

# 3PAR tiering faster than FAST

Supports STEC SSD too

By **Chris Mellor • The Register**

Posted in Storage, 8th March 2010 13:02 GMT

Faster than EMC's FAST: you can order 3PAR's automatic data moving across storage tiers software right now. 3PAR is also adding solid state storage to its arrays.

FAST is EMC's Fully-Automated Tiering Technology, and it moves data at the logical unit (LUN) level from one type of storage to another. For example, from Fibre Channel drives to solid state drives (SSD). This is a bad example as it happens, being automatically based on settable policies such as the data's access activity level. More granular movement, at the sub-LUN level, is coming with FAST 2 by the mid-year point.

Up until now 3PAR, which competes with EMC for high-end storage, has had neither SSD support nor automated tiering. Now it has the latter and will have the former by the mid-year point, restoring equality on those issues with EMC.

3PAR did have Dynamic Optimisation software which moved volumes across storage tiers. Compellent introduced automated data movement at the block level in its arrays years ago. The new 3PAR automated data moving software is called Adaptive Optimisation - we thought it was Adaptive Provisioning back in October last year.

The software moves data at the sub-LUN level, using 'regions'. Marketing VP Craig Nunes says a region is a grouping of chunklets, 3PAR's mini-virtual disk entity. A 500GB volume could have, he suggests, 4,000 regions. Quick maths says a region is 125MB.

It moves data between Fibre Channel and SATA drives now, and will support the SSDs when they are delivered as well. 3PAR thinks its arrays will move to a 2-tier architecture of SSDs and SATA drives. Both Fibre Channel and SAS drives will, it says, be squeezed out since they are less effective than SSDs in terms of sheer IOPS and \$/IOPS

The software monitors region performance, then applies user-configurable policies, defined in a profile per volume, that autonomically and non-disruptively rebalance a workload across storage tiers, moving hot regions to a faster tier and slower ones to down the tiers. There are administrator controls that incorporate policy override mechanisms should customers be nervous about relying on the automated movement alone.

Adaptive Optimisation also includes Quality of Service (QoS) gradients that can be used to bias data movement within a profile based on specific performance or cost objectives. A QoS gradient, defined in a volume's profile, accelerates or decelerates data movement toward a particular storage tier so the user can better meet service level and cost objectives. Performance-biased volumes will get their data moved to a fast storage tier more quickly than cost-biased ones.

The QoS gradient can also reflect cyclical things like end of quarter accounting runs with data moved up-tier for them and then returned down-tier afterwards.

## STEC MACH8IOPS SSD

3PAR will support STEC's MACH8IOPS SSD, not the ZEUSIOPS adopted by EMC. STEC suggests the ZEUS drive is suited for 15,000-80,000 IOPS performance needs, whereas the MACH8 is suited for 5,000-15,000 IOPS levels and is less expensive.

Nunes says the MACH8 is far more cost-effective than the Zeus drive. It comes in 50GB units with a minimum quantity of eight drives spread across controllers, ports and CPUs in an InServe array. 3PAR wants to avoid the overwhelmed controller syndrome it sees in some implementations with ZeusIOPS SSDs locked behind a single controller.

Data is striped across all the SSDs. Up to 128 can be supported in a T-Class with up to 64 in a F-Class InServ. Nunes reckons an SSD plus SATA InServ could provide the same performance as a Fibre Channel hard drive plus SATA InServ, with 10 per cent of the capacity being Fibre Channel, but at a 30 per cent cost-saving: "It really tips the capacity scales in favour of SATA and against Fibre Channel.... It spells the end of the line for Fibre Channel as it's broadly deployed in arrays. ... As people deploy this there will be a marked industry shift away from Fibre Channel and SAS to SATA and SSD."

If other vendors take the same tack as 3PAR and find the same things happening, there could be an accelerating shift away from using Fibre Channel and SAS drives in enterprise arrays, with consequent effects on Fibre Channel and SAS disk sales at Seagate and others.

3PAR Adaptive Optimisation software is orderable immediately, with pricing starting at \$1,400. It requires 3PAR System Reporter software, version 2.7 or newer. Pricing for the SSDs starts at \$22,400 per InServ array with the minimum configuration being eight, meaning \$2,800 per SSD. ©