

Safe Computing

PII and Data Tracking

- "PII" is short for *personally identifiable information*
 - Any information that uniquely identifies you, such as:
 - SIN (Canadian Social Insurance Number)
 - age
 - ethnicity
 - phone numbers
 - medical or financial info
 - biometric data (iris of eye, fingerprints, face scan)

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- A given website may use technologies, including something called a "cookie", for a variety of legitimate purposes
 - knowing when a user has been logged in
 - remembering site viewing preferences for a future visit
 - to make suggestions for what to look at, based on what you browsed (say, at an online bookstore) in past sessions
- Where things get tricky is when a given website also loads cookies attached to other domains
 - These are called "third party cookies"

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TECH IN 60 SECONDS:

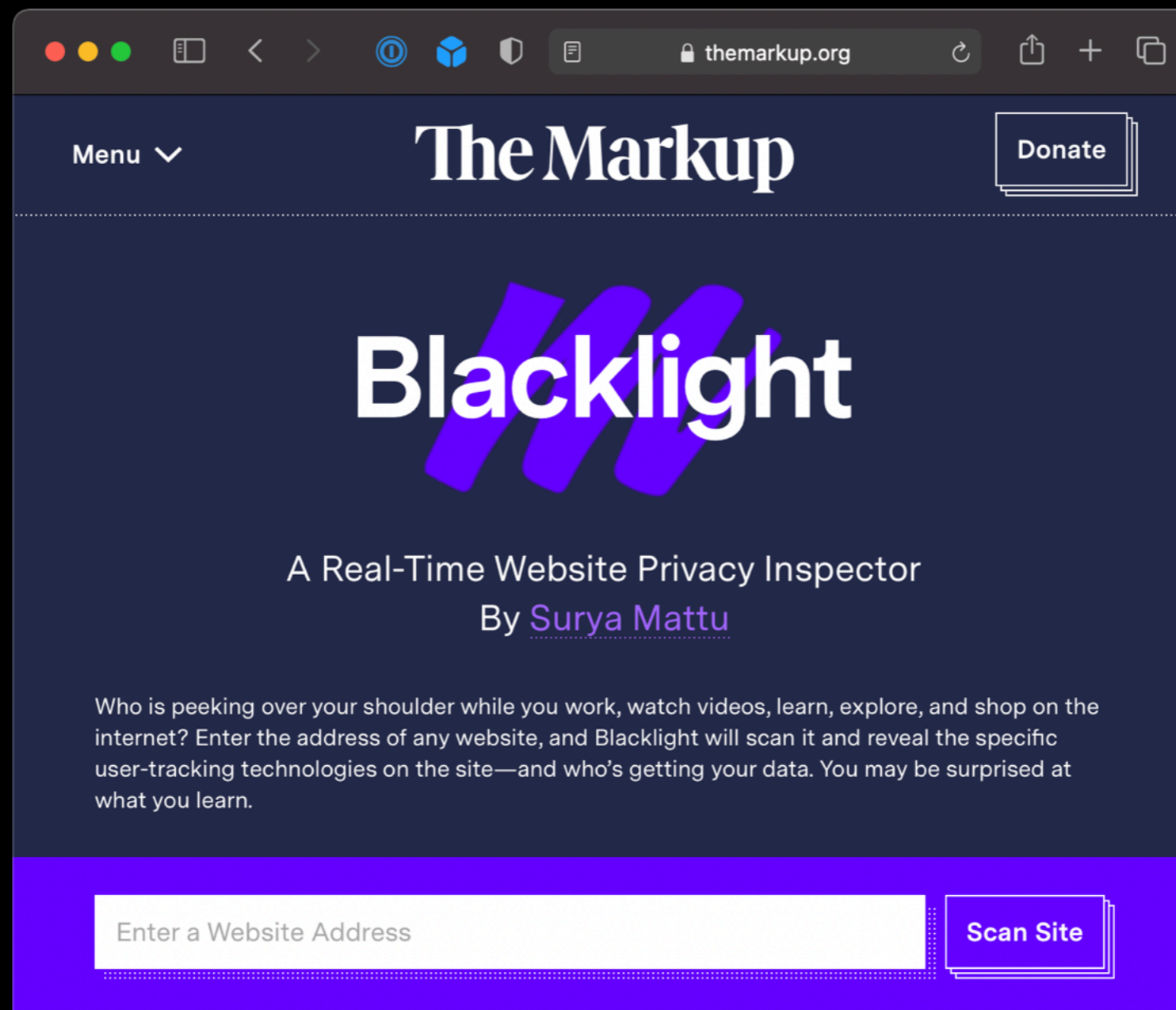
WHAT IS A COOKIE?

"Not worried!"

**"I trust the websites I
visit!"**

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The screenshot shows a web browser window with the address bar displaying "themarkup.org". The page has a dark blue header with a "Menu" dropdown, the "The Markup" logo, and a "Donate" button. The main content area features the word "Blacklight" in large white text with a purple shadow effect. Below it, the text reads "A Real-Time Website Privacy Inspector" and "By [Surya Mattu](#)". A paragraph of text explains the tool's function: "Who is peeking over your shoulder while you work, watch videos, learn, explore, and shop on the internet? Enter the address of any website, and Blacklight will scan it and reveal the specific user-tracking technologies on the site—and who's getting your data. You may be surprised at what you learn." At the bottom, there is a purple bar containing a white input field with the placeholder text "Enter a Website Address" and a "Scan Site" button.

Menu ▾ The Markup Donate

Blacklight

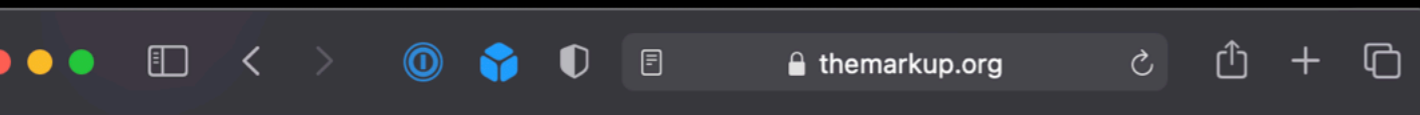
A Real-Time Website Privacy Inspector
By [Surya Mattu](#)

Who is peeking over your shoulder while you work, watch videos, learn, explore, and shop on the internet? Enter the address of any website, and Blacklight will scan it and reveal the specific user-tracking technologies on the site—and who's getting your data. You may be surprised at what you learn.

Enter a Website Address Scan Site

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Visited thestar.com/?redirect=true on May. 16, 2021, 00:50 ET [Learn more](#)

Blacklight Inspection Result

Blacklight works by visiting each website with a headless browser running custom software built by The Markup. To learn more read our [methodology](#).

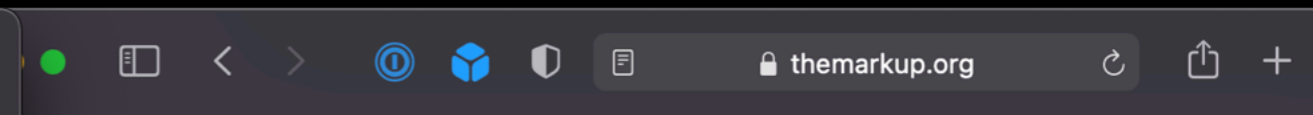
29 **Ad trackers found on this site.**
This is **more than** the average of **seven** that we found on popular sites.

58 **Third-party cookies were found.**
This is **more than** the average of **three** that we found on popular sites.

Tracking that evades cookie blockers wasn't found.

Session recording services not found on this website.

We did not find this website capturing keystrokes.



Visited sportsnet.ca on May. 17, 2021, 09:06 ET [Learn more](#)

Blacklight Inspection Result

Blacklight works by visiting each website with a headless browser running custom software built by The Markup. To learn more read our [methodology](#).

23 **Ad trackers found on this site.**
This is **more than** the average of **seven** that we found on popular sites.

39 **Third-party cookies were found.**
This is **more than** the average of **three** that we found on popular sites.

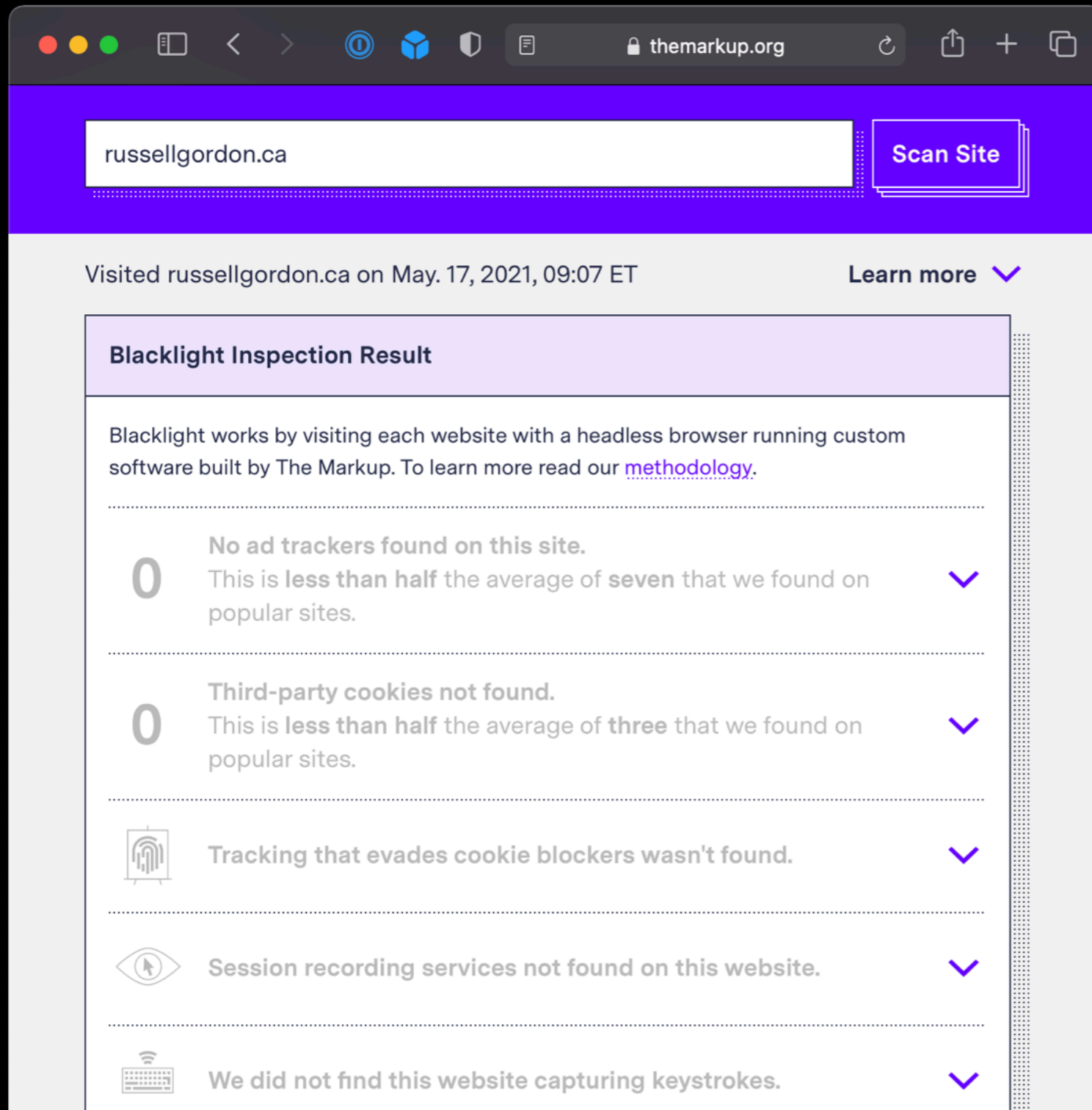
This website loads trackers on your computer that are designed to evade third-party cookie blockers.

Session recording services not found on this website.

We did not find this website capturing keystrokes.

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The screenshot shows a web browser window with the address bar displaying "themarkup.org". The main content area has a purple header with a search bar containing "russellgordon.ca" and a "Scan Site" button. Below the header, it says "Visited russellgordon.ca on May. 17, 2021, 09:07 ET" and "Learn more" with a dropdown arrow. The main section is titled "Blacklight Inspection Result" and contains a list of findings:

- 0 No ad trackers found on this site.** This is less than half the average of seven that we found on popular sites. ✓
- 0 Third-party cookies not found.** This is less than half the average of three that we found on popular sites. ✓
- Tracking that evades cookie blockers wasn't found.** ✓
- Session recording services not found on this website.** ✓
- We did not find this website capturing keystrokes.** ✓



**"Ehh... who cares, I don't do
anything I care about someone
seeing..."**

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Forbes

Feb 16, 2012, 11:02am EST

How Target Figured Out A Teen Girl Was Pregnant Before Her Father Did



Kashmir Hill Former Staff

Tech

Welcome to The Not-So Private Parts where technology & privacy collide

This article is more than 9 years old.

Every time you go shopping, you share intimate details about your consumption patterns with retailers. And many of those retailers are studying those details to figure out what you like, what you need, and which coupons are most likely to make you happy.

[Target](#), for example, has figured

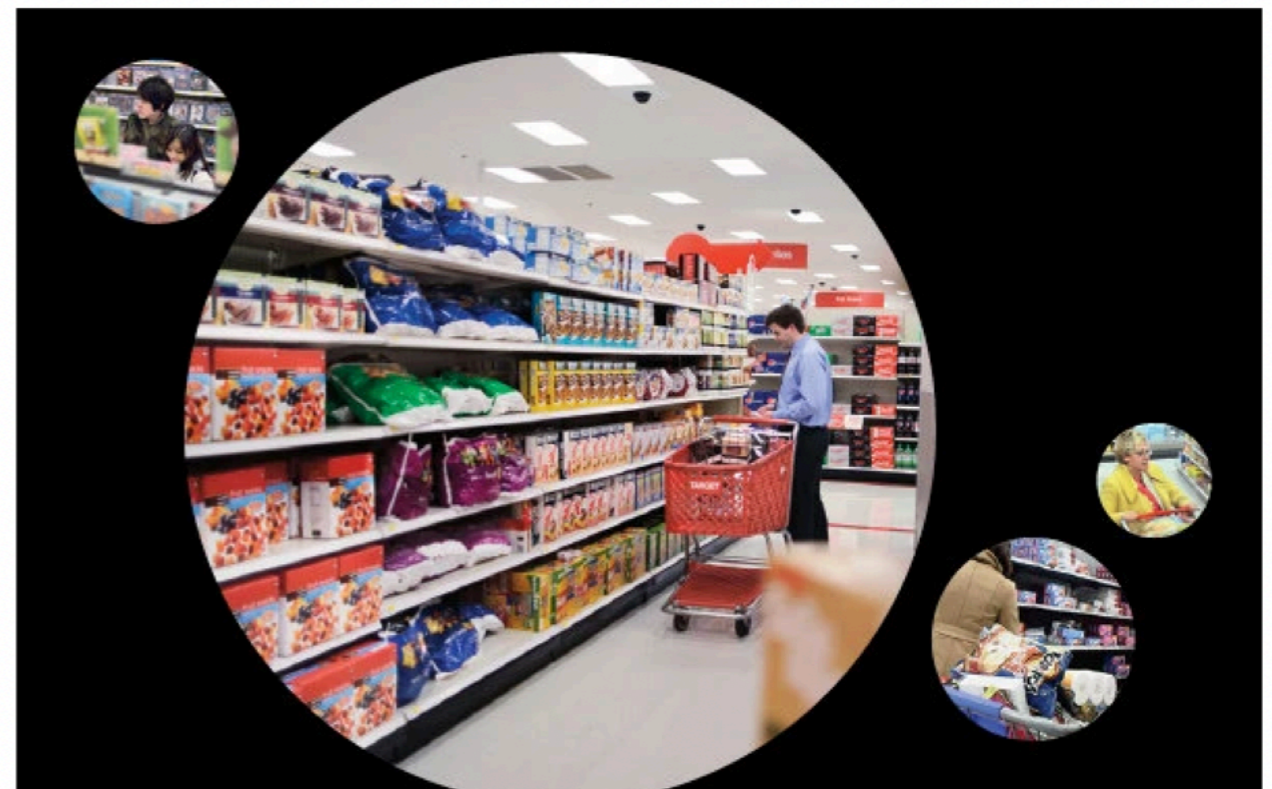


Target has got you in its aim

The New York Times Magazine

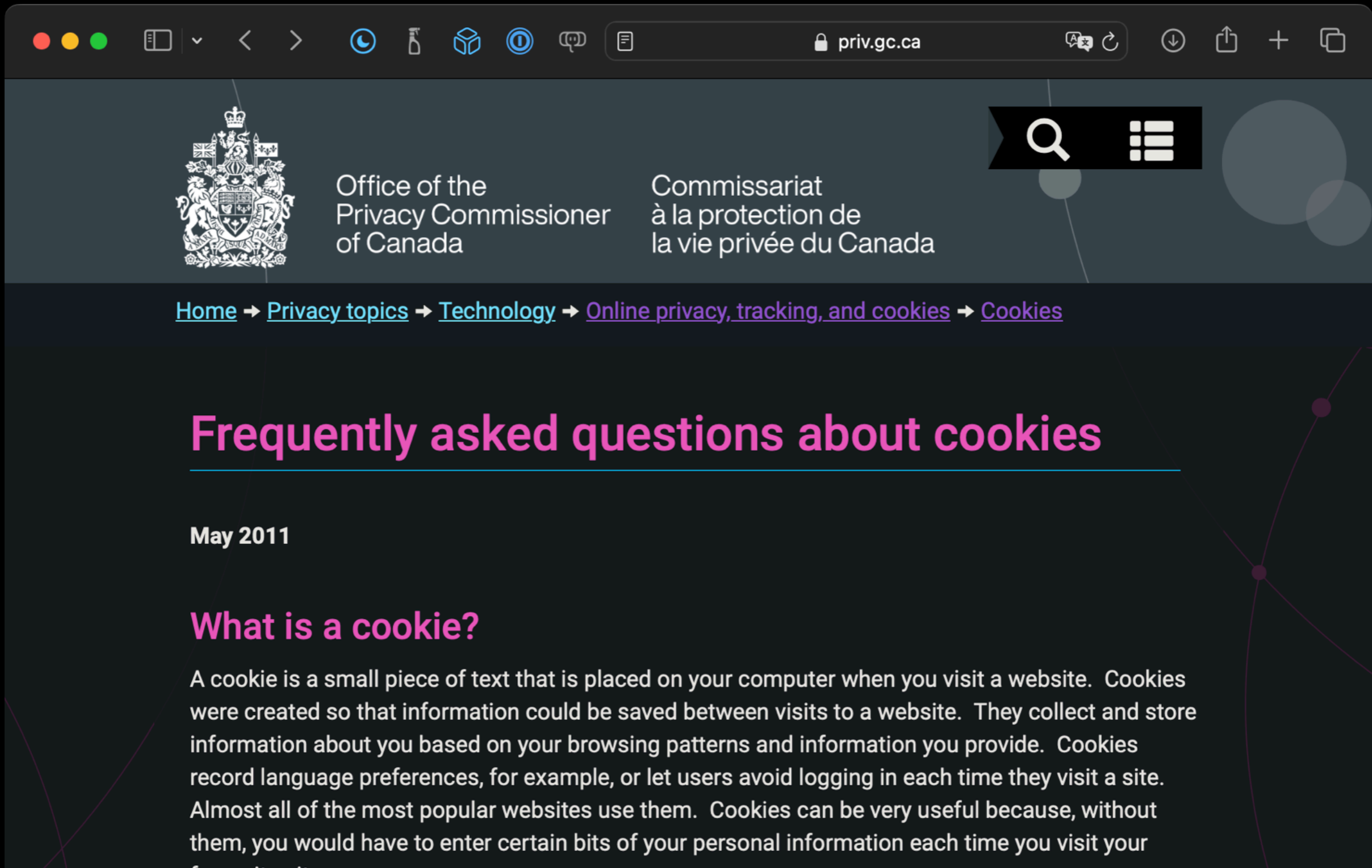
PLAY THE CROSSWORD

How Companies Learn Your Secrets



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The screenshot shows a web browser window with the URL `priv.gc.ca`. The page header includes the Office of the Privacy Commissioner of Canada logo and name in both English and French. A search bar and a menu icon are visible in the top right. The breadcrumb trail is: [Home](#) → [Privacy topics](#) → [Technology](#) → [Online privacy, tracking, and cookies](#) → [Cookies](#). The main heading is **Frequently asked questions about cookies**, dated **May 2011**. The first question is **What is a cookie?**

What is a cookie?

A cookie is a small piece of text that is placed on your computer when you visit a website. Cookies were created so that information could be saved between visits to a website. They collect and store information about you based on your browsing patterns and information you provide. Cookies record language preferences, for example, or let users avoid logging in each time they visit a site. Almost all of the most popular websites use them. Cookies can be very useful because, without them, you would have to enter certain bits of your personal information each time you visit your

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- "Doxxing" or "document dropping" is "the act of publicly revealing previously private personal information about an individual or organization."
- "Methods employed to acquire such information include searching publicly available databases and social media websites (like Facebook), hacking, and social engineering."



Podcasts COVID-19 Arts Business + Economy Culture + Society Education Environment + Energy Health P

What is doxxing, and why is it so scary?

May 16, 2018 6.26am EDT

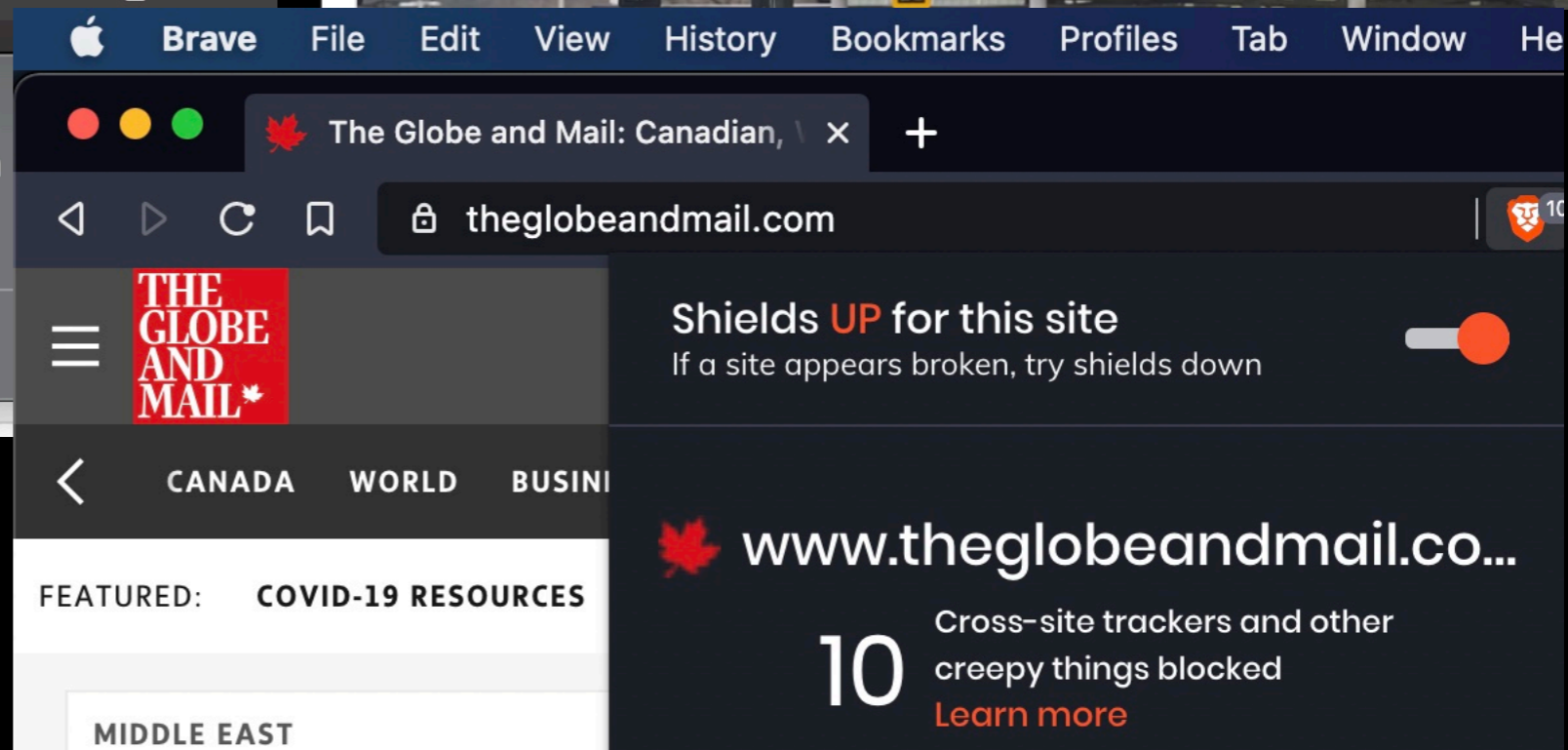
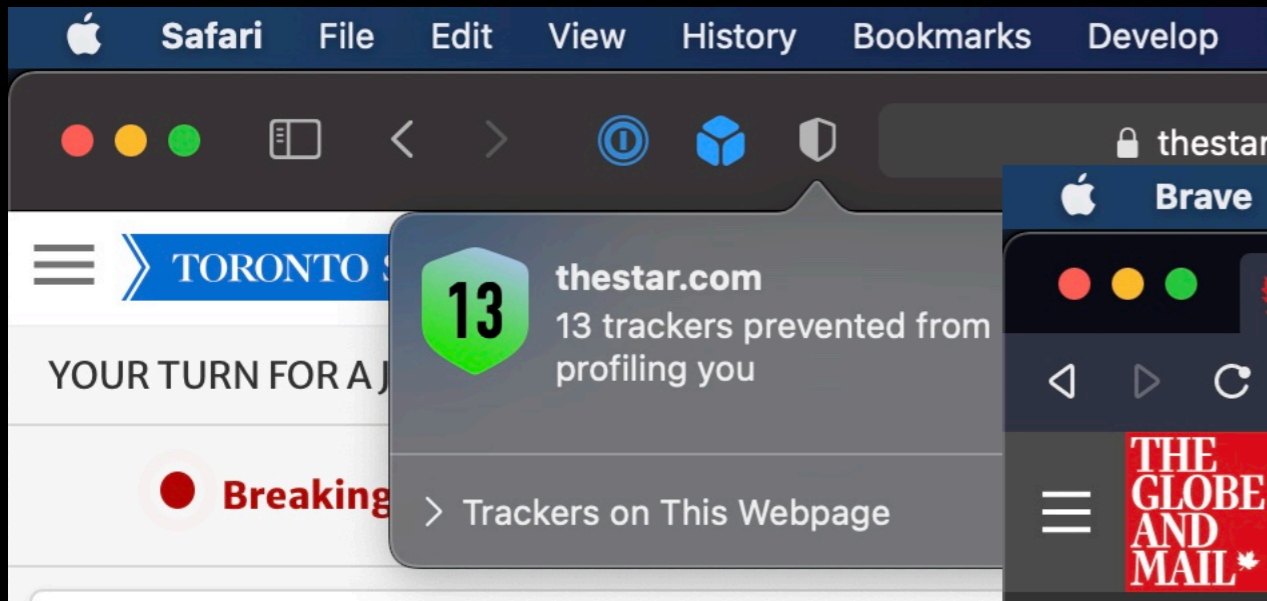
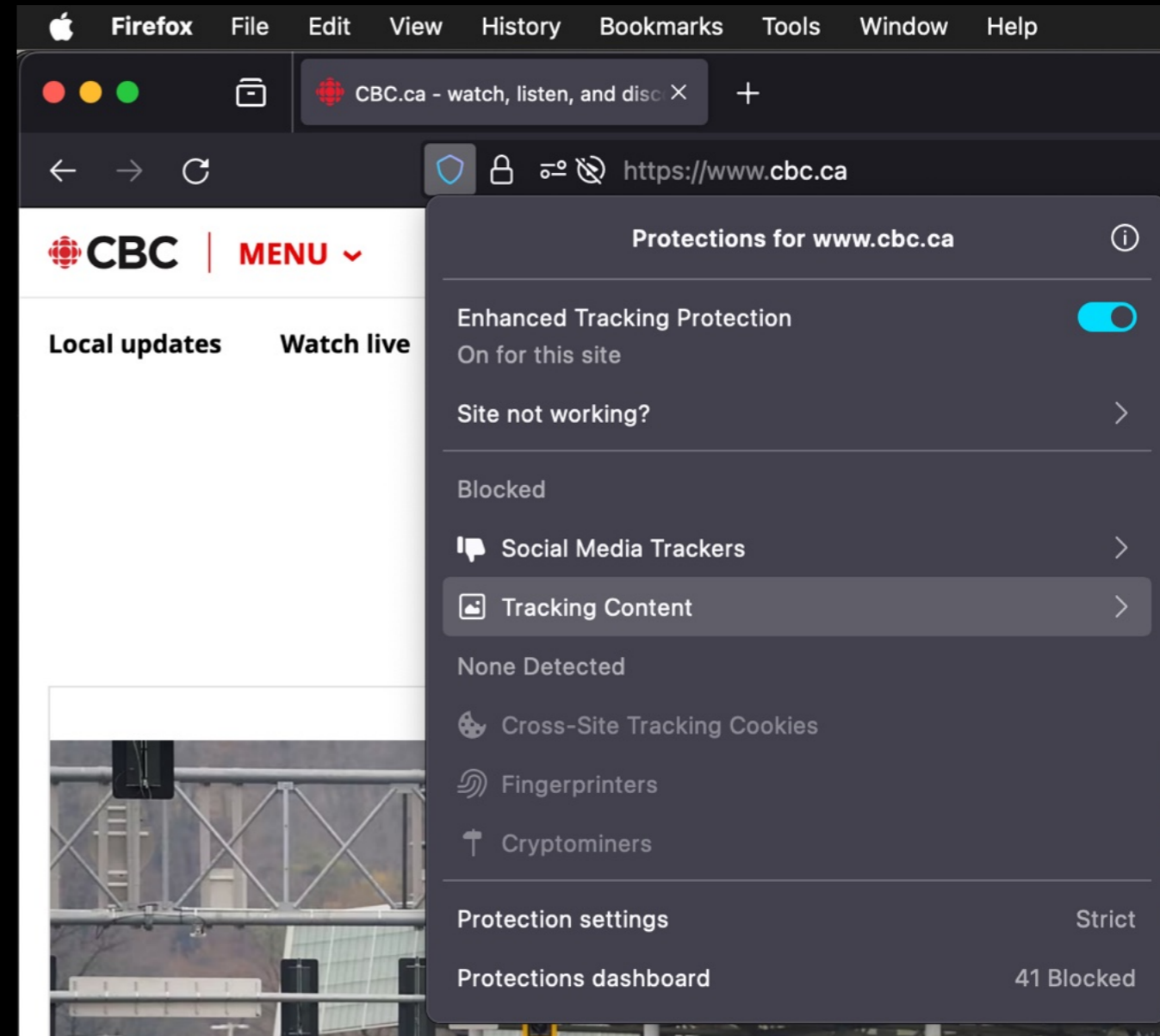
It's worrying, and potentially dangerous, when someone peels back the curtain of another's identity. The Conversation, from Brian A. Jackson/SH Transportation via AP, CC BY-ND

The screenshot shows a web browser window with the URL 'theconversation.com'. The page features a navigation menu with categories like Podcasts, COVID-19, Arts, Business + Economy, Culture + Society, Education, Environment + Energy, and Health. The main content area displays a large image of a hand peeling a sticker off a woman's face, with the text 'What is doxxing, and why is it so scary?' overlaid. Below the image, the date 'May 16, 2018 6.26am EDT' is visible. At the bottom, a small caption reads: 'It's worrying, and potentially dangerous, when someone peels back the curtain of another's identity. The Conversation, from Brian A. Jackson/SH Transportation via AP, CC BY-ND'. On the right side of the image, there is a vertical signature 'Olivia H. Koppa' and the text 'DIRECTOR OF VEHICLES SECRETARY OF REVENUE'.

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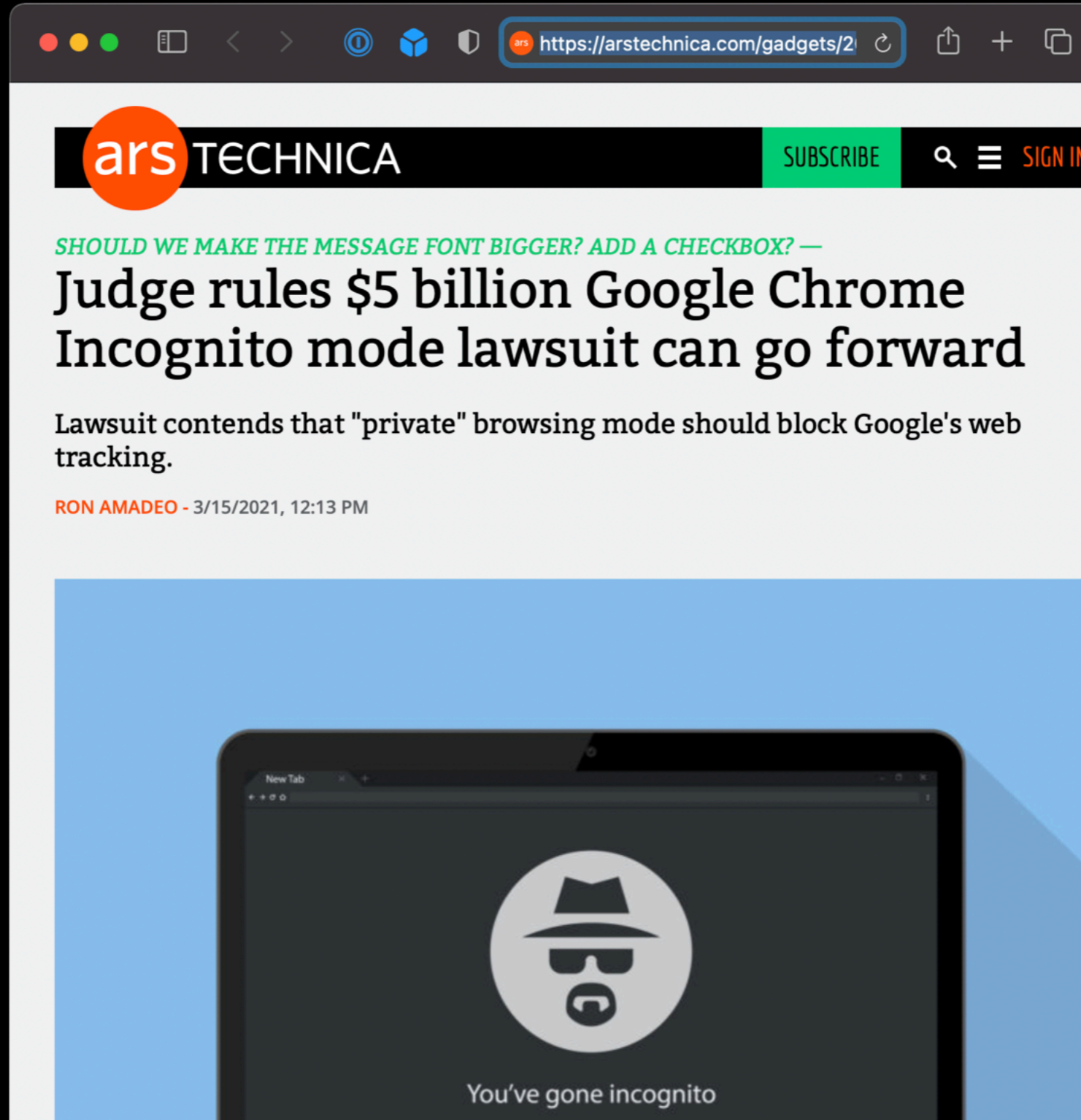
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- What can you do to prevent this type of tracking?
 - Use a privacy-focused browser



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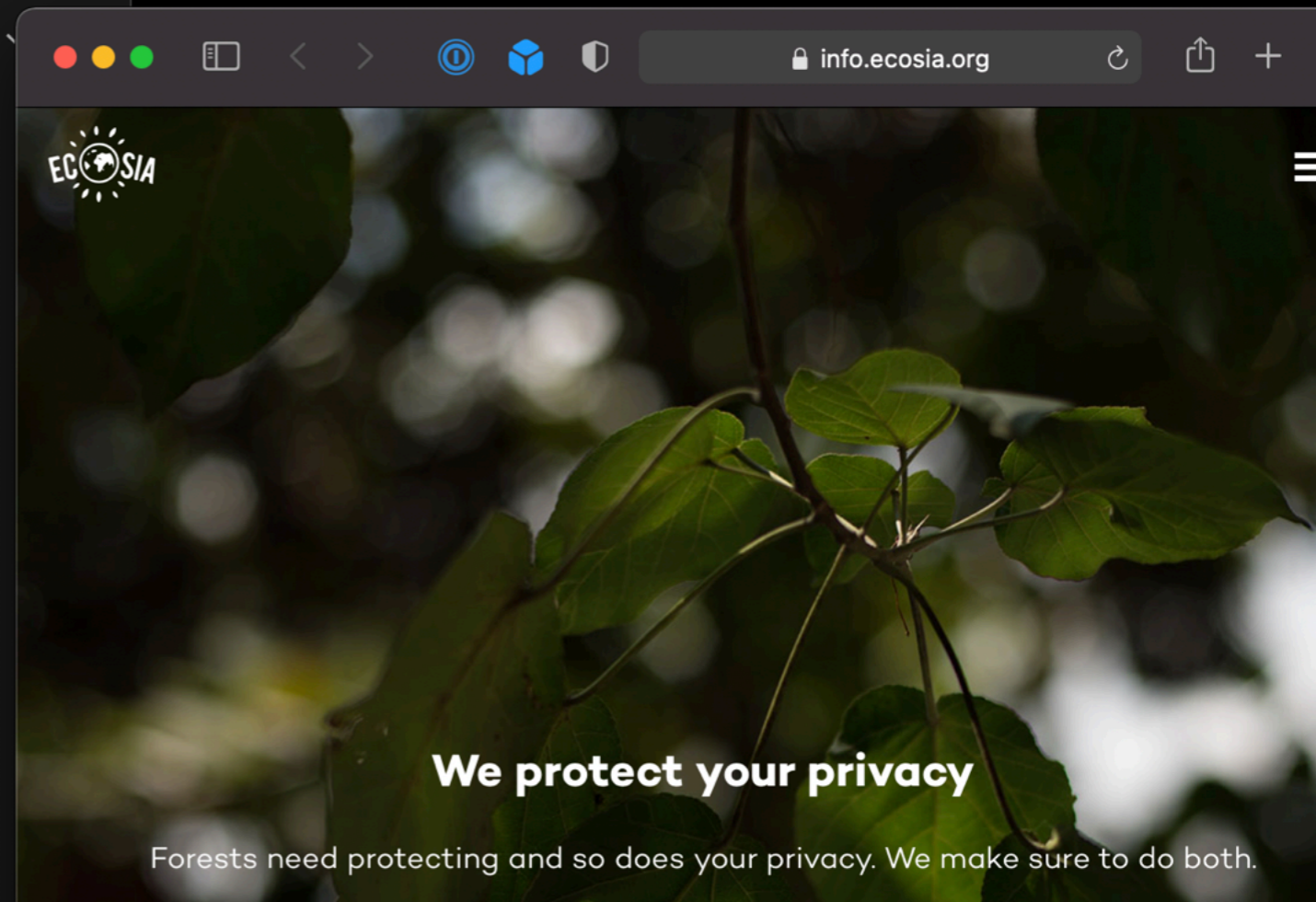
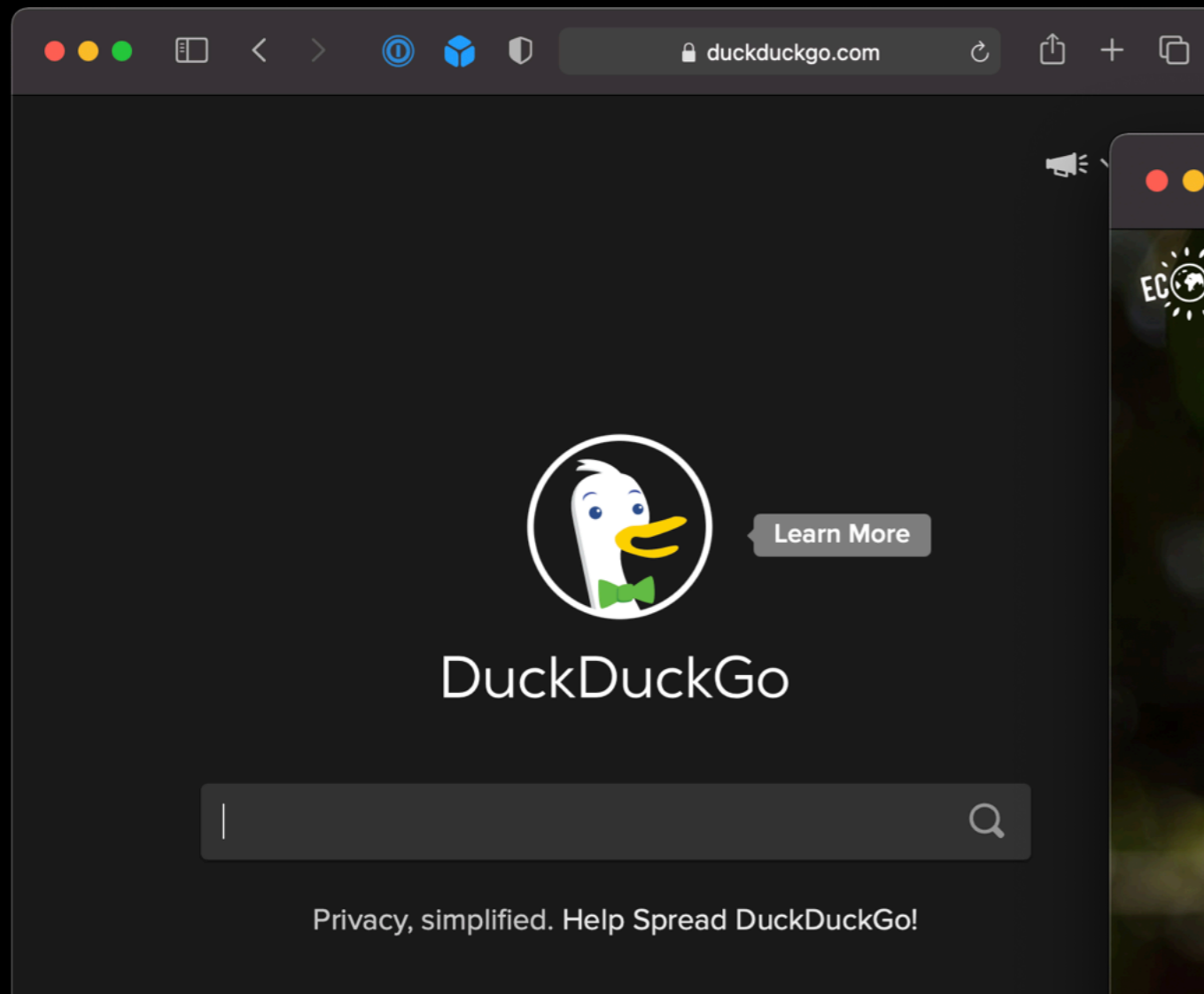
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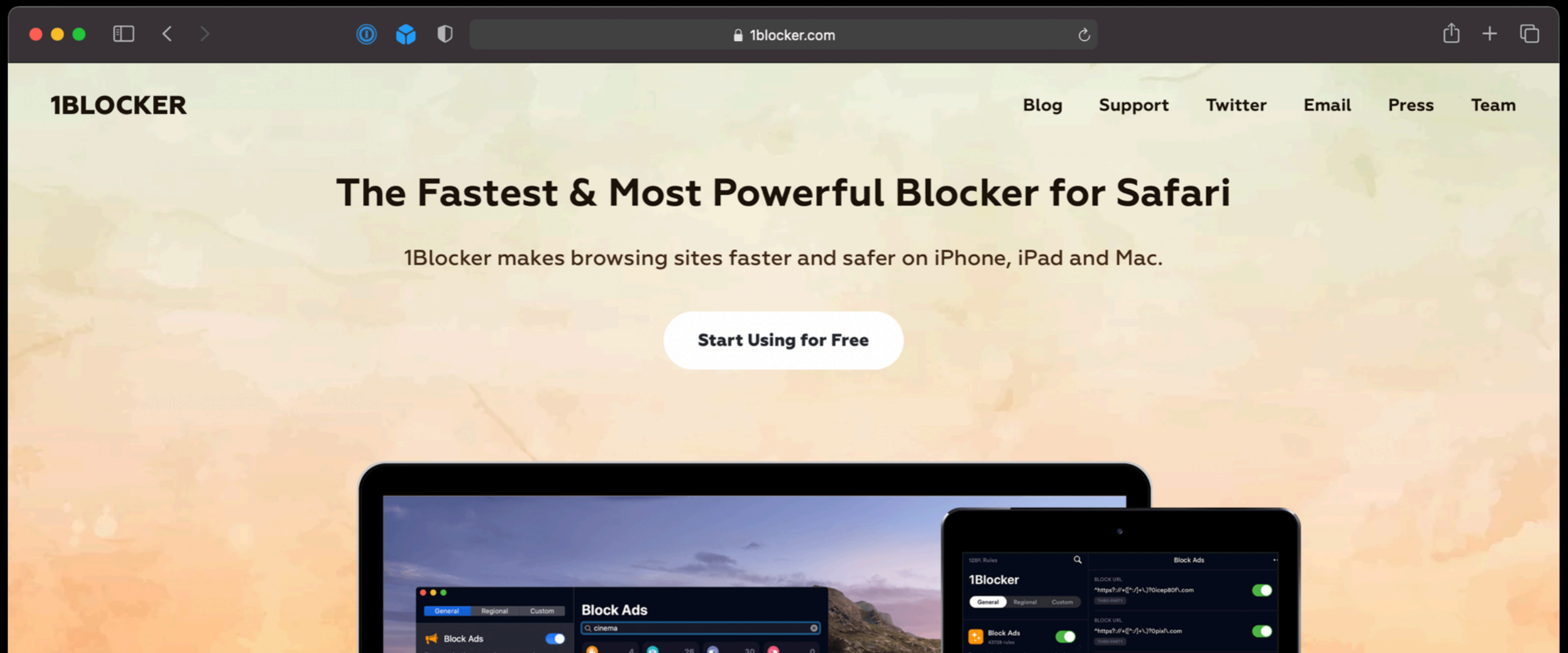
- What can you do to prevent this type of tracking?
 - Change your default search engine



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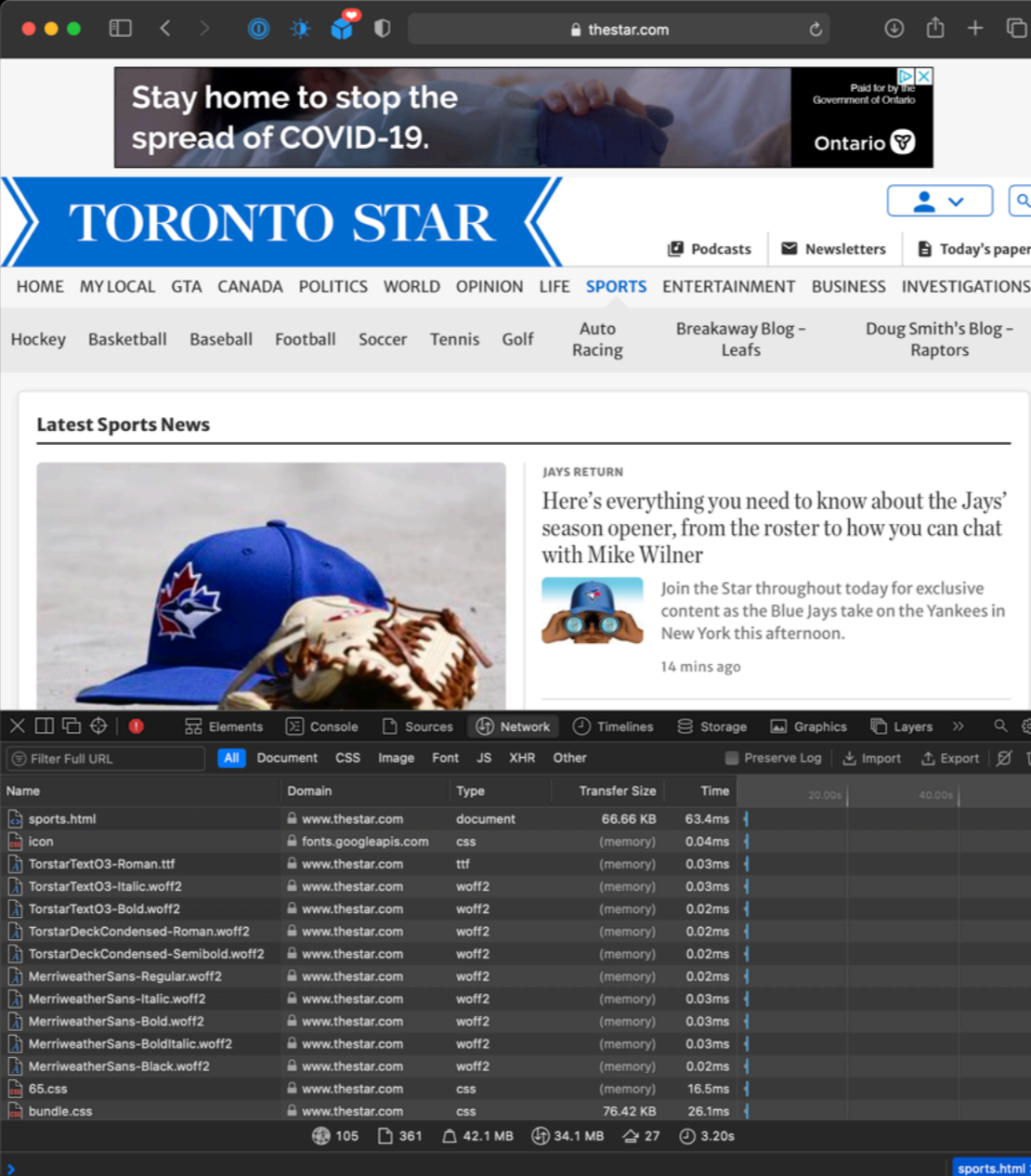
- What can you do to prevent this type of tracking?
 - Use ad-blocking technology



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- Toronto Star sports page, *without* ad-blocking... 42.1 MB 🤯



The screenshot shows the Toronto Star sports page with the Network tab open in a browser. The page content includes a COVID-19 banner, the Toronto Star logo, navigation menus for various sports, and a featured article about the Blue Jays' season opener. The Network tab displays a list of resources loaded on the page, including fonts and CSS files.

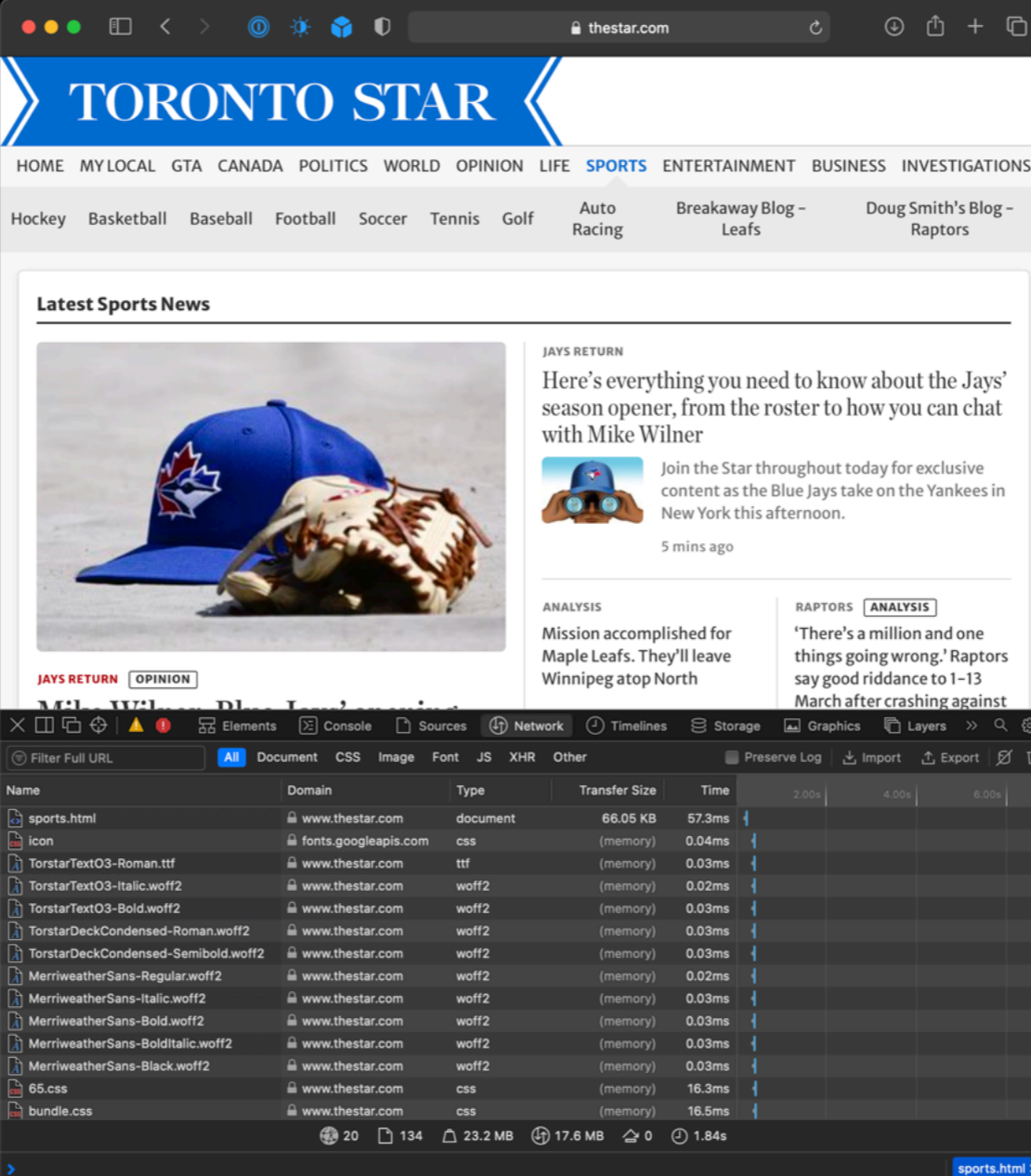
Name	Domain	Type	Transfer Size	Time
sports.html	www.thestar.com	document	66.66 KB	63.4ms
icon	fonts.googleapis.com	css	(memory)	0.04ms
TorstarTextO3-Roman.ttf	www.thestar.com	ttf	(memory)	0.03ms
TorstarTextO3-Italic.woff2	www.thestar.com	woff2	(memory)	0.03ms
TorstarTextO3-Bold.woff2	www.thestar.com	woff2	(memory)	0.02ms
TorstarDeckCondensed-Roman.woff2	www.thestar.com	woff2	(memory)	0.02ms
TorstarDeckCondensed-Semibold.woff2	www.thestar.com	woff2	(memory)	0.02ms
MerriweatherSans-Regular.woff2	www.thestar.com	woff2	(memory)	0.02ms
MerriweatherSans-Italic.woff2	www.thestar.com	woff2	(memory)	0.03ms
MerriweatherSans-Bold.woff2	www.thestar.com	woff2	(memory)	0.03ms
MerriweatherSans-BoldItalic.woff2	www.thestar.com	woff2	(memory)	0.03ms
MerriweatherSans-Black.woff2	www.thestar.com	woff2	(memory)	0.02ms
65.css	www.thestar.com	css	(memory)	16.5ms
bundle.css	www.thestar.com	css	76.42 KB	26.1ms

Summary: 105 requests, 361 files, 42.1 MB total size, 34.1 MB cache size, 27 cookies, 3.20s total time.

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- Same page *with* ad-blocking... page weighs in at 23.2 MB 🤯



The screenshot shows a web browser displaying the Toronto Star website. The page content is visible, including the "TORONTO STAR" logo, navigation menu, and a "Latest Sports News" section. The Network tab in the developer tools is open, showing a list of resources loaded on the page. The total size of the resources is 23.2 MB, which is significantly smaller than the original page size of 17.6 MB. The resources listed include the main HTML document (66.05 KB) and various fonts and CSS files.

Name	Domain	Type	Transfer Size	Time
sports.html	www.thestar.com	document	66.05 KB	57.3ms
icon	fonts.googleapis.com	css	(memory)	0.04ms
TorstarTextO3-Roman.ttf	www.thestar.com	ttf	(memory)	0.03ms
TorstarTextO3-Italic.woff2	www.thestar.com	woff2	(memory)	0.02ms
TorstarTextO3-Bold.woff2	www.thestar.com	woff2	(memory)	0.03ms
TorstarDeckCondensed-Roman.woff2	www.thestar.com	woff2	(memory)	0.03ms
TorstarDeckCondensed-Semibold.woff2	www.thestar.com	woff2	(memory)	0.03ms
MerriweatherSans-Regular.woff2	www.thestar.com	woff2	(memory)	0.02ms
MerriweatherSans-Italic.woff2	www.thestar.com	woff2	(memory)	0.03ms
MerriweatherSans-Bold.woff2	www.thestar.com	woff2	(memory)	0.03ms
MerriweatherSans-BoldItalic.woff2	www.thestar.com	woff2	(memory)	0.03ms
MerriweatherSans-Black.woff2	www.thestar.com	woff2	(memory)	0.03ms
65.css	www.thestar.com	css	(memory)	16.3ms
bundle.css	www.thestar.com	css	(memory)	16.5ms

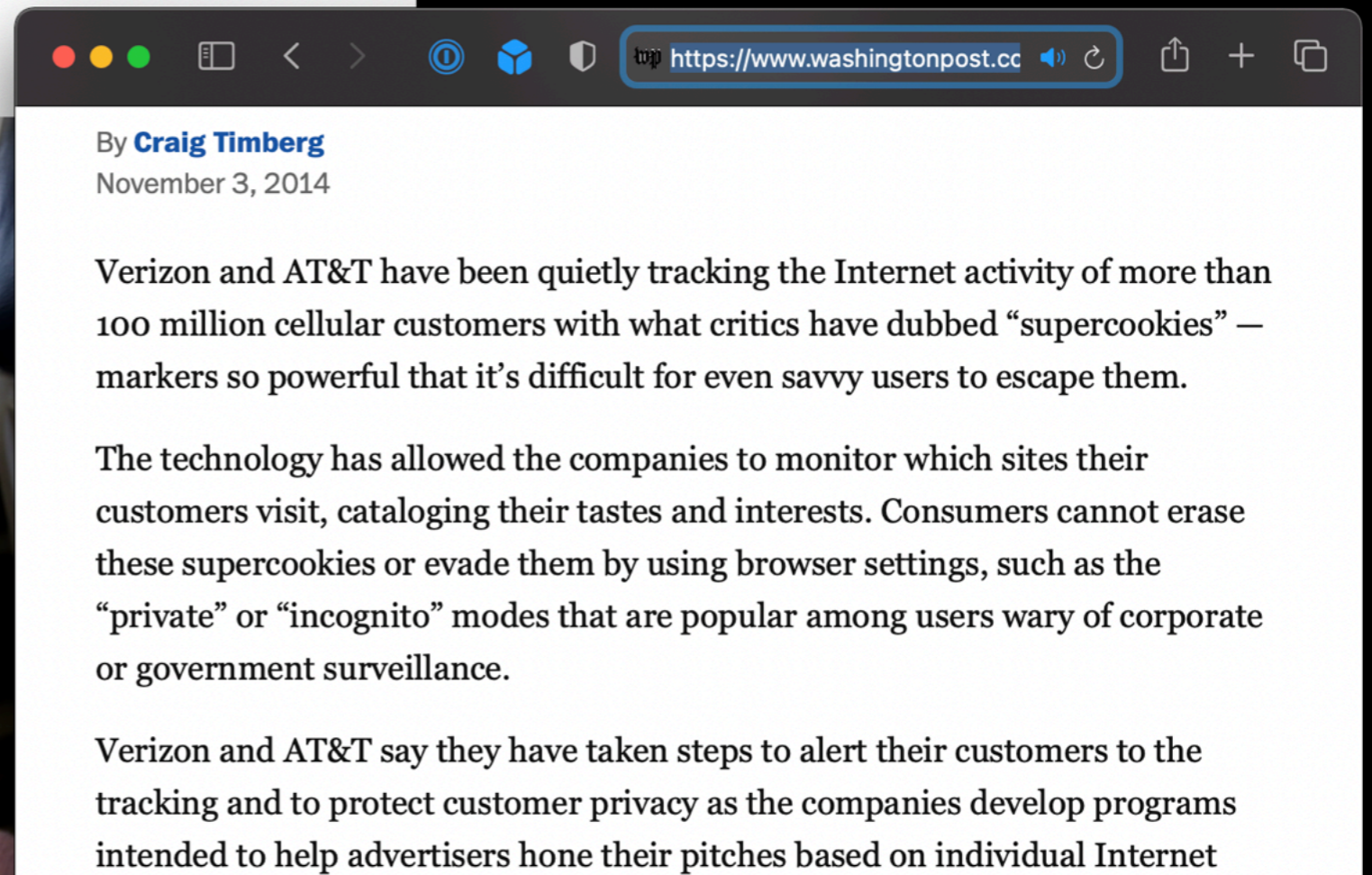
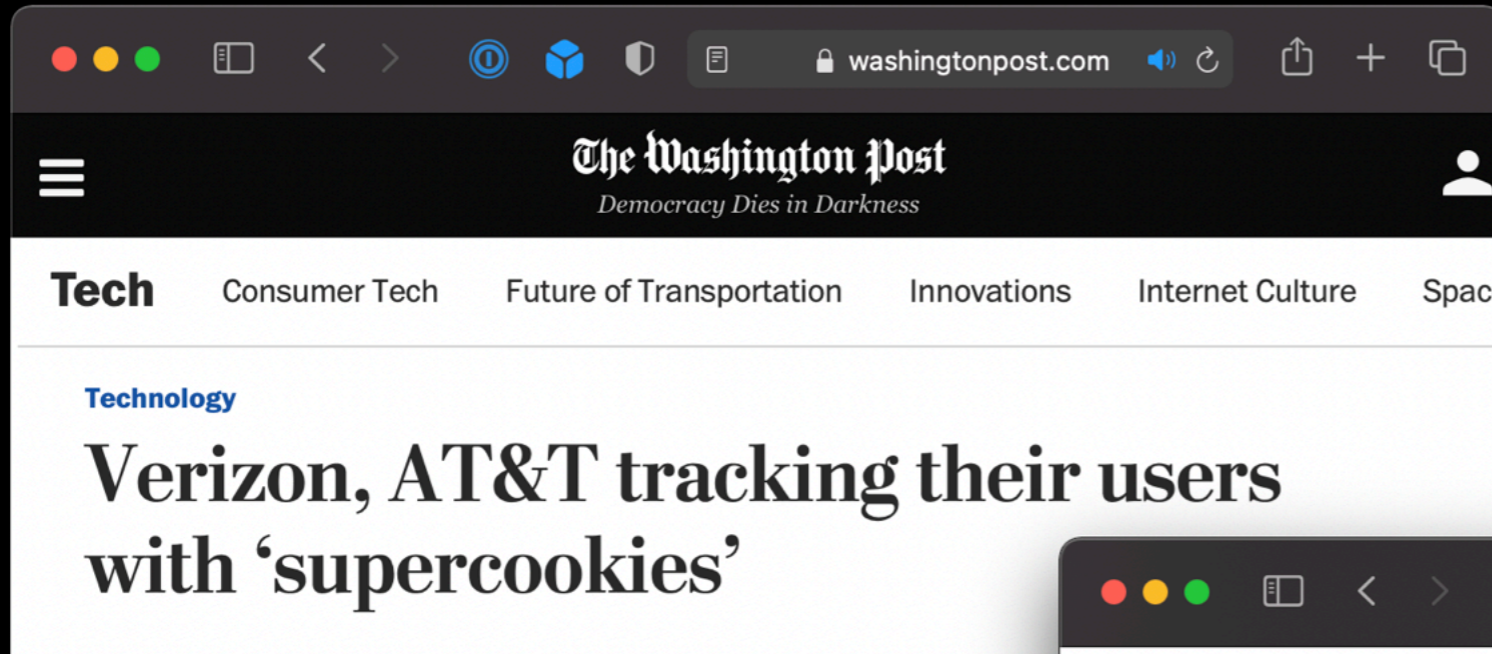
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- It is not just browser cookies...
 - Your ISP (Internet Service Provider) is also likely selling your browsing history
 - Sometimes using other methods to uniquely identify a user
 - These are called "persistent trackers"
 - Note that this is likely aggregated data, but do you want your local ISP to know where and what you browse?

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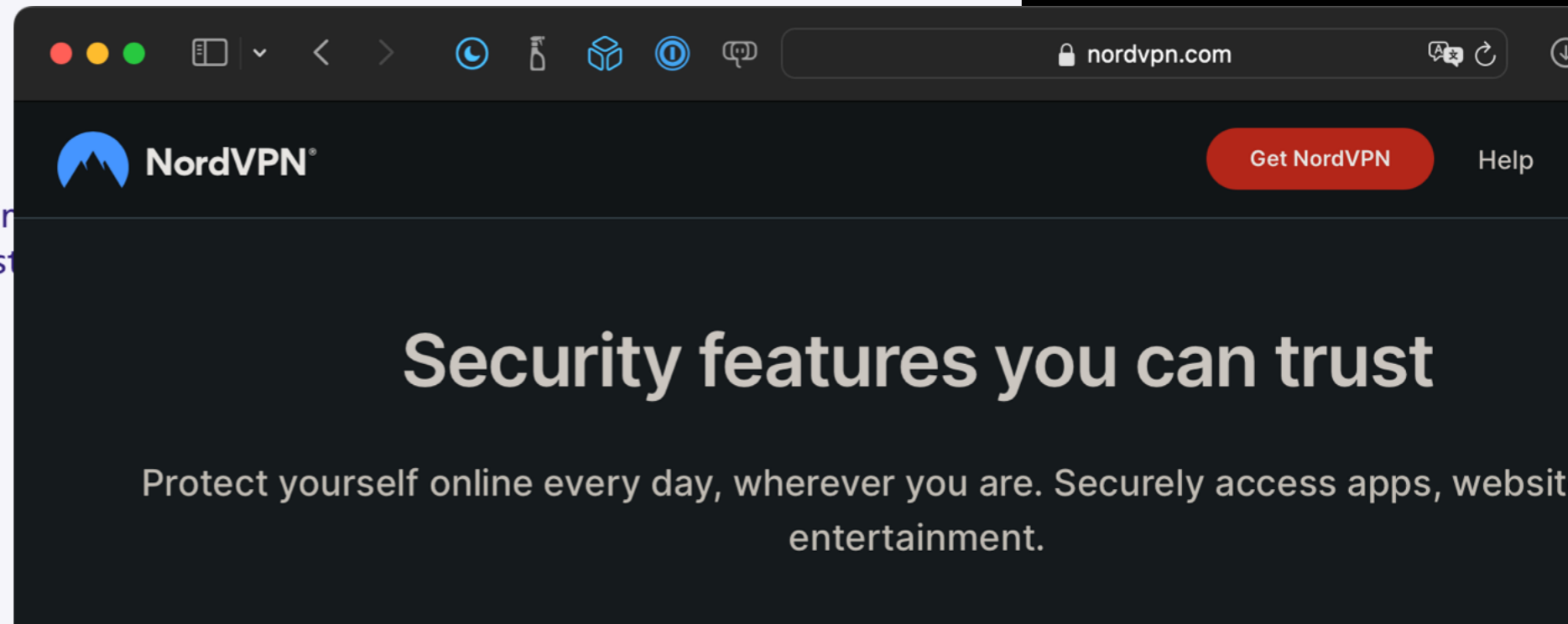
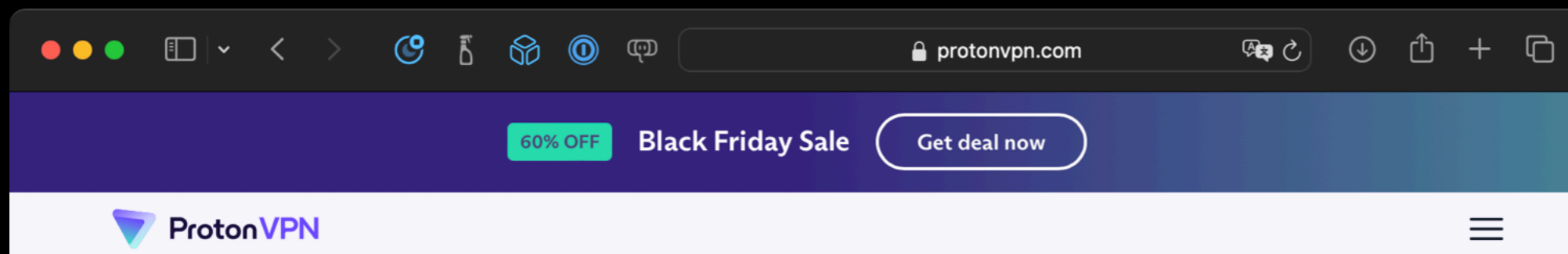
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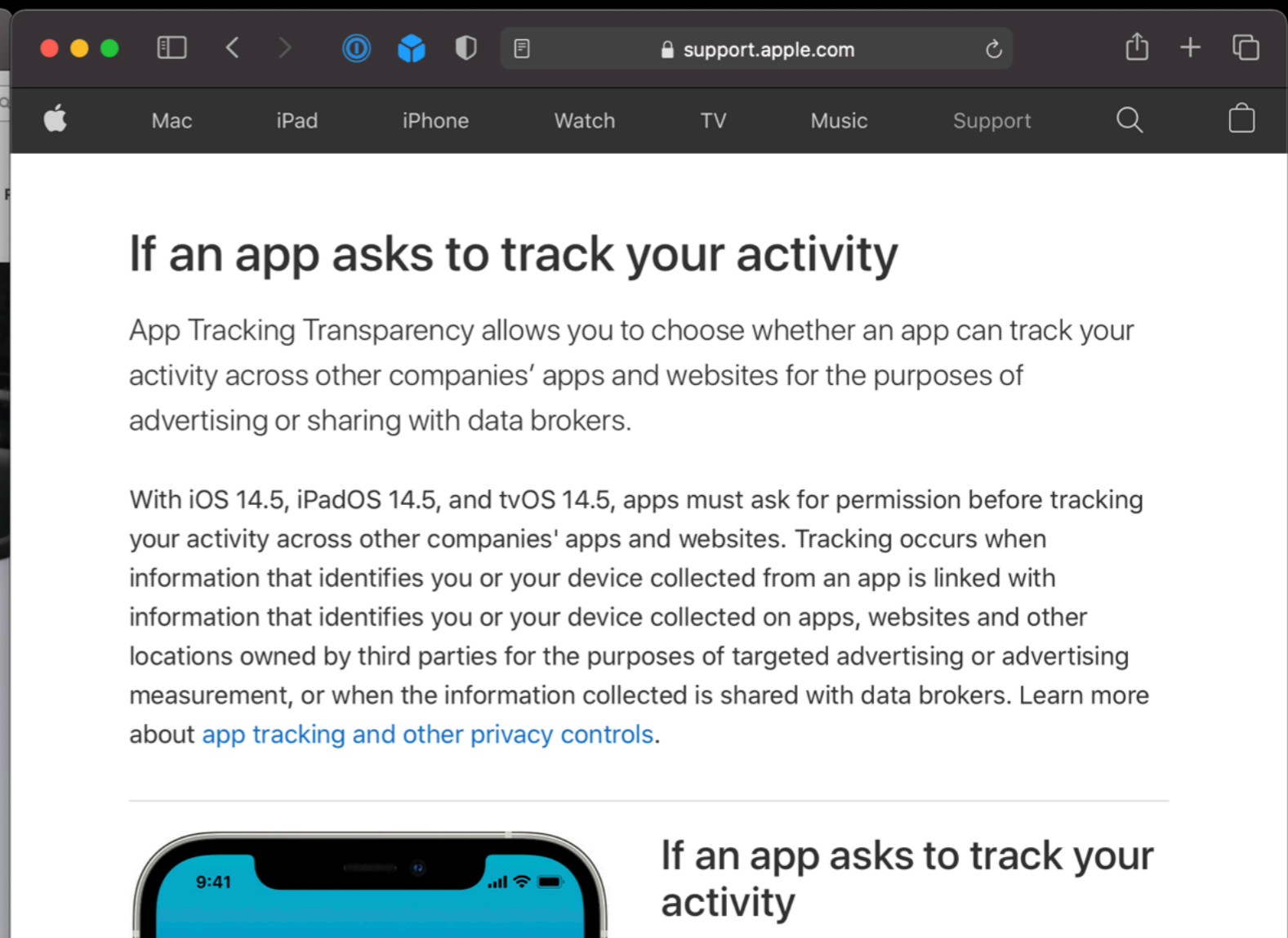
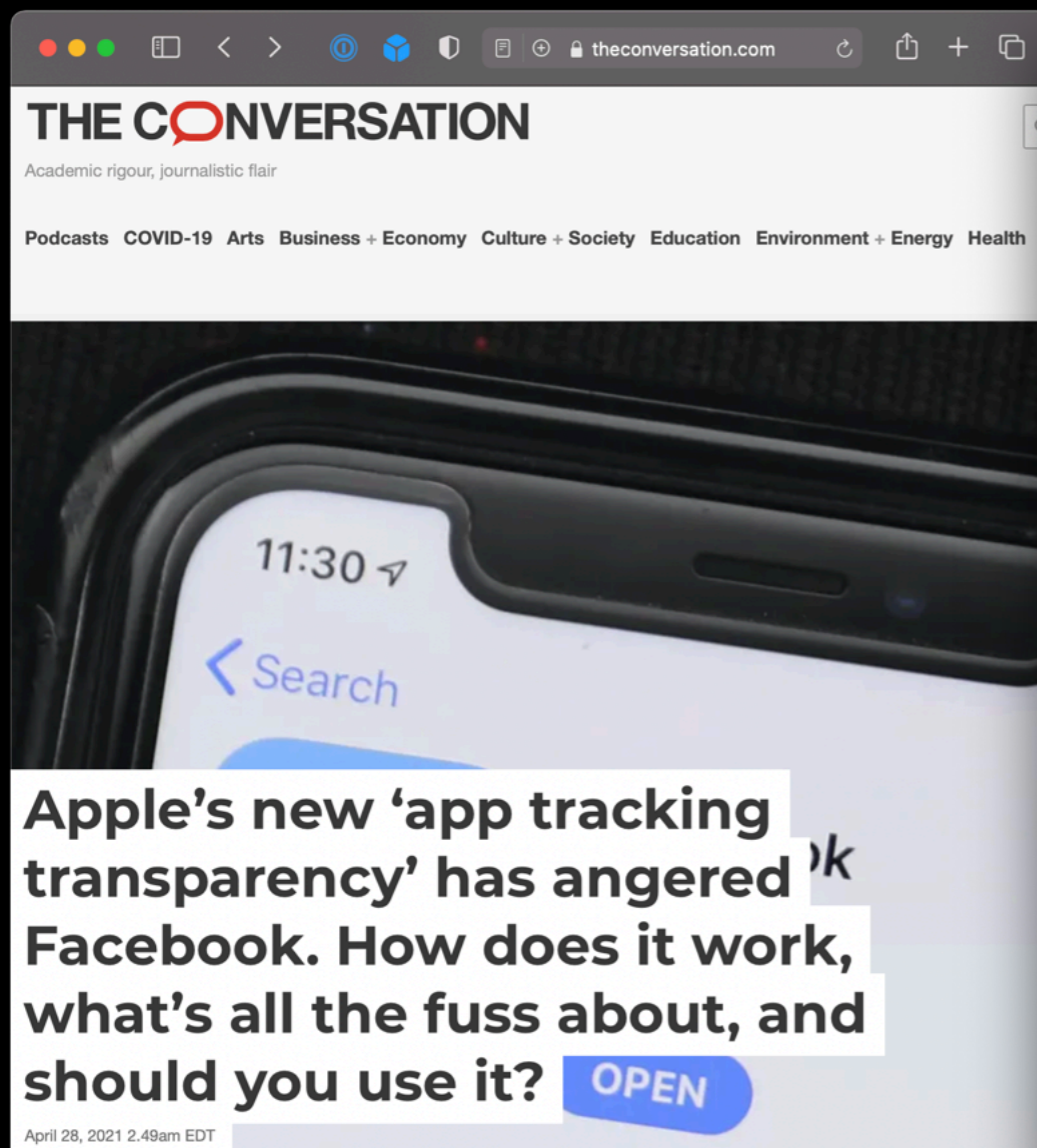
- What can you do to prevent this type of tracking?
 - Use a virtual private network (VPN)



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- On iOS, don't allow apps to track your activity across other apps and websites



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- The New York Times has published an entire guide on how to "dox yourself" and then scrub as much of your personal information from the Internet as possible:

