


Say YES to NAS.

Network-attached storage devices simplify data backup and offer incremental value to small businesses.



Getting computer users to back up their files is an uphill battle, especially for small businesses. And the solutions these organizations choose — from USB hard drives attached to individual PCs to file server backup — often leave much to be desired.

That's where Network-Attached Storage (NAS) comes in. NAS devices add dedicated data storage to your computer network. For small businesses, they're easy to deploy and expand, and they're more reliable than other backup methods.

A NAS is a device whose sole purpose is file sharing. It does not provide any of the functionality that a server in a server-centric system would provide, for example web, e-mail, etc.

Data is expanding exponentially and businesses need to meet stringent data retention and protection requirements. NAS provides small businesses with the flexibility and ease of use to make backup a no-brainer.

A Better Approach

Most small business — at least the ones that back up their data at all — typically employ one of two methods for backup. In one scenario, individual users are responsible for backing up their own data to external storage devices, typically USB-connected hard drives.

There are two major problems with this approach: You're leaving an important task to the whims of individuals who have other tasks they consider more critical than backing up their data. Also, the data is scattered all over different machines, making accessibility an issue.

The other approach is backing up data on the file server. This is better than the individual approach in that the data is centrally located. But it's also inefficient and potentially disastrous.

The file server's main task is to deliver applications to clients on the network. Regular backups to the file server slows down actual file serving. Also, there's limited storage space on a file server. And if the hard drive fails, all the data is lost.

NAS provides dedicated data storage at the network level. It's centrally manageable, and organizations can easily add devices to environments that contain both Mac and Windows computers.

"The more separation you have with the data, the safer and more secure it is," says Marc Tanguay, Iomega worldwide manager of network solutions. "If something happens to destroy the file in one location, you have a file in a separate location."

NAS systems connect to the LAN through an Ethernet cable. The device receives an IP address and resides on the LAN as an independent network device.

Adding storage is as simple as adding another NAS device to the network. Just as important is the fact that all the data is available to anyone on the network.

"If I put my photo library on a drive and I want the marketing department to have access to it, I would either have to move that drive around or e-mail and share files between machines," says Matt Hildun, manufacturing engineer at LaCie.

"With a network drive, you plug into an existing networking port and all the machines in the department can access it," Tanguay adds. "You can customize access to it by giving certain people access to certain data. It gives a little more flexibility than out of a standard hard drive."

Flexible and Expandable

Pricing can range from less than \$200 for a basic single Ethernet disk to more than \$2,000 for high-capacity, full-featured solutions. And the fact that you can add NAS devices to your existing infrastructure helps make it a cost-effective solution.

Central management comes in the form of backup software, which enables scheduling. Other administrative tools include such things as restricting which departments or personnel have access to certain information.

EMC makes perhaps the most popular backup program, EMC Retrospect. The company purchased storage device maker Iomega earlier this year. Iomega now integrates Retrospect in its NAS devices.

"As a user, you're connected automatically to the NAS device," Tanguay adds. "It's designed to be free of an IT manager. Doing an initial install takes about 10 minutes and is accomplished with four clicks of a mouse."

Products like Retrospect also schedule backups. And it sends e-mail alerts in the event a backup doesn't occur or fails and provides data protection.

"We create a backup directory and it's protected and secured for that individual user," Tanguay says. "So only the user or administrator will be able to unlock that backup."

NETGEAR's ReadyNAS line is also compatible with a range of third-party backup software, including Retrospect and Symantec Backup Exec. Also, ReadyNAS uses NETGEAR's proprietary RAIDar dashboard to discover the company's ReadyNAS devices on a network and start the web-based configuration utility.

NAS Versus Traditional File Server

To help determine if Network-Attached Storage (NAS) or a file server is best for your business, consider the following:

- **IT Budget** | Keep in mind that NAS devices are less expensive than file servers. They also do not require their own monitors and keyboards. And they offer web management over your own network.
- **IT Manpower** | NAS appliances require less administration and management than servers. Following initial configuration and setup, only occasional user and account updates may be needed. File servers will require frequent operating system patches, virus definitions and applications to stay up to date.
- **Number of Users** | File servers offer higher scaling than NAS devices. NAS can typically accommodate a maximum of roughly 25 simultaneous users.
- **Application Usage** | If you need to run applications like web servers, e-mail, etc., you will likely require a more robust file-server solution.
- **Performance** | File servers offer faster processors and optimized hardware. This will give them an advantage over NAS for mission-critical and real-time applications.

"From the RAIDar dashboard, you can use administrative tools to manage the unit," says Mark Song, NETGEAR product manager for storage solutions. "You can add users, define the quota for storage share and create backup jobs."

Another advantage of NAS systems is that they are easily expandable. Adding more storage to the network is as simple as connecting another device to the LAN.

RAID Ready

NAS also provides advanced storage functions such as Redundant Array of Independent Disks (RAID). Essentially, RAID distributes data across multiple disks that appear to the operating system and the user as a single disk. With a RAID setup, the loss of one disk won't result in the loss of data.

Traditionally, RAID devices required a certain level of expertise. This is especially true when it comes to setting up different levels of redundancy (typically RAID 0, RAID 1 and RAID 5).

But NAS device manufacturers have made efforts to automate the process for small businesses that may not have a dedicated IT professional on staff. For example, NETGEAR's X-RAID is one such technology designed to remove the complexity from RAID management.

"For a not very tech-savvy small business user who's not a fully certified RAID

or server system administrator, they don't need to deal with different RAID settings, especially when you're dealing with expansion," Song explains.

"X-RAID will take care of all the RAID migration from different RAID levels," he says. "This is depending on the size and number of hard drives."

Hildun notes that LaCie's Ethernet Disk RAID NAS devices offer the advantage of acting as a remote bootable drive. If a computer's hard drive fails, for example, the user can boot up the machine through the Ethernet Disk RAID device on the network. But Hildun warns that RAID in and of itself doesn't provide full backup protection.

"It can handle disk failures, but it doesn't eliminate the need to backup," he says. "Some people don't think they need to backup because there's a RAID. RAID only protects against a disk's failing."

"Anything else, like a virus that corrupts the data, OS [Operating System] failure — there's only one copy of the data on the drive," he adds. "So the data that's removed is removed from the RAID."

To the Archives

That's why a backup solution is only as good as a backup strategy. What NAS devices do is make it easier to execute that strategy.

Archiving is becoming increasingly critical to business operations. This can be due to federal regulations like the Health Insurance Portability and Accountability Act (HIPAA) or Sarbanes-Oxley, or from a business-continuity/disaster recovery perspective.

"Every small business should have a backup plan, but less than 40 percent do it," NETGEAR's Song notes. "Every small business should have a plan, not only for regulatory requirements, but for the sake of your business, data safety and availability."

"The backup plan should include a NAS sharing the data," he says. "It's serving the data 24x7, it brings all the data online."

NAS devices can be used to archive data to tape drives. But Song notes that disk-to-disk archiving is becoming more popular. NETGEAR's Rsync protocol facilitates ReadyNAS-to-ReadyNAS archiving.

"A lot of regulations require offsite backup, and we've seen a lot of users that have done that," Song says. "They use one ReadyNAS to back up the ReadyNAS in place at operations. One is local, one is remote."

"The initial backup can be performed locally because you're dealing with a remarkable amount of data, then you can do incremental backup through the Internet to the offsite backup," he adds. "In case of disaster — fire, earthquake, whatever — you have an extra copy of your data on the remote site."

Iomega is promoting so-called "cloud" solutions for archiving. EMC also own a company called Mozy, which makes online backup solutions.

MozyPro, designed for businesses, includes scheduled backups, incremental backups and bandwidth throttling. This enables administrators to adjust how much bandwidth backup should occupy if you need to allow more mission-critical applications to run.

"We're working quickly to bring this into our NAS products," Iomega's Tanguay says. "Not only do you back up PCs to the NAS, the NAS would back up to the cloud so that you're basically disaster proof with your important files."

"Get the most critical company information from the NAS itself to an online cloud location," he says. "We should have products early next year that will have that feature integrated."

NAS and More

NAS solutions are providing more than mere storage. For companies looking to get incremental value from their networks, NAS devices such as NETGEAR's ReadyNAS NV+ line and Iomega's StorCenter Network Hard Drives offer media-streaming capabilities.

"We're hearing from customers doing things like putting training videos on the

NAS," Tanguay explains. "This is so that anyone in the company can access it."

"It goes from being this NAS device that's primarily there to protect your data and perform backup, to doing a whole lot more — making the data more accessible and doing more than just basic storage," Tanguay notes.

Ultimately, NAS provides accessibility to your data. Whether it's for basic backup, archiving or even media sharing, a NAS system can simplify how small businesses organize their data.

"If you want to navigate, search and make it available to everyone, you have to bring the data online," Song says. "If you back up to a USB drive or a DVD, a lot of people consider that backup."

"It's better than nothing, but that's not good enough," he says. "NAS brings the data online and it's protected on a dedicated storage server. It's optimized for performance and designed to protect your data." ◊

Advantage NAS

Traditionally, organizations have deployed server hardware and operating systems to provide file and print services on their LAN. NAS devices represent a significant step forward in file and print server technology in that they provide these same services without a costly investment in hardware, operating system licenses and support staff.

File Server Solution	NETGEAR ReadyNAS Solution
Expensive server-class hardware to host the operating system as well as dedicated external storage arrays.	Cost-effective, all-in-one hardware solution; hardware, operating system and storage devices are integrated into a single device.
Operating system is designed to provide multiple services and must therefore share its processing resources among several tasks simultaneously.	Operating system is optimized for network file and printer sharing, resulting in no wasted processing cycles.
Operating system license as well as per-seat client access licenses are required.	No operating system or client access licenses are required.
Data redundancy is implemented as part of the operating system, which can compromise system performance.	Data redundancy is implemented via dedicated hardware, ensuring better performance and higher availability.
Frequent operating system patches and security updates are required, resulting in system restarts and thus more downtime.	All updates are applied as a single, comprehensive firmware update.
File sharing protocols are usually limited to those that match the host operating system.	Windows, Macintosh and UNIX/Linux clients are supported out-of-the-box.
Experienced technical staff is required to install, administer and maintain server operations.	User-friendly, web-based interface guides customers through setting up shared folders and printers.
Storage capacity is fixed when the hard disks are first installed.	Patented auto-expanding RAID technology allows customers to increase storage as their requirements dictate.
Hot-swappable hard disk capability is available only on high-end systems.	Hot-swap capability is built in, minimizing downtime in the event of a disk failure.
Additional backup software must be purchased.	Includes 5-Client EMC Retrospect Professional Bundle as well as Integrated Backup Manager and SnapShot support.

NETGEAR Inc.; The Benefits of Network Attached Storage in Small- and Mid-sized Business Networks; 10/1/07

CDW's server/storage team of experts has the knowledge and experience to assist you with any type of storage issue.