How Mobile Ad Tracking Impacts App Marketing Results

Comparisons, advantages and limitations of today’s ad tracking technologies

Advertising Identifier • Facebook ID • Android Referrer
Digital Fingerprinting • HTML5 Cookie • MAC Address
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Introduction

For marketers responsible for promoting mobile apps, ad tracking has become a mission critical component of most app marketing programs. By being able to attribute downloads, and post-download events like in-app purchases, to the marketing source, marketers are realizing a powerful way to gain insights that drive business and deliver outstanding ROI.

But there are challenges associated with choosing a mobile ad tracking solution. There is no industry standard for mobile ad tracking and reporting, so marketers are on their own to make sense of the different technologies and determine the best approach for their businesses. Several tracking solutions are on the market today, each employing very different approaches. It’s difficult to determine which technology to implement because many of the options have trade offs, and support for each technology can vary by ad network. Further complicating matters are the ongoing changes and privacy concerns, making it difficult for marketers to choose a tracking technology with confidence.

This paper helps you make sense of it all. It provides detailed overviews and comparisons of today’s mobile ad tracking technologies, and provides practical advice to help you decide what may be the right ad tracking technology for your business.

Tracking your app marketing campaigns is critical to your success. So let’s get started and help you select the right ad tracking technology.
48% of app marketers’ greatest mobile advertising concern is ad tracking and measurement.

(Source: Mobile Marketing Association (MMA) Survey, July 2012).
Mobile Ad Tracking Technologies

Unlike the online world where most tracking is cookie based and works consistently across the industry, mobile uses a range of different tracking technologies that vary from ad network to ad network and by platform. Unlike its web advertising counterpart, in-app mobile advertising does not support third-party cookies – or even first-party cookies – which is a standard and easy-to-implement approach.

On Android, ad tracking is relatively simple, through use of the industry-standard Android Referrer. But on the iOS platform, ad tracking is more complex, with a range of ad tracking choices and varying capabilities that address different business goals.

The four primary types of ad tracking technologies available today are:

1. ID-Based Tracking (Apple Advertising Identifier, Facebook ID, MAC Address)
2. Android Referrer
3. Digital Fingerprinting
4. HTML5 Cookie Tracking
## Mobile Ad Tracking Technologies

<table>
<thead>
<tr>
<th>Device Identifier</th>
<th>Digital Fingerprinting</th>
<th>HTML5 Cookie/Web Tracking</th>
<th>Android Referrer</th>
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<tr>
<td>• Advertising Identifier, Facebook ID, MAC Address</td>
<td>• Takes “digital fingerprint” of device configuration</td>
<td>• Small file stored in local storage (“cookie-like”)</td>
<td>• Standard functionality for Google Play</td>
</tr>
<tr>
<td>• Unique IDs for click, conversion, post-download events are matched to attribute ad spend</td>
<td>• Matches configuration at time of conversion</td>
<td>• Clicks and conversions involve a “flip” to Safari to gather ID data</td>
<td>• Standard URL-based link</td>
</tr>
<tr>
<td>• Requires integration between ad network and advertiser</td>
<td>• Privacy friendly – no identifiers are collected</td>
<td>• ID data is passed via a redirect to the Tracking DB</td>
<td>• Carries embedded information on conversion source</td>
</tr>
<tr>
<td>• Provides accurate attribution</td>
<td>• Uses statistical estimations</td>
<td>• Accurate attribution</td>
<td>• Accurate attribution</td>
</tr>
<tr>
<td></td>
<td>• Has an error rate</td>
<td>• Impact on user experience</td>
<td></td>
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ID-Based Tracking

ID-based ad tracking approaches are used primarily on Apple’s iOS platform and are by far the most widely used technique for tracking on iOS devices. This approach involves capturing a unique device ID at the time the user taps an ad, and also at the time of a conversion. An ID-matching process then matches these IDs to determine the marketing source (ad network, ad creative, ad size, etc.) that should receive credit for the conversion. Each of these IDs is a unique anonymous identifier linked to the device on which the downloaded app resides. It is expected that advertisers will transition to the Advertising Identifier, Apple’s recommended ad tracking mechanism.

There are other ID-based alternatives for iOS, including MAC Address, and MAC Address variants such as ODIN. With the release of Apple’s Advertising Identifier, support for ODIN has waned. There have been other attempts to create tracking identifiers, such as OpenUDID and SecureID - these never gained market acceptance and have been withdrawn from the market. In addition to general-purpose identifiers, Facebook has its own unique id-based tracking mechanism.

The UDID – Deprecated by Apple

Apple has announced that as of May 1, 2013, it is discontinuing approval of any app that utilizes the UDID. Historically, the UDID (Universal Device Identifier) was the most commonly employed device ID for iOS. The UDID is a unique number that is non-erasable and is tied to a specific hardware device. In September 2012, Apple released iOS 6 and included a replacement for the UDID, the Advertising Identifier. The Advertising Identifier works in a similar manner to the UDID, but allows the user to reset the identifier and has an opt-out mechanism from behavioral tracking.
App developers who are currently using the UDID in their apps should make sure to discontinue use of the UDID and switch to an alternate tracking method before their next submission to the App Store.

Following is an overview of ID-based ad tracking technologies:

**Advertising Identifier:** The Advertising Identifier, which was released with iOS 6 in September 2012, is Apple’s recommended tracking technology. It is expected that the Advertising Identifier will become the dominant tracking method for iOS-based traffic.

**MAC Address:** This includes the ODIN standard, plus several hashed variants. This method is supported by a number of ad networks as their primary tracking technology. It is controversial because it is directly linked to the hardware device and cannot be reset.

**Facebook:** Facebook has a proprietary, ID-based tracking system that it utilizes in conjunction with its partners. Facebook has a set of guidelines around usage and carefully screens its partners to ensure compliance with its data security guidelines.
ID-Based Tracking

**Advantages:**
- Provides very accurate attribution.

**Disadvantages:**
- Requires transfer and synchronization of IDs between the advertiser and ad networks in order to attribute marketing spend properly.
Android Referrer

Google provides a single standard method for tracking app downloads called the Android Referrer. The Referrer provides a method that allows advertisers to pass tracking parameters to the Google Play Store, which then in turn passes these parameters back to the source at the time of app download.

The Android Referrer provides reliable closed-loop attribution. The process is simple: first, the user clicks on an ad that directs the user to the Google Play Store. Ad tracking information is then passed in the Referrer. After the user downloads the app, the device passes the Referrer and the associated tracking information back to the advertiser, allowing the advertiser to match the initial click with the download and the marketing source.

There are a small number of ad networks that don’t support the Android Referrer, but employ an ID-based approach that uses the IMEI or the Android ID.
Android Referrer

**Advantages:**
- Provides accurate and reliable attribution.
- Standard functionality for all Android devices.

**Disadvantages:**
- Android Referrer is supported only on Google Play.
Digital Fingerprinting

Digital Fingerprinting is a tracking technique that attempts to attribute conversions to marketing sources without the use of direct ID-based identifiers. This technology provides broad access to both in-app and mobile web traffic and is viewed as privacy-friendly.

At the time of an ad click, a “fingerprint” is stamped with user device configuration data, such as device type, operating system, IP address and potentially dozens of other attributes. This technology then attempts to match this fingerprint to subsequent corresponding fingerprints generated during user actions such as downloads, launches, purchases and others.

The challenge with Digital Fingerprinting is that it uses statistical estimation techniques that can cause false or incomplete matches, which leads to an error rate. For example, a conversion may fail to match if, in the time between the initial tap on an ad and the download, the user switches from the mobile network to Wi-Fi, thus changing the IP address of the device. In addition, many mobile networks have large numbers of users sharing the same IP address, and it is possible for users to have devices with the same attributes, something made more likely by the limited number of Apple device configurations.

Finally, Digital Fingerprinting often utilizes click URLs which redirect an ad click to a tracking server before going to the app store. Some networks, most notably Apple’s iAd network, do not support click URLs. In addition, some ad networks allow their publishers to opt out of click URL redirects, and there are those that simply choose not to support this capability. The impact of using a technology that relies only on click URLs can be significant as it may lock you out of as much as a third of the available mobile advertising inventory. For this reason, Digital Fingerprinting is often viewed as a second tier tracking method that should be used when other methods are unavailable, or when there is an overriding concern about privacy.
Digital Fingerprinting

**Advantages:**
- Avoids privacy concerns associated with identifiers.
- Versatile technology that can be used for tracking mobile web traffic and other promotional channels.

**Disadvantages:**
- Not entirely accurate due to the use of statistical estimation techniques.
- Many publishers do not support click URLs, which lock advertisers out of as much as one-third of the available mobile advertising inventory.
**HTML5 Cookie Tracking***

This technology is utilized on iOS devices and involves storing a cookie-like file on the device. The process works in a manner similar to cookie-based tracking on the web, though it technically does not use actual cookies. When the user clicks on the ad, an identifier is stored on the device. This identifier can then be retrieved at the point of conversion. Because iOS does not allow apps to write cookies, this method redirects to the Safari browser, and writes to the device a lightweight cookie-like file with an identifier. Some marketers object to the redirect since it briefly flashes an interim screen before the app begins to download, which can hamper the user experience.

*This technology is sometimes referred to by other names. For example, some vendors describe it as "web tracking," while others simply refer to it as a proprietary tracking mechanism."
HTML5 Cookie Tracking

**Advantages:**
- Provides accurate tracking*.
- Easy for marketers to understand because it operates similarly to tracking on the web.

*There may be some tracking loss due to users abandoning during the redirect.

**Disadvantages:**
- Requires a redirect to a Safari page on the ad click, and also on the first launch of the app.
- Utilizes click URLs, which certain networks do not support, and may lock you out of a portion of the available advertising inventory.
How Tracking Technologies Affect Your Available Ad Inventory

A key challenge for app marketers is that ad networks and other traffic sources are not consistent in their support of the various ad tracking technologies. Each network supports its preferred tracking methods. Therefore if you, as an advertiser, choose to employ only one tracking technology, you will only be able to work with the networks that support that particular technology – which means you will have access to less media inventory.

It is ideal for you to support as many ad tracking technologies as you can, to give your business access to as much media inventory as possible. This will give you the best opportunity to generate large download volumes, and allow you to identify, and then focus on, high-performing media. Access to a wide range of media sources also helps you avoid audience saturation.

The following page provides a high-level summary of the technologies that are supported by the various categories of mobile ad providers. There is no single technology that addresses all types of mobile advertising inventory. Since limited access to inventory can affect your business, marketers need to consider solutions that provide access to multiple tracking technologies.
No single tracking technology addresses the entire market. Therefore, marketers should consider solutions that provide access to multiple tracking technologies.

**Ad Networks:**
Aggregate traffic from publishers and provide a single point of contact and ordering for advertisers. There is a great deal of variety in the tracking technologies supported by the networks.

**Incentive Networks:**
Provide a reward to a user that downloads an app. Since a financial transaction occurs, it is critical that the user be identified reliably. For this reason, incentive networks support ID-based methods and/or the Android Referrer.

**Premium Traffic:**
Publishers with their own ad serving capabilities and sell inventory direct to very large buyers or aggregators. They support a variety of tracking technologies.

**Real-Time Bidding Exchanges (RTB):**
A rapidly growing advertising channel where high-speed, automated technology runs auctions on an impression basis. RTB exchanges support a variety of tracking technologies.

**Facebook:**
Facebook provides an opportunity to reach precise sets of mobile users via its rich data capabilities. Facebook provides an ad unit designed specifically for promotion of apps, and has its own tracking technology that provides accurate mobile measurement. Facebook makes this tracking infrastructure available to selected partners.
Getting the Most Value from Ad Tracking through Attribution and Optimization

We’ve just discussed the different mobile ad tracking technologies, along with the advantages and disadvantages of each. Tracking technologies are just the first piece of the puzzle. The second piece is how to put those technologies to use, by turning tracking insights into actions that drive your business.

Tracking and attribution can make campaign data actionable and impactful, by enabling the ability to use this data to optimize marketing programs.

**Integrated Tracking, Attribution and Optimization - the Key to Outstanding Marketing Performance**

Sometimes marketers opt for tracking solutions that simplify management reporting, but are less than ideal for supporting an ad optimization process. However, optimization is a critical component of every app marketing program, and this is really is why we track ads in the first place – to make sure we’re spending our budgets on the marketing sources that perform best.
The best optimization is achieved through highly detailed multivariate testing that identifies granular high-performance targets. Granular tracking and optimization reduces wasted ad spend and yields significant performance benefits.

As a mobile app marketer, choosing the right media sources and the right combinations of targeting variables is too much of a guessing game. As you plan your campaign, there’s no sure way of knowing which ad networks will cost-effectively deliver the largest number of installs, which will drive loyal users you can monetize, and which will merely drain your budget.

It’s extremely time-consuming to set up, evaluate and test potentially hundreds or thousands of combinations of ad network, publisher, ad creative, device, geography and other targeting variables. Integrating and automating the process lets you leverage your data more intelligently to drive better results.

This is why tying ad tracking and attribution to optimization is so crucial to app marketing performance. Solutions are available today that integrate tracking and attribution with optimization technology, for the ability to optimize on highly granular attribution insights during a campaign. This integrated approach delivers more value because tracking and attribution data are actionable immediately, and can greatly impact advertising results.
Optimizing for Loyal Users – Why Tracking Beyond the Download Is Important

Most of the tracking technologies employed by ad networks track and report only on downloads. Unfortunately ad networks typically do not optimize based on high value post-download events, such as purchases or repeat launches – and these are the metrics that drive business. This means that advertising can be optimized only based on download data. While useful, relying exclusively on download tracking may lead to wasting a significant portion of the advertising budget. This is because only a fraction of downloads convert into productive users. According to a recent study by Localytics, more than one-third of downloads are used only twice and are then abandoned. (Source: Localytics, July 2012.)

This is why it’s crucial to:

- Track the post-download events, such as purchases, repeat engagement, game levels, etc. that are important to your business, and
- Optimize to the sources and the detailed combinations of targeting variables driving the users who take these high value, post-download actions, because this is what drives your business.

Marketers who have successfully utilized this approach have been able to optimize their campaigns to increase revenue by as much as 100% when compared to in-house manual efforts. (Source: Fiksu Customer Survey, August 2012)
How to Choose the Right Ad Tracking Technology for Your Business

At the end of the day, choosing an ad tracking solution is a business decision, rather than a technology decision. Following are some guidelines to consider when evaluating mobile ad tracking and attribution solutions.

If you track financial transactions...
You should consider using ID-based methods and/or Android Referrer because this is the most accurate tracking technology, and it is critical that you identify the user accurately. You may want to avoid digital fingerprinting due to the accuracy concerns associated with its statistical estimation techniques.

If you need complete attribution of post-download events...
You should consider using ID-based methods and/or Android Referrer because these provide the most accurate and comprehensive post-download event tracking.

If you want to optimize often throughout a campaign...
You should consider using an attribution solution that is integrated with optimization technology. By using an integrated attribution / optimization solution, attribution insights are actionable immediately through the optimization engine, for better price/performance.
If you need access to large volumes of media inventory...
You should consider using a tracking and attribution solution that employs multiple tracking technologies. Each network supports its preferred tracking method. Therefore if you employ only one tracking technology, you will only be able to work with the networks that support that particular technology – which means you will have access to less media inventory. By choosing an attribution solution that supports multiple tracking technologies, you will give your business access to as much media inventory as possible.

If you work with incentive networks...
You should consider using ID-based methods and/or Android Referrer because you are providing a reward to a user and it is critical to identify the user accurately. ID-based methods and the Android Referrer provide accurate tracking and are the technologies typically used by incentive networks. You may want to avoid Digital Fingerprinting due to the accuracy concerns associated with its statistical estimation techniques.

If privacy concerns are paramount to your organization...
You should consider digital fingerprinting because it does not use direct ID-based identifiers. Once it sees significant market adoption, Apple’s Advertising Identifier is another good option, since users have the option to reset it, and there is an opt-out for behavioral tracking.

If you want to run campaigns on Facebook...
You should choose a solution that includes support for Facebook’s proprietary tracking solution.
# Ad Tracking Technology Ratings

<table>
<thead>
<tr>
<th>Feature</th>
<th>Device Identifier</th>
<th>Digital Fingerprinting</th>
<th>HTML5 Cookie</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accuracy</strong></td>
<td>★★★</td>
<td>★</td>
<td>★★★</td>
</tr>
<tr>
<td>Use of “closed-loop” attribution;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No need for estimations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Loyal Usage</strong></td>
<td>★★★</td>
<td>★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Device-level attribution of</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>post-conversion events</td>
<td></td>
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</tr>
<tr>
<td><strong>Broad Network Support</strong></td>
<td>★★★</td>
<td>★★</td>
<td>★</td>
</tr>
<tr>
<td>Tracking on most ad networks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>End-user Experience</strong></td>
<td>★★★</td>
<td>★★</td>
<td>★★★</td>
</tr>
<tr>
<td>No impact on end-user experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>No Redirect Tracking Loss</strong></td>
<td>★★★</td>
<td>★★</td>
<td>★</td>
</tr>
<tr>
<td>Minimize redirects and associated</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>tracking failure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mobile Web Tracking</strong></td>
<td>★</td>
<td>★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Ability to track mobile Web traffic</td>
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The Fiksu Approach

Fiksu is a high-performance mobile app marketing platform that combines tracking, attribution and optimization technology with centralized media buying from the world’s largest mobile app media inventory. By combining these capabilities into one technology solution, app marketers are able to confidently deploy their ad dollars on the media sources that perform best, and deliver true business results.

Fiksu Integrated Attribution

Fiksu supports all ad tracking technologies, for the widest traffic access. Fiksu attribution employs: Advertising Identifier, Facebook Tracking, Digital Fingerprinting, HTML5 Cookie Tracking and MAC Address. Fiksu’s SDK allows marketers to select which of these technologies they wish to use, and gives them the ability to work with the broadest number. Fiksu’s SDK allows marketers to select which of these technologies they wish to use, and gives them the ability to work with the broadest number of ad networks, and flexibility to adapt as the market changes.

Fiksu attribution is integrated with Fiksu’s optimization technology, to make attribution data actionable immediately and continuously. As campaigns run, Fiksu records user actions (installs, in-app purchases, repeat launches and more), and attributes each of these actions back to the media source, ad creative and other campaign elements, to identify the sources of high-value, loyal users. This attribution data is automatically and continuously fed into Fiksu’s optimization engine for optimization. This helps you gain more value from tracking and attribution intelligence because it is actionable in real time.
Fiksu Advanced Optimization

As Fiksu attributes downloads and post download events, Fiksu feeds this data into its optimization engine in real time. Fiksu’s optimization engine identifies the best performing marketing sources and detailed combinations of campaign variables and optimizes campaigns in real time. And because the Fiksu Platform can access 99% of the market’s available media impressions, optimization decisions can be deployed immediately to existing media sources, as well as to new media sources within Fiksu’s universe of 250 billion media impressions, all accessible through one SDK.

Fiksu’s integrated tracking, media buying and optimization has been benchmarked as yielding a 3x performance improvement in tests against other technologies.
Put Mobile Ad Tracking to Work for You

Mobile ad tracking and attribution is a strategic decision. To gain a complete understanding of today’s options, the world’s leading app marketers, game developers and publishers turn to Fiksu, creators of the Fiksu mobile app marketing platform.

Contact us today.