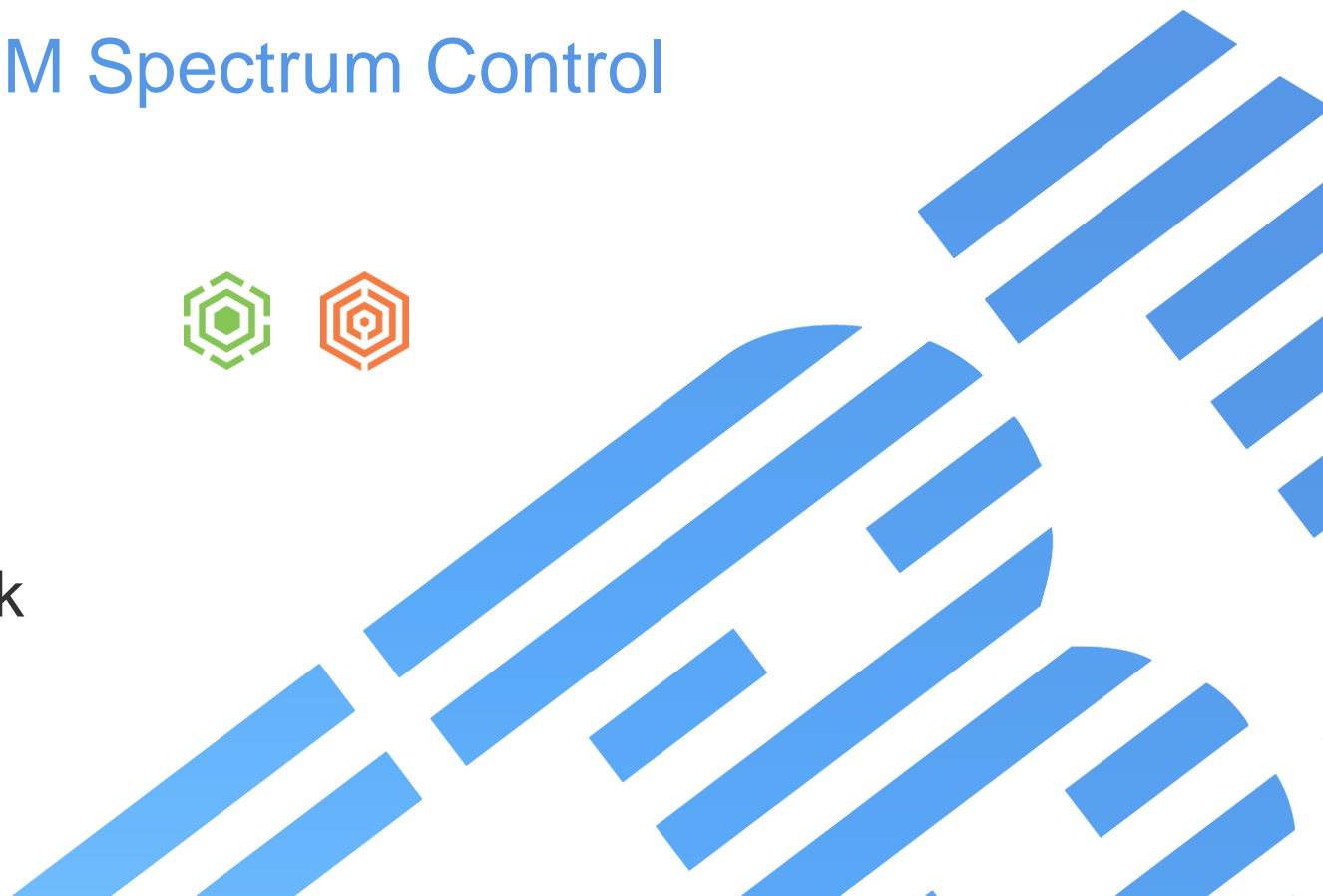


# IBM ESS with IBM Spectrum Control



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# IBM Elastic Storage Server and IBM Spectrum Control



Today's never-ending data growth challenges traditional storage and data management solutions. Outdated systems are expensive to administer and scale, and limit the data access, performance and reliability required by today's data-intensive computing environments—particularly when data is accessed on a global scale. Data-access bottlenecks impact application performance, delay schedules and waste expensive resources

- IBM Elastic Storage Server is a modern implementation of software-defined storage built on IBM Spectrum Scale™, with extreme scalability, flash-accelerated performance, and automatic policy-based storage tiering from flash through disk to tape or cloud—helping reduce storage costs up to 90 percent<sup>1</sup> while providing better security and management efficiency in cloud, big data and analytics environments
- IBM® Spectrum Control™ is a comprehensive solution that can significantly improve monitoring, automation and analytics capabilities in multi-vendor storage environments. 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

# IBM Elastic Storage Server

- Scalable: IBM ESS can deliver up to 40GB/s of throughput and scale-out to exabytes of storage with IBM Spectrum Scale. Growing data can be managed and tiered across practically any storage.
- Better TCO: IBM ESS uses IBM Spectrum Scale RAID with de-clustered erasure coding to distribute and protect data.
- Cloud Ready: Native tiering capability allows moving data to or from the cloud based on business policies.



# IBM Spectrum Storage Suite



Virtualize



Accelerate



Cloud Object Storage



Scale



Archive



Control



Protect



Secure



Any Storage



Efficient



Flash



High-Performance



Hybrid Cloud



Storage Rich Servers



- 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 helps consolidate management of file, object, flash, block, server-based and software-defined storage.
- 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.

# Why IBM ESS and IBM Spectrum Control?

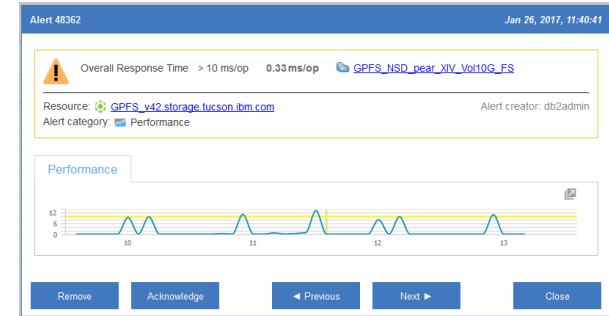


Feature	Function	Value	Spectrum Scale element manager	Spectrum Control, Storage Insights
Provision shares in a single Scale cluster	Create shares for host applications	Increased ROI	✓	
Single pane of glass to monitor file, block, object storage	Centralized view of assets	Lower TCO		✓
Monitor 6-8 client centric or storage centric Scale clusters	Centralized view of all Scale clusters	Fewer consoles, fewer clicks, frees up admin time		✓
Capacity monitoring in external pools (IBM COS, Spectrum Archive, Spectrum Protect)	Centralized view of assets on premise and in the cloud	Unified asset mgmt.		✓
View all extended infrastructure supported by Scale	End to end monitoring	Faster root-cause, lower TCO		✓
Monitor fabric level details for SAN attached storage	No need to switch between tools like Brocade Network Advisor	Lower TCO		✓
Trouble-shoot NSD performance problems by looking at block storage backing NSD	A way to trace application performance to back end storage	Lower TCO		✓
Monitor relationships between multiple Scale clusters	Greater insights into interrelationships	Fewer consoles & clicks, frees up admins		✓
Reporting for Chargeback on storage capacity use by departments	Executive level reports on storage consumption regardless of type or vendor	Enables internal asset allocation		✓

# IBM ESS and IBM Spectrum Control: Implement Easy to Use Capacity Management



- Identify when you will run out of iNodes
- Identify when a file system runs out of space
- Identify candidates for deletion and space reclamation by viewing size and age of snapshots
- View file system relationships, quotas, snapshots, NSDs being used to build a pool
- View number of nodes using the file system
- Compare pools across the Scale cluster



# IBM ESS and IBM Spectrum Control: Implement Showback/Chargeback



**Configure Report**

**Select Storage Consumer**

Applications

**Include Capacity Values in Report**

Block Storage  File Storage

**Block Storage**

**Report Capacity Based On**

Allocated Space  Assigned Space

**Display Capacity by Tier**

Yes  No

**Display Copy Data**

VDisk Mirrors  FlashCopy  Remote Mirrors

**By Tier**

Yes  No

**Set Storage Cost**

Use Default Cost  Set Custom Cost

Save and Send Cancel Deletes

**IBM Spectrum Control**  
Chargeback Report

Application	Cost	Total (TiB)	File (TiB)
0_capacity	3.87	0.04	0.00
alksjflkdsf	0.00	0.00	0.00
Application	1284.94	14.37	0.00
DataStore_local	0.00	0.00	0.00
DataStore_SAN	615.19	6.84	0.00
DS8kmirror	19.25	0.13	0.00
ds8kmirror2	19.25	0.13	0.00
GMCV	0.42	0.00	0.00
HS_V7K	0.00	0.10	0.00
HS_Vol_02	0.00	0.10	0.00
Hypervisor_Vol_app	1230.81	13.68	0.00
MainApplication	2.32	0.25	0.00
multiplefilter	1292.33	14.49	0.00
Redo	1290.02	14.47	0.00
Scale File Sets Test	0.00	31.60	31.60
svcgm	0.25	0.00	0.00
test1	0.00	0.00	0.00
Trial_app	0.00	0.00	0.00
vdisk7_group	0.00	0.00	0.00
VM_local	0.00	0.00	0.00
VM_SAN	0.00	0.00	0.00
vm12234	17.80	0.20	0.00
vm12236 application	9.10	0.10	0.00
vvvvvvvvvv	1290.02	14.47	0.00



# IBM ESS and IBM Spectrum Control: Multi-Cluster Spectrum Scale Environment

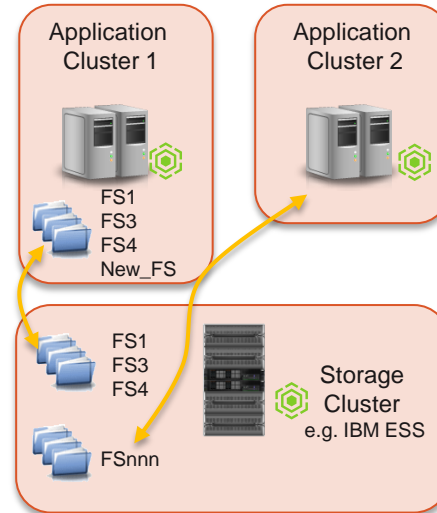


Many Spectrum Scale customers have more than a single cluster, some of which are client only and storage only.

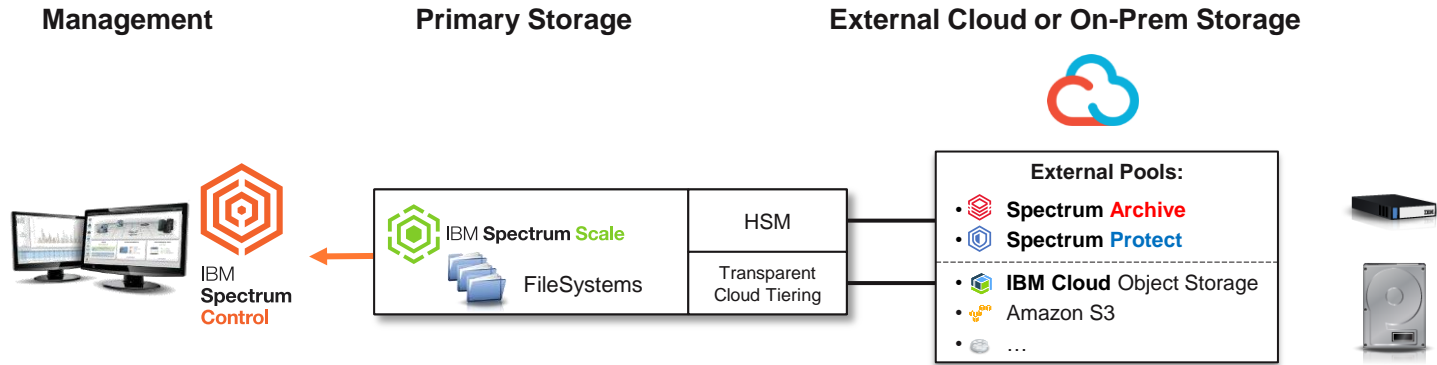
**Today** - If a storage team wants a complete view of their Spectrum Scale environment, they have a few choices:

- Jump between multiple Spectrum Scale GUIs
- Write their own home grown tools
- Purchase a product that can monitor multiple clusters.

**With Spectrum Control** - Storage teams can see their entire Spectrum Scale environment at a glance, easily comparing capacity and workloads across multiple clusters.



# IBM ESS and IBM Spectrum Control: External Pools in Spectrum Scale



- Only with Spectrum Control can you identify external pools and show capacity placed in them (Used as HSM/ILM with Spectrum Archive or Spectrum Protect or Used with IBM Transparent Cloud Tiering with IBM Cloud Object Storage)
- Benefit: Shining a light on your “cold” data storage repository

# Further Information

- IBM Spectrum Storage Suite

<https://www.ibm.com/ms-en/marketplace/software-defined-storageIBM>

- IBM Elastic Storage Server

<https://www.ibm.com/us-en/marketplace/ibm-elastic-storage-server>

- IBM Spectrum Scale

<https://www.ibm.com/us-en/marketplace/scale-out-file-and-object-storage>

- IBM Spectrum Control

<https://www-03.ibm.com/systems/storage/spectrum/control/>