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# Software-defined business agility

*Catalogic ECX and IBM FlashSystem create highly efficient storage environments*

## Highlights

- Tackle the challenge of using costly enterprise data storage capacity to store copies of production data sets
- Lower costs and increase IT efficiency by deploying copy data management (CDM)
- Leverage the IBM and Catalogic Software partnership to obtain an outstanding flash storage and CDM solution
- Use the combination of IBM® FlashSystem® and Catalogic ECX to increase the efficiency and help lower the cost of flash storage

Modern businesses cannot continue to sustain conventional approaches to creating and managing data copies. In many cases, the traditional approach results in as many as 30 copies[1] of data created and stored throughout the IT environment, including the primary instance and the various backups, snapshots, replicas and database dumps.

The industry term for dealing with data copies and the cost and complexity associated with them is "copy data management" (CDM). The concept is especially meaningful in modern data centers, where one third of current enterprises[2] have already deployed flash as their primary storage medium. This means a significant percentage of businesses may be storing unneeded, unused or inefficiently managed data copies on flash storage—certainly not a good strategy for maximizing the benefits or economics of flash.

IBM and Catalogic Software have been working together to change this equation. The two technology partners have optimized the compatibility and interoperability of IBM FlashSystem all-flash storage and the Catalogic ECX CDM platform, creating a solution that enterprises can implement using their existing IT providers in a simple, meet-in-the-market solution. Extensive testing in IBM labs has confirmed that when deployed together, IBM FlashSystem and Catalogic ECX enable enterprises to significantly improve overall data economics by creating the

more efficient storage environments. But the benefits don't stop there. The combination of IBM FlashSystem and Catalogic ECX provides a leading-edge suite of storage services, automation, orchestration and virtualization features that help accelerate the agility and competitiveness of the businesses they support.

## The value of copy data management

Many enterprises have built highly efficient and resilient storage environments with replicated application-consistent snapshots. This is generally standard practice. But many of these organizations do not use these data copies, reserving them instead for recovery scenarios. And most build out separate storage environments for application testing and development (test/dev), data analytics and disaster recovery. Additionally, many enterprises make significant capital investments and operational expenditures to manage these separate environments—while trying to keep the data in them up to date. The result is too many data copies, lots of software, lots of hardware, plenty of budget overruns and, yet, less-than-optimal access to the data needed.

Copies can account for more than 60 percent of the data in today's IT infrastructure.[3] Primary data is copied repetitively to support a number of business solutions, including disaster recovery, forensics, test/dev and data analytics. By 2018, industry analysts estimate that these extra copies of production data will cost enterprises USD50 billion and consume 475 petabytes (PB) of storage.[3] Enterprises are constantly caught between the need to have copies of production data available for various business purposes and the challenges associated with managing these data copies. As IT budgets are squeezed and IT personnel are asked to get more out of the infrastructure they have, gaining control of the geometric storage growth caused by copy data is a top priority for storage administrators everywhere.

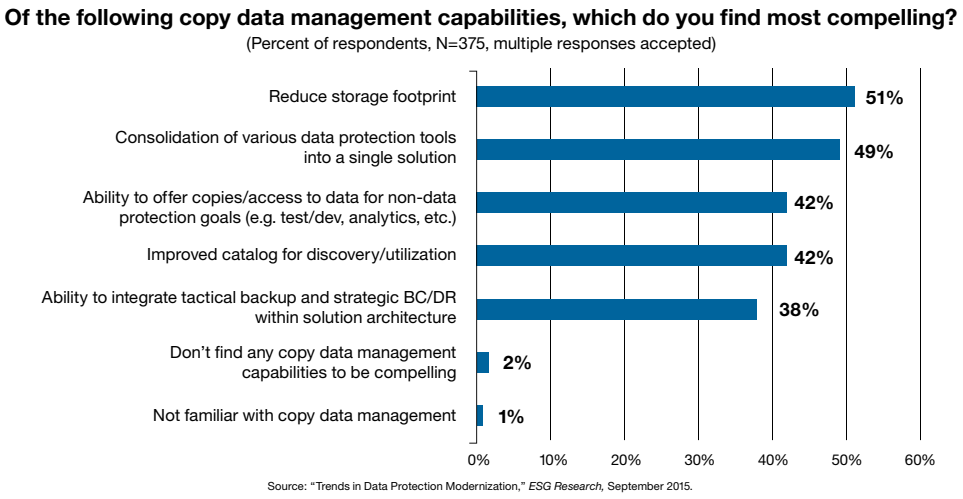


*Figure 1.* Perceived value of copy data management capabilities.

Figure 1 quantifies the perceived value in the marketplace of CDM solutions.[2] Though more than half of respondents were drawn to the promise of reduced storage capacity requirements, almost as many wanted to consolidate their disparate data protection tools. Running a close third and fourth were the desires to easily provision data copies for non-production purposes and accurately catalog the storage infrastructure.[1] In fact, these are exactly the benefits and functionality offered by the Catalogic ECX CDM platform.

## Catalogic: Software-defined CDM

Catalogic Software is a leading provider of software-defined copy data solutions that are purpose-built to leverage the copy services within an enterprise's existing storage and hypervisor infrastructure. Catalogic Software solutions enable visibility into copy data in almost any IT environment and provide rapid data access for operational use cases, automated disaster recovery, test/dev and business analytics.

Catalogic ECX is the storage industry's first software-defined CDM platform that enables enterprises to leverage existing storage infrastructure. Catalogic ECX installs as a virtual machine or virtual application and catalogs storage, application and VMware environments without the need to deploy agents. Once installed, the solution runs out of band to create an actionable catalog of all storage, application and VMware environments. The Catalogic ECX catalog provides IT administrators with the ability to manage, orchestrate and analyze data in order to unleash its power and meet business demands.

### Manage, orchestrate and analyze

Operationally efficient CDM is critical to drive down cost and complexity. Catalogic ECX enables enterprises to quickly and easily establish policies that create and manage local and remote snapshot and replica copies for storage volumes and VMware virtual machines. Creating workflows using Catalogic ECX saves administrators' time, drives repeatability of best practices, and reduces sprawl of data copies that are never used. Catalogic ECX eliminates the dependency on custom scripts and provides service-level and exception-based reporting as well as detailed logging, allowing administrators to manage and diagnose failures faster and help meet service level agreements (SLAs) with the business.

Catalogic ECX workflows instantaneously allow administrators to deliver services that are often otherwise failing or have been deemed next to impossible to implement. Business operations such as disaster recovery can be automated so they can be tested and validated every day. The power of the Catalogic ECX platform enables the resources used for these business operations to be brought up in a fenced/segregated environment, promoted to production quickly with the push of a button, or torn down and cleaned up after a test. Orchestration drives home repeatability and auditability, allowing enterprises to leverage a single data copy for multiple purposes, reducing data sprawl and helping lower costs.

ECX provides application-aware integration for database environments such as Oracle and Microsoft SQL Server that are commonly responsible for a large percentage of copy data. ECX database-specific features include transaction-consistent snapshot copies, log management for point-in-time recovery, data masking for information security and integration with database-specific tools.

Catalogic ECX provides detailed insight across storage, application and VMware environments for both local and remote locations in the enterprise, including the cloud. These analytics begin with an actionable catalog that allows administrators to search existing metadata, snapshots, replicas and hypervisor components. Protection compliance, storage protection and storage utilization reports can quickly deliver valuable insight to the IT team. These reports can help

administrators plan how to achieve better control of the data in their environment and enable planning for a number of business operations.

## Market-leading IBM flash storage

IBM FlashSystem is a family of all-flash storage arrays that offer a comprehensive feature set and are engineered to address the most demanding enterprise performance, reliability and cost requirements. IBM FlashSystem V9000, IBM FlashSystem A9000 and IBM FlashSystem A9000R have all been certified by Catalogic as fully compatible with Catalogic ECX CDM software.

### IBM FlashSystem V9000

IBM FlashSystem V9000 offers the advantages of software-defined storage at the speed of flash memory. This all-flash storage array combines the high performance, ultra-low latency, superior efficiency and extreme reliability of IBM FlashCore® technology with a rich set of virtualization and storage features, including IBM Real-time Compression™, dynamic tiering, thin provisioning, data copy services and high-availability configurations.

IBM FlashSystem V9000.

Leveraging the capabilities of IBM Spectrum Virtualize™ technology, IBM FlashSystem V9000 can function as a feature-rich, software-defined storage layer that virtualizes all managed storage. In this capacity, it acts as the virtualization layer between the host and other external storage systems, extending functionality and flexibility to the external systems. A single IBM FlashSystem V9000 array can manage up to 32 PB of external storage and, because the storage is virtualized, volumes can be moved between external and internal storage capacity without disrupting operations. This functionality enables agile integration into existing storage environments with seamless data migration between IBM FlashSystem V9000 and legacy storage systems.

### IBM FlashSystem A9000

IBM FlashSystem A9000 combines IBM FlashCore technology with an, innovative all-flash grid architecture designed to eliminate most traditional storage management tasks and costs. Built on a foundation of IBM Spectrum Accelerate™ with IBM Hyper-Scale technology, IBM FlashSystem A9000 addresses the needs of rapidly growing structured and unstructured data and cloud environments for simplified management and scale-out capabilities. Comprehensive data reduction, including inline deduplication and IBM Real-time Compression™, optimizes storage economics and efficiency. The advanced management interface with IBM Hyper-Scale Manager enables agile orchestration of private and hybrid multi-tenant cloud environments, even at very large scales.


IBM FlashSystem A9000.

### IBM FlashSystem A9000R

IBM FlashSystem A9000R offers all the advantages of IBM FlashSystem A9000 in a rack configuration for the performance and capacity scalability needed to meet the most demanding cloud environment or big-data analytics storage requirements. The self-tuning, flash-optimized, InfiniBand-powered grid storage architecture of IBM FlashSystem A9000R delivers consistent high performance and reliable quality of service (QoS) for cloud, virtualized and business-critical workloads. A graphical user interface (GUI) with IBM HyperScale Manager, designed with cloud-optimized QoS and multi-tenancy features in mind, enables agile scale-out and orchestration of multi-tenant cloud storage solutions.


IBM FlashSystem A9000R.

## Advantages of software-defined CDM and flash solutions

IBM FlashSystem and Catalogic ECX, each in its own right, bring many benefits to enterprise IT environments, from much higher application performance to much more efficient use of storage capacity. But when deployed together, the two technologies offer some industry-leading advantages.

### Synergies of software-defined systems

Catalogic ECX catalogs, orchestrates and reports on storage system status. It depends on the organization's existing storage system technologies to perform the many functions that Catalogic ECX manages, such as taking snapshots or replicating data sets to disaster-recovery sites. Catalogic ECX accomplishes these tasks by communicating with underlying IT infrastructure components through standard application programming interfaces (APIs). This means that the efficiency and effectiveness of CDM tasks initiated and monitored by Catalogic ECX are directly tied to the capabilities of the underlying systems.

One of the most important synergies between IBM FlashSystem and Catalogic ECX results from the speed of flash storage. Because flash is so fast and Catalogic ECX enables easy management of snapshots, when they are deployed together the two technologies can make provisioning test/dev environments much faster and more productive. Catalogic ECX can save space-efficient snapshots to IBM FlashSystem storage, and from there the snapshots can be quickly used to provision test/dev projects. The result is that application development and testing can use very up-to-date instances of the actual production data, increasing the quality of the test/dev results, and can accomplish this with a minimum of time and effort. Test/dev infrastructure can be provisioned as needed, or scheduled to deploy on a regular basis. And ECX data masking ensures that non-production database copies are properly scrubbed of any data that could violate privacy or compliance rules.

Additional operational gains are available via user self-service. Catalogic ECX can be deployed as a self-service portal to allow end users such as developers, testers and business analysts to request data or system copies whenever they need them without administrator intervention. At the same time, IT managers define the constraints placed upon the users so there is no risk of infrastructure abuse or over-provisioning.

Because Catalogic ECX has a fully implemented RESTful API, all operations that are available via the user interface can also be driven via code, providing infrastructure as a service. Software developers can easily combine their favorite DevOps tools such as Chef, Puppet or IBM Bluemix® with ECX to spin up infrastructure components as part of an overall DevOps methodology.

Another way that the underlying IBM FlashSystem infrastructure increases the efficiency and effectiveness of Catalogic ECX environments comes from the fact that IBM FlashSystem brings the full capabilities of the IBM Spectrum Storage™ family of software-defined storage solutions. This means that IBM FlashSystem solutions can provide the wide range of features and benefits offered by the entire IBM Spectrum Storage family, from external storage system virtualization and dynamic tiering, through comprehensive data reduction, to encryption and worldwide mobility. Additionally, IBM Spectrum Storage brings deep integration with VMware components such as VMware vSphere, VMware vCenter and the VMware Virtual Volumes initiatives.

Extensive testing in IBM labs has verified that Catalogic ECX integrates effectively with all the software-defined storage capabilities provided by IBM Spectrum Storage and IBM FlashSystem platforms. For enterprises that have already implemented Catalogic ECX, adding IBM FlashSystem doesn't require retiring any existing storage systems. It instead enhances and accelerates the entire environment with the high performance of flash and the ability to virtualize any legacy systems and extend the powerful capabilities of the IBM Spectrum Storage family to all.

### Lower cost high performance

A key objective of CDM is to dramatically increase storage system efficiency. After Catalogic ECX is implemented and it completes the process of cataloging every data copy with its lineage, statistics and status, "orphaned" data copies will typically be revealed. IT administrators can then clean up the copy landscape, verifying which copies are useful and eliminating the rest. In this manner significant storage capacity may be reclaimed and flash storage is used more efficiently, lowering overall storage costs.

## Achieving software-defined business agility

With IBM FlashSystem and Catalogic ECX accelerating crucial applications and increasing efficiency, the effect can be something like a very heavy weight being lifted from your business—with your IT infrastructure and your budget no longer dragging the burden of unused data copies, labor-intensive IT processes and unmet SLAs. Increased business agility can be the result. The focus of budget, investment, and mindshare can then turn from keeping the lights on to quickening the pace of innovation.

Business agility isn't a slogan; it's a necessity. The performance and capabilities of the IBM FlashSystem family and the efficiencies resulting from Catalogic ECX copy data management aren't bells and whistles; instead, they can be the foundation of a business with the agility to capture and keep competitive advantage.

## For more information

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

Additionally, IBM Global Financing provides numerous payment options to help you acquire the technology you need to grow your business. We provide full lifecycle management of IT products and services, from acquisition to disposition. For more information, visit: **ibm.com**/financing



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[1] "ESG Research Report: 2015 Trends in Data Protection Modernization," *Enterprise Security Group*, September 30, 2015. http://bit.ly/2fvWQC1

[2] "ESG Research Report: 2015 Data Storage Market Trends," *Enterprise Security Group*, October 21, 2015. http://bit.ly/2fTUgrW

[3] "Solving the Copy Data Problem with In-Place Copy Data Management," *IDC.*, October 2015. http://data.catalogicsoftware.com/en/resources/idc-in-place-copy-data-management

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