WEBSITE PERFORMANCE

TAKING A LOOK AT PERFORMANCE TO HELP DECIDE WHERE TO HOST YOUR NEXT WEBSITE.

WHY LOOK AT PERFORMANCE?

The industry is filled with options when it comes to where you can host a website. In a land where everyone is seemingly offering you the same thing, with the same features at the same low price, choosing the right host can be more difficult than originally imagined. Despite all of the similarities that can be found though, one difference continues to distinguish providers: performance. **Faster performance can lead to a better website experience for users.**

Website performance is an important topic that is often taken for granted when selecting the right provider. Performance of the same VM sizes are not equivalent when compared across service offerings, much like the gas mileage of the same category of sedans vary depending on the manufacturer.

But we all know that is not true. And the same is not true about performance of websites. **Website performance is largely impacted by the hardware components that make up the system that the website is running on**; therefore, in order to test performance, we took a close look at each piece of the underlying technology that provides the foundation for customer websites. Liquid Web's VPS Hosting solution, built for performance, beats the competition based on the performance studies conducted by Cloud Spectator, a performance analyst firm. The results show that LiquidWeb offers a competitive solution for webhosting needs on platforms such as WordPress.

PIECES OF A WEBSITE: THE LAMP STACK

In order to measure performance of websites for the study, **we wanted to look at the performance of each piece of the LAMP stack.** LAMP stands for Linux, Apache, MySQL, and PHP; together they work to serve a website's content to visitors.

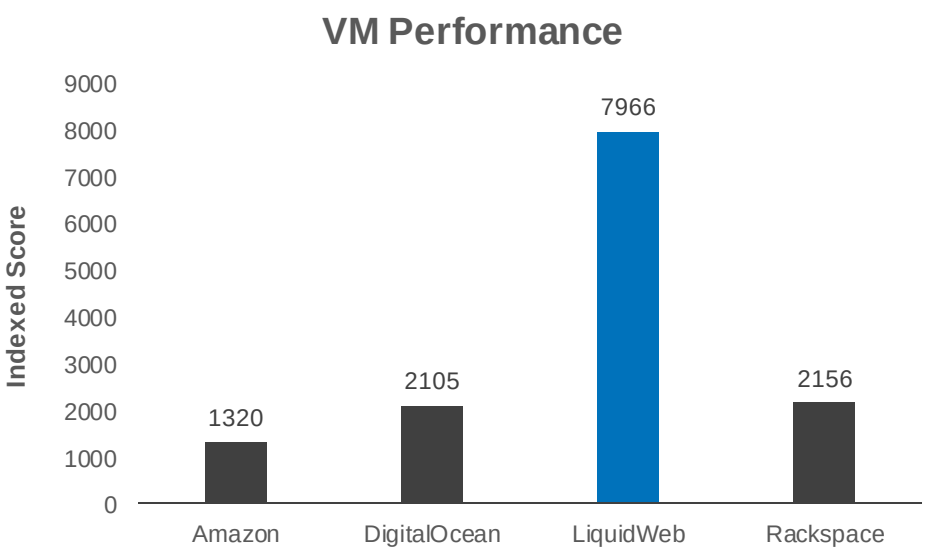
How did we obtain this data?

Cloud Spectator collected data on entry-level VMs across Liquid Web (VPS), Amazon, Rackspace, and DigitalOcean for a total period of 48 hours. In that 48-hour period, they ran multiple iterations of performance tests, and the median results are used in this report. The type of Linux operating system we used was Ubuntu 16.04.

THE LINUX VM: vCPU & RAM

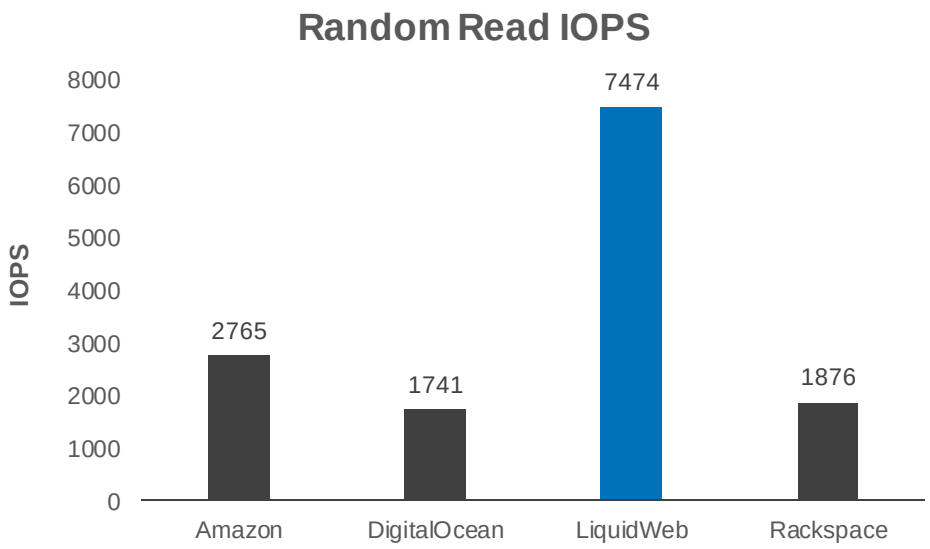
PERFORMANCE OF THE LAMP STACK

The virtual processor is the brain of a VM or VPS, which crunches tasks such as compressing images and encrypting data, to ultimately deliver your website experience to the user. The faster a processor can complete its tasks, the better performance you will get. So we ran a series of the same processor-intensive tasks across Amazon, Digital Ocean, Liquid Web, and Rackspace, and **the results show Liquid Web in the lead as illustrated below.**



THE LINUX VM: DISK IOPS

PERFORMANCE OF THE LAMP STACK

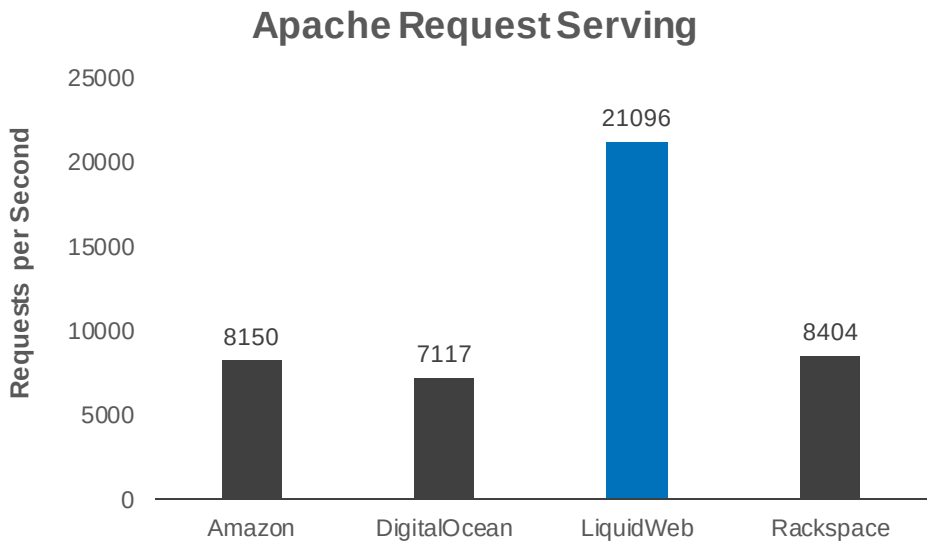


For websites and other applications, everything is stored on disk; content such as images, video, HTML, CSS, PHP, and JavaScript are all stored there; if visitors want to download a PDF file from your website, that PDF file is stored there; if visitors try to upload their profile pictures to your website, the images are stored there; the operating system and databases are stored there as well. **This means that faster disk performance has a direct impact on web server performance.**

APACHE
PERFORMANCE OF THE LAMP STACK

Apache is a software that turns a server into a web server, allowing the machine to serve up websites to visitors. When a visitor comes to a website, the visitor's computer requests images, code, videos, and other files from the website, which is served up by Apache. **The more requests Apache can serve per second, the better performance of the server.** The number of requests Apache can serve is highly dependent on the virtual processor performance examined in the previous section.

Apache performance data was collected by running Apache inside one of the virtual machines, and then simulating user activity by requesting content from Apache over the Internet.



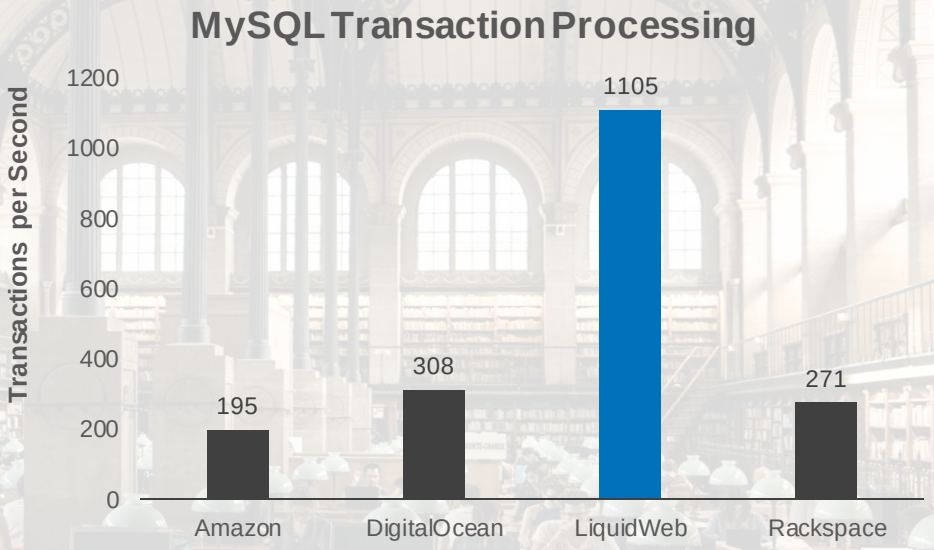
LiquidWeb's VPS handled transactions **at a rate almost 4x the speed** of Amazon AWS, DigitalOcean, and Rackspace VMs.

THE MYSQL DATABASE

PERFORMANCE OF THE LAMP STACK

MySQL is a database that stores all of the information that a website needs to be able to fully serve a visitor. For example, if a user needed to log in to access certain parts of your website, the login information would probably be stored in a MySQL database (sure, there are other options out there for databases, but MySQL is the most common choice).

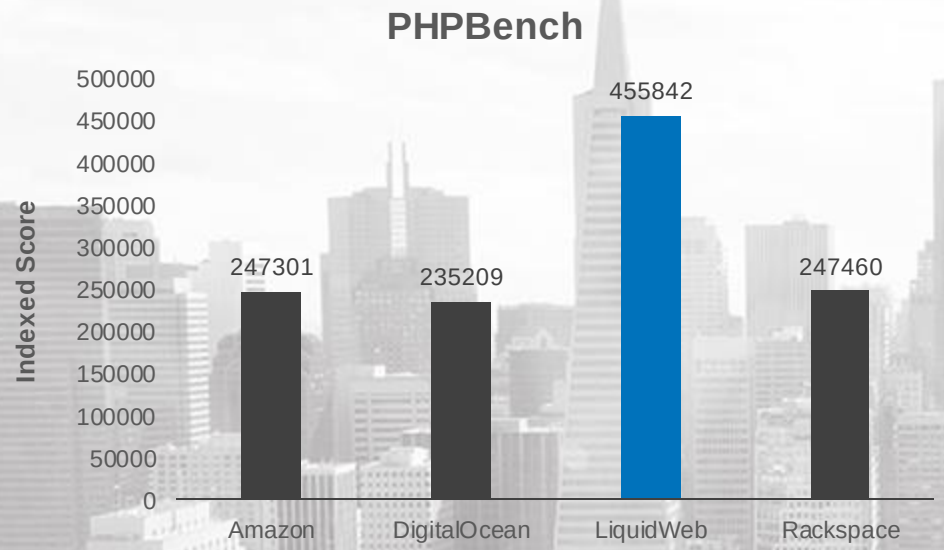
Cloud Spectator created a MySQL database to test the performance each server type. The database contained roughly 5 million rows and was tested with 8 concurrent threads to be able to make sure requests were coming in and going out all the time to really stress the system. The test both read and wrote to the database. Results are illustrated below.



PHP
PERFORMANCE OF THE LAMP STACK

PHP is a programming language that is used commonly by websites. One of PHP's most common use cases is to support database integration to a website; for example, if you have a user register on your website, storing the user's information into a database may be the responsibility of PHP code.

PHP performance is measured by testing various aspects of the PHP interpreter, which is used by the VM to execute PHP code. **The performance of the PHP interpreter is affected by the virtual processor. Therefore, better processor performance may correlate with high PHP performance**, although various other aspects of the VM and OS may also impact performance.



Liquid Web's VPS, which exhibited **fast processing, translates into better PHP performance than on its cloud competitors.**

ABOUT THE STUDY

VMS EXAMINED IN THIS DOCUMENT	
Amazon AWS	m3.medium
Digital Ocean	1GB
Liquid Web	2GB
Rackspace Cloud	General 1-1

DATA CENTER LOCATIONS	
Amazon AWS	US East
Digital Ocean	TOR1
Liquid Web	Zone C
Rackspace Cloud	Dallas Fort-Worth

GENERAL INFORMATION	
Operating System	Ubuntu 16.04
Test Duration	48 Hours per VM

CONCLUSION

Website performance depends just as much on you and your team as it does on your host. When you write error-free, optimized code, your website will load much faster. After you have done everything you can on your side, then a powerful, performance-engineered environment will help you sustain users and continue to deliver content without slowing down. Liquid Web's VMs, which were tested against Amazon, Rackspace, and DigitalOcean, showed the highest server-side performance with respect to the components of the LAMP stack, which is the integral foundation for most websites on the Internet.

- Liquid Web's VMs, which exhibited 1,105 TPS on MySQL tests, **performed 4X the transactions** of Amazon, DigitalOcean & Rackspace.
- Liquid Web's VMs **demonstrated faster processor performance and higher disk IOPS** than competitors Amazon, DigitalOcean, and Rackspace.
- Liquid Web's VMs sustained the **highest number of requests per second** for an Apache web server.

FURTHER STUDY

This study examined server-side performance of web servers, and it is important that all hardware and virtualized components of a provider offers fast performance to deliver website content. The next step in examining performance would be to measure performance of the network; in other words, test how reliable and fast the connection from the server to the user. From the network perspective, response time and page load time are also important measurements to see how fast the content can be delivered to a visitor's screen.