



# NAS Appliances

## Provide scalable storage in mixed-platform environments

**W**hen you select a Network Attached Storage (NAS) solution, you want it to meet your storage requirements in terms of capacity, scalability, client compatibility, and performance. You also must integrate the solution into your current management, backup, and security strategies. This Buyer's Guide presents entry-level and midrange NAS devices available in 1TB to 2TB configurations, although many of the listed devices scale to much larger capacities. When you need additional capacity, your environment's rate of growth will be a key factor in the scalability approach you choose. If your organization's storage needs usually increase slowly, you could get away with adding a stand-alone NAS server or two each year without creating a physical space or device management problem. If your organization's needs tend to increase rapidly, you might want to pay up front for a solution that scales to a greater capacity through the addition of storage enclosures.

NAS devices, which support multiple, simultaneously active file-sharing protocols, are an excellent way to provide storage to mixed-platform environments. The listed devices all offer at least Common Internet File System (CIFS) and NFS file-sharing capabilities. CIFS is an enhanced version of the Microsoft Server Message Block (SMB) protocol, the standard file-sharing protocol in Windows networks; NFS is a typical set of file-sharing protocols in UNIX environments. Many of the NAS devices support file sharing between additional platforms. For example, some solutions support Novell NetWare and Macintosh file sharing through the IPX/SPX and AppleTalk protocols, respectively. If you plan to share your NAS solution between platforms, make sure that the solution you purchase supports the protocols your environment requires.

The Buyer's Guide includes only NAS devices that provide a hardware RAID controller with support for at least RAID levels 0, 1, and 5. Many provide additional RAID capabilities. Initially, you might think that one RAID level will meet your needs, but as new applications and systems begin to take advantage of the NAS server, you'll want the flexibility to create volumes with

different RAID levels to satisfy your applications' performance, reliability, and space requirements.

You'll also want to ensure that the solution you purchase won't be a bottleneck in your environment. The number and speed of NICs on the NAS server should well exceed the anticipated throughput needs of the clients that will use the device. If you plan to scale storage through expansion, make sure that you can scale the network I/O components as well. Similarly, depending on your applications, you might find processing power a bottleneck when you scale to meet the needs of additional clients. The bottom line is that if you shop for a scalable solution, make sure the entire solution scales, not just the storage component.

When you estimate the cost of deploying and maintaining a particular NAS device in your environment, consider the effect on your administrators in terms of managing security integration, data backup, antivirus software, monitoring, and maintenance. For example, in Windows environments, Windows Powered NAS appliances inherently have the upper hand in security integration, but vendors of other proprietary and open OS-based NAS appliances are developing better integration with Windows security than is currently available.

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Some of these devices have a dedicated SCSI port for connecting a local backup device, which relieves the network of backup traffic between the NAS server and a backup server. Network Data Management Protocol (NDMP) is an open-standard protocol for enterprisewide backup of NAS devices. NDMP provides a more efficient data stream when you back up over a network to NDMP-supported backup hardware than when you use a standard network backup with protocols intended for client/server communications.

Because you must also protect your NAS servers from viruses, look for a solution that offers a protection mechanism that you can update or lets you use third-party antivirus utilities. Also, make sure the solution includes features that let you monitor performance and hardware functionality. In the event of a failure, devices that support hot-swappable, field-replaceable units (e.g., power supplies, disks) help you minimize downtime.

—Ed Roth

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### EDITOR'S NOTE

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Contact Information	Product Name	Price	Description
<b>Advanced Media Services</b> 603-898-7500 800-466-0813 <a href="http://www.amsstorage.com">http://www.amsstorage.com</a>	DakotaRAID-WP 8000	\$19,995	Windows Powered NAS appliance with 1GB of RAM; features 10/100/1000 Mbps Ethernet, 1.2TB hot-swappable storage, and RAID levels 0, 1, 0+1, 3, and 5; offers redundant hot-swappable power supplies
<b>BlueArc</b> 408-576-6600 866-864-1040 <a href="http://www.bluearc.com">http://www.bluearc.com</a>	Si7500 Storage System	\$75,000	NAS device built on custom architecture engineered for performance; delivers wire-speed throughput; scales to 250TB; can support as many as 38,000 simultaneous users
<b>Consensys</b> 905-940-2900 800-388-1896 <a href="http://www.raidzone.com">http://www.raidzone.com</a>	RAIDZONE Storewidth 2TB	\$24,995	NAS unit in a 4U (7") rack-mount enclosure with 2TB of RAID 5; includes all hot-swappable disks with hot spare; features Gigabit Ethernet interface; offers choice of Windows 2000 Server Appliance Kit (SAK) or Linux kernel
<b>Dell</b> 512-338-4400 800-289-3355 <a href="http://www.dell.com">http://www.dell.com</a>	PowerVault 775N	Entry price less than \$8000	NAS server in a 2U (3.5") unit that directly connects SCSI or Fibre Channel arrays or integrates with a Dell-EMC Storage Area Network (SAN); includes single- or dual-Xeon processors; scales to 2.4GHz; offers as much as 3GB of 200MHz Double Data Rate (DDR) memory and 219GB of internal storage; supports three PCI-Extended (PCI-X) slots; offers hot-plug redundant cooling and power; includes embedded dual gigabit NICs, remote access controller, and dual-channel RAID controller with 128MB of battery-backed cache; features Windows Powered OS with multiple device management
<b>InoStor</b> 858-726-0277 800-816-3237 <a href="http://www.inostor.com">http://www.inostor.com</a>	PerformNAS9000L	\$24,810	NAS device in a 2U configuration that features hardware RAID storage and as much as 1.32TB of storage; supports Windows NT, UNIX, Linux, and Macintosh platforms; includes SCSI drives, redundant fans, power supplies, and environmental monitoring; features front-end-accessible hot spares and hot-swappable disk units; offers optional tape autoloader for backup and restore by using NDMP
<b>MTI Technology</b> 714-970-0300 800-999-9684 <a href="http://www.mti.com">http://www.mti.com</a>	MTI StingRay NAS	\$92,000 with 1TB of storage	Quad-Xeon NAS server with Gigabit Ethernet and 10/100 Ethernet connectivity, configured as part of an overall storage solution (SAN and NAS); enables dynamic allocation of storage to run databases in a SAN environment and handle files and Web sites on a NAS architecture
<b>Network Appliance</b> 408-822-6000 800-443-4537 <a href="http://www.netapp.com">http://www.netapp.com</a>	NetApp F810 Filer	From \$63,000 with 1TB storage, NFS, and one Gigabit Ethernet NIC	Entry-level enterprise-class filer with 1.5TB capacity; supports consolidation of heterogeneous data for entry-level ISPs, application service providers (ASPs), and storage service providers (SSPs); leverages the F800 series platform; provides data management capabilities with built-in Snapshot technology tools for data backup, recovery, and mirroring
<b>Quantum</b> 408-879-8700 888-343-7627 <a href="http://www.quantum.com">http://www.quantum.com</a>	Guardian 14000	\$24,900	NAS server that delivers 1.4TB of storage; supports cross-platform file sharing, Snapshots, Active Directory Service (ADS), Network Information Service (NIS), and SNMP; features backup agents, hardware redundancy, and StorageCare onsite service
<b>Winchester Systems</b> 781-265-0200 800-325-3700 <a href="http://www.winsys.com">http://www.winsys.com</a>	FlashNAS	\$29,850	NAS device powered by Win2K Server Appliance software; supports CIFS, NFS, CNP, and AppleTalk; supports RAID levels 0, 1, 1+0, 3, and 5; offers hot-swappable drives; features two Gigabit Ethernet connections