Looking Into Current Popular Online Communities

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Abstract

Currently, online communities have become an important part in daily life, as the development of web service. Because sociality is influenced significantly by online communities, it makes sense to study the behavior of online communities, especially those popular online communities. To find out how online communities of different categories perform, this paper tries to compare some popular online communities, such as Facebook, YouTube and eBay, in the perspective of web technology, maintenance of social relationships, searching engine, privacy policy and security. After the comparison, analysis is taken to summarize the results of comparison. The intention of this paper is to write an overview of measurement and analysis for different current popular communities, from the aspect of technology together with the impact on sociality. As the paper progressed, some interesting things are discovered also.

KEYWORDS: online community, relationship, seaching, privacy, security

1 Introduction

The online community so far has become the most popular entity in current cyber world. An online community is the network entity which has strong social relationships between participants, specific organizational structure, modes of discourse, a common vocabulary, shared history, community rituals and a common online meeting space.[7] In other words, an online community at least consists of three features: (1) a public or semi-public profile for each user; (2) a list of other users, with whom each user keeps a relationship (3) the list can be viewed and shared with other or specific users. All the features are common in different online communities, but how the relationship is built may vary from entity to entity. The overall activities of online communities contribute to the key content of social networking.

Online community is so charming that almost everyone who surfs Internet has visited online communities before. What is the magic of the online community? The answer probably is that various communities can satisfy people's different needs and provide a convenient communication platform for the busy daily life. As the online community becomes more and more popular, lots of the researching works show great interests for online communities. However, most of the previous works merely pay attention to the common feature of online community, for example, the consequence of people's interactivity. But these works can not solve the question: what are the differences between different kinds of online communities.

To seek the answer, this article starts from the comparison of some famous online communities (Facebook, YouTube and eBay) in the perspective of both sociality and technology. Then, an analysis is proposed to look for and outline the features for different kinds of online communities, together with a discussion about how technology influences the sociality.

2 Background

2.1 Facebook

Founded by Mark Zuckerburg, who is a Harvard undergraduate, Facebook is an online social community which used to be built to keep relationships among students. [9, 6] But now it has expanded to corporate and group users, and the user of Facebook has grown from just under 8 million people in July of 2006, to 18 million people in February 2007. In May 2005, Facebook received 13 million dollars in venture funding. Targeted advertising is sold to users of its site. Facebook also parters with firms such as Apple and JetBlue to assist in marketing their products to college students. To provide a good platform for people contacting with each other, users can share a variety of individual information (called profile) about themselves with other users within certain limitation.

The profile of Facebook is made up of six basic categories information: Basic, Contact Info, Personal, Professional, Courses, and Picture. And there are more forms of information representation in Facebook, such as The Wall which allow other users to post notes, My Photos which allow user to upload his photos and My Group from which user can find other like- minded users. Not only the interesting characteristics but also the quality of information in Facebook makes it become the most popular online social community for keeping relationship. In all, a major goal of Facebook is to allow users to interact with each other online. Users define each other as friends through the service, creating a visible connection.

2.2 YouTube

YouTube, founded in February 2005, at first was designed to be a website which enables users to easily share video content. As YouTube developed and expanded, it becomes an online social community by adding the feature which allows users to have lists of friends combining with videos. An unregistered user can watch most videos in YouTube,

while a registered user is permitted to upload videos as many as he wants. If the uploading video contains pornography, nudity, defamation, harassment, commercial advertisements and material encouraging criminal conduct, this video will be banned. Related videos, determined by title and tags, appear on screen to the right of a given video. In YouTube's second year, functions were added to enhance user ability to post video 'responses' and subscribe to content feeds.

It is considered that the most fascinating characteristic of YouTube is 'tagging', by which users can tag their uploaded videos with keywords or phrases. Tagging, social networking and the abundance of user generated content let YouTube be an excellent Web 2.0 site. According to recent media reports, YouTube is the largest video sharing Web site on the Internet with over 100 million video accesses per day and 65,000 video uploads per day [3].

2.3 eBay

eBay, which is the most popular e-commerce entity in the world, has huge merchant and commodity information, and provides an international space for customers' shopping. It is a marketplace online, with more than 125 million registered users in the world. It used to be an online auction website, but due to the increasing needs of users, it also launched to involve the elements of sociality, because the relationship between sellers and buyers is kind of sociality. Besides, it supplements the seller-buyer-relationship with plenty of other social functions, such as individual space where you can post message boards, upload photos, use social mapping tools, and other ways to connect with other users. This means the relationship built in eBay is not only a pure seller-buyer-relationship, but also a relationship connected to the personality of users. eBay also has Chatting system and BBS for exchanging experience among users.

Recognising some of the unique circumstances presented by online trading, eBay has invested and continues to invest heavily in safe trading initiatives, including development of state of the art tools and technologies, employing over 1000 people to help make trading on eBay as safe as possible, and creating and promoting the best consumer education possible. eBay has also implemented numerous policies to facilitate its goal of providing a safe, fair, and legal trading environment, and to make its user experience as easy, safe, and rewarding as possible. eBay is deeply committed to the protection of online consumers and constantly liaises with state Offices of Fair Trading and the ACCC in relation to such issues.

3 Methodology

As popular online communities, Facebook, YouTube and eBay conceive the common purpose to maintain relationships between users. Nevertheless, they are quite different from each other, due to the services consumed by different groups of users: Facebook represents the relationship community, YouTube represents the information-sharing community, and eBay represents the e-commerce community.

In this paper, I manage to collect both technological and sociality features of Facebook, YouTube and eBay from the fields of web technology, maintenance of social relationships, searching engine, privacy policy and security. Next, to observe how different these online communities are, comparison is taken into account from the features of Facebook, YouTube and eBay in service level. After the comparison, a deep analysis is conducted to outline the features of specific category of online communities, and the relationship between technology and sociality.

4 Results

4.1 Features of Facebook

As a relationship community, Facebook contains the functions such as taxonomies representing common language, sophisticated document management, search tools, filtering information, synchronous and asynchronous message.

To host and format the content available for the service, Facebook adopts server-side Hypertext Preprocessor (PHP) scripts and applications[6], and the content is stored centrally in Facebook servers. The requests for scripts and applications are processed at the Facebook server, and then the content of requested information is filtered and delivered to users who have a web browser over the Internet in real time.

To establish relationship in sociality, firstly, users can create a profile about themselves, including photos, contact information and tastes about movies and books. Next, users can keep the list of friends by adding people who is known or unknown, but the completion of this "friend relationship" needs the approving from the added people. Besides, users can choose various groups in which members have similar interests to join. It is essential that the establishment of relationship in Facebook is mainly based on the relationship in school. This is one of the most attracting features of Facebook. And the profile tends to request but not require the identifiable information, because it is much easier to build and keep relationship in Facebook with friends in school if using identifiable information.

Facebook provides the searching function for users, by which accounted people can search other users who match the searching condition. The implementation of searching in Facebook consists of the search for Browse, Classmates, Coworkers and Profile. Using Browse, users can view people in the same network, while Classmates and Coworkers help find the specific people in specific school or company. And the search function for profile (also regarded as advanced search) is most powerful, as people can search any part of the profile by typing some keywords. The visibility of searching results is limited by privacy policy, depending on the setting of users' account.

Privacy policy should be viewed as a key part of Facebook, in order to prevent the abuse of individual information[4]. Facebook takes a wide range of privacy controls with varying degrees of effectiveness which can be tailored to suit an individual's needs. In detail, the privacy settings page allows a user to specify who can see them in searches, who can see their profile, who can see their contact info, and which fields other users can see. However, a profile with the default privacy settings is generally highly visible to the public. Facebook only restricts profile views within networks, which

means that only people within a college or geographic network can view each others' profile besides the relationship of friend. But the judge of the same network is based on the setting of other users; it is possible that someone who has the setting of sharing the same network but actually is not in that network. Anyone who pays some efforts on the individual information of profile can manage to take malicious action, by making use of such privacy setting. What's worse, usually users tend to ignore their privacy issues when they really want to post their information.

There are several threats to Facebook when concerning security issues[6]. For instance, a security breach might potentially put all 8,000,000 Facebook records at risk; commercial datamining is possible because the large database of accurate personal information; database reverse- engineering might be caused by the advanced search which can provide the personal information by search keyword; the security vulnerability that both the username and password are sent in clear text may result in the interception of password; and there is incomplete access control for "My Photos".

4.2 Features of YouTube

YouTube is famous for the available user generated video, by utilizing the technology of Web 2.0. Now it has become the largest video sharing site on Internet. One of the key technology for YouTube is the use of Adobe's Flash Video(FLV) which produces the format for video delivery[3]. The format of flash enables users to watch the videos without downloading any additional browser plugins provided they have the Flash Player 7 installed. When a user chooses the video, a GET request for the requested video and the title HTML page which referenced to a number of Javascript is generated. The scripts are mainly responsible for embedding the Shockware Flash(SWF) Player in pages. After SWF is loaded, a request for FLV video is sent. Then, FLV video is downloaded, and the service might be supplied by a YouTube server or server from content distribution network(CDN).

The sociality among users of YouTube is primarily maintained through video. Users have their own spaces, keep the list of friends, and posted the news such as upload a new video to these friends. The use of media by members of a social group to stay connected or to interact with other members of the group constitutes a "media circuit."[8] On YouTube, for example, a person may make and share certain kinds of videos with one set of friends, while making and sharing other types of videos with a different set of friends. Thus, video is one kind of media circuit which helps the members of YouTube to stay connected or interact in qualitatively meaningful ways.

As for the search features of YouTube, viewers may locate videos using keywords or "tags" that video makers designate for their videos or write into the video's title or description. The appropriate tagging, titling, and video descriptions are critical for finding relevant videos. Because there are a huge number of videos in YouTube, only the title can not help to find the video which user desires. Therefore, tagging system, which allows users to associate words or phrases with content they post or view on a webpage, is necessary for the searching engine of YouTube.

Privacy should be taken into account in both the process of video making and sharing. However, YouTube only have the right to control privacy in sharing video. Users can limit or specify the viewers of the video through the publication setting. However, the limitation function of publication setting is kind of too simple. Technical features that provide participants more customization and control in creating public and private interactions could help to optimize social network site usage.

YouTube has similar threats as Facebook in the perspective of social networking. But as video is the characteristic media circuit, YouTube suffers some different attacks. For example, there are exploits which use YouTube as a decoy to cover the download of a malware and embed the malware directly in available videos on YouTube. The exploits are the latest in a series of attacks designed to target the web 2.0 class of applications that generate their value from user input. For example, the exploit can be a Trojan which may steal data from the user's computer. This Trojan is delivered by conventional means as an .exe file. Once executed, the file will open a web page in the user's default browser which opens a YouTube page containing a video. While the video plays, the Trojan can connect to a remote site and downloads data-stealing malware designed to harvest information from PC. Hence the video of YouTube can be utilized as the attacking target. It is important to keep the security through the viewing of video.

4.3 Features of eBay

As the content of eBay is dynamic, a fragile parsing of HTML is not enough. By supporting XML-via-HTTPS[5], eBay allows an extremely broad array of developers from a broad range of programming languages to work with the eBay platform. The addition of SOAP and WSDL allows developers in a wide variety of languages (and Java and .NET in particular) to dramatically accelerate the development of eBay- based applications.

The relationship among users in eBay is primarily established and based on the connection between the seller and buyer. Users who want to purchase the desired goods might keep a list of vendors who seem to have the ideal goods. But this apparent feature in e-commerce is a little bit changed, as the individual space, chatting system and BBS in eBay have been exploited. The relationship among users is not merely seller-buyer-relationship any more; the relationship has been extended to buyer-buyer-relationship, seller-seller-relationship, and even regardless of the status of the user: the real friendship due to the appreciation of individual information.

Search engine is an important part for eBay, together with other e-commerce entities. In eBay, customers can search goods from different categories. And the searching result is returned as a list, which can be sorted by ending time, price, distance and so on.

eBay takes TRUSTe, which is the provider of privacy assurance services in e- commerce, as the standard of privacy policy[1]. To be eligible for a TRUSTe license, websites must comply with its principles of the privacy program. These privacy principles concerns: user right to choice

and consent over how their personal information is used and shared, the posting of a privacy policy, disclosure about the collection and use of personal information, use of cookies, third parties using cookies to collect data on the website and so on. Although eBay itself conduct privacy policy, eBay may, on the other side, gather considerable amount of personal information and use it for activities unrelated to the eBay transactions.

eBay faces a variety of security threats. One serious threat[1] is the improper remote access to the data of company. If this threat comes true, hackers can get the IDs, passwords and credit card numbers of the users in eBay. To prevent such risk, the encryption of communications and use of firewalls are necessary. Another annoying threat is that of an outside attack which disrupts service, for example, viruses and denial-of service attack. This threat will cause lawsuits from the unsatisfied customer. To avoid this risk, eBay prepares antivirus software, network monitoring, disaster recovery and business continuity plan, and an emergency response team. What's more, placing servers at separate physical locations and using caching technology are adopted by eBay.

4.4 The Comparison for Facebook, YouTube and eBay

After collecting the features of Facebook, YouTube and eBay, now I will turn to compare them from the aspects of web technology, maintenance of relationship, searching features, privacy control and security. The comparison is shown in Table 1.

5 Analysis

From the comparison of Facebook, YouTube and eBay, we can see the differences among the three communities in each aspect. The existence of differences is due to the purpose of implementing different services: Facebook concerns more on relationship; YouTube pays attention to users' generated videos; and eBay cares commercial action online. Therefore the features of each kind of online communities can be summarized as followed:

Online community for relationship: One example of this kind of community is Facebook. A profile and a list of friends are compulsory. Usually, the personal information can be connected to the real identification. This kind of community does not need to use much technology for Web2.0, because there are few dynamic forms or contents in the Web-Pages. Privacy policy is very important for this kind of community. Nobody would like to expose personal information without any protection. Securing password is also critical, in case the abuse of identification after stealing. If such stealing happens, the risk will be difficult to estimate.

This kind of community usually has a simple organizational structure, with the rules for participation and allowed communication[7]. The platform for this kind of online community should make a rule on what kind of people can participate in the maintenance of relationship, and a rule for filetering certain information.

Online community for sharing media: YouTube is the most representative online community which provides availabe media sharing. Maintaining relationships by the media circuit is one of the most characteristic features in this kind of community. Besides, the technology of Web2.0 is crucial for sharing media. Also, the leaking of privacy is easy to occur, not only by viewing the media which has a incomplete privacy set, but also because of the content of media which involves copyright. Searching engine, which faces up to a large quantity of media data, is obligatory to enable the user find the specific video. Thus, how to generate and order the results from quantities of candidates is key technology.

Another significant feature is the emphasis on content generation and exchange related to a clearly defined topic[7]. The emphasis of the design of such kind of online community is supported by creation and management of community knowledge and communication channels. Communication channel is presented in the form of media curcuit, and the defined topic is depended on the content of this media. The created content and knowledge should be structured and easy to find and sort. Also, the content and knowledge must be stored for a long time, so that the new participant can view this content and continue to discuss it.

Online community for e-commerce: As an e-commerce community, eBay is famous for its good reputation. Online commercial action is the core of this kind of community. Therefore, the technology of Web2.0 plays an important function in generating the contents of commodity dynamically. Not only the commodity information, but also the reputation and feedback of commodity need to use Web2.0 technology. Taking sociality into account contributes to the diversification of commercial actions. Hence, users can easily communicate with each other. At the same time, the elements of sociality are involved into e- commerce. Security, privacy and integrity should be set up in high level, for the relationship with personal property. Once personal property was damaged due to the poor design of security, privacy or integrity, the reputation of this e- commerce online community would decrease and lead to the loss of customers.

The supply for transaction service is a key for e-commerce community[7]. It is required for supporting market transactions and a electronic commerce platform. E-commerce community is responsible for planing a paradigm, so that a market is able to be organized by the power of suppliers and buyers according to this paradigm. Matching of supply and demand is the basic aim of e-commerce community. Hence, the information about product and procedures from other customers is essential for e-commerce community.

Although the three categories of online community are quite different from each other, they share a common in performing sociality, no matter what is the form of relationship maintenance. Therefore, it is found that sociality plays a significant role in all the online communities, and provides the platform for communications among people.

First, the online community requires articulation of a persistent sense of location[2], which is usually resolved into a shared space: an environment that frames the presence of multiple actors and provides mutual awareness. Connected virtual spaces and the management of these spaces are critical to online community. Spatial boundaries can provide useful support for social interactions and the development of online community. And because spatial layout is able to

reshape and reinforce social groups and conventions, it is necessary to design the online space to fit social activity and expectation of the user. As for the online community for sharing media, a media space reinterprets the physical space by the using of multimedia.

Secondly, because "real" and "virtual" space are inhabited by users, so the online community requires the management of markers which connect elements in these two spaces, such as environment, people, objects, and actions. A coherence between "real" and "virtual" is also needed, together with migrating social practices from "real" to "virtual" space, because of the design platform. Therefore, how to represent identity in "real" world to the identity in "virtual" world is essential. At the same time, people will inhabit both the online space and the real world simultaneously. However, activities in one space do not translate transparently to other spaces, thus, focusing on the social goals of the activity in relation to the particular affordances of the online environment is one solution.

Finally but important, technical features are important to sustain and support social activity. Therefore, flexible couplings between technical mechanisms and social elements are needed, for a successful online community. Technology is the key to implement sociality in online community. How the technology is utilized directly leads to the performance of sociality, especially in the fields of relationship maintenance, privacy policy, searching and security. The reason, why Facebook, YouTube and eBay are welcome, is the adoption of specific fascinating technology to present sociality and provide services.

6 Conclusion

In all, online community has influenced the way people maintaining relationships. Keeping in touch with other people does not need to be completed in real life, but can through the features of online community. The diversity of maintaining methods or forms is various, such as by profile, media, or e-commerce. Hence, due to the tendency that people become more and more busy in daily life, it is very possible that online community finally will take the place of maintaining relationship in real life.

The comparison draws a picture about how these three online communities are different. Therefore, it helps to analyze the attributes of online communities coming from different categories. It is found that, in order to implement different services for users, the corresponding degree of different aspects in different online- community-categories is also different.

Although there are more differences than similarity in these three kinds of communities, they share a common in performing sociality and utilizing technology. That is, in online community, sociality helps connect users more flexibly, and online community simulates the sociality of real life very well. On the other side, the way how technology is used will directly lead to the realization of sociality and ultimately the popularity of the online community. Therefore, sociality is the bridge to connect people in online community, and technology is the key to perform sociality.

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	Facebook	YouTube	eBay
Web Technology	PHP; the uploaded photo feature uses Web 2.0	Web2.0	Web 2.0; XML-via HTML, supplemented wtih SOAP and WSDL
Maintenance of Relationship	by identifiable profile; especially for friends of school	primarily through video; also the individual space	primarily by the transaction of selling; also by some weak social networking features
Searching Features	for finding specific people; results is simple people; no requirement for accuracy	for finding specific video; results is video; find the desired video is key	for finding specific goods; results is a list of goods; result can be sorted by different properties
Privacy Control	important, because the divulge connected to identifiable information	not that important, as users may not put identifiable information	very important, due to the transaction of business, stored sensitive data relative to personal property, such as credit card number
Security	normal level	normal level	high level

Table 1: a comparison among Facebook, YouTube and eBay