The Significance and Evolution of End User Privacy

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How do you feel about information privacy?
How do others feel about it?
Data Breach May Have Exposed 100 Million Credit Cards

Wednesday, January 21, 2009 | FoxNews.com

A New Jersey credit-card processor disclosed a data breach that analysts said may rank among the biggest ever reported.

Heartland Payment Systems Inc. said Tuesday that cyber criminals compromised its computer network, gaining access to customer information associated with the 100 million card transactions it handles each month.

The company said it couldn't estimate how many customer records may have been improperly accessed, but said the data compromised include the information on a card's magnetic strip — card number, expiration date and some internal bank codes — that could be used to duplicate a card.
In the news...

LexisNexis warns of possible data breach
Notifies 32,000 people that personal data may have compromised

By Amy Westfeldt
AP Associated Press
updated 7:02 p.m. ET, Fri., May 1, 2009

NEW YORK - The LexisNexis online information service is warning 32,000 people their personal information may have been improperly accessed in a credit card fraud scheme that postal officials say bilked hundreds.

New York-based LexisNexis says in a letter mailed Friday that former customers of the service may have viewed information including names, birth dates and Social Security numbers.
In the news…

Foreclosure database: Look up filings in the Triangle from the p...

Hacker hits UNC-CH study data

Published Fri, Sep 25, 2009 05:17 AM
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By Eric Ferreri - Staff Writer

Tags: news

Chapel Hill -- A hacker has infiltrated a computer server housing the personal data of 236,000 women enrolled in a UNC-Chapel Hill research study.

Among the information exposed: the Social Security numbers of 163,000 study participants.

Though the intrusion was detected in late July, computer forensics experts say it may have happened two years ago, said Matthew Mauro, chairman of the UNC-CH Department of Radiology.
In the news...

Hackers Want Millions For Data on Prescriptions
Theft of Va. Patient Records Claimed

By Brian Krebs and Anita Kumar
Washington Post Staff Writers
Friday, May 8, 2009

RICHMOND, May 7 -- The FBI and Virginia State Police are searching for hackers who demanded that the state pay them a $10 million ransom by Thursday for the return of millions of personal pharmaceutical records they say they stole from the state's prescription drug database.
In the news…

Google Street View Privacy Breach: Lawmakers Get Mad

Jared Newman, PC World  May 20, 2010  10:40 am

Want a metric for the speed of U.S. government? Just look at the response to Google Street View cars’ accidental collection of private data.

On Wednesday, U.S. Lawmakers started showing some rage over the incident, in which Google admitted that its Street View photography cars around the world inadvertently collected private communications data from unsecured Wi-Fi networks. U.S. Reps. Joe Barton and Edward Markey have asked the Federal...
In the news...

U.S.: Identity theft grows as hackers get savvier

By Terry Frieden
CNN Justice Producer

WASHINGTON (CNN) -- Sophisticated techniques developed by a new breed of cyber-criminals intent on stealing personal data represent a growing threat to millions of Americans, a top U.S. Justice Department official told Congress Tuesday.
In the news…

Anatomy of a Data Breach

**CHANCES ARE GOOD** that you've recently been declared a victim of a data breach.

A data breach occurs when records containing sensitive personal information, such as names, addresses or social security numbers, are compromised. That could mean the loss or theft of a laptop; a hack into a retailer or payment processor's database containing credit-card numbers; or a situation in which an employee with access to sensitive information sells it to a third party.

Data breach notification letters are a dime a dozen these days thanks to recently passed laws governing disclosure.
Facebook in the news…

Thumbs down for Google, Facebook Personal Privacy Concerns

By Oliver Marks | April 20, 2010, 9:58pm PDT

Check your Facebook privacy settings. Now!
More than ever, your personal information is flapping in the breeze

A Flashy Facebook Page, at a Cost to Privacy
Add-Ons to Online Social Profiles Expose Personal Data to Strangers

Facebook's Zuckerberg Says The Age of Privacy is Over

Written by Marshall Kirkpatrick / January 9, 2010 9:25 PM / 254 Comments
In the news…

Google’s Orwell Moment

*On the Web, privacy has its price.*

Google recently introduced a new service that adds social-networking features to its popular Gmail system. The service is called Buzz, and within hours of its release, people were howling about privacy issues—because, in its original form, Buzz showed everyone the list of people you e-mail most frequently. Even people who weren’t cheating on their spouses or secretly applying for new jobs found this a little unnerving.

Google backtracked and changed the software, and apologized for the misstep, claiming that, gosh, it just never occurred to us that people might get upset. "The public reaction was something we did not anticipate. But we've reacted very quickly to people's unhappiness," says Bradley Horowitz, vice president for product management at Google.

It's hard to imagine Google could have been so clueless. Google's coder kiddies may be many things, but stupid isn't one of them.
In the news...

Hospital Workers Suspended for Allegedly Peeking at Clooney Medical Info

Wednesday, October 10, 2007

Associated Press

NEWARK, N.J. —

More than two dozen hospital staffers have been suspended for four weeks after allegedly peeking at George Clooney’s confidential medical information after he was hurt in a motorcycle accident last month.

Clooney, 46, suffered a broken rib and scrapes in the Sept. 21 crash, while his passenger, Sarah Larson, 28, injured her foot. Both were treated at Palisades Medical Center in North Bergen.
The People Factor

- People are the weakest link!!!
  - Phishing schemes
  - Opening email attachments
  - Easy to guess passwords
  - The desire to trust
  - Unknowledgeable

- User study presented at the IEEE Symp. on Security and Privacy, 2007
  - 100% ignored the absence of HTTPS
  - 97% ignored the absence of site authentication image
  - 53% ignored invalid certificate message from browser
What’s going on?

Thanks to Jeff Crume, IBM, for this image and idea.
Websites and How They Influence Behavior

• What kind of organization is it?
• How reputable is the organization?
• How old is the consumer?


• Is the consumer male or female?
Privacy Taxonomy

- **Privacy Protection Goals**
  - Access/Participation
  - Choice/Consent
  - Enforcement/Redress
  - Integrity/Security
  - Notice/Awareness

- **Privacy Vulnerabilities**
  - Information Aggregation
  - Information Collection
  - Information Monitoring
  - Personalization
  - Solicitation
  - Information Storage
  - Information Transfer

A Requirements Taxonomy to Reduce Website Privacy Vulnerabilities,
Annie I. Antón and Julie B. Earp.
Privacy Values 2002


• Data was collected from 1005 Internet users in 2002 to establish a privacy values baseline for correlation with our privacy protection goals and privacy vulnerabilities taxonomy.

• Consumers were most concerned with (in order):
  – information transfer
  – notice/awareness
  – information storage
What influential events have occurred since 2002?
What has happened since 2002?

- **E-commerce**
  - $ spent on e-commerce has more than tripled
- **Social Networking**
  - Linked In now has more than 39 million members
  - Facebook has more than 200 million active users
- **Complaints of ID Theft**
  - More than doubled
- **State legislation**
  - Data Breach Notification Laws
- **HIPAA Compliance Deadlines**
What have the data breach notification laws done?
Privacy Values 2008

Follow-up survey of Internet users worldwide

2,094 usable responses
Privacy Values 2008

- Respondents use the Internet more often now \((p < 0.0001)\)

- Respondents purchase more frequently online now \((p < 0.0001)\)
Have user concerns changed?

• The top three information privacy concerns continue to be
  – information transfer,
  – notice/awareness,
  – information storage.

• The difference lies with the individuals’ level of concern.
Concern #1: Information Transfer

- Respondents are *more concerned* about
  - Disclosing purchasing patterns to 3rd parties
    (p value = .0087)
  - Trading or selling PII to 3rd parties
    (p value = .0013)

- What has caused these changes?
  - Reports about increase in fraud and identity theft complaints being filed
  - News stories pertaining to data brokers and data breaches
Concern #2: Notice / Awareness

- Respondents now want to know:
  - About security safeguards used to protect their PII
    (p value = .0029)

- Respondents are less concerned about:
  - Having the option to decide how their PII is used
    (p < .0001)
  - Changes in privacy practices
    (p < .0001)
  - Disclosures concerning PII use
    (p = .0144)
  - Previously undisclosed changes in the way PII is used
    (p = .0002)
Concerns #3 and 4

• Information Storage
  – No significant changes since 2002

• Access/Participation
  – No significant changes since 2002
Concern #5: Information Collection

- Respondents are more concerned about
  - Recording of previously visited web site
    (p value = .0002)
Concern #6: Personalization

- Respondents are *more concerned* about PII used:
  - to customize their browsing experience  
    \[ (p < .0001) \]
  - to monitor their purchasing patterns  
    \[ (p < .0001) \]
  - for marketing and research  
    \[ (p = .0308) \]

- Respondents are *less concerned* about:
  - websites using cookies  
    \[ (p = .0391) \]
U.S. vs International Concerns in 2008

- U.S. respondents’ top concerns in 2008
  - #1 information transfer
  - #2 notice/awareness
  - #3 information storage

- Non-U.S. respondents’ top concerns in 2008
  - #1 information transfer
  - #2 information storage
  - #3 notice/awareness.
U.S. vs International Concerns in 2008

- Specifically, individuals in the U.S. are more concerned about
  
  - (a) the disclosure of their purchasing patterns and information to third parties
  
  - (b) their personally identifiable information being traded with or sold to third parties
U.S. Respondents are Significantly More Concerned...

- Ages 22-28
  - about websites disclosing individuals’ purchasing patterns to third parties
  - about wanting to know how their PII will be used

- Ages 29-35
  - about general consumer information being shared with third parties

- Ages 22-35
  - about PII being traded with or sold to third parties
Non-U.S. Respondents are Significantly More Concerned...

- Ages 22-28
  - about unauthorized employees and/or unauthorized hackers gaining access to their information.
  - about a website he/she visits collecting information about browser configurations or IP address, without an individual’s consent.

- Ages 29-35
  - about wanting a website to allow individuals to check their PII for accuracy.

- Ages 36-42
  - about a website he/she visits collecting information about browsing
Key Takeaways

• People have different views, concerns and strategies with regard to information privacy

• We must incorporate these concerns into our systems

• There are many user studies that will allow you to learn about the users

• Conduct your own user studies if necessary