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Search engine optimisation: A primer on keyword strategies

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Abstract

This paper is the first of two written by the authors on the topic of search engine optimisation. It provides simple answers, from a keyword perspective, to two questions. What is search engine ranking all about? How does a website get higher rankings? It is designed to help the novice e-marketer better understand the fundamentals of search engine rankings and how online businesses can improve their rankings through proper use of keywords. The paper also discusses how to submit websites to search engines and how to avoid practices that cause problems with search engine indexing. Because Google is the dominant search engine, most information in the paper is directed toward Google's approach to ranking. The second paper in this series will focus on search engine optimisation linkage strategies.

Introduction

Paid advertising through pay-per-click (PPC) advertisements on search engines is a quite effective method of driving traffic to a website, but it can be costly. Because of the cost factor, a very important companion to PPC advertisements can be taking steps to obtain a high rank within a search engine's 'natural' or 'organic' search results; that is, within the engine's regular, unpaid results. Achieving this can save an e-business thousands, perhaps even tens of thousands, of dollars in advertising and can produce synergistic results when combined with a PPC ad campaign.

The proper use of keywords can result in higher 'natural' or 'organic' rankings for webpages, an important component of what is called 'search engine optimisation' (SEO). The combination of SEO and PPC search engine advertising often is labelled 'search marketing'.¹ For individuals interested in e-marketing, trying to understand search engine ranking can sometimes seem like trying to see the horizon through a fog. Just when they feel they are beginning to understand the basics, a gust of wind comes along, changes the scene and the outline they thought they saw vanishes. One reason for this phenomenon is that the business of search engine rankings is much different than it used to be. What were considered best practices just a few years ago can get a website blacklisted from certain search engines today.² Still, one very important topic in the field of e-marketing is SEO, and grasping the basics of SEO requires an understanding of at least the fundamentals of how search engine rankings work. At the minimum, developing such a knowledge base means understanding the following.

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- What is search engine ranking all about?
- How does a website get higher rankings?
- Do you have to pay someone to increase your search engine ranking?

There is a large volume of trade literature about search engines. For example, the results of a recent search on Amazon.com for the phrase 'search engine' resulted in a list of 367 titles. Much of the published information is quite technical, and much of it is out of date. One objective of this paper is to provide simple (albeit sometimes quite simplified) answers to the first two questions listed above so that the e-marketer can better understand the fundamentals of search engine rankings and how online businesses can improve their rankings through proper use of keywords. The answer to the third question depends upon both the time constraints facing the e-marketer and how effectively he/she acts using the knowledge gained from the answers to the first two questions. Since Google is the dominant search engine, with a 39 per cent market share, most of the discussion in this paper is directed toward Google's approach to ranking.³

Ranking is based on two factors

When the commercial internet was in its youth, search engines were not very intelligent. All the owner of a website had to do was repeat a keyword dozens of times on its webpage, and the page would almost magically shoot to the top of the rankings. Today such a practice is considered spamming and can result in a website being removed from a search engine's index. In the early, pre-bubble days of the internet, however, that is how the ranking game was played. Initially, ranking was based entirely on the words and HTML code found on a webpage. The better a webmaster could divine a particular search engine's secret algorithm (ie keyword density on various parts of a webpage), the higher the rankings that could be achieved.

Several years ago, however, Google introduced another set of factors that affect ranking: the quantity, quality and context of *incoming* links to a website. Today, the pattern of linkage to a particular domain has a great deal to do with how high a site is ranked with respect to these incoming link factors for a particular keyword. Thus, the search engine ranking of any given webpage is based on two main factors:

- The keywords on that webpage. The more focused and clear the content is on the webpage — and the clearer that content is indicated in the page's title, metatags, headings and body text — the greater are the chances of high ranking for the main keywords on that webpage.
- The pattern of links to a domain name — quantity, quality, and context of incoming links to its domain name.

Google employs a complex algorithm based on these two main factors (along with a few other less important ones) to determine which sites are on top for any keyword search. The Google website explains the process this way:

Today, repeating keywords dozens of times on a page is spamming

Keywords and incoming links

Google's ranking technology

'PageRank (the software behind Google's ranking technology) performs an objective measurement of the importance of web pages by solving an equation of more than 500 million variables and 2 billion terms. Instead of counting direct links, PageRank interprets a link from Page A to Page B as a vote for Page B by Page A. PageRank then assesses a page's importance by the number of votes it receives. PageRank also considers the importance of each page that casts a vote, as votes from some pages are considered to have greater value, thus giving the linked page greater value. Important pages receive a higher PageRank and appear at the top of the search results. Google's technology uses the collective intelligence of the web to determine a page's importance. There is no human involvement or manipulation of results. . .

Google's search engine also analyzes page content (through a process Google calls "Hypertext Matching Analysis"). However, instead of simply scanning for page-based text (which can be manipulated by site publishers through meta-tags), Google's technology analyzes the full content of a page and factors in fonts, subdivisions and the precise location of each word. Google also analyzes the content of neighboring web pages to ensure the results returned are the most relevant to a user's query.'⁴

Because of the rather lengthy discussions that are necessary to explain the basics of how the two factors (keywords and linkages) affect page rankings, the authors have chosen to deal with each factor in a separate paper. As previously mentioned, this paper provides a basic explanation of how keywords contribute to search engine rankings. It also discusses strategies for optimising webpages for indexing by search engines. The information provided draws heavily from the decade-long experience of one of the authors as an e-commerce consultant, publisher and author of a book dealing with SEO. It also capitalises on his experiences as a merchant managing a commercial website and both authors' reviews of SEO literature. This paper should prove useful to those who teach and study a variety of e-business-related topics, as well as to practitioners who want a better understanding of search engine rankings. The second paper in this series will address the effects of linkages (ie incoming links to a website) on search engine rankings.

Getting webpages ready for indexing: 'Arachnibotics'

To understand how best to prepare webpages for indexing by Google, one needs to understand how a search engine robot 'spider' functions (hence the term 'arachnibotics'). A web spider is 'software that browses the Web in an automated manner and keeps a copy of visited pages in its database. . . also known as a crawler'.⁵

Google's web spider, 'Googlebot', constantly crawls around the web, moving from one website to another, halting for a few seconds, analysing the site's code and then crawling on, website after website. Googlebot examines a page's HTML code, and if it can interpret it, keeps a record (tied to keywords) for others to follow to the site. When people search for

Search engine 'spiders' automatically browse the web

keywords on Google's search engine, they find webpages that feature that keyword. And if it is a particular merchant's webpage they locate, that merchant is one step closer to achieving its desired results — a shopper and (hopefully) a sale.

The key: learn how spiders 'think'

Helping a search engine index a webpage

Webpages can be optimised (ie properly prepared) for visits from search engine spiders such as Googlebot. If this is done well, a spider will index it according to the desired keywords/phrases. To understand how to get a webpage properly indexed, however, one must learn to think like a spider thinks. This means 'empathising' with the job a spider must perform: examining one webpage after another trying to figure out what each page is really about; rushing on to another website; repeating this task throughout the day, and the next day and the next, in an effort to examine the 8 billion plus webpages that are out there. If the spider were a person, one might even start to feel sorry for it and want to do whatever was possible to 'ease the pain'. To accomplish this, webmasters need to provide spiders with clues written clearly in their webpages. Keywords constitute the clues; however, the keywords must be carefully chosen so that the spider can easily determine what the page is about. For example, assume that a search engine encounters two webpages with the keywords listed below:

- Page A's keywords: aspirin, Advil, headache, arthritis
- Page B's keywords: aspirin, kerosene, sparkling water, quantum physics.

Don't confuse the spiders

A search engine spider trying to make sense of the keywords on these two pages would have little difficulty divining the content of Page A. On the other hand, a spider encountering the keywords on Page B would be confused because the words are so unrelated. The webmaster's job is to leave abundant clues for the search engines so there is no question what that webpage is all about. The more diverse the keywords on a webpage, the lower that webpage will tend to rank for any of those keywords. But if the search engines find lots of clues to the webpage topic — and the clues all seem to mesh — then the search engine is pretty sure of what it is about and will tend to rank it higher for the specific topic. These clues enable the spider to relate a webpage to the desired keywords or key phrases.

In the early days of the commercial internet the prevailing approach to SEO was to trick and/or manipulate search engine spiders, but today that is difficult to do. Spiders like Googlebot may have what sounds like an impossible job to do, but they are smart; that is, they know when someone is trying to trick them. To reiterate, then, what webmasters need to do is help spiders find the information for which they are looking. They need to make a spider's job easy, so that as it hurriedly crawls around a website it has a myriad of carefully selected clues to guide it. The following paragraphs explain the basics of how this is done.

Proper preparation of a webpage for spider visits (ie providing the right

clues) requires an understanding of how a search engine determines what is important on a particular webpage. This first requires a basic understanding of the appropriate and most effective content for the HTML title tag, description metatag, headings, body text, hyperlink text and hyperlink URLs. Search engines used to look at keyword metatags, hidden comments and ALT tags under graphics, but most do not bother these days. Nonetheless, keyword metatags are still discussed here for reasons that will become apparent. Other less significant design points to consider are the keywords associated with bold face, italics and image file names.

Title tag

Carefully word the title tag

From the standpoint of both the search engine and the searcher, the most important element of a webpage is the title. Search engines weigh the title tag fairly heavily in deciding what keywords are important for that webpage. (For the sake of clarity, the title tag is not the same as the webpage's headline. In fact, the title tag does not appear on the webpage itself; instead, it is visible on the uppermost bar of a browser's window.) The title should be focused, rather than general. This implies putting the most important keywords first, where spiders can quickly see them — a practice usually referred to as 'keyword prominence'.

For an example of this, take a hypothetical company named ABC Ammunition, Inc. Assume that ABC recently acquired the Draculan Ammunition Company, a manufacturer of silver bullets; thus ABC's key offering is no longer just 'any' shells and bullets, now it is silver bullets. Further assume that ABC is the exclusive supplier of these unusual items, and people are looking for them. With this in mind, to provide the most clues to spiders (as well as to humans), the title of ABC's homepage should read 'Silver bullets from ABC Ammunition, formerly Draculan Ammunition', rather than 'ABC Ammunition, Inc'. Leaving out anything that people will not be searching on, while still making the title readable, will please both spiders and humans. It is also good practice to limit the title tag to six to eight words, since Google only displays about 60 characters for searchers to see (even though it indexes more). Finally, webpages in a site's 'interior' should not repeat the homepage title; instead, they should have specific titles containing keywords suited to their own individual content.

Description metatag

A strategically designed summary of the page's content

If a webmaster has correctly composed the title tag for a page, a spider will already have formed a good idea of what the page is about from that title. But spiders do not stop with page titles. The next thing a spider comes to is the description metatag (if the site has one). The spider will read and analyse it, so it is good practice to help make this task as easy as possible for the spider. The description metatag should be a one- or two-sentence description of the content of the webpage that is no more than about 250 characters in length. It should be rich with the various keywords someone might search on to find content in this particular page. And although description metatags are not as vitally important as they were a few years ago, it is unwise to omit them since they are subject to

Yahoo! still looks at the keywords tag

Headings and subheadings should contain important keywords

CSS confuse spiders

scrutiny by search engine spiders. If they are skillfully written, they help spiders focus on what is really important on a particular webpage.

Keywords metatag

Although some webpages may have a keywords metatag as well as a description metatag, some contemporary spiders (most notably Googlebot) skip over them. This is because, too many times in the past, spammers have loaded this tag full of keywords designed to deceive spiders. Does that mean one should leave out the keywords metatag? No, say some observers, because some search engine spiders, Yahoo!’s for instance, do scan the keyword metatag.⁶ Presently Google is the leader in the search engine marketplace, but a few years from now MSN, Yahoo! or another competitor could overtake Google. Given this possibility, the authors recommend including a keywords metatag but not obsessing over it. The approach recommended is to write the description metatag in a keyword-rich manner. Once this is done, the webmaster should remove every word that would not be found in a search and leave only the important keywords (no repeated words), with a comma separating each. Table 1 contains examples of both the description and keyword metatags written by one of the authors when he published a brief review of the software package Product Idea Evaluator on his commercial website.

Since Exhibit 1 contains the metatags for just one article among hundreds on his website, the author did not go to extreme lengths to put most important keywords first or to trim down the description to exactly 250 or fewer characters, but these metatags seemed to ‘please’ Googlebot because the article was indexed by Google in the desired manner.

Headings

Next, search engine spiders come to a page’s headings (section/paragraph titles; H1, H2, H3 in the vernacular of HTML). Ordinarily, spiders are programmed to look at headings to obtain more clues as to what a webpage is all about, thus they scan them for keywords. Spiders begin with the name of the webpage (article title), usually found between H1 or H2 tags, and progressively work down the page. Writing with subheadings facilitates easy analysis of webpages by spiders; therefore it is recommended that each subheading (H3, for example) contain an important keyword for that section of the document. Not only do

Table 1: Examples of keyword and description metatags

Description metatag	Keyword metatag
This software uses keywords to help you locate niche opportunities that are both profitable and not too competitive, computing relative profitability based on conversion rate (CR), click-through rate (CTR), cost per click (CPC), Keyword Effectiveness Index (KEI), Pay Per Click Effectiveness Index (PPCEI), and bid prices (277 characters, a bit long)	keywords, niche, opportunities, profitable, competitive, research, profitability, conversion rate, CR, click-through, CTR, cost per click, CPC, Keyword Effectiveness Index, KEI, Pay Per Click, PPCEI, bid prices (165 characters, satisfactory length)

subheadings make it easy for readers to scan the document for meaning, they also make it easier for spiders to do the same.

Prior to leaving the subject of headings, there is an important, but technical, caveat that should be discussed with respect to cascading style sheets (CSSs). Increasingly, website designers do not use FONT tags within a webpage to indicate font styles; instead they create 'classes' that are defined in detail in a CSS. All the sizes, indenting, typefaces, colours and the like are determined by the CSS. While this may sound like a logical approach, it is common for website designers to devise their own classes for page headings and subheadings, and then substitute these classes for the HTML standards of H1, H2, H3, etc. Unfortunately, search engines cannot interpret CSSs; therefore they cannot tell that a heading is a heading because it is not designated by H1, H2, H3. This, in turn, can lead to vital clues to a webpage being lost. Thus it is recommended that a site's designer uses H1, H2 and H3 tags for headings and subheadings, and defines those further in the CSS.

Body text

Ultimately, it is the body text of a page that is critical to SEO. Spiders are used to attempted trickery involving titles, metatags and headings, but when they encounter the body text they can easily spot deception. The spider quickly scans the main points, recording important keywords and their synonyms. In the first paragraph, the spider will expect to find the most important ideas. Sometimes the spider will also find a summary paragraph. If this is a 'good' webpage, the keywords discovered in the first and last paragraphs of the body text frequently repeat the keywords found in the title, the metatags and the headings. Assuming this is the case, they provide the spider with important clues regarding the real focus of the page. To return to the ABC Ammunition example to clarify this point, when the spider sees congruency among the title, the metatags, the headings and the body text, the search engine will rank the page higher for 'silver bullets' and 'ammunition' because it is confident that the page is relevant to those particular keywords.

Vague, general webpages that ignore using keywords in the title, metatags, headings and body text confuse search engine spiders. If the spider could talk, it might say something like: 'Just what is this webpage about? I thought I had it figured out, but now I'm hopelessly lost. Oh, well, if I can't figure it out, it probably isn't important anyway.' It is likely that the page in question will show up in a keyword search if the searcher is willing to persist to the tenth page of results, but it will not rank up near the top if the spider cannot understand it.

Hyperlinks

Spiders also scan hyperlinks (both the on-page text and the hyperlink syntax itself). If on the ABC Ammunition site some hyperlinked words say 'advantages of silver bullets', the spider takes note of it. If the file name of the URL this hyperlink points to is 'silver-bullets.html', that yields the kind of congruency for which spiders are searching. The spider is reasonably certain now that this webpage is about silver bullets. When

Include appropriate keywords in the body text of the page

it sends its ranking recommendations to the search engine, it will include that finding in its report.

Submitting a website

Once a website has been developed, the webmaster needs to inform the search engines that it is there. This is called ‘submitting’ the website to the search engines. Submitting is not a very complicated process; in fact, the major search engines will probably know about the site before the webmaster submits it, because of the domain name registration process. Still, the webmaster should check to see if the site is in the index. If it is, it need not be resubmitted. Some services advertise that they will submit a site to 1,000 search engines. The authors feel that paying for services such as these is an unnecessary expense, at least in the USA. If there is a need to submit, informing the following three sites is all that is necessary:

- Google: www.google.com/addurl.html
- Yahoo! Search: <http://submit.search.yahoo.com/free/request>
- MSN Search: <http://search.msn.co.in/docs/submit.aspx>.

There might be a reason to submit to one or two other search engines, perhaps, such as industry-specific engines, but most search engines presently are fed by Google, Yahoo! and MSN Search.

There is no need to submit every individual page within a website, just the top page. Google provides the following explanation regarding why this is the case:

‘There is no need to submit every individual page within a website, just the top page. Your job is to create an unbroken chain of hyperlinks from your homepage to every page in your site. For larger sites this would be homepage to sectional pages, and sectional pages to the webpages within their sections. Let the search engines find your webpages themselves. When you add new webpages to the site, the search engines will find them the next time they spider the site.’⁷

The authors see no reason for a webmaster to keep resubmitting webpages that have already been found and ranked. The number of times a page is resubmitted will not lead to a higher ranking. In fact, the authors believe a webpage should be resubmitted to the search engines *only* if the search engine does not seem to be indexing that webpage, or if the webpage has been redesigned (keywords and all) and the need exists to re-index it quickly.

Practices that ‘confuse’ spiders

There are several practices that can make it difficult for spiders to get to webpages at a site. The most important of these are discussed in the following paragraphs.

Frames

Using HTML frames can cause navigation problems for spiders. While frame-related issues tend to be rather technical, it is important that they be understood at least at the basic level. At the root of the problem is the fact

No need to submit to hundreds of search engines

Do not keep resubmitting to a search engine

Frames can prevent spiders from seeing your other webpages

that many programmers neglect to use NOFRAMES tags that can instruct a search engine how to get to a webpage. If a search engine somehow finds a webpage in the interior of a frame, it is likely to appear without any navigation system around it. Because of this, the spider cannot navigate to the site's other pages. (Here the authors should interject that a simple JavaScript at the top of the page can cause the frame navigation system to be rebuilt around the page found, but many designers neglect to include such a script.) During the 1990s using frames sometimes made sense, but now knowledgeable website designers have moved away from frames in favour of menu systems built from 'server side includes' (SSIs) or 'include files' within PHP, ASP or ColdFusion systems. The result is far superior to frames. Even so, in early 2006 one of the authors happened upon an attractive website that relied on frames for the e-commerce content of product pages. From the 'look and feel' standpoint it was delightful site, but from the standpoint of the product pages having a chance to be indexed by the search engines, it was quite ineffectively designed. If a site's programmer insists on using frames, some experts in site design advise dismissing him or her and hiring someone who understands the importance of being found by the search engine spiders.⁸

When using Flash/JavaScript menus, also include text links to your other pages

Flash and JavaScript menus

Yet another common design practice that causes problems for search engines spiders is relying entirely on elaborate JavaScript and/or Flash menu systems that drop down additional menu choices when a mouse hovers over them. While there is nothing wrong with this type of menu, the problem arises when JavaScript and Flash menus are the *only* way to get to other webpages on the website. Fortunately there is a simple way to alleviate this problem: at the bottom of the home page include hypertext links to the sectional pages, and then on each sectional page provide links to the webpages in that section. This enables spiders to find their way through the site, while the easy-to-use JavaScript and/or Flash menus allow human visitors to do the same.

Splash pages

Some websites open with 'splash pages'; that is, animated pages built in Flash language that appear prior to the homepage. The problem here is that search engines cannot read and interpret Flash commands. Thus, unless there is an HTML hypertext link to your site on the splash page, search engines might not be able to get past that page to spider the rest of the website.

It is the personal belief of the authors that, in the vast majority of instances, splash pages annoy visitors to a site because they extend the time it takes for visitors to obtain the information they desire. There are no hard data, however, that lead to the conclusion that the presence of a splash page causes decreased revenues.

Dynamically generated webpages

Although they are not as common today, a third potential cause of problems for search engine spiders concerns dynamically generated

Long/complex URLs can confuse spiders

webpages with long, complex URLs. Large sites can be time-consuming to maintain, so they are built using databases that contain the webpage content. When that content is needed, it is inserted into templates by content management systems. So far, this sounds like an efficient and necessary practice; however, a problem arises when the URL begins to look complex to the search engine spider. Here, for example are URLs generated by two content management systems:

- <http://www.pcmag.com/article2/0,1895,19369,00.asp>
- http://www.businessweek.com/investor/content/mar2006/pi20060309_183450.htm.

Although these URLs are long, search engine spiders can interpret them. For comparison, however, examine a URL generated by another content management system:

- <http://www.funnydomain.com?article=12575§ion=19945&sessionID=J47TTuy911472duvbvuet9198389057963988xyz>.

A search engine spider would not know which parts of the URL are important, and would have particular trouble interpreting the long session ID at the URL's end. Yet another example of a problem URL is the following one generated by a shopping cart that is not search engine friendly:

- <http://www.hiddendomain.com/product/categoryList.aspx?tb=2&c1=2011&c2=2013>.

It is the authors' experience that question marks (?) in URLs can confuse spiders. While they can index webpages with question marks in the URL, spiders may not index them completely or deeply.

When dynamically generated webpages are not getting indexed, there are some work-arounds.

URL rewriting and site maps can help

- The site developer can employ 'URL rewriting' to simplify the URL for the search engine spider.
- A site map that gives HTML links to each of the important information and product pages can be included.
- Visitors can be attracted to the website with a set of webpages, each painstakingly optimised to target a separate keyword important to your business.
- Google SiteMaps (discussed below) can be used.
- Use paid inclusion for important webpages. As the time of writing Google does not offer paid inclusion, but Yahoo! does through its Search Submit program.⁹ Spending \$49.00 (for one URL; less for additional pages) a year plus 15 cents a click to get a product page indexed can be a bargain, especially if that product page can earn its owner thousands of dollars per year if it is properly indexed.
- Use a commercial program designed to making deep content in

dynamically generated webpages accessible to the search engines or those that provide search-engine-friendly links to dynamically generated webpages. An example of the former is Dynamic Site Mapping (www.bruceclay.com/web_dsm.htm), and of the latter is SpiderLinker (www.youramigo.com/company/search-engine-optimization.html).

- The best solution (and what seems to be the trend) is to get a site's programmers to simplify the URLs on dynamically generated sites.

Google SiteMaps

In 2005 Google began offering Google Sitemaps (www.google.com/webmasters/sitemaps), a system for submitting an XML-based sitemap directly to Google. The system is designed to help Googlebot index larger sites more easily. Essentially, Google SiteMaps works as follows.

- A software tool is employed to create the sitemap in Google's designated XML format.
- That sitemap is uploaded to a merchant's website.
- Google is notified of the sitemap's URL.

Some third-party developers make it easy to create an HTML sitemap for Yahoo!, MSN and other search engines to use. For smaller sites (less than 750 webpages), the free online Google Sitemap Generator (www.tarrantit.com/GoogleSiteMap/) generates a map with up to 750 entries. It includes a 'filters and settings' section that allows the user to restrict directories searched. There are options to include PDF, .doc, .xls and even .zip documents. The program can be told to obey robots' metatags regarding which directories and files to index and which to avoid. It also generates both an HTML and an XML sitemap.

Regardless of the tool that is ultimately selected, it is important for a site to include Google Sitemaps, especially if the site is a large one. It is a free and effective way of getting all (or at least more) of a site's webpages indexed by the search engines.

Summary

As mentioned earlier in this paper, there are two main factors that determine any given webpage's ranking for a keyword: the keywords on a webpage, down to the HTML code level; and the pattern of links to a domain name (quantity, quality and context).

This paper discusses SEO strategies involved with preparing a site's webpages and website so that search engine spiders can find those webpages and have abundant keyword clues to the actual content of the site. But properly indexing a site is only one half of the optimisation equation. The other half is taking steps to make sure the site is considered relevant enough by the search engines to rank near the top. The second paper in this series, which deals with obtaining incoming links to your website, will be published in the next edition of this journal.

Finally, it is important to remember that search is a competitive field; therefore changes will continue to take place over time. Because of this

Site maps make it easier for search engines to index larger websites

Keep updating your SEO expertise

fact, the reader will periodically need to update his/her search engine expertise.

Glossary

ASP (active server page) — An add-on tool for Microsoft's Internet Information Services used to dynamically generate webpages.

ColdFusion — Adobe Systems' programming tool for generating dynamic webpages.

Deep content — Webpages located within a website and accessed by going from the homepage to another page, and from that page to yet another and so forth.

Domain (domain name) — A name, usually divided into parts separated by periods, that is used to locate a particular computer or computers on the internet. A domain name is linked to a computer's IP address.

Flash — Adobe Systems' scripting language for displaying multimedia elements on a webpage.

HTML (hypertext markup language) — The programming language or code added to text, graphics etc in order to display properly formatted webpages. Clicking 'View' on the toolbar at the top of the web browser and then selecting 'Source' on the resulting drop-down menu will display the HTML code for any webpage.

HTML frame — An HTML tag or element used to divide a webpage into more than one window.

HTML tags — Elements of HTML placed around the content of a webpage to identify that content and its formatting. Each tag can provide important information that can be read by search engine spiders as they try to determine the contents of a webpage. The name of a particular tag generally identifies that tag's purpose.

Incoming links — When site A displays a hyperlink to site B, that link is an incoming link to site B.

IP address — A unique number that identifies a particular device (ie computer, printer, router, fax etc) connected to the internet.

JavaScript — A scripting language used on webpages to accomplish tasks not possible with HTML, such as displaying pop-ups, validating form content and changing the appearance of images as the user passes the cursor over them.

Keyword(s) — A word or phrase which identifies the content or concept of a webpage.

Natural (organic) search results — Unpaid search engine listings, as opposed to listings that appear because the search engine has received compensation.

Pay-per-click advertisements — Text and/or graphical ads placed on webpages. Advertiser pays a fee when a visitor to the site clicks on the ad.

PHP — An open source server-side programming tool for dynamically generating webpages as they are requested. Originally stood for 'personal home page'.

Search engine ranking — Where a website appears when users search for keywords related to the site. The objective is to rank 'high'; that is, in the listings first viewed by the searcher.

Server side includes (SSI) — A programming technique used mainly for web documents that tells the web server to include the contents of one program in another program.

URL rewriting — Using server-based software to alter a URL's syntax prior to displaying the page to which the former URL refers.

Web crawling (spidering) — An automated methodical browsing of the web by a software program. For the purposes of this paper, the browsing is accomplished by a search engine's web robot or spider.

XML (extensible markup language) — A markup language that can be used for describing a variety of types of data for sharing, particularly across the internet, on different computing systems and/or applications.

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