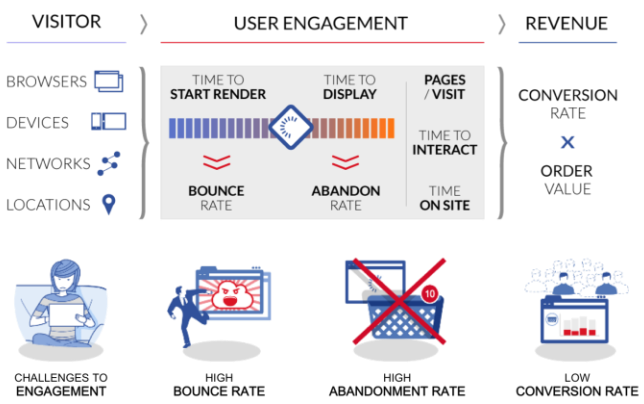
Application Sequencing

A new technology for marketers and IT to optimize mobile and desktop sites for performance, conversions and revenue.

Intro

There are proven reasons to optimize your mobile and desktop sites for speed. Studies have found a one-second delay in response time can reduce conversions by 7%, page views by 11% and customer satisfaction by 16%. Other studies found that after three seconds up to 40% of users will abandon your site and 29% will wait a year to return.



But while optimization is proven to help sites be more successful, the prevailing advice for optimization includes cutting down on the kinds of site assets that marketing teams rely on most to push their brands ahead. That includes shrinking images, removing JavaScript and dynamic content, and limiting multimedia content. In particular, third party tags that provide A/B testing capability, tracking, and social media integration are often identified for causing performance issues.

The perceived incompatibility between content development goals and optimization goals causes friction between marketers and the developers who support them. Marketers see a need to continue developing dynamic content and rich multimedia to differentiate their sites, yet don't always grasp that adding complexity is a burden for IT and can lead to an increase in performance issues. Likewise IT departments often blame marketers for making it near-impossible to

achieve omni-device support and consistency in performance, but may not realize that cutting-edge features are keys to growing the business. The fact that neither side fully appreciates the challenges the other faces has led to a power struggle so widespread it is often the topic of write-ups from industry analysts like Gartner.

A New Technology: Application Sequencing

Application Sequencing is a new approach to optimizing websites for better user engagement. It works by using contextual information about site visitors, for example the visitor's device profile, to sequence which page elements are displayed, when and in what order. The technology is applied non-intrusively and in real-time, learning which elements should be displayed instantly, and which should be displayed after a predetermined delay period or in response to user interactions. This provides marketers with fine-grained control over how every element of a website page responds to site visitors without coding and redesign.

Application Sequencing focuses attention and creates a sense of involvement as visitors flow through your site. This maintains the visitor's curiosity and interest in your offering, and encourages ongoing engagement in the form of additional pageviews, time on site, and conversions on any device, on any network, anywhere. For one Yottaa customer, application sequencing improved page load time by 42%, decreased bounce rate by 5.8% and increased e-Commerce conversions 16.7%.

Challenges

There are a number of specific challenges and considerations that underlie this rift between marketers and IT. Yottaa's application sequencing

addresses many of them. They include:

Complexity

Site visitors can come from over 200 combinations of device, operating system, and browser, all with different capabilities and performance profiles. Simple sites can be effectively displayed on most combinations, but sites today are orders of magnitude more complex than they were just a few years ago. And complexity is still rising exponentially, as is device variation.

SEO

Performance impacts a site's Quality Score, which has a direct impact on the cost-per-click for paid search campaigns. Plus, recent announcements from Google state that greater emphasis on "user experience," which includes page load time, unique content, and time on site, are being given increasing weight in the search algorithm.

End-to-end Performance

Many marketers place most of their focus on a few key pages: homepage, landing page, checkout page. This is not enough to satisfy today's digital consumer. Businesses struggling to improve metrics like cart abandonment and pages-per-visit are starting to realize they must provide consistent performance and experience on every page in order to convert visitors. That means potentially optimizing hundreds or thousands of interior product detail and category pages – an immense task for any IT department.

Mobile performance

While over 50% of online shopping was performed on mobile in 2013, smartphones only converted at one-third the rate of desktop devices. Wireless devices and the shaky networks that serve them expose performance issues and

introduce errors in the browsing experience that go unseen by less attentive sites. Monitoring and optimizing mobile experience has become a challenge in its own right.

Distractions and downtime are expensive

Underlying every friendly blue Twitter bird is a small snippet of JavaScript; an innocuous line of code simply calls the Twitter API as the page loads and whenever a visitor clicks the Tweet button. But when a worldwide trend saturates the social media giant's network, that small script can block your website pages from loading for tens of seconds, or altogether. Site visitors don't know that Twitter's infrastructure is to blame; they bounce, view fewer pages, or worse – become a left-you-for-the-competition statistic.

Team Logistics

Marketing needs ways to manage the website content on a daily basis to meet business objectives. They can't always rely on IT, which is often buried in new development, and operations and infrastructure. Site redesign and development are too costly, and time consuming. There's a need for a non-intrusive way for marketers and IT to work together to address the complexity and performance challenges, enabling marketers to meet business objectives and freeing IT to focus on development and management.

Less is more, but everyone wants more

Jack Cheng's The Slow Web was a call to action to online businesses. Users hate *The Fast Web*; they do not visit an online business to be inundated with a flurry of social media engagement, offers and modal windows offering assistance. A visitor is likely to be frustrated, or simply click away altogether, if their well-intentioned visit is met with an ill-timed and unexpected offer. A visitor should never be presented with an offer to chat or provide input when he or she has not had even a moment to view the content.

And yet, visitors also expect to have these resources at their disposal when they do need to share, rant, or inquire. Presenting these features to visitors at the right time is crucial to the overall experience, and also difficult thing to accomplish, especially across a large site.

IT intelligence is required to address these concerns and challenges. But the tools available to IT practitioners are limited; the pace at which mobile and web technology is evolving means solutions are nascent if they exist at all. IT best practices simply cannot be determined and honed fast enough to keep up with the breakneck pace of the technology being developed and implemented today. Solutions that do exist to improve performance and engagement are simply no longer sufficient, as we will discuss next.

Point solutions do not address the full user experience

Solutions exist that ostensibly improve web performance and user experience. These tools and services address various technological challenges, but they are common in that none addresses and optimizes the full, end-to-end visitor journey on any device, for any site.

Caching Static Content Isn't Enough

A decade ago, content delivery networks (CDNs) were built to solve a very real problem. CDNs use a global network of servers to store static content so no matter where a visitor is browsing your site, geographic latency of delivering site content is reduced or eliminated. But on today's complex websites, static content is a small fraction of the performance challenge. On the average site today, 90% of the page load time occurs not as the content is being delivered, but when the browser parses and renders the highly complex content. And, discouragingly, CDN vendors charge exorbitant rates to treat what's now a commodity concern.

CDNs are still part of the solution by providing fast bit delivery, but it's just one small – and expensive -- piece of the puzzle facing site owners in optimizing user experience.

Network Optimization Misses the Point

Application delivery networks (ADNs) are, like CDNs, designed around simple content delivery. Unlike how their marketing pitches would have it, ADNs are only a slight improvement to standard CDN services, and they share the same limitations. ADNs cannot change the way a page responds to a visitor's context, such as device, location, and connection speed; at best they can optimize the route that content takes. The lion's share of the load time is still devoted to the browser parsing heavy content, and the many third-party assets see no benefit.

FEO alone falls short

One of the more recent developments in this space has been front end optimization (FEO) techniques that address the limitations of CDNs and ADNs by shrinking the content of the website on-the-fly. This was a major step forward in addressing the needs of heavier, more complex websites.

However, like CDNs, FEO solutions are merely part of the puzzle. Basic FEO techniques cannot alter content to meet the specific needs of certain device and browser combinations. Nor can it elect to download parts of a page before others, or display portions of the on-demand – crucial components of an immersive and universally engaging website.

How Application Sequencing Works

Application sequencing enables online businesses to realize three primary benefits:

1. Engage users immediately
2. Improve perceived usability
3. Maximize conversion potential

The result is a more engaging and enjoyable user experience that results in longer visits, more page views, and increased conversions.

Engage Users Immediately

Personalized elements like Amazon's "Related to items you viewed" are effective tools to retarget users and encourage ongoing use and transactions. But this dynamic content is non-cacheable, so it has to be fetched anew every time a page is requested. CDNs are no help. Content like this is gold to marketers, but it also increases page load times. Web users context-switch every second, so when dynamic content slows rendering it breaks concentration and risks abandonment. In fact, recent research showed that a 500ms delay in loading a page decreased engagement by 8%.

Yottaa's application sequencing leverages an industry-first solution for accelerating personalized and dynamic web content called InstantON. InstantON intelligently separates static (cacheable) content from dynamic, personalized (non-cacheable) elements on any web page. This means transitions happen in milliseconds and page content is immediately visible, holding a visitors attention

at the point when it is most frequently lost, while dynamic content is still being fetched.

Like the rest of Yottaa's optimizations, InstantON is globally applied and allows companies to create policies for optimizing visitor flow on every page, to maximize the conversion potential of every transaction.

Improve Perceived Usability

The rise of mobile and browser fragmentation present an ever-greater challenge to ensuring perceived reliability and utility. Every business wants to create an engaging experience to differentiate their offering and increase conversion potential. But when the features that differentiate a site also present the most significant challenges to conversion, both businesses and users lose. When a user's device cannot display content, it disrupts visitor flow and increases both bounce and abandonment rates.

Similarly, do-it-yourself CDN and FEO solutions force you to implement workarounds to ensure visitors aren't distracted by broken links or content that can't load on a given device. This often means human errors, code bloat or outdated code, creating more problems than solutions and wasting time, resources, and money.

Yottaa's Transformer feature adapts page content to device capabilities and user context, eliminating distractions to engagement and conversion. Transformer eliminates errors and other distractions so visitors can focus on completing tasks.

Maximize Conversion Potential

Maximizing conversion potential requires companies to refocus – away from byte transfer times measured against static content, to the critical measurement of the time it takes to interact with key dynamic content. A page that is assembled from

40 dynamic pieces of content from dozens of sources is subject to network slowdowns or blocking if any one component is performing poorly, something businesses that use Twitter and Facebook widgets have grown accustomed to. When 70% or more of a page's load time and errors stem from variations in device and wireless, cellular or cable network service, businesses need a tool that can address these unique context conversion challenges.

The RapidTag component of application sequencing optimizes the loading sequence of tags, making visitor sessions interactive, and ensuring users engage with the right content, at the right time. Marketers work hard to eliminate costly distractions. However, some users require assistance in the form of helpful videos, user reviews or a live online chat service. RapidTag is designed to allow marketers to easily specify which content should load immediately, what should be delayed until the user has had time to review the page, and what should not load until the user has scrolled or clicked on the page. With RapidTag, any content can be delay loaded or loaded on-demand. The result is a smaller initial page that's free from third party dependencies, and that translates to increased reliability and control.

Summary

Modern mobile and desktop sites are complex applications that are pivotal for engaging users and driving business success. Optimizing those sites to drive conversions and revenue requires more than simply speeding up landing pages and compressing images. Yottaa's application sequencing technology provides a comprehensive solution to website optimization, allowing businesses to engage across their omni-device connected audience. By addressing speed, scalability and most importantly the visitor's experience for any browsing context, application sequencing puts websites to work without changes to code or added complexity.

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