Wed October 13, 2010 (Updated)

How many users have JavaScript disabled?

by Nicholas C. Zakas (@slicknet)

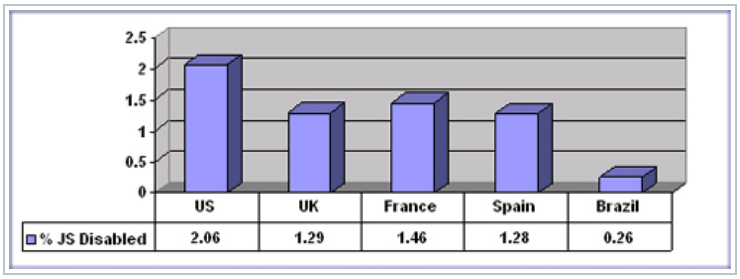
Well-designed web sites and applications always keep in mind the people who have JavaScript disabled. The whole concept of progressive enhancement is built around the idea that the content of the page should be accessible without JavaScript (or CSS), even if more advanced functionality is available.

The "JavaScript-disabled" experience is a part of every discussion — but how often do people actually visit your site with JavaScript disabled? We had the same question last year as we were doing some analytics on the Yahoo! homepage, and so decided to measure just how many requests were from browsers with JavaScript disabled.

As with most techniques for web data collection, we first had to determine how much "real" traffic was coming in. Every web site is constantly visited by search engine crawlers, bots, and spam, and the Yahoo! network is no exception.

We took a combination of access logs and beacon data (previously included in the page) and filtered out all of the automated requests, leaving us with a set of requests we could confirm were sent by actual users. This data, which is completely anonymous, gave us a good indication of traffic patterns in several countries.

After crunching the numbers, we found a consistent rate of JavaScript-disabled requests hovering around 1% of the actual visitor traffic, with the highest rate being roughly 2 percent in the United States and the lowest being roughly 0.25 percent in Brazil. All of the other countries tested showed numbers very close to 1.3 percent.



It is important to point out that Yahoo! sites in different countries receive differing amounts of traffic from varying locations, so making generalizations around user populations is difficult. Also, U.S.-based Yahoo! sites receive a significant amount of traffic from outside of the U.S., so that number is influenced just as much by visitors from outside of the U.S. as it is from visitors inside.

There are a couple of takeaways from this data. First, the overwhelming majority of users has JavaScript-enabled browsers and can therefore take advantage of all of the enhanced functionality and dynamic interfaces developers and designers love to create. From a planning standpoint, it makes sense to spend more time on the experience that the largest numbers of users receive, knowing that your time investment is well worth it.

The second takeaway is that JavaScript-disabled users exist. While 2% of U.S. visitors may not seem like a lot, keep in mind that over 300 million users visit the Yahoo! homepage each month. That means 6 million users visit each month without the benefit of JavaScript. So even though it's worth spending your time on the JavaScript-enabled version of the site, there are still a non-trivial amount of users out there who won't be able to use it.

While the percentage of visitors with JavaScript disabled seems like a low number, keep in mind that small percentages of big numbers are also big numbers.

We will likely always have some portion of the population who, for one reason or another, has JavaScript disabled. The best approach to serve the world's Internet users is still progressive enhancement, ensuring that each user is capable of receiving the best possible user experience based on browser capabilities.

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Yahoo! Principal Front End Engineer

MORE FROM NICHOLAS C. ZAKAS

Followup: How many users have JavaScript disabled?

33 COMMENTS

Ben Ward 26 weeks ago | Report Abuse

One additional piece of information I'd be interested in here is whether the 'JavaScript disabled' measure is just that—the user's browser having a featured turned off—or whether it factors in some scenarios of 'JavaScript unavailable'. For example, where variable or poor network performance causes external JavaScript to load slowly and execute late, or not at all. And then, how much of an increase that can give to the numbers if it's possible to factor it in.

Increasingly, I find that the 'some users turn off JavaScript' argument is difficult to make —not because they don't, your graph illustrates that—but because even presented with percentages, developers are sceptical and evasive of those users (I think there's a suspicion that the kind of use who might make such a decision to turn off a cool browser feature is not the kind of user that would want their cool product… or something like that, less grossly over-slimplified.) The argument that instead JavaScript-less versions of the pages can be served to anyone if their network degrades is more universal: Not just second or third world scenarios without robust communications infrastructure, but anyone tethering through AT&T in San Francisco. Poor network performance seems to be something that developers relate to more easily than an alien configuration decision.

Of course, all of this is elaborate: The truth is that if site content doesn't load through `curl` it's broken.

Permalink

eric.ferraiuolo 26 weeks ago | Report Abuse

This is just desktop browsers, or mobile browsers as well?

Also curious about the level of confidence (or error rate) on the beacon requests completing?

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Nicholas C. Zakas 26 weeks ago | Report Abuse

That's an excellent point. In this case, we know that those who are represented in these numbers had JavaScript disabled rather than not having JavaScript load. We know this because the test involved the use of .

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Nicholas C. Zakas 26 weeks ago | Report Abuse

Oops, my last comment should have said the use of the noscript element.

@Eric – This is desktop browsers. Mobile browsers going to the Yahoo! homepage are redirected to the mobile homepage. As for the beacon error rate, it varied based on the country. There were several non-JS beacons in the page that were encountered in decreasing numbers from the top of the page to the bottom of the page. The data represented above are the pages for which we received three beacons (indicating top of the page, bottom of the page, and JS disabled). If we received only two of these and a JS beacon, we knew JavaScript was enabled. Our estimated error rate for this data was around 0.2% for all of the countries tested except for Brazil, which was around 0.04%.

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magnificant_bastard 26 weeks ago | Report Abuse

Any ideas what browsers the no-JS map to? Are they pretty much your C-grade list or mostly A-grades running something like noscript perhaps?

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mkmcelhaney 26 weeks ago | Report Abuse

As one of the people that normally has JavaScript disabled, I found this interesting. I disable my JavaScript mostly because I am after the content and not the glitz since I live aboard a boat and data transfer rates are painfully lacking. Also, since I am forced to use a 3G device, my monthly allotment of 5GB would be eaten up pretty quick. (Thanks for hobbling us, greedy telco's!) On another note, there is the security issue with JavaScript to contend with. I don't like when sites I happen to visit start executing code on my machine willy-nilly. I run a dual-boot Ubuntu Linux/ Win 7 64 bit machine with Firefox as primary browser. I also enable No-script and Ad-block. I like the Ghostery add-on as well mostly to keep data transfer to a dull roar and, the way I figure it, by using my allotment of data, I am actually paying to view advertisements! That just ain't right! (I know, I know… no ads = no internet, but jeez!) I hope this info helps. I appreciate all the hard work you developers and programmers do. Keep it up! Cheers! Mike

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Nicholas C. Zakas 26 weeks ago | Report Abuse

@magnificent_bastard – These are all either A-grade or X-grade browsers.

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Sergey Chernyshev 26 weeks ago | Report Abuse

I wonder how much faster pages load for those users? Any stats on that? Lower bounce rates? more hits per session? although it'll be skewed anyway…

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alexnauda 26 weeks ago | Report Abuse

My first reaction to these numbers is curiosity about your visitor counting methodology.

I work on a cross-vendor shopping site that gets a few million visitors a month (a higher number of visits from unique browser installations), and I've seen some bots that look an awful lot like people. They can't be identified by user agent and the other normal ways of filtering bots. However, I was able to identify quite a few of them by detecting use patterns that are either too fast, too slow, or too regular to match practical use of our application by human beings. I was also able to narrow the hunt for these interlopers by filtering on source ip addresses coming from locations that have proven (on our site) to be the most likely origins of crawling (India, Russia, AWS EC2). Do you use a methodology to identify bots that make an effort masquerade as people? How do you do it?

Another question: I have had some trouble with my counts of visits and visitors being inflated by people using proxies of various kinds (esp. Tor, as far as I can tell) because they hit the site from a series of ip addresses (a new one for each hit), drop cookies on the floor, and generally don't report referer. A small number of such users can drastically inflate your visitor count. Oh yeah, and those are the people who disable javascript as part of a standard privacy configuration in their browser. I suspect that they are way fewer in number on our site than they appear. How do you limit their impact on your counts?

Alex

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mickeyc66 26 weeks ago | Report Abuse

I'd expect a high proportion of those users to be using screen readers or other devices because they're disabled. It's not just users who turn off JavaScript, it's users who are physically unable to use it, and if you make a website that will not function without JS, then you're excluding those people who have no choice.

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jaredsmith36459 26 weeks ago | Report Abuse

mickeyc66-

Just because someone has a disability doesn't mean they can't or don't use JavaScript. In fact, the numbers of screen reader users, for example, that have JavaScript disabled is not much unlike those listed in this article. WebAIM's survey of screen reader users found just 10% had JavaScript disabled – http://webaim.org/projects/screenreadersurvey2/#javascript

Whether a site works without JS enabled is not an accessibility issue, it's a general

usability issue. The bigger issue is ensuring that JS content and functionality is truly accessible.

Permalink

Nicholas C. Zakas 26 weeks ago | Report Abuse

@Sergey – I'm sorry, I don't have any of those stats.

@Alex – Working at Yahoo!, we have the benefit of industrial-strength filters already setup for us that protect sites from obvious abuse traffic patterns. Additionally, we checked not just the request for the page, but also if that same request generated other requests (i.e. images, style sheets), which would indicate normal browser behavior.

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turutosiya 26 weeks ago | Report Abuse

How about in Japan?

Permalink

operamaniac 26 weeks ago | Report Abuse

a regular web user here. i can state that almost 50% of my browsing is with JS disabled. i run opera with JS disabled for general browsing. if a site does not work, i open it in chrome.

basically, showing my support here for sites that are still useful with JS disabled!

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kennethkufluk 26 weeks ago | Report Abuse

It would be interesting to know what percentage of the switched-off users were using a plugin like NoScript, versus having a corporate-level block in place.

My reasoning is that it's relatively easy to spot the NoScript message and re-enable JavaScript for the page if the user thinks it's worthwhile. If your page is progressively enhanced, they won't. If they really need JS, they might add an exception.

But I fear that this is difficult to detect.

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christophestrobbe 26 weeks ago | Report Abuse

Jared,

It's hardly surprising that few screenreader users have JavaScript disabled: I think that most people, with or without a screenreader, simply don't know that JavaScript can be turned off or how this can be done. So you can't conclude from the statistics that JavaScript is rarely an accessibility issue. Instead of relying on a noscript element or progressive enhancement, an opt-in/opt-out question for Ajax would be better (see Jeremy Keith's techniques in "Bulletproof Ajax" p. 100 & p. 147).

Permalink

stratoviper 26 weeks ago | Report Abuse

Yes, that's why you're getting 1% instead of 10%. 1 out of 10 seems more likely, considering that people like me also disable CSS to get to the content.

Until the quality of Javascript programming improves and the CSS stylesheets aren't designed by 3rd graders, they are both best blocked.

Permalink

morgaut_a 26 weeks ago | Report Abuse

A point which should also be entered into consideration is that the user experience on a website with JavaScript disabled as an impact over how many of them are going to come back on the website.

Yahoo works relatively well without JavaScript (not for all services) so these stats should be quite significative

If a web site that is not usable without JavaScript, you can be sure that even less users will be detected… If came in the past, it will be too late to detect them after as they won't come back…

even more these people are often in a configuration shared with people they know. They will then more easily directly go on website they know will work for them.

Social parameters must never be forgotten

Permalink

twrriegel 26 weeks ago | Report Abuse

The title is misleading. More accurately it should be…

How many desktop users have JavaScript disabled?

Permalink

Nicholas C. Zakas 26 weeks ago | Report Abuse

@turutosiya – I'm sorry, I don't have any statistics for Japan.

@operamaniac and stratoviper – Thanks so much for commenting. It's great to hear from people who are choosing to turn off JavaScript (and CSS) to know that you are out there. We definitely want to make sure you have the best experience possible, as well.

@kennethkufluk – I'm not sure if that distinction helps us provide a better user experience. One way or another, the user isn't receiving JavaScript and we need to act accordingly.

@morgaut_a – That is an excellent point. Naturally, if people have JavaScript turned off and go to your site only to be disappointed with the experience, they will be more likely to go elsewhere.

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annwitbrock 26 weeks ago | Report Abuse

We prefer to browse with Javascript off. Unfortunately, when my daughter did this to look at Uni sites, she was unable to login to enrol for a degree, at a major design school. A week later she described the problem and I told her to turn the javascript on and she was able to login to check submission requirements, in the nick of time before applications closed. Good design ensures the site works without javascript. This includes making sure server side validation is in place. Pretty, unnecessary stuff is fine in javascript. If your site is unimportant, by all means use it wherever. If your site is mission critical to someone, it must all work with it off (and with accessibility fully enabled too) I'm sure many more users would turn javascript off if they 1) knew how, and 2) had a real choice for the sites they would prefer to visit. How would you test that?

Permalink

Nicholas C. Zakas 26 weeks ago | Report Abuse

@annwitbrock – Would you care to share why you prefer to browse with JavaScript off? I completely agree that good design ensures a JavaScript-disabled browser gets a good experience, though I disagree that most people would choose to turn it off if they knew about it. The reason why Ajax grew in popularity and JavaScript experienced its renaissance was because of the vast improvement in the usability of web sites as a result.

Permalink

frasprea 26 weeks ago | Report Abuse

Very interesting data, thank you!

But it would even be more interesting if we could know how many of these are using Internet Explorer too. Because IE (<9) with JavaScript disabled can't style the new HTML5 elements and it's very complex to be able to fully use these new useful tags degrading the page gracefully for those users.

Do you happen to have this kind of data?

Permalink

simonmcmanus 26 weeks ago | Report Abuse

What were you hoping to discover/prove from the analysis?

Most users who have JS turned on find pages through search engines which crawl sites without JS.

Even if 0% of your current user base have JS disabled you are restricting your reach by not providing a fully functional non-js version.

Permalink

ferdy.christant 26 weeks ago | Report Abuse

Whilst I agree that content should be visible with js disabled, I think it is acceptable to offer the more interactive features for js users only. I know that the ultimate website design degrades gracefully, but what does that degredation mean? That everything works, or that only the top features work? In practice this is a compromise, as budgets are limited and if 99% has js enabled, you design for that sometimes.

In addition, I think a browsing experience with js disabled is a broken experience. JS as part of the core technologies to develop a web experience is more important than it ever was. JS should never get in the way of viewing content though.

Permalink

ferdy.christant 26 weeks ago | Report Abuse

" I think that most people, with or without a screenreader, simply don't know that JavaScript can be turned off or how this can be done"

Uhm, I think few users know what javascript is in the first place. Remember, most users do not even know what a browser is. They just know that something works or not.

Permalink

ZFDesign 24 weeks ago | Report Abuse

@Eric and @Nicholas weather this includes Mobile users, was my first thought when I read the article and somehow Nicholas answer did not satisfy or maybe just put in doubt Yahoo! experiment.

It has happened to me not to like or not to find the features in the Mobile version and to switch to the Desktop version and even have it Bookmarked on my Mobile.

Considering that all BlackBerry Devices are shipped with JavaScript disabled and that those may be more popular in regions such as North America then South America I would not be surprised to see such a difference.

However this is just my opinion, but will be nice to have some light on that. At the end of the day I am happy to see some statistics, rather than none.

Permalink

indicoll 24 weeks ago | Report Abuse

Designing with this in mind avoids any issues with JS being disabled, having said that – there are some good links out there to suggest you should ignore the users that choose to disable JS. I simply design to degrade. Good article.

Permalink

mvpetri 23 weeks ago | Report Abuse

Hooray to Brazil :D

Permalink

moocr.com 23 weeks ago | Report Abuse

Must we consider the few users?

Permalink

whatdoyouhaveagainstjavascript 23 weeks ago | Report Abuse

Who says "good design means the site works without javascript?" If only 1% of a site's visitors have it disabled, why go through all the trouble of supporting that 1% with different flows and pages? …especially if those visitors (for the most part) actively disabled it and could easily enable it if they wanted to access your site? Some may argue for the tiny portion of users who have no choice but to have JavaScript disabled, but the reality is that by far the majority of those with JavaScript disabled are more technically savvy and do so as an option. If 99% of a sites 'converting/paying' customers have javascript enabled, then I see no problem with not supporting javascript disabled pages. It's a business decision, and I think it can still result in a VERY good user experience.

I think a similar, if not worse (in terms of numbers), situation is Apple's decision not to support Flash. That impacts far more people, and yet Apple still seems to be doing just fine.

I just think that if a site's content is compelling enough, users will find a way to enable their javascript.

Permalink

Yodaisgreen 7 weeks ago | Report Abuse

I get the points everyone is making and it seems to boil down to whether it is practical for you to degrade. If Internet explorer 6 was 1% market share (I wish) would you still support it? I believe Netscape still has about a 1% market share. Does anyone still ensure their sites still works properly on Netscape?

Permalink

thirdparty5p_test 7 weeks ago | Report Abuse

1.5% of users or 1.5% of page views?

YAHOO.com does not attempt to deliver ads to no script users so how significant can they be if their views are/can not monetized?

Shouldn't publishers be discouraging this configuration? Or at least making some attempt to recoup the design and delivery costs?

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