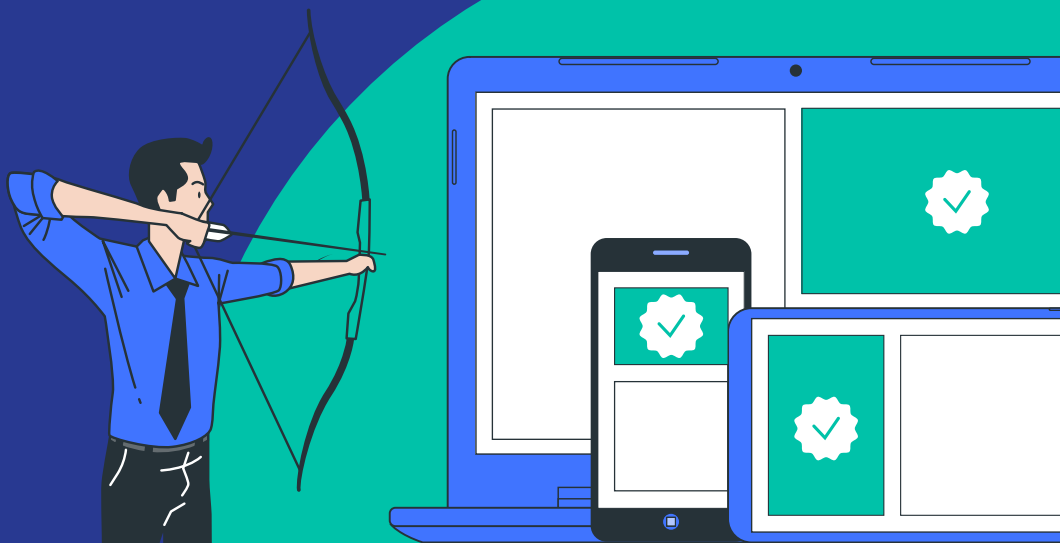
DeviceAtlas®

# The Definitive Guide to Device Targeting for AdTech Platforms

**Leveraging device diversity to unlock the multi-screen advertising opportunity.**

**May 2026**



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# Introduction

## Mobile Advertising: The Payment Engine for App and Mobile Web Ecosystem

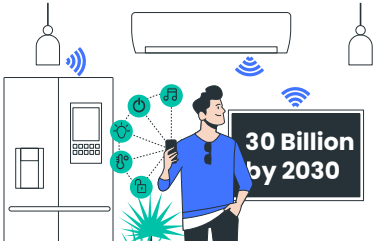
On average, we spend more than 5 hours per day on our phones. More than 300 minutes engrossed in scrolling, typing, watching, listening, etc. That's plenty of opportunities for advertisers to target potential buyers and existing customers.

The global mobile advertising spend is currently over $470 billion, which accounts for a massive 70% of all digital ad spending.

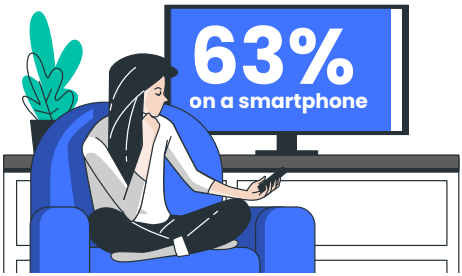
In this paper we delve into the mobile advertising ecosystem, with a particular focus on how AdTech players navigate the realities of a multi-device environment. We look at key players in the ecosystem, along with technical details of how mobile advertising works and how it has evolved in recent years.

**30 billion**

new connected devices in the market by 2030 (Statista)




In the US, 63% of viewers aged 18-24 watch videos on their phone while watching TV (Omdia)



"Half the money I spend on advertising is wasted; the trouble is I don't know which half."

John Wanamaker



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# 8 Ways to target a multi-device world

Advertising has historically suffered from a measurability problem, as famed advertising pioneer John Wanamaker so succinctly stated:

"Half the money I spend on advertising is wasted; the trouble is I don't know which half."

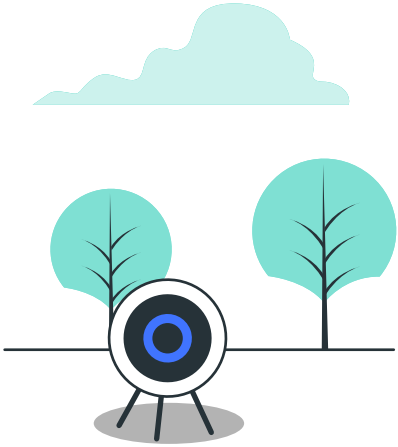
Two of the most common types of targeting traditionally used in digital advertising today are:

## 1. Contextual Targeting

Serving ads to website visitors that are contextually relevant to the content that the visitor is seeing, e.g. display ads for clothing brands on a fashion blog. Keywords in the content or within search queries may also be used as indicators of relevance to show particular ads, e.g. a person browsing a site for healthy recipes may be shown display ads for organic ingredients.

## 2. Behavioral Targeting

Targeting users based on their online behavior such as websites visited, purchase history, items added to a shopping cart but then abandoned the purchase, etc. Many advertisers use retargeting to try and win back abandoned carts by showing display ads of abandoned cart items to users on subsequent websites they visit.



## Third party cookies

Google cancelled its plan to phase out third party cookies in Chrome. The removal of cookies would have a significant impact on how advertisers target and reach audiences, particularly regarding user behavior and retargeting strategies. Instead they have introduced a 'user choice' model whereby Chrome users can opt-in and out of third party cookies as they wish. However, with more user-privacy features in place, the data obtained from third party cookies might not be sufficient for advertisers and marketers.

This is where contextual targeting becomes even more important, but also device targeting, which has emerged as a critical focus. Having visibility of devices and their capabilities allows advertisers to adapt and refine their approaches and deliver more tailored and relevant content directly to users' preferred platforms. This not only enhances the user experience but also ensures more accurate targeting based on device-specific behaviors.

# Extending targeting to the device

Targeting capabilities can be greatly enhanced for mobile advertising by incorporating information about a device and hints from the user's context. There are a number of key pieces of data that can be utilized:

**1. Device type**
**2. Device make & model**
**3. Hardware classification**
**4. Device properties**
**5. Device location**
**6. Connection information**
**7. Mobile sensors**
**8. Device selling price**

Looking at each of these in turn we can go into the targeting possibilities offered.

## 1. Device Type

Both mobile web and native app advertising allows an ad publisher to determine the nature of the device. The specific device type can typically be broken down as follows:

- Wearable Device
- Mobile Phone
- eReader
- Tablet
- Desktop PC / Laptop
- Games Console
- Set Top Box
- Connected TV

This broad device category is a strong input in deciding the most appropriate ad to serve. A person using a tablet is most likely to be in a sedentary context; a person using a smartphone could be in just about any context; a games console user is almost certainly at home and in a recreational frame of mind.

If required, these categories can be segmented further e.g. a phone can be subcategorized as a feature phone, smartphone, phablet, etc. Tablets typically fall into two categories delineated by the 7" and 10" screen size segments.

Such device types offer context clues which can be a strong indicator of propensity to perform certain actions. Statista reported that, while desktop only had 24% overall device traffic share, it accounted for 35% of all online purchases - while mobile is very much the preferred device for browsing, many consumers still make purchases on a desktop device.

## 2. Device Model

Device model data can be used in a wide variety of ways, from the most simplistic ("Download the app on your Samsung Galaxy S26") to more sophisticated campaigns based on specific device models and propensity to perform certain

actions ("Upgrade your iPhone 16 to an iPhone 17 today").

Sometimes an advertising campaign may simply target a definitive list of devices known to be popular within certain segments of the ideal customer profile (ICP). For example, a campaign to target affluent users might focus on recent high-end devices only.

## 3. Hardware Classification

The gap between high and low performing devices is increasing, but being able to distinguish between them can be a real challenge. Using a predetermined grouping to categorize devices based on capabilities offers an innovative way to target potential customers and easily segment low end and premium devices. For example, a campaign could be designed to target only mid-tier phones which have been identified as low converting from analytics reports.

## 4. Device Properties

Some device properties can greatly enhance targeting data:

**Screen dimensions**
This helps to inform the optimum size for ad banners on each device. Not ensuring that the ad is correctly displayed on the screen unnecessarily penalizes the end user and increases the annoyance associated with ads.

**Device operating system**
At the very least, knowing the device OS allows advertisers to present deep links to the relevant app store. Perhaps more interestingly, the OS type can be used to infer information about the user of the device, e.g. iOS users may be less price sensitive than some Android users.

**Year released**
The year in which a device was released can be used to target older devices that may be upgrade candidates.

**HTML5 support**
This can be used to determine the richness of experience that should be served to a given device, in addition to making sure that the ad renders correctly.

**Network protocols supported**
A device that doesn't support LTE should be served an experience that works well at lower speed.

Device intelligence solutions contain many additional properties for each device that can further enhance targeting. It's also worth noting that in many local markets, low-end smartphones make up a significant proportion of mobile advertising and hence are worth catering for.

## 5. Connectivity Information

Unlike desktop PCs, mobile devices tend to connect to the Internet in varying ways, each of which yields different information that can be used for targeting or optimization of the user experience. The following information is often available from device intelligence solutions:

- Network operator—the name and marketing brand of the mobile operator to which the user is currently connected.
- The country from which the user's request originated.
- WiFi connection. It can be very useful to know if a user is connected over WiFi or not since this has a strong bearing on whether the user will tolerate a large download or not.
- Current bandwidth available to the device - in a web context it is possible to determine in real time the bandwidth available to the end user. This information can be used to lighten an experience if appropriate.

These pieces of information can be used as powerful new targeting hints.

## 6. Device Location

One of the holy grails of mobile advertising is availing of the fact that the user's device knows where it is. This information is made available in two ways:

1. Approximately, via cell tower and WiFi hotspot triangulation
2. Accurately, using the device's GPS receiver

Location-specific targeting opens up an entire new range of possibilities that weren't really available with desktop and laptop devices. Geolocation has always been available to some extent via a user's IP address but this has suffered from both accuracy issues and lack of precision, since typically only city-level precision is available.

Where a GPS signal is available (generally in any place with a clear view of the sky) devices can report their position to within a few meters accuracy. This opens up the possibility of hyper-local targeting e.g. advertising to people within a city block or short drive of a certain store. With this great precision comes the user interface problem of how to expose this targeting ability to supply-side customers in a manageable way. GPS location is available for both web apps and native mobile apps.

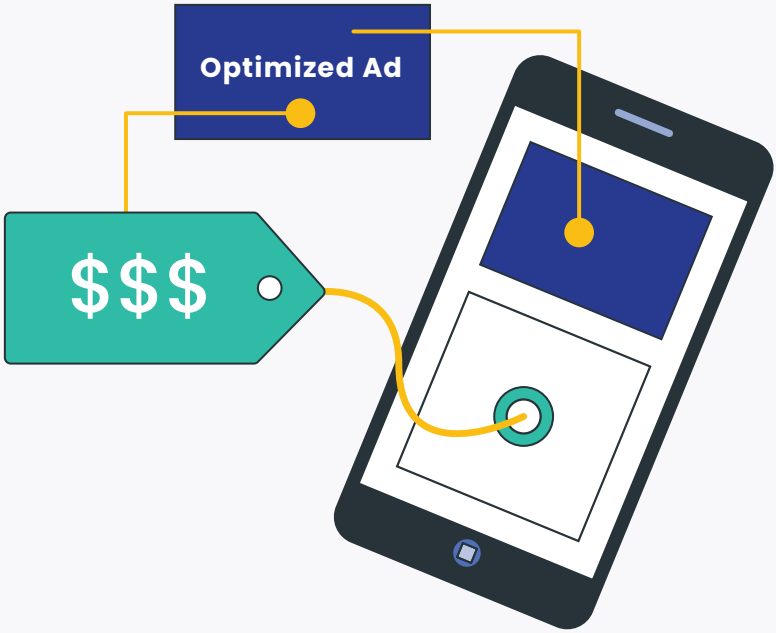
## 7. Mobile Sensors – Accelerometer and compass

Most smartphones also include an accelerometer and compass. These sensors together allow an advertiser to know precisely which way a device is pointing, both in terms of compass direction and orientation in 3D. The physical orientation of a device can be used to infer information about the physical context e.g. if the device is perfectly horizontal it's probably sitting on a table, which means the user is not out and about; if the device is tilted to 120 degrees from horizontal the user is probably lying down. The accelerometers can be used to determine if the user is on the move or not.

As with location information, these sensors are available for both web apps and native mobile apps.

## 8. Device Selling price

Some advertisers may also wish to target by device selling price which provides an indication of the disposable income of the user, and/or propensity to spend on digital devices.



## Designing the campaign management interface

Within the AdTech space, some DSPs utilize full lists of device brands and models to permit creation of very precise campaigns. The risk with providing granular targeting options is that the advertiser may create a highly targeted campaign, which returns limited results because a low proportion of impressions meet the criteria specified. Accordingly some DSPs allow only broad-brush targeting, while others differentiate by enabling precision targeting.

An example of the difference is in targeting by device price as against device positioning, or hardware classification - a campaign may target devices with a selling price in excess of $1,000, resulting in ads served to a relatively narrow range of brands. While this may be the goal, by targeting devices designated with a premium classification this includes devices from diverse brands which have premium positioning and capabilities, but may not be able to command the same price point as brand leaders. This widens the audience and increases the proportion of impressions for which a bid can be made.

Similarly, targeting by year of release allows for a wide pool of impressions, without needing to create narrow criteria. The year of release of a device provides insight into the user habits or disposition, so targeting recently released devices yields different profiles than older devices.

## How is device level targeting implemented?

An exchange will populate the device object in a bid request with a set of device information (the scope of these is defined in an Adcom specification which we cover on pages 19 and 20) and is relatively narrow. Many DSPs limit their targeting to what is contained within the device object. However, leading DSPs typically seek to enable targeting on wider criteria, such as are described above. In order to do this, they need more information than is contained in the device object, and accordingly they embed device intelligence solutions themselves.

As a result, they can assess the impression more deeply and determine the degree of fit with an active campaign, and bid accordingly.

# Targeting in the AdTech ecosystem

## Advertising channels

There are five main channels in which fine-grained device targeting can be achieved:

**1. Web advertising (on mobile or fixed devices)**
**2. In-app advertising**
**3. CTV advertising**
**4. Digital-Out-Of-Home**
**5. Audio advertising**

In order to detect the nature of a device, a server-side component in the ad server typically needs to query a device intelligence solution using some unique attribute of the device as a key.

### Web Channel

In the web context this identifier is called the User-Agent string. It is sent by the browser with every request it makes to a publisher or ad network's server. This string can be used to uniquely identify the device type in greater than 99% of cases and returns a full set of hardware and software properties for the device in question. Some device intelligence solutions also allow real-time client-side properties to be gathered e.g. device location, currently available bandwidth, physical device orientation.

### Native Apps

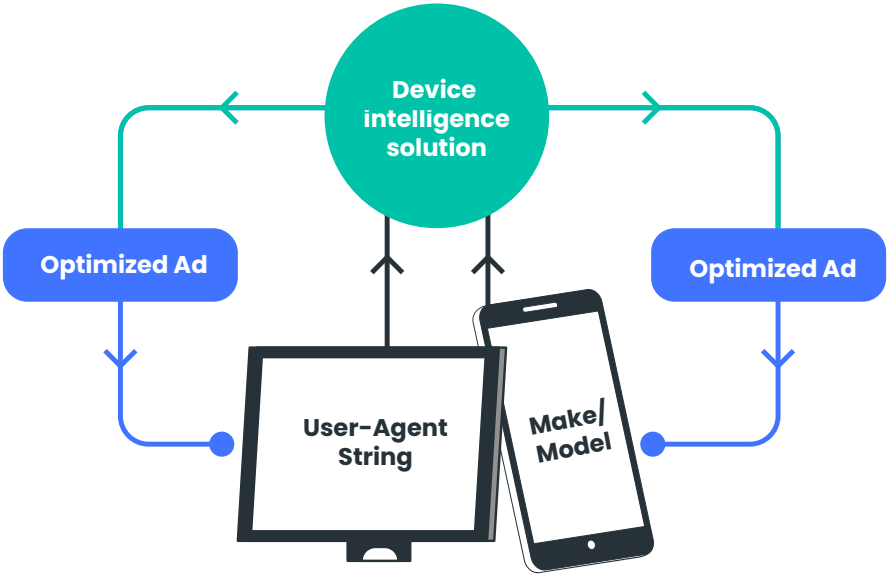
Things are slightly different within a native mobile app. The underlying device APIs available to app makers allow apps to query the model and name of the device. This can be reported to ad exchanges, analytics suppliers or publishers themselves, but the absence of a standard reporting schema has created a problem for the native apps advertising channel for several reasons:

1. App User-Agents are not well structured and do not often include device identifying information.

2. App-reported model names don't necessarily match the marketing name in use by consumers and may vary by region.

3. While the make and model pair may be human readable (e.g. SM-S9180), varying non-standardized device make and model pairs are not suitable to handle device specific ad targeting programmatically without a standard device ID.

4. Make and model alone is not enough for fine-grained targeting—device properties are typically needed also. For full-service advertising platforms that support both in-app and (mobile) web advertising, it's useful to use the same device intelligence platform regardless of the channel in question, since this allows for seamless targeting of devices across in-app and web channels.

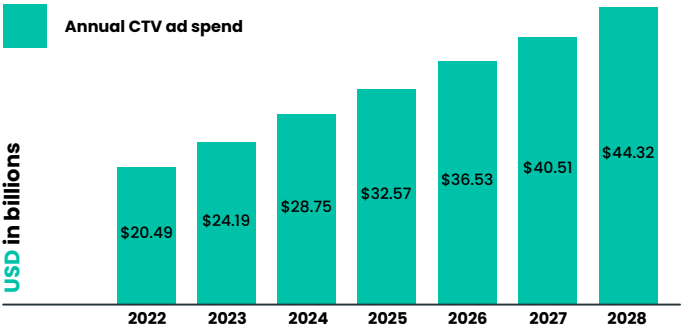


## CTV Advertising

Programmatic video advertising is the fastest growing ad channel, partly due to growth in consumer time on CTV devices but also due to the growth in ad supported offerings from Netflix, Disney, and others. The precision targeting available via CTV as against linear TV makes it a compelling choice for advertising budgets, and the trend may be expected to continue. According to Nielsen, streaming currently represents 43.8% of overall TV consumption in the U.S. Consumers are now streaming content through Smart TVs, game consoles, streaming sticks and set-top boxes.

The precision targeting available via CTV versus linear TV makes it a compelling choice for advertising budgets. According to IAB's 2025 Digital Video Ad Spend and Strategy Report, 68% of advertisers now identify CTV as a critical channel in their media mix. Billions of dollars are being invested in CTV advertising and is only projected to increase over the coming years. Importantly, CTV advertising is largely unaffected by the Chrome/Chromium changes introduced by Google which appear to be having substantial impacts on display advertising. This is simply because of the diversity of TVs, set-top-boxes, games console devices, etc on which OTT video content is served; these generally do not use Google's OS or browser.

**US Connected TV (CTV) Ad Spending, 2022-2028**
Marketer forecasts that CTV ad spend will experience double-digit growth until 2028.




https://www.aidigital.com/blog/addressable-tv-vs-connected-tv

## Digital-Out-Of-Home (DOOH)

Digital Out of Home, or DOOH, is another rapidly growing advertising segment. Increasingly it is becoming programmatically-accessible, but an aspect that holds it back is that the hardware platforms used for DooH are often not identifiable as being DooH platforms, and this causes uncertainty in the ecosystem. For example, many DooH media players such as those used in indoor or outdoor displays use desktop hardware, which utilize generic HTTP Headers. Some use off-the -shelf media players which do not allow identification of the use case being to power a DooH display.

By customizing the user-agent string to contain a token identifying the publisher or custom nature of the application, this can be circumvented. It would be even more effective in driving programmatic budget towards this segment if a classification of DooH displays was introduced into the programmatic environment, so that billboard displays for example were instantly distinguished from point of sale displays.

However, the rise of AI agentic is starting to address some of these limitations and making DOOH more accessible within media stacks. AI is now making DOOH easier to measure and access. For example, automated systems can optimize campaigns in real-time based on a variety of factors such as temperature and traffic. As a result, some leading players are now viewing DOOH as an 'inevitable pillar of modern advertising planning.'

## Audio advertising

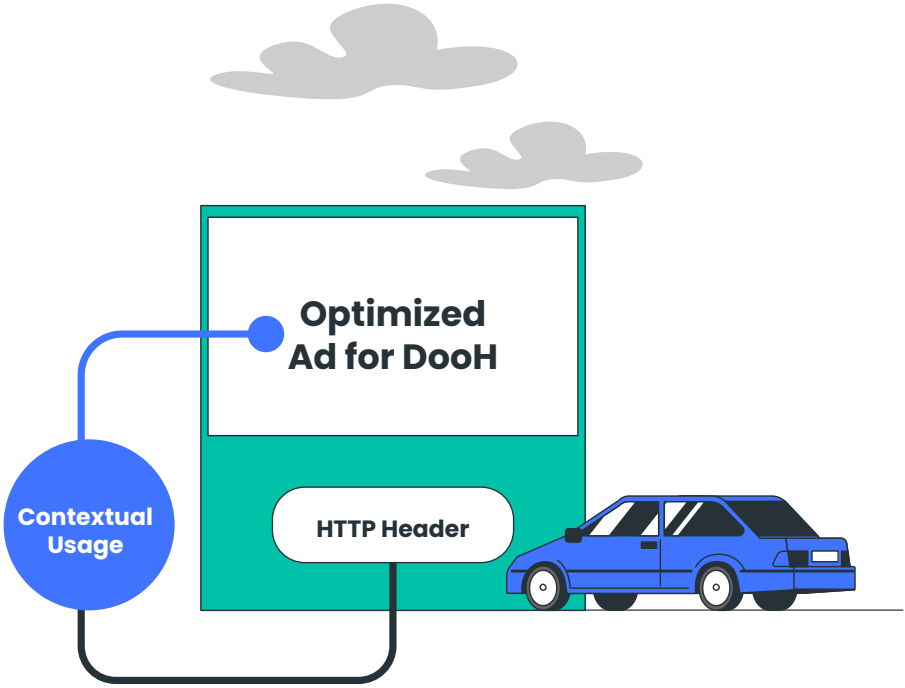
Audio advertising suffers to some extent from a similar problem to DooH; the device is not necessarily identifiable. In practice it is worse with audio advertising, since it is common for the user-agent string to simply contain the name of the underlying player library, which provides no information to the programmatic ecosystem. This limits targeting and hence adoption in programmatic, missing an opportunity to grow in a potentially similar manner to CTV (in that it would outperform linear advertising in some important respects).

## Injecting contextual insights

Where the device type is either non-useful or unidentifiable, targeting in DooH and audio advertising scenarios can still be improved. It's possible to infer the nature of the activity in progress when the headers contain information such as a media library or an application name.

DeviceAtlas exposes such additional insight in a property termed 'Contextual usage'. This property identifies an inferred hardware type, which may differ from the identified hardware type, or provide guidance when no hardware type is identifiable. For example, if a device is identifiable as a mobile phone, but is running an audio app or library as identified by the HTTP Headers, the Contextual Usage property can return 'Audio Player', identifying that this is what the device is currently in use as.

Similarly, desktop hardware running a DooH application can be identified as a DooH media player in the Contextual Usage property.

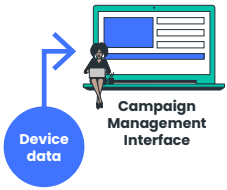


# How device intelligence is used in advertising platforms

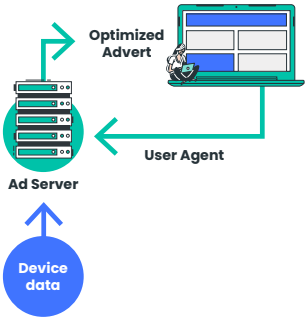
Device intelligence is typically used in advertising platforms to embed an accurate and continuously updated database of connected devices into the platform and provide the ability via an API to precisely detect, in real time, which devices are requesting ads.

This provides ad platforms with the ability to:

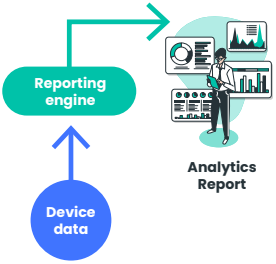
- Target campaigns according to device category
- Enable granular targeting of advertising campaigns by device capability
- Report accurately on fill rates and targeting accuracy




**Campaign Setup**




**Ad Serving**




**Reporting**

## Technology requirements

The mobile ad ecosystem has evolved significantly in recent times; both publishers and advertising agencies are sophisticated shoppers when it comes to choosing ad networks.

There are four key measures used to evaluate a mobile ad network:

**1. Fill Rate.** This is a success measure for an ad network and measures what percentage of inventory slots are successfully filled with an ad, or # ads delivered / # ads requested. An unfilled ad is wasted inventory, representing lost earnings to a publisher. Fill rate issues are generally caused by technical faults within an ad network's servers.

**2. Click Through Rate (CTR).** This is a success measure of an advertiser and is a measure of the percentage of ad impressions that result in a successful click through from end-users.

**3. Response Time.** The response time of an ad network measures how long it takes to respond to a bid request for an available impression. A poor response time means that ads will appear relatively slowly on the web page or app, thus reducing their effectiveness and potentially annoying users.

**4. Targeting Accuracy.** Ad networks must ensure that targeting requests from agencies are matched correctly to end users. Mismatched targeting based on poor device data accuracy makes both the agency and publisher look bad at best, and may cause an ad not to show or a click to fail at worst. Furthermore, poor accuracy will negatively affect the CTR.

Both fill rate and response time metrics require that ad networks use the best technology available to deliver their ads—speed and reliability are paramount characteristics of successful ad networks.

*Speed*

With potentially billions of ad requests going through advertising platforms on a daily basis, the speed that device identification can be carried out is a key technology requirement. To avoid impacts to the

end user major publishers will have stringent SLA requirements in place for ad delivery performance.

*Accuracy*

Data accuracy too is extremely important. Not only is it at the very foundation of Real Time Bidding, it is necessary to ensure that fill rates are as high as possible by keeping the quantity of ad requests from unknown devices to an absolute minimum.

# Integration points

The following are the main integration points of device intelligence with advertising platforms.

## Campaign Management

Device intelligence can be used to power campaign management interfaces with up-to-date device information, ensuring that the advertisers can create campaigns across a wide variety of up to date parameters. This is typical for DSP (Demand Side Platforms) where an advertiser can determine targeting criteria for a specific campaign. It is important for the Ad platform that the device data is programmatically available to it and that device data can be updated on a daily basis.

## Bid request enrichment

Exchanges and/or SSPs populate the device object in the bid request, to enable downstream bidders to efficiently filter impressions that they wish to bid on.

## Bid decisioning

DSPs may make the bid decisions on the data contained in the bid request, or they may supplement it from other sources. This comes at a cost to some degree but also enables finer-grained decisioning, with more data on which to base analyses, towards improving their bidding algorithms. One example is the use of a device intelligence solution to supplement the information contained in the device object; a wide range of contextual data can be used to inform the bid decision.

## IVT identification

Device intelligence forms part of the mix of tools in identifying invalid traffic, to avoid polluting the ecosystem with impressions that will never convert. Device intelligence solutions identify and name good bots (ie self-declared bots), and cases of IVT that can be identified at HTTP Headers level. Further IVT identification is possible when there

is a JavaScript library as part of the publisher integration, to identify discrepancies between the device identification and capabilities.

## Data Management Platform

DMPs maintain details of user profiles; these can be enriched with details of the devices associated with those users, enabling targeting by a range of different criteria. SSPs and/or DSPs may draw on third party DMPs, or may maintain their own, to deepen their knowledge of the impression.

## Ad Serving

Device intelligence can also be used to provide high speed device recognition, permitting optimal ad selection for the visiting device. Ad serving platforms can utilize an accurate device detection to determine which version of an ad to serve to a device. Serving optimal ad content, maximizes fill rates, click-through rates and ensures the ad server maintains a high accuracy rate.

## Reporting/Analytics

Accurate device intelligence plays an important role in providing the data needed to support reporting requirements for the different players in the advertising chain.

On the one hand, it is used to support the analytics requirements of advertisers and publishers, to measure campaign effectiveness across different devices.

On the other hand, as all ad platforms generate reports and audit trails, using a well established device intelligence solution such as DeviceAtlas ensures that reporting aligns with the major commercial web analytic platforms in use by a large proportion of Fortune 500 companies. Such an alignment of reports can save account managers significant headaches and work when it comes to reconciling reporting data from multiple sources.

# Real Time Bidding

Real Time Bidding (RTB) has emerged as a standard to enable an efficient marketplace for ad inventory. RTB is the industry's solution to the problem of creating this marketplace and standardizing the interaction between its actors. The OpenRTB Consortium was formed in November 2010 with this purpose in mind and today eighty companies currently participate.

RTB has been around for longer on the fixed web but its features really shine in the mobile world where so much more contextual information can be added into the mix. The RTB full specification is published in an open spec on the Interactive Advertising Bureau's website, the current version being OpenRTB 2.6.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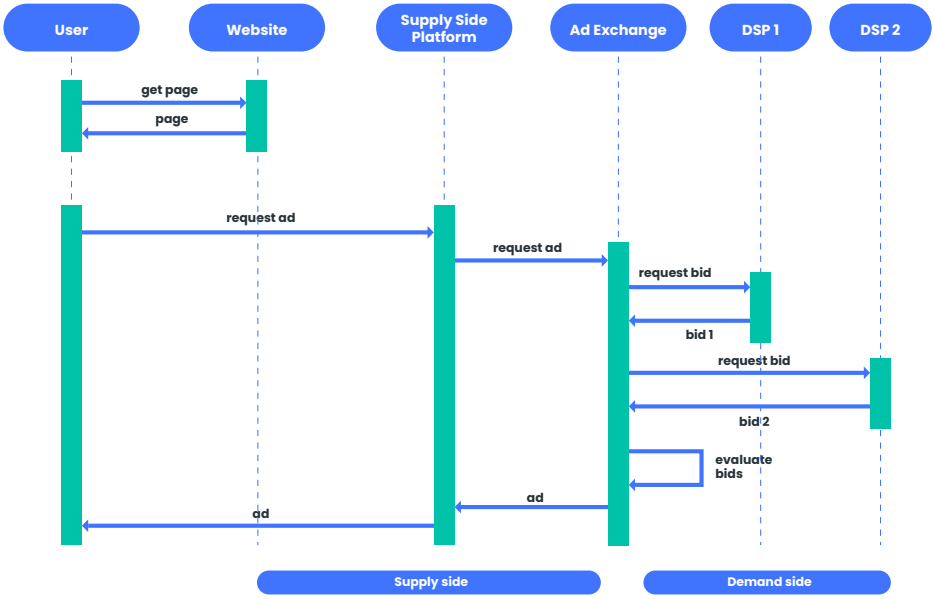
## How It Works

Clearly, the interactions between entities in the ad ecosystem are going to be complex due to the number of parameters that are exchanged. RTB is a real-time protocol that allows demand-side entities to make bids on impressions as they become available. The following sequence diagram shows a simplified version of the flow.

1 http://www.iab.net/rtbproject
2 http://openrtb.github.io/OpenRTB/



## Where device intelligence fits in

To ensure that bidders have all of the information they need to make an informed decision on a bid, and the amount they're prepared to pay, the RTB specification supports a very rich set of metadata about each impression available.

The following is a simplified list of the information made available in the bid request sent out by the ad exchange:

- If the bid request is for impressions in a native app or website.
- Details of creative - banner or video, dimensions, formats etc
- Description of site or app
- Content description
- Description of Publisher
- Description of Producer
- User's segmentation details - DOB, gender, associated keywords and buyer IDs.
- Response window for bidders - the time (measured in milliseconds) bidders have to respond to the request for bids.
- User's device properties - everything known about the user's device.

The site visitor's device information is part of the information contained in the RTB specification and lists everything known about the user's device. This part of the bid request is called DeviceObject.

DeviceObject effectively passes a user's device context information back to advertisers bidding on inventory.

If you are a publisher selling inventory through RTB enabled SSPs (Supply Side Platform), you want to be sure that your inventory is not being undervalued. This is only possible where the SSP can accurately populate device information based on the UA string.

Device description repositories like DeviceAtlas, are used at different points throughout the RTB ecosystem to convert the UserAgents of visiting devices into rich device information to help the bidder assess the full value of the impression.

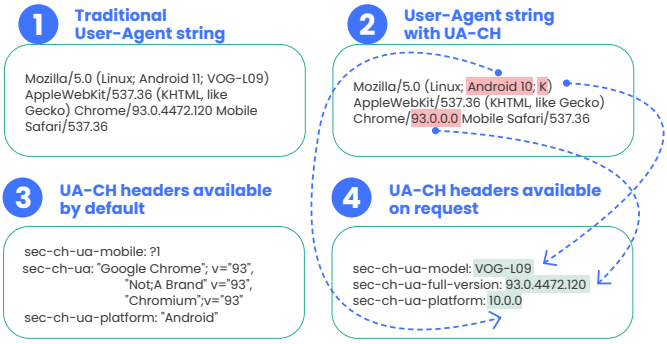
The Device Object currently contains specific details of the user device (see table on page 26) and device intelligence solutions such as DeviceAtlas are responsible for populating that information at the device level.

# User-Agent Client Hints

Some years ago, Google made a proposal to change how browsers identify themselves to web servers. This proposal resulted in the introduction of the User-Agent Client Hints initiative which has greatly impacted the web ecosystem and particularly the programmatic advertising space.

Much of the granular information about devices has now been removed from the User-Agent string such as device model, operating system version and browser version details, and have been replaced with placeholder tokens. It's possible to obtain this granular information but only via requesting additional User-Agent Client Hints (UA-CH) headers from the browser on each subsequent request.

An example of this change can be seen below with a traditional User-Agent string and one with User-Agent Client Hints:




Following Google's decision to reduce User-Agent strings on Chromium browsers, OpenRTB 2.6 includes the addition of a new field: the sua object, i.e. the 'structured user-agent'. This new object indicates browser, platform and a mobile signal and contains the actual client hints headers needed to resolve the device.

| Attribute | Type | Description |
|---|---|---|
| ua | string | Browser user agent string. This field represents a raw user agent string from the browser. For backwards compatibility, exchanges are recommended to always populate 'ua' with the User-Agent string, when available from the end user's device, even if an alternative representation, such as the User-Agent Client-Hints, is available and is used to populate 'sua'. No inferred or approximated user agents are expected in this field. If a client supports User-Agent Client Hints, and 'sua' field is present, bidders are recommended to rely on 'sua' for detecting device type, browser type and version and other purposes that rely on the user agent information, and ignore 'ua' field. This is because the 'ua' may contain a frozen or reduced user agent string. |
| **sua** | **UserAgent object** | **Structured user agent information defined by a UserAgent object (see Section 3.2.29). If both 'ua' and 'sua' are present in the bid request, 'sua' should be considered the more accurate representation of the device attributes. This is because the 'ua' may contain a frozen or reduced user agent string.** |
| ip | string | IPv4 address closest to device. |
| ipv6 | string | IP address closest to device as IPv6. |
| devicetype | integer | The general type of device. Refer to List: Device Types in AdCOM 1.0. |
| make | string | Device make (e.g., "Apple"). |
| model | string | Device model (e.g., "iPhone"). |
| os | string | Device operating system (e.g., "iOS"). |
| osv | string | Device operating system version (e.g., "8.1.0"). |
| hwv | string | Hardware version of the device (e.g., "17" for iPhone 17). |
| h | integer | Physical height of the screen in pixels. |
| w | integer | Physical width of the screen in pixels. |
| ppi | integer | Screen size as pixels per linear inch. |
| pxratio | float | The ratio of physical pixels to device independent pixels. |
| js | integer | Support for JavaScript, where 0 = no, 1 = yes. |
| geofetch | integer | Indicates if the geolocation API will be available to JavaScript code running in the banner, where 0 = no, 1 = yes. |
| flashver | string | Version of Flash supported by the browser. |

| Attribute | Type | Description |
|---|---|---|
| language | string | Browser language using ISO-639-1-alpha-2. Only one of language or langb should be present. |
| langb | string | Browser language using IETF BCP 47. Only one of language or langb should be present. |
| carrier | string | Indicates if the geolocation API will be available to JavaScript code running in the banner, where 0 = no, 1 = yes. |

https://iabtechlab.com/wp-content/uploads/2022/04/OpenRTB-2-6_FINAL.pdf

## The impact of User-Agent Client Hints in programmatic advertising

The effect of removing information from the Chrome User-agent string is loss of insight into the device, OS and browser throughout the advertising chain. The availability of the information in the Client Hints headers mitigates this in theory, but there are multiple hurdles.

Firstly: access to high entropy headers. What proportion of publishers enable access to this information by exchange or SSP partners?

Secondly: the provision of the information by the exchange or SSP in the device object for downstream DSPs. This creates a dependency on the exchange both moving to OpenRTB 2.6, and populating the SUA object.

Thirdly: parsing of the SUA object by downstream DSPs. What proportion of DSPs have the means to parse the SUA object?

There is currently limited public data on the impact of Google's initiative on the OpenRTB ecosystem, however, a DSP has reported that 55% of impressions include a populated SUA object. If this is representative, the implication of this is that for the 70% of web traffic which is on Chrome or Chromium, only one in fifty impressions can be targeted by device. The brand, model and capabilities of the rest are unknowable by DSPs.

The sequential nature of the dependencies that Google's initiative has created suggests a material loss of competitiveness of Open RTB platforms as against advertising ecosystems where there is deterministic knowledge of the user, such as is provided by Google and Meta for example.

## Future RTB directions

The following device types are included in OpenRTB 2.6 (Source: AdCOM 1.0):

1 **Mobile/Tablet - General**
2 **Personal Computer**
3 **Connected TV**
4 **Phone**
5 **Tablet**
6 **Connected Device**
7 **Set Top Box**
8 **OOH Device**

It's unclear what the term 'Connected Device' means specifically here. Since OpenRTB 2.5, OOH Device has been added to the list.

There are also some other missing device types, such as e-readers, games consoles and wearable devices, which may provide a future direction to the RTB spec. Given the targeting potential of these categories it seems near-certain that this category will expand.

DeviceAtlas is actively working with the IAB to help define the future direction of the RTB standard.

“Leading advertising platforms will be able to distinguish themselves by their ability to target successfully as the landscape evolves to envelope new devices, contexts and use cases. ”

# Conclusion

All indications are that the exploding device diversity we've witnessed over the past decade or so is set to continue, if not accelerate.There are multiple drivers behind this trend.

Firstly, as Moore's law continues its inexorable progress, it becomes feasible to incorporate connected devices into ever more areas of our lives, and into devices where it would previously have been unfeasible. This trend stems from both the reducing physical size of devices as well as their decreasing cost.

Secondly, the rise of the Android mobile operating system has fundamentally changed the landscape for device manufacturers. In this new landscape it has become significantly easier and cheaper for manufacturers to push out new products and innovate on hardware, because so many of their costs are reduced by the availability of a free, world-class OS. In particular, this lets manufacturers that have traditionally been better at hardware than software to compete with the best on the world stage.

Thirdly, cellular data is getting cheaper, faster and more ubiquitous, enabling use cases that weren't previously viable e.g. cellular connectivity in Amazon's Kindle, numerous recent connected car models and GPS devices.

Finally, cheaper manufacturing enabled by globalization and commodity off-the-shelf components has drastically reduced the physical cost of building mobile devices, an effect that is further bolstered by a market with over 6 billion new connected devices entering it every year. This reduced cost lowers the barrier to entry for manufacturers, driving further innovation and so creating a virtuous cycle.

All of these factors, taken together, make for a convincing case that the growth in device diversity is set to continue for the foreseeable future. The first wave of diversity includes wearable devices ("wearables"), meaning smart watches, fitness/health trackers and head-mounted devices. In parallel with this wave we now see many more connected vehicles coming to market as vehicle connectivity moves downwards from luxury market to mass market.

These underlying trends mean more channels for mobile advertising and

additional targeting opportunities from each new class of device and the user contexts that they engender.

As connected devices embed themselves ever deeper in our lives, the importance of device and contextual information will increase. A poorly targeted ad banner on a web page is a minor inconvenience; a poorly targeted ad on a watch or head-mounted device is likely to cause aggravation. Device fragmentation is sometimes cited as a reason why mobile advertising got off to a relatively slow start but in fact it is a strong targeting opportunity and differentiating feature for ad exchanges.

Leading advertising platforms will be able to distinguish themselves by their ability to target successfully as the landscape evolves to envelope new devices, contexts and use cases. The key to evolving apace with the landscape will be understanding the device and its capabilities, and the associated user contexts.

Mobile advertising is a fundamental building block of the mobile landscape, acting as it does as the de facto monetization instrument for countless apps and sites. As assured as its future is, its very form is likely to evolve significantly in the near term future to track changes in devices and use cases. The only certainty is rapid evolution. Demand side and supply-side companies will need to adapt quickly to track these changes but if they do so, the future looks to be very bright.

# More information

**DeviceAtlas's** high-speed APIs and accuracy make it the solution of choice for today's online advertising industry:

- To power the campaign management interfaces with up to date device Information.
- To provide high-speed device recognition, for optimal ad selection per device.
- To support analytics requirements, measure and report on campaign effectiveness across different devices and platforms.

DeviceAtlas powers hundreds of billions of ad placements on a monthly basis worldwide, due to its market leading performance and reliability.

Contact **sales@deviceatlas.com** to organize a trial or visit **www.deviceatlas.com**