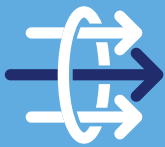


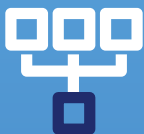


Support the user experience
14,049 online transactions per second



Draw insights from information

- Process **48** separate **300GB** database query sets in **46** minutes
- **48,391** IOPS and **4,857** MB/s throughput



Use data center space efficiently

with a cluster that can handle **8 VMs** doing heavy OLAP analytics or **12 VMs** processing robust OLTP requests

Give your business the benefits of online transaction processing and data analytics with less hassle and delay

Dell EMC Ready Solutions for Microsoft SQL is a streamlined solution for your database applications

For many companies, database applications are the backbone of business. E-commerce relies on online transaction processing, and informed decision-making requires analyzing the rich troves of data your business collects. For such critical operations, a robust solution is a must.

Dell EMC™ Ready Solutions for Microsoft® SQL is a solution that comes pre-configured to meet these business needs. At Principled Technologies, we set up Dell EMC Ready Solutions for Microsoft SQL that included four Dell EMC PowerEdge™ R740xd servers in a Microsoft Storage Spaces Direct (S2D) cluster environment running SQL Server® 2017. We put this solution through its paces, first running an online transactional processing (OLTP) workload and then performing online analytical processing (OLAP) data warehouse queries.

On both database applications, the Dell EMC Ready Solutions for Microsoft SQL achieved levels of performance that could serve a company with growing database requirements well—either by delivering a strong user experience or by providing valuable data analysis.

Juan is a hypothetical character, but the decision he faces is real. At Principled Technologies, we tested the performance of the Dell EMC Ready Solutions for Microsoft SQL (see the [science](#) addendum to this report for all of the details). Read on to see how it could handle your company's performance requirements.

Juan wonders, "Should we buy a preconfigured solution or assemble our own?"

Juan manages IT at a mid-sized lumber wholesaler. Most of his efforts focus on keeping the ordering system running optimally. The last thing a salesperson working with a customer on a large order should encounter is an error or delay.

Last month, Juan attended an industry conference where almost every session mentioned data analysis and how it can fuel business decisions. He realized his company had been lagging in this area and came back enthusiastic about catching up. The server they've been using to run their website—and the storage it uses—has been keeping up with demand, but just barely. Adding an analytics workload will tax the server further, so it's definitely time to invest in a new solution.

Back when he was putting together the current server setup, Juan did a lot of research. All the components had to work together and the solution had to meet their needs for performance and storage capacity. He did a pretty good job, but he spent weeks figuring out what to order. Once the gear arrived, he discovered a few details he'd overlooked. Working those out took even more time.

Now, he doesn't have the luxury of time. He's leaning toward Dell EMC Ready Solutions for Microsoft SQL, a preconfigured solution that includes all the hardware and software necessary for the company's database applications. Its certified components and validated building blocks would greatly simplify the ordering process and reduce the chance of incompatibilities or missing elements. Juan would fine-tune the package, but he wouldn't have to design, configure, and validate the hardware himself. Before he can make the decision, he needs to know what level of performance the solution supports.

Dell EMC Ready Solutions for Microsoft SQL

To get the best SQL Server performance, you need the right architectural design and sizing. According to Dell EMC, "Ready Solutions for Microsoft SQL is designed for superior performance, significant cost savings and future-ready scalability."¹ The Dell EMC Ready Solutions for Microsoft SQL is available in a variety of sizes to accommodate your needs.

Dell EMC PowerEdge R740xd

The 14th generation Dell EMC PowerEdge R740xd offers strong database performance with a variety of storage configuration options. It can support up to 24 NVMe drives (we tested with four SSDs and eight HDDs per server) and is powered by Intel® Xeon® Scalable processors.²

Microsoft SQL Server 2017

According to Microsoft, SQL Server 2017 Standard helps users "find rich programming capabilities, security innovations, and fast performance for mid-tier applications and data marts" with features such as end-to-end database security, enhanced in-memory performance, basic reporting and analytics, and hybrid scenarios.³



Help the sales team respond to customers in real time

Juan's most important customers are the sales team, and their most important customers are the retailers and contractors who purchase the company's lumber. When a salesperson is on the phone with a buyer from a major account, she relies on the company ordering system to quote up-to-the-minute prices and delivery estimates. Having to ask a busy buyer to wait while the system responds would be embarrassing, and Juan would hear about it.

The business need:

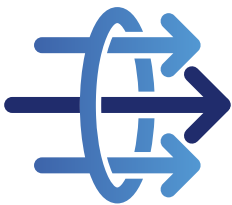
Strong online **transaction** processing performance.

How Dell EMC Ready Solutions for Microsoft SQL meets that need:

In our testing, a cluster handled **14,049 online transactions** per second.

What this means for Juan and his company:

The OLTP performance of the Dell EMC Ready Solution for Microsoft SQL will help keep the sales team at the top of their game.



Analyze data to improve business decisions

The company's upper-level leadership team is made up of sharp people who know the lumber business inside and out. Over the years, Juan has seen them make solid decisions based on this knowledge and on their instincts. But after learning how other companies are analyzing their data—such as sales and customer information—to better see trends and gain insight into what is and isn't working, he suspects they could do even better. He's made a presentation to the team, and they're eager to pursue an analytics solution. Now he needs to put something in place quickly!

The business need:

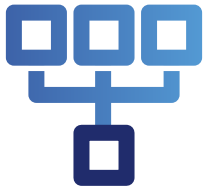
Strong online **analytical** processing performance.

How Dell EMC Ready Solutions for Microsoft SQL meets that need:

In our testing, a cluster processed **48 separate 300GB** data warehouse query sets in **46 minutes**. The solution also delivered **48,391 IOPS** and **4,857 MB/s throughput** on a data analysis workload.

What this means for Juan and his company:

The OLAP performance of the Dell EMC Ready Solution for Microsoft SQL will help management make better business decisions based on data.



Boost the bottom line by using datacenter space efficiently

Meeting the online transaction demands of the sales team is Juan's highest priority, and now that the leadership group understands the value of a data analytics solution, supporting that solution will be a strong second priority. Datacenter space is limited, though, and fitting everything in will be a challenge.

The business need:

A database server-and-storage solution that packs a great deal of compute power into a small package.

How Dell EMC Ready Solutions for Microsoft SQL meets that need:

In our testing, a cluster could handle either **8 VMs** doing heavy OLAP analytics or **12 VMs** processing robust OLTP requests.

What this means for Juan and his company:

With two clusters in a single rack, he can devote 12 VMs dedicated to the ordering system and other OLTP applications and 8 VMs to run the heavy-hitting analytical databases. Maintaining two similar clusters in one small space will help keep operational expenses down as well.

Conclusion

Our hands-on testing shows that the Dell EMC Ready Solutions for Microsoft SQL can handle both robust OLTP transaction applications and heavy OLAP analysis workloads. In our OLTP scenario, this server and hardware combination supported 12 VMs processing a total of 14,049 online transactions per second. In our data analysis scenario, it supported eight VMs processing 48 separate large-block 300GB database query sets in 46 minutes and delivered 48,391 IOPS with 4,857 MB/s throughput.

These results demonstrate what the Dell EMC Ready Solutions for Microsoft SQL has to offer data center managers like Juan: the storage density and compute power necessary to give users the service they demand and to support better-informed decision-making. It also lets them start reaping these business benefits quickly by eliminating the time and worries of designing, configuring, and testing hardware themselves.



- 1 Ready Solutions for Microsoft SQL, accessed June 1, 2018, <http://www.dell.com/en-us/work/learn/software-platforms-sql-server>
- 2 Dell EMC, "Dell EMC R740xd spec sheet," accessed May 8, 2018, <http://i.dell.com/sites/doccontent/shared-content/data-sheets/en/Documents/poweredge-r740xd-spec-sheet.pdf>
- 3 Microsoft SQL Server datasheet, accessed May 8, 2018, <https://www.microsoft.com/en-us/sql-server/sql-server-2017-editions>

Read the science behind this report at <http://facts.pt/5fvopq> ►



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