

**Guidelines for Implementing
a Network Storage Resource Management Policy**

A Technical White Paper

Network Storage Policy Becomes Bestseller Here

Pressure to contain corporate spending on storage, combined with distributed servers reaching 95 percent capacity, propelled the chief technology officer (CTO) of the largest independent textbook publisher in the United States to issue a storage policy throughout the company, according to a Computerworld article. The CTO immediately got support from the CEO and had the central IT group and local systems administrators cull servers for the problems.

Working with a steering committee made up of business unit managers, the CTO rolled out a network storage policy limiting all employees to 100 megabytes of space on servers. Apparently, employees had gotten used to keeping every version of a revised chapter – a practice that wasn't necessary and, in turn, wasted a lot of storage space, dragged backup and recovery, and jeopardized server performance and availability.

The CTO says that within days of putting the policy in place, the free space on most of the distributed servers grew to about 30 to 35 percent as employees removed these unnecessary files. The CTO adds that he stayed within the margin for his budget as a result of not buying more servers. Ironically, 10 percent of this publisher's corporate spending goes for storage – everything from buying equipment to maintaining it.

IT Industry Report Sounds Alarm for Network Storage Policies

IT managers must get a network storage policy in place or crumble under information overload. That's one of the findings in, 'Data Management – The Forgotten Element of the New Economy,' a report issued in April 2001 by the Butler Group, an IT consulting firm based in London, England. The report says that unless network managers create a network storage policy, mission-critical processes could slow to the point of an organization losing its competitive edge. The report says:

"Failure to control the influx of data generated by the Web and e-business has caused many organizations to struggle with how best to control their information overload. Every organization's corporate procedures should include a comprehensive data review and storage policy, which has clear rules about which data should be left online, near-line, offline, archived, or deleted."

Network Storage Policies Provide a Level Playing Field for Everyone

A well-conceived network storage policy can help an IT department to establish procedures for reducing the time and cost of managing network storage, provide a systematic way to budget for storage based on accurate usage metrics, and at the same time, can ensure that network servers stay within the acceptable operating standards defined by the organization's business continuity plan and/or its disaster recovery plan.

However, the aforementioned CTO hasn't been alone in his thinking. Major organizations, which use WQuinn's StorageCentral® SRM software, have also taken bold steps to put corporate IT network storage policies in place. With the support of senior management, IT departments in these organizations have, for the first time in years, been able to take control of their distributed storage environment through a sanctioned policy and automated tools, such as StorageCentral SRM, to enforce that policy.

Some of these policies define:

Management Responsibility for Servers and Storage

- ▷ why the policy exists and who has approved it,
- ▷ who has responsibility for the servers and what that responsibility includes, and
- ▷ what is the standard level of service.

Security

- ▷ who has access to read and write files, and to install software on certain servers,
- ▷ what types of files are authorized business file types that are required within users' job function to be stored on certain servers, and
- ▷ what virus control measures are taken, both proactively and reactively.

Data Reclamation and Space Control

- ▷ what action (automated or manual) is taken when certain events occur, such as a threshold being reached on a production server's capacity,
- ▷ how storage is defined for employees, public areas, groups, departments, and e-mail,
- ▷ how much space gets allocated to employees, departments, and devices; and how they obtain additional space,
- ▷ which types of thresholds and alerts are used and how they are handled,
- ▷ what tools, such as reports, do employees receive to maintain their space, and
- ▷ why unwanted file types must get blocked, and for whom and on which devices.

Data Retention and Protection

- ▷ how long specific department files or individual files can sit idle on servers,
- ▷ how documents get archived,

- ▷ how backups are performed and on what types of data, and
- ▷ how employees request files to be restored.

Cost Measures

- ▷ who gets charged for their storage usage,
- ▷ what is the cost of down time,
- ▷ what is the total cost of ownership of network storage devices, and
- ▷ what service levels are in place.

End-user Communication

- ▷ how will employees learn about the policy or receive updates about it,
- ▷ how employees will be notified about usage patterns, critical thresholds and self-cleanup.

Infractions

- ▷ how storage violations will be handled by the organization,
- ▷ what exceptions exist, and
- ▷ whether or not to enforce strict hard quotas, and on whom, with what amount of overdraft space allowance.

In some cases, a network storage policy can leverage the overall corporate employee computer usage policy, defining acceptable employee business practices for using servers, such as no downloading of pornography, and the actions taken by the company if employees don't follow these policies.

A network storage policy can range from formal written documents, which reside on the organization's intranet and get forwarded to new employees, to written documents maintained by the IT department, but verbally communicated to employees.

At CSK Auto Parts, the largest automotive accessories retailer in the Western region of the United States, employees sign a written corporate policy which says they will use the servers to store files pertaining to the business, not personal files. The IT department at CSK uses StorageCentral SRM to help employees abide by this policy.

Legal Reasons for Having a Network Storage Policy

Legal reasons exist for having a network storage policy that can help pro-actively enforce the corporate employee computer usage policy. An organization may be liable for the actions of an employee who copies without permission copyrighted material, such as music or art, literature or software, belonging to another. For example, in Marobie, Florida versus the National Association of Fire Equipment Distributors, the employer was held liable for an

employee's use of copyrighted clip art on the employer's Web site. The employee obtained the clip art from an e-mail source that didn't own the clip art. The employee never got permission from the owner to use it. The court rejected the employer's defense of being unaware the material was copyrighted. Because the clip art came from an unauthorized source, the employer was held liable for the infringement. In other cases, organizations have been sued by music artists for allowing users to copy and distribute copyrighted music files on the organizations' computer networks. Finally, Chevron Corporation settled out of court for \$2.2 million in an employee lawsuit over an e-mail message comparing beer to women, transmitted over the company's electronic mail system.

The network manager at Arkansas Tech. University uses StorageCentral SRM to ensure proactive measures so the institution can enforce its strict policy against copying and distributing copyrighted software and copyrighted music files.

Time and Tools Give Way to Storage Policies – And Policies, in General, Give Way to Employees' Angst

For more than two decades, IT departments at colleges and universities have carried out strict storage policies as a way to allow students equal access to network storage. In fact, at one school, systems administrators are held accountable, not only for the availability and performance of servers, but for what gets stored on them. The university has a strict policy about what can and can't be stored on servers. All faculty, staff, and students must abide by this policy. These systems administrators use StorageCentral SRM as a proactive measure to reduce their accountability for the two server responsibilities. StorageCentral SRM enables them to prevent students from storing those file types outlawed by the university's policy, to assign students a limited amount of space, and to monitor and to report on how each student uses his or her space. To this end, an administrator can remove anything that wastes space or interferes with a server's performance or availability.

Corporate IT organizations worldwide have begun to embrace the idea of implementing a network storage policy, such as the types widely used in schools and colleges. Some analysts agree that a lot of companies haven't thought much about managing storage, but rather just adding it haphazardly, without any definitive metrics, to where it was thought to be needed.

Farid Neema, a storage consultant with Peripheral Concepts, Santa Barbara, California, says,

“Companies can learn a lesson from the policies schools and colleges have put in place to control storage. Employees, like students, will abuse storage space if no one pays attention to it. With the advent of more space brought about by storage area networks especially, IT departments must now sit down, collect data about storage, and decide what to do about managing it. Storage resource management tools enable IT departments to collect the data they need.”

Storage resource management software, such as WQuinn's StorageCentral SRM, encompasses central detailed monitoring, alerting, reporting, and trending of specific storage resources, such as disk partitions and files, and the data stored on them in a networked system. Using storage resource management (SRM) tools, such as WQuinn's StorageCentral SRM, combined with a well-thought-out network storage policy, any IT department can easily set space limits and unobtrusively monitor the following:

- ▷ at what rate that space is being used,
- ▷ who is using it and how much they are using,
- ▷ who has taken non-company liberties with their space, and
- ▷ what strategies to take to get it under control.

However, IT policies without proper employee education may often cause angst among employees, resulting in a push-pull relationship between both camps. Realizing this, Neema says that organizations need to educate “employees about how to manage their storage space.” IT departments which use StorageCentral SRM have designed and carried out their network storage policies to minimize employee angst as follows:

- ▷ educating employees about the reason for the policy,
- ▷ ascertaining how much space employees require in order to do their job, and
- ▷ empowering employees with simple tools, such as the HTML-based reports in StorageCentral SRM, so they can maintain their space easily and intuitively. Since each report has active links to files, employee can simply click on a file name to view a file, delete it, or move it.

Survey Shows Five Consistent Steps for Managing Storage with StorageCentral SRM

Global 2500 organizations tend to use StorageCentral SRM in five similar steps during the initial deployment of the product. That's the result of more than 50 in-depth interviews conducted by an independent researcher. WQuinn calls these steps the AASET™ framework.



<u>Audit</u>	Determine what's on your servers; draft network storage policy.
<u>Allocate</u>	Assess space requirements for each user to do his or her job.
<u>Screen</u>	Identify unwanted file types and proactively block them from writing to servers.
<u>Educate</u>	Finalize network storage policy, inform employees about its purpose, and empower them with tools for monitoring and managing their space.
<u>Trend</u>	Plan capacity expansion for growth of legitimate business data.

StorageCentral SRM Customers Create Network Storage Policies

The following guidelines highlight the practices used by StorageCentral SRM customers for creating their network storage policies.

PRACTICE POINT ONE

Get Corporate IT To Define the Reason for the Policy and to Provide Leadership

- ▶ Get the buy-in from senior IT executives and/or corporate management, human resources, and legal. Ask a senior IT staff member to spearhead the policy rollout.

Without management support from the start, an IT department will find it difficult to get any type of a policy approved and put into action. By its very nature, a network storage policy can be a double-edge sword. On the one hand, the IT department needs to be empowered to maintain the performance and availability of servers. On the other hand, servers function as shared devices with any number of employees and/or production applications as tenants. The IT department has to be careful that it creates server maintenance procedures that won't disrupt the users' work. These policies should also include any automated or manual procedures that will occur transparent to tenants. One such automated procedure may call for automatically deleting all log files when a production server reaches a certain threshold.

■ Customer Profile – A Marketing Subsidiary of a Worldwide Telecommunications Provider

This subsidiary's growth over the past few years has driven the number of distributed servers to 475 – about 80 file and print servers (a combination of Windows 2000, Windows NT, and some Novell

NetWare) and the rest production servers, with applications, such as customer billing, that produce substantial revenue for the subsidiary. With the approval of the vice president of operations, the IT department formed a storage policy task force of eight individuals, including systems administrators, systems engineers, and network managers. The group determined that the network storage policy would serve the following purposes:

- ▷ to use StorageCentral SRM to reclaim wasted space on production servers containing revenue-producing files,
- ▷ to use StorageCentral SRM to formulate procedures that simultaneously limit and protect the amount of space that the company's 3,000 employees could use and to ensure they store appropriate file types on the appropriate servers,
- ▷ to reduce the overall number of servers through consolidation and/or moving to storage area networks (SANs), and
- ▷ to seal up deficiencies in the disaster recovery plan by using StorageCentral SRM to find out what applications were on what servers, where each application's data resided, and what non-business or obsolete data need not be recovered.

■ Customer Profile – A \$6 Billion Computer Manufacturer

In the mid-1990s, this computer manufacturer had a campus headquarters with 5,000 employees, 100 discrete local area networks with 300 departmental servers, and three or four different e-mail systems. Locations throughout the world had disparate LANs and servers.

The IT department went to a single LAN environment with consolidated similar Windows NT servers, as well as a single Windows Exchange e-mail system. However, over years, the consolidated servers – mostly Windows NT servers connected to RAID subsystems – have grown larger and larger. The average server contained about 250 gigabytes, while some servers reached a full terabyte storing up to two million files.

With the support of the director of network infrastructures services, a group of eight IT project directors from throughout the company formed a committee to write a network storage policy. One IT project director says,

"The policy will empower us to do what we need to do in order to clean up servers so they don't run out of space in critical situations. It will also define how we manage servers."

■ **Customer Profile – World's Largest Package Delivery Service**

One of this company's network storage policies pertains to a particular IT group, which manages 1,200 production servers in delivery depot facilities throughout the United States and Canada. The servers mostly run this service firm's proprietary applications. This IT group's director adopted the policy to maintain these distributed servers as part of a controlled production environment. The policy provides uniform storage management procedures for the geographically-dispersed members of this IT group, and coordinates procedures between all disparate groups and the central data center in the south.

■ **Customer Profile – A Mid-Size Aluminum Extrusion Fabricator**

At the request of the vice president of manufacturing, the IT department was asked to create a policy and automated procedures to keep the storage capacity on all manufacturing servers within a certain capacity level to ensure optimized performance at all times. These servers ran a process control application that drives other systems involved in the shaping and cutting of custom-built aluminum extrusions for industries ranging from medical to construction. These servers are spread across two plants – the headquarters plant and a smaller plant about 250 miles away. Since the smaller plant has no IT staff on site, the automated procedures reduced the need for an IT professional to drive to the second plant.

■ **Customer Profile – An Outsourced Human Resource Service Provider**

To keep the total cost of some 7,000 desktops at a minimum, this organization uses 100 Windows 2000 Terminal Servers, which not only store each employee's files, but also provide each employee with access to Microsoft Office applications. Specifically, each desktop functions as a non-intelligent terminal dependent on a server.

Without any controls in place, employees tended to use as much space as they could get. To this end, a couple of times a month, servers would fill up and grind to a halt, completely disrupting desktop tasks employees were working on. Systems administrator had to scramble and free up space.

The CIO said no to giving employees more space because they didn't warrant it. Instead, they needed to do a better job of managing their space. Also, the company has a hard rule about sticking to a capital framework to budget for disk space. The IT department implemented StorageCentral SRM to help carry out a storage policy to reduce wasted space, to allocate a certain amount of space to all employees, and to educate employees about staying within their space allocation. As a result of carrying out its policy using StorageCentral SRM, the IT department has had no problem abiding by the CIO's request.

■ **Customer Profile – \$20 Billion Paper and Building Products Manufacturer**

The IT department at each one of this company's divisions found itself spending millions of dollars on servers without having to justify the need for them. Servers became crammed with all sorts of files that wasted space. For example, some divisions devoted one server to handle both file and print tasks and applications. Outages of these all-purpose servers became commonplace. To this end, the IT departments found it difficult to manage about 1,500 servers across five divisions.

With the support of the CIO, each IT department selected a representative to participate in an initiative board to study the best way to handle the problem. The board determined that a network storage policy would (first) help each division to get its storage environment under control, and (second) determine the business reason for the storage.

■ **Customer Profile – A Division of a Major Tractor Company**

Rather than have his employer invest in expensive storage subsystems, this systems administrator convinced his divisional IT director to establish a network storage policy to clean the servers of wasted space. A StorageCentral SRM audit helped the systems administrator to reclaim, within a matter of weeks, about 70 gigabytes of space on a 300-gigabyte server. For example, a StorageCentral SRM duplicate files report uncovered more than 200,000 files with one or more corresponding mates.

🔑 PRACTICE POINT TWO

SRM Tools Help to Provide Specifics for Network Storage Policies and Provide Procedures for Enforcing Policies

- ▷ Invest in storage resource management tools and ascertain current storage patterns through a thorough audit of existing storage resources.
- ▷ Work with local systems administrators to determine initial space allocations, thresholds, and alerts for specific storage resources.
- ▷ Create automated procedures carried out by the storage resource management tools.

After getting the support it needs, an IT department or IT committee can begin drafting the various procedures that will comprise the network storage policy. However, the foundation for a good, workable policy requires both qualitative and quantitative data about the storage environment. Using StorageCentral SRM, systems administrators can perform a thorough audit of their servers to determine what exactly they contain and why. The IT department or the IT committee, working with the local system administrators,

can begin to determine the specifics of the various procedures, such as how much space to allocate employees, what types of files to block, and what files need to be moved to secondary storage.

■ **Customer Profile – A Marketing Subsidiary of a Worldwide Telecommunications Provider**

The StorageCentral SRM audit revealed that each server had at least 35 percent wasted, taken up by outdated files, duplicate files, desktop backups, and junk downloaded from the Internet. The files-older-than-a-year report listed numerous files that had not been touched in up to three years. One production server had several copies of the full-length version of a Star Wars movie as an mpg file. Some initial measures included:

- ▷ removing all non-business file types and desktop backups,
- ▷ blocking files types, such as mp3's and avi's, so employees couldn't store them on servers, and
- ▷ contacting the owners of the outdated files to determine what could be deleted, archived to near line storage, or moved off to tape.

Based on the information from the StorageCentral SRM audit reports, the storage policy task force determined the following:

- ▷ the content and access restrictions for servers with revenue-generating applications,
- ▷ the space allocations for individuals and groups on servers considered non-revenue systems,
- ▷ the storage restrictions for non-revenue systems, and
- ▷ the archival and data removal procedures for non-revenue systems.

■ **Customer Profile – A \$6 Billion Computer Manufacturer**

The StorageCentral SRM audit showed that about 75 percent of files across all servers had not been accessed in the last year. Of this 75 percent, about 25 percent consists of files that had not been touched in four years. The storage policy committee gasped at all of the hours wasted backing up all of these files, and the amount of hours that would be wasted trying to recover a server.

This audit also uncovered thousands of home directories overflowing with PST e-mail files, as well as plenty of desktop backups. Initial measures included the following:

- ▷ setting up dedicated servers for PST files only, and using StorageCentral SRM to block employees from storing PST on any type of servers, and

- ▷ preventing employees from backing up desktops to the server as a result of a block on backup file types, such as *.bak and *.arc files.

As employees moved their PST files to the dedicated servers, available server space started to increase and backup cycle times started to decline.

Another measure called for using StorageCentral SRM to set an overall space threshold on each server to avoid any out-of-space failures.

As one IT manager said,

“We should’ve been managing these things more proactively a long time ago. They don’t come to the surface until you take a good look at what you have.”

Based on the information from the StorageCentral SRM audit reports, the storage policy committee determined the following:

- ▷ the types of files to be stored and their location,
- ▷ the amount of space allotted for home directories, PST directories, and/organizational directories,
- ▷ the procedures for reclaiming space:
 - the routine use of StorageCentral SRM reports to identify wasted space taken up duplicate files, certain non-business file types, files not accessed for a year, files with no identified owner (orphaned files).
 - the scheduling of regular end-user communications that encourage and empower them to cleanup personal and/or group space.

■ **Customer Profile – A Mid-Size Aluminum Extrusion Fabricator**

The IT policy to maintain all of the manufacturing department’s process control servers has automated procedures for keeping servers from exceeding 80 percent of their storage capacity. These servers reside at two locations 250 miles apart. One of the locations has no IT staff on site. Either way, the automated procedures save the IT department from doing a lot of administrative work, unless it is absolutely necessary.

If a server hits the 80 percent mark set by StorageCentral SRM, the policy has automated procedures to reduce the server’s storage capacity. The automated procedures carried out transparently by StorageCentral SRM include the following:

- ▷ generates a report showing all temp and log files greater than 90 days old and it executes a custom report (generated by the StorageCentral SRM reporting engine) to show which files can likely be re-located, archived or deleted.

- ▷ If the cleanup brings the storage capacity below 80 percent, then StorageCentral SRM sends the systems administrator an e-mail message that the server is okay.
- ▷ If the cleanup doesn't bring the storage capacity below the 80 percent mark, then the systems administrator is paged and StorageCentral SRM generates a large files report and forwards it via e-mail to the systems administrator.

PRACTICE POINT THREE

IT Department Must Prepare the Server Environment Before Implementing A Network Storage Policy

- ▷ Undertake efforts to groom wasted space from current storage devices by deleting unnecessary files and asking employees to free up space in their home directory.
- ▷ Work with employees to assess their storage needs.
- ▷ Set space allocations and implement soft space usage monitoring so employees can get used to responding to alerts.
- ▷ Don't finalize policy until procedures have been thoroughly test-driven and everyone is comfortable.

Not cleaning up the server and not test-driving the procedures ahead of time could render even the best network storage policy useless for a systems administrator to enforce.

Before finalizing its network storage policy, an IT department or an IT committee has to make sure that systems administrators identify and correct any problems, such as excessive amounts of mp3's or applications that could be moved to their own server. For example, StorageCentral SRM reports can help system administrators to isolate wasted space and to easily free up that space. Then the systems administrators can test-drive the policy by setting space allocations and monitoring them without inconveniencing employees. Test-driving provides an opportunity to make adjustments to any of the procedures' specifics before submitting the policy for approval.

Once it has a workable policy in hand, the IT department or an IT committee can turn a lot of tasks over to StorageCentral SRM to enforce automatically. For example, it automatically assigns a space allocation each time a new employee gets added to a server. It can keep track of all space allocations and send e-mail warnings to employees as they reach specified levels of their allocation. The e-mail message can also have an attached StorageCentral SRM HTML-based report listing the files in the employee's directory. Since each report listing is also a hyperlink, an employee can simply click on the link to view the file, or delete it, or move it to the desktop.

These reports empower employees with the tools to manage their own space easily.

■ Customer Profile – A Marketing Subsidiary of a Worldwide Telecommunications Provider

Based on the StorageCentral SRM audit, this organization's storage policy task force launched a program to have systems administrators free up 35 percent of the space that was wasted. This task had to happen before the network storage policy could be completed.

Systems administrators sent an e-mail message with copies of StorageCentral SRM HTML-based reports to employees who had either duplicate files, files that hadn't been touched in at least year, or files types that didn't appear business oriented. The message asked employees to look through their report and determine, by a certain date, what files could be deleted, or what files could be archived to tape.

Based on this exercise, the task force started to draft its procedures for archiving files. If an employee didn't respond to the e-mail message, then the IT department would archive the employee's historical files on near-line storage for 30 days before writing the files to tape. The files then got deleted from the near-line storage. Otherwise, the historical files would get archived to tape and sent to off-site storage. At the same time, the IT department would update a report that says which directories got archived, what tapes they were on, and where the tapes were located.

As the amount of wasted space started to shrink, the task force had the systems administrators run StorageCentral SRM reports to determine the minimum amount of space to allocate for an employee's home directory and/or a department's shared directories.

The StorageCentral SRM reports also enabled the systems administrators to work with employees who were having trouble grooming their file space. In some cases, they asked employees how much space they might need. Based on the findings, the task force had some tentative values for space allocations.

Test-driving the space allocation part of the policy came next. Systems administrators used StorageCentral SRM to set space allocations on the home directories of employees of several servers, and to set alert thresholds with warning notices to go to the IT department. This soft monitoring enabled systems administrators to see at what rates employees used space. At the same time, employees weren't inconvenienced by any warning messages about their space usage. The results of the soft monitoring prompted the task force to make changes to the space allocations.

PRACTICE POINT FOUR

Network Storage Policies Must Fit the Organization

- ▷ Make certain types of servers available for applications, such as archiving.
- ▷ Monitor space usage, but leave punishing flagrant space abusers to human resources and legal departments.
- ▷ Always work as closely with employees to assess their storage needs.
- ▷ Set up procedures logically so different groups can carry out their tasks independently of each other.

One organization's network storage policy may serve as a good baseline model for another organization to use for establishing its policy. However, every organization's network storage policy should reflect the nuances that come with the environment. To this end, the IT department needs to work closely with systems administrators as they use StorageCentral SRM, for example, to learn about employees' storage patterns or to set up procedures used by different geographically-disbursed groups.

On the surface, one might think that the policy created by the marketing subsidiary of a worldwide telecommunications provider mirrors the policy done by a \$6 billion computer manufacturer. The marketing subsidiary has grouped procedures by two types of servers – those that have applications which generate revenue and those that don't. Step-by-step guidelines explain how to remove historical files. In contrast, the computer manufacturer groups procedures by types of data, such as e-mail and directory structure. The data retention policy, however, says that any files not accessed in year will be archived if the owner doesn't respond to an e-mail notification.

With plants in both the United States and Mexico, this lighting manufacturer wrote its policy with two sets of disciplined guidelines for employees who repeatedly store non-business files. The network manager, says, "We had to do this because of the cultural and workplace differences between here and Mexico."

The policy written by this UK-based division of a global automation company also includes blocking out all of the file types listed in the corporate computer usage policy. While using StorageCentral SRM to sweep junk stuff from servers, a systems administrator came across gigabytes of mp3's. Additional StorageCentral SRM reports helped to locate a particular home directory belonging to a certain employee who spent most of his day downloading mp3's. The IT department notified the employee's manager and the human resource department took the appropriate actions. The IT department deleted the files.

■ Customer Profile – World's Largest Package Delivery Service

To install and maintain 1,200 production servers in delivery depots through the United States and Canada, an IT group in New Jersey coordinated with the central data center personnel in Georgia to carry out procedures using StorageCentral SRM. These procedures form the crux of a policy to maintain a geographically dispersed controlled environment for these servers. These procedures balance storage management tasks between the various parties – so each party is responsible for their tasks only.

Some of the policies to install a new server include the following:

- ▷ IT group in New Jersey uses StorageCentral SRM to create group templates and automatically assign space allocations on either users at the drive level, or on directories, files, and applications at the partition level.
- ▷ This group also establishes alerting procedures for when a space allocation on a server gets within a certain percent of its limit. Alert procedures include frequency and type of alerts (such as e-mail, on-screen message, or Windows NT event log), who gets them, and what they say.
- ▷ The central IT group the data center in Atlanta, Georgia, responds to all of the space allocation alerts for the applications on that server. Likewise, this group informs the IT group in New Jersey via e-mail, and sometimes by telephone, of any alerts that an application has reached its space allocation limit.

When it learns of an alert, the IT group in New Jersey goes into the StorageCentral SRM management control and runs specific reports (listed in the policy) on the file characteristics for that server.

🔑 PRACTICE POINT FIVE

Network Storage Policies Need to Be Let Gently Out of the Bag

- ▷ Have the IT department or IT storage committee communicate with department heads and their employees about the storage policy and the way it will be carried out, especially what housekeeping tasks employees are asked to do.

The IT department needs to present the policy in a way employees can tolerate the rationale for it. John Webster, storage analyst for Illuminata in Nashua, New Hampshire says,

“They need to understand that managing storage has nothing to do with the cost of the physical media, but with safeguarding their information and making it readily available to them without interruptions.”

StorageCentral SRM customers use a variety of methods to communicate and to educate their employees about the purpose of the network storage

policy and how StorageCentral SRM carries out some of the procedures in the policy that pertain to employees. However, before carrying out the provisions of the policy that affect employees, most StorageCentral SRM customers have already rid servers of wasted space, and have monitored how employees use their tentative allocated space. Some IT departments like to gauge how employees respond to StorageCentral SRM alerts. As one systems administrator says, "We rolled out our policy when we thought everyone was ready."

Communications methods used by some StorageCentral SRM customers include the following customer examples.

■ **Customer Profile - Major Healthcare Provider in Florida**

The IT department developed a campaign to let about 12,000 employees know why the policy was written, how it would benefit them, and what procedures they would need to follow to maintain their space. Everyone first received an e-mail message briefly explaining these things. Meanwhile, the IT group prepared a training pamphlet describing how StorageCentral SRM works, what to do when an employee gets a StorageCentral SRM alert, how to archive documents, and how to obtain more space.

The IT department took up to three months to roll out its network storage policy, along with StorageCentral SRM, to all the departments. During this time, various systems administrators went around to each department fielding employees' questions. Some systems administrator said, "We wanted everyone to feel comfortable in case he or she got an alert saying they were getting close to their space allocation."

■ **Customer Profile - Lighting Manufacturer with Mexican Plants**

To inform about 800 employees about the company's network storage policy, members of the IT department conducted training sessions at plants through the United States and Mexico. One systems administrator says,

"We explained what we were doing, and why it's important to take steps to control storage. Overall, employees have been good about freeing up space or setting aside documents that need to be archived to secondary storage."

■ **Customer Profile – A Telecommunications Provider in Northwest**

The IT department sent out an e-mail message to all employees whose directories would be affected by the network storage policy. The e-mail message explained the reason for the policy and outlined the procedures employees were expected to follow. The policy also got posted on the company's intranet site.

■ Customer Profile – Canadian Bank With Many Branches

After getting its policy approved, the IT department held meetings with different departments to explain the policy. A variety of employees reviewed a network storage FAQ brochure before it was issued to everyone. The brochure explained the procedures employees had to follow to maintain their space. A copy of both the network storage policy and brochure appear on the bank's intranet site.

■ Customer Profile – Major Medical Center's Research Department

How to carry out the network storage policy with StorageCentral SRM became the topic of general laboratory meetings, e-mail messages, and several newsletters.

🔑 PRACTICE POINT SIX

Network Storage Policies Should Travel Beyond the Limits of Space

- ▷ Establish backup procedures for mobile employees or enlist an e-storage service for mobile backups.
- ▷ Decide what to do with files when employees leave the organization or transfer to a different department.
- ▷ Gather historical data about storage patterns for capacity planning, budgeting, and look at the feasibility of doing storage chargebacks to departments.

Corporate storage policies -- based on assigning space allotments and watching for space hogs and their litter -- offer a very granular first step toward developing a network storage policy. What else is needed to keep an organization's choice network storage real estate looking like a well-groomed golf course? Colin Rankine, a mid-range storage analyst for Giga Information Group, Cambridge, Massachusetts, says that a storage policy should include who owns what and how long to keep it; where you should move old files to; when to back them up; and how to handle backups for laptops for remote employees.

Most StorageCentral SRM customers include backup procedures and retention provisions, especially legal guidelines, in their storage policies. Some policies outline how the IT department handles employees who violate provisions of the corporate computer usage policy.

■ Customer Profile – Major Medical Center’s Research Department

This organization's network storage policy calls for determining the rate at which researchers consume space on a storage area network. This systems administrator used StorageCentral SRM reports to determine how much space each researcher had used. He then compared this data with storage projections discussed during management committees. In the end, he arrived at the amount of storage needed for the next two years. He also got the approval to purchase a larger tape library for the SAN.

Ten Quick Tips for Implementing a Network Storage Policy

1. Get the buy-in from corporate management, human resources, and legal. Ask a senior IT management member to spearhead the rollout of the policy.
2. Do an audit of all storage resources and back up procedures, and load balance servers to distribute applications across the network.
3. Invest in storage resource management tools and ascertain current storage trends.
4. Work with local systems administrators to set thresholds and alerts for specific storage resource attributes, such as tracking size of partitions, specific types of files, or specific groups of users.
5. Make available certain types of servers for applications such as archiving, or storing images. Likewise, invest in document management software to keep track of specific types of files, such as Lotus Notes.
6. Confine applications, such as data warehousing, to their own server.
7. Establish backup procedures for both desktops and mobile PCs. Investigate storage management tools for archiving, allocating, and retaining documents.
8. Have the senior IT management executive call an all-hands meeting with the department heads to discuss the policy. The department heads, in turn, will alert their staff to the policy and how it will be administered locally.
9. Gather historical data about storage pattern for capacity planning, budgeting, and look at the feasibility of doing storage chargebacks to department.
10. Continue to work with employees to assess their storage needs.

About WQuinn

WQuinn is the recognized leader in real-time storage resource and performance management solutions.

WQuinn's award-winning StorageCentral SRM suite is truly the industry standard solution to meet the high demands of optimizing the efficiency and performance of enterprise storage resources. From a single server to a multi-terabyte SAN, the patented TruStor™ technology in StorageCentral SRM provides unprecedented scalability, reliability, and proactive storage resource optimization and performance. StorageCentral SRM controls storage growth at over 3,500 companies in 50 countries, including Microsoft and 80 of the Fortune 100.

WQuinn is Microsoft's exclusive provider of SRM technology for server appliances. Recently, WQuinn was acquired by Precise Software Solutions, Inc., creating unparalleled synergies in enterprise storage performance enhancement and optimization.

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