Executive summary

Analyze data faster…

36% more YCSB operations per second

…while leaving headroom on the system for additional workloads

Ran the same workload at lower average CPU utilization

Get insight from document-based distributed MongoDB databases sooner and have CPU headroom for additional data analysis workloads

With additional drive bays and 2nd Generation Intel Xeon Scalable processors, Dell EMC PowerEdge R640 servers delivered more Yahoo Cloud Serving Benchmark (YCSB) operations per second than previous-generation servers and handled the workload more efficiently

Data analysis from distributed MongoDB databases can help improve operational efficiency and services by unifying information from a range of sources. The sooner you can get analyses into the hands of decision makers, the better informed their choices will be. Older servers running data analysis workloads can slow the decision-making process and might not be able to support necessary big data growth.

You can help decision makers get useful insight sooner by moving MongoDB data analysis workloads to current-generation servers. The bump in performance can allow more business units to generate in-depth analyses in less time.

Running read-intensive Yahoo Cloud Serving Benchmark (YCSB) workloads in our data center, a cluster of three current-generation Dell EMC™ PowerEdge™ R640 servers powered by 2nd Generation Intel® Xeon® Scalable processors outperformed a cluster of three previous-generation Dell EMC PowerEdge R630 servers. The current-generation solution had lower processor utilization as well, which could leave headroom available for running more data analysis workloads as needs grow.

Gain insight from document-based distributed data sooner

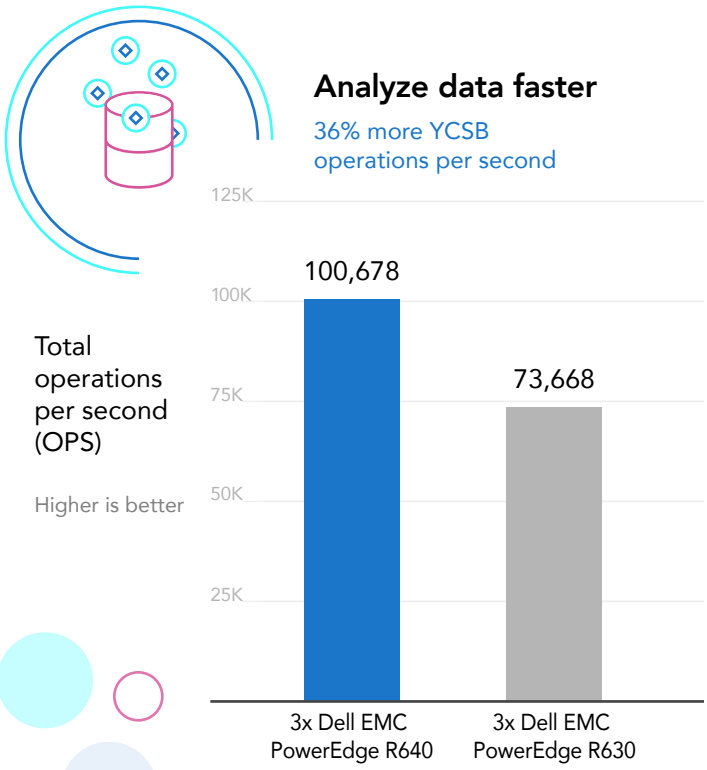
The current-generation Dell EMC PowerEdge R640 servers, powered by 2nd Generation Intel Xeon Scalable processors and using two Dell EMC Express Flash NVMe P4610 SSDs in the additional drive bays, delivered 36 percent more YCSB operations per second (OPS) than the previous-generation solution. The performance boost could allow more of your business units to run in-depth analysis without experiencing slowdowns or bottlenecks while also helping your organization accumulate data.

Have more CPU headroom to add workloads

The combination of 2nd Generation Intel Xeon Scalable processors and additional Dell EMC NVMe SSDs in each current-generation Dell EMC PowerEdge R640 helped the servers deliver better performance on the data analytics workload than the previous-generation solution while utilizing a lower overall percentage of the processors. The current-generation solution had an average CPU utilization of 43 percent, and the previous-generation solution had an average of 63 percent. By replacing older servers with the current-generation solution running Dell EMC NVMe SSDs, your organization could improve the performance of its data analysis workloads now while simultaneously creating headroom to run additional workloads.

Conclusion

Replacing previous-generation Dell EMC PowerEdge R630 servers with current-generation PowerEdge R640 servers can deliver a performance boost that allows more of your business units to run in-depth analysis more quickly. In addition, upgrading to 2nd Generation Intel Xeon Scalable processors means better performance with greater efficiency, leaving headroom available for running additional workloads in the cluster, thus allowing more business units to perform data analysis.



The winning solution at a glance

Dell EMC PowerEdge R640 server

- Dense 1U, two-socket server
- 24 DDR4 DIMM slots
- Up to 76.8 TB of storage
- Offers density and scalability for software-defined storage and high-performance computing[1]

2nd Generation Intel Xeon Scalable processor platform

- Offers multiple levels of performance to match your workloads, including Bronze, Silver, Gold, and Platinum
- Supports Intel Optane™ DC persistent memory,[2] a new memory and storage technology for workload acceleration

Read the report at http://facts.pt/e9lsh58 ▶

1 Dell EMC, "PowerEdge R640 Rack Server," accessed October 22, 2019, https://www.dell.com/en-us/work/shop/povw/poweredge-r640.

2 Intel, "2nd Gen Intel Xeon Scalable Processors Brief," accessed October 22,, 2019, https://www.intel.com/content/www/us/en/products/docs/processors/xeon/2nd-gen-xeon-scalable-processors-brief.html.

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