Social Networks

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Abstract: Social networking is an Internet based association of a group of people for the purpose of social or business activities. Social networks are established through websites wherein people can associate themselves through registration process and can communicate and share information thereafter. A set of likeminded people can communicate among themselves by forming groups. A social network facilitates new contacts from people around the globe. According to Trampedach, (2014) social network was a powerful mode of communication where individuals can share the information in the form of text, image, voice or video clips. Some of the examples of social networks are facebook, twitter, orkut, vznet, friendster and many others. Along with its multiple benefits, social network also poses certain challenges. The presence of social networks on internet has caused the generation of an enormous amount of information and its unbounded growth with huge number of users has posed a challenging problem. Network engineers are finding ways to manage the user data in an efficient way. With the advance of social networks, users around the world finds themselves connected with the society at all times and can find solution to their problems by discussing the issues with multiple experts all over the world. It has become the effective means for dating, wishing, congratulating, appreciating, passing comments, liking and many more (Boyd, 2014). In this report a detailed analysis has been done on social networking sites and all the pros and cons are discussed in details.

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What is Social Network?

Social network is a process of communication where users around the world can communicate with online communities. Social network increases the user capabilities in multiple ways. Some of the users that provided capabilities of social networks are:- Social Network allowed users to create their own profiles and represent themselves to the users around the world (Trampedach, 2014). It can act as a mode of advertisement. The profile contains information on personal details, user preferences, friend's details, hobbies, associations etc. - It helps in searching the profiles of other members in the site and communicating with them.- It allows sharing of personal thoughts, feelings, emotions, advertisements and other digital details with users.- It allows the users to build applications by using the interface (API). The applications can be built for self expression or for the social utility or for business purpose. Some of the applications on those sites can fetch up to $1M per month to the developers. The interfaces are very simple and barriers are limited. Users are provided with many features for faster and sophisticated communication.

Social Network Structure

The network structure for these sites can be well explained in graph terminology (Ehrlich, 2013). These networks are shown by a graph having a set of N nodes. Each of the node can be server, agent or vertice. There may be an N number of members associated with each node. The network can be represented by a pair (N,g), where the "g" is adjacency matrix. The adjacency matrix show provides the relationship between different nodes about their interconnections. The nodes in social networks are mainly undirected with connection between each of the node with every other node on the network (Ehrlich, 2013). A link is established between the nodes with maximum degree of relationship. The paths, walks and the cycles of the network are so arranged that the communication takes the shortest possible paths between the nodes.

Technologies and Tools used by Social Networks

Popular social network sites such as Facebook and Twitter handle millions of users worldwide on per second basis. It is estimated that almost 1.2 million photos are shared on Facebook every second and 500 million users are active at any point of time. In order to manage such a large volume, social networks are dependent on specialized tools and technologies. Some of the common tools as used by the social networking site as discussed (Bruns, 2012):

- Memcached: It is a distributed caching system and used to catch the queries pertaining to database and, it minimizes the slow database access process.

- Custom Compilers: The social networking site uses custom compilers which process quickly and give better performance. These compilers are

capable for handling multiple parallel requests and they are efficient in nature.

- Haystack: This is used for storing images in a stack format and avoids the need of metadata for storing millions of images in individual files. Haystack stores the photos in needles where the photo can be accessed with very few I/O operations.

- Cassandra: It is a distributed storage system and does not have any single point failure. This storage system is widely accepted by almost all of social networking sites.

Facts on Popular Social Network Sites

Facebook, twitter and linkdin are the popular social networking sites, which give information about the popularity of these sites.Facebook has 829 million users. More than 30 million businesses companies have fan pages on the site. 1.5 million businesses companies have spent money to post advertisement on this site. 12 billion messages are sent through facebook on daily basis. The numbers of users are getting doubled in every six months. Facebook has revenue of $2 billion so far in the year 2014(Latka, 2014).

On the other hand, Twitter had 300 billion tweets. Twitter has 241 million active users. The average number of followers for each twitter user is 208. 184 million active users are available on twitter (Hughes, 2014). The facts about these sites indicate the popularity and acceptance of the concept by people worldwide. The popularity of the social networking sites is booming on daily basis.

Social Network Analysis

The information available in social networking sites is enormous which needs to be analyzed to reach a conclusion. The analysis of the social network is done with the fact that "People are all interdependent". The data analysis on social networks is carried out with respect to a group, attributes or communities. The analysis is carried out using specialized tools to get effective results.

Social Networks and Business

In recent years, social networking sites have provided a huge impact in business development. It has helped tremendously in improving business communication for marketing (Matthew O. Jackson, 2010). The traditional communication methods are highly ineffective when compared to the social networking. The influence of social networking sites on business development can be explained through following methods:

- CRM (Customer Relationship Management): The social networks consider all its members in a single platform without any hierarchy. If all the employees of a company become members in a social networking site then a flat relationship is established without any disparity and it will foster creativity and efficiency.

- Blogging: It is an effective way to interact with the clients and share holders. Companies can quickly pass on any business news/information to their customers and can get relevant feedback. It can also be helpful for the companies for decision making through customers feedback.

- Advertising: Social network is the fastest way through which a company can market their product. The details of the product can be directed to related communities and groups. This information is passed from one member to millions of others within a shortest possible time.

- Team building: These sites have greatly helped in building teams. People having similar thoughts can communicate and share information to find solution for a common cause.

- Develop Marketing Strategies: The data from the social networks can be analyzed by making use of several available tools. The information thus obtained can be useful in designing marketing strategies. Some of the tools available are Trackur, Radian6 and Argyle Social.

Challenges in Social Network

With an explosive and exponential growth of social networks there are several associated challenges to ensure faster, safer and easier communication. Some of the challenges are as illustrated (White paper, Trinet, 2013).

- Ensuring Security: Social networks are capable of spreading huge information online. The presence of complete information can be used by terrorist groups to create havocs. It is very difficult it restricts the information accessibility to any individual or a group.

- Ethical Issues: Spreading of information related to ethical issues such as human trafficking, prostitution and child exploitation is very difficult to trace and avoid.

- Managing of complicated traffic: Social networks are widely accepted by people around the world. At every point of time millions of users are online and they interact. It is a challenge to maintain such a congested network with minimal error rate.

- Spreading of false information and Phishing: Social networks are being used by miscreants for spreading of false information pertaining to religion, community, sex, caste and many other areas. It may ultimately lead to violence. They also engage in extracting information such as bank details and other secret details from the innocent users. It is a challenge to restrict the

spreading of such false information and phishing activities.

Benefits of Social Networking

Some of the benefits of social networking sites are as explained. It gives a feeling to the users that they are not isolated and always connected to the society (Dr Philippa Collin, 2011). It gives independence to the users to express themselves. People can join groups and give comments about a specific topic of interes. It helps the users to update themselves with the current trends. Youths can effectively use this site to discuss on their school/college homework and project activities. An information/news can be sent to a group in less time. It helps the youths to motivate themselves towards a particular work and to get out their depression status at times.

Conclusion

In this work, many aspects of social networking have been discussed in detail. It is seen that this mode of communication is quicker and is capable of passing information to the concerned people at the right time. It is understood that social networks in today's world has become a necessity to all, particularly youths. Through social networking, people and business concerns around the world are benefitted in more than one way. The unique features of building applications at these sites are providing employment to many people. Social networking sites are facing a huge number of challenges and technologists are finding suitable solutions and tools to tackle with the problems. It is learnt that these sites also pose certain threats to the users. These sites can provoke the users to illegal activities, the information shared is not safe, cases of cyber bullying have been on the rise, and phishing and malicious activities are prevalent in these sites.

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