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EMC Readies Solid-State Drives to Replace Disk Storage

The new single-cell flash memory drives will be available in 73GB and 146GB capacities.

EMC plans to introduce a line of solid-state drives using flash memory as an option to replace some disk drives in the company's high-end Symmetrix storage arrays, a company spokesman said Monday.

EMC will offer solid-state drives with capacities of 73GB and 146GB, said Abhrajit Bhattacharjee, an EMC spokesperson in Singapore. The drives, which will ship this quarter, will only be available as an option with Symmetrix storage arrays, and will not be available with other products, he said.

Pricing for the solid-state drives was not immediately available, but using four 73GB solid-state drives to replace four of the 146GB hard disk drives in a Symmetrix 100-disk array would increase the cost by less than 10 percent compared to a comparable system using only hard disk drives, Bhattacharjee said.

Solid-state drives use memory chips instead of magnetic platters to store information. These types of drives are generally faster and consume less power than traditional disk drives, but they are also significantly more expensive.

The solid-state drives are aimed at customers willing to pay a premium for the significantly faster response times these drives offer, Bhattacharjee said.

EMC plans to use single-cell flash memory in its solid-state drives, which will allow for higher performance but costs more than multicell flash memory.

Single-cell flash memory stores one bit of information in each memory cell, while multicell flash memory stores two. The greater density of multicell flash makes it perfect for music players and digital cameras. But multicell flash is significantly slower, making single-cell flash more suitable for high-performance applications such as solid-state drives. Single-cell flash memory is also more durable than multicell flash. Each cell on a multicell flash chip is generally good for 10,000 write/erase cycles, while the cells on single-cell chips can last for 100,000 write/erase cycles. The durability of a flash memory chip can be increased with the use of wear leveling, a technique that writes data equally to all of the memory cells on a chip instead of using the same cells repeatedly.

Drives based on magnetic platters are capable of enduring unlimited write/erase cycles, but they have moving parts which can break down. Solid-state drives do not have moving parts.

STEC -- the maker of the solid-state drives that EMC plans to offer -- said its solid-state drives, which use wear leveling, last more than 2 million write/erase cycles. There was no indication of how many write/erase cycles the EMC solid-state drives will be capable of sustaining.