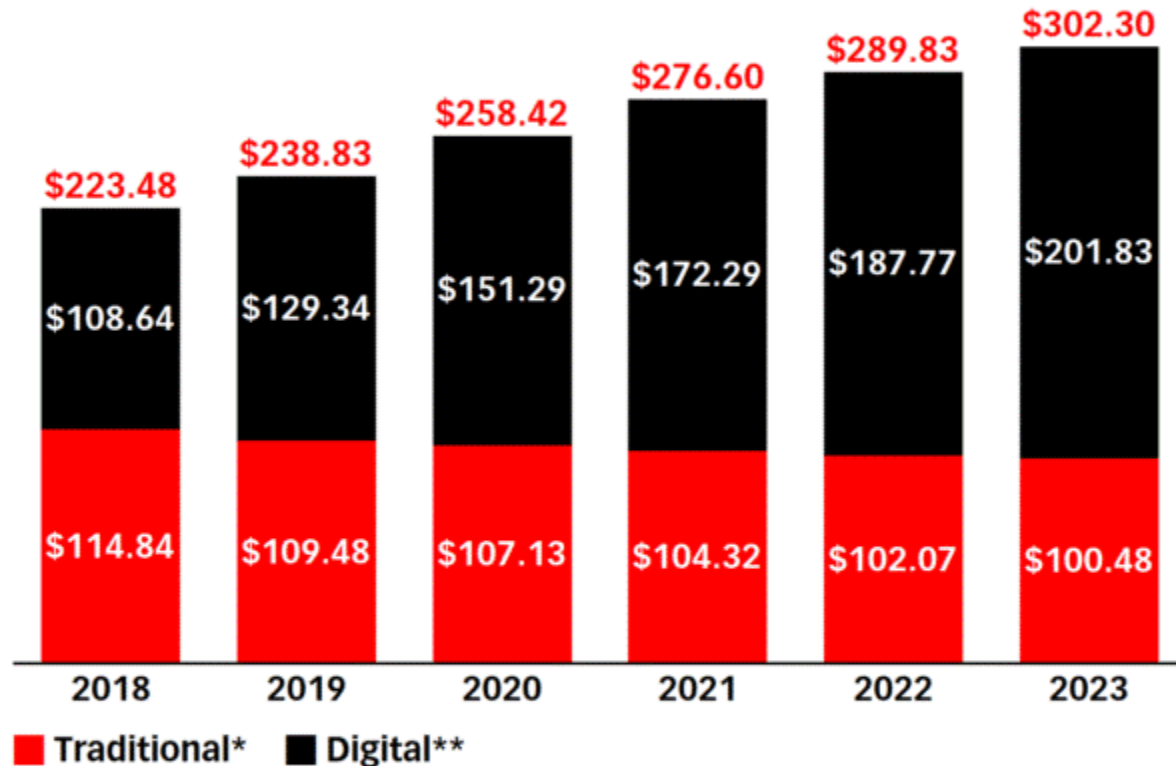


Digital Ads

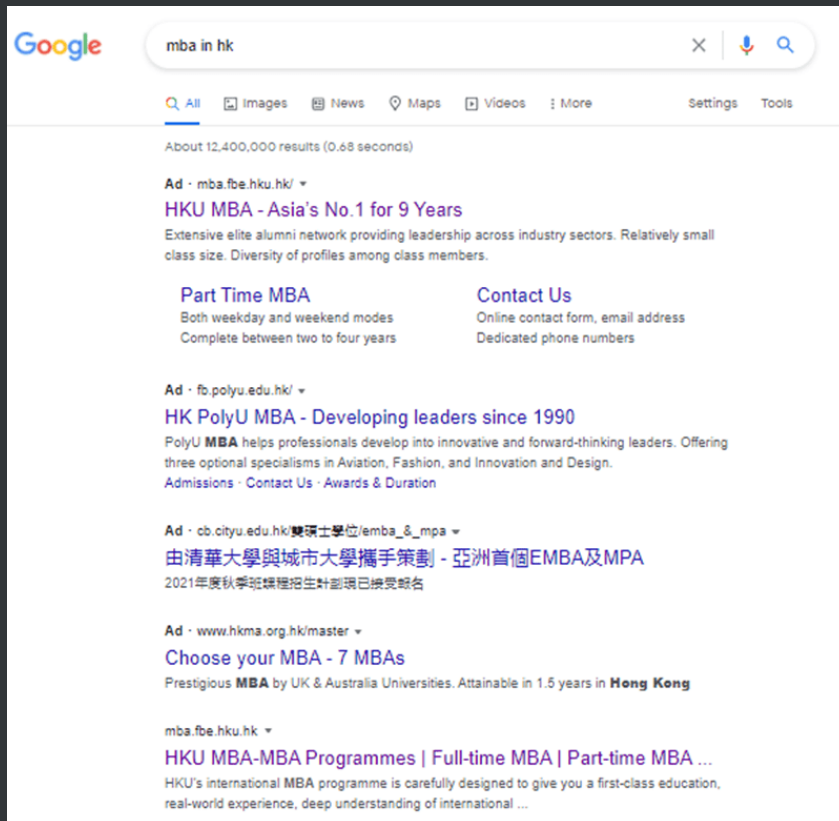
Total Media Ad Spending in the US, Traditional vs. Digital, 2018-2023

billions



*Note: *includes directories, magazines, newspapers, out-of-home, radio and TV; **includes advertising that appears on desktop and laptop computers as well as mobile phones, tablets and other internet-connected devices, and includes all the various formats of advertising on those platforms; includes SMS, MMS and P2P messaging-based advertising*

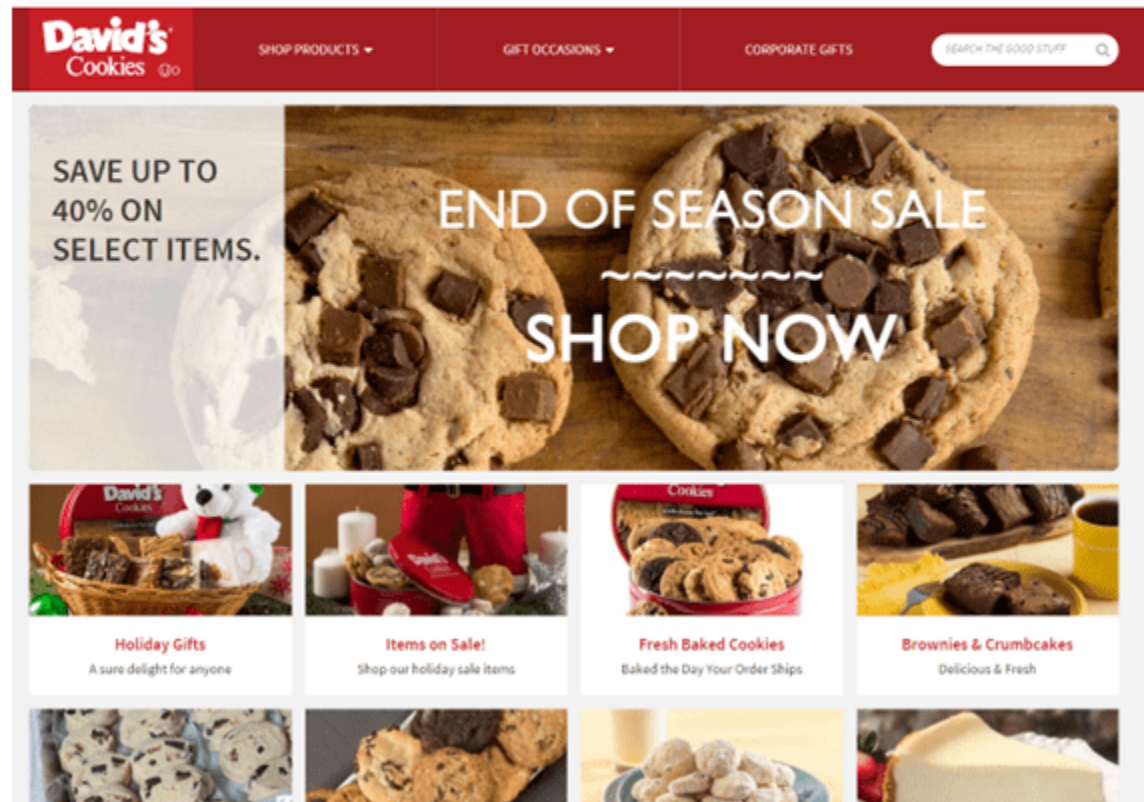
Source: eMarketer, February 2019



Paid Search

Organic Search

Example Advertiser



Google

office gift baskets

All Shopping Images News Maps More Settings Tools

About 284,000,000 results (0.93 seconds)

Corporate Gifting Made Easy | Crowd-Pleasing Desserts

Ad www.davidscookies.com/ ▼ (800) 500-2800

Custom Logo Stickers & Cards. Choose A Gift & Customization Options. We'll Do the Rest. In a Rush? Provide A Recipient List & We'll Handle Shipping. Arrives in 2 Days or Less.

Cookie of the Month Club	Cookie Gift Baskets
Large Variety of Fresh, Homemade Cookies Delivered to You Monthly.	Unique Collection of Our Delicious Cookies Starting at Only \$39.35!

Olive & Cocoa | Office Gift Baskets | Custom Logo Branding

Ad www.oliveandcocoa.com/ ▼ (800) 538-5404

Our Gifts Are Gracefully Packaged Inside Handcrafted Wood Boxes.

Godiva® Corporate Gift Baskets | Chocolates For Self Or Gift

Ad www.godiva.com/Chocolate_Gifts ▼ (800) 946-3482

Godiva Corporate Gift Baskets Are The Best Gift Option For Any Office. Order Today! Godiva...

Williams Sonoma® Gift Baskets | Free Shipping On Orders \$49+

Ad www.williams-sonoma.com/Gift-Baskets ▼

Shop Premium Gift Baskets For All Occasions. Exclusively at Williams Sonoma®.

How did we end up in position #1?

How much did we pay for this?

Are we paying more than the ad in slot #2?

Paid search ads are sold by auctions

There are two types of auctions: first-price and second-price auctions. Both are used in digital advertising. Google used to adopt second-price auction but switched to first-price auction in 2023.

First-Price Auction

In a first price auction, the winner pays how much he / she bids.
CPC = cost per click

Advertiser	Bid	Position	CPC
D	\$1.00	1	\$1.00
B	\$0.75	2	\$0.75
A	\$0.50	3	\$0.50
C	\$0.40	4	\$0.40

Second-Price Auction



The designer of second-price auction, William Vickrey, won the Nobel Prize in Economics in 1996.

Auctions

Nonetheless, Google switched back to first-price auction in 2023 because of its simplicity and transparency.

Measuring the effectiveness of online ads

How do we measure ads?

- Impressions
 - Frequency & Reach
- Clicks
 - Click-through rate
- Ad Engagement
 - Mouse-over, Interaction
 - FB: Like, Share
 - Twitter: RT, Favorite
- Conversions
 - Sign-ups, Downloads, Place in cart, Purchase

Impressions

Impression: A user loads 1 ad on a website

$\text{Impression} = \text{Frequency} \times \text{Reach}$

Frequency: Number of ads per person

Reach: Number of people who see at least one ad

Clicks

- Instantaneous feedback on individual ads – revolutionary!
 - Clicks can be used as a measure of intent to buy.
 - Click-Through Rate (CTR) = the number of times a link was clicked divided by the number of times it was seen. $CTR = \frac{Clicks}{Impressions}$
- Correlation between CTR & ad effectiveness (AdFX) is debatable
 - E.g. Does a higher CTR on mobile mean higher mobile AdFX?
 - Ads are smaller, but fill more of the screen
 - Up to 50% of clicks on mobile banner ads are accidental (GoldSpot Media)

Sometimes clicks are unreliable...

<https://www.youtube.com/embed/N1ltwg2nTK4?enablejsapi=1>

Engagement

- Engagement: A catch-all for user interactions with the ad beyond clicking including mouse-over, interacting with interactive ads, rollover, start or skip video
- Social engagement/ conversion include
 - FB: Like, Share
 - X (Twitter): RT, Favorite
- Intentional measure showing whether consumer likes ad more than just clicks

Conversions

- Conversions: A catch-all for user interactions with advertiser including sign-ups (newsletter, membership, etc.), downloads, shopping on-site, placing items in cart, purchasing.
- Conversion Rate (CR) = the number of conversions divided by the number of times the ad was clicked. $CR = \text{Conversions} / \text{Clicks}$
- Probability of Purchase = $CTR \times CR$, here purchase is broadly defined.

Conversions: Pros and Cons

- (+) Some direct response advertisers only need conversion info (like app makers & downloads)
- (+) For brand advertisers (like Coca-Cola), conversions (& engagement) are often all they can measure!
- (−) Conversion rates are typically very low
Decisions require much more impression data

Some Metrics

Impression = number of instances ad is seen by user

Cost-per-Click (CPC) = cost paid to search engines

Click-Through Rate (CTR) = efficiency of generating clicks from delivered impression

Conversion Rate (CR) = efficiency of generating sales from click

Probability of Purchase = $CTR \times CR$

Display Advertising

Historical Note: Banners

Banners seem to be the oldest standard format in use.

The first “banner ad” was launched by AT&T on Oct 27, 1994 on Hotwired, the web version of Wired.



Part of the AT&T “you will” ad campaign.

The AT&T You Will Campaign

Each ad presented a futuristic scenario beginning with “Have you ever...” and ending with “...you will. And the company that will bring it to you: AT&T.”


At that time, there were about 30 million people on the Internet.

The ad predicted a number of innovations including GPS navigation, Wi-Fi, tablet computing, smartwatches, distance learning etc.

Display Advertising

Struggling Rural Colleges, Towns Find Fates Intertwined


As America's rural colleges struggle with falling enrollments and local flight, they are realizing how their own futures are intertwined with the broader community.



- There's an Antidote to America's Long Economic Malaise: College Towns (Dec. 12)


Bring Back Jobs From China? In Shenzhen, They Aren't That Worried


Donald Trump's threat to compel Apple and others to manufacture more at home should strike fear into Shenzhen, where the world's tech gadgets are made. Yet executives here aren't worried by Mr. Trump.




Stock Futures Edge Up as Dow Nears 20000

Futures pointed to a small opening gain for the Dow






Myanmar's Right-Hand Cars Feel Wronged by State Ban



Trump's Israel Envoy Pick Helped Fund Settlers



Dec 20 '16, 4:39 PM EST MARKETS →

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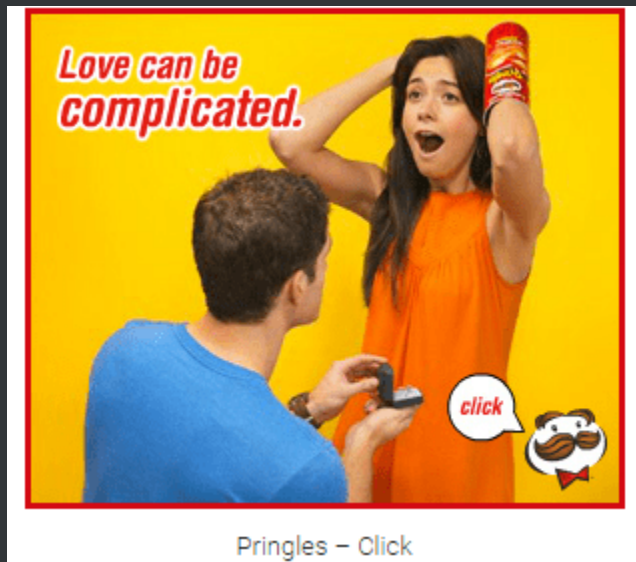
By Jason L. Riley | Upward Mobility

The Case for a Rules-Based Fed

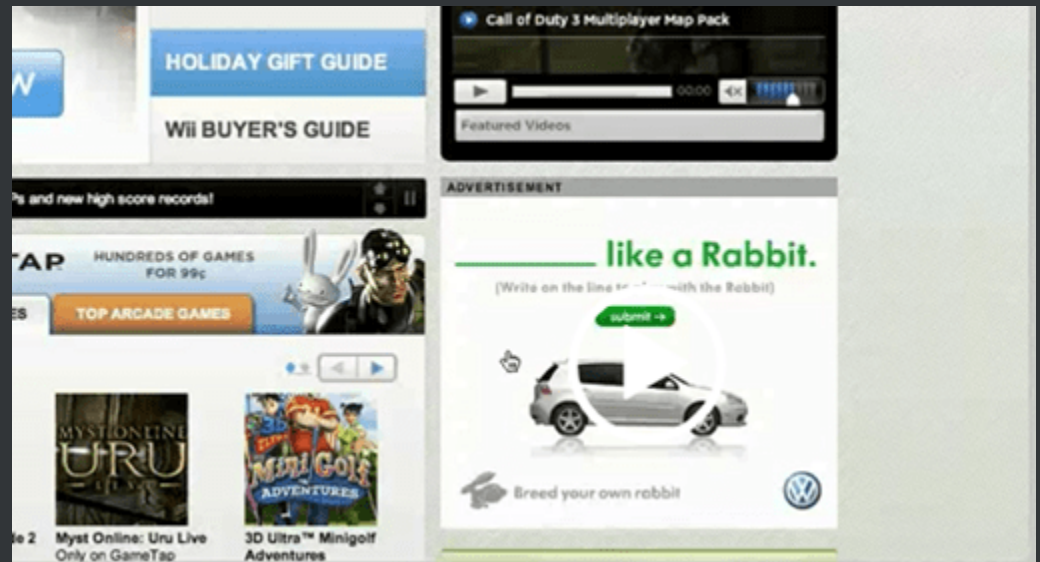
By John B. Taylor | Commentary



Examples of Interactive Ads



link



link

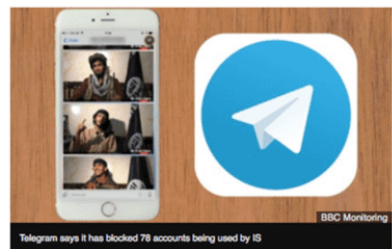


Technology

Telegram app cracks down on IS propaganda channels

By BBC Monitoring Analysis

2 hours ago | Technology



The secure mobile messaging app Telegram has started cracking down on propaganda from so-called Islamic State group (IS), nearly eight weeks after the terror group set up its own public broadcast channels there.

IS and other jihadist groups have been exploiting new functionality introduced by the app in late September, which allows users to broadcast their messages to an unlimited number of members via their own Telegram "channel".

In an announcement on Wednesday evening, the Berlin-based Telegram said it had shut down 78 IS channels and promised to make it easier for users to flag "objectionable public content" shared via the app.

"We were disturbed to learn that Telegram's public channels were being used by ISIS [alternative name for IS] to spread their propaganda," said a statement from Telegram, which was set up in 2013 by two Russian brothers, Pavel and Nikolai Durov.

Paris attacks

The action followed claims by IS for the 13 November Paris attacks and the downing of a Russian passenger jet over Egypt's Sinai Peninsula on 31 October.

Shortly before the key IS propaganda channel on Telegram was shut down on 18 November, it had been used to publish IS's English-language magazine Dabiq which hailed the Paris attacks and featured an image of the bomb IS claims to have used to bring down the plane.

IS had shifted its propaganda distribution to Telegram from Twitter on 26 September, just four days after Telegram trumpeted the launch of its new "Channels" tool.

An official IS channel dubbed Nashir, which translates as "Distributor" in English, quickly became the platform where IS propaganda started appearing first, often several minutes before being posted to Twitter - IS's other favoured outlet.



The channel had amassed over 16,000 subscribers before it was shut down along with a raft of other IS channels used to distribute the group's propaganda in a wide range of languages, including English, French, Russian, Turkish and Urdu.

But many other jihadist Telegram channels continue to be active, including official

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The man believed to have planned the attacks in Paris, Abdelhamid Abaaoud, was among those killed in a French police raid, prosecutors confirm.

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by hackers or government agencies.

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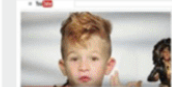
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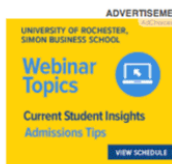
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Patheos

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Answers.com

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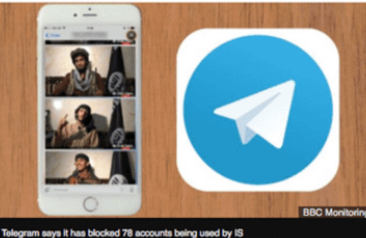
sas

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Reuters

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Hijab patriot

Both ads from SAS. This is a behavioral targeting ad. It is becoming popular to have two ads on the same page.

by hackers or government agencies.

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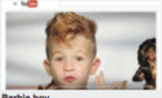


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They are also ads, even though they look like real content. This is called native ad.

Native advertising is a type of advertising that matches the form and function of the platform upon which it appears.

It is hard for consumers to distinguish between content and native ads.

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How Arabs make each other laugh in six seconds



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Advertisers face a trade-off between ad clicks and brand recognition. Publishers need to strike a balance between ad clicks and the platform's trustworthiness. For policy makers, concerns that native advertising confuses customers prompted the U.S. Federal Trade Commission to issue guidelines for disclosing native ads.

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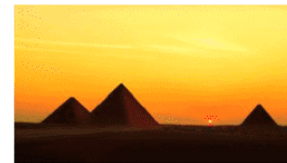
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The first native ad

What Will Become of China?

None can foresee the outcome of the quarrel between foreign powers over the division of China. It is interesting to watch the going to pieces of this ancient but unprogressive race. Many people in America are also going to pieces because of dyspepsia, constipation, blood, liver and stomach diseases. We are living too fast, but strength, vigor and good health can be retained if we keep off and cure the above diseases with Hostetter's Stomach Bitters.

Targeting based on simple rules

- Geo-targeting
 - Target by country, state, city, IP address
- OS / Browser / Devices
 - Segment based on technology
- Day and time
 - Specify display times to the minute

Price can also be targeted

Firms offer different consumers different prices based on their personal situations (e.g., geolocation, search history, purchase history).

Do you use a MacBook or a PC?

Mac vs. PC

The Wall Street Journal investigated claims that Orbitz, a popular online travel agency, was showing higher prices for hotel rooms to Mac users compared to those who used a Windows PC.

Uber charges you higher prices when your battery is low, because it knows you cannot afford to wait!



How are Display Ads Bought & Sold?

Display ads are mainly sold in one of two ways

1. Direct buying from publishers
2. Real-time bidding (RTB) through Ad Exchange

Direct Buying from Publishers

“200,000 impressions to US users on the New York Time’s finance related pages in July”

“All impressions on the EPSN homepage on Sept 21”

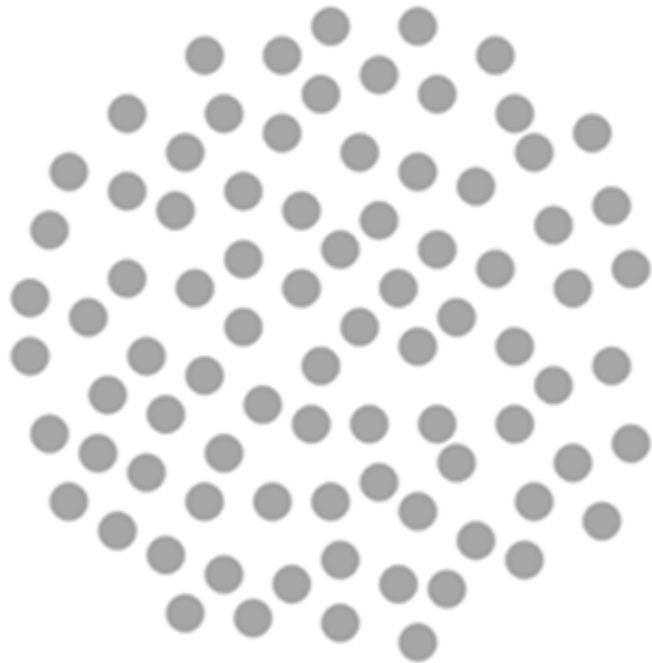
“300,000 impressions on Yahoo! to a retailer’s existing customers in April”

Ad Networks and Ad Exchange

Ad networks / ad exchanges purchase remnant inventory across many publishers and resell to advertisers at a premium.

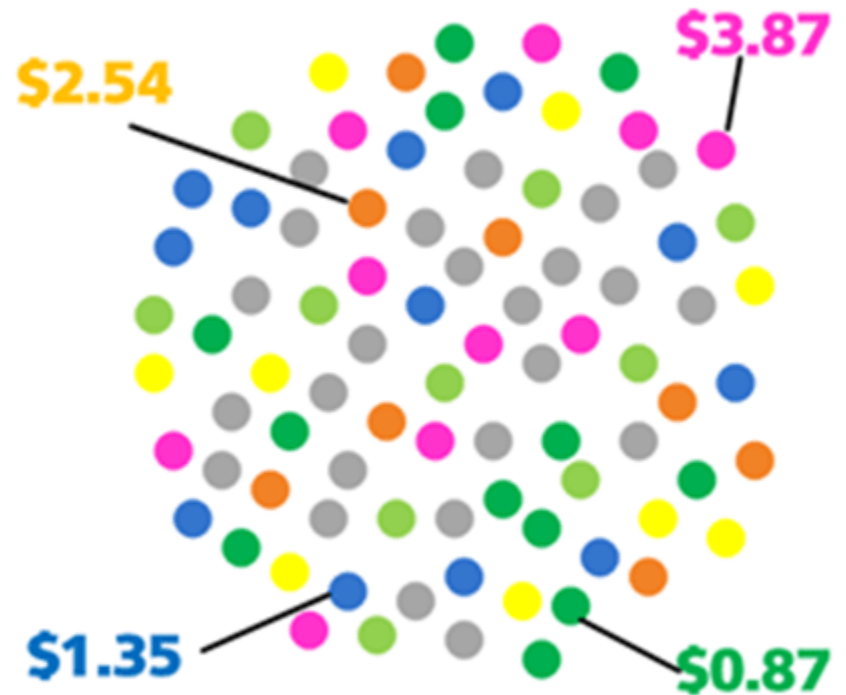
An essential vehicle for monetizing the Long Tail of the Internet. Provide small and mid-sized online publishers with more advertising revenues.

Direct Buy

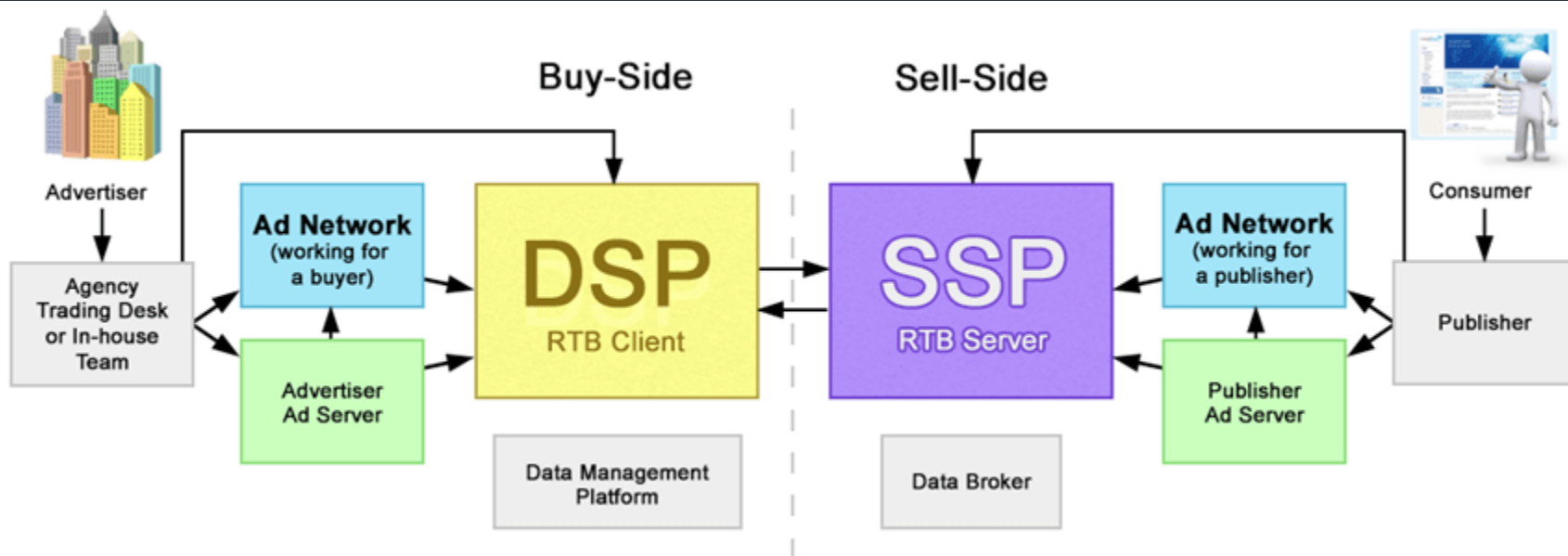


1 price for all impressions
\$10 CPM

Real-time Bidding

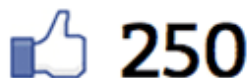


Each ad priced individually
\$3 eCPM



<https://www.youtube.com/embed/Cd8DYHx2E9E?enablejsapi=1>

Click and Like Fraud



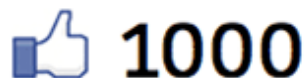
\$27.00 - Delivery in 10 days

[View Package](#)



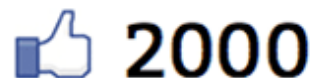
\$42.00 - Delivery in 10 days

[View Package](#)



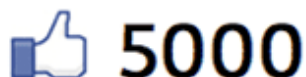
\$70.00 - Delivery in 15 days

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\$120.00 - Delivery in 20 days

[View Package](#)



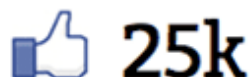
\$260.00 - Delivery in 30 days

[View Package](#)



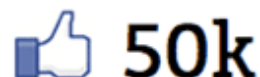
\$480.00 - Delivery in 45 days

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\$820.00 - Delivery in 60 days

[View Package](#)



\$1200.00 - Delivery in 90 days

[View Package](#)

Click and Like Fraud

Like farmers pay people in developing world

Remember: Fraud is everywhere (click, view, etc.)

But, Like fraud creates a lasting distortion (until the offending user is caught)

- Worse, to avoid detection, like farm users will 'like' pages that are not buying fake likes
- Like farm users hard to detect & removing real users destroys their user experience

Course Project

Course Project

Choose a company and analyze its digital marketing strategy, including:

- Its website
- Online sentiment (How users talk about the brand online? E.g., user reviews on platforms such as TripAdvisor / Amazon; online discussions on platforms such as Twitter / FB)
- Is the company's official social media accounts (e.g., Twitter / IG / FB / YouTube) well managed?
- Competitor Analysis and Consumer Analysis

Course Project

More details can be found [here](#).

You are going to present in the last lecture (Nov 25 for Class A and Nov 29 for Class B); order of presentation will be drawn randomly.

The report is due one week later (Dec 2 for Class A and Dec 6 for Class B).

Companies Chosen by Students in the Past:

Daniel Wellington

Steelseries

Shein

Foodpanda

Nintendo

KKDay

Ocean Park

...

Data Project

The next class will be the lecture for data project.

You will start working on the project in the next class and submit the findings one week later (i.e., each group has one week to complete the data project).