



retain, expand, attract

WHITEPAPER SERIES

SITE OPTIMIZATION:

GETTING THINGS RIGHT BEHIND THE SCENES

You've got a great looking website, but can't understand why it takes so long to load pages, why the search engine rankings aren't higher, or why it never seems to display the same on your handheld device, laptop, and tablet. If you want your website to perform as well as it looks, you need to focus on what can cause those issues: the programming.

A website's programming is vital to a website – after all, it's what makes the website functional in the first place. Since programming is so important to a website's functionality, you'll quickly realize if something isn't working right but at the same time you may also never know if something is going wrong in the background.

Improper programming will not only result in functionality issues, but also in expensive charges from your website host. Those issues can easily be avoided altogether by “optimizing” your website.

The benefits of optimizing a website are many, but the two main benefits include maximizing usability and performance. Nobody wants to have a website that irritates site selectors and prospects because of technical issues that are completely avoidable.

Another benefit of optimizing your website is maximizing bandwidth efficiency. Taking a close look at your website developer's technical competencies is crucial because if you don't you'll pay for it through higher bandwidth surcharges from your website host.

Although modern Internet connections have a high bandwidth capacity and unprecedented speeds, bandwidth is something that must be used efficiently. Many web hosting services have limits on how much data can be sent from their server, and excessive data transfers result in expensive charges. Therefore, un-optimized websites will not only cost you money, but also visitors because of lengthy load times.

What is bandwidth?

Bandwidth is used to quantify the rate of data transfer and is measured in bits per second (bps). Every website is essentially a collection of files that must be transferred to another location, and bandwidth dictates how fast or how slow those files are transferred. A helpful analogy would be to compare bandwidth to a wheel barrow: there is limited space in a wheel barrow, and a lighter load means you can push the wheelbarrow faster, and a heavier load means you will push it slower and work harder to do so.

What It Is

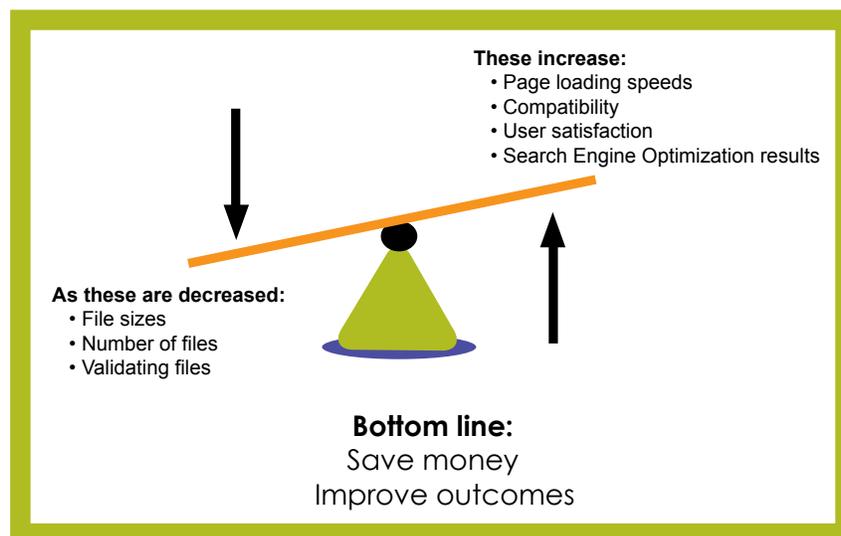
Optimizing a website basically comes down to three things:

- **Shrinking** file sizes to decrease load time
- **Eliminating** the number of unnecessary files on a website so a user's computer doesn't have to "ask" for so many files, which will also decrease load time
- **Validating** files, which means getting rid of excess HTML code, verifying that the code complies with standards and ensuring there are no errors in the coding, which results in less resources being needed to view a website

Why It's Important

If your website is optimized, there are a number of benefits that can be achieved.

- Decreased load time so visitors can spend less time waiting to see your website and more time learning about your region and organization
- Increased compatibility and usability with mobile devices such as iPhones and tablets, which tailors to on-the-go professionals like site selectors and executives
- Decreased resource demand on networks with shared connections such as corporate and office networks
- Reduction of hosting costs
- Increased search engine optimization since search engines such as Google also have bandwidth limits, meaning they can "see" more of your website



Techniques

Images

For every type of image file that exists there is also a way each of those different files can hinder your website's optimization. For example, JPEG files are often smaller than GIF files, yet GIF files are of lower quality than JPEGs and are often used interchangeably. However, not all images on a website have to be of the highest quality either. There is a tradeoff between file size and image quality, and the goal is to reduce the file size as much as possible without having any noticeable difference in quality. It is also important to use HTML in the place of images wherever possible, such as the navigation menu and most if not all text on a website.

Needless to say, expertise and experience are required when it comes to optimizing the images on a particular website.

Cascading Style Sheets (CSS)

Cascading Style Sheets is a programming language used to construct the formatting and look and feel of a website. The benefit of using CSS is that tasks that sometimes require several different components (and vital file space) can be accomplished using a smaller number of files. One example would be another issue stemming from images on a website. If an image is edited to have a drop shadow or other effects, the effects themselves result in a larger file size. If multiple images on multiple pages on a website have effects, there would be a lot of data that would have to be processed by servers and web browsers. CSS can be used to include effects on images throughout the website, but the individual images don't need to have the larger file sizes associated with the special effects.

Server-side

The server where a website is hosted can also be used to optimize a website. This is done by "compressing" a website. A website is a collection of files, and compressing the files maintains the content but simply fits it into a smaller file. File compression results in a faster server, faster loading times and additional bandwidth left for other things like multimedia and high-quality images.

Our VoltEdit Content Management System features two modules that optimize website images throughout your entire website, the Image Module and the Slideshow Module. When images are uploaded through the Image Module, you can choose from a variety of sizes that are optimized for the web. The Slideshow Module optimizes images by automatically resizing images to maintain fast load times without sacrificing quality. These two features make optimizing images quick and convenient.

Since programming a website using CSS leads to increased efficiency and usability, this is the primary approach to website development that Ady Voltedge uses. Therefore, our clients' websites have faster load times and take up less bandwidth, which results in fewer surcharges.

Solutions

Solutions Checklist

To ensure that your economic development website is optimized for maximum usability, here is a checklist of what to look for in a developer:

Ady Voltedge	Other Developer	
		File sizes are shrunk and unnecessary files are eliminated to decrease load time
		Files are validated to verify that the website's coding complies with standards
		Proper image sizes and formats are used to decrease load time and bandwidth
		Cascading Style Sheets is the website's primary programming language which will also decrease file sizes and load time while maximizing usability
		Your website is "compressed" on the hosting server, which results in a faster server and thus faster loading times and additional bandwidth left for multimedia and high quality images

There are many reasons why a website could not be performing to its fullest potential and it can be difficult to zero in on what's going on behind the scenes. Give us a call at 608-663-9218 and our website team will gladly perform a complimentary analysis of your website to see if there are any coding issues getting in the way of maximum efficiency or performance.

For other ideas on how your website can reach its fullest potential, please read the following Ady Voltedge White Papers by clicking the links below or visiting our website at adyvoltedge.com:

- [Search Engine Optimization: Maximizing Opportunity, Visibility, and Profit For Economic Development Organizations](#)
- [Choosing A Developer For An Economic Development Website](#)

How Much of a Difference Can Site Optimization Make?

Ramping Up the Performance of a Website

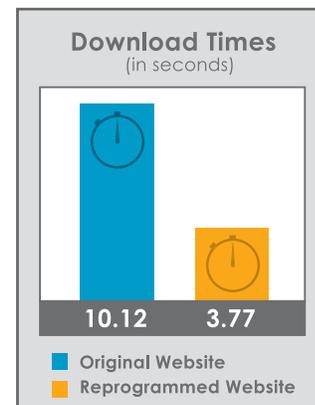
A company that arranges bicycle tours worldwide needed its website to help build brand awareness and provide detailed information about services and resources.

Ady Voltedge worked closely with its staff and reprogrammed the entire website in HTML using Cascading Style Sheets (CSS) to improve search engine optimization and to enhance user experience (faster page loading, better cross-platform compatibility, etc.).

Because our participation in the website was limited to programming, leaving all other variables (content, layout, etc.) untouched, the results proves the importance of proper programming. The website's design and content remained the same, and all that was changed was the back end programming. Those changes resulted in the following results

Comparison of External Objects Between Original Website and Reprogrammed Website		
	Original Website	Reprogrammed Website
Total Images	30	11
Total Scripts	7	2
Total I-Frames	1	1

64% reduction in total images



63% reduction in total download times

Comparison of Object Types between Original Website and Reprogrammed Website						
Object Type	Original Website (size in bytes)	Repro-grammed Website (size in bytes)	Download Speeds (in seconds)			
			@56k		@T1	
			Original Website	Repro-grammed Website	Original Website	Repro-grammed Website
HTML	19,965	5,162	4.18	1.23	0.31	0.23
HTML Images	145,230	135,499	33.74	29.20	5.57	2.92
CSS Images	2,617	0	1.72	0.00	1.21	0.00
Javascript	107,395	452	22.8	0.49	1.97	0.40
CSS	12,585	3,504	3.51	0.90	1.07	0.22

75% reduction in HTML objects

99% reduction in Javascript objects

73% reduction in CSS objects

ABOUT THE AUTHOR

Janet Ady is president of Ady Voltedge, a firm that she founded in 2003. Her areas of expertise include marketing strategy development, the creation of the optimal navigation for E.D. websites, and place positioning.

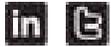
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ABOUT ADY VOLTEDGE

Ady Voltedge was founded in 2003, and continues to be run by its founder and owner Janet Ady. Within the last year, the firm hired its first full-time site selector, Paul Hampton, and integrated the Ady International Company site selection firm into Ady Voltedge.

- Ady International Company was operated by Janet's father, Bob Ady, who located more facilities in the US than any other individual. The techniques, processes, client history, and corporate contacts that he cultivated over his career are now part of Ady Voltedge.
- In addition, Ady Voltedge also gained a treasure trove of marketing communications directed to site selectors – over 1,000 in all – which we have analyzed so as to help our clients craft the most compelling and effective marketing communications to this important audience.

Ady Voltedge provides a complementary suite of services:

- We provide site selection services to expanding and relocating companies
- We develop E.D. strategies for EDOs and help implement them.

We believe our success in both areas is not coincidental: each areas builds off the other. Ady Voltedge is the only firm in the country of any size that works on all parts of the economic development value chain.

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A unique and highly specialized research and marketing consultancy conceived and designed to help organizations retain, expand and attract investment and talent.

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