

Search Engine Optimization

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ABSTRACT

Because of the presence of a huge number of sites and duplicate content on the website, you will lose your capability to choose which page you want to rank for. Search engines won't know which pages you want to be considered landing pages in SERPs, and those pages can even start to compete with one another. Search engines are specifically designed to create online a stronger place for users; valuable, distinctive content is very appreciated by each search engines and users. SEO uncovers vital information. The additional program optimization analysis a startup will, the additional information they need concerning what potential customers are sorting out. Search engine optimization depicts a methodology that envelops about each part of site-building and substance advancement. At the point when it is done viably, it makes a remarkable client experience. The principal objective of SEO is to exhibit your incentive to the web search tools. At the point when they know your worth, your pages will rank profoundly for questions important to your substance. The significance of SEO originates from its capacity to assist clients with discovering you effectively. According to the sales figure of amazon's Alexa more than 20 million Alexa products sold in the market, Voice Search goes to be a dominating consider SEO. Therefore, the organization or user could use Search Engine Optimization techniques to reach the maximum potential consumer by appearing the result at the top By giving the keyword or speech as an expression rather than the full web address the client needs the data related his prerequisite, and afterward web search tool utilizes catchphrase to locate the significant pages at the top. In this paper, we will be classifying and reviewing different technologies for SEO and the main content for developing an SEO friendly website.

Keywords : SEO, Page Ranking Algorithm, Crawler, Search Engine, SERPs

I. INTRODUCTION

In the search marketing field, the search engines return to fulfill a query are referred to as search engine results pages (SERPs). Each engine returns results in a slightly different format and these may include vertical results (these are results that can be derived from different data sources or presented on the results page in a different format, which we'll illustrate shortly). It ought to be fairly evident to you at this stage that SEO is often evolving. Search engines are constantly changing their algorithms (Penguin, Panda, Hummingbird, oh my!), and new media and technologies are being introduced to the web on a regular basis. Staying current requires an

ongoing commitment to research, study, and participation in the process of doing SEO.

Search engine optimization is a technical marketing function that is reliant upon both content creation and technological development, and success in organic search is greatly dependent upon various technical and analytical tools that provide access to valuable data necessary for ongoing SEO and website improvement, as well as overall user experience optimization. The intersection and interdependence between website technology and online marketing have become clear, and essential – and SEO was at the forefront of this trend. New conference events such as MarTech (produced by Third Door Media, the company behind

SearchEngineLand.com and Search Marketing Expo) – are beginning to provide platforms for learning and growth within the powerful intersection of marketing.

II. METHODS AND MATERIAL

A. The Crawler

To offer the most effective doable results, search engines should conceive to discover all the general pages on the World Wide Web and then present the results that best match up with the user's keyword or search query. The first step in this process is crawling the web. The search engines like google and yahoo begin with a seed set of internet sites which may be proverbial to be terribly very sensible websites so visit the links on every page of those sites to get completely different web content.

The link structure of the Web serves to bind together all of the pages that were made public as a result of someone linking to them. Through links, search engines' automated robots, called crawlers, spiders can reach the many billions of interconnected documents.

B. Retrieval and Ranking

The next step in this quest occurs when the search engine returns a list of relevant pages on the Web in the order most it believes are most likely to satisfy the user. This process requires the search engines to scour their corpus of hundreds of billions of documents and do two things: first, return only the results that are related to the searcher's query; and second, rank the results in order of perceived importance (taking into account the trust and authority associated with the site). It is each relevancy and importance that the method of SEO is supposed to influence.

Relevance is that the degree to that the content of the documents came back in an exceeding search matches the user's question intention and terms. The relevance of a document increases if the page contains terms relevant to the phrase queried by the user, or if links

to the page come from relevant pages and use relevant anchor text.

C. Evaluating Content on a Web Page

Search engines place loads of weight on the content of every web content. After all, it's this content that defines what a page is concerning, and also the search engines do an in-depth analysis of every web content they realize throughout their crawl to assist create that determination.

D. What Content Can Search Engines "See" on a Web Page?

These programs are extraordinarily powerful. They crawl trillions of sites, analyze the content of these pages, and analyze the manner of these pages link to every different. Then they organize this into a series of databases that can respond to a user search query with a highly tuned set of results in a few tenths of a second.

METHODS AND ALGORITHMS

Algorithms: Finding helpful data on the World Wide net are a few things several folks view granted. According to the web analysis firm Netcraft, there are nearly one hundred fifty,000,000 active websites on the web these days. The task of separation through all those sites to seek out useful info is monumental. That's why search engines use complex algorithms.

1) Panda: This algorithm is meant to scale back rankings for low-quality sites—sites that are low-value add for users, copy content from alternative websites or sites that are simply not terribly helpful. At the identical time, it'll offer higher rankings for high-quality sites—sites with original content and knowledge like analysis, in-depth reports, the thoughtful analysis then on. Panda assigns a so-called "quality score" to net pages; this score is then used as a ranking issue.

2) Penguin: Google's Penguin algorithm was first released to the world on April 24, 2012. It was the first major algorithm implemented by Google to address bad links. Like Panda before it, the Penguin release shook the search landscape. Since the initial release of this algorithm there have been several incremental releases, and an expansion of the scope of the types of links addressed.

3) Pirate: Google's Pirate Update was designed to prevent sites that have received numerous copyright infringement reports from ranking well in Google search. The majority of sites affected are relatively big and well-known websites that made pirated content (such as movies, music, or books) available to visitors for free, particularly torrent sites.

4) Hummingbird: Hummingbird is intended to get at the heart of what the user wants, not just the exact keywords they search for. In large part, this is related to Google getting more prepared for mobile search. In mobile searches, users are less apt to type traditionally formatted queries, and in many cases, actually, do voice searches resulting in conversational queries. When users use voice search, their queries may also be much more conversational in format, such as please find me the closest gas station. In addition, with Hummingbird, Google will use many other factors to determine the intent of the user, such as considering previous related searches by that user. The Hummingbird algorithm attempts to determine the true meaning behind what a user is searching for, rather than simply returning results for the exact query they use. Indeed, in many cases, Google may simply relate the terms and consider them synonyms for the purposes of returning search results.

5) Pigeon: Pigeon affects those searches in which the user's location plays an important part. The update created nearer ties between the native algorithmic rule and thus the core algorithm: ancient SEO factors are presently aware of rank native results.

6) Mobile Update: Google discharged a big new mobile-friendly ranking rule that's designed to convey a lift to mobile-friendly pages in Google's mobile search results.

7) RankBrain: Google's using a RankBrain algorithm to help deliver its search results. It is a machine learning system that helps Google understand the which suggests behind queries and serve best-matching search ends up in response to those queries. Google calls RankBrain the third most important ranking issue. whereas we tend to don't perceive the ins and outs of RankBrain, the ultimate opinion is that it identifies connexion choices for website ranking for a given question, which are primarily query-specific ranking factors.

8) Possum: The Possum update is the name for a number of recent changes in Google's local ranking filter. After Possum, Google returns a lot of varied results reckoning on the physical location of the searcher (the nearer you're to an explicit business physically, a lot of seemingly you'll see it among native results) and also the phrasing of the question (even shut variations currently turn out completely different results).

9) Fred: The latest of Google's confirmed updates, Fred got its name from Google's Gary Illyes, who jokingly suggested that all updates be named "Fred".

Companies like Google and Bing both make an active effort to communicate with webmasters and publishers and provide some very useful tools for SEO professionals, and it is imperative that you verify your site(s) with these tools to take advantage of them.

III. RESULTS AND DISCUSSION

A. Search Engine Webmaster Tools

Using Webmaster Tools could be a good way to check however the search engines understand your web site. Setting up and using a Google WMT or Bing WMT account provides no new information about your site to the search engines, with the exception of any information you submit to them via the tools and the basic fact that you, the site owner, have an interest in the very SEO-specific data and functionality they provide.

B. Manual Spam Actions

Google will also notify webmasters via the Webmaster Tools interface (and via the email notification settings specified within the account) of any manual spam actions they have taken against a site. The figure below shows the type of message you can receive from Google if they have identified what they deem to be “a pattern of unnatural, artificial, deceptive, or manipulative links” pointing to pages for our site.

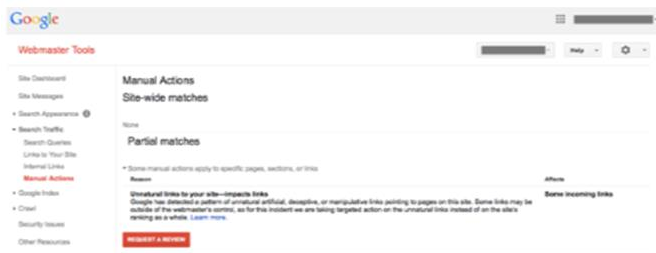


Figure 1: Google Webmaster Tools opening screen

C. Keyword Research Data from the Engines

There are a number of tools that can help you to do keyword research. Many of these are not designed mainly for that purpose, but they may be used to achieve interesting keyword research information if they're used in the right manner. The data in these tools show the number of pages that are related to a search phrase, not the number of searches on the phrase. This is still a useful indicator of the importance of a keyword phrase as more web pages tend to get built for more popular topics.

D. Knowledge Graph

Knowledge Graph was a Google initiative designed to allow them to leverage structured databases to enhance the search results. This initiative allowed Google to further enhance the presentation of their results.

E. On-page optimization

On-page optimization refers to all measures that can be taken straightforwardly inside the site so as to improve its situation in the pursuit rankings.

F. Off-Page Optimization

Off-page optimization is just the opposite of on-page optimization, this is consisting of those elements which are not directly control of the developer mainly outside the website, promotion of social platforms, etc.

G. Making an Optimal Information Architecture

Making your site well disposed to web index crawlers likewise necessitates that you put some idea into your website data engineering. A well-planned site design can bring numerous advantages for the two clients and web crawlers.

Usability: Web crawlers are attempting to replicate the human procedure of arranging pertinent site pages by quality. In the event that a genuine human was to carry out this responsibility, ease of use and client experience would most likely assume an enormous job in deciding the rankings.

H. Category structuring

As search engines crawl the Web, they collect an incredible amount of data (millions of gigabytes) on the structure of language, subject matter, and relationships between content. Though not technically an attempt at artificial intelligence, the engines have built a repository capable of making sophisticated determinations based on common patterns. As shown in Figure 2 search engine spiders can learn semantic relationships as they crawl hundreds of pages that cowl a related topic (in this example, dogs).

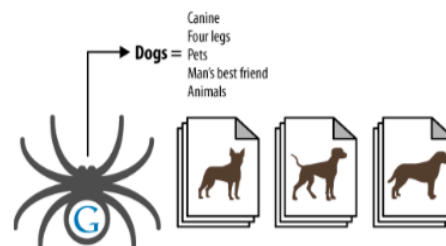


Figure 2: Spiders learning semantic relationships

I. Taxonomy and ontology

In designing a website, you should also consider the taxonomy and ontology of the website. Taxonomy is essentially a two-dimensional hierarchical model of the architecture of the site. You can think of ontology as mapping the way the human mind thinks about a topic area. It can be much more complex than taxonomy because a larger number of relationship types can be involved.

J. Keyword Targeting

The search engines face a tough task: based on some words in a query (every now and then simplest one) they have to return a list of relevant results ordered by way of importance and hope that the searcher finds what she or he is seeking. As website creators and web content publishers, you can make this process massively simpler for the search engines and, in turn, benefit from the enormous traffic they send, based on how you structure your content. The first step in this process is to research what keywords related to your business people use when searching for businesses that offer products and services like yours.

K. Optimization of Domain Names

When a brand new site is being conceived or designed, one of the essential objects to don't forget is the naming of the domain, whether or not it's far for a brand new blog, a company launch, or even just a friend's website. Here are some tips that will be indispensable when helping you select a great domain name.

Brainstorm five top keywords

1. Make the domain unique
2. Choose only dot-com available domains
3. Make it easy to type
4. Make it easy to remember
5. Keep the name as short as possible

L. Picking the Right URLs

Search engines place some weight on keywords or in your queries in your URLs. Be careful, however, because the search engines will interpret long URLs with varied hyphens in them (e.g., Buy-this-awesome-product-now.html) as a spam signal. What follows are some guidelines for selecting optimal URLs for the pages of your site(s).

1. Describe your content
2. Keep it short
3. Static is the way
4. Keywords never hurt
5. Subdomains aren't always the answer

M. Content Optimization

Content advancement identifies with how the introduction and engineering of the content, picture, and sight and sound substance on a page can be streamlined for web indexes. A significant number of these suggestions are second-request impacts. Having the correct organizing or show won't support your rankings straightforwardly, however, through it, you're bound to win joins, get clicks, and in the long-run advantage in search rankings. On the off chance that you routinely practice the procedures in this area, you'll procure better thought from the motors and from the human exercises on the Web that impact their calculations.

Content Structure: Because SEO has become such a holistic a part of web site development and improvement, it's no surprise that content formatting the presentation, style, and layout decisions you choose for your content is a district of the method. Choosing a browser-safe font like Arial and Helvetica could be a wise selection for the Web; Verdana particularly has received high praise from usability/readability specialists, like that that WebAIM offered in a piece of writing denote at <http://webaim.org/techniques/fonts/> Verdana is one in all the foremost well-liked of the fonts designed for on-screen viewing. It has an easy, simple style, and

therefore the characters or glyphs don't seem to be simply confused.

CSS and Semantic Markup: CSS is commonly mentioned as a best practice for general web design and development, but its principles provide some indirect SEO benefits as well. Google used to recommend keeping pages smaller than 101 KB, and it used to be a common belief that there were benefits to implementing pages that were small in size.

Content Uniqueness and Depth: Few can debate the value the engines place on robust, unique, value-added content Google, in particular, has had several rounds of kicking "low-quality-content" sites out of its indexes, and the other engines have followed suit.

Content Themes: A less discussed, but important, issue is the fit of each piece of content to your site. If you create an article about pizza, but the rest of your site is about horseshoes, your article is unlikely to rank for the phrase pizza. Search engines analyze and understand what sites, or sections of sites, focus on for topic matter. You can think of this as being the "theme" of the site (or section). If you start creating content that is not on the same theme, that content will have a very difficult time ranking. Further, your off-topic content might doubtless weaken the theme of the remainder of the positioning.

Duplicate Content Issues: Duplicate content has three categories:

- exact (or true) duplicates: whereby two URLs yield indistinguishable content.
- near-duplicates: whereby there are little substance differentiators(sentence order, image variables, etc.).
- cross-domain duplicates: whereby correct or close to duplication exists in various spaces.

N. Consequences of Duplicate Content

Assuming your duplicate content is a result of innocuous oversights on your developer's part, the search engine will most likely simply filter out all but one of the pages that are duplicates because the search

engine wants to display one version of a particular piece of content in a given SERP. In some cases, the search engine may filter out results prior to including them in the index, and in other cases the search engine may allow a page in the index and filter it out when it is assembling the SERPs in response to a specific query. In this latter case, a page may be filtered out in response to some queries and not others.

O. Controlling Content with Cookies and Session IDs

Sometimes you wish to a lot of rigorously dictate what a research engine mechanism sees once it visits your website. In general, program representatives can see the application of showing completely different content to users than crawlers as cloaking, which violates the engines' Terms of Service (TOS) and is taken into account spam. However, there are legitimate uses for this idea that don't seem to be deceptive to the search engines or malicious in intent. This section can explore strategies for doing this with cookies and session IDs.

P. Redirects

A divert is utilized to demonstrate when the substance has moved to start with one area then onto the next. When a divert is executed, clients who go to the old forms of our pages will be sent to the new forms of those pages.

IV.CONCLUSION

The study started with the introduction of SEO and some algorithms to get knowledge and working on SEO. Based on the discussion it has been found that SEO is important to get the best match up with the user's search query. Therefore, change of technology in a very short time, the search engines will upgrade and improve their searching algorithms and techniques, so that developers and website owners must rapidly enhance the strategies of updated SEO learning and to get higher ranking in the search results.

We have talked about many techniques and algorithms in this paper which can be used to easily rank the webpage that is present on the internet.

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