

Seagate® BlackArmor® NAS 440/420 White Paper

Seagate's 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 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, Seagate's new 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, BlackArmor NAS storage servers, through its multiple RAID configuration options, protects against data loss due to hardware failure. BlackArmor NAS even provides secure remote access, allowing mobile workers the ability to read and write files from anyplace with an Internet connection.

Comprehensive Protection

The BlackArmor NAS storage server enclosure accommodates up to four Seagate Serial ATA (SATA) disk drives of 1TB, 1.5TB, or 2TB each, for a total unformatted storage capacity of up to 8TB. The flagship model NAS 440 includes four drives installed and is preconfigured for RAID 5 operation, which combines three or more disk drives to protect all stored data against the loss of any one drive. The 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 loss of either. You can expand the 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 Level 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 Level 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 Level 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

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

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 USB print servering. 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, disk 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 disk 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 one and plugging in a new power supply.

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

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, 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 Feb. 2009 study, each compromised customer record incident costs \$202.⁴ For a small business whose 20 clients have 1,000 records each, the total cost exceeds \$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, network shares, and managing support for Microsoft Active Directory, and DNS-based naming. Seagate's intelligent error-sensing technology, alert e-mail notification, NTP time synchronization, automatic IP address assignment via DHCP or setting a fixed address, are just a few of the dozen 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 can support up to 50 computers with one BlackArmor NAS.

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).