

# Commentary

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## The New TotalStorage DS Family Puts IBM Right in Storage Fashion

*With the introduction of the TotalStorage DS family of disk storage array products, IBM again demonstrates a trendsetter role in enterprise disk storage fashions. IBM erases the notions that one family of enterprise-class disk storage cannot span the entire spectrum of enterprise-level requirements and that a disk array cannot shrink significantly in size and still provide enterprise-class-storage functionality, including playing in the mainframe space. IT buyers, take notice.*

### The Fall Storage Fashion Parade

Fall is the time for the introduction of new fashions and storage is no exception. This fall storage fashion parade has been headlined by the introduction of a strong collection of storage-related products from the major vendors in the storage systems market — and no more so than IBM.

The announcement of the DS disk array system family — notably the DS6000 and the DS8000 — is an important and impressive storage announcement for IBM. The announcement signals that IBM has returned to its historic role of being a storage system trendsetter.

For example, IBM is a trendsetter in packing density into a modular array. The increased storage density in the IBM TotalStorage DS6000 is a change in kind, not merely degree, in modularity — modularity that IBM aptly calls “pay as you grow” storage.

For the DS8000, leveraging IBM’s server strengths yields trendsetting server/storage integration with its POWER5™ technology that enables more effective management of large scale storage systems with storage systems logical partitioning (LPAR).

### All in the Family

All major sellers of disk storage systems offer two major classes of storage — “midrange” and “enterprise-level” storage. Except for the products of one of the other major disk storage system suppliers, the two separate classes from disk system vendors do not have the same intellectual-property heritage; common branding may make them stepchildren, but not siblings.

However, the new IBM offerings may reasonably be called members of the same family. One commonality is microcode. IBM states that 97% of the DS6000 code is running in the DS8000. Moreover, 75% of the DS8000 code comes from its direct ancestor — the ESS

800. Microcode that is shared within a family yields storage manageability benefits, as the functionality to be monitored is similar, and likely to be more robust. For example, the DS6000 and the DS8000 can use the same copy services software (such as Metro Mirror, Global Mirror, and FlashCopy).

Moreover, operating system interoperability across the high-end members of the family, including mainframe, is also a commonality. IBM has the only disk system storage family that can make that claim.

Admittedly, packaging is different. The DS6000 comes in a highly compact modular package that fits into standard 19" racks and the DS8000 comes in a more traditional standalone chassis. However, this difference reflect a needed flexibility: differences in packaging translate into the ability to match performance — as expressed in bandwidth, operations/second, and linear scalability — and basic capabilities — as expressed in connectivity, cache sizes, and number of disks — with need.

IBM states that both storage lines have been designed with reliability, availability, and serviceability from the ground up. For example, the availability goal is five nines or better, through code reuse and hardware resiliency.

## **DS6000 — the Incredibly Shrinking Disk Array**

Although the DS6000 occupies the "midrange" space in the IBM disk array product line, the DS6000 is really a true enterprise-class product that spans both midrange and enterprise-level disk storage classes. The only exception is for supporting

very demanding enterprise-level storage functionality requirements, which is where the DS8000 fits in.

### *Shrinking Size Yields Shrinking Price*

The DS6000 comes in 3U (5.25") high controller and disk expansion units. In contrast, IBM's ESS 750 would take up 75.25" to equal the same capacity (although with smaller drives) in the 5.25" of a DS6000 controller unit.

Improved modularity is not just a nice thing to have. Limbo dancing that lowers both the capacity granularity and pricing pole as much as possible is more important to most customers than pole vaulting to the very highest levels of performance and capacity to see who can set a world record.

IBM claims a new standard in pricing and packaging for the DS6000. Lower acquisition costs for enterprise-level storage at midrange prices should be very acceptable to budget-conscious IT buyers.

### *No Back Seat on Capacity*

Each unit can accommodate 16 disk drives with an incremental granularity of 4 disks at a time. The controller unit and each of 13 available expansion units offer 4.8 TB of native capacity using high-density disk drives for a maximum of 67 TB — enough capacity for a large majority of business applications and then some!

### *Mainframe Support Means Only the Size and Price Shrink*

Previously, only the enterprise-level disk system product of each major vendor supported mainframes. With IBM both the DS6000 and the DS8000 support mainframes. This has significance for IT

shops that have only open systems as well as for those shops that have mainframes.

IT organizations that have both mainframes and open systems servers can now consolidate on a single SAN (storage area network), improving both manageability and the economics of managing storage.

Open systems shops benefit from the IBM offerings' enterprise-storage functionality and RAS (reliability, availability, and serviceability) in a highly-compact "midrange" modular packaging. IBM builds mainframe class resiliency into the DS6000 as well as every other mainframe product. Moreover, open systems shops can take advantage of high-end software functionality in the already available common copy services, such as Global Mirror (PPRC).

Storage buyers for mainframe shops will be salivating. Previously, they had a simple choice for mainframe storage — buy the high-end (and higher-priced) product from one of the major disk system vendors or buy nothing at all. Now those buyers have a real choice to match the differing capacity, functionality, and price requirements of different applications.

## **DS8000 — Turning on the POWER**

Even though the DS6000 has a broad and strong range of capabilities, there is still a need for higher-end enterprise-class storage. High-end enterprise-class storage has tended to have higher performance, to be more vertically scalable in capacity, and to offer greater richness of software functionality. A large number of enterprises still need these product

characteristics in their system of choice.

The DS8000 delivers up to 6 times the performance of its Shark predecessor — the IBM ESS Model 800. Both the Model 8100 and the Model 8300 start with a 1.1 TB minimum, but the Model 8300 has a maximum capacity of 192 TB whereas the Model 8100 tops off at 115 TB.

One secret to the success of disk storage systems is the processing power in the storage controller of the system. IBM leverages its investment in chip and server technology to deliver outstanding power in the DS8000. The 2-way Model 8100 use two POWER5 dual processor servers and the 4-way Model 8300 uses two POWER5 four processor servers.

POWER5 server designs have specifically included storage requirements in their development and implementation. That is a clear advantage to IBM as one of the few vendors that has its own chip technology.

The IBM Virtualization Engine in conjunction with its POWER5 architecture is the foundation for storage system LPAR (logical partitioning) for the DS8000. Logical partitions enable the use of multiple storage operating environments.

For example, a storage administrator could partition an array to take on multiple personalities — such as multiple storage-controller images (to tune to the needs of specific applications), a Tivoli Storage Manager partition (to attend to more efficient data protection), and a network-attached file system partition. The personalities can be visible (as above) or embedded, such as quality of service management and policy-based load management.

Initially, IT organizations may start off using one LPAR for a production environment and another for a test environment or use LPARs for two production environments.

The advantage of using storage system LPARs within a large IT shop is that there is a single footprint and single set of management procedures, policies, scripts, and interfaces within a data center complex that manages multiple production and operating environments. Storage System LPARs will allow administrators to shift the boundaries between partitions flexibly and cost-effectively as demand patterns change.

IBM has thrown in an extra fillip as well — a claim that it has the first four year warranty. Not only does this warranty demonstrate IBM's confidence in the DS8000, but it also conveys a TCO benefit to enterprises.

## Conclusions

IT buyers will find a lot to like from the fall disk array storage fashion parade. As a key part of this parade, IT buyers should cast favorable glances at IBM's attractive new DS family brand storage.

Those favorable glances should come about because IBM has attended to the needs of the IBM shop with this announcement from both an economics (price, TCO, ROI) perspective and a performance (scalability,

bandwidth, functionality, and RAS) perspective. And that never goes out of fashion.

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