11. Web Privacy

Blase Ur and Grant Ho
February 12th, 2024
CMSC 23200

THE UNIVERSITY OF CHICAGO

Additional Web Security Topics

Processing Data on the Server

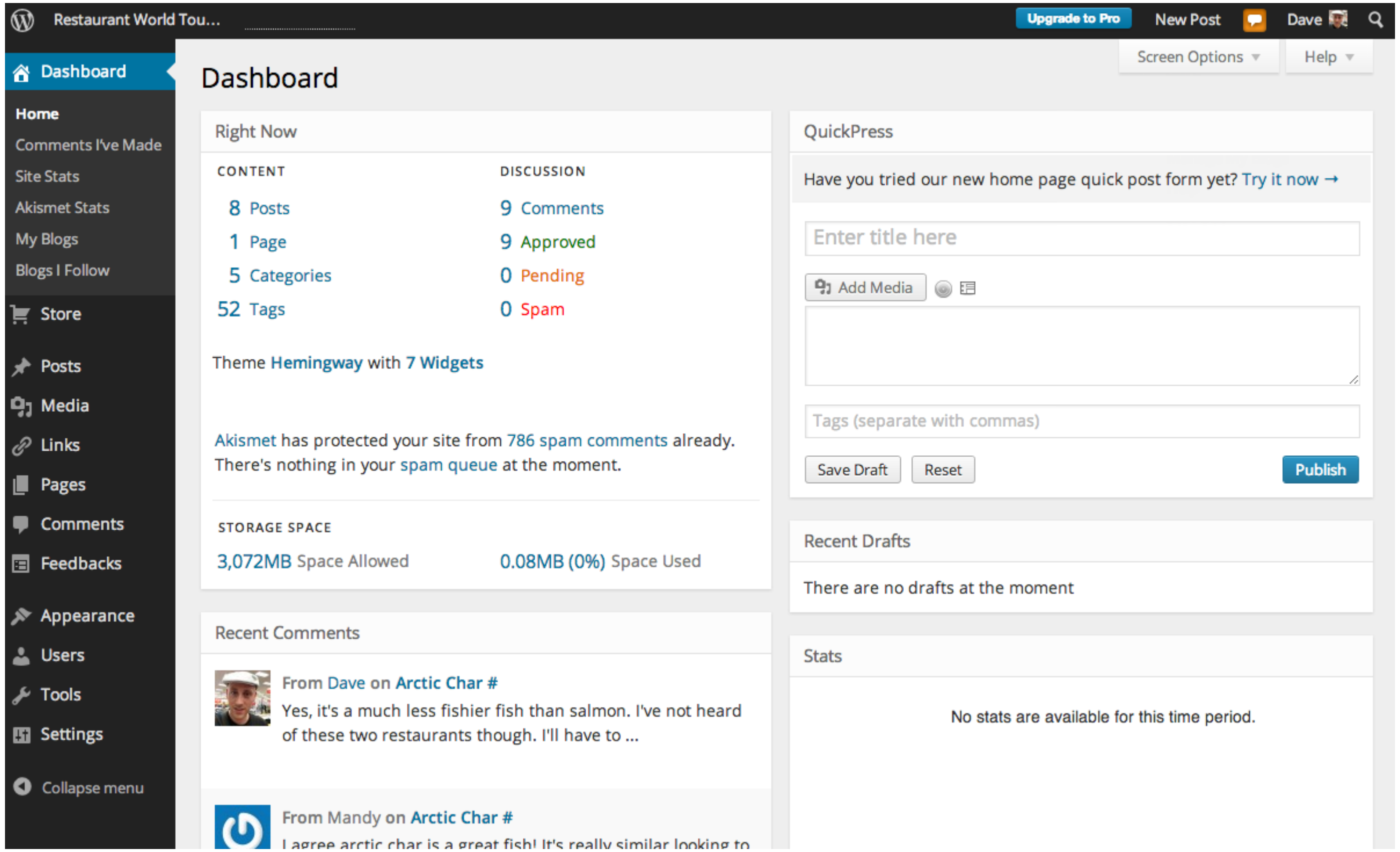
- JavaScript is client-side
- Server-side you find Perl (CGI), PHP, Python (Django)
- Process data on the server
- What happens if this code crashes?

Storing Data on the Server

- Run a database on the server
- MySQL, SQLite, MongoDB, Redis, etc.
- You probably don’t want to allow access from anything other than *localhost*
- You definitely don’t want human-memorable passwords
- To emphasize the last lecture: use prepared statements and otherwise do worry about code injection!

CMS (Content Management System)

- WordPress (PHP + MySQL), Drupal



Dashboard

Right Now

CONTENT	DISCUSSION
8 Posts	9 Comments
1 Page	9 Approved
5 Categories	0 Pending
52 Tags	0 Spam

Theme Hemingway with 7 Widgets

Akismet has protected your site from 786 spam comments already. There's nothing in your spam queue at the moment.

STORAGE SPACE

3,072MB Space Allowed 0.08MB (0%) Space Used

Recent Comments

From Dave on Arctic Char #
Yes, it's a much less fishier fish than salmon. I've not heard of these two restaurants though. I'll have to ...

From Mandy on Arctic Char #
I agree arctic char is a great fish! It's really similar looking to

QuickPress

Have you tried our new home page quick post form yet? Try it now →

Enter title here

Tags (separate with commas)

Recent Drafts

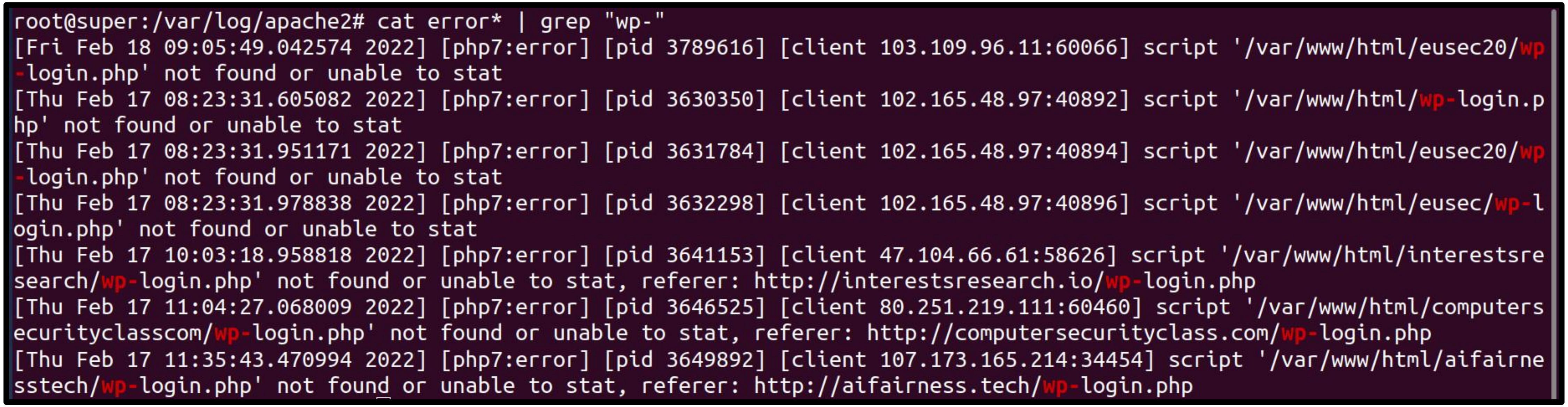
There are no drafts at the moment

Stats

No stats are available for this time period.

CMS Defaults / Vulnerabilities

- WordPress attempted logins:

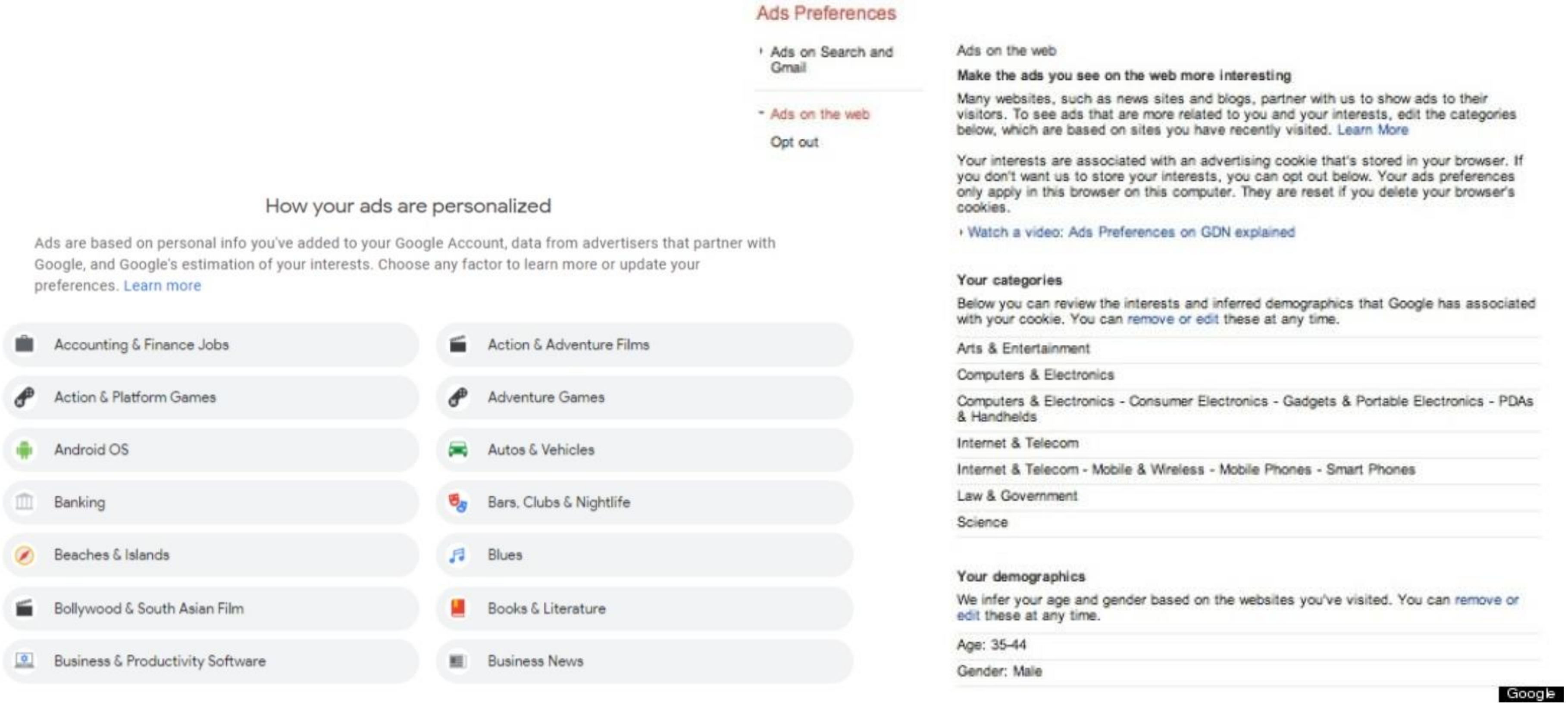


```
root@super:/var/log/apache2# cat error* | grep "wp-"
[Fri Feb 18 09:05:49.042574 2022] [php7:error] [pid 3789616] [client 103.109.96.11:60066] script '/var/www/html/eusec20/wp
-login.php' not found or unable to stat
[Thu Feb 17 08:23:31.605082 2022] [php7:error] [pid 3630350] [client 102.165.48.97:40892] script '/var/www/html/wp-login.p
hp' not found or unable to stat
[Thu Feb 17 08:23:31.951171 2022] [php7:error] [pid 3631784] [client 102.165.48.97:40894] script '/var/www/html/eusec20/wp
-login.php' not found or unable to stat
[Thu Feb 17 08:23:31.978838 2022] [php7:error] [pid 3632298] [client 102.165.48.97:40896] script '/var/www/html/eusec/wp-l
ogin.php' not found or unable to stat
[Thu Feb 17 10:03:18.958818 2022] [php7:error] [pid 3641153] [client 47.104.66.61:58626] script '/var/www/html/interestsre
search/wp-login.php' not found or unable to stat, referer: http://interestsresearch.io/wp-login.php
[Thu Feb 17 11:04:27.068009 2022] [php7:error] [pid 3646525] [client 80.251.219.111:60460] script '/var/www/html/computers
ecurityclasscom/wp-login.php' not found or unable to stat, referer: http://computersecurityclass.com/wp-login.php
[Thu Feb 17 11:35:43.470994 2022] [php7:error] [pid 3649892] [client 107.173.165.214:34454] script '/var/www/html/aifairne
sstech/wp-login.php' not found or unable to stat, referer: http://aifairness.tech/wp-login.php
```

Online Tracking

Online Tracking

- Advertisers want to show you advertisements targeted to your interests and demographics



How your ads are personalized

Ads are based on personal info you've added to your Google Account, data from advertisers that partner with Google, and Google's estimation of your interests. Choose any factor to learn more or update your preferences. Learn more

- Accounting & Finance Jobs
- Action & Adventure Films
- Action & Platform Games
- Adventure Games
- Android OS
- Autos & Vehicles
- Banking
- Bars, Clubs & Nightlife
- Beaches & Islands
- Blues
- Bollywood & South Asian Film
- Books & Literature
- Business & Productivity Software
- Business News

Ads Preferences

- Ads on Search and Gmail
- Ads on the web
- Opt out

Ads on the web

Make the ads you see on the web more interesting

Many websites, such as news sites and blogs, partner with us to show ads to their visitors. To see ads that are more related to you and your interests, edit the categories below, which are based on sites you have recently visited. Learn More

Your interests are associated with an advertising cookie that's stored in your browser. If you don't want us to store your interests, you can opt out below. Your ads preferences only apply in this browser on this computer. They are reset if you delete your browser's cookies.

- Watch a video: Ads Preferences on GDN explained

Your categories

Below you can review the interests and inferred demographics that Google has associated with your cookie. You can remove or edit these at any time.

Arts & Entertainment

Computers & Electronics

Computers & Electronics - Consumer Electronics - Gadgets & Portable Electronics - PDAs & Handhelds

Internet & Telecom

Internet & Telecom - Mobile & Wireless - Mobile Phones - Smart Phones

Law & Government

Science

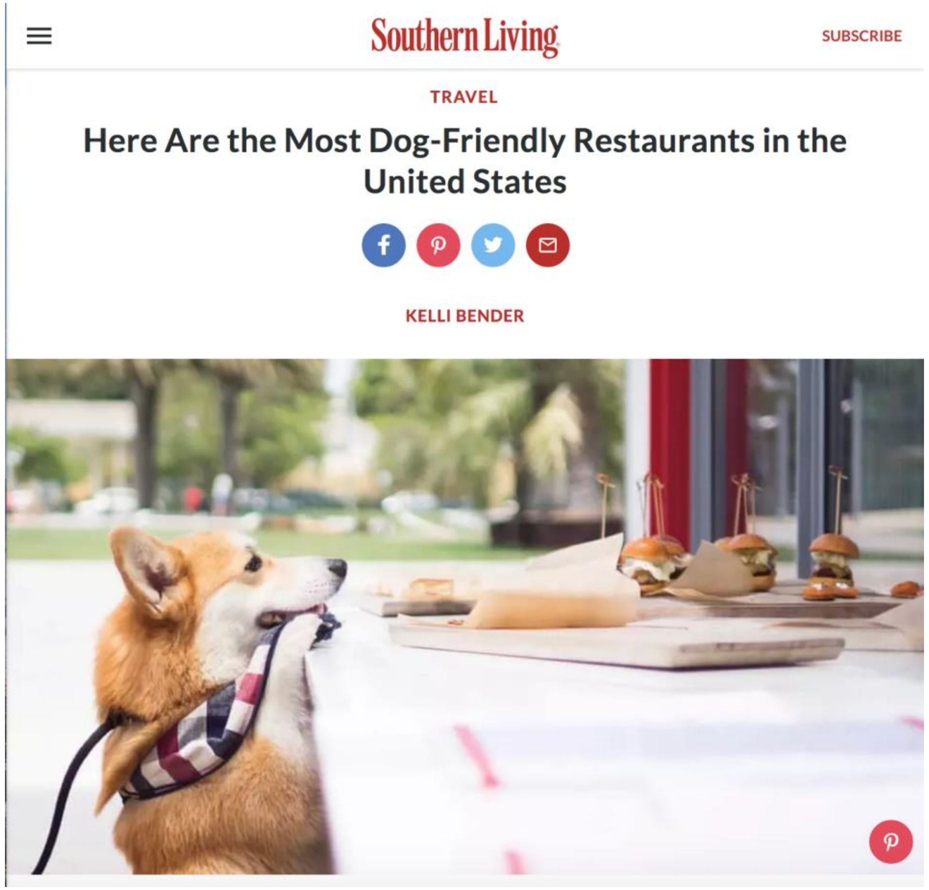
Your demographics

We infer your age and gender based on the websites you've visited. You can remove or edit these at any time.

Age: 35-44

Gender: Male

Data-Driven Inferences



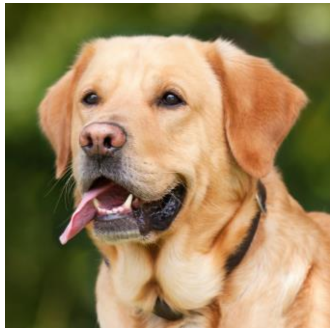
Southern Living

SUBSCRIBE

TRAVEL

Here Are the Most Dog-Friendly Restaurants in the United States

KELLI BENDER



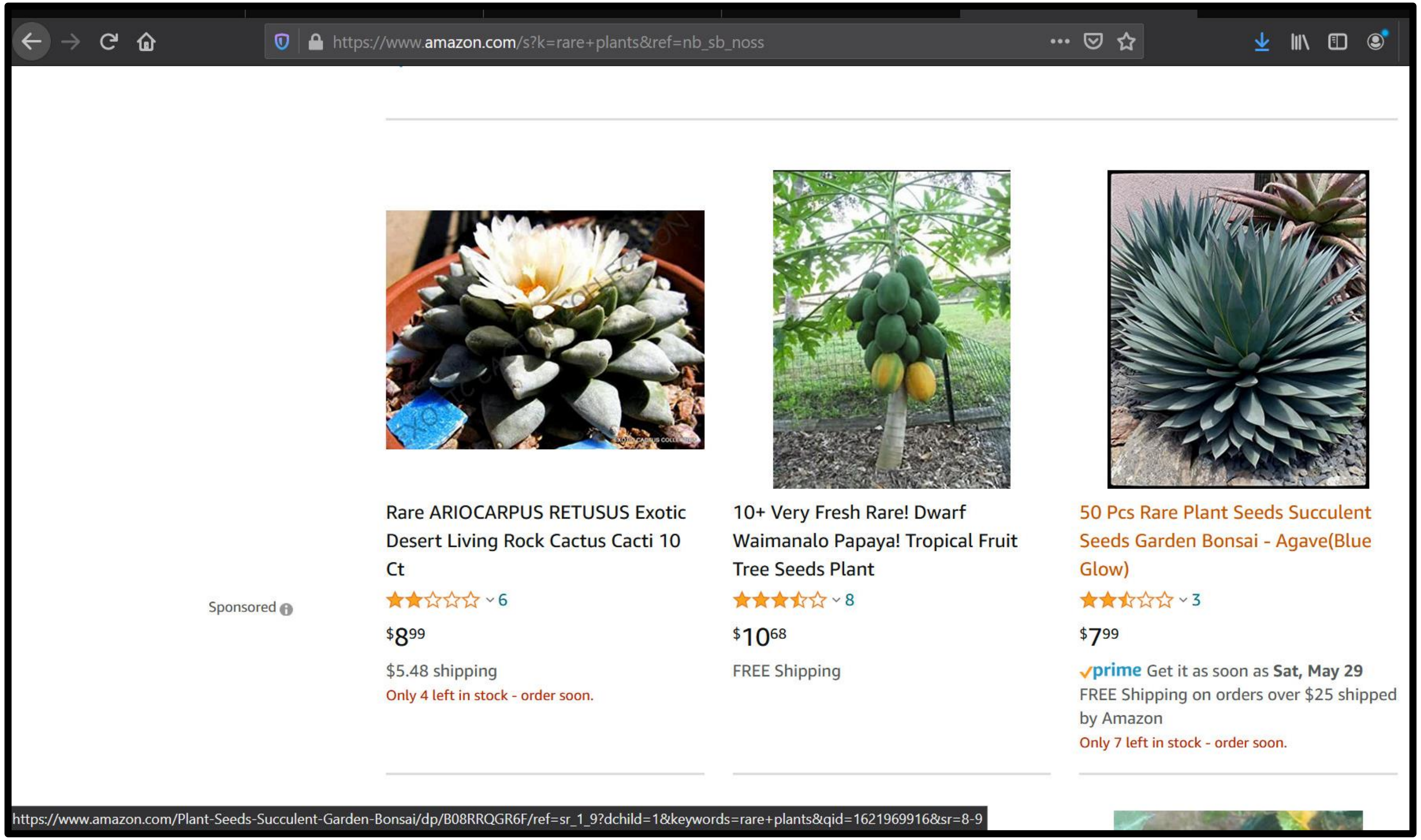
You might like dogs!

Online Tracking

- First party = the site you are visiting (whose address is in the URL bar)
- Third party = other sites (i.e., origins) contacted as a result of your visit to the first party
- First-party tracking (on search engines, shopping sites)
- Third-party tracking (ads on lots of sites)

Mechanics of First-Party Online Tracking

- Use cookies, JavaScript, URL parameters to track



https://www.amazon.com/s?k=rare+plants&ref=nb_sb_noss

Sponsored

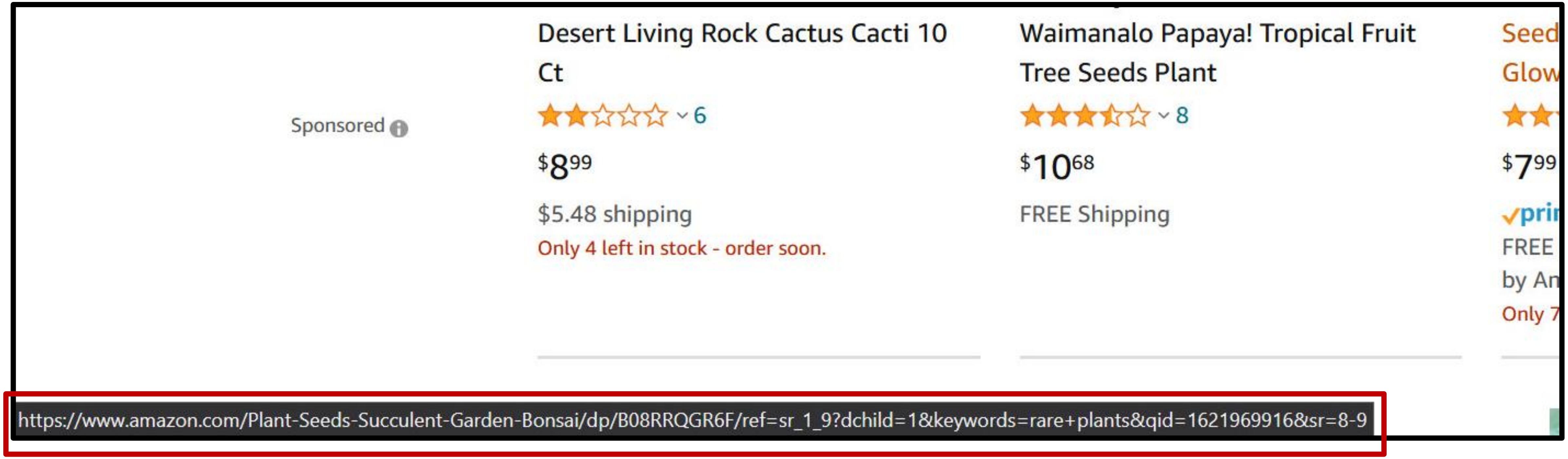
Rare ARIOCARPUS RETUSUS Exotic Desert Living Rock Cactus Cacti 10 Ct
★★☆☆☆ 6
$899
$5.48 shipping
Only 4 left in stock - order soon.

10+ Very Fresh Rare! Dwarf Waimanalo Papaya! Tropical Fruit Tree Seeds Plant
★★★★☆ 8
$1068
FREE Shipping

50 Pcs Rare Plant Seeds Succulent Seeds Garden Bonsai - Agave(Blue Glow)
★★★☆☆ 3
$799
prime Get it as soon as Sat, May 29
FREE Shipping on orders over $25 shipped by Amazon
Only 7 left in stock - order soon.

https://www.amazon.com/Plant-Seeds-Succulent-Garden-Bonsai/dp/B08RRQGR6F/ref=sr_1_9?dchild=1&keywords=rare+plants&qid=1621969916&sr=8-9

Mechanics of First-Party Online Tracking



Sponsored ⓘ

Desert Living Rock Cactus Cacti 10 Ct

★★☆☆☆ 6

$8 99

$5.48 shipping

Only 4 left in stock - order soon.

Waimanalo Papaya! Tropical Fruit Tree Seeds Plant

★★★★☆ 8

$10 68

FREE Shipping

Seed
Glow

★★

$7 99

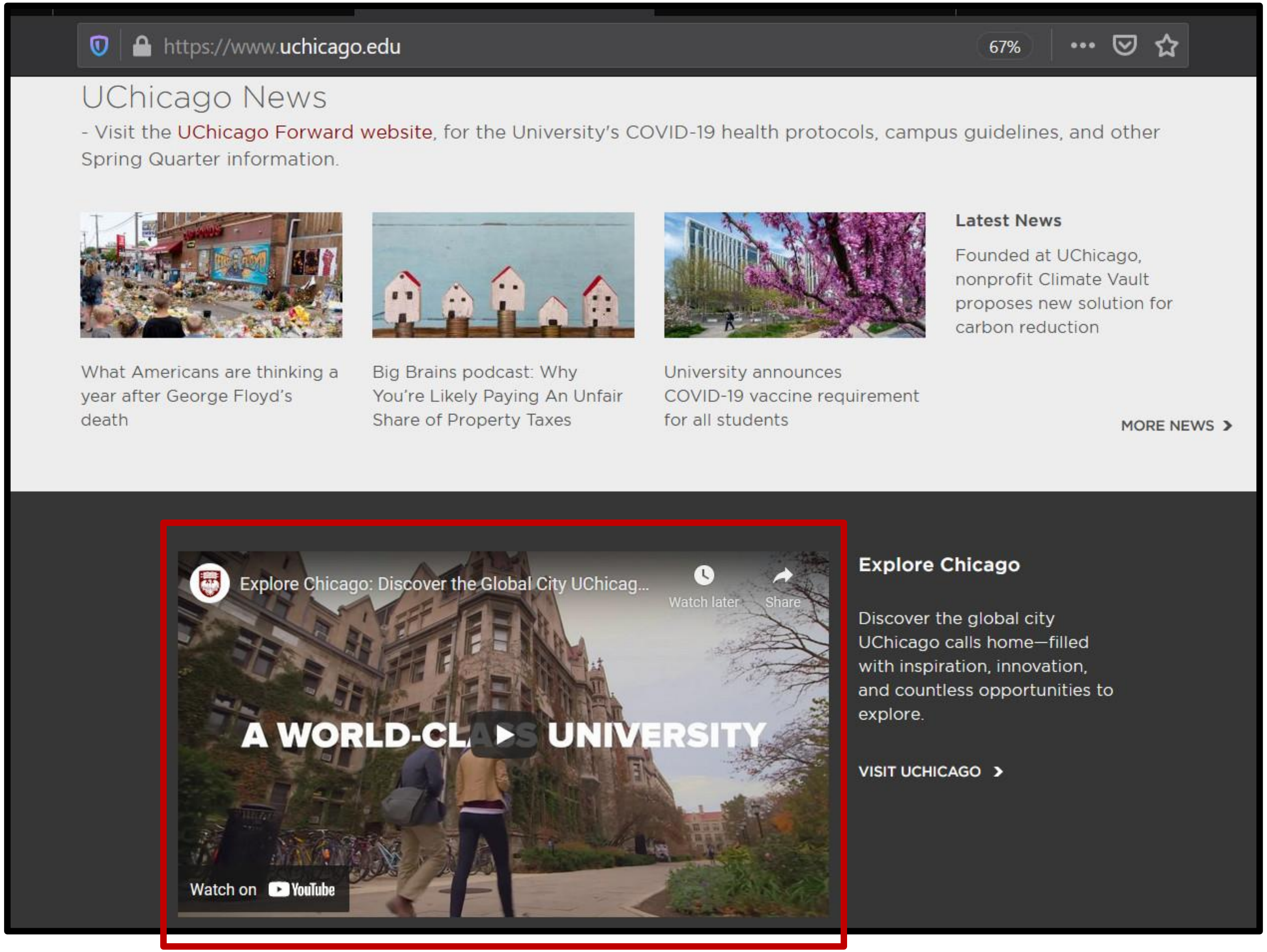
✓prir

FREE
by An

Only 7

https://www.amazon.com/Plant-Seeds-Succulent-Garden-Bonsai/dp/B08RRQGR6F/ref=sr_1_9?dchild=1&keywords=rare+plants&qid=1621969916&sr=8-9

Mechanics of Third-Party Online Tracking



https://www.uchicago.edu

UChicago News

- Visit the UChicago Forward website, for the University's COVID-19 health protocols, campus guidelines, and other Spring Quarter information.

What Americans are thinking a year after George Floyd's death

Big Brains podcast: Why You're Likely Paying An Unfair Share of Property Taxes

University announces COVID-19 vaccine requirement for all students

Latest News

Founded at UChicago, nonprofit Climate Vault proposes new solution for carbon reduction

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Explore Chicago

Discover the global city UChicago calls home—filled with inspiration, innovation, and countless opportunities to explore.

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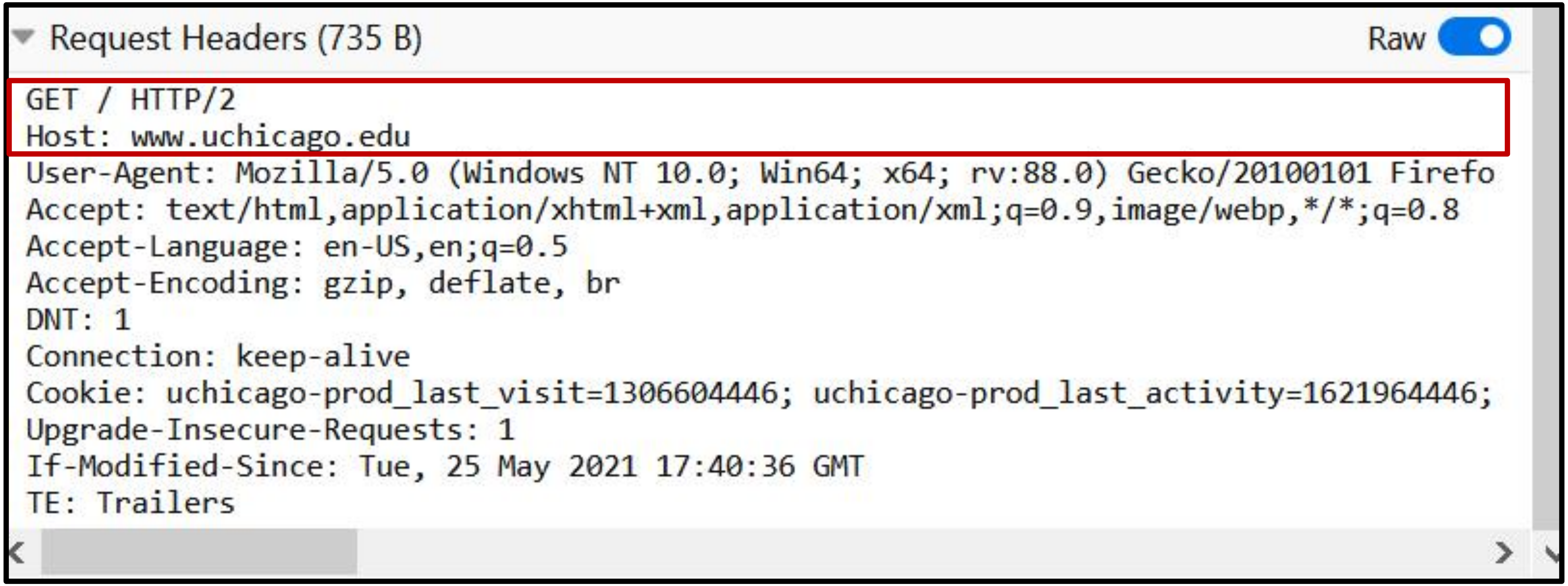
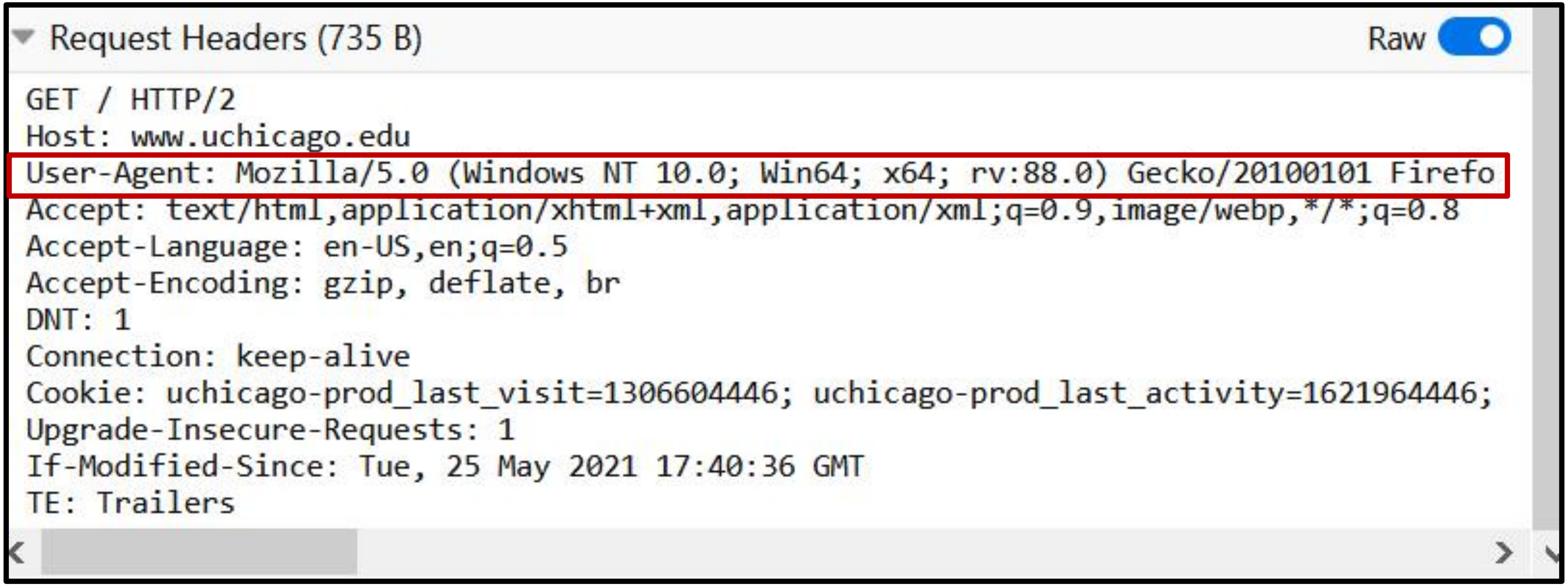
Details of What's Happening in HTTP (**Request**)



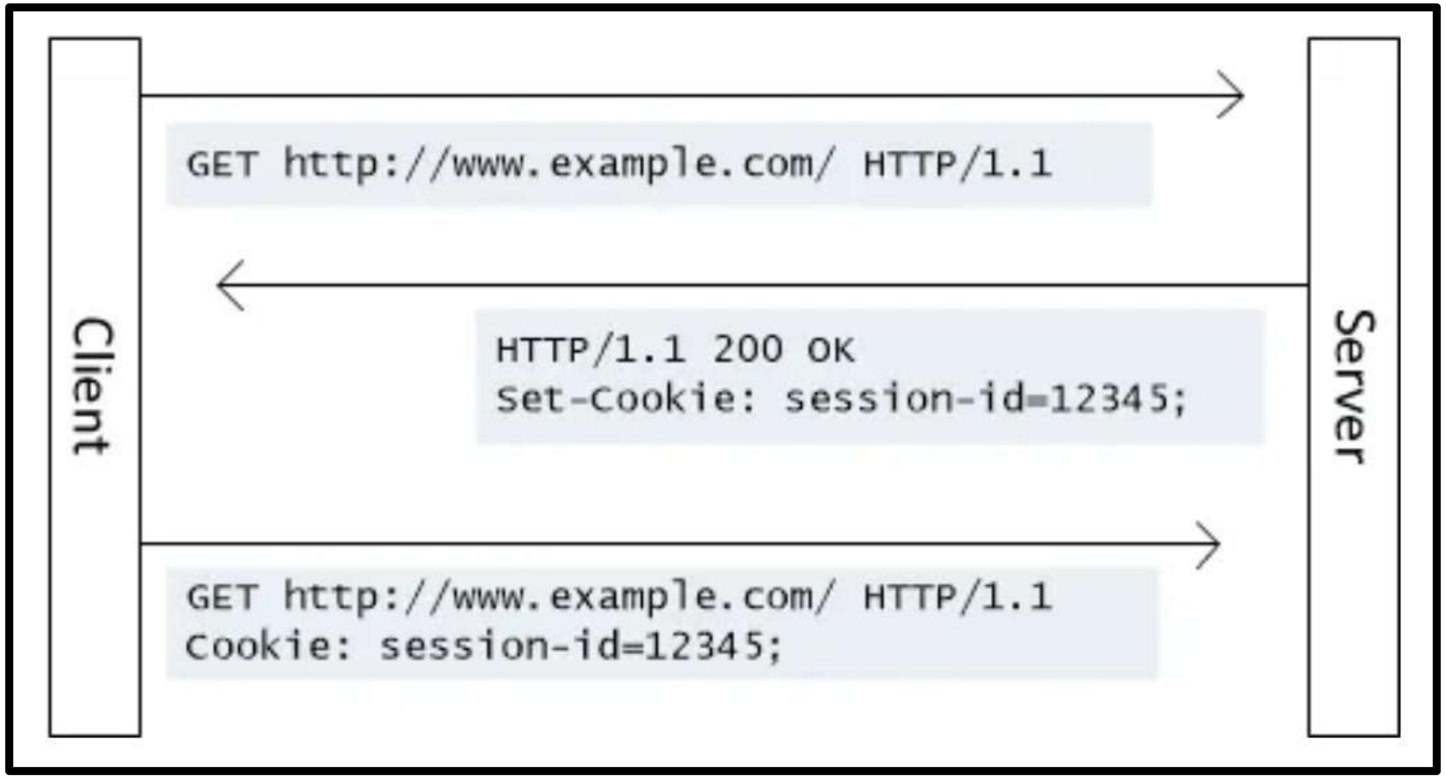
```
GET / HTTP/2
Host: www.uchicago.edu
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:88.0) Gecko/20100101 Firefo
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
DNT: 1
Connection: keep-alive
Cookie: uchicago-prod_last_visit=1306604446; uchicago-prod_last_activity=1621964446;
Upgrade-Insecure-Requests: 1
If-Modified-Since: Tue, 25 May 2021 17:40:36 GMT
TE: Trailers
```

Details of What's Happening in HTTP (**Request**)



```
GET / HTTP/2
Host: www.uchicago.edu
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:88.0) Gecko/20100101 Firefo
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
DNT: 1
Connection: keep-alive
Cookie: uchicago-prod_last_visit=1306604446; uchicago-prod_last_activity=1621964446;
Upgrade-Insecure-Requests: 1
If-Modified-Since: Tue, 25 May 2021 17:40:36 GMT
TE: Trailers
```

Details of What’s Happening in HTTP (Cookies)



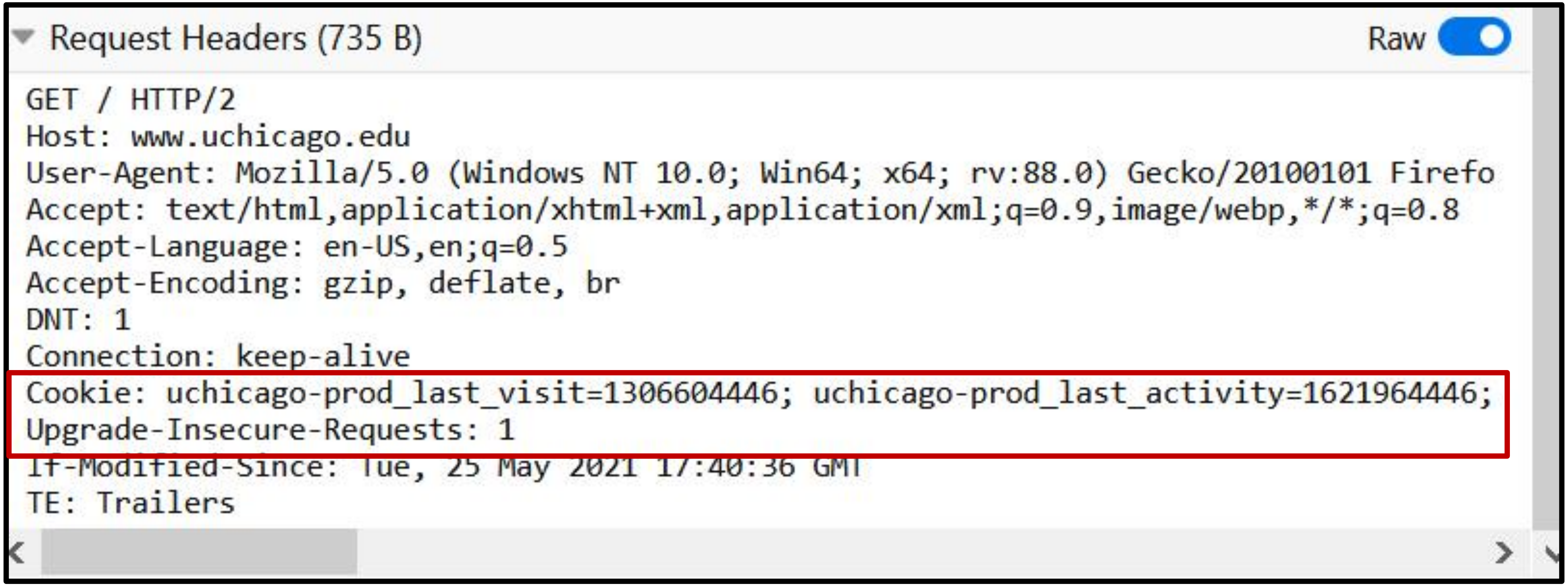
```
GET http://www.example.com/ HTTP/1.1
```

```
HTTP/1.1 200 OK
Set-Cookie: session-id=12345;
```

```
GET http://www.example.com/ HTTP/1.1
Cookie: session-id=12345;
```

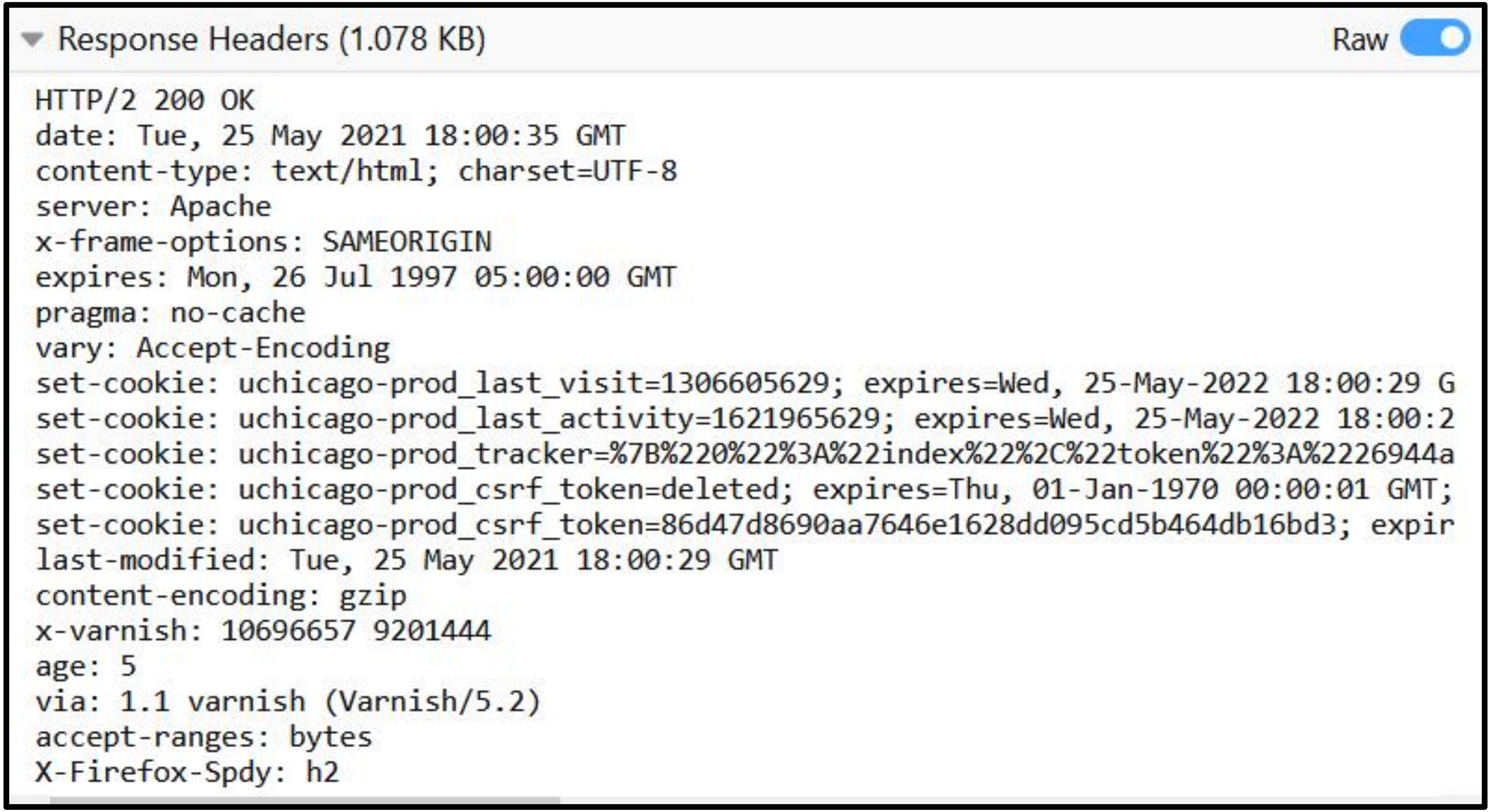
Image taken from https://networkencyclopedia.com/http-cookie/

Details of What’s Happening in HTTP (**Request**)



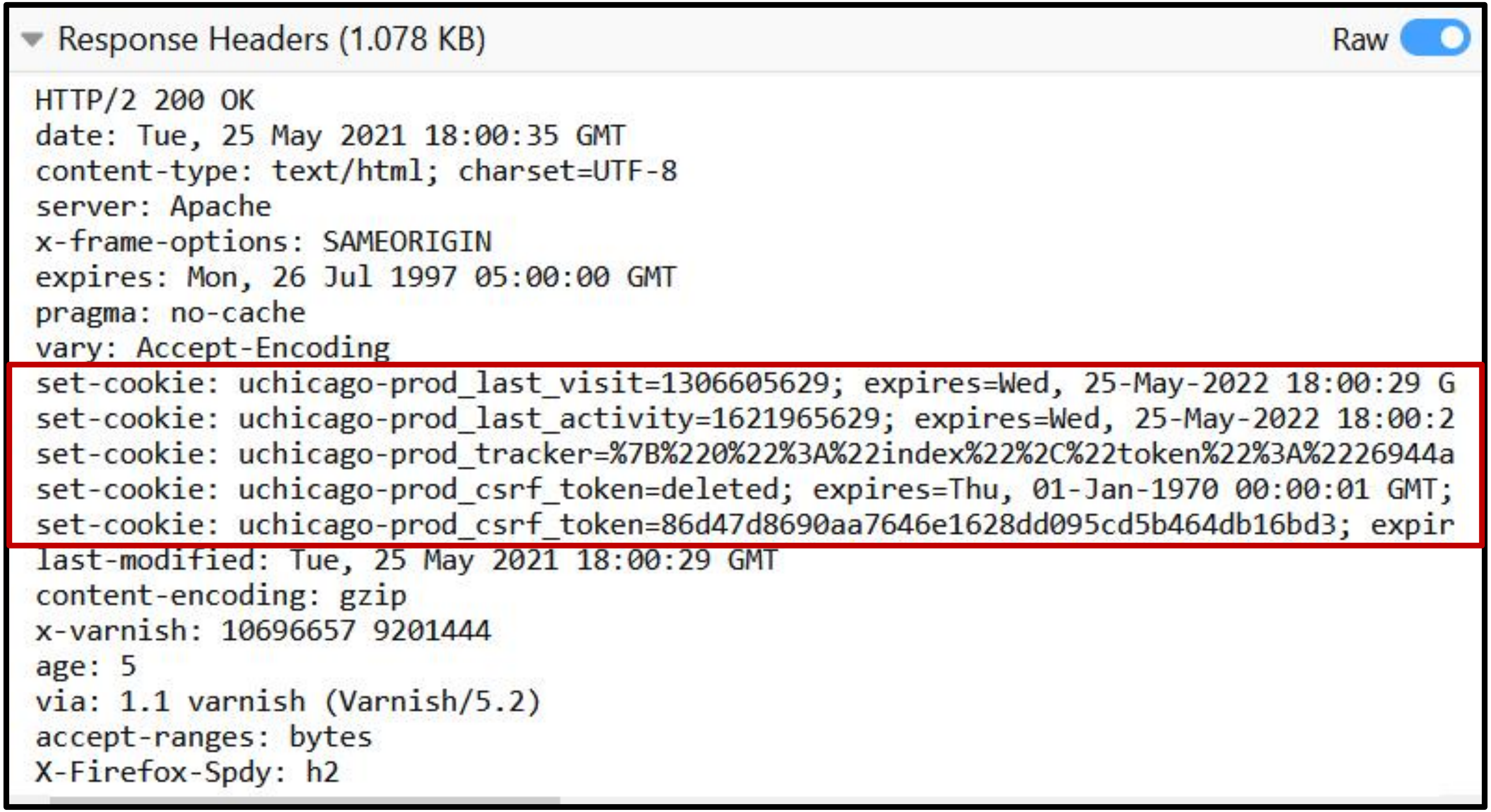
```
GET / HTTP/2
Host: www.uchicago.edu
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:88.0) Gecko/20100101 Firefo
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
DNT: 1
Connection: keep-alive
Cookie: uchicago-prod_last_visit=1306604446; uchicago-prod_last_activity=1621964446;
Upgrade-Insecure-Requests: 1
If-Modified-Since: Tue, 25 May 2021 17:40:36 GMT
TE: Trailers
```

Details of What’s Happening in HTTP (**Response**)



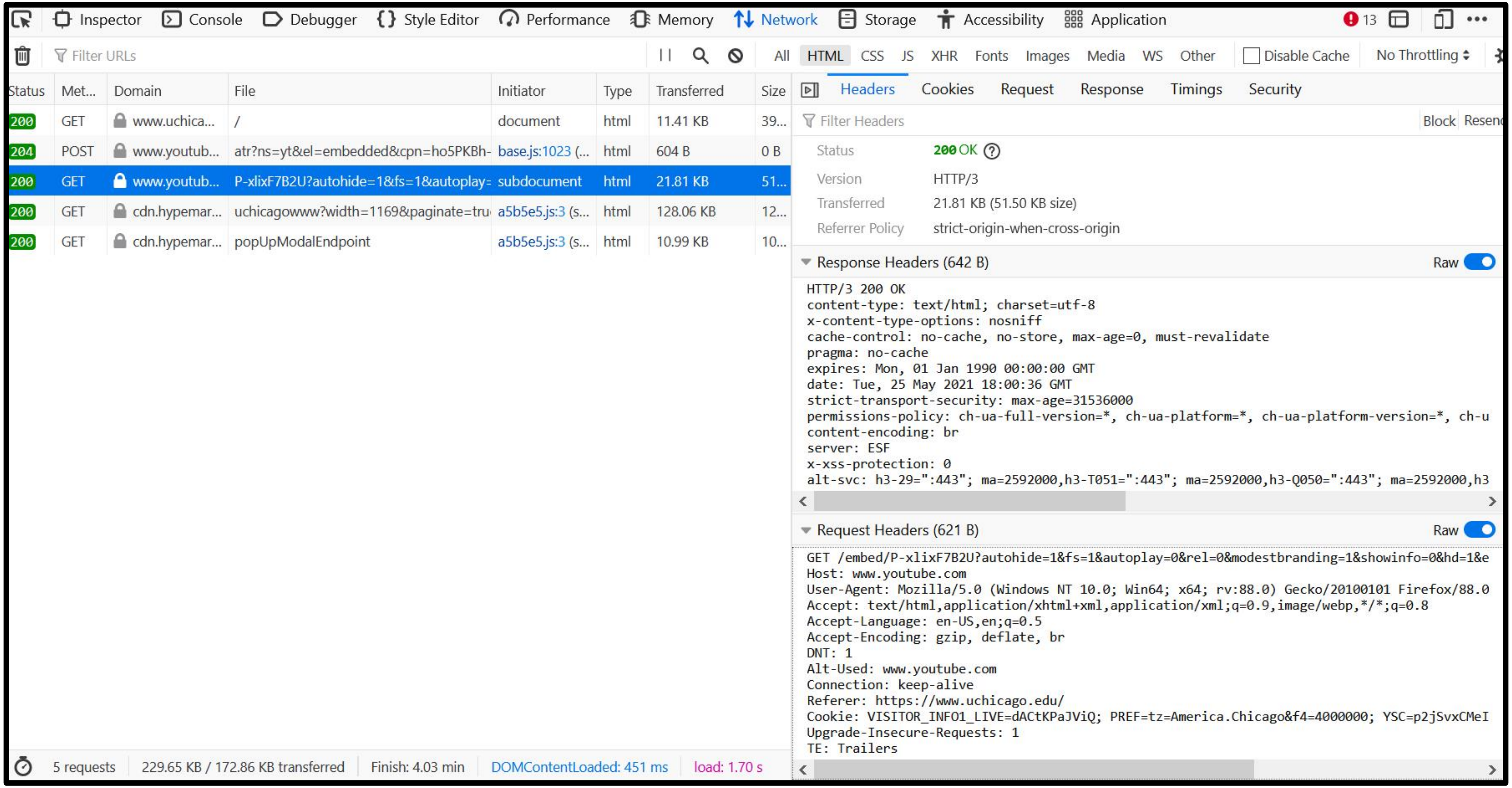
```
HTTP/2 200 OK
date: Tue, 25 May 2021 18:00:35 GMT
content-type: text/html; charset=UTF-8
server: Apache
x-frame-options: SAMEORIGIN
expires: Mon, 26 Jul 1997 05:00:00 GMT
pragma: no-cache
vary: Accept-Encoding
set-cookie: uchicago-prod_last_visit=1306605629; expires=Wed, 25-May-2022 18:00:29 G
set-cookie: uchicago-prod_last_activity=1621965629; expires=Wed, 25-May-2022 18:00:2
set-cookie: uchicago-prod_tracker=%7B%220%22%3A%22index%22%2C%22token%22%3A%226944a
set-cookie: uchicago-prod_csrf_token=deleted; expires=Thu, 01-Jan-1970 00:00:01 GMT;
set-cookie: uchicago-prod_csrf_token=86d47d8690aa7646e1628dd095cd5b464db16bd3; expir
last-modified: Tue, 25 May 2021 18:00:29 GMT
content-encoding: gzip
x-varnish: 10696657 9201444
age: 5
via: 1.1 varnish (Varnish/5.2)
accept-ranges: bytes
X-Firefox-Spdy: h2
```

Details of What’s Happening in HTTP (**Response**)



```
HTTP/2 200 OK
date: Tue, 25 May 2021 18:00:35 GMT
content-type: text/html; charset=UTF-8
server: Apache
x-frame-options: SAMEORIGIN
expires: Mon, 26 Jul 1997 05:00:00 GMT
pragma: no-cache
vary: Accept-Encoding
set-cookie: uchicago-prod_last_visit=1306605629; expires=Wed, 25-May-2022 18:00:29 G
set-cookie: uchicago-prod_last_activity=1621965629; expires=Wed, 25-May-2022 18:00:2
set-cookie: uchicago-prod_tracker=%7B%220%22%3A%22index%22%2C%22token%22%3A%226944a
set-cookie: uchicago-prod_csrf_token=deleted; expires=Thu, 01-Jan-1970 00:00:01 GMT;
set-cookie: uchicago-prod_csrf_token=86d47d8690aa7646e1628dd095cd5b464db16bd3; expir
last-modified: Tue, 25 May 2021 18:00:29 GMT
content-encoding: gzip
x-varnish: 10696657 9201444
age: 5
via: 1.1 varnish (Varnish/5.2)
accept-ranges: bytes
X-Firefox-Spdy: h2
```

HTTP Headers (uchicago.edu → youtube.com)



Status	Met...	Domain	File	Initiator	Type	Transferred	Size
200	GET	www.uchica...	/	document	html	11.41 KB	39...
204	POST	www.youtub...	atr?ns=yt&el=embedded&cpn=ho5PKBh-	base.js:1023 (...	html	604 B	0 B
200	GET	www.youtub...	P-xlixF7B2U?autohide=1&fs=1&autoplay=	subdocument	html	21.81 KB	51...
200	GET	cdn.hypemar...	uchicagowww?width=1169&paginate=tru	a5b5e5.js:3 (s...	html	128.06 KB	12...
200	GET	cdn.hypemar...	popUpModalEndpoint	a5b5e5.js:3 (s...	html	10.99 KB	10...

5 requests | 229.65 KB / 172.86 KB transferred | Finish: 4.03 min | DOMContentLoaded: 451 ms | load: 1.70 s

Status	200 OK
Version	HTTP/3
Transferred	21.81 KB (51.50 KB size)
Referrer Policy	strict-origin-when-cross-origin

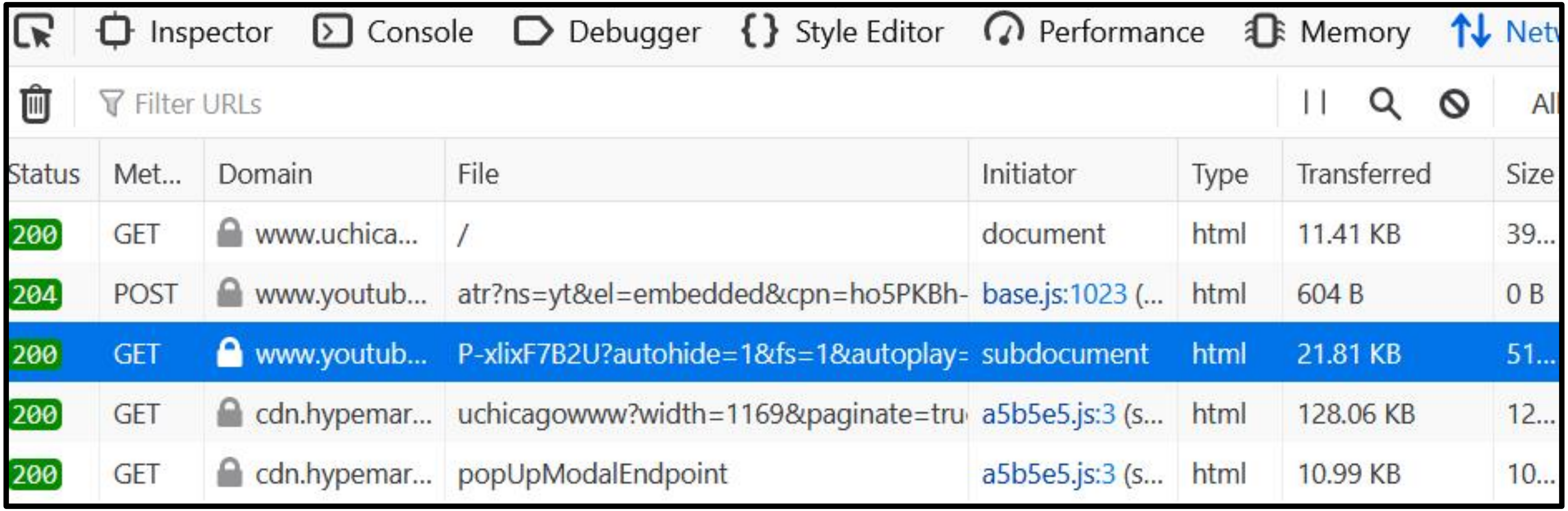
Response Headers (642 B)

```
HTTP/3 200 OK
content-type: text/html; charset=utf-8
x-content-type-options: nosniff
cache-control: no-cache, no-store, max-age=0, must-revalidate
pragma: no-cache
expires: Mon, 01 Jan 1990 00:00:00 GMT
date: Tue, 25 May 2021 18:00:36 GMT
strict-transport-security: max-age=31536000
permissions-policy: ch-ua-full-version=*, ch-ua-platform=*, ch-ua-platform-version=*, ch-u
content-encoding: br
server: ESF
x-xss-protection: 0
alt-svc: h3-29=":443"; ma=2592000,h3-T051=":443"; ma=2592000,h3-Q050=":443"; ma=2592000,h3
```

Request Headers (621 B)

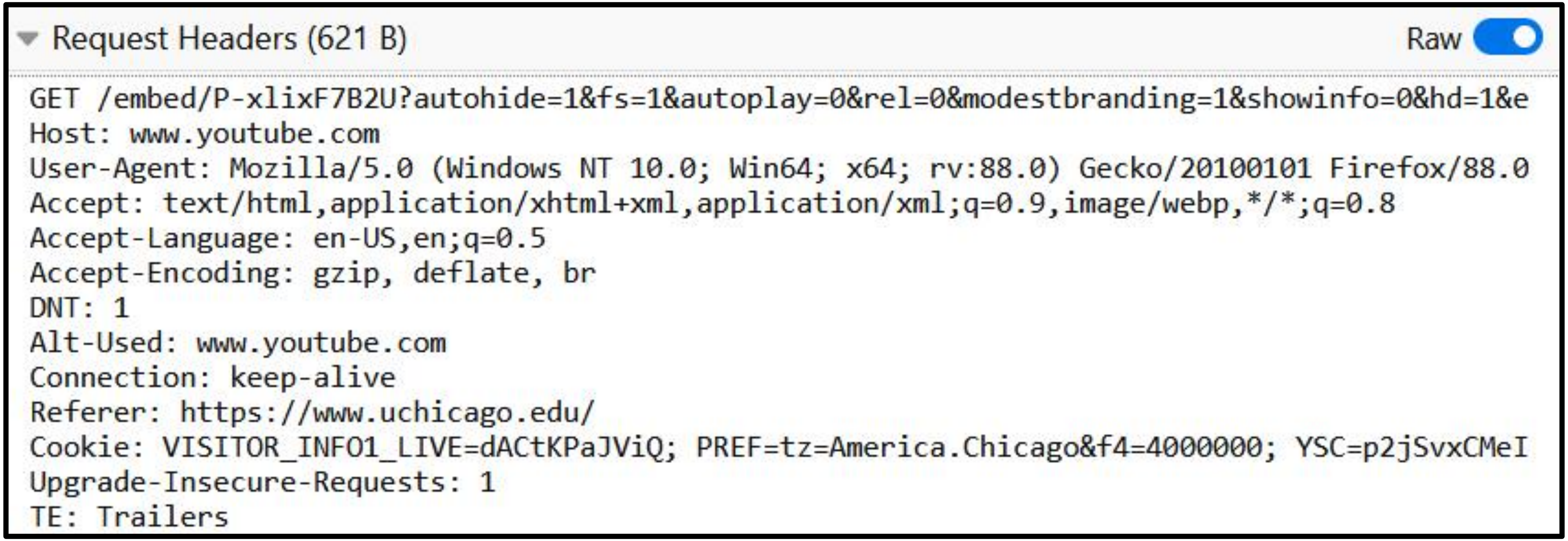
```
GET /embed/P-xlixF7B2U?autohide=1&fs=1&autoplay=0&rel=0&modestbranding=1&showinfo=0&hd=1&e
Host: www.youtube.com
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:88.0) Gecko/20100101 Firefox/88.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
DNT: 1
Alt-Used: www.youtube.com
Connection: keep-alive
Referer: https://www.uchicago.edu/
Cookie: VISITOR_INFO1_LIVE=dACtKPaJViQ; PREF=tz=America.Chicago&f4=4000000; YSC=p2jSvxCMeI
Upgrade-Insecure-Requests: 1
TE: Trailers
```

HTTP Headers (uchicago.edu → youtube.com)



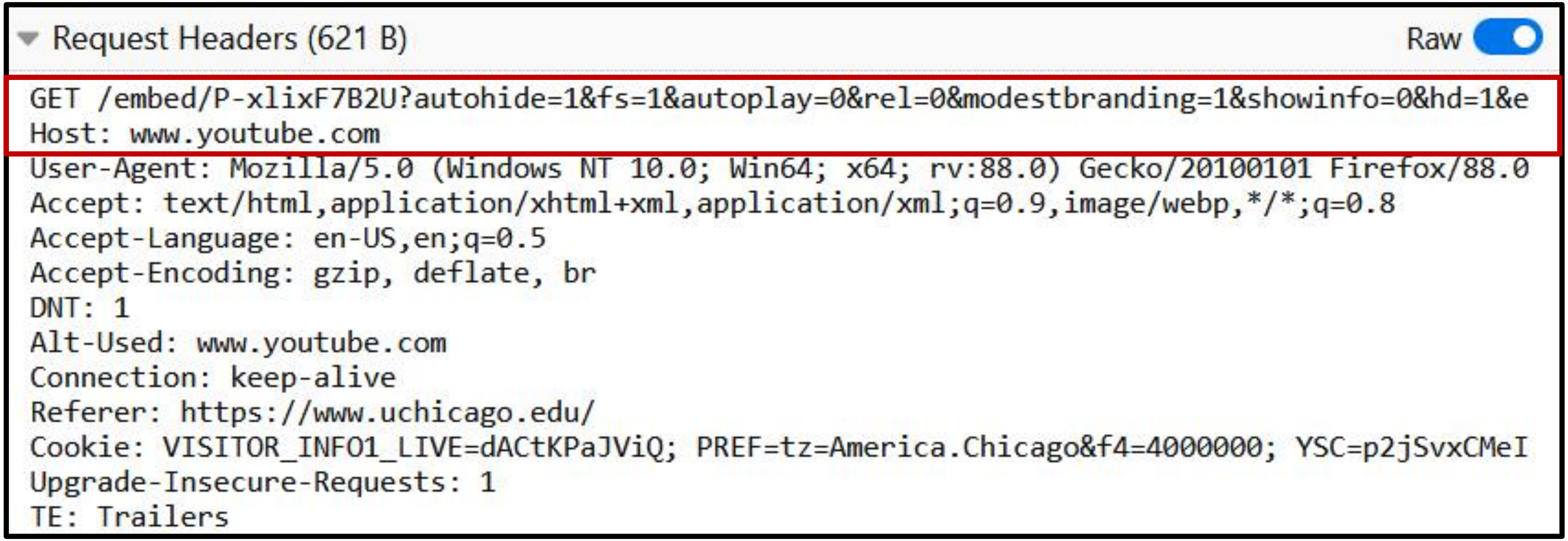
Status	Met...	Domain	File	Initiator	Type	Transferred	Size
200	GET	www.uchica...	/	document	html	11.41 KB	39...
204	POST	www.youtub...	atr?ns=yt&el=embedded&cpn=ho5PKBh-	base.js:1023 (...	html	604 B	0 B
200	GET	www.youtub...	P-xlixF7B2U?autohide=1&fs=1&autoplay=	subdocument	html	21.81 KB	51...
200	GET	cdn.hypemar...	uchicagowww?width=1169&paginate=tru	a5b5e5.js:3 (s...	html	128.06 KB	12...
200	GET	cdn.hypemar...	popUpModalEndpoint	a5b5e5.js:3 (s...	html	10.99 KB	10...

HTTP Headers (uchicago.edu → youtube.com)



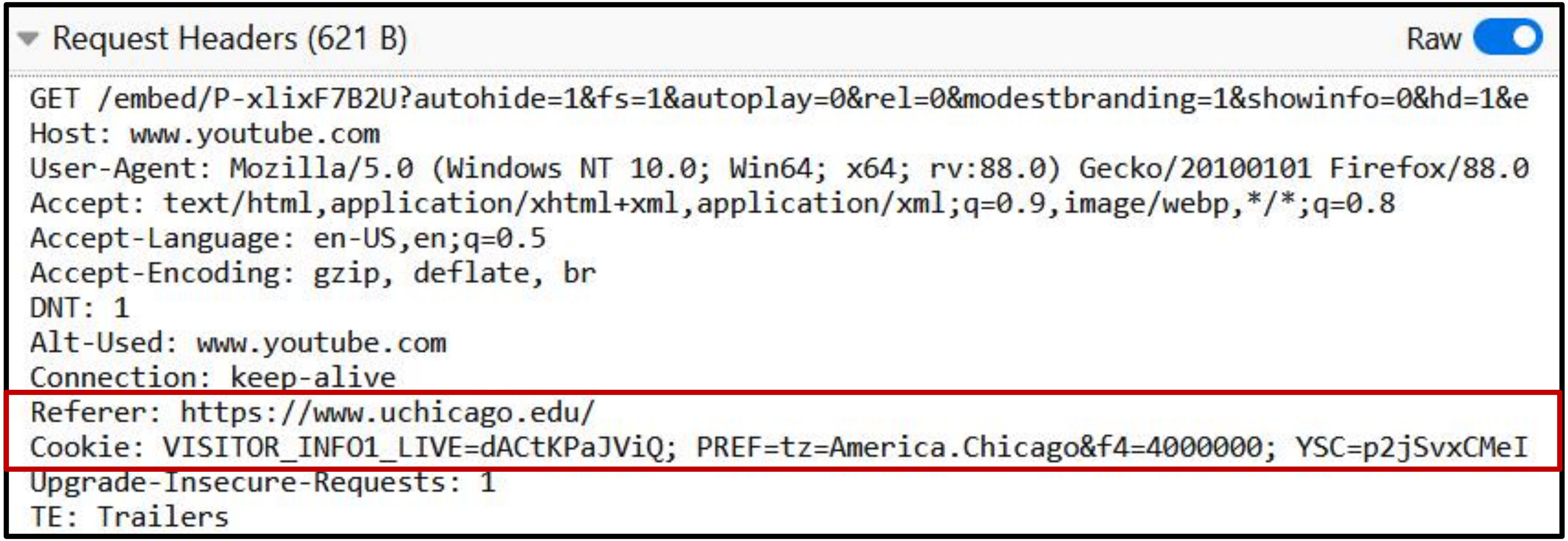
```
GET /embed/P-xlixF7B2U?autohide=1&fs=1&autoplay=0&rel=0&modestbranding=1&showinfo=0&hd=1&e
Host: www.youtube.com
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:88.0) Gecko/20100101 Firefox/88.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
DNT: 1
Alt-Used: www.youtube.com
Connection: keep-alive
Referer: https://www.uchicago.edu/
Cookie: VISITOR_INFO1_LIVE=dACtKPaJViQ; PREF=tz=America.Chicago&f4=4000000; YSC=p2jSvxCMeI
Upgrade-Insecure-Requests: 1
TE: Trailers
```

HTTP Headers (uchicago.edu → youtube.com)



```
GET /embed/P-xlixF7B2U?autohide=1&fs=1&autoplay=0&rel=0&modestbranding=1&showinfo=0&hd=1&e
Host: www.youtube.com
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:88.0) Gecko/20100101 Firefox/88.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
DNT: 1
Alt-Used: www.youtube.com
Connection: keep-alive
Referer: https://www.uchicago.edu/
Cookie: VISITOR_INFO1_LIVE=dACtKPaJViQ; PREF=tz=America.Chicago&f4=4000000; YSC=p2jSvxCMeI
Upgrade-Insecure-Requests: 1
TE: Trailers
```

HTTP Headers (uchicago.edu → youtube.com)



```
GET /embed/P-xlixF7B2U?autohide=1&fs=1&autoplay=0&rel=0&modestbranding=1&showinfo=0&hd=1&e
Host: www.youtube.com
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:88.0) Gecko/20100101 Firefox/88.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
DNT: 1
Alt-Used: www.youtube.com
Connection: keep-alive
Referer: https://www.uchicago.edu/
Cookie: VISITOR_INFO1_LIVE=dACtKPaJViQ; PREF=tz=America.Chicago&f4=4000000; YSC=p2jSvxCMeI
Upgrade-Insecure-Requests: 1
TE: Trailers
```

Putting It Together

- (Unless browser is blocking it) third party gets its cookies
- (Unless browser is blocking it) third party sees “referer” [sic]
- First party can choose to send info to third party via URL parameters (not a violation of Same Origin Policy!)
- Third party sees this information for **many** first parties

Mechanics of Cookie Syncing

- JavaScript / images from advertising networks loaded as part of your page
  - In iframes
  - Or sometimes not
  - Why does this matter?
- Let’s discuss: what can an ad network learn, and how?

Mechanics of Cookie Syncing

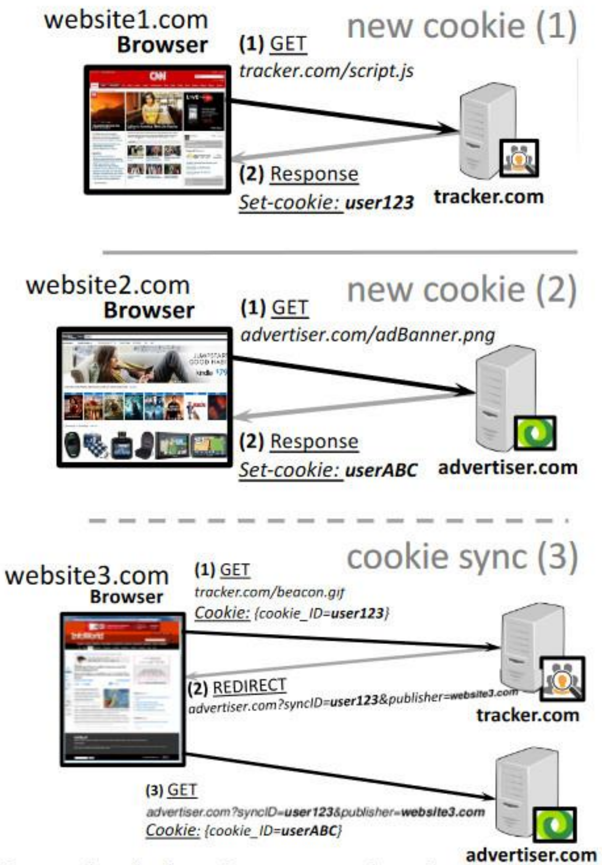
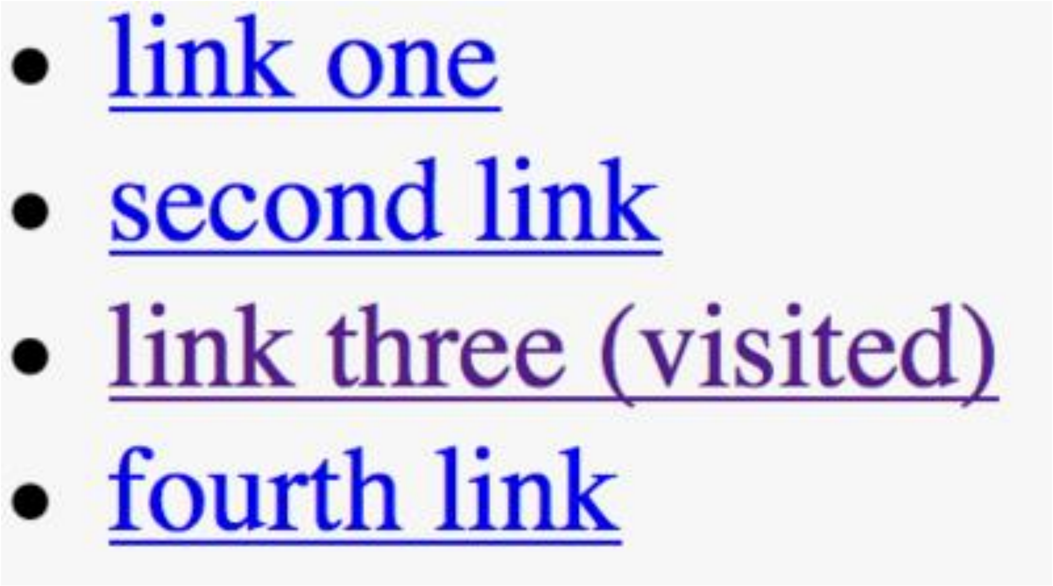


Figure 1: Example of advertiser.com and tracker.com synchronizing their cookieIDs. Interestingly, and without having any code in website3, advertiser.com learns that: (i) cookieIDs userABC==user123 and (ii) userABC has just visited the given website. Finally, both domains can conduct server-to-server user data merges.

From Papadopoulos et al. “Cookie Synchronization: Everything You Always Wanted to Know But Were Afraid to Ask,” in *Proc. WWW*, 2019.

Track Visited Sites

- Subtle side channel!
- (Loophole has since mostly been closed)



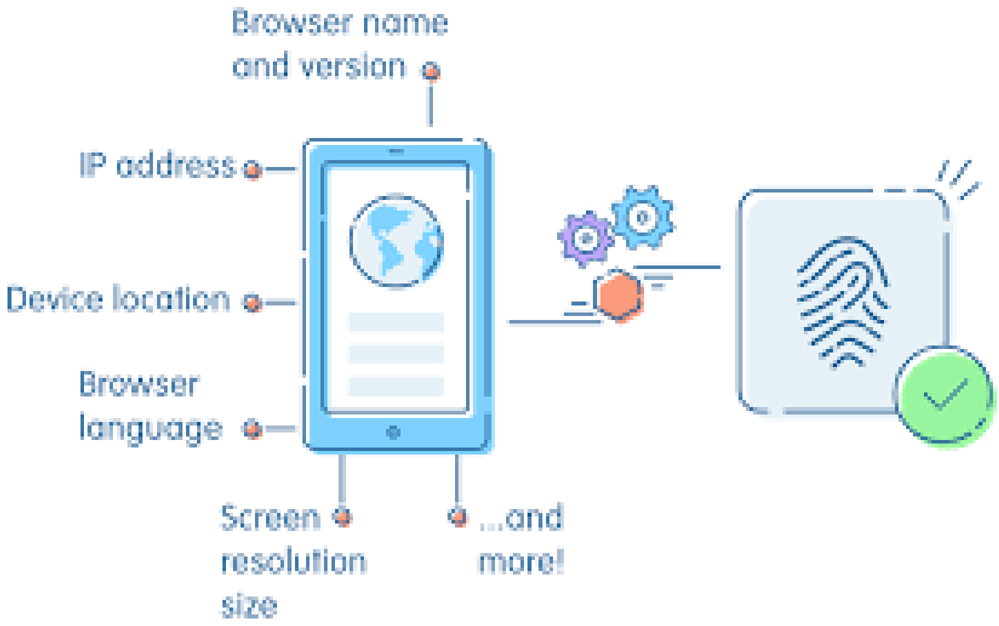
- link one
- second link
- link three (visited)
- fourth link

Browser Fingerprinting

- Use features of the browser that are relatively unique to your machine
  - Fonts
  - GPU model anti-aliasing (Canvas fingerprinting)
  - User-agent string
  - *(Often not)* IP address *(Why not?)*

Browser Fingerprinting

- Use combination of device features as an identifier
- https://coveryourtracks.eff.org/

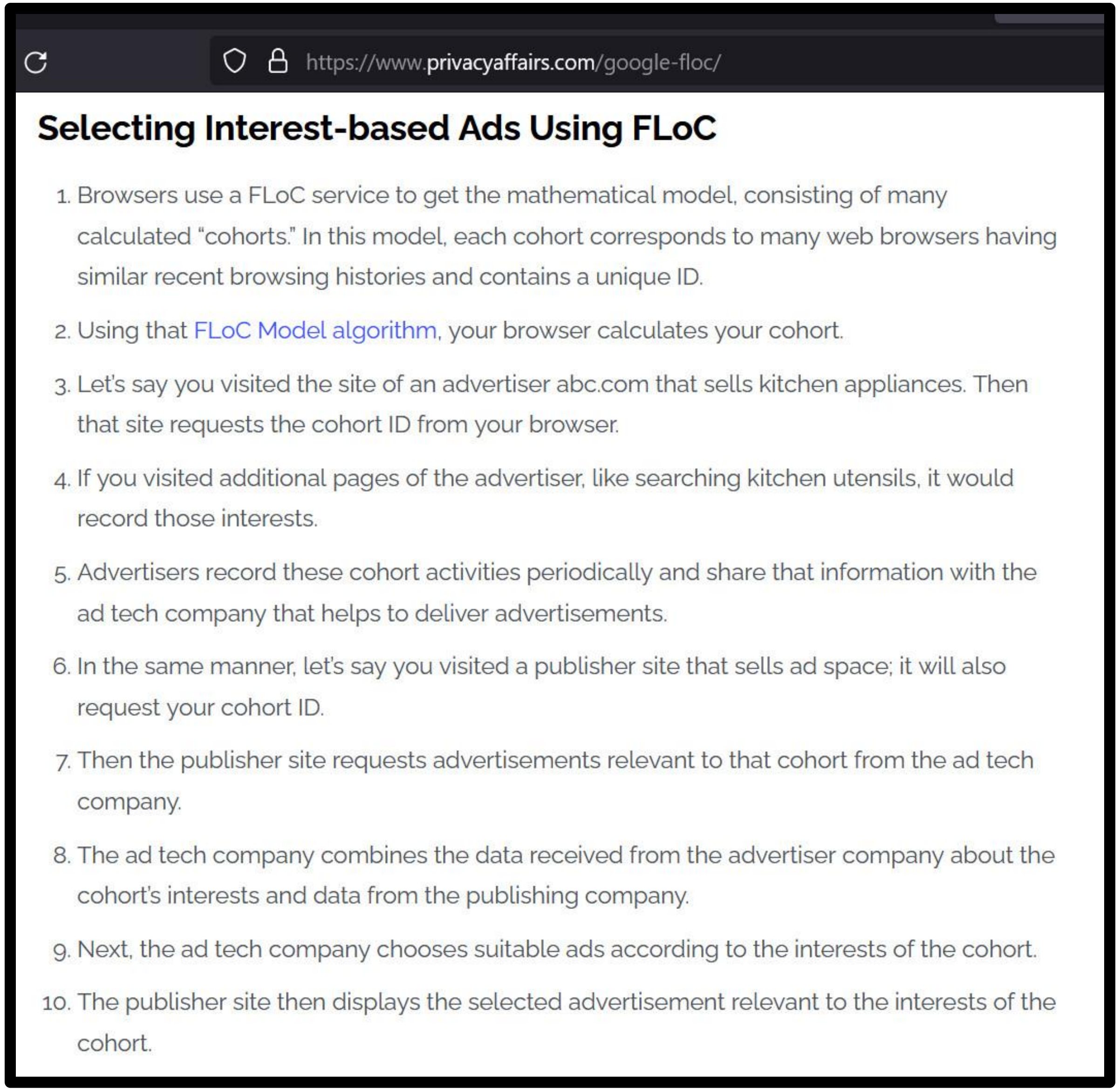


Alternatives to Cookies for Tracking / Profiling

Google's FLoC

- Federated Learning of Cohorts
- Clusters users based on their browsing activity and assigns a cohort ID
  - Uses SimHash for clustering
  - Clusters *intended to* contain 1,000s of users
- Criticisms include fingerprintability, ability to tie cohort to PII, and collapse of different browsing contexts
- (Abandoned in early 2022)

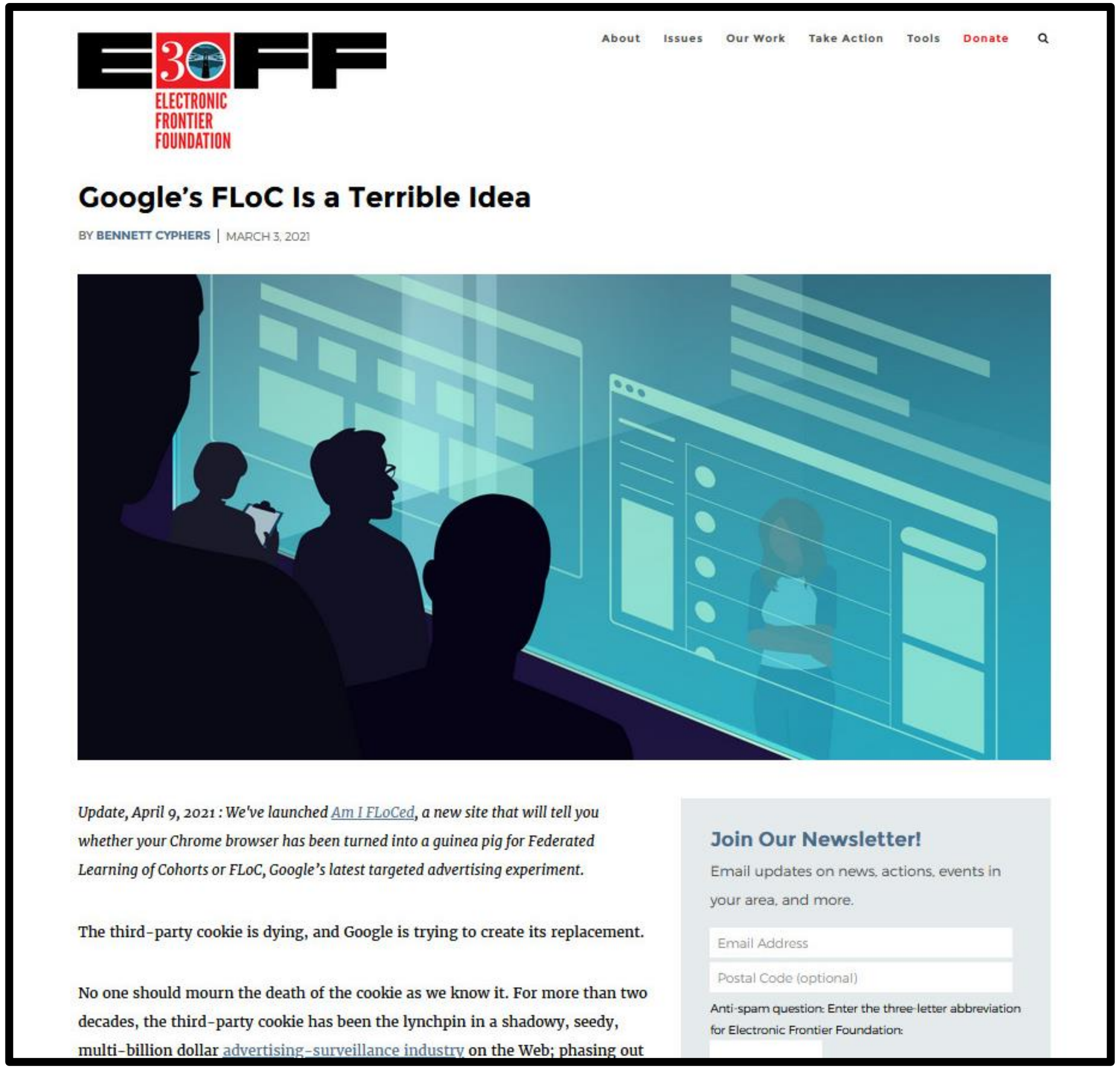
Google’s FLoC



Selecting Interest-based Ads Using FLoC

1. Browsers use a FLoC service to get the mathematical model, consisting of many calculated “cohorts.” In this model, each cohort corresponds to many web browsers having similar recent browsing histories and contains a unique ID.
2. Using that FLoC Model algorithm, your browser calculates your cohort.
3. Let’s say you visited the site of an advertiser abc.com that sells kitchen appliances. Then that site requests the cohort ID from your browser.
4. If you visited additional pages of the advertiser, like searching kitchen utensils, it would record those interests.
5. Advertisers record these cohort activities periodically and share that information with the ad tech company that helps to deliver advertisements.
6. In the same manner, let’s say you visited a publisher site that sells ad space; it will also request your cohort ID.
7. Then the publisher site requests advertisements relevant to that cohort from the ad tech company.
8. The ad tech company combines the data received from the advertiser company about the cohort’s interests and data from the publishing company.
9. Next, the ad tech company chooses suitable ads according to the interests of the cohort.
10. The publisher site then displays the selected advertisement relevant to the interests of the cohort.

Google’s FLoC



Google’s FLoC Is a Terrible Idea

BY BENNETT CYPHERS | MARCH 3, 2021

Update, April 9, 2021 : We've launched Am I FLoCed, a new site that will tell you whether your Chrome browser has been turned into a guinea pig for Federated Learning of Cohorts or FLoC, Google’s latest targeted advertising experiment.

The third-party cookie is dying, and Google is trying to create its replacement.

No one should mourn the death of the cookie as we know it. For more than two decades, the third-party cookie has been the lynchpin in a shadowy, seedy, multi-billion dollar advertising-surveillance industry on the Web; phasing out

Join Our Newsletter!

Email updates on news, actions, events in your area, and more.

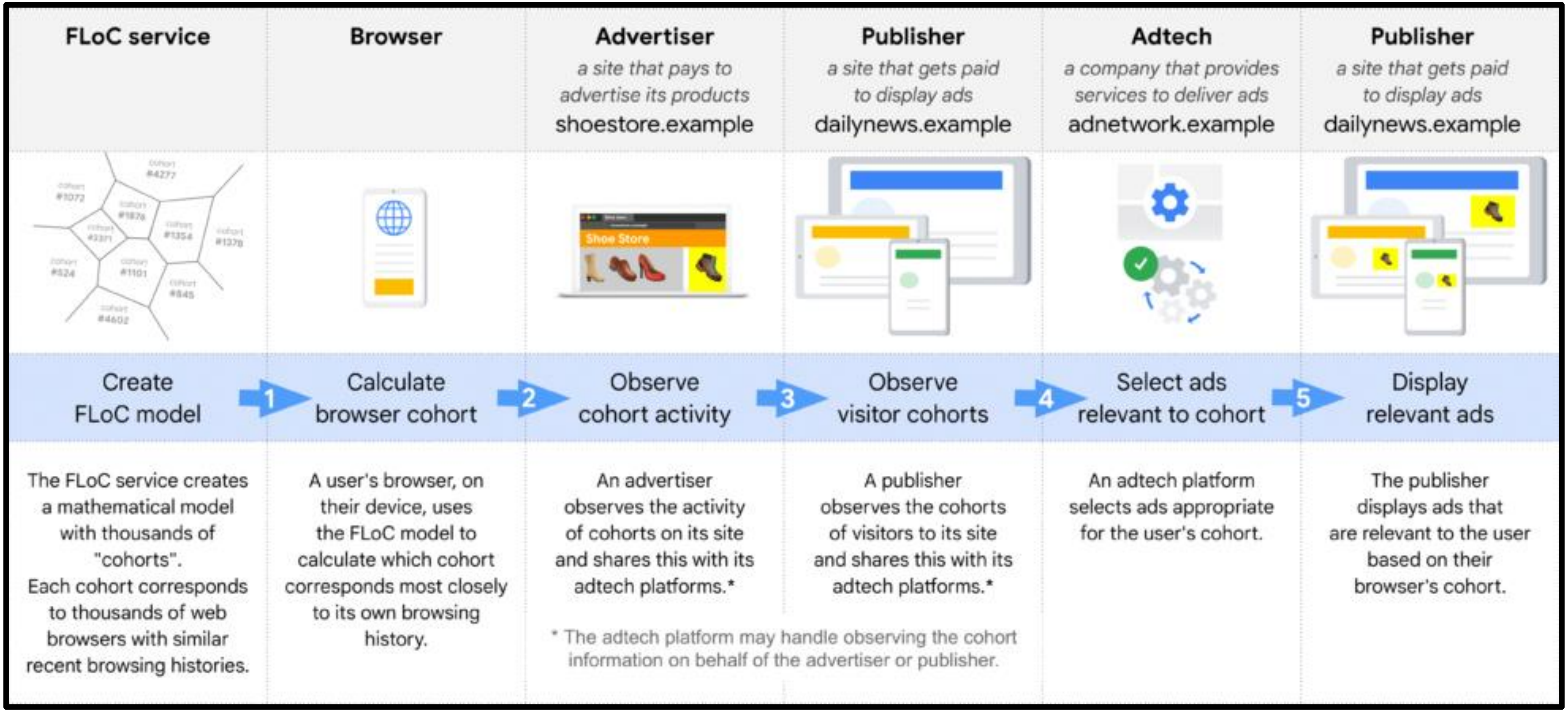
Email Address

Postal Code (optional)

Anti-spam question: Enter the three-letter abbreviation for Electronic Frontier Foundation:

Image taken from https://www.eff.org/deeplinks/2021/03/googles-floc-terrible-idea

Google’s FLoC



FLoC service	Browser	Advertiser	Publisher	Adtech	Publisher
		a site that pays to advertise its products shoestore.example	*a site that gets paid to display ads* dailynews.example	*a company that provides services to deliver ads* adnetwork.example	*a site that gets paid to display ads* dailynews.example
Create FLoC model	1 Calculate browser cohort	2 Observe cohort activity	3 Observe visitor cohorts	4 Select ads relevant to cohort	5 Display relevant ads
The FLoC service creates a mathematical model with thousands of "cohorts". Each cohort corresponds to thousands of web browsers with similar recent browsing histories.	A user's browser, on their device, uses the FLoC model to calculate which cohort corresponds most closely to its own browsing history.	An advertiser observes the activity of cohorts on its site and shares this with its adtech platforms.*	A publisher observes the cohorts of visitors to its site and shares this with its adtech platforms.*	An adtech platform selects ads appropriate for the user's cohort.	The publisher displays ads that are relevant to the user based on their browser's cohort.

* The adtech platform may handle observing the cohort information on behalf of the advertiser or publisher.

Image taken from https://arstechnica.com/gadgets/2021/04/everybody-hates-floc-googles-tracking-plan-for-chrome-ads/

Google’s FLoC

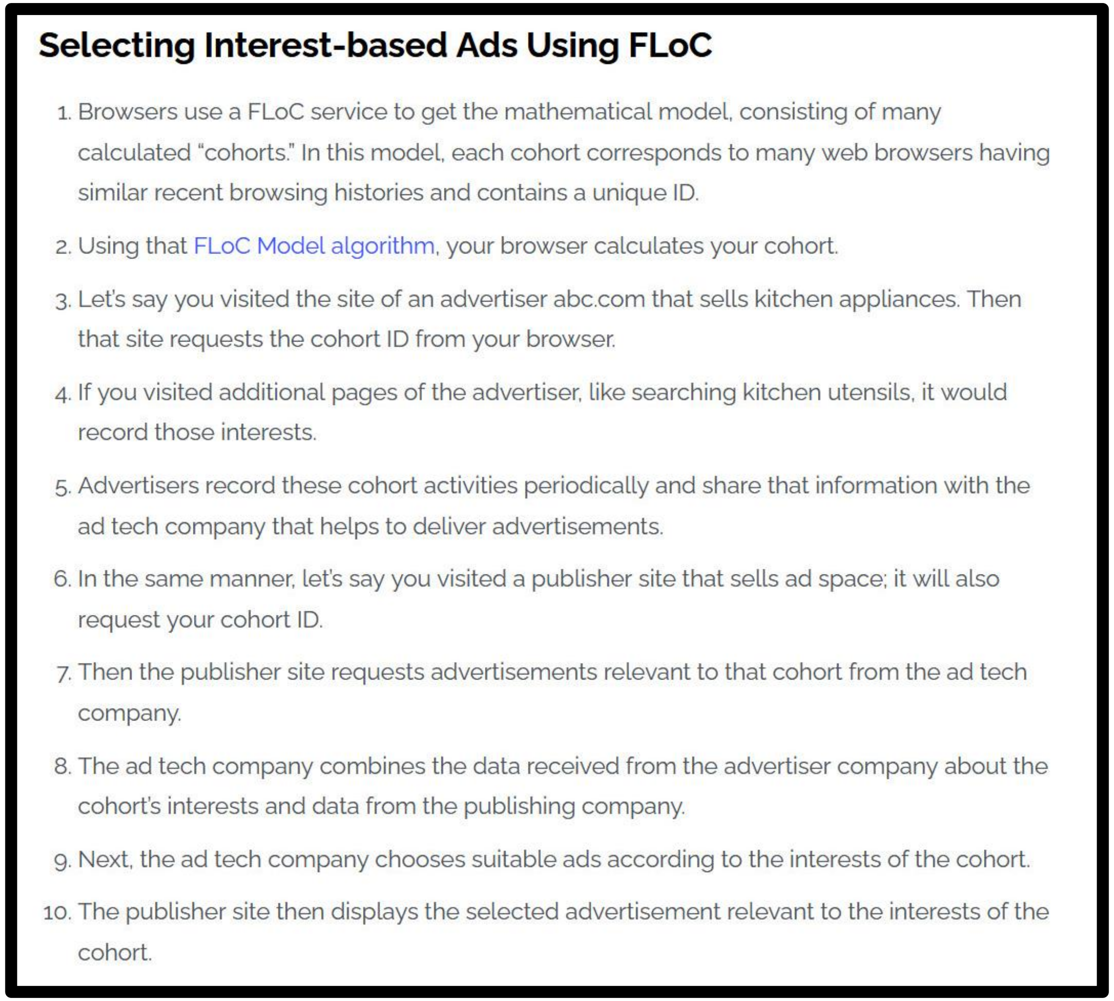


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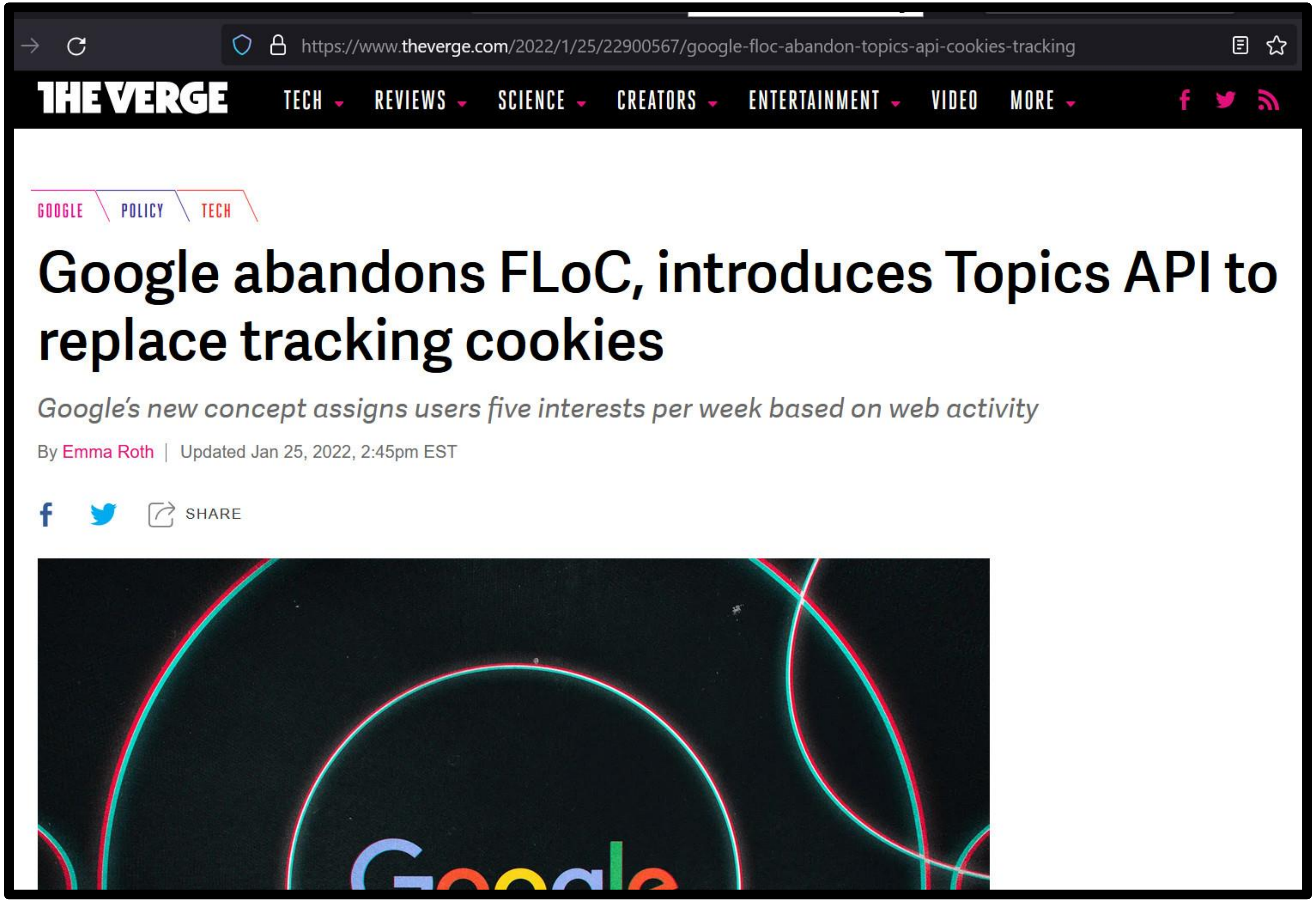
Image taken from https://www.privacyaffairs.com/google-floc/

Google’s Topics API



https://www.theverge.com/2022/1/25/22900567/google-floc-abandon-topics-api-cookies-tracking

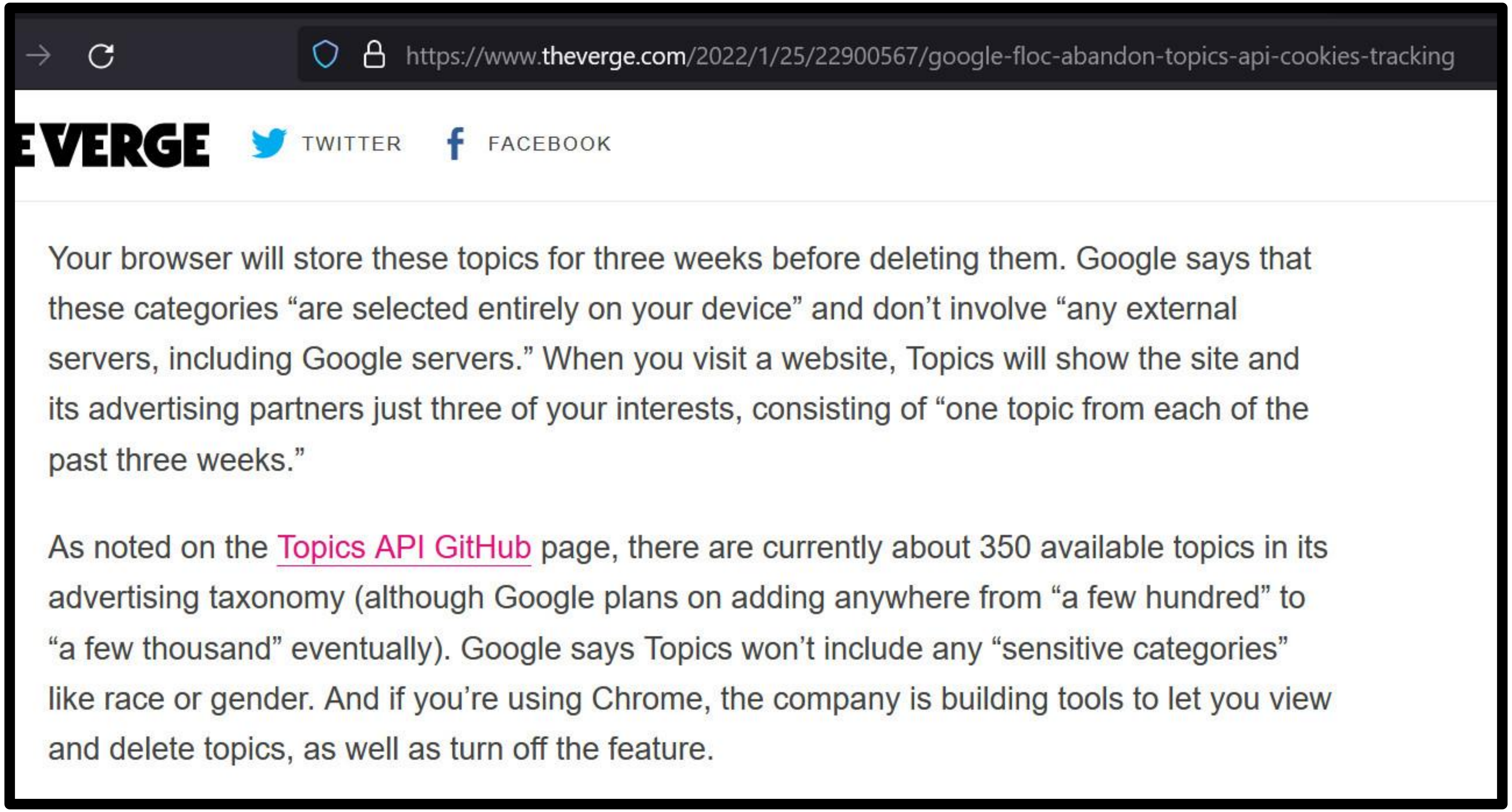
GOOGLE POLICY TECH

Google abandons FLoC, introduces Topics API to replace tracking cookies

Google’s new concept assigns users five interests per week based on web activity

By Emma Roth | Updated Jan 25, 2022, 2:45pm EST

Google’s Topics API



https://www.theverge.com/2022/1/25/22900567/google-floc-abandon-topics-api-cookies-tracking
EVERGE
TWITTER
FACEBOOK

Your browser will store these topics for three weeks before deleting them. Google says that these categories “are selected entirely on your device” and don’t involve “any external servers, including Google servers.” When you visit a website, Topics will show the site and its advertising partners just three of your interests, consisting of “one topic from each of the past three weeks.”

As noted on the Topics API GitHub page, there are currently about 350 available topics in its advertising taxonomy (although Google plans on adding anywhere from “a few hundred” to “a few thousand” eventually). Google says Topics won’t include any “sensitive categories” like race or gender. And if you’re using Chrome, the company is building tools to let you view and delete topics, as well as turn off the feature.