

Web Social Networks Meters and Business Usage Analysis

H. C. A. Tavante

*Institute of Systems Engineer and Technology
Universidade Federal de Itajubá
Itajubá, Brazil
hannelita@gmail.com*

M. P. Coutinho

*Institute of Systems Engineer and Technology
Universidade Federal de Itajubá
Itajubá, Brazil
mc9@unifei.edu.br*

Abstract—Since the concept of "social networks" has got widespread among people from all countries, few users focused on profiting them under different areas. In this paper it is proposed a separation of types of social networks and a tool with the function of a web-meter for measuring people's social status on these networks after applying some resources that could help them to get satisfactory results in business, marketing and even at relations with other people in social networks.

Keywords—Social networks, web meter, Twitter, Facebook, business, marketing.

I. INTRODUCTION

Today, the concept of social networks is widespread among people from all over the world and has become an attractive subject for new software applications, marketing and business strategies and leisure. First of all, a brief history of social networks is described. Then, a classification of types of social networks is proposed and in the sequence, the concept of web semantic is explained and explored for social networks. Then the relation between business and social networks is widely described and an example is shown. A social web meter is proposed and explained and then a future works is described.

II. BRIEF HISTORY OF SOCIAL NETWORKS

In 1968, J. Licklider and R. Taylor published the paper "The computer as a Communication Device" [1], presenting the first definition of social networks. Through examples like "You will not send a letter or a telegram; you will simply identify the people whose files should be linked to yours and the parts to which they should be linked-and perhaps specify a coefficient of urgency", they described part of our reality nowadays.

Usenet, created in 1979 and established in 1980, was the first social network that really was widespread among users, even those who did not have a wide technical knowledge. It was the first forum type (Internet discussion system) site with a large number of users. Some years later, the term "virtual community" [2] was created by Howard Rheingold, who defined "A virtual community is a group of people who may or may not meet one another face to face [...] and

who exchange words and ideas through the mediation of computer bulletin boards and networks."

Nowadays, social networks became a powerful source of information, a tool for marketing and business and source of leisure and entertainment.

III. TYPES OF SOCIAL NETWORKS

Nowadays there are hundreds of social networks websites listed. It is possible to identify four groups among them:

- 1) Leisure - The ones like Facebook and Orkut, made by interacting with friends, meeting people online, playing games.
- 2) Business and career - Social networks like LinkedIn and Github, where you can have an overview of professional interests and jobs.
- 3) Hobbies - The ones like last.fm and Scoob, where you can make profiles about books, music and hobbies in general.
- 4) News - Social networks where you can have news portal.

The classification proposed is mainly based on user targets and interests. It is an important concept for the web meter to be implemented.

IV. SEMANTIC WEB AND SOCIAL NETWORKS

Since Tim Berners-Lee introduced the concepts of web semantic [3], most of Licklider and Taylor's ideas became concrete. Basically, Web Semantics tries to make relations among data on the web. This is the base of social networks - for example, given the name of your College and graduation year, try to find your classmates based on these information.

But nowadays data is not closed to a social network by itself. Data is spread into many social networks that one person might have. For example, it is very common to have a Facebook profile, a LinkedIn account, a Twitter account and, if you are a software developer, you might have a GitHub account. It is possible to consider that web semantics might encourage merging all data into all these social networks to add rich content to the web.

People have different facets on their lives - work, family, leisure, hobbies. So, all data stored into all types of social

network should be merged to have a real profile of the user, getting close to it's identity out of the web.

System integration results in data integration, as well as proposed for web semantics. More information users publish, more the world wide web learns about their lives. Nowadays, few users have instructions of how to use web database to have useful results with their personal data stored on it. It is possible to see lots of people using Facebook to play games and keep contact with old friends. But of them try to use it to improve knowledge or expand professional networks. Most users do not perform this approach because they don't know how to obtain this kind of results from social networks. There is a big treasure hidden behind social networks, they have a powerful way to persuade people and involve them, resulting in pretty good results for business and marketing. Companies are learning how to use them as a useful work tool.

V. SOCIAL NETWORKS, BUSINESS AND MARKETING

With Twitter's culture dissemination, lots of companies get introduced to how to promote their business with social networks. Using a Twitter account, they could keep their followers informed about promotions and discounts, job offers and new products and services. They could do that in a really fast way. 30 seconds to tweet (post a message on profile) against a couple of days to release an advertisement in a popular magazine. Twitter can be a great experimental laboratory for marketing by being a source of real fast feedback. If a company has a new idea of service or product, they can tweet about it and get answers and suggestions of their followers, leading to success of the idea of deciding to abandon it. [4].

The trio Twitter + Facebook + LinkedIn has given companies lots of good results. With Twitter, they can keep users informed about their products, Facebook shows their profile and with LinkedIn it is possible to hire new workers that are updated with it's content.

Many social networks websites and too much data: how to manage that? There is no right answer, but some steps can be followed to help obtaining good results. For example, how to get Google's first webpage result? How can you encourage your Twitter followers to visit your blog? How could users find you into other social networks? How can you make people enjoy your online profile at social networks? How can you make people trust you as a leader?

There are some parameters that can be applied to help to get good answers to these questions. All of them depend on generated web content. It is important to care about content quality first. Consumers, for example, buy products and can produce content about it - publishing pictures on their Flickr or tweeting something. According to [5], "Consumer-generated media [...] is controlled by the participants in that media or conversation." Web semantics makes marketing something bidirectional - companies find customers and

customers find companies. But more than that - companies sell products and customers can help to promote it or not with their generated content. Customers can find other customers with same interests indicating some products they enjoyed. So relations become more digital, but at the same time more rich and difficult to control or foresee. It is not possible to control user's response to advertisements. It generates a social conversation between clients and companies's products on social networks, providing different experiences for both sides, customers and companies, resulting into an "articulation of response". [5]

Some features are clearly defined for obtaining good results with social media and marketing. First of all, it's necessary setting goals. For this paper, a short and simple example is described. It shows how one of the authors created an identity for herself on the web using some techniques. The goal was getting known as a reference on IT community.

First goal was increasing Google's search results for the author's web identity name (hannelita). Figure 1 shows results with and without Twitter's influence. The difference between number of results is around 700 webpages. Notice that for the search including "twitter" word, the first Google's search result is the Twitter's profile.



Figure 1. Google's search result with and without word "twitter".

Google' search result is very important because it is a reliable way to users find your webpage and social networks profiles. Being on the first page means people seek for your company or service, and you have something to deal with people on the web. Google is the most used web search tool nowadays, and it was chosen in this paper because of its relevance.

Second step was creating content to make users trust your product. For the example in this paper, the main goal was creating a blog and guaranteeing frequently visitors. This was done for <http://hannelita.wordpress.com>.

Next step was creating and maintaining an active Twitter account, publishing appropriate content related to IT department. Tweeting interesting links, commenting on papers and articles and being active at community projects attracts new followers. These new followers make more visits to the blog and keep it with lot of hits.

Final step closes this cycle by referencing all kinds of social networks in a central space. Twitter references the blog. Blog contains information about Twitter, LinkedIn, Facebook and others, as shown in Figure 2. This makes

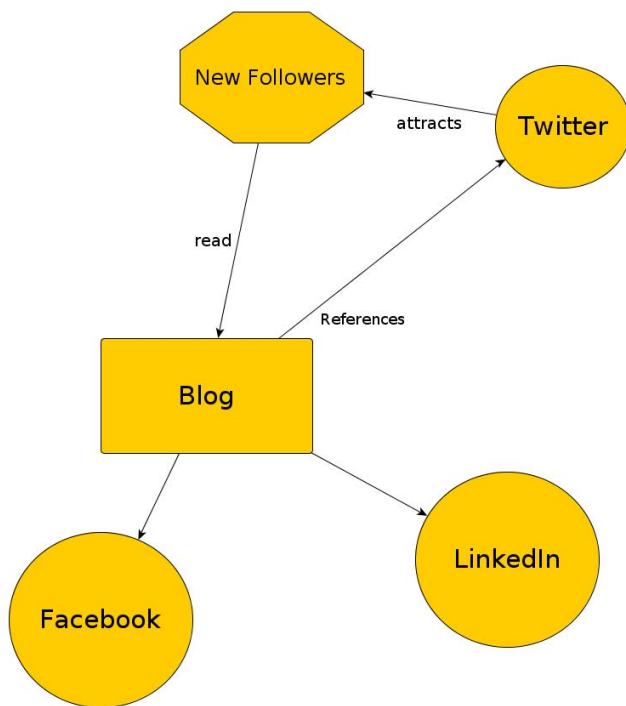


Figure 2. Social networks pointers.

all produced data visible to others, and they can access with through many sources. At least, they can discover its existence by different ways, because social networks acted as pointers to the others.

This little example showed how the name "hannelita" has become a reference for the author's name and published data. It was important creating a unique name, like an database unique identity, for being identified easily at IT community on the social networks.

Another point is about user privacy. There is a limit for sharing personal data with other members from the web. This limit is not well defined, but user must guarantee that published data will not cause himself bad effects. For the social web meter proposed in this paper, this unique identity proposed should not violate user's privacy; all collected data should provide useful information for promoting the user and his professional skills among other users. Still talking about privacy, there are some specific rules and laws in some countries that must be considered before implementing a social network and collecting user's data, but this topic is out of the scope of this paper and might be considered for future work.

VI. SOCIAL WEB METER

Based on the example described, this paper proposes the creation of a software that can estimate how social are you, by calculating an index after checking some parameters acquired following the steps listed before.

User must provide a couple of information required to measure its social level. First of them is his "web id", a name that web communities can reference him or her. Second, the user must allow integration of the web meter with social networks. It is made by providing his login and password when asked for. The applications does not store this personal information, it only acquires required information for calculating the index, generates a little report and then discards everything else. Third and last information required is user's goal - why he or she wants web social ascension - Leisure, business, marketing, status. The focus of this web social meter implementation is for business, career and work. So this paper will only show index calculation for this goal.

A. Index calculation

The index is a number between 0 and 100. All established point may vary according to web tendencies, such as popularity of the social networks and user goals. It is not a fixed value, this division is proposed into this paper for collecting initial results.

The first 40 points are for Google's results. If there is any result in the first page, 30 points are added to index. 10 extra points if user get first result of the first page.

Next 10 points are for the social networks that the user participates. Considering business and career focus, the user must have LinkedIn, Facebook and Twitter at least - this will add 5 points to index. 5 extra points for 5 other social networks user may have - GitHub, Slideshare, Tumblr and others.

30 points are given for blogs. 15 points are added to index if user has a blog and updates it at least once a month. Posts must be about user's career and should contain technical information or tips about work. 10 points if the blog has a constant number of visitors and comments on the posts. 5 points if the blog links to all the other social networks.

10 points are for getting involved with web community. If user participates on forums, comments on other people blogs and helps other users with technical issues, 10 points are added to index.

10 last points are for restful URLs that the user may have on his social networks accounts. Restful URLs are URLs with a rich content by their own. For example, accessing www.facebook.com/hannelitaa is more expressive than accessing www.facebook.com/profile?id=65454568414564.

Notice that points will be given only if results fit in the context described for the user. For example, let us assume an IT professional example. No points will be given if user's produced data comes to Google's first page but it is related to modern art and has nothing to do with technology. User's actions in social network must have a context according to his objectives. Using social networks for business requires content analysis of produced data.



Figure 3. Empire Avenue.

The index proposed was calculated based on well succeed examples of business. The ideas are mutable according to social networks and tools available on the web that can bring satisfactory results for business.

B. A Real example

Recently, a new social network called "Empire Avenue" [6] was released. It is a kind of social media representing a stock exchange. User's friends and profile are established according to their activities in other social networks, such as Facebook or Twitter. Increasing your activities increases the value of your network wealth, as shown in Figure 3.

In other words, more social a user is, more rich he becomes into Empire Avenue's social network. This is clearly an example of application for the social web meter proposed above.

Empire Avenue's example is good because it meters your web social activities, but it does not rank or consider some facts. For example, it does analyze the content of your tweets or blog posts. It just considers by themselves, without ranking it using some kind of web semantics. For example, imagine an IT professional with an Empire Avenue's account. It would be nice if user's wealth got increased when he tweeted something about technology more than when he tweet something about soccer or culinary. Empire Avenue makes no such distinction.

Empire Avenue's results could be much more refined applying a social web meter considering the context of user's actions among other social networks.

C. Applying a social web meter into existing applications

It is possible to propose some new features for current popular social networks on the web based on a social web meter. For example, LinkedIn could have a "Trending Professionals" modal, where it could list most popular and influent professionals of a specific area. This would make hiring process easier for companies that search for professionals in this social networks. A professional could be tagged as "trend" depending on the results of the social web meter, that would analyze user's activity into other social networks and also the content of information user produces.

The same idea could be applied to Facebook for its "Suggested Friends" section - new friends could be suggested not only according to common interests, but also due to his activity into other social networks similar to current user

logged into Facebook account and also due to the content he produces on the web.

VII. CONCLUSIONS AND FUTURE WORK

Now that parameters are established, a preview of software is being build using Ruby on Rails. Ruby on Rails was chosen because lots of web tools already have been developed and are open to be used. For data persistence, a non-relational database called Neo4j [7] is being used. Neo4j is a graph database that can easily measure number of connections because its based on graphs.

At the moment, all that was obtained are results from meters above that were calculated without a complex web based system. In the next months, the domain <http://www.websocialmeter.com> will be acquired and the application will be installed on it. The main goal is instructing companies and people to get good experiences by using social networks for one of the social media types previous listed in this paper.

Another future implementation is developing a better algorithm for the index. The idea is creating an algorithm based on intelligent algorithms that can adapt its methodology of calculus according to variations on web social networks.

Several web applications could use the social web meter proposed for lots of features, not only "trending" people, but other uses like selecting loyalty clients, suggesting products to customers buy and lots of other use cases.

REFERENCES

- [1] J. C. R. Licklider and R. W. Taylor, *The Computer as a Communication Device, Science and Technology*. Boston: Science and Technology, 1968.
- [2] H. Rheingold, *The Virtual Community*. Boston: ADDISON-WESLEY, 1993.
- [3] W3C *Semantic Web Frequently Asked Questions*, <http://www.w3.org/2001/sw/SW-FAQ>.
- [4] H. Thomases, *Twitter Marketing*. Canada: Wiley Publishing, 2010.
- [5] D. Eavns, *Social Media Marketing*. Canada: Bookman, 2008.
- [6] *Empire Avenue*, <http://www.empireavenue.com/>.
- [7] *Neo4j*, <http://neo4j.org>.