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Modern Data Storage for a New Era of IT

Accelerating IT Modernization with IBM

By Scott Sinclair, ESG Senior Analyst
and Monya Keane, ESG Senior Research Analyst

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Overview

As the global economy recovers from the events of 2020, the year ahead may represent the beginning of an era of unprecedented opportunity. How successful businesses will be in capturing that new opportunity is going to depend on how well they leverage their data and information technology to optimize operations and engage with customers.

In a recent ESG study, nearly every IT organization surveyed (98%) said they are in some phase of digital transformation. These businesses are transforming themselves digitally because they want to become more efficient (cited by 56% of respondents), deliver a better customer experience (cited by 40%), and/or deploy new data-centric products and services (cited by 36%).[1]

The rise of digital initiatives has already transformed businesses, and in the post-COVID-19 era, the impact may be even greater. In a recent survey of IT executives, ESG found that 60% of respondents believe the pandemic has made their organizations more dependent than ever upon technology.[2]

To succeed, however, organizations must accelerate their application and infrastructure modernization efforts and simultaneously address the mounting complexity that often emerges from such activities. Perhaps that is why nearly one in five (17%) IT executives surveyed by ESG expect that a faster transition to modern, cloud-native, container-based architectures will be the single most significant lasting impact of COVID-19 on their IT strategy. COVID has forced companies to make an aggressive push to containers and the cloud to reduce complexity.

In the context of all this activity, IBM has been working to ensure that its offerings will be capable of addressing the IT world's new set of needs.

Positioning IT for Success in the New Era of Business

Digital business initiatives will be vital to maximizing organizations' ability to survive and thrive as the global economy recovers. Within many businesses, existing roadmaps are now being validated, rethought, and reinforced. As mentioned, the key is to deploy a modern data infrastructure that allows digital initiatives to thrive *while reducing IT complexity*. Traditional infrastructure components were simply not designed for modern application environments leveraging containers—they weren't meant to meet modern digital demands.

That's why data center modernization priorities have been changing in a few areas (see Figure 1). Expectations for container usage rates, for example, increased from 19% to 33% over the past year. Interest in software-defined data center implementations increased from 21% to 32%. Stronger interest in AIOps (28%) and data center infrastructure automation tools (25%) also are evident now.
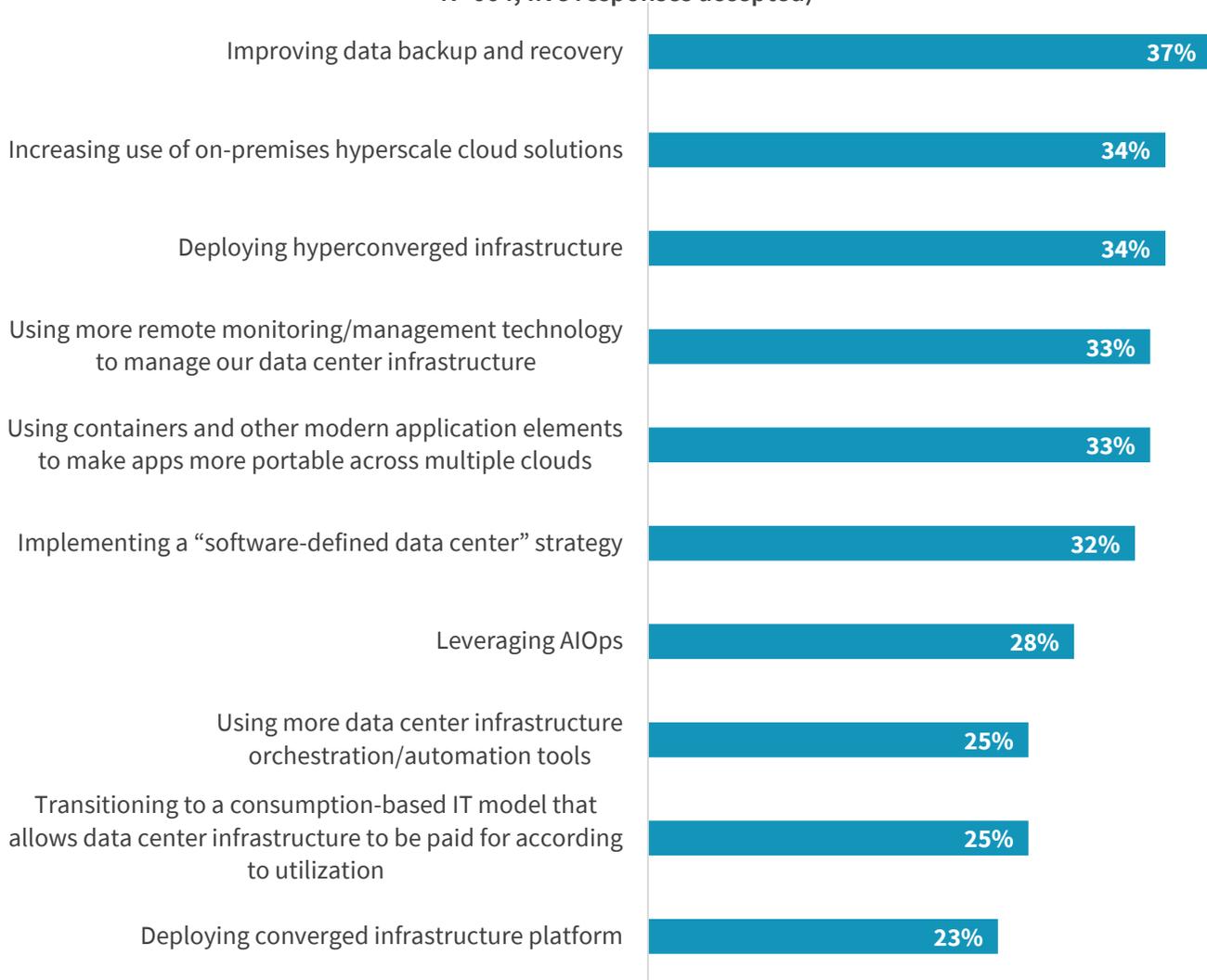
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[1] Source: ESG Master Survey Results, *2021 Technology Spending Intentions Survey*, December 2020. All ESG research references and charts in this white paper have been taken from this research report unless otherwise noted.
[2] Source: ESG Research Report, *The Impact of the COVID-19 Pandemic on Remote Work, 2020 IT Spending, and Future Tech Strategies*, June 2020.

Figure 1. 2021 Data Center Modernization Priorities

In which of the following areas of data center modernization will your organization make the most significant investments over the next 12-18 months? (Percent of respondents, N=664, five responses accepted)

Improving data backup and recovery	37%
Increasing use of on-premises hyperscale cloud solutions	34%
Deploying hyperconverged infrastructure	34%
Using more remote monitoring/management technology to manage our data center infrastructure	33%
Using containers and other modern application elements to make apps more portable across multiple clouds	33%
Implementing a "software-defined data center" strategy	32%
Leveraging AIOps	28%
Using more data center infrastructure orchestration/automation tools	25%
Transitioning to a consumption-based IT model that allows data center infrastructure to be paid for according to utilization	25%
Deploying converged infrastructure platform	23%

Source: Enterprise Strategy Group

Other digital business initiatives are on the rise, too, as businesses seek to improve their level of operational execution and bolster their customer relationships in the coming era. Specifically:

- 63% of organizations expect to increase spending on artificial intelligence/machine learning initiatives in 2021.

- 44% of organizations expect to increase spending on application development/DevOps tools in 2021.

But once again, keeping pace with increased business demands by adopting those technologies can add to IT complexity. Seventy-five percent of IT decision makers surveyed by ESG said they believe IT is more complex now than it was just two years ago. That percentage is up from 64% just last year. Higher data volumes were identified as a top complexity driver by 38% of these organizations. And almost a third (28%) identified increases in applications that leverage modern architectures such as Kubernetes as a top reason behind the complexity increase.

When the goal is to keep pace with rising digital demands without crippling IT operations with complexity, an organization must ensure that its environment is capable of:

- Spanning multi-cloud infrastructure environments in a straightforward manner.

- Maximizing the potential of multi-application environments running on Kubernetes or virtual machines.

- Spanning and supporting both traditional and cloud-native application environments.

- Providing integrated intelligence and automation to reduce IT management burdens and costs.

- Accelerating DevOps projects, supporting AI/ML initiatives, and accelerating data along pipelines.

IBM Storage Simplifies and Consolidates Multi-cloud, Multi-app Environments

IBM has centered its storage strategy and portfolio on three key tenets of business value related to hybrid cloud storage. They are:

- **Enterprise transformation**—IBM endeavors to support application portability and agility by delivering consistent, high-performance, enterprise-level storage capabilities across hybrid cloud environments. The aim is to create an environment optimized for the needs of cloud-native, container-based workloads. For example, IBM offers workload portability via a write-once, run-anywhere environment, while giving its customers ways to keep costs under control.

- **Cyber resiliency**—IBM has developed multiple innovations for optimizing cyber resiliency. For example, organizations using IBM storage can automate deep inspections of their backups to look for signs of ransomware. IBM solutions also are able to encrypt, index, back up, and air-gap data and snapshots to ensure business continuity. Additionally, they provide near-instantaneous application-consistent recoveries with an indexed self-service catalog.

- **DataOps**—IBM offers storage designed for modern data lakes. These solutions support AI/ML environments with the ability to offer proactive data cataloging across both IBM and non-IBM storage. They also enable organizations to automate data tagging.

The products supporting those concepts represent a full portfolio of SAN, NAS, and object storage optimized to address the needs of today's enterprise environments:
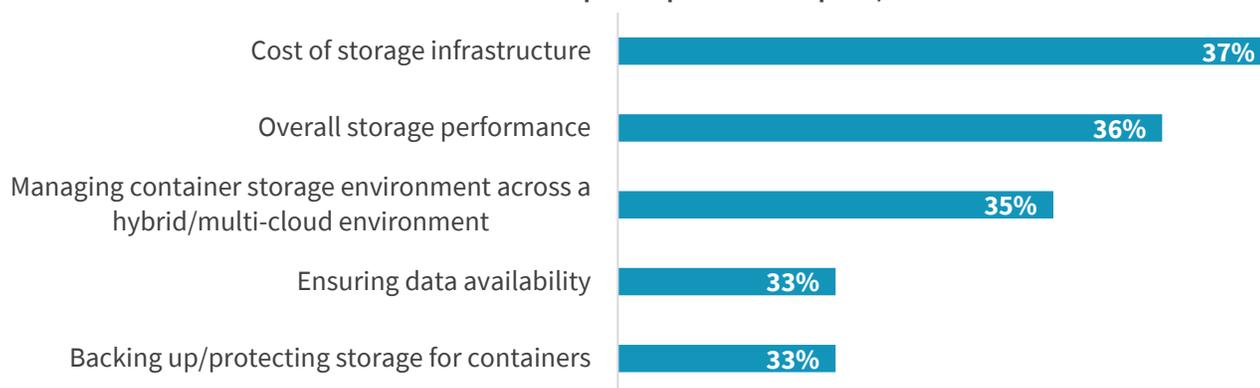
- Regarding **SAN storage**, IBM's single platform design for FlashSystem leverages end-to-end, NVMe-based storage that is capable of serving all block-storage environments—from the smallest to the largest, from the data center to the edge, as well as offsite to the cloud. Common APIs provide consistent management and interaction across the IT environment. These IBM storage solutions meet the needs of high-performance transactional workloads and virtualized and/or container-based application environments.

- For **unstructured data**, IBM offers the IBM Spectrum Storage Suite—high-performance, scale-out file storage with IBM Spectrum Scale, along with enterprise-level object storage via IBM Cloud Object Storage. IBM provides additional enterprise-level data protection, discovery, virtualization, and management features through its IBM Spectrum software-defined technology portfolio. The unstructured storage portfolio plays an essential role in supporting IBM's DataOps-related goal of supporting the needs of modern data lake, analytics, and AI/ML workloads.

IBM Delivers Enterprise Transformation by Addressing the Needs of Modern Container Environments

The focus on containers is especially intriguing. ESG has conducted extensive research into the challenges of delivering persistent storage for container-based environments (see Figure 2).[3]

Figure 2. Top Five Challenges with Persistent Storage for Container-based Environments

In general, what would you say are your organization's biggest persistent storage-related challenges in terms of its container-based environment? (Percent of respondents, N=274, multiple responses accepted)

Challenge	Percent
Cost of storage infrastructure	37%
Overall storage performance	36%
Managing container storage environment across a hybrid/multi-cloud environment	35%
Ensuring data availability	33%
Backing up/protecting storage for containers	33%

Source: Enterprise Strategy Group

IBM's solutions could address many of the major concerns. For instance, regarding the top two challenges—cost and performance—IBM has optimized its software-defined storage technology to deliver both performance and scale while offering hardware flexibility to reduce overall storage costs.

And to address complexity issues related to managing hybrid/multi-cloud environments, ensuring data availability, and maintaining data protection, IBM offers innovations that include:

- **IBM Cloud Pak** solutions, which provide a simple way to augment the capabilities of Red Hat OpenShift. Solutions include Cloud Paks for Applications, Data, Integration, Multicloud Management, Automation, and Security. Each one leverages IBM software to better support application development and management for container-based environments with enterprise-level-tools and functionality.

- **IBM Storage Suite for Cloud Paks**, which delivers the software-defined storage foundation for Red Hat OpenShift container environments. With IBM Storage Suite for Cloud Paks, IBM offers packaged SDS technology, including Spectrum Scale, IBM Cloud Object, Red Hat OpenShift Container Storage, and Red Hat Ceph Storage, to deliver multiple, hardware-agnostic SDS storage options across block, file, and object data stores. The suite also includes IBM Spectrum Virtualize for Public Cloud, providing simplified manageability of traditional storage along with public/hybrid cloud resources, plus IBM Spectrum Discover for advanced data discovery.

As part of the overall effort, IBM has invested in developing Ansible script updates for its offerings to accelerate deployment activities, better manage snapshot operations, and optimize data efficiency.

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[3] Source: ESG Master Survey Results, *2019 Data Storage Trends*, November 2019.

IBM Spectrum Protect Plus also now supports Red Hat OpenShift environments, offering the ability to protect both data and metadata. This enhancement helps IT organizations more easily recover applications, namespaces, and clusters to a different location as necessary.

The Bigger Truth

Technology has long played an important role in business. Over the past year, however, excellence in digital operations, digital engagement, and IT became vital simply for business survival. When faced with the sudden shift to remote work and distributed operations, combined with new and unexpected challenges creating customer engagement, businesses turned to digital business initiatives for an edge, and, more often than not, those digital initiatives delivered.

Moving forward, as the global economy recovers, the digital business investments that allowed businesses to survive in 2020, will empower them to thrive in 2021, assuming the right supporting application and infrastructure modernization foundations are in place. In order for that to happen, IT organizations need technology that can support multiple application environments and multiple infrastructure environments at scale, while simplifying operations dramatically.

The coming year is poised to deliver a massive uptick in demand as the economy recovers. Capturing that demand will require the right technology and the right technology partner that can help businesses scale digital operations to meet this new demand. IBM has the storage foundation to empower the digital initiatives of modern businesses now and for the foreseeable future and should be on the short list of potential partners for any organization.

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

www.esg-global.com   contact@esg-global.com   508.482.0188