

White Paper

# **EMC Unity: Right-sized Storage for the Midrange Market**

By Mark Peters, Practice Director & Senior Analyst  
and Monya Keane, Senior Research Analyst

June 2016

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



## Contents

Introduction .....	3
The Midmarket’s Criteria for Storage Hardware.....	4
EMC’s Right-sized Storage for Midmarket Organizations.....	4
Genuinely Unified .....	5
Flash for Midmarket Organizations .....	5
Simple, Modern, Flexible, and Affordable—the Four Pillars of EMC Unity .....	6
Simple.....	6
Modern .....	7
Flexible .....	8
Affordable .....	9
Market Relevance .....	10
The Bigger Truth.....	11

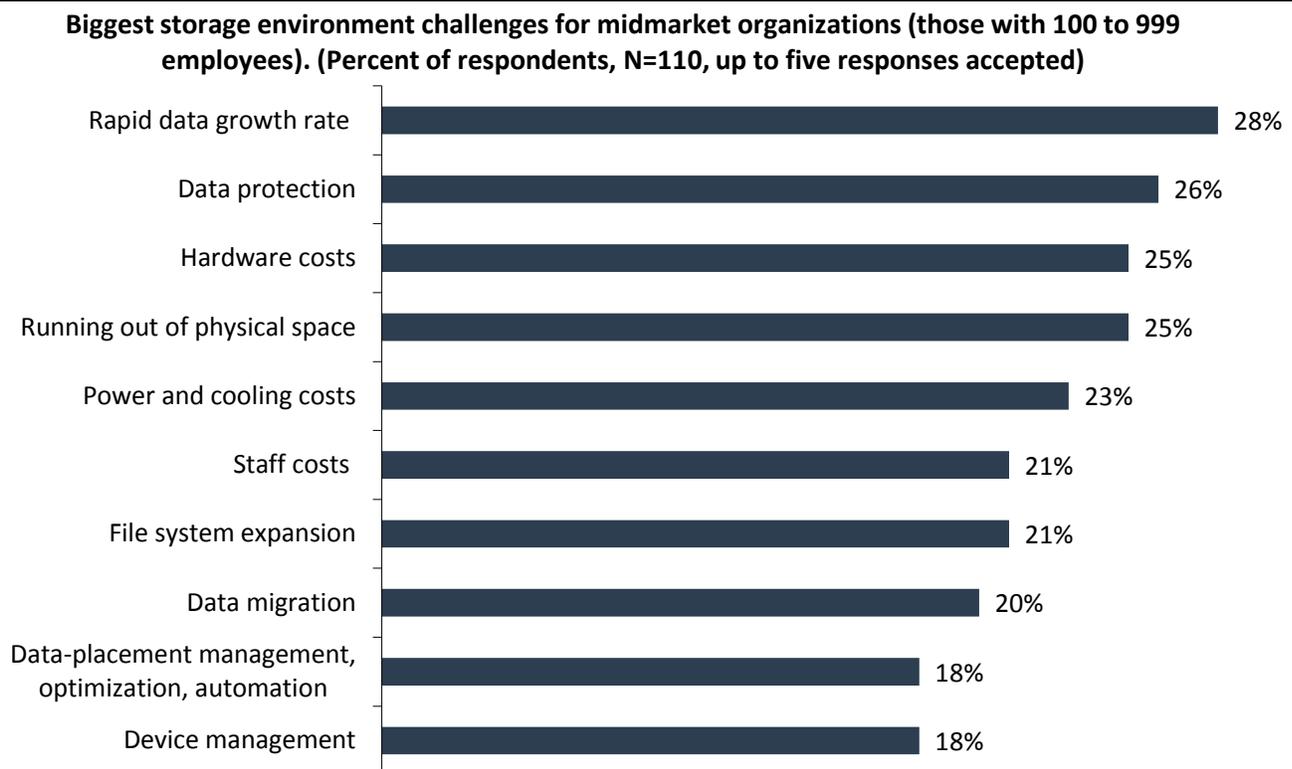
## Introduction

What does the term “midrange” mean today? What about “midsized” or “midmarket”? Definitions and opinions vary. But in the realm of storage hardware, most people would agree that *midmarket* organizations with *midsized* IT requirements don’t want stripped-down, allegedly simplified versions of enterprise arrays. Such organizations usually prefer to deploy *midrange* storage that has been designed from scratch with a midmarket organization’s particular needs in mind.

True midrange storage is built for organizations that don’t typically have extensive resources at hand. These organizations tend to employ generalist IT admins who spend their time working hard just to keep the lights on. Such admins can be wary of using formerly large-scale, stripped-down gear; instead, they want right-sized, appropriate storage.

It’s important to them because as Figure 1 shows, they deal with big challenges.<sup>1</sup> IT staff at these organizations often work under more pressure than teams working at huge, resource-rich corporations. First, they have a wider range of responsibilities. Second, they are hindered because they must rely on IT solutions that superficially appeared to be meant for them, but ended up being just “minimalist” versions of offerings born much larger.

**Figure 1. Midmarket Organizations’ Top-ten Storage Challenges**



Source: Enterprise Strategy Group, 2016

When a storage vendor strips down its enterprise-specific hardware to try to make it attractive to SMB buyers, that vendor isn’t doing much more than producing a shrunken version of an often-still-complicated solution. The stripped-down product isn’t matched to an SMB’s needs; it’s just somewhat smaller. That can be problematic.

Consider, for example, a midmarket business’s admin who must depend on one storage offering to support, say, three interrelated production, protection, and security tasks. Compare that situation with a ten-person storage team working at a Fortune 500 enterprise: They have the budget, manpower, and skill specialization to deploy and oversee three separate, all perfectly suited, purpose-built “Rolls-Royce-caliber monster trucks” to accomplish those same three tasks.

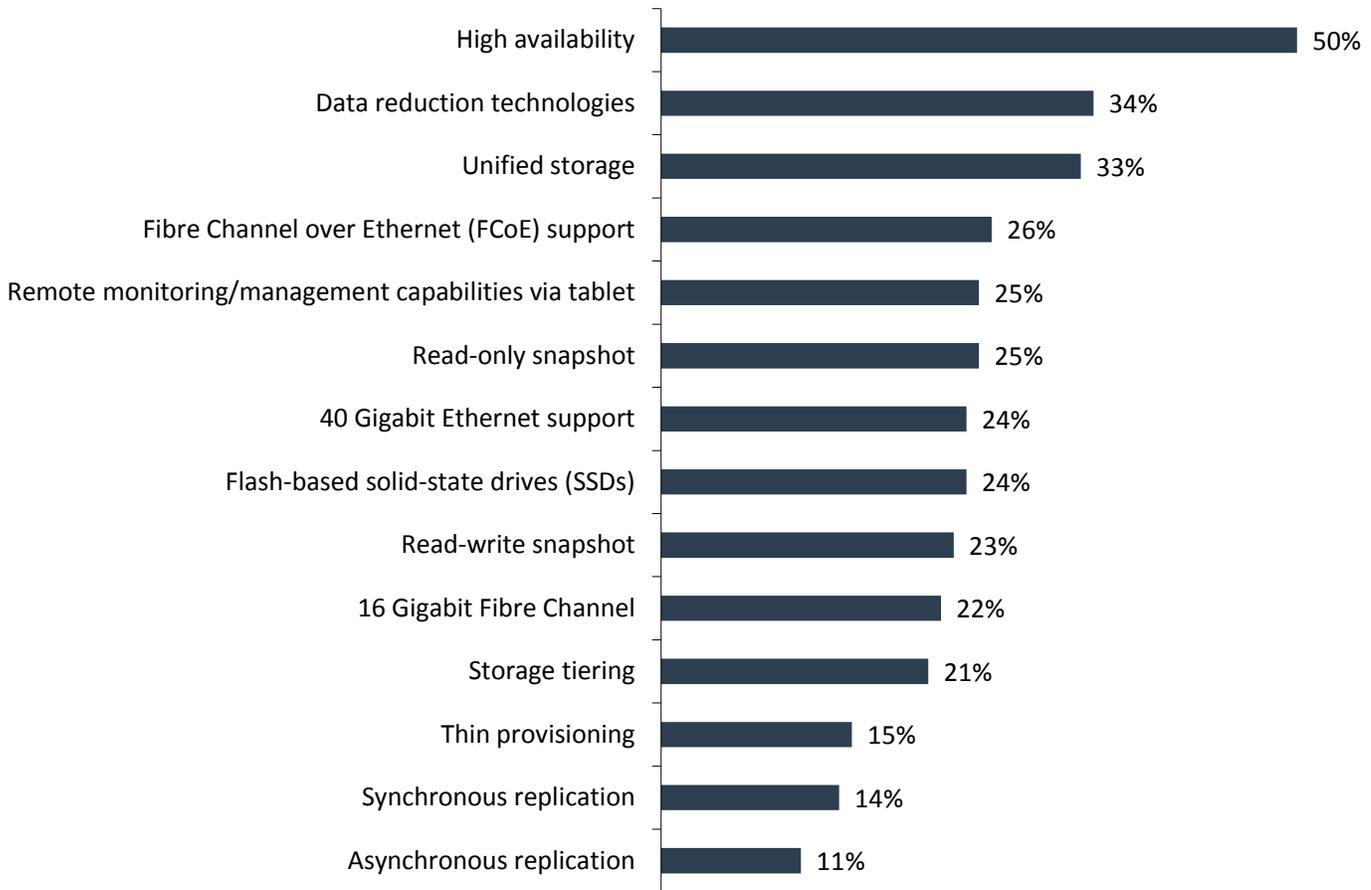
<sup>1</sup> Source: ESG Research Report, [2015 Data Storage Market Trends](#), October 2015. All research cited in this white paper stems from this report.

## The Midmarket’s Criteria for Storage Hardware Today

ESG has researched the particular preferences and needs of midmarket organizations in regard to storage in an effort to determine what these organizations consider to be the most important (or even “must-have”) attributes (see Figure 2).

**Figure 2. Current “Must-have” Storage Features and Capabilities for Midmarket Organizations**

**Which of the following features would you consider to be “must have” when it comes to purchasing storage systems (i.e., we would not purchase a storage system without these features)? (Percent of midmarket (100 to 999 employees), N=110, five responses accepted)**



Source: Enterprise Strategy Group, 2016

## EMC’s Right-sized Storage for Midmarket Organizations

Midmarket IT people don’t have it easy. But in May 2016, [EMC unveiled EMC Unity](#), which may well help. EMC describes this family of midrange hardware and software as intelligent and exceptionally easy to use, with a meticulously formulated cost-efficient and space-efficient profile. It appears to satisfy many of the “must-have” criteria specified by midmarket organizations.

Unity’s name stems in part from the fact that it is a unified offering, delivering block and file services in a single two-rack enclosure. It boasts a clean, intuitive HTML5-based EMC Unisphere management interface that was created by EMC’s usability experts specifically to support busy midmarket and department-level generalist admins who need GUIs that they will quickly feel comfortable with. Unity also supports a full command-line interface and a full REST API.

Unity can be implemented as a physical platform, a virtual offering (UnityVSA), or a converged system (VCE Vblock). The physical version comes as an all-flash or hybrid solid-state/spinning-media configuration.

## Genuinely Unified

Previously, EMC has of course had midrange storage offerings that were packaged to be unified. But actually, two Windows operating systems and two management interfaces (one for file, one for block) were operating under the covers, even though both were branded under “Unisphere” onscreen.

Unity does away with that. Its Unisphere management interface operates on *one* OS—Linux—capable of delivering a fully integrated experience, including functionality such as unified snapshots and replication.

Unity is also a unifier in that it can monitor and report on other EMC arrays, enabling midmarket admins to manage hundreds of Unity, VNX, VNXe, and CX4 systems from a single display.<sup>2</sup> That functionality is nice to see; it indicates EMC wants to ensure its long-time midrange customers won’t be left “high and dry” by incorporating Unity into their storage infrastructures.

Inside the dense 2U enclosure, either 25x 2.5-inch drives or 12x 3.5-inch drives provide block and file storage as the starting point. Unity doesn’t need an additional NAS server/gateway to be bolted on or any other additional hardware to fulfill its unification capabilities. This advantage helps to reduce the number of cables needed significantly, and it reduces power consumption. In another nod to simplicity, EMC provides all-inclusive base software at no additional cost.

Unity also is apparently very fast. ESG has not yet validated the numbers independently, but EMC says its performance tests are showing the system to be up to three times faster than a similarly configured EMC VNX2 system.

## Flash for Midmarket Organizations

Regarding speed, EMC asserts that it wants to set new standards for simplicity and affordability *with all-flash storage*. It decided to make the new Unity system available in all-flash configurations because it believes that, at this point, even smaller and midmarket organizations should be seriously considering using all-flash arrays. ESG’s research supports that opinion. In 2015, 53% of surveyed midmarket organizations reported that they were using solid-state storage (see Table 1). That percentage is more than double the midmarket’s 2012 usage rate.

## EMC Unity: Technical Characteristics and Capabilities

- **Optional I/O modules**—12Gb SAS for back-end, 16Gb Fibre Channel (four-port), 10GbE optical (two- and four-port), and 10 and 1GbE BaseT. I/O modules that support iSCSI and NAS may be used for both simultaneously.
- **Flash**—Unity supports eMLC, TLC, and 3D NAND TLC drives. It also supports the FAST (Fully Automated Storage Tiering) technology on its hybrid arrays for tiering and expanded caching operations.
- **Scalable file system**—A 64-bit file system architecture supports provisioning of file systems and VMware NFS data stores of up to 64TB.
- **Native data protection**—Unified snapshots provide point-in-time copies. Asynchronous replication offers IP-based replication within a system or across two systems. Synchronous block replication and data-at-rest encryption are also available.
- **VMware integration**—VMware Aware Integration (VAI) is available to retrieve ESXi host and vCenter environment details into the Unisphere UI, as are VMware vStorage APIs for Storage Awareness (VASA) 2.0 for provisioning/using block or file VMware Virtual Volumes (VVols).

**Table 1. Current Usage of Solid-state Storage, by Company Size: 2012 versus 2015**

Percentage of organizations currently using solid-state storage, 2012 versus 2015		
	2012	2015
Midmarket (100 to 999 employees)	24%	53%
Enterprise (1,000 or more employees)	37%	47%
<b>Total</b>	<b>33%</b>	<b>49%</b>

Source: Enterprise Strategy Group, 2016

<sup>2</sup> Scalability matters greatly these days, even to small and midmarket organizations. A full one-third of the midmarket organizations surveyed by ESG reported having at least 500TB of disk-based capacity under management. That percentage is up from 10% in 2012 and just 2% in 2010.

Falling prices are no doubt part of the midmarket's impetus to embrace flash. But its increased availability (flash isn't limited to high-end storage products anymore), combined with a more widespread understanding that flash makes great economic sense, are also proving to be big drivers for flash adoption at midmarket organizations.

Considering the operational value that Unity should add to midmarket IT efforts, EMC will now be accelerating this adoption trend even more. EMC's timing is therefore auspicious. The midmarket seems hungry for speedy storage at a good price right now.

And even though performance is the most commonly cited reason to use flash storage, midmarket organizations are adopting it for other reasons, too:

- Improved reliability/mean time between failures.
- Improved power and cooling efficiency.
- Improved cost per I/O.
- Lower TCO.
- Ability to consolidate disk drives.
- Increased environmental tolerances (i.e., heat and vibration).
- Longevity of read/write media.
- As mentioned, prices that are shrinking closer to the cost of spinning HDDs. (Also, SSD capacities will soon be larger than HDD capacity points.)

This is all good news for EMC ... as long as it continues to commit to adding value in those areas via the Unity family.

## Simple, Modern, Flexible, and Affordable—the Four Pillars of EMC Unity

Unity's target audience basically wants unpretentious, economical, functional "transport" without having to build the "car" from scratch. It's why EMC has concentrated on putting real meaning and measurement behind the product descriptors of "simple, modern, flexible, and affordable," rather than just throwing them into a news release as marketing jargon.

IT pros get jaded after years of vendor-buzzword exposure. But, in this case, "simple, modern, flexible, and affordable" appear not to be empty words; EMC is applying appropriate terms that seem to hold water. The vendor is intently earnest in delivering on those four attributes to help midmarket and departmental IT admins who aren't data center gurus and may not even have deep storage expertise. *EMC wants those people to know that Unity was designed for them.*

Let's take a look at the details and credibility behind each of the product-descriptor pillars.

### Simple

Senior IT leaders tell ESG that their storage challenges these days include rising staff costs and increasingly complicated management issues. If their teams could deploy storage that is much simpler to use, such challenges might lessen.

What are some specific proof-points attesting to Unity's simplicity?

- The clean, intuitive native-browser-based HTML5 user interface with simplified workflow provisioning certainly differentiates Unity from many other midrange arrays. EMC reports that beta customer feedback about the new GUI has been universally positive.
- Proactive Assist, shipped with Unity, enables users to manage issues preemptively, troubleshoot problems (with access to how-to videos), leverage EMC Chat, reference a central repository of documentation/best practices, and more. EMC says that managing Unity (fault identification/fault resolution, etc.) is "eight times faster" when Proactive Assist is enabled.

- VMware-aware integration (VAI) helps make discovery and registration of a VMware environment simple and efficient. In terms of setup, EMC reports that deploying VM-aware storage is now possible in under five minutes.
- Unified storage in a 2U form factor means Unity does not require any additional hardware or software for file or block. It uses one Linux-based operating environment with all the hardware and software required to have a fully unified system. EMC also ships Unity with snap-in rail kits for easy rack and stack within minutes.
- Simplicity is infused into the go-to-market model. Namely, organizations deploying Unity don't have to figure out ahead of time which software options they'll need because EMC gives *all* Unity array-based software to them. It's included in the purchase price, no questions asked.

There also is an array-sizing tool, used often by EMC's sales partners, that is reported to be exceptionally simple to work with. And there is flash assessment, which looks at the performance, operational, financial, and, most importantly, business impact of making an investment in Unity All-Flash.

Basically, the product is simple to buy, simple to set up, simple to use, and simple to support. As Figure 1 showed, staff costs and data management are challenging midmarket organizations today. Storage that is easy to work with will obviously lessen those challenges.

## Modern

As noted, organizations can deploy Unity as an all-flash configuration complete with modern data management and data protection capabilities. The product is tightly integrated with EMC Data Domain and the EMC Data Protection Suite (DPS) to assist midmarket organizations that are trying to modernize their ability to protect secondary data.

Other important attributes give Unity characteristics of modernity as well:

- Its overall design supports 3D NAND TLC SSDs, maintains five-nines availability, and is fully unified in a 2U form (providing up to 80TB).
- Its Xeon processor utilizes Intel's Haswell CPU architecture. Depending on the Unity model, the core count will vary between six and 12 cores per storage processor. Each Unity system contains two processors for high availability and load balancing.
- To bolster efficiency, EMC built Unity's operating environment with special attention to leveraging the capability of multicore processors and their increasing scale.
- Unity comes with a monitoring/reporting portal for cloud-based management (called Cloud IQ—early access is available); VMware, Microsoft, and OpenStack integration; a scalable file system; IP multi-tenancy; unified snapshot and replication to support data protection; data-at-rest encryption and anti-virus for better security; RESTful APIs, QoS; and quota management.
- EMC has alluded that it will roll out additional in-line efficiency features (i.e., data-reduction technologies), possibly later this year. ESG believes the features will be made available through a nondisruptive software upgrade.

Again, storage hardware with a modern architecture and substantial built-in capabilities is very valuable to midmarket organizations that do not have the budget, headcount, or floor space to maintain multiple solutions that each accomplish one specialized storage function. Midmarket IT teams want one thing to do everything—and do it right.

As EMC’s direct and channel sales people ramp up their efforts to speak with EMC VNX users who are considering an update, they’ll likely highlight a number of specific enhancements reflecting the modernity of the technology (see Table 2).<sup>3</sup>

**Table 2. Comparing a EMC VNX5800 with the New EMC Unity 600F**

	VNX5800	Unity 600F	Improvement
Form Factor	7U	2U	71%
Cables	30	6	80%
Power Consumption	1,495W	703W	53%
Rack Install	One hour	Minutes	Huge improvement
Performance	101K	295K	3X

*Source: EMC, 2016*

## Flexible

Unity could be an appropriate option for a range of deployment models, i.e., midsized deployments; remote office/branch office deployments; and cost-sensitive, mixed-workload-environment deployments. Those varied implementations reflect the product’s flexibility to accommodate a wide range of uses and budgets.

The product also is available in a range of forms. UnityVSA, a low-acquisition-cost, software-defined storage (SDS) platform, would be a good choice for hardware consolidation efforts, multi-tenant storage instances, remote/branch offices, or staging/testing environments. UnityVSA is deployed on a VMware ESXi host and is available in two editions. Community Edition is a free downloadable 4TB solution recommended for non-production use, while Professional Edition is a licensed, subscription-based offering available in 10TB, 25TB, and 50TB capacities. The subscription includes access to online support resources, EMC Secure Remote Support, and on-call software/hardware support.

Alternatively, organizations may opt to deploy the purpose-built physical Unity platform, which offers considerable flexibility of its own. The physical system can be configured as an all-flash array composed exclusively of solid-state drives for excellent I/O performance and sub-millisecond response times, or as a hybrid box with a traditional mix of solid-state and spinning media to deliver great performance quite economically.

Unity also works with VCE Vblock. That attribute should appeal to organizations looking for flexibility and additional agility as they make the move to leverage converged/hyper-converged IT.

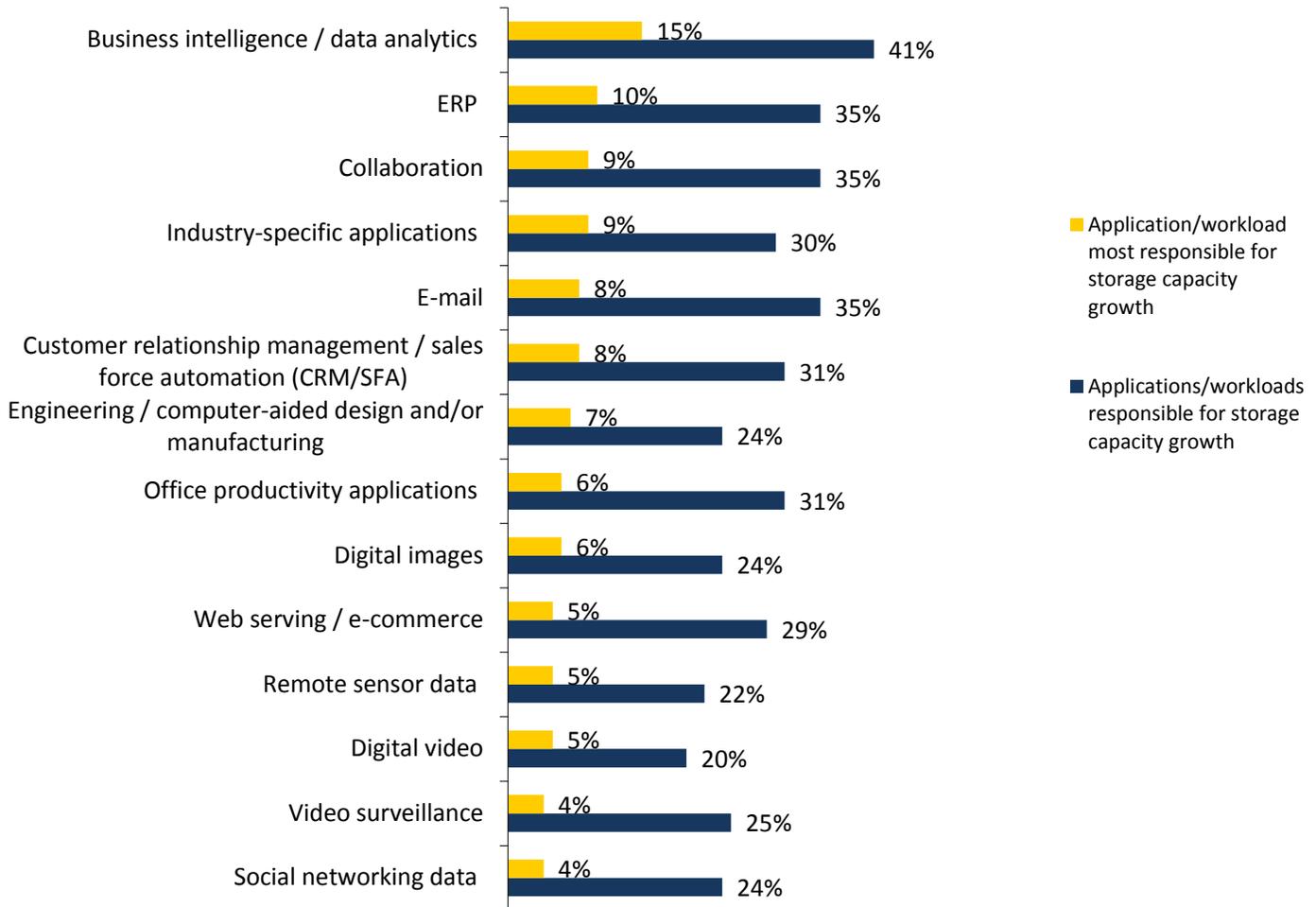
As yet another indication of the product’s flexibility, Unity appears to be a mixed-workload powerhouse. The storage supports traditional file-centric workloads hosted on VMware and MS Hyper-V virtual machines as well as transactional (file and block) workloads hosted on MS Exchange, MS SQL Server, SAP/BI, and Oracle.

The ability of this storage solution to support diverse workloads is very important. As Figure 3 shows, certain workloads are responsible for substantial capacity consumption and in some cases, dramatic capacity growth. A good midrange system should be able to provide flexible support for many of them.

<sup>3</sup> EMC’s test profile was as follows: thin LUN, small-block random workload (8KB, 80/20 R/W, all SSD). Please note that the before-and-after comparison numbers reflect the results of EMC’s own internal tests. ESG Lab has not yet independently tested or validated any Unity-specific improvement percentages or measurements.

**Figure 3. Applications/Workloads Responsible for Storage Growth Over the Next 24 Months**

**Which of the following applications/workloads do you believe will be responsible for your organization’s storage growth over the next 24 months? Which application/workload will be most responsible for storage growth? (Percent of respondents, N=373)**



Source: Enterprise Strategy Group, 2016

### Affordable

Both the all-flash and hybrid Unity versions come at affordable price points. The all-flash edition is estimated to start at less than \$18,000 (street price) with all-inclusive software, and the hybrid edition is estimated to start at less than \$10,000 (a street price that equates to less than a dollar per gigabyte), again with all-inclusive software. Some organizations will be pleased to learn that the UnityVSA virtual version can be evaluated as a completely free “try-out” download with an option to upgrade later.

Notably, EMC decided to follow an appliance-based go-to-market licensing model à la some other all-flash array vendors. When an IT organization buys a physical Unity box and its included software, a limited warranty comes with that purchase. The buyer can decide whether or not to pay a bit more to upgrade to “enhanced” or “premium.” This arrangement applies to the all-flash and hybrid versions alike. For organizations purchasing Unity All-Flash systems, affordability looks even better. Those customers with “enhanced” or “premium” support are eligible for the Unity Xpect More program—it locks in maintenance pricing for the life of the system and provides guaranteed warranty coverage and flash endurance protection.

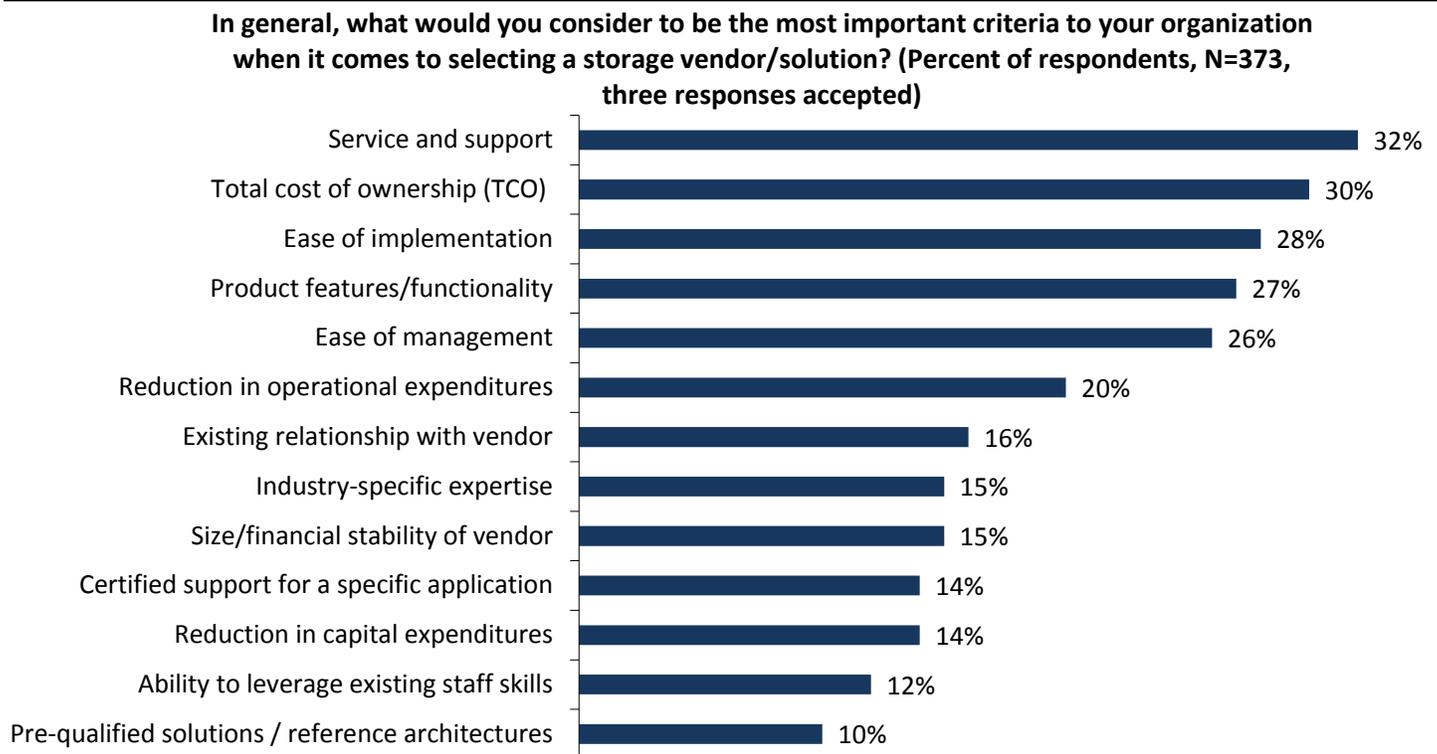
Generally, pricing for Unity is similar to EMC's VNX midrange arrays, but importantly, Unity purchasers get all sorts of new functionality and three times the performance for fundamentally the same upfront cost. By the end of this year, they'll be able to leverage upgrades such as the EMC-hosted Cloud IQ monitoring and reporting portal, as well as in-line compression efficiencies and high-density SSDs in the all-flash version.

To some degree, the product's initial/ongoing affordability ties into its other three attributes. It's certainly going to cost less money for a resource-strapped midmarket organization to manage one unified, simple, modern, flexible system than to manage five different single-purpose storage solutions. If ESG's research is any indication, an appealing price tag is absolutely what midmarket organizations are looking for right now. As Figure 1 showed, array hardware costs (both CapEx and OpEx) are among the most perennial, prevalent, and oft-mentioned challenges associated with modern data storage.

## Market Relevance

A key attribute of Unity is that it not only looks to live up to all four descriptive pillars EMC has applied to it, but it also appears aligned with what buyers want at the moment in terms of technology and vendor relationships (see Figure 4).

**Figure 4. Most Important Criteria When Selecting a Storage Vendor/Solution**



Source: Enterprise Strategy Group, 2016

Simplicity, flexibility, modernity, affordability—all of those attributes are represented in the criteria list. For example, nearly one-third of the organizations surveyed identified TCO as an important selection criterion in spite of hardware costs being their most commonly cited storage challenge. The takeaway is that the organizations seem to be willing to make an upfront investment as long as that investment brings them cost-of-ownership reductions in the long run.

Simplicity in particular resonates with IT decision makers, whether it is tied to a streamlined initial implementation (28%), easy ongoing management (26%), or less need for extensive staff training (12%). The appeal of simplicity is definitely worth noting at a time when converged and hyper-converged IT infrastructures are starting to see decent traction in midsized IT environments. C/HC infrastructures carry similar hallmarks of value—fewer moving parts to look after, fast and flexible provisioning, simpler management, cloud flexibility, and so on.

## The Bigger Truth

One could probably find a competing storage vendor with a midrange product that might marginally surpass EMC Unity in each one of its four defining categories. But it would be really hard to find another array that can beat Unity in (1) simplicity, (2) modernity, (3) flexibility, *and* (4) affordability, all at the same time. That's good news for EMC. A lot of midmarket storage buyers will likely end up deciding that Unity is better overall.

EMC's midrange market-segment success is highly important to the vendor. Midrange solutions represent a big chunk of what EMC does in regard to storage in general, representing billions of dollars in revenue. And consider that Unity is the latest manifestation of a long midrange heritage extending back to 1999, when EMC bought Data General mainly to gain access to its popular and competitive CLARiiON systems.

Even EMC admits, though, that it hasn't always executed perfectly with every "lower-priced, higher-volume" product play. That is exactly what Unity is, or what it could be. Just wait until Dell's sales channel gets its hands on this family of midrange offerings, assuming its acquisition of EMC goes through. If there's a sales channel that understands midmarket sales motion, it's Dell's. The Unity family is important to EMC, but ESG thinks it could be even more important to Dell/EMC.

So, Unity could be a big deal for its sellers. But more importantly, prospective buyers should also regard it as a big deal. For Unity's target market, those four descriptive pillars should really resonate. Lots of IT vendors toss around similar descriptors, but not many make such an effort *to explain why they're true*.

It's almost as if EMC took four marketing terms and built a product fulfilling those promises, rather than tacking four marketing words onto something they'd already built. The result of the approach is a storage system that has all the features expected by major enterprises, but that is packaged and priced to meet midsized IT needs.

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.



**Enterprise Strategy Group** is an IT analyst, research, validation, and strategy firm that provides actionable insight and intelligence to the global IT community.

© 2016 by The Enterprise Strategy Group, Inc. All Rights Reserved.

