



Lowering the TCO for the Smaller SMB — HP Introduces the MSA 1040

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Management Summary

How many times has it happened to you? You go to buy something at the unfinished furniture store, something like a bookcase. You find one that is the right size and the right price, but on the tag it says “some assembly required”. *What does this mean?* To me, it means opening an assortment of sealed packages, finding the right tools, and eight hours of looking for part #A, which goes into part #G, and also looking for an ice-pack to repair an assortment of bumps and bruises. Do-it-yourself (DIY) has never been my strong suit. However, when you ask, you discover that, for a nominal fee, the store can assemble it for you and deliver it in one piece. *What does that mean to you?* To me, it means a huge savings in time, as I was never trained to be a mechanic, and so I go for the delivery of a finished product. *Get it home and use it* – that’s my motto! There is nothing like a trained professional to make your life easier.

This also might be true in the data center of every small- or medium-sized business (SMB). Every data center, regardless of size, has been amassing what seems like a tremendous amount of data that needs to be stored and analyzed. Unfortunately, this information will soon, or already is, stressing the capacity and capability of not only your existing IT infrastructure, but your data center staff as well. You may be ready for a new, cost-efficient, easy-to use storage system. You could certainly go out and procure a variety of cheap “white boxes” that profess to have a cure for all of your storage pains. However, even if you have a staff of trained IT professionals in the data center with the skills to go out and acquire assorted hardware and software components that meet your business needs and budget, someone would then have to integrate them in a reasonably efficient manner. That may be a poor use of their already scarce time. The problem with this is that the total solution is not pretested to ensure that the needed and desired functionality will work with existing infrastructure and leave you with optimized storage infrastructure. That does not sound like a two-hour exercise. If they do not have the competency, then doing it yourself makes even less sense. You need *the right storage for your situation and circumstances*. Alternatively, you could go out and acquire an inexpensive, integrated storage solution that is pre-assembled as a complete solution that a trained IT professional has determined will meet your existing requirements and also is built for expansion, to meet tomorrow’s needs. The question that then needs to be answered is from where? One company that is addressing the specific needs of the SMB is HP.

HP has a full set of storage platforms to suit the needs of any sized business, from the largest enterprise to the SMB with more limited capacity needs. Now, however, HP has lowered its sights and is taking aim at the smaller business that has a need for simple, easy-to-use enterprise-class functionality, but without the high capacity, and, of course, at an entry-level price. With the introduction of the *HP MSA 1040 Storage* platform, HP now offers the SMB a completely integrated solution, with significant growth capacity, at that entry-level price. To learn more about HP’s MSA 1040, please read on.

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Issues for the SMB Data Center

What is happening to the IT environment in every data center around the globe? Storage growth and challenges are running amok, with no visible means to bring it under control. Rapid growth is characterized by a doubling in size almost every year. This may or may not be an issue for the largest data centers with seemingly unlimited budgets and a highly trained administrative staff to deploy and manage it. For the SMB, this definitely has become an issue, and for the smaller SMB, it is approaching crisis stage.

In order to gain control of storage and lower the total cost of ownership (TCO) of the smaller business IT infrastructure, there is an immediate need for both consolidating and virtualizing storage, as well as deploying an easy-to-use, browser-based management facility with an intuitive GUI to facilitate the management of this array. Unfortunately, there is not enough budget to continue with the existing storage paradigm of a separate silo for each application. The data center staff needs to find a low-cost, entry-sized, shared system with, at least, some of the same features available to the larger SMB data center.

The smaller SMB does not have enough administrative resource to manage the growth at the current rate. In addition, their administrative staff may not be equipped to handle the complexities brought about by the adoption of enterprise-level functionality. The smaller SMB requires the ability to automate the process to scale their storage with simplified management and ease of use. In addition, the smaller SMB has an even greater requirement to be more efficient with the allocation of space for each LUN. Over-provisioning a LUN is a sure sign of an array that will need a premature expansion.

In addition to the SMB arena, these same requirements apply to the branch office and remote location environments, as well. Every data center has an acute need to lower the TCO of the IT infrastructure; including, but not limited to:

- Lowering acquisition costs.
- Reducing occupied floor space to make room for the data growth being experienced.
- Needing to lower energy costs, while helping to preserve the environment.
- Maintaining, or reducing, administrative headcount required to support an expanding environment.

Beyond lowering the TCO, the data center staff needs to protect the investment being made in today's storage solutions. This includes the

capability to upgrade existing arrays to a newer, more functional storage architecture with superior management capabilities today, with the ability to grow larger and more functional with much less pain, when you are ready. This protects investment in that new architecture and makes it easier to retain value for years to come. In addition to preserving your investment, the data center staff must also protect the integrity of this critical information and maintain continuous access to mountains of data through RAID technology and automatic failover for high availability.

The data center staff is literally being forced to change their architectural paradigm from one of single-application storage silos to a shared-storage environment. There is an obvious need to provide shared storage to support initiatives such as consolidation and virtualization.

SMBs, more than ever, require a reliable storage platform than fits into their IT budget structure. The platform also must be flexible enough to enable the data center to adapt to rapidly changing business requirements. This means that there is a need to be able to grow storage incrementally without interruption, to be able to respond to sudden changes in application demands for data, say due to holiday sales or seasonal reports, for example.

The advent of the "age of virtualization" has created even more problems for the data center staff. *With more and more applications being deployed on a single, consolidated server, how do you retain acceptable performance and storage efficiency?*

Today's SMB environment is becoming increasingly diverse, geographically. Many smaller data centers must be able to deploy storage across multiple locations in order to establish adequate access to storage throughout the network, data center, branch office, or even a remote office. This also means that any new storage platform must be able to enable high availability access and a disaster recovery capability for critical applications. *What is happening in your data center?*

Let's take a look at how HP can help the SMB with their present and future requirements.

HP Primary Storage

HP has simplified its storage portfolio in recent years with modern storage architectures optimized for specific customer use cases. The *HP 3PAR StoreServ Storage System* is a tier-1 platform that is available in a high-end configuration, a midrange configuration, and a performance optimized all-flash array. Customers can extend

the data services of the 3PAR array with a 3PAR File Controller module.

With focus on the mid-range and entry-level data centers, HP is looking to simplify and satisfy the needs of the SMB with its MSA family, including the MSA 1040 and MSA 2040. The MSA 2040 was announced in May 2013 to address the growing demands of the rapidly expanding smaller data center, with a maximum capacity of 199 SFF¹ drives or 96 LFF² devices, with a maximum capacity of 384 TBs. Even though the MSA was introduced with a very affordable price tag starting at under \$11,000, it was still a little pricey for the smaller SMB with a much lower capacity requirement and even lower budget for storage. In order to meet their requirements for entry-level shared storage, HP has now announced the HP MSA 1040.

The HP MSA 1040 is a budget optimized array that represents the fourth generation of HP MSA storage. You can upgrade existing HP P2000 G3 arrays to the MSA 1040 or 2040, in order to protect the investment already made in HP technology. You also can start with the 1040 and then upgrade to the 2040 by simply swapping out the controller modules. In fact, the MSA 1040 is the budget-optimized leader within the MSA family with solid performance. For those smaller data centers looking for a high-performance, entry storage solution, the MSA 2040 is the ideal solution.

HP MSA 1040 Storage System

Built upon the same storage technology that is present in the MSA 2040 system, the MSA 1040 delivers many of the same mid-market features to the entry-level SMB. This includes enterprise functionality to enhance your virtual environment and ease-of-use management, while still reducing the cost below that of the MSA 2040. At the same time, the MSA 1040 improves the efficiency of the IT infrastructure, with more performance than its predecessor in this arena, the P2000 G3, and at a 25% lower entry price, as well. Depending upon your application, the MSA 1040 is anywhere from 20% to 50% faster than the P2000 G3 storage array.

The cost of an entry MSA 1040 configured to support LFF drives and a 1GbE iSCSI interface starts at \$6,250, making it easily affordable by most SMBs. This is significantly less than a comparably configured MSA 2040 with the same

Exhibit 1 – MSA Supported Drives

SFF Drives

- 146GB and 300GB 15K SAS enterprise-class HDDs
- 300GB, 450GB, 600GB, 900GB and 1.2TB 10K SAS enterprise-class HDDs
- 1TB 7200 RPM SAS nearline HDDs

LFF Drives

- 300GB, 450GB, and 600GB 15K enterprise-class HDDs;
- 1TB, 2TB, 3TB, and 4TB 7200 RPM SAS nearline HDDs.

All enterprise HDDs come with a three-year warranty, while the nearline HDDs come with a one-year warranty.

Source: HP

capacity. HP offers the smaller data center the economic advantage of a low entry price with the convenience of an easy upgrade to the more powerful MSA 2040.

This new level of affordability is ideal for the business that lacks the financial and IT resources required to deploy the *right* functionality, for the *right* capacity, and at the *right* price. It supports the storage capacity needed to meet *your* requirements, including the ability to add storage without interruption and deploying it across multiple locations. The MSA family even enables the data center with high availability and disaster recovery capabilities for critical applications.

The MSA 1040 is preconfigured at the factory to your exact specifications to support the right size drives with the right host interface, as opposed to a DIY, on-site implementation. It is easy to order, easy to deploy, and easy to manage with enterprise-class administrative features.

The MSA 1040 comes with either of two basic configurations: one supporting 3.5" LFF drives and another supporting the 2.5" SFF drives. Each configuration has a dual controller design with two host ports in each controller. It supports 1GbE, 8Gb FC, or 10GbE iSCSI, with 4GB of cache in each controller to enhance performance. The base MSA 1040 chassis supports up to three LFF and/or SFF expansion enclosures. These disk enclosures are the same as those used in the MSA 2040, providing investment protection between the two platforms. The LFF configuration can support up to 48 3.5" drives, while the SFF configuration will support up to 99 2.5" drives. The MSA 1040 supports 15K and 10K RPM SFF enterprise SAS drives as well as 7200 RPM SFF midline SAS drives. In the LFF enclosure, the MSA 1040 can support either 15K RPM enterprise drives or 7200

¹ Small Form Factor (2.5")

² Large Form Factor (3.5")

**Exhibit 2 –
MSA 1040/2040: What’s New/What’s Different?**

Hardware/Software	MSA 1040	MSA 2040
Controller Architecture	MSA Gen 4	MSA Gen 4
Host Port Count	2 Ports/Controller	4 Ports/Controller
Cache/Controller	4GB	4GB
Controller Design	Factory-configured with SFPs	Converged SAN (SFP-defined), Mixed Mode supported (iSCSI/FC)
Interfaces Supported	1GbE, 8GbFC, 10GbE iSCSI	1/10GbE, 8Gb plus 16Gb FC, 6/12Gb SAS
Expansion (LFF and/or SFF)	3 Disk Enclosures Max	7 Disk Enclosures Max
HDDs Supported	Ent SAS, SAS Midline	Ent SAS, SAS Midline plus SSDs, SEDs
Replication Technology	Local (std) and Remote (opt)	Local (std) and Remote (opt)
Snapshots	64 std (512 opt)	64 std (512 opt)
Relative Performance*	29.4k/19.7k Random R/W (IOPS) 3.1/1.5 Sequential R/W (GB/s)	82k/30k Random R/W (IOPS) 6.3/4.8 Sequential R/W (GB/s)
	Fully Upgradeable to 2040	

* See MSA 1040/2040 QuickSpecs for more detail and/or the Storage Optimizer Tool for MSA 1040 or 2040

Source: HP

RPM midline drives. The data center staff can upgrade either configuration without interruption. (See Exhibit 1 on the previous page for a complete list of drives supported.)

To enhance data security, the MSA 1040 supports the use of RAID 0, 1, 3, 5, 6, 10, or 50 in creating what HP calls *vdisks*. There is a maximum number of drives that can be added to a vdisk for each RAID type – a maximum drive count of two for RAID 1, 16 for RAID 0, 3, 5, 6, and 10, and 32 for RAID 50.

Keeping in mind that you are a small business and not an IT company (that’s what HP is!), HP integrates the basic IT functionality found in mid-range storage platforms into the MSA 1040 for you. This includes snapshot technology offering higher levels of data protection, enabling an almost instant recovery from data failure or corruption, and alternative development testing of “offline” production data. The MSA 1040 is certified with a variety of operating systems, including *Microsoft Windows* and is certified with a variety of virtualization hypervisors including *VMware* and *Hyper-V*. Also included is a powerful, web-based, intuitive interface for storage management.

Both local and remote replication is available with the MSA 1040, with the local replication coming standard and the remote replication available as an option. The MSA 1040 also supports up to 64 snapshots standard, with optional support for up to 512 snapshots. Volume Copy is standard with the optional ability to create up to 128 point-in-time copies of data for increased data protection. *HP Insight Control Storage Module* for *VMware* also is available to provide active man-

agement functionality, to monitor the health and status of the MSA 1040 and to display LUN/volume connections from VMs and *ESX* virtualization servers.

The MSA 1040 has up to 29.4K/19.7K IOPS for random read/write operations, with 3.1/1.5 GB/second throughput for sequential reading and writing. When the time is right, you can upgrade the MSA 1040 to its big brother, the MSA 2040, in order to achieve even higher scalability and performance. (See Exhibit 2, above, for a comparison of the features and capabilities of the MSA 1040 and 2040).

Conclusion

HP, a company that the largest enterprises have trusted for IT infrastructure for half of a century, now has enabled the smaller data center to forego the DIY approach by providing an enterprise-capable storage solution at an entry price.

With the introduction of the MSA 1040, HP enables even more SMBs to have access to enterprise storage functionality. The SMB is no longer forced to choose between a storage platform with enterprise features and an affordable storage platform that can satisfy their IT requirements. With an entry price as low as \$6,250, the smaller SMB now can have both. If your data center has been reluctant to invest in the storage features that you desperately need, now is the time to look into HP’s MSA 1040. It may be exactly what you seek.



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