Entry-Level Enterprise Storage: Stepping Up to Big Challenges

October 2012

Adapted from The Appliance-ization of the Datacenter and Its Impact on Storage by Laura DuBois, Eric Sheppard, Robert Amatruda, et al., IDC #230480

Sponsored by Hitachi Data Systems

Storage solutions are increasingly being delivered in new form factors where multiple storage functions are integrated together to provide greater value and a consistent user experience regardless of the shape or form initially purchased. This development has contributed to the emergence of “entry-level enterprise” storage technologies that can provide small to midsize companies with converged, enterprise-class storage features and therefore datacenter efficiencies at a lower price point. This Market Spotlight describes the drivers and business challenges fueling the growing interest in entry-level enterprise storage solutions. The paper examines the functionality and benefits a converged storage architecture provides and explains why businesses no longer have to spend more to get the enterprise-level technology best suited to their data storage needs.

The Need for a New Type of Storage Solution

Explosive data growth from multiple sources and devices, coupled with the growing diversity of data types, has created a continuous demand for more storage capacity and better storage management. This presents many midsize businesses (such as those with one or two datacenters and less than 100TB capacity requirements) with storage, data processing, and security concerns similar to those of large enterprises. It's also creating a requirement for similar applications, virtual servers, and other large enterprise technologies needed to process, manage, and secure all that data. Consequently, many of these organizations are finding they need to reevaluate the storage solutions and/or data strategies they are currently using.

Midsize businesses with storage requirements akin to those of larger enterprises, but without enterprise budgets, struggle with the IT costs and challenges associated with trying to manage and maintain complex storage deployments in their existing environments. When those organizations have older, underutilized, overallocated, or inadequate storage technologies, their ability to do business may be jeopardized. The inability to handle today’s data requirements draws precious resources and staff away from revenue-generating activities. Lack of 100% data availability exposes businesses to the risks associated with unplanned downtime and negatively impacts the ability of the organization to support its customers, compete effectively, and/or meet its service-level objectives and service-level agreements (SLAs).

The risk of lost profits, decreased productivity, and potential financial penalties when SLAs are forfeited is forcing organizations to find new ways to improve efficiency and meet the challenges of collecting, storing, processing, and managing all this data. Numerous enterprise storage systems with sophisticated features and capabilities can certainly help these businesses optimize their data storage and resolve most of their data challenges. Unfortunately, the range of options that would otherwise be available to them is constrained by the realities of budgets that continue to remain flat or decline in response to the economic fluctuations and uncertainties throughout global markets.
Few would argue that it has required a significant investment to get the type of enterprise-class storage technologies that can deliver the capacity, performance, productivity, and efficiency needed to be able to handle current data challenges. Large enterprises can and do make these investments to remain competitive and responsive to their business needs. However, smaller organizations generally have had to sacrifice features and functionality to keep their costs down. To fill this void between what an organization requires and what it can actually afford, an "entry-level enterprise" storage technology market has emerged with solutions that provide attractive price points, acceptable capacity handling, and sophisticated features.

Enterprise-type features and advanced functionality (such as external storage virtualization, dynamic tiering, nondisruptive migration, automation, etc.) are able to deliver lower-cost storage solutions with technical functionality that did not previously exist outside the datacenter. More important, these products utilize a converged architecture to alleviate many of the decisions customers frequently make between accommodating a tight budget or spending more to get enterprise-level technology that is well suited to their business needs.

These storage solutions are gaining traction because they are able to meet and exceed the storage requirements of organizations that want enterprise reliability, functionality, availability, and serviceability at entry-level enterprise price points. Converged systems allow organizations to cost effectively consolidate their application workloads, improve backup and data migration operations, and improve data security while also maintaining existing services and quality.

**Business Value and Benefits**

Among the many features provided by the new class of entry-level enterprise storage solutions, external storage virtualization provides some of the greatest benefits to midlevel organizations that need consolidated management across their storage environment and enterprise-class storage functionality and capability. Virtualization enables these systems to deliver both short-term and long-term advantages in the use of IT assets, improved business continuity, and greater IT administration efficiency. These systems can effectively manage data growth while significantly reducing storage costs through consolidation and simplification. Preferred solutions should also enable organizations to overcome many existing challenges by facilitating common storage objectives, including the ability to:

- Optimize utilization of existing storage assets to enable more controlled growth in the deployment of new disk capacity and reducing the demand for new storage hardware
- Shorten and simplify the storage reconfiguration processes needed to support server migrations and consolidations
- Speed and automate data migrations driven by storage technology refreshes
- Integrate server virtualization hypervisor features with the storage subsystem to provide bidirectional visibility from the storage stack all the way up to the applications residing on the virtual machine and provide end-to-end management functionality
- Enable nondisruptive scalability in capacity and configuration while providing a fault-tolerant, redundant, and reliable foundation
- Support virtualization and management of heterogeneous storage platforms while interoperating with current storage services (such as replication) and facilitate sharing of resources for different uses to reduce capital purchases
- Support advanced data management services such as data migration to allow for common data protection, recovery, and availability across consolidated storage and server environments
Entry-level enterprise storage solutions that provide a converged architecture can serve as a foundation upon which companies can add more capability and functionality as needs arise and budgets allow. Many support deployment of higher-level storage services that provide cross-system, heterogeneous data replication, migration, and protection. This enhances overall business continuity and storage asset utilization without disrupting applications and business processes.

Because converged systems have a single framework that has been fully integrated, it is easier for IT to manage the storage infrastructure and in doing so achieve high levels of operational efficiency. They can also scale up as infrastructure and application deployments increase in size and scope, providing a set of options between block, file, and object access protocols.

Considerations

Many challenges are associated with managing storage, such as reclaiming capacity, aligning I/O performance requirements with capacity consumption, reducing storage costs through storage/service tiering, and provisioning and migrating data in a timely fashion. The extent to which an entry-level enterprise solution can help an organization handle these challenges will factor into many companies’ purchasing decisions.

Successful deployment of storage can define the success or failure of any datacenter virtualization initiative because storage can make or break performance, capacity, and scalability attributes of the virtualized environment. How the data is handled by the system and where the data is placed impact performance and the amount of storage required. The movement, copy, and migration of data between primary and third-party storage devices, if not fully automated, can also result in application disruptions and create numerous problems.

Any data storage solution must improve the use of existing IT assets while providing the flexibility to meet future needs. Meeting these objectives, however, requires more than just identifying and selecting the right solution for the specific application. Unwise implementation decisions can result in costly system reconfigurations, slow storage migrations, and inefficient IT operations — all of which can wreak havoc on the budgets of midsize organizations.

A converged storage environment can reduce management complexity and improve the ability to move data across environments. It provides the intelligence and flexibility that companies need to deal with diverse data challenges, but it addresses only part of the problem. Other potential barriers include fragmentation of the data management process, problems associated with incompatible infrastructures and storage platforms, and a limited ability to move data between disparate environments.

Automated tiering coupled with solid state disk (SSD) can drive major performance and transaction efficiency gains and storage utilization rates in business operations. This technology can improve reliability, provide protection from data loss, reduce response time, and provide better support for increasing transaction volumes. However, SSD can be used only at scale when deployed in virtualized storage systems that automate the process of identifying and moving data sets between SSD and hard disk drive (HDD) storage tiers. Hence, automation must be a factor in the consideration of any entry-level storage solution.
Key Trends and Future Developments

As enterprise IT continues to look for ways to shift more IT spend from maintenance to being able to innovate in the business, the technology strategy is shifting to creating systems optimized "end to end" to reduce interdependent operational inefficiencies across the core compute, storage, and networking infrastructure. Converged storage environments that provide multiprotocol file and block access are a foundation of this strategy.

In addition, this focus on improved operational efficiencies and time to value is also moving further up the IT value chain into the platform and application layers. The convergence and consolidation of advanced features into a single platform that is priced attractively for smaller organizations is a trend that will continue.

IDC believes the concept of converged systems is indisputable and inevitable. While consolidation, virtualization, and cloud continue to rage on, IDC research shows that one-quarter of all enterprise customers are reaching the end of their consolidation programs, with very few organizations expecting to virtualize much more than 80% of their application portfolio. These customers have entered what IDC calls the "last mile of virtualization," which increasingly requires robust infrastructure and conservative virtual machine densities. This next phase of virtualization will focus on application portfolio management, resource pooling, elasticity, and modularity best achieved through converged systems.

Market shifts across many storage segments, including backup, file/content streaming, archive, storage virtualization, and unification of block, file, and object storage (multiprotocol storage), are equally influencing a changing storage landscape. Natural market behaviors of consolidation, maturation, and convergence are taking what was once a broad range of distinct standalone software and replacing it with bundled data management features. These features are often provided in the form of well-integrated, workload-optimized storage solutions or repackaged and priced as entry-level enterprise storage systems.

Consequently, IDC expects that one of the biggest changes in go-to-market strategies for the storage market is the increasing deployment of storage features or solutions in the form of appliances or systems that integrate storage functions together in the context of supporting specific applications. Over the next 12 months, the storage market at large will see even more ongoing innovation and new products. Firms will continue to look for integrated solutions and single points of contact for purchasing best-of-breed storage solutions and horizontally integrated offerings.

With the introduction of converged storage systems that integrate multiple storage protocols onto a single management framework, attractively priced platforms optimized for performance and interoperability will continue to garner interest among midsize businesses seeking more functionality at a lower price point.

Conclusion

Organizations are experiencing significant pressure owing to the growing complexity and increasing demands on their storage systems to keep pace with the sheer volume and diversity of data types in addition to the continually shifting demands of their business. IDC continues to see massive growth in devices, users, virtual machines, and data occurring in both large and small businesses and operating in every industry segment.

Entry-level, preintegrated or "appliance-ized" storage solutions are able to offer midsize enterprise businesses a more agile storage infrastructure that not only can increase the productivity of IT staff but also can reduce storage costs and increase ROI on storage assets. These solutions are designed and packaged to help organizations manage growing and complex storage environments with fewer staff and fewer resources. In addition, the technology can scale up or down as business conditions change and evolve.
With the introduction of entry-level enterprise storage systems, midsize organizations have the ability to make the same real-time business decisions as large enterprises. They can handle large volumes of data more efficiently and reduce overall storage costs through consolidation, better utilization, and improved data management features. They can reduce current and future costs of managing expanding storage capacity without dedicating more staff to the administration of storage assets, and like large enterprises, they can respond to data challenges without having to sacrifice features and functionality to keep their costs down.

ABOUT THIS PUBLICATION

This publication was produced by IDC Go-to-Market Services. The opinion, analysis, and research results presented herein are drawn from more detailed research and analysis independently conducted and published by IDC, unless specific vendor sponsorship is noted. IDC Go-to-Market Services makes IDC content available in a wide range of formats for distribution by various companies. A license to distribute IDC content does not imply endorsement of or opinion about the licensee.

COPYRIGHT AND RESTRICTIONS

Any IDC information or reference to IDC that is to be used in advertising, press releases, or promotional materials requires prior written approval from IDC. For permission requests, contact the GMS information line at 508-988-7610 or gms@idc.com. Translation and/or localization of this document requires an additional license from IDC.

For more information on IDC, visit www.idc.com. For more information on IDC GMS, visit www.idc.com/gms.

Global Headquarters: 5 Speen Street Framingham, MA 01701 USA P. 508.872.8200 F. 508.935.4015 www.idc.com