Nominee: Dell

Nomination title: Dell Mainstream Intensive Flash TLC 3D NAND

What are your product's key distinguishing features and/or USPs?

Dell Storage is continuing to redefine the economics of enterprise storage with the industry's first TLC 3D NAND flash drives. The new Mainstream RI drives provide performance improvements of up to 24x on random reads and more than 2.5x on sequential reads – exceeding 15K HDD for all categories of reads and writes. Though maximum IOPs depend on many variables, Mainstream RI drives are ideally suited for reads and can achieve up to 300K IOPs, especially within flash-optimised configurations.

With a highly flexible architecture, Dell's SC range including the new TLC drives can be optimised for any workload. Single-tier Mainstream RI configurations are well-suited for database and other read-intensive applications.

The additional capacity of the new drives; available in capacities up to 3.8 terabytes (compared to the previous limit of 1.9TB for RI flash based on MLC), means that flash becomes more practical at any scale. For example, the Dell SC8000 arrays can now support 62 percent more flash for a total of up to 3 petabytes of raw flash capacity in a single array, whilst the SC4020 can provide a complete 90 terabyte array in only 2U of rack space. This allows organisations to future proof their data storage systems, whilst reducing the required floor space for hosting the physical units.

In terms of long-term performance, while TLC drives have lower write endurance than other SSDs, Dell's TLC 3D NAND flash drives have a unique architectural advantage – particularly within a flash-optimised configuration – which can extend their life. In a flash-optimised array, Mainstream RI drives are exclusively deployed within a "read only" Tier 2, thereby protecting them from primary/heavy writes. In this and any configuration, Dell offers a full lifetime warranty on all flash drives which remains in effect as long as the array is under a support agreement, replacing worn out SSDs, regardless of wear or maximum life rating. However, most of Dell's customers will not wear out these drives before replacing them.

Most importantly, the Mainstream RI SSD solution costs less than 1/10 per gigabyte compared to an all Write-Intensive SSD solution at the same capacity, helping organisations to significantly reduce investment associated with storage and managing mission critical data and IT applications.

What tangible impact has your product had on the market and your customers?

The recent growth of flash adoption has been one of the hottest topics in enterprise storage over the past few years, however, to date, the greatest barrier to wider adoption has been the cost. Despite this, with flash's ability to handle data at much faster rates in a smaller form factor with excellent reliability compared to traditional spinning disks, organisations have begun weighing the options of performance vs. cost.

The introduction of the Dell TLC 3D NAND drives has levelled the playing field, offering businesses the lowest cost per gigabyte, without sacrificing performance. Dell's modern, virtualised storage array architecture enables a unique approach that utilises multiple flash types in the same array, based on workload goals and usage patterns. As a result, enterprise customers that were previously barred from entry to the flash storage ecosystem are now able to adopt high-performing, yet economical flash-optimised arrays, both in all-flash and hybrid flash configurations.

What are the main differentiators between your product and those of your primary competitors?

In addition to being the first to announce support for NAND storage, Dell can utilise the technology in ways that other providers cannot, with its proprietary Data Progression intelligent data-placement technology. Whilst the Mainstream Read-Intensive drives have slightly lower write performance and endurance than other read-intensive flash drive technologies, Dell's unique Data Progression architecture takes advantage of their positive aspects while avoiding potential negatives. By implementing Mainstream RI drives exclusively within "read only" Tier 2 environments, Dell offers high performance read operations, whilst preventing the drives from wear due to primary/heavy writes, thereby ensuring longevity and reliability. Other vendors do not have these capabilities and will not therefore be able to leverage TLC technology to its full potential in high-performance enterprise environments.

The combination of Dell's storage architecture and the addition of these drives, enables an offering of the industry's lowest cost per gigabyte for all-flash arrays, compared to the other six leading storage vendors:

- EMC (VNX5200, VNX-F5000)

- HP (3PAR 7200 and 7200c)

- NetApp (FAS2520)

- IBM (V5000)

- Pure Storage (FA-450)

- HDS (HUS110)

As NAND technology continues to evolve, Dell's unique flash tiering will allow customers to leverage the best characteristics of diverse SSDs over a range of price-points, providing the most cost-effective, high-performance solutions for enterprises of any size, at any level.

Why nominee should win

•   Dell is leading the way in NAND storage technology and is able to utilise the technology in ways its competitors cannot.

•   Dell's virtualized storage array architecture and unique intelligent data placement technology coupled with new Mainstream Read-Intensive SSDs, with Triple Level Cell (TLC) 3D NAND technology, offer customers increased storage density across all array segments at the lowest ever flash price-for-performance to meet high-end to entry-level needs.

•   The TLC 3D NAND drives offer SSD technology at the same price as 15K HDDs, with up to 24 times performance improvements, six times the storage density, lower latency and lower power consumption.