



Redefining Planning for Peak

How Digital Performance Management holds the key

Produced in conversation with



Introduction

A disruptive digital revolution is underway and it is changing the way we live, work, shop, and consume goods and services. To survive in today's fiercely competitive, always-on economy, all businesses must transform into digital businesses. For retailers that are at the forefront of this digital evolution, that transformation is not without its challenges.

For some, digital transformation stems from the IT department and is built around technology. For others it is anchored in the customer experience and customer journey. In reality digital transformation is both of these and more besides. To be a digital business is to ensure the organisation meets the needs and expectations of its customers in real time and at every point along their digital journey. For that there is a need to add a third dimension – performance. In today's digital marketplace, business performance is defined by the performance of their digital estate and the user experience. The interaction and inter-dependencies between the customer experience, IT performance and the business outcome requires retailers to take a more holistic view if they are to truly transform into digital businesses. Nowhere is that more apparent than in the planning that has to be undertaken for peak trading periods as well as in prompt ones.

Black Friday online sales are widely expected to increase across the UK. They stood at £810 million in 2014 and rose to £1.1 billion in 2015. Cyber Monday sales rose from £720 million in 2014 to £968 million in 2015. Indeed over £4 billion was spent over the Black Friday and Cyber Monday weekend in 2015 and this is estimated to top £5 billion in 2016. The high volume of traffic and spikes over this relatively short period places a major strain on retailers websites, with a number succumbing to the pressure. In response, a growing number of retailers are looking to stretch the sales cycle over a longer period, with pre-Black Friday sales heralding the big event. This elongated sales cycle is likely to further fuel customer expectations and demand and add to the scrutiny of the performance of retailers digital estate. There is a danger that retailers can get caught in an ever decreasing circle of diminishing returns that may ultimately be their undoing.

In an ever changing retail landscape, performance matters more than ever and that's reflected in how retailers plan for peak. Business performance today is increasingly about the business of performance and that requires a re-evaluation of what planning for peak encompasses.

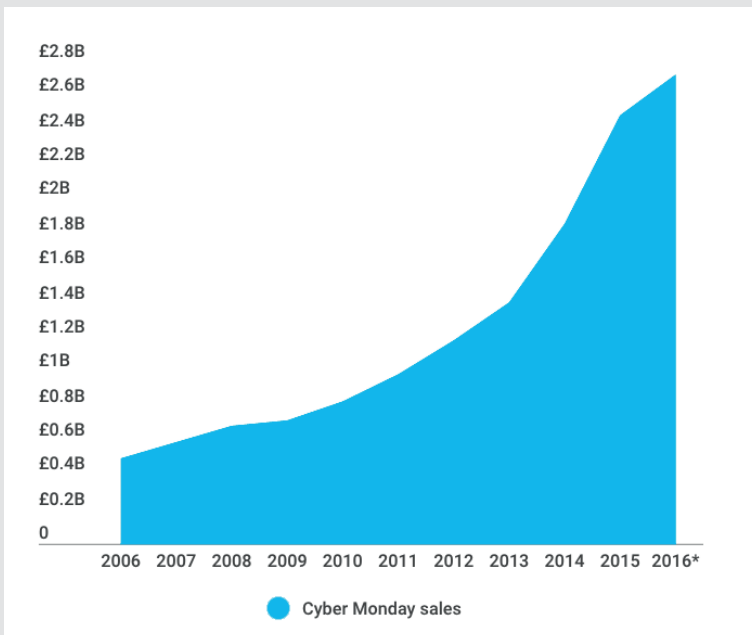
Shoppers are everywhere

Regardless of where your shoppers are and what type of device they're using, they expect consistently fast, seamless transactions.

Multi-platform matters more than ever:

- 57% of Black Friday traffic in 2015 was from mobile devices.
- 28% of Cyber Monday sales happened via mobile.
- 78% of all holiday sales are influenced digitally – that is, by shoppers using their desktop or mobile devices to research before they buy.

Retailers today face enormous challenges in delivering the fast, reliable, 24x7 omnichannel experience across multiple devices that users demand – and they won't wait around for you to get it right. According to Aberdeen Group research, after only 3 seconds, 40 percent of all mobile and desktop websites will be abandoned – up from 25 percent in 2013. Where are those shoppers going? To websites that can meet their performance expectations.



Why you need to think like Amazon

Amazon has become the gold standard for user experience. While most retailers simply focus on driving visitors to websites, Amazon has built an online business based on understanding their visitors through data science and performance analytics.


Amazon was an extremely early adopter in the study of how seconds -- and sometimes even milliseconds -- of latency can affect bounce rates, conversion rates, sales and revenue. The company continuously monitors, measures, collects, keeps, and exploits information about every user experience. They use that data to continuously improve what they're doing. They know that when they improve the user experience, they improve the overall performance of their business.

Today, Amazon's ability to offer a superior buying experience is the reason why it enjoys a 13% conversion rate -- and a whopping 74% for Amazon Prime members -- and takes more than a third of all holiday online sales.

The challenge for online businesses today is to adopt Amazon-like culture, practices, and tools to enable digital performance management -- continuously and in real time. In order to be like Amazon, you need:

- A unified view and control of customer experience, business, and IT performance
- Realtime visibility into your marketing campaigns
- Data science as a competitive advantage
- Testing and data science engine for 24x7 optimal performance
- Embedded performance experts to lead and transform digital transformation

This ebook covers how you can understand, manage, and optimise your site's performance in order to deliver the best possible customer experience -- during peak trading periods and beyond.



Chapter 1) **The impact of peak**

Retail has long had its peaks. Mostly these are seasonal and have been dependent on what kind of sector you are in: holiday firms have a peak in the run up to the summer, fashion is year round based around seasons, and many other retailers are typically locked into Christmas and year end.

But this world of predictable peaks has been shaken up by the rise of e-commerce, changing what peak is, how to deal with it, and how to plan for it.

In this eBook we shall look at:

- how to re-imagine what peak means for your retail business, and
- some of the techniques available to not only master peak planning, but turn it into an ongoing way to work with your marketing department to make your business “peak” year round.

But first we need to rethink what we mean by peak.

Why “peak” needs redefining

Peak planning used to mean getting ready for the rush of sales in the run up to Christmas. Over the years, this Christmas rush has begun earlier and earlier, which has presented a growing challenge for retailers.

Today, however, ‘peak’ is starting to mean something altogether different.

While the Christmas shopping peak has

spread into a month-long push at sales, it has been joined by Black Friday, Cyber Monday, and even Boxing Day sales. As if this hasn’t taxed retailers enough, the rest of the year is now also filling up with sales events, starting with Valentine’s Day in February, Easter in the spring, summer weather peaks, Amazon Prime Day, summer holidays, back to school, Singles Day, and Halloween. These days, “peak” is a year-round phenomenon.

But it doesn’t end there. While these events trigger peaks for some or all retailers – offering as much opportunity as it does planning and logistical headache – there is a growing sense that peak is evolving into something else altogether.

As personalisation becomes more and more important to retail marketing, then peak, in theory, is going to occur every time your marketing department does anything. So peak starts to become about peak week, peak day, peak hour, peak second – and even peak millisecond.

And milliseconds mean money. You need to be on top of all these peaks, plan for them, and make your business work around them.

What does peak mean for your site?

We’ve seen how peak now needs to be rethought, but what does a typical peak mean for your website and how you run your business? Peaks put huge pressure on your

website. As shoppers become more agile in their device usage – and much more demanding in how they want your website to respond when they want to shop with you – dealing with peak becomes more challenging.

So what is this likely to mean for your site?

The best place to start looking is at Black Friday 2015. There has been endless outpouring of statistics and analysis from around the world to paint us a picture of what peak means.

Traffic peaked throughout Europe in early November 2015. With the rising popularity of Black Friday, Cyber Monday, and the shopping days in between, European Black Friday peak retail traffic grew by 280% over its 2014 baseline traffic levels, and 360% over its 2013 average traffic.

What this means is that every second – and even microsecond – of website performance counts. For example, comparison of performance data for 12 top 200 US retailers for the 2014 and 2015 back-to-school shopping seasons found that the site performance “sweet spot” shifted from six seconds to two seconds for smartphone users, while the sweet spot for desktop moved from three seconds to two seconds.

Peak conversion rate for smartphones increased by 450% between 2014 and 2015, and, in 2015, the “performance poverty line”

happened much earlier for both desktop and mobile.

The cost of poor planning for peaks

The strain that peaks put on your business are huge. Not meeting peak demands is costly and dangerous to your business. Performance issues affect many KPIs in your retail business:

- revenue
- conversions
- downloads
- user satisfaction
- user retention
- bounce rate
- brand perception
- organic search traffic

Research has shown that a one second delay can cost you 7% in lost conversions, an 11% drop in page views, and a 16% decrease in customer satisfaction. For a site turning over \$100,000 a day, that equates to some \$2.5million in annual lost sales.

Conversely, improving load speeds and site performance can have demonstrable effects. AutoAnything.com instigated a performance improvement regime that cut load times by 50%. This yielded a 13% increase in sales. Another interesting point is that if you are having problems, then downtime is actually better than slow time. With a slow site, consumers get frustrated and often abandon – certainly if load times are longer than 10 seconds. TRAC Research found that downtime

typically costs mainstream retailers \$21,000 an hour, while a slow site typically costs about \$4000. However, slowdowns occur up to 10 times more often and their impact is huge – up to twice as costly – since they tend to put customers off for good.

Mobile also offers a new challenge to retailers looking to deal with peaks. Mobile has made online retail even more immediate and, while a few years ago consumers would forgive slow load times due to iffy mobile networks, now they expect speed more than ever.

Our research shows that the mobile performance sweet spot for some of the top 200 US retailers may be as low as 2.4 seconds, when correlating load time with conversions. At this speed, the conversion rate was 2.2%. At 4.2 seconds, the average conversion rate dropped below 1%. In other words, pages that were just 2 seconds slower experienced a 50% decrease in conversion rate.

As peak moves towards being something that is dependent on both seasonal events and your own marketing pushes, understanding how your site will work under these pressures, and what you then need to do is vital. So how do you do that?



Chapter 2)

Using technology to meet the endless peaks

One thing many retailers miss is the link between customer experience and digital performance. Retailers need to understand at a minute level what their site is doing and where it can be improved – and they often need to understand this in realtime. Until recently, this depth of understanding has not been possible, but today solutions exist that give retailers unprecedented insight into the moment-by-moment performance of their websites, and how this performance affects their business.

Gartner notes that 89% of companies will primarily compete on the basis of customer experience, and that these interactions rapidly are becoming digital. Forrester, meanwhile, estimates that a one-point improvement in a US wireless provider's Customer Experience Index score (CX Index) resulted in an additional \$175 million in revenue.

Amazon has performed experiments showing that for every 100 millisecond improvement, its sales increased by 1%. With \$88 billion in online sales in 2015, that translates to \$8.8 million of increased sales per millisecond.

The answer lies in Digital Performance Management (DPM).

What is Digital Performance Management?



There are many website analytics tools available – such as Google Analytics, to name but one – but, while versatile, these tools are somewhat one dimensional. DPM is a much deeper way of looking at what is going on in your digital business in three dimensions:

- customer experience
- IT performance
- business outcome

By providing realtime, end-to-end performance visibility and insights from website traffic, ecommerce, and IT performance metrics, online retailers are now able to pinpoint and remediate performance issues by campaign, product, channel, device, geography, demographics, and even third party services – quickly and effectively.

For example, when an advertising campaign performs poorly, marketing analytics tools such as Google Analytics and Adobe Analytics can tell you which ads and which landing pages are

experiencing low click-through and conversion rates. Those are the “what” questions you need to ask. Then you need to ask the “why” questions. This is where DPM comes in.

DPM, with its RUM (real user measurement) insights, can tell you why these landing pages are performing poorly, perhaps due to third-party services (a typical web page today can contain 75 or more third-party scripts), page structure, ad visibility, compression, resource timing, or bandwidth issues such as mobile connectivity.

How does DPM work?

DPM sits at the nexus of user experience metrics (such as pages per visit, visitor paths, clickthrough rates), IT metrics (site availability, load times), and business metrics (conversion rates, cart size, sales). It has three main stages:

1 Measure – This involves getting all your analytics in place around all of the metrics described above. Here you need to have your tools lined up and plugged into a DPM solution to take the data across business, IT, and UX metrics

2 Test – With all the data in place, you need to use it to test out all manner of scenarios and peaks. This has been likened to having a fighter plane flight simulator: you use the tools and the data you have to run and re-run all manner of scenarios and assess what impact this is having on your website, business, and IT functions. This could be anything from your planned Black Friday promos through

to a one-off marketing push for a product line. The key is to test everything all the time.

3 Optimise – The most tricky part is to use the results of the testing to make sure you can optimise your site performance accordingly. This is an ongoing task that requires the right degree of optimisation to meet the specific challenge of each peak as it comes along. Your testing will reveal general optimisations you can make to improve your overall site performance, but DPM is an ongoing and constant task that needs to be done in advance of known upcoming events and the right optimisation implemented in time. This isn't just for Christmas – this is for everyday.

Putting the tools in place to achieve the goals of DPM is as much about changing the culture as it is about implementing technology. As described in the next section, identifying the current state of your ‘performance maturity’ is critical for success. That often means breaking down silos, establishing common goals, setting achievable milestones and creating KPIs that measure how well you are doing.

Other technical requirements include an understanding of continuous integration for performance testing and putting the processes and technologies in place for testing in production. This could include service virtualization, test data management, third party participation, and careful thought about what to test early in the SDLC vs. in production.

While DPM requires a high degree of technical integration and some degree of rethinking what you can do with the data you have, it also involves a cultural rethink across the business – something that can often be more tricky to implement than technology.

But where you are as a company already will impact how you culturally implement DPM into your business – so first you need to understand where you are in understanding your ecommerce data.

When it comes to performance, how mature is your company?

There are five phases of maturity when it comes to DPM implementation and being ready for it. Which phase are you at?

■ **Phase 1: Reactive** – In this phase, there is a limited awareness of end user experience and application performance. You find yourself constantly reacting to application performance issues in the production environment. There is little to no front-end monitoring and you find out about site issues from your customer base. Ad hoc “war rooms” are formed to deal with episodic performance issues, but there is no formal application performance testing process.

■ **Phase 2: Aware** – You have a basic awareness of application performance and can identify issues. However, the ability to mitigate those issues is limited and time consuming. While there is an understanding of a performance baseline and you can track performance trends,

you’re still primarily reactive to issues in production. There is a performance testing team in place; however, mapping test cases to real business scenarios is limited.

■ **Phase 3: Efficient** – Good visibility exists into front-end and back-end application performance. Effective problem resolution is in place, with deep dive diagnostics. Problems are identified and prioritized by business impact and a high percentage of problems are discovered and mitigated in a pre-production environment. More realistic testing scenarios have been created; however, testing is still limited to behind the firewall. Basic key performance indicators (KPIs) have been established.

■ **Phase 4: Advanced** – There is broad visibility and deep-dive diagnostics for front-end and back-end performance. Automation exists for problem identification, analysis, and diagnosis. The majority of issues are identified during the application performance testing process, testing is pushed left, and there is active testing of third-party services to understand the impact on end users. Initiatives are prioritized based upon the business impact, actively testing in their production environment. Advanced level KPIs lead to actionable insights from the data.

■ **Phase 5: Proactive** – At this phase, your capabilities checklist, in addition to having many of the positive traits of the previous phases, also includes these:

- Active management of front-end and back-end performance, leveraging realtime visibility to meet and exceed robust KPIs that are mapped to business impact.
- Collective intelligence from across the organization is used to achieve business agility and competitive advantage.
- Active continuous application performance testing is executed throughout the entire software development life cycle, including comprehensive production testing processes.
- C-level leadership takes an active role, supporting the performance team in driving a culture where everyone takes ownership and pride in performance as a key attribute of every web and mobile property.

Organisational change

Once you have understood where you are with data readiness, you need to look at some other aspects of how you operate your business. Here are some key things to be aware of:

- No more silos – By its very nature, DPM means that you can no longer silo your data and your data processes. It has to work together to work. This is both a technical and cultural change for many businesses, requiring some re-rigging of how databases work, but more the culture of how different functions across the business operate.
- Marketing and IT have to work together – One of these cultural changes has to be getting marketing and IT to work together in a much more integrated way. With peak planning often now centering around how your customers will respond to marketing that you put out around particular events and seasons, your IT department has to be part of the process. As we have seen, constant testing needs to lead to constant optimisation, and this means that IT has to be part of your marketing plans.
- Ignore time – Traditionally, retailers have planned around shop hours: forget that. Right now, retail is a 24x7 business and has to be based around activity rather than times. In the old days, activity was driven by shop hours. Today, your peak shop hours should be driven by activity: people shop at all sorts of times of the day and night depending on what your line of business is and what they are doing. You have to be ready for these new kinds of peaks and think in terms of activity rather than time.
- Ignore borders – As with time, borders are also meaningless in many ways. Many peaks – especially global phenomena such as Prime Day and Christmas, as well as all your own self-created peaks – are going to be cross border. Similarly, peaks come from other places. You may not yet be planning for Christmas in the UK yet, but Singles Day is coming and people may hit your site to buy gifts from overseas.
- Beware of load creep – Online traffic and online retail are increasing relentlessly, so don't think that what happened last year is a good predictor of what will happen this year. When looking to test and optimise, you can use last year's data as a guide, but you need to really assess where this year's traffic is likely to be, as it will probably be much higher than you think. Constant ongoing traffic measurement is key here, so that you can test based on where you think your realtime traffic of today is going.



Chapter 4)
Case study:
**Nordstrom delivers world-class
customer satisfaction**

Nordstrom has been helping people in America dress with style and panache since 1901. Traditionally store based, one of its main USPs has been its commitment to customer service. This commitment is something the company has been keen to take into the online world.

But when Nordstrom saw that its online customer service satisfaction ratings were going down, alarm bells rang. The performance data it had to hand – combined with its own internal testing – wasn't giving a clear enough picture of what was going on. The company needed a way to gain insight into why its loyal shoppers were not seeing the level of customer service that they wanted. It looked to Digital Performance Management (DPM) to give it a more accurate and holistic view of actual performance against perceived performance.

To do this, Nordstrom adopted the SOASTA DPM platform, which includes CloudTest for load and performance testing and mPulse for real-time customer experience monitoring and measurement.

“We started looking for better pricing models as well as newer technology that was more aligned with the roadmap of where Nordstrom was going,” explains Gopal Brugalette, performance architect at Nordstrom, about the load testing solution in place before SOASTA CloudTest. Brugalette was familiar with other offerings, but CloudTest piqued his interest. “It looked different—it had an innovative UI design

and approach to performance testing,” he says. “What also caught my attention was the seamlessness of testing internally and then transitioning to the Cloud.”

Nordstrom was moving heavily into cloud technologies and SOASTA provided the scale and support it needed. The engagement began with SOASTA CloudTest On-Demand services on Nordstrom's mobile POS system. After the success of that project, Nordstrom implemented the CloudTest solution across its entire network.

Though the organisation was supportive of testing in production, it was truly convinced of the business value at the 2014 Anniversary Sale. The Anniversary Sale is Nordstrom's biggest event with traffic peaks 4-6 times higher than usual. “Going into the 2014 Anniversary Sale we were able to and two critical defects in production using CloudTest that we were not able to see in our CloudTest that we were not able to see in our performance test lab,” says Brugalette. “It really demonstrated the reasons we need to test in production.” Nordstrom began testing regularly in production with CloudTest, about 10 times a year. It also started using the built-in RUM capabilities of SOASTA mPulse.

“When we run CloudTest in production, we use mPulse at the same time,” says Brugalette. The team monitored mPulse data to see if the tests impacted users—if so, they stopped the tests. During special events like

the Anniversary Sale, Nordstrom broadcasted mPulse data on televisions throughout headquarters, so employees could see online activity.

“Compared to some of the competitors, mPulse very quickly and very easily summarized graphical information on performance,” adds Brugalette. “It also very quickly gave key business metrics, especially conversions as a function of response time, so we could see how the customer experience was affecting customer behaviour.” Since the mPulse information was hosted by SOASTA, Nordstrom didn’t have to build the infrastructure to store the data in-house, a huge cost savings.

Perhaps the most important application for mPulse was in addressing the customer satisfaction survey feedback. “We investigated and found that it was the front-end performance that was degrading,” says Brugalette. Previously, the company had primarily focused its resources on back-end, server-side performance—a shift in culture began.

The work we’ve done with mPulse so far has been foundational,” adds Khyati Vyas, senior program manager of ecommerce operational intelligence at Nordstrom. “We are really trying to help the culture at Nordstrom to look beyond just server-side performance—mPulse has really helped us with that.”

Vyas was tasked with using RUM to marry client- and server-side data to make data-driven

decisions about how online performance affects the business. To do this, Nordstrom customised its use of mPulse to meet its unique needs. “A lot of the customer experience is not translated when you are trying to measure performance using page load,” says Vyas. “So we did some work to shift our tagging and configure mPulse to start giving us ready information.”

Vyas appreciated the ability to derive deeper analytics with access to raw mPulse data and then combined that data with other sources. “We are trying to surface a more holistic view of the health of the site,” she explains.

“Pre-mPulse, there wasn’t a good sense of customer- perceived performance using metrics,” says Vyas, who reiterated that Nordstrom was relying on customer satisfaction surveys to measure online performance. With mPulse, Nordstrom set service-level objectives for mobile and Web pages, identified pages not meeting those objectives, and, in the future, planned to use this data to drive development to x pages.

With end-to-end performance management from SOASTA, Nordstrom was now prepared to proactively tune performance front to back, gain a deeper understanding of how real user experiences impacted business and utilize real-world data to detect and resolve problems well ahead of customer satisfaction survey results.



Chapter 5) **How can SOASTA help?**

Tom Lounibos, CEO & Co-Founder of SOASTA, outlines how SOASTA can help you overcome the problems with managing peaks.

When you go directly to consumers and your site is down or slow, it costs you money.

But it also hurts your reputation and harms brand loyalty – which costs you even more money in the long run. But you can stop it – and moreover you can achieve the ideal of avoiding it going down in advance.

SOASTA's Digital Performance Management platform helps you do pre-cognitive assessments of latency on an ongoing basis so that you can see where the pain points in your whole online sales process are likely to occur – under all manner of circumstances.

The key is to take in all the data you have and get a firm view of what is happening across your business. Everyone has some kind of view of the business – no one tends to see the whole picture.

And this is where SOASTA DPM comes into its own. It offers a single view of everything that is going on – a single pane of glass bringing together the marketing view, the sales view, and the performance view in one place. Our platform pulls together all of this information and shows how variations across all three metrics impact revenue versus latency so that you can fine tune your site live as peaks are planned to happen.

Running the largest test platform available, we can simulate all events in the world – offline, so your actual site doesn't suffer – to simulate how they will or might affect you. We can then help

you plan and tweak changes to your site or sites to see what happens.

It's like a flight test simulator for a 747: you get to fly that tricky takeoff and landing – with all sorts of engine failures and weather anomalies thrown in – so that you know, when flying for real through a peak period, what is likely to happen and what you need to do to make sure your site stays up.

As we set out in this ebook, peaks used to be seasonal. Today they are numerous and run throughout the year. As markets become more competitive and customers more insatiable, peak is going to be almost continuous – driven by outside forces as well as by your own marketing activities.

With SOASTA's DPM you can be ready for the impact of these events on your site's speed and availability, so that you can optimise for the peak second – and even the peak millisecond.

About SOASTA

SOASTA is the leader in performance analytics. The SOASTA Digital Performance Management (DPM) Platform enables digital business owners to gain unprecedented and continuous performance insights into their real user experience on mobile and web devices in real time and at scale. With more than 100 million tests performed and more than 375 billion user experiences measured, tested and optimized, SOASTA is the digital performance expert trusted by industry-leading brands, including 53 of the Top 100 internet retailers, six of the Forbes Top 10 media companies and seven of the Forbes Top 10 tech companies, including Apple, Target, Nordstrom, Staples, Home Depot, Sears, Walmart, Etsy, Best Buy, Adobe, Intuit, Microsoft, DIRECTV, Netflix and CBS. SOASTA is privately held and headquartered in Mountain View, Calif.

For more information about SOASTA, visit www.soasta.com