

Internet Engineering meets Philosophy: Establishing Ethical Guidelines for Networked Systems Research

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Project Website

Ethics in Networked Systems Research
Ethical, Legal and Policy reasoning for
Internet Engineering

<http://ensr.oii.ox.ac.uk/>



Quick intro



Picture based on "Tokyo Bay Fireworks Festival 2010 #6", by megawheel360, published under a Creative Commons 2.0 Generic Attribution-license



NETHERLANDS LAUNCHES INTERNET FREEDOM LEGISLATION

A broad majority in the Dutch parliament voted for crucial legislative proposals to safeguard an open and secure internet in The Netherlands. The Netherlands is the first country in Europe to introduce a net neutrality law. In addition, provisions were launched protecting users against disconnection and wiretapping by providers. Digital rights movement Bits of Freedom calls upon other countries to follow the Dutch



22 juni 2011 17:41
Door Ot van Daalen



TECHNOLOGY

European Parliament Rejects Anti-Piracy Treaty

By ERIC PFANNER JULY 4, 2012



Aim

- Not to prescribe policies, technology design, nor to be considered as a definitive ethics guide.
- But to serve as a starting point for a discussion between engineers and ethical boards, lawyers, social scientists, and affected communities.

Building on previous Guidelines

Ethical Privacy Guidelines for Mobile Connectivity Measurements

<http://tinyurl.com/GuidelinesOII>

Reverse Reasoning

- Engineering:
 - *Consequentialist*
 - “The End justifies the Means”
- Philosophy, Law, Social Science, etc.:
 - *Deontology and Virtue Ethics*
 - Judges morality of the End and moral character of researcher based adherence to a rule or rules of the Means applied.

SAN DIEGO SUPERCOMPUTER CENTER

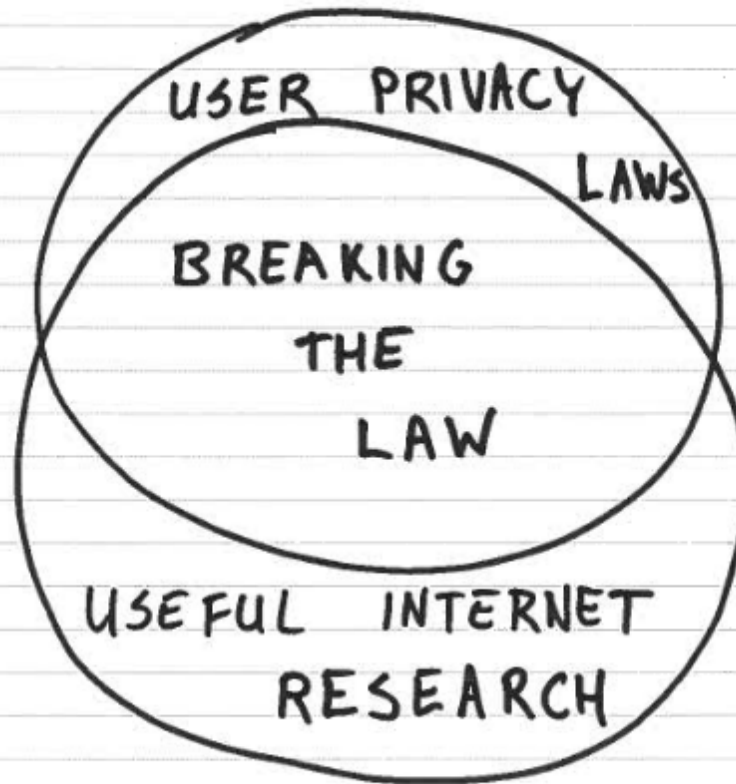
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Scenario 1: (Big) Data Collection by Unlawful Intrusion

Paper

Images

Download

Hilbert Browser

Service Probe Overview

rDNS Overview

Update: We are working on a vast and ground-breaking census, this time we hope to do it legally. Please help us make this happen by donating bitcoins to: 1tUCEnTyKzWrTBn1tgruSRkfahGUhxHcq

Internet Census 2012

Port scanning /0 using insecure embedded devices

Carna Botnet

Abstract While playing around with the Nmap Scripting Engine (NSE) we discovered an amazing number of open embedded devices on the Internet. Many of them are based on Linux and allow login to standard BusyBox with empty or default credentials. We used these devices to build a distributed port scanner to scan all IPv4 addresses. These scans include service probes for the most common ports, ICMP ping, reverse DNS and SYN scans. We analyzed some of the data to get an estimation of the IP address usage.

All data gathered during our research is released into the public domain for further study.



Technologist Reasoning (1)

- Best dataset to understand the Internet network.
- “Created a huge map of the Internet through the illegal use of half a million devices.”
- Design principle was “be nice and don’t break things”
- “All data gathered during our research is released into the public domain for further study. “

Ethics Reasoning (1)

- Is this a precedent to set?
 - Standards stick for a very long time
 - Good bugs can be exploited
 - So this should not be encouraged
- Trade-off benefits and harms
 - Problem defining risk/harm
 - Problem identifying risk/harm
- But: What are the ethical costs of not having this information?

Outcome (1)

- The dataset is widely hosted and used to influence policy debates.
- Investigators are now re-designing their methods so that the Means are ethically just, too.

Scenario 2: Censorship Measurement

- Accessing websites from local devices
 - Via iframes or on network,
 - Sometimes covering costs participants.



Technologist Reasoning (2)

- Informed consent from the users
- Rely on URL lists of respectable organisations
 - (may include Falun Gong, pornography sites, etc.)
- No one has yet been harmed
 - Although data has been used against people
- “We will not know what governments think of these systems until someone ends up in jail”

Ethics Reasoning (2.1)

- Internet as socio-technical system
 - Internet designed by a homogeneous group
 - Access to the Network is democratised
- Inherent knowledge & power imbalance
 - Relevant social norms often not understood by engineers
- Informed consent is meaningless if:
 - No intuitive understanding of personal data ecosystem,
 - No technical understanding of devices.

Ethics Reasoning (2.2)

- Informed consent is also meaningless if engineers don't understand:
 - Some websites may be particularly sensitive
 - Rule of law may not exist in target country
 - Paying participants could be considered to be espionage
- Therefore: speak to local lawyers or fellow engineers before deploying.

Outcome (2)

- Some academic papers have been rejected on ethics grounds
 - However, now accepted because the data is particularly good
 - Possibly with a note of caution attached
- Projects have been scrutinised
 - But finding ways to operate

Scenario 3: Publicly/Freely/ Openly available data



Technologist Reasoning (3)

- Data is available
- Users publish data openly
- Devices broadcast signals unprotected
- Therefore, it's free to use.. Right?!

Ethics Reasoning (3)

- Identifiers make it personal data - protected
- New “public” space
 - Physical plane (observational research)
 - Digital plane (Wifi, Bluetooth, Tweets - technically mediated research).
- (Legal) Balancing test required
- Unethical research - right reasons
 - Consider costs and benefits of doing unethical research

Outcome (3)

- Many projects collect tweets
 - Contact users and decide on opt-in or opt-out rules for project
- Wifi/Bluetooth probes
 - Many commercial applications
 - But can you expect users to know this amount of technical detail when they switch on the various antenna of their phone?

Lessons learned so far...

- Privacy: Data minimisation and purpose limitation are important ethical and legal concepts
- Social challenges and power imbalances need to be understood on a per case basis
- Guidance needed in defining and identifying harms, also per case
- [...]

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Next steps – Request for your input!



- “Ethics in Networked Systems Research” workshop
 - ACM SigComm, 21 August, London
 - Oxford, New York, Brussels, Oxford again, Delaware, Toronto, and Amsterdam.
- Looking for collaboration with you, starting today!
 - To join, mail: bendert.zevenbergen@oii.ox.ac.uk