Measurements of Personally Identifiable Information Exposures on the Web
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http://www.cse.washington.edu/research/networking/privacy/

Motivation

- Personally identifiable information (PII) use prevalent on the Web, but little known about PII handling
- Risk is exposure to network eavesdroppers and 3rd party websites
  - Attacks include identity theft, stalking, spamming
- We measured the top 100 US websites to understand the prevalence and mechanisms of PII exposures in practice

System & Methodology

Websites that expose PII

1. Send password in the clear
2. Send PII to third-party websites
   - photobucket.com
   - ehow.com
   - yelp.com
   - pandora.com
   - yahoo.com
   - foxnews.com
   - livejournal.com
   - washingtonpost.com
   - weather.com
   - bit.ly
   - linkedin.com
   - eznear忘记了.com
   - typepad.com
   - cnet.com
   - nytimes.com
   - adobe.com
3. Send PII in cookies
   - google-analytics.com
   - doubleclick.net
   - scorecardresearch.com
   - atdmt.com
   - yieldmanager.com
   - quantserve.com
   - bluelithium.com
   - clear-request.com
   - adnxs.com
   - zmdn.net
   - advertising.com
   - doubleverity.com
   - edgesuite.net
   - scrapblog.com
   - specialclick.net
   - toptvbytes.com
   - turn.com
   - widgetbucks.com
   - doubleverity.com
   - dmtracker.com
   - revsci.net
   - mmismmm.com
   - opt-intelligence.com
   - yieldmanager.net
   - googleadservices.com
   - mediasdegrees.com
   - simplyhired.com
   - imx.com
   - dw.com
   - liveperson.com

Future Work

A tool to advise users...

- Predicts exposures as users hover over Web elements
- Analyzes website code, and browser state and history

Websites often and unnecessarily expose PII

- 97% sent PII in the clear
  - Why? Lowers server overhead?
- 35% sent passwords in the clear
- 26% sent PII to 3rd party sites
  - Why? More convenient than opaque identifiers?
- 54% stored PII in cookies
  - Why? Simplifies client-side access to PII?

Measurements are taken in May 2010.