Dell EMC PowerEdge Solution with WekaFS™

FEATURES

PRECONFIGURED AND FULLY TESTED
Best-in-class components engineered to work together

EASY TO MANAGE
Simple, intuitive management via GUI, API, or CLI

INTEGRATED STORAGE TIERING
Tier to multiple S3 or NFS targets for infinite capacity scaling and lowest cost

INDUSTRY LEADING PERFORMANCE
World's fastest file system with native NVMe supports CPU and GPU workloads

EXASCALE CAPACITY
Scale to petabytes of NVMe and exabytes of Object storage

UNIFIED ACCESS
POSIX compliant with support for NFS and SMB

ADVANCED DATA PROTECTION
Distributed data protection and end-to-end data integrity

TRANSPARENT SNAPSHOT CAPABILITY
Integrated backup and disaster recovery
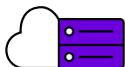
HYBRID CLOUD INTEGRATION
Backup or burst to the cloud for near unlimited resources

BREAKTHROUGH ECONOMICS
High rack density and low power and cooling consumption

ACCELERATE HIGH-PERFORMANCE AND TECHNICAL COMPUTE WORKLOADS

The boom of Big Data in today's world has created amazing new opportunities for innovation but unforeseen problems as well, particularly in the areas of artificial intelligence (AI), machine learning (ML), deep learning (DL), and high-performance computing (HPC) workloads. These workloads hold the promise of finding solutions for major challenges across industries, including healthcare and financial services. To accelerate the process of obtaining insight from mountains of data, these workloads require a modern infrastructure with extreme performance in compute, storage, and networking resources. There is a solution that addresses these needs and can help you gain the insight that you need to gain a competitive advantage, deliver customer value, and grow your business.

The Dell EMC PowerEdge R640 server platform and WekaFS, the world's fastest and most scalable file system, work together for maximum acceleration and reduced training times, delivering unmatched performance at scale. This combined solution is ideal for today's data-intensive applications in artificial intelligence and technical computing. It has proven scalable performance, delivering over 10x more performance than blade-based, all-flash, scale-out NAS and 3x more than locally attached NVMe SSDs. Together, Dell EMC and WekaIO support deep learning workloads that are akin to HPC, but with unique storage requirements. Because these workloads consist of billions of small files, the storage system must be able to deliver high throughput, low latency, and excellent metadata performance at extreme scale to keep graphics processing units (GPUs) and applications saturated with data. This is unattainable by legacy storage systems, but made possible with WekaIO's modern NVMe-optimized, distributed, and parallel file system running on Dell EMC servers.

CHOOSE A SOLUTION THAT DELIVERS PERFORMANCE, FLEXIBILITY, AND VALUE

With the Dell EMC PowerEdge R640 server platform, WekaFS software, and Mellanox network adapters, you can take advantage of a plug-and-play solution that helps extract greater value from data. The solution allows you to start small and flexibly scale to meet your performance and capacity requirements using a building block approach.

The Dell EMC PowerEdge R640 offers uncompromising performance, scalability, and density in a 1U form factor. WekaFS is a POSIX-compliant file system that distributes both data and metadata evenly across the entire storage cluster to ensure massively parallel access. WekaFS reduces time to innovation by delivering more data to the applications that need it, faster than any other storage system. With a single namespace that can offer on-premises storage and cloud connectivity, the software delivers simplified storage management and data protection. Its performance is 3x that of local file systems and 10x that of traditional NAS. Mellanox adapters provide the choice of either InfiniBand or Ethernet to deliver 100Gb/sec bandwidth in a single network port, the lowest available latency, 150 million messages per second, and application hardware offloads, satisfying even the most demanding application requirements. The SPEC SFS®2014 results show that WekaFS has performance that is far superior to all competitors in Overall Response Time (ORT) for database, Electronic Design Automation (EDA), Video Data Acquisition (VDA), Virtual Desktop Infrastructure, and software build workloads.*

DERIVE BENEFITS FOR YOUR BUSINESS

This high-performance storage solution not only addresses your specific needs based on workload types and performance and capacity requirements, but goes beyond that to provide greater overall benefits for your business:

- optimization of your IT environments with a modern storage infrastructure and simplified storage management
- data center agility with faster data access and effective resource utilization
- data transformation for machine learning and analytics with faster time to value and insight

To make it easy to deploy this solution, there is a recommended minimum configuration that you can use as a building block to grow your deployment to meet increasing performance and capacity requirements. The minimum configuration has:

- a Dell EMC PowerEdge OEM R640 XL server
- two Mellanox EDR InfiniBand/100GbE QSFP28, two 0GbE SFP+, and two 1GbE Base-T network adapters
- eight drives, with an option to select 3.84TB or 6.4TB SSDs
- 31TB or 51TB of raw storage capacity with 3.84TB or 6.4TB SSDs, respectively

The 31TB raw capacity option provides small environments with a great entry point with the ability to scale, and the 51TB option is perfect for those who need a high-performance, capacity-optimized storage solution with the best cost per GB. See the table below for more details on the minimum configuration building block.

WekaIO delivers a differentiated solution that goes beyond current market and performance standards for storage. In partnership with Dell, a best-of-breed-technology alliance partner, WekaIO delivers the best solutions for your IT and business challenges.

DELL STORAGE SOLUTION WITH WekaFS SOFTWARE (MINIMUM CONFIGURATION)

Server	Dell EMC PowerEdge OEM R640 XL	
CPUs per Node	2x Intel Xeon® Silver 12C/24T	
Drives/Node	8	
SSD Capacity	3.84TB	6.4TB
Raw Storage	31 TB	51 TB
Ideal For	Small environments that need a great entry point with the ability to scale	Meeting high-performance, capacity-optimized storage needs with the best cost per GB
Networking	▪ 2x Mellanox EDR InfiniBand/100GbE QSFP28 ▪ 2x 10GbE SFP+ ▪ 2x 1GbE Base-T	
Software	WekaFS	
Data Protection	▪ Distributed Data Protection (N+2 or N+4) ▪ Drive Hot Sparing ▪ Error Detection: End-to-end Data Protection ▪ In-Flight and At-Rest Data Encryption	
Protocols	POSIX, NFS, SMB, S3 gateway	
Snapshots and Clones	File System Level, Up to 1024 Snapshots	
Tiering	S3 Compatible Cloud Object Store (Public or Private), and Ceph	
System Monitoring	Cloud-based Monitoring and Analytics for Application Tuning and Remote Support	
System Management	Dell iDRAC Enterprise	
Performance	Sequential read performance up to 45GB/sec	
Max Power	672.3 Watts, 2,294 BTU/Hour	
Dimensions	1 Rack Unit, Max Depth: 757.75 mm	
Support Term	▪ Software 3-year including Same Day Support ▪ Hardware 3-year Next Business Day Support	

Configuration details are subject to change without notice. Additional capacity, drive and server configurations available.
For more information, please email oem.express.nodes@dell.com.
* SPEC® SFS2014 Results: https://bit.ly/35UHLDk

Additional Resource: WekaFS Data Sheet: https://bit.ly/36BRJdc

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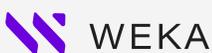
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