DELL EMC
Dell EMC PowerScale Fuels the AI Rocket Ship

IT'S A PERFECT STORM THAT'S DRIVING AI DEMAND

Multiple forces are converging to democratize AI for every enterprise to gain business advantage and extract insights from data.

MORE DATA
There is increased data available to fuel AI —with more being generated every second. Most of this is data is unstructured.

MORE COMPUTE POWER
The massively parallel architecture of GPUs and CPUs deliver the computational capacity required by modern AI, for revolutionary breakthroughs in performance.

AI INNOVATION
AI toolkits and skillsets are becoming ubiquitous enabling more organizations to train machines to use data to sense, learn, reason, make predictions and evolve.

DELL EMC POWERSCALE-BASED SOLUTION

Part of the Dell EMC PowerScale family, Isilon F800 All-Flash Scale-out NAS delivers the analytics performance and extreme concurrency at scale to consistently feed the most data hungry deep learning algorithms. Combined with PowerScale OneFS governance and enterprise features for data management, data security, data compliance, and data protection it helps your AI solution conform to regulatory and enterprise security policy requirements.
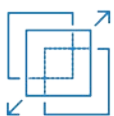
ALL-FLASH PERFORMANCE
Eliminate the I/O bottleneck for AI with up to **18x** more bandwidth* than the competition. Up to 15 GB/s per chassis; up to 540 GB/s per cluster.

EXTREME SCALE
Simple and seamless scaling up to **21x** more capacity* than the competition scaling from 10s of TBs to 10s of PBs with industry leading storage efficiency up to 85%.

FLEXIBILITY
Bring the analytics to the data with in-place analytics leveraging multi-protocol support such as SMB, NFS, HTTP and native HDFS to support multiple uses.
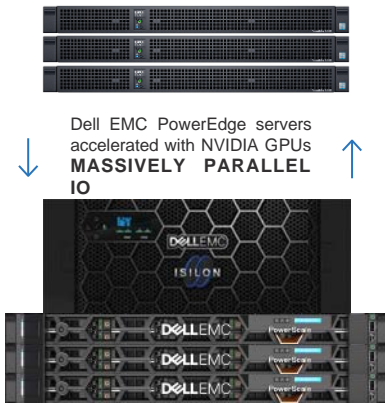
ENTERPRISE FEATURES
PowerScale OneFS delivers robust data protection and security options with guaranteed resiliency. Automatic tiering between All-Flash, Hybrid and Archive nodes via SmartPools.

DELL EMC POWERSCALE DEEP LEARNING SOLUTION PORTFOLIO

Dell Technologies is the only vendor to offer flexibility and informed choice with NVIDIA, the leader in AI. By pairing high performance, high bandwidth GPU accelerated compute with high performance, high bandwidth, scale-out flash storage we make AI simple for organizations looking to deploy large scale machine learning and deep learning.

Dell EMC PowerEdge servers accelerated with NVIDIA GPUs
MASSIVELY PARALLEL IO

All-Dell EMC for AI
BEST OF BREED
Customize your own high-performance scale-out AI environment with the AI optimized Isilon F800 and PowerEdge C4140. This solution can also be added as a performance tier to an existing Isilon cluster.

Dell EMC Ready Solution for AI
DEEP LEARNING WITH NVIDIA
This solution is built to simplify AI and deliver faster, deeper insights. Dell EMC's proven expertise lowers risk and shortens deployment times with pre-validated technologies including hardware, AI software, and services.
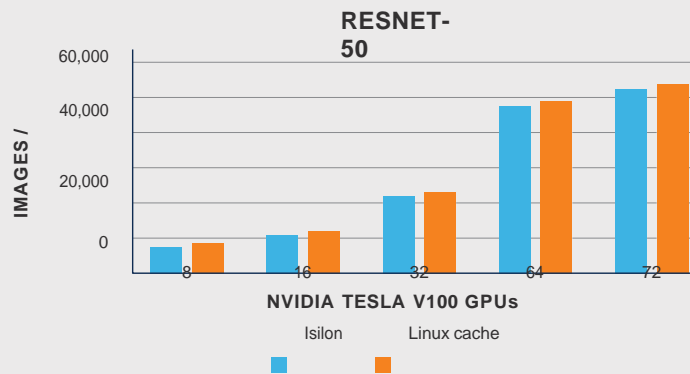
Reference Architectures
ISILON WITH NVIDIA DGX SYSTEMS
This architecture pairs NVIDIA's GPU accelerated compute with Dell EMC's scale-out all-flash storage to give more flexibility in deploying large scale AI solutions.

POWERSCALE-BASED DEEP LEARNING SOLUTION PORTFOLIO VALIDATION

Highlighted below are the results from the ResNet-50 benchmark performing an image classification convolutional neural network (CNN) on labeled images. Using the 148 GB ImageNet dataset as a foundation we made 150 exact copies of each image to create a 'real-life' 22.5 TB dataset which was larger than the server RAM and coherent shared Isilon cache to ensure I/O operations during benchmarking.

RESNET-50

IMAGES /

NVIDIA TESLA V100 GPUs

- Isilon
- Linux cache

SUMMARY BENCHMARK RESULTS

Dell EMC PowerScale and NVIDIA GPUs in combination result in:

- Maximize compute ROI with 97% or higher GPU utilization
- Extreme performance with 96% or higher of local memory
- Linear performance scaling from 8 to 72 GPUs

Read the full performance report here

POWERSCALE ACCELERATES AI BY ELIMINATING THE I/O BOTTLENECK AT SCALE

ACCELERATE INNOVATION
Up to **2.7x** faster performance[**] to accelerate model training cycles

INCREASE MODEL ACCURACY
Deeper, higher resolution data sets with access to 10s TBs up to 10s PBs per cluster

IMPROVE DATA SCIENCE PRODUCTIVITY
Flexible in-place analytics and pre-validated solutions for faster, lower risk deployments

SIMPLE SCALE-OUT DEPLOYMENTS
Start small and independently scale-out compute and storage for large scale deployments

DELL EMC POWERSCALE IN ACTION

PRECISION MEDICINE

"Data sets using multiple inputs are becoming so massive, we must rely on AI to help make sense of it all. Dell EMC is a critical partner as we push the science forward, as it gives us a simple scale-out solution to manage and consume petabytes of data and to expedite genome processing from weeks to hours. When it comes to research that saves lives, where seconds matter, we rely on Dell EMC."

— **JAMES LOWEY, CIO TGEN**

Learn more about TGEN

ADVANCED DRIVER ASSISTANCE SYSTEMS (ADAS)

"Dell has simplified the management of the petabytes of data we create each month and gives us the speed and agility to run nearly 2 million simulations per day. Dell's expertise has allowed us to get out of the business of IT and to be laser focused on developing AI powered solutions that save lives."

— **LEADING AUTO MANUFACTURER**

Learn more about Zenuity

MASTERCARD: GETTING SMARTER ABOUT FIGHTING FRAUD

Safe, seamless, and frictionless card transactions powered by Dell EMC AI.

BUSINESS NEED
MasterCard needed to pivot their business from a credit card company to global technology company focused on delivering positive customer experiences with safe and secure transactions.

SOLUTION
MasterCard worked with Dell to build AI based technology solutions from Edge to Core to Edge making transactions safe, seamless and frictionless. By bringing together device intelligence, behavioral analytics, passive biometrics, and trusted user profiles MasterCard is able to outsmart fraudsters by scoring 1.9M rules in milliseconds for each of their 160M transactions an hour.

BENEFITS

PREDICTIVE PURCHASE BEHAVIOR
Understand how, when and where customers buy leading to predictive analytics.

INCREASED SECURITY
Increased security and fraud protection via analyzing customer purchasing patterns, affi and rhythms to identify anomalies that could represent fraud using machine learning.

EXPANDING YOUR BUSINESS
Expanded business with anonymized data showing share of wallet compared to competition, average ticket and frequency to identify marketing opportunities and measure return on investment

ENTERPRISE STRATEGY GROUP VALIDATION

"ESG validated that these Ready Solutions can accelerate AI model development. … The high GPU utilization and linear scaling shows that the Deep Learning with NVIDIA solution featuring Isilon is ideally architected to scale out and eliminate I/O bottlenecks for AI training workloads. ESG recommends that organizations investigate how Dell EMC Ready Solutions for AI can simplify and accelerate their AI journey."

Read the Whitepaper

READY TO GET STARTED?
Learn more about Dell EMC Unstructured Data Solutions here