The IBM DS8000 Series of Enterprise Storage is Fast, Scalable, and Now Tiered

Analyst: Michael Fisch

Management Summary

IBM recently announced a number of new features and improvements to its *DS8000* series of high-end storage systems. Now renamed the IBM *Storage System DS8100 Turbo* and *DS8300 Turbo*, these systems are faster, more capable, better priced, and offer tiered storage. Read on for details.

New DS8000 Series Features

The DS8100 Turbo and DS8300 Turbo are designed for enterprises with serious storage requirements. They scale to 192 TBs and 320 TBs, respectively, and offer an array of data protection and management software capabilities. These new features and enhancements will be available on September 8, 2006, unless otherwise noted.

High-Capacity FATA Drive Support

The DS8000 now supports FATA drives in addition to Fibre Channel (FC). FATA drives are similar to SATA, but they have a FC interface attachment, allowing them to slip right in to the DS8000 without changing its internal drive interfaces. FATA offers higher capacities and lower costs than FC – in this case, it means 500 GB drives with a 35% lower list price per GB. The tradeoff is less performance. Sequential or streaming operations are close to FC, but FATA is slower for random reads and writes, such as occur in transaction processing applications.

Like the proverbial hitting of two birds with one stone, support for FATA allows the DS8000 to offer multiple tiers of storage in one system. For instance, an enterprise could store production data that requires fast access on FC, while snapshot copies and testing and development databases reside on FATA. The net result is a lower overall cost of storage, without adding the management and procurement burden of a second storage array.[1] Moreover, by using different RAID schemes - as well as the DS8000's software capabilities for data protection and recovery - the possibilities for storage tiers are broad indeed.

Performance Increase

High-end storage is characterized by performance, among other attributes, so it is fitting that IBM included a performance boost as part this announcement. The DS8000 *Turbo* supports 4 gigabit per second FC and FICON host connections, doubling from the previous 2 Gbit/s. An enterprise can take advantage of these speedy connections, if the host servers and SAN similarly support it. It helps simplify and consolidate the SAN infrastructure. The DS8000 also incorporates the new *Power5+* processors. As engines of the storage system, these processors offer more horsepower and thus improve system performance. Befitting its designation, the new DS8000 *Turbo* outperforms the previous DS8000 by up to 15% in transaction

---

[1] See **The Clipper Group Explorer** dated August 29, 2002, entitled *Tiered Storage Classes Save Money – Getting the Most Out Of Your Storage Infrastructure* and available at http://www.clipper.com/bulletins/2002/Tiered_Storage_final.pdf.

processing environments. It also compares favorably with its peers at the high end.

Three-Site Replication

Support for three-site replication is generally available now (previously it required special handholding through an RFQ). This configuration employs IBM *Metro Mirror*, *Global Mirror*, and *FlashCopy* software running on the DS8000. A primary system replicates synchronously to a secondary system located up to 300 km away, which in turn replicates asynchronously to a tertiary system located at nearly any remote distance. Two of the systems can fail and data is still available. This highly robust solution is for enterprises that need maximum business continuance.

IBM's three-site replication solution is designed for efficient resynchronization after failover/failback between systems. In the case where the secondary system fails, the primary and tertiary systems can restore coherency automatically and incrementally. It does not need to start anew with a full copy. IBM's solution also makes good use of bandwidth through protocol optimization, helping to lower communication costs and/or extend distance. For instance, the delay in data currency for Global Mirror (asynchronous replication) is just 3 to 5 seconds, and Metro Mirror (synchronous replication) functions up to distances of 300 km.

New TPC for Replication

Replication may sound straightforward – copying data from point A to point B – but in reality it is technically complex. It requires keeping copies of data consistent with the original, even as it changes in real time, over distance and inconsistent connections, among multiple platforms, and across groups of application volumes. It has to handle failover, failback, and resynchronization. It can involve multiple software products, as in the case of IBM's three-site replication. Replication software must be sophisticated to handle all of this, but managing a live enterprise environment can be challenging too.

As such, the IBM *TotalStorage Productivity Center (TPC) for Replication 3.1* for centralized replication management should be a welcome tool. It manages Metro Mirror, Global Mirror, and FlashCopy on the IBM DS8000, *DS6000*, *Enterprise Storage Server*, and *SAN Volume Controller*. It can monitor and confirm replication operations and help ensure data consistency. If business continuance is a priority, then a good management tool for lowering administrative

costs and boosting reliability should also be on the list.

Pricing Flexibility

IBM has lowered the starting list price for the DS8000 by 25% to $213,400 to make the initial acquisition cost more appealing. IBM focused previously on total cost of ownership (TCO), offering benefits like a four-year warranty on both hardware and software that made TCO more compelling vis-à-vis the competition. TCO may be the most relevant metric in the long run, but some enterprises choose to weigh acquisition cost heavily. So, IBM has made its pricing structure more flexible to cater to either TCO or acquisition cost. Features like FICON support, Metro Mirror, Global Mirror, and three-site replication are priced separately, instead of being bundled or included in the base price.

DB2 and AIX Synergy

A new feature will be available on November 17, 2006, that enables the DS8000 to work synergistically with the latest version of DB2 running on AIX. It will support I/O prioritization and cooperative caching that boost the performance and efficiency of the application. This is an example of special application integration.[2]

Conclusion

The high-end storage market is a race with few contenders, since it takes serious commitment and capability to field a product here. **This announcement shows IBM has not ceased innovating and pushing forward its DS8000 line to stay competitive and provide a solid storage system to its enterprise customers. If you are looking for storage that is on the high end of fast, scalable, robust, and now tiered, consider IBM's DS8100 Turbo and DS8300 Turbo.**

---

[2] See **The Clipper Group Explorer** dated May 30, 2006, entitled *When Buying Storage, Application and Host Integration Matters* and available at http://www.clipper.com/research/TCG2006044.pdf.

About The Clipper Group, Inc.

The Clipper Group, Inc., is an independent consulting firm specializing in acquisition decisions and strategic advice regarding complex, enterprise-class information technologies. Our team of industry professionals averages more than 25 years of real-world experience. A team of staff consultants augments our capabilities, with significant experience across a broad spectrum of applications and environments.

➢ *The Clipper Group can be reached at 781-235-0085 and found on the web at www.clipper.com.*

About the Author

Michael Fisch is Director of Storage and Networking for The Clipper Group. He brings over ten years of experience in the computer industry working in sales, market analysis and positioning, and engineering. Mr. Fisch worked at EMC Corporation as a marketing program manager focused on service providers and as a competitive market analyst. Before that, he worked in international channel development, manufacturing, and technical support at Extended Systems, Inc. Mr. Fisch earned an MBA from Babson College and a Bachelor's degree in electrical engineering from the University of Idaho.

➢ *Reach Michael Fisch via e-mail at mike.fisch@clipper.com or at 781-235-0085 Ext. 211. (Please dial "211" when you hear the automated attendant.)*

Regarding Trademarks and Service Marks

The Clipper Group Navigator, **The Clipper Group Explorer**, **The Clipper Group Observer**, **The Clipper Group** *Captain's Log*, **The Clipper Group Voyager**, and *"clipper.com"* are trademarks of The Clipper Group, Inc., and the clipper ship drawings, *"Navigating Information Technology Horizons"*, and *"teraproductivity"* are service marks of The Clipper Group, Inc. The Clipper Group, Inc., reserves all rights regarding its trademarks and service marks. All other trademarks, etc., belong to their respective owners.

Disclosure

Officers and/or employees of The Clipper Group may own as individuals, directly or indirectly, shares in one or more companies discussed in this bulletin. Company policy prohibits any officer or employee from holding more than one percent of the outstanding shares of any company covered by The Clipper Group. The Clipper Group, Inc., has no such equity holdings.

Regarding the Information in this Issue

The Clipper Group believes the information included in this report to be accurate. Data has been received from a variety of sources, which we believe to be reliable, including manufacturers, distributors, or users of the products discussed herein. The Clipper Group, Inc., cannot be held responsible for any consequential damages resulting from the application of information or opinions contained in this report.