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WHITE PAPER

KEY BENEFITS OF RUNNING MICROSOFT SQL SERVER ON DELL EMC HYPERCONVERGED INFRASTRUCTURE (HCI)

Dell EMC HCI solutions deliver the high performance and flexibility you need for mission-critical SQL Server databases

As the complexity of modern database requirements evolve, organizations are moving to high-performing, scalable and streamlined hyperconverged infrastructure (HCI) to meet these new challenges. These organizations face ever-expanding data growth that can quickly result in data center sprawl. These databases require 24/7 availability, streamlined update procedures to integrate the latest fixes and features and cloud integration. Organizations must meet these challenges while facing stringent budget demands and are burdened by the costs of maintaining large, aging traditional hardware deployments, data center expansions and additional IT administrator time dedicated to meeting SLA standards. The Dell EMC HCI portfolio offers scalability and flexibility that makes it easier for businesses to deploy and scale highly available infrastructure for SQL Server database environments.

Recent reports show that Microsoft SQL Server is the #1 most deployed database management system on HCI.[1] As support for SQL Server 2008 ends and SQL Server 2019 enters the market, the introduction of newer features such as Big Data clustering, enhancements to In-Memory Database features and the ability to execute machine learning scripts in-database means your organization needs powerful new infrastructure that can scale in compute and storage.[2] Now is the time to update your infrastructure alongside your database platform, allowing your organization to reap the benefits of the latest features in SQL Server on a Dell EMC HCI platform designed for easy adaptation as databases grow and organizational needs change.

Here are four key benefits of selecting Dell EMC VxRail and VxFlex integrated systems from the HCI portfolio to deploy your SQL Server databases.

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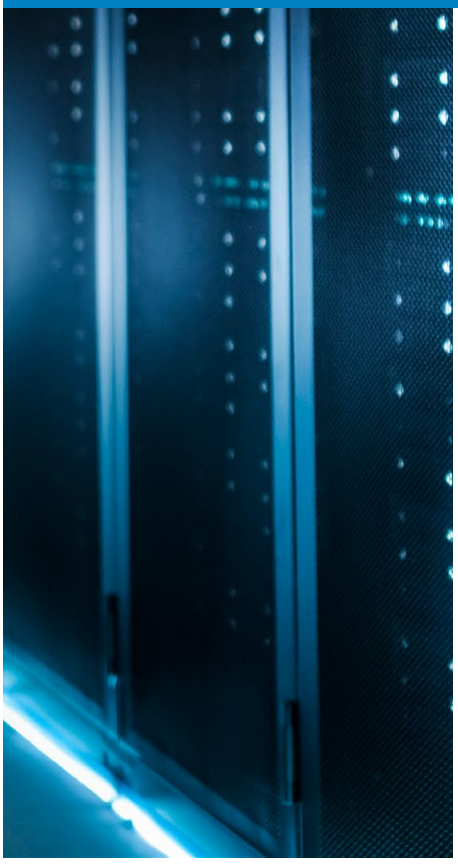
"When our users run large SQL queries, it's significantly faster. Our application developers, SQL administrators and regular users love the performance. Everything is so snappy."

— David Chau, IT Security Officer, Pasadena Water and Power



Scalable and agile infrastructure, which offers easy expansion as data grows

The explosion of data means that mission-critical SQL Server applications need enhanced scalability and simplified management to respond to business needs without costly upgrades. Traditional three-tier architecture approaches rely on purchasing more hardware, which can lead to overprovisioning and wasted resources or under provisioning, affecting performance.

The leading offering in the Dell Technologies HCI portfolio—Dell EMC VxRail—is the only jointly engineered, preconfigured, and pre-tested VMware-based HCI integrated system. VxRail offers end-to-end lifecycle management that allows you to cost-effectively deploy at the right size for your organization and then scale as your SQL Server database applications evolve. With near-linear IO performance scaling for VMware vSAN deployments, VxRail uses Live Optics to match current SQL Server consumption with an easy path to expansion as data grows. Plus, VxRail supports the latest storage options: In SQL Server database tests, Dell EMC VxRail with Intel Optane SSDs handled 61% more transactions per minute and new orders per minute.[3]

Dell EMC VxFlex, our most flexible offering in the HCI portfolio, delivers extreme performance and scalability, delivering millions of IOPS at sub-millisecond response times. This is true whether you deploy as HCI where compute and storage reside together, as a two-layer model that separates storage and compute, or use a hybrid of the two approaches. The ability to deploy a two-layer model gives organizations the ability to scale asymmetrically to add more compute or storage as needed. Additionally, Dell EMC VxFlex offers added flexibility by allowing organizations to run various hypervisors or even deploy bare metal as needed.

Reduced complexity saves IT admins time and effort, which extends business resources to customers even faster

By eliminating complex infrastructure and moving to a streamlined HCI solution for SQL Server deployments with integrated storage and compute and simplified networking, administrators can quickly and easily deploy or extend infrastructure and perform environment-wide updates without incurring downtime or compromising performance. This reduced complexity makes the design and architecting of business-critical databases easier, with less planning required to maintain uptime when performing infrastructure upgrades and maintenance. Using a VxRail or VxFlex HCI solution for SQL Server database migrations and consolidations also reduces costs by delivering a turnkey experience that drastically reduces time-consuming manual tasks and extends business operations faster.

Simplified management also delivers reduced maintenance costs. VxRail HCI System Software, which includes VxRail Manager fully transparent within VMware vCenter, provides centralized management of vSphere virtual infrastructure, allowing IT administrators to ensure security and availability, simplify day-to-day tasks and reduce the complexity of managing virtual infrastructure. VxFlex also provides centralized management through VxFlex Manager, which admins can access through a GUI, CLI or REST clients.

Increased availability and business continuity, so business keeps moving

Mission-critical databases are the backbone of your application infrastructure, which means data must be highly available and protected should an impact event occur. Dell EMC HCI solutions include built-in data protection, allowing administrators to manage, control and protect SQL Server database applications with ease, to simplify operations and maximize uptime.

Dell EMC VxRail provides increased availability for SQL Server database applications through VMware vSAN features such as stretched clustering, which allows for synchronous replication between a primary and secondary site to ensure uptime even in the event of an entire site failure, fault domains and erasure coding to provide fault tolerance and redundancy and Storage Policy Based Management to allow for the appropriate level of service for your database application VMs. Hardware design is resilient, supporting at least five 9s of availability.

Dell EMC VxRail includes data protection with backup and replication built in for fast and reliable backups at the VM level without affecting performance. With built-in VMware vSphere Replication and optional data protection from the Dell EMC Data Protection Suite, VxRail offers continuous data protection for any-point-in-time recovery with RecoverPoint for virtual machines.

Dell EMC VxFlex offers a robust feature set for data management that includes compression and snapshots with reduced overhead and can integrate with Data Protection Suite for Backup for deduplication backup, snapshot-based backup and backup to disk, to tape or to the cloud.

In addition to Data Protection Suite, Dell EMC offers multiple data protection options designed to meet each individual organization’s requirements for their SQL Server database environments, including Dell EMC PowerProtect for cost-effective, reliable backups and VMware Site Recovery for data recovery.

Improve operational efficiency to maximize value

Successful organizations continuously finetune operations to minimize costs and maximize profit. Dell EMC HCI solutions provide an infrastructure building block for the modern data center that improves operational efficiency in several ways. First, pre-tested Dell EMC HCI engineered systems allow administrators to focus less on interoperability and scalability concerns and more on product integrations and best practices. Rather than spending the bulk of time managing infrastructure, administrators finally have the bandwidth to upgrade those legacy databases to newer versions, implement Big Data analytics to help guide business decisions or begin integrating SQL Server in-memory OLTP features to speed up databases that need even faster data retrieval and processing. And because Dell EMC HCI reduces complexity and offers compute, storage and networking in one place, it eliminates the need for distinct storage, server, virtualization and network specialists, saving money and streamlining management processes. Plus, these HCI systems simplify administration because IT staff can manage the solution as a whole, reducing the time database administrators spend managing, tuning, and monitoring SQL Server applications.

VxRail HCI System Software takes advantage of the fully integrated stack for lifecycle management, allowing administrators to manage VMware software and Dell EMC hardware as one. For VxFlex deployments, VxFlex Manager provides simplified lifecycle management and automation for heterogeneous IT resources. These tools help simplify discovery and deployment automation; hypervisor, software and firmware updates; monitoring and diagnostics; as well as maintenance tasks such as expansions, decommissioning, and replacements. For expansions, this interface makes it easy for database admins to add new HCI nodes to a cluster non-disruptively, monitor resource utilization (essential for SQL Server), expedite diagnostics and troubleshoot software problems.

To learn more about how Dell EMC HCI can benefit your SQL Server deployment, visit https://www.DellEMC.com/HCI-for-SQL.

[1] https://my.tbri.com/MyTBR/documents/2Q19/BENCH/hyperconverged/tbr_hyperconverged_platforms_1h19_cbq.pdf?CFID=909342&CFTOKEN=70442604

[2] https://docs.microsoft.com/en-us/sql/sql-server/what-s-new-in-sql-server-ver15?view=sqlallproducts-allversions

[3] Tony Palmer for Enterprise Strategy Group, "Dell EMC VxRail with Intel Xeon Scalable Processors and Intel Optane SSDs," https://www.dellemc.com/resources/en-us/asset/white-papers/products/converged-infrastructure/esg-technical-validation-dell-emc-vxrail-with-intel-optane.pdf.

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