



Predictions for load testing in 2016



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Enterprise

The top 5 predictions that will change how you think about performance testing for your organization and end users.

– By Todd DeCapua, Chief Technology Evangelist

Among enterprises of all kinds, the fight for market share has never been fiercer. Organizations are competing for customers on multiple fronts—in person, on the Web, and via mobile applications. Technology has become a competitive differentiator, even for businesses whose primary product isn't technology. What's the point of sinking big money into strategic marketing for your next big app if that app performs poorly and can't deliver on its promises?

Today, it's not enough to churn out applications, products, and services faster than the competition. Anything that fails to meet a high performance standard could cause a serious loss of brand value, revenue, and the ability to attract and maintain customers and competitive advantage. That's why load testing is more important than ever.

Load testing solutions like HPE LoadRunner and HPE StormRunner Load can help you ensure that all applications, services, and production environments can successfully handle peak load usage without failing. Implementing a solid load testing solution allows your organization to maximize uptime, availability, and user productivity.

In 2016, performance will continue to grow in importance. Enterprises that don't evolve their overall development testing and operations processes accordingly will find themselves playing catch-up—sometimes with a field that has moved too far ahead to ever be caught.

Here are the five software load testing predictions you need to know about for 2016 and, more important, how to prepare for them.

1. Move your test to the cloud

Imagine that your organization is preparing for a big event. Maybe you're a retailer gearing up for Black Friday, or you're about to stream live video to millions of users. How can you ensure that your systems and underlying applications won't fail to meet your end user service-level agreements (SLAs) or implode under a massive increase in traffic?

You could buy millions of virtual user licenses to test—or you could simulate those users from the cloud. Burst testing from the cloud provides a simple, secure way to simulate real-world user traffic without the cost and complexity of doing it locally yourself. You can ramp up quickly, easily, and affordably. In 2016, that's what more enterprises will be doing.

In a 2015 Performance Engineering Survey of 400 development and IT professionals, 69 percent stated they are already benefiting from cloud-based load-testing tools today.¹ We anticipate those numbers will increase dramatically. High-profile failures over the last few months have amplified the sense of urgency.

¹ **Blind study: Performance Engineering Survey 2015**, sponsored by HP (now Hewlett Packard Enterprise) and conducted by YouGov.

Why cloud testing is important in 2016

Increased competition is driving organizations toward ever-shorter time to market for products and services. Performance can't be sacrificed, but business owners are tired of waiting for in-house IT to get the job done. By using cloud testing, the business and IT both get what they need: IT gets an affordable, secure way to test system and application performance before a product or service goes to production, and the business doesn't have to wait so long that it loses competitive advantage. In addition, burst testing provides teams with a quick, affordable way to test millions of virtual users within minutes, leveraging existing scripts to enable load testing from the cloud and get results within minutes or hours.

How to get started

- Be proactive: Assess new campaigns and new business that the organization is planning and need to be supported by IT.
- Talk to the business: How long is the business waiting for IT to complete load testing? Has the business ever lost a competitive position due to waiting too long—or due to a failure after IT rushed out a product or service that wasn't ready?
- Start with a single use case: Whether that's an application or a compelling event, start by preparing for the use case that poses the biggest risk of failure.
- Understand previous production incidents and how they impact your overall system: Look at each application and its end users, and determine how these will be included in a test.
- Explore HPE StormRunner Load: It allows you to design and create a cloud load test in less than 10 minutes. You can also sign up for a free 30-day StormRunner Load trial [here](#). If you already have scripts from JMeter, [HPE LoadRunner](#), or [HPE Performance Center](#), you can reuse them within StormRunner Load and begin running tests within minutes. If you would like to learn more about LoadRunner before you download the free trial, you can visit the official HPE LoadRunner page [here](#).

2. Lifecycle virtualization

Lifecycle virtualization enables you to quickly and cost-effectively recreate many aspects of your production environment anywhere, anytime. This enables all stakeholders—including developers, testers, user acceptance testers, and production break/fix teams—to easily access these environments.

Lifecycle virtualization comprises four key capabilities that together provide a virtualized environment:

- User virtualization: Create virtual individuals to step through systems as real end users do, typically in groups of hundreds, thousands, or more.
- Service virtualization: Recreate a service or major infrastructure/application components for prototyping, development, testing, and production.
- Network virtualization: Discover and capture network conditions, then recreate them in any environment. Execute tests under real-world conditions, then get automated analysis and code-level optimization recommendations.
- Data virtualization: Build and create data from a variety of sources. Enable quick refresh and staging across all environments, and accelerate delivery of environments to all teams.



The biggest performance testing challenge most enterprises face isn't completing testing on time—it's getting it done accurately. But the cost of running full-scale production environments isn't practical for most organizations. Not only do production environments need to be procured and maintained, they must also be actively managed and supported. For example, a large U.S. financial organization maintains eight pre-production environments, each of which costs \$16 million USD a year.

Lifecycle virtualization gives organizations a way to recreate the real-world conditions of a full-scale production environment—quickly, affordably, and with guaranteed accuracy—without having to foot the massive costs of production-like environments.

Why lifecycle virtualization is important in 2016

If organizations want to bring quality products and services to market on time, they must have the ability to virtualize conditions and ensure their solutions are ready for prime time. The rise of the Internet of Things—with marvels like self-driving cars and connected home security—increases the urgency among companies to get their applications right. Releasing a buggy video-streaming application will have major consequences, but imagine the ramifications of releasing a self-driving car that blows through red lights, or a home security system that can be overridden by a simple hack.

In 2015, only 49 percent² of performance and development professionals looked to release quality as a critical metric. But in 2016, that number will rise as organizations appreciate fully that there are no second chances when it comes to performance.

How to get started

- Examine and question the status quo: How much time do you spend waiting for development and test environments to become available? When you get your test environment ready, is it giving you accurate results? What would it mean if you could eliminate or significantly reduce the available testing windows for your key systems and applications?
- Start small: When you look at your entire application and/or system infrastructure, it can be difficult to figure out where to begin. But you don't have to tackle the entire environment to realize benefits. Start small, measure the return on your investments, and use the results as a proof of concept to move forward.
- Don't wait: Get started today with a **trial download** of HPE Service Virtualization. You'll be able to simulate a service's behavior in a production environment so your teams can stay on schedule without waiting for access to production systems.

² **Blind study: Performance Engineering Survey 2015**, sponsored by HP (now Hewlett Packard Enterprise) and conducted by YouGov.

3. Perform complete mobile performance testing

We might all be able to use the same apps on our phones and access the same websites, but the technologies and functionality of our devices often differs wildly. We access content via devices from different manufacturers, on different browsers, or in native apps—as well as across varied network conditions. Our devices have different battery, memory, and CPU utilization. And our screens are of different sizes and resolutions. Wireless network coverage, speeds, and underlying technologies vary. Regardless of these variables, your goal must be to give every user a top-notch experience.

Mobile testing gives organizations a way to create virtual mobile users and test all of the underlying user, device, network, and back-end conditions that affect their experience with an app or website. In 2016, organizations must include mobile testing as a standard aspect of load testing.

Why mobile testing is important in 2016

The distribution of traffic and revenue across Web, mobile, phone, and brick-and-mortar channels has changed dramatically over the last several years. Today, the average enterprise is getting only 30 percent of its revenue from mobile, yet mobile users account for a much higher percentage of traffic. Many retailers are choosing to shut down brick-and-mortar locations because mobile is less expensive to operate and it offers tremendous growth. But, at the same time, more companies are learning—often the hard way—that mobile is also a less forgiving market. A rash of two-star mobile app reviews is nearly impossible to correct. In the 2015 Performance Engineering Survey, 59 percent³ of participants agreed that mobile apps require more attention from performance engineers than other applications do.

How to get started

- Understand your audience: How much of your traffic is coming from the mobile channel? What devices are people using? Are they making purchases from mobile devices?
- Determine how end users are using the mobile application: Have you simplified the workflow to get them to the most commonly used feature or function first? How are you optimizing the experience for that feature or function?
- Scrutinize your mobile experience: Why would your existing users want to buy more products or services through mobile? What would compel prospects to switch to your products via your mobile channel?
- Decide what you want them to do: Whether it's make a purchase, engage socially, or sign up for a newsletter, run tests to understand why more users are not converting.
- Test for a spike in traffic: Start by testing your single most-used app. What happens?
- Think about your customers: Are you using mobile to deliver the highest value to your end users?
- Start your **HPE Mobile Center** trial now: Learn how you can test all aspects of your mobile experience, from functional to performance to context.

³ **Blind study: Performance Engineering Survey 2015**, sponsored by HP (now Hewlett Packard Enterprise) and conducted by YouGov.



4. Get ready for Performance engineering

Performance engineering is a set of skills and practices that builds performance into the culture of an organization. It emphasizes a proactive approach to performance from day one, rather than responding reactively after your users reveal problems in production. Similar to Agile and DevOps, performance engineering requires a cultural shift more than a discrete set of tools. And it must be adopted throughout the organization, driving informed decisions focused on end users and their experience.

Why performance engineering is important in 2016

With the rise of the mobile channel as a way to generate revenue and connect with customers, everyone in the organization must understand performance. Whether the metric they care about is uptime percentage, utilization of data center resources, or the number of mortgage loans closed in the quarter, performance is often the key to making it happen. The 2015 Performance Engineering Survey found that organizations with more than 10,000 employees reported they could lose \$5 million USD an hour due to poor performance⁴—which can also damage the brand, revenue, competitive advantage, or all three, not to mention loss of customers.

How to get started

- Know what's at stake: Understand that performance engineering can drive more business. Fewer performance problems results in more downloads and conversions.
- Make performance the top priority from the beginning: You want to provide the best possible user experience, and you can't offer that with poor performance. If your business analysts build performance into their requirements, and developers think in terms of performance before they write a single line of code, you'll spend less time fixing performance problems later.
- Quantify the potential cost savings: Examine how much time and budget you waste fixing errors that made it into production. How has poor performance burned you or your brand in the past? How about lost revenue? Any lost competitive advantage? Are you losing customers or having a hard time attracting new ones?
- Follow performance rules: **These tips** will help you optimize the Web experience and avoid common front-end performance problems for your end users.

⁴ **Blind study: Performance Engineering Survey 2015**, sponsored by HP (now Hewlett Packard Enterprise) and conducted by YouGov.

5. Web testing

Web testing involves testing browser and operating system configurations, as well as understanding your end users' locations and what type of network conditions and workflows they follow through your systems and applications. Whether your customers are on laptops, Chromebooks, iPads®, Android devices, or PCs, Web testing examines all the possible configurations associated with an application's performance and identifies the errors that are causing problems prior to production.

Why Web testing is important in 2016

For a while, a few issues have been getting the lion's share of attention. Social, mobile, analytics, and cloud (SMAC) have dominated headlines and focused resources away from other areas. And while these areas have increased in importance and cannot be overlooked, the Web is still critical to the way organizations transact business. In retail, for example, the vast majority of revenue is still generated via the Web channel, and businesses lose focus on the Web at their own peril.

In the 2015 Performance Engineering Survey, 67 percent of respondents stated that a Web outage causes the biggest financial loss of any outage they experience. In fact, the average financial loss during a Web outage for the entire survey sample totaled \$2 million USD per hour.⁵ The damage to a brand is harder to quantify, but as some past (and very public) failures have shown, it can be devastating and long lasting.

How to get started

- Test your conversion flow: If the Web is a significant revenue-generating channel for your organization, how are you pushing your customers toward conversion? Does the funnel work without a hitch? Test it.
- Optimize each component: When you know that each component is optimized for performance, you can then tie them together into a service and begin testing the performance of the service as a whole.
- Get your free lifetime trial of **HPE LoadRunner + Network Virtualization** and start running tests now.

⁵ **Blind study: Performance Engineering Survey 2015**, sponsored by HP (now Hewlett Packard Enterprise) and conducted by YouGov.

Conclusions for load testing in 2016

The urgency to do more and better load testing isn't going away. In fact, as systems become more composite and complex, and the demands from your end users continue to accelerate, the need for specialized tests will become more and more critical. Armed with these predictions for load testing, you know what to focus on now so you'll be prepared for 2016 and beyond. If the list seems overwhelming, remember to take it one step at a time.

The best place to start? Right where you are. In 30 seconds, you can get a free baseline analysis of how your site performs right now, and what you can do to fix it, [here](#).



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