YOTTAA

Image Optimization

Optimization reduces an image's byte size while keeping the perceived image quality as close to the original image as possible. Compression, transcoding, and resizing are some of the techniques which can be applied, and when combined with lazy loading and image anomaly detection result in a better visitor experience without losing image fidelity.

Reducing image size and changing format delivers a better browser experience without reducing perceived image quality. Default settings make it simple to optimize images for device, browser, and network speed.

Multiple techniques can be used for image optimization when loading web pages. Some of what can be applied will be dictated by the device or browser. Other factors such as image quality and load speed should be considered when deciding on when and how the different optimizations should be applied.

When guest users visit your site, cached images are optimized to best suit the user's phone, tablet, or desktop computer. Image optimization makes your site's pages load faster, which creates a better browsing experience for your visitors. Image optimization at the edge improves page speed through compression, resizing and format changes. Enabling default settings will improve performance, but specific rules can be applied to categories, or individual images, to further optimize or replace images and take the visitor experience further than default settings.

Responsive Imaging – (also called image lazy loading), does not load an image unless it is needed.

- Typically, the browser sees an image and goes to load it, which is great for above the fold, but not good below the fold.

- Yottaa can modify web page content to delay image loading, this is typically done to load images only when needed. The deferred loading can significantly improve the user experience, especially on category pages where a lot of high-resolution images are displayed.

Compression – Compression reduces the file size of an image, which reduces overhead. Images can be compressed on a case-by-case basis or can be compressed based on a certain category of image. Categories for conditional compression can include image URL pattern, client user

agent, image download footprint, network speed, mobile device, etc. Due to the possibility of losing some image quality, it may be preferable to only compress images on mobile devices or on slower networks.

- **Lossless and lossy compression** is supported. If lossy compression is selected, the compression percentage can be specified; more compression of an image generally produces a less faithful reproduction.

Transcoding – Transcoding changes the image file type. It is used to convert images from one format to a different format with better characteristics, while retaining image quality. Converting jpeg or png format to WebP, which loads faster on the browsers that support it is most common. WebP allows websites to display high-quality images, but with much smaller file sizes than traditional formats such as png and jpeg. The majority of browsers now support WebP, images including Chrome, Firefox, Edge, and Opera. When Yottaa transcoding is set for WebP, it will first verify the browser can accept WebP and only perform the transcoding if it does.

Resizing – Images can be resized to be smaller for certain device types, such as tablets or mobile. Resizing images can be on a case-by-case basis, or a certain category of images (for example, images on product category pages, or on mobile devices). Resizing can create faster load times without the appearance of degraded image quality. You can also resize images based on their presentation context. For example, on a product detail page, you might have the same image appear in various sizes on different parts of the page. To resize an image, the new absolute image size must be defined. Absolute image sizes can be specified by providing the height and width, or one dimension can be provided and the other will be calculated automatically while keeping the aspect ratio.

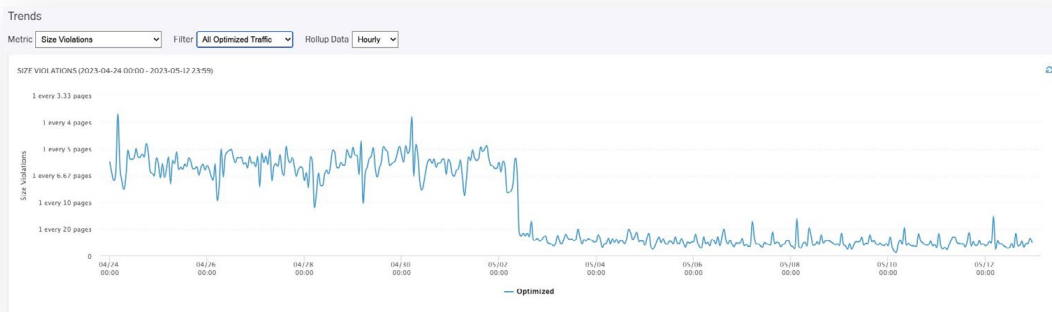*Impact of switching on default image optimization on image size violations*

Image size violations dropped on 2nd May when image optimization was switched on for this apparel customer. Using the default settings reduced the number of 1MB images from nearly every pageview to once every 75 (approx.) pageviews, without compromising fidelity.

Reduce Image Requests – Most web apps contain lots of small images that are used to draw the user interface, menus, and icons across all the pages. If your page uses lots of images, the browser needs to download each of those images separately. The Reduce Image Requests feature will apply a technique called "Data URI" to encode those images into the CSS and HTML directly without changing how your page appears. Rather than making a separate call for each image, the data string that defines that image is embedded into the HTML so no separate call is necessary. Taking character streams and embedding them into the HTML can cause the HTML to get larger so this approach should be used with caution, and only used with very small images, such as icons.

Transformers

Another method available for optimizing images and image use is by applying Transformers. Yottaa Transformers allow many actions to be taken on a website or web page. They use CSS code to identify items and are flexible to allow actions to be taken on specific images, URLs, Geo, etc.

Yottaa Transformer rules provide advanced control over how content is rendered by the web pages. Transformers are used to improve flexibility, and to overcome system restrictions, limitations, or complexity present without the use of Yottaa. The rules can be used to replace, remove, move, or insert page elements to sequence delivery and maximize the end user experience. Examples could include hiding banners or replacing one image with a different image (such as for geo-based marketing campaigns or local relevance for visitors).

- Replace page elements
- Remove page elements
- Move page elements
- Insert page elements
- Detect and react to device type, screen size, browser, and location.
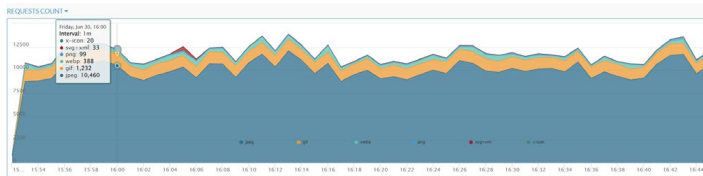
Count of the image requests by different image type, per minute, over the previous 1 hour

URL Rewrite

Yottaa optimization rewrites asset URLs on web pages to offload requests, accelerate page performance and enable version control. This is called "URL Rewrite". Links within the HTML will be changed to point to a hosting CDN where content will be cached. Only if there is a cache miss or expired cache entry will the CDN send the request to the Yottaa infrastructure. While URL rewriting can be applied for many uses it is typically implemented for images. Compression, transcoding, and resizing an image is performed by directing the loading of all images to the Yottaa CDN with URL Rewrite.

Image Analytics

Analytics information is available in tables and charts to help understand the image activity for a site. As well as the Size Violations trend graph, a diagnostics table will show the size violations by number of violation errors per image, state what type of resource is loading it, and provide the resource URL specifically for that image. This can help easily identify the larger images and allow further action to be taken.
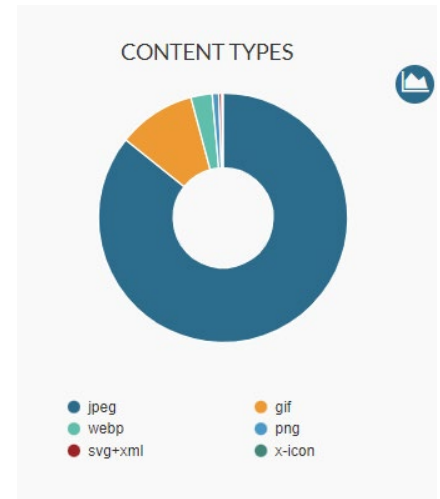
The count of the different image formats being requested is available in the Analytics dashboard. A total count of each format is shown in a pie chart, while a trend chart is also shown over a selected time frame. Hovering over any element of the charts will display the exact numbers for each item.

Yottaa holds several patents for website optimization including for the delivery of variants of images as listed above. While this capability is more common now Yottaa continues to innovate and incorporate advanced optimization functionality: System and method for managing multiple variants of an HTTP object.

Images are a key part of creating a brand identify and engaging visitors. If not managed effectively, however, they can cause delays in loading, giving a disappointing visitor experience. By simply enabling Yottaa image optimization default rules are applied and immediate improvements can be seen, with no negative brand impact. Yottaa image management tools enable automatic and custom rules and image manipulation techniques to optimize the shopper visit.

The Next Step

Don't just assume that your eCommerce site is performing as fast as it needs to – be sure with a free, no obligation YOTTAA trial. Start the process today with a FREE Performance Snapshot. **Click HERE for more information. You can't afford not to.**