



NTP Software QFS™ vs. Windows® 2003 R2 FSRM

White Paper

Abstract

With the release of Windows 2003 R2, Microsoft provides an improved measure of native disk quota management. What does this mean from a functional perspective? Can you use these intrinsic functions alone to manage your storage?

This paper examines in detail the differences between the features provided by Windows 2003 R2 and NTP Software QFS, and establishes the value proposition for using NTP Software QFS.

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Introduction

Microsoft has offered limited disk quota functionality in the Windows core operating system since the release of Windows NT 4.0. Microsoft Windows 2003 R2 now natively offers basic disk quota and file-screening functionality in the core operating system. This change can be considered a measure of how important quota management is to the Windows industry at large. But are the native features embedded in Windows 2003 R2 enough for your organization? Can you manage your entire network based on what these features provide? You'll have to make that decision for yourself. Native Windows 2003 R2 quotas provide very basic capabilities: directory-based quotas; plaintext threshold-warning email; single server management; and limited reporting options. For a few organizations, these capabilities may be enough. However, most organizations need features that are more advanced and scalable, including the ability to drill down below a directory level and manage actual users or groups of users, and the ability to provide rich, in-depth end-user notifications.

This document examines the native Windows 2003 R2 quota and file-screening functionalities. It then contrasts these capabilities with the additional functionalities and ease of administration offered by NTP Software QFS.

Windows 2003 R2

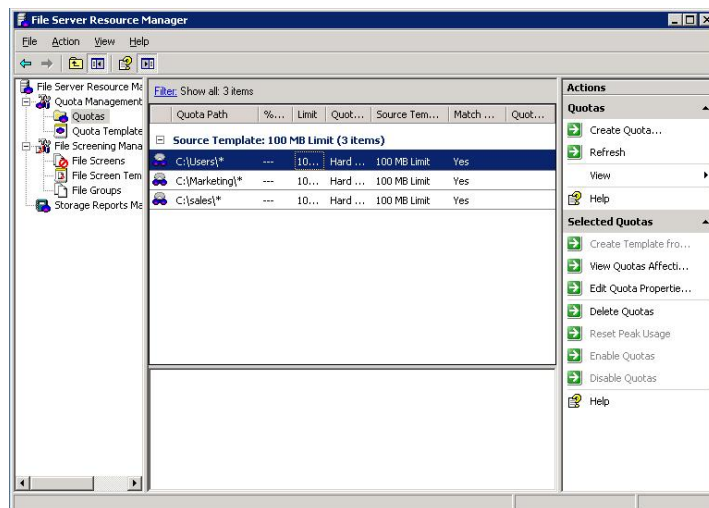
General Features

For years, Microsoft has expanded the Windows operating system by adding functionalities that were typically offered only through third-party Microsoft partners. These third-party partners have years of experience developing and deploying software to large enterprise organizations. Microsoft continuously attempts to bundle some of these third-party applications into its operating systems as smaller, server-based utilities. These utilities are meant to offer administrators an insight into what is possible when using the newest release of Windows, but by no means are they meant to solve enterprise-wide issues.

If your environment consists of only one Windows 2003 R2 server and you're not worried about managing data on a per-user basis, the native R2 quotas and file-screening policies might be adequate for your organization. However, if

you have multiple servers or multiple operating systems (perhaps Windows NT 4.0, Windows 2000, and Windows 2003) in one physical location, or in many remote locations, the native R2 quotas and file-screening policies will create issues and end-user complaints that greatly outweigh the benefits of using the native solution.

Let's examine R2 quotas and file-screening policies in more depth.



Quota Management

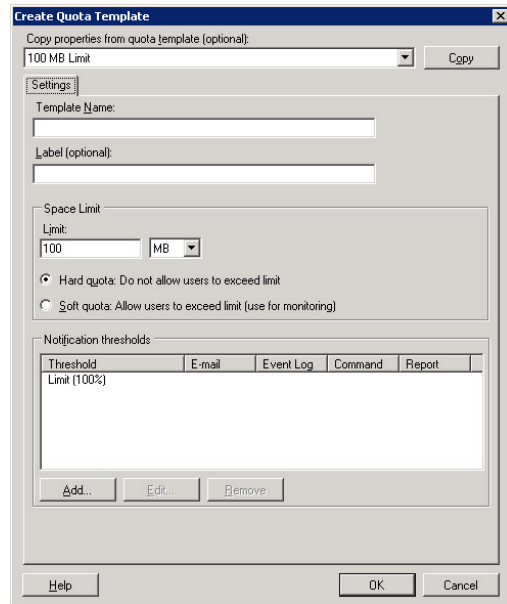
Native Windows R2 quotas might be an adequate solution if you have a small network — no more than a few hundred end users. You get simple, per-server quotas. This gives you the basics, at no additional cost.

When it comes to quota management, however, the majority of organizations want to manage via user or user groups, not simply based upon data location. Windows 2003 R2 offers the ability to manage data in any local server directory to any limit, which can be a hard or soft limit. This setup doesn't solve the problem of managing data in business shares, and also limits your abilities to manage different users to different limits.

Wildcards are acceptable within the directory path (for example, D:\Users*), which will auto-apply the quota limit to all subfolders within the root folder, but again, should all users in the organization be given the same quota limit? Should a temporary employee have the same quota limit as the manager of the engineering department? No. Enterprise quotas need to be granular enough to allow for global user management. As a support administrator, do you want to receive a call from the president of your organization, asking why he has a quota limit of 100MB? NTP Software QFS gives you the ability to manage per user or per user group, as well as the additional ability to exempt specific users or groups. Typical installations of NTP Software QFS exempt the QUOTA_VIP user group from all quota management. VIPs in the organization (CEO, COO, president, executive team, and so on), added to this QUOTA_VIP user group, are automatically exempted from all quota management throughout the environment.

Another typical issue that many organizations encounter when utilizing quotas is the delay of business-related matters. Administrators need to control storage growth in their environments, but they don't want to cause business processes to be delayed. The NTP Software QFS quota overdraft solves this specific problem. Suppose the manager of the sales department is creating the monthly sales forecast late one Friday night. After he has spent hours building the forecast, a quota limit suddenly prevents him from saving the document! With the Windows 2003 R2 quota, some administrator's pager will quickly be ringing for assistance. Utilizing NTP Software QFS, however, the sales manager would have an "overdraft" that would allow the document to be saved and then sent on to the executive management team. An email message would also be sent to the sales manager, informing this user about the overdraft and offering assistance in cleaning up the managed directory. The sales manager would be able to identify and locate wasted space in the directory, and could instantly delete or move the obsolete data. Important business tasks would be accomplished, not delayed.

Another issue is that Windows 2003 R2 is a per-server utility. What happens if you utilize DFS in your environment? How will your Windows 2003 R2 quota work when multiple servers are sharing data back and forth? NTP Software QFS is fully compatible with Windows clusters, DFS shares, mount points, and third-party applications such as antivirus, backup, and archiving solutions. Can the same be said about Windows 2003 R2?



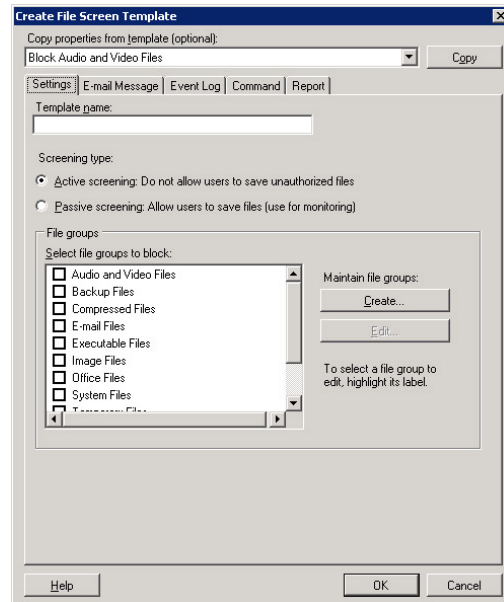
File Screening

The Windows 2003 R2 file-screening policies are very similar to the quota policies. File-screening policies within Windows 2003 R2 offer only very basic file screening. In many organizations, these file-screening policies may create even more issues and end-user complaints than those caused by the Windows 2003 R2 quotas.

In this day and age, file screening is an absolute requirement in any organization, due to changes in the way in which home and corporate users listen to music and watch films. Five years ago, corporations weren't concerned with the likes of Napster, but recent court rulings have made it clear that organizations are liable for illegally copied files on their networks. Administrators must now control the content of their networks as well as the growth of their files. File-screening policies were created for just that purpose.

The basic file-screening policies of Windows 2003 R2 provide a means for monitoring (with passive policies) and/or controlling (with active policies) the types of files that end users save within a directory structure. Like the quotas in R2, the file-screening policies lack the ability to manage by user or user group. This presents an issue when certain users have legitimate business reasons to save prohibited file types. For instance, your marketing department probably needs to create and save MP3 files and JPEG images, but you simultaneously need to prevent the remainder of the organization from doing so. Windows 2003 R2 file-screening policies provide all-or-nothing screening.

Either all users are blocked, or no users are blocked. With NTP Software QFS file-screening policies, on the other hand, you have the ability to control file-type usage via global or server local policies. NTP Software QFS also provides the ability to manage all users or certain specific users, as well as the additional ability to exempt certain users or user groups. One simple NTP Software QFS file-screening policy, created at the global application layer, managing all users but exempting the marketing team, would solve the above Windows 2003 R2 flaw. This is another clear sign of how Windows 2003 R2 storage resource management isn't ready for the enterprise-wide environment.



NTP Software QFS

General Features

The innovative NTP Software QFS allows you to set and enforce policies that control how much storage your users can consume, what types of data they can store, and how long they can keep it. NTP Software QFS was designed to work *with* your users — not against them — to improve their overall experience, while extending the life of your existing hardware and lowering your total cost of storage management.

NTP Software QFS also includes the infrastructure to support managed storage. NTP Software Storage Investigator, bundled with NTP Software QFS, allows users to maintain and optimize their own home directories. NTP Software HelpSite, also bundled with NTP

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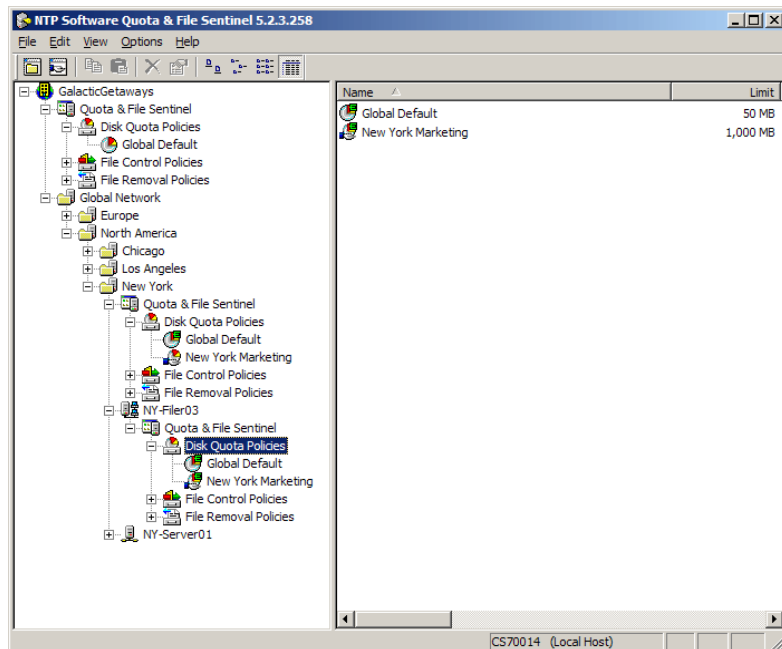
Software QFS, provides one centralized location to inform all your users of your organization's storage policies. This robust infrastructure works with users to improve their overall experience, while maximizing your storage resources and ensuring compliance. In short, NTP Software QFS removes the administrative burden of end-user data from your Help Desk, saving time and money for your organization.

NTP Software QFS includes the following major features not offered by the built-in Windows 2003 R2 native quotas:

- Ability to manage individual users and/or groups
- Enterprise configuration — the ability to create one set of policies that is automatically distributed to all of your servers
- Heterogeneous platform support — Windows NT 4.0, 2000, 2003; Network Appliance Filers, vFilers, gFilers, NearStores; SAN; NAS; and DAS are all supported
- Delegated administration
- Third-party integration — LDAP, SNMP, SRM tool integration
- In-depth policy and storage reporting
- Advanced policy security

The image at right shows the enterprise view of NTP Software QFS.

You can set storage policies at any level in your organization, and they're automatically carried down to (inherited by) all the Windows servers and NetApp Filers below. Policy inheritance can be broken and then reestablished at any point, as well as modified per location, per server, or per Filer to meet the needs of the local resources.



Specifically, in this example showing the user home directory, the 100MB quota policy is passed from the root of the organization (the Global Network), by inheritance, to NetApp Filer NY-Filer03 in New York. The New York Marketing quota policy is passed from all of New York (the New York folder) down to NY-Filer03. NetApp Filer NY-Filer03 actually has no policies configured locally. All of its policies are inherited.

With more than 12 years of experience in the industry, NTP Software recognizes that many organizations differ in past technology purchases. Some organizations selected Microsoft Exchange; others selected Lotus Notes, GroupWise, or even SendMail. Some organizations opted for Active Directory, while others selected other LDAP-enabled

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directory services. NTP Software is fully compatible with all LDAP-enabled directory services and all mail servers, allowing organizations to integrate storage resource management into their existing enterprise architectures without expensive consulting projects.

NTP Software QFS clearly provides the most sophisticated, scalable, and reliable enterprise management application on the market today. After more than 12 years of leading the industry, NTP Software QFS has undoubtedly demonstrated technology supremacy against all others.

Let's examine this software in more depth.

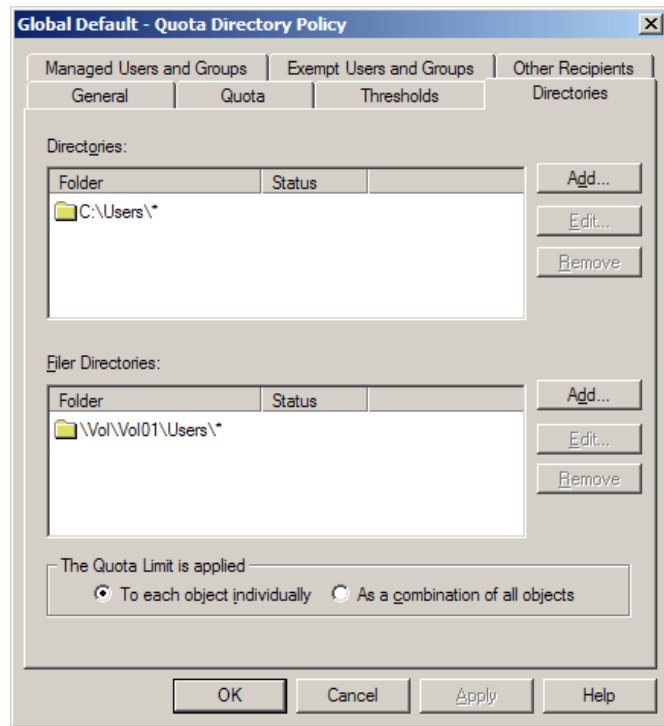
Quota Management

Quota management in NTP Software QFS is much more robust and varied than what Windows 2003 R2 natively offers. The image below gives you some sense of the differences.

A QFS quota can manage permanent or temporary files. It can apply to some users, but not others. It can apply to specific directories, shares, volumes, and/or Filers. You can have as many warning thresholds as you want. A threshold can trigger a pop-up, an email message, or even a system process. You can also notify third parties; for example, your network administrator, Help Desk, or the directory owner.

Typical installations of QFS also include the End User Support Infrastructure (EUSI) option. EUSI provides your organization with a single point of reference regarding enterprise storage policies for your end-user community. Completely customizable, this intranet site provides in-depth explanations of your own enterprise storage policies, thus reducing the calls to your help center and saving time and money for the organization.

EUSI also includes the ability to allow end users to scan and report on their own storage usage via Storage Investigator. Storage Investigator is a real-time EUSI application that provides each end user with a storage breakdown of his or her duplicate files, largest files, oldest files, and file types. Storage Investigator allows users to identify and manage (delete/move or review) this data, thus reducing the amount of storage they consume on your expensive storage resources.



File Screening

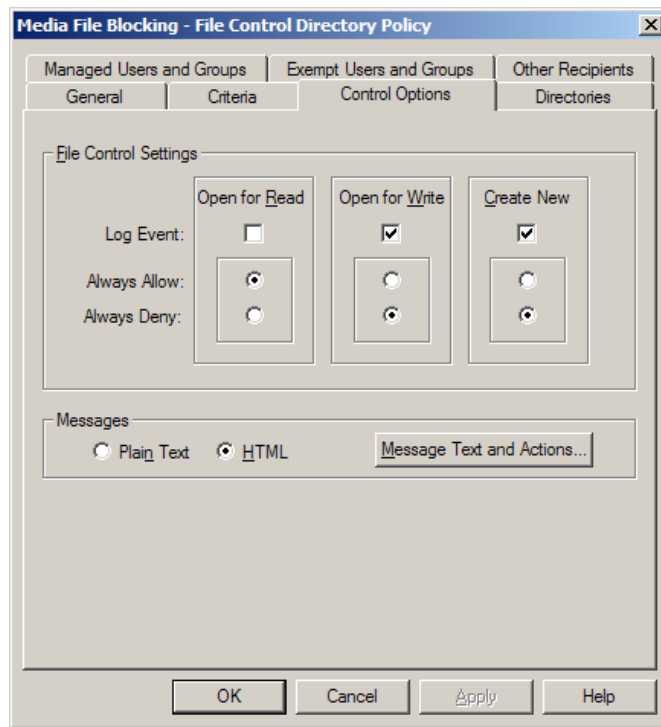
Microsoft Windows 2003 R2 is the first release of the Windows OS that provides file-screening functionality. Previous versions of Windows only provided quota functionality. This new file-screening functionality provides basic on/off file-extension filtering at a directory level.

By contrast, NTP Software has provided file-screening technology in one form or another for the past 12 years. Through experience, NTP Software knows that simple on/off directory-based file screening isn't sufficient in enterprise organizations. Many organizations block access to MP3 file types, only to realize later that certain individuals within the organization actually have a business need to access MP3 files. A majority of organizations also turn on file-screening technologies without informing their end-user community, only to find a Help Desk nightmare once end users start running into "Access Denied" error messages.

NTP Software has spent 12 years perfecting the file-screening technology within NTP Software QFS. File-screening policies can be structured by volume, directory, or share; by user or group of users; and also have granular control options. Some organizations want to allow end users to interact with existing files in the environment, but never create new prohibited files. Other organizations want to control reading and writing of file types. NTP Software provides the means to control not only the creation of file types, but also reading and writing to those existing files within the organization.

The most expensive asset your organization never has enough of is *time*. Wasted time is wasted money. When an end user in the environment is blocked from creating a specific file type that he/she has been creating for years, the first thing that end user will do is call your Help Desk. The typical Help Desk call lasts from 10–15 minutes, while the end user explains what happened and the Help Desk employee explains the new corporate policies controlling file types. This is all wasted time and money. NTP Software QFS designed the End User Support Infrastructure (EUSI) to solve this specific issue. Organizations gain an intranet website and knowledge base where corporate policies are placed. This website is then integrated into the NTP Software QFS policy thresholds. Each policy alerts the end user in real time of the corporate reasons why specific file types are blocked or why home or business share directories have hard quota limits. EUSI also provides end users with the means to locate and properly manage prohibited files already saved within the organization, allowing them to be proactive in cleaning up wasted space for which their department might otherwise be charged.

The image at right gives you a sense of the NTP Software QFS file-screening technology.



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As with quotas, you can establish file-screening policies for the entire enterprise with one set of entries. Specific users (or groups) can be included or excluded. Granular controls allow for unique read, write, and create control options. As with quota policies, file control policies can be placed at any directory or share level — on one server, or throughout the entire enterprise organization.

File Retention

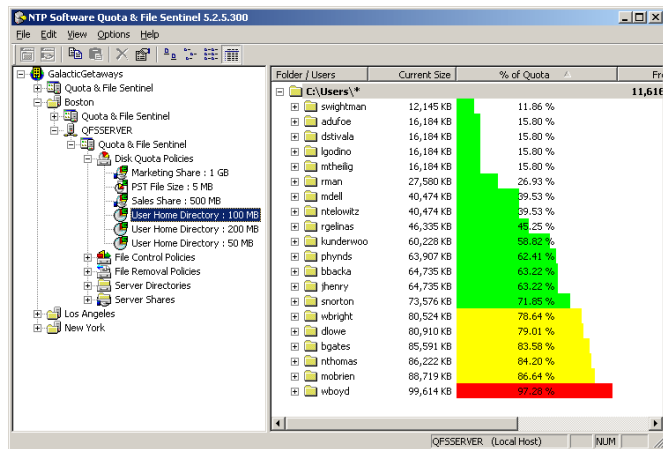
Compliance regulations such as Sarbanes-Oxley, set forth by the U.S. government, have drawn new attention to corporate policies regarding file retention. NTP Software has offered forms of file-retention policies for years within NTP Software QFS. These policies allow administrations to audit, quarantine, and even delete identified files throughout the enterprise organization. Typical usage of these policies would be to identify (audit) all MP3 files anywhere in the environment. The audit list would then be used to classify who *is* saving MP3 files, versus who *should be* saving MP3 files. Other typical policy configurations might create a policy that quarantines (archived) any file not accessed in more than two years, or deletes files created more than nine years previously.

The incorporation of these file-retention policies is just another unmistakable sign that NTP Software has a clear roadmap of the industry as a whole and is always on the cutting edge.

Reporting

NTP Software QFS provides three diverse reporting applications: NTP Software QFS Admin Reports, NTP Software Storage Investigator, and NTP Software Storage M&A. All three reporting applications utilize unique scanning/reporting techniques in order to better provide storage resource data to you as the administrator, as well as to the end user.

NTP Software QFS Admin Reports, which is included within NTP Software QFS, provides semi-real-time data regarding your enterprise storage disk and share quotas and file-screening policies. NTP Software QFS Admin Reports can be installed remotely on workstations as well as directly on Windows servers. Global reports can be configured from any machine to collect information from all NTP Software QFS host machines in the enterprise organization. These reports are useful in identifying quota and file-screening information such as usage per directory/quota, threshold crossing, business share capacity, and file ownership, to name just a few.

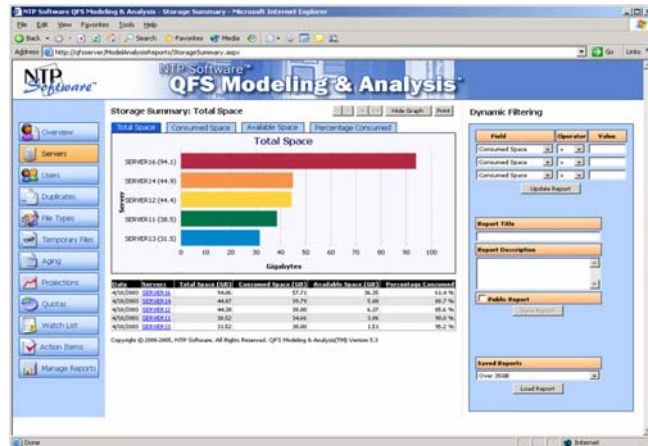


NTP Software Storage Investigator is a real-time application designed to provide storage resource data to both your administrative community (Help Desk) and your end users. End users in your organization can utilize NTP Software Storage Investigator to report on their duplicate files, largest files, oldest files, file types, and so on in real time, with the option of managing that data once it has been identified and reviewed. NTP Software Storage Investigator provides real-time analysis and data management not only for your end-user community, but for your administrative community. Administrators

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utilize NTP Software Storage Investigator in assisting end users to identify and manage their data. Some administrators utilize NTP Software Storage Investigator to manage volume level data throughout the organization.

NTP Software Storage M&A is our enterprise storage reporting application. NTP Software Storage M&A is designed to scan all data-storage devices (DAS, NAS, and SAN devices) and report that collected data to the backend database. NTP Software Storage M&A is fully compatible with Windows servers as well as Network Appliance Filers, vFilers, and gFilers. The front-end web reports and web configuration websites allow for report management and monitoring from anywhere within your organization.



NTP Software Storage M&A provides top-level reports, such as server and volume trend analysis (projects); as well as low-level reports, such as file-type analysis and usage per user. Both IT managers and network administrators find NTP Software Storage M&A a priceless application for planning future IT growth and spending, and for recovering wasted storage resources throughout the environment.

Technical Support

NTP Software first entered the storage resource management industry in 1994, at Microsoft's request, to design quota technology for Windows NT 4.0. Since then, NTP Software has excelled and led the quota industry in both product development and product implementation. NTP Software has an installation base of more than 150,000 customers, and on a day-to-day basis NTP Software QFS manages roughly 15 million end users around the world.

NTP Software's support department is unparalleled in the quota industry. Run by Microsoft Certified Professionals, NTP Software's support department is a proactive team that ensures that the proper implementation is conceived from the beginning, thus minimizing any difficulties that could arise post-installation. In the rare case of post-installation complications, NTP Software's support department offers guaranteed turnaround times for case escalation and resolution.

Functionality Comparison Guide

The following chart outlines the major differences between NTP Software QFS and the native storage resource management found within Windows 2003 R2. The following is only a sampling of the actual differences, not a complete list. This brief sampling should clearly outline the major reasons why Windows 2003 R2 should be considered only a server add-in and not an enterprise-wide storage resource management application.

Functionality	NTP Software QFS	Windows 2003 R2
User-focused quota management	Yes	No
User-focused file management	Yes	No
Enterprise-wide centralized policy management	Yes	No
Heterogeneous platform support	Yes	No
File size control policies (PST)	Yes	No
Delegated security	Yes	No
Third-party LDAP-enabled directory service integration	Yes	No
Historical policy auditing	Yes	No
End-user knowledge base	Yes	No
End-user data management utilities	Yes	No
Windows NT, 2000, 2003 support	Yes	No
Granular file-screening options	Yes	No

Conclusion

A network's storage resource is its most expensive subsystem. Prudence and good management dictate the need for management policies and control of this resource.

The native Windows 2003 R2 quota and file-screening functionalities provide simple, directory-based limits that may be appropriate for smaller organizations; but as the size and power of your network increases, the major cost becomes management and administration (cost of ownership), not purchase price. You need technology that does what needs to be done, not technology that's free.

NTP Software QFS policy management extends beyond the directory level to volume, directory, or share levels. Overlapping policy functionality allows administrators to control users or business shares while controlling volumes as a whole at the same time. Policy granularity allows for per-user or user group soft and hard quota management. Unlimited threshold email and pop-up messages, along with process triggers of third-party script or applications, provide instant and in-depth notifications to your end-user community. NTP Software QFS extends well beyond the native quota management of Windows 2003 R2, providing simple yet flexible quota and file-screening management.

NTP Software QFS provides this flexible quota and file management while incurring the minimum possible administrative overhead. Industry analysts (Gartner, IDC) have made it clear that acquisition cost (purchase price) is only a small part of total cost of ownership — less than 25%. In light of that statistic, the challenge is to create an environment that's easy to configure, flexible, and simple to maintain.

About NTP Software

NTP Software is the worldwide leader in user-focused, policy-based storage management. We create platform-independent products that enable companies to automatically control the compliance, access, quotas, content, and lifespan of their users' stored files. NTP Software solutions also gather the analysis and planning data necessary for both short- and long-term decision making, providing everything necessary to actively control all aspects of a user's relationship with local and shared storage.

NTP Software Professional Services

For further assistance in creating a corporate Storage Management Policy, contact your NTP Software representative at 800-226-2755 or 603-622-4400.

NTP Software offers end-to-end consulting and training services to assist in the deployment and configuration of your storage management solution. Our Professional Services staff includes certified instructors for Microsoft and NTP Software systems as well as other technologies.

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