

Adaptec MaxIQ is the simple storage accelerator

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A recent article described a major social media site's disappointing results with the latest generation of multi-core servers. Further analysis indicated that in virtualized environments such as VMware, Xen and Hyper-V, the CPU is usually not the bottleneck. Improvements in storage speed have not kept pace with the rapidly improving CPUs. Described as the storage performance gap, the inability of hard disk drives (HDDs) to keep up with the workload is a tough problem for organizations that have relied on server improvements to offset the growth demands. There are a number of products and technologies that can address the performance gap, especially solid state drives (SSDs). But the implementation of the new drives can be a daunting task because the choice of data sets to be placed on the SSDs is not simple. That's why we are particularly impressed with Adaptec's new MaxIQ™ SSD Cache Performance Solution, which turns any Adaptec Series 5Z, Series 5 or Series 2 Storage Controller into an I/O supercharger.

Automatic storage acceleration with MaxIQ SSD Caching

The Storage Controller is in a unique position to monitor storage traffic and make decisions regarding 'hot' data areas that can be copied to SSDs, automatically and dramatically increasing the speed of any system. Adaptec's MaxIQ SSD Performance Cache Solution consists of software and a special version of the Intel X-25E single-level cell (SLC) Enterprise SSD that is used as a cache pool. MaxIQ analyzes traffic patterns and copies frequently-read "hot" data to the SSD cache pool, automatically increasing performance without adding any management issues. The data in the SSD cache pool is simply a copy of the hot data residing on the HDD, eliminating many of the data migration concerns that get involved in placement algorithms. Hot data blocks are particularly common in virtualization implementations, but are not always obvious to the storage manager.

Hybrid array deployment without the headaches

Hybrid arrays (those containing both HDDs and SSDs) are generally viewed as the best solution to the tradeoff between the speed and higher cost of the SSDs combined with the lower speed and cost of the HDDs. With the addition of MaxIQ, any HDD array instantly becomes a hybrid array. And since the storage controller is making the decisions regarding hot data, the implementation is totally transparent to the applications. Just plug it in and watch the Input Outputs per second (IOPS) take off. The data copying is done in the background, is adaptive in its decision process, is totally transparent to the applications, and does not tap any server processor resources.

Lowest cost for I/O increase

MaxIQ uses the SSD as read cache, and random read operations can benefit from an 11x improvement in IOPS when compared to high-performance HDDs. Web server workloads can expect a 5x improvement, file server and OLTP can expect a 4x improvement. Any system can benefit from MaxIQ, even application servers with direct attached storage can become a hybrid via the PCI interface with MaxIQ.

Compatibility

MaxIQ supports many of the most popular operating systems including Windows and Linux OS environments, and can be 'dropped into' any existing Adaptec Series 5Z, Series 5 or Series 2 array installation, or a new hybrid array can be built from scratch. Up to four of the custom Intel®-powered MaxIQ SSDs can be deployed per controller, providing from 32GB to 128GB of SSD caching. The MaxIQ SSD that ships with the MaxIQ solution has a special software feature which allows the SSD to be configured as cache. This tight cooperation with Intel is indicative of the partnership that the two companies have enjoyed for the development of high performance storage products. .

SSG-NOW Assessment

When compared to the many storage acceleration devices and strategies available, MaxIQ stands out as any easy way to increase IOPS in virtually any application at a very low cost. We have come to expect really easy implementations from Adaptec, but the MaxIQ SSD Performance Cache Solution suddenly extends this simplicity to the implementation of SSD/HDD hybrid storage arrays without all of the other issues related to NAS, SAN or accelerator appliance implementation. MaxIQ allows integrators and end-users a new level of flexibility in the design of high performance storage systems with this unique application of SSDs.

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