Upgrade to a Dell EMC PowerEdge R740xd database server that harnesses the power of Toshiba HK4R SATA solid-state drives

The new Dell EMC and Toshiba solution handled 30 percent more I/O operations while maintaining 38 percent lower latency*

30% more IOPS

Serve more simultaneous users

Up to 38% lower latency

Satisfy user requests more quickly

If you're a database admin, you might have a wish list of improvements you'd love to offer your users. As your legacy systems with older solid-state drives struggle to keep up with growing transactional database workloads, you're probably considering newer solutions. After all, failing to upgrade could mean missed business opportunities.

We set out to examine the benefits associated with replacing a legacy Dell EMC™ PowerEdge™ R730 server configured with legacy SSDs with a new Dell EMC PowerEdge R740xd server configured with Toshiba HK4R Enterprise SATA SSDs. We ran an Oracle® input/output (I/O) workload generator on each server. The results showed the Dell EMC PowerEdge R740xd configured with Toshiba HK4R SATA SSDs delivered:

- 30 percent more I/O operations per second (IOPS)
- Latency reduction up to 38 percent

Wouldn't it be great to give your databases a performance boost that has the potential to drive business growth? Upgrading to the Dell EMC PowerEdge R740xd with Toshiba HK4R SATA SSDs could be what you need to do just that.

* compared to previous-generation Dell EMC PowerEdge R730 server with legacy SSDs

Why we measure IOPS: What an Oracle I/O workload reveals about your servers' ability to handle heavy workloads

Many companies rely on Oracle databases to help support their internal and external operations. To that end, it's critical for these companies to ensure that new hardware acquisitions can effectively address the overall requirements of their Oracle databases. Upgrading to a new server with updated storage can help boost their datacenter's capabilities and create more room to grow—but what kind of performance improvements would they see?

We assessed both solutions using the Silly Little Oracle Benchmark (SLOB), a benchmark tool that generates heavy database I/O workload and measures how many IOPS a solution can sustain. If a server and its internal storage can handle more IOPS while maintaining fast response times, then it will likely be able to support periods of heavy user activity and other instances of high database use..

Handle more I/O operations

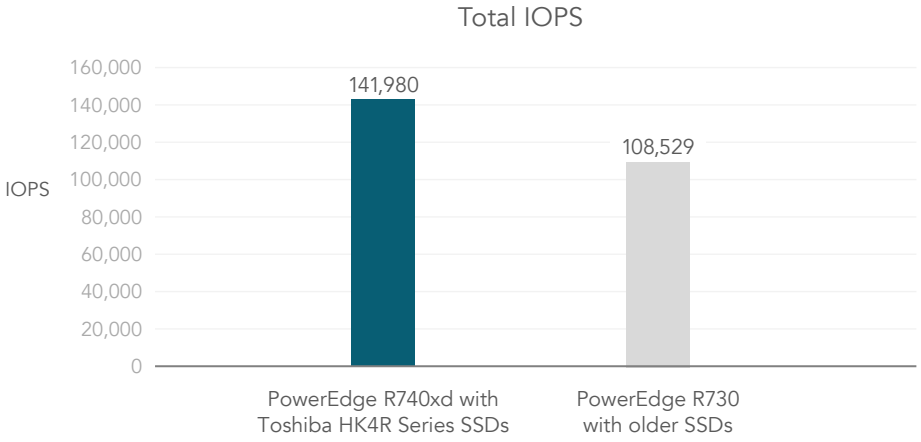
In our tests, the new PowerEdge R740xd server with Toshiba HK4R SATA SSDs handled 30 percent more IOPS than the previous-generation server. This increase in IOPS performance means your Oracle databases can handle higher levels of user activity. Whether customers are browsing your online store or employees are accessing the data they need to be productive, they stand to benefit from this more robust ability to handle periods of heavy database use.

Toshiba HK4R Series Enterprise SATA SSDs

According to Toshiba, "the enterprise HK4R SATA SSD series offers excellent performance, high reliability and low power consumption with high quality of service [(QoS)], especially for enterprise and file server use."[1] HK4R Series SSDs are available with capacities as small as 120 GB and as large as 1.92 TB. In our testing, we fit the Dell EMC PowerEdge R740xd with six 960GB Toshiba HK4R SATA drives.

30% more IOPS

Support a greater number of transactions

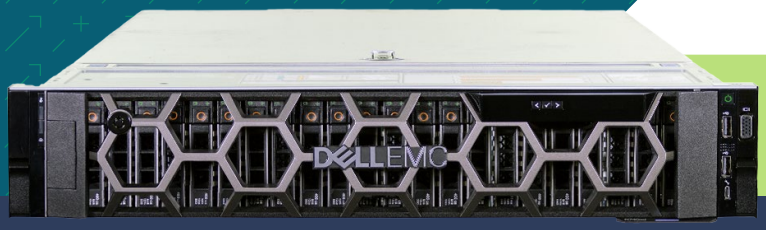


Enjoy better response times

To keep pace with ever-increasing business demands, your company needs servers with low storage latencies. Compared to the previous-generation server we tested, the Dell EMC PowerEdge R740xd server with Toshiba HK4R Series SATA SSDs delivered 38 percent lower write response times and 14 percent lower read response times. With lower latencies, your servers complete each I/O request more quickly and deliver better overall storage performance.

Up to 38%
lower latency

Give users faster response times



The Dell EMC PowerEdge R740xd

The 14th generation Dell EMC PowerEdge R740xd offers strong database performance with a variety of storage configuration options. Though we tested with six Toshiba HK4R Series SATA SSDs, the PowerEdge R740xd offers support for up to 24 NVMe SSDs.[2]

Conclusion

Maybe your Oracle databases contain medical records accessed daily by hospital staff. Or maybe your company's sales team relies on these databases to supply vital customer information. Regardless of the content, if your databases are running on previous-generation servers, upgrading to a higher-performing solution would let you support more transactions and give users faster response times. Providing 30 percent more IOPS and up to 38 percent lower latencies, the Dell EMC PowerEdge R740xd with Toshiba HK4R Series Enterprise SATA SSDs can give your business the performance boost it needs to continue to grow.

To find out more about the Dell EMC and Toshiba partnership, visit http://www.dell.com/toshiba and https://storage.toshiba.com/dell

1 "Enterprise SSD," accessed April 4, 2018, https://business.toshiba-memory.com/en-us/product/storage-products/enterprise-ssd/hk4r.html

2 "Dell EMC R740xd Spec Sheet," accessed April 4, 2018, http://i.dell.com/sites/doccontent/shared-content/data-sheets/en/Documents/poweredge-r740xd-spec-sheet.pdf?new-tab=true

Read the science behind this report at http://facts.pt/3x5B58 ▶

Principled Technologies®

Facts matter.®

This project was commissioned by Dell Technologies.