

# eCommerce – Chapter 08

## Advertising Value Networks

- **User:** Person who navigates through various web pages and is target of ads
- **Publisher:** Controls the web pages, generate the content in them and inserts ads in them
- **Advertiser:** Want to get attention of the users using the publishers web pages for placing ads

**Ad Agency:** Create, plans and handles advertising for its clients. (Independent or a department of the advertiser).

**Ad Network:** Serves as added-value intermediary between agencies/advertisers and online publishers.

### Ad Network Categories:

#### 1. Representative networks:

- Represent a selected group of publishers, often on an exclusive basis
- Function as an outsourced sales force for their publishers
- E.g.: *Federated Media, Gorilla Nation, Blogads*

#### 2. Vertical networks:

- Represent a broad group of publishers in the same sector (*fashion or healthcare*)
- E.g.: *The Travel Ad Network, Good Health Advertising*

#### 3. Target ad networks:

- Let advertisers buy audience segments:
  - Demographic (gender, age)
  - Behaviour (interests)
  - Context (websites in a particular area)
  - Alternatives to CPM (buy clicks instead of impressions)
- E.g.: *Google AdSense, Yahoo Publisher Network, AOL Advertising*

### Ad Network Workflow

#### 1. Inventory forecasting:

- Aggregate inventory across multiple publisher sites
- Forecast volume of inventory for month ahead across network based on historical data
- Use 3<sup>rd</sup> party data to come up with different ways of packaging inventory

#### 2. Inventory Sales:

- Sell slices of inventory to different advertisers

#### 3. Ad Delivery:

- Deliver advertiser creates across publisher sites meeting different advertiser criteria

## Online Ad Exchange:

- Provides real-time bidding (RTB) technology platforms that expedite, facilitate and simplify the buying and selling of ad inventory from multiple networks and advertisers.
- Highest-paying bidder buys impressions that show their message to specific targets through specific placements the bidder selected

## Ad Exchange Workflow:

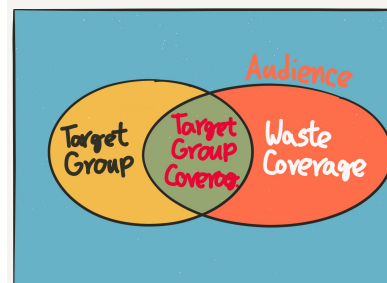
1. Visitor enter website
2. Ad exchange makes available details of visitor, publisher and ad unit
3. Advertisers respond with different bids
4. Ad exchange selects highest paying advertiser
5. Visitor sees creative from highest paying advertiser

**Demand-side Platform:** Technology platform that allows digital media buyers and markets to manage several ad exchanges and ad networks, through one centralized user interface.

**Supply-side Platform:** Used by publishers that offer outsourced selling and ad network management services.

## Targeted Advertising

Goal is to reach the target group and complete as possible while minimizing waste coverage.



## Targeting Categories

- Contextual Targeting
- Semantic Targeting
- Search Term Targeting
- Technical Targeting
- Geo or Local Targeting
- Day Part Targeting
- Frequency capping
- Profile Targeting
- Behavioural Targeting
- Retargeting

## Pricing Models

- Cost-per-Click (CPC): Number of clicks received
- Cost-per-View (CPV): Paying for the number of times the ad is view
- Cost-per-Thousand (CPT) / Cost-per-Mile (CPM):

- Divides the cost of an advertising placement by the number of impressions that it generates
  - $CPT = (Costs/Impressions) * 1000$
- Click-through-Rate:
  - Measures the ratio of clicks to impressions
  - $CTR = (Clicks/Impressions) * 1000$
- View-through-Rate:
  - Number of completed views of a skippable ad over the number of initial impressions
  - $VTR = (Viewthrough/Impressions) * 100$

## Cookies

**Problem:** HTTP is a stateless protocol. Web server does not automatically maintain contextual information about the client.

### Solutions:

1. Hidden Form Fields
2. URL Rewriting
3. Cookies

**Cookies:** Small data item of textual information that a Web server send to a browser and that it returns unchanged when visiting the same web site or domain.

### Attributes:

- Domain and Path: Define scope of the cookie
- Expires and Max-Age: Tells the browser when to delete the cookie

### Types:

- Session Cookie → Expires when the user terminates the web browser
- Persistent Cookie → Stored by the web browser (*Traditional cookie*)
- Secure Cookie → Only transmitted via HTTPS
- HttpOnlyCookie → Used only when transmitting HTTP requests
- Third-party Cookie → Set by a third party such as an ad network

## Cookie Life Cycle

### First visit:

- User visit a website
- Browser checks if there is a cookie of this domain → *No cookie*
- HTTP Request
- Webserver checks if request has a cookie → *No cookie*
- Webserver builds the answer and generates new cookie
- HTTP Response
- Browser saves cookie

### Other visits:

- User visit a website
- Browser checks if there is a cookie of this domain → *Found cookie*
- HTTP Request
- Webserver checks if request has a cookie → *Found cookie*
- Webserver builds the answer and updates cookie
- Webserver generates new cookie (optional)
- HTTP Response
- Browser updates cookie

### **3<sup>RD</sup> Party Cookie:**

- User visit a website and searches a specific product
- HTTP Request
- Webserver builds the response and sends it with the 1<sup>st</sup> party cookie
- HTTP Response
- Browser build HTML site and finds a <iframe> from [www.trackin.de](http://www.trackin.de)
- Webserver checks if has a cookie from [www.trackin.de](http://www.trackin.de) → *No cookie*
- HTTP Request
- [www.trackin.de](http://www.trackin.de) checks if request has a cookie → *No cookie*
- [www.trackin.de](http://www.trackin.de) builds response and generates a new (3<sup>rd</sup> party) cookie
- HTTP Response
- Browser saves the 3<sup>rd</sup> party cookie

## Recommender Systems

Provide users in ecommerce systems with information to help them decide which items to purchase

### **Recommendation problem:**

- Estimating predictions for items a user has not seen so far
- Estimation is based on ratings given by this user other items and on some other information
- Predictions are estimated as a utility function, which is assigned to an item

### **Recommendation approaches:**

- Content-based Recommender Systems
- Automatic Content Analysis
- Context-based Recommender Systems
- Collaborative Filtering
- Knowledge-based Recommendations
- Social Recommendations

### **Content-based Recommendations**

- Based on categorizing content by identifying keywords for each content item
- System tries to recommend item that match the user profile
- User profile is based on items the user has liked in the past or explicit interests he defines

**Collaborative Filtering**

- Are based on collection and analysing a large amount of information on user's behaviour, activity or preferences and predicting what a user will like based on their similarity to other users

**Knowledge-based Recommendations**

- They have knowledge about how a particular item meets a particular user need and can therefore reason about the relationship between a need and a possible recommendation