

FlashSystem 9600 with FlashSystem.ai redefines storage

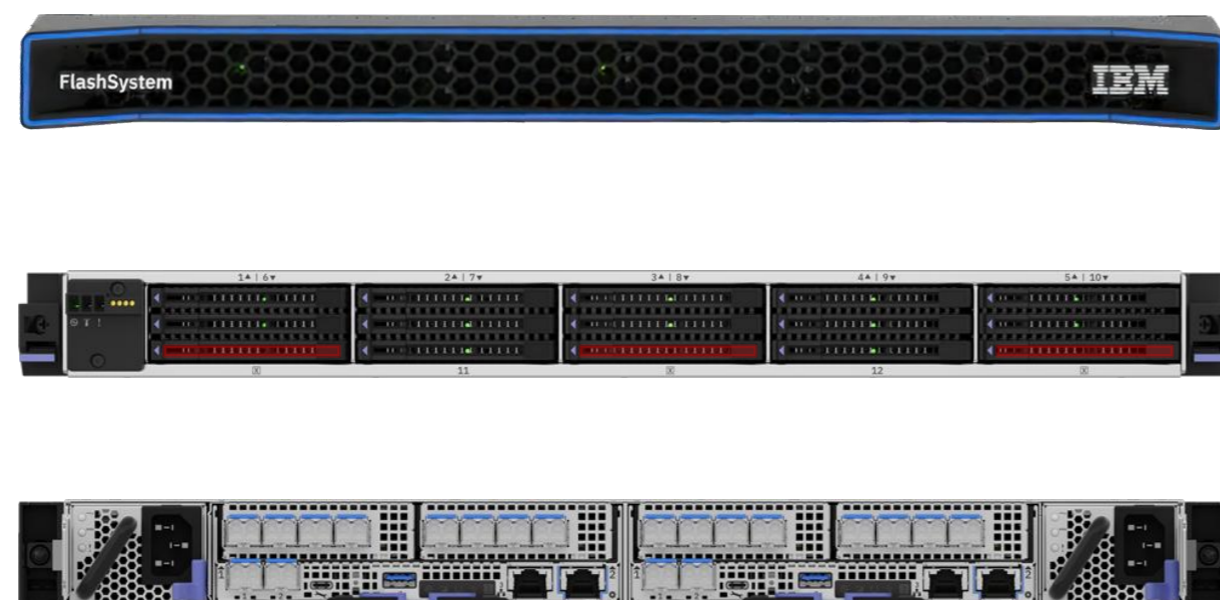


FlashSystem x600 platform hardware summary

9600

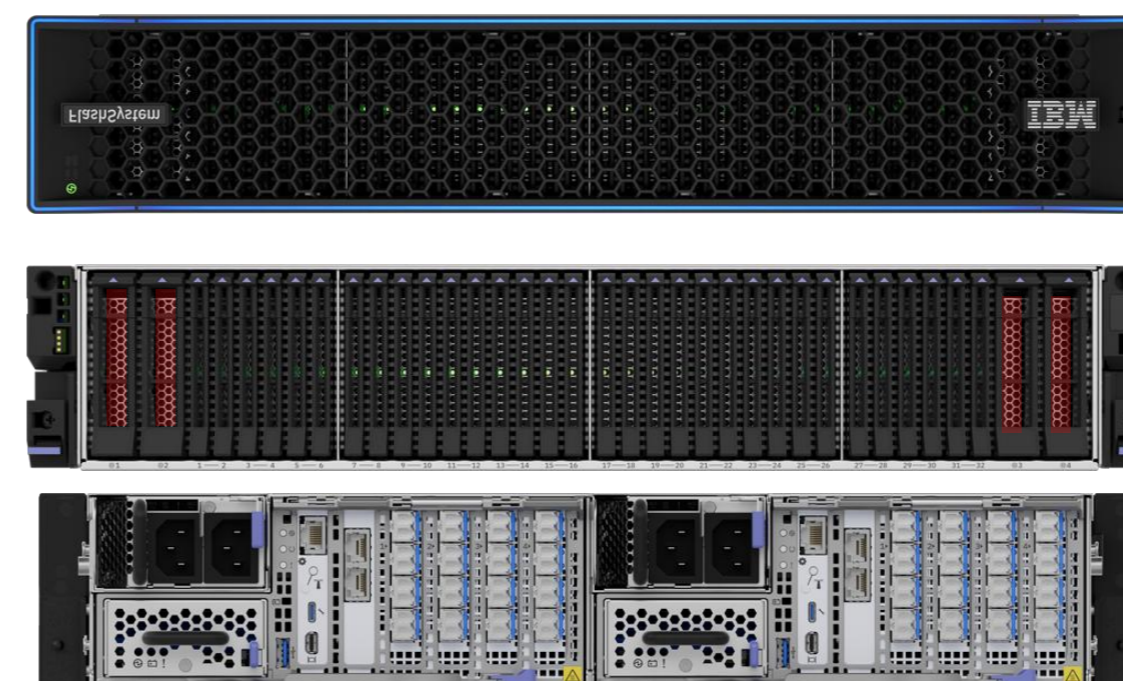
FlashSystem 5600

- Replacement for the 5300
- New 1U EDSFF control enclosure using existing 5300 canisters
- 15 1T-E3.L NVMe drive slots
 - 12 active 1T-E3.L slots for use
 - 3 slots reserved for possible future use
 - FCM5 S, M, L, XL
- **PCIe Gen 4 canister / DDR4**
- 2x12 core Intel Ice Lake D
- 256/512G memory options
- Flexible 10/25GbE on board I/O
- **2 Gen 4 HBA slots per canister**
- **Internal canister battery**
- Side by Side Canister placement for improved Serviceability
- NVMe boot device
- **One piece bezel with illuminated LED strip in steady blue**



FlashSystem 7600

- Replacement for the 7300
- New 2U EDSFF control enclosure
 - 32 1T-E3.L EDSFF form Factor
 - 4 2T-E3.L slots for future use
 - FCM5 S, M, L, XL
- **PCIe Gen 5 canister / DDR5**
- **2x 16 core AMD Epyc**
- 768/1536G Memory options
- On Board Management only Ports with dedicated Technician Port
- **4 Gen 5 HBA Slots Per Canister**
- **Externally Replaceable Battery**
- Side by Side Canister placement for improved Serviceability
- NVMe Boot Drive
- DC-SCM Hardware Root of Trust
- **One piece bezel with illuminated LED strip with user selectable color**

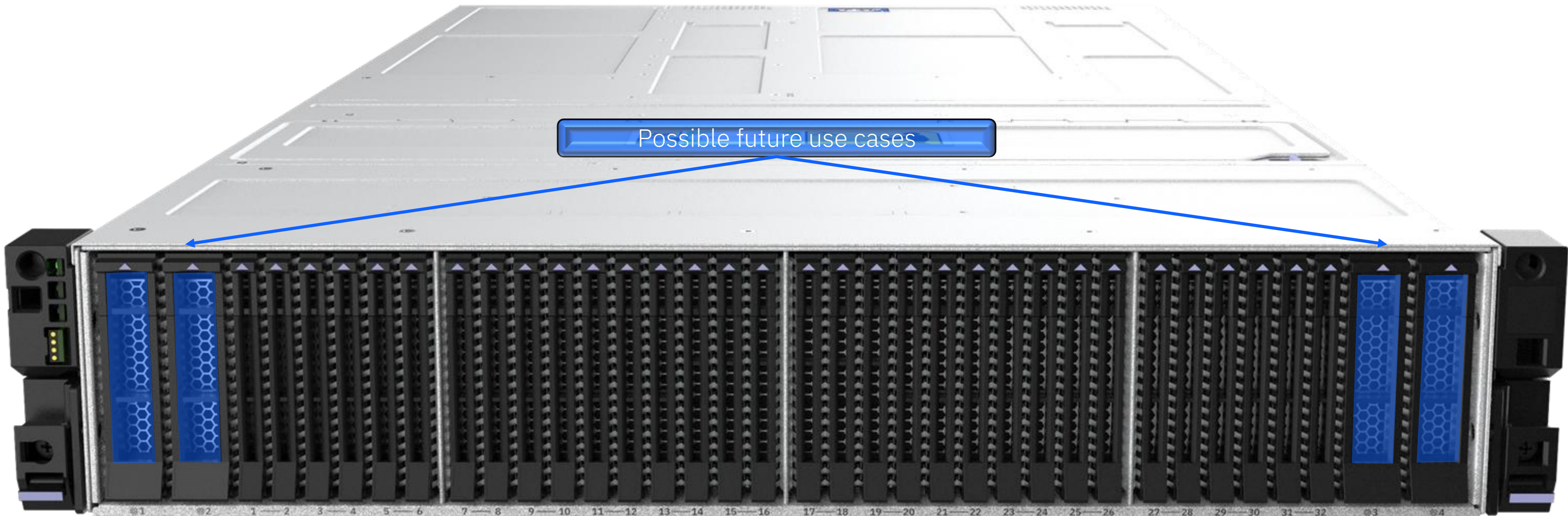


FlashSystem 9600

- Replacement for the 9500
- New 2U EDSFF control enclosure
 - 32 1T-E3.L EDSFF form Factor
 - 4 2T-E3.L slots for future use
 - FCM5 S, M, L, XL, **2XL**
- **PCIe Gen 5 canister / DDR5**
- **2x 48 core AMD Epic**
- 1.5/3.0 TiB Memory options
- On Board Management only Ports with dedicated Technician Port
- **4 Gen 5 HBA Slots Per Canister**
- **Externally Replaceable Battery**
- Side by Side Canister placement for improved Serviceability
- **Striped NVMe Boot Drives**
- DC-SCM Hardware Root of Trust
- **One piece bezel with illuminated LED strip with user selectable color**



FlashSystem 9600 has a new look front and back



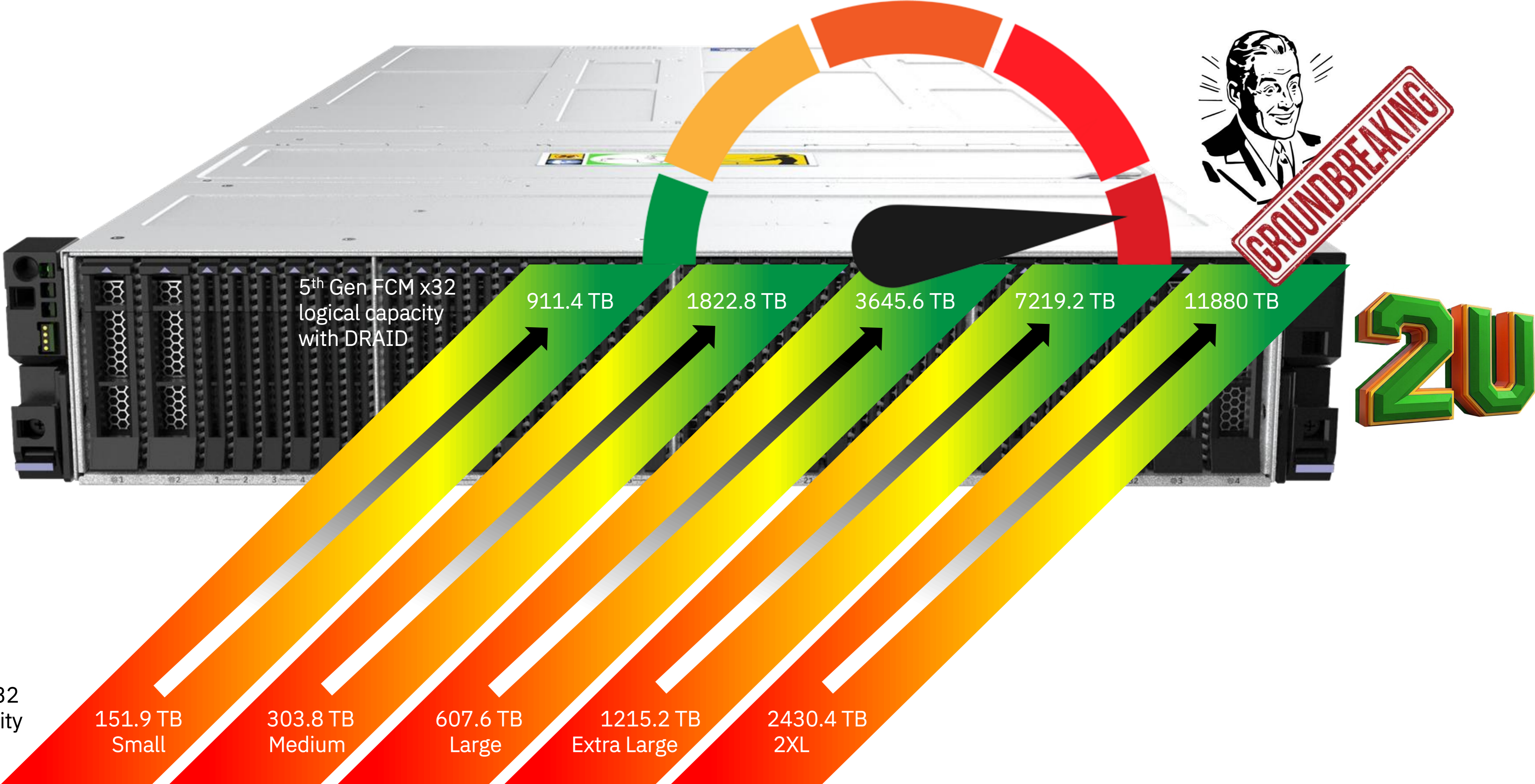
Possible future use cases

Two 2T-E3 slots for potential future use-cases

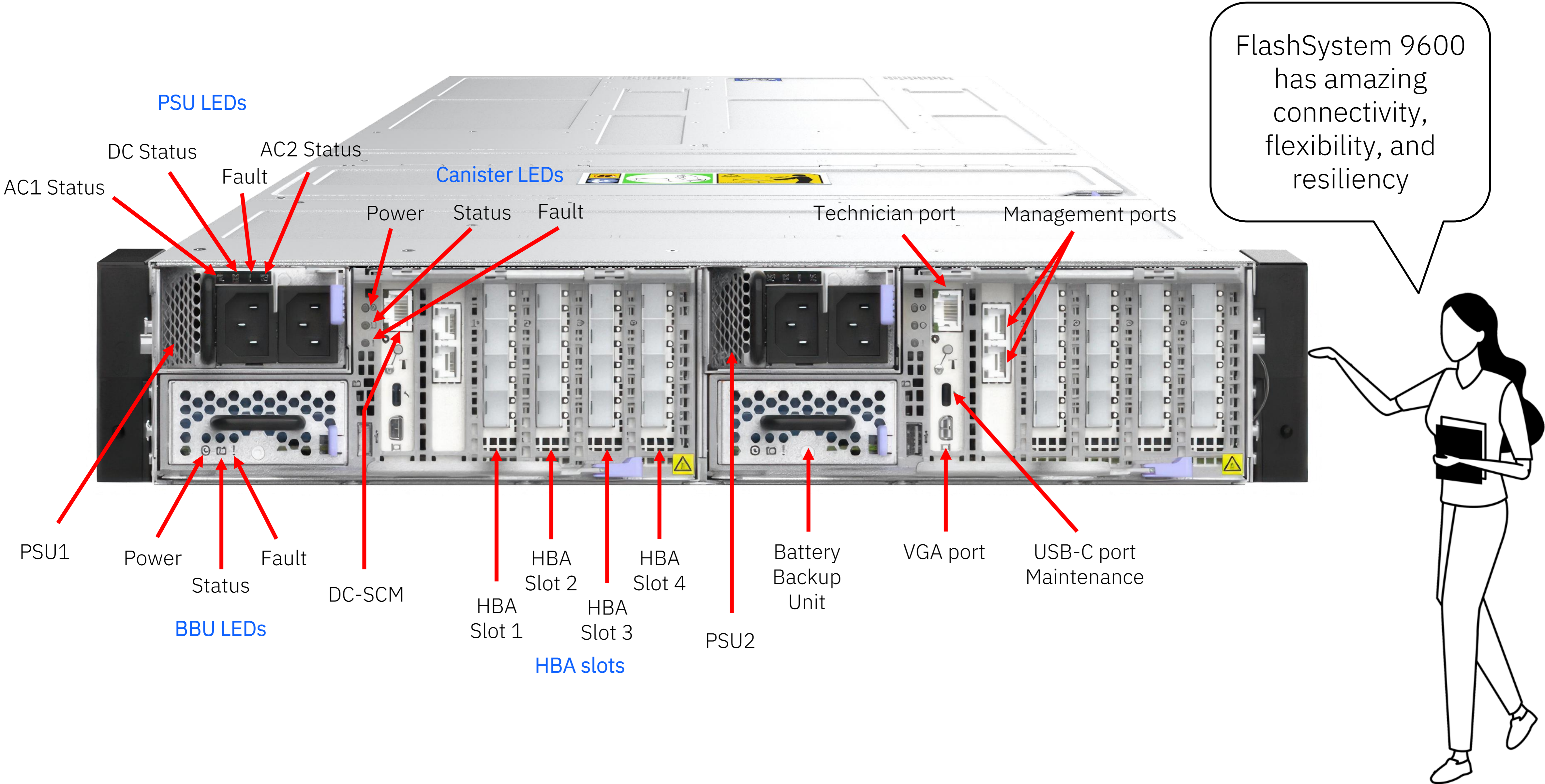
Thirty-two 1T-E3 slots for 5th Gen FlashCore Modules, or for industry-standard commodity NVMe E3 SSDs

Two 2T-E3 slots for potential future use-cases

9600 offers groundbreaking density and performance



FlashSystem 9600 offers connectivity, and resilience



Scaling and connectivity comparison of FlashSystem arrays

| | FlashSystem 5600 | FlashSystem 7600 | FlashSystem 9600 |
|---|-------------------|-------------------|--------------------|
| Max Capacity per enclosure | 2.1 PiB effective | 6.4 PiB effective | 10.5 PiB effective |
| Max Production Capacity for snapshot | 4 PiB | 20 PiB | 40 PiB |
| Max Snapshot Capacity ¹ | 200 PiB | 400 PiB | 800 PiB |
| Max Replication Capacity ² | 2 PiB | 5 PiB | 10 PiB |
| Max Host mappable Volumes | 8,192 | 16,050 | 32,500 |
| Max Host mappable Volumes and Snapshot volumes combined | 15,863 | 32,100 | 65,000 |

| | Per canister | Per System | FlashSystem grid | Per canister | Per System | FlashSystem grid | Per canister | Per System | FlashSystem grid |
|---|--------------|------------|------------------|--------------|------------|------------------|--------------|------------|------------------|
| Max 32Gb FC Ports ³ | 8 | 16 | 512 | 16 | 32 | 1024 | 16 | 32 | 1024 |
| Max 64Gb FC Ports ³ | 4 | 8 | 256 | 12 | 24 | 768 | 12 | 24 | 768 |
| Max 10/25GbE Ethernet Ports ³ | 8 | 6 | 512 | 16 | 32 | 1024 | 16 | 32 | 1024 |
| Max 40/100GbE Ethernet Ports ³ | 4 | 8 | 256 | 8 | 16 | 512 | 8 | 16 | 512 |
| Max 12G SAS Ports | 2 | 4 | - | N/A | | | N/A | | |
| Max SAS Chains | 2 | 2 | - | N/A | | | N/A | | |

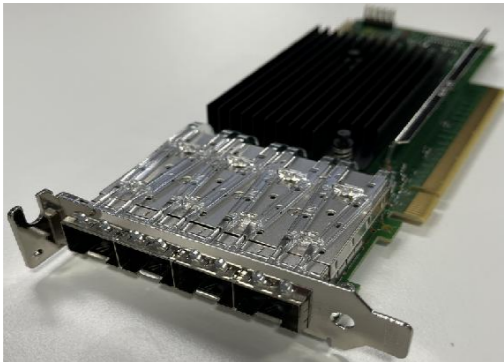
| | Per chain | Per System | | |
|-------------------------------|--|------------|-----|--|
| SAS Chain weight ⁴ | 12U | - | N/A | |
| SAS 2U12 Expansion | 6 | 12 | N/A | |
| SAS 5U92 Expansion | 2 | 4 | N/A | |
| Data Reduction | FCM5: thin-provisioning, compression and deduplication support: Optional software volume level thin-provisioning | | | |
| Max FlashSystem grid Members | 32 | | | |

FlashSystem 9600 Ethernet host bus adapters

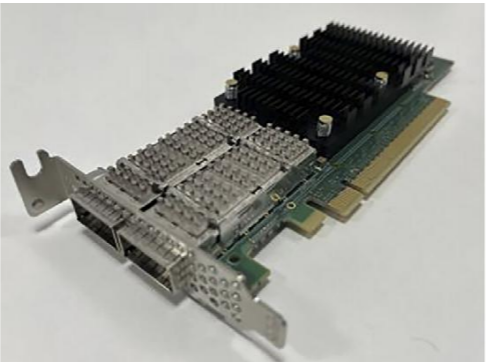
BYOC rules remain the same as before - details in docs website¹

| Platform | Adapter | Slot | iSCSI host attach | NVMe/TCP host attach | Long distance Ethernet partnership over TCP | Short distance Ethernet partnership over RDMA |
|------------------|-----------------|---------|-------------------|----------------------|---|---|
| FlashSystem 7600 | 4x25G Ethernet | 1/2/3/4 | | | | |
| FlashSystem 9600 | 2x100G Ethernet | 1/2/3/4 | | | | |

Quad-port
25Gbps or
10Gbps



Dual-port
40Gbps or
100Gbps



Configuration Restrictions

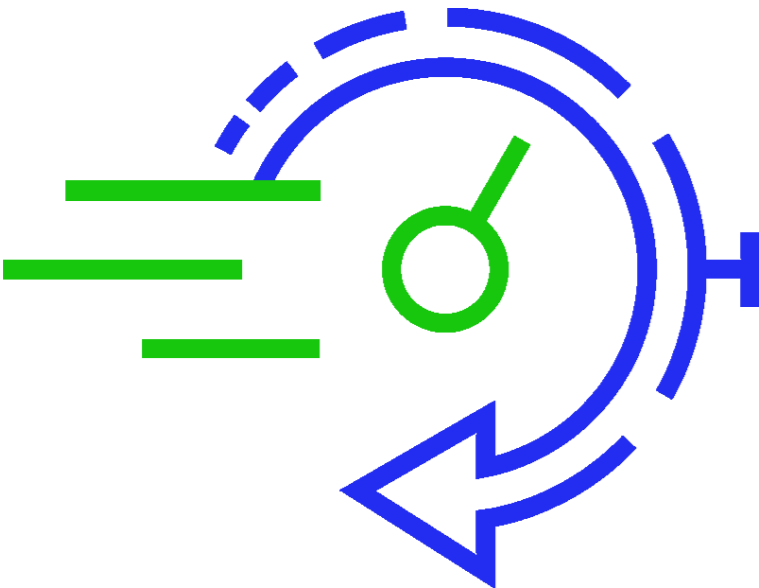
- NVMe/RDMA will not be supported on new platforms
- Long distance partnership over TCP will not support compression on new platforms
 - Intel -> AMD means hardware accelerator for compression is not available
- Asymmetric high-speed Ethernet (HSE) partnership (100G-25G) is transitional only*

*Asymmetric HSE Partnership consideration risks

- Asymmetric partnership (100G-25G) is transitional only
- Bandwidth over-subscription
- Likelihood of congestion under sustained or bursty workloads
- Effective max I/O bandwidth contained by minimum port-to-port bandwidth
- Degraded I/O performance and HA loss
- Host side throttling during transition
- Flow control

FlashSystem guarantees available on all acquisition models

Stand-alone guarantees



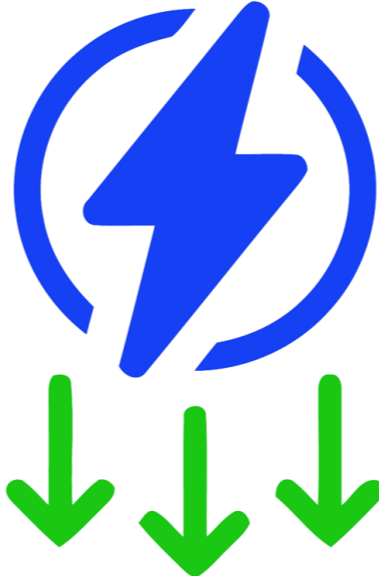
Cyber Recovery

Immutable Safeguarded Copy snapshots can be recovered in just 60-seconds



100% Data Availability

Zero down time during a three-year period on a FlashSystem solution



Sustainability

Energy efficiency as low as 0.56 W/TB (raw capacity) on select configurations.



5:1 Data Reduction

Guaranteed 5:1 data reduction on reducible data

A quick review of FlashSystem 9600

All inclusive Licensed Machine Code with support for all Advanced Services including

Volume Group Snapshot and Safeguarded Copy (SGC)

Policy Based Replication (PBR) ~ 4x faster than prior way

Policy Based High Availability (PBHA) ~ 4x faster than prior

Data at Rest Encryption on all drives (using SED or the SAS)

FCM hardware-based Compression and Deduplication

Ransomware Threat Detection on all FlashSystem arrays

Secure Boot and Measured Boot

Storage Insights integration

FlashSystem grid scale out for up to 32 FlashSystem arrays

Support for 4 Arrays of DRAID6



Protocol support

NVMe/TCP and iSCSI with high-speed Ethernet

FC-NVMe and FC-SCSI

NVMe/RoCE is Post-GA TBD



Drive support



NVMe Support for up to 32 drives of FCM 5E Sm - XXL capacities

NVMe Support for up to 32 commodity SSDs in 1.9-7.68TB capacities

SAS Expansion is not supported. FlashSystem grid enables easy expansion



Memory support



Base - 768GiB per node for 1.5TiB per system with 50% bandwidth

Upgrade 1 – 1.5TiB per node for 3.0TiB per system with 100% bandwidth