



Small instances:
Support 1.51x
the web traffic



Medium instances:
Support 1.46x
the web traffic



Large instances:
Support 1.44x
the web traffic

Support more WordPress website traffic—up to 1.51 times the performance on new Dds_v4 instances for Microsoft Azure versus older Ds_v3 instances

The new instances powered by Intel Xeon Platinum 8272CL processors handled more requests per second than older Ds_v3 instances based on Intel Xeon E5-2673 v4 processors

Your website is often the first impression your audience will have for your business and brand. If you rely on your website to achieve core business goals and it doesn't perform well, users may leave and never get a second impression. To ensure they have a great experience while interacting with your site, you need a solution that can process many requests per second—especially during peak traffic hours.

At Principled Technologies, we tested a transactional WordPress workload on two series of Microsoft Azure instances: new Dds_v4 instances powered by Intel® Xeon® Platinum 8272CL processors, and older Ds_v3 instances powered by Intel Xeon E5-2673 v4 processors. We tested three instance sizes to demonstrate their value to three different types of users. In our tests, the new instances processed more website requests per second than the older instances on average. This could enable your business to support more website traffic and simultaneous user interactions.

How we tested

We used an open-source website transaction benchmark suite called [oss-performance](#)¹ to run WordPress workloads on Microsoft Azure instances. We compared the performance of new Dds_v4 instances powered by Intel Xeon Platinum 8272CL processors to older Ds_v3 instances powered by Intel Xeon E5-2673 v4 processors. (Microsoft Azure Ds_v3 instances are available in a few different CPU configurations, but we used only Intel Xeon E5-2673 v4 processors for our testing.)

Note that Intel provided us with modifications to the oss-performance benchmark that enabled it to run using PHP instead of HHVM. For more information, see [the Science behind this report](#).

We chose three instance sizes to demonstrate their performance at different workload and performance levels—from that of a small company with a blog to an ecommerce giant. As with most other cloud providers, Microsoft Azure defines an instance's size by its vCPU count. We tested instances with 4, 16, and 64 vCPUs.

In Microsoft Azure, instance memory scales to better fit compute power. While the workload was able to fully utilize the CPUs on the small and medium VMs, we disabled the MySQL database query cache on the large VM to drive enough work to maximize its 64 vCPUs. Figure 1 shows the specifications of the instances we tested.

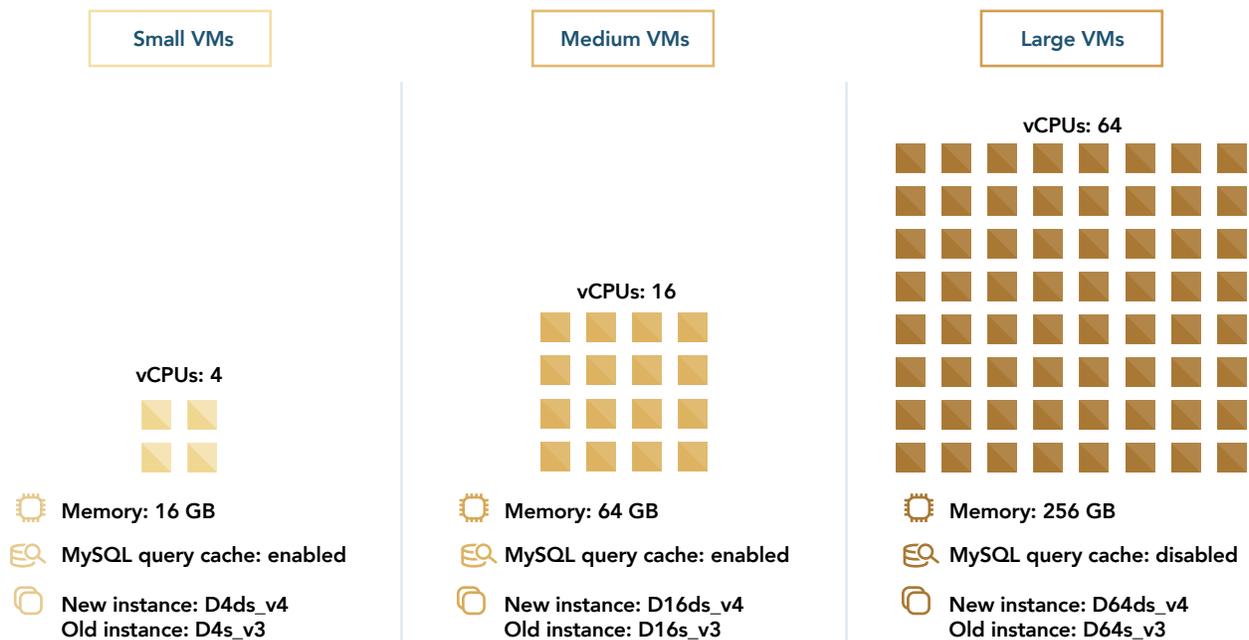


Figure 1: Specifications for the Microsoft Azure WordPress VMs we used for testing.
Source: Principled Technologies.

About WordPress

According to its website, WordPress is an open-source content management system that individuals and companies can use to create dynamic websites, blogs, and apps.² WordPress supports customizable designs, responsive mobile sites, media management, security features, and more. Plus, its more than 55,000 plugins can extend WordPress functionality to include things like online stores, galleries, and forums. To learn more, visit <https://wordpress.org>.

Small instances

Even though personal sites, blogs, and landing pages typically don't require much user interaction, being able to support many eyes on your page at the same time is important as your website grows. In our tests, we found that the newer Dds_v4 instances powered by Intel Xeon Platinum 8272CL processors handled more requests per second than the older Ds_v3 instances powered by Intel Xeon E5-2673 v4 processors.

Figure 2 shows that, on average, the new D4ds_v4 instances processed 178.5 requests per second compared to 117.5 requests per second on the older D4s_v3 instances. In other words, choosing the new D4ds_v4 instances means you would be able to support 1.51 times the web traffic and user interactions of the older instances.

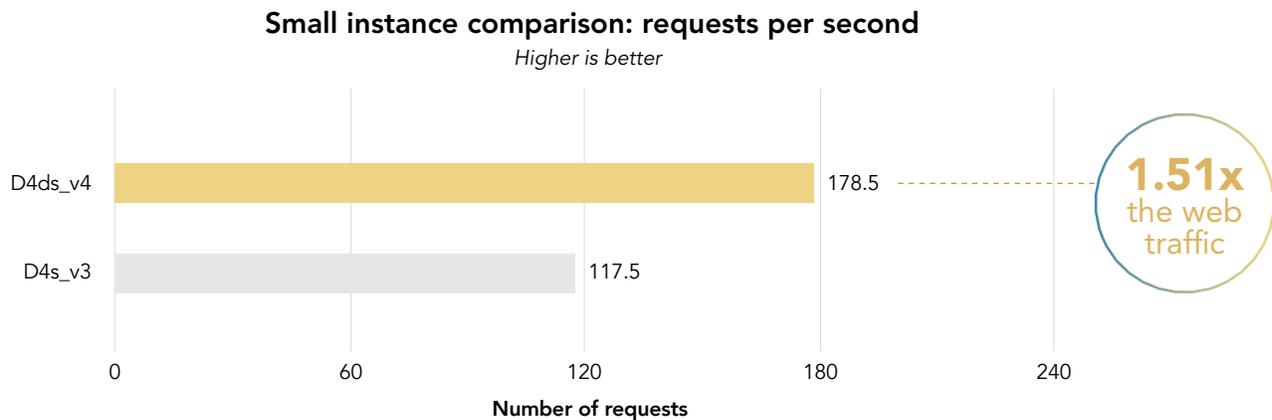


Figure 2: Average requests per second each small instance achieved with the WordPress workload. Processing more requests is better. Source: Principled Technologies.

Medium instances

For larger websites that feature more user interaction—such as a website that showcases images and text that content creators upload for their fans—new D16ds_v4 instances for WordPress could support more audience interaction and provide a better user experience throughout the day compared to older D16s_v3 instances.

Figure 3 shows that, on average, the new Intel Xeon Platinum 8272CL processor-powered D16ds_v4 instances completed 715.7 requests per second on average compared to 487.5 requests per second on the older Intel Xeon E5-2673 v4 processor-powered D16s_v3 instances. In other words, the new instances accommodated 1.46 times the web traffic and interactions of the older instances.

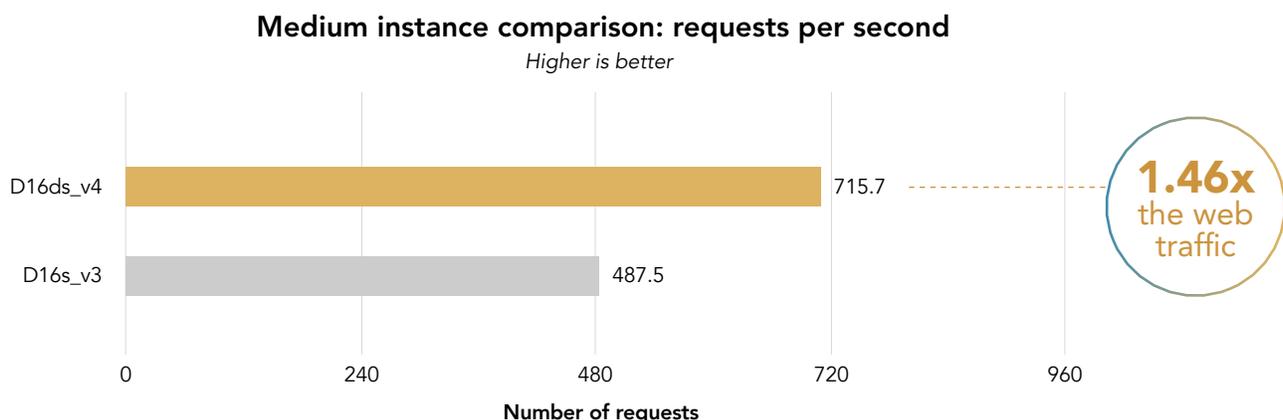


Figure 3: Average requests per second each medium instance achieved in the WordPress workload. Processing more requests is better. Source: Principled Technologies.

The query cache

The MySQL query cache speeds up transaction processing by storing certain queries in memory, thereby reducing the system's CPU load. However, the query cache has a scaling limit that prevents it from using more CPU threads above a certain threshold. Disabling the query cache removes this threshold, but increases the load on the processor. On small instances with few vCPUs, the query cache can provide a performance boost—but large instances with many vCPUs generally benefit from a disabled query cache. We enabled the query cache for our small- and medium-VM tests, but disabled it for our large-VM test.

Large instances

For large companies that need to support many thousands of users that heavily interact with the company site—such as ecommerce giants that handle inventory, user account information, payment, shipment tracking, and more—being able to process more requests per second is paramount to day-to-day business operations.

We found that for large VMs, the new D64ds_v4 instances processed 664.4 more requests per second on average compared to the older D64s_v3 instances—meaning the new instances provided capacity for 1.44 times the web traffic of the older instances.

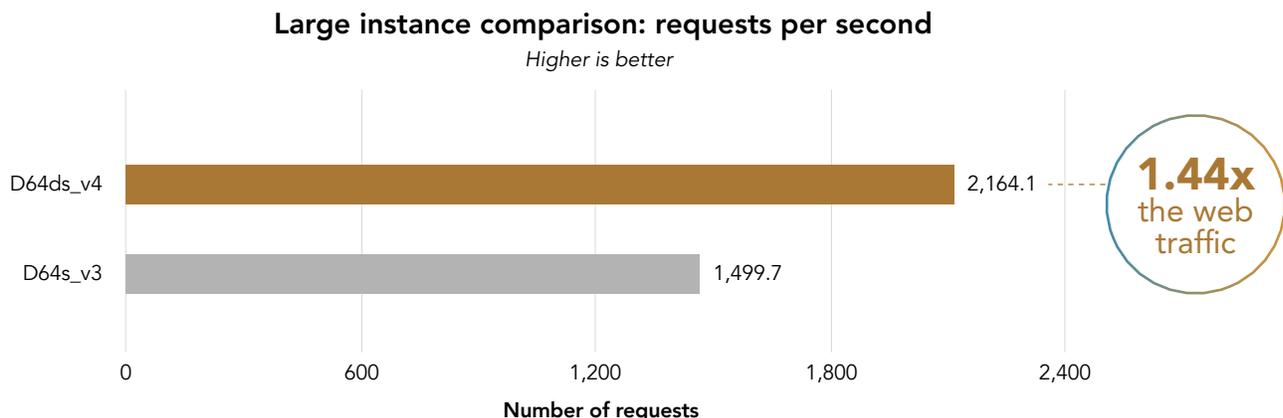
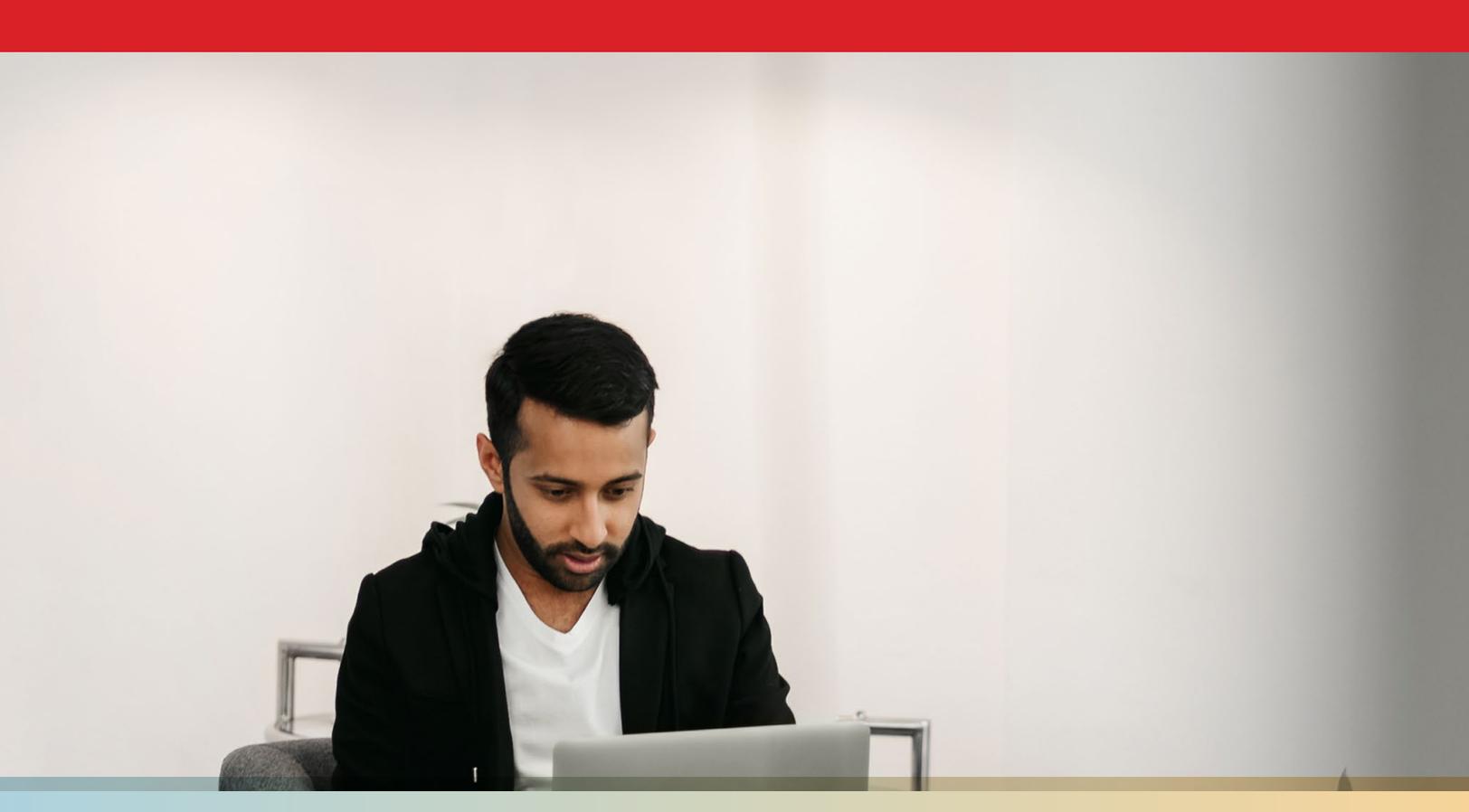


Figure 4: Average requests per second each large instance achieved in the WordPress workload. More requests is better. Source: Principled Technologies.

Pricing

In our performance testing, we saw that the new Dds_v4 instances processed anywhere from 1.44 to 1.51 times the rate of requests per second than the Ds_v3 instances. Yet, at the time of this writing, all sizes and specifications of the new instances cost just 1.17 times as much as their v3 counterparts. By investing in the new Dds_v4 instances powered by Intel Xeon Platinum 8272CL processors, you could be getting more website traffic capacity for your money compared to the older instances powered by Intel Xeon E5-2673 v4 processors.



Conclusion

Your website serves an important function in your business, whether you run a blog, manage a small company, or operate a large ecommerce site where thousands of people make purchases each hour. In our tests, new Dds_v4 instances powered by Intel Xeon Platinum 8272CL processors supported more simultaneous website traffic than Ds_v3 instances powered by older Intel Xeon E5-2673 v4 processors. Being able to support more site traffic can help protect against poorer user experience during peak hours and also give your business room to grow.

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- 1 "GitHub - facebookarchive/oss-performance: Scripts for benchmarking various PHP implementations when running open source software," last accessed August 20, 2020, <https://github.com/facebookarchive/oss-performance>
 - 2 "Meet WordPress," last accessed August 20, 2020, <https://wordpress.org>

Read the science behind this report at <http://facts.pt/xif2usg>



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