



IBM Spectrum Scale

Packaging & Licensing Latest

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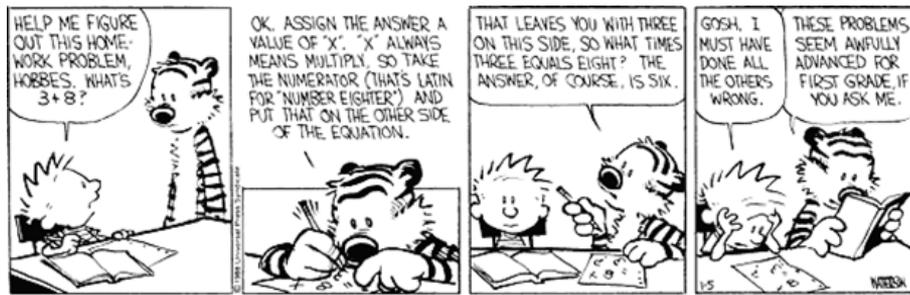
Agenda

- Things that are **NOT** changing
- What's New: Capacity pricing for Scale as Software
- New Pricing too for New ESS
- Twist Ending!



Prologue: Why are we doing this?

- Scale / GPFS has a long and complicated history, and all of it is reflected in our pricing model
- As the customer base gets broader, many of our new buyers (and sellers) need pricing that is...
 - Easier to understand
 - Easier to predict growth
 - Relatively stable
 - ...so they can spend less time figuring licenses and more time delivering solutions
- HOWEVER, we don't want to inflict a forced change on existing customers (again)
- So...



For Existing Customers, Business as Usual (mostly)

- Standard Edition will continue to be available unchanged
- Existing licensees of Advanced Edition can continue to buy
 - ...but no new customers (see next slide for replacement)
- Express Edition has been withdrawn
 - No-charge migration to Standard Edition for existing Express customers
- NO forced license migration for existing Standard and Advanced customers
- Also, Standard Edition will continue to be available unchanged



Each cluster is licensed under one and only one edition

A New Hope: Data Management Edition for Scale as Software

- Licensed by the capacity (TiB) in all the NSDs within a cluster
 - E.g. If storage array has h/w RAID, this is the capacity after applying RAID
 - E.g. If storage array has internal mirroring, this is the capacity after mirroring
- Flat Per TB price regardless of storage hardware, topology, etc.
- Easy to audit (next slide)
- Relatively stable: only changes when you add or remove storage capacity in a cluster
 - i.e. `mmaddnsd`, `mmdelnsd`
- Includes all the same functionality as Advanced Edition
- Capacity pricing eliminates a lot of questions
 - No license cost for clients
 - No license cost for management servers
 - ...or quorum nodes
 - ...or protocol nodes
 - Not affected by virtualization
 - No licensing “penalty” for compute clusters
- If it’s an NSD, it counts. Otherwise, not.



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Using mmlslicense to verify cluster capacity

- New in 4.2.3
- Also available with `-Y` option for parseable output

```
mmlslicense --capacity --formatted
```

```
NSD Summary:
```

```
=====
```

```
Total Number of NSDs:  2
```

```
mynsd1:                  10,737,418,240 Bytes
```

```
mynsd2:                  10,737,418,240 Bytes
```

```
Cluster Summary:
```

```
=====
```

```
Cluster Total Capacity:  21,474,836,480 Bytes
```

Using the GUI to verify cluster capacity



IBM Spectrum Scale

Cluster minimum release level: 4.2.3.0

GUI release level: 4.2.3-0

Cluster capacity for license (TiB): 0.1

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ESS is Slightly Different

...of course

New ESS models get Per Disk licensing

- For new ESS models we will offer Per Disk (SDD or HDD) capacity licenses tied to the hardware
 - Typically less expensive than Per TB
 - No separate Spectrum Scale RAID license required
 - No client or other server licenses required, just like Scale software Capacity licensing*
- Licenses are tied to the storage enclosure
 - NOT transferable to other hardware
 - Socket licenses CANNOT be applied (or transferred) to models licensed this way
- Available in Standard or Data Management editions
- Existing ESS models remain on their current (socket) license structure

*OK, there's a little detail here...



IBM Spectrum Scale RAID

Cluster minimum release level: 4.2.2.0
 GUI release level: 4.2.2.0-developer build
 Cluster capacity for license (TiB): 23.4

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Twist Ending: Is it really that simple?

...not quite...

Reality Check: What about adding new ESS for existing customers?

Each cluster is licensed under one and only one edition... with a couple of exceptions to ease transition pains

- Special case 1: Mixing new ESS boxen in a socket-licensed cluster
- Special case 2: Mixing new ESS boxen with Capacity Scale-as-software licensing

Special Case 1: Mixing ESS boxen with a socket-licensed cluster

- To ease transition, we permit mixing of new Per-Disk ESS in a socket-licensed cluster
- Each ESS has its own licenses (same as today)
 - Standard Per Disk or Data Management Per Disk for new models (both include RAID)
- The rest of the cluster is licensed by socket as normal, Standard or Advanced Edition
- An ESS can be mixed in a cluster with “equivalent” Scale nodes, even with different metrics, i.e.
 - ESS licensed by Standard Per Disk can be in a cluster with other Standard nodes
 - ESS licensed by Data Management Per Disk can be in a cluster with other Advanced or Data Management nodes



Special Case 1: Mixing ESS nodes with a socket-licensed cluster

- **When a cluster contains a mix of Scale software licensed by Socket and ESS models licensed Per Disk, the cluster itself is still treated as Socket licensing**
 - Clients still require socket licenses
 - Management nodes, quorum nodes, gateway nodes, etc. all still require socket licenses
 - Only the individual ESS boxes are licensed by capacity
- A cluster is treated as Capacity licensing **only** if **all** the storage in the cluster is licensed by Capacity



Special Case 2: Mixing ESS nodes with a capacity-licensed cluster

- We also permit mixing of new Per-Disk ESS in a capacity-licensed cluster
- Each ESS has its own licenses (same as today)
 - Data Management Per Disk (includes Spectrum Scale RAID)
- An ESS can be mixed in a cluster with “equivalent” Scale nodes. even with different metrics, i.e.
 - ESS licensed by Data Management Per Disk can be in a cluster with Data Management Edition nodes



Thank You!





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Backups & Deeper Details

FAQs

- Can I mix the different metrics?
 - Different clusters can be on different metrics, and can mount each others' file systems (just like today) but you can't mix socket and capacity licenses within a single cluster (other than the exception documented earlier)
- Do “advanced” functions (e.g. encryption) work across Advanced and Data Management edition clusters?
 - Yes. Functionally, Data Management works exactly like Advanced, and the same capabilities (and restrictions) apply
- Who can continue to buy Advanced Edition?
 - Existing customers, based on site number
- Can I migrate from socket licensing to capacity pricing?
 - Yes, but you don't have to if you don't want to. The process is similar to the one used with Spectrum Suite
- Does data in Spectrum Archive or moved to an object store (e.g. with TCT) count?
 - You do not pay for that capacity. You only pay for the capacity of the storage managed by Scale NSDs
- What about compression, replication, AFM, etc.?
 - Lots of things that Scale software does can change the amount of file data you can store. None of these things change the capacity of the NSDs, and therefore don't change the licensed capacity. As a result, the licensed capacity is essentially stable unless you add or remove hardware.
- Can I get licenses for new ESS in an ELA, or transfer existing licenses?
 - Yes, but only Capacity licenses are supported on ESS 5.x models. So you would (i) configure the ESS without Scale software in eConfig, and (ii) buy (or trade up to) Data Management capacity licenses to use with the ESS
- Binary TiBs or Decimal TBs?
 - Binary (2⁴⁰ bytes). IBM licensing simply calls these “TBs”
- What's the deal with the green creatures?
 - They're called tumbeasts. Matthew Inman (author of The Oatmeal) created them, then made them [freely available for reuse](#)

Reminder: The Basic Rules about editions

- Each cluster is considered separately – same as today
- All nodes in a cluster must be licensed with the same Edition* – same as today
- All nodes in a cluster must be licensed with the same Metric model (Per Socket or Capacity)
- See Q13.1 in the FAQ for more details on multi-cluster environments today (<https://www.ibm.com/support/knowledgecenter/en/STXKQY/gpfsclustersfaq.html>)
- For any given customer, this will usually be straightforward
 - The complicated case is an existing customer who wants to “mix in” new pricing with old...

(*Apart from the exception for ESS described earlier)



Each cluster is licensed under one and only one edition

Software Editions for new customers

	Standard Edition	Data Management Edition
Pricing metric	Per socket Server, client, FPO	Per usable TB
Multi protocol scalable file service with simultaneous access to a common set of data	●	●
Facilitate data access with a global namespace, massively scalable file system, quotas and snapshots, data integrity & availability and filesets	●	●
Simplify management with GUI	●	●
Improved efficiency with QoS and Compression	●	●
Create optimized tiered storage pools based on performance, locality, or cost	●	●
Simplify data management with Information Lifecycle Management (ILM) tools that include policy based data placement and migration	●	●
Enable worldwide data access using AFM asynchronous replication	●	●
Asynchronous multi site Disaster Recovery		●
Hybrid cloud (TCT)		●
Protect data with native encryption and secure erase, NIST compliant and FIPS certified.		●
Erasure coding for certified hardware platform		●

Software Editions for existing customers

	Standard Edition	(Advanced Edition)	Data Management Edition
Pricing metric	Per socket Server, client, FPO	Per socket Server, client, FPO	Per “usable” TB
Multi protocol scalable file service with simultaneous access to a common set of data	●		●
Facilitate data access with a global namespace, massively scalable file system, quotas and snapshots, data integrity & availability and filesets	●		●
Simplify management with GUI	●		●
Improved efficiency with QoS and Compression	●		●
Create optimized tiered storage pools based on performance, locality, or cost	●		●
Simplify data management with Information Lifecycle Management (ILM) tools that include policy based data placement and migration	●		●
Enable worldwide data access using AFM asynchronous replication	●		●
Asynchronous multi site Disaster Recovery			●
Hybrid cloud (TCT)			●
Protect data with native encryption and secure erase, NIST compliant and FIPS certified.			●
Erasure coding for certified hardware platforms	IBM Confidential		●

Special Case: Mixing metrics across clusters

There is just one special case when cross-mounting file systems across clusters with different metrics:

- To mount a file system of a Socket cluster, the mounting node must also have a Socket license
 - Example: Cluster 1 is licensed by Socket, cluster 2 is licensed by Capacity. You need to pay for a client license to mount file system gpfs1 on a node in cluster 2. (However, you don't need to install the license on the node.)
 - If cluster 2 is also licensed by Socket, this is the same as it works today
- To mount a file system of a Capacity cluster, no additional license is required
- Same rules apply for a compute (“client-only”) cluster that mounts file systems from Socket or Capacity clusters
- (These rules are required to avoid “gaming” the client license requirements)

