



NAS Rivals Duke It Out

ZYXEL OUTPERFORMS ITS PEERS

BY MARC SPIWAK

CRN TEST CENTER **NAS is a lot like aspirin:** It relieves most headaches associated with network storage issues pretty quickly. Sometimes the storage space within a server becomes depleted and it's impossible or impractical to add another hard drive. Sometimes the hard drives in computers fill up and it's either not economical to replace them or there can be software that's impossible to replace or reinstall. Above all, the storage space in some servers and in most users' computers just isn't safe enough from a redundancy point of view. NAS can relieve these headaches and more, as it's a quick and pain-free solution.

In this review, CRN Test Center engineers considered middle-of-the-road products that would be suitable for SMBs or enterprise companies. Specifications for this bakeoff called for NAS devices with at least 1 Tbyte of storage space and a Gigabit Ethernet interface. The four products examined were ZyXEL Communications' 3-Tbyte NSA-2400, Netgear's 3-Tbyte ReadyNAS 1100 (from its recent Infrant acquisition), MicroNet Technology's 4-Tbyte PlatinumNAS 4.0 and Iomega's 1-Tbyte StorCenter Pro NAS 150d. These capacities represent the maximums for each unit, not necessarily the as-tested capacity. A capacity-per-dollar figure was calculated for each unit based on 2 Tbytes of storage space.

To test the NAS units for performance, engineers set up all units with the largest RAID 5 array that would fit. Each NAS unit was connected directly to a PC containing a Gigabit Ethernet adapter with a crossover cable to avoid using any unnecessary equipment that could hamper the results. Next, a folder containing 1.72 Gbytes of data consisting of 41 files was copied first from the attached PC to the array and then back to the PC from the array. Engineers timed how long it took each unit to complete the process.

In addition to capacity-per-dollar and performance, engineers also rated the products on feature set, quality and reliability, ease of deployment and partner profit potential.

ZyXEL NSA-2400

ZyXEL's NSA-2400 grabbed the top spot with particularly high ratings for performance and ease of deployment.

Designed for SMBs, it will support up to 3 Tbytes of storage with four 750-Gbyte drives installed. The test unit came loaded with four 160-Gbyte drives, which were configured with a 313-Gbyte RAID 5 array. In performance testing, the 1.72-Gbyte folder was copied to the array in 3 minutes, 40 seconds, and copied back to the client PC in 3 minutes, 25



Scorecard

ZyXEL NSA-2400
Fastest and easiest to deploy, strong price/performance are key attributes.

- Features ★★★★★
- Quality and Reliability ★★★★★
- Performance ★★★★★
- Ease of Deployment ★★★★★
- Capacity per Dollar ★★★★★
- Profit Potential ★★★★★

seconds, for an average of 3 minutes, 32 seconds—the fastest time of the units tested.

The product is sold only as a barebones unit, which gives solution providers the option to customize the unit based on capacity requirements. That means partners can shop around to find the best possible price on the drives they need. The barebones unit is priced at \$989.99, with the cost for 2 Tbytes of capacity reaching \$1,510, including \$130 each for four hard drives.

The NSA-2400 is a four-



bay, SATA-based backup solution that can be configured for RAID 0, 1, 5 and JBOD.

As a brief refresher, RAID provides data protection: In the event that one of the drives fails, the data volumes can be restored from the remaining drives. RAID 0 uses striping to spread data across all available drives to provide maximum performance and operating capacity with no redundancy. RAID 1 uses mirroring to place identical data on duplicate drives to keep data secure, while RAID 5 uses striping along with a parity drive.

The unit also can be integrated with the Microsoft Windows Domain Controller to set policy rules, permissions and storage limits.

The NSA-2400 runs a Linux-based operating system and is powered by a 1.3GHz processor with 128 Mbytes of memory. A Gigabit Ethernet port provides high-speed connectivity.

Compared to its peers, engineers found ZyXEL's NSA-2400 to be the easiest, most straightforward NAS unit to set up and had it working in just a few minutes. It offers platform-independent management from a browser-based GUI. The device can be set up using a wizard, or solution providers can jump right in via the unit's hard-coded IP address and make configuration changes manually.

Bundled with the NSA-2400 is Microsoft's Small Office Server backup software. The integrated client and server backup software allows Microsoft Small Business Server to be backed up with no downtime. Backup software for Microsoft SQL and Exchange servers is also included. A snapshot feature automatically makes a copy of the data on the appliance, which then can be copied to another NSA-2400 or to some other backup device. Three USB 2.0 ports let users copy data from the NAS device to other portable USB drives.

ZyXEL's channel program features three levels—Silver, Gold and Diamond—with annual sales requirements attached to each level. Depending on the partner level, program benefits include rebates, training and certification programs, qualified sales leads and a dedicated partner sales representative. Profit margins average about 25 percent.

Netgear ReadyNAS 1100

Netgear's ReadyNAS 1100 placed a close second behind the ZyXEL unit, offering a rich feature set and flexible configuration options that allow for strong partner profit potential. Note that ReadyNAS still carries branding from Infrant Technologies, which was purchased by Netgear this spring. By July, all ReadyNAS units will be labeled as Netgear ReadyNAS. Netgear's channel program already is backing the product.

Ideal for businesses ranging from small and midsize offices up to small and midsize enterprises, the ReadyNAS 1100 can provide up to 3 Tbytes of storage while consuming only 75

2nd

Scorecard

Netgear ReadyNAS
1100

Full feature set and
highest profit potential
make for a
strong offering.

Features



Quality and Reliability



Performance



Ease of Deployment



Capacity per Dollar



Profit Potential



watts of power, so over time, this unit can help trim users' electrical bills. The unit is ideal for long-term storage and archiving, which helps organizations comply with Sarbanes-Oxley, HIPAA and other regulations.

The ReadyNAS 1100 is the only rackmount unit in this bakeoff, but it can easily be placed on a tabletop if a rack is not available.

The unit will support up to four hot-swappable SATA hard drives. If a four-post data rack is available, multiple units can be mounted back to back. Engineers tested a 1-Tbyte unit with four 250-Gbyte Seagate Barracuda SATA drives installed, configured as a 675-Gbyte RAID 5 array. It took in the data in 5 minutes, 35 seconds, and copied it back in 3 minutes, 27 seconds, for an average of 4 minutes, 31 seconds, the second fastest of the group.

Solution providers will appreciate the fact that the ReadyNAS 1100 can be purchased for \$999 as a barebones unit with no hard drives installed if they prefer to select their own components. It's also available with drives installed in several configurations, including a 1-Tbyte unit with four 250-Gbyte drives for \$1,575, a

2-Tbyte unit with four 500-Gbyte drives for \$2,495 and a 3-Tbyte unit with four 750-Gbyte drives for \$3,395. The \$2,495 price tag was the most expensive for 2 Tbytes of capacity among the units tested here.

The ReadyNAS 1100 supports hardware-accelerated RAID 0, 1, 5 and X-RAID, which allows partners to start with one disk and add others—even higher-capacity disks—later on without having to reconfigure the system.

ReadyNAS runs an enterprise-hardened embedded Linux operating system and a custom network storage processor, so no additional software or per-user licensing agreements are required. The unit features dual Gigabit Ethernet ports, three USB 2.0 ports, 512 Mbytes of main memory and embedded 64-Mbyte flash memory for the operating system.

It includes native support for Windows, Mac OS X, Linux and Unix clients, with three security modes: share, user and domain. It can be integrated into Active Directory in a few keystrokes to take advantage of existing network permissions. It also can be set up with its own share, user and group permissions without using Active Directory. The NAS unit's browser-based administration allows for centralized management, while built-in system monitoring with e-mail alerts will keep solution providers informed as to the status of the unit.

Unique to the ReadyNAS 1100 is its rapid system board replacement module, which lets solution providers replace the system board, power supply and cooling fans independently. A bundled version of EMC Retrospect backup software with five user licenses is also included.

A setup wizard is used to configure the ReadyNAS 1100. In a streamlined process, the wizard guides the solution provider



through basic time and date settings, network settings, shares and so on.

Netgear's PowerShift channel program features two levels: Gold and Platinum. There are no minimum requirements to establish or maintain membership and no fees either. Program benefits from the channel-only company vary by partner level and include rebates, technical support and presales sales engineer support and MDF. The company did not disclose partner margins.

MicroNet PlatinumNAS 4.0

MicroNet's PlatinumNAS 4.0 placed third, narrowly losing out to Netgear's ReadyNAS. PlatinumNAS offers tremendous value but with a trade-off on performance and features.

The unit combines SATA hard-drive technology with a high-availability plug-and-play architecture for ease of use and economical storage for data-intensive applications. The appliance is ideal for storing, sharing and managing digital data for small and midsize businesses, and even home users who want to protect their data as best they can.

The four-bay NAS unit is compatible with the latest 1-Tbyte SATA drives, so it can be configured as a 4-Tbyte NAS server. That's without RAID, of course. Note, however, that the sample unit came equipped with four 500-Gbyte drives rather than the expensive and hard-to-get 1-Tbyte models.

The PlatinumNAS 4.0 was tested while configured with a 1.33-Tbyte RAID 5 array. The 1.72-Gbyte folder was copied to the array in 6 minutes, 18 seconds, and copied back to the client PC in 3 minutes, 29 seconds. The two times were averaged for a score of 4 minutes, 53 seconds, giving it a third-place performance finish.

PlatinumNAS is not available as a barebones version. Instead, MicroNet offers PlatinumNAS in capacities of 1, 1.6, 2, 3 and 4 Gbytes. Loaded with four 1-Tbyte hard drives, the NAS device carries a retail price of \$2,949. Note that you pay quite a premium for the 1-Tbyte drives, and it's actually cheaper to buy two 2-Tbyte units than a single 4-Tbyte unit. A 1-Tbyte unit costs \$879, a 1.6-Tbyte unit costs \$1,109, a

2-Tbyte unit costs \$1,299 and a 3-Tbyte unit costs \$2,349. MicroNet's pricing for 2 Tbytes of capacity was the lowest among the four vendors reviewed here.

One key feature of the PlatinumNAS is that the hard drives are hot-swappable. That prevents downtime and also allows for RAID configurations that include a hot spare so a failed disk can be replaced and the storage pool rebuilt with no loss of data or service. The PlatinumNAS 4.0 supports RAID levels 0, 1 and 5 as well as JBOD, where the entire 4 Tbytes of capacity is available. Of course, that's with no redundancy, which risks data loss in the event of drive failure.

The PlatinumNAS 4.0 is powered by an Intel XScale 64-bit network storage processor. It features four discrete SATA 2+NCQ disk channels and 256 Mbytes of write-back/write-through ECC memory. It can handle multiple simultaneous network services, including SMB/CIFS, FTP, Webdisk and AppleShare, and it's compatible with Windows, Unix and Mac OS platforms. It therefore allows users of different operating systems to share files and provides native support for Active Directory.

The PlatinumNAS 4.0 features dual-channel Gigabit Ethernet connectivity, allowing multiple subnetworks and workgroups to access the appliance without slowing throughput.

The unit's hard drives can be locked in place, which prevents inadvertent removal, but because thieves could always steal the entire unit, there's a Kensington lock slot on the back. One downside is that the unit offers only two USB ports, and neither of those is in the front.

Configuration, installation and maintenance are performed using a Web-based interface that can be accessed via VPN from anywhere in the world. Setup is easy and can be done in either DHCP or static IP environments. First, the user IDs are added along with appropriate passwords. Then, folders are created, with access

rights given according to user permissions.

MicroNet's channel program consists of three levels with varying revenue goals. Benefits include full pre- and post-sales support, advertising and marketing where appropriate and blind drop-ship of products. Rebates, spifs and MDF are also available. Margins average about 15 percent.

Iomega StorCenter Pro NAS 150d 1TB

Iomega's StorCenter Pro NAS 150d 1TB placed fourth, lagging in performance and ease of deployment.

Suited for small businesses or even advanced home users, the 1-Tbyte unit houses four hot-swappable 250-Gbyte SATA II hard drives.

The StorCenter Pro NAS 150d was tested while configured with a 686-Gbyte RAID 5 array. The 1.72-Gbyte folder was copied to the array in 4 minutes, 26 seconds, and copied back to the client PC in 5 minutes, 39 seconds, for an average of 5 minutes, 2 seconds. While this gave it a last-place finish in performance, it's not so far off from Netgear and MicroNet's scores. The performance is actually quite respectable, considering cost.

The unit can be configured for RAID 0, 1 or 5 operation. The disks are hot-swappable, so any one of the four hard drives can be exchanged for a new drive while the unit is running. The 150d then will rebuild the new drive to fit the existing

3rd

Scorecard

MicroNet
PlatinumNAS 4.0

Low profit potential
hurt this value-
priced unit, though
features are strong.

Features
★★★★

Quality and Reliability
★★★★

Performance
★★★

Ease of Deployment
★★★★

Capacity per Dollar
★★★★★

Profit Potential
★★

RAID 1 or 5 array with no downtime or interruption of service to the users.

With its 1-Tbyte capacity, Iomega's StorCenter Pro NAS 150d has the least amount of storage space of all units reviewed here, but it's also the least expensive unit by a good margin. Priced at only \$799, the 1-Tbyte StorCenter Pro NAS 150d actually costs \$200 less than a barebones version of Netgear's ReadyNAS 1100, making for an incredibly good value. Pricing for a 2-Tbyte version costs \$1,349, a bit above MicroNet.

The unit runs an embedded Linux kernel and is powered by a 400MHz processor with 128 Mbytes of memory. A Gigabit Ethernet port is also included.

The StorCenter Pro NAS 150d supports Windows, Unix, Linux and Mac operating systems. It also will work as a client member in an Active Directory domain, taking advantage of the security features and policies already in place. Built-in print server functionality allows a printer to be connected to one of the StorCenter's four USB 2.0 ports, the most included on any box here.

To set up the StorCenter Pro, solution providers must run Iomega's bundled automated discovery tool. But there is no way to jump right into a manual setup process, which many partners might prefer. Once the unit is discovered, a browser-based utility is used to make configuration changes and monitor system health. Engineers found that the unit had the least desirable interface and the poorest documentation.

Iomega bundles a five-client license for EMC Retrospect Express software for manual or scheduled backup from Windows and Mac-based clients.

Benefits of Iomega's channel program include dedicated account management, product discounts, presales support, and marketing tools. Web-based training is free. Margins average between 15 percent and 30 percent.

Bottom Line

With its strong feature set, top performance and ease of setup, ZyXEL earned first place in this bakeoff of NAS appliances. Albeit available only as a barebones unit, it has the



Scorecard 4th

Iomega StorCenter Pro NAS 150d 1TB

Performance and profit potential lagged its peers, but still offers value.

Features
★★★★★

Quality and Reliability
★★★★★

Performance
★★★★

Ease of Deployment
★★★★

Capacity per Dollar
★★★★★

Profit Potential
★★★

potential to be more profitable than those offered in populated form. Netgear allows a bit more flexibility with both options and also includes the most robust feature set. It lagged ZyXEL slightly on performance and ease of deployment and was the most costly unit. MicroNet cuts into profit potential by only offering a populated version of its NAS device and lost face for only including two USB ports. It did, however, gain kudos for offering the lowest pricing for 2 Tbytes of capacity. Iomega offers strong value, featuring the lowest pricing for a 1-Tbyte unit without sacrificing a tremendous amount of performance vs. Netgear and MicroNet. Compared to the winner, however, Iomega's performance time lagged by one and a half minutes. It also offers no barebones option.

All-in-all, solution providers looking for a top-speed offering with strong features, a reasonable price and high profit potential need look no further than ZyXEL's NAS-2400. ■

Shopping The Ingredients

VENDOR	PRODUCT	LIST PRICE	REBATES/ INCENTIVES	PROGRAM PARTNERS	TRAINING COSTS	DISTRIBUTORS
■ Iomega San Diego (858) 314-7000 www.iomega.com	StorCenter Pro NAS 150d 1TB	\$799 for 1 Tbyte; \$1,299 for 2 Tbytes	Rebates, spifs, deal registration, promotions, sales awards	More than 500	None	D&H, DSI, Ingram Micro, Synnex, Tech Data
■ MicroNet Torrance, Calif. (310) 320-7272 www.micronet.com	PlatinumNAS 4.0	\$2,949 for 4 Tbytes; \$1,299 for 2 Tbytes	Rebates and spifs for select partners	20	None	Ingram Micro
■ Netgear Santa Clara, Calif. (408) 907-8000 www.netgear.com	ReadyNAS 1100	\$2,495 for 2 Tbytes	Volume incentives, instant and mail-in rebates, govt./education discounts	4,566	None	ASI, D&H, Ingram Micro, Jenne, MA Labs, Synnex, Tech Data, VodaOne
■ ZyXEL Anaheim, Calif. (714) 632-0882 www.us.zyxel.com	NSA-2400	\$989.99 barebones, plus \$130 each for four 500-Gbyte drives	Sales leads, rebates, training, marketing collateral	400	None	Ingram Micro, Tech Data, Wymit