Media Rich and Fast:
Best Practices for Optimizing Web Page Speed

Cloudinary

DIGITAL
MARKETING DEPOT

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Introduction

Consumer media consumption is rapidly shifting from text to visual images. Website content that includes compelling images averages nearly twice as many views as text, and four times as many customers would rather watch a video about a product than read about it.[1]

There has been explosive growth in the adoption of visual media to dramatically improve online user experience, resulting in higher engagement and conversions. However, visual media can also weigh down your webpages, increase page load times, deflate your search rankings and turn visitors away. There has been an 85% increase in page weight over the past three years, and 75% of today's websites are images and video, thus making the tradeoff between speed and engagement a tough one.[2] Particularly, as Google is placing more emphasis on page load speed – particularly for mobile users – as a search ranking factor.

This whitepaper examines the importance of visual media to your online publishing and marketing efforts, and how you can reconcile the 'need for speed' with the need to provide an engaging site experience to your visitors and potential customers. The whitepaper offers numerous best practices for optimizing visual media on your websites, enabling you to provide both a fast and engaging online experience to your target audiences.

Contents

The importance of visual media to online engagement

Visual media – the images, videos, animations and infographics that online users see, hear or click – can ramp up engagement and send your website to the top of the SERPs. Visual elements are often called 'engagement objects' precisely because of the user interactions they encourage. Just look at the following statistics:

- Using the word 'video' in an email subject line boosts clickthrough rates by 65%.[3]
- 60% of consumers are more likely to consider local search results that include images.[4]
- Nearly two-thirds of consumers make a purchase after watching branded social videos.[5]
- More than half of marketing professionals worldwide name video as the content that generates the best ROI.[6]

The explosive growth of mobile web browsing and app use is driving many of these trends. Consumers are using more digital devices than ever before, and relying heavily on images and video to watch, share, engage and shop. More than half of video content is now viewed on mobile devices, and 92% of mobile video viewers share videos with others.[7] Over the past three years, the volume of mobile searches has steadily overtaken that of desktop searches. Although Google doesn't provide specific numbers, various studies show that mobile accounts for as much as 60% of all internet searches.

Speed becomes a search ranking factor

At the same time, page load times have become a critical factor in the online user experience – and search engine rankings. Today's busy consumers have little patience when it comes to online content. A Google research study found that increasing SERP load times by as little as 100-400 milliseconds will reduce the number of searches that a user conducts. The number of searches continues to decrease the longer a user is exposed to the slower loading pages.[8] Additional studies show that a 1-second delay in page load time can decrease visitor satisfaction by 16%, and result in a 7% drop in conversions.[9]

Page speed has been a Google desktop search ranking factor for several years. To cater to the growing mobile search audience, Google announced a 'speed update' in January 2018, making speed a factor in determining mobile search results. The algorithm change applies to all pages – regardless of the technology used to build the page – and is intended to penalize pages that deliver the slowest experience to users.

Google also began rolling out its mobile-first search index in early 2018, which is designed to favor mobile websites over desktop versions on the SERPs. The goal is to encourage website publishers to create mobile sites that are as robust as their desktop sites.

The impact of visual media on page speed

 The challenge for online publishers and marketers is to create visually engaging websites that are also fast. Images and videos can have a huge impact on page load times, particularly when large images display on small screens. As much as 75% of a website's average weight is images and video, according to HTTP Archive. So, while websites need rich, visual media to encourage engagement, these elements often lead to heavier pages and slower load times. This will affect how long visitors stay on your site and, more importantly, your organization's ability to convert them to customers. For AdWords advertisers, slow loading landing pages will also negatively affect keyword Quality Scores and, subsequently, your ad position on Google SERPs and how much you pay per click.

> Google provides several free PageSpeed tools that provide a breakdown of page speed recommendations for any requested page path. The tools provide a page score on a scale of 0-100 for both desktop and mobile devices.

This dilemma is further compounded by the growing number of digital devices used by consumers. Nielsen research shows that US adults now own an average of four media devices. Images and videos need to be optimized for each particular screen, to ensure visual clarity as well as rapid loading. Many publishers responsively design their websites, meaning images are automatically optimized by the browser. Responsive images and videos improve page performance, but require multiple versions to respond to the specific viewing resolution.

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To further enable web publishers and marketers to speed up web page and ad load times for mobile users, Google and Twitter also have adopted accelerated mobile page (AMP) technology, an open-source framework (called AMP HTML). AMP relies on heavily cached webpages to return static content results more quickly. AMP pages are ranked higher in Google SERPs and afforded a more prominent position in Google News.

Best practices to optimize visual media and improve page load times

Despite the challenges, numerous best practices are emerging to optimize digital visual media and improve page load times. Sites that are media rich don't have to be slow. The following strategies and tactics focus on image and video optimization, as well as techniques to name, identify and index them so they are more easily recognized by search engine crawlers.

Choose the right image or video file format

A crucial first step in optimizing your digital images or videos is to choose the file format that will facilitate quicker downloads. The three most commonly used image formats are JPEG, PNG and GIF. Generally speaking, JPEGs work best for photographs, PNGs for graphics and illustrations, and GIFs for simple animations. Formats like JPEG 2000 and the newer WebP have also been gaining in popularity, taking the place of JPEGs and PNGs in some instances.

More specifically, JPEG images compress easily, which results in high resolution with a small file size. JPEG (.jpeg) is the best option for maintaining image quality, particularly pictures with many colors, shadows or patterns. For these reasons, JPEG is currently the most popular digital image format. One drawback is that JPEG uses lossy data compression, which reduces file size but can also result in reduced image quality. The JPEG format also doesn't support transparent backgrounds. JPEG 2000 is considered by some to be a better image format than the original JPEG, as it provides improvements in both compression and flexibility. However, while released over a decade ago, it remains unsupported by a number of applications and has not been widely adopted.

PNG (.png) has become a popular alternative to JPEG (and GIF – described below) and is typically used when editing or downloading files from Adobe Photoshop. PNGs maintain their resolution over time, even if they are re-saved often. They also support more colors than GIFs, and can handle transparency in images – such as in a logo. On the downside, PNG file sizes can still wind up larger than similar JPEGs.

Best practices for decorative images

Decorative images are the non-product related background images, buttons and borders on your website. Although they are visually appealing, they can slow page load times without adding much value.

Here are some tips to optimize decorative image file size:

- Border images or images with simple patterns should be formatted as PNG.

- Compress large wallpaper/background images as much as possible without impacting image quality.

- Cut out the middle of a background image and make it transparent or replace it with a flat color. This will substantially decrease file size.

WebP (.webp) is a modern image format developed by Google in 2010 and provides lossless and lossy compression for images on the web. WebP was designed to create smaller, richer images that perform faster compared to formats like PNG or JPEG. It is not widely supported but an excellent choice for Chrome or Opera supported browsers.

GIF (.gif) is a bitmap image format most commonly used for simple art and animation. It is best when used for simple animations with few colors and provides transparent background support. However, GIF is not recommended for photographs or larger, more colorful images because the file sizes can't be reduced without harming resolution.

There are also several popular video file formats, and each includes two parts: the codec and the container. A codec is software that enables file compression and often comes pre-installed in digital devices. The most common codec is h.264, which is used for high-definition digital video and distribution of video content. A video file container is the 'box' that holds your video, audio and metadata (i.e., captions, SEO, etc.) and includes the file extension or format.

The current industry standard for high-definition video is MP4 h.264, which provides the best mix of compression and video quality to minimize file size. Other factors that affect video file size include the bit rate (the amount of data stored for each second of media played) and the frame rate (frequency at which consecutive images appear on a display). Other popular video file formats are WMV, which comes pre-loaded on all Microsoft Windows machines, and MOV, Apple's very successful multimedia format that is also supported within Windows. Flash video formats (.FLV and .SWF) are also commonly used, but are not supported on iOS devices, and therefore have limited value for mobile users.

Best practices for thumbnail images

Thumbnail images can provide e-commerce sites with an efficient way to display lots of products without taking up too much site space or bandwidth. The key is to make the thumbnail file sizes as small as possible. Also remember to vary your thumbnail alt tag text from your full-size image alt tag. You don't want Google to index the thumbnail instead of the larger product image!

There are many free compression tools available, including compressjpeg.com, imageoptimizer.net, tinypng.com, jpegmini, picmonkey, pixlr and fotoflexer. You can also reduce image file size by using the "save for web" command in Adobe Photoshop.

Use image compression

In addition to using more efficient formats, compression is an important step in reducing image or video file size, and increasing viewer engagement through faster page loads. The danger is that smaller file sizes can sometimes impact visual quality. The key is to know how much to compress an image or video before its resolution is negatively affected.

There are two types of compression: lossless and lossy. Lossy compression is an irreversible process that loses some of the original file data. JPEG is an example of a lossy image format. The benefit of lossy compression is the significant reduction in file size; the drawback is the potential loss in quality. Lossless compression reduces image size without any loss in quality by removing unnecessary metadata. However, lossless compression doesn't decrease file size as significantly as lossy compression. PNG and GIF are lossless image formats. WebP provides both lossless and lossy.

Get creative with file names, captions and alt-tags

Descriptive, keyword-rich file names are critical for image and video optimization as well as your search engine rankings. In addition to crawling the text on your webpages, search engines look for keywords within your image and video file names. Check your website analytics to identify the phrasing patterns your visitors use to perform searches. Once you understand the most common search patterns, use them in your image or video naming process. For example, if you sell leather goods, use descriptive names for each product image or video, such as 'italianleatherbag.jpg' or 'whereourleatherismade.mp4.' The more clues you provide to Google or Bing, the more their search algorithms will pick up what your images or videos are about and index them accordingly.

Another visual media best practice is to add captions to images and videos. Captions are advantageous because they offer even more context (together with file names) for search engine crawlers to understand what the image or video displays. Captions can provide up to 16% more readership than text; and research shows that removing captions can reduce image recall by more than 80%.[10] Make sure that you use <caption> tags in your page coding.

Alt Tag Best Practices

DO:
✔ Describe your images and videos in plain English
✔ Include product model numbers or serial numbers

DON'T:
✔ Overuse promotional keywords
✔ Create alt tags for decorative images (i.e., site border or wallpaper images) or Google may penalize you for over-optimization

Alt tags are a great text alternative for images and videos when they aren't properly rendered by the user's web browser. Similar to the file name or title, the alt attribute should be used to describe the contents of the image or video. When the file doesn't load, the user sees an image box with the alt tag in the top left corner.

Alt tag attributes also contribute SEO value to your webpages because the search engines will associate keywords with your images or videos. By providing the search engine with more useful information about the subject matter of the visual media file, alt tags are one of the best ways for e-commerce products to show up in Google image and web searches.

Utilize image and video sitemaps

Search engine crawlers can't find images or videos that are not identified in the webpage source code. So it's important to create and publish both image and video sitemaps to help Google and Bing index them in image and video search results.
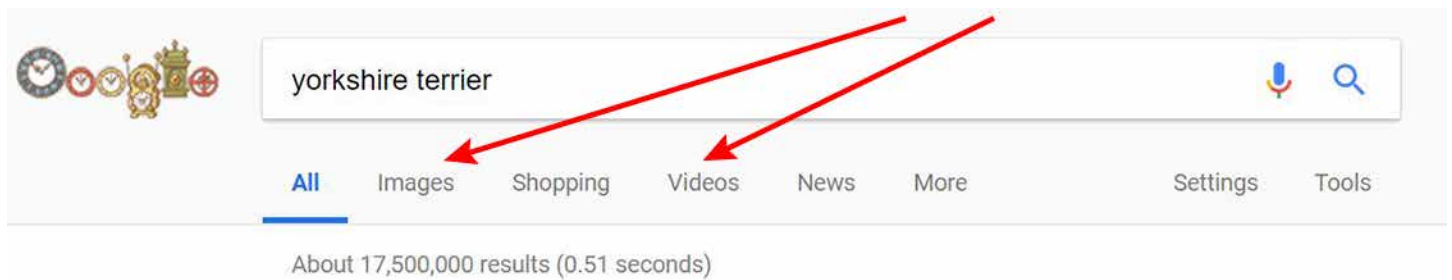
Use Google image extensions for sitemaps (.xml) to provide Google with more information about the images available on your web pages and to indicate the images and videos that you want Google to crawl and index. If you use WordPress to publish, there is a WordPress plug-in that automatically creates the sitemap for images uploaded to your WordPress Media Library.

Summary

A visually rich brand website that engages visitors is a must-have in today's crowded media environment. However, it's equally important to optimize your images and videos so that they load quickly, provide a great user experience and rank well in the SERPs.

Optimization doesn't have to be difficult. There are numerous tools available – both free and paid – that can automate image and video optimization. For example, Cloudinary's *quality selection algorithm* and *automatic format selection* features enable users to automatically optimize image quality and format settings to minimize bandwidth and maximize image quality. Image and video optimization are all about finding the right file size, image quality and ease of search engine indexing. The resulting improvements in your website visitor experience can lead to higher ROI on all of your brand's digital marketing investments. ■

About Cloudinary

Cloudinary provides a cloud-based end-to-end image and video management solution. Nearly 300,000 web and mobile application developers all around the world, at companies large and small, rely on Cloudinary to manage transform and store their business-critical media assets. Learn more at https://cloudinary.com

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