

CPRA Law + Tech: Understanding Data, Decisionmaking, and Design

March 4, 2022

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About This Series

CPRA LAW + TECH SERIES

FEBRUARY AND MARCH 2022

Weekly Friday Webinars beginning February 18
3 PM to 4:15 PM ET | Noon to 1:15 PM PT

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**FUTURE OF
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About This Series

What do privacy lawyers need to know about the **technologies and data practices** at the heart of emerging legislation? Informational webinars from Feb. 25 to Apr. 1 will bring academic, technical, and business experts to share **technological basics for privacy lawyers**.

	Topic	Dates (2022)
1	CPRA and Emerging US Privacy Laws	Friday, Feb. 18
2	Sensitive Data: Health Conditions, Demographics, and Inferences	Friday, Feb. 25
3	Basics of Online Advertising	Friday, Mar. 4
4	“Dark Patterns” and Manipulative Design	Friday, Mar. 11
5	Universal Opt-Outs and Global Privacy Controls	Friday, Mar. 25
6-7	<i>Coming soon!</i>	Friday, Apr. 1

2023 New Privacy Laws: Ad Tech Implications

California Privacy Rights Act (CPRA)

- Right to opt out of Sharing for Cross Context Behavioral Advertising

Colorado Privacy Act (CPA)

- Right to opt out of Processing for purposes of Targeted Advertising

Virginia Consumer Data Protection Act (VCDPA)

- Right to opt out of Processing for purposes of Targeted Advertising

CPRA: Opt Out of Sharing for Cross Context Behavioral Advertising

Sharing	Cross Context Behavioral Advertising
<p><i>“...sharing, renting, releasing, disclosing, disseminating, making available, transferring, or otherwise communicating orally, in writing, or by electronic or other means, a consumer's personal information by the business to a third party for cross-context behavioral advertising, whether or not for monetary or other valuable consideration, including transactions between a business and a third party for cross-context behavioral advertising for the benefit of a business in which no money is exchanged.”</i></p>	<p>The targeting of advertising to a consumer based on the consumer's personal information obtained from the consumer's activity across businesses, distinctly-branded websites, applications, or services, other than the business, distinctly-branded website, application, or service with which the consumer intentionally interacts.</p>

CDPA: Opt Out of Targeted Advertising

“Targeted advertising” means displaying advertisements to a consumer where the advertisement is selected based on personal data obtained from that consumer's activities over time and across nonaffiliated websites or online applications to predict such consumer's preferences or interests.

Targeted advertising does not include:

1. Advertisements based on activities within a controller's own websites or online applications;
2. Advertisements based on the context of a consumer's current search query, visit to a website, or online application;
3. Advertisements directed to a consumer in response to the consumer's request for information or feedback; or
4. Processing personal data processed solely for measuring or reporting advertising performance, reach, or frequency.

CPA: Opt Out of Targeted Advertising

"Targeted advertising" (a) means displaying to a consumer an advertisement that is selected based on personal data obtained or inferred over time from the consumer's activities across nonaffiliated websites, applications, or online services to predict consumer preferences or interests; and (b) Does not include:

- Advertising to a consumer in response to the consumer's request for information or feedback;
- Advertisements based on activities within a controller's own websites or online applications;
- Advertisements based on the context of a consumer's current search query, visit to a website, or online application; or
- Processing personal data solely for measuring or reporting advertising performance, reach, or frequency.

CPRA Law + Tech Series: Session 3

The Basics of Online Advertising

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Christy Harris
*Director of Technology
& Privacy Research*

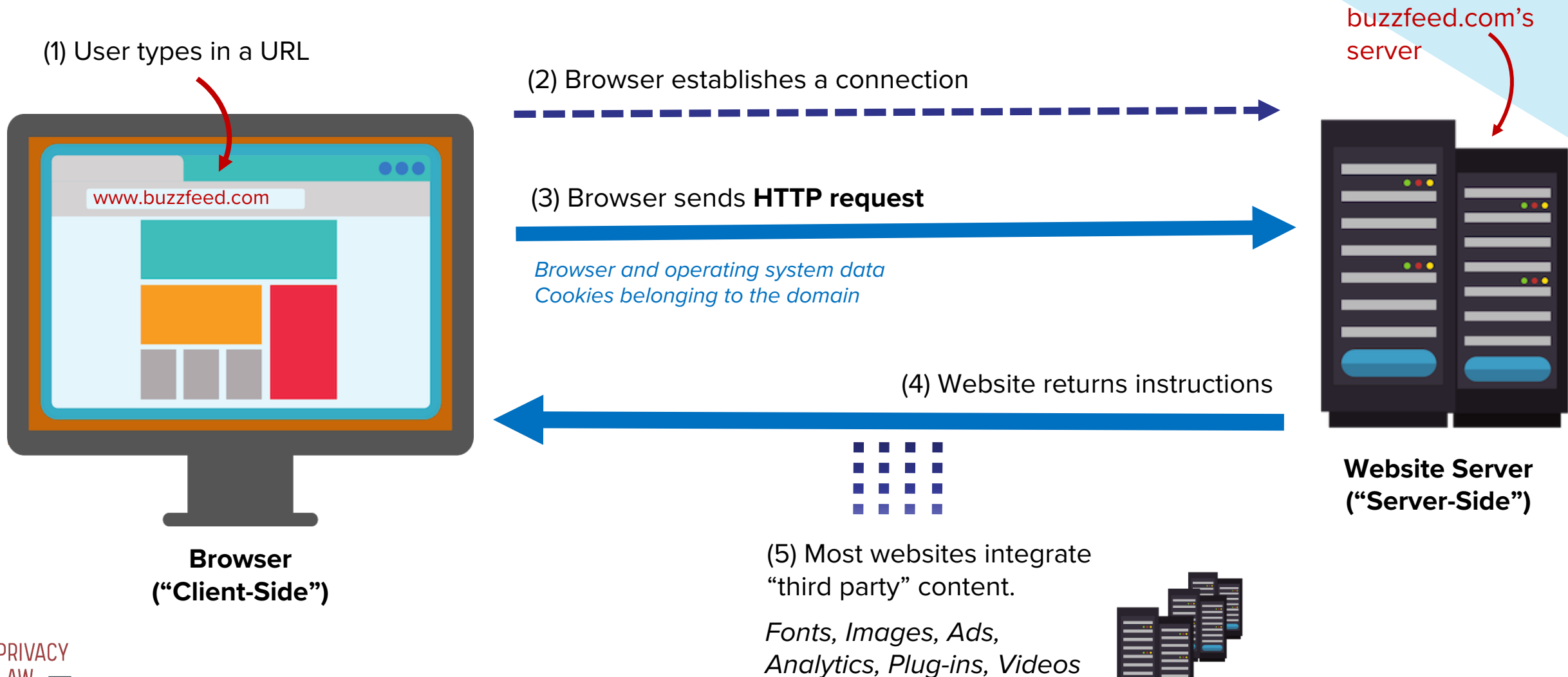


Adam Towvim
*Partner, Chameleon
Collective*

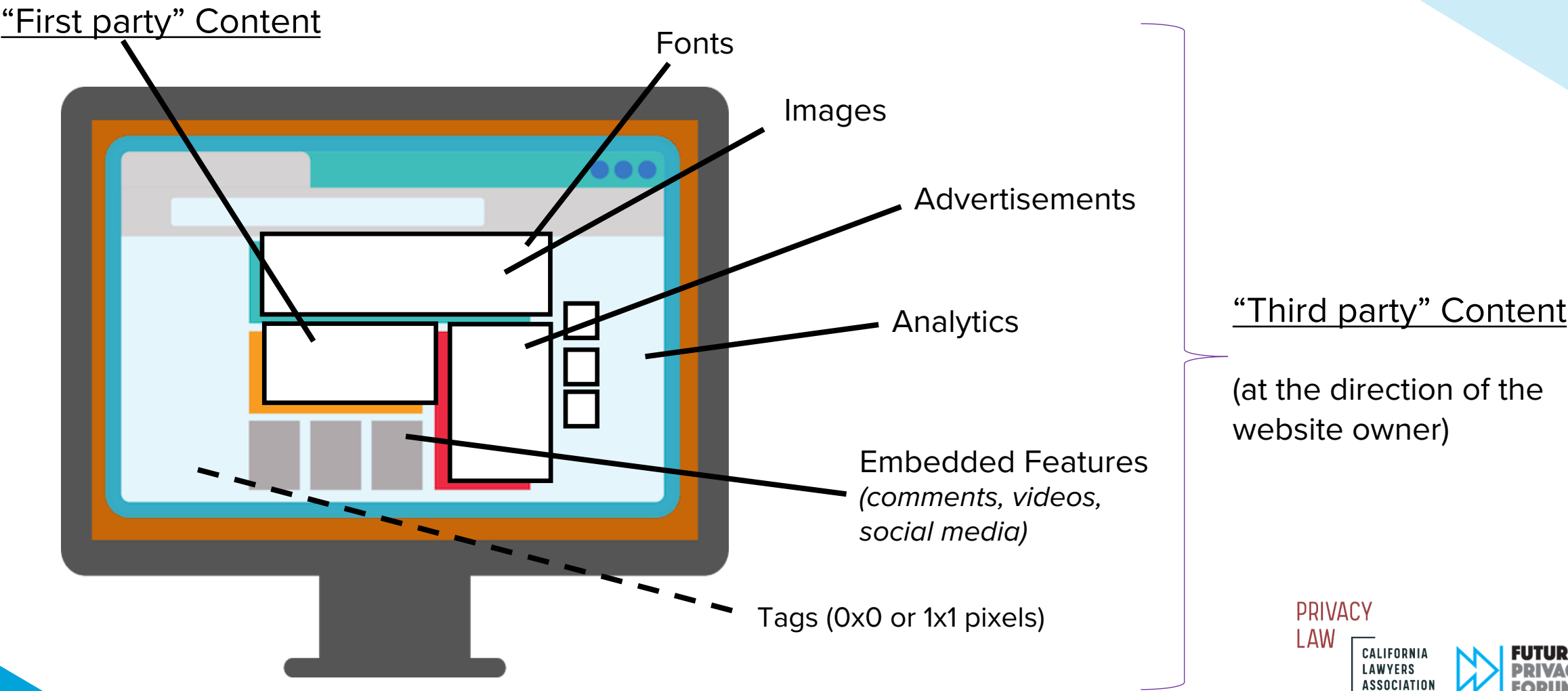
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Basics of Websites in 5 Steps



First & Third Parties



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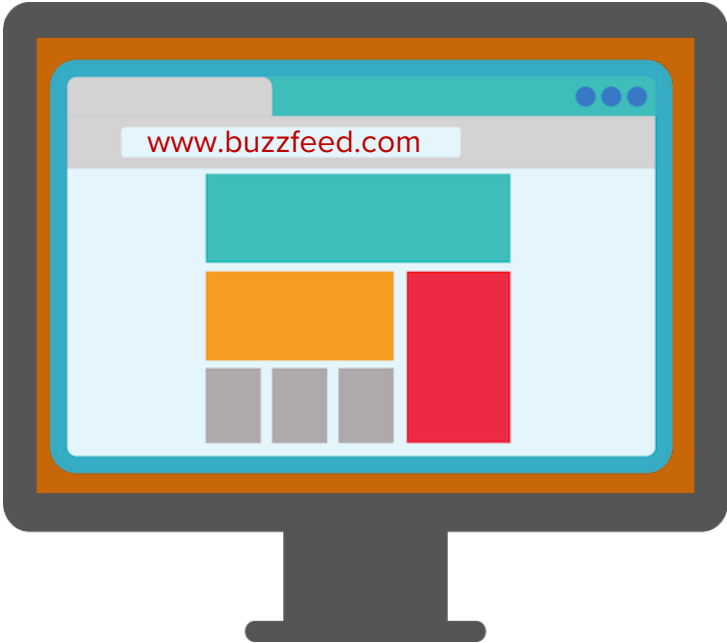
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What Are Cookies?

What:	Why:
<ul style="list-style-type: none">• Browsers have small storage (“cache”)• Cookies are small text files• Browsers will accept and store (“set”) cookies on behalf of domains, and share them with the domains that set them	<ul style="list-style-type: none">• Solution for “state management”• Early (pre-1995) websites looked the same to all visitors, like the pages of a book. Cookies allowed websites to “remember” visitors’ choices and preferences (e.g. “Shopping Cart”)

Setting & Reading Cookies



Browser

Visit #1

No cookie

Instruction to save cookie "123456"

Visit #2

Browser sends cookie "123456"

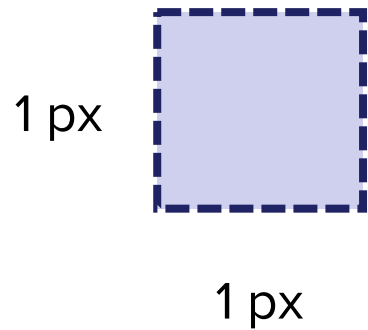
Server returns personalized content



Server

Application													
Filter													
Only show cookies with an issue													
Name	Value	Domain	P	Expires / Max-Age	S..	F	S.	Σ	Σ	F	F		
sailthru_visitor	808115e0-2d3e-46a0-82c9-f70f2d27b0df	www.buzzfee...	/	2023-02-22T16:41...	52							M.	
sailthru_content	b697b2aa95a614f8ec47e331bf4afa20	www.buzzfee...	/	2023-02-22T16:41...	48							M.	
bf_visit	u%3D.bv3dqBGqXm%26uuid%3D07fba092-0be6-45d5-...	www.buzzfee...	/	2049-01-29T15:50...	77		✓	N.				M.	
sailthru_pageviews	1	www.buzzfee...	/	2022-02-22T17:11...	19							M.	
new_us_homepage_2	false	www.buzzfee...	/	2022-02-23T16:41...	22							M.	
dsl25_frnf	control	www.buzzfee...	/	2022-03-22T16:41...	17							M.	
__stripe_sid	cbd174da-144a-4e1a-85e9-2d83ea618cfc9323dc	.www.buzzfee...	/	2022-02-22T17:11...	54		✓	S.				M.	
qualtrics_intercepts	on	.www.buzzfee...	/	2022-02-23T16:41...	22							M.	
SITE-7528-TPAU_with_image...	%7B%22id%22%3A974%2C%22version%22%3A3%2...	.www.buzzfee...	/	2022-02-23T16:41...	2...							M.	
ADSGROUP-442-permutive_v...	1	.www.buzzfee...	/	2022-02-23T16:41...	31							M.	
non_us_ad_lookahead_adjus...	on	.www.buzzfee...	/	2022-02-23T16:41...	33							M.	
advertise_international	on	.www.buzzfee...	/	2022-02-23T16:41...	25							M.	
moat_dfp_native_video_tracking	on	.www.buzzfee...	/	2022-02-23T16:41...	32							M.	

Tags, Pixels, & Web Beacons



1x1 or 0x0 invisible pixel

Placed by the website owner

Allows the user's browser to communicate (and share cookies) with a partner, **even when no advertisement is being shown.**

- Analytics

- **Example:** Buzzfeed measures which articles are most popular.

- Reporting (Ad Effectiveness)

- **Example 1:** Nike places a pixel on its own website, to determine if its ads on other sites are increasing traffic (click-through rates)
 - **Example 2:** Retailer places a pixel on the “Thank you for your purchase” page, to know whether its ads on other sites are resulting in purchases.

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The First Banner Ad: 1994

Users



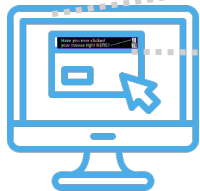
Advertisers



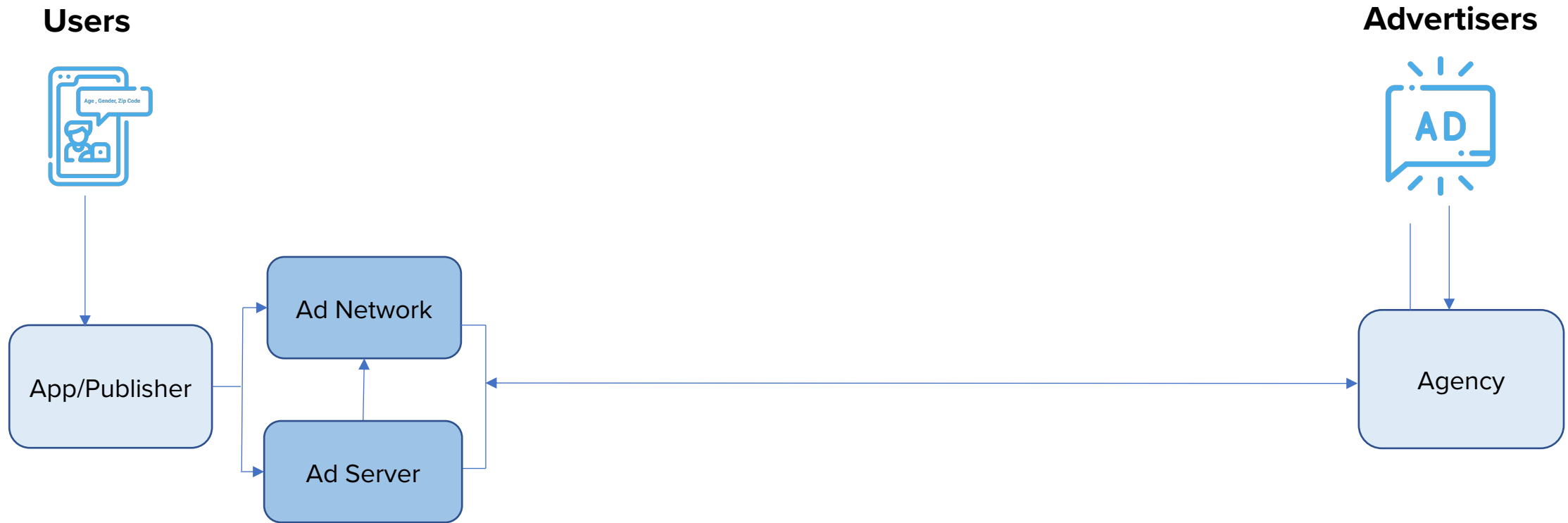
Publisher

Direct Relationship

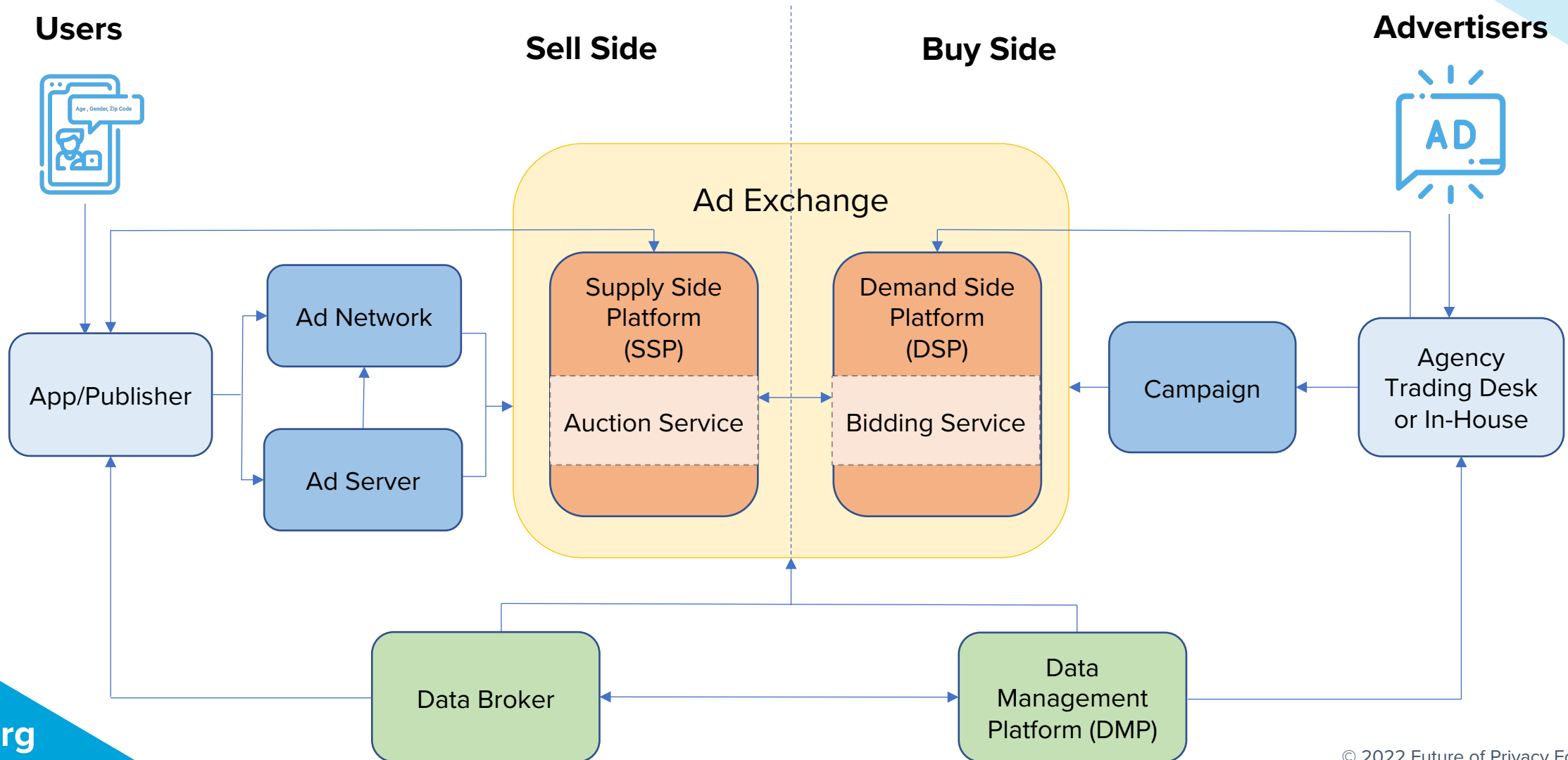
Agency
Trading Desk
or In-House



Ad Tech Value Chain



Ad Tech Value Chain



Supply Side Platform (SSP)

- **Enables** publishers to auction their ad inventory to a variety of media buyers and advertisers.
- **Specializes** in matching advertisers with the SSP's publisher network in an automated manner.
- **Maximize** advertising revenue for publishers.
- Examples include: AppNexus (Xandr), Pubmatic, MoPub, and Rubicon Project.

Demand Side Platform (DSP)

- **Enables** it's advertisers (brands & agencies) to bid for ad inventory, buying most types of digital advertising, including display, mobile, search and video.
- **Specializes** in running ad campaigns across many publishers, targeted to the intended audience at the right time.
- **Facilitate** bidding on criteria including: location, gender, and browsing history, leveraging data from multiple sources to target audiences and inform bidding strategies.
- **Track outcomes** from ad campaigns — CPA, ROI — automatically optimize campaigns to achieve ad buyer's KPIs.
- Examples include: LiveRamp, AppNexus, Adform, Facebook Ads Manager, MediaMath, TubeMogul, & Amobee.

Deep Behind the Scenes!



April 2020

Marketing Technology Landscape

The Martech 5000

Total Solutions	8,000
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Advertising & Promotion 922

Content & Experience 1,936

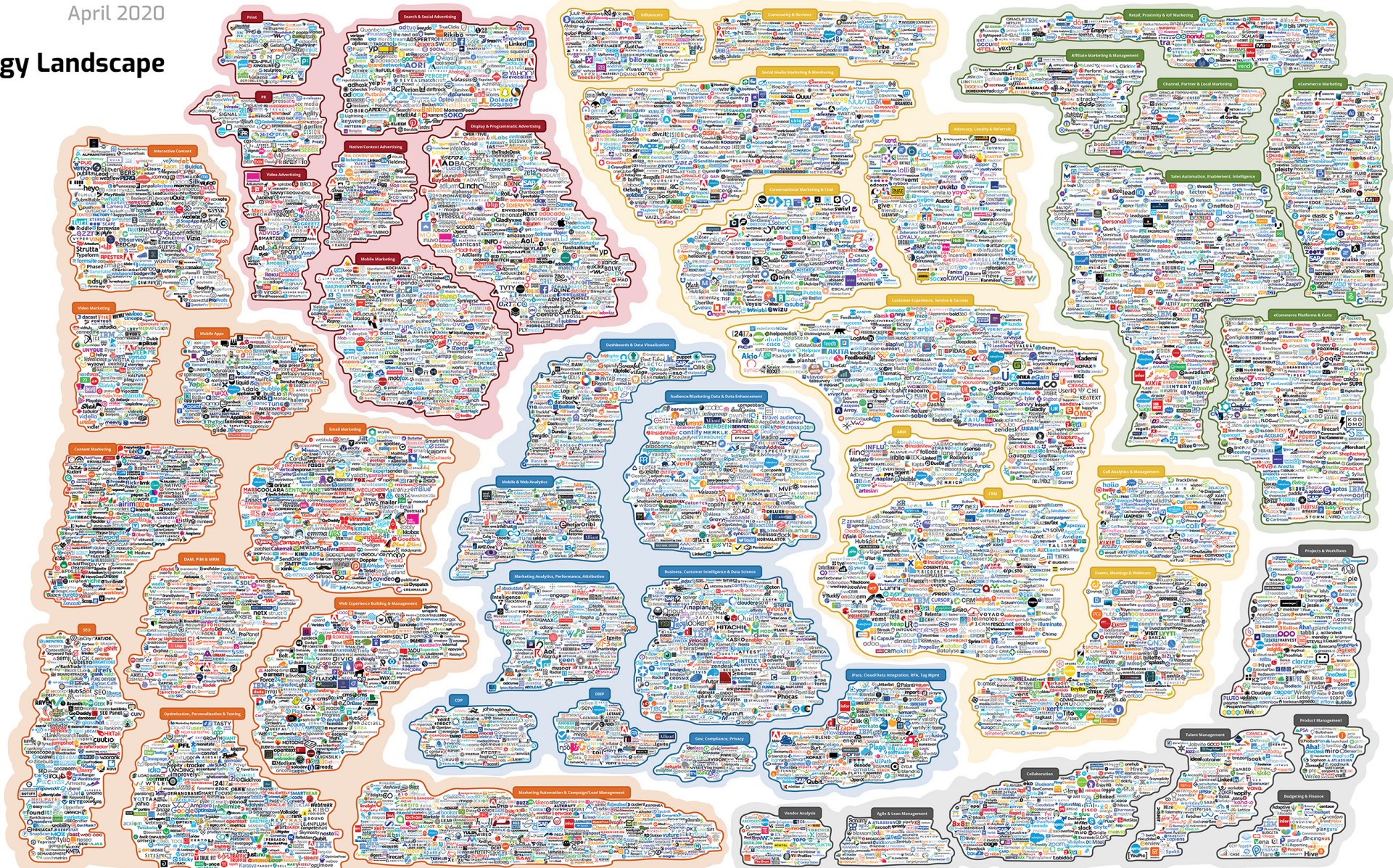
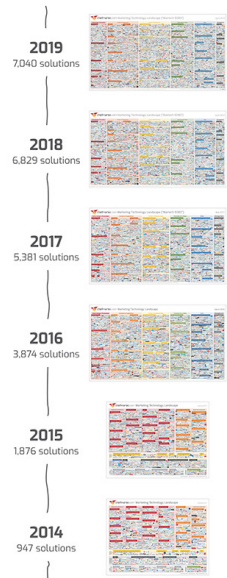
Social & Relationships 1,969

Commerce & Sales 1,314

Data	1,258
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Management 601

Access all the data of this landscape & more at martech5000.com



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Targeted Advertising

Targeting Types	Examples:
Contextual Tailored to a website or service	<ul style="list-style-type: none">• An airline buys ads on travel-related websites• A cooking supply store buys ads on a news website article about holiday recipes• A leisure gaming app buys ads on another game app
Behavioral Targeted to individuals using information collected from a variety of sources, based on activities across sites & platforms (also referred to as <i>interest-based advertising</i> or <i>tailored advertising</i>)	<ul style="list-style-type: none">• An advertiser buys “audience segments” of viewers, such as “auto intender,” “back to school shopping,” or “wedding planning”• An advertiser targets ads to users in certain demographic categories (e.g., age, location, income), search history, or other observed interests or preferences
Re-targeting First party targets ads to reach its own previous visitors or customers (a variation of behavioral targeting)	<ul style="list-style-type: none">• Retail site places a “tag” on a product page, and re-targets users who viewed that page with ads elsewhere on the internet

What is “Programmatic”?

- The use of technology to automate the various online advertising processes, including buying, selling, and optimizing inventory.
- Real-Time Bidding (RTB) is one example of such automation.

MediaPost Agency Daily

By 2019 Two-Thirds Of Global Display Ads Will Be Traded Programmatically

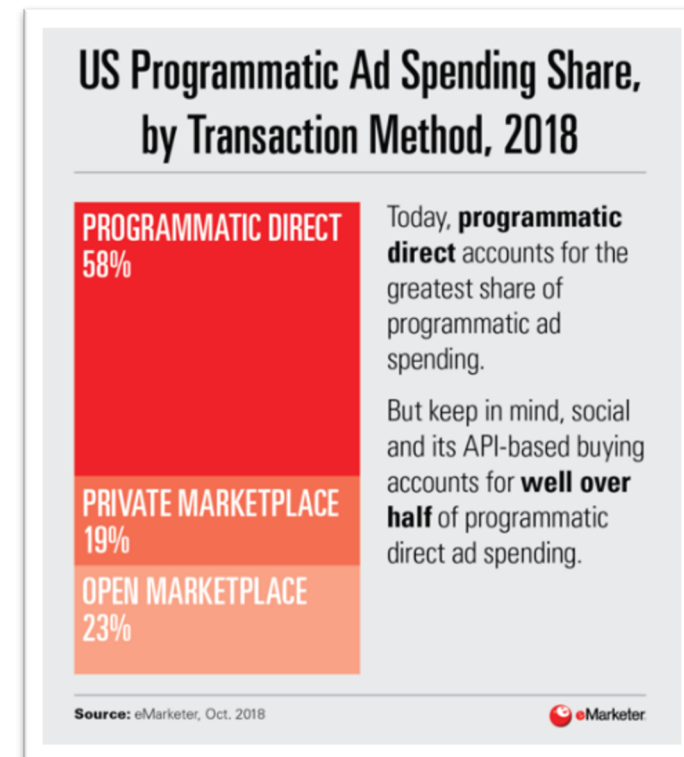
by Larissa Faw , November 19, 2017

Two-thirds of the world's digital display advertising (67%) will be traded programmatically by 2019, worth \$84.9 billion, according to Publicis Groupe Zenith's latest report, *Programmatic Marketing Forecasts*.

Programmatic ad sales are growing at an annual average rate of 21% per year, according to the report. This year's estimate is \$57.5 billion.

"Advertisers need to understand the it won't be long before digital display is 100% programmatic, and that some of what we consider 'traditional media' will follow fairly shortly," says Jonathan Barnard, head of forecasting and director of global intelligence, Zenith.

The U.S. is driving this growth, increasing its percentage of display that will be traded programmatically this year from 78% to 83.6% in 2019, above the global average.

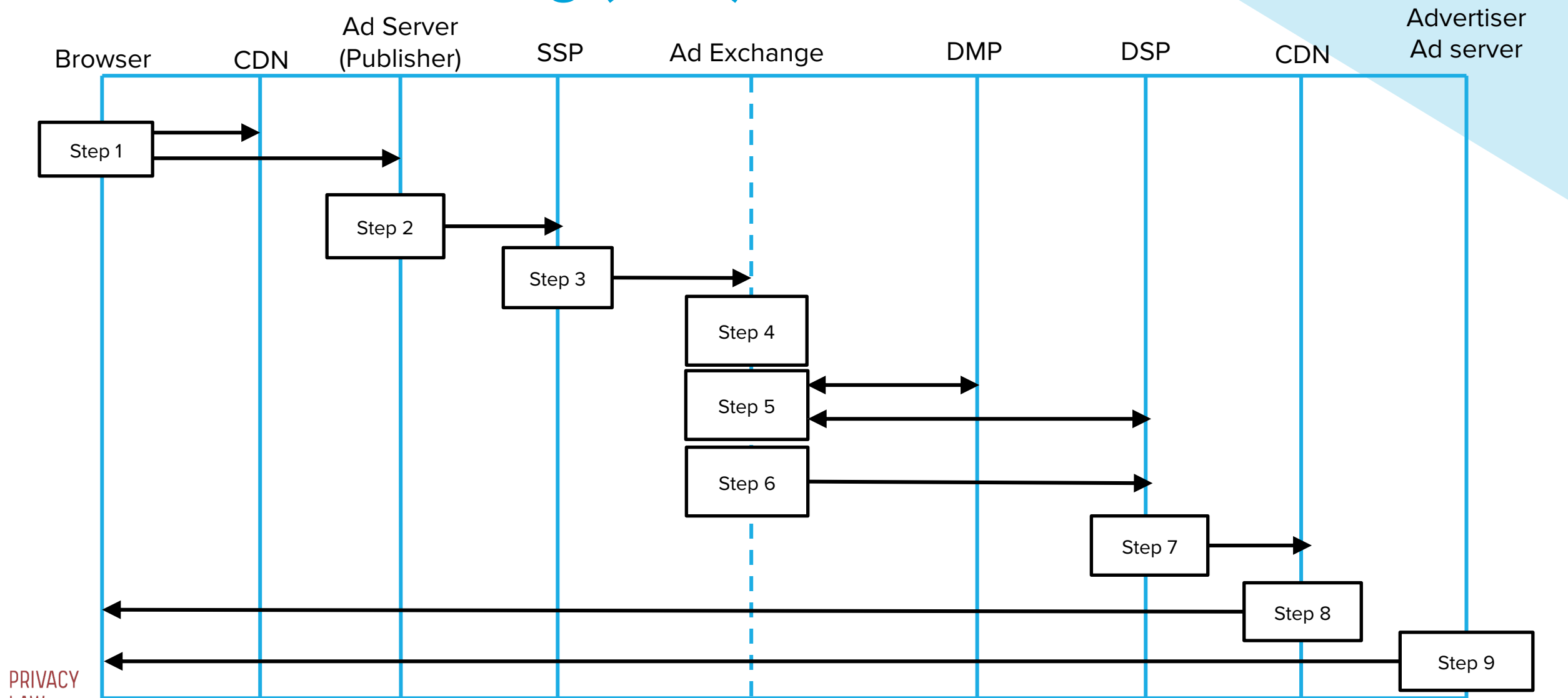


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Real-Time Bidding (RTB)



What's in a Bid Request?

```
{
  "id": "80ce30c53c16e6ede735f123ef6e32361bfc7b22",
  "at": 1, "cur": [ "USD" ],
  "imp": [
    {
      "id": "1", "bidfloor": 0.03,
      "banner": {
        "h": 250, "w": 300, "pos": 0
      }
    }
  ],
  "site": {
    "id": "102855",
    "ref": "http://ad32.answers.com/click.php?source=fb&param4=fb-us-de-red&param3=www.answers.com%2Farticle%2F31029589%2Finsanely-useful-life-hacks-to-make-everything-easier&param1=tattoo&param2=67660042&param5=10153631993521186&param6=6049542139960&adt=4342",
    "cat": [ "IAB9-27" ],
    "domain": "www.answers.com",
    "page": "http://www.answers.com/article/31029589/insanely-useful-life-hacks-to-make-everything-easier?paramt=null&param4=fb-us-de-red&param1=tattoo&param2=67660042&s=8",
    "publisher": {
```

```
      "id": "8953", "name": "www.answers.com",
      "cat": [ "IAB9-27" ],
      "domain": "answers.com"
    }
  },
  "device": {
    "language": "en"
    "geo": {
      "country": "US",
      "lon": -80.237,
      "city": "Orlando",
      "lat": 26.638,
      "zip": "33414",
      "region": "FL",
    }
    "dnt": "1"
    "ua": "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8) AppleWebKit/537.13 (KHTML, like Gecko) Version/5.1.7 Safari/534.57.2",
    "ip": "123.145.167.10"
  },
  "user": {
    "id": "55816b39711f9b5acf3b90e313ed29e51665623f"
  }
}
```

```

{
  "id": "80ce30c53c16e6ede735f123ef6e32361bfc7b22",
  "at": 1, "cur": [ "USD" ],
  "imp": [
    {
      "id": "1", "bidfloor": 0.03,
      "banner": {
        "h": 250, "w": 300, "pos": 0
      }
    }
  ],
  "site": {
    "id": "102855",
    "ref": "http://ad32.answers.com/click.php?source=fb&param4=fb-us-
de-red&param3=www.answers.com%2Farticle%2F31029589%2Finsanely-
useful-life-hacks-to-make-everything-
easier&param1=tattoo&param2=67660042&param5=10153631993521186&para
m6=6049542139960&adt=4342",
    "cat": [ "IAB9-27" ],
    "domain": "www.answers.com",
    "page": "http://www.answers.com/article/31029589/insanely-useful-
life-hacks-to-make-everything-easier?paramt=null&param4=fb-us-de-
red&param1=tattoo&param2=67660042&s=8",
    "publisher": {

```

```

      "id": "8953", "name": "www.answers.com",
      "cat": [ "IAB9-27" ],
      "domain": "answers.com"
    }
  },
  "device": {
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      "lon": -80.237,
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      "lat": 26.638,
      "zip": "33414",
      "region": "FL",
    }
    "dnt": "1"
    "ua": "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8) AppleWebKit/537.13
(KHTML, like Gecko) Version/5.1.7 Safari/534.57.2",
    "ip": "123.145.167.10"
  },
  "user": {
    "id": "55816b39711f9b5acf3b90e313ed29e51665623f"
  }
}

```

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Analytics History

- "Can't manage what you can't measure"
- Advertising depends on analytics to:
 - **Target**: define campaign criteria/filters - includes ability to aggregate clusters of identifiers into targetable segments
 - **Track** which identifiers:
 - **Perform** better than others
 - Repeatedly **visit** the same website
 - **Associate** themselves with meaningful geo boundaries
 - **Convert, purchase, engage** with meaningful actions
 - **Measure** afterwards to completes the loop
 - Insights from campaign measurement **inform** targeting again

Analytics Flow



Importance of Identifiers

Characteristics

- Recognize specific browser/device distinct from others
- See ID across multiple interactions
- Has attributes (Age, Gender) and metadata attached
- Use to aggregate historical behavior of browser/device



Uses

- Anti-Fraud
- Brand Safety
- Privacy
- User Experience
- Measurement
- Attribution

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The Cookie is Crumbling . . .

Cookies are increasingly ineffective:

- can only identify a user within a single browser
- ↑ % of browsing is on **mobile**
- ↑ % of activity is in **apps** (do not support cookies)
- Content accessed using more devices and platforms
- Browsers increasingly block 3rd party cookies

Platforms

- Operating Systems
- Browsers
- App Stores
- Social Plug-Ins
- Analytics

Consumer Software

- Search Engines
- Location Services
- Speech Recognition
- Office Suites
- Email Services
- Social Networks
- Cloud Services
- Video / Music Players

Devices

- Mobile devices
- Tablets
- Wearables
- Home Assistants
- Connected Cars
- Virtual Reality



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Browser Cookie Handling Impacts on Ad Tech

	Chrome	Firefox	Safari
Cookies in 1st party context	No Restrictions	All storage is purged from known trackers daily, unless the user has interacted with the site in first-party context within the last 45 days	Default expiration set to 7 days Expiration set to 24 hours on pages with URL decoration when referring domain is a known tracker
Cookies in a 3rd party context	No restrictions * Google Chrome will no longer support 3 rd party cookies mid-to-late 2023 .	Access restricted for known trackers * Firefox SmartBlock preserves functionality while blocking tracking mechanisms in Private & Strict Tracking Protection modes	All access restricted, except with Storage Access API
Protection mechanism	N/A	Enhanced Tracking Protection (ETP) (+SmartBlock)	Intelligent Tracking Protection (ITP)
Default protection mode	N/A	By Default	By Default
Classification of “known trackers”	N/A	Disconnect.me	Algorithmic

Alternatives to Cookies as IDs: Drivers

- Changes are impacting the economics of Identities and Digital Data Flows
 - **Publishers:** Ad prices, fill rates, analytic value
 - **Advertisers:** Return on Ad Spend (ROAS), reach, measurement precision
- Biggest Impacts:
 - EU Regulation (**GDPR**) impact on Google's **FLoC**
 - Apple's ID For Advertising (**IDFA**)/App Tracking Transparency Framework (**ATT**)
 - Apple's **iCloud Private Relay**

"629 of the top 1000 Publishers are passing some kind of 1st party identifier"
- Julian Baring, AdForm

“Post-Cookie” Implications for Identifiers

- Find new ways to track and identify audiences
- New targeting capabilities: contextual targeting, 1st party-data
- 3rd Party for advertising severely limited, if not eliminated
- 3rd Party still likely to be used: more narrow purposes
- Changes how Publishers monetize ad inventory

Deterministic Alternatives to Cookies

Involves tracking a unique, stable identifier, such as an email address, when it is used across multiple **devices** to log into apps and websites.



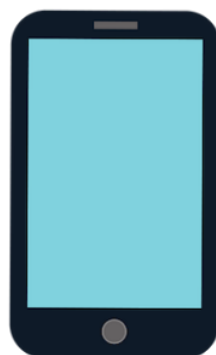
1. User logs in with email



Hashed Email + Cookie ID



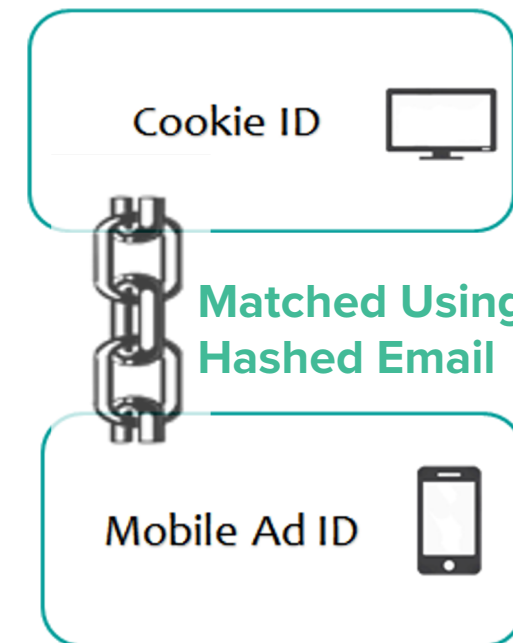
2. User logs in with same email



Hashed Email + Mobile Ad ID



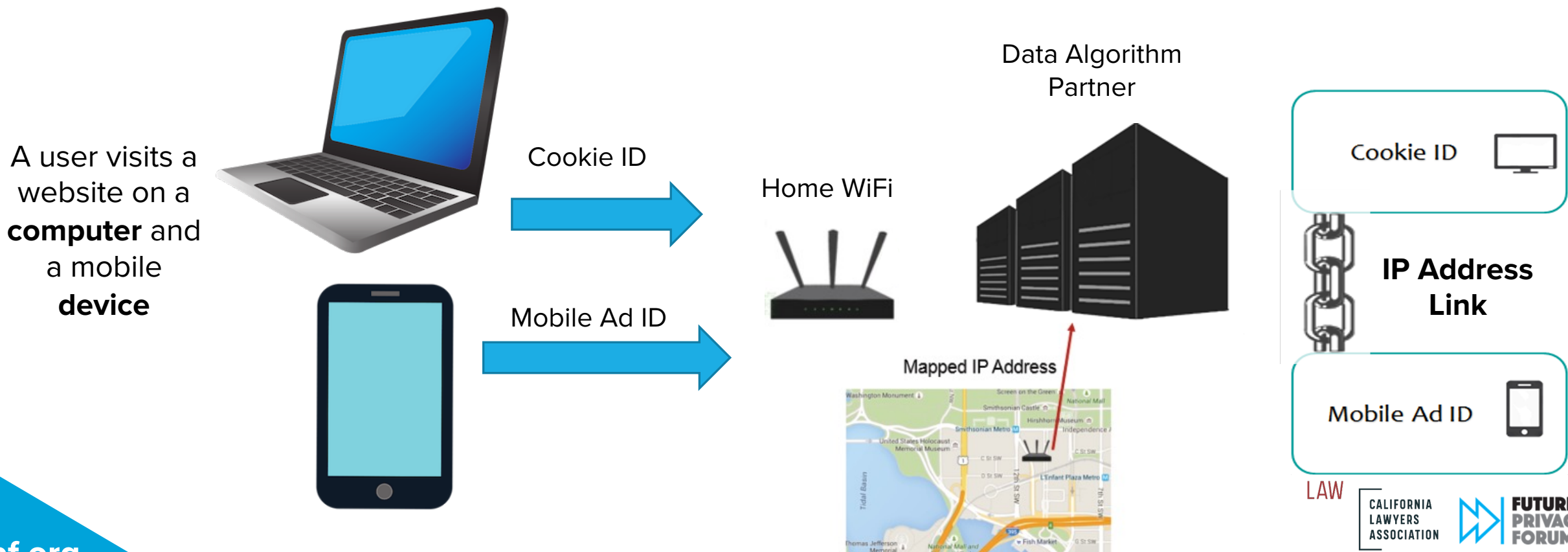
Data Matching Partner



Probabilistic Alternatives to Cookies

Making inferences, using a variety of “signals” or data points, that multiple devices **probably** belong to the same person.

Example: IP Address or Local Router SSID (multiple devices accessing the same home Wi-Fi network)



Probabilistic Alternative to Cookies: Server-Side Recognition (Fingerprinting)

Purposes: Security, authentication, and/or recognition of users over time for advertising and reporting, especially if cookies are not available

- Browser is queried for its agent string, screen color depth, language, installed plug-ins, time zone, etc.
- Few browsers will share "fingerprints"
- May lose effectiveness over time
- Challenging to effectuate opt outs

Are you unique ?

Yes! You are unique among the 4684319 fingerprints in our entire dataset.

The following informations reveal your OS, browser, browser version as well as your timezone and preferred language. Moreover, we show the proportion of users sharing the same elements.



8.93%



43.96%



0.20%

UTC-5

3.73%

en

79.24%

userAgent	// "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/60.0.3112.113 Safari/537.36"
language	// "en-US"
plugins	"Plugin 0: Chrome PDF Viewer; Plugin 1: Chrome PDF Viewer; Portable Document Format; internal-pdf-viewer. Plugin 2: Native Client; ; internal-nacl-plugin. Plugin 3: Shockwave Flash; Shockwave Flash 27.0 r0; pepflashplayer.dll. Plugin 4: Widevine Content Decryption Module; Enables Widevine licenses for playback of HTML audiovideo content. version: 1.4.8.1000; widevinecdmadapter.dll."
platform	// "Win32"
do not track	// "yes"
timezone	// "240"
screen resolution	// "1920x1080x24"

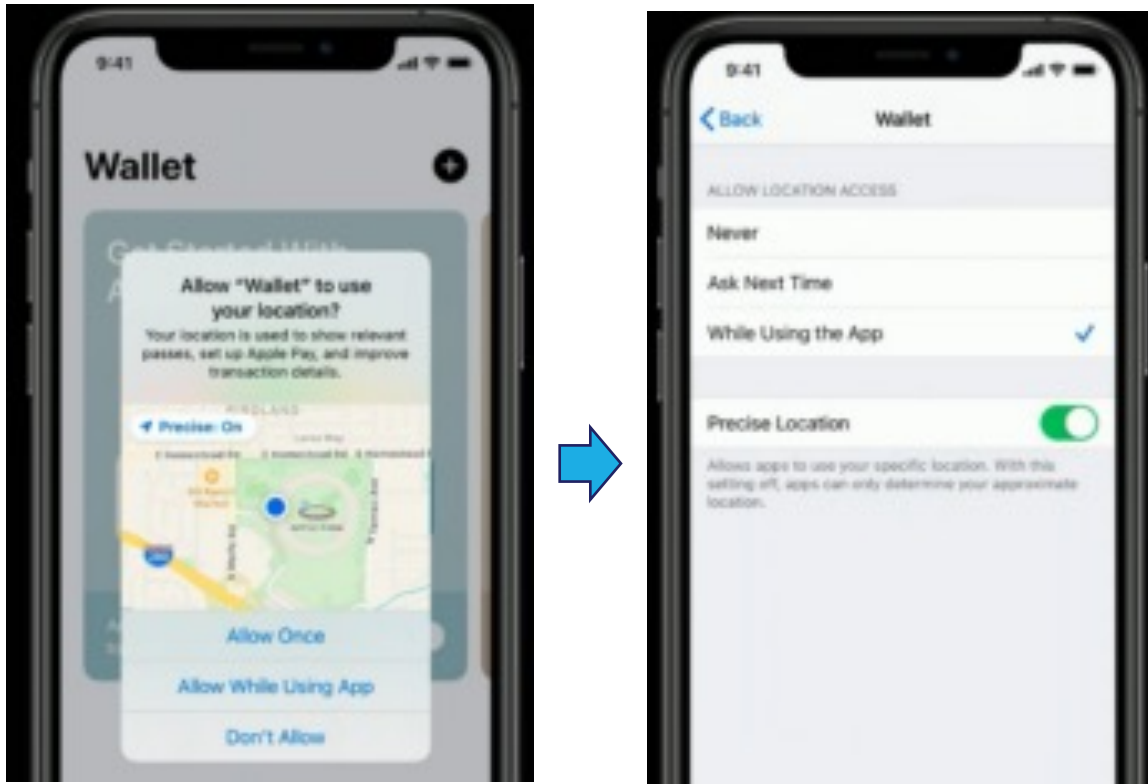
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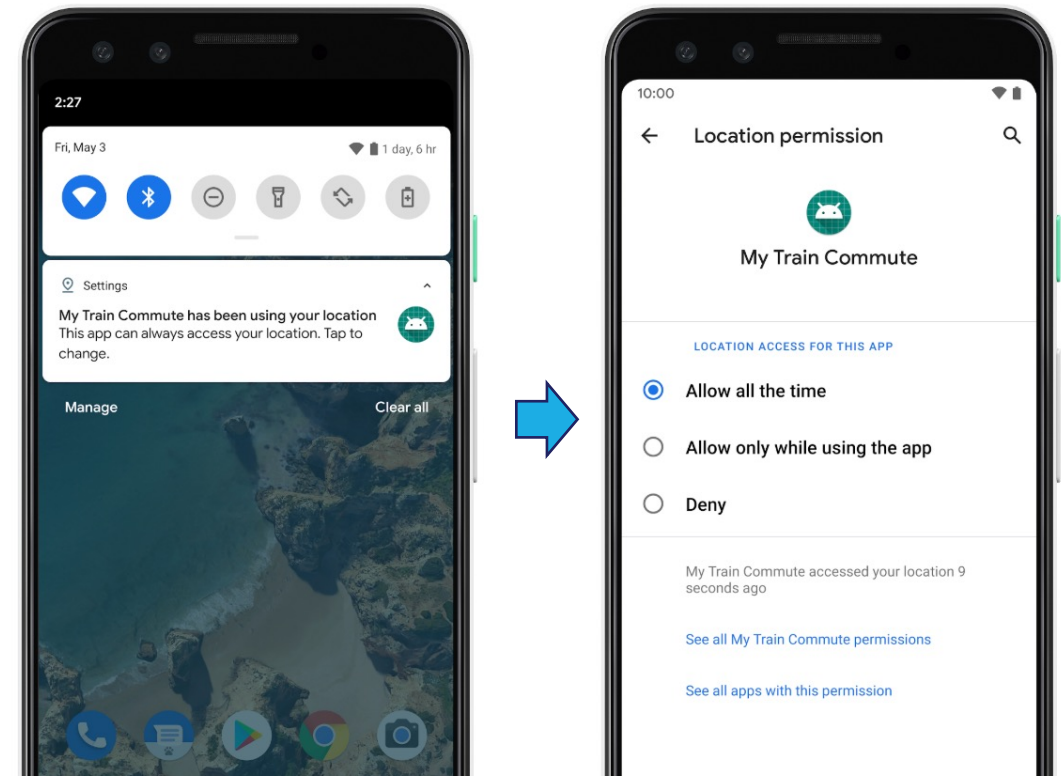
Mobile Platform Controls: Permissions

- Access to device sensor data is controlled by the operating system through **permissions**

Apple iOS



Google Android



Mobile Platform Controls: Advertising IDs

- Apps do not (generally) support cookies
- Platforms introduced advertising-specific identifiers and policies specific to identifiers for advertising:

Apple iOS - IDFA (2013)

Documentation > AdSupport > ASIdentifierManager > advertisingIdentifier

advertisingIdentifier

The UUID that is specific to a device.

Declaration

```
var advertisingIdentifier: UUID { get }
```

Discussion

The `advertisingIdentifier` is an alphanumeric string that's unique to each device, and which you only use for advertising. Use this string for frequency capping, attribution, conversion events, estimating the number of unique users, advertising fraud detection, and debugging. On devices running iOS 14.5 and later and iPadOS 14.5 and later, your app must request tracking authorization before it can get the advertising identifier. For more information on getting the advertising identifier, see [AdSupport](#).

The advertising identifier returns either a unique UUID, or all zeros.

Google Android - AAID or GAID (2014)

Best practices for working with Android identifiers

When working with Android identifiers, follow these best practices:

1. **Avoid using hardware identifiers.** In most use cases, you can avoid using hardware identifiers, such as International Mobile Equipment Identity (IMEI), without limiting required functionality.

Android 10 (API level 29) adds restrictions for non-resettable identifiers, which include both IMEI and serial number. Your app must be a [device or profile owner app](#), have [special carrier permissions](#), or have the `READ_PRIVILEGED_PHONE_STATE` privileged permission in order to access these identifiers.
2. **Only use an Advertising ID for user profiling or ads use cases.** When using an [Advertising ID](#), always [respect users' selections regarding ad tracking](#). Also, ensure that the identifier cannot be connected to personally identifiable information (PII), and avoid bridging Advertising ID resets.

Privacy Sandbox on Android

Privacy Sandbox will introduce new technology that operates without cross-app identifiers – including [Advertising ID](#). This helps apps remain free through ads while your data stays protected.

Privacy Sandbox also aims to limit covert tracking and collection of user data, including safer ways for apps to integrate with third-party developers.

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Mobile Platform Controls: iOS

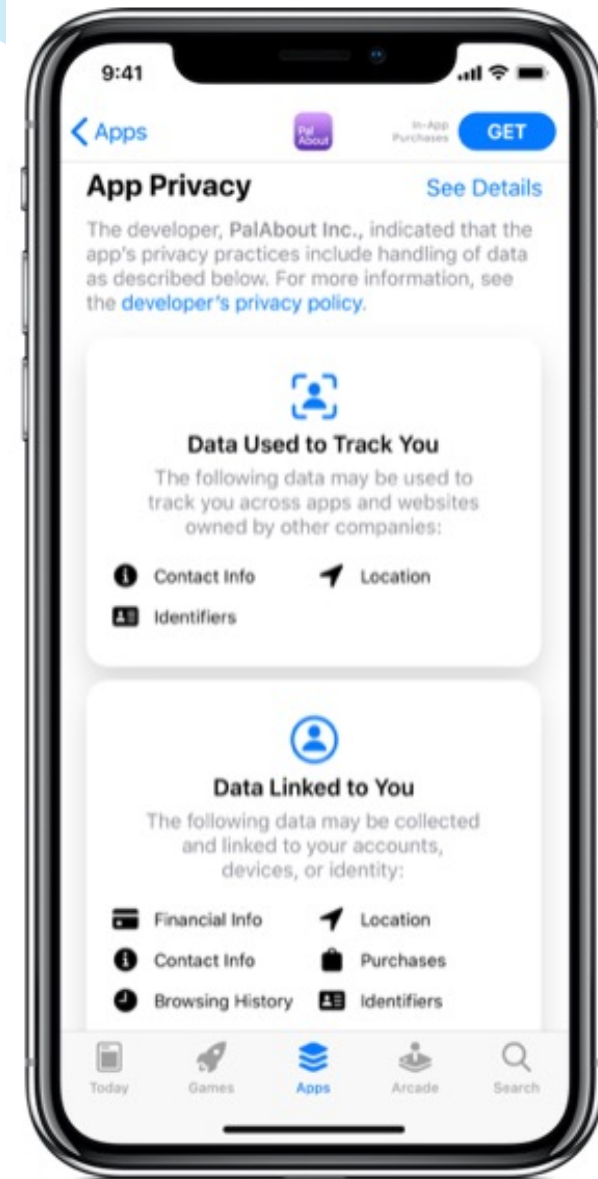
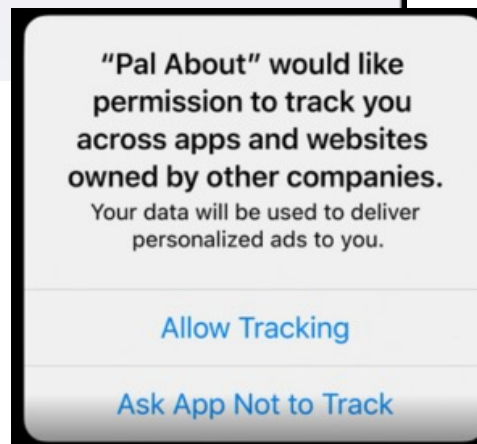
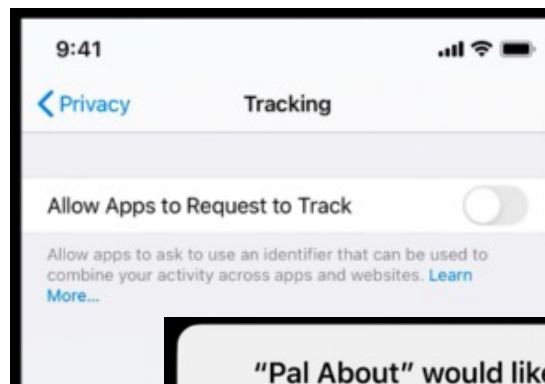
Limit Ad Tracking

Initially, users could select “**Limit Ad Tracking**” (LAT) and a “flag” would be sent. Most treated this as an opt out of targeted advertising.

In **iOS 10**, **LAT zeroed out the IDFA**. This prevents the previously permitted “frequency capping, attribution, conversion events, estimating the number of unique users, advertising fraud detection, and debugging” uses.

Privacy Nutrition Label

In **iOS 14.5** app privacy “**labels**” were introduced and **LAT became opt-in**, requiring apps to provide transparency into app privacy practices and obtain consent to tracking via the **App Tracking Transparency Framework (ATT)** in order to receive the IDFA.



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Today's Agenda

1. Basics of Internet Data Flows & Cookies
2. Evolution of Ad Tech Systems & Key Players
3. Real-Time Bidding & Contemporary Ad Models
4. Analytics & Measurement Dependencies
5. Cookie Limitations & Alternative Technologies
6. Mobile Apps & Platforms
7. What's on the Horizon?

What's On The Horizon

A comprehensive paradigm shift influenced by a variety of stakeholders:

Regulatory/Legislative	Platforms & Defaults	Publishers & Trade Organizations
EU Regulations & Enforcement	Browsers	PRAM (Partnership for Responsible Addressable Media)
US Federal & State Legislation	Mobile Operating Systems	Interactive Advertising Bureau (IAB)
Brazil, China, India . . .	W3C Standards (incl. Google's "Privacy Sandbox")	Proprietary Solutions

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Questions?

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