# Elastic Storage Server - Update

## Spectrum Scale users Group May 2017

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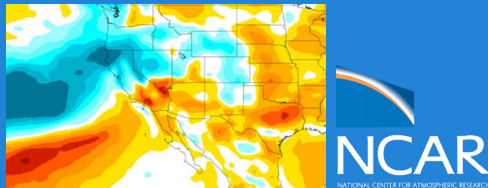cdmaestas@us.ibm.com

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**Spectrum Scale**
proven at over
4,000 customers
worldwide

Climate and weather modeling with
16 PB on line & 12 PB archive on tape

4 time Champion Infiniti Red Bull Racing
does real-time race analytics

- Personalized cancer treatment
for over 65,000 patients

R&D environment for
natural language tools

Wind turbine design analysis
Done in hours instead of weeks

Private Cloud for digital media enables
global collaboration for film production

# ESS Implementation Services and Support

# IBM Elastic Storage Server (ESS) Implementation Services

**Eligibility criteria:**

- **ESS Storage Hardware**

- Deals for all ESS Systems will have up to

  - 100 hours of ESS Implementation Services for the first unit of ESS in each deal

  - 40 hours of ESS Implementation Services for subsequent units of ESS in each deal

**Finalize Installation**
- **Power**
- **Network**

# Elastic Storage Server Advantages

**All Blue.  One hand to shake.**
**One phone number to call for service**
**(In NA now–the rest of the world soon)**

Spectrum Scale RAID:

- Distributed parity (erasure encoding)
- Fast parallel rebuild of critical data, fast parallel background rebuilds of failed drive's data
- Silent bit error correction
  - End to end checksum

Lower price capacity

- SDS: No HW storage controllers needed

**IBM**
**Spectrum Scale**
**Software**

**IBM Power Servers**

POWERSERVER
YOUR SLOGAN HERE

**IBM**
**Spectrum Scale**
**RAID**
**Storage**

But what do you want?

And what's our business case?

# Elastic Storage Server components

**Executive Management Server (EMS)**      (1 per storage cluster, tested to 30 ESS nodes)   **One per Power Linux BE or LE cluster**

**Hardware Management Console (HMC)**      (Each HMC can manage up to 48 Systems) (e.g. 23 ESS nodes and 1 EMS)   **Power Linux BE**
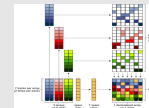
**IO Servers**      **AND**   

**Storage Enclosures**      **OR**   

**IBM Spectrum Scale Software**      **AND**      **IBM Spectrum Scale Raid** *exclusive feature of ESS

# What's new in ESS?

# - Released April 2017!

# We've Listened: Recent GNR/ESS Improvements

Focus on quality, support and superior customer experience

Improved flow for Level 2 support (worldwide launch April 2017!)

Knowledge Center reworked to be more intuitive (https://www.ibm.com/support/knowledgecenter/SSYSP8/sts_welcome.html)

Simplification of performance tunables

Call Home Stage 1: for components in I/O and management nodes

ESS 5.0

**RedHat** ppc64 Little Endian (LE) support (no need for HMC); Update to RHEL 7.2

**Spectrum Scale** 4.2.2 support

**Call Home** Stage 2: disc

**Performance** enhancements – Hardware and software updates (ie LSI 12Gb adapter)

**Installation:** gssprecheck – catches common installation and upgrade issues prior to start, decreases chance of deployment errors and further reduces the time required for system bring up (found in sample directory)

**Security** Phase 1 hardening: Split of /home and /var from /root partition and security flags added in /etc/fstab

# GEMS ESS 5.0

Provides an extensible interface Layer
- Supports SAS, SCSI and SES.
- Non-disruptive to add new protocols in the future (NVME)

Allows upper GNR layers to be hardware agnostic

GEMS has been tested in the labs with IBM, NetApp, SanDisk, Seagate, Xyratex enclosures.

# IBM's Elastic Storage Server family

GS models use 2U 24x2.5" JBODs or SSDs, GL models use 4U 60x3.5" JBODs,

Support drives: 1.8TB SAS, 400GB, 800GB, 1.6TB SSD 2.5"; 4TB,8TB and 10TB NL-SAS 3.5" HDDs

Supported NICs:  10GbE, 40GbE Ethernet and EDR Infiniband
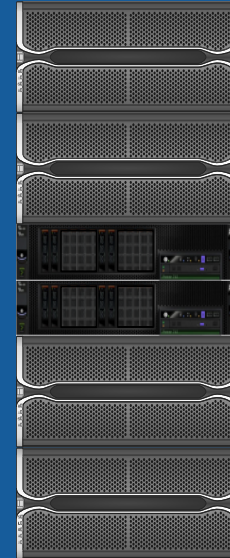


**GS1 building block**  **GS2 building block**  **GS4 building block**  **GS6 building block**  **GL2 building block**  **GL4 building block**  **GL6 building block**

## Announce 4/11/17; GA 5/26/17

### ESS new models Hardware

- **5147-084 = ESS JBOD Storage (5U84)**
- **GL2S:** (4TB HDD= 656TB raw, 8TB= 1.3PB raw, 10TB= 1.6PB raw )
- **GL4S:** (4TB HDD= 1.3PB raw, 8TB= 2.6PB raw, 10TB= 3.3PB raw )
- **GL6S:** (4TB HDD= 1.97PB raw, 8TB= 3.9PB raw, 10TB= 5.0PB raw)

- **5148-21L Power8 ESS Management Server**
- **5148-22L Power8 NSD Data Servers (still 2 per ESS)**

### ESS 5.X Software

- **For 5147/5148 new ESS models**
  - **RHEL 7.2 Little Endian-based**
  - **Spectrum Scale for IBM Elastic Storage Server  4.2.3 (5765-ESS)** – *Capacity based pricing*
- **For current gen 5146**
  - **RHEL 7.2 Big Endian-based**
  - **Spectrum Scale 4.2.3 (5641-GPF)**

# ESS New Models - Capacity

IBM Storage & SDI



**Model GL2:**
2 Enclosures, 12U
116 NL-SAS, 2 SSD

**New! Model GL2S:**
2 Enclosures, 14U
166 NL-SAS, 2 SSD

**Model GL4:**
4 Enclosures, 20U
232 NL-SAS, 2 SSD

**New! Model GL4S:**
4 Enclosures, 24U
334 NL-SAS, 2 SSD

**Model GL6:**
6 Enclosures, 28U
348 NL-SAS, 2 SSD

**New! Model GL6S:**
6 Enclosures, 34U
502 NL-SAS, 2 SSD

Max: .9PB raw

Max: 1.6PB raw

Max: 1.8PB raw

Max: 3.3PB raw

Max: 2.8PB raw

Max: 5PB raw

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Thank You.

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