

White Paper

IBM Storwize V5000: Ease of Use for All Environments

Simplifying the Complexities of Modern IT with Faster, Smarter,
More Economical Storage

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Introduction

Information technology is the driving force behind business success today. The term digital economy was coined back in the 1990s. Now, decades later, the bulk of modern business interaction and engagement is dependent upon data, and for businesses to thrive, good IT is essential. This is a widespread belief. Consider that 86% of the IT decision makers surveyed by ESG agreed with the statement, “If we do not embrace digital transformation, we will be a less competitive and/or effective organization.”¹

Under the general umbrella of competitiveness and effectiveness, companies often have multiple objectives in mind when putting a transformation initiative into motion. For example, a commonly mentioned goal among surveyed IT decision makers is to boost operational efficiency (55%). But as Figure 1 shows, they hope for a range of positive outcomes.²

Figure 1. Most Important Objectives for Digital Transformation

What are your organization’s most important objectives for its digital transformation initiatives?
(Percent of respondents, N=572, three responses accepted)



Source: Enterprise Strategy Group

Being efficient and innovative is important for any-sized enterprise. In a digital economy, data is a great equalizer. Companies need IT innovations that are right-sized for them and enable them to simplify operations and maximize data’s business value.

These requirements are crucial as businesses extend IT functions to the cloud, often to multiple public clouds. ESG found that a combined 76% of surveyed infrastructure-as-a-service and/or platform-as-a-service users now leverage more than one public cloud infrastructure provider.

IT organizations want simple, flexible storage infrastructures. They want tools that help them to optimize and simplify operations today, and make it easier to integrate new on-premises technologies and cloud services in the future. [IBM](#) appreciates these needs and is addressing them with the new IBM Storwize V5000 family.

IT Complexity Holds Companies Back

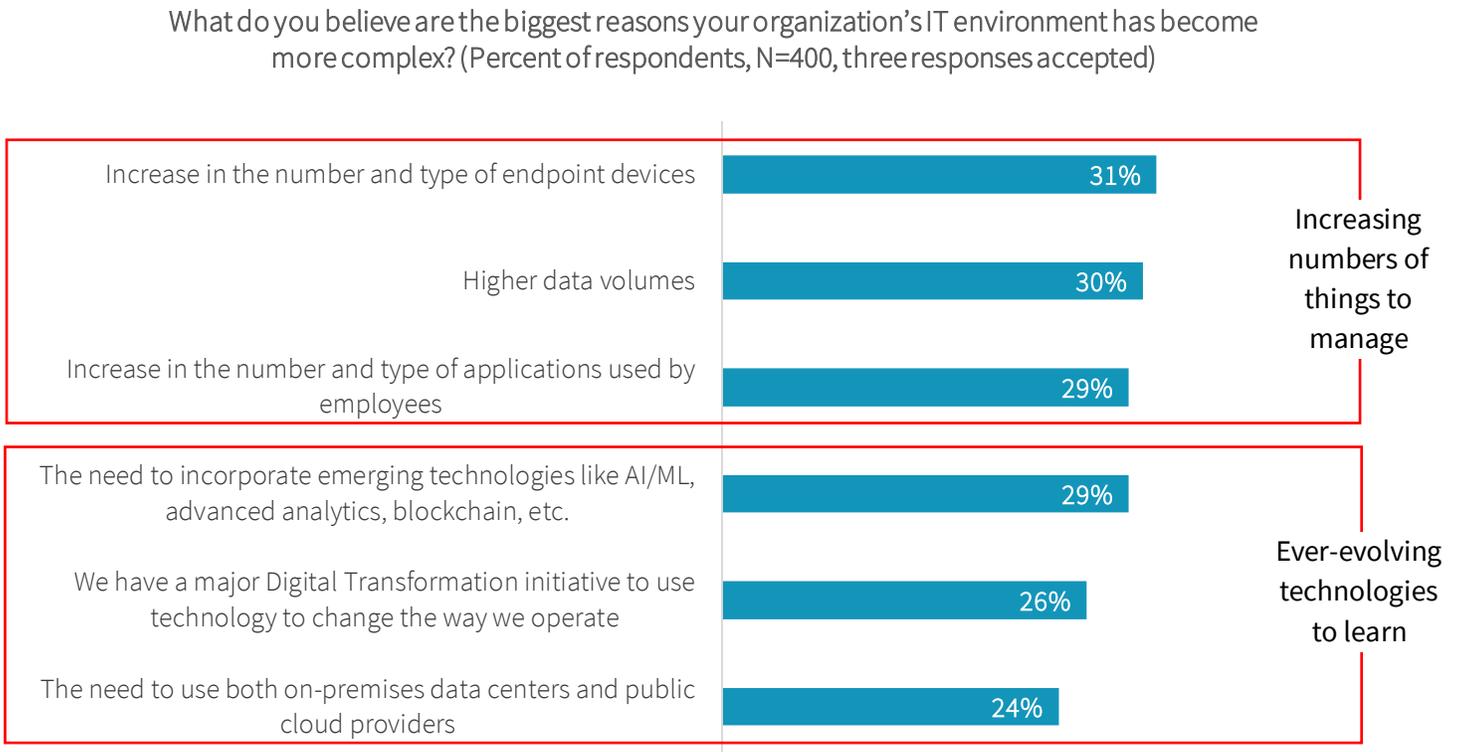
Combating the pervasive problem of IT complexity is essential to delivering effective IT. Thirty-eight percent of ESG survey respondents reported that technology issues represent one of the biggest concerns or challenges hindering their digital transformation progress. In fact, it was their most commonly identified digital transformation concern. Additionally, 66% of

¹ Source: ESG Master Survey Results, [2018 IT Spending Intentions Survey](#), February 2018.

² Source: ESG Master Survey Results, [2019 Technology Spending Intentions Survey](#), March 2019. All ESG research references and charts in this white paper have been taken from this set of master survey results, unless otherwise noted.

surveyed IT decision makers told ESG they believe IT is more complex than it was just two years ago. And Figure 2 shows that multiple factors are responsible for these recent increases in IT complexity.

Figure 2. Top Six Factors Driving IT Complexity



Source: Enterprise Strategy Group

Specifically, Figure 2 reveals two trends:

- The first trend relates to the ever-increasing amount of “stuff” IT must manage. Over the years, application, hardware, and business platform numbers have always increased gradually. Now, the pace is accelerating. It may be because companies today have a clearer understanding of the connection between leveraging data wisely and achieving a positive business outcome. The evidence is obvious at this point, and the relationship compels them to generate more data and hire more people to analyze it and extract its value.
- The second trend relates to the onslaught of technologies IT must learn, integrate, deploy, and manage. Even technologies that are expected to simplify IT professionals’ lives, such as cloud services, can add another layer of complexity to daily operations. Today’s fast pace of innovation is not a short-term phenomenon, either.

As IT Complexity Grows, the Rules Change

ESG recently surveyed senior line-of-business (LOB) executives about their gripes about IT. A quarter (25%) of the executives considered their IT organization to be a business inhibitor. For comparison, only 6% perceived IT as a competitive differentiator. Several causes appear to be responsible for those discouraging sentiments, but here are the top two reasons these LOB executives said they view IT as holding back the business:

- **The process to select, deploy, and/or provision technology resources is overly complex** (identified by 33% of respondents). This is a situation that can make it difficult for business units to access data they need for ongoing operations and data analysis.
- **The IT organization's processes to deploy IT services take too long** (identified by 32% of respondents). That is a situation that hampers business competitiveness.

The rules are changing. IT organizations are now being held to a higher standard and are under more pressure. They still need to keep services online, available, and resilient, as always. However now, even as IT complexity grows, they are also being judged by these LOB leaders who are well aware of the connection between business success and IT effectiveness.

Storage Innovations Unlock the Value of Data

Under these circumstances, IT should be leveraging innovations that deliver fast, superior access to data. These organizations would especially benefit from a high-performing, agile storage infrastructure. In particular, two innovations—NVMe and storage virtualization—will help these organizations thrive in our era of new and greater IT demands.

The Promise of NVMe

Non-volatile memory express (NVMe) is an open logical device interface for accessing non-volatile storage media attached via a PCI Express (PCIe) bus or switch. Designed for flash storage rather than spinning hard drives, the NVMe protocol is both streamlined and parallel in its design to maximize low-latency performance. More efficient than traditional protocols such as SATA or SAS, NVMe better delivers the latency improvements of flash.

For parallelism, NVMe offers a queue depth of 64,000 commands while supporting 64,000 separate queues. In contrast, SATA offers a queue depth of only 32 with only a single command queue. That stark difference between NVMe and its traditional counterparts is fueling demand for NVMe. Storage decision makers are bullish about NVMe—79% of the IT managers surveyed by ESG who were familiar with NVMe technology said they expect it will eventually replace traditional SAS- or SATA-connected solid-state flash storage.³

The Necessity of Storage Virtualization

Most IT organizations understand the difficulty of staying current with new technologies. They also know the pain of traditional data migrations, which have been essential in the effort to keep up. Fortunately, storage virtualization technologies are very good at overcoming complexity across generations of storage hardware.

Software-defined storage always has a **storage virtualization** software layer to provide abstraction. ESG has researched the benefits of software-defined storage, finding that 28% of SDS users believe it offers them agility to adjust and update their storage hardware quickly to keep pace with shifting business requirements.⁴

That finding reflects the benefits storage abstraction offers—in this case, easy integration of new hardware into an existing environment. Some storage systems, including the IBM Storwize family, offer the benefits of SDS plus the added benefit of having that technology integrated inside the array.

³ Source: ESG Master Survey Results, *2017 General Storage Trends*, November 2017.

⁴ *ibid.*

IBM Storwize V5000

Technical Benefits

Everyone knows IBM's reputation as an IT leader. Its Storwize family has long been popular with organizations desiring storage solutions that are simple and economical with fully modern capabilities. IBM has now unveiled a new family of Storwize arrays, the latest versions of its V5000 series. The new systems boast several key architectural characteristics:

- The Storwize V5100 and V5100F have an all-NVMe-based architecture.
- The Storwize V5010E offers 70% better performance than the earlier Storwize V5010, while the Storwize V5030E offers a 20% performance improvement over its predecessor.
- All the new systems offer impressive capacity flexibility with massive scalability. The V5010E scales from 9TB to 12PB, and the V5030E scales from 24TB to 32PB. The Storwize V5100F and V5100 each scale from 70TB to 32PB.
- Transparent, AI-powered storage optimization and flexibility are hallmarks of the new systems. This will be especially helpful when migrating data from existing storage (IBM or not) to the new Storwize V5000.
- AI-powered Easy Tier automatically moves data between tiers to optimize cost and performance. IT administrators can keep an eye on the tiering movements using IBM Spectrum Storage Insights, which provides a unified view of the storage environment.
- The systems are architected to make it easy for IT to migrate data to and from the cloud.

Business Benefits

The technical specs are solid, but their value lies mainly in supporting the *business* benefits—most pertinently, the benefits that come with easy management in a highly demanding digital era. The new systems provide:

- **AI-optimized storage consolidation for modern IT.** They combine the benefits of NVMe performance with the ability to consolidate high-performance applications on a single infrastructure. And the massive capacity scalability, with up to 32PB in a single system, will be helpful to any organization dealing with growing data. IBM's solution is cost effective and comes with a cloud-like pricing model.

The AI-based optimization ensures that the array is utilized to the maximum extent. That optimization, along with the data-reduction capabilities, ensures organizations will see lower expenses related to power consumption and footprint.

- **Transparent infrastructure flexibility.** Technology is always changing. Given the rate of that change as well as the scale of many IT infrastructures these days, migrations and radical changes to storage management can get costly. The systems' AI-powered data tiering with transparent migration makes it easy for an organization to take advantage of the latest storage technology. These Storwize systems can migrate to and from the cloud also, so organizations can accelerate their rate of public cloud infrastructure adoption.
- **Advanced data security and risk mitigation.** Due to data's increased value to the business, the importance of ensuring data security has become greater. The Storwize systems are designed for cyber-resiliency, featuring encryption and a cloud "air gap" snapshots capability, which allows for snapshots to be virtually isolated from the active copy as an extra layer of protection from malicious activities, such as ransomware. Storwize provides six-9s availability with

proactive support and predictive analytics delivered from the cloud. Also, IBM has made thousands of community-sourced best practices available to Storwize users, which helps ensure that each Storwize deployment is optimally tuned for the specific application environment.

Notably, in October 2018, IBM announced that IBM Storwize is now a channel-only set of products available exclusively through IBM Business Partners.

The Bigger Truth

This is a fast, highly flexible, easy-to-use virtualized storage system that enables businesses to meet the challenges of rapid data growth in the context of limited IT budgets. After all, IT organizations of nearly every size are facing the challenges and complexities that have stemmed from keeping pace in the modern, digital economy.

Businesses need to consolidate workloads, accommodate data growth, achieve performance SLAs, ensure uptime even during data migrations, and solve a range of other workload issues. To succeed, they need storage with advanced functionality and cloud capabilities.

IBM recognizes this fact. With its latest iteration of the Storwize family of storage solutions, IBM is providing all the business benefits of AI-optimized storage consolidation for modern IT, transparent infrastructure flexibility, advanced data security, and risk mitigation—in a manner that is simple and cost effective enough to suit the requirements of almost any-sized IT organization.

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