Automated Management and Regulatory Compliance through Storage Manager

Table of Contents

The Network Storage Growth Explosion ........................................ 2
The Need for Storage Management .............................................. 2
Manual Storage Management .................................................... 3
Introducing Micro Focus Storage Manager .................................... 3
A Closer Look ........................................................................... 3
Life Cycle Management of Storage ............................................. 4
Collaborative Storage ................................................................. 5
Regulatory Compliance and Risk Management .............................. 5
Saving Time and Money .............................................................. 6
Conclusion ............................................................................... 6
The Network Storage Growth Explosion

Computer network data storage continues to grow at an unprecedented exponential rate. A recent Gartner study reveals that data growth is the biggest data center hardware infrastructure challenge for large enterprises¹. Additional research indicates that storage is commanding a higher portion of the overall IT budget².

No matter what industry you work in, chances are you’re affected in some way by this storage capacity growth through industry regulations requiring, among other things, the long-term storage of company data. Many people are somewhat familiar with regulations such as the Sarbanes-Oxley Act (SOX) and the Health Insurance Portability and Accountability Act (HIPAA), but similar regulations exist for over 10,000 other industries.

But regulations and compliance are only one factor in the explosion of data storage. Pervasive computing where PDAs, MP3 players, cellular phones, etc., can record, access and store data, and then allow users to easily move content to the network is another contributor to storage growth. In a “keep-everything culture”³ network storage areas are being affected dramatically by the storage of photos, videos, MP3s and other types of personal files.

Unstructured data, the file-based data created by users, now dramatically exceeds the percentage of network-stored block-based or transactional data. Organizations continue to purchase and deploy almost fifty percent more storage every year to store their unstructured data. Yet the purchase of additional hardware is just a small fraction of the overall cost of managing this unstructured data when you factor in management tasks such as locating data, backing it up, restoring it, improving performance and throughput, etc.

And then there is compliance. In an effort to comply with industry regulations, many organizations are simply adding more storage hardware and saving everything. But as IDC pointed out in a 2007 report, “Simply continuing to add more storage through traditional methods is unsustainable because many datacenters will be unable to provide the necessary power, space, or cooling. As a result, companies need to be more effective and efficient in the way they provide storage resources.”⁴ As Forrester Research said, “being smart about efficiency is more critical than ever.”⁵

The Need for Storage Management

Exponential storage growth and the factors that contribute to it have magnified the need for file storage management; or perhaps more accurately phrased, taking storage from an unmanaged, to a managed state.

Unmanaged network storage is like an unmanaged budget. Imagine what it would be like if you did not know:

- How much you had in your bank account?
- The amount of money being deposited into your account?
- How much money you were spending in expenses each month?
- Whom you were paying?

Exponential storage growth and the factors that contribute to it have magnified the need for file storage management.

---

¹ Press Release, Gartner, Inc., November 1, 2010
³ “The Toxic Terabyte”, Paul Coles, Tony Cox, Chris Mackey and Simon Richardson, IBM Corporation 2006
Putting this in perspective to network storage, it is all too common for enterprises to not know:

- The rate at which storage disk space is being filled
- How much disk space is already filled
- How much disk space is remaining on your network shares or server volumes
- Which individuals and groups are storing the most files
- Changes in disk storage usage over time

**Manual Storage Management**

In most enterprises, the few storage management tasks that are addressed are done so manually. This requires IT personnel to individually assign, maintain, archive and clean up all the storage used by every employee in the company—an expensive ongoing cost. When IT staffs have many responsibilities, storage tasks, such as data archiving and disposition, tend to take lower priority.

Manual processes are also more subject to human error. With potential fines levied for inadequate data retention, integrity and security, organizations cannot afford to jeopardize compliance with the risk of human error.

Storage management automation is the answer. Automation not only assures that storage is being assigned, cleaned up and archived at appropriate times, but that corporate storage policies, along with applicable industry regulations pertaining to storage, are being enforced.

**Introducing Micro Focus® Storage Manager**

Storage Manager introduces automated management to an unmanaged network storage system and in the process, automates full life cycle management of user and group storage. Leveraging network directory services (commonly referred to as ‘the directory’), Storage Manager automates a comprehensive set of storage management tasks based on events, identity and policies.

Storage Manager delivers secure, automated and flexible management for personal and group storage, and it saves time—a lot of time.

You define (just once in your network directory) through policy how storage should be handled for a particular user identity, role, group or container. After that, the rest is automatic. Storage is allocated, shared, moved, resized, deleted and archived automatically according to the policies you predefined. An identity-driven solution for storage management with Storage Manager makes an immediate difference: it cuts costs, saves time and ensures regulatory compliance.

**A Closer Look**

Chances are your enterprise has established written policies pertaining to network storage. These policies might specify the size of a user’s home folder based on the user’s role in the organization. They might also specify where what types of files can and cannot be stored in the home folder, and on which volume the home folder is to reside.

Regarding collaborative storage, your enterprise might create network storage folders for cross-functional teams on specific servers and grant the group members specific rights within the folders.

Additionally, industry regulations may contribute to the enterprise policies with specifications for network access areas, archiving and disposition.

Storage Manager lets you create user and collaborative storage policies that align with your written policies and practices. Once saved, these policies dictate the actions that are to take place when certain events take place in the directory (Micro Focus eDirectory™ or Microsoft Active Directory).

A directory event would be anything that changes the status of a user or group. Examples are the creation of a new user or group, the change in role of a user, the transfer of a user from one container or group to another, elimination of the user or group, etc.

In a Storage Manager deployment, “Event Monitors” are deployed on servers to capture directory events as they take place. For Microsoft networks, Event Monitors can be deployed on Microsoft Windows Server 2003® or later with an x86 or x64 processor. For Micro Focus networks, Event Monitors can be deployed on SUSE Linux Enterprise Server 10 or later with an x86 or x64 processor, or a Micro Focus Open Enterprise Server 2 machine with an x86 or x64 processor.

---

6 For exact specifications for all components of Storage Manager, please refer to the product technical specifications web page at: [www.novell.com/products/storagemanager/technical-information/](http://www.novell.com/products/storagemanager/technical-information/)
Directory events are sent from the Event Monitors to the Storage Manager “Engine.” If a policy stipulates that an action be taken based on the directory event, the Engine initiates the action. The Storage Manager Engine is hosted on a Microsoft Windows Server 2008 with an x86 or x64 processor in Microsoft networks, and an Open Enterprise Server 2 machine with an x86 or x64 processor in Micro Focus networks.

The Engine sends directives to the Storage Manager “Agents” to perform the action dictated by the policy. Agents can reside on Microsoft Windows Server 2003 with an x86 or x64 processor in Microsoft networks or an Open Enterprise 2 machine with an x86 or x64 processor in Micro Focus networks. Agents can perform actions on a variety of server volume types, including Traditional NetWare®, NSS, EXT3 and Reiser.

For a simple example where all of the above components interact, suppose that a new employee is hired to work in the Human Resources department of a large insurance firm. The firm’s IT department sets up the new user account and makes the new user a member of the HR group. Upon creation of the account, the Event Monitor sees that the action has taken place and notifies the Engine. The Engine looks to the policies and sees that according to one policy, each HR department employee is to be allocated a 10 GB home directory on a Open Enterprise Sever volume. Another policy states that each member of the HR group has a 500 MB subfolder created in an HR group collaboration folder where the users have Read/Write rights to personal folders but Read Only rights to the other member subfolders.

The Engine sends the directive to the Agent for the Open Enterprise Server where the HR home folders reside and creates a new 10 GB home folder for the new user. Additional directives are sent out to the Agents for the servers where the group folder resides and adds a new 500 MB subfolder for the user and grants Read Only rights for the user to the other subfolders in the group folder.

It’s especially worth noting that the Storage Manager components described above utilize the existing servers you already have and, unlike other storage management systems, do not require the investment in new servers and databases.

**Life Cycle Management of Storage**

Storage Manager automates the full life cycle 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 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 eDirectory or Active Directory, the user home folder automatically renames the associated home folder and updates the home folder attribute in the directory 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 Manager lets you create user and collaborative storage policies that align with your written policies and practices. It’s especially worth noting that the Storage Manager components utilize the existing servers you already have and, unlike other storage management systems, do not require the investment in new servers and databases.
- **Storage Reports.** Storage Manager provides the ability to report on storage anomalies, consistency, actions and storage resource statistics.

- **User Moves.** A common manual process for IT departments within companies with multiple locations is moving an employee’s 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.

- **Collaborative Storage.** Storage Manager lets you easily create collaborative storage areas through collaborative storage policies that you can assign to groups or containers. You can structure the collaborative storage in one of two ways:
  - Creating a single project folder where all project members have access and have the same rights.
  - Creating a project folder with a specified owner. In this collaborative storage structure, the project folder has subfolders for each of the members of the group. This configuration is done through Dynamic Template Processing.

  Storage Manager works with Active Directory or eDirectory to ensure that only members of the container or group have access to the collaborative storage folder. As new members are added to the container or group, they are automatically granted access to the collaborative storage. As members are removed, they are denied access, but the files that they submitted to the collaborative storage folder remain.

- **Regulatory Compliance and Risk Management**
  A heightened focus on security has prompted a wave of government and industry regulations for the storage and transmission of electronic data. To effectively comply with many of these regulations—including SOX, HIPAA and more—you need a secure, identity-based storage solution. You also need to minimize risk. Noncompliance will be the least of your worries if you lose key data or end up in a legal entanglement.

  Storage Manager ensures regulatory compliance and reduces risk through identity and policies. An identity-driven management solution—one based on clearly defined policies—is much less vulnerable to certain types of security threats, particularly human errors in manual data input and manipulation. You can use Storage Manager to limit the types of files users are allowed to save and the locations where users can save them. This will help your organization keep resource-draining or damaging files out of sensitive areas or off the network altogether.

  With Storage Manager, misplaced data is never an issue. Users’ storage will follow them, no matter where they work in the organization. When an employee leaves, you can know that your company’s intellectual property remains safe and accessible. You can configure policies so that Storage Manager automatically, or after a set number of days, archives or deletes the user storage.

**Figure 2.** Storage Manager automates the complete life cycle of file-based storage through identity, directory events and policies.
**Saving Time and Money**

Since its initial release as “File System Factory” in 2003, the objective of the product has always been to save network administrators time and money by automating the manual tasks associated with user storage management. With the product now known as Storage Manager, the features and enhancements have grown to include collaborative storage management, reporting and analysis, and support for Microsoft Active Directory. Yet the initial objective to save network administrators time and money through automating storage tasks remains the same.

Storage Manager will save you time and money by:

- Automating thousands of hours of manual work and doing so in a consistent and auditable manner
- Alleviating personnel from doing mundane, error-prone storage jobs
- Assuring that your users will have the storage resources they need—whenever they need them
- Providing you the confidence that all your storage is secure and available should you need to prove compliance with government or industry regulations

There are hundreds of Storage Manager success stories across the world in organizations such as small businesses, government agencies, school districts, hospitals, universities, airlines, financial institutions and many more. Perhaps just one example of a government agency would demonstrate the potential savings you could realize with Storage Manager.

The agency employed 30,000 and was spending approximately US$48,000 each year to manually provision and manage employee storage. The agency was considering a customized, home-grown solution but were worried that it would be difficult and costly to deploy and integrate.

Then they heard about Storage Manager. It fit right in with their infrastructure, working seamlessly with their existing servers. Full deployment took about six weeks, and the agency started seeing a return on its investment within three months. Automation and the easy-to-use management tools nearly eliminated storage-related expenses. Annual storage management costs dropped to US$6,000, saving the agency US$42,000 per year.

**Conclusion**

With network storage growing at an exponential rate and projected to continue to do so, an automated, identity-driven, policy-based user and collaborative storage solution is needed more than ever.

Storage Manager is the only solution on the market today that provides automated user and collaborative storage management through identity in network directory services. User storage and collaborative storage policies oversee the full life cycle management of storage from home folder creation until folder archiving or deletion, and an expansive set of other storage management services.

Automation through identity and policies within Storage Manager will save enterprises time and money while assuring that industry and government regulations pertaining to storage are being followed.

---

**About Micro Focus**

Since 1976, Micro Focus has helped more than 20,000 customers unlock the value of their business logic by creating enabling solutions that bridge the gap from well-established technologies to modern functionality. The two portfolios work to a single, clear vision—to deliver innovative products supported by exceptional customer service. [www.microfocus.com](http://www.microfocus.com)