Your privacy - where has it gone?

... and will it be back?

Talk by Dr. Andrzej NOWAK - April 2022
CERN Academic Training Programme
Part 1 of 3 – how did we get here?

Part 2 of 3 – where is “here”, actually?
“Dictators always dreamt about eliminating privacy, monitoring everyone, knowing everything you do, think, and feel...It is now possible.”

Yuval Noah Harari
Half a billion Facebook users' information posted on hacking website, cyber experts say

By Donie O'Sullivan, CNN Business
Updated 11:01 GMT (19:01 HKT) April 5, 2021
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>HOURS</th>
<th>RATES</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Media Spend</td>
<td></td>
<td></td>
<td>$1,155,000.00 USD</td>
</tr>
</tbody>
</table>

TOTAL $1,155,000.00 USD
“This is Britain in 2017. A Britain that increasingly looks like a “managed” democracy. Paid for by a US billionaire. Using military-style technology. Delivered by Facebook. And enabled by us.”

Carole Cadwalladr, The Observer

(1) Collect data
(2) Detect patterns
(3) Target & predict
(4) Influence, direct action
Can we understand – how is this happening?

technology

&

incentives
Surveillance Capitalism, n.

def 1: “A *new economic order that claims human experience as free raw material for hidden commercial practices of extraction, prediction and sales*”

"If you have something that you don't want anyone to know, maybe you shouldn't be doing it in the first place."

Eric Schmid, Google CEO, in 2009

“People have really gotten comfortable not only sharing more information and different kinds, but more openly and with more people. That social norm is just something that has evolved over time.”

Mark Zuckerberg, Facebook CEO, in 2009
<table>
<thead>
<tr>
<th>Item</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>1’000 likes or followers</td>
<td>2$ - 5$</td>
<td>1$ - 5$</td>
</tr>
<tr>
<td>Millions of emails</td>
<td>10$</td>
<td>100$</td>
</tr>
<tr>
<td>DDoS, per hour</td>
<td>15$</td>
<td>10$</td>
</tr>
<tr>
<td>Hacked FB, Insta, Twitter, gmail</td>
<td>45$ - 80$</td>
<td>45$ - 65$</td>
</tr>
<tr>
<td>Cloned credit card with PIN</td>
<td>25$</td>
<td>20$</td>
</tr>
<tr>
<td>US selfie with ID</td>
<td>100$</td>
<td>120$</td>
</tr>
<tr>
<td>Russian passport scan</td>
<td>100$</td>
<td>100$</td>
</tr>
<tr>
<td>Credit card details with up to 5’000$</td>
<td>240$</td>
<td>120$</td>
</tr>
<tr>
<td>Verified crypto accounts</td>
<td>300$ - 800$</td>
<td>90$ - 400$</td>
</tr>
<tr>
<td>Polish passport</td>
<td>4’000$</td>
<td>3’800$</td>
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</table>
information you shared is considered “fair game”

the purpose and your consent are made to change over time
“...our privacy policy”

postgraduate degree required to comprehend

- can change any time
- continued use of service constitutes acceptance

→ no awareness, no control
Web tracking today

(1) associate the subject with a unique tag, in context

(2) store, correlate, annotate and enrich information offline

(3) retrieve tags in another context and profit
cookies, 3rd party cookies, browser storage, browser cache

supercookies, ISP logging, fingerprinting, your IP, your URL, unique URL ID, cross-device tracking, DNS lookups, tracking pixels, javascript
turn off features...?

block cookies yourself, please

...finally, download this add-on we made
Chrome exempts Google sites from user site data settings

October 7 2020 by Jeff Johnson
Support this blog: Link Unshortener, StopTheMadness, Underpass, PayPal.Me

In Google Chrome’s "Cookies and site data" settings, accessible via the Preferences menu item or directly with chrome://settings/cookies in the address bar, you can enable the setting "Clear cookies and site data when you quit Chrome". However, I’ve discovered that Chrome exempts Google’s own sites, such as Search and YouTube, from this setting.
Dear DNS Server, what is the IP address of “wikipedia.org”?

... > 91.198.174.192
Your DNS is configured by your Internet Service Provider
→ don’t use their DNS, change the configuration

Other DNS servers may listen too
→ use your own server

Most DNS requests aren’t encrypted! Someone is listening!
→ use so-called “DoH/DoT” – DNS over https/tls
... more problems
browser fingerprints

“user agent” string, timezone, screen size, plugins, add-ons, canvas test, webGL, fonts, # cores...
Beyond the Web. Logged out?

<table>
<thead>
<tr>
<th></th>
<th>IMEI</th>
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<th>SIM serial number</th>
<th>Phone number</th>
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<th>Location</th>
<th>Telemetry</th>
<th>Cookies</th>
<th>Local IP Address</th>
<th>Device WiFi MAC address</th>
<th>Nearby WiFi MAC addresses</th>
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<tbody>
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<tr>
<td>Google Android</td>
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</tbody>
</table>
Data collection on Apple

- your files and settings - iCloud
- which software you run and when
- mail
- location
- unique identifiers shared
- recordings of your surroundings
Facebook v Apple: The ad tracking row heats up

By Jane Wakefield
Technology reporter

12 hours ago
Google data collection
search engine and crawler
ad network
Android devices
other products (mail, etc.)
affiliates
3rd party records (research, etc.)
(2010) Google Streetview cars perform electronic surveillance

(2017) Google admits Android collects the nearest cell tower, even when you switch off location and remove your SIM card.

(2018) “Location History” is off, Google still tracks it. Use an unrelated setting called “Web and App activity” to disable it.

(2020) Data collection continues in “Private mode” browsing.
Web & App Activity

Saves your activity on Google sites and apps to give you faster searches, better recommendations, and more personalized experiences in Maps, Search, and other Google services. Learn more

- Include Chrome history and activity from sites, apps, and devices that use Google services

MANAGE ACTIVITY

- Activity may be saved from another account if you use a shared device or sign in with multiple accounts. Learn more at support.google.com.
Summary of official notice

The email from Google to Workspace admins included information that

1. If Google Workspace admins disabled tracking via the "Web & App Activity" setting, this decision will be ignored by Gmail, Drive, Docs, Calendar, Chat, and several other services, starting March 29th.

2. A new user setting, "Google Workspace search history", will be introduced that the users will control individually.

3. By default, tracking is enabled, regardless of the previous admin setting of the organization.

4. The ability of Google Workspace organizations to turn off "Web & App Activity" for all users is no longer available.
(2019) Software Development Kits used in apps systematically capture location and other data, which is later put up for sale.

12 million people
50 billion pings
One dataset out of a multitude

consent? anonymity? security?
“The seduction of these consumer products is so powerful that it blinds us to the possibility that there is another way to get the benefits of the technology without the invasion of privacy. But there is [...]”

William Staples, Surveillance Studies Research Center, Kansas Uni
dark patterns

“Dark Patterns are tricks used in websites and apps that make you do things that you didn't mean to, like buying or signing up for something.”

Harry Brignull, darkpatterns.org
Roach Motel (Verizon)

No link, must ask an automated agent, who advises to call a hotline, then transfer and then convince a real agent

Confirmshaming (Amazon)

“Join Amazon Prime” vs. “No, thanks, I don’t want unlimited one-day delivery”
Forced action

Nagging
Trick questions

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Please tick here if you would like to receive relevant messages by SMS: from us ☐ from our partners ☐

Sometimes our partners have special offers that we think you will find relevant, but if you do not want to hear from them please tick here: by post ☑ by phone ☑
regulation – a blessing and a curse

DPD and GDPR

EU-US “Safe harbor” → Schrems I
EU-US “Privacy Shield” → Schrems II
EU-US “Privacy Shield 2.0”?  

CCPA
Personalisierungseinstellungen & Cookies

Wir verwenden Cookies, um Personalisierungseinstellungen zur Verfügung zu stellen. Über diese können Sie festlegen, wie Sie die Dienste von Google nutzen möchten – auch wenn Sie abgemeldet sind. Sie können Ihre Einstellungen jederzeit unter g.co/privacytools ändern. Wenn Sie wissen möchten, wie Google Informationen verwendet, die während Ihrer Nutzung von Google-Diensten generiert werden, dann lesen Sie unsere

Suchanpassung
Sie erhalten relevantere Ergebnisse und Empfehlungen auf der Grundlage Ihrer Google-Suchanfragen über diesen Browser.

Aus  Ein

YouTube-Verlauf
Sie erhalten z. B. personalisierte Videoempfehlungen und eine angepasste Startseite. Für diese Einstellung werden Ihre Aktivitäten bei YouTube herangezogen, etwa die Videos, die Sie sich ansehen oder nach denen Sie suchen.

Aus  Ein

Personalisierte Werbung

Aus  Ein
Before you continue to YouTube

We use cookies and data to

- Deliver and maintain Google services
- Track outages and protect against spam, fraud and abuse
- Measure audience engagement and site statistics to understand how our services are used and enhance the quality of those services

If you choose to ‘Accept all’, we will also use cookies and data to

- Develop and improve new services
- Deliver and measure the effectiveness of ads
- Show personalised content, depending on your settings
- Show personalised ads, depending on your settings

If you choose to ‘Reject all’, we will not use cookies for these additional purposes.

Non-personalised content and ads are influenced by things like the content that you’re currently viewing and your location (ad serving is based on general location). Personalised content and ads can also include things like video recommendations, a customised YouTube homepage and tailored ads based on past activity, like the videos that you watch and the things that you search for on YouTube. We also use cookies and data to tailor the experience to be age-appropriate, if relevant.

Select ‘More options’ to see additional information, including details about managing your privacy settings. You can also visit g.co/privacytools at any time.

90% accept

3% want
privacy vs. safety

↑

“and”?
increasing algorithmic and AI presence, invasiveness, automation

algorithms aren’t infallible
bias
garbage in, garbage out

the right to oppose automation?
anonymization, privacy preservation in AI
Countries with a “general right to encryption” – gp-digital
- high sophistication
- low sophistication

- family members
  - screen lock
- friends
  - passwords
- corporations
  - multiple identities
- governments
  - lawful encryption
- black hat
  - digital hygiene
“what should I do”?

decide what you want

get help! :-) listen to experts

pay for privacy with money, or you will pay in other ways

complain about a lack of respect for privacy
“and technically?”

Firefox (de-googled), Signal, Element
Privacy mail/office services (e.g., tutanota, mailbox.org)
privacyguides.org, privacytools.io; Encrypt files, cloud.
Firewalls for outgoing traffic (simplewall, netguard)
Get Linux. Dump Android, get Calyx / Graphene / Lineage
Pay with Abine Blur or similar
Self-hosting
Going dark with consumer electronics

🌲

level of cray-cray
“here”

no control, no accountability
an adversarial relationship
convenience > privacy
cost > privacy

but you have all the power – divert your attention
to be continued...
CERN resources: Liviu Valsan’s seminar
https://indico.cern.ch/event/921892/

A privacy talk by Dr. Andrzej NOWAK – an@tik.services, April 2022
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