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Going Global With Geolocation

How companies are using geolocation to improve navigation for Web users around the world

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Think Globally; Navigate Locally

The Internet has never been more global than it is today.

Right now, there are more than 1.2 billion Internet users around the world. Most of these people speak a language other than English and most live outside of the United States.

Companies are investing heavily to reach these Web users, with country-specific Web sites and translated content – a process known as Web globalization. From eBay's new Web site for Thailand to Starbucks Brazil, companies across all industries are rapidly expanding their geographic reach on the Web.

But as this universe of multilingual content expands, so do the odds of Web users getting lost within it.

You cannot control how people arrive at your Web site, so you need to do all you can to ensure that, once they've arrived, they easily find where they need to go.

Geolocation can help.

Geolocation is the process of automatically identifying a Web user's physical location without that user having to provide any information, such as a ZIP code. Geolocation works on all Web browsers, requires no plug-ins or cookies, and is already used by many of the world's most successful Web sites.

This white paper, sponsored by Neustar IP Intelligence a leading provider of IP geolocation data and services, illustrates how companies are using geolocation to greatly improve the user experience across languages and borders – resulting in increased click-throughs and conversions.



Geolocation In Action

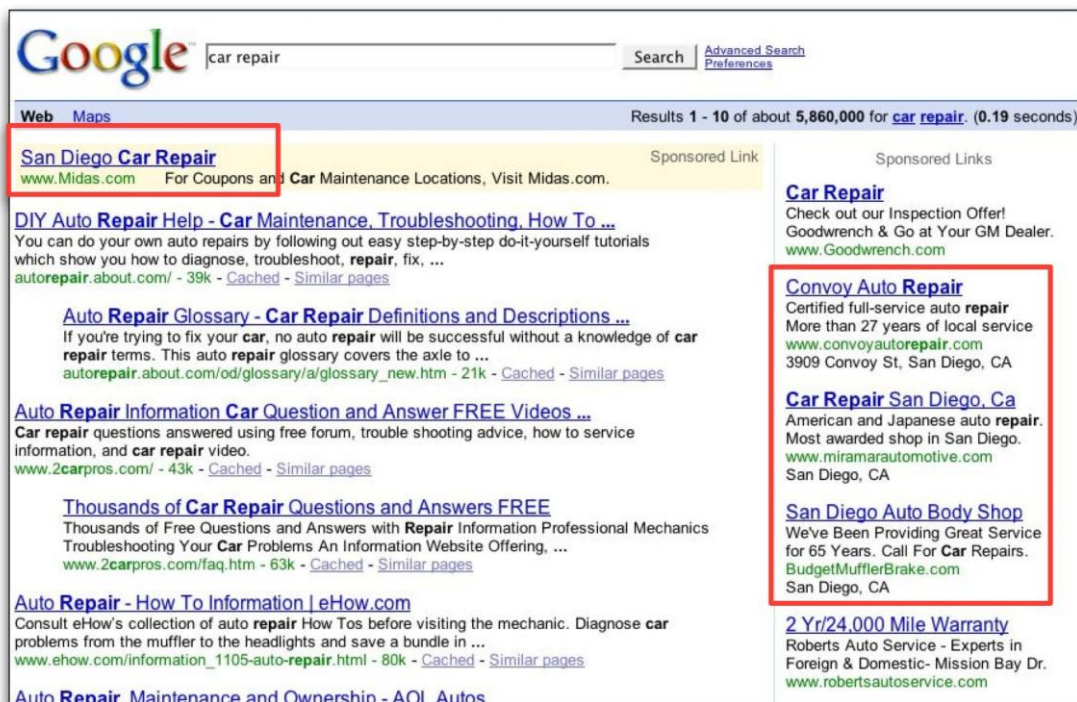
The best way to learn how geolocation works is to see it in action. Odds are, you already have, perhaps when you last searched on Google.

Google uses geolocation not only for global navigation and search, but to provide users with locally relevant advertising – what they called Sponsored Links. To demonstrate, I recently visited Google and entered the search term “car repair” as shown here:

Highlighted in red are Sponsored Links for San Diego car repair shops. If I had entered “dentist” as a search query I would have been presented with ads for dentists based in San Diego.

How did Google know I live in San Diego?

Geolocation is how.



How Geolocation Works

The foundation for geolocation is the Internet protocol (IP) address – a numeric string assigned to every device attached to the Internet. When you surf the Web, your computer sends out this IP address to every Web site you visit.

IP addresses are not like mailing addresses. That is, most are not fixed to a specific geographic location. And knowing that a particular ISP is based in a particular city is no guarantee that you'll know where its customers are located. That's where geolocation service providers fit in.

Geolocation service providers build massive databases that link each IP address to a specific location. Because the IP system is in a constant state of flux, many providers update their databases on a daily or weekly basis. Some geolocation vendors report a 5-10% change in IP addresses locations each week.

Geolocation can provide much more than a geographic location. Many geolocation providers supply up to 30 data fields for each IP address that can help to further determine if users really are where they say they are. These may include:

- Country, region, state, city, ZIP code, area code
- Latitude/longitude
- Time zone
- Designated Market Area (DMA) a US media market
- Network connection type and speed (i.e. dial-up or Broadband; slow or fast)
- Domain name and type (i.e. .com or .edu)

Equipped with this information, you may respond to the Web user with a wide range of localized content. For example, if you have an ecommerce site, you could present prices in Euros instead of dollars. You may also presents products that are most relevant to the user's location (urban vs. rural) and season (summer vs. winter). Knowing whether or not a Web user is connecting via broadband allows you to decide between serving bandwidth-

You can tell a lot from an IP address.

When a person accesses the Internet, the computer he or she uses has an IP address associated with it. This address is checked against a database to pinpoint its location, often down to the province or ZIP code level. Once you know a person's location, additional information may be inferred:

62.23.79.239 = Paris
Time Zone = GMT +1
Currency = Euro
Language = French

intensive video or static visuals. And you may prohibit someone from seeing or buying a product that is illegal to distribute in his or her country.

You may also infer the person's language from an IP address, which is not without risk. To increase the odds of success, you should also configure your Web server to detect the language preference of that Web user's browser. Therefore, if you know the person is based in France and his or her browser is set to request French content, the odds are good that the person speaks French.

Ensuring geolocation quality

Not every IP address accurately represents the location of the Web user. For example, some multinational companies route Internet traffic from their many international offices through a few IP addresses, which may create the impression that some Internet users are in, say, the US when they are actually based in France. Or, if someone is using a dial-up connection from Canada back to their ISP provider in the US, it will appear like they are in the US. There are also proxy services that allow Web users to cloak their identities online.

However, a few geolocation providers have introduced technology that can look past these proxy servers to access the user's true location.

In addition, some providers can now locate, down to a city-block level, people connecting to the Internet via cell phones or public Wi-Fi networks. This is accomplished

through cell tower and WiFi access point triangulation. Even the ever-dwindling AOL users, which used to be difficult to locate, can now be located.

Limitations aside, most geolocation providers claim 99% accuracy at the country level and 95% or higher at the US state level. Still, it's important when selecting a provider that you verify these claims, preferably through a third-party auditor. No geolocation providers can be consistently accurate to the ZIP code level.

How Geolocation Works

How to Implement Geolocation

Geolocation is integrated into a company's Web site through simple APIs or web scripts that allow the company's Web server to query the geolocation database before responding to the Web user with content.

Once the Web server knows where the user is located, simple "if then" business rules may then be followed. For example "if" the Web user is in France, "then" serve him the French Web site, or take him to the main .com site, but serve content that has been translated into French.

You may also have business rules to protect from "card-not-present" transaction fraud; if the Web user is based in a country with high rates of fraud, you may block IP addresses from that country from accessing the online store. For example "if from Nigeria," then block credit card transaction, and serve "do not allow" Web page. You also can compare the IP address location to the billing address location to look for mis-matches.

Who Uses Geolocation

Based on my research, more than 12% of large multinational companies are currently using geolocation to improve global navigation – which is a 200% increase over a year before. Geolocation is rapidly becoming a mainstream application for companies across all major industries. Below is a selected list of companies, I have identified, that use geolocation to improve global navigation:

- Adidas
- Amazon
- Bose
- Google
- Hertz
- Hotels.com
- InterContinental Hotels
- NIVEA
- PayPal
- Samsung
- Skype
- Yahoo!

Now that you know what geolocation is and who uses it, let's look at why geolocation is so valuable to global navigation.

Web Globalization and The .com Dilemma



Companies such as FedEx, Google, and Toyota now support more than a hundred local sites. Given this many countries, a pull-down menu is not a user-friendly solution, particularly for people who live in countries at the bottom of the menu, such as the UK or Venezuela.

The key issue here is the drop-off or abandonment rate for people coming to your site, not seeing their language, and then leaving the site to shop somewhere else. Some statistics show that when local language is not presented the drop-off rate can be as high as 50-70% of visitors. Depending on the cost of items you sell on your website each percent point of abandonment could represent tens of thousands to millions of dollars per month in revenue.

To make matters worse, companies sometimes bump countries to the top of the list, in this case, the US. This too is an imperfect solution, as it shows favoritism to one country over others, never the best approach for a company hoping to succeed across all countries.

Other Web sites rely on maps to allow users to self-select their home countries.



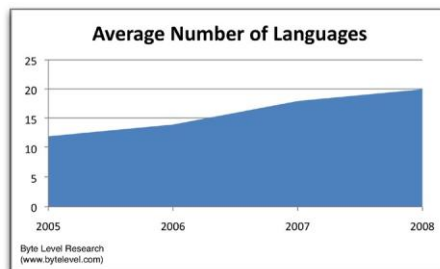
While a map is an improvement, it too is not a perfect solution as it may require users to make multiple clicks to drill down to their specific countries.

20 Languages: The New Baseline

To reach 90% of the world's 1.2 billion Internet users, companies must support 20 or more languages, and an increasing number of companies are doing just that.

Based on The 2008 Web Globalization Report Card, the average number of languages supported was 20, up from 18 last year and 15 the year prior. Companies such as Cisco, Microsoft, and 3M now support more than 30 languages.

As more people who do not speak English as their native language arrive at your global home page, global navigation becomes even more challenging. Will they know how to find the global gateway?



And, if so, will they understand it? Many companies often make the mistake of displaying country names in English, rather than the native language, such as using Germany, instead of Deutschland.

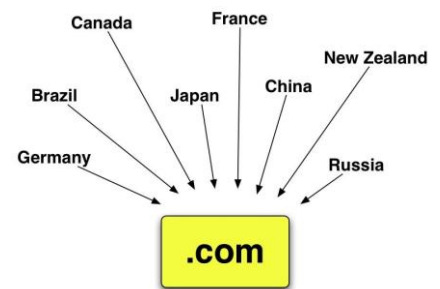
The .com dilemma

Most multinationals are finding that more than half of the visitors to their global (.com) home pages are based outside of their home markets.

One company, a large US software company, reported recently that 70% of the visitors to its .com site were international. Unfortunately, this company also noticed that many of these international Web users were not able to find the country sites that had been developed for them. They were getting lost, resulting not only in missed opportunities - but lost revenues.

This trend has led to a dilemma many IT and marketing executives are now facing: How do you create a .com Web page that appeals to Americans while simultaneously redirecting all other visitors (many of whom do not speak English) to local Web sites?

That's where geolocation fits in, as a sort of global "air traffic control," ensuring that everyone gets where they need to go. Everyone sees the content most relevant to them.

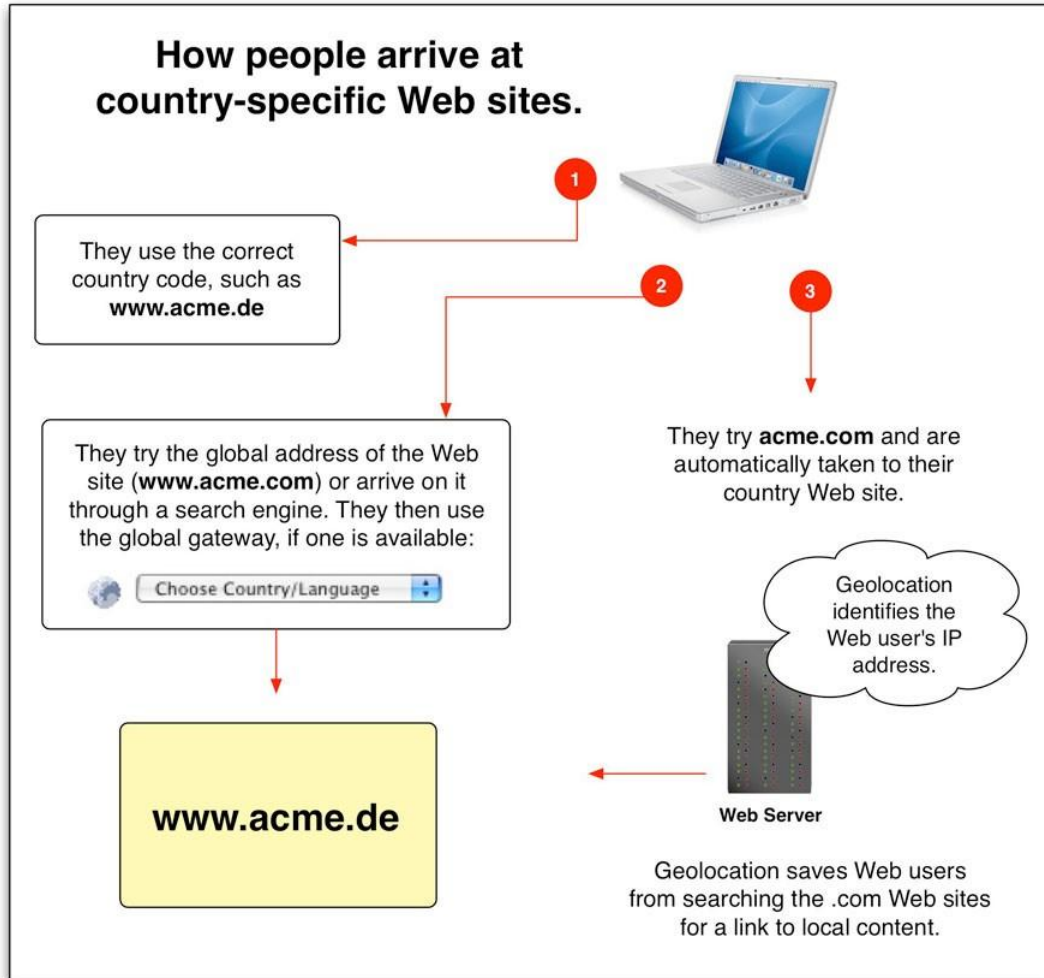


Geolocation and Successful Global Navigation

To ensure that Web users around the world find the content that has been localized for them, it's vital that companies develop effective global navigation strategies.

The first thing to remember is that there is no "silver bullet" approach to global navigation. That's because there is no one way that Web users will arrive at your Web site. Shown here are three paths a Web user may take to your site, each requiring a different approach.

The first approach is the most direct, but requires that companies register country code domains, such as "de" for Germany or "br" for Brazil.




The next path is through your company's .com home page. Many Web users first arrive at this page and then rely on the global gateway, if one is available, to find their localized Web sites.

However, if your company is using geolocation, you can help your Web users avoid the global gateway altogether by taking them directly to localized Web sites. For instance, if a Web user in Germany inputs www.acme.com, you take them directly to www.acme.de, bypassing the .com page.

Google does just this, as illustrated here:

Please note that Google still allows users to switch back to an English interface, in case the user is an American traveling in Switzerland. Always be sure you provide users with the option to change their country or language preference; that's why it's important to have a global gateway in place even if you do use geolocation.

A Web user in Switzerland enters "Google.com"




Without geolocation

The Web user must navigate through the Google site to find a link to the Switzerland site.

With geolocation

The Web user does nothing. Google automatically redirects him/her to the Switzerland site.





Web Server

Geolocation identifies the Web user's IP address.



Geolocation Applications

Geolocation is a tool with many potential applications. Here is a summary of some of the most popular ways that companies are currently using geolocation:

As illustrated in this paper, geolocation can play a valuable role in ensuring Web users find their localization content. Amazon uses geolocation to help ensure that its customers shop from the most relevant Web sites. For example, if a Web user based in the UK types www.amazon.com, he or she will see the following home page:

banner. What Amazon is doing here is trying to make sure that people based in the UK shop from the Amazon UK Web site, located at www.amazon.co.uk. The reason that Amazon doesn't simply redirect all UK-based customers to the UK site is because it wants to allow Americans who live in the UK to continue shopping from the .com site.



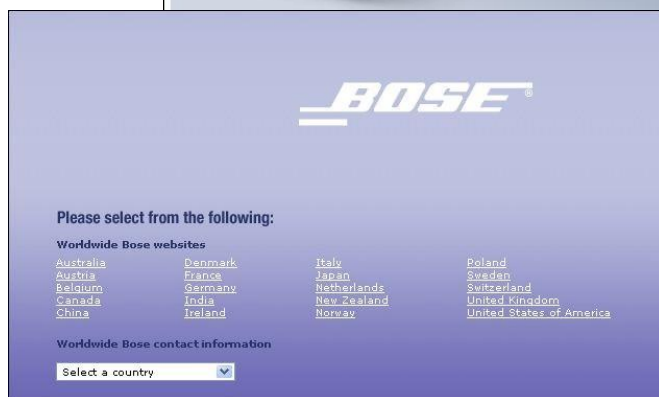
Using geolocation, you don't necessarily have to redirect Web users based on your country of origin. You can simply localize a bit of content here and there just to be sure your customers are finding their way.

Geolocation does not have to be used for all country sites. You may choose to serve up one page to all residents of Europe and another page to everyone else. In this example, if you are based in the US and enter www.bose.com, you will see the Bose United States page.

But if you are based in a European country and enter www.bose.com, you will see this global gateway.

This gateway still allows users to navigate to the US home page, or to a site specific to their country.

Companies may use partial geolocation if they don't support all countries within a given region of the world and want to let users know what countries are supported nearest to them. Or, a company may want to use geolocation only for Web users outside of the home market, which appears to be what is happening with Bose.



Geolocation Applications

Localizing products and services

A Website could present locally relevant products to users based on their ZIP codes. For example, a clothing retailer can present winter clothes on its home page for Web users in the Northeast US while simultaneously presenting shorts to those fortunate Web users in Florida and the Southwest. News organizations such as Examiner.com use geolocation to present local news and sell local advertising to users within its 60 metro markets. And online travel sites use geolocation to serve promotions for the airport nearest the user. So if you are accessing the Website in San Francisco you will see ads for flights from SFO.

Multi-Channel Marketing

Multi-channel merchants could use your Website to drive local traffic into your store and tie together online and offline marketing campaigns. More than 55% of shoppers conduct research online before visiting retail locations to make their purchases. When users enter your home page you could present them with a list of the stores within a 20-mile range of their location, without requiring them to enter their zip codes. You could provide coupons to track conversions at local brick and mortar stores. If you have an abundance of inventory at a brick and mortar location you could promote that to users in that area.

Local Search and Geo-targeted Advertising

Geographically targeted advertising and searches can allow businesses to reach their local customers and only pay for relevant clicks on their ads. Google and Yahoo use geolocation to allow advertisers to target ads to specific locations and languages. Advertisers can select the

countries or regions and the language(s) for their advertising campaign, so that the ads appear only to users located in those areas with a specific language preference.

Enhanced Web Analytics

Websites can monitor Web traffic and online behavior to optimize marketing campaigns. For example if a store is running a broadcast media campaign in local markets it can measure the Web hits from that metro area and analyze campaign effectiveness. Or if a store suddenly sees a spike in Web hits from a certain city they could proactively increase inventory and staffing at that local brick and mortar store to accommodate.

Preventing card-not-present and identity theft fraud

Before processing a credit card, you can initiate an automatic check to compare the buyer's IP address location to their reported billing and shipping address locations. If there is a mis-match you can flag the transaction for manual review or even cancel the order. This type of check can prevent identity theft and fraud, as well as reduce chargebacks.

Enforcing digital content and territory rights

Digital and media content can often only be distributed within certain geographic boundaries because of contractual agreements. Broadcasters have to know where their customer is before allowing access to the content and must be able to block those who aren't entitled to see it. For example, Major League Baseball (MLB.com) uses geolocation to ensure that Web broadcasts of games are restricted from viewing in blacked-out local markets due to broadcast territory rights. Other examples include RaiNet, Italy's national broadcaster,

that was only allowed to show streaming video of the Turin Winter Olympics to residents in Italy, or the State of New Jersey library system, which authenticates that users are within the state of New Jersey before they can access the library's content online.

Ensuring regulatory compliance

Pharmacies aren't allowed to distribute drugs across national borders. Software and hardware vendors have to comply with OFAC and Basel II restrictions and online gambling firms aren't allowed to serve bets to residents of the United States. Geolocation can allow you to comply with these types of regulations by restricting what products can be viewed or purchased in certain markets.

Customer Authentication

Companies can use geolocation to develop "electronic signatures" or profiles of where and how their customers log in to their accounts. This information can also be used to provide additional customer security – to ensure that a customer logging in from Russia is truly that customer and not someone who has stolen the password. For example, a bank may track how a customer normally logs into their online account – from which IP address, time of day and even what browser they are using. The bank may develop several profiles of a customer – such as home, work and travel – and if the customer deviates from these profiles, the bank may pose an additional security questions, such as "what is your mother's maiden name."

Questions To Ask When Selecting a Geolocation Provider

So you want to give geolocation a try? Here are some important questions to answer as you begin analyzing the requirements within your company:

Do we have global buy-in?

Make sure your regional and country offices understand geolocation and are ready to support it. They're also likely to see increased traffic as a result, something they should be very excited about.

What's our backup strategy?

The key to successful use of geolocation is in having a backup "global gateway" strategy in place to give users the ability to self-select their location, if needed. The global gateway must be highly visible and easy to use and it must allow the Web user to be and feel fully in control of selecting his or her language and country.

Where will visitors from unsupported countries land?

Few companies support more than a hundred country Websites and yet your site likely receives visitors from more than a hundred countries. When you implement geolocation, you can decide exactly what country or content a user from any selected country sees. Invest the time to plan out a content strategy for all countries and languages, including those markets that you do not yet support.

Here are some important questions to ask potential geolocation service providers:

With billions of IP addresses in use, how do you know that your geolocation information is accurate?

Make sure the provider has both the accuracy of their information and the data collection methodology validated by a reliable 3rd party firm, and that they have a customer feedback process for IP addresses of concern.

Since the Internet is evolving so rapidly IP address information gets outdated quickly. How frequently is your data service updated?

Look for a provider that publishes weekly updates, and has a real-time look-up service for IP addresses of concern.

If IP addresses change all the time, how can you use this information in fraud prevention?

While the IP address may change, it is normally provided by an ISP through a local network operations center. Make sure the provider has accurate ISP or carrier information in their database. Then it is the IP address profile that matters, not the individual IP address.

Can you locate users connected through mobile devices, or WiFi hotspots?

A few providers can now locate mobile gateways in use by cellular phone connections and WiFi hotspots. This is an important element in understanding whether users can be reliably matched to the location of their IP addresses.

Can you analyze my online traffic to assess my current online risk?

Look for a provider that can conduct customized research and risk assessment. Many do not provide this type of service, and some will process only a limited number of IP addresses into a standard report.

What happens if I find an IP address that is incorrect?

Make sure your provider has a customer feed-back system that allows you to report incorrect findings and incorporates the feedback into their data research.

About the Author

John Yunker is founder of Byte Level Research (www.bytelevel.com), a leading Web globalization research and consulting firm. John is author of *Beyond Borders: Web Globalization Strategies*, the first book devoted to the emerging field of Web globalization. Widely acclaimed, the book is used in a number of university and corporate training programs and by most of the Fortune 500.

John consults with many of the world's largest multinational corporations, providing Web globalization training and benchmark services. Over the years, he has authored a number of reports on Web globalization, including five annual editions of *The Web Globalization Report Card*. John is a 2008 Fellow at the Society for New Communications Research. He may be reached at jyunker@bytelevel.com or (+1) 760-317-2001.

About Neustar IP Intelligence

Neustar Inc. enables online businesses to instantly identify where a visitor to their Web site is geographically located. Online companies including broadcasters, e-retailers, ad networks, banks, and government agencies integrate Neustar's IP geolocation data into their Web applications to geotarget their advertising and content, detect card-not-present fraud, manage distribution of digital content, comply with local laws, and more. Neustar delivers detailed demographic and network characteristic data about an IP address and the data is 99.9% accurate at the country level and up to 98.2% accurate at the US state level (attested to by Pricewaterhouse Coopers). <http://www.neustar.biz/ipintel>