DELL Technologies

NVMe

The Future of High-End Storage is Here

Dell PowerMax

Digital
Transformation

Fueled by
IT Transformation

Data analytics
Deliver new insights

Data center
Modernize

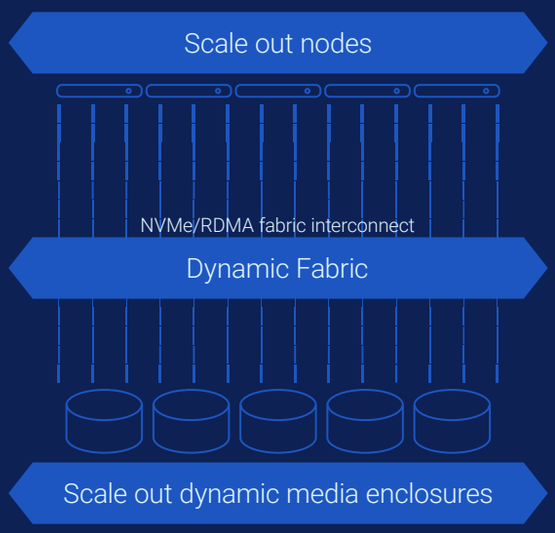
Powerful Architecture

NVMe done right

Next Generation Architecture

- Dynamic fabric technology (2-16 nodes)
- NVMe/RDMA (Remote Direct Memory Access) over NVMe interconnect
- Independently scale compute and drives
- Self-encrypting SSDs

Industry Standard Technology



World Class Performance at scale

Up to **2x** faster performance[1]

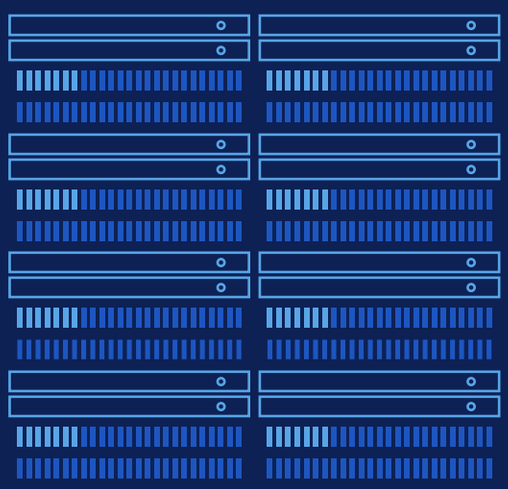
Up to **50%** better response times[2]

Scale to **65M** secure snaps per array

Multi-node with

multi-dimensional scale

Scales up and out to 18PBe



Starts as small as 13TB

Scales up and out

Flexibility to independently expand capacity and performance on demand

Fully redundant hot-pluggable components

Keeps applications running without compromise

Non-disruptive upgrades

Under 6 seconds to upgrade PowerMaxOS[3]

Highest level of data integrity

End-to-end error checking (T10DIF)

PowerMax redefines modern storage

for apps of today and tomorrow

Safeguard
high value data

Automate
storage operations

Modernize
continuously

Safeguard High Value Data

The world's most secure mission-critical storage[4]

Designed to accelerate Zero Trust adoption[5]

Data at rest encryption

External key managers

D@RE key rotation

Self-encrypting media

Built-in hardware security

Immutable hardware root of trust

Secure boot chain of trust

Digitally signed firmware updates

Cyber resiliency

Most granular cyber recovery at scale for best RPOs via 65M secure snaps[6]

Cyber recovery vault for open systems and mainframe

Advanced threat detection

Ransomware anomaly detection

Security configuration compliance alerts

Secure syslog alerts and exports

Security certifications

Common Criteria

FIPS 140-2 optional drives

STIG hardening and U.S. DoD Approved Products List

Trusted admin access

SecureID multi-factor authentication

Role-based access controls

LDAP, ZDP 2-factor authentication

CAC/PIV certificate support

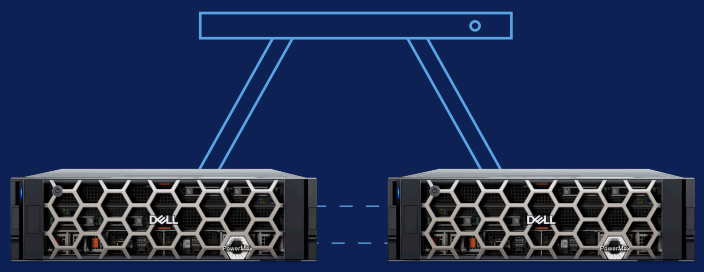
Cryptographic Ingnition Key prevents unauthorized data access

TLS 1.3 support

Trusted Innovation

Mission critical availability

With the gold standard in remote replication



Proven

99.9999%

Availability[7]

- Active/active replication
- Automated failover/back
- Zero data loss
- Non-disruptive migrations
- Unlimited distance

Automate Storage Operations

Consolidate everything on a single array

Traditional apps		Next gen apps
Relational databases	Block	Real-time analytics
EMR	File	Genomics
VMs	Mainframe	AI
ERP	IBM i	IoT
		Mobile apps

PowerMax simplifies your operations

Flexibility

to configure, tailored to your needs.

Dynamic Fabric
Flexible RAID
Non-disruptive upgrades

Automation

to simplify your repeatable tasks.

Optimized workload mobility
Policy-based management
Full REST API, SFSS

AIOps

to enable you to focus on what's more important.

Advanced, real-time telemetry
Proactive health checks with corrective action
Ransomware anomaly detection

Continuously Modern Storage

Modernize in place to get the latest innovation

Inclusive Software Subscription
Deliver innovation automatically

Access the latest software innovations
in under 6 seconds, with no disruption

Always run your workloads on the newest and best technology

- New AI-driven capabilities, next-gen storage innovations
- Never interrupt your business
- Preserve and extend existing investments via Dell's Future-Proof Program

Industry's most energy-efficient mission-critical storage[13]

Industry Leading

5:1 Open Systems
Data Reduction Guaranteed[8]

3:1 Mainframe
Data Reduction Guaranteed[9]

7x
More capacity[10]

up to
82%
reduction in carbon footprint[11]

up to
2.8x
more performance per watt[12]

More choice, flexibility and assurance in how you consume IT infrastructure

Dell APEX Subscriptions offer a consumption-driven, as-a-service optimized business model ideally suited for the way on-premises infrastructure and expertise is consumed in the on-demand economy.

Learn More About PowerMax

1. Based on Dell's internal testing using the Sequential Read Hits (128K) GB per second benchmark and IOPS per FC port benchmarks (within a single array) comparing PowerMax 8500 to PowerMax 8000, April 2023. Actual performance will vary.
2. Based on Dell's internal testing using the OLTP benchmark comparing the PowerMax 2500 against the PowerMax 2000, April 2023. Actual response times will vary.
3. Based on Dell's internal analysis measuring the time used to upgrade PowerMaxOS software without disruption (PowerMax 2500/8500), April 2023.
4. Based on Dell's internal analysis of cybersecurity capabilities of Dell PowerMax versus cybersecurity capabilities of competitive mainstream arrays supporting open systems and mainframe storage, April 2023.
5. Based on Dell's internal analysis of cybersecurity capabilities of Dell PowerMax compared to Dell's seven pillars of Zero Trust architectures, April 2023.
6. Based on Dell's analysis of PowerMax cyber recovery scalability vs competitive enterprise arrays, April 2023. Assuming an RPO of 10-minutes for 2 days and 60- minutes for 7 days, more than 2 million snaps are required, based on an average number of 5000 volumes configured in PowerMax.
7. Based on Dell's PowerMax specification for a single PowerMax 2000, 2500, 8000, or 8500 array, April 2023. Actual data availability will vary.
8. Based on Dell's Future-Proof program that offers 5:1 data reduction guarantee based on PowerMax data reduction tools (dedupe and data compression) for open systems storage, April 2023. Actual data reduction rates will vary.
9. Based on Dell's Future-Proof program that offers 3:1 data reduction guarantee based on PowerMax data reduction tools (dedupe and data compression) for mainframe storage, April 2023. Actual data reduction rates will vary.
10. Based on Dell's internal analysis comparing Effective Storage Capacity of the PowerMax 2500 compared with the PowerMax 2000, April 2023. Actual storage capacities will vary.
11. Based on Dell's internal analysis of total CO2 emissions over 5 years for PowerMax 2500 at 8PBe (5kW) versus 6 PowerMax 2000s at 8PBe (27.5kW). July 2023. Calculations are from the U.S. EPA CO2e formula. Actual CO2e reduction will vary.
12. Based on Dell's internal testing comparing IOPS per watt for PowerMax 2500 compared with PowerMax 2000 using the 8K random writes workload, August 2023. Performance per watt will vary.
13. Based on Dell's analysis of published product specs and features impacting power usage of Dell PowerMax versus competitive mainstream arrays supporting open systems and mainframe storage operating at 8PBe, June 2023.