

# Driven by Data

Accelerate innovation and competitiveness in a data-driven, multi-cloud world

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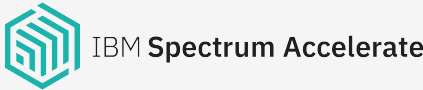
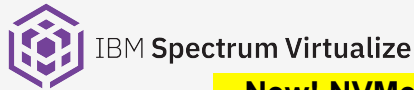
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# IBM Systems Flash Storage Offerings Portfolio



**New! NVMe end-to-end**

**Storwize V5030F / V7000F**



Entry / Mid-Range

**FlashSystem 9100**




Enterprise Class, NVMe accelerated Multi-Cloud Enabled

**FlashSystem A9000**




Cloud Service Providers

**FlashSystem A9000R**



High End Enterprise

**IBM Elastic Storage Server**



Big Data

**DS888xF**



Business Critical

Scale-out clustering  
Simplified management  
Flexible consumption model  
Virtualized, flash-optimized, modular storage  
Enterprise heterogeneous data services and selectable data reduction

Simplified management  
Flexible consumption model  
Large Grid scale  
Full time data reduction

Consolidate file, object & Hadoop workloads  
Faster data analytics  
Global sharing

z/OS / AIX  
Power HA  
Power i HA  
Business critical, deepest integration with IBM Z  
Superior performance and reliability  
Three-site / Four-site replication  
DS8888F, DS8886F, DS8884F, DS8882F



**SVC**




Enhanced data storage functions, economics and flexibility with sophisticated virtualization

**IBM FlashCore™ Technology Optimized**

**NVMe FlashCore Module**  
Superior endurance & better performance

- FIPS 140-2
- Hardware Compression



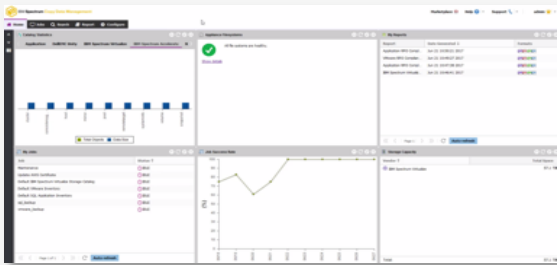
**FlashSystem 900**  
Application acceleration

- Extreme performance
- Hardware Compression
- Targeting database acceleration



# IBM FlashSystem 9100 – Enterprise NVMe Flash Array

## NVMe-Accelerated and Multi-Cloud Enabled



### NEW IBM FlashSystem 9100

- NVMe-Accelerated Enterprise Flash Array – 100% NVMe end-to-end
  - Industry Leading Performance and Scale - NVMe IBM FlashCore Modules and NVMe industry standard SSD
  - Agility, Availability and Security
  - Supports Physical, Virtual and Docker Environments
- IBM Storage Insights: AI-empowered predictive analytics, storage resource management, and support platform delivered over the cloud
- Includes Spectrum Storage Software for array management, data reuse, modern data protection, disaster recovery, and containerization
  - IBM Spectrum Virtualize
  - IBM Spectrum Copy Data Management
  - IBM Spectrum Protect Plus
  - IBM Spectrum Virtualize for Public Cloud
  - IBM Spectrum Connect



**FlashSystem 9100**



### NEW IBM FlashSystem 9100 Multi-Cloud Solutions

- Solution blueprints for Data Reuse, Protection and Efficiency
- Solution blueprints for Business Continuity and Data Reuse
- Solution blueprints for Private Cloud Flexibility and Data Protection

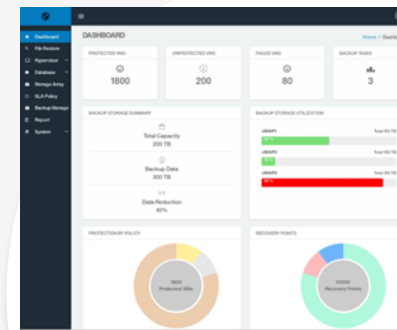
# IBM FlashSystem 9100

## NVMe-Accelerated Enterprise Flash Array

- Unmatched NVMe performance

	<u>Latency</u>	<u>IOPS</u>	<u>Bandwidth</u>
- 2U array	100 $\mu$ s	2.5M	34GB/Sec
- 8U cluster	100 $\mu$ s	10M	136GB/sec

- Consistent low latency with Peak IOPS for transactional workloads and massive bandwidth for AI/ML workloads
- 5X data reduction delivers 2PB in 2U and 32PB in a single system dramatically reducing CAPEX and OPEX
- Built in encryption and FIPS 140-2 compliance
- Built for 100% data availability for systems using HyperSwap

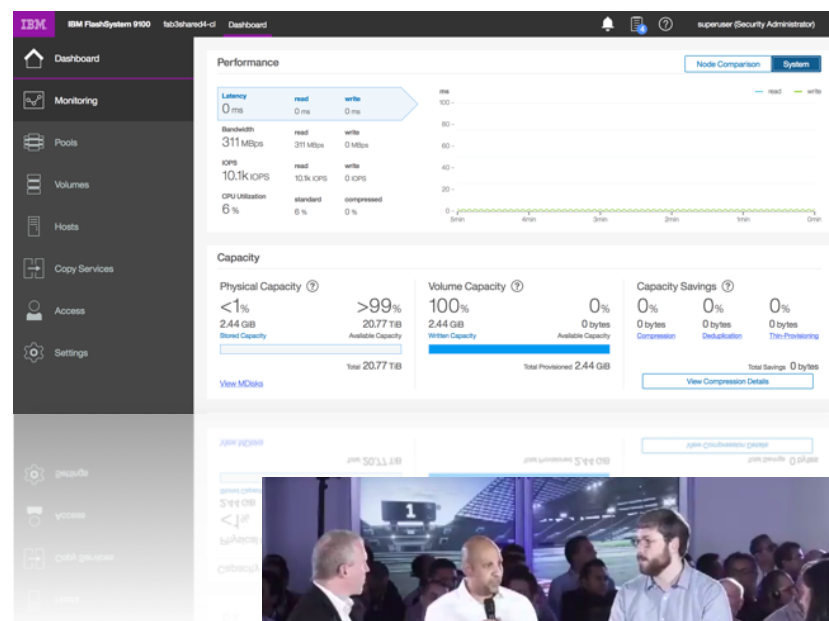


# FlashSystem 9100 NVME – Client Insights

## Delivers real value in our data driven enterprise

*“We are a long time client of IBM's FlashSystem solutions and have found them to be outstanding for delivering real value in our data driven enterprise. We are very excited about the new FlashSystem 9100 not only because of its blazing application performance, but also its panoply of included multi-cloud enabled storage software, which will provide even more business benefits.”*

- ZE PowerGroup Inc, Nader El-Ramly Chief Technology Officer



## FlashSystem 9100 NVME – Client Insights



"IBM FlashSystem and IBM Spectrum Virtualize both have well-earned reputations as leaders in the marketplace"

*"In our business, we need the very best technology available in order to keep pace with rapidly changing customer demands and increasing competition. IBM FlashSystem 9100 provides the reliability and quality we demand with the blazing performance of NVMe and all the new multi-cloud and flash innovations that IBM is continually introducing. Now, with one system, we can address data growth, efficiently solve application performance issues, and virtualize all of our existing storage infrastructure into one high performance, agile storage resource."*

- John Piihl Mortensen, IT Solution Specialist of IBM Storage client and beta user B4Restore A/S

NVMe-accelerated Multi-Cloud Enabled



### Minimal Risk

*"The value and insights we gain from our data provide important advantages to our business. This means that high performance storage has always been a crucial part of our IT infrastructure,"*

*"We have intended to move toward NVMe-based storage, but needed to keep deployment risks low. The new IBM FlashSystem 9100 enables us to take advantage of NVMe technology and performance with minimal risk, thanks to the maturity and stability of the IBM FlashSystem platform. This new system is a big step forward for us."*

- Tim Conley of The ATS Group and Galileo Performance Explorer, a longtime IBM Storage client



# CTAC

Dutch Cloud provider uses IBM FlashSystem, IBM Spectrum Storage & IBM Storwize

## Up to 1000x

performance improvements cost-efficiently

## 95% faster

deployment of in-memory platform cuts on implementation time for real-time business applications and increased responsiveness to fluctuating demands

## Create new business opportunities

to grow operations by offering a scalable real-time analytics service to existing and new customers

### Solution Components

- IBM® FlashSystem™
- IBM Storwize® V7000F
- IBM Storwize V5000
- IBM Spectrum Virtualize™
- IBM FlashCopy®
- IBM Spectrum Protect™



### Business Challenge

Ctac wanted to support its customers' business process innovations with a robust, in-memory cloud solution, helping them to benefit from real-time insights and gain new competitive advantages

### Transformation

To support process innovations, Ctac deployed SAP® HANA® on IBM Storage with IBM® Power Systems™ according to the SAP Tailored Datacenter Integration concept, creating a new cloud offering for in-memory processing

[Léon van den Bogaert, Manager Cloud Technology Ctac](#)



# Plenty of Fish (A Match Group Company)

World's largest dating site provides uninterrupted online dating with FlashSystems



Reduced image delivery  
latency by 500X

Over 150,000 IOPS  
per second

>60,000 batch requests  
processed per second

4 times lower cost  
than competition

## Solution Components

- IBM FlashSystem V9000
- IBM FlashSystem 900
- IBM FlashSystem 820

## Business challenge

POF helps 4M daily users find love online—but as the company outgrew its aging storage, resulting in delays in the user experience, it faced the risk of losing users to the competition.



## Transformation

Implemented all-flash arrays from the IBM® FlashSystem® family, enabling it to push information to its customers at high speeds so that they could connect and interact almost in real time

***“Speed directly drives the user experience—and if any element of the experience falters, users will look elsewhere... We knew we needed faster storage to keep up.”*** Owen Morley, Director of Infrastructure, Plenty of Fish.





# Gala Leisure Ltd.

Popular recreation company harnesses efficient IT FlashSystem



**98 percent**

reduction in required floor space

**71 percent**

cut in storage operational costs

**57 percent**

boost in application performance



**Business challenge:** #1 Retail and digital Bingo operator in the UK was beset with inefficiency and cost issues after a divestiture left it with suboptimal IT resources

**The solution:** IBM FlashSystem V9000 is implemented in a virtualized configuration with IBM SVC, Storwize V7000F, XIV and All-flash VersaStack

## Solution Components

- IBM All-Flash VersaStack using IBM FlashSystem V9000
- IBM Storwize V7000F
- IBM SAN Volume Controller
- IBM Spectrum Virtualize
- IBM XIV

**“With the IBM storage solution in place, we now have higher storage performance combined with lower operational and support costs - empowering Gala Leisure to continue on its next phase with a solid IT foundation.”** – Daniel Askin, Solutions Architect, Gala Leisure IT

# Awards and Recognition



IBM recognized in the below markets for our listed solutions:

**IBM SSA Portfolio**  
2014 - 2018  
A Leader:  
Magic Quadrant for Solid State Arrays (July 2018)<sup>1</sup>

**IBM Cloud Object Storage**  
2018  
Critical Capabilities for Object Storage<sup>1</sup>  
Highest Scores In All Use-cases:  
Analytics, Archiving, Backup, Content Distribution, Cloud Storage (January 2018)

**IBM Storwize, XIV, DS8000**  
2013 - 2017  
A Leader:  
Magic Quadrant for General-Purpose Arrays<sup>1</sup> (October 2017)

**IBM Spectrum Scale & IBM Cloud Object Storage**  
2016 - 2017  
A Leader:  
Magic Quadrant for Distributed File Systems & Object Storage (October 2017)<sup>2</sup>

**IBM Spectrum Protect**  
2011 - 2017  
A Leader:  
Magic Quadrant for Data Center Backup & Recovery Solutions (July 2017)<sup>1</sup>



**IBM Cloud Object Storage**  
2018, 2016  
A Leader in Object-Based Storage by IDC MarketScape<sup>2</sup>

**IBM**  
2017  
#1 Storage Software<sup>3</sup>

**IBM Spectrum Storage**  
2014 - 2017  
#1 Software-Defined Storage Controller Software<sup>4</sup>

**IBM Tape**  
2006 - 2017  
#1 Branded Tape Revenue<sup>5</sup>

**IBM FlashSystem**  
2015 - 2016  
A Major Player in All-Flash Array by IDC MarketScape<sup>6</sup>



**IBM Mid-Range Tape Drives & IBM Tape Libraries**  
2018  
Market Leader




**IBM Storage / IBM PartnerWorld**  
2018  
Channel Acceleration Award



**IBM**  
2018  
SAP Global Partner of the Year: Infrastructure



**IBM**  
2018  
5 Star Storage Vendor



**IBM DS8880F**  
2017  
Product of the Year Finalist: Enterprise Storage Arrays

**IBM Elastic Storage Server**  
2017  
Product of the Year Finalist: Enterprise Storage Arrays

**IBM Spectrum Protect**  
2017  
Product of the Year Finalist: Data Backup & Recovery Software

**IBM Spectrum Scale**  
2017  
Product of the Year Finalist: Software-Defined Storage



**IBM Spectrum Protect Plus**  
2017  
VMworld Hot Product



**IBM Spectrum Scale, IBM Storwize**  
2017  
Best HPC Collaboration: Academia, Government and Industry

**IBM Spectrum Scale**  
2017  
Best HPC Storage Product or Technology

**IBM Spectrum Scale, IBM Storwize**  
2017  
Best Use of HPC in Life Sciences



**IBM**  
2018  
Runner Up:  
Hybrid Storage Vendor of the Year

<sup>1</sup>Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose. GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the U.S. and internationally, and is used herein with permission. All rights reserved. Gartner document available from IBM upon request. <sup>2</sup>IDC Worldwide Storage Software and Cloud Services QView, 4Q17 (8 March 2018). Dell Inc. and IBM were statistically tied in worldwide storage software market share due to a difference of one percent or less in the share of revenue for calendar 2017. <sup>3</sup> IDC Worldwide Storage Software and Cloud Services QView, 4Q17. (8 March 2018). <sup>4</sup>IDC Custom Tape Report, 2H'17. <sup>5</sup>IDC MarketScape WW All-Flash Array 2015-2016 #US40721815 Dec. 2015. <sup>6</sup>IDC MarketScape WW Object-Based Storage 2016 #US41918416 Dec. 2016.



IBM Storage

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