MyTrackingChoices: Pacifying the Ad-Block War by Enforcing User Privacy Preferences

Jagdish Prasad Achara

Joint work with
Javier Parra-Arnau and Claude Castelluccia

WEIS, 2016
University of California, Berkeley
Ad-supported economic model of the Web is under threat today!

AdBlock War
Why ad-supported economy in danger

1. intrusive and annoying ads
2. privacy-invasive ads
3. ads are a source of malware
4. ads slow down the page loading network bandwidth consumption etc.
5. users were provided with radical tools — i.e., tools that block ALL ads

basically, all the reasons why people started to block ads in the first place
Efforts for economic revival

1. various self-regulatory initiatives
   – Acceptable Ads
   – L.E.A.N. program
   – YourOnlineChoices
   – YourAdChoices
   – DNT

2. tools with some fine-grained options for users
   – users can white-list or black-list trackers (advertisers)
   – users can white-list or black-list a domain
Self-regulatory initiatives do not work

1 out of 122 Opt Outs were honored when I attempted a batch request with AdChoices. Self-regulation, folks.

Google, Microsoft, and Amazon are paying Adblock Plus huge fees to get their ads unblocked

Google And Facebook Ignore "Do Not Track" Requests, Claim They Confuse Consumers

Lack of technical enforcement is the root problem!
Current fine-grained options

- blocking based on third-party or blocking on per domain basis

Do not make sense from user perspective (users only care about their browsing profile)
Our approach

• technical enforcement of user choices
  – should not rely on self-regulation

• fine-grained options over the reasons why people block ads
  – that are usable and do make sense for users

• has the potential to revive ad-supported economic model
Fine-grained options (1)

• w.r.t. privacy
  – let users decide where they’re ok or not to get tracked

<table>
<thead>
<tr>
<th>Profile</th>
<th>Allowed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult</td>
<td>✗</td>
</tr>
<tr>
<td>Sports</td>
<td>✓</td>
</tr>
<tr>
<td>Health</td>
<td>✗</td>
</tr>
<tr>
<td>Economy</td>
<td>✓</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

users would be able to control the profile trackers have

*(Do not) Track Me Sometimes: Users’ Contextual Preferences for Web Tracking, **PETS, 2016***
Fine-grained options (2)

• w.r.t. intrusiveness
  – maximum number of ads per page (on pages where users are ok to be tracked)
  – type, size, placement of ads
MyTrackingChoices (MTC)
MyTrackingChoices

fine-grained options over privacy (tracking)

Key working assumption

some categories (adult, health, etc.) are more privacy-sensitive than others (sports, fashion)

an attempt to find a trade-off between privacy and economy
<table>
<thead>
<tr>
<th>Category</th>
<th>BlockTrackers</th>
</tr>
</thead>
<tbody>
<tr>
<td>adult</td>
<td>✓</td>
</tr>
<tr>
<td>agriculture</td>
<td></td>
</tr>
<tr>
<td>animals</td>
<td></td>
</tr>
<tr>
<td>architecture</td>
<td></td>
</tr>
<tr>
<td>arts &amp; entertainment</td>
<td></td>
</tr>
<tr>
<td>automotive</td>
<td></td>
</tr>
<tr>
<td>business</td>
<td></td>
</tr>
<tr>
<td>careers</td>
<td></td>
</tr>
<tr>
<td>economics</td>
<td></td>
</tr>
<tr>
<td>education</td>
<td></td>
</tr>
<tr>
<td>family &amp; parenting</td>
<td></td>
</tr>
<tr>
<td>fashion</td>
<td></td>
</tr>
<tr>
<td>folklore</td>
<td></td>
</tr>
<tr>
<td>food &amp; drink</td>
<td></td>
</tr>
<tr>
<td>health &amp; fitness</td>
<td>✓</td>
</tr>
</tbody>
</table>
Nokia no longer the butt of tech jokes
Study says a major blood cancer is treatable

diseases
Categorization

- per web page basis (≠ per domain)

**Benefits**

**website:** ads would be blocked only on sensitive-category web pages (most revenue preserved)

**user:** can technically control his profile yet continue receiving free content

- A page is categorized *locally* based on
  - domains/subdomains/hostname
  - unigrams and bigrams
Can MTC pacify the Ad-Block War?
Ad-Block War

Ad tech

Ad Blocking tech

Publishers

Users
Ad-Block War

Hi again. Looks like you're still using an ad blocker. Please turn it off in order to continue into Forbes' ad-light experience.

Evaluation of data from MTC users
Dataset

• 96 users
  – who browsed 20 or more web pages and configured, at least, once their tracking options
  – found the extension on Chrome Web Store independently or through various publicity channels

• From January 11 to February 20, 2016
More users blocked sensitive categories

30% users blocked all categories!

Other economic models needed!
In total, only 33.19% of browsed web pages were blocked.
Distribution Blocked/Allowed Ads

23.8% ads were blocked overall.

2015 loss (21.8 → 5.18 billion)
Conclusions

• give users fine-grained control over the reasons why they started to block ads
  – win-win situation for all stakeholders

• provide users with tools that technically enforce their choices (no self-regulation!)
  – such efforts have the potential to pacify the current ad-block war
TODOs

• provide users with fine-grained control w.r.t. intrusiveness

• make MyTrackingChoices a real product (and not just research prototype)
Announcements

Please download, use, and **give feedback** on MTC for Google Chrome

[https://chrome.google.com/webstore/detail/mytrackingchoices/fmonkjimgifgcgeocdhgfoncmjclka?hl=fr](https://chrome.google.com/webstore/detail/mytrackingchoices/fmonkjimgifgcgeocdhgfoncmjclka?hl=fr)

Mozilla Firefox version coming soon!
Thanks for your attention!

Questions?

Project web page: https://myrealonlinechoices.inrialpes.fr
Watch on YouTube: https://youtu.be/mzB1hXhqYBE