White Paper

The Contemporary Value of Virtual Storage Appliances

HP Renews its Focus with StoreVirtual VSA

By Mark Peters, Senior Analyst

August 2012

This ESG White Paper was commissioned by HP and is distributed under license from ESG.

© 2012, The Enterprise Strategy Group, Inc. All Rights Reserved.

Contents

"Contemporary Value" 3
[Storage] Virtualization Can Help 3
Virtual Storage Appliances 3
Market Relevance 5
HP's StoreVirtual VSA 6
What it is and Where it Plays 6
Target Markets 7
HP's Market Position: Now and Future 7
The Bigger Truth 8

All trademark names are property of their respective companies. Information contained in this publication has been obtained by sources The Enterprise Strategy Group (ESG) considers to be reliable but is not warranted by ESG. This publication may contain opinions of ESG, which are subject to change from time to time. This publication is copyrighted by The Enterprise Strategy Group, Inc. Any reproduction or redistribution of this publication, in whole or in part, whether in hard-copy format, electronically, or otherwise to persons not authorized to receive it, without the express consent of The Enterprise Strategy Group, Inc., is in violation of U.S. copyright law and will be subject to an action for civil damages and, if applicable, criminal prosecution. Should you have any questions, please contact ESG Client Relations at 508.482.0188.

© 2012, The Enterprise Strategy Group, Inc. All Rights Reserved.

"Contemporary Value"

The title of this paper may cause a few raised eyebrows; after all, surely different storage approaches either have a certain value or they do not? To a point, this is true, but the *contemporary* value of many things is not an absolute. Instead, value is relative to the moment and to other ecosystem dynamics. That is what HP has realized (and is intending to capitalize on) with its announcement of a renewed and greater focus on its newly rebranded StoreVirtual VSA (Virtual Storage Appliance) platform. Added to HP's portfolio in the LeftHand Networks acquisition, the VSA has been a fine offering since its launch in 2007. But the opportunity for increased success of this product—and, indeed, for the VSA category[1] as a whole—in the contemporary IT environment is considerable.

So, what changed? The overriding factor is the dominating adoption of server virtualization,[2] which is used ever-more-broadly because it saves money, simplifies management, and almost always improves application availability and efficiency. So, how exactly does this drive the increased relevance for—and potential value of—VSAs? Three significant factors are:

- **More robust servers.** Today's bladed and racked servers have more cores, lower cost RAM, and, consequently, higher memory footprints—all of which are both driven by and, in turn, drive virtualization.
- **Improved foundational infrastructure.** Consolidated, self- and auto-provisioned environments drive the need for generic infrastructure improvements; whether physical (such as integrated NAND flash) or at the application level (increasingly virtualized workloads), the scale and power of storage have of necessity become greater … but so, too, has the accompanying potential for unwanted complexity as well as the demand for HA and flexibility.
- **Storage "front of mind."** As server virtualization becomes endemic, it stresses storage from both a capacity and a performance perspective; as a result, storage is increasingly an operational and an economic focus for users trying to avoid it being an "anchor" on their IT progress.

Server virtualization has truly shifted the IT world, enabling organizations to scale and respond quickly. But it has created challenges in the storage arena.

[Storage] Virtualization Can Help

Virtualizing the compute side, but not the storage side, of the IT equation precludes the complete agility and true utility-like resource provisioning users are demanding. If the storage cannot match what the servers can do, the capabilities and results are compromised … and, of course, nowhere is this more painfully true than in smaller environments (such as SMB businesses or ROBO environments) where large and expensive networked storage cannot be justified. In such situations, finding a way to use the available server storage in a manner that provides the *attributes* without the *actuality* of a SAN or NAS (in other words, to create virtual networked storage) has an obvious attraction. Preferably such an approach would also be agnostic of the actual storage deployed, capable of working with heterogeneous storage types, be very flexible, extremely easy to use and manage, and yet be fully featured in terms of both advanced storage functionalities and hypervisor interoperability.

Virtual Storage Appliances

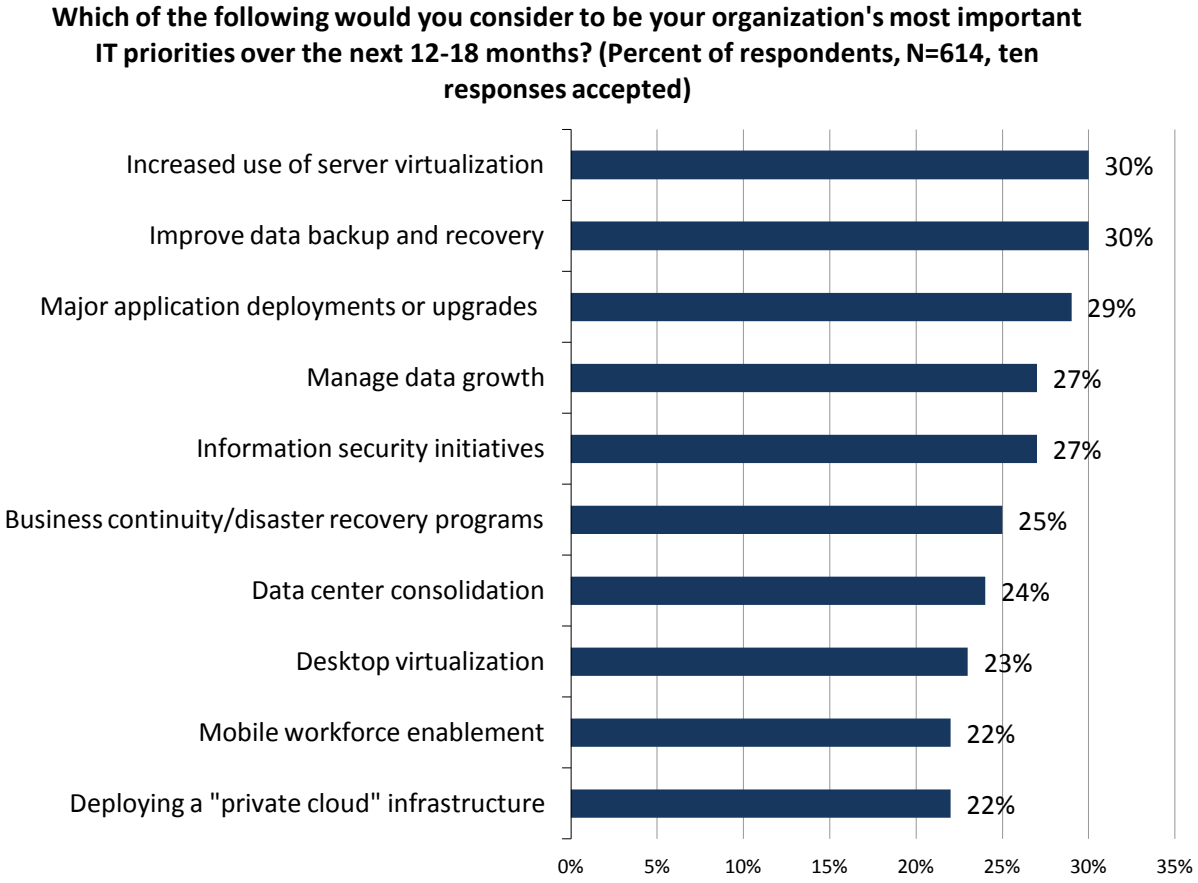
As mentioned already, this category has conceptually been served for a number of years, before the name even existed. VSA is software that enables (typically smaller, although it could also be as a result of resource constraints or operational preference) organizations with limited IT resources to unlock the real benefits of networked storage in a virtual manner. A good VSA can simultaneously make *both business sense and provide operational value* by allowing users to not only avoid the additional expense of physical shared storage, but also to enjoy dramatic functional improvements (for example, in terms of high availability) in a manner that does not demand extensive

[1] "Virtual Storage Appliance" is an emerging storage category. A VSA is software that virtualizes internal server storage and/or DAS so as to provide a networked/shared storage environment and thereby its economic and operational value without adding a physical SAN or NAS.
[2] According to ESG research, in 2010, only 25% of users had virtualized 40% or more of their X86 servers—a number that is expected to have more than doubled to 58% during 2012.

© 2012, The Enterprise Strategy Group, Inc. All Rights Reserved.

new specialist skills. Like all truly good advances in IT, VSAs are—at their core—easy to understand. However, many ostensibly good things in IT don't end up making noticeable waves; we don't expect this to be the case for VSAs for two reasons. First, and as the data in Figure 1[3] supports, VSA is central to many top IT priorities. Thus, for example, without much of the raw functionality of shared storage (whether it is achieved virtually or physically does not matter in this case), the drive to server virtualization will be slowed. Equally, the positive impact of a VSA can contribute to success with many of the other priorities shown in Figure 1 by delivering the necessary operational malleability and data availability.

Figure 1. Top Ten IT Priorities for 2012



Source: Enterprise Strategy Group, 2012.

Secondly, the gradual move to more server/software-based storage management is evident both generally, with functionality moving to hypervisors and converged infrastructures, as well as specifically, with the arrival of a number of VSAs. Much as HP was very early into what we are now calling the VSA market, it is often hard for even the largest organizations to make progress if they are the only provider in a category. For VSAs, there are a number of vendors—from startups to behemoths—at various stages of market penetration, product introduction, or statements of intent. As well as HP, some examples in this category in one way or another are (alphabetically) DataCore,[4] FalconStor, Microsoft, NetApp, Nutanix, Virsto, and VMware.[5] Some are more heterogeneous than others, some are more or less scalable, and some have more enterprise features, but all are linked by a desire and ability to disrupt traditional approaches (even if it is from themselves!) to storage infrastructure.

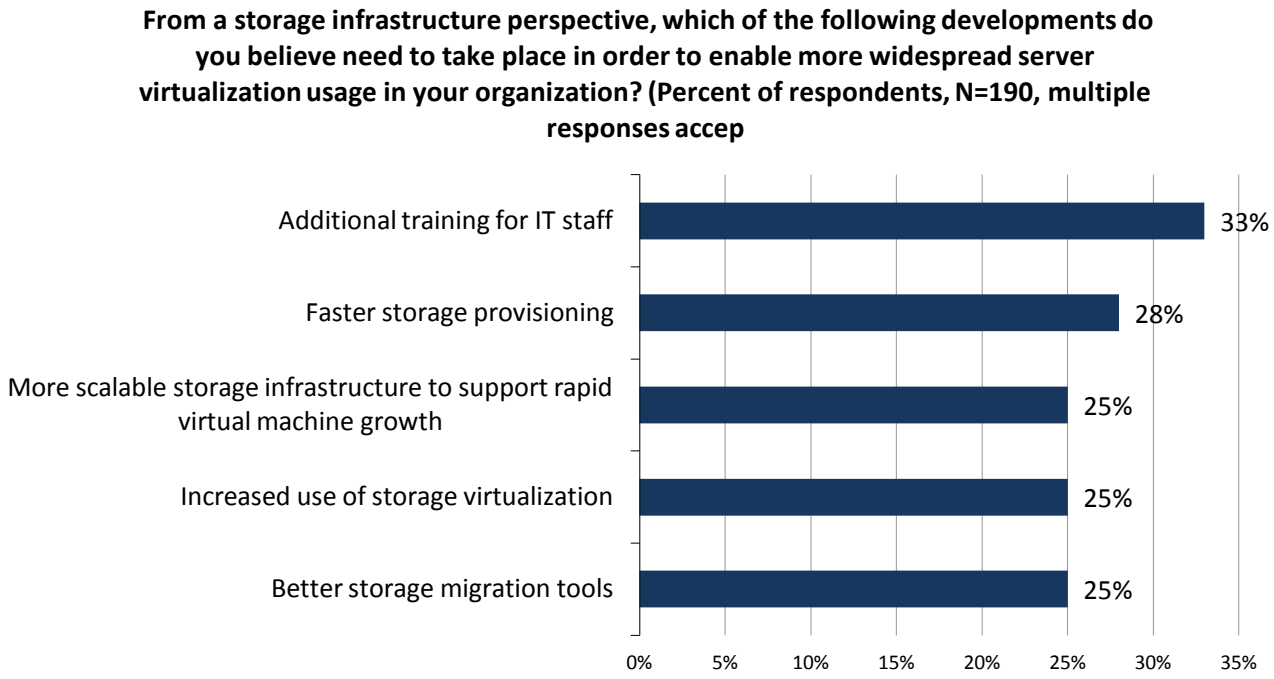
[3] Source: ESG Research Report, *2012 IT Spending Intentions Survey*, January 2012.
[4] Like HP, DataCore has tens of thousands of production installs.
[5] VMware's initial entrance (and notable declaration of intent?) here is even called VSA, although in its case the "V" stands for "vSphere."

© 2012, The Enterprise Strategy Group, Inc. All Rights Reserved.

Market Relevance

Technically, the results that a VSA can offer are wide-ranging and impressive: from "reclaiming" storage capacity "stranded" in servers to consolidating storage management, from enabling advanced functions (such as thin provisioning and snapshots) to faster application delivery and reducing downtime, and from allowing non-disruptive application migrations across VMs to keeping TCO affordable. However, all of this is of no use if it is not in line with user needs and priorities. The previous section already indicated that the increased use of server virtualization is currently the number one priority across IT organizations. However, ESG research[6] also tells us that many users experience roadblocks in that expansion of server virtualization, and storage implementations are often the culprit. The storage challenges cited include both the capital cost of new storage infrastructure (36%) and the operational costs of new storage infrastructure (24%), and, when asked what would help them to expand their virtual server implementations, the most-mentioned needs included many better storage capabilities such as faster provisioning, more use of virtualized storage, and better storage migration tools (see Figure 2).

Figure 2. Storage Developments That Would Enable Wider Server Virtualization Usage



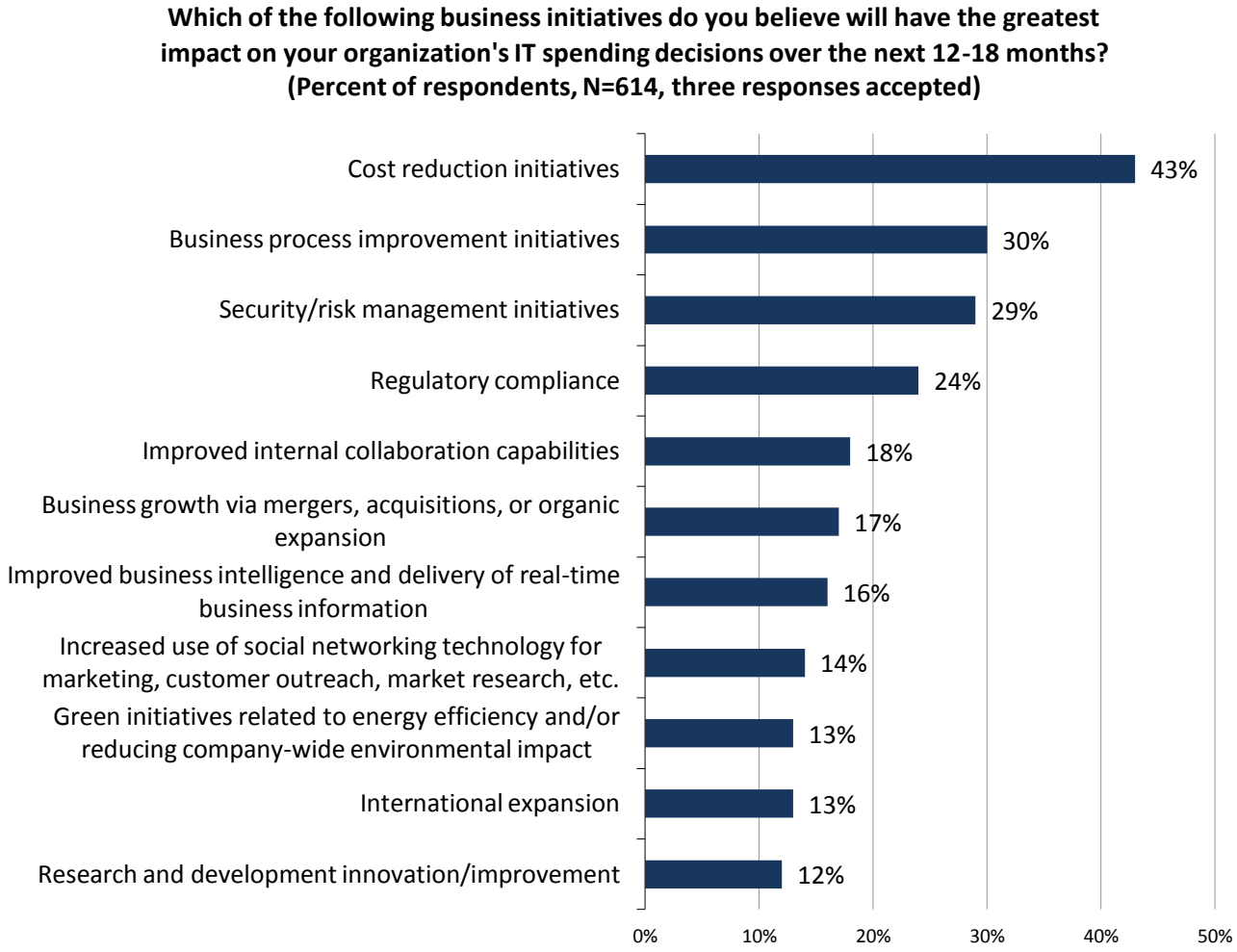
Source: Enterprise Strategy Group, 2011.

Turning to the cost side of the equation, VSA is always—and unashamedly—draped in the flag of economic value. Since a VSA invariably works with what is already installed (and certainly HP's StoreVirtual VSA is both agnostic and heterogeneous in terms of the storage with which it will work) there is an obvious "do more with what you already have" message. Beyond the immediate capital cost saving, VSAs also mean—by definition—that servers and storage are co-located, which can reduce the physical footprint and energy overhead that would be associated with the otherwise necessary external networked storage system. The cost savings can be significant when compared to what a similarly capable server supported with modular storage would cost. HP's own calculations demonstrate that these overall costs can be less than 50% of a "traditional" approach when using its StoreVirtual VSA. And, just to be complete in this review of market relevance, it is worth stating clearly that such cost advantages continue to be crucial to IT, where cost reduction—whatever else may be going on in IT—remains the number one business initiative affecting IT investments, as Figure 3 shows.[7]

[6] Source: ESG Research Report, *The Evolution of Server Virtualization*, November 2010.
[7] Source: ESG Research Report, *2012 IT Spending Intentions Survey*, January 2012.

© 2012, The Enterprise Strategy Group, Inc. All Rights Reserved.

Figure 3. Business Initiatives That Will Impact IT Spending Decisions, 2012



Source: Enterprise Strategy Group, 2012.

In other words, as far as market relevance goes—and from both from a cost and an operational-ease perspective—the impacts that a VSA can deliver are both highly valued in a general sense, and are also specifically in line with what is needed to drive the much-desired increase in the use of server virtualization.

HP's StoreVirtual VSA

What it is and Where it Plays

This paper is not intended to provide full StoreVirtual VSA details—HP has plenty of online and printed material for that! However, in order to provide some subsequent commentary, here are the main points about the product:

- HP StoreVirtual VSA is a software-based scale-out SAN that can run on any x86 server
- It works with both VMware vSphere and Microsoft Hyper-V hypervisors
- It is integrated with associated management tools (VMware vCenter and Microsoft System Center)
- It offers snapshot-based integration with third-party ISV and Veeam Software, the VMware backup provider
- It is based on the HP LeftHand OS, and so includes all the same advanced functionality such as thin provisioning, Peer Motion, Network RAID, multi-site SAN, synchronous and asynchronous replication, adaptors for SRM, and application-integrated snapshot management
- The latest announcement includes new packaging and pricing

© 2012, The Enterprise Strategy Group, Inc. All Rights Reserved.

The intention and capabilities of the product should be clear by now. It aims to be a cost-effective way to provide advanced high-availability of data and applications to virtualized environments. This allows IT users to be more agile in responding to varying workload demands—whether of performance or scale—and to enjoy seamless data mobility between different devices, hypervisor technologies, and even physical locations.[8] There is also a focus on availability and resilience: since HP StoreVirtual VSA is built on a clustered scale-out design, data is written across every disk and accessed by every processing node in the cluster, which ensures that data volumes are always accessible even in the event of a hardware outage.

Target Markets

Logically, as well as from HP's marketing intent, there are three main target markets for the StoreVirtual VSA:

1. **SMB users.** The most obvious opportunity, these users can benefit in a simple fashion from the advanced functionality needed to fully benefit from server virtualization (and ride the consolidation/convergence wave without risk) while also enjoying cost reduction.
2. **ROBO environments.** This is usually where enterprise users want simple, robust, low cost, and yet capable and flexible storage that can be replicated back to the corporate data center.
3. **Cloud service providers.** For (mainly) independent public cloud providers; such users are using lots of standard x86 servers and need low-cost modular infrastructure, which can be ensured by decoupling the hardware decisions from their service delivery to allow agnostic, meritocratic, and economically viable choices to be made.

Any of these users (but especially the latter two) might well have heterogeneous servers with trapped internal disk capacity; this invariably means lower storage utilization rates, which translates to money being wasted on capacity they cannot access. HP StoreVirtual VSA could give back the capacity (and save money) while not only adding virtualization functionality, but also opening up the flexibility, should it ever be wanted, for users to change hypervisors and/or physical hardware platforms without disrupting the storage volumes and services they are providing.

HP's Market Position: Now and Future

HP has the benefit of being one of the earliest players in this space, with tens of thousands of deployments and a code base that is over a decade strong. As mentioned, one of the strengths of the offering is that it shares the full feature set of the LeftHand operating system (also known as SAN/iQ) that runs the physical HP LeftHand SANs—it is, if you like, an identical functional twin, and not (as is sometimes the case) a younger, less mature sibling with less maturity, fewer features and functions, and a tendency to get in trouble! Although the VSA market category is still emerging, HP will benefit from the fact that some competitive offerings are still hampered by limited hardware compatibility, scalability, or hypervisor compatibility. On the other hand, it will be interesting to see how this "maverick" approach plays in the larger HP portfolio and marketing sphere; having (whether intentionally or not) effectively kept VSA somewhat hidden for a few years, its genuine value will only be discovered by many users if the HP machine genuinely embraces this somewhat contrarian (for its traditional sales and product lines) cousin.

However, one senses that HP realizes it is "onto something" with this partially hidden gem. If so, then the value that this represents to users—and therefore to HP—will only grow with time; we can safely assume that the current StoreVirtual release is only the beginning and that HP has plans to deliver VSA-based solutions across other products in its Converged Storage portfolio. While this current version uses the LeftHand OS, there's no rule to say that block, iSCSI-based storage for VMs is the only way a user could consume a pool of storage delivered at the hypervisor level; we should clearly be considering that NAS, deduplication, and other access types, patterns, and

[8] While not heavily promoted in its materials, a notable element in HP's announcement and its promotion of the VSA category is the attribute of Open Storage Federation. HP Peer Motion is a federated storage capability within the StoreVirtual VSA that enables non-disruptive movement of data volumes across heterogeneous servers, sites, hypervisors, and from VM to physical applications. Being both agnostic (any platform) and heterogeneous (mix of platforms and/or hypervisors) provides compelling SLA flexibility and increased options to lower costs since workloads can be balanced and moved independent of the underpinning hardware.

© 2012, The Enterprise Strategy Group, Inc. All Rights Reserved.

protocols could exist as VSA offerings. Even as HP adds hypervisors (something that's important as multi-hypervisor usage increases with Linux-based offerings en route as well as interesting capabilities in Windows Server 2012) it will hopefully keep the basic GUI and storage abilities uniform. HP's leadership in this category, as well as its continuing corporate engineering strength and powerful position in blades/servers and hypervisor sales, could make its opportunities here very broad—as long as it grabs them with assurance and alacrity.

The Bigger Truth

Virtual Storage Appliances are an interesting emerging category; one that has been around for a while in slightly different guises and names, but one that looks eminently well-suited to the contemporary IT environment. Few IT offerings can simultaneously address the need to drive costs down and business process improvement up; VSA can.

And the writing has been on the wall for some time that traditional storage approaches and complexity need addressing:

> *Storage, as we have known it, is the dragon that must be slain in order for our IT society to truly progress out of the dark ages … there are significant obstacles to the advancement of server (and thus overall infrastructure) virtualization efforts caused by current—and often arcane—storage architectures, implementations, and management techniques. Put simply, many aspects of today's enterprise storage implementations grew out of monolithic mainframe-era designs—and they are showing their age … It is ESG's contention that IT organizations will be increasingly motivated to overhaul their network and storage infrastructures to keep up with radical changes at the virtualized compute layer.*[9]

HP has a lot of potential with its StoreVirtual offering; not only does it have product maturity and HP's own credibility, but the flexibility and function of the product is excellent: it is both hardware- and hypervisor-agnostic, with the ability to support federated and heterogeneous implementations—it is even certified as VMware vSphere Metro Storage and integrated with backup software such as Veeam. There's a lot of goodness to savor.

But it is this very wealth of goodness that also sounds a small note of caution: simply because this is "not how storage is done." Vendors that either do not have a VSA offering or that do not endorse it will clearly attack and FUD the approach; if StoreVirtual is to achieve the success it deserves and is capable of, then HP's management needs to ensure that it keeps other product groups in HP from joining the attack! This new rebranded and refreshed announcement of much greater emphasis on StoreVirtual is, however, certainly a clear statement of intent. Given the potential extension of VSA (not just to other storage types, but to sell through HP's server channel perhaps, and with all sorts of services that could be wrapped around it) the intent is laudable. The LeftHand VSA was always a good product, but, as stated in the introduction, good products aren't enough by themselves. Like a good seed needs good soil, so too does a good product needs a receptive and appropriate market environment. Right now looks like a perfect time for HP to sow this particular seed.

[9] Source: Edited extract from ESG Market Report, *The Future of Storage in a Virtualized Data Center*, January 2011.

© 2012, The Enterprise Strategy Group, Inc. All Rights Reserved.

Enterprise Strategy Group | **Getting to the bigger truth.**

20 Asylum Street | Milford, MA 01757 | Tel: 508.482.0188 Fax: 508.482.0218 | www.enterprisestrategygroup.com

4AA4-3040ENW