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PowerEdge Product Group

Direct from Development

Boosting Performance with the PowerEdge R740 and 2nd Generation Intel Xeon Scalable Processors

Tech Note by:

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SUMMARY

Performance benefits of the latest server technologies can help IT decision makers accommodate increasingly large and complex workloads, deliver faster response times necessary to satisfy users and customers, and gain or maintain competitive advantage.

Independent testing found that the PowerEdge R740 with 2nd Generation Intel Xeon Scalable Processors delivered *more than 2.6 times* the performance of an HPE ProLiant DL380 Gen 9.

This significantly higher performance, combined with the benefits of the latest systems management capabilities and the potential for server consolidation and power savings, make upgrading to PowerEdge R740's a prudent move worth considering.

Driving workloads faster is paramount for IT organizations tasked with supporting the success of their businesses. Exponentially-growing databases driven by rapidly expanding numbers of external customers and internal users, all of whom expect faster and faster response times, makes it incumbent upon IT DM's/org's to periodically refresh their infrastructures with new resources capable of meeting workload requirements and user demands.

In this light, we were interested in evaluating the performance of one of our most popular server models, the 2-socket PowerEdge R740 rack server, configured with the latest 2nd generation Intel Xeon Scalable Processors. The R740 is a general-purpose server with configuration flexibility allowing it to be tailored to specific requirements for demanding workloads including data analytics, web tech, VDI, cloud applications, HPC and OLTP.

We chose OLTP as the environment to test, and in particular chose the OLTP workload from the Hammer DB suite of benchmarks. This benchmark reports results in two metrics – Transactions Per Minute (TPM) and New Orders Per Minute (NOPM), both of which give an indication of the ability of the server to accomplish heavy workloads. The database selected for these tests was Oracle.

In selecting the server to which the R740 would be compared, we wanted the base point to reflect what users might already have installed. In other words, we wanted to be able to provide users with insight along the lines of, "compared to your installed server, the R740 with 2nd Generation Xeon Scalable Processors can give you X% greater performance." Of all the server models installed out there in IT infrastructures worldwide, we chose the HPE ProLiant DL380 Gen 9 configured with previous-generation Intel Xeon processors.

Image 1: The 2-socket, 2u, PowerEdge R740 rack server

Since we were comparing to a non-Dell EMC server, and we wanted to ensure that the comparison would be valid, neutral and fair, we chose an outside vendor to do the testing. The vendor chosen was Principled Technologies. (Readers can learn more about Principled Technologies at *www.principledtechnologies.com*). Testing and evaluation were performed in June 2019.

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The results

The results were highly meaningful and important for any user wondering about the timing of their server upgrades, or about how to maintain or gain greater competitive advantage. As shown in Image 2 below, the PowerEdge R740 cranked out *more than 2.6 times* the Transactions Per Minute (TPM) delivered by the HPE DL380 Gen 9. Similarly, as illustrated in Image 3, the R740 surpassed the capabilities of the HPE DL380 Gen 9 on New Orders Per Minute (NOPM) by *more than 2.6 times*.

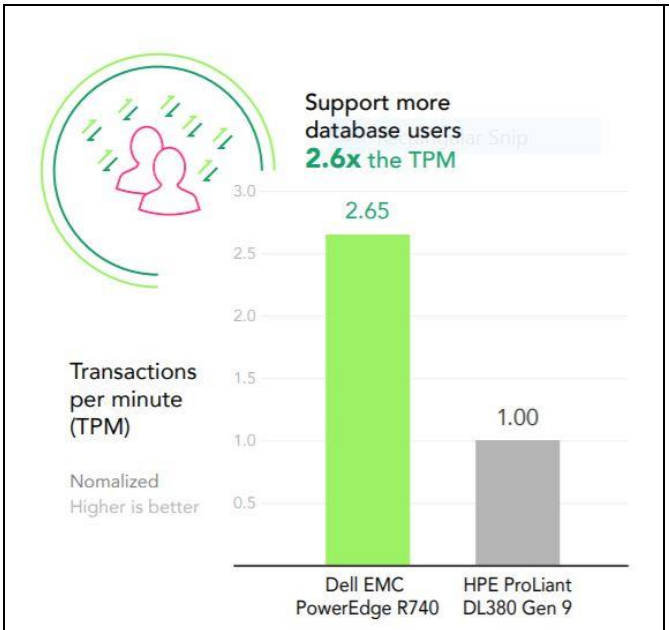

Image 2: The PowerEdge R740 vastly outperformed the HPE ProLiant DL380 Gen 9, delivering more than 2.6 times the transactions per minute (TPM) on the HammerDB benchmark. Source: Principled Technologies.

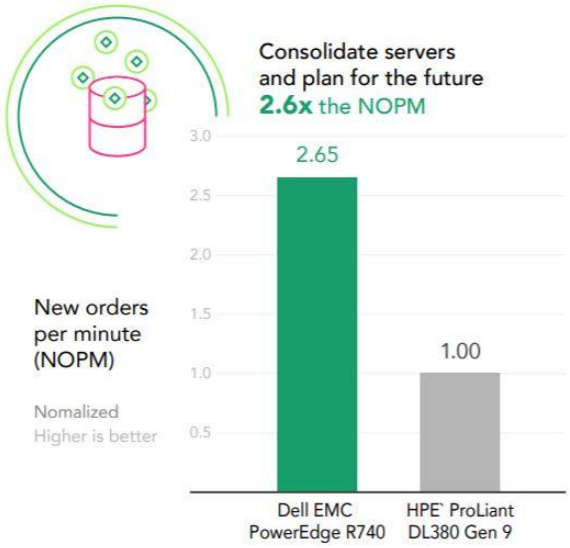

Image 3: Testing the HammerDB New Orders Per Minute (NOPM) benchmark found that the PowerEdge R740 outperformed the HPE ProLiant DL380 Gen 9 by more than 2.6 times. Source: Principled Technologies.

Implications

Getting long life out of installed IT equipment is of course an important variable for businesses, enterprises and public organizations to consider. At the same time, as these entities wrestle with ever-increasing numbers of users and customers, who demand faster and faster responses, IT decision makers should plan timely server upgrades in order to keep their users satisfied and to help their businesses maintain or gain competitive advantage. Moving to platforms that can deliver *2.6 times* the work as installed systems would seem to be a prudent move worth considering.

In addition to the clear performance advantages of the PowerEdge R740, moving to new R740 technology also allows IT Administrators to take advantage of the latest systems management capabilities, including simplification and unification of tools and consoles, and automation of tasks. All of this helps IT Admins save time, save money, and reduce potential for error.

Moreover, the significantly higher performance of the R740 can enable users to consolidate multiple older servers onto a single R740. This can greatly simplify back-of-the-rack cabling, free up rack space for better airflow, and potentially reduce energy costs for power and cooling.

Conclusion

Accommodating rapidly growing workloads, satisfying user demands for faster response times, and maintaining or gaining competitive advantage are crucial objectives for IT decision makers. The PowerEdge R740 2-socket rack server can assist with each of these goals by driving significantly higher performance compared to installed systems. The R740 configured with 2nd Generation Intel Xeon Scalable Processors can deliver up to 2.6 times the OLTP performance of an HPE ProLiant DL380 Gen 9. This superior performance, along with the latest systems management capabilities and the potential for server consolidation, can bring significant benefits to IT organizations and the businesses that they support.

Notes:

- More information about the Dell EMC PowerEdge R740 rack server can be found at https://www.dell.com/en-us/work/shop/povw/poweredge-r740
- For more information about the HammerDB suite of benchmarks, visit www.hammerdb.com .
- See the Principled Technologies summary report of the testing covered in this tech note at https://www.principledtechnologies.com/Dell/PowerEdge-R740-2nd-Gen-Intel-Xeon-Scalable-0619.pdf .