IBM FlashSystem A9000

A highly parallel all-flash solution for the cloud-scale business

Highlights

- Harness the performance of highly parallel architecture and IBM® FlashCore™ technology in one innovative system

- Optimize storage economics with pattern removal, deduplication and compression

- Prevent "noisy neighbor" problems with quality-of-service (QoS) features that support multi-tenancy and mixed workloads

- Deliver consistent, extreme performance to meet service level agreements for unpredictable, data-intensive workloads

- Easily integrate with VMware, OpenStack, Linux and Microsoft platforms, and with almost any existing infrastructure

- Simplify storage administration with an innovative, new user interface

Whether you are a public cloud services provider or your company has implemented its own private or hybrid delivery model, the cloud presents challenges. The "always-on" dynamic nature of cloud services requires infrastructure that can adapt, grow and provide consistent response under any workload. Delivering consistent, extreme performance while managing complex infrastructure can be costly. You must mitigate the impacts of variable customer use cases, application workloads, and noisy neighbors with high input-output demands that can conflict with other applications. The cost of switching service providers is low; if you don't offer outstanding service, you will lose your customers.

Achieving the flexibility, scalability and performance essential to cloud services providers requires a new approach to data storage. IBM FlashSystem® A9000 integrates the extreme performance of IBM FlashCore technology, highly parallel architecture and comprehensive data reduction in one powerful solution. Whether you are a service provider requiring highly efficient management or an enterprise implementing cloud on a budget, IBM FlashSystem A9000 provides the simply consistent, simply reliable, simply efficient storage you need.

Dynamic performance: Simply, consistently fast

IBM FlashSystem A9000 is designed to accelerate your workloads to help you reduce costs, increase revenue, meet service level agreements, and improve customer satisfaction. IBM FlashCore technology, which delivers market-leading storage response times for data-intensive workloads,

forms the all-flash foundation of IBM FlashSystem A9000. Fundamental to this technology are many hardware-accelerated I/O features—redundant backplanes, non-blocking crossbar switching and hardware-based RAID controllers—designed to deliver consistent microsecond latency with market-leading performance.

IBM FlashSystem A9000 includes industry-leading data protection and endurance capabilities that allow enterprises to consistently address the full range of application performance or system latency requirements and deliver greater than 99.999 percent availability.[1] IBM FlashCore technology keeps your data safe with enterprise-class data protection features like IBM Variable Stripe RAID™ technology, IBM-engineered error correction codes, overprovisioning capabilities, ultra-fast write buffers and hardware-based data offloads. Proprietary flash media wear leveling, health binning, heat segregation and garbage collection are purpose-engineered into IBM FlashCore technology to eliminate most flash wear-out and management challenges.

Enduring economics: Greater efficiency, lower costs

The enduring economics of IBM FlashSystem A9000 mean that your business can benefit from greater storage efficiency and lower costs—at the moment of deployment and for years to come. Flash-optimized data reduction capabilities—including pattern removal; inline, global deduplication; and inline compression—help lower storage costs throughout both structured and unstructured data environments. IBM FlashSystem A9000 microsecond latency helps your business improve data economics even further by increasing staff productivity and enabling consolidation of servers, which can cut software licensing costs. Fewer servers and reduced storage requirements can also translate into lower power, cooling and data center expenses.

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In addition to reducing operational expenses, IBM FlashSystem A9000 can save labor costs by simplifying storage management—the innovative new user interface enables agile orchestration of private and hybrid multi-tenant cloud environments. In fact, this leading management application is designed to accelerate and simplify day-to-day storage management tasks. Moreover, IBM FlashSystem A9000 integrated software, built with IBM Spectrum Accelerate™, provides cutting-edge data protection that includes space-efficient snapshots and synchronous/asynchronous replication.

Agile integration: Purpose-built for the cloud

From installation through years of efficient operation, IBM FlashSystem A9000 is designed with simplicity in mind. Its integrative approach provides flexibility to help you easily manage and grow your infrastructure. IBM Hyper-Scale Manager enables management of multiple IBM FlashSystem A9000 and IBM FlashSystem A9000R solutions from a single user interface, while IBM Hyper-Scale Mobility enables seamless migration of data across IBM FlashSystem A9000 arrays.

IBM FlashSystem A9000 at a glance

Model	9836-415 (1-year warranty), 9838-415 (3-year enterprise-class warranty)		
Controllers	Three-way active grid controllers, each containing: • Two Intel Xeon E5 v3 8-core 2.4 GHz processors • 192 GB DDR4 memory • Redundant battery backup units and power supply units		
Software	IBM FlashSystem A9000 and A9000R software v12.0		
	Flash Enclosure-60	**Flash Enclosure-150**	**Flash Enclosure-300**
Effective capacity*	60 TB	150 TB	300 TB
Maximum capacity†	1,200 TB	1,200 TB	1,200 TB
Raw capacity	21.4 TB	52.8 TB	105.6 TB
IBM MicroLatency® modules	12 x 1.2 TB	12 x 2.9 TB	12 x 5.7 TB
Flash type	IBM-enhanced MLC		
Performance			
IOPS	Up to 500,000		
Maximum bandwidth	4.5 GB/s		
Minimum latency	250 µs		
Data reduction and efficiency	• Pattern removal • Global, inline deduplication • Inline compression • Space-efficient snapshots • Thin provisioning		
Encryption	Hardware-based AES-XTS 256-bit with centralized key management‡		
Host connectivity options	12 x 16 Gb Fibre Channel + 6 x 10 Gb iSCSI, or 12 x 10 Gb iSCSI		
Backplane interconnect	InfiniBand		
Power	1.69 KW (typical); 2.91 KW (max)		
Dimensions (H x W x D)	356 mm (8U) x 483 mm x 930 mm (14 in. x 19 in. x 36.6 in.)		
Weight	125 kg (275.5 lb)		
Client operating system support	For a current list of platforms supported, please visit the IBM System Storage Interoperation Center (SSIC).		

IBM FlashSystem A9000 integrates easily into your existing data center infrastructure and also integrates with a wide variety of hypervisor and virtualization software, including solutions from VMware, OpenStack, Linux and Microsoft. To further eliminate risk, IBM provides industry-leading worldwide customer support and solution maintenance to help ensure that IBM FlashSystem A9000 can provide the highest possible performance, enduring economics and business value for years into the future.

Why IBM?

Building on decades of storage leadership, IBM offers a comprehensive portfolio of flash-optimized storage solutions that can propel organizations into the next era of IT. These proven flash solutions accelerate decision making, provide best-in-class reliability and deliver new efficiencies across the entire business environment for a faster return on investment. IBM flash storage solutions provide enterprises with the application performance they need to compete, innovate and grow.

For more information

To learn more about IBM FlashSystem A9000, please contact your IBM representative or IBM Business Partner, or visit the following website: **ibm.com**/systems/storage/flash/a9000

IBM Global Financing can help you acquire the IT solutions that your business needs, visit: **ibm.com**/financing