



UNIT 12C

The Internet: Privacy and Safety

15110 Principles of Computing, Carnegie
Mellon University - CORTINA

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Privacy

- “Privacy is the claim of individuals, groups or institutions to determine for themselves when, how, and to what extent information about them is communicated to others.”
 - Alan Westin, *Privacy and Freedom*, 1967
- “You have no privacy anyway. Get over it.”
 - Scott McNealy, former Chief Executive of Sun Microsystems

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Cookies

- A small file websites place on a visitor's browsers.
 - to remember preferences
 - to create shopping carts
 - to store your city for weather forecasts
- HTTP is stateless so cookies keep track of identity and information over multiple sessions.
- Trackers use 3rd party cookies
- Flash cookies can respawn cookies even if you delete them, and zombie cookies are hard to delete at all

Device Fingerprinting

- A string of data that gives information about the device.
 - Operating system, Wireless settings, Browser configuration, Location of device
- Can identify a specific device used in a transaction
- Helps companies identify fraudulent behavior
- Exposes users to identifying information that could be used against them.

Tagging

- Identification of people in photographs posted online
- Example: 2005 Wikimedia conference
 - Some attendees wore "no photos" tags so as not to be identified at the conference if posted online
 - But photographers were denied free speech rights to take their pictures outside in public
- Example: Google Street View
 - Complaints about invasion of privacy when people showed up in pictures taken by the Google car
 - Google now blurs faces and also buildings or signs at the request of users

Search Engines

- Search engines keep track of all websites you visit for up to 90 days.
- All information that they collect can be sold to advertisers to target ads at you or given to governments to investigate you.
 - "Google knows more about me than my wife."
 - Perry Marshall
- Anonymous searching: DuckDuckGo

Social Networking/Systems

- Facebook, Twitter, Instagram, Amazon Echo
- Facebook: Is your microphone setting on?
 - "We use your microphone to identify the things your listening to or watching."
 - Use the audio to listen to keywords to alter your feed
- Twitter: sharing information from their posts with "partners" to target ads for you
- Amazon Echo: although it listens for a wake word, it is listening constantly – what happens with this info?

Other Risks

- Downloading malware or spyware
- Web bugs – invisible file to see if you read the email
- Phishing – obtaining information fraudulently by pretending to be someone else
- Pharming – redirecting traffic from a legitimate site to a different address
- Weak passwords
- Webcam on laptops
- Thermostats, home cameras, toys, ...

Privacy Policies

- When was the last time you read one?
 - “the notice-and-choice model, as implemented, has led to long, incomprehensible privacy policies that consumers typically do not read, let alone understand” – Preliminary FTC Staff Report, 2010
- What would happen if everyone read the privacy policy for each site they visited once per year?
 - Time = 244 hours/year
 - Cost = \$3,534/year
 - National cost for time to read policies: \$781 billion
 - A. McDonald and L. Cranor. The Cost of Reading Privacy Policies. *I/S: A Journal of Law and Policy for the Information Society*. 2008 Privacy Year in Review Issue.