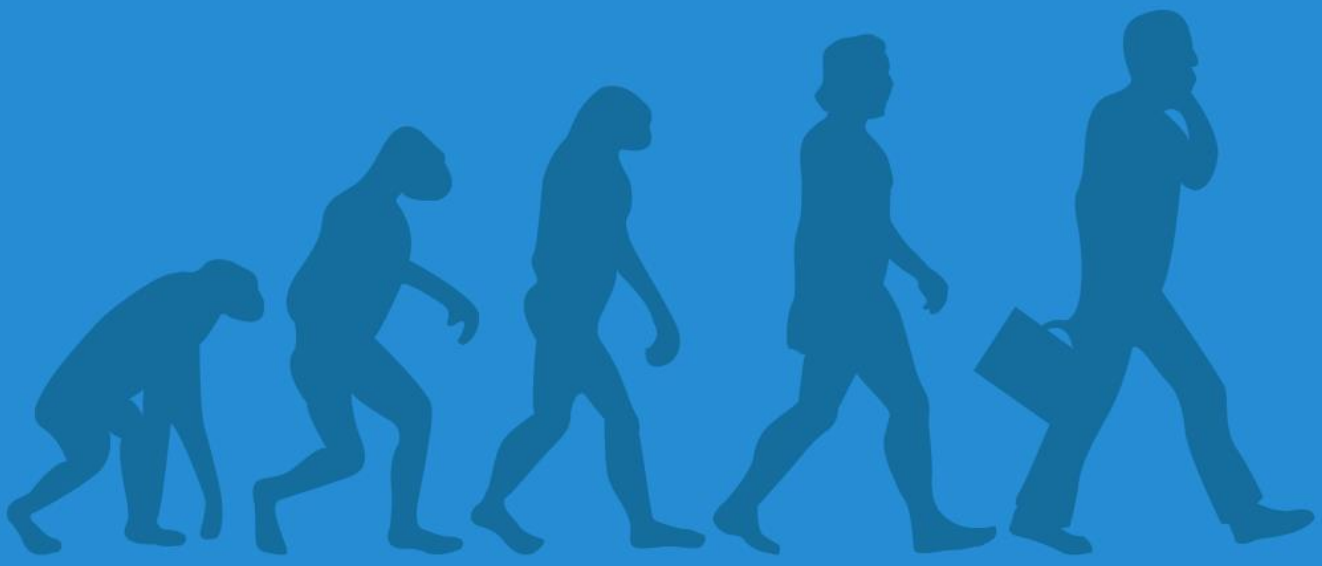
THE BEGINNER'S GUIDE TO

THE EVOLUTION OF PROGRAMMATIC BUYING



AdClarity
MEDIA INTELLIGENCE

Welcome to the beginner's guide to the evolution of programmatic buying! In this short e-book, you'll learn the basics of programmatic buying, including who the key players in the ecosystem are. If you're interested in learning more, let us know and we'll send you over the advanced e-book which provides you with more information and the complete programmatic buying ecosystem. Contact us: marketing@adclarity.com

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CHAPTER 1

In The Beginning

Advertisers & Publishers

In the old times if an advertiser wanted to buy inventory from a publisher, they would do so manually and directly. This was a cumbersome and tedious process which involved negotiations, insertion orders, manual tracking, and long waiting periods (especially for premium sites). The benefits were so-so as the advertiser had to track the result of each site manually in order to see where they were performing the best. Additionally, because advertisers bought on a CPM model, they bought impressions in bulk- the same ad on the same site. Regardless who the user was, everyone was seeing the same ad. It was literally like a Jackson Pollack painting- finding the canvas you want to work on and just throwing all your paint on it, hoping that at least one drop reaches the right spot.

As time went on and the number of advertisers and publishers grew exponentially, it became impossible for publishers to sell most of their inventory and for advertisers to handle the direct media buying process. They would have to be in direct contact with thousands of publishers at a time in order to maximize their reach. Additionally, manually tracking all of these sites proved to be impossible. This issue paved the way for the ad network.

Ad Networks

An Ad Network is a company that connects advertisers to a large amount of publishers. It acts as a type of broker between the publisher and advertiser, buying the unsold or remnant inventory of the publisher in order to sell it to the advertiser. The ad network had technology that enabled them to categorize the inventory, which they could package and sell to the advertiser. This benefitted the advertiser because it allowed for them to extend their reach to numerous publishers all at once and have their ads targeted a little better based on the categorization of the ad network. And rather than having to track the campaigns on the advertisers end, the ad network was now responsible for tracking and optimizing each campaign across multiple sites.

And alas, history repeated itself.

As time went on, the number of ad networks grew and began flooding the market. This put the publishers and advertisers in another predicament. Now they had to spend time trying to figure out which ad networks would give them the best bang for their buck. It also meant that advertisers could be buying the same inventory on the same site more than once. Oh, and did I mention that the ad network was taking a chunk of the ad profit from the advertiser?

And thus, the Ad Exchange was born.

Ad Exchanges

Simply put, an ad exchange is a technology platform that facilitates in the automated buying and selling of inventory, often through real-time auctions. Unlike an ad network, purchasing is not based on a CPM model, but rather per impression. An ad exchange is pretty much a giant pool of impressions that allows for advertisers to bid on each impression based on specific targeting criteria in real-time. This allows for the advertiser to make sure each ad they are serving is being served to the right person at the right place at the right time. With the ad exchange, the publisher is now able to gain more revenue by selling off more inventory, and the advertiser has greater transparency and control over their placement.

So the ad exchanges made things better, but advertisers and publishers still didn't have the necessarily tools and technology to really take advantage of the full value ad exchanges brought along with it.

So along came Demand-Side Platforms (DSP) and Supply-Side Platforms (SSP). Both of these platforms are very similar, but just serve different audiences. The DSP serves Advertisers and the SSP serves Publishers.

DSPs

A DSP is sort of the brain on the Advertisers side in terms of the Ad Exchange. It is a platform for buyers which works with multiple ad exchanges, allowing them to buy from multiple sources of inventory. For the Advertiser, it is the interface which allows them to manage their bids, create targeting criteria, aggregate all their user siloed data, do retargeting, optimize their campaigns in real-time, and have access to results and data from DMPs. It could be seen as a sort of ad network on crack. However, without the huge mark-up and with automated technology capabilities. To sum it up, a DSP is a one-stop shop for Advertisers- all they need to do is submit their ads and wait for the results.

SSPs

An SSP is pretty much the equivalent but for the Publishers side. Whereas the DSPs goal is to buy ad impressions as cheaply and quickly as possible from the ad exchange, the SSPs goal is to maximize the price of their impressions. The SSPs enable Publishers to have access to multiple Ad Exchanges, Ad Networks, and DSPs all at once- increasing the range of potential buyers.

So now you understand the key players in the Programmatic Buying ecosystem. And all Programmatic Buying is, is the automated process of buying or selling media. And this process is reliant on these key players in order for it to work.

CHAPTER 2:
DSPs & DMPs

We've established the very basic components that are necessary for the existence of programmatic buying. But we need to understand a few more in order to understand why things work the way they do and how they work the way they do. This chapter will specifically focus on the core and functionality of the DSP.

In the previous chapter, I mentioned that the DSP acts as the brain, while the ad exchange acts like the body. But the brain is composed of cells and neurons, both critical to the functionality of the brain. In this case, we're interested in the thousand billion neurons that provide us with the capacity to reason, comprehend, and make decisions (1). So whereas the DSP acts as the brain, it still needs these neurons in order to have a purpose. And in this case, data management platforms (DMPs), are the DSPs neurons—they give the DSP access to tons of information and data.

So what is a DMP?

A DMP is a very intelligent technological platform that takes data from first, second, and third part data providers (2). It manages the data in an organized and meaningful manner so that the DSP can make the best purchase decisions on behalf of the advertiser.

First Party Data

Considered to be the most powerful and effective of the three types of data, first party data is owned data, which means that the data is based on what you, as the advertiser, has collected on your audience. It is directed at site visitors or existing customers and is usually accessed through pixels, tags, cookies, and can also include information from CRM systems or web analytics. It is a crucial component to unique advertising and retargeting which allows advertisers to leverage internal behavioral data to meet their goals (3).

Second Party Data

This is the newest form of data which definitely has the potential to be the most powerful once it reaches its maximum capabilities. All second party data is, is somebody else's first party data. It's usually made available through an arrangement with partners or companies who have the same type of target audience. For example, a luxury female clothing company might partner with a luxury jewelry company in order to broaden their advertising reach. The consumer behavior and demographics should overlap, which would allow for the jewelry company to target the female clothing company's audience and vice versa.

Third Party Data

Third party data is the monster of all the data providers. It is pretty much all the data that isn't in the realm of first party data. It's not connected to the advertiser and is an independent party which gathers data from a multitude of websites, vendors, and, even offline. It can be melded with first party data to provide an even more targeted campaign or be used on its own. Third party data provides the advertiser with additional consumer behavior that is unattainable through first party methods. It allows them to paint a more colorful picture of a user in order to give them the best fitted campaign based on their behavior.

Example 1:
Combining third party data with first party data

Someone came to your site to buy a TV and you placed cookies on their browser to track them and retarget them. But what are you going to retarget them with? With the help of third party data, you will be able to gain a more in-depth look at their behavior.

For example, what if you knew they were also in the market for a Porsche? You would have more information about their income, type of lifestyle, type of image they would like to portray, and so forth (4). This could reinforce your decision to show them an ad, not just of a generic 42" TV, but of the most progressive high-tech luxurious TV out there on the market (also the most expensive).

Example 2:
Using isolated third party data

You're a sewing machine company who wants to get new customers. You can find this consumer through third party data by seeing if the consumer had visited any sites related to your target audience, such as a sewing magazine or crafts website. Regardless if they visit a photo website or sports website after, you will be able to show your ad on the site because you know that they had recently visited a site that was correlated with your target audience.

So now we know the first step- how the DMP gets and imports its data. What next?

Now the DMP needs to segment the data and normalize the data. All this means is that it has to find trends, and segment your audience based on consumer behavior (i.e. women in California between the ages of 18-27 who use iPads, etc.).

Next, the DMP combines step 1 (the accumulation of data) and step 2 (the segmentation of data) to send instructions to the DSP. The DSP then makes the decision on how much that impression is worth for the advertiser. And of course, the impression comes from the publisher's side, or the SSP. But we'll get to that step in the next chapter. For now, you've grasped a basic understanding of how the DSP functions. Next, you'll see how the SSP functions and where the two meet.

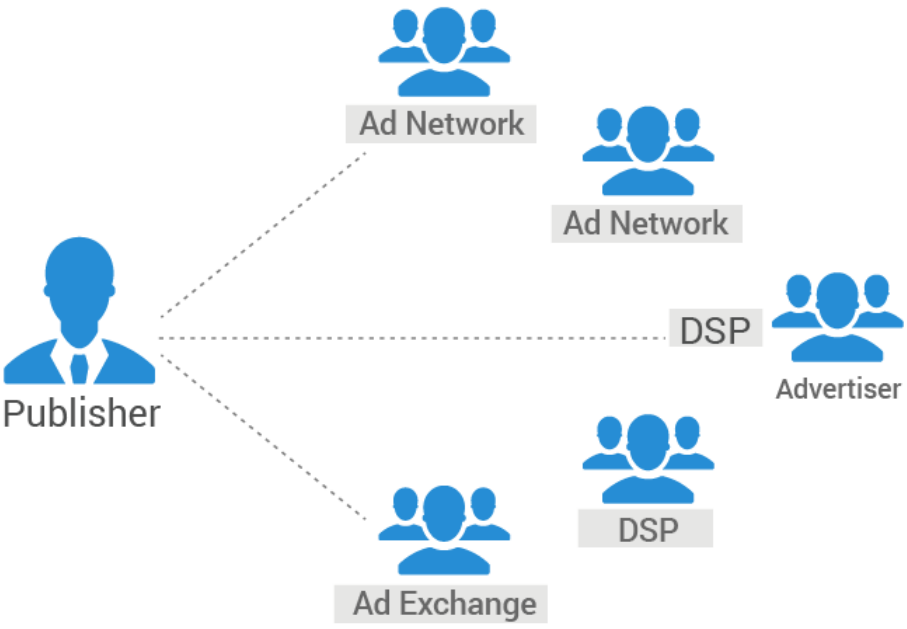
CHAPTER 3

SSPs

This chapter covers the supply-side platform, or SSP. In layman's terms, an SSP is the publisher-side equivalent of a DSP whose main goal is to maximize revenue for the publisher and, well, make their life a whole hell of a lot easier.

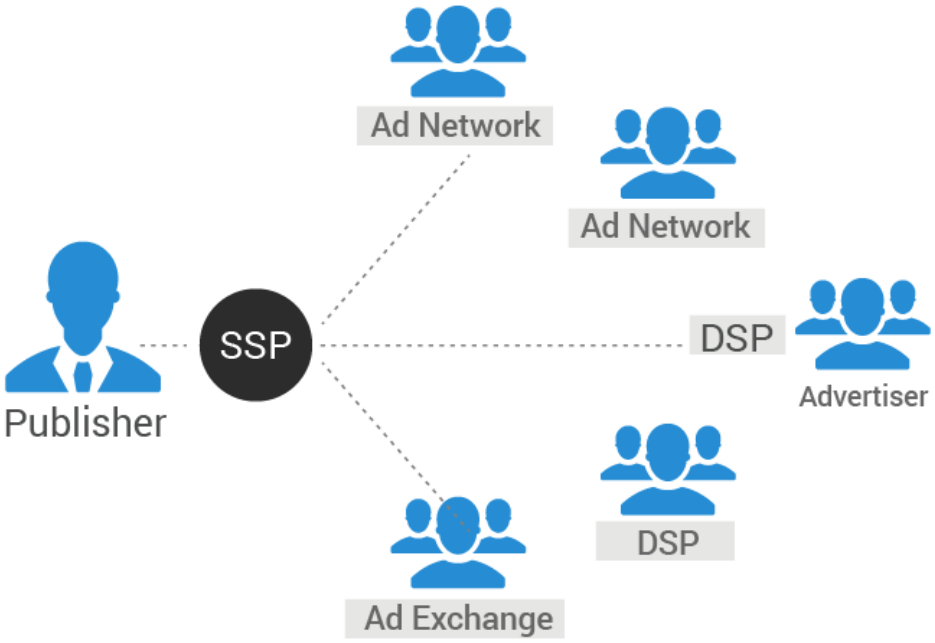
How?

In today's online advertising ecosystem, there are a plethora of ad networks, DSPs, and ad exchanges. And if the publisher wanted to sell their inventory to them, without an SSP, it would be close to impossible to do this efficiently and effectively. Dealing with every platform individually would be an extremely manual and labor intensive process.



It would take months to do any sort of A/B testing to see who is bringing in the best results, require a ton of time from the media seller to negotiate, test, and run every single deal, and, it would be almost impossible to optimize their inventory as the market is so volatile, results that are not based on real-time are irrelevant. Oh, and did I mention that if they did want to do any sort of automatic optimization they would have to integrate some very heavy and complex technology into their server?

So the SSP comes along and says, “Hey! We can not only manage your entire inventory in an automated manner, but we can also bring you premium traffic, lots of traffic, take all manual labor off the table, bring you the technology you need, and, make you money!”



So now, all the publisher has to do is provide the inventory for the SSP and the SSP does the rest of the work. And this is where it gets very, very cool.

You see, there is a special and complex algorithm consisting of three main variables embedded in the SSP which decides who gets to win the impression. Think of it as a sort of multiple regression analysis and multiple correlation (R) (scared? See the image below). You have three variables and you want to see which variable has the highest correlation with the output, or in this case, the maximum revenue. And every single time an impression is put up for auction, the results change based on the values of the variables.

Uhh… WTF is a regression analysis?

A regression analysis is simply a way of using one variable, or an input, to predict an outcome. In a multiple regression analysis you use several variables to predict an outcome. And usually, after you run your regression analysis, you run a multiple correlation to see which variable has the strongest relationship, or correlation, with the output.

The three variables are:

1) RTB
2) Payouts
3) DMPs

RTB

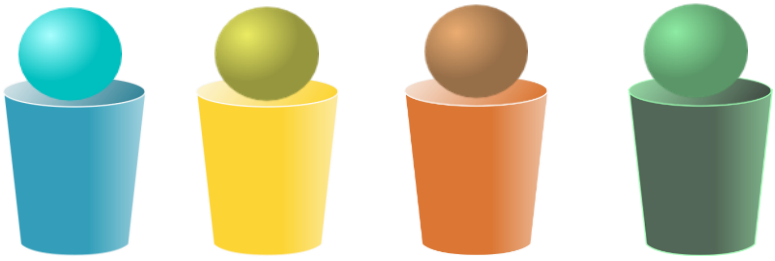
I'm not going to get into too much detail here, because I am going to explain real-time bidding (RTB) in the advanced e-book. But all RTB is, is the means in which an impression is bought and sold in real-time. This process takes place in an auction where it is being bid on. And just like in real life, the person with the highest bid wins the deal. So in advertising terms- the advertiser who places the highest bid on that impression wins the space to put their ad up! I want to make a note here: the highest bid through RTB is usually the winner. Probably 90-92% of all won impressions are based on the highest bid. However, we will be covering the other two variables as well because they are important and although not often, they do occur.

Payouts

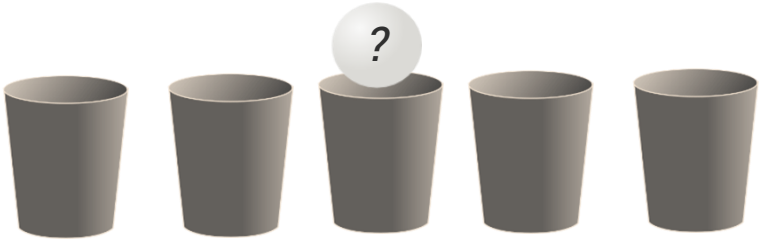
Payouts usually only happen when the advertiser is buying on a CPA or CPL basis. The advertiser usually offers to give the publisher a certain percentage of the profit. In the case where there is a tie for the bid, the SSP will sell the impression to the third party who has the highest payout rate. This case happens very rarely, but the concept still exists as an option in this ecosystem.

The DMP

Have you ever been at one of those booth games at a carnival where they give you a colored ball and you have to throw that colored ball in a matching colored cup? Easy enough. You know what the color is that you need to target based on the color of the ball.



But what if you didn't know the color of your ball and you had to throw it in the correct cup? You would be aiming at literally nothing, with the hope that you may have gotten the ball in the right cup. So in order to win, you would HAVE to know what the color of that ball is.



This is the role that the DMP plays with the SSP. The DMP in this case provides the SSP with behavior data about a certain user and "colors" or segments them. Now that the user's color is known, the SSP knows where to direct their traffic to in order to increase the likelihood of success.

Confused?

Let me draw it out for you.

The SSP has contact with multiple ad exchanges, DSPs, and ad networks. It wants to get the ad that has the highest likelihood for a conversion. Without the information from the DMP, it wouldn't be able to know how to segment the user and would just throw the impression at any DSP, ad exchange, or ad network. But with the information on the user, it would know which mediator would be the most applicable for this inventory to increase the likelihood of conversion.

Phew!

Ok, so you now understand the three major inputs that manipulate who will win the impression. And you also know that in most of these cases RTB wins.

To sum it up, the SSP is a platform which helps publishers sell their ads to huge pools of buyers, more than they would have on their own. They do so primarily through RTB so that the publisher can get the most value and money for each piece of inventory.

CHAPTER 4

Ad Exchanges

We already know how and why the ad network came to be. In short, there were so many advertisers and publishers in the ecosystem, it was impossible for advertisers to handle the direct media buying process and it was impossible for publishers to sell most of their inventory. So the ad network came to be.

For advertisers, this was very good because it enabled them to extend their reach and reach a larger number of publishers through one platform. For small and medium publishers, this was also very good. This was because these publishers had a very hard time selling their inventory to advertisers and now they were able to sell their inventory as part of a larger package on behalf of the ad network.

Ok, so how does an ad network actually work?

Firstly, the ad network needed access to a huge audience. This audience was brought by the publishers, and along with it, an abundance of consumer behavior data. Next, the ad network would look at all the inventory they had aggregated and they would use an algorithm to forecast how much of this inventory would be available in the following months per each publisher. Next, they would aggregate this data based on segments, which they are able to do with the use of the consumer behavior data. They would then package this segmented data (based on things such as age, gender, demographics, etc.), mark them up, and sell them to advertisers.

It sounds fine…so what's the problem?

Let's start with the advertisers. First of all, most ad networks don't want advertisers to know where their ads are getting published. This is for several reasons, the most important being that if you, as an advertiser, knew which publishers your ad network was working with, you would be able to pass the ad network and work directly with those publishers, eliminating the need for the ad network. Because of this, advertisers can't identify which inventory works best for them.

Next, because advertisers buy inventory in packages, and these packages often include both remnant inventory and premium inventory, advertisers can't really know what the value of any single impression is and can't really obtain too many insights. Additionally, because there is almost no transparency and advertisers don't know what sites their ads are running on, they could be taking the risk that it is showing up on a nefarious site.

Publishers didn't have it much better. The lack of transparency also ran on the side of the publishers. They were unable to identify which advertisers were bringing in the best results and had to take the chance that the ad network would bring in very low quality ads, which could in turn lower the reputation of the publisher's site, decrease any likelihood of conversions, and so forth. Because publishers were working with multiple ad networks at once, they had to constantly be evaluating with ad network was bringing them the best results—this was a manual and time consuming process. And most importantly, ad networks, more often than not, were also working with a chain of other ad networks, buying and selling inventory from one another. Each one of these took a cut from the publisher leading the publisher to receive lower and lower revenue.

And let's not forget the challenges the ad networks themselves had. Although their plan seemed to be seamless, let's remember that there is no such thing as concrete forecasting. It is a prediction, not an accurate science. So of course, forecasting publisher inventory was often faulty. And because of this instability, their packages were inconsistent and they were either overselling or underselling inventory.

So you see the problem. What started off as a solution turned out to be a little more detrimental to its key players than intended. And this is where ad exchanges came into the picture.

Ad Exchanges

An ad exchange is a platform which facilitates the buying and selling of inventory through real-time auctions. Unlike ad networks, which don't work in real-time and sell inventory by the bulk, ad exchanges buy and sell per impression. This gives the advertiser complete control over each ad- they have specific criteria they specify ahead of time so that each impression is bought with a real purpose. It eliminates the traditional methods that provoked wasted impressions. Now, they are able to choose exactly who would see their ad, where they would see it, how they would see it, and when they would see it. So not only would they get to choose each and every impression they are buying, but they also decide how much they want to pay for each impression and only pay for the impressions that they want.

Ad exchanges conduct auctions for every single impression and just like in real life, the highest bidder wins the prize. So now, rather than the publisher selling 10,000 impressions in one bulk package and not necessarily getting the best bang for their buck, each impression is auctioned off to the highest bidder, which ensures that the publisher is getting the maximum profit based on market values.

The key differences between ad exchanges and ad networks

Although I assume most of you are starting to understand the key differences between ad networks and ad exchanges, it won't hurt to reiterate them in this section.

1) Because each impression is sold to the highest bidder, there is high competition between the advertisers. If they know they want it they will try to outbid each other, raising the CPM for publishers.

2) Advertisers can now buy only the impressions that they are interested in. Rather than buying in bulk from ad networks, they have complete control over their impression buys which allows them to buy at a much higher price.

3) Transparency for all! Because ad exchanges provide both the advertisers and publishers with transparency and visibility, advertisers are now able to gain insights as to which were the best performing sites and help them optimize for future campaigns. Publishers are able to see which advertisers are driving the highest eCPM to their sites, giving them the insights they need to make better decisions regarding which advertisers they want to encourage on their site.

4) If you remember, when I introduced the ad exchanges, I said that they are a direct connection between advertisers and publishers. Ad networks, on the other hand, can work with multiple intermediaries, causing the distance between the advertiser and publisher to grow. The problem with that scenario is that each middleman takes a cut of the profit, lowering the revenue left for the publisher. So ad exchanges create an environment for a more efficient relationship, enabling the publisher to make more money.

CHAPTER 5

Conclusion

Congratulations!

You've just mastered the fundamentals of programmatic buying. If you want to learn even more about programmatic, such as RTB, programmatic direct, challenges with programmatic, and ad fraud stay tuned for the advanced guide to programmatic buying. And if you can't wait, let us know and we'll send it over to you!

Shoot us an email here: marketing@adclarity.com

Sources

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