

**IBM Storage & SDI**

# **IBM Storage Solutions for Multicloud**

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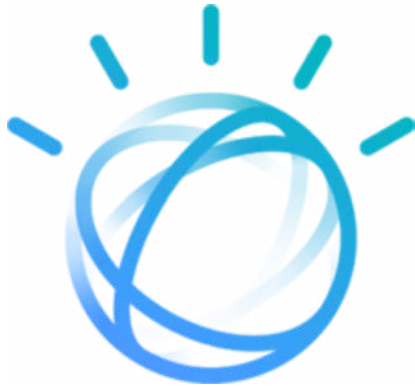
Chief Marketing Officer  
Vice President, Worldwide Storage Channels  
IBM Storage and Software-Defined Infrastructure

August 2018

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# 2018 Strategy



AI solutions ingest data of all forms,  
structured and unstructured, understand  
that data, learn from it, and reason  
through it



Multi-cloud is the architecture  
AI solutions are built on

*Data is the Resource they all Depend on*

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# Broadest Portfolio in the Industry

*Delivering AI, Data Driven, Multicloud Solutions*

## Backup & Archive

Backup



IBM  
Spectrum  
Protect

VM Data  
Availability



IBM  
Spectrum  
Protect Plus

Archive



IBM  
Spectrum  
Archive

## Management

Monitoring  
& Control



IBM  
Spectrum  
Control  
IBM  
Storage  
Insights

Container  
& VM APIs



IBM  
Spectrum  
Connect

Copy Data  
Management



IBM  
Spectrum  
CDM

## Cluster Virtualization for Servers

High-  
Performance  
Computing



IBM  
Spectrum  
LSF

High-  
Performance  
Analytics



IBM  
Spectrum  
Symphony

New-Gen  
Workloads



IBM  
Spectrum  
Conductor

## Infrastructure / Cloud



IBM Cloud  
Object  
Storage

Scale-Out  
Object



Cloud Object  
Storage System



IBM  
Spectrum  
Virtualize

Virtualized Multi-Vendor  
Block

Storwize V5030F

Storwize V5000



FlashSystem  
V9000

Storwize V7000F

Storwize V7000

FlashSystem 9100

FlashSystem 9100

SAN Volume  
Controller

SAN Volume  
Controller

Available as



IBM  
Spectrum  
Accelerate

Scale-Out  
Block



FlashSystem  
A9000



FlashSystem  
A9000R



XIV Gen3



IBM  
Spectrum  
Scale

Scale-Out  
File



Elastic Storage  
Server



IBM  
Spectrum  
NAS

Traditional  
NAS/File

All-Flash  
Acceleration



FlashSystem 900

High-End  
Storage



DS8884F

DS8886F

DS8884

DS8886

DS8882F

Tape &  
Virtual Tape



LT08 &  
Tape Drives

TS7700  
Family

TS2900  
Autoloader

Tape  
Libraries

Coming 14 August!

Networking  
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# IBM Storage Recognition 2018



IBM recognized in the below markets for our listed solutions:

## 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 Cloud Object Storage 2018, 2016

A Leader in Object-Based Storage by IDC  
MarketScape<sup>2</sup>



## IBM Storage / IBM PartnerWorld 2018

Channel Acceleration  
Award



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



## Flash Memory Summit

**IBM FlashSystem 9100  
2018**  
Most Innovative Flash Memory Technology



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



**IBM  
2018**  
5 Star  
Storage Vendor



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

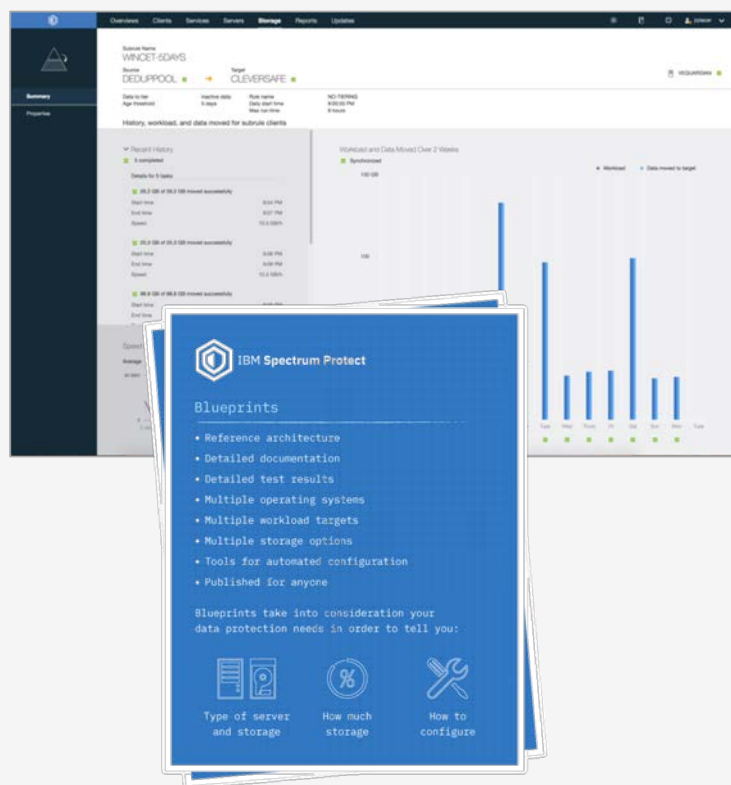
<sup>1</sup>Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization 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 MarketScape WW Object-Based Storage 2018 Vendor Assessment #US42665518E June 2018. <sup>3</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>4</sup>IDC Worldwide Storage Software and Cloud Services QView, 4Q17. (8 March 2018). <sup>5</sup>IDC Custom Tape Report, 2H'17 <sup>6</sup>IDC MarketScape WW All-Flash Array 2015-2016 #US40721815 Dec. 2015.

# SUMMIT: IBM Storage Innovation in Today's Data Driven Multicloud World

- Fastest supercomputer in the world: IBM Storage+IBM Power
- **250PB** of IBM Storage
  - IBM Spectrum Scale
  - ESS on POWER9
- 200 quadrillion calculations per second
- IBM Storage delivers *INNOVATION* to clients



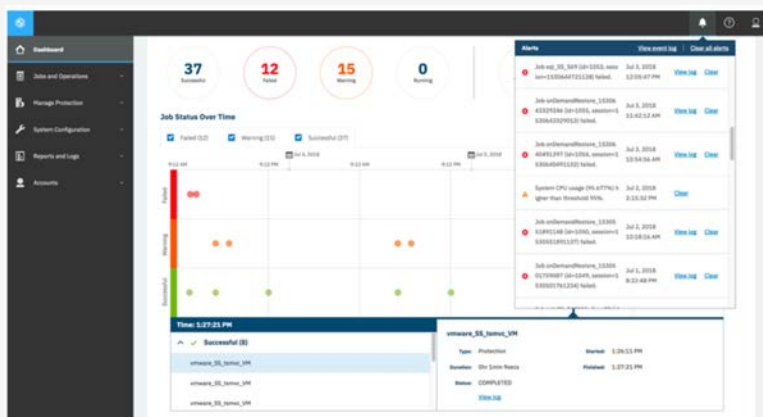
# 14 August Launch



- Tiering option for improved use of multicloud storage
  - Tier backup data based on state
    - Active data remains on-premises to help meet RTO needs
    - Inactive data (previous backup copies) stored in cloud to reduce costs
- Malware/ransomware detection extended to include hypervisor data
- IBM Spectrum Protect blueprints take the guesswork out of cloud deployments
  - IBM Cloud, Amazon AWS, MS Azure



# Multicloud Modern Data Protection with IBM Spectrum Protect Plus 10.1.2



- Encryption of vSnap repositories improves backup security
- VMware vSphere 6.7 support
- IBM Db2 support
  - Reuse backup copies for test/dev, DevOps, analytics, etc
  - Joins supported MS SQL and Oracle databases
- Improved dashboard with more intuitive experience, enhanced alerting

# IBM DS8882F Integrated with IBM Z and LinuxONE



- Industry's ONLY rack-mounted enterprise storage system integrated with IBM Z and IBM LinuxONE servers
- Rack-mounted IBM DS8882F
  - For IBM Z ZR1 and LinuxONE Rockhopper II
  - Installable in standard 19-inch racks
- 6.4 TB to 368.64 TB raw capacity
- Up to 50% reduction in floor space

# IBM DS8880 Safeguarded Copy and Enhanced Encryption for Transparent Cloud Tiering



- Safeguarded Copy protects sensitive data copies
  - Read-only copies
  - Encrypted digital signatures prevent unauthorized changes or deletion
- DS8880 automatic data encryption before sending to cloud or IBM Cloud Object Storage
  - Coordination with IBM Z systems prevents duplicate data encryption
  - AES-256 bit encryption

# IBM Cloud Object Storage

*Award-winning backup and archive storage*



IBM DS8880



IBM Cloud **Object Storage**

- Flexible and economical target for IBM DS8880
- Direct connection without gateways
- Expanded choice for SDS configurations using IBM Cloud Object Storage software
  - 23 different supported servers with V3.14
  - Simplified process enables rapid validation of new servers
- First 1U server (Quanta) enables **50% less rack space** for 72TB configurations

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# IBM Spectrum Scale on Amazon AWS



The screenshot shows the AWS CloudFormation console. At the top, there's a 'Stacks' section with a 'Create Stack' button and a 'Design template' link. Below this is a table of stacks. The table has columns for 'Stack Name', 'Created Time', 'Status', and 'Description'. There are four stacks listed, all with a status of 'CREATE\_COMPLETE'. The first stack is 'IBM-Spectrum-Scale-ClusterStack-CT2MAAM43FU', the second is 'IBM-Spectrum-Scale-BastionStack-BC2C9FV8K9A', the third is 'IBM-Spectrum-Scale-VPCStack-MG0PJD03NEN', and the fourth is 'IBM-Spectrum-Scale'. The fourth stack is selected. Below the table, there's a 'Details' section with tabs for 'Overview', 'Outputs', 'Resources', 'Events', 'Template', 'Parameters', 'Tags', 'Stack Policy', and 'Change Sets'. The 'Events' tab is active, showing a list of events for the selected stack. The events are listed in a table with columns for 'Status', 'Type', 'Logical ID', and 'Status reason'. The events show the stack being created and then the resources being created.

Stack Name	Created Time	Status	Description
IBM-Spectrum-Scale-ClusterStack-CT2MAAM43FU	2017-10-11 16:11:46 UTC+0550	CREATE_COMPLETE	This template creates spectr
IBM-Spectrum-Scale-BastionStack-BC2C9FV8K9A	2017-10-11 16:06:24 UTC+0550	CREATE_COMPLETE	This template is intended to
IBM-Spectrum-Scale-VPCStack-MG0PJD03NEN	2017-10-11 16:02:13 UTC+0550	CREATE_COMPLETE	This template creates a Mut
IBM-Spectrum-Scale	2017-10-11 16:02:06 UTC+0550	CREATE_COMPLETE	This template deploys the A

Status	Type	Logical ID	Status reason
CREATE_COMPLETE	AWS::CloudFormation::Stack	IBM-Spectrum-Scale	
CREATE_COMPLETE	AWS::CloudFormation::Stack	ClusterStack	
CREATE_IN_PROGRESS	AWS::CloudFormation::Stack	ClusterStack	Resource creation initiated
CREATE_IN_PROGRESS	AWS::CloudFormation::Stack	ClusterStack	
CREATE_COMPLETE	AWS::CloudFormation::Stack	BastionStack	

- AWS deployment with flexible per TB license
  - Bring-your-own-license on Amazon AWS
  - Single file system across multiple AWS images
  - Burst-to-cloud workloads
  - AWS QuickStart to new or existing VPCs
- IBM Spectrum Scale 5.0.2
  - Continued enhancement of enterprise experience
  - Expanded security options and features
    - File audit logging, watch folder, renewed SEC 17a-4f certs
  - Simplified installation and troubleshooting
    - GUI driven guided set-up for advanced features
    - Automated network resilience and recovery

# SAS with IBM Spectrum Scale on Amazon AWS

*SAS Institute Best Practices Paper*



IBM  
Spectrum  
Scale



“ The primary take-away from these tests is that the one- and four-node AWS configurations using IBM Spectrum Scale NSDs easily provided enough throughput to fully exploit this host environment. The four-node AWS configuration using IBM Spectrum Scale could meet the accelerated and scaled throughput demand, while providing a very healthy CPU/Real Time ratio per node.”

Source: Performance and Tuning Considerations on Amazon Web Services with SAS 9.4 Using IBM Spectrum Scale  
<http://support.sas.com/resources/papers/performance-tuning-considerations-amazon-web-services-sas-9-4-ibm-spectrum-scale.pdf>  
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# IBM Storage Solutions

*Pretested, validated, multicloud enabled, easy and quick to deploy*



## IBM Spectrum Access Blueprint for IBM Cloud Private

- Extended to support IBM Z ZR1 and LinuxONE Rockhopper II
- Adds support for DS8880 and FlashSystem 9100
- Brings IBM Z and LinuxONE benefits of high security and high system throughout to containerized environments using persistent storage with IBM Cloud Private

## Best Practices Solution for VDI with FlashSystem 9100

- VDI solution with cost-effective high performance NVMe flash storage

## Solution in Development: GA late 3Q

- SAP HANA TDI certified with FlashSystem 9100



# Join Us at VMworld!



IBM booth - #**1312**

Find out more at - [ibm.com/cloud/vmworld](https://ibm.com/cloud/vmworld)

# Thank you

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