Intelligent storage for organizations of all sizes

IBM Storwize family offers powerful entry-level and midrange storage solutions

Highlights

- Offers enterprise-grade storage features with mid-market cost-efficiency
- Leverages the capabilities of award-winning IBM Spectrum Virtualize
- Enables any organization to deploy powerful new storage technologies
- Includes artificial intelligence, multicloud and container capabilities

According to recent market research, nearly two-thirds of business technology decision-makers have implemented artificial intelligence (AI) in some form to increase revenue streams and enhance competitiveness—or are planning to do so in the near future.[1] These metrics include enterprises with smaller and midsized application workloads.

Remote offices, edge locations, lines of business (LOB) within larger enterprises, and organizations of all sizes can have application workloads whose requirements are best met with entry-level or midrange storage solutions. Even so, these organizations have the same aspirations as enterprises with the very largest workloads—they want to thrive in the 21st-century business environment. To do this, just like enterprises of all sizes and types, they must leverage the power of technology, including big data and real-time analytics, multicloud architectures and AI.

Increase productivity by leveraging advanced enterprise-level storage technology

These days, to achieve acceptable levels of insight and accuracy, analytics and AI applications are consuming enormous amounts of data.[2] Managing, moving and storing large data volumes with great efficiency and enough performance to derive maximum value from data assets requires a modern IT infrastructure with wide-ranging capabilities, from intelligent system optimization and powerful data reduction, through comprehensive security and encryption features, multicloud sharing and access, and, of course, ultra-low-latency flash storage. But remote offices, LOBs, and other organizations with traditionally smaller application workloads may be different from other enterprises in one important respect:

Though they want all the same technology advantages as their larger counterparts, they are often more sensitive to cost and risk constraints. Because they are smaller, their IT budgets are often proportionately smaller (though LOB managers now control 50% of most IT budgets[3]), and they have less ability to absorb failure. This means that decision-makers in these organizations are especially focused on cost-efficient, proven technology solutions. They can't afford less.

IBM Storage solutions offer exactly what organizations looking for entry-level or midrange storage solutions need—excellent performance, the flexibility to tailor solutions to almost any storage requirement, and a broad spectrum of choices to address almost any budget constraints and cost-efficiency objectives.

The IBM Storwize family, within the IBM Storage portfolio, is engineered to meet the needs of organizations looking for entry-level and midrange storage solutions–for whatever reasons. Storwize offerings combine industry-leading IBM Spectrum Virtualize technology and affordability in one mature product family with thousands of successful deployments worldwide. Storwize family members are flexible storage solutions that enable organizations of all types and sizes with less-demanding workloads to efficiently and affordably meet the challenges of rapid data growth and constrained IT budgets.

Award-winning capabilities

All Storwize solutions leverage the proven capabilities of IBM Spectrum Virtualize software-defined storage (SDS) for data and storage management. IBM is the number-one SDS vendor in the industry.[4]

IBM Spectrum Virtualize has been helping enterprises improve infrastructure flexibility and data economics for more than 15 years. It offers an industry-leading spectrum of features and functionality, including enhanced cloud functionality, comprehensive data reduction, and support for leading-edge container technologies that can provide the capabilities needed to capture and keep competitive advantage across the full spectrum of modern business environments. IBM Spectrum Virtualize delivers a full range of sophisticated storage functionality, including:

- IBM HyperSwap for nondisruptive application and data mobility between data centers
- Support for host-side virtualization solutions, including VMware virtual machines, Microsoft Hyper-V and IBM PowerVM, among others
- Support for hundreds of external, heterogeneous storage systems from a wide variety of vendors
- Powerful data reduction pool (DRP) technology that includes deduplication, compression and automated thin provisioning
- IBM Easy Tier automated tiering functionality
- Hardware-based or inline software encryption that can be extended across all managed systems
- IBM FlashCopy and IBM Remote Mirror for local and remote replication
- Support for using cloud resources to complement on-premises storage

IBM Storwize V5100

A family of high-performance solutions

Not only can application workloads vary dramatically from one business to the next, but they can also vary across divisions within a single company. The Storwize family is designed specifically to meet the unique data-storage requirements of business groups or organizations with entry-to-midsized application workloads and limited IT budgets who still need all of the features and capabilities demanded in business-critical environments.

Market-leading functionality and affordability

IBM Storwize V5000 is designed to provide the entry and midrange solutions within the overall Storwize family. Storwize V5000 technology has recently been refreshed, with a focus on significant new innovation. Now, Storwize V5000 offerings include the V5010E designed for entry-level storage requirements, the V5030E with increased functionality for midrange workloads, and the new V5100 and V5100F models that bring Non-Volatile Memory Express (NVMe) technology into the affordable Storwize V5000 suite.

More than ever before, Storwize V5000 models are easy to deploy, easy to use, and easy to grow. They enable organizations of all types and sizes with midrange application workloads to efficiently and affordably meet the challenges of rapid data growth and constrained IT budgets. Plus, Storwize V5000 provides affordable, nondisruptive upgrade paths that deliver performance, scalability and functionality.

The new IBM Storwize V5010E and V5030E models offer greater affordability, with a wide range of performance and feature options:

- ***IBM Storwize V5010E*** is an entry-level solution focused on affordability and ease of deployment and operation, with powerful scale-up features. This new model provides 70% better performance in mixed workload environments than previous V5010 systems. It includes many IBM Spectrum Virtualize features and offers multiple flash and hard disk drive storage media and expansion options.
- ***IBM Storwize V5030E*** provides greater functionality, with a 140% performance increase over previous V5030 systems. It offers powerful encryption capabilities and data reduction pools with compression, deduplication, thin provisioning, and SCSI UNMAP support.
- ***IBM Storwize V5100*** combines NVMe-powered IBM Flashcore technology with the richest set of IBM Spectrum Virtualize features, including external virtualization and 2-way clustering. Unique high performance, high-density Flashcore Modules can be mixed with standard NVMe SSDs to balance speed and cost-efficiency, while IBM Spectrum Virtualize for Public Cloud enables almost unlimited storage capacity by seamlessly integrating on-premises and cloud resources into one management domain.

IBM Storwize V5000 models leverage the cost advantages of multiple flash drive options for low deployment costs, plus feature an enhanced, intuitive user interface, synchronous/asynchronous replication, 600+ Storwize APIs, thin provisioning and snapshots.

The IBM Storwize V5030E and V5100 models also provide flash-optimized data compression and deduplication, enterprise-grade system availability and data security features that include the nondisruptive data migration and remote mirroring using IBM HyperSwap technology that are shared by all IBM Spectrum Virtualize-based systems, plus “six nines” availability, data-at-rest encryption, and a new distributed RAID technology that can reduce disk rebuild times up to 10 times over current RAID solutions. For organizations that need affordable high performance storage with Fortune 500-level functionality plus a broad spectrum of data services, Storwize V5030E, and V5100/F offer enterprise-grade storage solutions that truly are easy to deploy, easy to use, and easy to grow.

Greater performance with cost-efficiency

IBM Storwize V7000 is the platform within the Storwize family that offers the greatest functionality, performance and reliability. Enterprises looking to implement all-flash or hybrid storage solutions with all the storage services and virtualization capabilities available in the marketplace, yet with very affordable initial deployment costs, will turn to the newly re-imagined Storwize V7000.

The new Storwize V7000 is optimized throughout for NVMe technology, with support for NVMe-over-Fabrics for the highest end-to-end storage performance. Storwize V7000 systems leverage the advantages of IBM FlashCore-enhanced 3D triple-level cell (TLC) flash storage media that provides greater flash density and storage capacity than previous solutions. Along with the move to 3D TLC flash, purpose-engineered IBM FlashCore Modules (FCMs) utilize powerful inline, hardware-accelerated data compression and encryption technologies that provide consistent, high-performance data compression and encryption across the full range of workloads. The FCMs are designed to support Federal Information Processing Standard (FIPS) 140-2 Level 1 encryption with IBM Security Key Lifecycle Manager (SKLM) centralized key management and full hot-swap capabilities.

You can choose FCMs in multiple capacities or you can opt for industry-standard NVMe-enabled flash drives, with the capability to support both drive types simultaneously within an array. This means that using the always-on inline high-performance data compression in the FCMs or IBM Spectrum Virtualize DRP technology with industry-standard drives, effective capacities can range up to two petabytes in a single 2U enclosure, with the ability to cluster, scale out or scale up capacity and performance to many petabytes and millions of input/output operations per second (IOPS).

IBM Spectrum Virtualize in Storwize V7000 enables the use of cloud storage for disaster recovery, dramatically speeds deployment of hybrid cloud configurations and helps slash storage costs. The new systems come in a standard all-flash configuration, then offer multiple options to extend and expand capacity and performance with flash or disk drives.

The control enclosure contains dual redundant controllers, each with two 8-core CPUs, with the option to go up to 1.1 TB of cache. Storwize V7000 can also leverage the cost advantages provided by new, higher-density flash drives to create a solution with very competitive deployment costs coupled with very powerful storage capabilities.

Storwize V7000 can lower both capital and operating expenses by extending its rich set of data services across existing heterogeneous external storage or by adding SAS disk-expansion enclosures, thanks to the extensive AI-based storage resource management, predictive analytics, automated support and data placement provided by IBM Spectrum Virtualize. Once under IBM Spectrum Virtualize management, data in external storage systems becomes part of the Storwize solution and can be managed in the same way as internal drives. External systems inherit all the IBM Spectrum Virtualize functional richness and ease-of-use features that improve administrator productivity and boost storage utilization while also enhancing and extending the value of existing storage investments.

DRP technology within Storwize V7000 solutions helps transform the economics of data storage. When applied to new or existing storage, DRP can significantly increase usable capacity while maintaining consistent application performance. This can help eliminate or drastically reduce costs for storage acquisition, rack space, power, and cooling, and can extend the useful life of existing storage assets. DRP capabilities include:

- Block deduplication that works across all the storage in a DRP to minimize the number of identical blocks
- Compression technology that provides consistent performance across application workload patterns
- SCSI UNMAP support that de-allocates physical storage when operating systems delete logical storage constructs such as files in a file system

The new generation of Storwize V7000 provides the foundation for implementing a cost-efficient storage infrastructure that also delivers extraordinary functionality and performance.

Enabling AI for all enterprises

The big data, real-time analytics and AI-based applications that drive competitive advantage in the 21st century require performance, efficiency and capabilities beyond what traditional IT infrastructure can provide. This is true whether your business is a Fortune 500 multinational or a hometown start-up. The IBM Storwize family of high-performance storage solutions is designed specifically to provide enterprise-grade features and functionality with mid-market affordability. With Storwize, the sky—not your IT budget—is the limit.

[1] "Forrester Infographic: Business-Aligned Tech Decision Makers Drive Enterprise AI Adoption," *Forrester*, January 2018. https://www.forrester.com/report/Forrester+Infographic+BusinessAligned+Tech+Decision+Makers+Drive+Enterprise+AI+Adoption/-/E-RES141957

[2] "Deep Learning." *TechTarget*, Accessed January 1, 2019. https://searchenterpriseai.techtarget.com/definition/deep-learning-deep-neural-network

[3] "ZDNet: Tech Budgets 2019: Surveys and Projections," September 2018. https://www.zdnet.com/article/tech-budgets-2019-surveys-and-projections/

[4] "IBM Ranked #1 in Worldwide Software-Defined Storage Software Market," *IBM Press Release*, April 2017. http://www-03.ibm.com/press/us/en/pressrelease/52189.wss

Why IBM?

Innovative technology, open standards, excellent performance, and a broad portfolio of proven storage software, hardware and solutions allow IBM to deliver cost-effective, reliable performance to enterprises large and small. With nearly one hundred years of innovation in meeting the technology and business needs of clients all over the world, IBM continues to demonstrate market leadership. In addition, IBM delivers some of the best storage products, technologies, services and solutions in the industry without the complexity of dealing with different hardware and software vendors.

For more information

To learn more about IBM Storwize solutions for MMB, please contact your IBM representative or IBM Business Partner, or visit: ibm.com/it-infrastructure/storage/storwize