



Understanding the User Aspects of Storage Management

*An NTP Software
White Paper*

Abstract

The storage hosted on your network is a service you provide to your end users. The right way to think about it and its management is not as hardware, but as a consumer service offering. Once you think about it this way, you manage it differently. The keys to success in running this service offering are: see things from the client's perspective, and keep the client informed and engaged throughout the process. This paper will help you understand how to do this.

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Introduction

According to Gartner Group, most datacenters double their need for storage every 18 to 24 months. Storage is one of the most costly and fastest growing aspects of everyone's network, and it is likely to remain so for some time. Every network user is a storage user. We are all part of, and you are in charge of, a community that shares the costs and the benefits of this expensive resource.

Storage management can be a challenging task. There is so much hardware, so many alternatives, and so many issues that it is easy to get lost in the details and fail to see the forest for the trees. But the cost-effective management of the storage you have is your most important task. For every dollar you spend to acquire storage and make it available to your users, you will spend from \$3 to \$7 over its lifetime supporting it. If you have a million dollars in storage resources, you can spend \$3 million as you live with it, or you can spend \$7 million. Over half of this will be spent on people's time. Which would you prefer? The difference comes from how well your company manages its people's relationship with the resource.

Networked storage is a service, not a product. While hardware is necessary for you to provide this service, successful storage management is more about a good customer experience and careful operations than it is about expensive hardware. Your users and storage operations are bound to you and the level of service you provide. They are a captive customer base. No one can purchase a unit of storage and take it home with them, nor can they buy storage from another supplier and install it on your network. Therefore we have to treat storage users and the people who manage our storage as the customer of a service, not the consumer of a product.

The elements that lead to success in a service business are different from those that lead to success in a product business. In particular, service customers need to be a part of and exercise some control over those processes that affect them. They want to participate in an on-going basis with the things that impact their lives, and it is this participation that leads them to accept and embrace the outcomes they receive.

The challenge to us, then, as those who set our company's strategy and direction in a cost constrained world, is to create a high-touch experience for our end users and a reasonable experience for everyone else that keeps them continuously engaged in the process at a price we can afford. Fortunately, in the 21st Century, we have technology that allows us to do this.

Gartner Group tells us that a company's need for storage now doubles every 18 to 24 months.

Storage costs are likely to be 12 to 26% of your company's overall IT budget, about half of which is in staff costs.

For every dollar you spend to acquire it, you will spend 3 to 7 times this amount supporting your storage.

About a third of all on-line data is unnecessary or obsolete.

Careful management of how your users consume storage resources is one of the key components for IT success.

This paper is intended to help you understand the user-focused aspects of storage management so that you will be able to run your storage business cost-effectively as well as, being able to satisfy all of the laws that constrain what we can do with storage today.

A Brief Summary of the Issues

When it comes to managing the use of your network's storage, there are really two types of issues to consider: involuntary constraints and voluntary constraints. Involuntary constraints derive from issues in law. These may include prohibitions on MP3s and the downloading of other copyrighted media files, the required-by-law retention of financial information, the automatic deletion of emails, etc.

Voluntary constraints, on the other hand, are policies that govern storage use that we have created because we want them and they help us manage. But these policies are not imposed upon us from outside. We created them because we wanted them.

Such policies may include items such as how much of the network's storage a particular user can use, how long files can stay on-line, etc.

Therefore, when we look at the relationship between the rules that govern the use of storage in our organization vis-à-vis our users, we find that some of our policies can be created as we like, and other policies will be decided for us as the consequence of matters of law.

Overall, our challenge is to blend these together using the appropriate technology to create a comfortable, easy-to-use environment that gives everyone the resources they need to their job while we maintain the control we need to ensure a cost-effective and consistent level of service, and keep everything within the boundaries set by law.

Your Storage and the Law

Nowadays there seems to be a law about everything and storage is no exception. Depending on the characteristics of your business and the geography in which you operate there are anywhere from a handful to dozens of laws and regulations that affect how your users are allowed to or, in fact, required to, use your storage resources. Some of these laws carry criminal penalties and may make you, your company, and your company's senior executives responsible for what your users are doing.

Collectively, these laws and regulations encompass four broad areas that need your attention:

Illegal content

The first of these areas is content that shouldn't be on your network at all, for example, multimedia content downloaded from the web. Most companies have policies prohibiting the downloading of MP3 files and other copyright protected content. In situations where people haven't managed as well as they should, recent law suits have assigned responsibility to the company as well the individuals involved. As a result, many companies now have technology-enforced storage management policies that prevent unsupervised users from saving multimedia content to their workstations or the network.

Risky content

Next your company may want to control your users' ability to save and archive email and other correspondence. It is common in law suits today for each party to demand copies of all documents correspondence that make any reference to the subject of the litigation. These discovery requests are court orders. If your company gets one, it has no choice but to comply in full.

IIS, a small consulting firm recently paid \$1 million to settle a suit over MP3 files its employees had downloaded to the network.

Last year, a national parts distributor spent several million dollars to scan of their hard drives under court order for content required in discovery.

This year Philip Morris was fined \$2.7 million for improperly deleting information.

In 2002 five brokerage houses were fined \$8.25 million for not keeping adequate financial records.

A search to find all email records in an unmanaged environment can consume thousands of hours and cost millions of dollars. Imagine what it would mean to be in the situation of having to restore all your email backups, all user home directories looking for PST, and then search each of these objects for any message or other reference to a particular topic...

To avoid this risk, many companies prohibit the creation of PST files and other archives, carefully control the retention of backups, and require all emails to be deleted after a relatively short period of time. You are not protected if you attempt to rely on your users to do this. When the time comes, you need to be able to show that it is done automatically.

Required content

Yet another set of issues stems from legislation such as Sarbanes-Oxley and other, similar laws that govern how you must handle financial records. Specifically your company must be able to certify that they are true and correct, and could not have been tampered with. To do this you need to be able to demonstrate the security that surrounds the storage of your financial records (which includes spreadsheets and other individual work products, as well as what may be in your accounting database). In some cases you may have a need to audit any access to this information.

Content requiring extraordinary care

Finally, there are now numerous local, state, and federal data privacy acts around the world. This means that if you have customer data, medical records, or other regulated data stored on your network, you are responsible for insuring the confidentiality of this information. As with Sarbanes-Oxley, you have a duty to assure the security of this information and may need to audit all access to it.

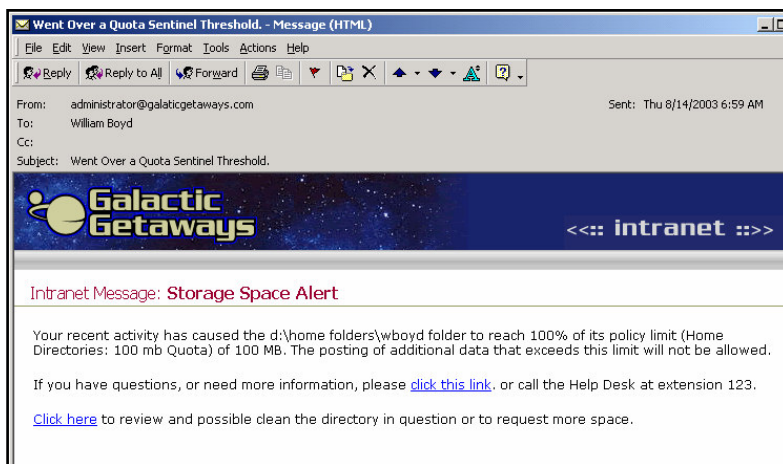
None of this can be done manually. In most cases a manual solution is simply not possible. In the rest, it is cost prohibitive. The only way for you to meet the requirements is to use technology.

Managing Cost-Effectively

For good reasons companies do not provide their staff with unlimited resources. Whether it is the use of a phone or the company credit card, there has to be some limit. Storage is no different. Without some controls, consumption grows without bound. Why wouldn't it? It's tedious and time consuming to examine all the files that have already been created and find things to delete. If there are no limits, a reasonable strategy is to simply ignore what's there and save more.

But there are limits. At any point in time the network only has so much storage. The good news is that with today's technology you and your users don't have to do a lot of work to manage storage. There are tools that will help you, and the system can even take care of things automatically. How much you automate is up to you.

To control costs and help prevent waste, many companies put limits on the amount, type, and age of user data. These limits can vary widely from company to company and person to person, as is appropriate to overall business requirements and each job. But the existence of these limits and the infrastructure that communicates with the users about them provides a control mechanism over consumption and escalating costs.



Alternatively, other companies give the users as much storage as they are willing to pay for. A user's potential is unlimited, although at any particular time there is a mutually agreed upon contract that commits the user to only have to pay for a specific amount of storage. Remember, in the final analysis, our job is to provide a service. If the users want more and they are willing to pay for it, far be it from us to deny them.

However, even if we adopt this approach, at any given time, we still need limits. Each user has only agreed to pay for a fixed amount of storage; they haven't given us a blank check. But under this model, quota extensions become automatic, provided the person paying the bill has signed off on the increase.

It's not just on-line information and costs we have to manage...

In addition to the costs of primary storage, we will spend several times this amount in protecting the data. We need to make sure the right information gets protected and we also need to manage our backups and their costs. This means we need to make sure that we back up the right information, all of the right information and only the right information, and only as often as necessary.

To ensure that they protect their entire office work product, many companies have policies that require that all business work products (all Microsoft Office documents, for example) must be stored on network shares – which are backed up – and not on desktop hard drives. Few companies can afford the management costs and infrastructure

expense of trying to back up desktop hard drives and the information people create while working at their desks is some of the company's most valuable data. The requirement to use network shares ensures that everyone is protected against local system failures and that a protected, perpetual record exists of all business objects. As with everything else, you should not simply rely on your users to do the right thing. You must implement technology that supports them in this area and ensures that their data goes where you want it.

Once you have managed to corral all the data you need to protect, it is important to deal with it cost-effectively. According to the Data Management Association, we've created more data in the last 3 years than it was created since the dawn until then. Data, storage, and backups are growing without bound.

Additional policies restricting the size of stored objects and / or controlling how they are stored can make them more backup friendly. A study at one *Fortune-10* financial company showed that more than half of all the data being written to incremental backup tapes was unmodified. The files being on the backups were due solely to quirks in the applications that used them. A simple change in content management policies reduced the backup load and backup times more than 50%.

Managing Customer Satisfaction

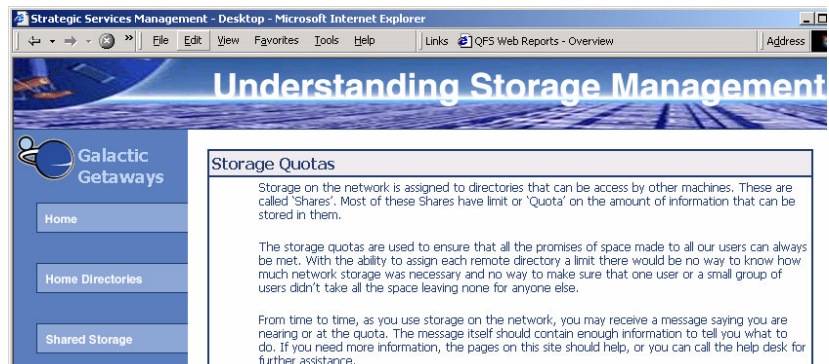
A brilliant plan, with all the right policies, only works if our clients have a good experience. The consumers of a service focus first on it how feels, and only later pay attention to what it does. This means that along with the policies required to do the job, we need to ensure that our users are treated well along the way.

This means that we have to, or our infrastructure has to, communicate with users about the consequences of their actions and where they stand relative to the policies that affect them. This would be an enormous amount of work – maybe even impossible – if we had to do to it ourselves. The good news is that the right storage management technology does this for us, letting us spend our time on other things.

The right technology will send warning and status messages to the users directly, and / or to the help desk. Users can ask the system where they stand at any point and get an inventory of the policies that apply to them.

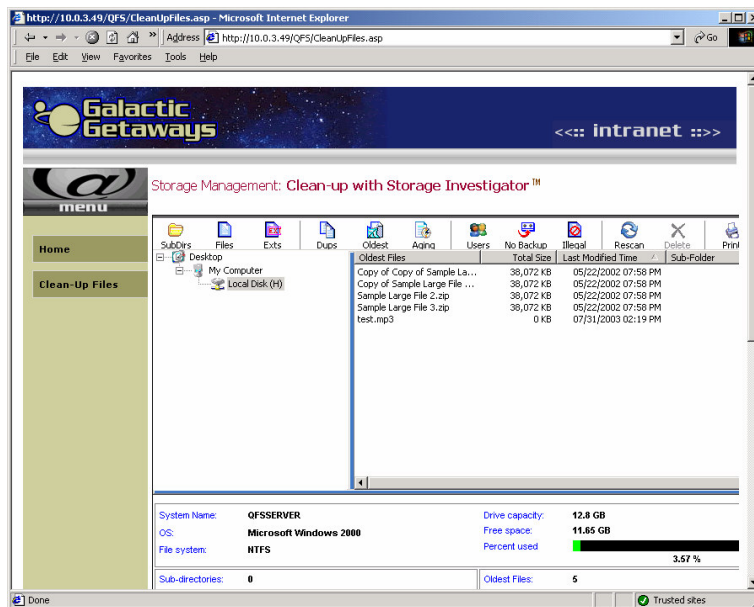
On-line support resources can explain our policies and how our users should interact with them. The right technology will provide each user with an assessment of where they stand and offer them the tools and resources to adjust their situation as necessary. No one likes

to be dictated to, but we all have to follow some rules. The right technology will improve the end-user's experience by explaining things as they happen and presenting our users with one or more mechanisms to make their situation better.



By using the technology that supports the users, we reduce the overall cost of storage management and get ourselves out of the middle.

Be it at the gas station or at the grocery store, self-service is the model for the 21st Century. People have come to expect, and now often demand, the ability to get what they want, when they want it. Being in the situation where everything has to wait until a support person is available just frustrates everyone and adds to the expense.



With today's technology, any aspect of storage management can be made self-service. This leads to greater end-user satisfaction and allows you to spend your time on more valuable tasks.

The Top and Bottom Lines...

Storage is the fastest growing and most costly single item on your network, and no one is suggesting that this will change any time soon. As a result, managing the storage and managing the cost of storage is a key ingredient to success.

In addition to issues relating to cost, storage management is now burdened with numerous issues in law. There is no longer any opportunity to sweep the issues under the rug. We have to manage storage and the issues – the laws if not the costs – will impact our users.

Given this, let's get them on our side and use technology that delivers a benefit to the users, rather than just a hassle. With the right technology, we can improve our end-users' experience and address our storage management needs. Why not make it a win-win scenario?

NTP Software Professional Services

For further assistance in creating a corporate Storage Management Policy, please contact your NTP Software Representative at 800-266-2755 or 603-622-4400.

NTP Software Professional Services offers training and consulting services in support of the deployment and configuration of your Storage Resource Management software.

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