ATTO TECHNOLOGY
WHITE PAPER

Why You Need Software Defined Storage in Your Infrastructure

The rise of mobile devices, social media and the Internet of Things has created an explosion in data—800% growth is expected over the next five years alone. At the same time, new commercial models have arisen based on analytics that mine data for competitive advantage. Data holds value, but provisioning for intensive growth—and the rapid retrieval of data for analysis—can strain IT department budgets, especially ones with an infrastructure-centric mindset.

There's a transition underway from traditional data center infrastructures to software-defined ones that permit resources to be scaled in response to evolving business needs. And with IT managers under pressure to maximize ROI, there's a new openness to flexible system architectures that sidestep vendor lock-in. Virtualization created the first step in this direction by providing software tools to maximize hardware computing resources. And now Software Defined Storage extends those same benefits to storage infrastructure.

SDS enables a modular approach that fully separates software from hardware while adding management and automation capabilities. As with virtualization in the compute realm, heterogeneous storage resources are presented as a combined pool. The SDS layer then enables features including provisioning, replication, deduplication and compression—all of which are removed from the physical storage where they invariably increase latency and decrease overall performance.

What are the implications of SDS for a company's bottom line? TCO is dramatically lowered as IT administrators are freed to build high-performance storage solutions using standard low-cost hardware. And instead of simply being stripped-down alternatives to existing packaged solutions, the supplied features in leading SDS applications from companies like Nexenta, DataCore and Maxta enable high-level functions including cloud connectivity, access control and data movement.

Other benefits to an SDS environment include scalability and flexibility. Storage resources can be centralized and aggregated in response to workload changes. Policies can be created per application to define characteristics such as file, block and object storage using metadata. Also, unlike with proprietary Flash and Hybrid arrays, data migration can be carried out in a non-disruptive manner.

ATTO Technology's FibreBridge 7500 Storage Controller: A Platform for SDS

ATTO Technology's 7500 Storage Controller represents a new product category that provides an optimal hardware platform for building out a Software Designed Storage ecosystem. While Its basic functions are to bring 16Gb Fibre Channel SAN connectivity to commodity SAS drives and enable multiple servers to share the same pool of low-latency storage, the wide range of features and performance-related improvements that ATTO has introduced with the 7500 make it ideal for demanding applications including Big Data Analytics, Large Archives, Media & Entertainment Services and Hyperscale.

With no onboard storage, the FibreBridge 7500 allows OEMs and systems integrators to create build-it-yourself storage solutions based on the performance needs of a particular application. Unlike most existing Flash and Hybrid storage products, it has no server-like compute functionality to run applications. Users integrate the 7500 directly with their SSD or HDD storage shelves, and can take advantage of Software Defined Storage applications to provide features and services.

Low-cost JBOD storage typically doesn't benefit from the management and monitoring tools readily found in SAN-based solutions. The 7500, in contrast, brings additional Enterprise-class management and monitoring to low-cost direct attached SAS storage. ATTO ExpressNAV System Manager lets users manage storage via a web-based GUI with advanced options for performance tuning, event logging and email error notification.

Why you need SDS—and the FibreBridge 7500

#1: Lower Capex and Opex

Enterprises today are under pressure to do more with less IT resources.

One solution that has been developed to meet this need is hyper-converged appliances that bundle software, server, network and storage. An advantage to this solution is that it allows enterprises to quickly and easily scale capacity in response to business demands. Disadvantages include added up-front and maintenance costs, since scaling capacity means buying new appliances. Hyper-converged appliances also lock end-users in to a particular vendor.

An SDS infrastructure based around ATTO's FibreBridge 7500 storage controller can lower Capex by enabling users to build high performance storage solutions with low-cost commodity hardware. The 7500 also permits scaling up storage capacity simply and cost-effectively by aggregating up to 240 SAS SSDs/HDDs. With all SSDs, the FibreBridge 7500 accommodates up to 384TB of storage capacity today using 1.6TB SSD drives for as low as $.79/GB. When mixing SSDs with HDDs, the FibreBridge 7500 enables OEMs and systems integrators to build hybrid storage solutions for as little as $.14/GB. Capacity when using 6TB HDDs (216 total) alongside 1.6TB SSDs (24 total) currently reaches up to 1.3PB.

Another advantage to SDS is simplified management. With ATTO's 7500 storage controller seated at the hub of an SDS-based storage infrastructure, users additionally benefit from ExpressNAV™ Storage Manager, a remote management interface that extends the capabilities of SDS by providing configuration and diagnostic controls.

ATTO FibreBridge 7500
Fibre Channel Storage Controller

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#2: Enhanced agility and performance

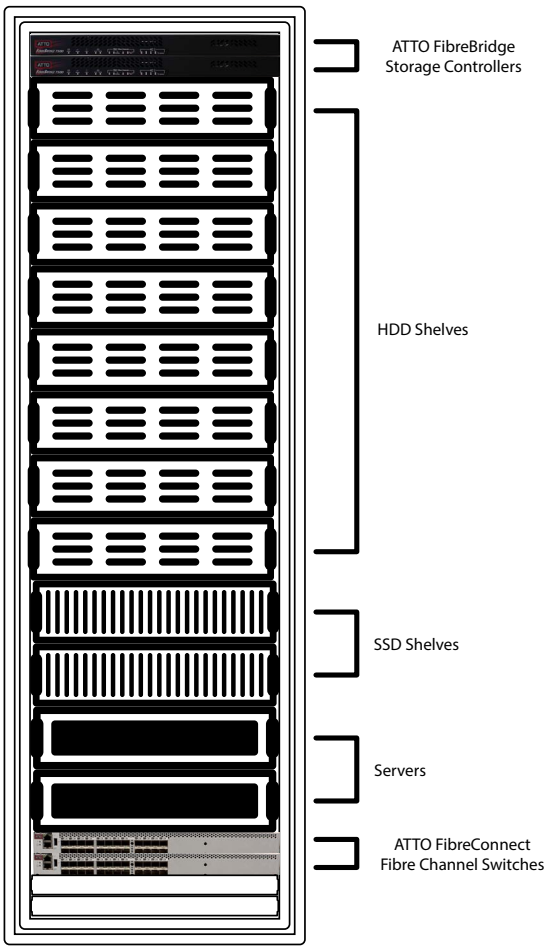
The open ecosystem that SDS creates allows for organizations to quickly adapt storage infrastructure for particular business needs and applications. There are also significant performance benefits that come with migrating features and services out from the physical hardware to a software layer above storage.

When used as an SDS platform, ATTO's FibreBridge 7500 permits storage resources to be pooled, centralized and aggregated in response to workload changes. The 7500 additionally gives users the flexibility to customize the proportion of SSD/HDD drives to meet performance and/or capacity requirements. The modular solution that the 7500 presents also means features such as deduplication, data protection and compression are separated from the storage array where they will limit performance by taking up CPU resources and increasing latency.

Dual controller FibreBridge 7500 configurations exceed published performance characteristics of most other storage products that exist today. With over 1.47M 4K IOPS and a high rate of throughput, the FibreBridge provides sufficient performance for the most demanding applications. Additionally, the ATTO 7500 only adds a consistent latency of <4 microseconds, making it one of the fastest controllers available. When used to build a storage solution with off the shelf components, its $/IOP cost is as low as $.09 per IOP for All-SSD implementations, and an even lower $.05/IOP for SSD/HDD combinations.

#3: Easy Upgrades

Another way SDS brings agility to storage infrastructures is by allowing for easy software and hardware upgrades. With the FibreBridge 7500, hardware refreshes can be executed with a high degree of customization. A key benefit here is improved storage utilization, which in turn means an overall lower TCO. It also eases data migration since the movement of data between storage tiers can be carried out in a non-disruptive manner.



ATTO Technology's FibreBridge 7500 Storage Controller used in a Hybrid SSD/HDD solution.

How ATTO's FibreBridge 7500 can get your organization started with SDS

The FibreBridge 7500 represents a flexible, cost-effective entry point for building out a software defined storage ecosystem.

With up to 1.47M 4K IOPs and <4 microseconds latency, the 7500 provides industry leading performance. In addition, ATTO's management tools complement the automation and tuning features that SDS software provides.

ATTO has already qualified the 7500 with a range of third-party hardware and software vendors, including Dell, HP, Supermicro, HGST, AIC, Qlogic and Emulex, and the list of company alliances continues to grow.

To learn more about the FibreBridge 7500, visit www2.attotech.com/FibreBridge-7500
To learn more about ATTO Technology's full range of network and storage connectivity products, visit attotech.com