



Best practice guide: Realistic load testing for peak

A step-by-step guide for a failsafe
performance testing programme

Introduction

Realistic load testing as part of an ongoing programme

Everyone knows performance testing is a crucial component of your performance strategy, but what is considered best practice for planning and implementing testing in advance of anticipated peaks?

By incorporating realistic testing as part of an ongoing programme – rather than a reaction to peak traffic periods – you’ll find problems and fix them before it’s too late and benefit from improved customer experience all year round.

This guide outlines a step-by-step plan for load testing to guarantee optimum performance for peak traffic.

SEVEN STEP PLAN TO SUCCESSFUL LOAD TESTING FOR PEAK

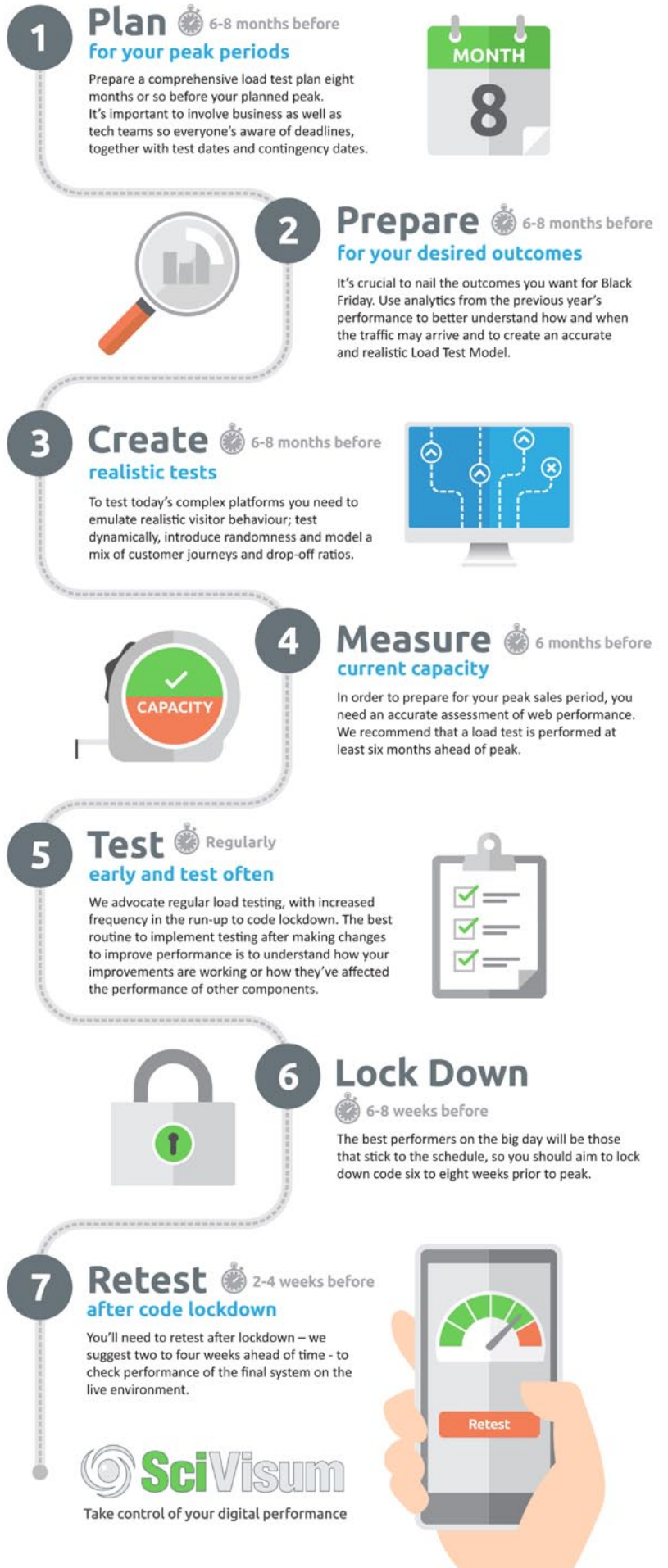
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steps to failsafe load testing for peak



Step 1 Planning

Make load testing an integral part of your peak planning process



6-8 months before peak

Ensure performance testing isn't the last thing on your list

While other testing processes such as user acceptance and penetration testing are generally considered during the earliest planning stages, load testing is often an afterthought – something that can be put off until nearer the time.

Leaving load testing till the eleventh hour puts a squeeze on the time available to fix problems and allows no margin for retesting to ensure the fix has worked or to evaluate its impact on performance.



Prepare a comprehensive load test plan eight months or so before your expected peak. It's important to involve business as well as tech teams so everyone's aware of deadlines, together with test dates and contingency dates. It's the only way you'll build in enough time to implement, test and fix these before code lockdown so there's no last minute pressure on tech to deliver the impossible.

It's more productive and more cost effective to take a longer-term view of testing, essentially it needs to be a properly planned process that builds in some time to make changes based on a cycle of outcomes and retesting. It's worth bearing in mind that it's often much more expensive to make changes at the last minute.

Step 2 Preparation

Define acceptable outcomes and success criteria



6-8 months before peak

It's crucial to have a list of specific outcomes in mind before you begin the testing process to compare your results against. You can use analytics from the previous years to better understand how and when the traffic may arrive and to create an accurate Load Test Model.

Understand how visitors interact with your site

In order to create an accurate traffic profile it's crucial to understand how users interact with your site. From a technical perspective, a web server simply needs to stand up. But this doesn't take into account the customer experience and may mean that user issues go unnoticed, even though they're potentially damaging the bottom line. You need a holistic approach to load testing taking into account the entire user experience rather than simply focussing on capacity or page load times.



Load testing should be modelled on the most realistic traffic to return accurate and commercially valuable results. That means reviewing web analytics and examining data from the marketing department on visitors, campaigns and conversions before tailoring any load testing project.

If you can work with a load testing service provider to compile a series of

KPIs in advance of the test, you'll be able to measure performance in a more targeted way. To do this properly will involve discussions with other departments and will require consensus on how the site needs to perform to meet business expectations. Your efforts will be repaid if you can see how test data stacks up against your targets.

Set a baseline for acceptable user experience

Defining a successful outcome doesn't have to be overly complicated, it just needs to contain some specific performance-related goals. These outcomes may be quantitative or may be focused on enhancing user experience. Whatever your criteria, they should be firmly defined before load testing begins.

Concurrent users can be useful metrics but they can be misleading, too. Focussing on how many users your site can handle doesn't take into account the quality of the user experience being delivered to those users. Managing a large number of concurrent visitors means nothing at all if they are all receiving a poor experience.

Think about the baseline experience you want users to enjoy. Or, to put it another way, what's the maximum you believe users will tolerate in a high load situation?

Here are a few criteria that are worth considering:

1. Experience based on sessions/user journeys per minute or hour
2. Delivery times to complete a transaction
3. Page delivery rates
4. Custom KPIs eg number of orders per minute





Outsourcing load testing to a managed service provider will enable an experienced team to carry out this process on your behalf. Look for a testing supplier that helps you review past performance and maps their findings into proposed changes to testing.

Don't view Load testing as a standalone technical process

Increasingly the most successful organisations are those who involve multiple departments in load testing, including business, marketing and technical teams. Each team has its own perspective on desired outcomes and only by analysing all of these inputs can you create a truly effective solution.

By beginning with business expectations, incorporating the data from marketing exercises and using the expertise of the technical team, you are able to build a load testing programme that will enable you to build a more agile and resilient website with a significantly better user experience.

Tools to help define your outcomes

-  Digging about in your analytics data is a good place to start.
-  Data on online transactions and user numbers.
-  Market research on user experience.
-  Business goals to help define web capacity targets that are aligned with your growth projections.

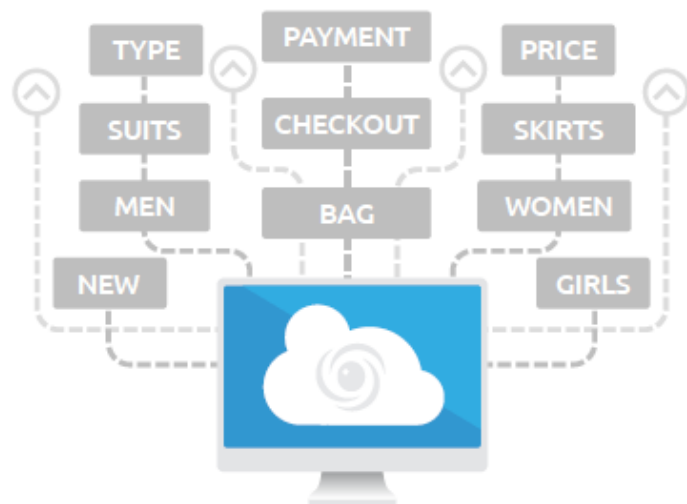
Step 3 Create realistic tests

Emulate realistic behaviour, dynamic testing, journey mixes and drop-off ratios

 6 months before peak

To test today's complex platforms more realistic load testing is necessary, based on the genuine habits of your visitors at peak times. You need to emulate realistic visitor behaviour; test dynamically, follow realistic sequences of events, introduce randomness and variability and model a mix of customer journeys and drop-off ratios.

Load testing based on more traditional metrics such as concurrent users will give misleading results.



Why concurrent user metrics are no longer good enough

Take two different scenarios; firstly 10,000 concurrent users visiting your home page which is fundamentally static and delivers mainly cached data or 10,000 concurrent users browsing, searching and checking out from your site.

Although both scenarios represent the same level of concurrent users, the stress each scenario places on your app and backend systems is clearly very different. Testing how your site handles thousands of concurrent users will not give you an accurate measure of how it will cope with genuine traffic levels and real users performing activities across your site. Understanding metrics such as the number of orders or quotes per hour your platform can handle whilst delivering an acceptable user experience gives a much more accurate and reliable indication of the true ability to handle peak traffic.

The importance of dynamic testing

Not all visitors take one idealised journey so why should your load testing?

Peak traffic is unpredictable, so your testing needs to reflect the randomness and variability that real-world users bring. By randomly varying choices on the fly across the customer journey you'll test more of your site in a way that's closer to real-world scenarios and avoid nasty surprises when it counts.

Step 4 Measure current capacity

 6 months before peak

In order to prepare for your peak sales period, you need an accurate assessment of your current web performance.

Perform a load test at least six months ahead of your anticipated peak to measure current capacity and use this as a baseline for comparison following changes. This will also flag any performance issues that may adversely impact the customer experience early on. If you can identify areas of weakness at this point, you can begin making changes to fix or improve performance and capacity early on and have a clean bill of health moving forwards.

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Step 5 Test early & test often

Don't be fooled into thinking one load test is enough



Load testing should never be considered as a one-off process. Even when testing is confined to a specific pre-peak period, retests are essential to ensure that your changes have been successful.

The best approach is regular load testing, with increased frequency in the run-up to code lockdown. Best practice involves testing after making changes to improve performance to understand how your improvements are working or how they've affected the performance of other components.

Sticking to this process can save time and money in the long run as it's easier to manage and enables smaller changes at each stage whilst ensuring each change is verified before moving on to the next stage.

Look for a load testing supplier that provides comparison data on previous test runs to help with this.



Step 6 Lockdown - Get it right on time



6 - 8 weeks before peak

The best peak results are obtained by those businesses that stick to the schedule. You should aim to lock down code six to eight weeks prior to peak. That's not the end of the story, though. Obviously, you'll want to update your website with special promotional sections and deal codes but these must be implemented before lockdown.

Load testing is no longer solely the domain of the technical team, adhering to the schedule requires input from other departments and making them aware of deadlines early on relieves last minute additions and pressure on the tech team.



Step 7 Retest after code lockdown



2 - 4 weeks before peak

You'll need to retest after lockdown – we suggest two to four weeks ahead of peak – to check performance of the final system on the live environment, while allowing enough time to remedy any last-minute issues.

However rigorous the testing has been to this point, it's crucial to explore how any changes will impact performance on the live environment.

It's important to recognise that any changes to a site carries the risk of additional performance problems. You want customers to enjoy a smooth, glitch-free experience right through to checkout. So in addition to load testing it's important to monitor key journeys 24/7 prior to and during your peak period to identify any problems before they impact your customers. Remember to monitor mobile journeys and also right to the journey's end, including 'Click and Collect' or delivery options.



Load testing planning checklist

We've put together a ten-point checklist to help you with planning realistic load testing for peak.

- Incorporate load testing early on in the planning process
- Understand how users interact with your site
- Take a holistic user experience approach to defining your outcomes
- Build a realistic load model based on real traffic
- Create realistic tests
- Test early and often
- Keep all departments in the loop including code lockdown deadlines
- Stick to the testing schedule
- Retest on the live system after code lockdown
- Monitor key journeys to pick up issues before visitors do

Peace of mind with realistic load testing

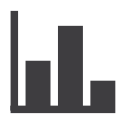
SciVisum provides a fully managed load testing service precisely tailored to each client's business and designed to optimise web performance

If you'd like more information about how taking a more realistic approach to load testing could help improve your customer experience, **visit our website [here](#)**



Make decisions based on realism

SV-Load emulates realistic journeys with dynamic testing following realistic sequences of events including randomness and variability. We model journey mixes and drop off ratios.



Accurate and reliable results

Provides the most accurate results on which to base decisions for peace of mind your site will deliver the best possible customer experience when it counts.



Fully managed service

Fully managed, independent Load Testing makes it possible to manage load testing with minimum disruption internally.



Experienced test team let us take the strain

We create the most realistic load test model based on previous analytics. We create realistic dynamic tests, perform & redirect testing and deliver the results in a final report.

[Read more on our website](#)

Maximise user experience with synthetic monitoring

SciVisum provides high touch 24/7 performance monitoring for optimum user experience and swift resolution of performance issues

If you'd like more information about how monitoring mobile performance can increase your conversions **visit our performance monitoring service page [here](#)**



Maximise user experience by getting closer to your customers' true experience

Emulates realistic customer journeys. Performs tasks, checks page content & makes choices just like real users



Make decisions based on realistic, accurate & reliable data

Provides the most accurate results on which to base feature versus performance budget decisions



Save time & resource with an extension of your tech team

Manage the complexities of web performance whilst freeing resources. Our high-touch service means we find problems before you do



Bridge the gap between tech & business teams

Actionable data easily shared and understood by customer service, operations and business teams for swift root resolution of issues

[Read more on our website](#)

Increase conversions with mobile experience visibility

SciVisum provides high touch mobile web and mobile app monitoring services for visibility of users' mobile experience and swift resolution of performance issues 🕒🔧

If you'd like more information about how monitoring mobile performance can increase your conversions **visit our mobile monitoring service page [here](#)**



Increase conversions with visibility of mobile experience

Emulates realistic journeys delivered to mobile browsers. Performs tasks, checks page content & makes choices just like real users



Make decisions based on realistic, accurate & reliable data

Provides the most accurate results on which to base feature versus performance budget decisions



Save time & resource with an extension of your tech team

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Read more on our website

Resources & Insight

Want to read more? Follow the links below to read more about web performance from our blogs and whitepapers or visit the resources section of our website.



Guide for peak season preparation. Maximising site performance for flash sales and seasonal peaks.

[Read Guide](#)



Load testing can have a transformative impact on business. If you can avoid the top 5 most common mistakes, you'll reap the rewards.

[Read Blog](#)



When should you load test? We cover the primary reasons for load testing and explain why it's not just for Christmas.

[Read Blog](#)

Client Case Studies

We work with some of the UKs largest retailers and brands. Protecting your online reputation is at the core of everything we do.



SciVisum help Thomas Cook manage the many complexities of Load Testing faced by travel operators.

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SciVisum provides much needed visibility into the performance of 3rd party site components for Jigsaw.

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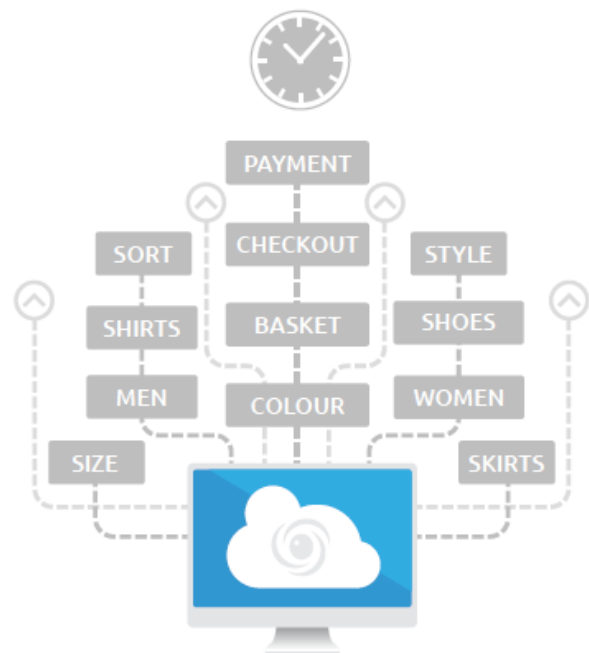
Tesco uses iPhone Application Monitor to ensure the best performance for its customers.

[Read More](#)

About SciVisum

Our portfolio of “dynamic user journey” based synthetic monitoring and load testing services enable business wide understanding of the impact of online performance on user experience and the bottom line.

With over 10 years performance testing experience, helping clients such as Debenhams, Boden, Joules and Dixons to maximise user experience and protect their brand, our highly experienced team of test professionals help clients implement monitoring programmes and proactively oversee testing; automatically updating journeys as a website changes, highlighting performance issues and helping clients quickly pinpoint root causes - saving time and money.



To find out how SciVisum can help you implement the best monitoring or load testing programme to suit your organisation please contact us on 01227 768276 or visit our website at www.scivisum.co.uk

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