

SITE OPTIMIZATION BASED ON TESTING OF ITS WORK

Annotation. When developing a site, an important stage is testing the speed of its work, which results in optimization. The speed of the site depends on the time of loading pages and transmitted traffic. On the basis of these parameters, the necessary methods for accelerating the operation of the site are selected. For sites based on CMS Drupal different levels of caching, compression and customization of specialized modules are used.

Keywords: site, optimization, caching, module, kernel, speed, time of page loading, traffic, CMS, Drupal, HTML, PHP, CSS, JavaScript.

Introduction. To create and maintain sites often use content management systems (Content Management System, CMS), which accelerate and simplify development. Based on the CMS, you can create functional and easily managed sites. Website development tools provide the separation of the content from the design (a web page template), which allows you to modify the content of web pages without affecting their design and changing the site template without affecting the content of its pages. Currently, one of the most popular control systems is Drupal, for which a technique for designing websites has been developed [1, 2].

However, when creating a site based on the content management system, not always existing modules are able to fully provide the necessary functionality. In such cases, you create your own modules using the PHP language, which ensures the execution of all necessary functions [3]. After the site is created, it is necessary to test the speed of its operation and, if necessary, to optimize it.

Formulation of the problem. From a wide variety of methods for accelerating the operation of sites based on Drupal CMS [4], based on test scores, select the necessary ones that give the best results.

Main part. Optimization of sites developed on the basis of the content management system Drupal, uses the internal capabilities of the system: built-in caching, settings for page compression, as well as specialized modules.

With the built-in cache, all information, both received from the database, and generated by the PHP code, is cached. At the first request, the page is placed in the cache and when it is re-accessed, it is not generated, which significantly reduces the load on the database.

When using compression, the pages of the site are transmitted in a compressed form, which slightly increases the load on the server, but reduces the time of loading pages by site visitors. In the traffic optimization settings, you can enable the combining of CSS and Javascript of different Drupal modules into one file, which speeds up the download.

The Authcache module saves the cached page cache for each visitor or role. Cached versions of pages for authorized visitors are transmitted using AJAX, so a very fast display of the page in the browser is achieved.

The Boost module caches and compresses the GZIP archives of HTML, XML, AJAX, CSS and JavaScript.

The Speedy module is designed to speed up the performance of the interface on the site. It provides a smaller version of the main JavaScript files that are not yet minimized. According to the latest measurements, on average, for the 50,000 most visited sites, 87% of the page load time occurs in the visitor interface. Minimizing files will improve download time. When files are minimized, comments, spaces are deleted, and some functions can be modified to reduce their sizes. For example, optimized drupal.js file only takes 24% of the original size.

Before optimizing the site, you need to test its work. The main characteristic of the performance of the site is the time of page loading. The loading time of the page depends on the distribution of traffic over the downloaded resources.

Use the Developer panel in Google Chrome. Opens it on the Network tab, reloads the page of the site and obtains the following results (Fig. 1).

The total page load time is 5.43 seconds. The time for waiting for HTML content takes 4.9 seconds.

Let's investigate the reasons for such a long download, this requires information about those parts of the pages that are slowest to load and those that are processed by the server for a longer period before they are sent to Drupal, and it will be sent to the user.

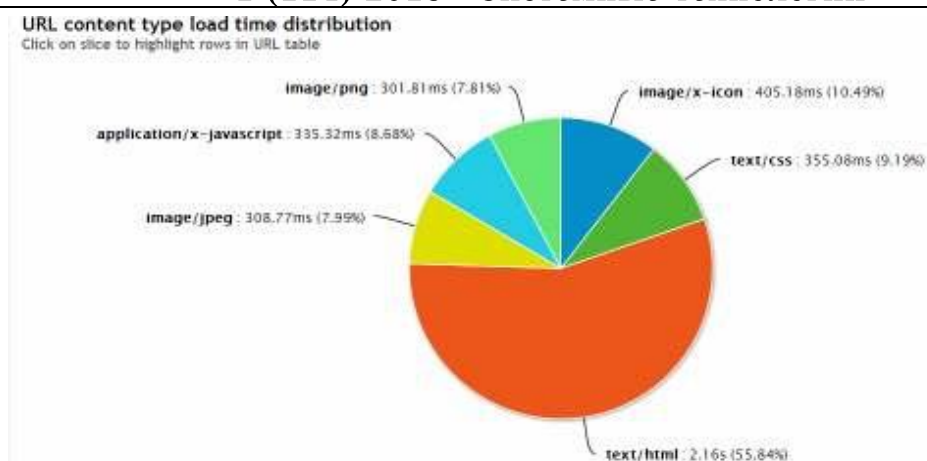


Figure 3 - Time to load HTML page resources

To optimize the site after testing the traffic when loading the page, we connect the optimizing components of Drupal: we include the built-in capabilities of the Drupal 7 kernel and the optimization and caching modules.

Loading a page of the site with enabled and optimized capabilities based on Drupal 7 looks like this (Fig. 4).

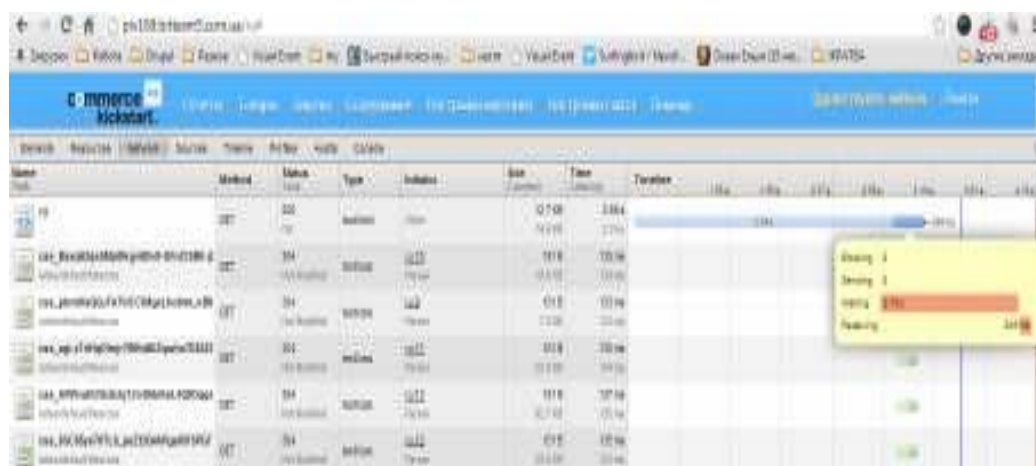


Figure 4 - Time to load the page after optimizing the site

The page load time was reduced to an approximate 3 seconds. The results of traffic load distribution are shown below (Fig. 5).

We see that some of the pictures in the traffic have decreased, thanks to the caching of the drawings on the client and server side, some JavaScript also decreased slightly due to the shortened files from the Speedy module.

Now you can consider the time of loading of separate parts of traffic and the page as a whole (Fig. 6).

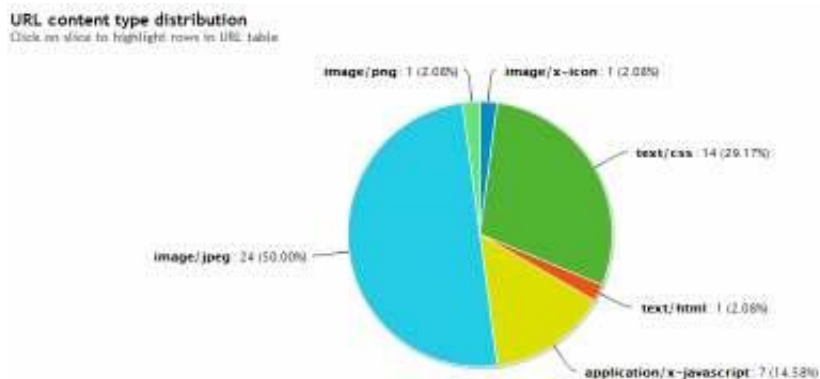


Figure 5 - Distribution of traffic after optimization

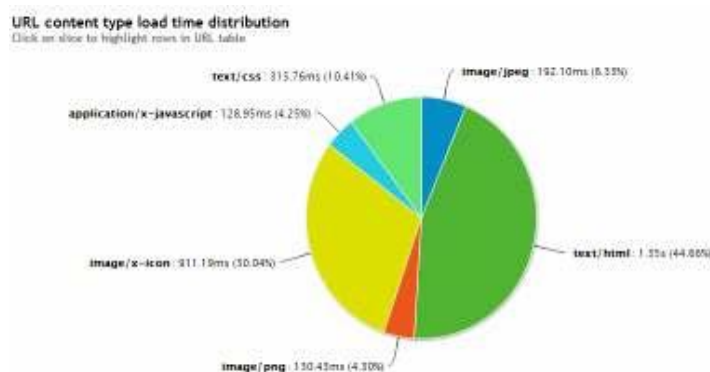


Figure 6 - Distribution of resource load time

Obviously, the time for downloading pictures and the HTML part of the page decreased, the time was evenly distributed among the rest of the traffic and decreased by a few seconds as a whole. Thus, the results of successful site optimization are graphically presented.

Conclusions. Testing the site allows you to get the necessary data to optimize it. Based on the time of loading the pages, the distribution of traffic over the downloaded resources, a conclusion is made about the necessary actions to improve the performance of the site.

LITERATURE

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