



## IBM Introduces the DS3000 Series for the SMB — Lowering Cost, Increasing Storage Capacity

Analyst: David Reine

### Management Summary

Every homeowner faces the same problem. Why isn't there enough room in the garage for the family car and all of the sundry items that we store there? What are the options? Instead of buying a home with a one-car garage, the prospective homebuyer could build or look for a house with a two-car, or even three-car, space. Unfortunately, the cost of building a castle with a three-car garage can become prohibitive for the average family with two kids and a dog. Even a home with a two-car garage costs more than some families with a limited budget can afford. One alternative would be to buy a house with a one-car garage and defer the additional expenditure. As the space fills up, add a carport for the auto while the lawnmower, patio furniture, and gas grill are tucked in for the winter. Another alternative might be to add an attached garage to park the car(s) when an overflow condition occurs. These alternatives enable you to invest today in other necessities, like a high-definition plasma TV!

Overcrowded conditions exist in the data center also. The typical small- or medium-sized business (SMB) is storing an ever-increasing amount of data over multiple heterogeneous arrays. In fact, storage requirements are doubling annually because of data protection requirements, government regulations, industry standards, and best practice policies for email and other infrastructure applications, increasing management complexity. The largest enterprises have an IT staff dedicated to the provisioning and management of enterprise-level storage arrays costing hundreds of thousands of dollars. An enterprise storage administrator can approve adding a terabyte or two to a petabyte storage network. The SMB, on the other hand, has to weigh carefully the impact of purchasing a 4TB disk array when all he needs to consolidate over the next 12 months is 2TB. Overprovisioning storage can result in a major hit to the IT budget, eliminating or postponing acquisitions for other vital infrastructure systems, such as a multi-core server to reduce energy costs while improving performance. **Low-cost, scalable storage systems are becoming even more important today than ever before.**

IBM has been paying attention. With the announcement of the *IBM System Storage DS3000* series, IBM is introducing a new low-cost, entry-level array priced to meet the budgetary needs of any SMB, yet configurable to support the growth expected in the coming years. Starting at under \$4,500, the DS3000 can scale to over 14TB, protecting the investment that the SMB makes today while not jeopardizing enterprise profitability, today or in the future. To find out what the IBM DS3000 series can do for your enterprise, please read on.

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## Data Explosion in the SMB Data Center

The never-ending expansion of data storage requirements continues to place an undue burden on the CIO of every enterprise, Fortune 500 and SMB (small-medium enterprise) alike, as he or she tries to meet the *mission-critical* demands of their enterprise, while, at the same time, attempting to adhere to budget constraints. Government regulations and best practices policies require the preservation of an increasing store of historical email and financial data that previously was merely a nuisance, but now is required to keep executives out of trouble and out of jail. This creates a new category for *business-critical* data.

Enterprises place mission-critical data on high-performance arrays to respond instantly to the queries of everyone from corporate executives to customers and partners, from factory personnel to order-entry clerks. Enterprise databases have to be accessible, 24x7, to place orders and process invoices. System outages are simply unacceptable when the enterprise measures downtime in thousands of dollars rather than minutes and hours. *Backup* and *recovery* data has similar urgency, although, as the information ages, it carries less significance to the everyday data center operation. It can usually be stored on high-capacity drives with slightly less performance capability. *Archived* information is another category. It must be saved and managed, but is rarely accessed. For this third-tier data, tape libraries often prove to be the price/performance leader.

**Typically, the enterprise data center has the staff and experience to establish service policies to manage these different tiers of data in a storage-centric environment, experience that the average SMB<sup>1</sup> does not have.** The large enterprise can assign storage to a specific array in an appropriate tier, according to the value of the data being stored. This necessitates a heterogeneous infrastructure of storage components in order to reduce the TCO of the IT environment. Unfortunately, these can contribute to increasing the complexity of an already convoluted architecture when the enterprise obtains storage from different vendors, with different management protocols, in order to satisfy data center needs.

To accomplish this, the SMB faces a different set of needs based upon what the existing IT environment looks like. Typically, **the SMB is concerned about a limited number of hosts in a server-centric environment.** In many cases, the

SMB may be moving from a traditional architecture with internal storage in each of the application servers. The transition to unified, external storage needs to be simplified. The implementation of a consolidated storage environment requires an integrated storage management process in order to streamline all storage network policies. Ideally, the SMB data center will consolidate all of its storage requirements on a storage area network (SAN) and connect this single pool of storage to all of the networked servers, although small operations can accomplish the same task with a direct connection using the SAS protocol. The SMB may not have all the same complex requirements as the larger enterprise, but the SMB still has many of the same issues as his big brothers: capacity versus performance versus cost, with application and location dependence. Therefore, the SMB needs to be able to identify a single source for the acquisition of all its storage needs, whether high performance or high capacity.

## Simplification, Protection and Performance Needs

One way for SMBs and remote offices to lower the total cost of ownership (TCO) and complexity, while also increasing the ability of the data center staff to respond to changing needs, is to simplify the underlying IT infrastructure. Consolidation of all of the enterprise storage into a single platform connected to the servers through a direct SAS interface or through a FC SAN eliminates much of that complexity. A simplified management application can facilitate the deployment of a consolidated storage environment that can increase data protection and reduce the cost of recoverability. Deployment and system maintenance have always been major obstacles for the smaller enterprise lacking an IT staff trained in storage networking. These environments have always lacked access to the higher-level application functionality available to the more expensive storage arrays, functionality such as *snapshots*, *volume copy*<sup>2</sup>, and the ability to share an array across a multi-server architecture.

The SMB needs to find an affordable, configurable storage platform that meets these requirements, as well as the performance needs of the enterprise. The SMB and remote offices require access to the faster response times that

<sup>1</sup> The same is true for branch offices of the large enterprise.

<sup>2</sup> For more about volumes and copying, see **Clipper Notes** dated January 16, 2007, entitled *Volume Copies - Logical or Physical? Twelve Questions to Guide You*, available at <http://www.clipper.com/research/TCG2007003.pdf>.

3Gbps SAS<sup>3</sup> and 4Gbps Fibre Channel provide. This platform must be scalable enough to protect the enterprise assets and to grow with the business. Much like the *Legos* that a child uses to build complex structures, the SMB needs to find a flexible brick to build a scalable infrastructure. This is not always a simple task.

IBM has always been focused on the storage needs of the largest corporations in the world: to maintain business continuity, security, and data durability. Now, they are addressing these same storage concerns for all enterprises, regardless of size, with solutions for every IT environment. IBM's latest announcement, the *System Storage DS3000* series, expands this focus to solutions under \$15K, under \$10K, and, in fact, entry solutions for under \$5K. Using the latest technology innovation for storage connections in a server-centric architecture, Serial Attached SCSI (SAS), as well as FC SANs, IBM is improving the performance of entry-level networked storage. Let's take a look at the DS3000 series.

### The IBM System Storage DS3000 Series

Taking advantage of their long-standing relationship with LSI Logic, IBM has used LSI Logic's *Engenio 1332* and *1932* as a basis to develop the DS3000 series. Keying on the industry need for a simpler IT infrastructure for storage with faster, more reliable drives, IBM has customized the LSI systems and introduced the DS-3000 as a brick in building *the* low-cost, scalable solution for the SMB and for the branch or remote office of the larger enterprise to maintain business continuity, security, and data durability. Based on a 3Gbps SAS front-end, the *DS3200* can attach directly to multiple IBM *System x* hosts<sup>4</sup>. The DS-3400, on the other hand, can be directly attached to multiple System x or *BladeCenter* servers, or across a SAN, via multiple Fibre Channel front-end ports. In addition, both systems support non-IBM hosts, including select Dell and HP x86 servers. Both systems are scalable to 48 devices and over 14TB of disk by attaching *EXP3000* enclosures, announced previously. The base DS3000 chassis is a 2U rack-mount configuration with support for up to 12 SAS disks. An entry-level configuration with dual redundant power supplies,

<sup>3</sup> See **The Clipper Group Explorer** dated January 4, 2006, entitled *Breaking the I/O Paradigm – SAS Enters the Nearline Storage Race*, at <http://www.clipper.com/research/TCG2006002.pdf>.

<sup>4</sup> System x hosts running Windows or Linux. Support for other x86 hosts is forecast for 2H07.

a single controller, and the *DS3000 Storage Manager* is available for under \$4,500. IBM has certified both 10K- and 15K-RPM SAS drives, with capacities ranging from 73GB to 300 GB per device. IBM plans is to certify SATA disks by 2H07. **This flexibility will help to ensure that the enterprise can efficiently manage information throughout its lifecycle, based upon the price/performance of each array.**

Most significant is the functionality bundled into the base system, along with the optional functionality available. Among the highlights in the DS3000 Storage Manager are the ease of deployment – with only six steps required to setup and manage an array – and the clustering support included in the base offering. Additional functionality also available includes advanced copy functions such as snapshots and volume copy, with point & click capabilities for the first-time user, and extended partitioning to enable the IT staff to share disk capacity between more than two servers. If the data center has already installed *DS4000* arrays in the enterprise, the staff can manage the new DS3000 hardware with the *DS4000 Storage Manager* already installed.

### Conclusion

With a base price under \$4,500 for an entry-level SAS system, IBM is delivering a storage array within the budget constraints of the smallest SMB, while at the same time providing the flexibility and scalability required by the mid-range enterprise to grow with a price/performance architecture. The DS3000 answers any questions that IT management may have regarding the ability of their storage solution to scale with an expanding business model. The 3Gbps SAS and 4Gbps FC interfaces also address any management concerns about the ability of the storage network to support the Service Level Agreements (SLAs) made with either internal or external customers.

With the DS3000 (or DS4000) Storage Manager, IBM provides an application to simplify both the deployment and management of the storage network, reducing administrative costs with easy-to-use tools. The IT staff of any SMB can be sure that with the scalability, affordability, flexibility, ease-of use, and reliability of the DS3000 they can be sure of a S-A-F-E-R solution. If your enterprise is looking to build a safer solution, take a close look at the DS3000 from IBM.



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- ***The Clipper Group can be reached at 781-235-0085 and found on the web at [www.clipper.com](http://www.clipper.com).***

### ***About the Author***

***David Reine*** is Director, Enterprise Systems for The Clipper Group. Mr. Reine specializes in enterprise servers, storage, and software, strategic business solutions, and trends in open systems architectures. He joined The Clipper Group after three decades in server and storage product marketing and program management for Groupe Bull, Zenith Data Systems, and Honeywell Information Systems. Mr. Reine earned a Bachelor of Arts degree from Tufts University, and an MBA from Northeastern University.

- ***Reach David Reine via e-mail at [dave.reine@clipper.com](mailto:dave.reine@clipper.com) or at 781-235-0085 Ext. 123. (Please dial “123” when you hear the automated attendant.)***

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