Online Advertising
Over the past few years, the industry has achieved a number of milestones

- 2011 – Online advertising revenues overtook those of cable television – $36.6 vs $32.5 billion. (U.S)
- 2013 – Revenues from online advertising rose by 17% to $42.8 billion compared to $36.57 billion in 2012. (U.S)
- 2013 – For the first time, online advertising revenues exceed those from broadcasting and cable television – individually, not combined. (U.S)
- 2014 – Q3 revenues of the online advertising industry reached a historical high of $12.4 billion. (U.S)
- 2014 – Mobile advertising revenue in the first half of 2014 rose to $5.3 billion, a growth of 76% compared to the same period in 2013. (U.S)
Terms

- **Ad Impression**: a.k.a., an ad view. Each time an ad is fetched from its source, it is counted as one impression. Whether the ad is clicked is not taken into account.

- **Click-Through Rate (CTR)**: The ratio of users who click on a specific link to the number of total users who view a page, email, or advertisement. Typically, anything over 2% can be considered an above average CTR or good CTR.
Buying and selling of inventory (i.e., ad space) was done directly and sold on a cost-per-thousand basis. (per thousand impressions, not per thousand clicks)
Ad networks take remnant inventory from the publishers (web site owners), package it up, and then sell it to advertisers.
Both advertisers and publishers enjoy the benefits of ad networks.

They provide publishers with a highly effective way to sell their 10% – 60% remnant inventory, help them cut down on the time and money associated with selling inventory to advertisers.

Advertisers benefit by receiving high cost savings and an easier, more effective way to connect with audiences on a much larger scale.
The Problem

- Even though the introduction of ad networks added fluency to the ad buying and selling processes, the increase in the number of ad-network companies meant that publishers spent a lot more time searching for the best-valued network. They found it hard to identify the best-performing advertisers and often had to pay out commissions to a number of different networks.

- For advertisers, this process also created challenges. Buying inventory from an ad network meant they often bought the same audience more than once, lacked clear insights into the effectiveness of their ads, and struggled to identify their best-performing inventory.

- The next revolutionary ad-buying method to hit the online display industry was the introduction of Ad Exchanges and Real-Time Bidding.
Ad Exchanges and Real-time Bidding

The ad exchange conducts auctions on an impression-by-impression basis.
The introduction of ad exchanges has completely changed the way display ads are bought and sold.

Instead of buying impressions on a cost-per-thousand basis shown to a wide audience that often include only a small percentage of their target audience, advertisers can now buy ads on an impression-by-impression basis.

By only bidding on the impressions that are relevant to them, based on the audiences they want to reach, advertisers are able to target their true audience more directly.

This also provides publishers with higher ad revenues, as their inventory is being displayed to the right users advertisers want to target.
Real-time Bidding (RTB)

- Publishers sell their ad inventory on the ad exchanges.
- Advertisers then bid on the publisher’s inventory in real time, based on the impressions that are valuable to them (audience, retargeting, etc.).
- The winner is the advertiser who bids the highest amount of money for that impression.
- The winning ad is then displayed on the publisher’s website.

The process is repeated each time a web page is loaded on a user’s computer. This real-time auction starts and finishes before the page loads and happens in about 100 milliseconds.
The Main Components of Real-time Bidding (RTB)

five main parties – the publisher, the supply-side platform (SSP), the ad exchange, the demand-side platform (DSP), and the advertiser.
In the context of display advertising, the publisher is the website that users visit. An example of a publisher can be something as simple as a travel blog or a news website, but can also cover web applications such as Facebook.

When a publisher decides to create a revenue stream through display advertising, they make ad space (ad slots) available on their website for potential content, known as inventory.
The supply-side platform is designed to help publishers sell their inventory on a number of different ad exchanges in an automated, secure, and efficient way. Even though publishers don’t need to use an SSP in order to sell their inventory on the ad exchange, the technology used in SSPs provides them with many benefits that allow them to receive the most yield from their inventory and gain clearer insights into their audience.
Ad exchanges are dynamic technological platforms that facilitate the buying and selling process of available impressions between the advertisers (buyers) and the publishers (sellers) – very much like the way stock exchanges manage the buying and selling of stock between investors and companies.
The Demand-Side Platform (DSP)

The demand-side platform is the advertiser’s equivalent of the supply-side platform used by publishers. The DSP stores display ads (a.k.a creatives) that the advertisers would like to appear on websites. They also provide many additional features that benefit the advertiser.
At the other end of the spectrum lies the advertiser (or media buyer). Advertisers can be companies, or agencies representing a number of different companies.
Benefits

▶ For Advertisers: Increase ad effectiveness. Real-time analytics enables advertisers to quickly move their focus from one group of ads to another, based on their performance. With RTB, this can be done programmatically, meaning that the changes are done automatically by an algorithm without the involvement of humans. This ability to quickly change focus allows advertisers increase the effectiveness of their ads.

▶ For Publishers: Increased revenues: As a publisher’s inventory is now available to a large number of advertisers, the number of potential buyers is considerably higher. This results in more inventory being sold and at a higher price.
Other facts about RTB

- One of the most remarkable facts about RTB is the speed of the auctions in the ad exchanges – each transaction takes about 100 milliseconds (a 10th of a second). To put that into perspective, it takes about 300 milliseconds to blink.

- In 2007, the three largest ad exchanges – DoubleClick, AdECN, and RightMedia – were all bought by Google, Microsoft, and Yahoo! respectively.

- It’s estimated that by 2017, more than 40% of total mobile and online display advertising will be RTB-based.

- RTB will be the fastest growing segment of digital advertising in coming years, with global spending on RTB projected to reach $13.9b in 2016.
References

A large portion of the material is adapted from:

▶ Click-through rate, wikipedia, https://en.wikipedia.org/wiki/Click-through_rate
▶ HOW REAL-TIME BIDDING CHANGED ONLINE DISPLAY ADVERTISING, Michael Sweeney, Clearcode, http://clearcode.cc/2015/01/real-time-bidding-online-display-advertising/
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