Answer database queries in **92%** less time*

Cut query times from 3 hours to just **13 minutes**†

Analyze data faster by upgrading to a Dell EMC PowerEdge R740xd running Microsoft SQL Server 2017 Standard on Red Hat Enterprise Linux 7.5*

Data analytics aren't just for big enterprises—small and medium-sized businesses accumulate lots of data from CRMs, spreadsheets, and various customer or sales databases. That data is worthless if businesses can't make sense of it though, so they need a powerful solution that can analyze information and help them use it to serve customers better.

In the Principled Technologies datacenter, we compared how fast a new 14th generation Dell EMC™ PowerEdge™ R740xd running Microsoft® SQL Server® 2017 Standard on Red Hat® Enterprise Linux® 7.5 could analyze data versus an older 12th generation Dell EMC PowerEdge R720xd running Windows Server® 2012 R2 with SQL Server 2008 R2.

Compared to the legacy solution, a new Dell EMC + Microsoft + Red Hat solution reduced the amount of time it took to analyze data from nearly three hours to just 13 minutes. Plus, the updated Dell EMC + Microsoft + Red Hat solution used fewer resources, leaving room to handle other tasks as business grows. This means that if you upgrade to the new solution, you—and your customers—could get the answers you need faster than ever, which can help make your business more profitable.

* when running a business analytics workload, compared to a legacy solution consisting of a 12th generation Dell EMC PowerEdge R720xd running Microsoft SQL Server 2008 R2 on Microsoft Windows Server 2012 R2

† in our example test

Meet data challenges with fast query times

The hardware and software solution you employ to collect and sort your data can have a big impact on your business's bottom line, depending on what you do with your data. If you're looking to make correlations and discover hidden insights in your data to help plan your next course of action, a speedy and powerful solution can help you do so more quickly. Or perhaps you have an online retail business, where analyzing past-purchase data can offer your customers suggestions to help them find something they'd like to buy, which leads directly to increased sales.

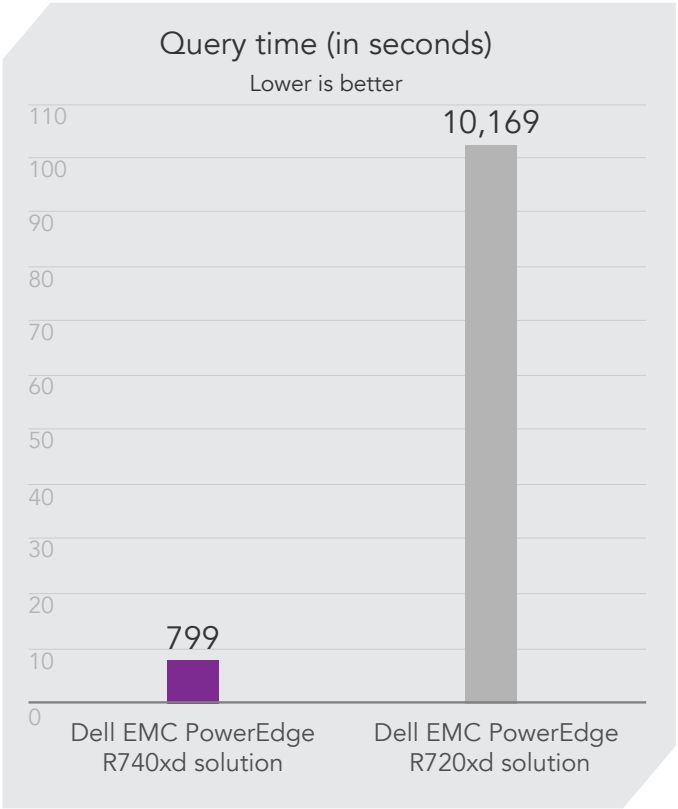
Technology improvements happen quickly. In fact, a 2016 IDC study found that by failing to upgrade in a timely manner, "IT organizations can lose up to 39 percent of peak performance and add up to 40 percent in application management costs and up to 148 percent in server administration costs."[1]

What does all this mean? That if you're looking to analyze data quickly, updating the hardware and software you use is a simple way to speed up the process.

New feature alert:

Microsoft SQL Server 2017 now supports Red Hat Enterprise Linux

Long-time Linux users now have more options when it comes to choosing a database platform. While previous Microsoft SQL Server releases required a Windows Server operating system, SQL Server 2017 is now supported by Red Hat Enterprise Linux 7.5. This compatibility gives you one more way to run your datacenter exactly how you want.

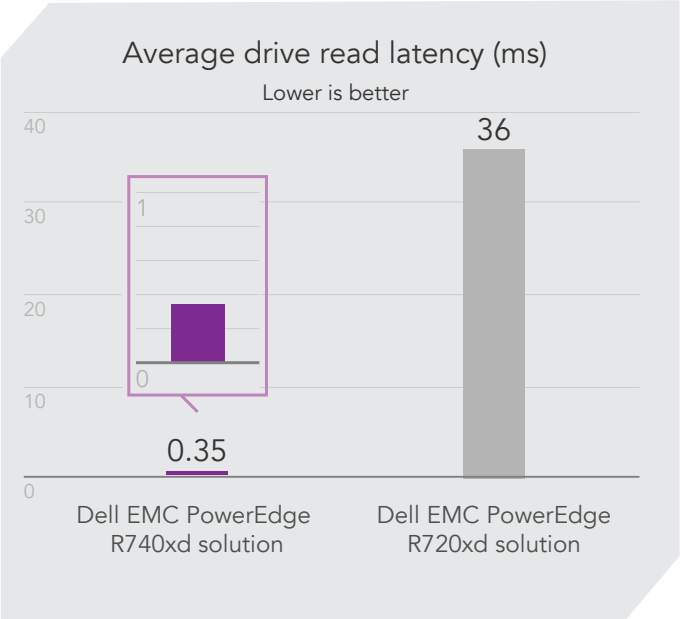


Boost data analysis speeds with a new Dell EMC PowerEdge R740xd running Microsoft SQL Server 2017 Standard on Red Hat Enterprise Linux 7.5

Our tests proved that upgrading to a completely new solution based on the latest technology from Dell EMC, Microsoft, and Red Hat could have you clocking data analysis at speeds you didn't dream of in the past.

We ran 22 queries using HammerDB and a TPC-H-like workload and found that the upgraded Dell EMC + Microsoft + Red Hat solution cut database query time from nearly three hours to just over 13 minutes.

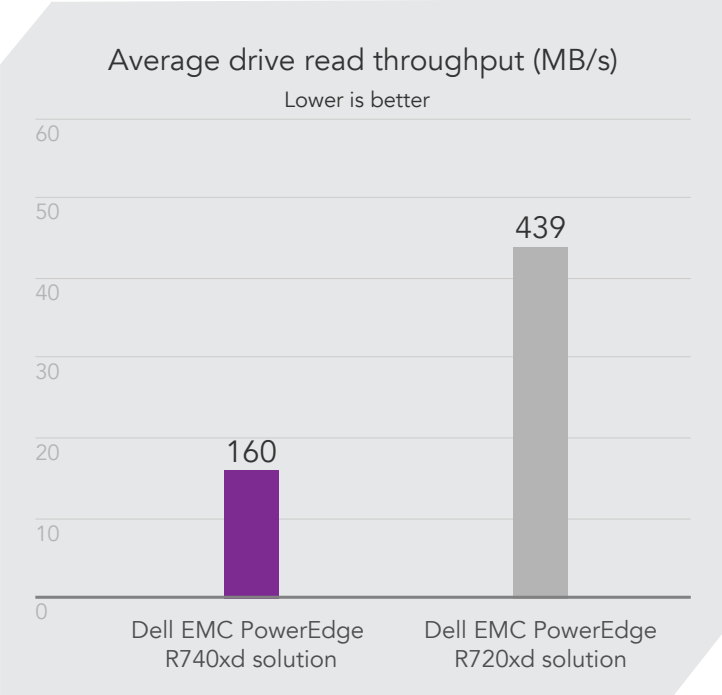
The data analysis didn't tax the upgraded solution—speed increased while drive read latency improved, shortening the wait time by 99 percent (averaged over the course of the test) compared to the 12th generation server and older software.



About the HammerDB benchmark

HammerDB is an open-source tool that tests the database performance of many leading databases, including Oracle® Database, Microsoft® SQL Server®, PostgreSQL®, and MySQL™. The benchmark includes two built-in workloads derived from industry-standards: a transactional (TPC-C-like) workload and an analytic (TPC-H-like) workload. Our test results do not represent official TPC results and are not comparable in any manner to the official TPC-audited results. For more information about HammerDB, visit www.hammerdb.com.

We understand that higher disk throughput numbers are often a sign of stronger performance, but sometimes new features can reduce throughput needs and leave headroom on your drives for other activities, making a decrease in throughput desirable. SQL Server 2017 on Linux has such a feature, Clustered Columnstore Indexes (CCI), which provides higher compression rates and query performance by organizing data in columns. Using this feature with our TPC-H-like workload significantly lowered the load on the drives while increasing workload performance. For instance, we experimented with CCI on the 14th generation solution with SQL Server 2017 on Linux and found that using it reduced throughput from 3,345 MB/s to 160 MB/s. Likewise, moving from the legacy solution running SQL Server 2008 to the new solution running SQL Server 2017 on Linux using CCI reduced throughput by 63 percent. Putting less load on your drives means that ultimately, you can do more work.



About the new solution

The 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 two SAS HDDs and 12 SATA SSDs) and is powered by Intel® Xeon® Scalable processors.[2]

Red Hat Enterprise Linux 7.5

According to Red Hat, the 7.5 release of the open-source OS offers improvements "including enhanced security and compliance, usability at scale, continued integration with Windows infrastructure on-premise and in Microsoft Azure®, and new functionality for storage cost controls."[3]

Microsoft SQL Server 2017 Standard on Linux

According to Microsoft, SQL Server 2017 Standard on Linux helps users "find rich programming capabilities, security innovations, and fast performance for mid-tier applications and data marts" with features like end-to-end database security, enhanced in-memory performance, basic reporting and analytics, and hybrid scenarios.[4]

Stop sluggish data analysis by refreshing your hardware and software

If your datacenter uses 12th generation or earlier hardware and outdated software versions of Microsoft Windows Server and Microsoft SQL Server, you aren't reaping the benefits that updated tech and new software features can provide. As we found in our tests, a new Dell EMC PowerEdge R740xd running Microsoft SQL Server 2017 Standard on Red Hat Enterprise Linux 7.5 was able to dramatically reduce the time it took to answer queries during our business analytics workload compared to a legacy hardware and software solution. By moving to a new solution now, you can speed up data analysis, use resources more efficiently, and even plan for future growth. Remember, you can't wait forever to analyze your data—your customers won't wait that long.

1 IDC, "Why Upgrade Your Server Infrastructure Now?" accessed May 8, 2018, https://www.emc.com/collateral/analyst-reports/idc-why-upgrade-server-infrastructure.pdf

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?newtab=true

3 Red Hat, "Red Hat Enterprise Linux 7.5 released," accessed May 8, 2018, https://access.redhat.com/announcements/3405871

4 Microsoft SQL Server datasheet, accessed May 8, 2018, https://www.microsoft.com/en-us/sql-server/sql-server-2017

Read the science behind this report at http://facts.pt/1h0f83 ▶

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