



- Web Design
- Lead Conversion
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- Search Engine Optimization
- Paid Search Marketing
- Social Media Marketing
- Mobile Marketing

A Guide to a Great User Experience Using Magento Ecommerce

Visit us online at www.TBGDM.com or call us at 866-714-7210

Introduction

Inbound ecommerce is about creating an end to end experience that people love, from marketing through to sales. If you have the world's greatest content and it's inaccessible or not user friendly, you've failed as an inbound marketer. You need to build a user experience that is easy and intuitive for people to convert, or risk losing them forever after their first visit.

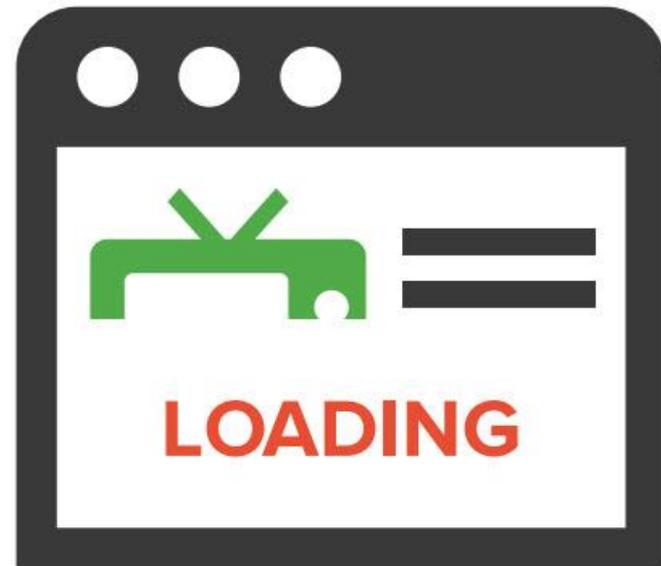
40%
OF YOUR SHOPPERS WILL LEAVE A WEBSITE
IF IT TAKES MORE THAN 3 SECONDS TO LOAD

59.8%
OF BUYERS ABANDON THEIR CARTS BEFORE
CHECKING OUT

Web Performance, User Experience and User Engagement

Creating a great user experience is among the most challenging aspects of running a website today. On one hand, users expect websites to offer tons of information, media, and interactivity – all with quick response times. Businesses are incorporating new features, like social media widgets, live chat windows, and large images to capture visitors' attention.

On the other hand, the Internet's growing complexity makes it increasingly difficult to achieve great performance. What many of these new components also do is put a burden on your web performance, leading to a frustratingly slow and suboptimal end user experience.



Web Performance, User Experience and User Engagement

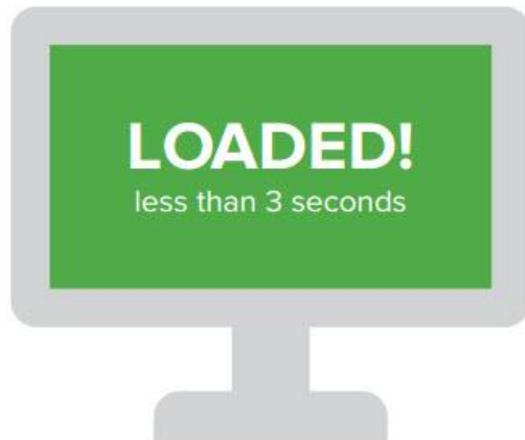
Optimizing your website's performance is about creating a faster, more engaging experience for all users. When user expectations aren't met, it shows in numbers: a 1-second delay in page load time equals a 3% drop in revenue per visitor, 7% fewer conversions, and a 16% decrease in customer satisfaction. Great user engagement, on an ecommerce site that exceeds expectations, however, means higher conversion rates, increased online revenue, more time on site, and a lower abandonment rate. In fact poor engagement can affect the way users perceive your site's design and usability, potentially negating months of strategic, creative work.

Modern businesses need to meet the needs of users who expect faster, safer, and more accessible websites.

This means quick-loading pages, a simple purchase process, an engaging experience and 100% uptime, because they are ready to purchase at any time, from any device, in any location.

Slow Page Speeds

Let's face it: Website visitors can be hard to please! In fact, 40% of visitors will abandon a website that takes more than 3 seconds to load, and 80% of those who leave won't return, but instead opt for faster competitor sites. This high homepage bounce rate and immediate competitive advantage are two huge strikes against your sales and marketing team, and also degrade the effectiveness of your website to convey your brand and entice prospects. When it comes to web performance, every millisecond counts.



Destructive Downtime

Page speed isn't the only performance factor preventing users from converting. What happens when your website is down completely? That's the pinnacle of performance problems. A typical site's availability is around 98%, which equates to a full eight days of downtime in a year. So, for that same site, that's an additional \$40,000 loss due to site downtime alone. Improving performance means ensuring uptime, increasing revenue and satisfying users.



Shopping Cart Abandonment

Shopping cart abandonment plagues today's ecommerce websites, with about two-thirds of carts abandoned by customers on average. Of this, 46% cite slow website speed as the reason.

\$3,000,000,000 IS lost annually from cart abandonment due solely to slow website pages.

It's not just about abandoned carts; it's also about the overall spending potential of a visitor. An extra second of page load time reduces per-user revenue 1.8%; two seconds reduces it by 4.3%.

Causes of Poor Performance

Picture yourself going to get a bunch of mail from your mailbox. In this example, you are the browser, making trips to retrieve all the assets needed to download your webpage. Would it make sense to make a separate trip for every single piece of mail in your mailbox? No. But that's how a browser is programmed to behave when it downloads assets of a web page. It makes a separate trip for every individual file. Granted, the browser does this very quickly—often in milliseconds. The more individual files there are, however, the longer it will take the browser to process all of those requests. Your Magento site, then, relies on how quickly it can connect to and be fetched from a server (the back-end) and how quickly it can retrieve all of these page assets (the front end). Slow page load, page errors, and downtime result from a number of reasons, including:

- Server congestion or failure
- Traffic spikes
- Heavy and un-optimized assets
- Too many components
- Network latency
- Third party assets (Facebook or Twitter widgets and Google Analytics)

Number of Assets

Too many assets or website components severely slow a site. When optimizing for performance, designers should reduce the number of files as the number one priority. Most Magento sites have a higher number of assets than the average website, making them that much slower.



Avg. # of assets: 59



Avg. # of images: 33



Avg. # of Javascript files: 11



Avg. # of CSS files: 5



Avg. # of assets: 84
(on a Magento site)



Avg. # of images: 45
(on a Magento site)



Avg. # of JavaScript files: 22
(on a Magento site)



Avg. # of CSS files: 7
(on a Magento site)

**Numbers taken from a Yottaa study of over 1,000 Magento websites.*

Asset Size

Large page size is another key indicator of poor performance. Bigger files take more time for browsers to download. Let's return to the mailbox analogy we just used. It's easy to carry a few envelopes of mail, but what if there were several heavy boxes and packages? Suddenly, you won't be able to carry your mail as quickly or easily. The same holds true for browsers. If you have massive files on your website, browsers will have a tougher time downloading and delivering them to end users.

 **Avg. size of website: 1.1MB**

 **Avg. size of images: 653KB**

 **Avg. size of Javascript files: 173KB**

 **Avg. size of CSS files: 34KB**

 **Avg. size of website: 1.3MB**
(Magento site)

 **Avg. size of images: 901KB**
(Magento site)

 **Avg. size of JavaScript files: 309KB**
(Magento site)

 **Avg. size of CSS files: 75KB**
(Magento site)

**Numbers taken from a Yottaa study of over 1,000 Magento websites.*

Javascript and CSS

When it comes to poor performance, JavaScript is generally the worst offender, especially as it relates to the number of JavaScript files. CSS can be a contributing factor too, especially in terms of its size. Since CSS paints the visual display of a webpage, larger CSS files have a higher amount of display work that the browser needs to execute.

Why UX Designers and Developers Need to Factor in Website Performance

Given what we've learned about visitor expectations and the rise of content marketing, it's no surprise that in recent years website content has exploded in quantity, size, and complexity. The popularity of social media and advances in web development have made sites full of JavaScript, HTML5, media files, and other dynamic content commonplace. In short, the average website has become a complex, distributed web application.

Put in numerical terms, the average website grew 13x between 2002 and 2012.

So, why should UX designers care? Because 80%-90% of performance occurs on the front end, which is where designers operate. Only 10%-20% happens via back-end performance. In other words, all of the content a designer or developer is responsible for creating and building—HTML, CSS, JavaScript, images, etc.—accounts for almost all of a page's load time.

Magento's History with Performance

Magento is a fantastic tool for business owners. As a platform, it provides an exhaustive and an incredibly powerful feature list that if used effectively can set your business up for growth. Its ease of use and management capabilities has helped Magento capture 31% of the market, with more than 800,000 members in its community.

Over the years, however, Magento has a garnered a reputation for slow load times. This is true, but typically only for Magento sites that are put to use without any modifications. In order to create Magento's simple interface and platform flexibility, the system isolates each feature so that changing one doesn't affect the rest of the site. Doing so results in a huge number of files that are stored in thousands of folders for every visitor.



Magento's History with Performance

With this in mind, what really comes into play here is the size and complexity of your website content, not just the platform in use, and back-end ability to scale with traffic and avoid crashing.

We pulled performance data for over 1,000 Magento websites and found most suffered from slow load times and heavy assets when compared to industry benchmarks:

| | | Magento Averages | | Industry Benchmarks | | |
|------------------|-------|------------------|------------|---------------------|---------|------------|
| Metric | Unit | Value | Percentile | Top 10% | Median | Bottom 10% |
| Time to Display | msec | 7,684 | Bottom 25% | 2,296 | 5,232 | 11,424 |
| Time to Interact | msec | 8,545 | Bottom 30% | 2,834 | 6,304 | 13,835 |
| Asset Count | # | 84 | Bottom 20% | 13 | 47 | 114 |
| Asset Weight | Bytes | 1,392,405 | Bottom 23% | 109,151 | 681,252 | 2,349,266 |

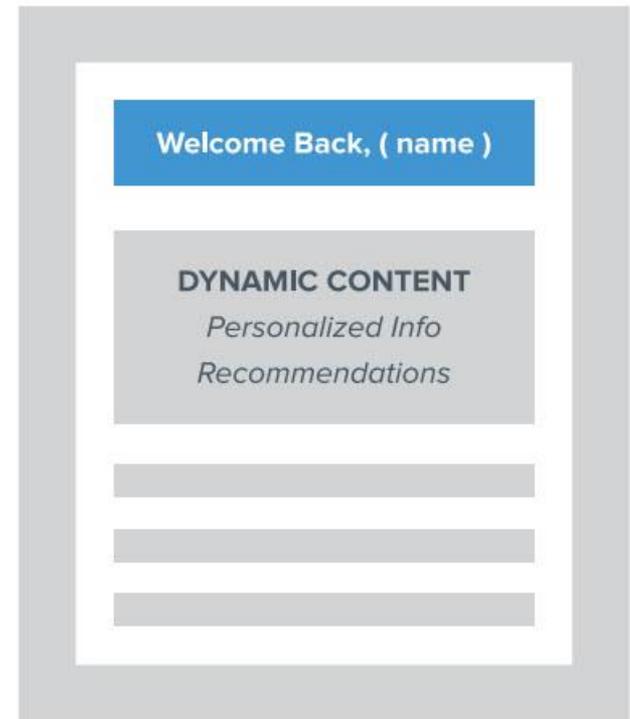
Time to Display shows the total time the first element of a page takes to appear, and Time to Interact is the total time it takes for the page to load completely. Magento sites tend to be in the bottom percentiles of both, with the average Time to Interact at around 8.5 seconds—a far cry from the preferred 2-3 seconds of users.

This is mainly because both the asset count and weight of Magento sites are larger than the average website. The nature of the platform and its isolated files lend to this problem, as well as the fact that Magento users tend to have heavier sites.

So, how do you create an interactive, personalized, and user friendly Magento site that still pulls off prime performance? Easy. We've got the how-to for you!

Website Best Practices

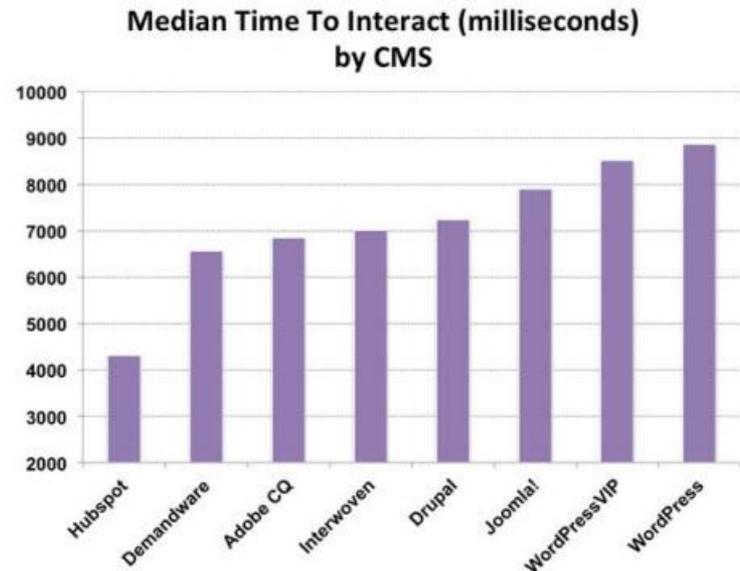
Ecommerce has created a nearly silent buyer experience. Therefore, an ecommerce site becomes the sales representative. This sales rep must answer all buyer questions, from the discovery phase through post-purchase relationships. A well-designed site includes content that reaches potential and return buyers at every phase of the buying cycle, including blogs, landing pages, rich media, and smart calls-to-action. All of these aspects must then load quickly so as not to discourage visitors. Personalized, dynamic content performs 42% better than static content, according to a study of more than 93,000 calls-to-action. Websites designed to interact with the user and change according to each individual's needs will result in better engagement and better sales. A sales representative in a store remembers customers' names, items purchased before, and questions asked about products if he wants to keep his buyers happy. An ecommerce site should do the very same.



Best Practice Optimization Techniques

Choose a CMS with a History of Strong Performance

An integral part of each website is the content management system (CMS) it's built on—not only for ease-of-use, but because different CMSs are built in different ways. WordPress, for example, is very plug-in heavy, which often substantially slows down a hosted site. We recently completed a study of the eight most-used CMS platforms to see how they typically perform. While the data is a general portrayal, we tested thousands of sites to get some solid results.

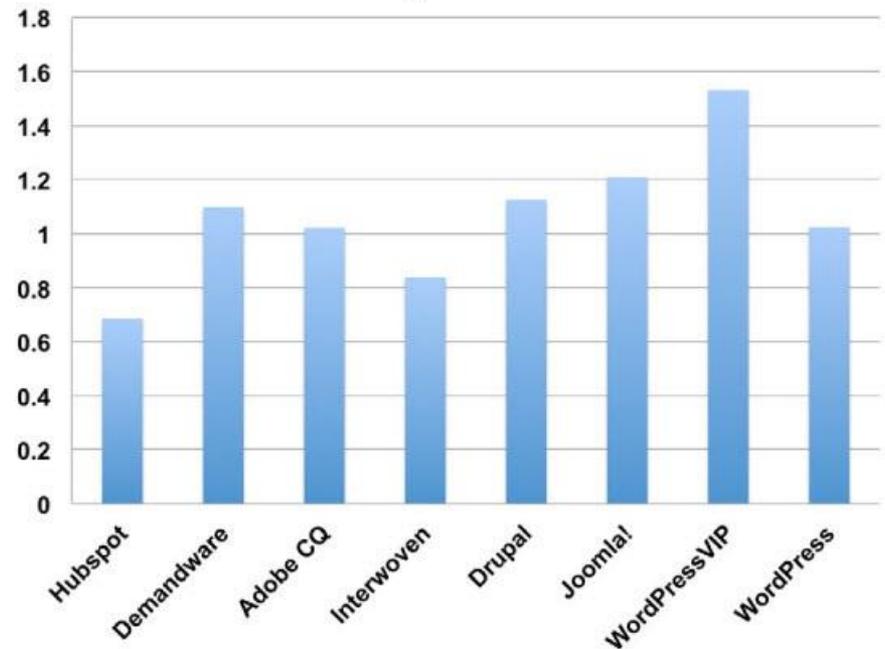


Best Practice Optimization Techniques

What we found was a much wider array of performance times than we'd expected. HubSpot was the clear winner with an average four-second page load time, but the least successful, WordPress, was an astounding nine seconds. That might not sound like much, but when considering 15,000 sites, a 35% difference in median figures is not insignificant. On the right site, a difference between six seconds and nine seconds can mean to millions of dollars in revenue lost or gained.

HubSpot websites tend to be lighter, have fewer assets, and have faster back-end performance. Because it's built for a less-technical crowd and streamlines many potentially problematic features, HubSpot is able to effectively save users from making decisions that will be bad for performance, since all assets are pre-packed and light.

Median Page Weight in MB
By CMS



Best Practice Optimization Techniques

Combine Images in CSS Sprites

Use CSS sprites to combine many image files into one. This significantly reduces the number of image requests and overall total page size. This technique also allows for faster parallelization of asset downloads. Here are some great free CSS sprite creator tools:

- SpriteMe
- Compass
- SpritePad
- SpriteBox



Best Practice Optimization Techniques

Put CSS in the Header Section and Javascript in the Footer

It's a best practice to always place your CSS in the <head> section of your HTML document. Removing inline style blocks and using <link> CSS files in the <head> section improves the browser's render and display load times. Similarly, putting JavaScript files at the bottom of the document allows all of the crucial content to load before touching the Javascript, which can often block subsequent assets, like images and stylesheets, from downloading in parallel.

Specify a Character Set

By specifying a character set in the HTTP response headers of your HTML document, this allows the browser to begin parsing HTML and executing scripts immediately.

```
<meta http-equiv="content-type" content="text/html; charset=utf-8">
```

Best Practice Optimization Techniques

Gzip Components

Gzip compression is a method of decreasing the size of your website's assets so they can be downloaded more quickly. Gzip is versatile and can be applied to almost every asset on your website. Looking at the request/response header information of any major website will reveal that Gzip is applied to many of the assets. There are a number of ways to implement Gzip, including the common method of using the .htaccess of an Apache server. Perhaps the simplest way, though, is to stick a script into the PHP of your site's header.



Blog

Websites with blogs receive up to 55% more visits than those without. The reasons for this particular statistic are vast. First, and perhaps most importantly, blogs answer consumer questions, helping to position your company as an expert in your field. Second, each blog becomes an indexed page on Google, as long as word count limits are met and content meets quality guidelines. Those pages help improve websites' search rankings, which then results in even more clicks. An ecommerce site can't deny the importance of a blog when that many visitors are on the line.

Content should be tailored to meet the needs of customers throughout all stages of the buying cycle. Many ecommerce site visitors will first seek information before making a purchase, so blogs that inform and educate are as important as, if not more than, content designed to sell products.

The most current search algorithm from Google has changed the way blogs are optimized. While keywords are important, they aren't what the search engine relies on to find sites that fit a searcher's request. Creating blogs that answer questions will help search rankings more than keywords. Other options for optimizing a blog are also available.



Blog Optimization Techniques

Load Social Sharing and Analytics in Parallel

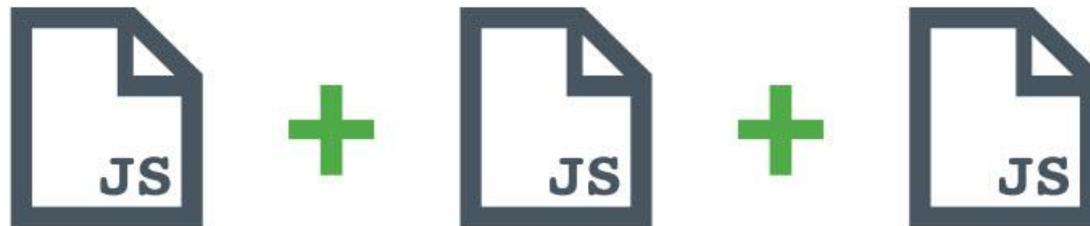
Third-party assets, like the social media widgets and Google analytics implemented on your blog for sharing and tracking capabilities, default to loading one after the other and sometimes prevent crucial content from loading at the same time. But these assets, which aren't needed to construct the display of a webpage, most notably JavaScript files, can be loaded asynchronously so they do not block important resources from loading.

```
<script>
  var node = document.createElement('script');
  node.type = 'text/javascript'; node.async = true;
  node.src = 'example.js';
  // Now insert the node into the DOM, perhaps using
  insertBefore()
</script>
```

Blog Optimization Techniques

Combine Javascript and CSS Files

Combining, or “concatenating,” as many CSS files together as possible decreases the number of requests and round trips the browser has to make, which accelerates the page load time and reduces latency. JavaScript files can also be combined for the same effect. While these techniques can be done manually within the website code, there’s an easier way to implement it through the Magento console. In the Magento Admin Panel, go to System > Configuration and, from the left navigation bar, select the Developer link from the Advance panel. Under JavaScript Settings and CSS Settings, select “yes” for the merge files option in both.



Blog Optimization Techniques

Compress and Optimize Images

Compress the file size of your images. You can manually tune the save settings for your images in design software such as Photoshop, Illustrator, etc, or you can use free online tools that automatically compress your images. Here are some great tools to automatically compress your images:

- Yahoo! Smush.it
- JPEG-Optimizer
- Trimage

Specify Image Dimensions

When possible, you should specify image dimensions in the HTML or CSS and serve a properly resized image that fits such dimensions. This will reduce the actual image file size and also prevent reflows the browser needs to make when loading the images.

```

```

Landing Pages

When buyers arrive to a site via PPC ads, CTAs, or internal links, landing pages should contain information relevant to individual consumers. Not every visitor is ready to buy, so landing pages should also be designed to capture information so that every visit provides more information to move that buyer through the buying cycle.

Asking for information in exchange for a particular offer will net you the facts needed for content personalization. Some of the pertinent questions include:

- **Name** – Use to greet customers by name upon their next visit.
- **Email address** – Use to deliver offer and ask for permission to provide more information through newsletters.
- **Product use cases** – Discover why buyers are interested in the offer so content can be tailored for future visits.
- **Purchasing timeframe** – Discover how soon a purchase may be made so marketing frequency can be adjusted accordingly.
- **Qualitative investigation** – Discover how serious a buyer is about the product and how much additional assistance is needed.

Landing Page Optimization Techniques

Minify HTML

Compressing your HTML file to remove comments, whitespace between tags, and unnecessary closing tags (such as `</br>`) can reduce the overall HTML file size and speed up the parsing and execution of a web page. Here are some great tools to automatically minify your HTML files:

- HTML Compressor
- Google HTML Compressor and Minifier
- TextFixer

Landing Page Optimization Techniques

Minify Javascript and CSS

Compressing, or “minifying,” your JavaScript files includes eliminating unnecessary line breaks, extra spaces, and indentation, which reduces the overall size of the JavaScript files and increases page load times. Here are some great tools to automatically minify your JavaScript files:

- JavaScript Compressor
- JSCompress
- Online YUI Compressor

Similarly, compressing, or “minifying”, your CSS files includes removing all whitespace and semicolons for the last property of a CSS declaration, which reduces the overall size of the CSS files and increases page load times. Here are some great tools to automatically minify your CSS files:

- CSS Compressor
- CSS Drive
- Minify CSS
- Online YUI Compressor

Avoid Bad Requests

Be sure to remove any broken links, missing images, or other asset requests that result in 404 errors. Failing to do so creates a higher number of requests for non-existent assets that slows down the loading of the page. This is especially important for landing pages that may get lost in website redesigns or over time, as they're not standard secondary pages.



Rich Media

It is said that a picture is worth a 1000 words, and we know that a 30-second video contains 1,500 pictures. Well, you can only imagine how powerful videos are.

Using video for each phase of the buying cycle is one way to ensure your rich media is moving people through the process from relevance to purchase and then on through “delightion.” Because video can cause users to experience slower load times, precise placement is recommended. Simply providing video content for the sake of entertainment could result in a higher bounce rate as potential buyers seek sites that move at quicker speeds.

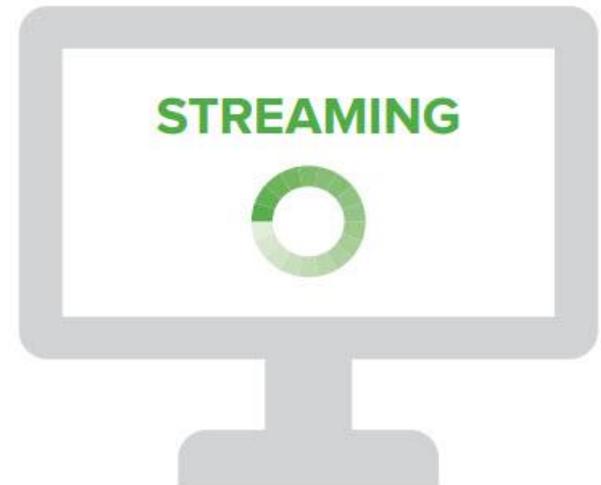


Rich Media Optimization Techniques

Use a Content Delivery Network

Using a content delivery network (CDN) will help to offload many assets and relieve strain on infrastructure. A CDN offloads additional server hits away from your server by caching these assets on our global network and serving them directly from a closer location. That benefit comes in addition to the performance benefit of delivering content to users faster.

When it comes to rich media like video, establishing a quick backend process is crucial to ensuring that the server can properly stream the file without interruption.



Rich Media Optimization Techniques

Compress Video Files

Video files tend to be larger and heavier than images and most other media types, and can weigh between 4 GB-100 GB alone. Because of their popularity amongst visitors and marketers, however, they are becoming more prevalent across websites. Though you cannot compress a video while editing it, make sure to compress the final version before it goes up on your website. Here are some of the best tools to compress video files on a Mac or on Windows:

- Sorenson Squeeze Video Encoder
- Adobe Media Encoder
- iSkysoft Video Converter for Mac
- iSkysoft Video Converter Ultimate

Avoid Flash

Flash has been on its way out for years, and from a performance perspective, that's especially important. Heavy Flash files are detrimental to page load times, most notably from Google's perspective, as they recommend you "use rich-media technologies like Flash primarily for decorative purposes, and instead use HTML for content and navigation."

Rich Media Optimization Techniques

Only Use Parallax Scrolling if It's the Ideal Design

Choice for You

To build parallax scrolling, you create a website that is one page. In essence, this means combining all of the assets you would normally have on hundreds of pages within a website into one to tell a fluid story. While this can be an effective design technique, it also makes for a heavy, slowloading page. With this in mind, only use parallax scrolling if it is the ideal design choice to represent your brand online. Otherwise, it could turn into a performance mess!



Shopping Cart

The shopping cart, while considered the last step in the buying process, is actually just the beginning. A customer isn't a customer until a purchase is made, so a customer relationship can't begin until that point. To continue the relationship, information gathered from shopping carts can be used to strengthen trust. That trust is strengthened by providing relevant content in post-purchase emails, smart CTAs, and personalized offers.

Information gathered from shopping carts can also be used to nurture abandoned carts. By using the knowledge gained from items selected and abandoned, a campaign can be created to entice shoppers back to an ecommerce site.

Carts may be abandoned for a variety of reasons, including poor design. The process should be linear, load quickly, and explain each step fully. Any steps that lead back instead of forward could result in abandonment. Steps that don't clarify the next page could intimidate buyers and break trust. These factors should be considered when developing shopping cart checkout pages.

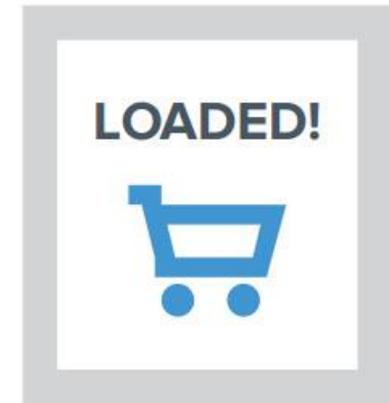


Shopping Cart Optimization Techniques

Optimize Thumbnail Images with Data URIs

Within shopping carts, many product images exist that don't live elsewhere on the site, such as thumbnails. These shouldn't be overlooked in the optimization process, despite their small size. For smaller images, data URIs are a great technique to cut down image requests by "inlining images" into HTML or CSS files. The image is immediately available when its host document is downloaded. Data URIs use Base64 encoding and follow this basic format:

```
data:[<mime type>][;<charset=>][;<base64>],<encoded data>
```



Shopping Cart Optimization Techniques

Stick to Third Party SLAs

When it comes to third-party services that provide credit card authorization and address validation, optimization may seem out of your hands, but the truth is these providers should have a standing service-level agreement in place with your business. What does this mean? That they have agreed to perform to a certain standard, most notably when it comes to uptime and asset speed. They also may have monitoring and reporting features available, giving you added insight anytime an asset acts up.

Speed Up Security

Many times, security features slow down checkout the most.

Encrypting and decrypting alone can add crucial milliseconds and cause abandonment. To help them along, you can enable the browser to cache your HTTPS content, which can be done with response headers. Enabling caching simply means allowing the browser to store data about the website that is static so that it can be loaded immediately and not fetched individually each time.



Dynamic Content

Recent studies show 74% of consumers find irrelevant content frustrating. Ecommerce sites that feature dynamic content tailored to each consumer are more likely to engage those customers, and 57% of those customers are willing to part with personal information in order to receive their personalized experience. To achieve the desired result, dynamic content is a must. Customers' browsing habits are saved either through cookies or by collecting personal information via forms. That information can then be used to greet customers by name, show products and recommendations according to personal preferences, and make the checkout process easier than ever.

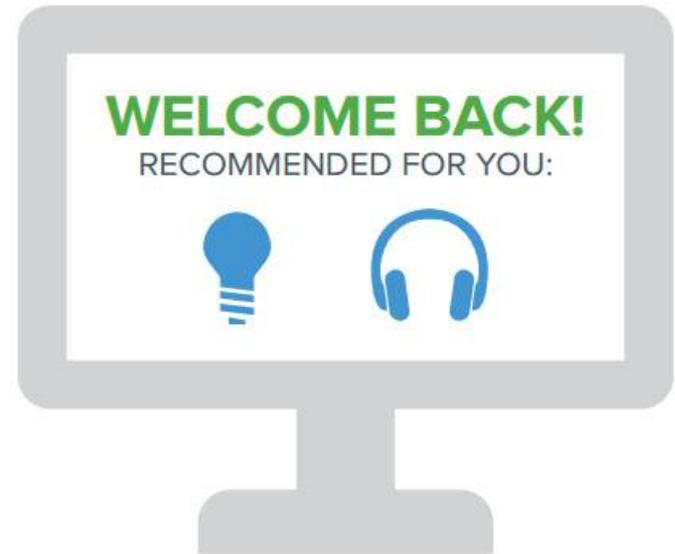


The image shows a stylized representation of a web form. At the top, the text "TELL US ABOUT YOURSELF" is written in a bold, blue, sans-serif font. Below the title are three horizontal grey bars representing input fields for text. At the bottom right of the form area is a solid blue rectangular button, likely for submitting the information.

Dynamic Content

Dynamic content also applies to calls-to-action. These should appear according to the user's needs and previous purchases. A single offer can only convert a buyer once, but a different offer upon each visit can prompt further purchase, educate the buyer, and provide the ecommerce site additional chances for gathering information.

Two sites that utilize dynamic content well are Amazon and Netflix. Each visitor is greeted by name, presented with past purchases, and shown recommendations for future selections. Amazon and Netflix also invite the consumer to be a part of the purchasing decision for others by requesting reviews for goods and services. Consumers love being a part of the process, whether it's to receive personalized suggestions or provide those for others.



Dynamic Content Optimization Techniques

Use a Cache Control Header

A cache control header defines when the cache will be refreshed. If content on your site changes on a regular schedule (for instance, every 3 hours), you could set a cache control header to make sure the cache is refreshed with the new content as soon as it's live in order to avoid any visitors seeing outdated content. You can also set far-future headers (something like a year, or 20 years, or more) so that the cache will always be full. This allows you to customize your website regularly, caching changes at the exact moment they go live.



Dynamic Content Optimization Techniques

Enable InstantOn

Most dynamic content changes with each visitor through personalization (i.e. the mechanism that allows Amazon to remember your preferences). Until recently, there has been no way to optimize dynamic acceleration, as it can't be cached by browsers and has to be fetched separately every time the page is requested.

Traditional CDNs operate by caching static content in edge locations. When a user requests the page, content is served from the closest location, thereby saving trips back and forth from the browser to a faraway origin server. This more or less solves the issue of geographic latency for a large portion of web users.

The problem with this approach is that it only works for static content. As the web becomes more interactive and personalized, dynamic content is the bottleneck that CDNs do not address.

Yottaa recently created a new technology called InstantOn, which takes a webpage's content, breaks it into small pieces, and caches those pieces on the network. When a page is requested, InstantOn delivers some pieces to the client instantly while simultaneously fetching dynamic content from the origin server. Once the origin server produces the dynamic content, InstantOn delivers those pieces to the client with the intelligence to properly integrate them with the existing page.

Utilizing this new technology is the best way to speed up dynamic portions of your site and boost performance for highly personalized pages.

Conclusion

In order to guarantee a return on the investment of time and effort you've made in web performance optimization, it's important to monitor website performance continuously over time. The web is constantly shifting and changing, and your website's performance can change at any moment.

There are several options for site performance monitoring including Pingdom, Yottaa, Keynote, and Gomez. Using these tools, set up your site to be monitored in real time and save data to show trends. With many monitoring systems, you can also arrange alerts so that you're notified instantly when any of a number of website problems that you've selected occur.

Outside of hand-tuned optimizations, you can also consider tools that automate performance (including device-specific, in-context and delay-loaded optimizations) like Yottaa. All optimizations are applied on-the-fly as content is delivered from edge nodes to minimize latency without changing a line of code.

All-in-all, optimizing your Magento site for better user experience and engagement can seem like a daunting project, but when well-equipped, it's something any business can easily do!

More Resources

The Bonanno Group Digital Marketing was founded in 2005 and has helped hundreds of businesses better leverage the internet to help achieve their business goals.

Request a **Free Consultation** to Learn How We Can Help You Be Successful Growing Your Business.

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