storage Manager policies. You can create policies for how network storage is provisioned, managed, and cleaned up for users in a NetIQ eDirectory container or group. When creating a policy, you simply specify it once. Then when a specific "event" takes place in NetIQ eDirectory, the rules of the policy are enacted. An event would be anything that changes the status of a user or group. Examples are the creation of a new user or group, the movement of one user in NetIQ eDirectory to another container, a renamed user, etc. When applicable events take place, Storage Manager takes action by following the specifications of the policy.

Management Actions retroactively enforce the specifications of a new Storage Manager policy on the existing users and groups or enforce the specifications of a policy.

Specifications within the policy include:

- Default access permissions to the storage area
- Documents to be provisioned within the storage area
- The name of the storage area
- The file system path of the storage area
- The disk quota limits for the storage area
- How data is to be cleaned up (deleted or archived)
- And more

Enacting Data Management Processing

In addition to automated policy-based management, Storage Manager can enact management processing through a simple mouse click. And unlike policy-based management actions, these management tasks are not limited to user and group storage but to all data in any location on the network. For example, you can use Storage Manager to enact "Operations" that can:

- Copy folder contents from one network location to another
- Remove copied folder contents from the source location after the copy operation
- Move or delete specified file types such as .tmp files
- And more

In addition to Operations, Storage Manager has single-click "Management Actions" that enact user and group storage actions that are not automated through events. Management Actions retroactively enforce the specifications of a new Storage Manager policy on the existing users and groups or enforce the specifications of a policy. Management Actions include:

- Cataloging objects in Storage Manager so they can be managed
- Moving data to where the policies' target path specifies
- Deleting or moving unallowable file types (known as "file grooming")
- Applying the specified file system attributes
- Applying the specified home drive letter
- Applying members to collaborative storage areas
- Applying owners to network home folders
- Applying disk quota
- Applying permissions
- And others

Data Lifecycle Management

Storage Manager automates the full lifecycle of user and group storage through the policies discussed above. In addition to creating user and group storage, Storage Manager automates the management of:

- **Role-based data provisioning:** This means populating created user or group folders with specific documents. An example might be HR forms for the employee to complete during his or her first day on the job.
- **Rights:** Storage Manager ensures that file system rights are applied or adjusted consistently for users based on their role in the enterprise.
- **Quotas:** Storage Manager manages storage quotas or storage allocation as a user's role changes. If, for example, a user's role is changed, the storage quota could be increased or decreased automatically—according to policy.
- **Renames:** When a user is renamed in NetIQ eDirectory, the user home folder automatically renames the associated home folder and updates the home folder attribute in NetIQ eDirectory so the user can log in and access his or her storage.
- **File Grooming and Vaulting:** You can set policies to move unallowed file types to a vault location on less expensive hardware or delete them altogether.
- **Storage Reports:** Storage Manager provides the ability to report on storage analytics, anomalies, consistency, actions, and storage resource statistics.
- **User Moves:** A common manual process for IT departments within companies with multiple locations is moving employees' storage when they transfer to a new city. Storage Manager completely automates this process.
- **Actions for Deleted Users:** When an employee leaves your enterprise, you can have Storage Manager automatically vault the storage or defer the cleanup of the storage for a set number of days.
- **Inactive Users:** Many enterprises do not delete users immediately but move them to an inactive state. Storage Manager supports this practice by allowing you to configure an inactive users policy. When users get associated with this policy, their storage is moved to another location, and their rights are removed.
- **Others:** Storage Manager can load balance storage content across servers, provide basic data content reporting, and report on Storage Manager enacted transactions in the network file system.

Completing the Account Management Lifecycle Automation Chain

Many organizations have deployed identity management (IDM) systems to provision user accounts and manage user access to network applications, databases, and other resources. IDM systems are invaluable in their ability to save organizations time and money while helping to achieve security compliance. But IDM systems fail to provision and manage network storage as part of user lifecycle management.

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When an employee changes roles and the IDM system reassigns access rights to groups and applications, Storage Manager can move and update the home folder according to the user's new role. You don't have to do anything.

Storage Manager, with its ability to take action when events take place in NetIQ eDirectory, can complete the account management lifecycle chain. Since it uses the same directory as your IDM system, Storage Manager can take user-storage action while the IDM system takes user-account action. For example, while the IDM system creates a new user account in NetIQ eDirectory, makes the user a member of one or more groups, and sets the user's network access, Storage Manager can establish a network home folder and even provision the home folder with the necessary documents the new user will need. Storage Manager also establishes the home folder's location, access rights, and storage quota according to the user's role. In addition, it can establish access to group storage areas.

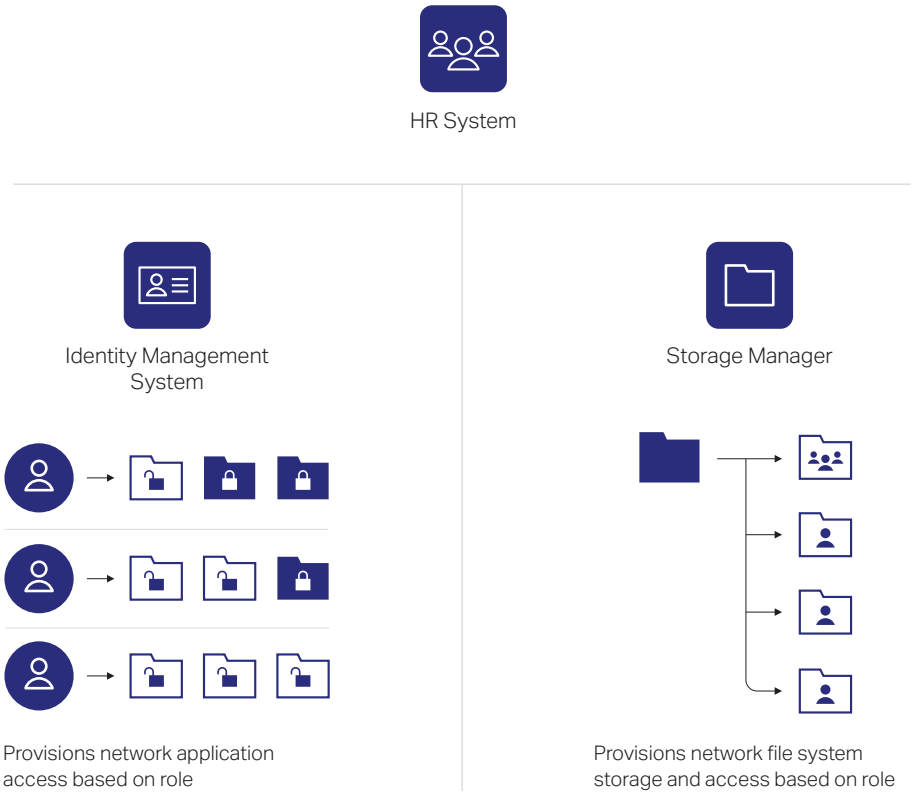

Figure 3. As an IDM system provisions user accounts and establishes access to applications, databases, etc., Storage Manager can simultaneously provision user and group storage and set access permissions.

When an employee changes roles and the IDM system reassigns access rights to groups and applications, Storage Manager can move and update the home folder according to the user's new role. You don't have to do anything. Storage Manager can automatically provision new documents, update access rights, assign new disk quota, and grant access to new group storage areas.

Finally, when the IDM system removes or disables a user account, Storage Manager can delete or archive the user's files according to your company's policies.

Migrating User and Group Data and Associated Rights from Novell or OpenText to Microsoft

If your organization has decided to change its network operating system from Novell or OpenText to Microsoft, you need migration tools that will make the migration as simple and as trouble-free as possible. Unfortunately, the differences between the NSS and NTFS file systems will not allow you to simply copy the countless directories, subdirectories, and files of an OES volume to a Windows Server network share. Doing so would eliminate the trustee assignments, or permissions, of the files and require network administrators to reassign Microsoft file permissions on each of the files once they have been migrated—a task that could take hundreds of hours.

Many people are surprised to learn that the simplest and most comprehensive solution for migrating data from a Novell or OpenText network to a Microsoft network is provided by OpenText. The NetIQ eDirectory-to-AD Cross-Empire Data Migration subsystem to Storage Manager migrates file system data from an OES server volume to a Microsoft Server share, including their corresponding storage infrastructures and identity and security frameworks.

Through an identity map and wizard interface, Cross-Empire Data Migration quickly and automatically moves data based on a variety of scenarios, which include moving data for multiple users and groups directly to their intended locations across multiple servers or shares in a single operation—all while preserving important file system metadata. Post-migration utilities then verify that all of the contents of the server volume were migrated

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Conclusion

With network storage growing at an exponential rate and projected to continue to do so[5], an automated, identity-driven, policy-based approach to storage is needed more than ever.

Storage Manager is the only solution in the market today that provides automated user and group storage management for OpenText OES networks, through policy-specified actions automated through eDirectory events or enacted by the administrator. Storage Manager policies oversee the full lifecycle of storage management.

Storage Manager will save enterprises time and money while helping to assure that data is being managed according to their specifications.

Learn more at
www.opentext.com

5 *Forbes, 6 Predictions About Data In 2020 And The Coming Decade, Gil Press, Jan 6, 2020*

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