

STEC announces high-endurance SSD

The SSD can support up to 33 petabytes of data writes over its working life

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November 30, 2011 01:48 PM ET

Computerworld - Storage vendor STEC this week announced a high-performance drive that has three times the endurance capability of previous generation MLC-based solid state drives (SSDs).

Using a fourth-generation flash controller and a new bit error correction code, STEC's new ZeusIOPS XE (Extreme Endurance) SSD can achieve at least 30 full capacity writes per day, every day, for five years, the company said.

The SSD comes in 300GB and 600GB capacities that support up to 500MBps sustained read rates and up to 275MBps sustain write rates. For read operations, the SSD supports up to 115,000 input/output operations per second (IOPS) and up to 70,000 IOPS for write operations.

ZeusIOPS XE SSDs support latency responses of up to 50 microseconds and have a 6Gbps serial-attached SCSI (SAS) interface.

The company did not release pricing information.

The new ZeusIOPS XE SSD achieves its longevity through the utilization of STEC's own fourth-generation ASIC-based SSD controller and its CellCare software.

STEC's CellCare technology is a bit error correction software, which also has the ability to measure and manage the wear of the drive using adaptive flash management algorithms and advanced signal processing techniques. As MLC (multilevel-cell) flash will wear out faster over time if not properly monitored and managed, CellCare technology proactively manages the way the flash wears throughout the life of the drive.

The use of ECC (error correction code) techniques enables higher protection against media errors and improves SSD endurance for write-intensive workloads without limiting the performance of the drives. STEC said the ZeusIOPS XE SSDs are ideally suited for write-intensive applications with the high endurance necessary to support server-side caching, auto-tiering, metadata management and logging, and analytics.

Using the figure of 30 full capacity writes per day for five years, STEC said the 600GB version of the SSD can sustain up to 33 petabytes of data writes over its working life.

To further improve MLC SSD reliability, ZeusIOPS XE SSDs incorporate STEC's Secure Array of Flash Elements (S.A.F.E.) technology that prevents data loss associated with MLC flash. It provides the ability to recover from NAND flash page,

block, die and chip failures. S.A.F.E. creates multiple instances of data striped across multiple NAND flash dies.

Each NAND flash die consists of multiple pages, which are further arranged in multiple blocks. Data stored by the controller is managed at the NAND block level.

According to STEC, S.A.F.E. software in the controller is used to arrange data in stripes. When the host writes data to the SSD, redundancy information is generated by the controller hardware over a stripe of data. The controller then writes the host data and the redundant data to the flash stripes. Data in the stripe is spread across the NAND flash blocks over multiple flash channels, so that no two blocks of data within a stripe resides in the same NAND block or die.

"Our new ZeusIOPS XE SSD solution is a direct response to the growing customer demands for ultra-high endurance solutions that address high write activities associated with caching and logging applications," said Scott Stetzer, STEC's vice president of technical marketing.