Storage Systems Brief

DataCore Launches "The Storage Hypervisor for the Cloud"

Date: July 2012 **Author:** Mark Peters, Senior Analyst

Abstract: *DataCore recently launched the newest version of its storage virtualization software, SANsymphony-V R9, expanding its capabilities to become a "Storage Hypervisor for the Cloud." With increased flexibility, scalability, and management automation, R9 is ideally suited for midsize and enterprise IT organizations alike. Concurrently, the company introduced its DataCore Cloud Service Provider (CSP) Program for hosters and CSPs that prefer to rent rather than to buy. The result is a broad product suite with licensing alternatives that mesh well with both current market needs and directions. DataCore does not confuse business needs with scale and allows all the advanced functions to be enjoyed by customers of all sizes, which should find favor with end-users as well as channel partners.*

Overview

DataCore announced two significant enhancements: on the technology side is the latest R9 release of its SANsymphony-V storage virtualization software, and on the business side is a "pay as you need/grow" rental option, designed to eliminate CAPEX barriers for Cloud Service Providers by aligning their costs with the way they charge subscribers. The need for the latter of these two announcements grew out of the capabilities of the former, which takes DataCore—hitherto very much an innovator of modern, virtualized storage infrastructures—slap-bang into the cloud space. Put differently, this new release of the software extends the "storage hypervisor" capabilities to encompass cloud or "cloud-like"[1] environments, be they private, public, or hybrid. Since SANsymphony-V already facilitated a fully virtualized approach, the change is not just about more of the same. Instead the enhancements enable more nodes, significantly increase the level of automation, provide deeper systems management integration, and—naturally—ensure redundancy to support non-disruptive growth and maintenance. By allowing all the functionality to be delivered at any size of installation, or in stages and phases, DataCore is offering a truly scale-out and scale-up platform.

To take a step back, DataCore's philosophy and capability is to layer storage "command and control" functionality into a storage hypervisor, akin to the way that server hypervisors virtualize servers. This allows the transparent, device-independent management of completely heterogeneous storage, as well as the ability to operate storage as tiered pools of interchangeable storage resources. As we see the IT world moving to a more integrated, converged, and cloud-based approach, the storage hypervisor makes good sense. And extending its abilities into a more scalable, flexible, and resilient "cloud storage hypervisor" is a very logical step.

This brief is not intended to run through the product details of SANsymphony-V R9 in any great detail—interested parties can go to the company's website for that. Instead it will review the conceptual and market applicability of what DataCore is doing, as well as the completeness of its offering.

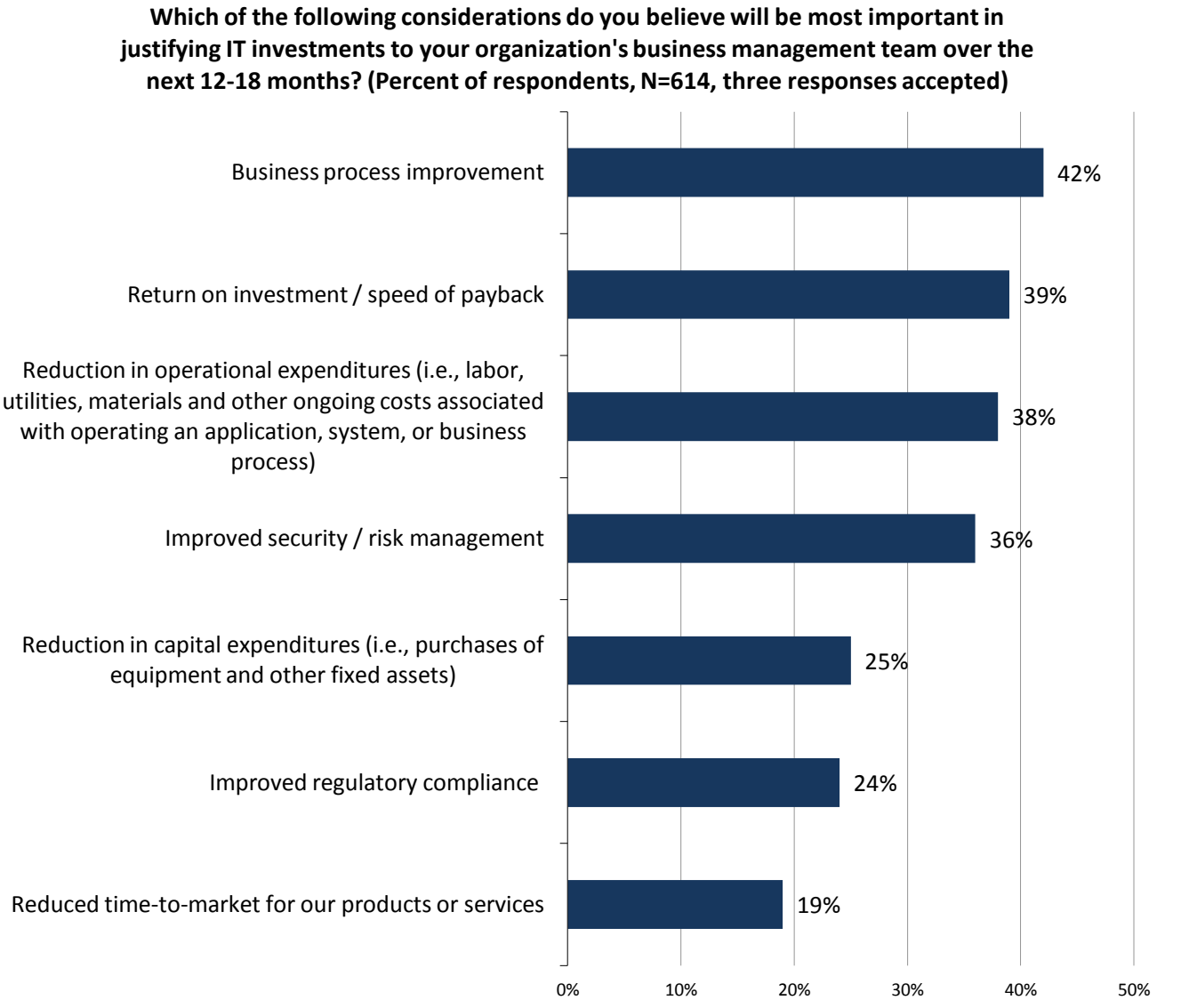
From a specific functional perspective, it is enough to say that it offers comprehensive management capabilities and broad operational integration: everything from heterogeneous, hands-free storage tiering (spanning and encompassing SSDs, storage arrays, direct attached server drives, and public cloud storage) to extensive provisioning, load balancing, and business continuity automation—and from the nitty-gritty of VAAI integration and I/O activity heat-maps to extensive scale-out/up and flexible fan-out replication choices.

[1] 'Cloud-like' refers to such implementations as private, metered virtualized data centers, and what might be termed "Community Cloud Providers," where a group of organizations—such as schools or hospitals typically—co-operates to deliver storage or IT services more cost-effectively than doing it individually.

Hypervisors: For Storage…Now Reaching to the Clouds?

The logic and value of a storage hypervisor is something that ESG has covered in detail before[2]. Essentially we are moving from a simple IT world of specific hardware for specific tasks and applications, to a world where economics, application complexity, and user expectations are conspiring to drive increased demands on IT, who are confronted by limited resources and an onslaught of new technologies, which give them little or no chance to standardize on any one hardware device. This is the essential algorithm that has driven the march towards virtualization—it is the need to drive both business effectiveness and operational efficiency simultaneously….to not only do more with less, but to also do it better. This is not just compelling semantics: the results of ESG's latest IT Spending Intentions survey clearly show that users are reporting the importance of achieving *both* these things when it comes to justifying IT investments (see Figure 1)[3].

Figure 1. Most Important Considerations in Justifying IT Investments



Source: Enterprise Strategy Group, 2012.

[2] See the ESG Market Report, *The Relevance and Value of a Storage Hypervisor*, October 2011.
[3] Source: ESG Research Report, *2012 IT Spending Intentions Survey*, January 2012.

Similar to the server hypervisor model (and also driven by the extra demands and stresses that server virtualization itself places upon storage) the automated flexibility and agnostic, heterogeneous efficiency of a storage hypervisor is a pragmatic and productive approach to modern computing demands. It is an approach that allows IT organizations to separate the storage functionality from the physical storage systems. They can use whatever mix of disk technologies meets their needs and budgets, even "mutually incompatible" ones from different suppliers. With a system such as DataCore's, they can run replication, thin provisioning, caching, snapshots, tiering, load balancing, and the like in the storage hypervisor (gaining uniformity and common management rather than trying to administer storage piecemeal over a variety of unique devices, vendor models, and array-specific administrative tools and features). They can also easily move data between devices, scale up or down to accommodate business needs, and deliver high service levels to users while minimizing cost and waste. It makes virtual storage as easy to provision and manage as virtual servers.

So, clearly, a storage hypervisor is logical.

But what about the idea of a "*cloud* storage hypervisor?" In fact, it's not much of a leap. After all, there's a lot of semantic debate and confusion between virtualization and private clouds. While this is not the place to address those, what can be said is that "cloud"—whether public, private, or hybrid—can typically be viewed as a shared, virtualized environment where ownership and/or billing is distinct from a straightforward virtualized environment. Looked at in this way, a "cloud storage hypervisor" is simply the next logical step. And if a vendor—DataCore in this case—is to offer such a thing then it should also of course (as DataCore is indeed doing) work in a similar "on demand" business model. This is the reason for DataCore's focus on scale-out features to automate storage as a service and its new CSP [rental, acquire as you need] program.

Market Relevance

Having covered the conceptual value of a storage hypervisor and also a cloud storage hypervisor, do these things have relevance and congruence with what's going on in the market? Three specific—and measurable—factors suggest that they do indeed make pragmatic sense:

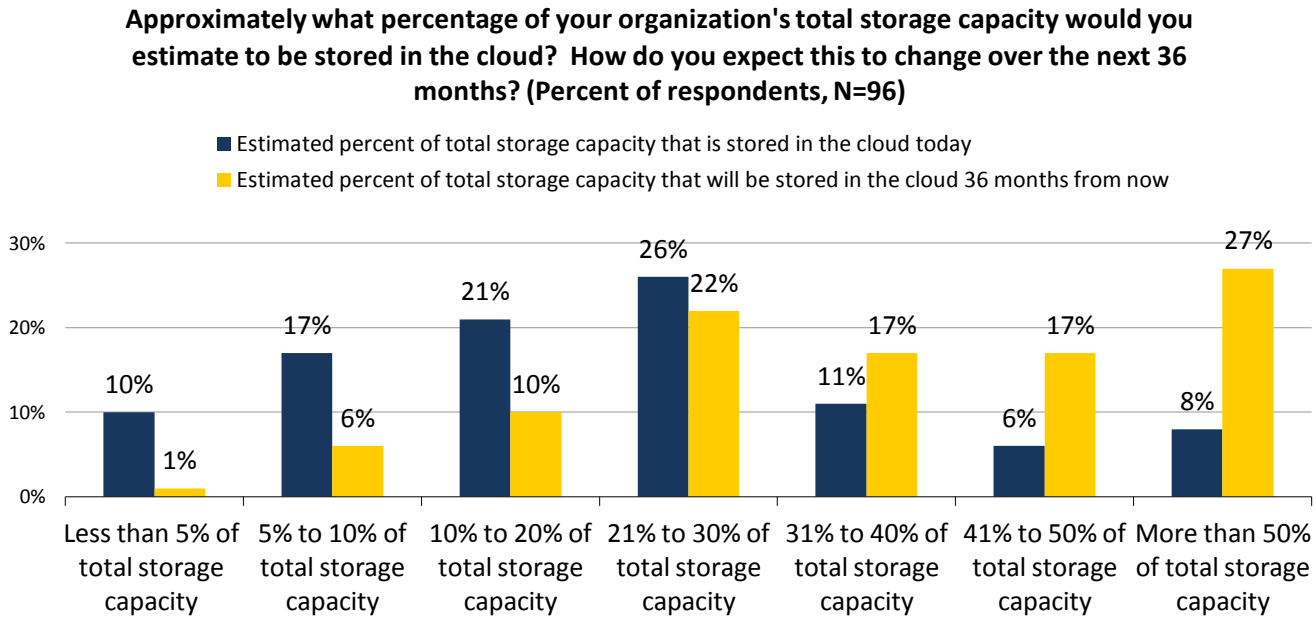
1) **Continuing Increase in Server Virtualization:** The fact is that the move to server virtualization has a long way to go. Whether described as virtualization, VDI, or private cloud, ESG research shows that the percentage of users who indicated that more than 50% of their X86 servers were virtualized was expected to jump from 14% in 2010 to 38% this year. In 2010, 58% of users reported that only 30% or less of their servers were virtualized. By the end of this year that same percentage—58%—expected to have 40% or more of their servers virtualized[4]. And server virtualization (together with the increasing move to storage intensive "tier 1" applications such as databases, VDI, and ERP systems) drives the need for higher performance, greater resilience, and sophisticated, device-independent storage management.

2) **Growing—*Generally*—Cloud Investments:** In ESG's Spending Intentions research, the specific technology area that will most extensively see an increase in expenditure in the next few years is cloud computing services, where 76% of respondent organizations expect to spend more (beating out server virtualization, security, etc).

3) **A Shift—*Specifically*—to Storage in the Cloud:** As expenditures move to the cloud, Infrastructure as a Service (IaaS) is claiming a significant and growing share, and within that, cloud storage is the most significant component. ESG research shows the shift expected towards storage moving to the cloud. While the shift is already noticeable today, ESG research indicates that users expect cloud storage capacity to grow dramatically over the next three years (see Figure 2)[5].

[4] Source: ESG Research Report, *The Evolution of Server Virtualization*, November 2010.
[5] Source: ESG Research Report, *2012 Public Cloud Computing Trends*, March 2012.

Figure 2. Percentage of Storage Capacity in the Cloud, Now vs. 36 Months from Now



Source: Enterprise Strategy Group, 2012.

Taking these three market factors together shows that what DataCore is doing with SANsymphony-V is not only relevant and useful today, but is (to borrow a famous ice hockey expression) skating to where the puck will be. And of course, since the IT and storage worlds are dynamic, we are in—and, for the foreseeable future, we will be in—a *hybrid* market, where it is important for vendors to be able to work with either or both implementations (on premises and in the cloud), as well as virtualized and physical servers.

Suitability and Completeness of SANsymphony-V

Beyond the applicability of the [cloud] storage hypervisor, and the relevance it has to the market, the final step in this review is to consider whether DataCore's offering is up to the task. Certainly the tens of thousands of DataCore customers would indicate the essential strengths and abilities of the company, as well as it longevity. And the fact that it has prestige, named accounts managing multi-petabyte storage pools attests to its ability to serve the enterprise as well as the SMB space. There are also some key capabilities that are required for a viable [cloud] storage hypervisor. These are functions invariably found (if even available) embedded in—and therefore of course limited to—advanced storage arrays. Such capabilities can prove far more powerful to an overall environment if implemented across devices in DataCore's layered software. A few key examples are:

- **Data Protection**: Flexible snapshot and CDP options for backup and cloning, together with integrated snapshot recovery management, and both synchronous mirroring and asynchronous replication across sites.
- **Efficiency**: Such as automated infrastructure-wide storage tiering and thin provisioning.
- **Management**: Intuitive tools that are well integrated with server hypervisor tools and general systems management and monitoring packages, along with site switching automation.

SANsymphony-V meets all the above needs, whether for a ''regular contemporary" data center or for any and all types of cloud environments—or indeed cloud-like implementations. In terms of the user experience, phrases such as "flexibility and responsiveness," "downtime avoidance," "driving efficiency and agility," "unattended cloud storage that just works," and "adapting to expansion" are ones that matter and that will resonate with SANsymphony-V users.

The Bigger Truth

The modern IT world is driven to virtualize, to drive more productivity from limited resources. DataCore's SANsymphony-V innovations are extremely well tailored for building out cloud storage infrastructures, whether the IT organization is at a pilot stage or is well on its way to a large-scale rollout. The company has succeeded in abstracting the storage-related aspects of the IaaS layer so that cloud-storage is easy to drop into place, flexed or expanded at will, and managed with little manual intervention. It makes perfect sense even for data centers that don't yet have "cloud" on the brain.

Furthermore the cloud reference and relevance has not just been plucked out of the trendy "marketing ether." Even when analyzing storage hypervisors before DataCore's new announcements, the applicability of a storage hypervisor approach, such as SANsymphony-V, to cloud was apparent: "Organizations have now experienced a good taste of the benefits of server virtualization with its hypervisor-based architecture and, in many cases, the results have been truly impressive: dramatic savings in both CAPEX and OPEX, vastly improved flexibility and mobility, faster provisioning of resources and ultimately of services delivered to the business, and advances in data protection. The storage hypervisor can provide a similar leap forward, while the combination of benefits from server *and* storage hypervisors can provide the sort of truly efficient infrastructure utility that has been promised for decades… a competent storage hypervisor is the route to a fully flexible storage infrastructure that can help create a cross-site *'storage cloud'* with pooled resources accessible from anywhere, while providing high-availability and workload flexibility. It can extend freedom of choice regarding storage and enable easy re-purposing of arrays for investment protection."[6]

In other words, DataCore has effectively *always* delivered "cloud" storage and management….even before we had a name for such things!

[6] Edited extract from the ESG Market Report, *The Relevance and Value of a Storage Hypervisor*, October 2011. The italics are added here.