



## The Role of Backlinks in Search Engine Ranking

Ayush Jain<sup>1</sup>, Meenu Dave<sup>2</sup>

<sup>1</sup>M.Tech Scholar, Department of CSE, Jagan Nath University, Jaipur, India

<sup>2</sup>Assistant Professor, Department of CSE, Jagan Nath University, Jaipur, India

**Abstract**— Search engines are designed to crawl and index the web pages efficiently for better search results. There is huge contribution of link building for website popularity. The number of backlinks play an important role for website ranking in search engines. Backlink is any link received by a website from another website. This paper describes the techniques of making backlinks with its effect in improving search engine ranking.

**Keywords**— Backlink, Crawler, PageRank, Ranking, Search Engines, SERP, Websites.

### I. Introduction

Websites are growing day by day. The world wide web makes massive use of the search engines which play a critical role. Search engines work in two steps: the first step is crawling and the second is indexing. Search engines have automated programs called robots or spiders that make use of hyperlink structure to crawl through the pages, and after the crawling process, the webpage is indexed with the search engine. All search engines like Google, Yahoo, Bing etc. crawl through the web pages according to the on page content, quality and number of links from other websites (known as Backlinks). As the backlinks increase in number, the ranking in search engine also increases.

### II. Background

**Search Engine:** Search Engine is an internet tool that searches index of documents for a particular keyword. Search engine extracts the information from the World Wide Web. The results are presented in form of SERP (search engine results page). Many search engines are available for the purpose, like yahoo, Google, Bing etc., but the most popular search engine is Google [1].

#### Search Engine Working:

The working of the search engine is divided into two parts:

(1.) **Crawling The Web:** Search engines have automated programs called robots or spider, that use the hyperlink structure to crawl the pages and documents that make up the world wide web [2]. A crawler is a program that visits websites and reads their pages in order to create entries for a search engine index.

Once the pages have been crawled, its content can be indexed and stored in the large database of search engine [3].



Figure 1: Search Engine Diagram

**Crawler:** A Crawler is a program that retrieves web pages, commonly for use by the search engines [4].

### Types of Web Crawlers:

**1. Server Side Crawlers:** The server side crawlers are business oriented, scalable, reliable and resource hungry, e.g. Google, AltaVista etc.

**2. Client Side Crawlers:** Client Side Crawlers are more customer oriented, have much smaller requirements and need guidance to proceed, e.g. Teleport Pro, Web Snake etc.

Crawler starts with the URL for initial point  $p_0$ . It retrieves the content until the end of URL, and a queue would be made for this. The frequency and permission of web crawler depends upon many factors of website like robots.txt, .htaccess file, web servers, firewalls, sitemap and specially the content of website. The designing of crawler is a very difficult process. The crawler uses some important parameters and metrics for crawling the entire web.

**1. Backlink Count:** The value of  $I(p)$  is the number of links to  $p$  that appear over the entire web. We use  $IB(p)$  to refer to the important metric. Intuitively, a page  $p$  that is referred to by many pages is more important than one that is seldom referenced.  $IB(p)$  metric treats all links equally.

**2. PageRank:** PageRank was developed by Google founders Larry Page and Sergey Brin. PageRank is a link analysis algorithm, used by Google, that assigns a numeric weight to each of the hyperlinked set of documents [5]. Page Rank varies from 0 to 10. PageRank determines the importance of page. There are some official websites of Apple, Google, Microsoft, Macromedia, NASA etc [6], that have pagerank 10.

In Backlinks count, all links are treated equally, but in case one link is from Google blog and the other is from normal webpage, then the importance of the above links will vary. Google is more important than the other website URL, so it has a higher  $IB$  count.

**3. Forward Link Count:** It is represented as  $IF(p)$  that counts the number of links that is from  $p$ . A web page with many numbers of outbound links is really important.

**4. Location Metric:** It is basically represented as  $IL(p)$ . If URL  $u$  leads to  $p$ , then  $IL(p)$  is a function of  $u$ . for example, URL ending with .edu is more important than any other domain.

### The Crawler Methodology:

Any crawler consists of a set of pages  $S$  that are to be visited, and a set of links  $L$  retrieved from the page being currently parsed. A graph is constructed as the pages are being parsed, the graph would show the links from one page to the other, and this graph is later used for indexing.

For programming of the crawlers, data structures like stacks, queues etc are used for  $S$  and  $L$ . The process of crawler is known as C-proc [7].

**Backlinks:** Backlinks are links from other websites to your website. Backlinks, as shown in figure 2, are important for SEO (search engine optimization), because search engine's algorithm gives credit if any website has large number of backlinks. As the backlinks increase, website's popularity and search engine ranking will increase.



Figure 2: Backlinks

### Techniques of Making Backlinks:

There are some techniques for the creation of backlinks as shown in figure 3.



Figure 3: Link Building Techniques

- 1. Article Submission:** Submission of articles in Reputed Directories is one of the best techniques for making backlinks. The examples of reputed directories are:  
www.sooperarticles.com  
www.hubpages.com etc.
- 2. Directory Submission:** Submission of website link into reputed web directories and internet directories is termed as Directory Submission. In the process of directory submission, the submission of url, title, description and other information of website is submitted.  
Example: Dmoz(www.dmoz.org),  
Yahoo(www.dir.yahoo.com) etc.
- 3. Comment Posting:** In this technique, backlinks are created by commenting on different blogs and websites. The blog commenting is really effective on the same niche blog and websites.
- 4. Forum Posting:** Forum Posting is a technique of link building in which website links are associated with good forum posts. In this technique, efforts are made to make backlinks from forum discussion in related niche forum websites.
- 5. Press Release Submission:** In Press Release Submission, the latest news is submitted in related websites.
- 6. Social Bookmarking:** Social Bookmarking is the best method to organize, store, manage and search for bookmarks of online resources. There are several social bookmarking websites available like Digg.com, Stumbleupon.com etc.
- 7. Classified Submission:** Classified Ads are basically online ads which are placed on classified related websites. This is also the best method of getting backlinks.
- 8. Videos Submission:** Backlinks can also be created by submitting videos in video sharing websites like youtube, vimeo etc. [8].

**Importance of PageRank and Anchor Text in Search Engine Ranking:** For website search engine ranking, anchor text and page rank are really important factors. Anchor text is represented as <a href="url of webpage">keyword</a>. As backlinks on keywords increase, the probability of search engine ranking on a particular keyword also increases. The link associated with higher pagerank has greater importance as compared to the lower pagerank.

**Link Practices that should be avoided:** The backlinks on similar niche websites are important for better search engine ranking; but some webmasters focus on making many counts of backlinks instead of quality of links, which is not a good strategy of optimization. The reciprocal link exchange should also be avoided. In a link exchange, one webmaster places a link on his website that points to another webmaster's website, and vice versa. Backlinks on same IP websites should be avoided, as this can be the biggest reason to hurt search engine ranking of all the websites [9][10].

### III. Conclusion

For good search engine ranking of website, the really important factor is content. Content should be original, not copied. For good search engine ranking other than content, the links associated with other higher pagerank websites are really important,

that is called backlinks. Backlinks should be in relevant niche websites. As well as backlinks on particular keyword increase, search engine ranking will increase on that keyword.

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