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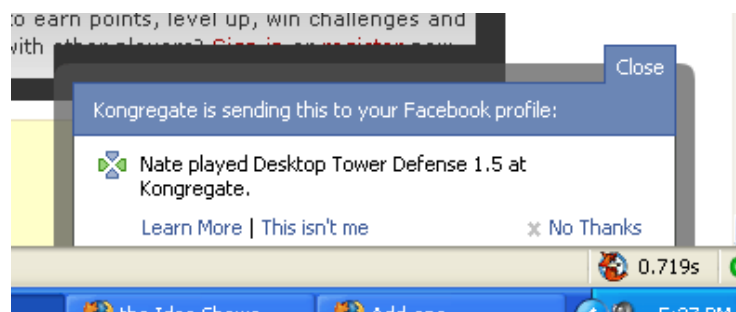
**Facebook (A): Beacon
and Privacy**

Kirsten E. Martin

FACEBOOK (A): BEACON AND PRIVACY

In November 2007, Nate Weiner realized his personal life was being circulated online without his permission. Weiner's Internet choices were being shared with all his closest "friends" via his Facebook profile. While registering with Facebook had seemed like a good thing at the time—automatically updating a group of preselected friends on his activities—Weiner was uncomfortable with unauthorized information dropping into the hands of his Facebook friends, so he decided to blog about it.

So here I am, burning some brain cells and taking some time to relax playing a game on Kongregate,¹ when a little window pops up in the corner of my screen and says "Kongregate is sending this to your Facebook profile: Nate played Desktop Tower Defense 1.5 at Kongregate." Which immediately elicited a "Helllll no" from my mouth.



Maybe what shocked me was the way it was worded, essentially saying that Kongregate was sending the data without even asking my permission (even though there is a 'No Thanks' button in the corner) but needless to say, I was not too thrilled about my surfing habits showing up on my Facebook profile.

So I clicked 'No Thanks', and hopped over to Facebook and looked at the privacy settings for this new program. And found they give you the options of choosing 'allow', 'notify me', or 'never'.

The problem however is that even though you can choose whether or not it is made public that you visited these sites, Facebook still has the data regardless of your privacy settings. Now I don't mean to sound like I'm tin-foil-hat-wearing

¹ Kongregate is an online gaming community.

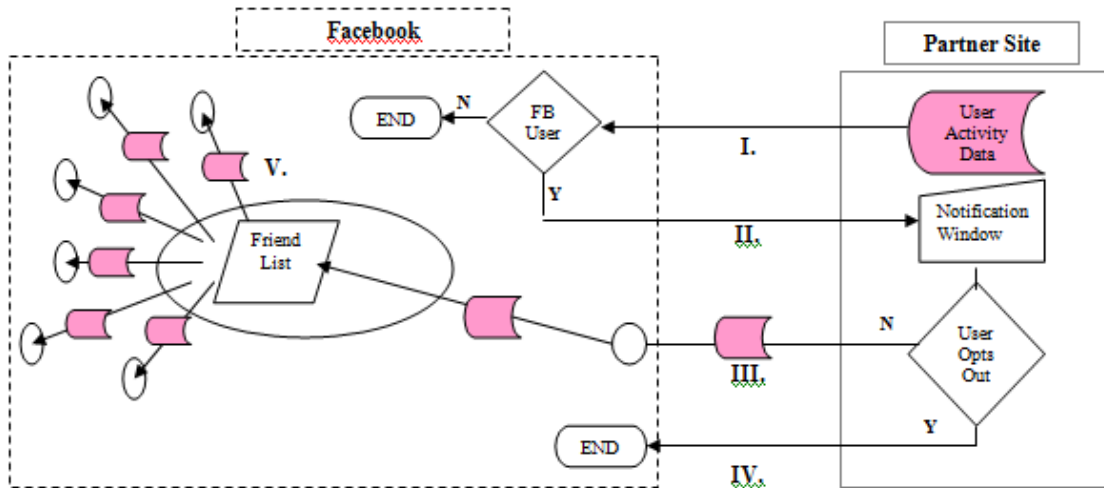
paranoid, but that does seem to encroach a little past what Facebook’s role in my life should be.²

Beacon

It was also in November 2007, when social networking site, Facebook, began offering a free tool, Beacon, to online partners such as Blockbuster, *The New York Times*, and Overstock.com for tracking user activity.³ Once Beacon was embedded into a partner’s web site, it recorded Facebook members’ activities and proactively broadcast such off-Facebook activities to designated Facebook friends. Considered at the forefront of online advertising, Beacon was hailed as a mechanism to target potential customers based on their social network(s) and through friends’ implied recommendations.

Facebook’s attempts to alert its users of this new feature, however, were not easily identified.⁴ The opt-out notice appeared in a small window, which disappeared without users taking any action. Unless the user opted out quickly—the notification window would close or could be missed all together by the user—the user activity data would be sent to the Facebook user’s friends through an existing service called News Feed.⁵ Users were not given the ability to reject all sharing; rather, the notification window appeared every time the user entered a partner site.⁶ Figure 1 depicts the information flow and the places where a Facebook user could intervene with Beacon’s default operations.

Figure 1. Facebook/Beacon information flow.



(Note: Information depicted in Figure 1 was gathered from blogs and responses to blogs.)

² Nate Weiner, “Block Facebook Beacon,” November 7, 2007, *The Idea Shower*, <http://www.ideashower.com/blog/block-facebook-beacon/> (accessed March 2008).

³ Anick Jesdanun, “Facebook retreat shows ad-targeting risk,” *The Associated Press*, 30 November 2007.

⁴ Ellen Nakashima, “Feeling Betrayed, Facebook Users Force Site to Honor Their Privacy,” *Washington Post*, 30 November 2007, sec. A01.

⁵ Newsfeed automatically sent updates of a person’s Facebook site to her friends.

⁶ Jesdanun.

Residing on a partner's website, the Beacon program would track the user's activities and ask Facebook if the user was a Facebook member (see Arrow I/Figure 1.). All Facebook members would be asked if their activity should be sent as a broadcast to their friends through a notification window (Arrow II/Figure 1). If the user opted out, Facebook would not send the information (Arrow IV/Figure 1). If, however, the user ignored the window or neglected to opt-out of the broadcast, Facebook would take the user activity data (Arrow III/Figure 1) and send the information to the user's friends (Arrow V/Figure 1).

The online community responded immediately to this intrusion. MoveOn.org created a Facebook group "Petition: Facebook, stop invading my privacy!"⁷ that stated: "Sites like Facebook must respect my privacy. They should not tell my friends what I buy on other sites—or let companies use my name to endorse their products—without my explicit permission." The Facebook group and petition had 2,000 members within the first 24 hours⁸ and eventually grew to over 80,000 names.

Facebook

Facebook was created in a Harvard dorm room by Mark Zuckerberg and co-founders Dustin Moskovitz and Chris Hughes as an online version of the ubiquitous facebook, known primarily on college campuses and used to identify and locate individuals. Facebook was "a social utility that helps people communicate more efficiently with their friends, family, and coworkers."⁹ The site relied upon user-generated data of particular interest to their friends and allowed for viewing and comments. A Facebook member maintained a Facebook page by frequently updating important information relevant to the member. Pictures, relationship status, activities, and accomplishments could be viewed by individuals who were identified as "friends." The site allowed individuals to provide updates and view others' updates on their own time.

Alternative Social Network Sites

Alternative social networking sites such as MySpace and LinkedIn differed from Facebook in their user interface and user purpose. Facebook's site supported users connecting with known friends, whereas MySpace allowed users to find people with common interests.¹⁰ Where Facebook was described as clean and efficient, MySpace was busier and allowed users to "express themselves."¹¹ Both Facebook and MySpace, however, differed from LinkedIn by remaining the most 'social' of the social networks—most of the information provided by users had little to do with their professional lives. In contrast, LinkedIn was focused on making professional connections for the post-collegiate crowd.

⁷ <http://www.facebook.com/group.php?gid=5930262681>.

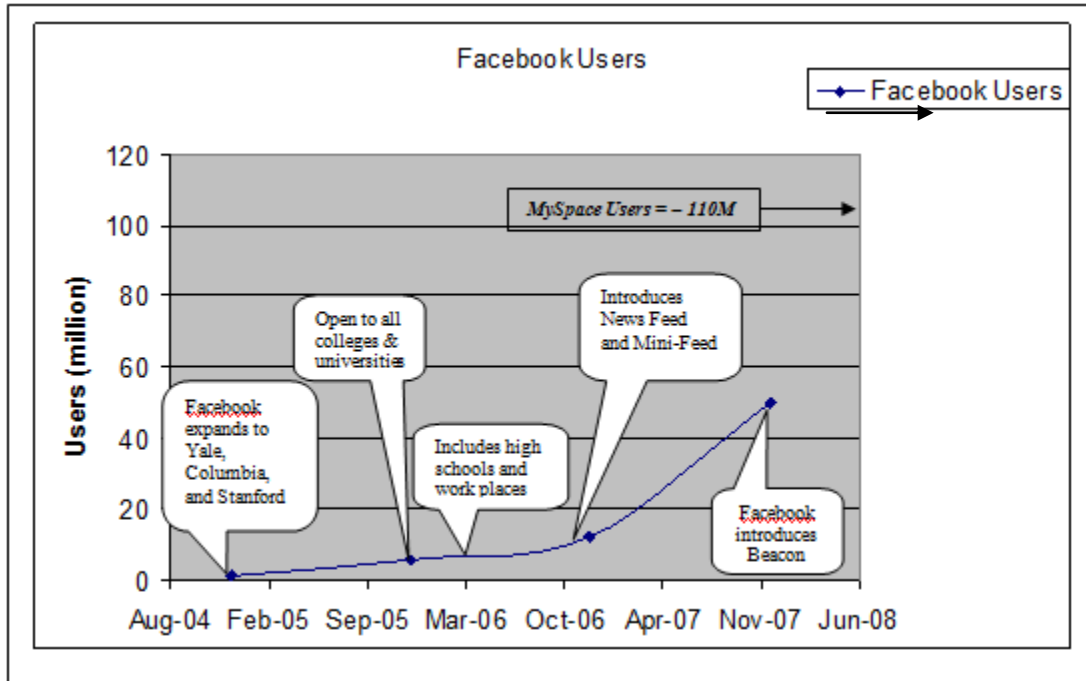
⁸ Vauhini Vara, "Facebook's Tracking of User Activity Riles Privacy Advocates, Members," *Wall Street Journal*, 21 November 2007.

⁹ Facebook: <http://www.facebook.com/press.php>.

¹⁰ David Kirkpatrick, "As Facebook takes off, MySpace strikes back," *Fortune*, 19 September 2007.

¹¹ Kirkpatrick, As Facebook takes off, MySpace strikes back.

Figure 2. Facebook history.



Facebook’s Strategic Moves

Facebook’s strategic movements from 2004 through 2007 can be viewed in two categories. First, the social networking site *expanded the type of user* permitted to use the site. Facebook was originally restricted to Harvard users, but opened to Yale, Stanford, and Columbia users, and hit 1 million users by end of 2004.¹² Through 2005 and 2006, the community expanded to include high schools and work networks. While originally geared toward 18–22-year-old college students, users 35 years and older accounted for more than half of Facebook’s daily visitors and comprised the network’s most rapidly growing demographic.¹³

In addition to expanding the eligible user base, Facebook made a number of technological enhancements which *changed the way members interacted* with Facebook and their Facebook friends. In September 2006, Facebook launched News Feed and Mini-Feed which broadcasted page updates to a Facebook user’s friends.¹⁴ With News Feed, individuals no longer had to manually check each friend’s Facebook page for new information (e.g., if relationship status had changed or pictures had been updated), as this information would be sent to friends in the form of a news broadcast.

¹² Facebook: <http://www.facebook.com/press.php>.

¹³ John Hagel and John Seely Brown, “Life on the Edge: Learning from Facebook,” *BusinessWeek*, 8 April 2008, http://www.businessweek.com/innovate/content/apr2008/id2008042_809134.htm?chan=search (accessed June 2008).

¹⁴ Facebook: <http://www.facebook.com/press.php>.

In May 2007, Facebook opened the site to support software created by outside sources—anyone from “the largest software companies to dorm-room hackers.”¹⁵ Aside from maintaining legal minimums, the Facebook platform was open and placed no limits on the type or purpose of applications. Zuckerberg stated, “They can sell sponsorships; they can have ads; they can sell things; they can link off to another site—we are just agnostic.”¹⁶ The move was widely popular and even sparked the creation of a university class focused on the creation of Facebook applications or ‘widgets.’

Last fall, psychologist B. J. Fogg taught a class at Stanford University in which he assigned students to develop Facebook applications. During the 10 weeks of the class, 73 students developed applications such as Kiss Me, Oregon Trail, and Secret Admirer that have since resulted in 25 million installs and, by the end of the class, were attracting about 1 million daily, active users. These applications have generated more than \$500,000 in ad revenue since September. At least three companies were formed by students in the class.¹⁷

The combination of News Feed and widgets allowed Facebook to offer a platform with a built-in user base and distribution method for developers.¹⁸ As an added benefit, many of the more popular widgets imitated features on MySpace.¹⁹

As of June 27, 2008, Facebook had more than 80 million active users, was the sixth most-trafficked website in the world (comScore), and was the second most-trafficked social media site in the world (comScore).²⁰

‘Monetization’ of Facebook

In 2007, Facebook remained primarily a social environment with little monetary exchange.²¹ Facebook was free for users, and no commerce was conducted on the site. Yet Facebook had two facets attractive to the advertising community: (1) personal information about individual users and (2) personal connections between friends.

Backlash to Beacon began as online advertisers experimented with behavioral targeting, sending advertisements to individuals based on personal information or behavior.

Behavioral advertising is the tracking of a consumer’s activities online—including the searches the consumer has conducted, the Web pages visited, and

¹⁵ Kirkpatrick, As Facebook takes off, MySpace strikes back.

¹⁶ David Kirkpatrick, “Exclusive: Facebook’s new face,” *Fortune*, 25 May 2007,

http://money.cnn.com/2007/05/24/technology/fastforward_facebook.fortune/index.htm?postversion=200705251 (accessed March 2008).

¹⁷ Hagel and Seely Brown.

¹⁸ Kirkpatrick, Exclusive: Facebook’s new face.

¹⁹ Kirkpatrick, As Facebook takes off, MySpace strikes back.

²⁰ Facebook: <http://www.facebook.com/press.php>.

²¹ Hagel and Seely Brown.

the content viewed—in order to deliver advertising targeted to the individual consumer’s interests.²²

A common type of behavioral targeting involves tracking the Web sites an Internet user visits in order to send ads that are relevant to the user’s interests. As such, these types of ads blur the boundaries between content and paid advertising.²³ In 2007, it was estimated that MySpace would sell \$525 million worth of advertising or 58% of the social-networking industry’s total. Facebook would sell \$125 million.²⁴

While MySpace users viewed 7.3 billion advertisements in a single day,²⁵ the low click-through rates of advertisements on social networking sites in general led marketers to find alternative routes to potential customers.²⁶ As such, the connections *between* individuals was attractive to advertisers: “Now there’s starting to be real money in the business, as every major consumer advertiser realizes that if you can engage effectively with these newly networked hordes, they become agents of your brand.”²⁷ Beacon combined both the “networked hordes” with the individualized behavioral advertising.

Some network users attempted making money through Facebook, and eBay entries such as the following generated considerable interest: “I am the owner of ten Facebook profiles. Every single one of my profiles has at minimum 200 friends. I have aggregated the friends for each persona organically. I will briefly mention the manner in which I compiled a list of genuine friends for each persona...”²⁸

Valuation

When Beacon was released, Facebook remained a privately held company. In October 2007, Microsoft took a \$240M stake in the company, which implied a \$15B market valuation with Facebook’s then current 50 million users. In combination with an estimated \$30M in profits for that year, the \$15B valuation translated into roughly 500 times earnings.²⁹ The question remained, however, “how is Mark Zuckerberg going to use that pile of cash to make money off his social networking site’s nearly 50 million members?”³⁰ Facebook’s user base was growing by approximately 200,000 new registrations *every day* and Facebook received almost 1% of all Internet visits in one week in October 2007.³¹

²² Behavioral advertising in general: <http://www.ftc.gov/opa/2007/12/principles.shtm>.

²³ Hagel and Seely Brown.

²⁴ Kirkpatrick, As Facebook takes off, MySpace strikes back.

²⁵ Kirkpatrick, As Facebook takes off, MySpace strikes back.

²⁶ Hagel and Seely Brown.

²⁷ Kirkpatrick, As Facebook takes off, MySpace strikes back.

²⁸ Nicholas Carlson, “Facebook profiles for sale on eBay,” *Valleywag*, June 12, 2008, <http://valleywag.com/5015883/facebook-profiles-for-sale-on-ebay> (accessed July 2008).

²⁹ Jessi Hempel and Lindsay Blakely, “Madison Avenue awaits Facebook’s next move,” *Fortune*, 27 October 2007.

³⁰ Hempel and Blakely.

³¹ Hempel and Blakely.

From Facebook's standpoint, the organization's value was viewed in two ways. First, for advertising, more than half of Facebook users were out of college and this older demographic was the fastest growing user group.³² Facebook retained, however, an 85% market share of four-year, U.S. universities. In addition, as a platform for widget development, Facebook boasted more than 400,000 developers and entrepreneurs who had built over 24,000 widgets on Facebook Platform with 140 new applications being built *every day*.³³ The average Facebook visitor spent about 2.5 hours per month on the site,³⁴ and over 95% of those members had used one of the 24,000 new applications developed on Facebook Platform. As a social network site, Facebook was attractive to both technology companies and consumer-facing companies across industries.³⁵

Facebook and Privacy

Previously, Facebook differentiated its service from its closest competitor, MySpace, by offering users various privacy settings based on the user's friends or social networks. At a most basic level, Facebook required its members to join under a real name and use real information³⁶ where MySpace placed fewer limits and users often operated anonymously.³⁷ In addition, Facebook members could limit the type of information available to others, the ability of others to search their information, and the degree to which personal information was accessible to others' Facebook applications. Facebook users were offered a variety of designations for each piece of information rather than merely public versus private. In doing so, Facebook also competed with LinkedIn by allowing members to separate work friends from non-work friends.³⁸

Facebook's organizational principles centered on privacy concerns and formed the core of its organization. The principles stated that (1) an individual should have control over his personal information, and (2) an individual should have access to the information others want to share. These principles went on to delineate the type of information Facebook collected; why Facebook collected the information; who had access to the information; and how to get rid of information.³⁹

Previously, Facebook users had created uproar over News Feed—a Facebook feature that allowed user activity on one's own Facebook site to be broadcast to friends. News Feed allowed friends to be proactively notified of a user's changes without having to constantly visit the user's Facebook page. Seen as a key differentiator for Facebook, News Feed was individualized for each member based on the activities of the member's friends since the previous log-in.⁴⁰

³² <http://www.facebook.com/press/info.php?statistics>.

³³ <http://www.facebook.com/press/info.php?statistics>.

³⁴ Hagel and Seely Brown.

³⁵ Kirkpatrick, As Facebook takes off, MySpace strikes back.

³⁶ David Kirkpatrick, "Is Facebook worth your time?" *Fortune*, 18 April 2008, http://money.cnn.com/2008/04/18/technology/kirkpatrick_facebook.fortune/index.htm (accessed July 2008).

³⁷ Kirkpatrick, As Facebook takes off, MySpace strikes back.

³⁸ Lindsay Blakely, "New FaceBook feature challenges LinkedIn," *Fortune*, 2 October 2007.

³⁹ <http://www.facebook.com/policy.php> (accessed July 2008).

⁴⁰ Kirkpatrick, Is Facebook worth your time?

What makes the Facebook News Feed unlike any other communications tool that preceded it is that none of these friends explicitly said they wanted you to get this information. Instead, it came to you because Facebook's software has concluded, by sophisticated algorithmic means, that you are likely to be interested.⁴¹

Upon its initial release, however, Facebook groups formed with 100,000+ members to protest the broadcasting of personal information. Privacy settings remained in place and the member could remove any data from being in the broadcast at any time.⁴² Slowly, the uproar diminished as members learned to use News Feed. The feature has been embraced since by the Facebook community.

Reaction to Beacon

The revolt over Beacon, however, differed in its pervasiveness and intensity, and members of the online community shared their opinions. One blogger highlighted online activist group MoveOn.org's charge that Facebook's Beacon advertising program was a violation of users' privacy.

MoveOn.org spokesman Adam Green was quick to provide an additional response. "If Facebook's argument is that sharing private information with hundreds or thousands of someone's closest 'friends' is not the same as making that information 'public,' that shows how weak Facebook's argument is," Green said in an e-mail. "Facebook users across the nation are outraged that the books, movies, and gifts they buy privately on other sites are being displayed publicly without permission—and it's time for Facebook to reverse this massive privacy breach."⁴³

Bloggers continued to criticize Facebook's Beacon advertising program, as indicated by R. Crusoe's blog response:

Looks to me like Facebook has found a solution to the problem of their site's popularity. There is a growing number of Facebook competitors and this is a sure fire way of encouraging their users to go somewhere else.⁴⁴

The online community's level of expertise pushed Facebook to understand Beacon at a fine-grained level. As it became apparent through journalistic inquiries and the persistence of the online community, Beacon captured detailed data along with IP addresses of *all visitors* on a

⁴¹ Kirkpatrick, "Is Facebook worth your time?"

⁴² Michael Arrington, "Facebook Users Revolt, Facebook replies," TechCrunch.com, 6 September 2006, <http://www.techcrunch.com/2006/09/06/facebook-users-revolt-facebook-replies/> (accessed March 2008).

⁴³ Caroline McCarthy, "Facebook responds to MoveOn criticism of ad program," *The Social* [blog], 20 November 2007, http://news.cnet.com/8301-13577_3-9821651-36.html?part=rss&subj=news&tag=2547-1_3-0-5 (accessed March 2008).

⁴⁴ R. Crusoe's response to C. McCarthy, "Facebook responds to MoveOn criticism of ad program," *The Social*, 21 November 2007, http://news.cnet.com/8301-13577_3-9821651-36.html?part=rss&subj=news&tag=2547-1_3-0-5 (accessed March 2008).

partner site—Facebook users and non-Facebook users—and determined whether or not to store and broadcast the information once the tracking information was sent back to Facebook.⁴⁵ How much *user activity data* was captured, stored, and released by Facebook was not disclosed quickly enough for much of the blogging community. In reality, much of the technical information about Beacon was pulled out of Facebook through reactions to blogs.

As Nate Weiner discovered, he was not alone in his dismay over privacy issues caused by Beacon. Communicating his feelings online produced a wave of response not only from others in the online community, but also from Facebook. Follow-up blog postings continued.

Facebook Beacon: Two Weeks Later
Nate Weiner, November 22nd, 2007

I think people in general are missing the point.

Asking for a blanket-opt-out feature is as effective at protecting your privacy as covering your eyes to hide from a charging bear. Just because you can't see it, doesn't mean the bear is not there. Likewise, just because you say 'don't show this data', the mere fact that you can switch it back to 'show this data', means that it is still in Facebook's database.

The question you should ask yourself is this: Would you find it acceptable for someone to stand behind you while you surf the internet, write down everything you look at, and then keep those notes for themselves? Would you trust that person to safeguard your data?

An example of the current process as is:

1. User goes rents a movie from Blockbuster online.
2. Blockbuster Online asks Facebook, is this person a Facebook User?
3. Facebook says yes (log could be made of transaction).
4. Blockbuster sends the movie the user rented to Facebook.
5. Facebook stores the data.

This could all go away by simply adding a first step on Blockbuster's end that says: 'Are you a Facebook user? And if so, would you like to share the movie you rented with your Facebook friends?'

And if you choose to, THEN the transaction to Facebook could be made. And if not, Facebook hears nothing and everyone is happy.⁴⁶

⁴⁵ Michael Liedtke, 'Facebook lets users block marketing tool,' *The Associated Press*, 5 December 2007.

⁴⁶ Nate Weiner, 'Facebook Beacon: Two Weeks Later,' *The Idea Shower*, 30 November 2007, <http://www.ideashower.com/blog/facebook-beacon-two-weeks-later/> (accessed March 2008).

Facebook, Here is Misinformation
Nate Weiner, November 30th, 2007

[Update from] Facebook's Vice President of product marketing and operations,
Chamath Palihapitiya

*When a Facebook user takes a Beacon-enabled action on a participating site, information is sent to Facebook in order for Facebook to operate Beacon technologically. If a Facebook user clicks "No, thanks" on the partner site notification, Facebook does not use the data and deletes it from its servers. Separately, before Facebook can determine whether the user is logged in, some data may be transferred from the participating site to Facebook. In those cases, Facebook does not associate the information with any individual user account, and deletes the data as well.*⁴⁷

Facebook Beacon Drama Continues
Nick O'Neill, December 1st, 2007

Of particular interest to me was that Facebook was notified of purchase information prior to a user confirming whether or not they approved that information being displayed. Chris Kelly, Facebook's Chief Privacy Officer, informed me that Facebook discarded purchase information if the user did not want that information to be displayed.

In the latest Beacon drama, Facebook is accused of storing information even if the user is no longer logged into Facebook.⁴⁸

Lucas [In response to O'Neill]
December 1st, 2007

I hear ya. All of this has driven me to write a dedicated firefox addon for blocking beacon completely.⁴⁹

More information soon became known about Beacon. The service tracked users off-Facebook even after they had logged off the social-networking site as well as those who had previously opted out of having their partner site activities broadcast to their Facebook friends.⁵⁰ While Facebook improved the notification window, users still were not offered the ability to permanently opt out of the service. In fact, users were not informed that data on their activities was always flowing back to Facebook, nor given the option to block that information from arriving at Facebook. If a Facebook user ever decided to have her computer 'remember' her login information, Facebook could then tie into third-party site activities even if the user was logged off or had opted out of broadcast. An open question remained: What happened to that

⁴⁷ Nate Weiner, "Facebook, Here is Misinformation," *The Idea Shower*, 30 November 2007, <http://www.ideashower.com/blog/facebook-im-still-watching-you-watch-me/> (accessed March 2008).

⁴⁸ Nick O'Neill, "Facebook Beacon Drama Continues," *All Facebook*, 1 December 2007, <http://www.allfacebook.com/2007/12/facebook-beacon-drama-continues/> (accessed March 2008).

⁴⁹ Lucas's response to Nick O'Neill, "Facebook Beacon Drama Continues," *All Facebook*, 1 December 2007, <http://www.allfacebook.com/2007/12/facebook-beacon-drama-continues/> (accessed March 2008).

⁵⁰ Juan Carlos Perez, "Facebook Admits ad service tracks logged-off users," *PC World*, 4 December 2007.

user activity data (1) if the user was not a Facebook member or (2) if the Facebook member opted out of the broadcast?

Pressure on Partners

Beacon was directly targeted to these partner sites by giving partners the control to insert the Beacon program code (“Add 3 lines of code and reach millions of users”) when and how it worked for them. Little attention, however, was paid to the Facebook partners who voluntarily implemented Beacon. Partners such as Blockbuster, Sony Online Entertainment, eBay, *The New York Times*, and IAC,⁵¹ took a wide range of approaches to the adoption of Beacon. Overstock.com stated: “We have a specific threshold that the program needs to meet, in terms of privacy, before we’ll be turning it back on.” Others opted to trust Facebook to delete the information they sent back via Beacon. Kongregate used the program only to track games people played, not other activities on the site. Other partners took a similar nuanced approach to installation. For example, Six Apart asked its users to “opt-in” and at that point, inserted the script for the Beacon program. Six Apart started with Beacon turned off, so at the onset, users and their information were not included and never sent to Facebook. eBay also used Beacon in a limited fashion by applying the program to sellers only, asking them to “opt in.”

What Next?

On November 30, 2007, the front page of *The Washington Post* carried the story of Sean Lane and his encounter with Beacon.

Sean Lane’s purchase was supposed to be a surprise for his wife. Then it appeared as a news headline—“Sean Lane bought 14k White Gold 1/5 ct Diamond Eternity Flower Ring from overstock.com”—last week on the social networking Web site Facebook.

Without Lane’s knowledge, the headline was visible to everyone in his online network, including 500 classmates from Columbia University and 220 other friends, co-workers and acquaintances.

And his wife.⁵²

No longer solely within the online community, the Beacon and Facebook privacy debate had hit the mainstream media. The MoveOn.org petition drive had gathered 50,000 members, and articles began appearing in papers and magazines across the country.

⁵¹ Juan Carlos Perez and Nancy Gohring, “Facebook Partners quiet on Beacon Fallout,” *PC World*, 11 December 2007.

⁵² Nakashima, sec. A01.