



IBM Spectrum Control

Monitoring, automation and analytics for data and storage infrastructure optimization

Highlights

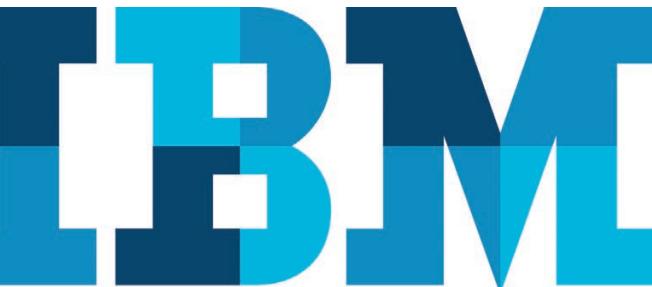
- Improve application performance and reduce storage costs with integrated storage monitoring, automation and analytics
- Consolidate file, object, flash, block and software-defined storage management with one console
- Choose from on-premises and cloud-based solutions with a range of licensing plans
- Streamline performance troubleshooting and problem resolution
- Improve consistency and control for storage operations

IBM® Spectrum Control™ is a comprehensive solution that can significantly improve monitoring, automation and analytics capabilities in multi-vendor storage environments. IBM Spectrum Control helps manage storage systems, software-defined storage, storage-area network (SAN) fabrics and devices. Storage can be seen from multiple perspectives, including departmental, application and server views. IBM Spectrum Control helps simplify provisioning, tier optimization, performance management and data replication processes.

The mission: Simplify data and storage management

While storage environments continue to grow in capacity and complexity, many organizations are scaling back on dedicated storage experts. It is, therefore, imperative that storage become easier to manage by IT administrators who may also be responsible for servers, networks and applications.

Organizations tend to acquire collections of multi-vendor storage systems, due to application requirements, multiple buyers, mergers, staff turnover and other factors. Adoption of cloud and software-defined storage creates more to manage. Each brand of storage system has its own administration interface, which can increase complexity and opportunities for error.



In addition, user expectations are increasing. Businesses collect, store, process and use more information than ever before. At the same time, there is low tolerance for downtime, unpredictable performance or provisioning delays. To satisfy these increased demands, organizations need more comprehensive monitoring, automation and analytics capabilities—so they can proactively resolve issues before users are impacted.

The solution: IBM Spectrum Control

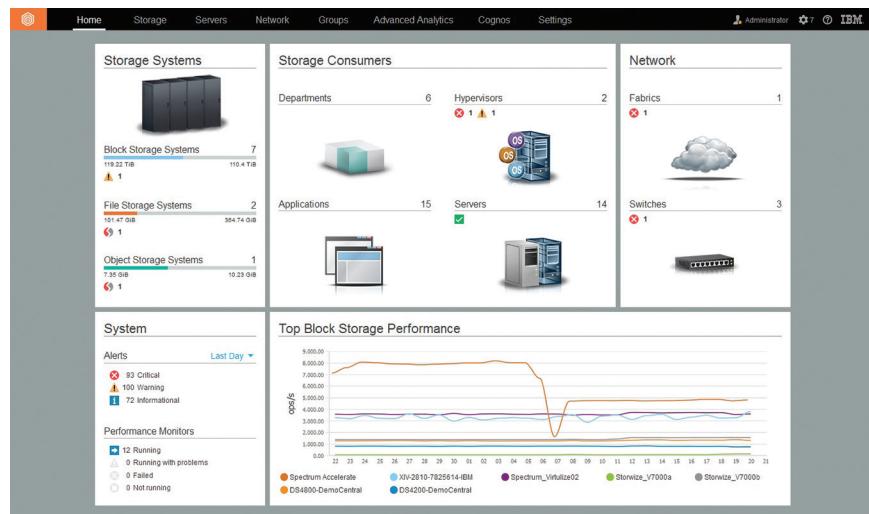
IBM Spectrum Control is a comprehensive, end-to-end data and storage management solution that monitors, automates and analyzes multi-vendor storage environments.

IBM Spectrum Control provides a single point of control that helps administrators manage every aspect of the storage infrastructure—between the hosts, through the fabric, and down to the physical disks—across multi-site storage environments. IBM Spectrum Control helps consolidate management of file, object, flash, block, server-based and software-defined storage.

In fact, IBM Spectrum Control helps you see storage as others see it—with application, departmental and server views of storage. IBM storage administrators can use IBM Spectrum Control for their everyday tasks, leveraging a consistent dashboard for managing the broader storage environment.

IBM Spectrum Control enables you to manage storage your way. Optimized interfaces are included for storage specialists, VMware vCenter users, and remote management using interfaces such as OpenStack, REST, IBM Tivoli® Application Dependency Discovery Manager (TADDM) TPC Sensor and IBM Cloud Orchestrator.

IBM Spectrum Control is available as an easy-to-deploy cloud service¹ or as on-premises software with agent-based and agentless monitoring. A range of licensing plan options are available to fit environments of all sizes.



IBM Spectrum Control features a fully-integrated, web-based user interface.

See your storage like you've never seen it before

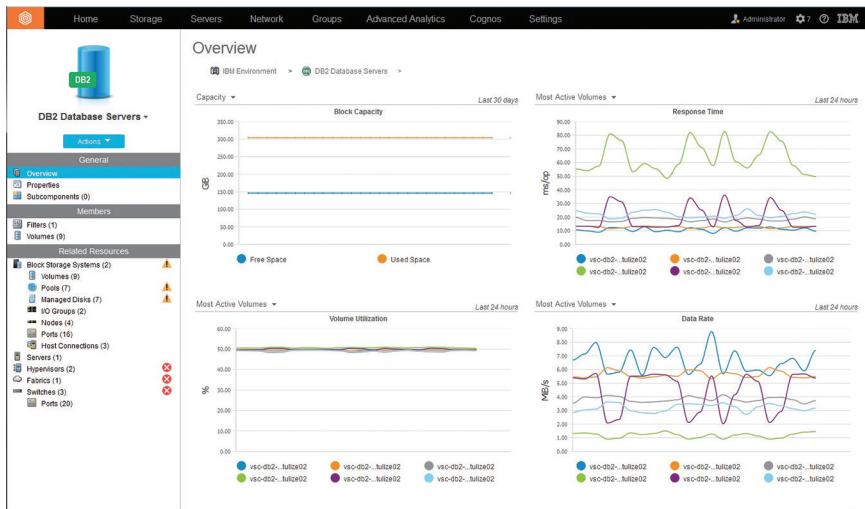
IBM Spectrum Control enables comprehensive monitoring of the entire data path—including storage systems, software-defined storage, devices and SAN fabric components from multiple vendors—providing a more complete view of the storage infrastructure. Views of applications, departments or other collections are easy to create, so data owners can see customized views of their domains.

Heterogeneous storage systems, ports and switches

IBM Spectrum Control provides device-level, integrated storage infrastructure management capabilities for managing both IBM and non-IBM storage systems. Agent and agentless options are available. Heterogeneous storage support is offered via the Storage Networking Industry Association (SNIA)

Storage Management Initiative Specification (SMI-S) standard. Management capabilities include operational control and provisioning of heterogeneous storage platforms, including storage systems from EMC, NetApp, Hitachi, Oracle and HP. IBM Spectrum Control also enables performance management at the port and switch levels for platforms from Brocade Communications and Cisco Systems.

In addition, it includes advanced monitoring and performance reporting for IBM storage systems, including IBM FlashSystem®, IBM Cloud Object Storage System™, IBM DS8000®, IBM Storwize® family systems and IBM XIV® Storage System; as well as software-defined storage offerings, including IBM Spectrum Virtualize™, IBM Spectrum Accelerate™ and IBM Spectrum Scale™. A complete list of supported storage products is available from the [IBM Support portal for IBM Spectrum Control](#).



An application-oriented view of storage.



Application	Cost	Total (TiB)	Block Capacity (TiB)						
			Block	Primary	vDisk Mirrors	FlashCopy	Remote Mirrors	Tier 1	
								Primary	Copy
Clirix	27.73	0.28	0.28	0.00	0.02	0.13	0.13	0.00	0.28
Connections Nodes	7.19	0.11	0.11	0.11	0.00	0.00	0.00	0.06	0.00
DB2 Database Servers	32.13	0.44	0.44	0.29	0.00	0.00	0.15	0.13	0.15
DemoCentral vmWare Farm	10037.61	200.75	200.75	200.75	0.00	0.00	0.00	0.00	0.00
Epic Database	36.18	0.55	0.55	0.42	0.00	0.00	0.14	0.16	0.14
Epic Reporting	16.99	0.29	0.29	0.29	0.00	0.00	0.00	0.13	0.00
Exchange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exchange Mail Box End to End view	13.51	0.28	0.28	0.28	0.00	0.00	0.00	0.09	0.00
Intranet Web Servers	29.18	0.41	0.41	0.16	0.08	0.00	0.16	0.06	0.18
Perkom DB Server	143.73	1.50	1.50	1.50	0.00	0.00	0.00	1.42	0.00
Sharepoint Servers	14.88	0.29	0.29	0.29	0.00	0.00	0.00	0.10	0.00
SQL Server Databases	19.04	0.37	0.37	0.37	0.00	0.00	0.00	0.13	0.00
Standard Reporting	96.19	1.04	1.04	1.04	0.00	0.00	0.00	0.96	0.00
Web Servers	66.62	0.81	0.81	0.28	0.10	0.14	0.29	0.14	0.47

Integrated chargeback reporting.

Device performance

IBM Spectrum Control helps monitor and manage performance and measure service levels by storing received performance statistics into database tables for future use. Administrators can set performance thresholds for devices based on selected performance metrics, generating alerts when those thresholds are exceeded. These capabilities help the solution simplify the complex monitoring of multiple SAN-attached storage devices.

IBM Spectrum Control device management capabilities include:

- Proactive performance management from a single, integrated console for monitoring storage devices
- Monitors key metrics, such as I/O rates and cache utilization
- Preserves historical performance statistics for service-level analysis and report generation
- Generation of timely alerts that enable event action by setting performance thresholds based on business policies



SAN fabric management

IBM Spectrum Control supports multi-vendor SAN monitoring and alert management. IBM Spectrum Control diagnostic capabilities show which resources are impacted by an availability or performance issue in the SAN.

IBM Spectrum Control SAN fabric monitoring capabilities include:

- Multiple SAN views, including physical, logical and zone
- Diagnostic capabilities that pinpoint resources impacted by an availability or performance issue
- Performance monitoring at the port and switch level
- Enterprise scalability that enables upgrading from SAN islands to enterprise SANs

Automate data and storage management tasks

IBM Spectrum Control solutions help automate storage provisioning and event processing tasks.

Storage provisioning

IBM Spectrum Control includes optimized interfaces for storage specialists, VMware vCenter users, IBM Cloud Orchestrator environments and open application programming interfaces (APIs) such as Storage Management API for Cloud (SMAC). Templates can be set up to simplify and standardize storage provisioning, so users can quickly get the class of storage they need to do their jobs.

Event processing

Event processing in IBM Spectrum Control can help administrators identify and resolve storage problems faster. Event processing supports multiple thresholds, severity levels and suppression settings, which can greatly reduce the complexity of managing alerts in large storage environments.

Policy-based automation enables automated responses, based on business policies.

Optimize storage with predictive analytics

IBM Spectrum Control uses predictive analytics to help optimize tiered storage, balance workloads within storage tiers and plan capacity requirements.

Tiered storage optimization

IBM Spectrum Control uses predictive analytics to help organizations optimize storage cost and performance, without manual tuning. Storage tier recommendations are based on data usage patterns, rather than on initial projections or guesswork. When deployed with IBM Spectrum Virtualize, as in the IBM Virtual Storage Center solution, data volumes can be moved automatically between storage pools and managed storage systems. Tier optimization can help large enterprises reduce the total cost of storage by an average of 73 percent over five years.²

Load balancing

IBM Spectrum Control makes it easy to balance performance within storage tiers. Simply select two or more pools on the same tier in a virtualized storage environment, and click ‘Balance Pools.’ Analytics in IBM Spectrum Control and automation in IBM Spectrum Virtualize work together to complete the task. Complexity and the risk of errors are greatly reduced.

Capacity planning

IBM Spectrum Control uses analytics to predict future capacity needs. Administrators can see, at a glance, when capacity will be needed. Buyers can see how much storage will be needed at a particular future date, so acquisitions can be pooled and aligned with business requirements.

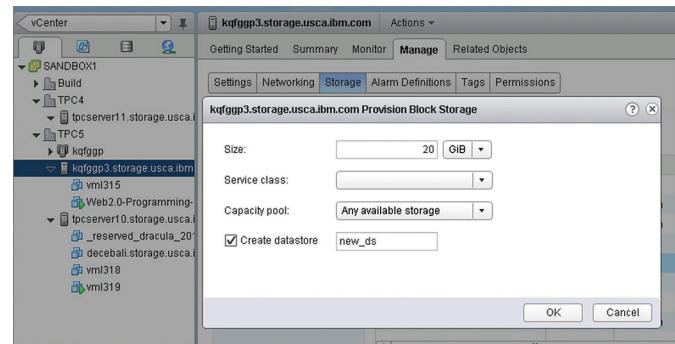
Choose from on-premises and cloud solutions

IBM Spectrum Control is available in a range of options to fit practically any size environment and budget. For example, IBM Spectrum Control Storage Insights is an ISO 27001-certified, cloud-based solution that deploys in minutes and includes predictive analytics.



IBM Spectrum Control simplifies management for multiple types of storage.

On-premises solutions include standard and advanced editions, available in capacity or per-enclosure license options. [IBM Virtual Storage Center](#) bundles [IBM Spectrum Control Advanced Edition](#) with multi-brand storage virtualization and snapshot management. [IBM Spectrum Control Base](#) consolidates VMware integration for IBM storage systems into a single download.



IBM Spectrum Control and VMware integration simplifies storage management for server and VMware administrators.

IBM Spectrum Control Standard Edition includes:

- Capacity visualization and management
- Performance troubleshooting
- Health and performance alerting
- Showback
- Application modeling
- VMware integration

IBM Spectrum Control Advanced Edition includes all of the features of IBM Spectrum Control Standard Edition, plus:

- Tiered storage optimization with predictive analytics
- A service catalog with policy-based provisioning
- Self-service provisioning with restricted-use logins
- Chargeback
- Application-aware, hardware-assisted snapshot management from [IBM Spectrum Protect™ Snapshot](#)

IBM data and storage management solutions at a glance:

IBM storage software as a service (SaaS)	Key capabilities
IBM Spectrum Control Storage Insights	Cloud-based monitoring and analytics for IBM and IBM virtualized storage; subscription license
IBM storage software license plan options	Key capabilities
IBM Spectrum Control Advanced Edition	Monitoring, automation, analytics and chargeback for storage environments; tiered capacity license
IBM Spectrum Control Advanced Select Edition	Monitoring, automation, analytics and chargeback for storage environments; per-enclosure license
IBM Spectrum Control Standard Edition	Monitoring and automation for storage environments; tiered capacity license
IBM Spectrum Control Standard Select Edition	Monitoring and automation for storage environments; per-enclosure license
IBM Virtual Storage Center	Solution bundle includes IBM Spectrum Control Advanced Edition and IBM Spectrum Virtualize ; tiered capacity license
IBM Virtual Storage Center Entry	IBM Virtual Storage Center for sites under 500 TB usable capacity and four I/O groups; capacity license
IBM Virtual Storage Center for Storwize Family	IBM Virtual Storage Center for IBM Storwize environments; per-enclosure license
IBM storage system VMware integration	Key capabilities
IBM Spectrum Control Base	No-cost download; enables VMware APIs for IBM storage systems
Supported environments	Supported storage systems
IBM hybrid and disk storage systems	IBM SAN Volume Controller, IBM Storwize family, VersaStack, IBM XIV, IBM DS8000 family
IBM all-flash storage systems	IBM FlashSystem, multiple models
Multi-brand virtualized SAN storage	Nearly 400 storage systems from IBM and others, using IBM Spectrum Virtualize, IBM Storwize or VersaStack external virtualization
File and object storage	IBM Cloud Object Storage System (IBM Cleversafe®), NetApp, Storwize V7000 Unified, IBM Spectrum Scale, IBM General Parallel File System (GPFS™), IBM Elastic Storage™ Server
Software-defined storage	IBM Spectrum Virtualize virtualized SAN storage, IBM Spectrum Scale file and object storage, IBM Spectrum Accelerate server storage

For details, please see the IBM Spectrum Control [Interoperability Matrix](#) on the IBM Support Portal.

Why IBM?

IBM Spectrum Control provides monitoring, automation and analytics to help simply and effectively manage complex storage environments. In addition, IBM Spectrum Control helps organizations classify storage, manage storage service levels and reduce storage costs.

For more information

To learn more about IBM Spectrum Control, please contact your IBM representative or IBM Business Partner, or visit: ibm.com/systems/storage/spectrum/control/

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Actual available storage capacity may be reported for both uncompressed and compressed data and will vary and may be less than stated.

¹ Not all capabilities are available in all IBM Spectrum Control products. See website for details.

² ITG Management Report: Cost/Benefit Analysis of IBM Spectrum Storage Compared to EMC Storage Virtualization and Management Solutions, 2015



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