



WHITE PAPER

Enabling Enterprise Class Features for the Mid-Range Focus on BlueArc Mercury

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The Data Growth Challenge

Introduction

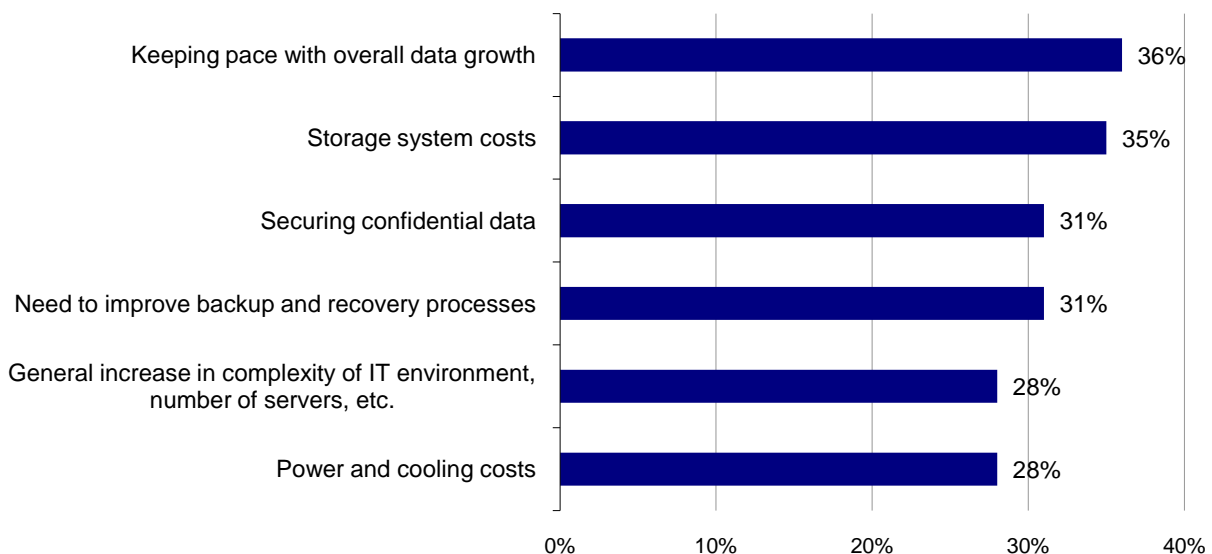
With data growth continuing, an interesting conundrum is arising around some of the platforms designed to support different segments of the market. In terms of pure scale, what constituted a leading 'enterprise' account just yesterday would today be viewed as more of a 'mid-range' user. And, apparently, somewhere there is an unwritten storage rule that states that once you are 'mid-range,' you can get by without some or many high-end 'enterprise' class features and performance. It would seem that BlueArc, however, didn't get the memo. While until now, BlueArc has been very focused on enterprise class installations (with its Titan products managing the neat trick of combining the attributes of a Ferrari and dump-truck in the same vehicle), the company's move into the mid-range with its Mercury products is designed to adjust size while retaining value, performance, and functionality. The market backdrop shows that this could be an excellent combination...

Data Growth Continues to be a Top Storage Challenge

The primary storage challenge facing IT managers today is keeping up with overall data growth (see Figure 1). This theme is repeated frequently and also proven in many storage surveys conducted by ESG. Even in the midst of an economic slump, the volume of data being stored and managed continues to grow and, in some cases, is accelerated as companies use advanced analytics to uncover new market opportunities. Data centers in small and large enterprises alike are running out of resources and undergoing belt tightening exercises amidst the current economic downturn. This is leading users to examine storage requirements across the board for opportunities to consolidate and to reduce floor space, power, cooling, and management costs. BlueArc, with its Titan array, offered a surprisingly good, but unashamedly high-end, platform suitable for consolidating storage to support mission-critical applications. With the introduction of its new Mercury line, BlueArc is leveraging its experience building such a high-end enterprise storage solution to bring the same rich feature set and a strong consolidation platform to mid-range operations and business-critical applications.

FIGURE 1. TOP ENTERPRISE STORAGE CHALLENGES

In general, what are your organization's greatest challenges with respect to its storage environment? (Percent of respondents, N=504, multiple responses accepted)



Source: ESG Research Brief, Enterprise Storage Priorities Emphasize Information and Infrastructure Efficiency, January 2009

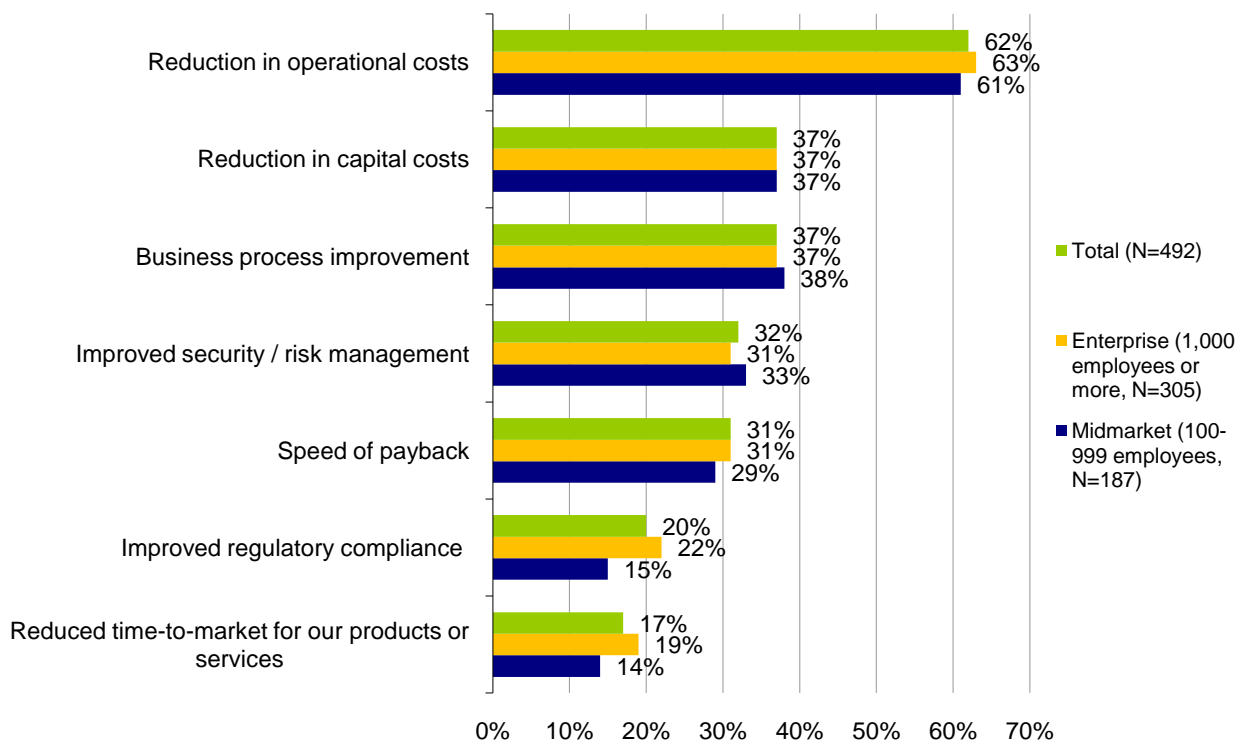
Consider also that 30% of the more than 500 midsize enterprise storage professionals surveyed by ESG in mid 2008 say that one of the greatest challenges they face revolves around running out of space in the data center. Another 31% of respondents say keeping pace with overall data growth is one of their greatest overall IT challenges.¹ Larger enterprises feel the pain as well; a late 2008 survey indicated that 26% of enterprise respondents were actually running out of floor space.² Consolidation is becoming a near term necessity for these users.

Driving Operational Efficiency is Key

Consolidation can significantly reduce TCO through better utilization, which means deferred purchase of new capacity. With utilization rates often in the 30-50% range, users are also paying to house, power, cool, and manage all the capacity they do not use, which is essentially a bunch of ‘spinning rust’ instead of the valuable magnetic media portrayed in the brochure and on the purchase order! Increased utilization can make a big impact on operational cost reduction as it reduces power, cooling, floor space, and management requirements; we’ll take a deeper look at consolidation benefits in the next section, but the key message here is the reduction in operational costs. Server and storage sprawl have been ongoing headaches for IT for as long as IT has existed. Now, facing the real possibility of actually running out of physical resources (whether it is floor space or just the power to plug in yet another system) IT is reaching a breaking point. Reducing capital expenditures has been at the top of ESG’s data center spending intentions surveys for years. Yet, in 2009, for the first time, reducing operational costs has come to the forefront (see Figure 2). At the breaking point, IT management has come to the realization that something needs to be done—it is not about getting a better price for new equipment, it is about squeezing every cent out of their investments.

FIGURE 2. PRIMARY CRITERIA TO JUSTIFY IT SPEND

Which of the following considerations do you believe will be most important in justifying IT investments to your organization’s business management team over the next 12-24 months? (Percent of respondents, multiple responses accepted)



Source: ESG Research Report, 2009 Data Center Spending Intentions Survey, March 2009

¹ Source: ESG Research Report, *Medium-Size Business Server & Storage Priorities*, June 2008.

² Source: ESG Research Report, *ESG 2008 Enterprise Storage Systems Survey*, November 2008.

In the next section, we'll take a deeper dive into the specific features NAS buyers are looking for and how these features can help reduce operational costs.

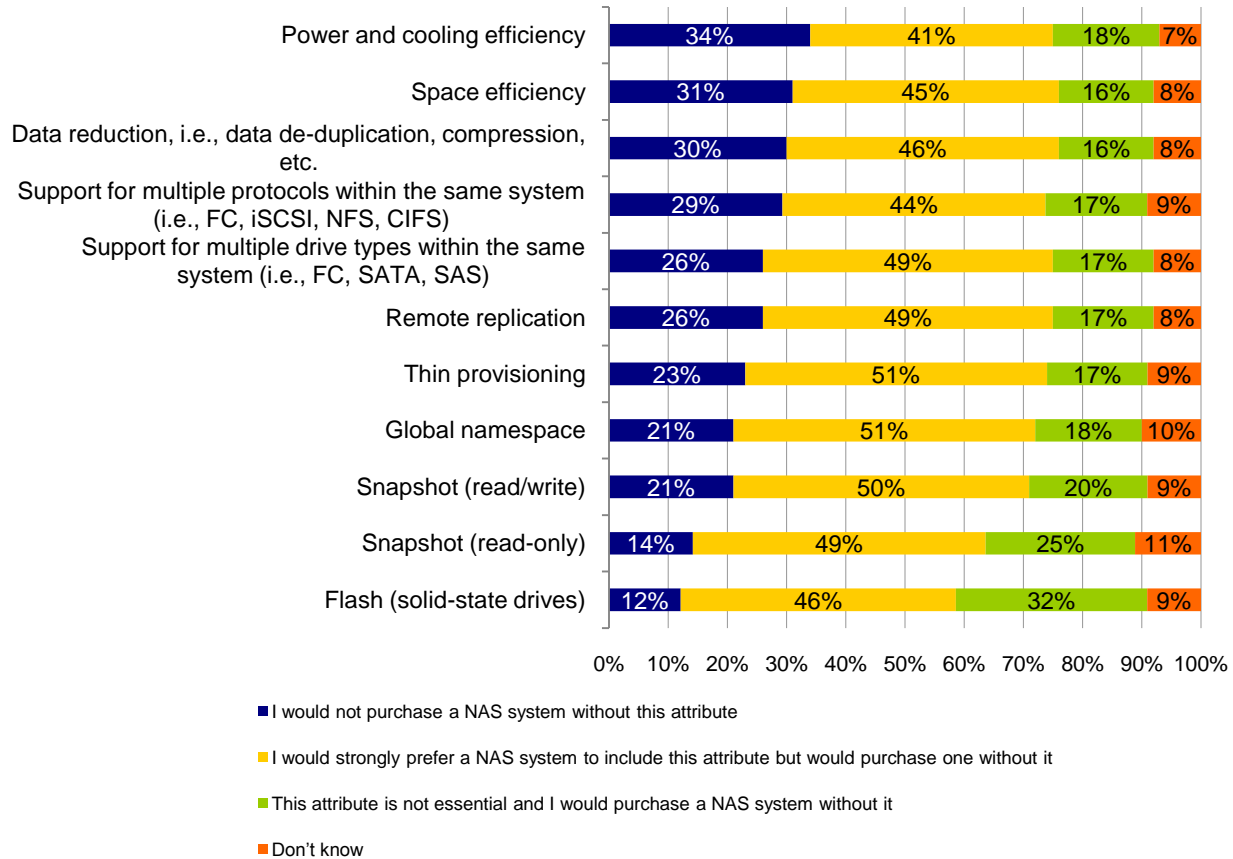
Consolidation Platform Challenges and Considerations

Key Feature Requirements

Users must consider a number of features when evaluating consolidation solutions. In a survey of 504 North American and Western European storage professionals conducted by ESG in late 2008, the findings show a clear emphasis on a desire for, and need to drive, efficiency (see Figure 3). For example, more than one-third of organizations (34%) say they would not purchase a NAS system without specific power and cooling efficiency capabilities, while space efficiency (31%) and data reduction (30%) were other top must-have attributes identified by respondents. Much of that emphasis is likely due to the exceptionally poor economic climate hanging over the heads of IT respondents when the survey was conducted, but in view of the consistency with which users have placed keeping up with overall data growth as a top storage challenge, the economy is not likely the only major influence.

FIGURE 3. MOST IMPORTANT FEATURES WHEN CONSIDERING A NAS SOLUTION

Please rate the importance of the following features and attributes when considering a NAS solution in general. (Percent of respondents, N=338)



Source: ESG 2008 Enterprise Storage Systems Survey, November 2008

Enabling Enterprise-Class Features for the Midrange: Focus on BlueArc Mercury

It is not surprising that NAS buyers are most interested in both environmental efficiency (i.e., power, cooling, and space) *and* data management efficiency (i.e., both pure data reduction and also improved data management). These features can deliver significant efficiency improvements to IT organizations. For example:

- Power and cooling efficiencies can help organizations reduce operational expenses related to electricity consumption, while space efficiency enables organizations to maximize storage footprints (i.e., storage density) and minimize data center floor space costs.
- Data reduction capabilities can reduce both operational and capital expenses by eliminating redundant data, forestalling the purchases of additional storage arrays and/or capacity, and reducing overall power requirements of existing systems.
- Data management functionalities (such as intelligent tiering for storage or a file systems virtualization framework) are also significant contributors to getting effective and efficient consolidation (as well as being notable areas of differentiation for BlueArc). Placing the right data on the right device at the right time is what data management is all about, and yet at times its importance can be eclipsed by the more immediate ‘terms-du-jour’ such as ‘green’ or ‘deduplication.’ The truth is, of course, that you will do best by employing systems that address all these aspects.

ESG survey respondents also expressed strong interest in a NAS system’s ability to support multiple drive types and protocols—capabilities that can also impact system and data center efficiency. For example, support for multiple drive types and protocols offers a greater choice of storage locations for different types/classes of data. These capabilities also promote improved space efficiency by allowing the consolidation of existing heterogeneous installations into a unified storage architecture that reduces/eliminates stove-piped systems. Multiprotocol support is a must for any consolidation solution—for both drive types and connection protocols.

It is important to remember that in spite of the current economic conditions, information storage requirements do not diminish. In fact, in some cases, data storage may actually be of greater strategic significance to the organization as companies look to their information management capabilities to deliver every ounce of competitive advantage possible.

Additional Consolidation Platform Requirements

Back to our theme of helping IT find a way to keep pace with overall data growth, there is a clear and statistically significant link between this reality and the most sought-after NAS system features. For example, almost half of the organizations that cited data growth as a top storage challenge would not purchase a NAS system without either space efficiency (45%) or power and cooling efficiency (43%) attributes, compared to just 22% and 28% of organizations (respectively) that do not view data growth to be a significant challenge (see Table 1). Likewise, data reduction functionality would be a requisite feature for 40% of organizations trying to stay ahead of escalating capacity requirements.

TABLE 1. MUST-HAVE NAS FEATURES FOR ORGANIZATIONS WITH DATA GROWTH CHALLENGES

		“Keeping pace with overall data growth” viewed as one of organization’s greatest challenges with respect to its storage environment	
		Yes	No
I would not purchase a NAS system without this attribute:	Space efficiency	45%	22%
	Power and cooling efficiency	43%	28%
	Data reduction (data deduplication, compression, etc.)	40%	24%

Source: Enterprise Strategy Group, 2009

It would be a mistake to focus requirements in terms of these features alone. Consolidation solutions must scale to large enough capacities to support the consolidation effort without sacrificing performance. This is driving enterprises to take a good hard look at scale-out solutions to meet the need. Specifically, scale-out systems provide a compelling consolidation solution because they inherently support higher utilization rates and more efficient management through use of a global namespace, but the cost-related benefits that scale-out NAS technology offers include faster time to provision, improved data availability, and improved performance for both IOs and throughput.

While scale-out NAS systems are well adopted in vertical markets requiring massive scale, such as media and entertainment and HPC, commercial enterprises are fast becoming aware of the benefits of scale-out and how these architectures can be deployed to reduce operational costs in the enterprise. In ESG's *2008 Enterprise Storage Survey*, 75% of the 504 respondents were either planning to deploy scale-out NAS solutions within twelve months (38%) or were interested in the technology (37%). The core drivers in looking at scale-out solutions were almost entirely related to areas that reduced operational costs or provide business agility.³

Focus on BlueArc and Mercury

The Secret Sauce: The File System

The Titan array has been shipping as a high-end consolidation solution for a number of years. BlueArc has developed a scale-out file system that meets capacity and performance needs of the most demanding customers. The company is now extending those established technological approaches that were developed for high-end application support and “right sizing” them to support mid-range applications. It has developed a new, mid-range hardware platform that leverages the core hardware accelerated file system used at the high end. It is this scale-out file system that allows BlueArc to put forth a mid-range consolidation platform for unstructured data that can scale to multi-petabyte capacity without sacrificing performance.

Bringing a scale-out file system with a global namespace to the mid-range is an important point—until recently, the mid-range landscape has been dominated by scale-up systems. In fact, scale-up systems are what got IT into the underutilized, stove-piped storage situation it is in today! Scale-up systems typically top out in performance before they can top out in capacity. And capacity is locked behind one or two processors and cannot be shared across systems. This is driving IT to short-stroke drives to drop in new systems every time a performance ceiling is reached and is a huge contributor to server sprawl—both file servers and Windows-based servers supporting file sharing. This exponentially increases management costs as scale-up systems don't have global namespaces—every new system dropped in has to be managed individually and very often, users maintain complex, manual spreadsheets to map file systems. BlueArc's new Mercury series mitigates these challenges by introducing a clustered, scale-out solution to the mid-range. Mercury scales in fixed increments that make it relatively easy to install and deploy, and scales up to an eight node cluster and 2 PB—well above the capacity of many of its competitors' offerings targeted at the market, making it a forceful consolidation solution.

While the proof points for consolidation are largely predicated on the hardware platform, it is actually the file system that has the greatest differentiation and allows BlueArc to drive consolidation. The hardware accelerated file system is really stripped down to excel at one thing: storage operations. It speeds performance by separating data paths from management paths—and leveraging Mercury's clustered architecture for parallel data delivery. BlueArc brings a rich feature set to the table in its market proven file system architecture, including intelligent tiered storage, multiprotocol support, thin provisioning, snapshots, and a relatively easy to use GUI. With Mercury, BlueArc can put a checkmark in nearly every box next to the required features listed in Figure 3—in fact, more than most other competitive mid-range platforms can today. There are only two features BlueArc does not natively support: deduplication (though BlueArc does support third party deduplication appliances) and the very last item on the list, flash (though BlueArc does support Texas Memory Systems devices as a separate tier under the same management). It would not surprise us to see BlueArc roll out SSD support in the not-too-distant

³ For more information, see ESG Research Brief, *Scale-Out NAS Adoption & Market Drivers*, February 2009.

future. Added up, Mercury has the potential for users to significantly reduce operational costs through consolidation and ease-of-use.

On the distribution side, BlueArc has invested in new channel partners for Mercury, having realized that its limited direct sales operation may have suited Titan, but is not the route to volume that is wanted for Mercury. This is another important point: BlueArc is still a relatively small company with limited resources. It realizes that the channel is the proper path to midsize customers, so rather than expanding (or over-extending) its direct sales force to target new customers, it has invested (and continues to invest) in channel development to target and address midsize customers.

For the direct sales force, it expands the addressable market and allows it to sell Mercury as a complementary solution to Titan for applications that don't need the very upper limits of scalability, performance, and availability that Titan provides. Just about every IT shop has a multi-tier architecture in place and tiering within arrays, as well as across platforms depending on application requirements. BlueArc can now sell Titan for the most demanding mission-critical applications and Mercury for business critical applications. Mercury's small entry level configuration also makes it suitable for remote office deployment and there are no doubt that a number of committed BlueArc users will be happy to be able to extend their usage in this manner

What it All Means

One of the most popular and enduring marketing approaches of recent years has been to look at the '4 Ps:' product, place, price, and promotion. Judging from what BlueArc is doing with Mercury, clearly someone took the class and learned well! Often, vendors seem to forget one P or another, but this does not look to be the case with this new offering and launch:

Product – The Mercury architecture translates into user benefits in terms of balanced scale, performance, and manageability for mid-range consolidation efforts that do not require users to sacrifice functionality or to make other awkward trade-offs. All the crucial data management capabilities that BlueArc has delivered for years (such as automated tiering, dynamic caching, and its virtualized file systems framework) are retained in Mercury.

Place – Consolidation is an extremely relevant endeavor in today's market; driven jointly by generic growth and the inherent need for a better IT model and also by tight economic conditions that are mandating many organizations to find a better business model. From a product perspective, there is a circular truth to Mercury: speed (something that BlueArc has always excelled at) enables consolidation—and consolidation demands speed.

Price – With Mercury being a purpose built platform as opposed to a 'cut-down Titan,' BlueArc has been able to learn from its prior efforts (for example, further reducing the number of FPGAs and other components from the prior architecture) and thus ensure a more appropriate pricing model for the mid-range market. On such a suitable platform, the TCO advantages of consolidation can be enjoyed by mid-range IT users.

Promotion – The addition of channel partners (around 150 at the time of writing) is undoubtedly the best approach for BlueArc to take to get traction in the market. And of course, for the kudos alone, having HDS reselling Mercury can do no harm.

A common, yet erroneous, belief that often underpins mediocre products is that somehow being 'mid-range' dramatically changes or reduces a user's storage needs. In the vast majority of cases, this is simply not true—certainly, such users are by definition likely to need less overall storage capacity, but *scale is not intrinsically linked to sophistication*. BlueArc understands this and delivers as rich a set of functionality and management tools to the fixed architecture Mercury as there is in the modular Titan. Of course, that raises the question of possible cannibalization between the two product lines. Certainly, there will be some, although product overlap is

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always preferable to a gap in any product line up! However, the reality is that the only users likely to jump from Titan to Mercury are those for whom Titan was realistically overkill (but the only choice) in the first place; frankly, the price of Titan will have kept that number to a minimum and, in any case, from a business perspective, BlueArc will do just as nicely from selling Mercury in volume as it would have done selling Titan into its relatively niche user base. In any case, since BlueArc has not yet achieved any significant general market share, all growth is good growth! To be fair, what the company *has* achieved in its short existence is both an impressive pedigree and enviable credibility for producing a very fine product.

Thus, if history is any guide to the future, then Mercury, like its sibling, will turn out to be surprisingly—even jaw-droppingly—good from a pure technological viewpoint. Yet, of course, great products and great success do not always go hand-in-hand. However, hitting the 4 Ps as well as it has means that BlueArc is maximizing its potential for market progress. The company always had the ability with Titan to ‘do it all’ for a few users. Now with Mercury, it is expanding its realistic ability to do that for a far greater number of users.



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