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# Storbyte launches with long-lived SSD flash drive technology and 100 per cent channel model

by Mark Cox • May 1, 2018

**Diamond Lauffin**, the founder of Nexsan and its disk-to-disk technology, is the Chief Evangelist and Design Architect at **Storbyte**, which is offering a 10-year warranty with a 100 per cent write guarantee on their arrays.

Today, storage hardware startup Storbyte is emerging from stealth, with a new SSD drive technology designed to improve IOPS and performance while eliminating the normal limitations on life expectancy associated with flash memory. Accordingly, Storbyte offers a 10-year warranty, with a 100 per cent write guarantee on their products. They are selling three arrays, from a 1U array with 131TB of raw capacity, to a 4U with 786TB of raw capacity – at a price point they say is 300 to 800 per cent below commercial competition. The arrays are designed as a long-lived and very inexpensive alternative to tape for bulk cold storage.

The problems Storbyte set out to solve – the extremely short life of flash drives and the uselessness of their warranties in common use cases – are endemic to the industry.

"The company's cofounder is Joseph Drissel, who basically built out the foundation of cybersecurity for the U.S. government," said Diamond Lauffin, the founder of Nexsan and its disk-to-disk technology, who is the Chief Evangelist and Design Architect at Storbyte. "The problem was that flash drives died in under a year. Aside from the cost, and the issues of added maintenance and support, when the drives died they were non-returnable garbage because they would exceed the supported TBW – terabytes written."

Lauffin explained the way that Storbyte's technology overcame this problem using commodity mSATA modules in an ASIC based architecture. It abstracts independent SSD memory modules within the flash drive and presents the unified architecture as a single flash storage device.

"The foundation of the technology is the design of the architecture in a completely optimized fashion, with eight modules on top and eight on the bottom," Lauffin said. "Sixteen targets is the optimized number. Every module is individually pluggable, so that they are field-replaceable and upgradeable."

Lauffin said that this was the first check box in the technology, with a Hydra Control ASIC each managing four individual targets. 4 groups of four targets, each managed by a Hydra, is managed in turn by the Hydra Master Control ASIC. A single ECO•FLASH drive thus consists of the 16 targets and five Hydras.

"16 individual targets in a single drive produced a modified RAID set, each with 16 times the performance of a single target," Lauffin said. "It was a very simple approach, and it was so fast we would turn down voltage by 75 per cent, actually reducing heat."

The other major breakthrough here is the way the architecture handles what is referred to as 'garbage collection.'

"Garbage collection is the key problem in all flash memory," Lauffin said. "If you partially populate a cell and complete the write, the empty space can't be filled Cleaning that up is garbage collection. It reduces the performance of drives in the same way you would if you run a database on a drive while you are defragging it. It increases the amount of writes to the drive compared to new data writes, so you have more data cleanup writes than new data writes. IBM developed a way to deal with this which is widely used in the industry, but it requires that end users pay for 40 per cent more disk space they can't use for capacity. Joe Drissel's approach was to do it in ASICS at the drive level, which reduces the footprint and is completely scalable."

The impact on performance and drive life is massive, Lauffin said.

"By using the Hydra ASIC approach, all garbage collection is managed at the drive level at extreme performance levels with little impact, while reducing 75 per cent of voltage. Compared to a 30-40 to 1 ratio in RAID systems for garbage cleanup, we are 1 to 1, so memory can be used for new data writes. As a result, we are able to offer a 10-year warranty on these drives, with no conditions."

Storbyte is offering three ECO•FLASH arrays, a 1U with 131TB raw capacity, a 2U with 262 TB, and a 4U with 786TB.

"That provides 920,000 IOPS in a 2U box and 1.7 million in a 4U," Lauffin said. 4U 1.18PB spinning disk JBOD expansion units are also available.

Cost translates into $0.54 cents per GB raw capacity, and cost for utilization of Storbyte's intelligence-applied, tiered dedupe and compression is less than $0.01 per GB.

"Our current price point compared to commercial competition is 300 to 800 per cent below them," Lauffin said. "That low cost will allow the average commercial consumer to purchase it for an average application, and that gives us a very broad market."

Channel partners will be the entire go-to-market mechanism for the Storbyte arrays.

"It's a 100 per cent channel model," Lauffin stressed. "I never took a deal direct at any company. Storbyte will fill a gap in allowing integrators to not have to look over their shoulder. There is a real 40 per cent margin here. That's based on real street numbers, not on inflated MSRP price lists. Integrators will be able to count on the integrity of the program."

Storbyte's ECO•FLASH arrays are available now.

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