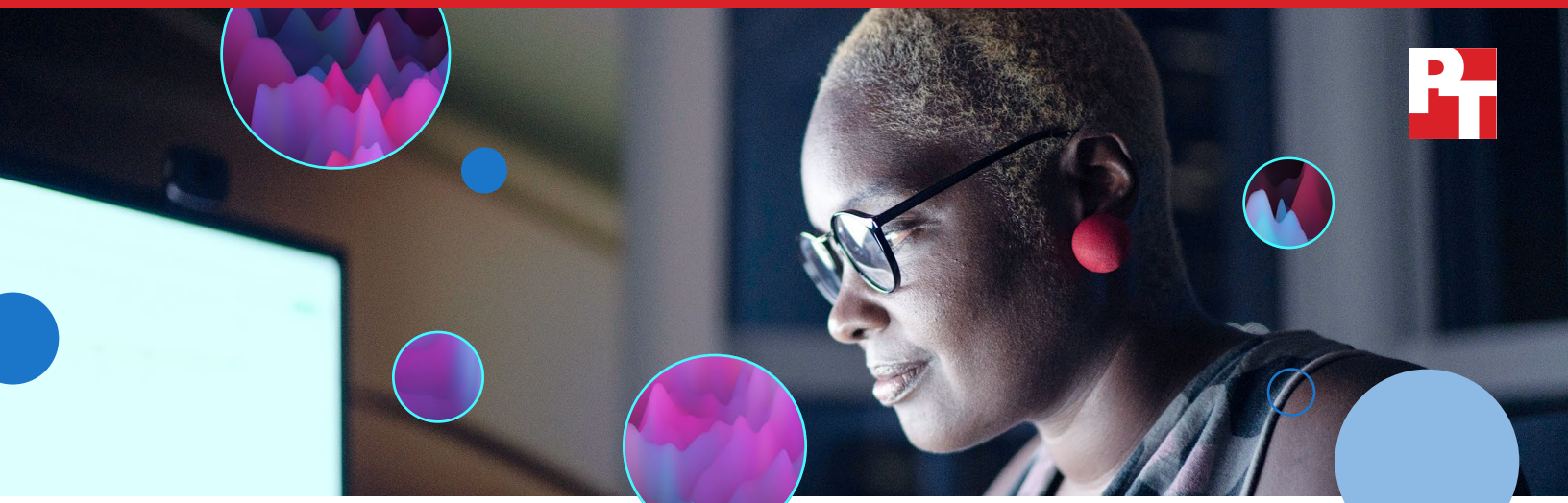


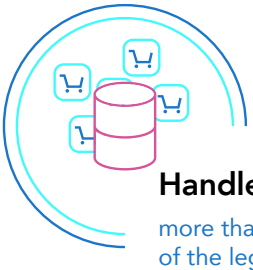
Boost transactional database performance of VMware vSAN clusters by replacing older servers with new Dell EMC PowerEdge R640 servers

Replacing older servers can help you deliver a better customer experience and generate more revenue

As your organization grows, the performance of servers in your data center may not be able to keep up and can even degrade. What the servers in your software-defined storage VMware vSAN™ solution needed to handle after their purchase might not be what they need to handle today or next year. For transactional database workloads in vSAN, diminished ability to meet increasing demand can create obstacles in delivering reliable service quality for users.

Replacing older servers in a vSAN cluster can significantly improve the performance of transactional database workloads they support. This can mean a better user experience, a greater likelihood of meeting service quality demand and workload growth, and ultimately more revenue to help your bottom line.

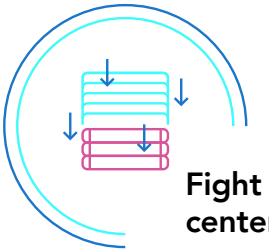
When running online transaction processing (OLTP) workloads in our data center, a vSAN cluster of current-generation Dell EMC™ PowerEdge™ R640 servers powered by 2nd Generation Intel® Xeon™ Scalable processors drastically outperformed vSAN clusters of previous-generation PowerEdge R630 servers and legacy PowerEdge R620 servers. In addition, the new PowerEdge R640 solution handled the larger workload in the same amount of space, which means it can help you combat data center sprawl.



Handle more orders

more than **7x** the OPM of the legacy server

more than **2x** the OPM of the previous-generation server



Fight data center sprawl

Handle more transactions in 3U of rack space

Potential benefits of regularly replacing your servers

As our testing shows, you can improve transactional database workload performance by replacing older servers with new ones. But new servers offer more than just performance boosts. By routinely replacing the servers in your data center, you can improve server management efficiency. New servers often have new or improved management features that make it easier for IT staff to roll out firmware updates, monitor the health of physical and virtual layers, and set up new applications and software.

Performance improvements come in part from faster and more robust compute, storage, and networking resources. The technological improvements in these resources make it easier to consolidate workloads onto a new server. Improved storage capacity allows the server to hold more data, and more processing power allows more users to access and use data.

The combination of performance, management, and consolidation benefits that come with handling more work on fewer servers can help your organization save money on capital and operational expenditures.

Replacing servers can also help IT teams holistically, allowing them to act like the strategists for organizational transformation they are rather than merely a support team. They can focus on helping ambitious developers create cutting-edge applications and workloads. Finally, regularly upgrading servers can help IT teams build a forward-looking model for IT service delivery, application modernization, and other key data center initiatives.

About the Dell EMC PowerEdge R640

The Dell EMC PowerEdge R640 is a dense 1U, two-socket server. It features 24 DDR4 DIMM slots and up to 76.8 TB of storage.

To learn more about the Dell EMC PowerEdge R640, visit https://www.dell.com/en-us/work/shop/povw/poweredge-r640.

About 2nd Generation Intel Xeon Scalable processors

The latest from Intel, the 2nd Generation Intel Xeon Scalable processor platform offers Bronze, Silver, Gold, and Platinum processors to support the workloads you run. According to Intel, the 2nd Generation Intel Xeon Scalable platform can handle a variety of workloads, including enterprise, cloud, HPC, storage, and communications.[1] This new processor line also supports a new memory and storage technology to further accelerate workloads, Intel Optane DC persistent memory.

To learn more about the 2nd Generation Intel Xeon Scalable processor family, visit https://www.intel.com/content/www/us/en/products/docs/processors/xeon/2nd-gen-xeon-scalable-processors-brief.html.

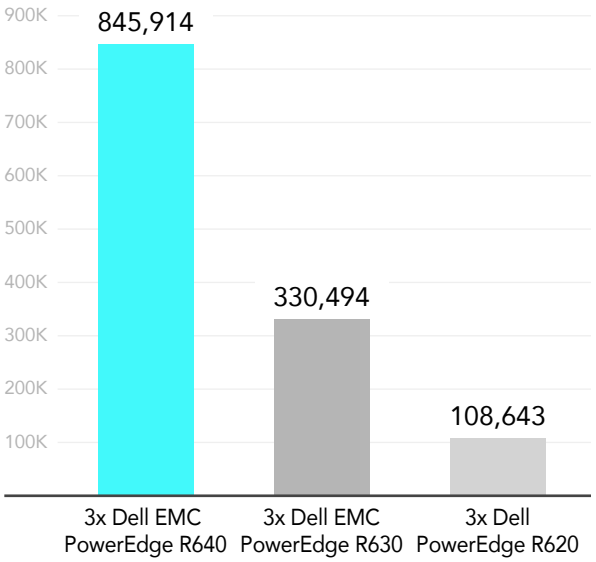
Generate more revenue with greater application delivery capacity

When we ran our OLTP database workload (DVD Store 2) on the vSAN clusters, we saw significantly better performance for the Dell EMC PowerEdge R640 solution powered by 2nd Generation Intel Xeon Scalable processors versus the older solutions. The new systems delivered more than seven times the orders per minute (OPM) of the legacy PowerEdge R620 solution and more than twice the OPM of the previous-generation PowerEdge R630 solution. This level of OPM increase means that a cluster of new Dell EMC PowerEdge R640 servers with 2nd Generation Intel Xeon Scalable processors could replace several older servers and prepare organizations to handle many ecommerce orders now and in the future.

Handle more orders

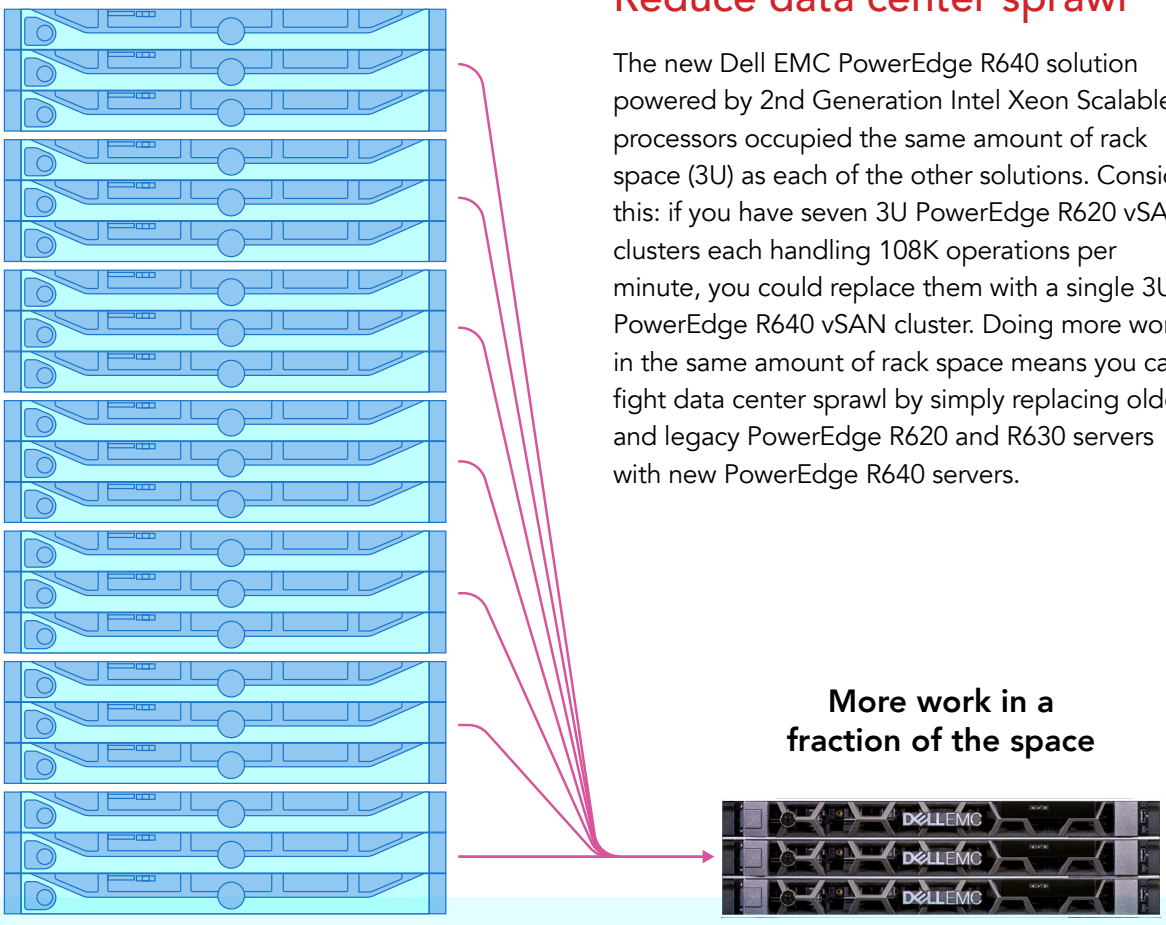
Total orders per minute (OPM)

Higher is better



Reduce data center sprawl

The new Dell EMC PowerEdge R640 solution powered by 2nd Generation Intel Xeon Scalable processors occupied the same amount of rack space (3U) as each of the other solutions. Consider this: if you have seven 3U PowerEdge R620 vSAN clusters each handling 108K operations per minute, you could replace them with a single 3U PowerEdge R640 vSAN cluster. Doing more work in the same amount of rack space means you can fight data center sprawl by simply replacing older and legacy PowerEdge R620 and R630 servers with new PowerEdge R640 servers.



About DVD Store 2

DVD Store 2 simulates customers creating accounts, logging in, searching for items, and placing orders to an ecommerce website. It is available for MySQL, Microsoft® SQL Server®, Oracle, and PostgreSQL databases.

To learn more about OPM and other information specific to our benchmark workloads, visit the DVD Store 2 website at https://github.com/dvdstore/ds21.

Conclusion

One of the key advantages of replacing servers is improved performance that either lets you consolidate older solutions or gives you performance headroom for future growth. When you replace older PowerEdge R620 and R630 servers in VMware vSAN clusters with new Dell EMC PowerEdge R640 servers powered by 2nd Generation Intel Xeon Scalable processors, you can unlock both the transactional database performance potential that helps meet user demand and boost revenue and the benefits of consolidation. If your mission-critical OLTP workloads run on older PowerEdge servers in a vSAN cluster, replacing them with the latest Dell EMC PowerEdge R640 servers powered by 2nd Generation Intel Xeon Scalable processors could deliver these benefits and more.

1 Intel, "2nd Gen Intel Xeon Scalable Processors Brief," accessed August 30, 2019, https://www.intel.com/content/www/us/en/products/docs/processors/xeon/2nd-gen-xeon-scalable-processors-brief.html

Read the science behind this report at http://facts.pt/2rv9ng1 ►

Principled Technologies®

Facts matter.®

This project was commissioned by Dell EMC.