STEC Delivers New MLC Flash-Based SSDs For the Data Center

By Seth Colaner
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At the Server Design Summit this week, STEC will demo its latest MLC flash-based SSDs. The company's flagship ZeusIOPS line now includes a high-endurance model with the ability to deliver up to 30 full capacity read/writes per day for five years (or about 33 Petabytes of data over the life of a 600GB drive).

The new model, the ZeusIOPS XE (Extreme Endurance), features STEC's own fourth-generation ASIC-based SSD controller and CellCare Technology to help ensure the drive's longevity. It also runs Secure Array of Flash Elements (S.A.F.E.) data loss prevention technology.

The ZeusIOPS XE will be available in 300GB and 600GB capacities with a 6Gb SAS interface and will feature up to 50ms latency responses, 500MBps/275MBps sustained read/write throughput, and 115,000 IOPS/70,000 IOPS for read/write operations.

STEC Extends Its Flagship ZeusIOPS® SSD Family with the Industry's Highest Endurance MLC Flash-Based SSD for the Data Center

STEC's CellCare™ Technology Enables New ZeusIOPS XE SSDs to Achieve Three Times the Endurance for Write-Intensive Enterprise Applications – Booth #107 at Server Design Summit

SANTA CLARA, Calif., Server Design Summit 2011, November 29, 2011 – STEC, Inc. (NASDAQ: STEC), The SSD Company™, a leading global provider of solid-state drive (SSD) technologies and products, today announced that its flagship ZeusIOPS® SSD family has been expanded to include a new ultra-high endurance model. Purpose-built for write-intensive enterprise applications, STEC's new ZeusIOPS XE (Extreme Endurance) SSD is a Multi-Level Cell (MLC) flash-based drive that utilizes STEC's CellCare™ technology to enable at least 30 full capacity writes per day, every day, for five years. Since these new high endurance drives can withstand more writes before they wear-out, they reduce total cost of ownership (TCO) in the data center. The new ZeusIOPS XE SSD will be featured in STEC's booth (#107) beginning today at Server Design Summit (Santa Clara Marriott Hotel).

As data growth continues into the zettabytes and is expected to double every two years, accelerating access to data using enterprise SSDs as a server caching solution delivers strong value for application acceleration. However, caching software increases the writes to the SSD requiring more endurance from the drive to withstand drive wear that would otherwise deteriorate the storage media in a much shorter time. A similar problem occurs when advanced auto-tiering software places the most active hot data on SSDs as a priority in the storage hierarchy. For these types of write-intensive applications, many competing SSDs become challenged, wear out more quickly, require more frequent in-field replacements, and result in higher maintenance costs.

The new ZeusIOPS XE SSD utilizes a combination of STEC's proprietary fourth-generation ASIC-based SSD controller and its proprietary CellCare technology, which when applied to MLC flash, extends the performance, reliability and endurance capabilities of these drives. As a result, STEC enables at least 30 full capacity writes per day for five years and an improvement in random write performance. It can fully write about 33 Petabytes of data over the working life of a 600GB drive (which equates to a workload of writing the full capacity of the drive 30 times per day for 5 years).

"Enterprise networks and data centers need to develop innovative ways to address the issues caused by the enormous and growing amount of data being created," said Jeff Janukowicz, research director for solid-state storage at International Data Corporation (IDC). "Solid-state solutions, such as STEC's SSD family with its CellCare technology that improve MLC flash endurance, enhance MLC SSD performance, and reduce media access error rates for consistent performance over the entire useful life of the drive, are increasingly being leveraged to solve these issues and help IT organizations optimize their storage in a fast, reliably cost-effective manner."

One of the most important features of STEC's CellCare technology is its unique ability to measure and manage the wear of the drive using adaptive flash management algorithms and advanced signal processing techniques. As MLC flash will wear out faster over time if not properly monitored and managed, CellCare technology dynamically and proactively manages the way the flash wears throughout the life of the drive. The additional use of advanced error correction code (ECC) techniques enables higher protection against media errors and improves SSD endurance for write-intensive workloads without limiting the performance of ZeusIOPS XE SSDs. As a result, 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.

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 while maximizing the Mean Time Between Failure (MTBF) and Mean Time To Data Loss (MTTDL).

“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. “We’ve engineered our new ZeusIOPS XE MLC flash-based drives to deliver extended enterprise endurance for the demanding write-intensive applications and provide our OEM customers with a superior choice for a cost-effective enterprise-class SSD that they can rely on.”

Offered in MLC capacities of 300GB and 600GB, STEC’s new ZeusIOPS XE SSDs support latency responses up to 50 microseconds and have a 6Gb Serial-Attached SCSI (SAS) interface. From a performance perspective, both the 300GB and 600GB capacity drives support up to 500MB/s (sustained Read throughput); up to 275MB/s (sustained Write throughput), up to 115,000 input/output operations per second (IOPS) for Read operations; up to 70,000 IOPS for Write operations; and 38,000 IOPS for 8K random Read/Write operations (70 percent/30 percent).