



Technology Paper

BlackArmor® NAS 440/420 Storage Servers

The Secure, Centralized Network Storage Solution for Small Business

Businesses with 50 or fewer employees, including home-based businesses, need to store ever-increasing amounts of critical business and financial data, and protect that information against loss. Though their budgets are limited, their storage and backup needs are just as vital as those of the world's largest multinational corporations. Yet few have a formal plan for backing up valuable files regularly, and even fewer have the luxury of IT support. Seagate Technology is answering this need for high-volume storage that protects against data loss.

The Seagate® BlackArmor® NAS 440/420 storage servers are expandable network-attached storage solutions tailored to meet the unique needs of small businesses and small-office/home-office (SOHO) users. Compatible with computers running Windows XP, Windows Vista and Mac OS X 10.5, the new Seagate BlackArmor NAS storage servers provide business-grade, high-capacity, redundant data storage at a low cost per gigabyte. Easy for non-technical people to manage, the BlackArmor NAS storage server, through its multiple RAID configuration options, protects against data loss due to hardware failure. The BlackArmor NAS storage server even provides secure remote access, allowing mobile workers the ability to read and write files from anywhere with an Internet connection.

Comprehensive Protection

The BlackArmor NAS storage server enclosure accommodates up to four Seagate Serial ATA (SATA) hard drives of 1 TB, 1.5 TB or 2 TB each, for a total unformatted storage capacity of up to 8 TB. The flagship model BlackArmor NAS 440 storage server includes four installed drives and is preconfigured for RAID 5 operation, which combines three or more hard drives to protect all stored data against the loss of any one drive. The BlackArmor NAS 420 model ships with two drives installed in a RAID 1 configuration (called mirroring) that stores all data on each drive to protect against the

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loss of either. You can expand the BlackArmor NAS 420 model in seconds with the addition of one or two additional drives as your storage needs grow.¹

BlackArmor NAS storage servers support creation of up to four logical volumes, each of which can vary in size and be configured at a different RAID level. Doing so keeps different types of data separate and allows selection of a RAID protection level best-suited for the type of data in each volume. Separate volumes that store a business' important word processing and accounting files, and backups of workers' computers are likely best served by RAID 10, which provides the highest level of protection. Files that require protection with faster read/write performance, such as a transactional database, might be stored in a different volume configured for RAID 1. For files that require the highest data transfer rates, such as downloaded movies and other streaming media, the volume can be configured as RAID 0, which provides the speediest performance but does not provide the benefit of data protection. With the Seagate BlackArmor NAS storage server, it's not only possible to do all of these simultaneously, it takes just a few minutes to set up through the browser-based administrative interface.

The flexibility of the BlackArmor NAS storage server design allows it to perform multiple storage tasks simultaneously. Two primary uses are centralized, shared file storage in a networked environment and the ability to back up files from up to 50 connected computers using the included Seagate BlackArmor Backup software.² Additional capabilities include media streaming, replication of the unit's contents to a second BlackArmor NAS storage server via a direct connection that bypasses the network and full support for Microsoft Active Directory. Four built-in USB ports support reading from and writing to USB hard drives or flash drives, communicating with an uninterruptible power supply, and sharing of a USB printer. Files on the BlackArmor NAS storage server can be securely accessed from

anywhere in the world via the free Seagate Global Access™ service and the FTP server function. All the authorizations for these access points are managed by the primary administrator.

Continuous Reliability

The BlackArmor NAS storage server design is intended to ensure reliable, continuous operation. The unit's two to four internal Seagate drives are hot-swappable and can each be replaced in just seconds without the need to power down the unit. The result is minimal downtime in the rare event of a drive failure. The dual Ethernet ports, when simultaneously connected to the network, can be configured to provide fail-over redundancy.

A key consideration in any storage system is heat dissipation. For all of their ultra-low-friction efficiency, hard drives generate heat as they spin at high speeds, and heat is the enemy of electronic circuitry. Seagate engineers surmounted this challenge in two ways.

First, the drives are oriented vertically inside the BlackArmor NAS storage server enclosure, providing an optimal air-flow path for efficient heat dissipation. The unit's nearly silent, high-efficiency, ball bearing fan provides the boost necessary to maintain the correct air-flow rate across the drives. Like the drives, the fan itself is also field replaceable.

The second aspect of heat dissipation, dealing with the unit's power supply, was solved in an ingenious way. Instead of locating the power supply within the BlackArmor NAS storage server enclosure, similar to a desktop computer, Seagate engineers opted to think outside the box—literally. They chose an external power supply, similar to that of a laptop computer. This clever solution solves several problems simultaneously: heat generated by the power supply is no longer a factor, the BlackArmor NAS storage server enclosure can be made more compact, and, should a power supply ever malfunction, replacement requires only disconnecting the old power supply and plugging in a new one.

¹ RAID 5 requires three or more drives, four is preferred. RAID 10 requires four drives configured in pairs.

² Includes 10 licenses; additional licenses up to 50 available.

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Backup-Ready

Backing up files regularly is just as important to small businesses and SOHO workers as it is to the world's largest corporations. Seagate BlackArmor Backup software, a Windows-based program included with each BlackArmor NAS storage server, automates this daily chore by backing up files to a designated BlackArmor NAS RAID-protected volume. Files are easily restored using the BlackArmor Backup software.

Making the chore of backing up an automated process ensures that no files are missed and that all backed up data resides in a central location instead of on stacks of CDs or on individual USB hard drives that would be difficult to round up in an emergency. BlackArmor Backup software greatly simplifies the task of locating a single file, each from any PC³ on the network. Without centralized backup, the cost of recovering data becomes very expensive. According to a February 2009 study, each compromised customer record incident costs US\$202.⁴ For a small business whose 20 clients have 1000 records each, the total cost exceeds US\$4 million. For further protection, the SafetyDrill™ bare metal recovery feature allows you to restore your entire system in the event of catastrophic computer failure.

Management Tools

For businesses that use an outside systems integrator or consultant to provide IT support on an as-needed basis, BlackArmor NAS storage server includes a wealth of management and administrative tools. The built-in Web-based management interface, directly addressable through a local IP address or accessible remotely via the Internet, provides comprehensive configuration capabilities for creating volumes, setting up network shares managing support for Microsoft Active Directory, and DNS-based naming. Seagate intelligent error-sensing technology, alert email notification, NTP time synchronization, automatic IP address assignment via DHCP or setting a fixed address are just a few of the dozens of options available.

Conclusion

BlackArmor NAS 440/420 storage servers provide affordable, easily managed, centralized network storage and secure remote access, and are the breakthrough in data reliability that small businesses have been waiting for. Part of the growing family of Seagate BlackArmor storage products, BlackArmor NAS storage servers optimize uptime, simplify data management and are ready to expand as the business's storage needs grow. At last, even the smallest businesses can now enjoy the benefits of RAID, ensuring that their data is safe, secure and protected against loss due to hardware failure.

³ BlackArmor Backup software is not currently available for Mac OS. There are 10 licenses included with the purchase. Additional licenses are available for purchase from Seagate. BlackArmor Backup software can support up to 50 computers with one BlackArmor NAS storage server.

⁴ "U.S. Cost of a Data Breach Study," published by PGP Corp. and the Ponemon Institute, Feb. 2009, (http://www.pgp.com/insight/newsroom/press_releases/2008_annual_study_cost_of_data_breach.html).

AMERICAS Seagate Technology LLC 920 Disc Drive, Scotts Valley, California 95066, United States, 831-438-6550
ASIA/PACIFIC Seagate Technology International Ltd. 7000 Ang Mo Kio Avenue 5, Singapore 569877, 65-6485-3888
EUROPE, MIDDLE EAST AND AFRICA Seagate Technology SAS 130-136, rue de Silly, 92773, Boulogne-Billancourt Cedex, France 33 1-4186 10 00