Smarter technology for all

Lenovo Update on IBM Storage Scale

Sigrun Eggerling | March 2024

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Partnership solutions

- Lenovo partners with leading storage solution partners
- Software defined storage running on Lenovo hardware
- Lenovo HPC solutions with partner hardware
- Lenovo EveryScale
  - Solutions
  - Design Architectures

Lenovo DSS-G

Based on IBM Storage Scale

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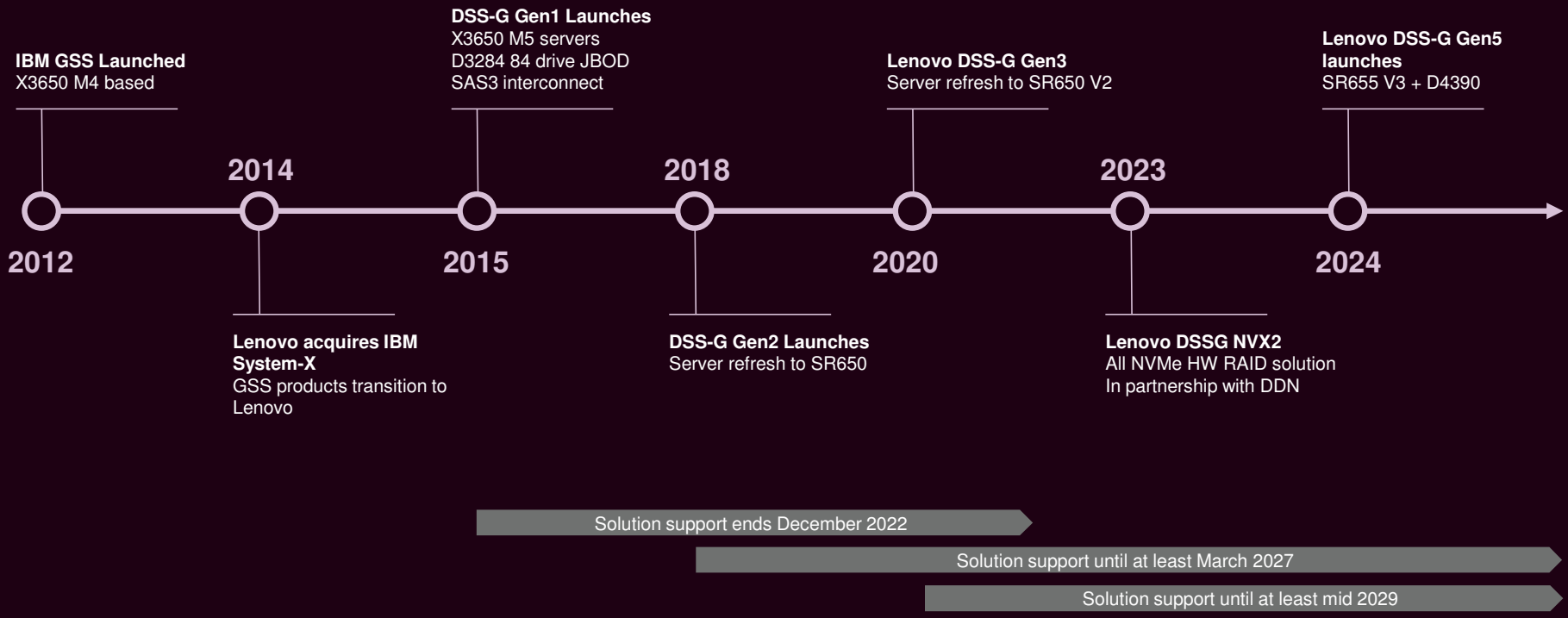
Over a decade of DSS-G heritage

Delivering continuous solution innovation



Lenovo HPC Storage portfolio

Lenovo DSS-G

DSS-G 2xy

DSS-G 100
Erasure Code Edition

IBM
Storage
Scale RAID

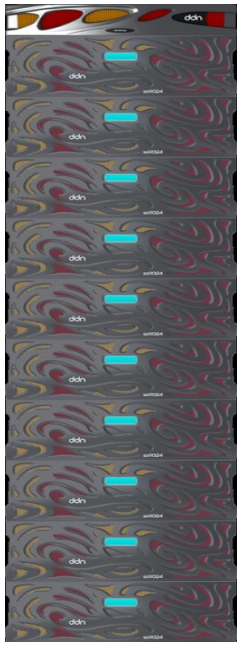
DSS-G-NVX2

IBM
Storage
Scale

DDN EXAScaler

EXAScaler
PARALLEL FILE SYSTEM

lustre



Lenovo Server Series

WEKA

Lenovo DE Series

IBM
Spectrum
Scale

BeeGFS®

DSS-G Naming

G2xy

HDD enclosures

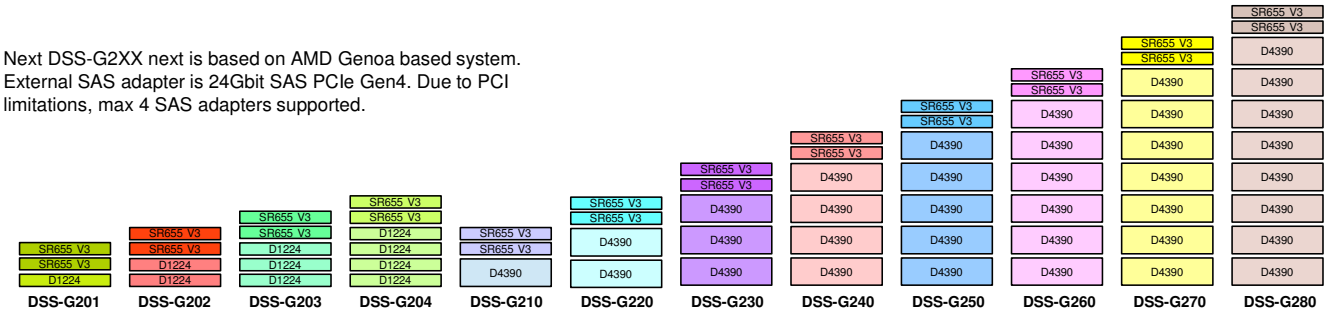
SSD enclosures

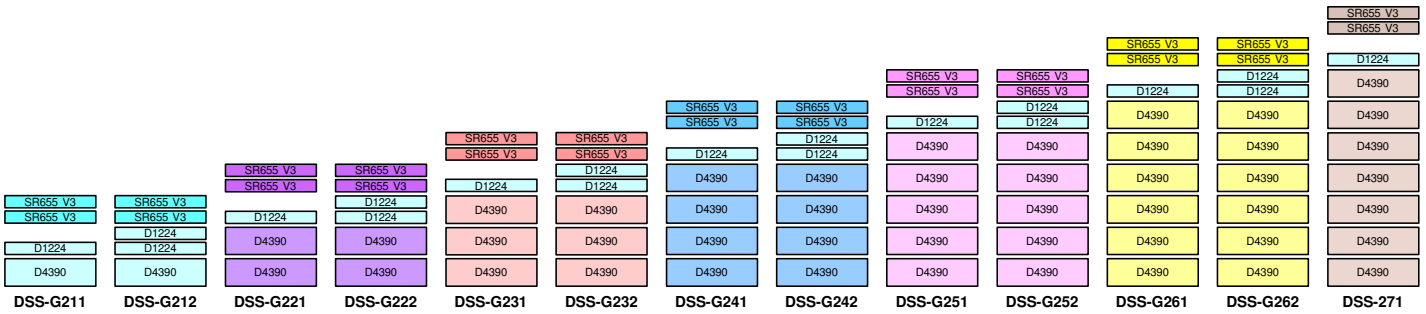
Maximum of 8 total enclosures
Maximum of 4 SAS-SSD enclosures
e.g. G262, G280, G201

Lenovo DSS-G (Gen5) Configurations (Genoa)

There are 12 homogeneous and 13 mixed model numbers for JBOD configurations:

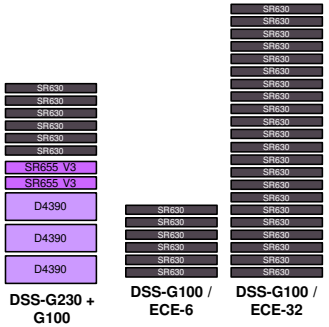
Next DSS-G2XX next is based on AMD Genoa based system. External SAS adapter is 24Gbit SAS PCIe Gen4. Due to PCI limitations, max 4 SAS adapters supported.





There is only one model number for ECE: DSS-G100.

But a Lenovo ECE solution will consist of multiple ECE servers where each one will be configured with at least 6 but not more than 32 servers. Storage solutions can be a hybrid mix of DSS-G and ECE Here are 3 examples.



Phase 1 2/29
Phase 2 4/12
(Planned)

Footnotes:
1. Fits in 48U rack.
2. Requires 2 racks.

DSS-G2xy Components

ThinkSystem SR655 V3 servers

Two ThinkSystem SR655 V3 servers act as NSD/IO server, each powered by a single AMD Genoa CPU and up to 768GB RAM. Choice of single port NDR or dual port NDR-200 VPI adapter (Ethernet capable).

D4390 spinning disk storage

With up to eight enclosures, the D4390 is a 4U JBOD with 90 spinning enterprise-ready NL-SAS hard drive, supporting 12-22TB configurations.

D1224 SAS-SSD storage

With up to four enclosures, the D1224 is a 2U SAS-SSD JBOD with up to 24 drives. Can be combined in a hybrid or all flash configuration.

Engineered solution

A fully validated software stack with all Red Hat Enterprise and IBM Storage Scale licenses. Available full factory integrated.

DSS-G is a fully integrated EveryScale solution to support HPC/AI workloads

Available with Premier Support

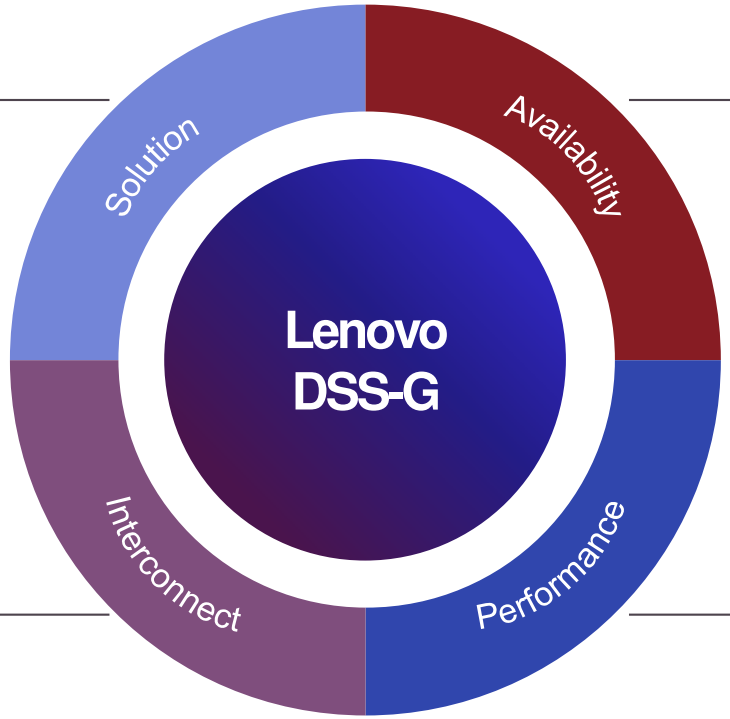
Why Lenovo DSS-G?

Engineered Solution

- Software bundle with full-stack validated software and firmware
- Premier support options
- Validated as part of Lenovo EveryScale HPC solutions
- Start-small and grow

Availability

- De-clustered RAID increases disk failure tolerance
- De-clustered RAID improves rebuild time and performance
- End-to-end checksums against bit errors
- Asynchronous disk diagnostics
- Integrated call-home capability



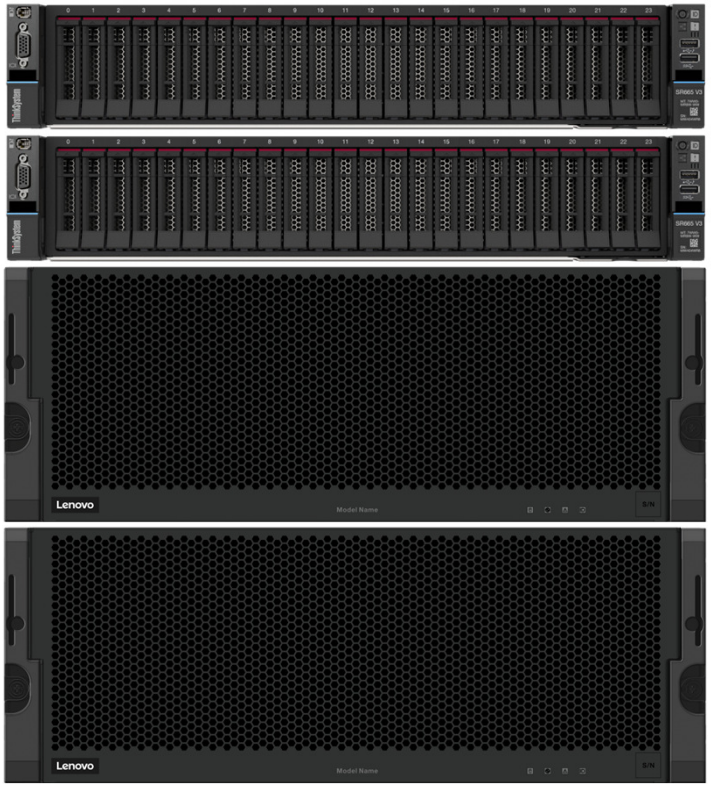
Interconnect

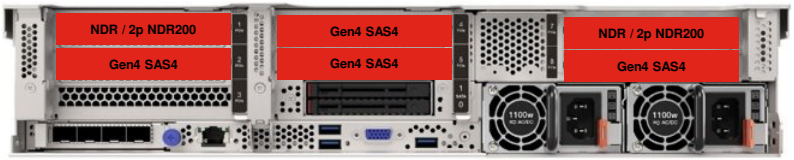
- High speed Infiniband (up to NDR 400Gbps)
- Configurable as IB-only, Ethernet-only or mixed mode
- verbsRdma, Ethernet and RoCE support
- Multi-rail for both IB and Ethernet connections

Performance

- Price/performance optimised servers
- GNR code uses direct disk access/management
- Scales with enclosure count
- Scales with building blocks

DSS-G220 – SR655 V3 + D4390

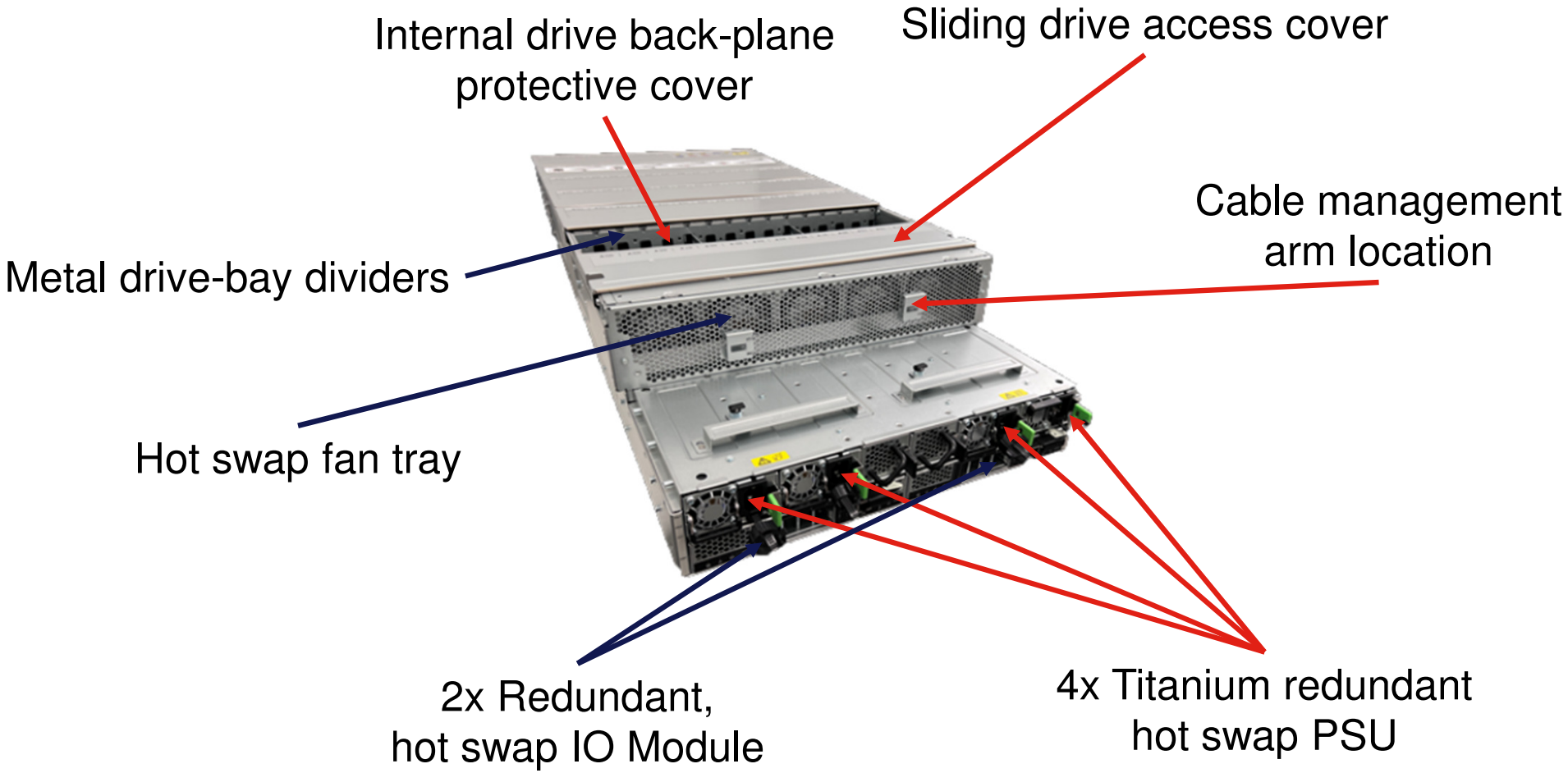




OCP Options:
2x 10G Base-T
4x 10G Base-T
2x 10/25Gb SFP28
4x 10/25Gb SFP28
2x 100Gb QSPF+ (planned)

- 178 Enterprise NL-SAS HDD
- Single socket AMD Genoa system
  - Single vs dual socket under evaluation
  - Min 384GB RAM
- 4x SAS Adapters (PCIe Gen4)
- Networking options (PCIe Gen5)
  - 2x NVIDIA NDR adapters
  - 2x NVIDIA NDR-200 2 port adapters

D4390 Service Features



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Lenovo

thanks.