



# Top Ten Reasons: Why Customers Deploy Microsoft SQL Server on Dell EMC PowerEdge Servers

## 1 Dell EMC is #1 in Servers<sup>1</sup> and Microsoft's #1 Partner Worldwide.

Dell EMC PowerEdge servers are the bedrock of the modern data center, designed to support high-value workloads like Microsoft SQL and they're #1 for a reason. Their scalable architecture, intelligent automation, and integrated security have made them the preferred hardware platform across industries across the globe.

Dell EMC and Microsoft's partnership goes back more than 30 years. In that time, Dell EMC has earned 51 Partner of the Year awards and amassed all 14 global competencies. And with more than 16,000 certified Microsoft professionals, Dell EMC has deep expertise in the technology to deliver transformative outcomes.

## 2 The Horsepower your Database Needs.

PowerEdge servers come equipped with the latest innovation in memory technology. Specifically, Intel® Optane™ DC Persistent Memory which provides you with large volumes of memory and high-performance storage when it comes to latency, bandwidth, and endurance. SQL Server 2019 in Application Direct Mode was able to process 2.7x the number of transactions if you compare Intel® Optane™ DC Persistent Memory with NVMe drives.

With Intel® Optane™ DC Persistent Memory you can perform transactions directly on the memory bus, removing protocol and storage layers. Best of all, persistent memory is, as the name implies, persistent. Unlike other types of persistent storage like HDDs and SSDs, if your server goes down, your data is retained until you get it back up and running again.

Based on Dell EMC internal testing in March 2019 comparing a PowerEdge R740xd with 2nd Generation Intel® Xeon® Scalable processors and 2 x 1.6TB Mixed Use NVMe's using Microsoft SQL Server 2019 CTP 2.3, VMware ESXi 6.7U1 and a RHEL 7.6GA vs the same R740xd configuration except for substituting the NVMe's for 12 x 256GB DIMMs of Intel® Optane™DC persistent memory. Workload used is derived from TPC-C to SQL Server 2019 CTP 2.3 performance. The results obtained with the derived workload are not comparable to published TPC-C results. Actual results will vary.

### **3 Designed, Tested and Validated architectures with Ready Solutions for Microsoft SQL on the best of PowerEdge and Dell EMC Storage.**

We've taken the guesswork out of designing a SQL environment with Ready Solutions for Microsoft SQL. Ready Solutions for Microsoft SQL are purpose-designed and validated to optimize performance with SQL Server 2017 and 2019. They deliver strong linear scalability and consistent performance with sub-millisecond storage latencies enabling enterprise applications to respond faster and accelerate business processing.<sup>3</sup>

There are several Ready Solutions for Microsoft SQL configurations both using PowerEdge servers and Dell EMC storage. The first is a two-socket PowerEdge R740 using Unity All Flash Storage and Data Domain.

This integrated solution is designed to offer flexibility - customers can easily size the Ready Solution to match their specific database requirements. It's easy to expand with additional storage and PowerEdge servers while retaining the value of a single pretested and validated solution design. The second configuration is a four-socket solution with the PowerEdge R840 and XtremIO X2 all-flash storage designed for consolidation. A third architecture using the PowerEdge MX700 modular chassis along with Dell EMC PowerMax running both SQL 2017 and Oracle in an integrated reference architecture.

### **4 Future Ready with Containerized Validation.**

Getting ready for Microsoft SQL 2019 means getting ready for SQL in containers, and we show the path of your future data estate with our PowerEdge validation for SQL 2019 on Linux containers. We recently generated a study demonstrating the advantages of using Microsoft SQL Server 2019 containers for application development and testing environment that is hosted on Dell EMC PowerEdge and storage.<sup>4</sup>

### **5 Get Hyper-Converged, Hyper-Fast.**

Azure Stack HCI solutions from Dell EMC are fully tested and validated by Dell EMC and Microsoft to deliver the convenience of fast, simplified deployments; and solution-level, one-call customer support for peace of mind.

For Windows customers, the HCI options got a whole lot better with the latest Dell EMC Solutions for Microsoft Azure Stack HCI. These new Dell EMC Microsoft solutions mark a technological leap with Windows Server 2019 providing scalability, resiliency, single pane of glass management with the OpenManage Integration with Windows Admin Center. In addition, new Dell EMC servers and network technologies enable significant speed and efficiency improvements.

The Dell EMC Microsoft Azure Stack HCI solution has the flexibility to support nearly any use case across virtualized and physical environments, such as data center consolidation, remote or branch office (ROBO), backup, disaster recovery, archiving, Microsoft SQL, VDI, edge computing, and so many others. And it can scale from 2 to 16 nodes as your requirements grow, future-proofing your IT investments.

### **6 A Secure Platform for Your Data.**

Microsoft SQL Server 2017 is the most secure database<sup>5</sup> so why would you compromise on the security of your hardware?

PowerEdge servers are designed with security built directly into the hardware and firmware from the start. In-chip authentication and trust engine prevent data corruption while secure boot, system ease and lock-down guards against malicious or unintended changes. When SQL, the most secure RDBMS over the last seven 7 years, is run on a PowerEdge platform, you've got a secure solution from the hardware through the software stack.

## 7 PowerEdge is Cost Effective.

Microsoft SQL Server is #1 for price/performance.<sup>6</sup> And likewise, the PowerEdge R740xd server was also rated #1 for price/performance Based on Dell EMC testing using TPCx-Big Bench for Scale Factor 10000 (March 2018).<sup>7</sup> Together, Microsoft SQL on Dell EMC PowerEdge servers deliver the best price/performance database solution.

## 8 Scale Up Without Down Time.

With the PowerEdge MX platform, you can dynamically add storage with no downtime on the compute node thanks to the MX's storage sleds. This benefit is particularly useful for those who don't utilize SAN-based storage for their databases. In recent testing, the PowerEdge MX processed more orders of a SQL database per minute than major competitors.<sup>8</sup>

## 9 Hybrid Cloud Ready using Windows Admin Center.

Windows Server 2019 is dubbed "the operating system the bridges on-premises and cloud" for good reason. The ability to integrate workloads across your own datacenter and Azure public cloud are central to the software's new management portal – Windows Admin Center. However, harnessing the power of both seamlessly requires powerful, secure modern hardware. PowerEdge servers with Windows Admin Center enables seamless hybrid cloud connection meaning you can run your SQL database on-premises while leveraging Azure Services such as Azure Backup, Monitor, and Site Recovery.

## 10 Single Console Management with OpenManage.

Without automation, the typical IT organization spends nearly 70% of their time maintaining existing IT environments. Dell EMC provides a family of integrations for full-stack management of PowerEdge and Microsoft environments. When installed and configured, OpenManage Integrations for Microsoft System Center and Windows Admin Center enable visibility and control of hardware infrastructure, operating system, virtual machines, and containers.

We know that in modern IT infrastructures, management, visibility and control across the ecosystem is critical. That's why we designed Dell EMC OpenManage to provide seamless management of PowerEdge servers and solutions on-premises and across your cloud infrastructures.

<sup>1</sup>IDC Quarterly Server Tracker, Q1 2019, Units Shipped

<sup>2</sup><https://www.vmware.com/techpapers/2018/optane-dc-pmem-vsphere67-perf.html>

<sup>3</sup>Based on a Dell EMC Engineering study using SQL Server 2017 with Windows Server 2016, VMware vSphere 6.7 on PowerEdge R740 servers, and Unity 650 All Flash storage. "Dell EMC Ready Solutions for Microsoft SQL: Dell EMC Unity All Flash Storage Design Guide", December 2018

<sup>4</sup><https://cdn-prod.scdn6.secure.raxcdn.com/static/media/client/7phukh/c224ca3b-fc5d-4832-b56b-412274e39f7e.pdf>

<sup>5</sup>[https://download.microsoft.com/download/F/9/A/F9A1B5AA-D57C-4B4D-9C3E-715B800B0419/SQL\\_Server\\_2017\\_Datasheet.pdf](https://download.microsoft.com/download/F/9/A/F9A1B5AA-D57C-4B4D-9C3E-715B800B0419/SQL_Server_2017_Datasheet.pdf)

<sup>6</sup>[https://download.microsoft.com/download/F/9/A/F9A1B5AA-D57C-4B4D-9C3E-715B800B0419/SQL\\_Server\\_2017\\_Datasheet.pdf](https://download.microsoft.com/download/F/9/A/F9A1B5AA-D57C-4B4D-9C3E-715B800B0419/SQL_Server_2017_Datasheet.pdf)

<sup>7</sup>[http://www.tpc.org/tpcx-bb/results/tpcxbb\\_perf\\_results.asp](http://www.tpc.org/tpcx-bb/results/tpcxbb_perf_results.asp)

<sup>8</sup>source: [https://www.dell.com/en-us/campaigns/dell-emc/poweredge-mx-servers-vs-hpe-cisco.htm#scroll=off&overlay=/en-us/collaterals/unauth/whitepapers/products/servers/poweredge\\_mx7000\\_sds\\_performance.pdf](https://www.dell.com/en-us/campaigns/dell-emc/poweredge-mx-servers-vs-hpe-cisco.htm#scroll=off&overlay=/en-us/collaterals/unauth/whitepapers/products/servers/poweredge_mx7000_sds_performance.pdf)

<sup>9</sup> Dell EMC eBook, 'How Server Automation Increases Performance and Creates Business Advantage, 2018



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