

# Internet Privacy Is In Jeopardy

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## Abstract

The definition of privacy, according to Merriam-Webster, is *the quality or state of being apart from company or observation*. Under the rapid development of internet technology, people's right to maintain private lives have been challenged by the massive volume of information one can access and the fast speed at which information traverse spatially. The paper explains two typical reasons why current status of privacy protection on the internet is in bad shape: both the designers and users are ignorant towards it. The paper suggests that people should adopt appropriate actions, for instance, strengthening the education and regulation on related issues, as soon as possible in order to prevent the breach of privacy. Otherwise, privacy will die in the future without help.

## 1 Introduction.

In recent decades, people have been amazed by the rapid advancement of technology, especially Internet technology, and become more and more willing to enjoy the conveniences which technology brought to the daily life. Yet an important issue which has accompanied the human society for at least thousands of years has been overlooked constantly through this development, that is, privacy.

In the comedy drama "The Truman Show" [2], Truman Burbank's personal life is exposed as the continually running television show under public's scrutiny. Most people in Truman's shoes would feel scared, since in the scenario, one almost lost the ability to manage his own information and reveal

them selectively. But think about it, how far are we as ordinary human beings from Truman Burbank's position? As a matter of fact, many aspects of people's privacy have been breached, directly or indirectly due to the expansion of internet services, which will be mentioned in the following sections. There are quite a few causes which current situation is attributed to and we will elaborate two important ones: the ignorance of service designers and the lack of education towards internet users. The author believes that the absence or inadequacy of appropriate actions to deal with both will leave people's privacy in jeopardy and let people's capability of being individual die out in the long run.

## 2 What Is Privacy?

The definition of privacy, according to Merriam-Webster [3], is *the quality or state of being apart from company or observation*. In other words, privacy is one of basic human rights that people are able to decide whether they want to present the information about themselves or not. Its meaning varies in different contexts, depending on people's expectations. The interested reader is referred to Wikipedia for more discussions over this topic [1].

## 3 Is Your Privacy Well Protected Under Laws?

One might argue that nowadays systematic privacy laws have been implemented internationally, which could protect people at large.

This claim failed to notice at least two important features of the problem. First of all, as indicated above, the understanding of privacy has vastly different interpretations under distinct scenarios. For instance, it is no big deal to talk about one's salary in China while western people generally avoid this topic and treat it as part of one's private life. The laws usually provide principles on how one should discipline himself, but its coverage of protection over privacy is quite limited compared to the variety of social activities. Secondly, the development of technology is way much faster than the evolvement of laws, which from time to time make people's privacy vulnerable to new generations of intrusions.

Hence, privacy laws are just one of the means that help people protect their privacy, and they alone are far from achieving this goal overall. We

need to analyze the situation and adopt comprehensive measures to enforce privacy protection.

## 4 Designer's Responsibility Over Privacy Breach

"Privacy is dead. Get over it." The famous remark of Scott McNealy, the CEO of Sun Microsystems, reflects current attitude of many internet service designers. They tends to believe that in order to benefit from the advancement of technology, people need to sacrifice part of their private life as a tradeoff. This argument sounds superficial and really due to designer's ignorance towards people's privacy. Technology is neutral in its nature, which means that it usually adds novel alternatives to designer's toolkit, but the decision on how to manufacture products out of technology is mostly under designer's control and depends on designer's own interests. If the internet service designers show little attention to people's privacy, it is no wonder that their products perform poorly with respect to the related issues.

### 4.1 Software Engineer's Ignorance

On November 7, 2007, the most popular social network Facebook launched the service called Beacon, which allows web sites to publish users' activities to their Facebook profiles as "Social Ads" and promote products. Soon the company was criticized for collecting more user information for advertisers than was previously promised. Facebook's CEO, Mark Zuckerberg attributed the problem to the original approach of designing Beacon as an opt-out system instead of opt-in. In other words, if the user forgot to turn off the option of sharing their information, Beacon assumed he was willing to and made it all public to the user's friends. Moreover, it was impossible for users to permanently delete their profiles. Instead, they could only "deactivate" their accounts, but the information would still be kept on the website, which for the obvious reason, made the user's privacy vulnerable to attacks, even though he is not associated with Facebook any more. Apparently, throughout the production of these services, nobody from Facebook thought about how to protect users' privacy, even to the least extent. This lack of vision is never accidental, because the general education in the discipline of computer science has placed little emphasis on privacy matters since the birth of internet. Therefore, the training programs should instill the concepts and

techniques of privacy protection into minds of software engineers from the beginning. In order to make products which ensure privacy protection, we need an generation of engineers who respect privacy protection.

## 4.2 Service Provider's Ambition

Privacy protection is not infeasible to achieve. Efficient private information retrieval schemes [4] are available under very plausible cryptographic assumptions (Factoring integers is hard). But in reality, service provider's rarely have incentives to incorporate these ideas into the blueprint of the system design. On the contrary, they would like to collect as much information as possible from the users.

### 4.2.1 Direct Marketing

Direct marketing is a sales strategy which targets individuals based on their prior activities. For example, Amazon may recommend items that are similar to what the user has purchased. Google's email service, Gmail, scans user's incoming mailbox and puts relevant advertisement next to the associated email. Under laws, if the user does business with some service provider, then the service provider could use his information for marketing unlimitedly. In fact, many companies sell or share the information of their users with others, thus, personal information is tossed around the internet rapidly and cheaply without its owner's awareness. In most cases, web sites are forced to ask for user's permission if they want to broadcast future information and offers. However, many service provider already check the permission box and obtain it automatically if the user does not pay attention.

### 4.2.2 Spyware

Spyware is a class of software which gathers user's information without his knowledge secretly through the internet connection. Originally its purpose was mainly advertising, but it can be more malicious, for instance, some spyware can keep track of keystrokes which reveals user's password and financial numbers. Microsoft was sued over its Windows Genuine Advantage program which is designed to ensure that the user is not violating the copyright of Windows. In order to verify that the copy of Windows is legitimate, the program checks personal information in user's computer.

There are many other ways through which the service providers could abuse users' privacy. Yet the regulators have done far from enough to prevent greedy service providers from making profits out of users' privacy.

## 5 Public's Ignorance On Privacy Protection

Most people know little or nothing about how to guard against attacks towards their own privacy. They are usually unconscious over leakage of personal information while stunned when they find out the exposure of their own secrets. The following typical examples demonstrate this general phenomena.

### 5.1 Browser Cookies

Many web sites deposit the information about the user's browsing activities on his hard drive, called "cookies". Cookies might include all sorts of information, for instance, login or registration identification, user preferences, online "shopping cart" information and so on. When the user is surfing the internet, servers exchange such data with local browser secretly. It means that if some malicious parties break into cookies, they would be able to steal user's personal information. Hence, we need regulations on the usage of cookies by service providers. More essentially, general public should be taught how to manage their cookies correctly.

### 5.2 "Phishing" and "pharming"

The author once received the email stating that

*"An important change has been made to your account associated with JP Morgan Chase Bank, please log in through the following link to confirm this change"*

Below the sentence, the author saw the highlighted "www.chase.com". Clicking through the link, the author was brought to a web page which looked exactly the same as Chase Bank's home page. By examining the URL address carefully, the author found that it was actually a different web site other than www.chase.com.

This type of scams are called phishing" and pharming. An easy way to avoid phishing and pharming is to visit the web site directly instead of

following the fraud link in the email. However, phishing and pharming is succeeding in tricking thousands of people worldwide everyday.

### 5.3 Privacy Education

There are tons of fraud actions flowing around the internet, such as Nigerian 419 letters, fraud in online auctions, fraud in credit card applications and so on. The most efficient method to frustrate them is to let people be aware of their existence and be able to identify them in daily life. Hence, privacy protection should be an important subject of education for people who surfs internet.

## 6 Conclusion

As we explained above, privacy is currently in jeopardy because both designers and public are ignorant over the related issues. Hence, we need comprehensive education and regulation on privacy protection to turn things around. Moreover, the scientific research on internet privacy has taken off in recent years, so the next step will be to apply useful research results into real life to help promote privacy protection.

## References

- [1] <http://en.wikipedia.org/wiki/privacy>.
- [2] [http://en.wikipedia.org/wiki/the\\_truman\\_show](http://en.wikipedia.org/wiki/the_truman_show).
- [3] <http://www.merriam-webster.com/dictionary/privacy>.
- [4] Eyal Kushilevitz and Rafail Ostrovsky. Replication is not needed: Single database, computationally-private information retrieval. In *FOCS*, pages 364–373, 1997.