

HDS, clouds and the enterprise storage renaissance

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The recent battle between **Hewlett-Packard** and **Dell** for enterprise storage specialist **3PAR** was an unprecedented event in the storage industry, and the eventual price tag of \$2.4bn reflects the lengths that two players were prepared to go to in order to own intellectual property in this space. It should put to bed any doubts that, following a brief hiatus, the enterprise market is once again the place to be in storage. Against this background of activity, **Hitachi Data Systems'** refresh of its own flagship enterprise storage array – the Virtual Storage Platform (VSP) – seems prescient. As we've noted previously, the price for 3PAR was pushed so high because Dell and HP decided that it was the most viable technology target to meet the evolving requirements of large enterprise customers.

Why is attention focused back on this segment? After all, the high-end of the storage market has been relatively flat in recent years, with the customer base approaching saturation. Instead, attention had swung to the relatively greenfield SMB storage space, where quickly growing startups such as **Compellent**, **EqualLogic** and **LeftHand Networks** grabbed all the attention.

The cloud effect

The emergence of cloud-based IT partly explains why the focus is swinging back to the high end. IT processes, workloads and applications are on a migration path – either onto massively consolidated and virtualized internal datacenters or away from on-premises internal datacenters and toward third-party cloud-based IT-as-a-service providers.

Whether you are looking to build a private cloud to serve internal customers or assembling cloud services for external customers, you increasingly require a different type of storage platform – one that can operate at high-levels of scale as efficiently as possible. In the past, this has been a difficult balance to achieve, especially for enterprise storage systems. High-end storage systems have always been about delivering performance and reliability, guaranteeing nondisruptive operations for an organization's critical applications. However, this previously came at the expense of flexibility and efficiency – an entire 'monolithic' system is often configured to meet the requirements of a small number of workloads or applications, and is provisioned for peak load requirements. This meets performance and availability goals, but can also result in very low utilization.

The drawbacks of such an approach can quickly become apparent when applied to a cloud environment. Indeed, it is increasingly apparent that building a new type of datacenter – one that is highly virtualized, agile, automated, scalable and efficient – cannot be achieved without a storage infrastructure that is able to meet some or all of these goals.

Operational issues

Although capital-spending constraints are certainly a factor to be addressed, especially in the current economic environment, the most room for improvement is actually in addressing operational overhead. This has crept up over the years with growing data volumes and infrastructure complexity. Indeed, the actual capital cost of enterprise storage can be as low as just 25% of the TCO of a system; the vast majority of cost is operational overhead.

Within this, power, cooling and floor space make up an increasingly large chunk – especially in regions where electricity costs are rising or where a cap on power and floor space might exist. However, labor costs are still a significant factor in total cost of ownership for storage. For example, the impact of migrating data between enterprise storage systems – for upgrade/replacement reasons – can be colossal in terms of time and costs.

Of course, enterprise storage systems have evolved recently to better tackle some of these issues. For example, the ability to scale from both a performance and capacity perspective is increasingly regarded as a prerequisite. Meanwhile, features such as 'thin' provisioning are now widely used by customers to more efficiently meet performance requirements. However, with demand for efficiency, agility and performance arguably at an all-time high, storage vendors are under pressure to deliver even greater levels of each, especially at the high end, where the emergence of the cloud and next-generation datacenters places a premium on these attributes.

Next-generation storage systems

Accordingly, in recent years, we have seen the major enterprise storage vendors redouble their efforts here to meet these requirements. **IBM** acquired **XIV**, and continues to invest in its DS8000 platform; **EMC** refreshed its flagship Symmetrix platform in 2009 with the release of the V-Max; and the extent of 3PAR's hitherto success and ongoing potential in penetrating the enterprise space is clear in its valuation.

Joining this band of next-generation enterprise storage systems is Hitachi Data Systems, whose new high-end platform – the Virtual Storage Platform – has just been announced. The core message behind VSP is the notion of 3-D scaling and management. It claims that VSP's ability to 'scale up, scale out and scale deep' delivers performance without compromise in terms of overall efficiency, and as such, begins to directly attack some of those thorny opex challenges. There are examples of this within the VSP architecture – for example, it utilizes small form factor (2.5-inch) hard disk drives (HDDs), which, according to HDS, means it consumes at least 40% less power than a similarly configured USP-V (the HDS system that VSP succeeds).

Additionally, HDS claims VSP is able to drive further efficiencies outside of the storage system. For example, it says the tightly coupled shared-everything nature of the system allows customers to consolidate more VMs onto fewer physical servers and, at the same time, increase utilization of system components, which may ultimately result in fewer ports, less cache memory and so on.

The addition of solid-state disk combined with new storage-tiering software further adds to this efficiency story. Adding SSDs to storage is easy, but adding the right data to SSDs to

ensure this expensive asset is correctly utilized (and automating the process) is much more difficult – a challenge HDS claims to have overcome with VSP.

As well as tiering storage across its own arrays, HDS will support tiering across third-party arrays connected behind VSP within six months – an industry-first capability. This is where its 'scale deep' story comes in: The combination of HDS's existing storage-virtualization capabilities with storage tiering allows customers to bring their existing storage assets as a tier behind VSP.

Of course, much of this new functionality – and thus, many of the potential opex savings – is driven by management software. HDS has also been investing here, and is announcing a significant upgrade of its storage management stack – Hitachi Command Suite 7 – to accompany the VSP release. The messaging here is in-step with that of VSP, with HDS claiming HCS7 allows customers to manage in three dimensions.

With the Virtual Storage Platform, HDS believes it is delivering a new class of enterprise storage that will satisfy increasingly demanding requirements for not just new and improved technology, but for transformational technology that can deliver new levels of performance, efficiency and scale. Of course, in such a competitive segment, we can also expect a new level of debate about the efficacy of these claims; however, with the spotlight back on enterprise storage like never before, the stakes have arguably never been higher.

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