

# IBM Elastic Storage Server

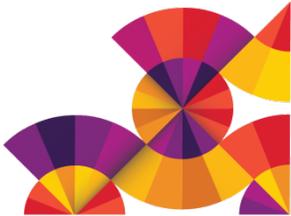
*The World's Fastest  
Spectrum Scale Product*



Spectrum Scale RAID



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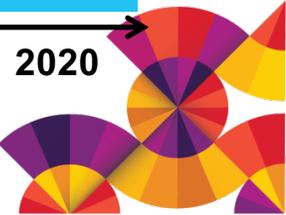
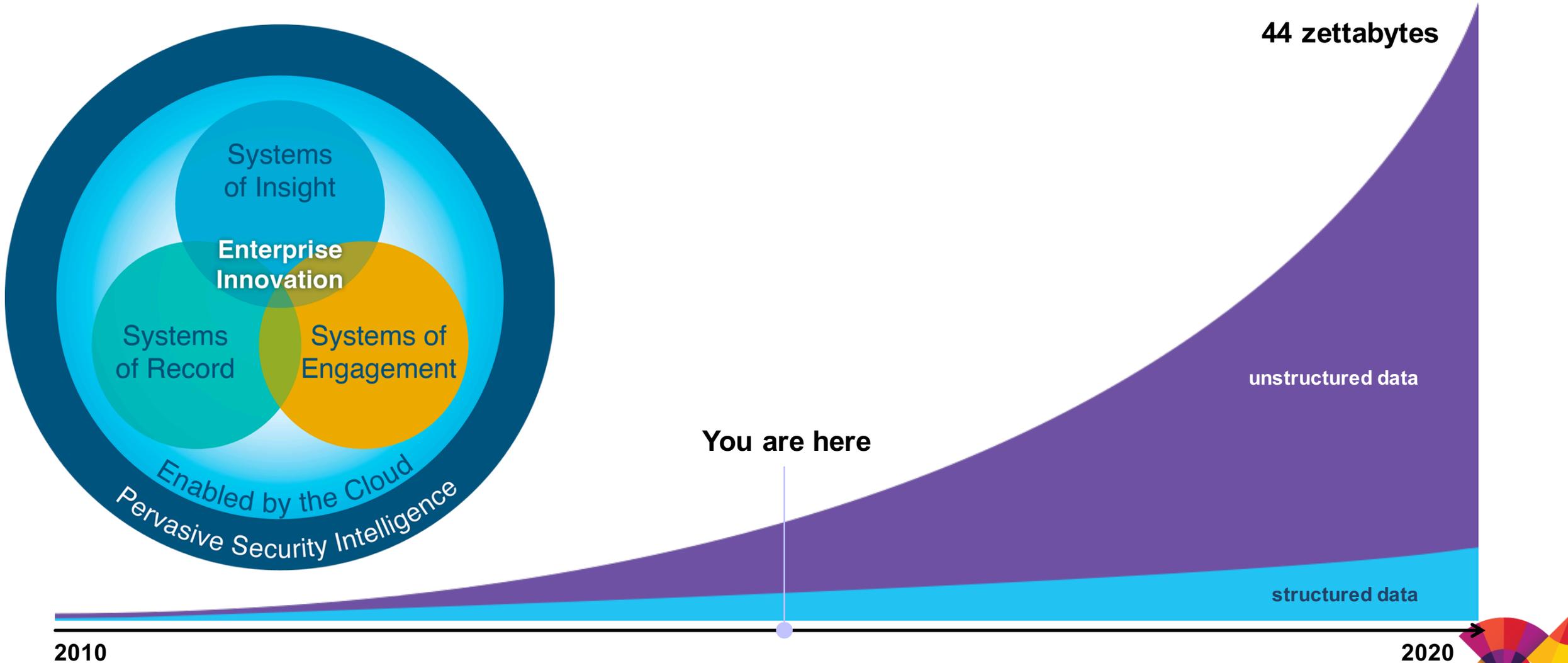


# 2005



# 2013

# Data is growing exponentially and demands new Approaches



## Imagine...

- Scalability to the hundreds of Petabytes and hundreds of GB/Sec
- A Single Name Space Across Entire File System
- A Building Block approach to Scale as Needs Grow
  - Start Small – Grow over time
  - Scalable Performance as Storage Blocks are added
- An Actual Instance of Software Designed Storage
  - Based upon the Industry Leading Power Architecture, Elastic Storage Software, and off-the-shelf JBOD enclosures
- A Scalable Common Foundation for Analytics, File Serving, Object Storage
  - A common Data Lake for workload variety without the need for Data Islands.



# IBM Elastic Storage Server (ESS)

*All advantages of Elastic Storage in a pre-packaged, pre-tested IBM-Offering*



## ➤ **Scale-out and –up**

- by adding modular ESS-Building-Blocks

## ➤ **Delivers Extreme Data Integrity**

- 2- and 3-fault-tolerant erasure codes
  - End-to-end checksum
- Fastest rebuild times using Declustered RAID
  - Live replacement of disks

## ➤ **Breakthrough Performance**

- Declustered RAID reduces app load during rebuilds
  - Up to 3x lower overhead to applications
- Built-in SSDs and NVRAM for write performance
  - Faster than alternatives today – and tomorrow!

## ➤ **Lowers TCO**

- 3 Years Maintenance and Support
  - General Purpose Servers
    - Off-the-shelf JBODs
      - Standard Linux
    - Modular Upgrades



# Elastic Storage Server GL Models ( L = Large )

5146 Machine Type

- High Capacity Storage for Analytics and Cloud Serving
- Uses 4U, 60 Drive Storage Enclosures
- 2,4 or 6 TB Drives
- A Client-Ready Petabyte in Single Rack!



**Model GL2**  
**Analytics Focused**  
 2 Enclosures, 12U  
 116 NL-SAS, 2 SSD  
**6+ GB/sec\***



**Model GL4**  
**Analytics and Cloud**  
 4 Enclosures, 20U  
 232 NL-SAS, 2 SSD  
**13+ GB/sec\***



**Model GL6**  
**PetaScale Storage**  
 6 Enclosures, 28U  
 348 NL-SAS, 2 SSD  
**25+ GB/sec\***

- Power S822L Servers
  - 20 Cores Each
- 1818-80e Expansion Chassis
- Red Hat 7
- Graphical User Interface
- Management Server and HMC
- Elastic Storage Software
- Elastic Storage Native RAID
- xCat or Platform Cluster Mgr. Opt.
- 10, 40 Gbps Ethernet, FDR Infiniband
- From 116 to 348 Spinning Disk
- 3 Years Maintenance
- Building Block approach to Growth



# Elastic Storage Server GS Models ( S = SPEED )

5146 Machine Type

- Smaller Configurations for High Velocity Ingest or Lower Cost Entry Point
- Uses 2U, 24 Drive Storage Enclosures
- 400, 800 GB SSD Drives or 1.2 TB SAS Drives
- Highest “Performance per U” Delivered to Clients
- Deployable alone or as part of an ESS Configuration as “Platinum” tier

- Power S822L
  - 20 Cores Each
- Power Expansion Chassis
- Red Hat 7
- Graphical User Interface
- Management Server and HMC
- Elastic Storage Software
- Elastic Storage Native RAID
- xCat or Platform Cluster Mgr. Opt.
- 10, 40 Gbps Ethernet, FDR Infiniband
- 3 Years Maintenance
- Building Block approach to Growth



**Model GS1**  
24 SSD  
6 GB/Sec\*

**Model GS2**  
46 SAS + 2 SSD or  
48 SSD Drives  
2 GB/Sec SAS\*  
12 GB/Sec SSD\*

**Model GS4**  
94 SAS + 2 SSD or  
96 SSD Drives  
5 GB/Sec SAS  
18+ GB/Sec SSD\*

**Model GS6**  
142 SAS + 2 SSD  
7 GB/Sec\*



# IBM ESS – a closer look at our latest releases

## 1H15

### ESS 3.0 (6/12/15)

- 6TB HDD
- Spectrum Scale 4.1
- Protocol Node support

## 2H15

### ESS 3.5 (10/9/15)

- Spectrum Scale 4.1.1
- **12.11.15**
- MES: add more storage to existing GS or GL model

## 1H16

### ESS 4.0 (1/29/16)

- Spectrum Scale 4.2 (Jan 29, 2016)
  - Easy administration with software GUI
  - Object Storage updates including unified file/object and extended S3 support
  - Open Data Platform Certification
  - Prioritize user QoS
  - Compression for File and Object
- Asynchronous Disaster Recovery and Backup with Spectrum Protect for z Systems



# ESS & Scale Raid - what's next



Sponsor User Observation



Input from PM and Field Team



PMR Analysis



Sponsor User Interviews

**ESS 4.X**  
• HDD / SSD refresh

**ESS 4.X**  
• Spectrum Scale Refresh

**ESS X.X**  
• Higher Density Storage

**ESS X.X**  
• New Integrated Solutions

**Scale Raid**  
• Software only

**ESS 4.X**  
• Infiniband EDR

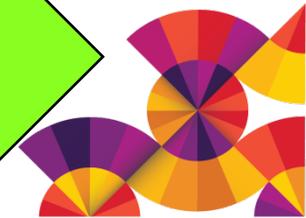
**ESS 4.X**  
• New ESS Performance Benchmarks

**ESS X.X**  
• Mixed SSD/HDD models

**ESS X.X**  
• Redhat LE Support

**ESS X.X**  
• Storage rich server

Focus on Quality, Support and superior customer experience



# IBM developerWorks RFE Community

Welcome Request for Enhancement (RFE) Community users! Here you have an opportunity to collaborate directly with the IBM product development teams and other product users.

**Filter the page content by brand and product**

All brands  All products

Hot Top New

233 votes **Add additional member to...**  
The current Storawize V7000 code al... capacity, it would be desirable to exte...  
Uncommitted Candidate

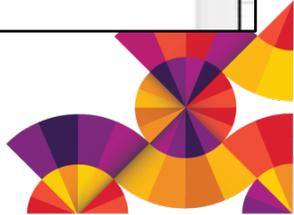
124 votes **Integrate Web UI security with...**  
Integrate the Web User Interface (UI)...  
Uncommitted Candidate

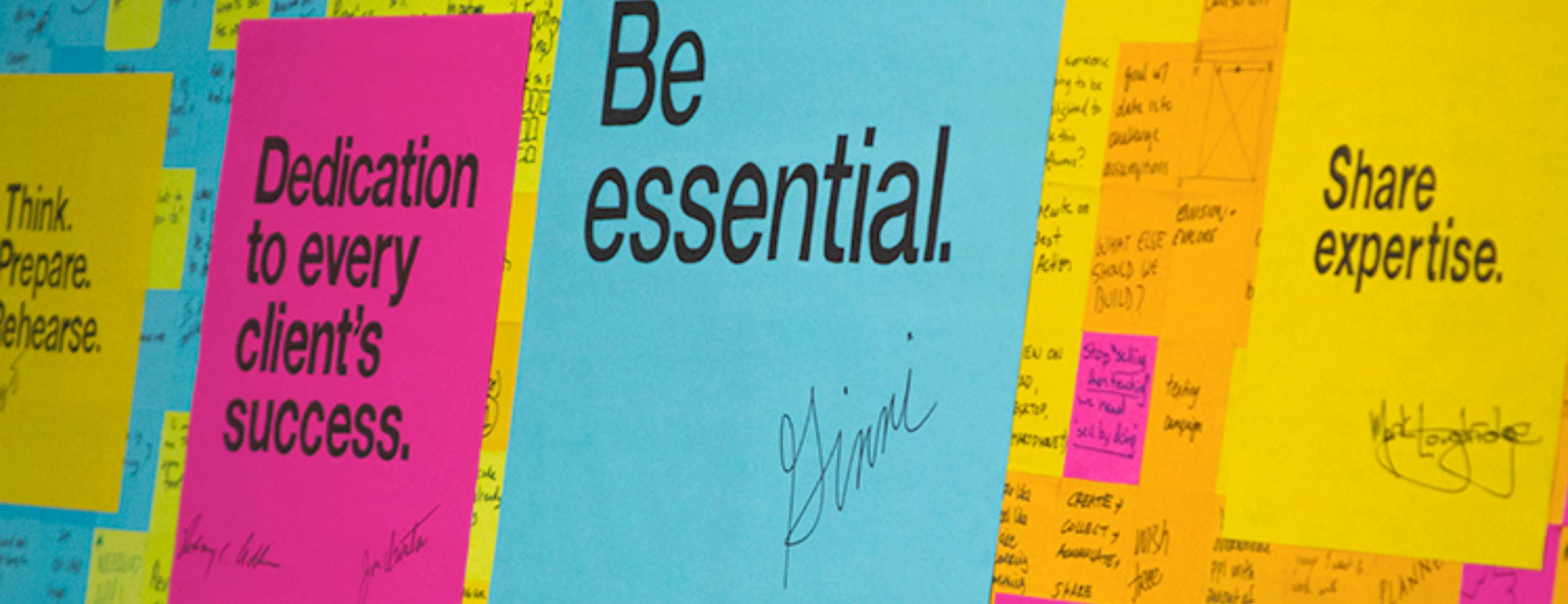
- Rhapsody Design Manager
- SAP R/3 (Extender Pack)
- SCRT
- Security Compliance Manager
- Security Policy Manager
- SEPA (Extender Pack)
- Service Management Suite for z/OS
- Single Sign On
- SiteProtector System
- SmartCloud Log Analysis - Log Analytics zInsight Packs for SYSLOG
- SmartCloud Log Analysis - Log Analytics zInsight Packs for WAS
- SmartCloud Monitoring - Application Insight
- Social Enterprise Collaboration
- Social Learning
- Social Media Analytics
- Social Program Management Platform
- Spectrum Scale (formerly known as GPFS) - Private RFEs**
- Spectrum Scale (formerly known as GPFS) - Public RFEs**
- SPSS Analytic Server
- SPSS Collaboration & Deployment Services

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- ts
- pend Analysis
- Supplier Lifecycle Management (SLM)
- Virtual Supply Manager
- Broker
- Identity Manager
- Identity Manager Business Gateway
- der Pack)
- erms
- mpilers
- Global Name Management
- GPFS Storage Server (GSS)**

[www.ibm.com/developerworks/rfe/](http://www.ibm.com/developerworks/rfe/)





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