Get up to 49% Better Microsoft® SQL Server Online Transaction Processing Performance by Selecting Microsoft Azure® Dsv5 Virtual Machines Rather Than Dsv4 Virtual Machines

VMs Featuring 3rd Gen Intel® Xeon® Scalable Processors Achieved More New Orders per Minute than VMs with Previous-Gen Processors

Whether you use online transaction processing (OLTP) workloads for online ordering, customer service management, financial transactions, or something else, strong performance is vital. Making your customers or employees wait for a sluggish system to respond can be a recipe for annoyance.

If your company is seeking a public cloud solution to host your OLTP workloads, be aware that performance can vary considerably from one instance to another, even from the same cloud provider. As one example, the Microsoft Azure Dsv5-series VMs enabled by 3rd Gen Intel Xeon Scalable processors can deliver greater performance than Dsv4 VMs enabled by 2nd Gen Intel Xeon Scalable processors.

In benchmark tests of these two series of Microsoft Azure VMs, Dsv5 VMs delivered up to 49% better Microsoft SQL Server OLTP performance. That advantage can help your customers place their orders more efficiently and help your employees finish their work sooner.

Better performance on smaller instances

TPROC-C is an opensource OLTP workload that is part of the HammerDB benchmarking tool. It generates a metric of new orders per minute (NOPM) that allows users to compare database performance. (Note that TPROC-C results are not comparable to official TPC-audited results.) We used TPROC-C is to test multiple sizes of two Azure series. As Figure 1 shows, by choosing 8-vCPU Dsv5 VMs enabled by 3rd Gen Intel Xeon Scalable processors over the same size Dsv4 VMs enabled by older processors, you could enjoy 49% better performance. Selecting 16-vCPU Dsv5 VMs over Dsv4 VMs featuring the previous-generation processors would allow you to reap 28% more performance.

Normalized Smaller VM MS SQL NOPM

Normalized NOPM | Higher is better

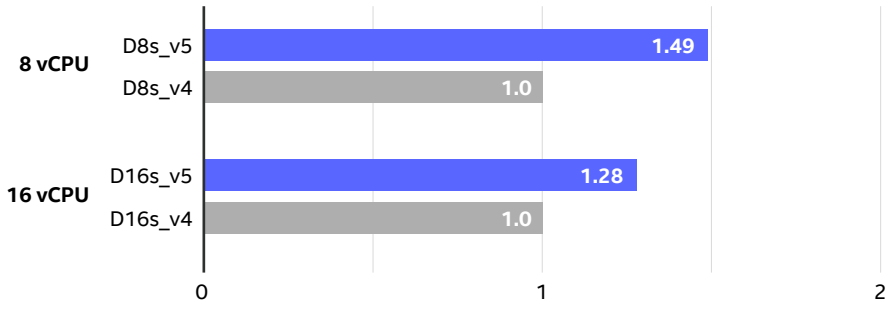

Figure 1. Relative TPROC-C performance in new orders per minute of the 8-vCPU and 16-vCPU Azure Dsv5 and Dsv4 virtual machines. Higher is better.

Microsoft SQL

Experience 49% More OLTP Performance with 8-vCPU Dsv5 VMs

vs. Dsv4 VMs

Experience 28% More OLTP Performance with 16-vCPU Dsv5 VMs

vs. Dsv4 VMs

Better Performance on Larger Instances

As Figure 2 shows, by choosing 32-vCPU Dsv5 VMs enabled by 3rd Gen Intel® Xeon® Scalable processors you could enjoy 19% more performance than you'd see with 32-vCPU Dsv4 VMs enabled by 2nd Gen Intel Xeon Scalable processors. With the largest VMs we tested, with 48 vCPUs, choosing the Dsv5 series would give you 23% better performance than you'd get with the Dsv4 series VMs.

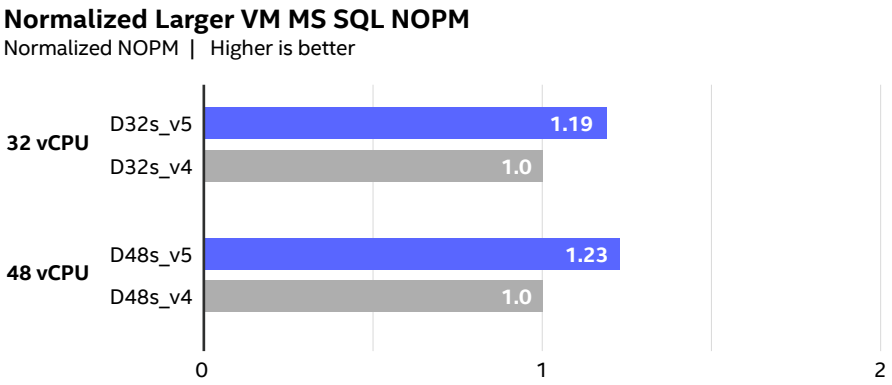

Figure 2. Relative TPROC-C performance in new orders per minute of the 32-vCPU and 48-vCPU Azure Dsv5 and Dsv4 virtual machines. Higher is better.

Conclusion

Regardless of the type of OLTP applications you run, choosing cloud instances that allow them to process more orders per minute can translate to more satisfied users. Our testing showed that opting for Azure Dsv5 instances with 3rd Gen Intel Xeon Scalable processors can allow your applications to execute orders at a rate up to 49% higher than that of Dsv4 instances with 2nd Gen Intel Xeon Scalable processors.

Learn More

To begin running your OLTP workloads on Microsoft Azure Dsv5 virtual machines with 3rd Gen Intel Xeon Scalable processors, visit https://docs.microsoft.com/en-us/azure/virtual-machines/dv5-dsv5-series.

Single VM tests by Intel on 1/5/2022. All VMs configured with Windows Server 2019 Datacenter, Version (1809) 17763.1757, Microsoft SQL Server Enterprise 15.0.4153.1, Windows HammerDB 4.2, a 5000 IOPS, 200Mbps 1xp30 disk for log files, and all tests were in the Azure EastUS region. Instance details: D8s_v5: Intel® Xeon® Platinum 8370C CPU @ 2.80GHz, 8 cores, 32GB memory, 12500 Mbps NW bandwidth, 2x5000 IOPS, 200Mbps 2xp30 for data/tempdb; D8s_v4: Intel® Xeon® Platinum 8272CL CPU @ 2.60GHz, 8 cores, 32GB memory, 12500 Mbps NW bandwidth, 2x5000 IOPS, 200Mbps 2xp30 for data/tempdb; D16s_v5: Intel® Xeon® Platinum 8370C CPU @ 2.80GHz, 16 cores, 64GB memory, 12500 Mbps NW bandwidth, 3x7500 IOPS, 250Mbps 3xp40 for data/tempdb; D16s_v4: Intel® Xeon® Platinum 8272CL CPU @ 2.60GHz, 16 cores, 64GB memory, 12500 Mbps NW bandwidth, 3x7500 IOPS, 250Mbps 3xp40 for data/tempdb; D32s_v5: Intel® Xeon® Platinum 8370C CPU @ 2.80GHz, 32 cores, 128GB memory, 16000 Mbps NW bandwidth, 4x7500 IOPS, 250Mbps 4xp40 for data/tempdb; D32s_v4: Intel® Xeon® Platinum 8272CL CPU @ 2.60GHz, 32 cores, 128GB memory, 16000 Mbps NW bandwidth, 4x7500 IOPS, 250Mbps 4xp40 for data/tempdb; D48s_v5: Intel® Xeon® Platinum 8370C CPU @ 2.80GHz, 48 cores, 192GB memory, 24000 Mbps NW bandwidth, 7x7500 IOPS, 250Mbps 7xp40 for data/tempdb; D48s_v4: Intel® Xeon® Platinum 8272CL CPU @ 2.60GHz, 48 cores, 192GB memory, 24000 Mbps NW bandwidth, 7x7500 IOPS, 250Mbps 7xp40 for data/tempdb.

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