Lies, Damned Lies...

The unpredictable world of online marketing & web analytics

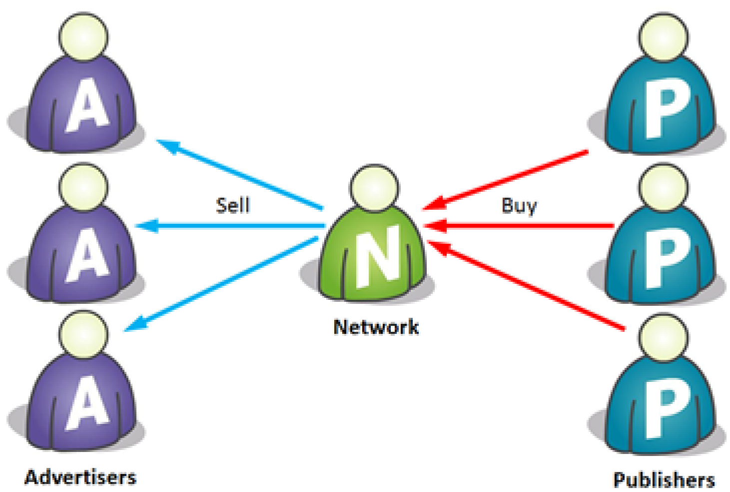
November 13, 2008

Online Ad Business 101, Part VI – Ad Exchanges

Yes, it's time for another Online Ad Business 101 post. This post deals with one of the players that I left out of my first post about the online advertising value chain: Ad Exchanges. If you don't know what an ad exchange is, now's the time to learn, since these little-known companies (most of which are now owned by some extremely well-known companies, such as Microsoft, Yahoo and Google) are set to have a major impact on the way the industry works over the next few years. Our own AdECN recently announced the launch of its new "federated" ad exchange, making this post especially timely (in truth, the timing is no coincidence – the announcement was the gentle kick I needed to get this post out the door).

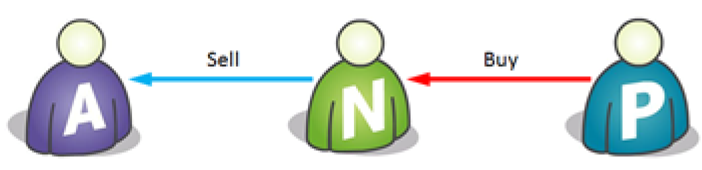
The problem with ad networks

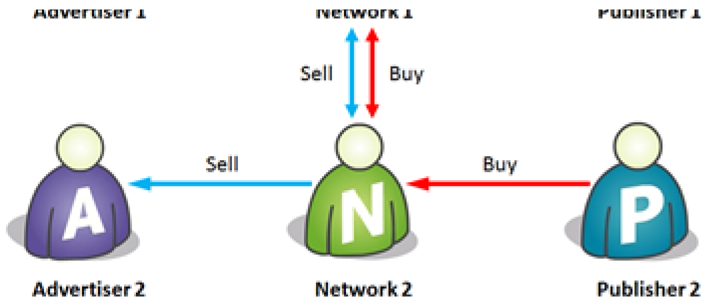
Ad networks are great. They must be – there are enough of 'em (300 the last time I counted). As you'll know from reading my post about them, ad networks make money by creating a marketplace between publishers (providers of ad inventory) and advertisers (consumers of ad inventory). By connecting many publishers to many advertisers, they create some efficiency and add some value into the bargain (by providing targeting capabilities, for example). Networks sit at the center of their own little web of advertisers and publishers (apologies to Right Media for, ahem, borrowing their little people graphics for this post):



The key challenge with being an ad network is that you have to grow the supply side of your business (the publishers) in parallel with the demand side (the advertisers) – there's no point signing up a huge batch of new publishers if you've no one to sell their inventory to. But doing this in practice is extremely hard.

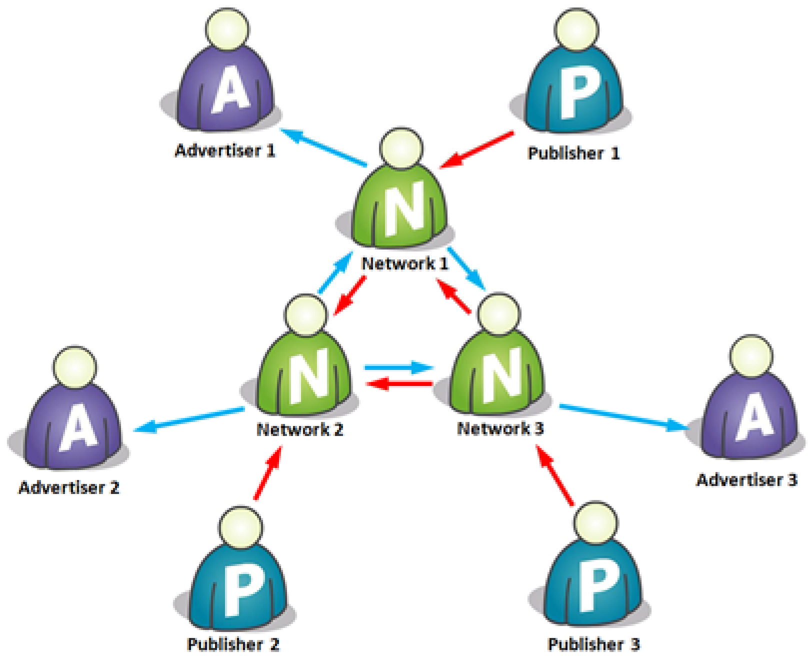
To solve this problem, the ad networks have brokered relationships with one another over the years so that, if a network has an impression that it needs to sell, but doesn't have an advertiser to sell it to, it can sell that impression to another network. Similarly, in the reverse case, if a network has an opportunity to sell an ad, but doesn't have the inventory to fulfill the sale, it can buy the inventory from another network. So the picture (with each network's advertisers and publishers collapsed to one of each) looks like this:





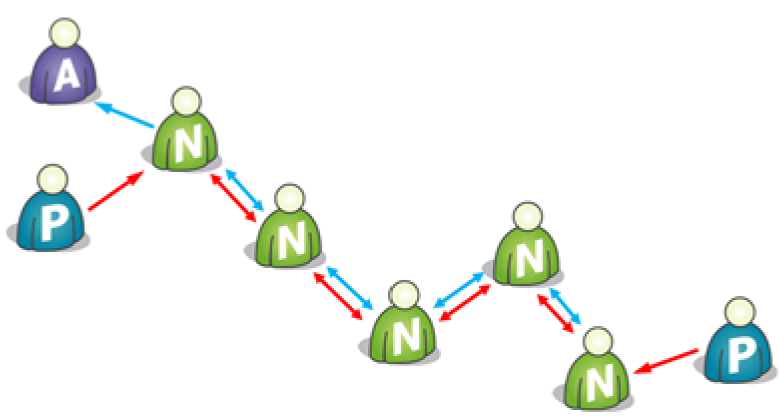
In the diagram above, Network 2 can sell Publisher 2's inventory to Network 1, who sells it on to Advertiser 1. Similarly, Network 2 can buy inventory from Publisher 1 (via Network 1) and sell it to Advertiser 2. In the real world of ad delivery, the ad call is redirected from the publisher to Network 1, and then to Network 2, before finally being redirected to the advertiser's ad server.

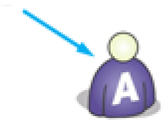
If you add another ad network to the mix, then each ad network can forge relationships with the other two, and trade impressions in much the same way:



If there were just two or three ad networks in the world, this might not be a problem. But of course there aren't – there are three hundred. But each ad network can't have a relationship with every other ad network; each network would have to maintain 299 relationships, which comes to (299 + 298 + ... + 2 + 1) = 44,850 relationships!

So instead, the networks form a kind of 'daisy chain' – each network passes off some portion of its inventory to one or more others, which in turn pass some of this off to their own partner networks, and so on. So a single ad impression can pass through half a dozen (or more) networks before finally being fulfilled:





Of course, the diagram above dramatically over-simplifies the picture; each of the networks in the chain will have multiple relationships with other networks, and so inventory can take a series of routes from a particular publisher to an advertiser.

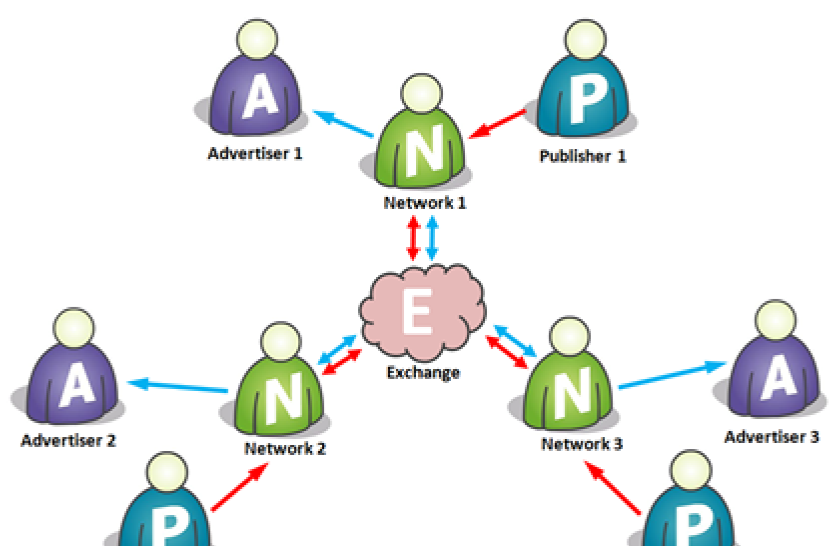
This daisy-chaining sucks, big time, for the following reasons (and others):

- Each network has to maintain multiple bilateral arrangements with other networks, sucking up time and technical resource
- The more networks there are in the chain, the longer the ad takes to serve
- Each network wants to take a cut of the cost of the inventory,cutting into the publishers' margins
- In addition to the margin problem, it's very difficult for publishers to get the best price for their inventory, since each network in the chain has to make the best guess around the network it thinks will deliver the best price
- The publisher has very little or no control over the quality of the ad that ends up being displayed; it's very easy to insert poor-quality or even malicious ads into the system
- If the ad is clicked, the click path is very convoluted, and is liable to hijacking (another security vulnerability)
- The system is completely opaque to the publisher (no network can provide a comprehensive list of what actual ads they served, or had a hand in serving, on a publisher's site)

Enter the Ad Exchange [fanfare]
By now I can almost hear you crying, "But surely there must be a better way!" Well, you'll be glad to know, there is. Rather than the ad networks all dealing with each other directly, we need some kind of impartial intermediary which can act as a central hub through which the networks can trade. An ad exchange, if you will. Of course, exchanges (especially commodity exchanges) have been around for a long time – as I noted recently on this blog, everything from pork bellies to weather futures are traded today on exchanges around the world today.

The Chicago Mercantile Exchange (one of the biggest exchanges in the world) is even launching an exchange for credit default swaps – those bad-boy financial instruments the opaque trading of which (in a manner which is alarmingly reminiscent of the ad network relationships above) have had such a hand in getting us into the mess we're all in now.

So if even something as evanescent as a CDS can be traded on an exchange, why not ad inventory? Well, it turns out there are some fairly interesting technical challenges, since the volume of transactions is extremely high and transactions must be completed within a few milliseconds; but those are surmountable. By adding an ad exchange into the picture, the trading relationships look as follows:



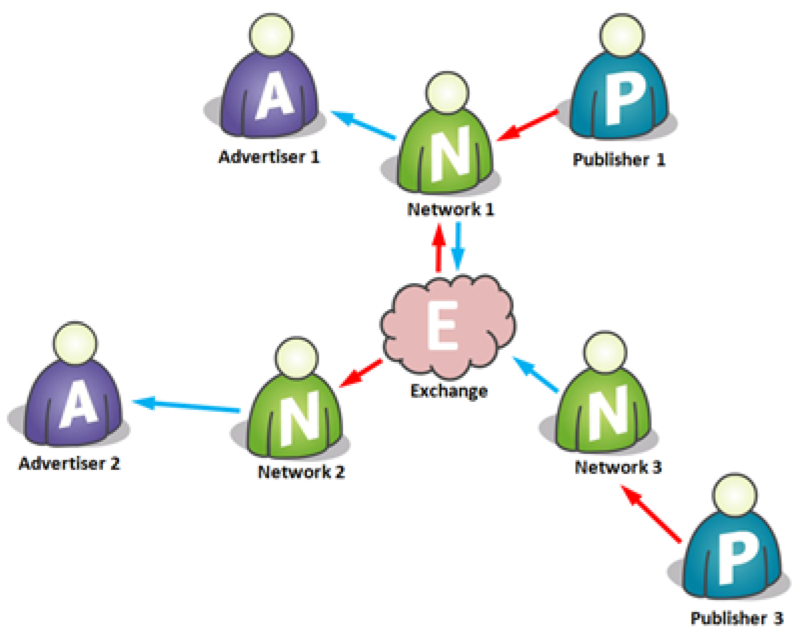
Now each ad network has just one trading relationship – with the exchange. So if there are 300 networks, there are 300 relationships, and every network is just one 'hop' away from every other network.

What this is means is that for a given ad impression on a publisher site, the network that owns that impression can say to the exchange, "what am I bid on this impression (one careful owner, full service history, nice neighborhood, good references, etc)?". The exchange can then hawk that impression to all the other networks and solicit bids. Depending on the data that is attached to the impression (or a cookie that one or more of the other networks may recognize and be able to attach data to), the various networks may be able to sell that impression for a greater or lesser amount. So the bids come in, the winning bid is selected, and passed back to the originating network; and if that bid is better than what the network could get from its own advertisers, it wins, and the ad is served.

Crucially, there are only ever two networks (plus the exchange) in this transaction. So each network will take a cut of the impression price, and the exchange will charge a flat transaction fee (this is essential to maintain the exchange's impartiality – taking a cut would introduce bias). Just having two networks in the transaction means more money for the networks and the publisher, and possibly better pricing for the advertiser. So everyone wins.

There's more…

The benefits of moving to an exchange-centric model for ad inventory trading don't end there. As I said at the beginning of this post, one of the irritating things about running an ad network is having to match demand to supply – as networks grow, they have to recruit both advertisers and publishers. The network model allows one-sided participants to flourish, dramatically increasing the range of ways in which businesses can participate in this market.



In the above example, Network 2 doesn't actually source any inventory direct from publishers – it gets it all from the network, and focuses on being great at selling that inventory to advertisers. Another (perhaps better) name for the kind of company that does this is a Media Agency. Havas has just announced its intention to do something similar to this. You could also easily imagine the likes of Amazon and eBay – both of which have huge rosters of small advertisers, but no corresponding publisher base – to participate in this fashion.

Similarly, Network 3 above has decided to do away with its advertiser customer base and just sell all its inventory to the exchange. In this sense it becomes a bit more like an ad sales house or publisher aggregator than a true network. A company in this mold might be Six Apart, creators of the TypePad platform, which has lots of publisher relationships (including with me), but no advertiser relationships to speak of.

And there's a third scenario which is even more interesting, which is that the exchange model makes it possible to add value (and make money) without trading any inventory at all. A company like Nielsen might choose to sell the data it has on internet users to the exchange, helping to drive up inventory value, and taking a cut of transactions that use its data.

Building a true ad exchange is non-trivial, mind you, which is why the most significant efforts in this space are courtesy of the Big Three of Google (most visibly via the DoubleClick Advertising Exchange), Microsoft (with AdECN) and Yahoo (via the RightMedia Exchange). And a big question-mark still hangs over how exchanges will earn money – the revenue model is well understood (transaction fees), but whether those fees will be enough to support the exchange's costs remains to be seen. That's why it's the companies named above which are most active in this space, because they all have ad networks of their own that they want to add value and liquidity to, so that they can recruit more advertisers and publishers, and ultimately take over the world (bwwahahaha).

Impact

Ad exchanges are poised to have a transformative effect on the online advertising business. Given the current economic climate, you can probably expect these creatures to fly under most people's radar for the time being – probably until late 2009, I'd say – but their influence will be felt as advertisers find it easier to reach the audience they need (via greater liquidity in the marketplace), and publishers are able to hang onto a bigger chunk of the price of their inventory.

In the latter case, Exchanges could end up changing the balance of power between direct-sold and network-sold inventory – if a publisher can get a better margin (taking into account sales costs) by sending some inventory that was direct-sold to the exchange, they will do so.

But what about networks? They will likely see better margins by going through an exchange for inventory they can't clear themselves; but exchanges will level the playing field in terms of inventory access, meaning that networks will have to ad value over and above simple aggregation in order to survive. Competition for publishers may intensify since, if networks are backed by exchanges, there's less incentive for publishers to have deals with multiple networks. Certainly we can look forward to lots of change – consolidation, specialization, fragmentation – in this industry in the years to come.

For more reading on this from someone who knows much more about it than I do, I'd recommend these two excellent posts on the topic from Mike Nolet, formerly of Right Media.

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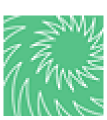

Karen said...
Hi, Mike

Great work for posting the online ad 101 series. I really enjoy reading about them.

I'm new to online ad business and particularly interested in in the online advertising supply chain("value chain"), starting from the advertiser's budget allocation to the point of purchase of online advertising space. How would an advertiser's budge flow through each step of the process into an amount spent online & most importantly, what "cut" is taken at each step of the process? Do you know where I can find such info? thanks!

Reply November 13, 2008 at 08:26 PM

Karen said...

It's Ian isn't it? sorry got your name wrong.

Reply November 13, 2008 at 08:28 PM

Ben said...

Thanks for these fantastic posts! For those of us trying to understand the rapidly developing interactive advertising space, these posts are tremendously helpful. With regards to ad exchanges, I'm wondering if advertisers and publishers can currently access the inventory in an exchange only through an ad network, or if they too can become direct participants in the exchange model? If the former, do you see that trend changing in the future?

Thanks again!

-Ben

Reply November 14, 2008 at 11:33 AM

Humberto @ w.illi.am/ said...

Hi, very interesting post. I heard somewhere about an AdServing product by Google. I was wondering what your views are, if any, on this Google product's impact on the market?

Reply November 17, 2008 at 02:10 PM

Will Scully-Power said...

Another brillant post! Well done on helping the industry understand how 'this all works'!

Reply November 18, 2008 at 08:57 PM

Carl Mathiei said...

Mike,

Totally agree! Good job. You said about adnetworks and I quote that "they create some efficiency and add some value into the bargain (by providing targeting capabilities, for example)".

I think that websites should no longer consider targeting through an adnetwork a competitve advantage. Right now we're using BTBuckets.com , a free behavioral targeting and visitor segmentation tool, fully integrated with Google Analytics, Google Ad Manager and Youtube. Now I can set up my owm user "buckets" directly, and sell my media @ a premium price. And best of all - without fees...

Best,

Carl

Reply November 20, 2008 at 03:02 PM

Peter said...

Great post. I've been trying to understand how ad-exchanges work for quite some time. Your article finally made it clear. I've also been reading mikeonads and between both articles there is all the information you need to clear up and misunderstandings about ad-exchanges.

As for the post above mine by Carl Mathiel. I still believe that ad-networks offer a very big advantage over selling your own media without a sales team, in-house ad-server, and expert knowledge of the internet ad industry. In the future I think we will see more and more behavioral advertising networks offering much greater transparency to their publishers with many more innovative tools for their publishers to further increase the efficiency for two sided monetization. There are still many voids that must be filled by ad-networks. It will be interesting to see how those are filled in the next few years.

Reply January 24, 2009 at 11:43 PM

Comments on this post are closed.