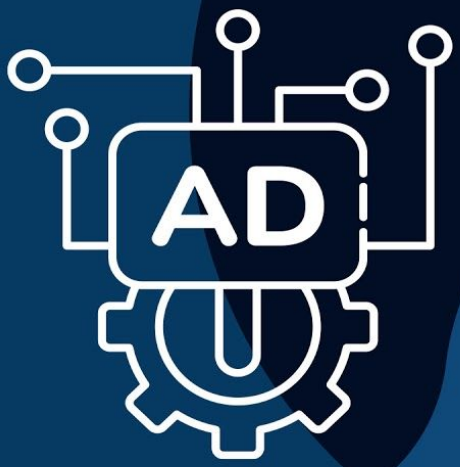
adikteev

The Basics of Programmatic Advertising



The beginner's guide to programmatic advertising

Margot Miller

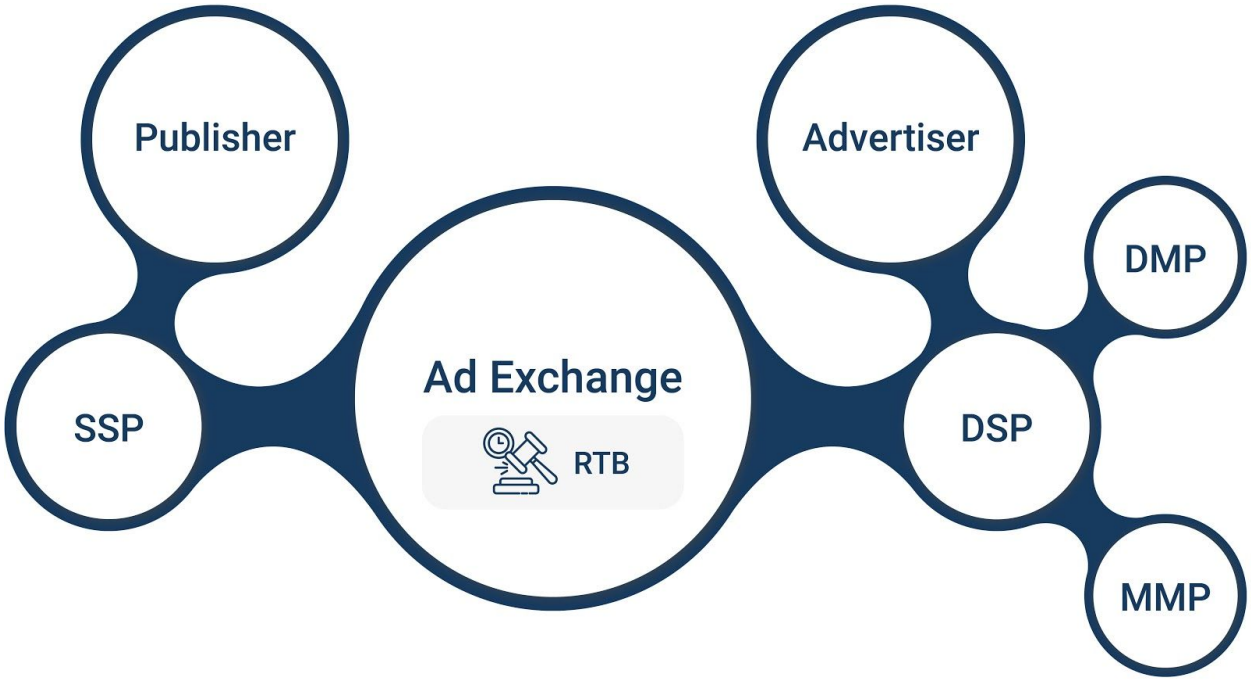
Programmatic advertising is the lifeblood of a DSP like Adikteev's, but how does it actually work? We'd like to break down the ins and outs of how the real-time bidding landscape operates, and discuss some relatively recent changes to in-app media buying.

The basics

The goal of programmatic advertising, as most readers are familiar with by now, is to display ads to the most precise audience possible and increase the chances of a conversion while optimizing ad spend.

Retargeting DSPs (demand-side platforms) such as Adikteev's facilitate the buying process for brands by processing and sorting through data provided to them by MMPs (mobile measurement partners). The integration between DSPs and MMPs allows advertisers to target their audience more accurately based on in-app user behavior.

With programmatic advertising, advertisers have more control over which users see their ads and which users don't, rather than casting a wide net and hoping that a random ad viewer will make a purchase. One of the main advantages to buying and selling advertising space in this manner is that now, advertising can be scaled worldwide with very little effort. Compare this to the process of signing individual advertising deals, publisher by publisher, country by country.



But while it's clear what programmatic advertising does and what its benefits are, it's not always clear how it works. Let's take a closer look at how the process is facilitated, and what it takes to show your ads to the correct audience every time.

Real-time bidding on the ad exchange

Real-time bidding or RTB is the process of buying and selling programmatic advertising. The process begins and ends in the milliseconds it takes for an ad to load, but a lot actually happens in that time.

1. First, publishers provide their **inventory**, or available advertising space, to one or more ad exchanges. Publishers can put multiple ad exchanges in competition with one another for the best CPM (cost per mille) and with direct campaigns. This is known as header bidding, which we'll define in detail later.

2. The **ad exchange** or supply-side platform (SSP) initiates an auction. It notifies all connected DSPs in the advertising space and sends contextual data about the advertising opportunities.

3. The advertiser is most likely working with a DSP, who will step in and **bid** on available inventory for them.

4. Like in any auction, the highest bid is selected, leading to an **impression**: an ad shown to a relevant user.

5. If participating in **header bidding**, each ad exchange selects the auction winner of their own auction. The winners are announced to the mediation platform, and the highest overall wins the run-off auction. Then, the impression is shown to the user.

Who is involved?

There are a number of players involved in the bidding process, including DSPs like the one at Adikteev. Here are the most important participants in RTB:

Advertisers are the ones actually buying inventory. At Adikteev, we work exclusively with mobile app publishers looking to re-engage their users.

Demand-side platforms (DSPs) like Adikteev's manage bids for advertisers on multiple ad exchanges. They provide a management platform for those buying inventory, making it easier for them to maximize their reach.

Publishers are other apps or websites looking to sell their inventory to advertisers. In our case, these are always app publishers.

Mediation platforms offer access to numerous ad exchanges via an SDK integration. An optimization algorithm is used to fill the publisher's inventory at the highest CPM possible.

Ad exchanges or supply-side platforms (SSPs) provide a platform for real-time bidding to occur between advertisers and publishers.

Header bidding, first-price and second-price auctions

Within the world of real-time bidding, there are a couple different ways to run an auction. For a long time, second-price auctions (SPAs) were the only way to run a programmatic advertising campaign. Similarly, mediation platforms have historically selected impressions on a waterfall principle: ad inventory is put up for sale to ad exchanges one by one in a predefined vertical order until it is finally sold, whatever the CPM. The recent rise of in-app header bidding replaced the waterfall in mediation platforms, and was the first major change to occur. This laid the groundwork for first-price auctions (FPAs). Aditkeev prefers to work with FPAs for a number of reasons, but let's break down how all of these different bidding methods actually work.

In the SPA, the participant who placed the highest bid wins the auction, but actually pays the price of the **second-highest bid** plus .01cent. For example, we have three auction participants. Participant A places a bid of $1.00, participant B bids $2.50, and participant C places a bid of $3.00. Participant C will win the impression, but actually pay only $2.50 rather than their bid of $3.00, plus .01 cent, bringing the total to $2.51.

Enter **header bidding**. For each piece of ad inventory, winning bids from all ad exchanges are arranged horizontally by the mediation platform, instead of following the vertical

waterfall order. There is then a run-off auction, and the highest bid among the winning bids is awarded the impression. Under those circumstances in the SPA model, ad exchanges were losing out on some revenue opportunities as the CPM of their winning bid was directly influencing their chance to earn the final impression.

The introduction of header bidding led to an industry shift toward **first-price auctions**. With FPAs, the highest bidder wins the impression and pays the exact amount that they have bid. Using our same three auction participants from the SPA example, participant A bids $1.00, participant B bids $2.50, and participant C bids $3.00. Participant C will pay the full $3.00 instead of the second-highest plus .01 cent price like in the SPA, and their ad will be shown to the user.

The problem with second-price auctions

It would seem that SPAs are preferable for a DSP like ours, since we end up paying less per impression than in an FPA. However, the main problem for DSPs is that because SPAs reduce CPMs from programmatic bids, the chances of winning against a non-programmatic campaign when the mediation platform is trying to maximize the CPM is lower. Even though the price paid per impression is lower and return on ad spend (ROAS) is higher, it decreases the DSP's ability to reach valuable users.

Additionally, if one DSP in an SPA auction has poor pricing technology but an important budget to spend, and the other DSPs have better pricing technology but less budget to spend, the DSP with the larger budget can risk bidding very, very high but rely on the technology of its competitor to actually pay less (the second price), and still get good ROAS.

Why we prefer first-price auctions

First-price auctions have helped level the playing field somewhat. For publishers, it allows them to work with multiple parties rather than only one ad exchange. The increased level of competition incentivizes ad exchanges to offer higher CPMs to app publishers, and provide the inventory in order to retain them. Ad exchanges' fees are also higher since they're usually based on a fixed percentage applied to the CPM, but they are also free to reduce their fee to increase the CPMs offered to the publisher and try to win a greater volume of impressions.

This means that because ad exchanges aren't beholden to private campaigns and app inventory is more accessible, DSPs like ours have seen their reach increase. And our ability to purchase impressions for high-value users at what they're actually worth has also been a big bonus.

Another benefit for DSPs is the end of self-competition. Ad exchanges and networks often "resell" inventory that they haven't sold in previous auctions. In a second-price auction, DSPs could end up bidding against themselves **for the same unit of inventory** if they placed a bid on two different ad exchanges. These bids can compete with one another and inflate the clearing price paid by the bidder as the clearing price is not always declared by the ad exchange. FPA logic removes this concern as the clearing price does not depend on competing bids, only on the winning bid.

How to estimate inventory value

As in any auction, the value of the inventory that's up for sale must be estimated ahead of time to avoid overpaying and ensure a sufficient return on investment. To estimate the dollar value of a bid request, it's essential to predict the click probability (predicted CTR), post-click conversion probability (predicted CR) and purchase value before even placing a bid. The value estimation for both depends on your goals.

If your goal is a specific cost per action (CPA), the value formula looks like this:

$$Value_A = \text{target cost per conversion} * \textbf{predicted} \text{ clickthrough rate} * \textbf{predicted} \text{ click to conversion rate}$$

And if your goal is a specific return on ad spend (ROAS), the value formula looks like this:

$$Value_B = \frac{\textbf{predicted} \text{ inapp purchase value} * \textbf{predicted} \text{ clickthrough rate} * \textbf{predicted} \text{ click to purchase rate}}{\text{target return on ad spend}}$$

When it comes to placing bids on inventory, Adikteev's strategy is always a customer-first one. It's essential that DSPs like ours keep the client's CPA or ROAS goals in mind. To do this, our bidder must be extremely accurate when making its predictions.

Why a DSP is the way to go

Real-time bidding is an incredibly complex process that's over in less than 200 milliseconds. There's a risk for advertisers attempting RTB on their own. Predicting ROAS

and staying within the correct CPA is a delicate balance that requires technical expertise, patience and experience.

And there's more to consider than just CPA, ROAS and purchase values. If you factor in **view-through attribution**, the process gets even more complicated because users may convert without having even clicked on your ad. Advertisers also must consider their competition in auctions when defining bids, and keep their budget pacing in mind to avoid spending too fast or too slow. Self-serve options for purchasing inventory have greatly improved over time, but due to the complexity of the system and the high cost of entry, it's often difficult for smaller apps to manage the process themselves.

A DSP with a positive track record in RTB and a well of historic data to pull from when making predictions is always going to be preferable to going it alone.

*Find out more about how the programmatic landscape has been impacted by Apple's IDFA announcement. Download our report **here**!*