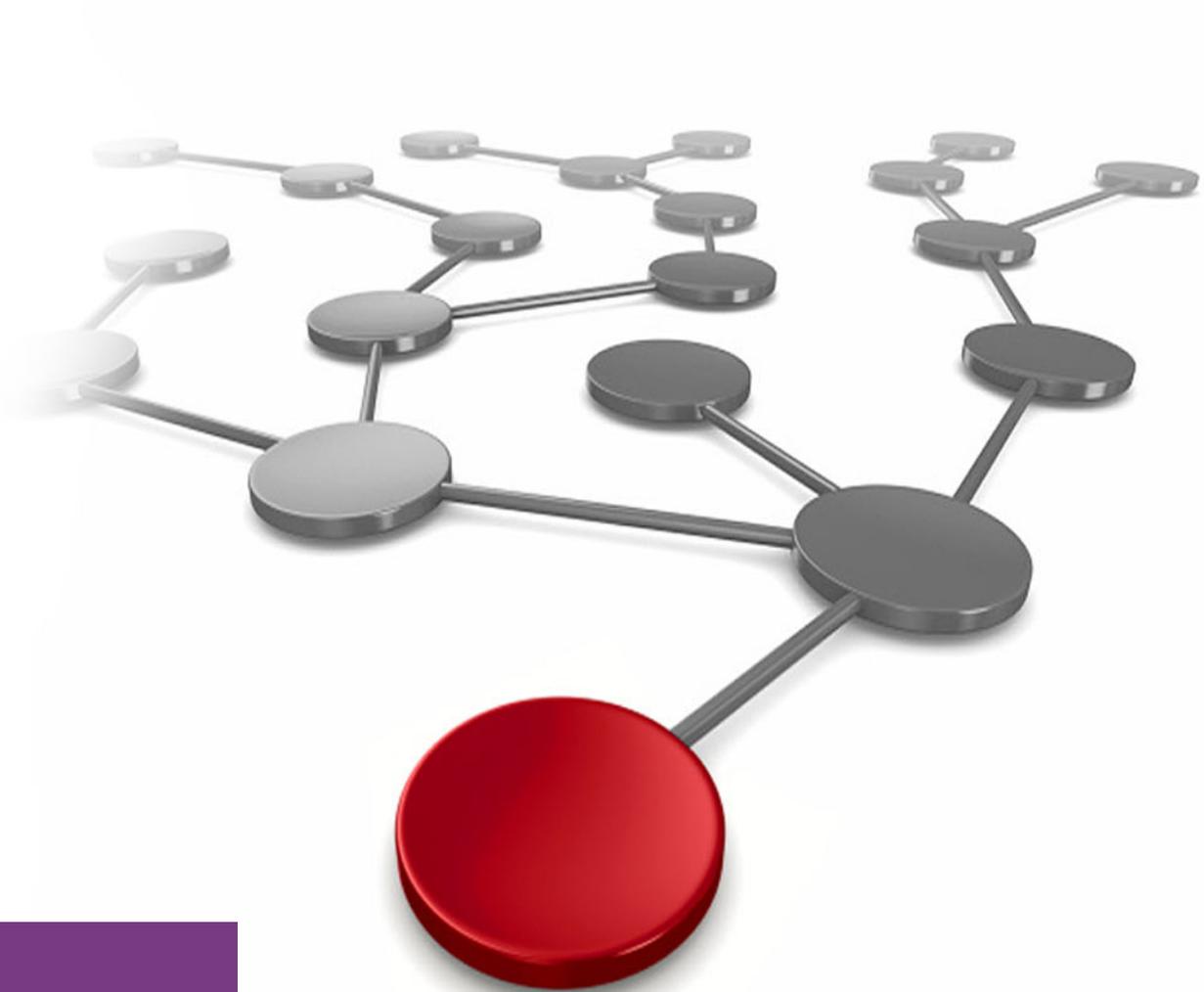


IBM FlashSystem 5000 and 5100 for Mid-Market



Storage



IBM FlashSystem 5010, 5030, and 5100

The IBM® FlashSystem® 5010, 5030, and 5100 help you meet the challenges of rapid data growth while staying within limited IT budgets.

These systems allow you to quickly consolidate, simplify, and optimize your IT infrastructure with an efficient, highly flexible, yet easy-to-use storage system with powerful virtualization features.

This IBM Redpaper® publication is intended for mid-market clients.



Figure 1 FlashSystem 5010 front view (top) and rear view (bottom)

IBM FlashSystem 5010, 5030, and 5100 are affordable, high-performance storage solutions that are easy to use and grow. They are designed for businesses of all sizes including small, remote, and branch offices and regional and enterprise clients. They are a smarter, self-optimizing solution that requires less management, which enables organizations to overcome their storage challenges.

Midrange workloads: IBM FlashSystem 5010, 5030, and 5100 offer the performance, functionality, and cost-efficiency that is demanded by midrange workloads.

Advanced capabilities

IBM FlashSystem 5010, 5030, and 5100 deliver advanced capabilities. Designed to provide organizations with the ability to consolidate and share data at an affordable price, these systems offer advanced enterprise software capabilities that until now were found only in more expensive systems. Consider the following points:

- ▶ IBM FlashSystem 5010, 5030, and 5100 are software-defined storage systems that are built with IBM Spectrum® Virtualize software and designed to consolidate workloads into a single storage system for ease of management and use. These systems reduce costs, and feature highly scalable capacity, high performance, and availability.
- ▶ IBM FlashSystem 5010 and 5030 offer the performance, functionality, and cost-efficiency that is demanded by entry and midrange workloads.
- ▶ The FlashSystem 5030 adds CPU power and other enterprise features, such as data reduction, high availability configurations, and data-at-rest encryption. Hosts can attach by using SAS, 16 Gb Fibre Channel, or iSCSI.
- ▶ IBM FlashSystem 5100 provides greater functionality, including end-to-end NVMe-accelerated performance, IBM FlashCore® Module technology, and support for Storage-Class Memory (SCM) drives for ultra-low latency.
- ▶ All of these systems support concurrent migration from your existing storage. In addition, FlashSystem 5100 supports external storage virtualization for over 500 storage systems from IBM and others, which enables storage consolidation and simplification through improved cross-system consistency.

These affordable storage solutions offer a wide range of enterprise-grade features that can easily evolve as your business grows. Reliable and fast data access is critical for running your business. Whatever the application, your data must be available, secure, and flexible for fast analysis and processing.

IBM FlashSystem 5010, 5030, and 5100 highlights

In this section, we highlight the key features of the IBM FlashSystem 5010, 5030, and 5100 solutions.

IBM FlashSystem 5010

IBM FlashSystem 5010 offers the following key features:

- ▶ Virtualization of internal storage
- ▶ 3-Site replication
- ▶ Local and remote replication (snapshots, disaster recovery, and copy and migrate to cloud)
- ▶ Easy Tier® AI-driven automated tiering
- ▶ Transparent data migration
- ▶ VMware and Red Hat OpenShift container integration

IBM FlashSystem 5030

In addition to the features of IBM FlashSystem 5010, IBM FlashSystem 5030 offers the following features:

- ▶ Data reduction (compression and deduplication)
- ▶ Scale-out clustering
- ▶ IBM HyperSwap® high availability
- ▶ Encryption

IBM FlashSystem 5100

IBM® FlashSystem 5100 includes the following advanced functions:

- ▶ NVMe flash and FC-NVMe host connections
- ▶ High-performance compression and encryption with IBM FlashCore® Modules
- ▶ External storage virtualization of more than 500 storage systems from IBM and others
- ▶ Storage-Class Memory

IBM FlashSystem family specifications

The specifications of the IBM FlashSystem® family are shown in Figure 2 on page 4.

	FlashSystem 5010	FlashSystem 5030	FlashSystem 5100
Software	IBM Spectrum Virtualize	IBM Spectrum Virtualize	IBM Spectrum Virtualize
Connectivity (Standard)	1Gb Management/iSCSI	10Gb Management/iSCSI 1Gb iSCSI (T)	10GbManagement/iSCSI
Connectivity (Optional)	16Gb FC 12Gb SAS 25Gb iSCSI 10Gb iSCSI	16Gb FC 12Gb SAS 25Gb iSCSI 10Gb iSCSI	32Gb FC – SCSI/NVMeoF 16Gb FC – SCSI/NVMeoF 25GbE - iSCSI/ iSER
Cache (per system)	16GB, 32GB or 64GB	32GB or 64GB	64GB, 192GB or 576GB
Capacity (per system)	Up to 392 drives	Up to 504 drives	Up to 760 drives
Capacity (per clustered system)	--	Up to 1,008 drives	Up to 1,056 drives
NVMe Drives	--	--	Yes
SCM Drives	--	--	Yes
Internal Virtualization	Yes	Yes	Yes
Thin Provisioning	Yes	Yes	Yes
Data Migration	Yes	Yes	Yes
FlashCopy snapshots	Yes	Yes	Yes
Remote Mirroring	Yes	Yes	Yes
Easy Tier	Yes	Yes	Yes
Encryption – Internal & External	--	Yes (Internal only)	Yes
Compression	--	Yes	Yes
Deduplication	--	Yes	Yes
System Clustering	--	Yes (2-way)	Yes (2-way)
HyperSwap	--	Yes	Yes
External Virtualization	--	--	Yes
Power (DC is -48v)	AC or DC	AC or DC	AC
NEBS / ETSI	Yes	Yes	--

Figure 2 FlashSystem 5010, 5030, and 5100 specifications

Reduce complexity with one storage platform: IBM FlashSystem

For years, storage vendors introduced multiple platforms, each addressing specific requirements. These platforms add complexity because each one is different: different APIs, different management, and troubleshooting tools, different access to the cloud. And that is for only a single vendor. Consider a multi-vendor installation and the problem becomes even more complex.

Single platform: IBM FlashSystem 5010, 5030, and 5100 deliver entry-level, enterprise solutions at a midrange price.

In addition, data can transparently move back and forth to hybrid cloud environments by taking advantage of IBM Spectrum® Virtualize for Public Cloud.

Using the rich functionality that is provided by the IBM FlashSystem platform, clients can easily configure, secure, and manage their environment (see Figure 3).

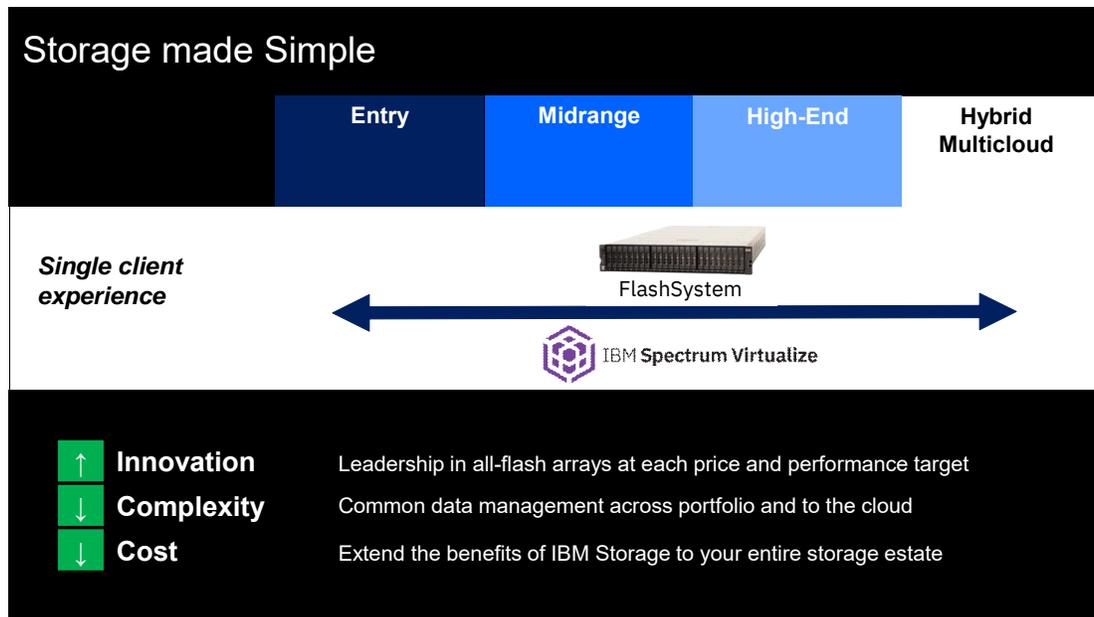


Figure 3 Simplify storage complexity

The IBM FlashSystem family can be used as persistent, highly available storage in Red Hat OpenShift and other container environments. This feature improves flexibility, simplifies deployment, and lowers costs.

FlashSystem is proven and dependable. More than 193,500 systems are running IBM Spectrum Virtualize, managing more than 13.1 exabytes of data¹ and delivering “six nines” of availability.

¹ Based on IBM internal measurements – June 2020.

Reduce footprint, complexity, and overhead

The business solution features and benefits are listed in Table 1.

Table 1 Business solution features and benefits

Business need	Reduce space and operational costs.
Solution	IBM FlashSystem 5010, 5030, and 5100 models are available on a single 2U enclosure. These systems can range 720 TB - 2 PB with the ability to cluster, scale capacity, and performance to many petabytes and hundreds of thousands of input/output operations per second (IOPS).
Benefits	Save on: <ul style="list-style-type: none">▶ Capital expenditures▶ Operational expenditures▶ Valuable rack and floor space▶ Power and cooling cost

IBM Spectrum Virtualize software that is included with the IBM FlashSystem family enables you to optimize storage and maximize efficiency, which dramatically saves cost, floor space and time, freeing up staff and increasing productivity.

IBM Spectrum Virtualize includes the following components:

▶ IBM Easy Tier

IBM Easy Tier provides automatic nondisruptive migration of the most frequently accessed data to the highest performing storage tier while moving less active data to lower performing and less costly storage. No user action is needed because Easy Tier uses AI technologies to recognize data use patterns. By servicing most of the application workload from the fastest storage, Easy Tier accelerates application performance and improves cost efficiency.

▶ Data Reduction Pools

Data reduction pools increase usable capacity by up to five times with sophisticated compression and deduplication technologies². When combined with storage virtualization, data reduction pools can increase the effective capacity of existing storage, extending its life and further reducing costs.

In addition, SCSI UNMAP support automatically frees storage space when servers delete data.

The benefits of data reduction include reduced acquisition cost, reduced space, and lower power and cooling costs throughout the system lifetime.

² From IBM FlashSystem 5030 on.

Easy to manage with cloud-based IBM Storage Insights

The features and benefits of IBM Storage Insights are listed in Table 2.

Table 2 IBM Storage Insights features and benefits

Business need	Ease and simplicity of monitoring, managing, and supporting storage systems.
Solution	<p>IBM Storage Insights is a cloud-based, AI-driven storage management solution that provides a unified view of your storage environment with key capacity and performance information, planning, reporting, alerts, and streamlined support access.</p> <p>IBM Storage Insights offer best practices for monitoring and managing the clients' storage environments. The service collects approximately 23 million data points per day from each storage system and works to predict and prevent issues before they affect business.</p>
Benefits	Understand how your systems are operating and performing, and plan for the future. With IBM Storage Insights, approximately 66% of issues are resolved automatically, and when support is needed, a 40% faster action plan after ticket opening, which results in faster resolution.

Cloud-based IBM Storage Insights provides a single dashboard that gives you a clear view of all of your IBM block storage (see Figure 4). You can make better decisions by seeing trends in performance and capacity. With storage health information, you can focus on areas that need attention. IBM Storage Insights provides a clear view of your environments without the need to install or maintain complex software.

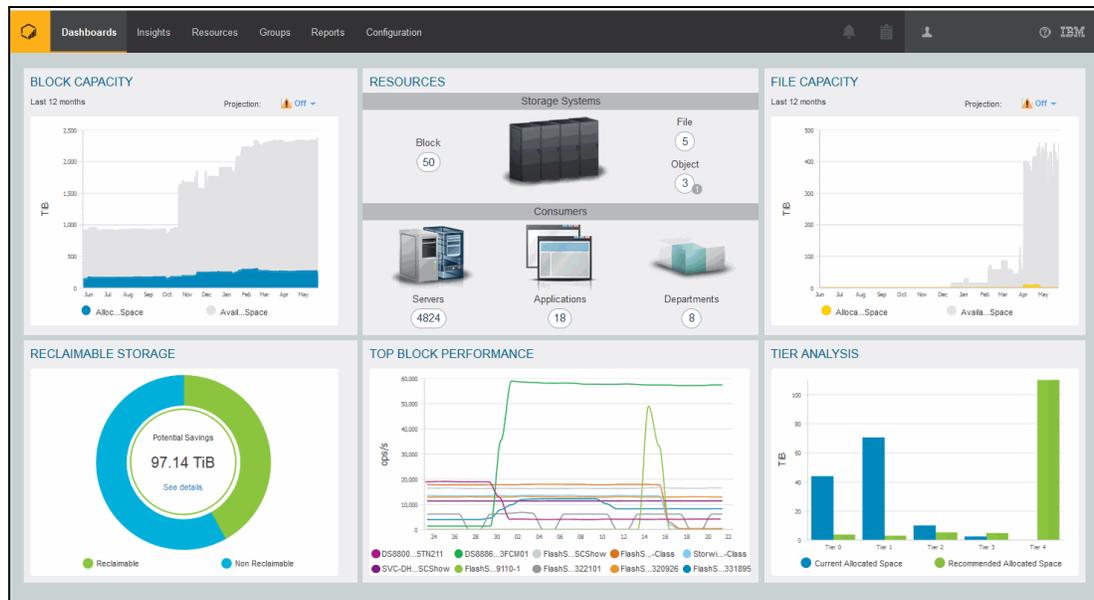


Figure 4 Storage Insights dashboard

What's next: Where to get help

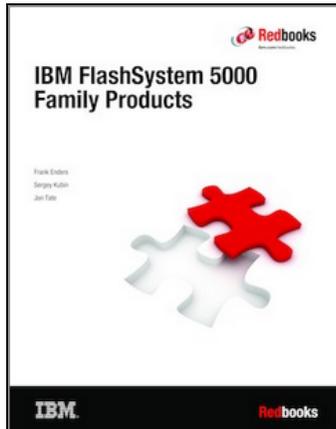
The IBM FlashSystem family is simple, but sophisticated. IBM FlashSystem 5010, 5030, and 5100 bring enterprise features and functions to smaller, mid-market businesses, such as yours.

The IBM FlashSystem family is fast, efficient, easy, resilient, and flexible. Everything is simple from configuration, management, and security to support and the use of IBM Storage Insights. The platform also is scalable, tiers easily, and moves data seamlessly. It also is integrated with other application layers, such as containers, VMware, or Hyper-V, and is easy to protect and upgrade.

With the help of IBM and its Business Partners, you can get everything that you need for operations in a single innovative platform that meets all of your storage needs.

Resources for more information

For more information about the concepts that are highlighted in this paper, see *IBM FlashSystem 5000 Family Products*, [SG24-8449](#).



For more information or for answers to questions, contact your IBM Business Partner.

Notices

This information was developed for products and services offered in the US. This material might be available from IBM in other languages. However, you may be required to own a copy of the product or product version in that language in order to access it.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing, IBM Corporation, North Castle Drive, MD-NC119, Armonk, NY 10504-1785, US

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM websites are provided for convenience only and do not in any manner serve as an endorsement of those websites. The materials at those websites are not part of the materials for this IBM product and use of those websites is at your own risk.

IBM may use or distribute any of the information you provide in any way it believes appropriate without incurring any obligation to you.

The performance data and client examples cited are presented for illustrative purposes only. Actual performance results may vary depending on specific configurations and operating conditions.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to actual people or business enterprises is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

Trademarks

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corporation, registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at “Copyright and trademark information” at <http://www.ibm.com/legal/copytrade.shtml>

The following terms are trademarks or registered trademarks of International Business Machines Corporation, and might also be trademarks or registered trademarks in other countries.

Redbooks (logo) ®
Easy Tier®
HyperSwap®

IBM®
IBM FlashCore®
IBM FlashSystem®

IBM Spectrum®

The following terms are trademarks of other companies:

OpenShift, Red Hat, are trademarks or registered trademarks of Red Hat, Inc. or its subsidiaries in the United States and other countries.

VMware, and the VMware logo are registered trademarks or trademarks of VMware, Inc. or its subsidiaries in the United States and/or other jurisdictions.

Other company, product, or service names may be trademarks or service marks of others.



REDP-5594-00

ISBN 0738458872

Printed in U.S.A.

Get connected

