Ad Networks vs. Ad Exchanges: How They Stack Up

An OpenX whitepaper

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Web publishers have always had a wide choice of different ad networks to partner with to generate ad revenue. Recently, ad exchanges have emerged as an alternative channel to sell publisher's ad space.

This whitepaper explains what ad exchanges are and how they differ from ad networks. It explores the advantages that ad exchanges offer over ad networks, and why today an ad exchange is an essential part of every publisher's monetization strategy.

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1 Introduction

As the volume of inventory bought and sold via ad exchanges increases, a growing number of publishers are starting to evaluate what kind of role ad exchanges should play in their monetization strategy. In order to answer that question, publishers need to first understand what ad exchanges are and in particular how they differ from ad networks.

This whitepaper aims to answer both questions: first, it explores how ad exchanges differ from ad networks, and secondly it demonstrates how ad exchanges such as the OpenX Market provide an essential component to publishers' monetization strategies.

2 Ad networks

2.1 The basics

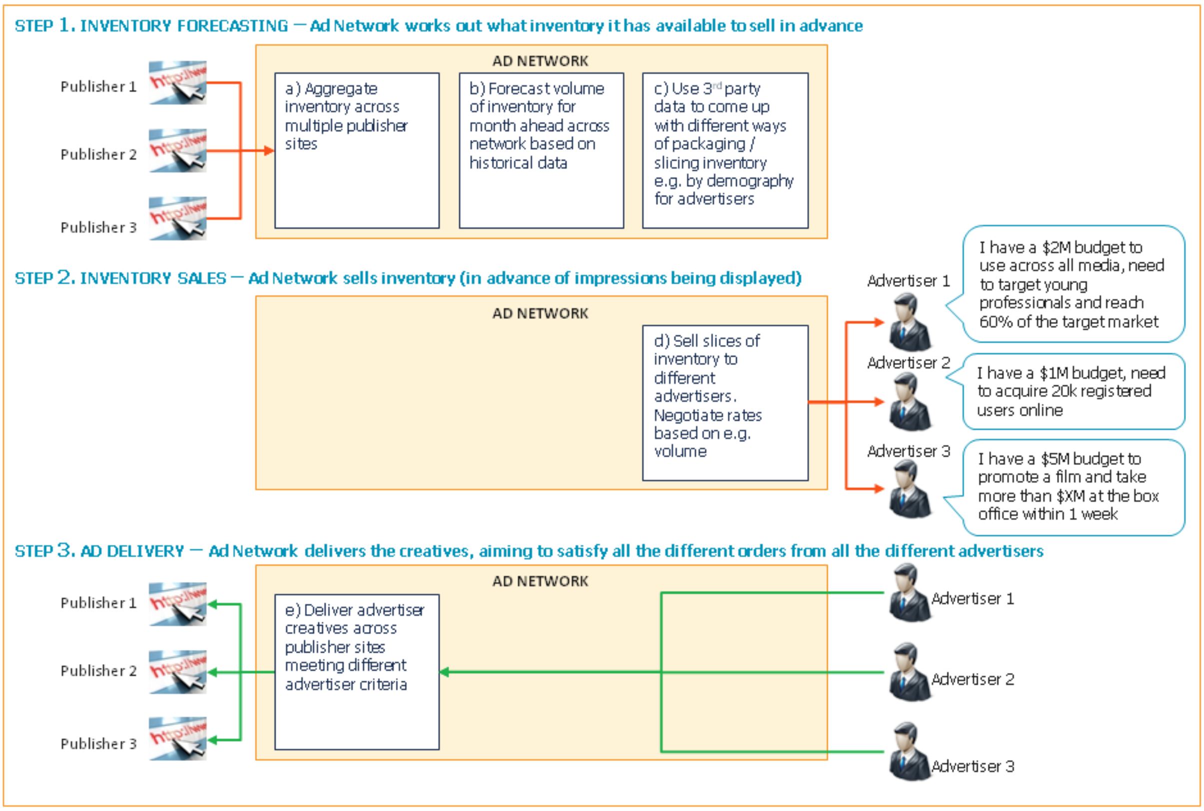
Ad networks have been around since 1997.[1] The original ad networks were set up to address a problem for advertisers wanting to buy online inventory: Internet audiences are incredibly fragmented, splitting their online time between many different websites. By aggregating inventory across multiple sites, ad networks could offer advertisers the ability to reach the size of audience that they had come to expect from traditional channels like television.

2.2 Ad network mechanics

While there are many different types of ad networks, the majority work as shown in the following diagram:

1. Forecasting how much inventory they have to sell across their publisher sites
2. Doing deals with advertisers to sell that inventory (in advance)
3. Delivering sold advertising

Figure 1: the three-step process by which an ad network forecasts, sells and delivers display advertising



[1] Forrester Feb 2008 report "The Truth About Online Ad Exchanges".

2.3 Different categories of ad network

The ways in which ad networks add value to advertisers and to publishers vary by the category of ad network:

	Rep networks	Vertical ad networks	Targeted ad networks
Description	Represent a select group of publishers, often on an exclusive basis. Function as an outsourced sales force for their publishers.	Represent a broad group of publishers in the same sector e.g. "fashion" or "healthcare".	Let advertisers buy audience segments e.g. demographic (by gender, age), behavioral (by interest e.g. in sports, cars), by context (e.g. websites that in particular subject areas) or by alternatives to CPM (e.g. buy clicks instead of impressions).
Offer to advertisers	High degree of transparency: advertisers can specify exactly where their ads will appear on publisher sites.	Ability to reach large audience in a particular channel, or highly targeted niche in a specific vertical.	Ability to buy specific audience segments, or buy on performance rather than impression basis. However, networks are typically "blind" i.e. advertiser has limited visibility on what sites ads appear.
Offer to publishers	High CPMs if they offer advertisers a unique niche with limited supply.	High CPMs if publishers are part of a sector that advertisers find attractive, esp. if supply of inventory in that sector is limited.	Ability to sell remnant inventory without cannibalizing higher priced inventory sold directly / via rep networks.
Examples	Federated Media Gorilla Nation Blogads	The Travel Ad Network GourmetAds Good Health Advertising	Google AdSense Yahoo! Publisher Network AOL Advertising Specific Media Collective Media

Many ad networks do not fit into one category, instead employing a combination of techniques to maximize the CPMs achieved for their publishers. For example, an ad network might sell direct on publisher sites where possible, and then sell remnant inventory "blind" on a CPA or CPC basis.

3 Ad exchanges

3.1 The challenge

Today's advertising value chain is both complicated and inefficient:

- There are many intermediaries in the value chain between publishers and advertisers, each taking a slice of ad dollars. (For example, an ad network that cannot sell a particular slice of inventory may offer it cheap to another ad network, which in turn sells it to a third ad network.)
- Advertisers spend too much time and effort working out where best to buy ad space, delivering advertising across multiple networks and then collating data from multiple sources to measure results.
- To maximize revenue, publishers spend too much time deciding how to allocate inventory between ad networks , and then ensuring that the right creatives are shown to the right audience.

3.2 The ad exchange solution

Ad exchanges address the above problems, removing complexity and inefficiency from the value chain, by auctioning each impression in "real-time"[2] between multiple advertisers, and selling it to the highest paying advertiser. This simplifies the value chain by:

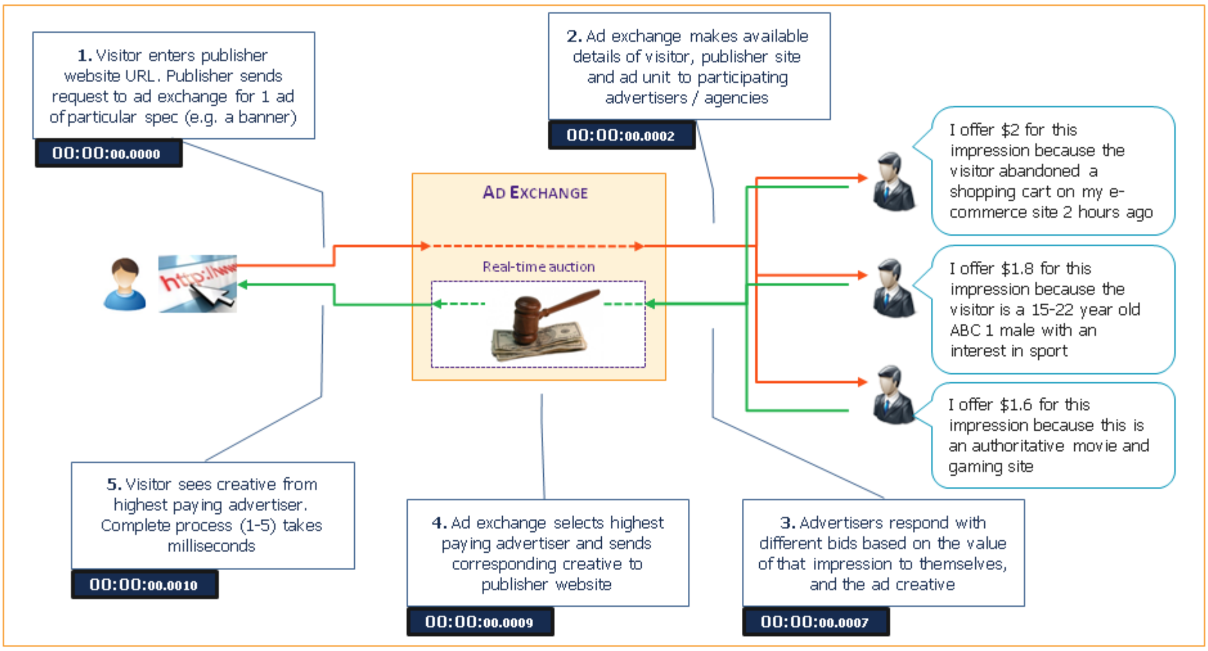
1. Providing a single point of contact between publishers and ad buyers, so that advertisers can consolidate the number of places they buy across, and publishers the number of places they sell across.
2. Making it easy for advertisers to compare which ad space to buy, by providing impression level data on the visitor and web page to the advertiser, and enabling buyers to modify their buying strategies based on real-time feedback.
3. Ensuring that publishers maximize revenue, by using an auction mechanism to make sure that the highest paying advertiser buys every impression passed through the exchange.
4. Making it easy to for both publishers and advertisers to deliver the campaigns sold, by delivering each impression as soon as it is sold. (Instead of selling in advance based on forecasts and then managing under- or over-selling.)

[2] "Real-time" means each ad is sold as it is delivered, as we will explain in the next section.

3.3 Ad exchange mechanics

In the diagram below, we explain how an ad exchange conducts an auction for an ad slot between multiple advertisers in real-time:

Figure 2: how a real-time ad exchange works



Real-time ad exchanges (such as OpenX, Right Media and DoubleClick) sell publishers' inventory one impression at a time.

When a person visits a website, in the short time interval as the web page loads, the ad exchange conducts an auction between multiple advertisers for each impression on that page. The advertisers bid for that impression based on the value of the user (behavioral and demographic data), the context in which the ad is shown (e.g. the subject matter of the website) and the type of ad unit (dimensions, scope for rich media). The highest paying advertiser "wins" the auction and it is his or her creative that is shown to the website visitor. This whole auction process takes place in milliseconds, in time for the ad to be delivered to the website visitor as the page loads. This is why the process is referred to as "real-time."

Note that the data made available to advertisers bidding may be owned by the ad exchange itself, or provided by a third-party partner. The provision of impression-level data to advertisers enables them to accurately value the impression.

3.4 The major ad exchanges

While there are hundreds of ad networks, the complexity associated with setting up and running a real-time ad exchange means that there is only a handful on the market:

Ad exchange	Owner	Comments
OpenX Market	OpenX	Only independent real-time ad exchange Integrated with the OpenX ad server
DoubleClick	Google	Integrated with AdSense and DoubleClick for publishers
Right Media	Yahoo!	The oldest ad exchange, founded in 2005 Participants (both buyers and sellers) require a seat on the exchange to trade
AdECN	Microsoft	Service geared towards ad networks: individual publishers and advertisers cannot trade on the exchange directly, they can only buy or sell ad space through ad networks, who require a seat to participate

3.5 Key differences from ad networks

There are some key differences between ad exchanges and ad networks which make ad exchanges an essential component of every publisher's revenue strategy:

Direct competition	By selling through an auction mechanism, exchanges encourage advertisers to compete with one another for every single impression, driving up the price of ad space.
Sell one impression at a time	An ad exchange maximises the value of each and every impression passed through it, comparing advertisers who might be bidding on very different criteria for that impression, to ensure the publisher gets the best price for their ad space. This is different from ad networks, who often sell at a lower eCPM in order to close high volume sales, or may not be in a position to quantitatively compare two ad buy offers, e.g. between an advertiser that wants to buy a 1 million impressions of "male audience aged 18-25" with another advertiser who wants to buy 5,000 clicks from "sports fans on the West Coast".
Advertiser transparency	Advertisers typically have visibility on the site, visitor and ad unit which they are bidding on, enabling them to properly value the impression and pay full value for it. This is different than blind networks[3] where advertisers always pay less, because they do not really know what they are getting.
Publisher transparency	On ad exchanges, publishers get more granular information on which advertisers are buying their inventory and what they are paying. This gives them a better understanding of the drivers of eCPM on their sites and more control over what advertisers and creatives they want to allow / encourage on their sites. This differs from ad networks where publishers often have limited visibility and only the ability to black-list certain categories of advertisers

[3] "Blind networks" sell to advertiser on an targeted basis (e.g. a specific demographic, or a certain number of clicks), but do not share with the advertiser on which site their ad is shown. They are typically used as a sales channel of last resort by publishers, to increase fill rates

Sell in real-time	Because advertisers buy ads in real-time, they can dynamically reallocate budget based on the real-time performance of ads. This gives ad buyers greater confidence, which in turn encourages them to pay higher rates for ads bought through exchanges. For example, advertisers setting their bids in real-time on the OpenX Market bid on average 141% higher than those who set their bidding rates / rules in advance.[4] Because ads are sold in real-time, less operational effort is required to forecast inventory and manage over- and under-selling as ads are delivered, reducing friction and administrative costs and leaving publishers with a higher proportion of every ad dollar spent. (OpenX takes a 20% commission on advertising revenue through the OpenX market, as compared to the 30%+ charged by most ad networks.[5])
Fewer intermediaries between advertisers & publishers	Because there are fewer intermediaries between advertisers and publishers in the ad exchange model, there are fewer companies in the value chain taking a cut of ad spend, leaving a higher proportion of ad revenue left for publishers.
Risk-free	Some ad exchanges (including the OpenX Market) enable publishers to set a “floor price”: this means that the exchange will only sell an impression if it can beat the publisher floor. (If not, the publisher can sell the ad to a backup ad network.) This removes the risk of adding an ad exchange to a publisher’s revenue strategy, as the net effect on publisher ad revenue can only be positive. When publishers sell to ad networks by contrast, they cannot specify a minimum floor price.

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Collectively, these features make exchanges a more effective inventory sales channel for publishers (in terms of effective CPMs) than ad networks. This is illustrated by the metrics from the OpenX Market: some publishers achieve more than 500% eCPM uplift.[6] For publishers, then, the shift in ad spend to real-time ad exchanges represents an opportunity to achieve higher eCPMs.

[4] Source: OpenX. Data is for June 2010. On the OpenX Market, advertisers can either setup bid rules in advance of auctions, or setup their buying platforms to set bid prices in real-time based on campaign performance

[5] Source: OpenX, trade press. Some ad networks charge significantly more than 30% e.g. Google AdSense charges 49% (source: Google http://adsense.blogspot.com/2010/05/adsense-revenue-share.html accessed on June 5 2010)

[6] Source: OpenX. Data is for June 2010.

4 Conclusion

Ad exchanges sell publisher inventory in a fundamentally different way than ad networks. By:

1. selling each impression individually in real-time,
2. encouraging direct competition between advertisers,
3. providing both advertisers and publishers greater levels of transparency and
4. reducing administrative friction associated with selling and delivering ads,

ad exchanges drive advertisers to pay higher CPMs, and leave publishers with a greater percentage of ad spend. This represents a significant opportunity to publishers.

That is not to say publishers should give up on ad networks all together. Ad Networks continue to function as an intermediary for buyers. In fact, they buy large amounts of inventory on ad exchanges. So when publishers work with an ad exchange, they connect with many more ad networks than they otherwise would if they forged a direct relationship. This competition drives CPMs up.

In addition, the floor pricing mechanism provided by ad exchanges such as the OpenX Market means that publishers can make their inventory available to the OpenX Market, but the Market will only serve it if it can beat the price that the publisher's fallback ad network would pay for it. This means that publishers can add an ad exchange to their list of monetization partners, raising the possibility of significant ad revenue growth, without risking reducing their overall eCPM.

As more advertisers start buying impressions from ad exchanges rather than ad networks, and advertisers move towards setting bidding rules in real-time, CPMs for publishers are expected to continue to grow.