Offer faster access to critical data and achieve greater inline data reduction with a Dell EMC PowerStore 7000T storage solution

February 2022

About our testing

We tested data reduction, simulated online transaction processing (OLTP), and four I/O profiles on two different storage array solutions.

Storage array solutions	• Dell EMC PowerStore 7000T (all-NVMe, 48 TB of usable capacity) • "Vendor B" array (all-NVMe, 48 TB of usable capacity)
Workload	Vdbench benchmarking tool
Phase 1: Data reduction	16TB dataset, sequential I/O profile with 128KB blocks, 2:1 compression, 2:1 deduplication, single thread per volume
Phase 2: Simulated OLTP performance	Allocated all logical space on the 64 1TB volumes with a sequential write I/O workload, 2:1 compression, and 1:1 deduplication
Phase 3: Four I/O profiles	64 1TB volumes, 2:1 compression, 2:1 deduplication for the following profiles: • 8KB 32-thread random 100% read • 4KB 32-thread random 100% write • 32KB 4-thread 70% read • 256KB 32-thread sequential 100% read

About PT

Principled Technologies, Inc. (PT) is the leading provider of third-party competitive marketing services for technology.

Our hands-on testing mirrors the way real users work with your product and delivers proof points you and they can count on, while our award-winning competitive marketing contextualizes those claims.

Learn more at www.principledtechnologies.com.

Key claims

Compared to the Vendor B solution, the Dell EMC PowerStore 7000T solution offered **better inline data reduction** capabilities; supported **better simulated OLTP database performance**; and delivered **better performance in IOPS, throughput, and latency** for four I/O profiles.

Use less storage capacity for the same amount of data

36% less physical storage used*

Handle more simulated transactional database work

33% more max IOPS during an OLTP-like workload*

Retrieve data faster

21% more max IOPS with a read-heavy I/O profile*

Data reduction

Benefits

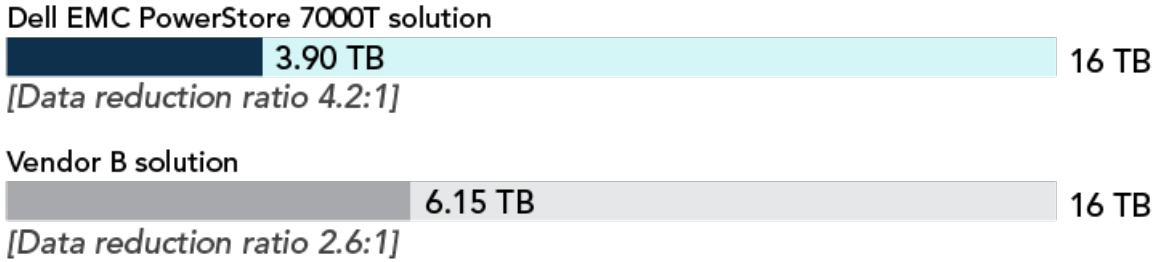
- Store data more efficiently
- Free up space on storage solutions
- Store more data on demand
- Potentially delay the need to purchase new hardware

Detailed test results

36%
better data reduction

Storage capacity needed for 16 TB of data

Lower is better

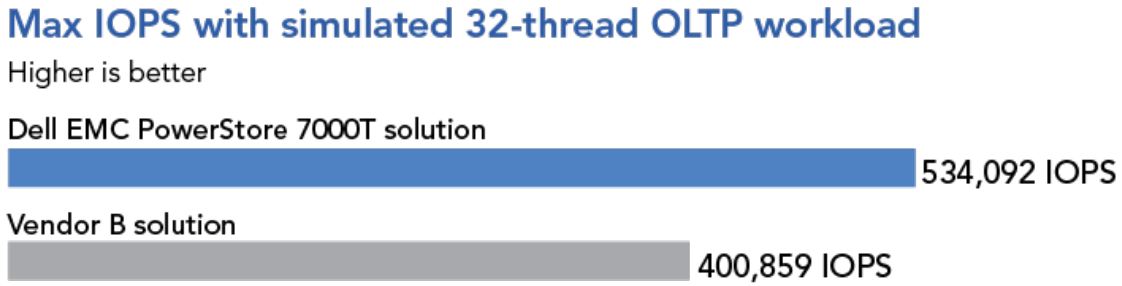


Simulated OLTP performance

Benefits

- Process more database transactions for OLTP workloads
- Keep up with the demands of high-performing databases
- Help your business grow with faster databases
- Avoid user frustration, delays, and errors

Detailed test results



I/O profiles

Benefits

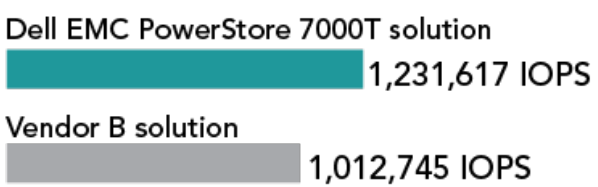
- Support more IOPS
- Retrieve information more quickly
- Commit or save data faster
- Better support periods of heavy activity

Detailed test results

21% more IOPS

Max IOPS with 8KB 32-thread random read workload

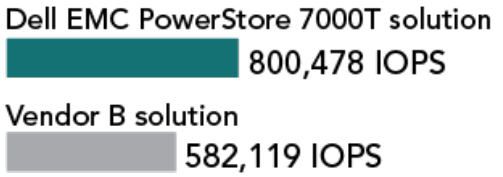
Higher is better



37% more IOPS

Max IOPS with 4KB 32-thread random write workload

Higher is better



I/O profiles

Benefits

- Deliver shorter response times
- Process heavy request loads while still delivering fast response times
- Improve application response times

Detailed test results

23%
lower latency

Latency with 32KB 4-thread 70% read workload

Lower is better

Dell EMC PowerStore 7000T solution
0.825 ms

Vendor B solution
1.078 ms

30%
more IOPS

IOPS with 32KB 4-thread 70% read workload

Higher is better

Dell EMC PowerStore 7000T solution
308,984 IOPS

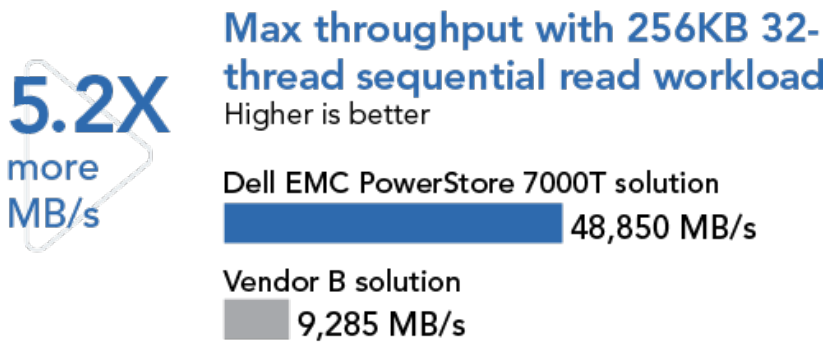
Vendor B solution
236,599 IOPS

I/O profiles

Benefits

- Process more data at a higher throughput
- Process more data for large requests (e.g., streaming video or big data applications)

Detailed test results



A Principled Technologies report: Hands-on testing. Real-world results.

Dell EMC™ PowerStore 7000T

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*compared to Vendor B solution

Compared to a storage solution from another vendor, the PowerStore 7000T offered a better inline data reduction ratio and better performance during simulated OLTP and other I/O workloads

As IDC recently reported, enterprise data volumes will grow by an average of more than 42 percent from 2020 to 2022.[1] Organizations depend on users accessing data quickly, but the growth of those volumes could slow user access. A Dell EMC PowerStore 7000T storage solution could help enterprise-grade organizations limit data center sprawl, meet transactional database performance milestones, and satisfy user demands.

At Principled Technologies, we ran multiple tests on two different all-NVMe® storage solutions with 48 TB of useable capacity: a cluster of Dell EMC PowerStore 7000T arrays and a solution based on an array from another company we'll call Vendor B. Compared to the Vendor B solution, the PowerStore 7000T solution needed less rack space, used less storage capacity to store the same amount of data, and handled more input/output operations per second (IOPS) in a simulated database online transaction processing (OLTP) workload. In addition, the PowerStore 7000T solution handled more IOPS, processed more MB per second, and delivered shorter response times than the Vendor B solution when running three different I/O profiles. With a Dell EMC PowerStore 7000T storage solution, enterprises can maximize storage capacity and increase storage performance while maintaining fast response times.

Offer faster access to critical data and achieve greater inline data reduction with a Dell EMC PowerStore 7000T storage solution — November 2021

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