Supermicro + QuantaStor
Software Defined Storage Solutions

What is QuantaStor?

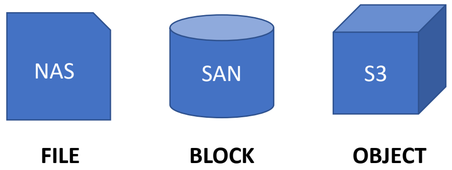
Enterprise Software Defined Storage Platform

Storage Grid Technology

Storage Grid technology unifies management of QuantaStor servers and clusters across racks, sites, and clouds.

Unified File, Block & Object

All major storage protocols are supported including NFS/SMB, iSCSI/FC, and S3.



Secure

Advanced RBAC, end-to-end encryption support, and compliance with NIST 800-53, 800-171, HIPAA, CJIS, & FIPS 140-2 L1 certified.

Scale-up & Scale-out

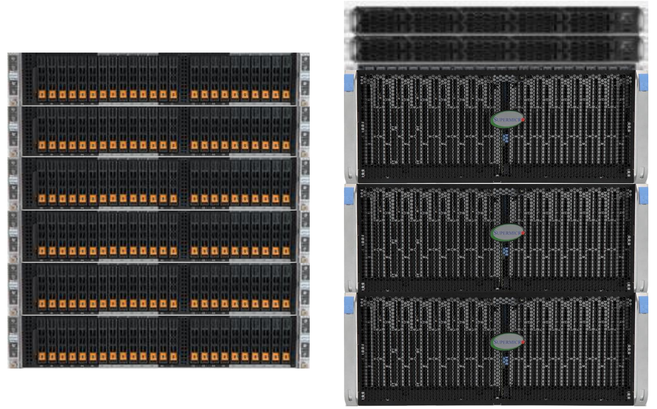
Integrated with enterprise-grade open storage technologies (Ceph & ZFS).

ceph

OpenZFS

Hardware Flexibility

QuantaStor supports and is integrated with the full line of Supermicro servers, JBODs, and SBB clustered storage solutions.



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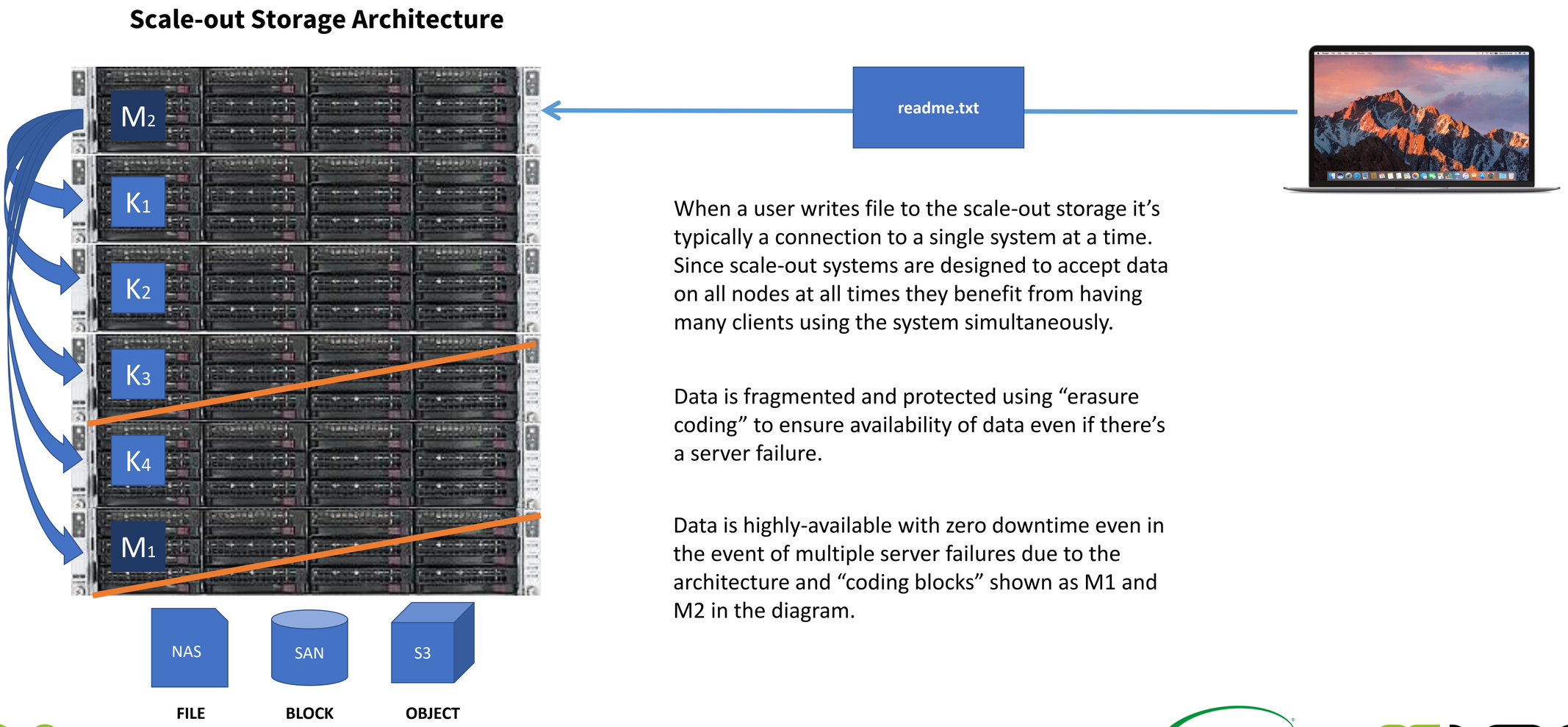
Scale-out Storage Architecture

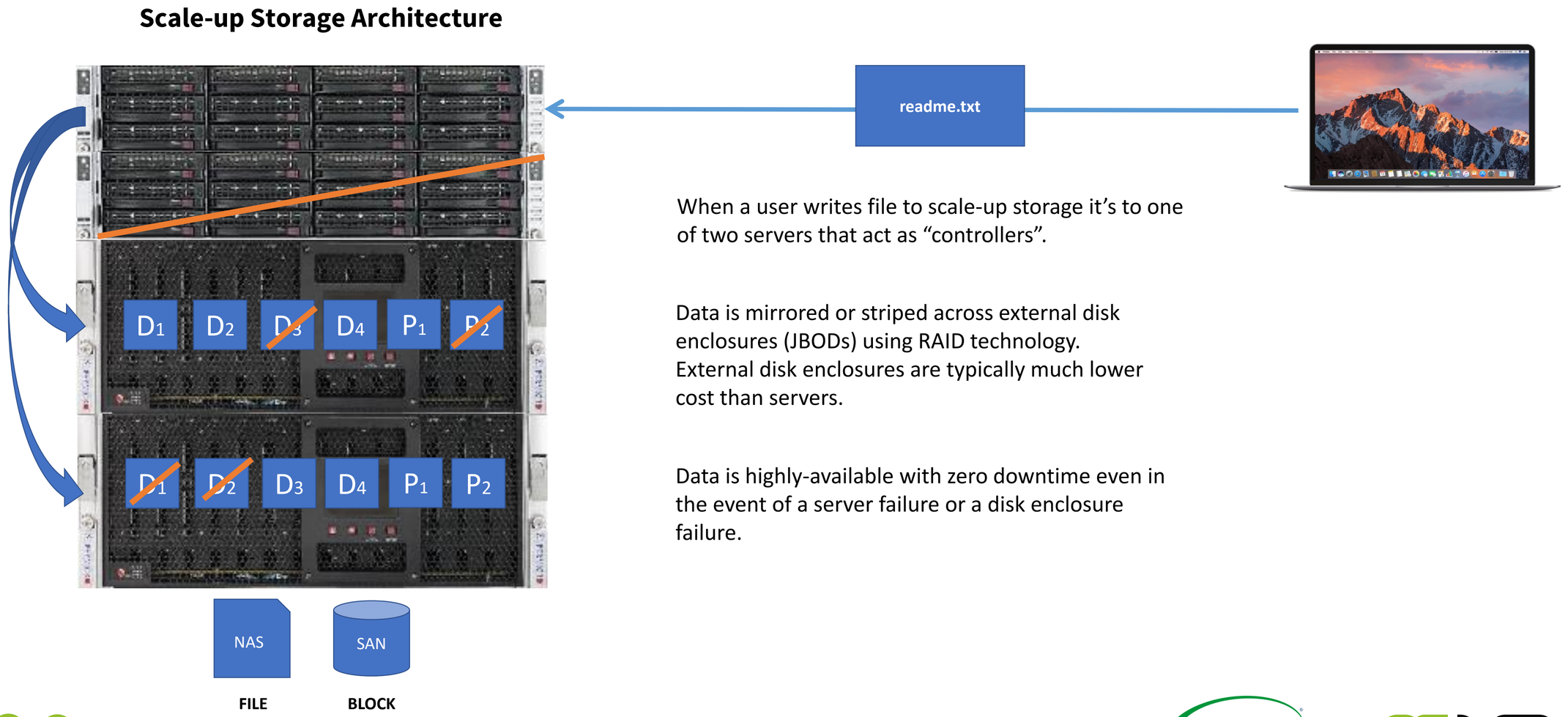


When a user writes file to the scale-out storage it's typically a connection to a single system at a time. Since scale-out systems are designed to accept data on all nodes at all times they benefit from having many clients using the system simultaneously.

Data is fragmented and protected using "erasure coding" to ensure availability of data even if there's a server failure.

Data is highly-available with zero downtime even in the event of multiple server failures due to the architecture and "coding blocks" shown as M1 and M2 in the diagram.

Scale-up Storage Architecture

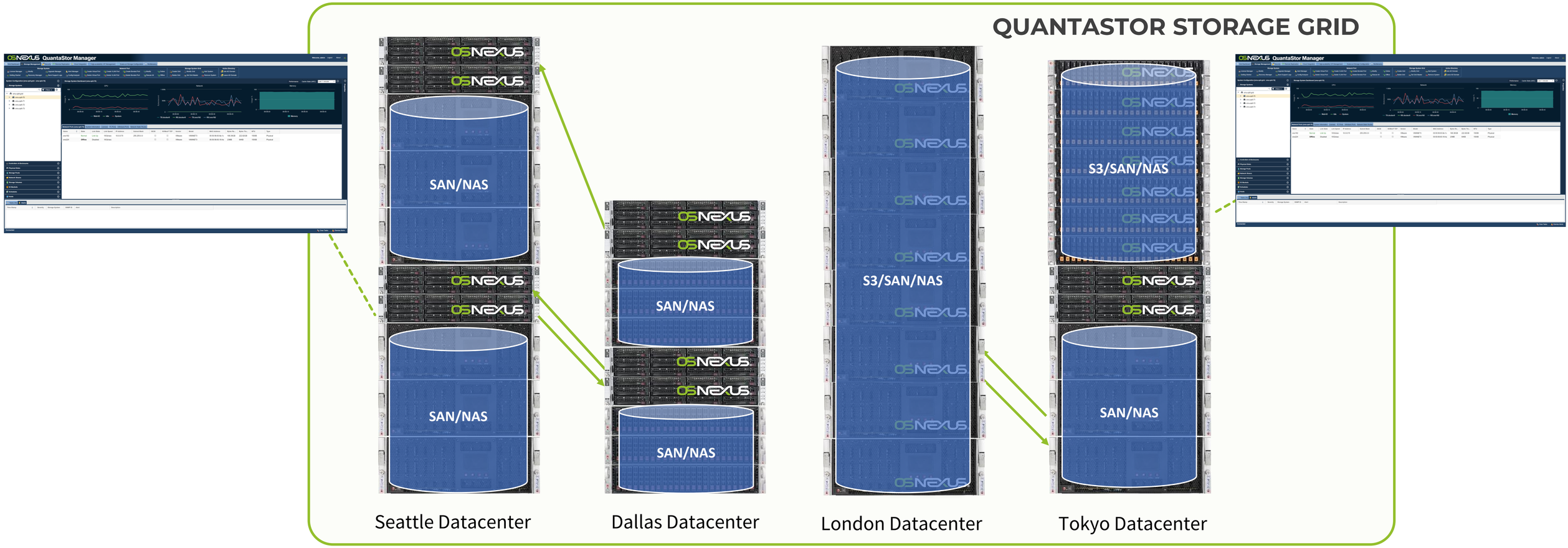


When a user writes file to scale-up storage it's to one of two servers that act as "controllers".

Data is mirrored or striped across external disk enclosures (JBODs) using RAID technology. External disk enclosures are typically much lower cost than servers.

Data is highly-available with zero downtime even in the event of a server failure or a disk enclosure failure.

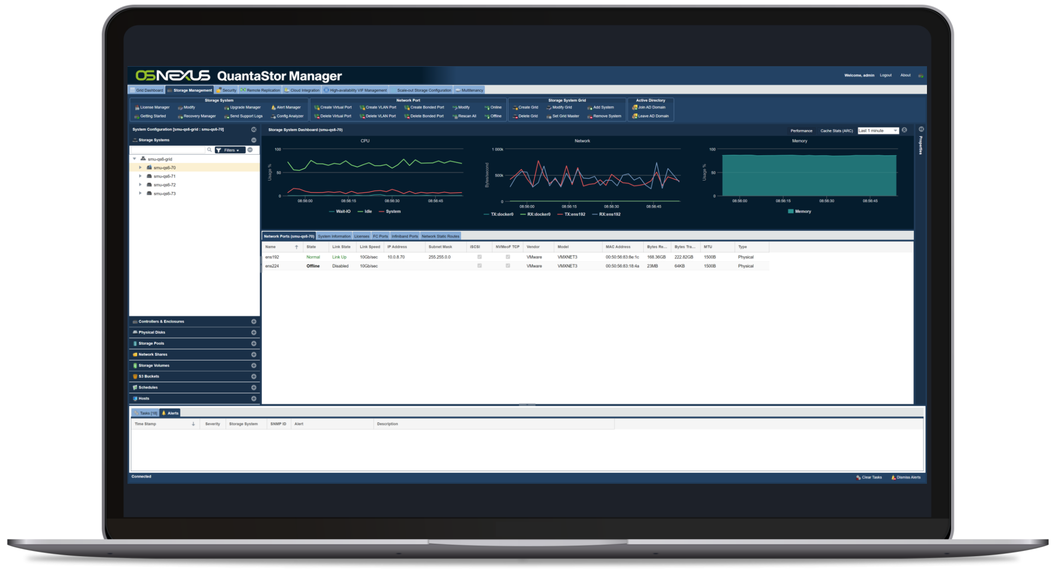
One Platform, Unified Management



Grid technology simplifies security enforcement, storage management while enabling organizations to scale without bounds.

One Platform, Unified Management

Unified storage platform with advanced grid technology, security features, and industry leading hardware integration.

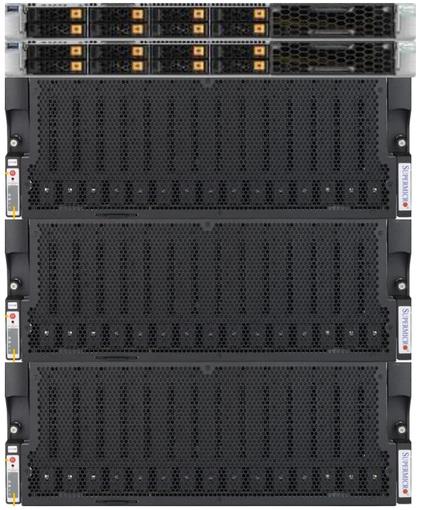


Designing Scale-up Solutions

High Performance SAN/NAS Cluster

Use Cases

vmware ORACLE Microsoft Hyper-V



High Capacity SAN/NAS Cluster

Use Cases

VEEAM COMMVAULT VERITAS NetBackup

- Compact low cost footprint
- Unified File & Block Storage (iSCSI/FC/SMB/NFS)
- Dual-port NVMe, SAS, and hybrid options
- Scale up to 6x JBODs (~600 disks) per cluster (> 10PB)
- Scale out to over 100PB per Storage Grid
- All-Flash Performance (300K IOPS per Pool)
- Hybrid Performance (4GB/sec per Pool)

Designing Scale-out Solutions

Scale-out File, Block & Object

Use Cases

HPC kubernetes AI/ML

Apache MESOS openstack.

VEEAM

COMMVAULT VERITAS NetBackup

- Unified object, file, and block storage
- Deploy multiple clusters per Storage Grid
- Scalable to over 100PB per Storage Grid
- Supports all major protocols S3, NFS, SMB, iSCSI, and FC
- Native file protocol for HPC use cases
- All-flash Performance (+300MB/sec per SSD/NVMe)
- Hybrid Performance (+60MB/sec per HDD)

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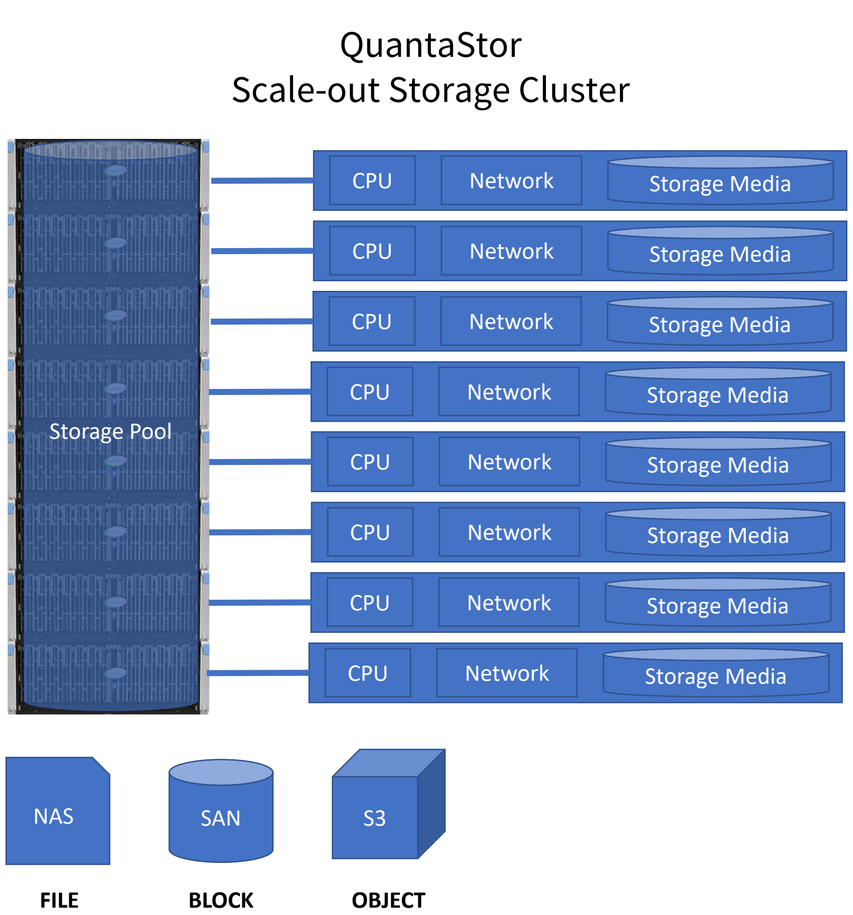
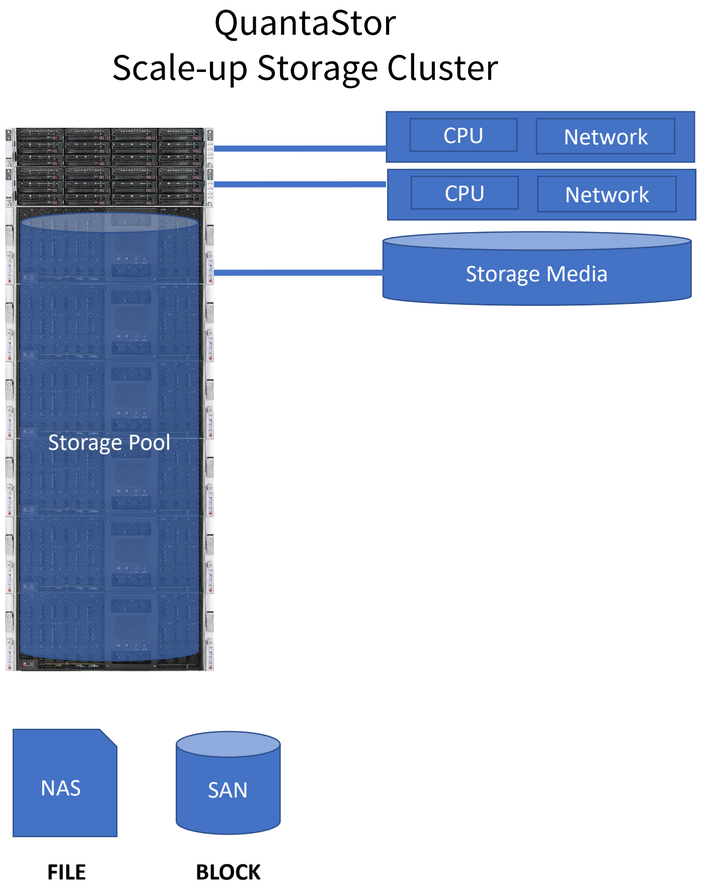
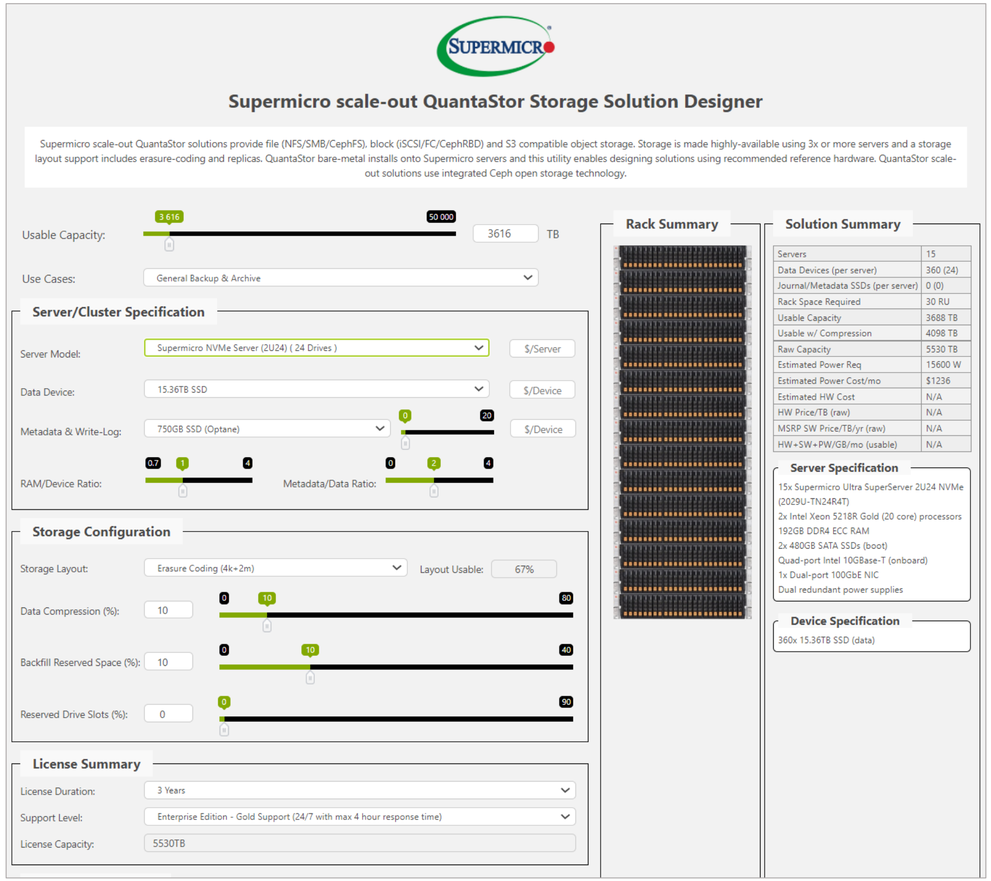
One Platform, Scale-up & Scale-out





QuantaStor delivers both scale-up and scale-out in a single platform because both are needed for different application workloads.

Designing Storage Solutions



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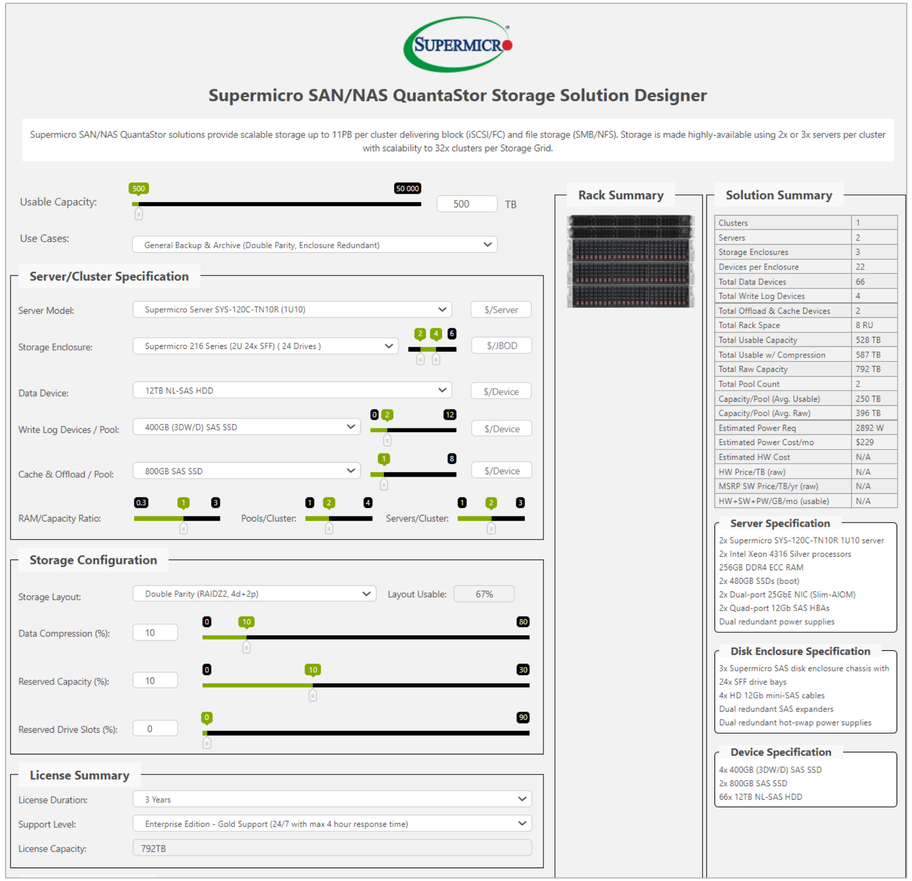

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Maintenance Made Easy

- Zero-touch maintenance
  - Auto-heals after replacing media, no further action required.
- Single-pane-of-glass management, accessible from all systems
  - No extra software to install, it’s all built in.
- Automated self diagnostics, health reporting & email alerting
- Easy setup & deployment
  - Configure in less than an hour after rack & stack.
- 24/7 support is comprehensive, global support team comprised of all tier-3 experts
  - Support covers complete stack, root cause analysis with one support call.
- Scale from 100TB to over 100PB
  - Pricing continually decreases as you expand.
- End-to-end encryption with automated snapshots to protect against ransomware

Customer Success Stories

IBM has been offering QuantaStor as it's mass-storage-server SAN/NAS platform in the IBM Cloud since 2011 with hundreds of deployments across it's 23 datacenters worldwide.

ServiceNow has been using QuantaStor since 2018 on a large scale across datacenters worldwide as a high performance data archive tier.

Required next-gen storage option to replace aging NetApp systems for internal applications and disk-to-disk backup. Deployed QuantaStor instances in IBM Cloud to deliver HIPAA compliant, fast, encrypted storage for backups.

TerraPower is developing next generation clean nuclear reactors that will use spent fuel rods from older reactors to extract unused energy and reduce nuclear waste. TerraPower has a large Windows based HPC cluster that uses a QuantaStor storage system using HPE hardware for high performance NAS. QuantaStor aggregates capacity and performance to meet the high-performance SMB protocol requirements for their HPC cluster.

Dynamic transcoding and processing of sports data streams to produce game highlights delivered directly to mobile phone platform. QuantaStor is an integral part of all the processing stages with the final output transferred up to a global cloud based content delivery network (CDN).

Netflix uses QuantaStor in the AWS cloud for color processing on dedicated systems with NVMe.

Customer Success Stories

Global coordinated media production & software engineering. Integrated solution with Resilio for multi-site data sync.

Virtualization use cases, storage for global engineering teams.

Virtualization use cases, storage for global software engineering teams.

Global R&D storage for research, databases, virtualization, user home directories.

Backup storage and CCTV use cases using Milestone.

FC block storage use case combined with IBM SAN Volume Controller.

QUANTASTOR 6 – New Features

- **General Improvements**
  - Support for 32GB FC HBAs (QLE 2742/2692)
  - Support for latest server hardware including Supermicro X13 and H13 based systems.
  - Greater scalability of web interface and storage grids, support for over 100K+ snapshots
  - Automatic multi-node sequenced upgrades / rolling upgrades
  - Updated Localization for Japanese, Korean, and Chinese (Simplified & Traditional)
  - QuantaStor Powershell module for Windows scripting
  - Dark-mode web UI theme
  - Veeam SOSAPI and Veeam 12 certification (QS 6.2)
  - Software RAID1 boot and hot-spare management

- **Scale-up Improvements**
  - Faster HA failover (over 200% speed boost for large configurations)
  - Support added for ZSTD compression, DRAID storage pools and per Network Share encryption
  - Support for Meta-data Offload SSDs for boosting performance of HDD pools, requires 3x SSDs per pool
  - WORM Support
  - Remote replication reporting and auto-recovery improvements

- **Scale-out Improvements**
  - Real-time stats for scale-out S3 object storage
  - Support for S3 objects > 30TB
  - Optimized cluster expand / shrink, easy reweighting via web interface
  - Support for erasure-coded block-storage pools
  - Support for Ceph v17 (Quincy)
  - Automated Ceph Cluster upgrades

Q&A

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