Dell EMC PowerEdge
Servers 14G

The Bedrock of the Modern Data Center

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Hash Tags: #DellEMC, #DigitalTransformation
Dell EMC Infrastructure Solutions Strategy

Cloud Strategy

Modern IT Infrastructure
The server centric, software defined and data center

15 YEARS AGO:
Best of breed solutions with proprietary hardware and software

10 YEARS AGO:
Virtualization begins separating hardware and software

MOVING FORWARD:
Common x86 server infrastructure running any solutions

IT Evolution to a Common Platform
The server is a competitive advantage

Modern IT Infrastructure

Flexible Cost Structure

Traditional and Emerging Workloads

Comprehensive and Enduring Security
Server industry trends

SOFTWARE on Standard Hardware DISPLACES SPECLIAZED HARDWARE...

SDDC EMERGES

Flash via memory or Disk | GPU’s | FPGA’s

WORKLOAD ACCELERATION

POWER CHALLENGES
Increasing need to plan for component power growth

RISE of CONVERGENCE

PERSONNEL CHALLENGES
Automation of system management
Dell provides the industry's FIRST FULLY AUTOMATED SERVER LIFE CYCLE SOLUTION.

**Personnel Challenges**

Automation of system management is #1 in Converged and Hyper Converged Solutions.

**RISE of CONVERGENCE**

First to portfolio of Fresh Air solutions in Modular Data Center LEADERSHIP.

**Power Challenges**

In Converged and Hyper Converged Solutions, the increasing need to plan for component power growth DROVE INDUSTRY STANDARD power efficiency.

First 1U ACCELERATOR SOLUTION in NVMe via Express Flash.

**Workload Acceleration**

Flagrove INDUSTRY STANDARD as DISPLAINED SOLUTIONS... first 1U Accelerator solution in C4130.

**Industry-Leading Software Defined Solutions**

such as optimized options like FX2 and easy ready access for ISM and ScaleIO.

Dell leadership
PowerEdge Server Solutions

ADAPT AND SCALE
to dynamic business needs

AUTOMATE
to sustain and grow

PROTECT
your customers and your business

1. Scalable Business Architecture
   Dynamic server portfolio optimized for all your workloads

2. Intelligent Automation
   Automate routine management & free up skilled resources

3. Integrated Security
   Fortify business operations and profitability
Scalable Business Architecture

Dynamic server portfolio optimized for all your workloads

Software-defined Storage
- 12x improved IOPS in vSAN cluster
- 250% more bandwidth for ScaleIO

Database
- World record benchmark for SAP HANA SD
- Up to $600,000 savings in Oracle licensing

Virtualization
- VM migration up to 58% faster with native 25Gbps Ethernet
- Up to 34% more VMs/node with ScaleIO
Intelligent Automation

Introducing OpenManage™ Enterprise

**Intrinsic Simplicity**
Intuitive dashboard and search engine enable IT optimization with minimal training or effort

**Secure Flexible Integration**
iDRAC RESTful API with Redfish™ support

**Unifying Experience**
Provides a single management layer for tower, rack, and modular platforms

**Intuitive Automation**
Reduces the time and effort needed to manage large scale environments

Tablet/Smartphone integration via OpenManage Mobile
The OpenManage Advantage

99% Less time to deploy servers

213 Hands-on processes eliminated

6x Faster parts replacement using iDRAC with Lifecycle Controller

55% Faster configuration of network settings

10K servers configured in 15 minutes

Maintain configuration profiles with greater accuracy and 91% Less time
Integrated Security

**Effective Protection**
- iDRAC Hardware Root of Trust
- PowerEdge Secure Boot
- Authenticated Firmware Updates
- System Lockdown

**Reliable Detection**
- Drift Detection
- Persistent Logging
- Secure Alerting

**Rapid Recovery**
- BIOS and OS Recovery
- System Erase
- Easy Restore
INDUSTRY'S #1 Server Portfolio PowerEdge

OpenManage Enterprise – Intelligent Automation Systems Management

Towers  Racks  Modular  Extreme Scale Infrastructure

Industry **widest Server portfolio** without compromise

DELL EMC POWEREDGE SERVERS

Traditional & Cloud-native workloads

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<tr>
<th>T</th>
<th>VRTX</th>
<th>MSeries</th>
<th>R</th>
<th>FX2</th>
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## PowerEdge Track Record: Customer-Inspired Innovation

Dell EMC has a long history of innovation, marked by several key milestones:

**Industry’s 1st hyperscale-focused solutions provider**

- **2007**: Industry’s 1st microserver
- **2008**: Energy Smart Servers
- **2009**: 1st external PCIe chassis
- **2010**: 1st ARM server development
- **2011**: Key OpenStack supporter
- **2012**: Express Flash PCIe SSD
- **2013**: 1st server with compute, storage and GPU sleds in unified chassis
- **2014**: One million cloud servers shipped
- **2015**: 1st 25GbE servers
- **2016**: 1st 64-bit ARM server

### Key Milestones

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Dell EMC has been a key player in the evolution of server technology, focusing on energy efficiency, innovation, and providing solutions for hyperscale and enterprise markets.
NVDIMM-N are here

- **JEDEC Standard Prerequisite**
  - Can support mixing vendors

- **Software Eco-system In Place**
  - Microsoft backing solution with full support - SQL 2016
  - Linux community support
  - VMWare support in CY18

- **Dell EMC designed battery solution**
  - No comprise needed for power backup
  - Better uptime and resilience closest to CPU

- **Integration w/ iDRAC 9**

- **Supported on R640, R740, R740xd, R940**

“Persistent memory technology” that retains data in the event of a power lost or a system shut down

Spaces direct clustering and write performant workloads – SQL 2016, DB, HPC/Analytical
Over 50% of servers expected to ship with NVMe and have an average of 5.5 NVMe devices/server through 2020

- 14G to more than double (2-3X) NVMe 2.5” PCIe SSD devices
- Up to 6.4TB in 2.5” form factor
- **Wider Variety of PowerEdge Servers with NVMe PCIe SSDs**
  - **Racks:** R640, R740, R740xd, R940
  - **Towers:** T640
  - **Converged:** FX2 with FC640
- **Enhanced Drive Offering**
  - New Read Intensive swim lane
  - Dual Supplier strategy for high volume
  - Full Integration with Systems Management
  - Factory installation of card based solutions
A lot of demand for GPU and FPGA support in 14G for machine learning, big data, Hadoop, HPC, deep learning.

• 14th Generation PowerEdge offers GPU option on double the number of servers
  – R740, R740XD (UI), T640, R540, and T440
  – New video card offering on R640
  – Increased support on R740 with 3x 300W DW GPUs

• Three Key Workload Areas of Focus for 14G
  – **Machine Learning**: R740/T640 with P40/P100
  – **Data Analytics**: R740/T640 with P40/P100 (leverage partners Kinetica and MapD)
  – **VDI**: R740/T640 with NVIDIA and AMD to get 100+ users per server; T440/R540 great entry level options (multiple hypervisors supported).
Multi-Vector In Chassis Cooling
The best in class thermal capability.

- New chassis mechanical architecture designed with system airflow as key tenet
- Huge airflow improvement for better cooling
  - 17%-50% increase for R740xd (compared to R730xd)
  - 15% increase for R640 (compared to R630)
  - 11% increase for R740 (compared to R730)
- Increased system feature-set/density benefits
  - Support for all high-Thermal Design Processor TDP) options
  - Increase from 2 to 3 GPU’s in R740
  - Greater number of PCIe-SSD devices per system
- Less configuration restrictions
  - Industry best in class support of dense storage configurations + top processors + memory configurations + GPUs together
  - Higher ambient temperature support and more configurations supported in Dell EMC’s Fresh Air Cooling range
- Exploring liquid cooling for future Dell EMC 14th Generation Servers
Server solutions for every workload

**PowerEdge**

- R640
- R740 – 740XD
- R940
- M640 – FC640
- C6420

**Cloud Providers, HCI**

**SQL, Deep Storage**

**SAP Hana, Genomics**

**Virtualization, OLTP**

**Database, BI Analytics, SDS**

**HPC, Web Tech, SDS**

**IT Transformation**

**Digital Transformation**
A Last Thought ...
The C-Suite Struggle
A collective force of innovative capabilities

Innovative devices, services and solutions designed for the way people work (and play)

Transforming the data center with industry-leading servers, storage and converged infrastructure

Leading intersection of Big data, PaaS and agile development leveraging data on one cloud-independent platform

Premier provider of security, risk and compliance solutions solving your most complex challenges

Elite and trusted intelligence that strengthens security and reduces risk in a dynamic landscape

Leading enterprise-class cloud software and solution provider

Most trusted virtualization solution for desktop, data center and applications
Dell EMC Infrastructure Solutions Strategy

Cloud Strategy

Modern IT Infrastructure
The server centric, software defined and data center

Our leadership makes us the experts that can simplify your life

Servers are the bedrock of the modern data center.

*(Dell EMC RUNS ON POWEREDGE)*
# PowerEdge – The foundation for Dell EMC solutions

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<th>Traditional arrays</th>
<th>Object storage</th>
<th>SDS: block &amp; file</th>
<th>Data protection: appl. &amp; S/W</th>
<th>HCI ready nodes &amp; appliances</th>
<th>Industry leading it building blocks</th>
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<td>Certified Rack &amp; Modular Servers + Dell Networking</td>
<td>ECS software certified on R730xd &amp; DSS7000</td>
<td>Software certified on multiple PowerEdge platforms</td>
<td>Data Domain Virtual Edition (DDVE) &amp; CloudArray software certified on PowerEdge</td>
<td>VxRail, XC, VSAN &amp; SIO Ready Nodes on PE R630/R730/R730xd</td>
<td>VxRack Flex, SDDC and DSSD on PowerEdge R630/R730xd</td>
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How can we help fuel your transformation?

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