

## EMC Lands a Haymaker

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EMC's announcement of the inclusion of NAND-based flash memory devices, OEMed from STEC, within the DMX-4, on a snowy day in Boston, shocked the storage world and ushered in a new era of storage tiering, adding tier 0 to an increasingly granular offering from EMC.

This new class of storage is aimed at highly active database logging and indexing applications, certain financial applications and perhaps also simple messaging systems (SMS), although it is unclear that text messaging requires a Symmetrix-class subsystem. Partly because of the impressive secrecy prior to the announcement, it had three (3) immediate and significant effects on the marketplace:

1. No leaks equals a head start for EMC: This announcement has given EMC a clear lead over the competition.
2. The surprise has created organic marketing momentum for EMC as competitors, pundits, and writers scrambled to decipher what was announced, what it meant, and, in the case of competitors, what to say and do about it. The result was an announcement with a market impact far beyond its small marketing budget.
3. In one brilliant marketing move, intended or not, EMC has flipped the balance of market power from its former defensive position, constantly responding to competitive performance and functionality claims, to a leadership position with next-generation technology and performance.

At the same time, EMC made several other functionality announcements:

- 1TB 7200 rpm SATA-II drives for the DMX-4 only,
- A New GigE Channel Director with hardware-assisted IPv6 & IPsec encryption,
- Cascaded SRDF,
- HyperPAVs ,
- Array-based Native Compatible Flash (copy),
- Virtual Provisioning, EMC's version of thin provisioning.

Of these, Virtual Provisioning is perhaps the most notable as 3PAR and Hitachi have enjoyed a lead of many years and months respectively over EMC. However these other enhancements are incremental improvements to the DMX platform, with the majority of function available for both DMX-4's and older DMX-3 systems.

As it pertains to Virtual Provisioning, EMC has dramatically simplified the provisioning of both 'fat' and thin volumes and appears to have caught up to Hitachi in the simplicity game while setting its sights on 3PAR.

Will this announcement have ripple effects across the industry? Yes. IDC estimates the worldwide market for enterprise-class disk drives is approaching \$7B in 2008. Assuming 4%-5% of data are candidates for SSD (solid state disk)-class performance, this implies the OEM market for STEC exceeds \$300M\*. At a 3-4 X subsystem vendor markup, the market for Tier 0 class function could exceed \$1B in the near term.

Also, the inclusion of flash-based devices in the DMX may give a boost to standalone vendors such as

Texas Memory Systems and Solid Data, who use more expensive and higher performance DRAM but will probably begin to blend in more cost-effective NAND-based flash devices.

What does this announcement mean for EMC's major competitors? The Wikibon community believes the competition will be forced to respond, even if simply to have a tier-0 capability as a check-off item. It appears that EMC does not have an exclusive on the STEC technology, which suggests with some microcode work to address drive wear levels and some rigorous testing, competitors, specifically Hitachi, could have a response by year's end.

What does this announcement mean to customers in the near and intermediate term? It suggests that tiering continues to become more granular, allowing users to get more out of installed infrastructure. In the case of SSD, customers can take advantage of Symmetrix functionality (e.g. SRDF and importantly thin provisioning to improve utilization of an expensive resource) on tier-0 devices. Best practices imply turning off <read ahead> will accelerate performance and exploit these devices to the fullest. Durability remains an unknown, and users should exercise caution specifically with respect to the possibility of needing to service these devices frequently. However it appears that STEC and EMC have conservatively spec'd the durability of these devices at a five year lifespan.

In the case of thin provisioning, IBM appears to be pulling up the rear, and IBM customers must sort out IBM's plans to compete with this functionality using the DS8000 or XIV's NEXTRA architecture. To the extent IBM's customers require thin provisioning in the near term, they may want to consider alternatives.

The bottom line is this announcement has, overnight, made EMC substantially more competitive.