The Business Value of Entry-Level Enterprise Storage

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The need to stretch the IT dollar without compromising form or function is leading enterprises to push suppliers to offer a new breed of “entry-level enterprise” storage solutions. Such solutions are designed to deliver value to businesses with a focus on changing requirements such as multi-protocol access, enterprise-level features, and purpose-built architecture for unified and virtualized environments. In addition to this value, vendors are taking the concept of entry-level enterprise to the next level by offering platform commonality with their enterprise arrays, making them cost-effective for midsize enterprises to deploy such storage solutions in their primary datacenters, and/or for larger enterprises to deploy them in their secondary or disaster-recovery environments.

Why the Need for an Entry-Level Enterprise Solution?

Businesses, especially those on the cusp of growth and imminent downward budget pressures, often face a dilemma when refreshing their storage assets or purchasing new ones. On the one hand, their requirements don’t make these businesses suitable candidates for high-end enterprise solutions, and they are faced with an expensive bill in the event they venture down that route. On the other hand, rapid pace of growth via various expansionary initiatives means that such businesses often find themselves outgrowing their storage investments in a compressed timeframe, increasing their total cost of ownership. The following are several business-driven initiatives that drive organizations to this state of flux:

- **Remote datacenter scenarios:** Organizations on a growth spurt often expand beyond their primary datacenters by adding remote facilities. In many cases, such adjunct offices need a full suite of storage solutions, both file- and block-based. In such cases, it often becomes mandatory for IT to extend their operational and disaster recovery (DR) service levels to such offices. In order to do so, IT has to tie these solutions back to the home office via a common management framework and deploy a replication and data management solution compatible with the solutions deployed at the home office. Lack of compatibility between such storage solutions often adds to the cost by way of alternate solutions and additional resources.

- **Disaster recovery deployment:** Organizations are increasingly under pressure to provide a seamless disaster recovery solution. The traditional approach has been to deploy the same type of storage solution at the primary and DR locations and then use native array-to-array technologies to replicate data between the two sites. The challenge with this approach is such solutions are often expensive to deploy, and as a result businesses struggle to justify such expenses even when in many cases the DR site can be potentially deployed for test and development environments. With alternate host-based or appliance-based solutions, businesses often end up compromising SLAs and risk data loss should a catastrophe affect their production site. It is a balancing act between cost and risk.
**Newer deployment scenarios:** Traditionally businesses have often provided file and block services in a siloed fashion using separate frames for each protocol. The IT landscape is rapidly changing due to the emergence of newer deployment scenarios such as server virtualization, file-based data protection targets and applications that cater to a remote and mobile workforce. The older siloed approach is no longer economical. There is an increasing demand for multi-protocol solutions that share a common pool of storage and can offer seamless protocol-agnostic data services.

**Data migration and consolidation:** It is often thought that data migration challenges exist only in large enterprises that have a plethora of assets to deal with. The fact of the matter is, small and midsize enterprises struggle with data migrations. With limited budgets and resources to perform such migrations or consolidations, businesses often have to start the migration process early to avoid having to pay maintenance charges on end-of-life storage arrays. This increases their total cost of ownership for storage.

**M&A activity:** Businesses often have to cope with the effects of IT consolidation following a merger or acquisition. During such efforts, data migration from one platform to another is often one of the most challenging endeavors as far as storage is concerned.

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**Challenges Faced by Midsize Businesses**

Often medium- to large-sized companies have many of the same technical needs as large companies, but not the budget. They are therefore faced with several risk mitigation, cost, and service-quality issues:

**Service quality:** Smaller enterprises should not have to compromise on service quality if they do not have the budgets to acquire an enterprise storage solution. Storage solutions designed for small- and midsize-enterprise (SME) markets lack enterprise-grade features, and often don't scale to meet the needs of smaller or mid-sized enterprises. In many cases, even though they offer multi-protocol support, such support comes with a slew of caveats that basically translate to lack of scalability when pushed to perform beyond the stated sweet spot. Compromised service quality often translates to an increased cost of doing business and therefore an increased level of risk.

**Risk:** With a storage system that cannot offer enterprise-level features, especially for quick operational and disaster recovery, businesses stand to be exposed to the risk of data and application unavailability for extended periods of time.

**Cost:** There is no doubt that activities surrounding the ongoing management and maintenance of the storage frames can potentially add to the already stretched budgets in IT. Add to that additional burdens arising out of lowering risk and maintaining service quality as the business grows and more applications are added to the environment. This situation is further complicated when the storage system is used to cater to a mobile workforce that accesses applications on the go.

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**Why There is Still a Void between Entry-Level and Enterprise**

In spite of a plethora of solutions that purportedly cater to the entry-level enterprise, there still remains a void between solutions designed for the SME market and those designed for midsize to large enterprises. Storage architectures have remained distinct and disparate, and while at a high-level they may appear to move closer to each other feature- and parity-wise, a closer examination reveals that it is not the case. Both architectures lack the economic and technical feasibility for adjacent markets. This has forced businesses to comprise technology for the sake of budget or vice versa.
Solutions designed for the SME market have been up-gauged heavily by most vendors, but their inherent design means that they fall short in a side-by-side comparison with their enterprise peers. Features such as external storage virtualization, dynamic and scalable tiering with external storage, storage optimization, and non-disruptive migrations – features that are focused on lowering the total cost of ownership and increase the return on overall storage investments – have largely remained off-limits for such solutions.

Furthermore, with the exception of a few cases, operational and disaster recovery features of such solutions, such as snapshots, clones, and replication, fall short of the robustness offered by their enterprise cousins. Reckoning such inadequacies, some vendors have gone the route of supplying add-on appliances that provide replication and virtualization capabilities. But going this route is not cheap – costs of such add-on solutions quickly add up and make what was destined to be an SME solution to be deployed at a cheaper price point an expensive one.

On the enterprise side this situation is even dire. Almost all storage vendors have down-gauged their enterprise arrays to cater to the entry-level enterprise, but have not changed the a la carte software license model. As a result, acquiring even an “entry-level enterprise array” – one that has not been designed from scratch, but is just a down-gauged sibling of the enterprise class – quickly becomes an expensive proposition when one adds all the additional software needed to make effective use of it.

Another categorically crucial differentiator between most enterprise-class arrays and those designed for the SME market is that vendors seldom offer native file and block capabilities in the former class. Large enterprises can afford to either keep their file or block environments separate, or purchase additional file gateways for their enterprise arrays. Hence vendors have not felt a need to offer multi-protocol solutions in the mid-to-large enterprise space. However, such is not the case with businesses in the entry-level enterprise. For the most part, the solutions they demand are a cross between the enterprise and SME arrays: storage virtualization, dynamic tiering, storage optimization and robust recovery capabilities mated to a multi-protocol solution.

Finally, with very few exceptions, SME and enterprise offerings from vendors still remain distinct, disparate, and incompatible with each other. This is by far the biggest challenge businesses face with right-sizing their infrastructure — i.e., getting into an entry-level enterprise solution at a lower price point and upgrading to an enterprise solution as their needs change. Or, for that matter, deploying a hub-spoke model where a full-featured enterprise array at the primary datacenter is networked with one or more entry-level enterprise arrays at the secondary, DR, or remote datacenters.

**Why Next-Generation Entry-Level Enterprise Solutions are Game Changers**

This is not the first time that vendors are taking the entry-level enterprise market segment seriously — i.e., as one that needs a storage solution specifically designed for the needs of small and midsize enterprises. As noted above, several vendors have try to up-gauge storage solutions for the SME market or down-gauge enterprise-class arrays. In both cases, they have had mixed success, as business quickly realize the challenges and hidden costs associated with upgrades or downgrades. IDC believes vendors should take a more definitive approach and tackle this problem once and for all. In order for such solutions to be true game changers, the focus needs to be on the following areas:

- **IT cost management**: Such solutions should reduce current and future costs of managing expanding storage capacity without the need to add more staff to the administration of storage assets. They should also reduce administrator involvement in data migrations with built-in capabilities to migrate data in a non-disruptive fashion.

- **Improved service quality**: They should enable greater application availability and improved performance. This not only improves service quality, but also improves IT productivity, as less
time and resources are spent on troubleshooting performance – something that's a frequent occurrence with SME solutions used in the enterprise.

- **Risk mitigation:** The solution should eliminate downtime and greatly reduce the risk of business disruption with most storage-related activities. It should offer robust enterprise-grade recovery capabilities for operational and disaster recovery. And finally, it should be fully compatible with its enterprise peers, but also offer a down-gauge path to businesses in need. Such compatibility should exist both at the file and block level.

With datacenter facility costs at the top of every CIO’s agenda, such solutions should offer storage optimization features that reduce overall physical footprint without compromising performance or scalability. With a reduced carbon footprint, such solutions can reduce not only capex costs (as fewer disks are needed to offer the same level of performance as a traditionally configured system), but also opex costs (in terms of power consumption and heat dissipation).

Moreover, these solutions have to cater to the changing dynamics of entry-level enterprise IT environments, furthering their mission to be a metered internal service provider organization. With features like tight integration with server and/or desktop virtualization solutions, flexibility to configure file or block access for workloads such as databases and virtualization solutions, and the ability to use storage virtualization to stretch the life of existing storage assets, such solutions bring IT closer to realizing its aspiration to offer private cloud solutions.

**Conclusion**

With a clearer focus on making a case for economic and technical feasibility the second time around, vendors are pitching the next generation of entry-level enterprise arrays to businesses who are budget-conscious, but also cannot afford to comprise on technology. The recipe for success is based on enabling businesses to decrease their storage-asset total cost of ownership (TCO) by reducing the number of tools and people needed to manage storage resources in homogeneous or heterogeneous environments while stretching the usable life of existing assets.

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