SPEED MATTERS

SITE SPEED AND YOUR BOTTOM LINE

The impact of load times on site visitors

WHAT EFFECT DOES LOAD TIME HAVE ON WEBSITE VISITORS?

Whether it's the bank, the DMV, in traffic, or on a date, nobody likes to wait. The same is true online – a web site's load and response times have a major impact on the user experience, and therefore whether or not visitors stick around. Some of the web's busiest sites have found that the impact is very significant:

Website speed impacts your bottom line

- Google found that a 500ms slowdown equals 20% decrease in ad revenue.
- Microsoft Bing found that a 2-second slowdown means a 2.5% decrease in queries and overall clicks.
- Amazon finds a 100ms slowdown - one tenth of a second! - can mean a 1% decrease in revenue.
- Yahoo! found that a 400ms improvement in load time translated to a 9% increase in traffic.
- Mozilla mapped a 2.2s improvement to 60 million additional Firefox downloads.

These findings demonstrate how much speed can impact the bottom line. More speed means more visits, longer visits, and more revenue. Site speed is not an abstraction that only few care about or notice – it has become a significant factor in how well your site sells your services and represents your brand.

CURRENT EXPECTATIONS

Visitors want faster websites, period. In the old days of dial-up, it was hard to notice a slow web server because the user's access speed was many times slower. But today, when the majority of your end users are connecting at megabit speeds, it's easy to notice – and become frustrated by – slow sites and web apps.

27% of users say that visiting a slow site makes them more likely to visit a competitor!

With higher access speeds has come higher expectations – more than two thirds of polled web users say that they encounter slow sites often – and more than one third say that it makes them less likely to return. Moreover, 27% say that visiting a slow site makes them more likely to visit a competitor!

The same is true of the mobile web. While the challenges of mobile delivery are unique, end user expectations - and frustrations - are the same.

As more people add smartphones and tablets to their daily browsing, sharing, shopping, and playing lives, they have brought their broadband expectations with

them. More than two-thirds of web users now use a mobile device to browse the web - and half of them say they expect sites to load just as fast on their mobile device as on their plugged-in desktops.

FUTURE EXPECTATIONS

From a psychological perspective, the trend will only continue. As broadband penetration continues its explosive growth, user tolerance for wait times will keep on shrinking. And it goes further; consumers have begun associating load times with their perception of a brand's credibility and quality. Visitors are psychologically and even physiologically engaged when they are online, and lower response times decreases their frustration.

Consumers have begun associating load times with their perception of a brand's credibility and quality

Unfortunately, web developers and content providers are fighting an uphill battle. Website design trends call for higher quality images, HD videos, and more interactivity and personalization. On top of that, most sites contain content from many different servers and sources. This drastically increases the size and complexity of today's sites. Since 2003, the size of web pages has more than septupled!

This puts immense pressure on content providers and site developers as they try to keep up with the user's growing expectation for speed.

SITE SPEED, SEO & CONVERSIONS

WHY A FASTER SITE IS GREAT FOR SEO

Compounding the pressure generated by a visitor's expectation for a near instantaneous website performance, Google recently announced that their algorithms now weigh site speed as a ranking factor. Bing, Yahoo, and others are likely to follow suit, if they haven't already.

It has been well documented that landing page loading time has been a factor in Quality Score, a measurement for determining Ad placement within Google's AdWords network. However, this is the first time Google has announced that they are actively looking at how fast a page loads in determining organic search rankings.

WHY IS SITE SPEED A FACTOR IN SEARCH RANKINGS?

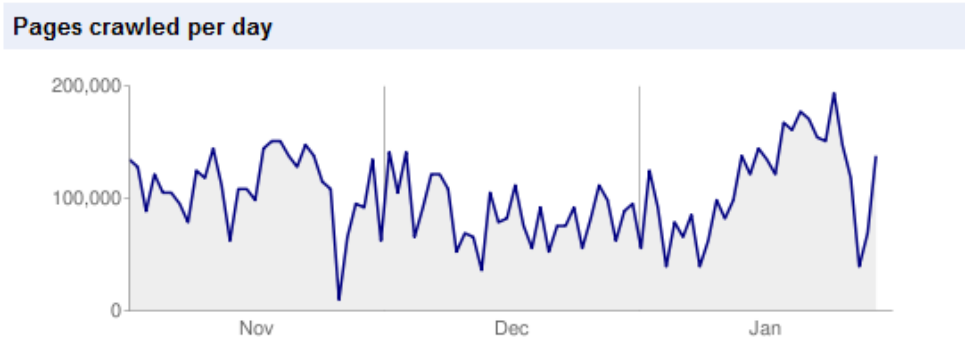
Google has stated that their overarching goal is to improve user satisfaction and experience with the Internet.# With their search algorithm, they look to promote sites that have the most relevant information and provide the best perceived value and user experience. One important way to improve the user experience - as we have established earlier - is by improving a site's loading time.

Moreover, Google has linked site speed directly to user activity, and in turn, ad revenue. More user activity means an increased bottom line for Google and its advertising partners.

HOW DOES GOOGLE MEASURE SITE SPEED?

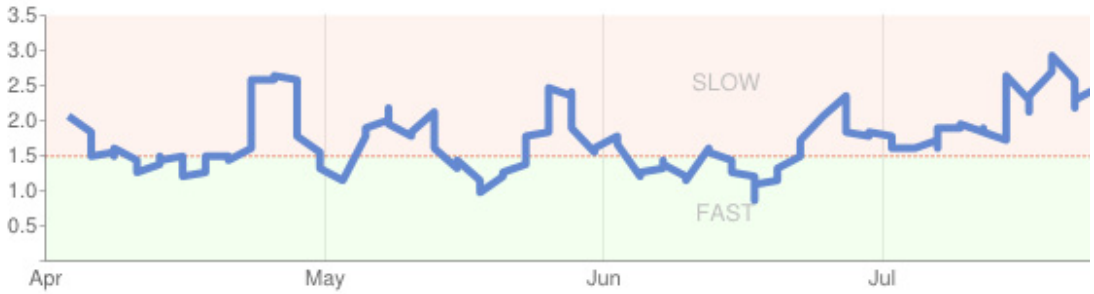
Google measures site speed in two ways - through their Googlebot and through user experience data collected by the Google Toolbar and the Chrome web browser.#

Googlebot is the proprietary web crawler they use to gather information information about websites. It indexes information such as page titles, meta tags, and text content, so Google can determine whether this information is relevant for specific search queries. It also logs server response times so it can determine how many pages to crawl on your server and how often to crawl them.



(Google Webmaster Tools crawl stats)

The data Google gathers from its toolbar and Chrome web browser consists of the actual time it takes for the browser to completely load each page — including all text, images, scripts, objects, and so on. Beyond a certain amount of time – probably about 2 seconds – this number is negatively correlated with perceived user experience.



(Google Webmaster Tool sites performance stats)

SEO AND THE BOTTOM LINE

Great search engine optimization is critical for any business with an online presence, but it's especially true for ecommerce. When users search for a specific product or service, the first few results get the lion's share of the clicks - and therefore the lion's share of the revenue. Moving up or down just a single position can increase your traffic for that query by a factor of 10 - so taking site speed seriously is more important than ever.

WEBSITE SPEED & CONVERSIONS

A site is a tool for engaging a visitor. Whether it's filling out a contact form, buying a product, engaging with content, or using a service, the goal is always the same — convert a casual visitor into an active repeat user of your product or service.

We have seen that site speed is directly correlated with how a site performs in terms of user engagement and therefore business goals.

Very often, an investment in improving site performance pays dividends in increased user engagement, ad revenue, conversions, and brand loyalty.

CDN TO THE RESCUE
What is a CDN and how does it increases website performance.

SHOPZILLA.COM STUDY

In 2008, comparison shopping engine Shopzilla.com (also known as Bizrate.com) overhauled their website infrastructure. Using a variety of methods – including a CDN solution – they decreased their web page load time from 6-8 seconds to 1-2 seconds.# Throughout this process, they tracked key performance indicators and they measured drastic improvements across the board.

Shopzilla saw a substantial increase in their conversion rate - a conversion increase of between 7% and 12% which directly affected their bottom line.

Further, they increased per-session page views by 25% which helped to drive a positive impact on ad revenue — their PPC advertising clicks increased 8%.

The Shopzilla.com investment more than paid for itself: the site improvements led to an immediate increase in revenue because when pages loaded faster, visitors were much more likely to engage with the site, click ads, and make purchases.

CDN 101

A content delivery network (CDN) is a system of servers that cache (replicate) a web server's content in various edge locations in order to increase speed, redundancy, and availability. CDNs consist of highly optimized servers placed in strategic locations — next to dense population areas and key internet exchange points. The CDN edge servers cache this content so that when it's requested by a site visitor, the distance that the site content has to travel is minimized and the connection to the end user is highly optimized.

For example, without a CDN, if a site visitor is located in Los Angeles and the company web server is located in New York, then content has to travel the entire distance from New York to Los Angeles in response to every user request. With a CDN, the end user's requests are automatically routed to the nearest (or fastest) edge server with a copy of the requested content. So in the previous example, the end user would be served directly from Los Angeles - often by a server directly connected to his ISP. In this model, there is drastically less distance, fewer network "hops", and a much more optimized connection between user and content. CDNs have built a private "express lane" for delivering web sites, applications, and media.

DELIVERING PERFORMANCE

The most common way a CDN speeds up websites is to cache frequently-requested static objects – such as images, style sheets, scripts, and media files – on edge servers.

When a site visitor initially requests content from a site that uses a CDN, the request is filtered through the closest CDN edge server. If the content is cached on the server, it is delivered directly from there. If not, it is fetched from another CDN edge server or from the origin (publisher) web server.

This system greatly minimizes the amount of distance these requests and content have to travel. More important, it greatly minimizes the number of network "hops" content has to make in order to reach the user. Hops – or connections between ISPs and the various backbone providers that make up the Internet – can greatly

slow the delivery of content, because there is often congestion along the path.

When online content travels from points A to B, depending on the distance, it has to be routed by a large number of intermediate servers. Every time content hits one of these routing servers (routers) there is a chance that it will experience issues in the delivery. By minimizing the number of hops, a CDN also improves the consistency of content delivery.

CONCLUSION
Tying it all together

THE EDGECAST SOLUTION

The most common acceleration solution is HTTP caching. All CDNs offer some variety of this service - but many offer little else, and their performance can be spotty.

EdgeCast offers some of the fastest HTTP caching in the world. Third party independent tests regularly place us among the top-performing CDNs. We also offer robust media delivery solutions such as video streaming and multi-device delivery including iOS devices. For content that can't be cached, such as personalized, real-time content, ecommerce, and web apps, we offer application acceleration with our Application Delivery Network.

IS A CDN RIGHT FOR ME?

Speed matters. You have a financial stake in how well your website performs, and it's been proven that faster load times mean increased revenue and brand equity.

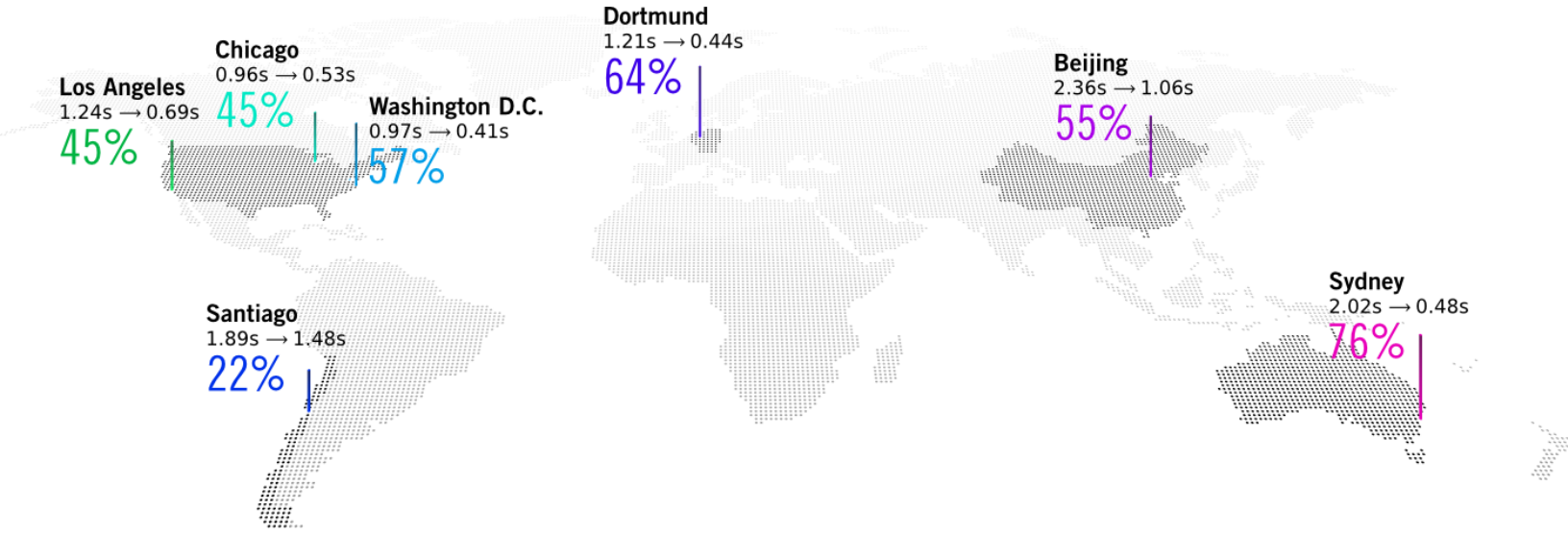
There is a direct correlation between web page load time and conversion rates, ad clicks, user engagement, SEO, and a general positive perception of the brand that owns and operates the site.

In the past, a CDN was only useful for accelerating static content. However, new CDN technologies such as application acceleration mean that even dynamic content can be accelerated as well.

Creating a high-performance web site is critical in today's marketplace, and a fast, reliable CDN is a critical part of that effort.

Improvement in Site Response Times After Switching to EdgeCast

48% average performance improvement across all properties globally



Percentages indicate performance increases in response time for seven major July Systems' clients in the Media, Sports, and Entertainment vertical (median U.S. Alexa rank: 4,051).

Where available, performance gains per city were measured using www.internetsupervision.com, comparing data before and after migrating the Mi Platform on the EdgeCast network.