Your smartphone is a traitor!

Bram Bonné

This talk is interactive

(please interrupt me)

Trust

Losing your phone

What **sensitive data** is on your phone?

How easy is it to **access** this data?

Belgian PM Elio di Rupo's laptop stolen from car

Elio di Rupo became prime minister in 2011 but took on the role of caretaker leader after elections in May

A thief has broken into the car of outgoing Belgian Prime Minister Elio di Rupo in Brussels, stealing his laptop.

Solution: Cerberus for Android, Find my Phone for iOS, encryption

Apps

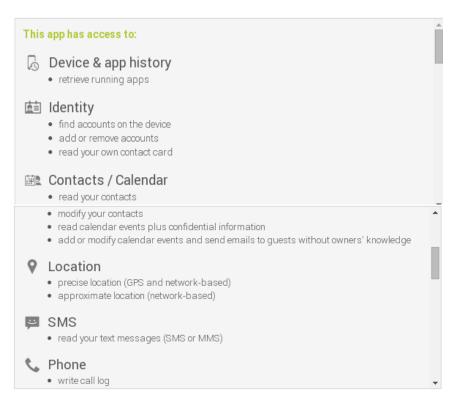32.8 million mobile devices are infected with **malware** (only ~2%)

'Free' apps **collect your data**

Solution: only install apps from the official stores, and check permissions

Permissions

"Facebook" Would Like to Access Your Contacts

Don't Allow   OK

Facebook
Facebook

This app has access to:

Device & app history
- retrieve running apps

Identity
- find accounts on the device
- add or remove accounts
- read your own contact card

Contacts / Calendar
- read your contacts
- modify your contacts
- read calendar events plus confidential information
- add or modify calendar events and send emails to guests without owners' knowledge

Location
- precise location (GPS and network-based)
- approximate location (network-based)

SMS
- read your text messages (SMS or MMS)

Phone
- write call log
- directly call phone numbers
- read call log

Photos / Media / Files
- test access to protected storage
- modify or delete the contents of your USB storage

Camera / Microphone
- take pictures and videos
- record audio

Wi-Fi connection information
- view Wi-Fi connections

Device ID & call information
- read phone status and identity

Other
- receive data from Internet
- download files without notification
- adjust your wallpaper size
- create accounts and set passwords
- run at startup
- prevent device from sleeping
- view network connections
- install shortcuts
- change your audio settings
- read Google service configuration
- toggle sync on and off
- draw over other apps
- expand/collapse status bar
- full network access
- change network connectivity
- set wallpaper
- send sticky broadcast
- read battery statistics
- reorder running apps
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- control vibration

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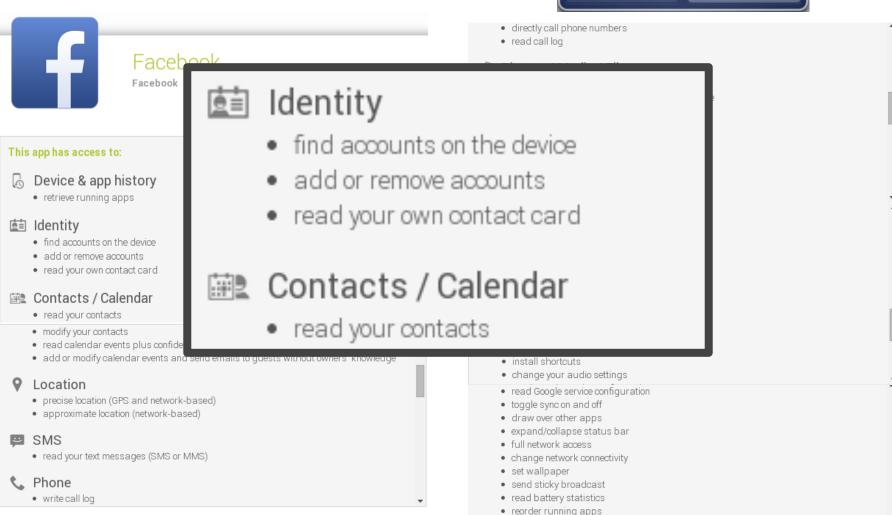- read your text messages (SMS or MMS)

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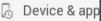"Facebook" Would Like to Access Your Contacts

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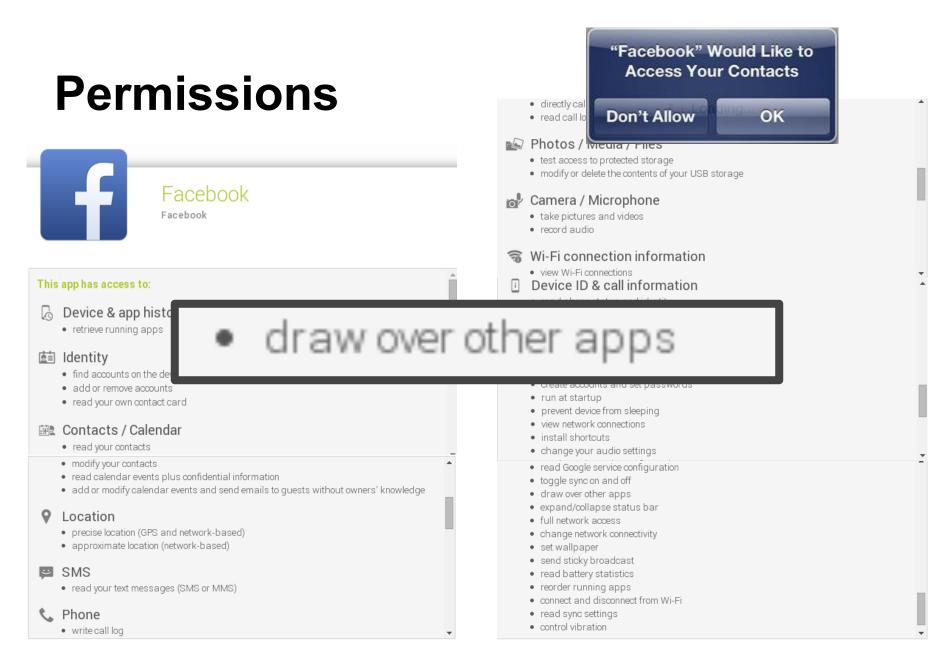- approximate location (network-based)

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- **draw over other apps**

Solution: Tinfoil for Facebook, NativeWrap for other apps, PrivacyGuard / AppOps

Your location

A smartphone is the ideal **tracking device**

- Is in your pocket whenever you leave the house
- Can get your location in a variety of ways
  - GPS
  - Cell towers
  - Wireless networks in range
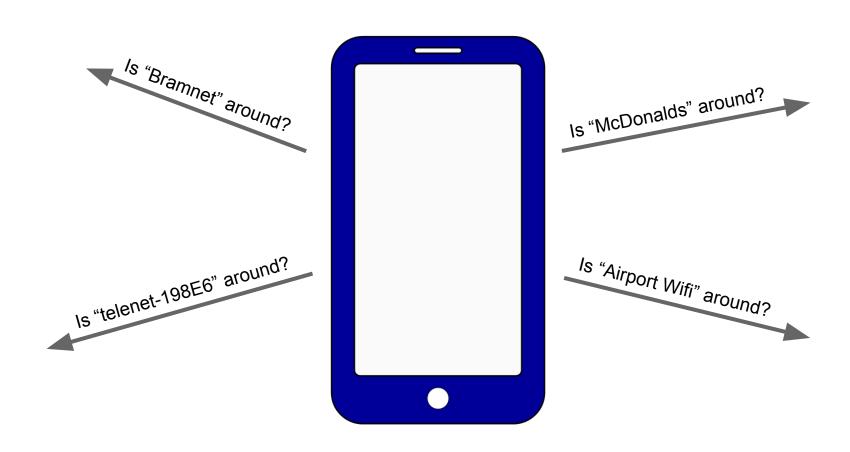 - IP address
  - ...

Your location

Active gathering

- By your **apps** (e.g. Facebook, Foursquare)
- By your **location provider** (e.g. Google, Apple)
- By your **operating system** (e.g. MI)
- By your **network operator** (via cell towers)

Passive gathering

- Based on your list of **Wi-Fi networks**

Your networks

Is "Bramnet" around?

Is "McDonalds" around?

Is "telenet-198E6" around?

Is "Airport Wifi" around?
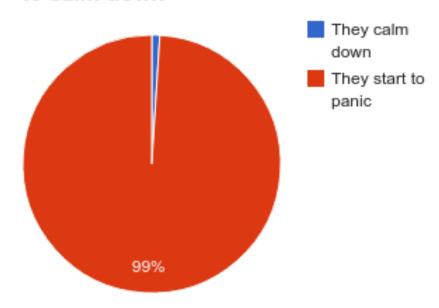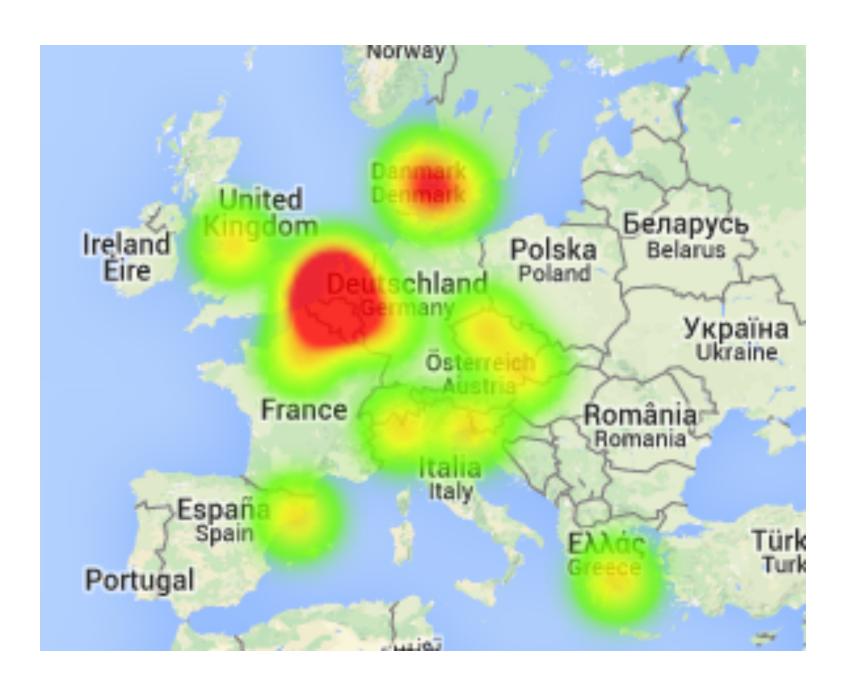
Your location
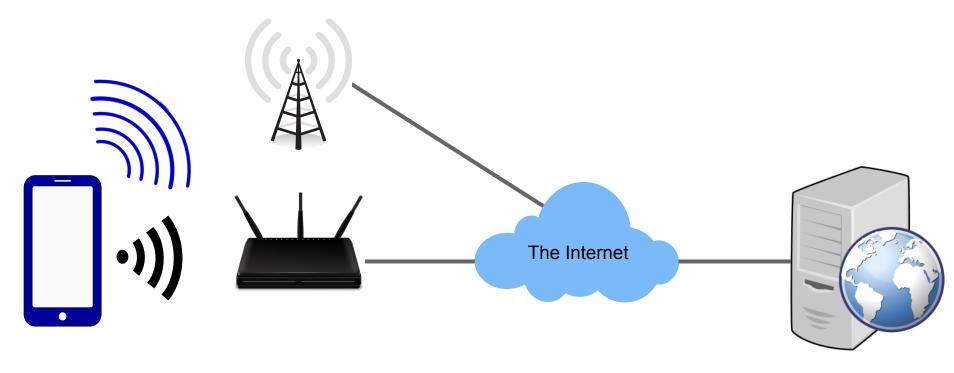
How people react when you ask them to calm down

Legend:
- They calm down
- They start to panic

99%

The Internet
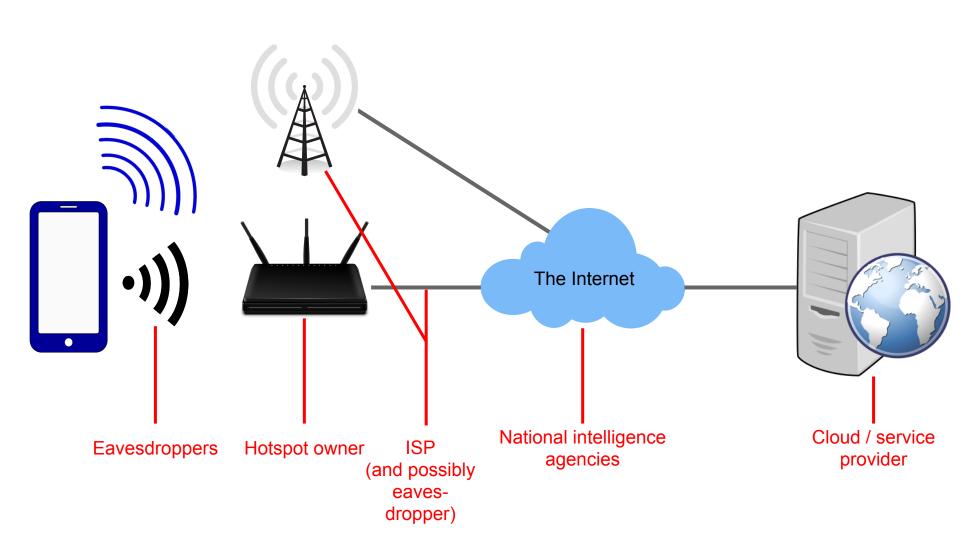
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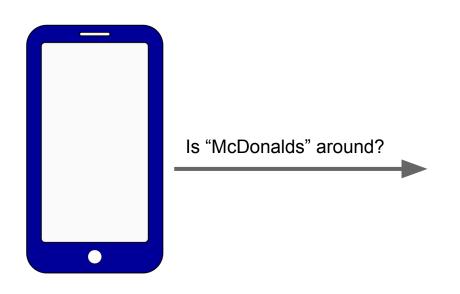
Who can see your data?

The Internet

The Internet

Eavesdroppers

Hotspot owner

ISP
(and possibly
eaves-
dropper)

National intelligence
agencies

Cloud / service
provider

Your Internet traffic

Is "McDonalds" around?
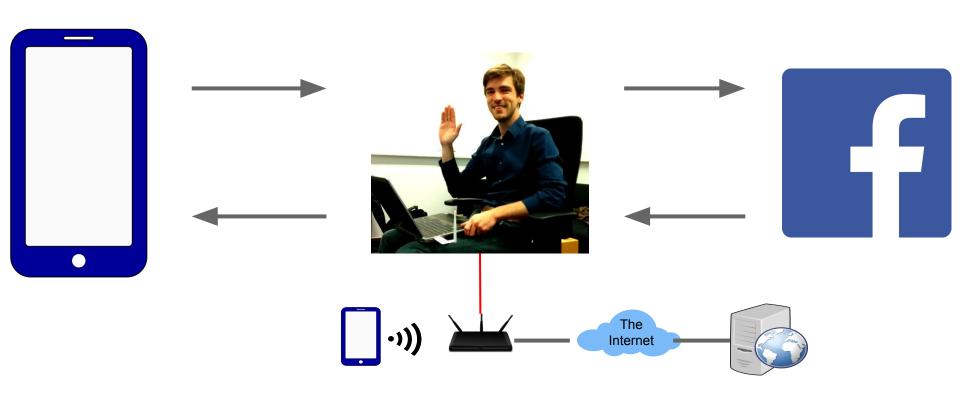
Sure! Hi there!

Your Internet traffic

Solution: use a VPN, remove networks when possible, avoid 'open' networks

EC_Hotspot, TELENETHOTSPOT, internet, TELENETHOMESPOT, RadissonBluGuest,Hotel, TNCAP1CABEF, NOVOTEL, AlterKaiser, Internet, Hotel_Metropole_BXL, Frivillighuset, swisscom, NTGent_Free_WiFi, Rest_Colmar, LISA-VIP, TP-LINK_729928, ANTONIO DELGADO, FREEWIFI De Waag,Norwegian Internet Access, fon, Thomson8FEDFB, THALYSNET, Telekom_ICE, E2355E417ACDE62639E45C7C41, Dan-Free-zone, Chateau de la Poste, MOBILE, Towie, EP-GUEST, giorgio1

The Cloud

Do you **trust** your cloud provider?

- Google
- Apple
- Dropbox
- ?

Jennifer Lawrence nude photos leaked 'after iCloud hack'

By Amelia Butterly
Newsbeat reporter

1 September 2014 Last updated at 10:50

Nude photos of celebrities including Jennifer Lawrence have been leaked online after an apparent hack.

While some stars have claimed the pictures are fake, others seem to have confirmed that it is them in the images.

Related stories

Perez sorry for posting naked photos

Five celebrities on women and media

The Cloud

Do you ~~trust~~ **know who** your cloud provider **is**?

- Google
- Apple
- Dropbox
- Facebook
- Amazon
- Microsoft
- Salesforce
- Rackspace
- ?

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Implementation issues

You are only as secure as the weakest link

… which can be your smartphone manufacturer

Bonus: phones are often running outdated software

Implemen

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… which can   manufacturer

Bonus: phon   utdated
software

Implementation issues

You are only as secure as the weakest link

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Bonus: phones are often running outdated software
→ iOS 8 will only be released for iPhone 4s and up
→ Android updates depend on manufacturers

Implementation

You are only as s... weakest link

… which can be y... ne manufacturer

92% of devices are using iOS 7.

Earlier
1%

iOS 6
7%

iOS 7
92%

As measured by the App Store during a 7-day period ending September 7, 2014.

Version	Codename	API	Distribution
2.2	Froyo	8	0.7%
2.3.3 - 2.3.7	Gingerbread	10	11.4%
4.0.3 - 4.0.4	Ice Cream Sandwich	15	9.6%
4.1.x	Jelly Bean	16	25.1%
4.2.x		17	20.7%
4.3		18	8.0%
4.4	KitKat	19	24.5%

KitKat
Froyo
Jelly Bean
Gingerbread
Ice Cream Sandwich

Data collected during a 7-day period ending on September 9, 2014.
Any versions with less than 0.1% distribution are not shown.

Side-channel / acoustic attacks

Smartphones leak

- Electromagnetic radiation
- Vibrations
- Heat
- Sound
- Other radio signals
- ...

Social engineering

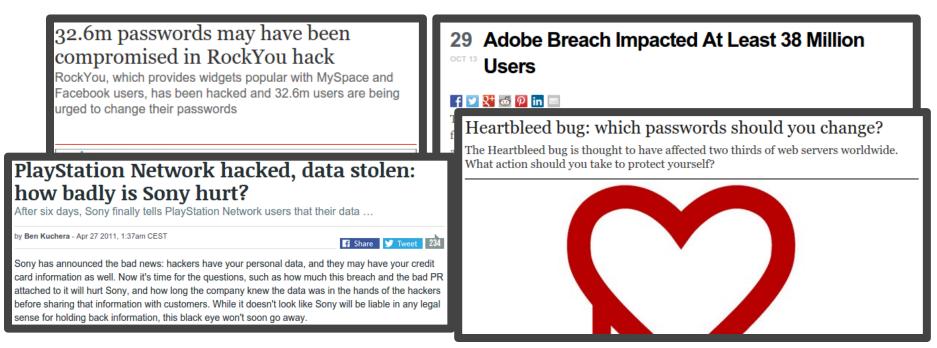All of the previous isn't any good
… if you are the target

How Apple and Amazon Security Flaws Led to My Epic Hacking

BY MAT HONAN 08.06.12 | 8:01 PM | PERMALINK

Addendum: passwords

Are you using **different** passwords for different services?

Are you using **complex** passwords?

32.6m passwords may have been compromised in RockYou hack
RockYou, which provides widgets popular with MySpace and Facebook users, has been hacked and 32.6m users are being urged to change their passwords

29 OCT 13 Adobe Breach Impacted At Least 38 Million Users

f y g+ 😊 P in ✉

PlayStation Network hacked, data stolen: how badly is Sony hurt?
After six days, Sony finally tells PlayStation Network users that their data …

by **Ben Kuchera** - Apr 27 2011, 1:37am CEST

f Share y Tweet 234

Sony has announced the bad news: hackers have your personal data, and they may have your credit card information as well. Now it's time for the questions, such as how much this breach and the bad PR attached to it will hurt Sony, and how long the company knew the data was in the hands of the hackers before sharing that information with customers. While it doesn't look like Sony will be liable in any legal sense for holding back information, this black eye won't soon go away.

Heartbleed bug: which passwords should you change?
The Heartbleed bug is thought to have affected two thirds of web servers worldwide. What action should you take to protect yourself?

Solution: use a password manager, use two-factor authentication

Thank you!

@BramBonne
bram.bonne@uhasselt.be
http://research.edm.uhasselt.be/bbonne