User Study of “consensually acquired” Spyware
“Consensual Spyware”: oxymoron or not?

• Unlike malware, in some instances users install spyware on their own machines
• Typically occurs through bundling
• Possible explanations for why this happens:
  – It isn’t disclosed
  – It’s disclosed but not understood
  – It’s disclosed and understood but nonetheless installed
Notice

• Several instances where it is disclosed but notice is in dense EULAs that cover multiple entities, written in legalese

• So we decided to see if user behavior changed if they were provided with either “short notices” or generic warnings
Study Setup

• User study in laboratory with paid subjects
• Users observed while installing programs and asked to participate in post-interview process
  – Five programs in randomized order (bundled spyware)
  – Three treatment conditions for Notice and Consent
    • EULA
      – Current documents to describe contents
    • Generic + EULA
      – Generic description + original EULA
    • Short EULA + EULA
      – Short description describing contents + original EULA
Short Notice

• Providing easy to read, easy to understand consequences of installing an application

• Providing this information when the user is in the process of installing the program

• Presenting key information:
  – What and How information is collected?
  – How information is used?
  – Impact of program on computer system?
Results

• Users have limited understanding of EULA content and little desire to read them.
  – When informed after the fact what a EULA contains regret over installation of certain programs is high.

• Short notices improve understanding, but did not effect behavior in a statistically significant manner.

• Relative privacy matters
  – Given two programs with similar functionality consumers will choose the one they believe to be less invasive
Conclusions

• If a product provides functionality that a user desires they will knowingly install software they don’t want

• Information about data collection practices and machine performance can influence which products individuals install IF
  – Information is provided when comparison shopping, during the install process is too late
  – There is an agreement about what must be disclosed and consistent terminology to describe behavior
  – There are competing products with different practices
Conclusions

• If the goal is to reduce “spyware” of this sort, then:
  – Relying on improved disclosures and consent procedures may be helpful but it appears insufficient
  – Even with clear notice people will install products that they dislike and will complain later
Questions

• Is “free” part of the problem?
  – Many products that bundle spyware are “free” to consumers
  – however they impose costs on third parties (complaints, tech support) who have no relation to the transaction
  – given the externalities is there a reason to depart from the pure market model?
  – does it suggest other requirements that might force the parties to the transaction to internalize the cost (my program caused the crash, information about origin of ad)
Example Short Notice

How the Weatherscope Agreement Affects You and Your Computer

What information is collected?
- The title and web address of the websites you visit.
- Time spent on websites and what you clicked on at websites.
- What software is present on your computer and how your system is set up.
- Your first name, city, ZIP code, country and time zone.

How is this information collected?
- Information is collected whenever you use your web browser (Internet Explorer) whether or not you are not using Weatherscope.
- Personal information, including your zip code and language preference is collected during installation and in your user profile settings.

How is this information used?
- The information collected is sent to third parties.
- The information collected is used to display pop-up advertising on your computer.
- The information collected is used to create general statistics about all users of the system.

How does this program affect your computer?
- You are installing four programs. Every time you install a new program it has the potential to slow down your computer, slow down your web browsing, and/or cause other programs to crash.
- This program will show popup advertising when you browse the web, whether or not you are using Weatherscope at that time.
- This program will automatically add new programs to your computer without asking you.
- This program downloads new versions of itself automatically and without notice.
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