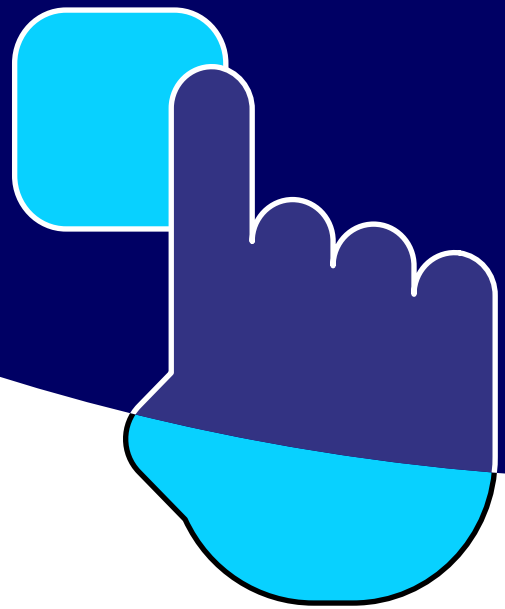
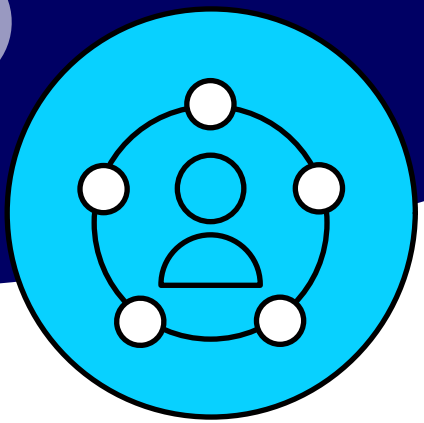
ADJUST

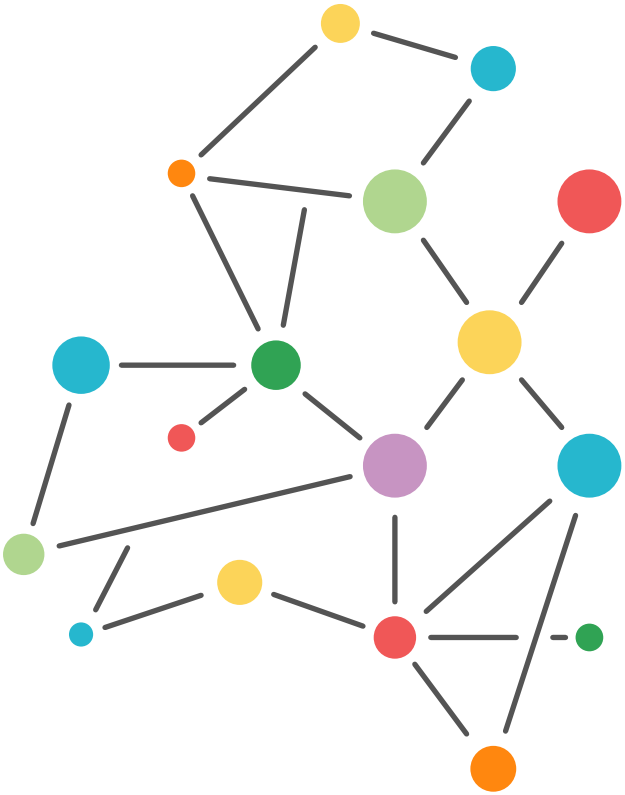
The essentials of mobile app attribution

A guide from start to finish





Introduction



Mobile attribution is about connecting dots. The first dot is something you engage with - an ad, a social post, an email from a company. You look at an ad on your smartphone and you react to it. You either click on the ad, or you don't. Either way, it's a second dot. Maybe you see more ads for the same product, and eventually you click on one. Dot. The ad takes you to an app store, where you download an app. You open it up for the first time. Another dot. Maybe that app becomes a favorite of yours and you make a few purchases. Dot dot dot.

Together, the dots connect advertisements to the choices people make. Matching data points - or dots - between an ad and a user's interaction with it is the central task of mobile attribution. It's how marketers understand the journey you take to arrive in their app and what you do once you've landed there.

When attribution is done right, there's a dot for each of the actions a user takes on the journey from clicking an ad to making a purchase. But there are real challenges: a lack of industry-wide standards (rules for dropping dots) and competing models of attribution (disagreements about which dots count), as well as user journeys that touch multiple platforms (dots scattered across your TV, tablet, desktop and mobile phone), and widespread fraud (fake dot factories).

Forget what you know about web attribution (and leave the cookies behind!) - mobile is its unique own ecosystem with conditions, rules and challenges unrelated to web attribution. The tactics you use for web attribution won't work on mobile. This guide explains how to get all your dots in a row when you're a mobile-first marketer.

Contents

12 reasons why mobile attribution is important for app marketers

Mobile app tracking enables you to make well-informed business decisions in real time. A neutral, third-party attribution provider gives you a platform to do the following:

Discover where your users come from – did they click on a video or a sponsored Tweet?

Find your best-performing campaigns – pinpoint the most effective ads and iterate on them.

Optimize everything – use data to get rid of failing ads and tweak the good ones.

Practice smart retargeting – build campaigns targeted at users who tried out your app but didn't stick around.

Measure, measure, measure – retention rates and lifetime value for different cohorts of users, the average amount of revenue for paying users, the users who convert from freemium to premium; it's all there.

Compare – do users have a higher ROI (return on investment) if they see a certain kind of ad?

Convert – who loves your app the most and what did their journey look like? Attribution gives you the data to look at their path and find a way to offer it to new potential customers.

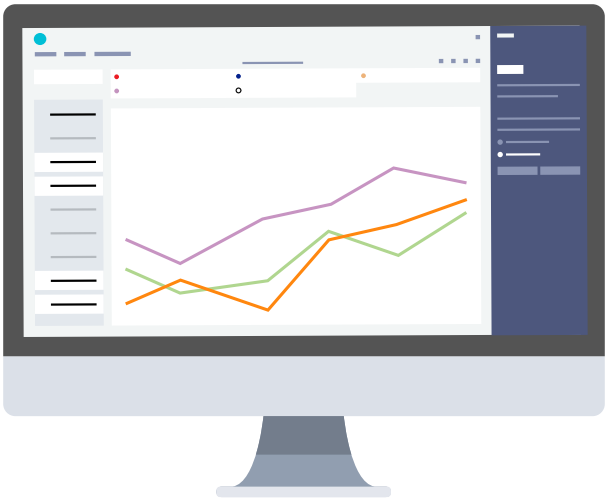
Keep track of your networks – to serve ads, you're probably working with multiple ad networks. Each has different rules, and they don't communicate with each other. An attribution provider standardizes the communication between you and your networks.

Test theories – should taxi apps advertise more on Saturday nights? Only one way to find out.

Count your users only once – different ad networks have different ways of counting dots. An attribution provider makes sure that no one gets counted twice - one dot per event per person.

Understand your ROI – how do your marketing efforts help you meet your goals? Attribution helps you both zoom in on granular-level data and zoom out to the big picture.

Protect your marketing budget – iterate and scale up on the campaigns that work the best, weed out fraud, and stop paying for fake installs or for the same user twice.



How does mobile attribution work?

How is mobile attribution different from web attribution?

The standard methods that are used for web attribution: cookies, image pixel tags, and tracker links with custom parameters appended cannot be used as a standard on mobile. The latter two do not work at all, and cookies are limited in how far they can go. Sometimes it is impossible to follow a user who downloads an app with one of these methods. For example, if your campaign utilizes Facebook to send users directly from your ad into the App or Play Store, you cannot use a destination URL to figure out where the user was acquired from. In this case, you will need to use an attribution SDK work with an attribution vendor that has a partnership with the platform you'd like to advertise on.

Android allows you to track your marketing campaigns; however if you only rely on Google Analytics **or Firebase** for your attribution information, you are limited in the conversion data you can send to your partners to optimize your campaigns. **As an example, Google Firebase is not integrated with Facebook, Twitter, Snap, Pinterest, and only has around 20 integrated partners.** You can only do this with the help of an attribution partner. On iOS, users enter what is more or less a 'black hole' where you cannot rely on tradition web attribution methods to understand what they're up to at all in the App Store. A universal attribution method allows marketers to understand what happens in both stores as well as every step of the user journey along the way, from first engagement to final purchase.

How does mobile attribution work?

What happens when I click on an ad?

Let's say that you're using your iPhone to play a game. A video ad pops up within the game. You watch the video and click the CTA (the call to action) to download the app at the end of it. The link takes you to the app in the iTunes store, but briefly redirects you through Adjust. This takes a fraction of a second but is a key step; it's how the attribution provider receives the first data point - the engagement with the ad.

By clicking the link, going to the app store, downloading the app and opening it for the first time, the attribution provider will receive the following data points (or dot):

Advertising ID – a string of numbers and letters that identifies every individual smartphone or tablet **in the world**

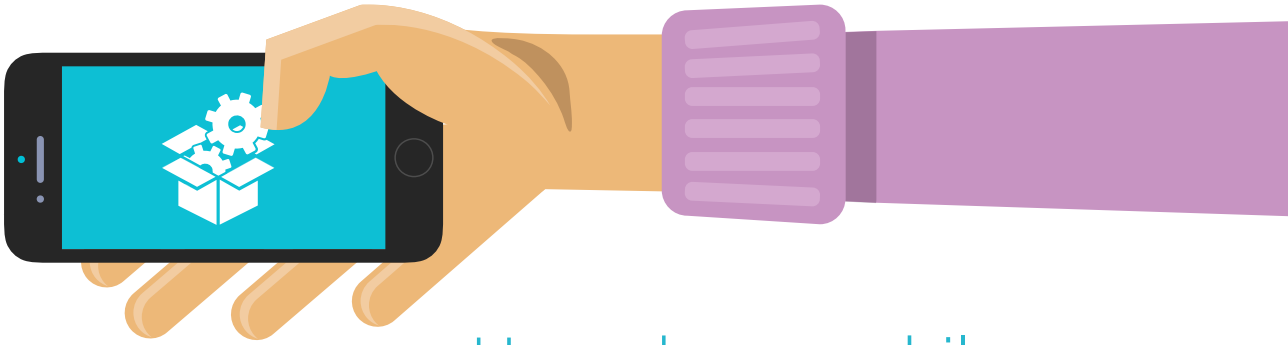
IP address – a specific address that devices use to communicate with one another via the internet

User agent – a line of text that identifies a user's browser and operating system

Timestamp – When you clicked on the link

First Install - When you first installed and opened the app

With this information, the attribution provider can determine whether the user is new or existing. If this user is new, the attribution provider will attempt to match the user's install to their engagement with a particular ad. This exchange of information can happen in several ways; the most common is for the app to integrate the attribution provider's SDK. We'll explain what that is on the next page.

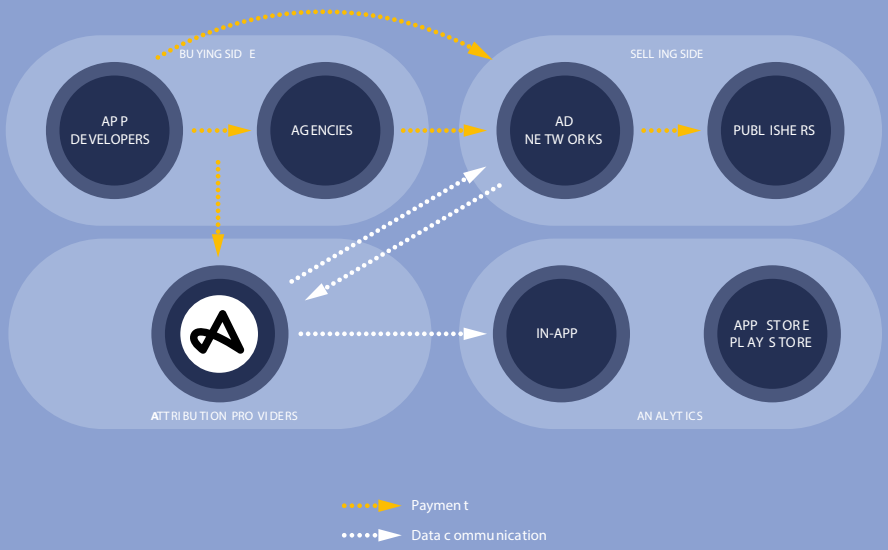


How does mobile attribution work?

How do mobile attribution providers communicate with apps?

Mobile apps are made out of code. Code is a series of rules or instructions meant for your computer and written in a specific programming language. A piece of code called an **SDK** (or software development kit) allows the app to communicate with Adjust's servers. App developers integrate the SDK into their app's code, much like if they had a car and a manufacturer gave them a new part for a bit of an upgrade. This creates a line of communication between the app and us through which we can provide attribution data in real time.

Adjust's SDK is **open-source**. It is freely available code that app developers can edit, modify or improve to meet their app's needs. You can take a look at our SDK on Github **here**!



The economics of mobile attribution

Who buys and sells mobile ads?

There are different players involved in mobile advertising, chiefly buyers and sellers. On the buying side, there are app developers. They're the advertisers - they want to get the message out about their app/company/brand.

On the selling side, there are publishers. Publishers provide and sell the space to run ads. If an app advertises in different locations but also sells ad space within its own app, it is both a buyer and a seller!

In between the app developers and the publishers are ad networks. Networks are the go-between; they connect the supply of ad space to the demand of the advertisers. Sometimes app developers also work with agencies to run their marketing campaigns.

An attribution provider like Adjust is an unbiased third party, whose job is to attribute credit to an ad campaign source or sources. This can be a challenge if a user looks at or clicks on multiple ads in their buying journey.

Our job is to find the particular dot that's responsible for the action they took. We are trusted by both advertisers and publishers to attribute dots and resolve discrepancies when they arise.

The economics of mobile attribution

How are ads bought and sold?

Between 2010 and 2015, time spent on mobile grew a mammoth 700 percent. 90 percent of the time spent on mobile phones is in-app. Global mobile ad spend topped $100bn in 2016. In short, mobile advertising is a massive market - yet only 49 percent of marketers have a mobile analytics solution to help them figure out if they're actually earning any return on their investment.

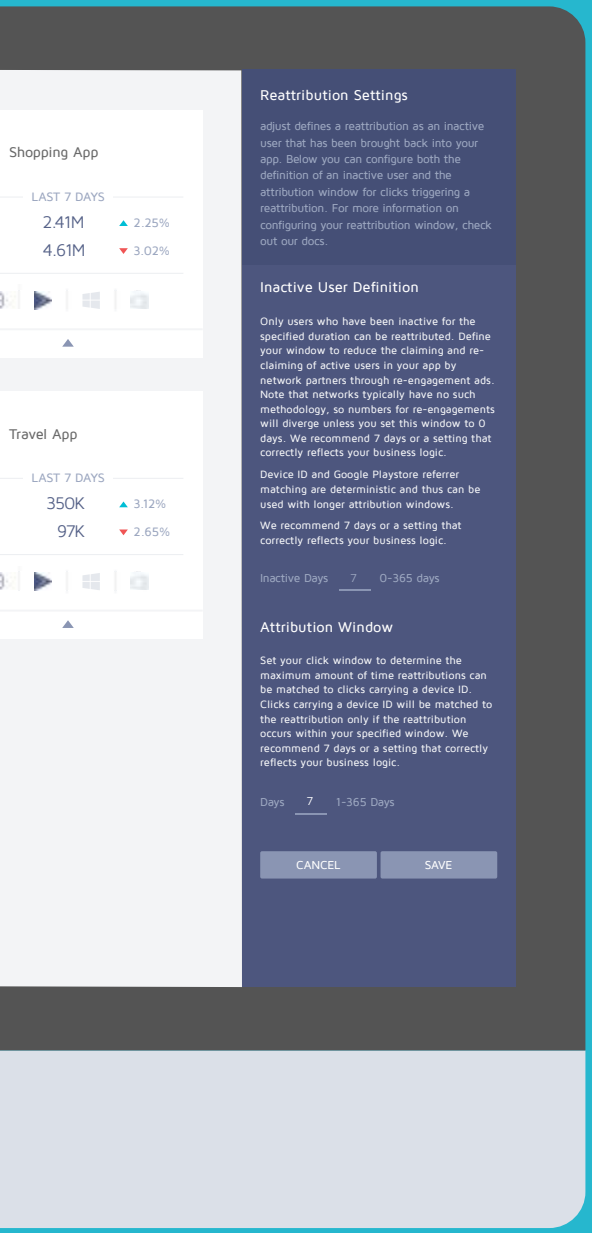
For those with an attribution provider in place, there are four major cost models to apply when working with ad networks. The model an app chooses is based on their **KPIs**, which usually differ by vertical (meaning that gaming, e-commerce and travel apps all have different goals - this determines how they set up campaigns with ad networks).

1. **CPI (cost per install):** This is the most common way to buy or sell media. An app will pay a set amount of money for every new install. The cost can depend on the app and the estimated lifetime value of the new user. The network receives part of the CPI price for finding the best publishers for the specific ad campaign, and the publisher receives the rest.

2. **CPC (cost per click):** In this model, the advertiser pays a price for every single ad click. These are not as popular with advertisers as CPI campaigns, as the cost of an install can increase exponentially with all of the ad clicks that happen. Also, advertisers must rely on networks to tell them the 'accurate' number of clicks that happened, which can represent a conflict of interest.

3. **CPA (cost per action):** These campaigns charge advertisers after the user completes a designated task. It could be signing up for the app, playing the first turn in a game, or buying a subscription. Action-based campaigns are useful for advertisers keen to see a return on their investment.

4. **CPM (cost per mille):** A 'mille' (French for 1,000) refers to 1,000 impressions, or 2,000 eyeballs that have seen your ad. If a campaign is, for example, geared towards a brand and there is no specific call to action (to download an app or subscribe, etc), it is typical to use this model. As with CPC pricing, the advertiser relies on the network to tell them how many impressions took place.



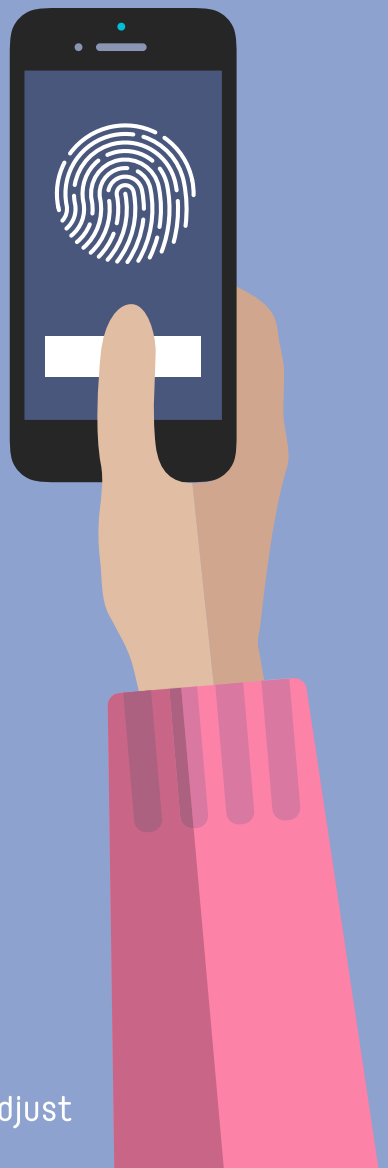
Mobile attribution: making sense of the data

What is an attribution window?

An attribution window (or conversion window) is the period of time in which a publisher can claim that a click or a view led to an install. For example: if a window of seven days is agreed upon between an advertiser and publisher, and then if it can be proved that a user interacting with an ad from a publisher installs the app within the window, then that publisher is credited with the install and would receive payment.

Attribution windows are an essential tool for helping advertisers and publishers to understand when a conversion takes place. Often there's a gap in exposure to an advertisement and an install, such as seeing a game on Facebook while commuting to work in the morning, seemingly forgetting about it, to then remembering to install on the way home from work in the evening. Setting an attribution window creates the ability to include users who are technically brought in from an advertisement, just not directly in the instance of seeing it.

Mobile attribution: making sense of the data



Matching an install to a user: the attribution waterfall

Once a user's installation has been confirmed, an attribution provider begins to look at their past ad engagements and attempt to make a match. Adjust works backwards from the most robust information to the least amount necessary to make a confirmation.

Advertising ID match: first, we look to see if we have any past click ad engagements with the same advertising ID. One example of an advertising ID is called an **IDFA**. The Android equivalent is called a GPS ADID.

Android referrer: for Android phones, we'll also check for a match via PlayStore referrer, a unique value our SDK assigns to the specific click. These IDs are not volatile and are as accurate as advertising ID matches.

Click fingerprint match: if this data is unavailable, we will look to see if we have any past click engagements that came through with the same IP address and device name; this can be tricky as IP addresses can be dynamic and change rapidly, especially if the user is on the go.

Impression device match: if this device is unavailable, we will look to see if we have any past impression ad engagements that came through with the same advertising ID.

No match: if Adjust goes through all of the above checks and has not found a single match, the user is attributed as organic.

Mobile attribution: making sense of the data

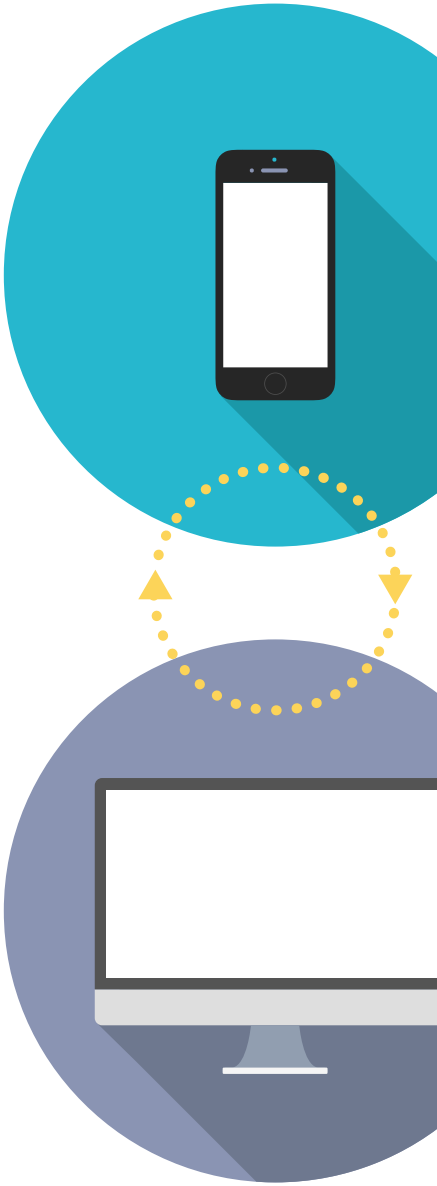
Case Study

With Adjust, you can view all of your data in your dashboard. This dashboard can be configured to display the following information:the trackers you've created for each campaign,the number of impressions each campaign has received (optional), the number of clicks received, **click through rate (CTR)**, conversion rate, unique installs, **reattributions**, sessions, revenue events, revenue, average daily/weekly/monthly active users, and any events that are relevant to your app (for example, if a user reaches a certain level in your gaming app, this could be considered an 'event').

	Clicks	Installs	LAT Rate	Conversion Rate	Reattributions	Sessions	Rev. Events	Avg. DAUs	Rev. Events
Organic	0	104,319	23.99%	N/A	0	1,445,692	554,530	36,624	9,711,292
Network A	68,281	9,462	21.02%	13.86%	5	53,650	13,428	1,373	2.19%
Network B	28,180	8,542	15.56%	30.31%	0	64,933	17,914	1,684	9,711,292
Network C	23,938	3,159	16.56%	13.20%	71	34,970	10,590	901	9,711,292
Network D	0	784	1.02%	N/A	1,145	37,387	13,045	976	9,711,292

For this campaign, we can see that Network A received more than twice the amount of clicks that Network B did, yet only slightly more installs. In comparison, Network B's conversion rate towers over Network A's - with a difference of over sixteen percentage points. Network B's users also registered more sessions in-app and triggered more revenue events. With this information, an advertiser might decide to take a deeper dive into network B's data to find out which users are driving the higher conversion rate - whether it's a particular group of users, a certain time of day, or something else entirely.

Why is mobile attribution hard?



Problem #1: A fractured mobile ecosystem make it difficult for apps to follow the user's journey.

The mobile user journey can include mobile phones, televisions, tablets, and even desktop computers. Think about how you shop for something like furniture - you might watch a video ad on your tablet, browse in a few shopping apps or in mobile web on your smartphone, and make the purchase from your desktop. The most common tracking tool for the web - cookies - can't follow a user as they switch devices. On mobile, attribution methods must be agile, speedy and privacy compliant while jumping from device to device.

They must also find a way to work with self-attributing networks - major publishers like Facebook, Instagram, or Google Adwords - who perform attribution on their own traffic instead of allowing the attribution provider direct access, rendering their corner of the mobile ecosystem a black box.

Adjust's solution:

Our SDK gives app developers the ability to track every single data point - from a user's login to the time of their most recent purchase - so their marketing team can tie that data together within their own CRM or business intelligence system. Adjust is fully integrated with our self-attributing partners so we can check their homework and independently confirm each claimed engagement they send us. TV attribution at Adjust happens via SDK/backend technology - we track the uplift of installs from a tv spot by working with special, tv attribution-focused partners (with whom an app can seamlessly integrate their data). We've also passed rigorous technical and legal security audits to become ePrivacy certified - surpassing the strictest global privacy laws - ensuring that users stay anonymous and attribution data remains encrypted from end to end. Read more about our privacy features **here.**

Why is mobile attribution hard?

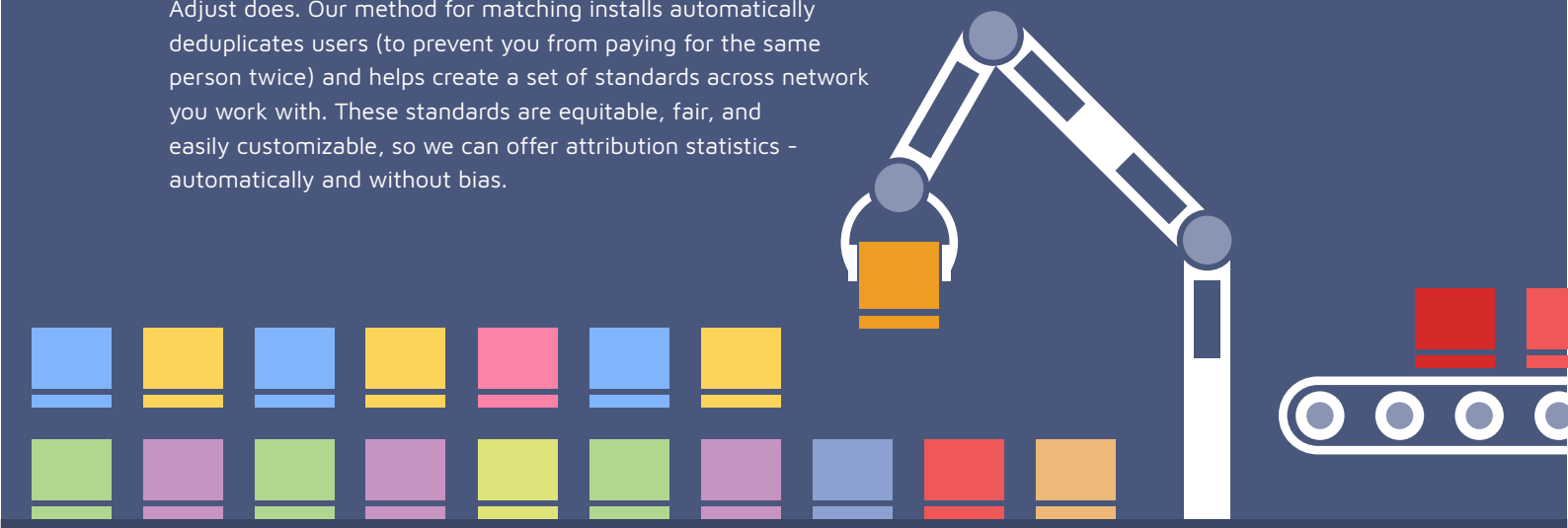
Problem #2: There are no industry-wide standards for app tracking.

Each ad network has their own criteria for attribution, which can lead to a number of headaches. Most advertisers work with many different networks - if, for example, the attribution window setting differs between them, this can lead to multiple sources claiming the same install. The outcome is that the advertiser pays for the same install twice.

Some of the biggest networks report their own attribution data to clients - including Facebook, Google and Twitter - but this does not necessarily simplify things for advertisers. Because networks earn money from the data points attributed to them, many app developers prefer to receive attribution data from a neutral third party source, rather than the network itself.

Adjust's solution:

Providing accurate, real-time attribution data is central to everything Adjust does. Our method for matching installs automatically deduplicates users (to prevent you from paying for the same person twice) and helps create a set of standards across network you work with. These standards are equitable, fair, and easily customizable, so we can offer attribution statistics - automatically and without bias.



Why is mobile attribution hard?

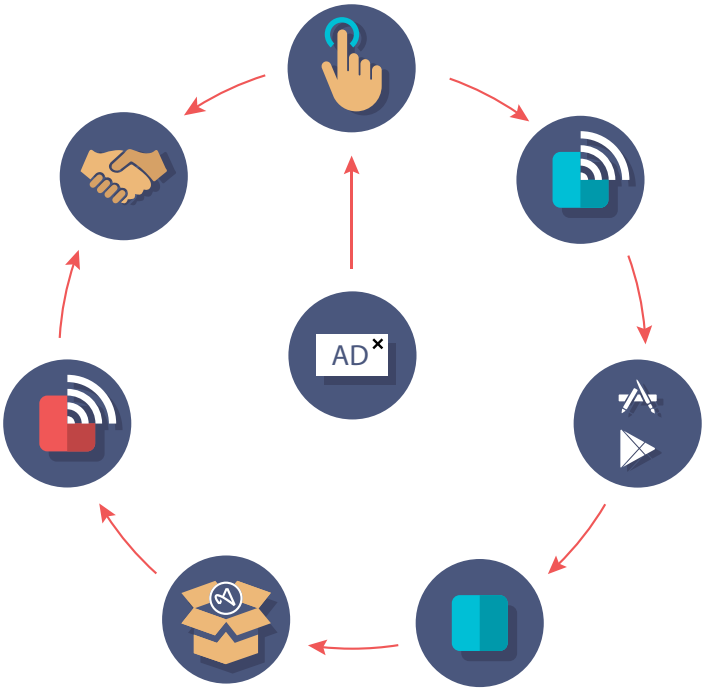
Problem #3: There are competing models of attribution.

Attributing a user's in-app activity to their ad engagement is not as easy as matching one click to one install. For one, Adjust measures both clicks and impressions - an impression is when you see an ad but don't click on it. Let's say you see three different ads for the same app. After the third ad, you decide to install the app. Which ad/network gets the credit? Here are the most common ways to attribute users:

First touch attribution: This model awards credit for an advertising interaction (either an impression or click) to the first point of contact a user has with an ad campaign.

Last touch attribution: This model awards credit for an advertising interaction to the final point of contact a user has with an ad campaign.

Multi-touch attribution: This model assigns varying weights to different traffic sources for an advertising interaction, leading to multiple channels benefitting when a user interacts with a campaign.



Adjust's solution:

Our **attribution offering** helps advertisers track traffic as it enters an application - identifying when a user installs, which source they've come from and the creative which convinced them to install. We do this through the use of a last touch attribution model, where clicks receive priority over impressions. Adjust also offers an opt-in **impression attribution model**, which takes into account the difference between impressions and clicks.

Why is mobile attribution hard?

Problem #4: Ad fraud is rampant in the mobile marketing industry.

There are two kinds of supply-side fraud that present major challenges. One is known as fake installs. The most prevalent way of creating fake installs is via bulk device emulation in a virtualized environment on rented hardware (data centers). Fraudsters use Tor networks, VPNs and public or private proxies to try and hide emulated installs in "incentivized" campaigns.

The other type of fraud is called organic poaching. The goal here is to poach attributions from your organic users. Fraudsters create a chance to randomly receive credit for the install via click spamming. A typical method for this fraud scheme is the scripted (not human) execution of tracking links (clicks) on mobile web pages e.g. in games or video players during page load or the execution of click links on banner view. This is also known as click spam, forced clicks and 1x1 pixel redirects. Installs are attributed to clicks that were executed without the user's knowledge or intent, so the fraudsters cash in on the random chance of a user installing a popular app organically.

Why does mobile ad fraud happen?

Mobile ad fraud presents a significant opportunity to make money quickly (though illegally). Mobile ad fraud has long been considered low-hanging fruit because it is not uncommon to see a campaign receive hundred of thousands of clicks and relatively few installs, providing a perfect cover for would-be fraudsters. Until recently, a lack of industry action in combating fraud means that a criminal is less likely to be caught and can act with somewhat more impunity. How recently? Adjust was the first attribution provider to offer in-the-moment prevention against fraud.

Adjust's solution:

Adjust's Fraud Protection Suite offers three different tools to protect advertisers' KPIs and budgets. Our Purchase Verification SDK confirms purchases made in the Apple Store and Google Play Store in real time - it is its own separate SDK, designed to reduce discrepancies between Adjust's revenue data and app store revenue data. We also cross-check all IP addresses in real time to prevent illegitimate user data from entering and ruining a client's data set; the result being that no client pays for these fake users. We combat both types of click spamming with a filtering method known as distribution modeling, which rejects installs based on a statistical model of when those installs are most likely to occur. Taken together, these measures all work to keep fraud out of clients' data **before** it ever happens.

Should I do my own attribution?

A plan for measuring and analyzing your marketing performance is the key to mobile success. Your users will come from multiple advertising channels - if you cannot track the how, who, when and why of their journey to your app, you cannot know which of your networks are delivering users, the relative value of those users, or how much of your marketing budget is going directly towards fake clicks and installs.

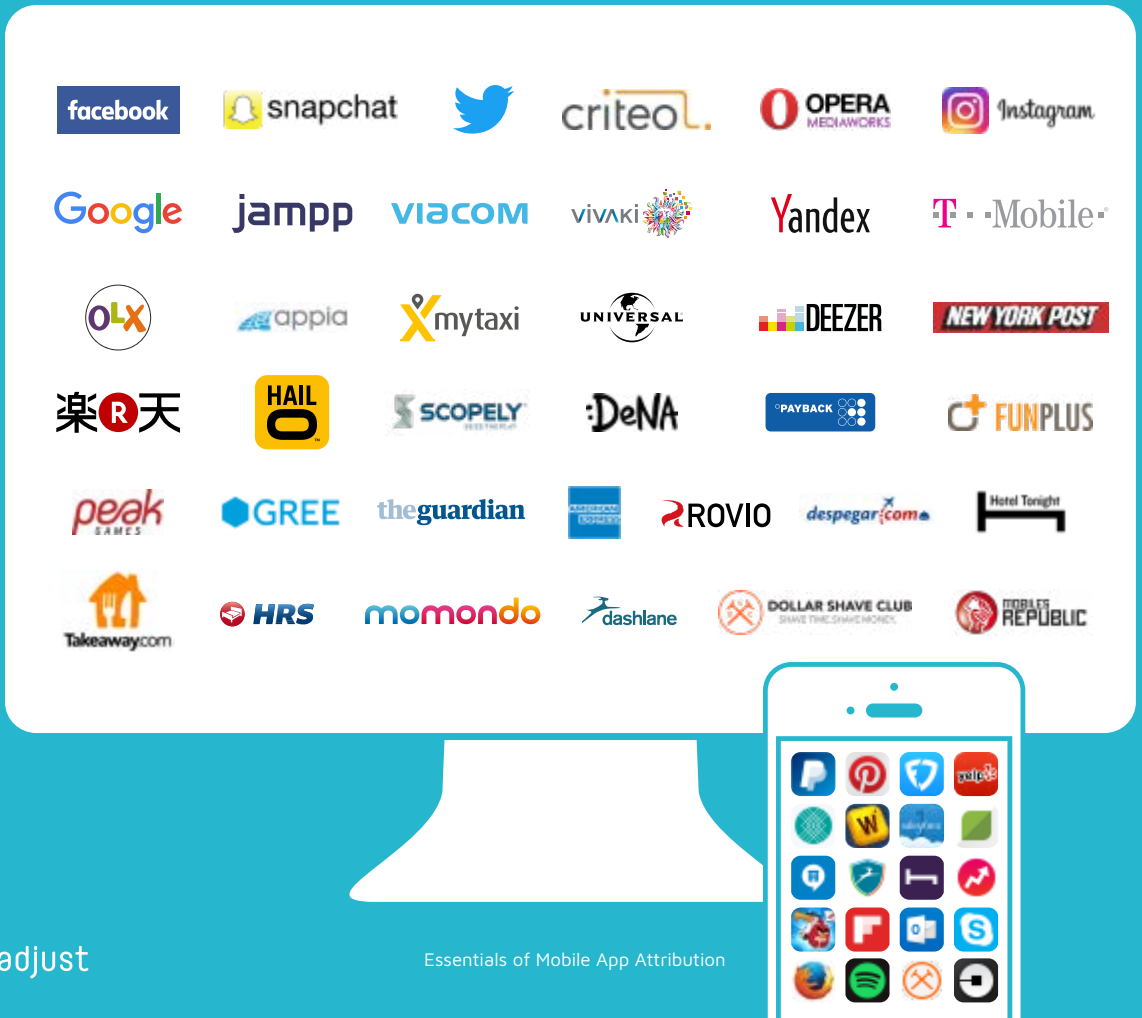
Working with a mobile attribution provider like Adjust gives you an eagle eye view over your data - a single, streamlined dashboard you can utilize for in-depth analysis without having to collate or wrangle data from any of your partners. Adjust also gives you the power of verified purchases and fraud protection, to make sure your data stays clean and reliable.

Adjust's SDK allows you to work with any of our over 900 partners to customize your users' experiences in your app. And it's simple to integrate - over 14,000 apps already have, including Spotify, Soundcloud, Uber, Yelp, Buzzfeed, Rovio, and Yahoo.

Ready to learn more?

We'll take you on a walk through every single feature.
Make mobile app tracking easy - see what Adjust can do for you.

Request a demo



ADJUST

ABOUT ADJUST

Adjust is a global app marketing analytics platform committed to ensuring the highest privacy and performance standards. Adjust's solutions include attribution and measurement, fraud prevention, cybersecurity, as well as automation tools. The company's mission is to make mobile marketing simpler, smarter and more secure for the more than 50,000 apps working with Adjust.

Want to learn how we can help you? Contact us now to find out how we can fit your specific use case.

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