



A brief history of media measurement

The 90-year story of why volume metrics dominate digital media



Brent Merritt · [Follow](#)

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If you've ever wondered why digital media analytics are dominated by measures of volume — pageviews, clicks, and their many cousins — you have to dig back far beyond the advent of the internet to find the answers. Below is the story of how media measures designed for radio broadcasters during the Depression still shape today's digital media economy.

Broadcast media measurement

For as long as there have been mass media, attempts have been made to measure audiences' consumption of media content. Systematic efforts at audience measurement emerged in the 1930s with the rise of widespread radio broadcasting in the U.S. As the Great Depression set in and broadcasters turned to advertisers for financial support, it created a need to authenticate the size and makeup of audiences as a basis for advertising pricing models. Ever since the earliest attempts at audience measurement, advertiser support has been “more than any other factor, responsible for the emergence of audience measurement practices” (Webster, Phalen, & Lichty, 2005, p. 20).

Over the following decades, a variety of techniques for measuring radio audiences emerged, including phone interviews, diaries, personal interviews and automated meters. But ultimately, more important than specific measurement technologies was the emergence of measurement conventions — i.e., deciding *what* to measure. Archibald Crossley, the founder of broadcast ratings, decided to measure exposure — who was listening, for how long, and how often — rather than engagement, a measure of how involved people were in a radio broadcast (Balnaves, O'Regan, & Goldsmith, 2011).

The simplicity of Crossley's measurements of exposure was essential to using them as a practical basis for an advertising pricing model. Crossley was hired in 1929 by an organization of radio advertisers, and his exposure measurements became the standard for audience ratings; they still provide the “core of the modern audience-rating convention” (Balnaves, O'Regan, & Goldsmith, 2011, p.23)

In 1950, before it was clear that television would become the dominant form of mass media, A.C. Nielsen took a risk and prepared his company to become the dominant television measurement firm. The risk paid off, and Nielsen practically monopolized television ratings in the U.S. But while the dominant broadcast medium changed, as did the technologies to measure it, Nielsen continued to use exposure as the core metric. James Webster observed that ever since Crossley appeared on the scene, “currencies have been based on measures of exposure” that have “traditionally privileged [...] audience size and composition” (2015, p.4).

Like radio and TV advertising before it, the rapid growth of digital advertising — which recently surpassed TV as the biggest source of ad revenue in the U.S. (Slefo, 2017)—

drove a need for audience measurement and advertising currencies. Not surprisingly, broadcasting measurement had set precedents that online measurement would follow (Webster, Phalen, & Lichty, 2005).

Origins of online measurement

Online audience measurement began with a focus on one of the same basic metrics employed by older forms of mass media: audience size. Newspapers focused on circulation, radio stations on number of listeners, and television stations on number of viewers. So naturally, as news media began migrating online, they were concerned with measuring their user numbers, which “to an extent mirror the job that is performed in traditional media” (MacGregor, 2007, p.282) by audience volume measurements.

Measurement of online audience size was — and continues to be — carried out using an array of metrics based on different technologies and reported by multiple parties. In the early days of the web, technology limited the measurement of audience size to events such as pageviews, and later on, clicks. As the use of cookies and Google Analytics became widely adopted, user metrics became part of the conversation (Davies, P., 2013). Unique visitors and pageviews remain two commonly used audience size metrics, but despite the apparent simplicity of these measures, their definition and implementation has not been uniform, nor have the results they yield (Benbunan-Fich & Fich, 2004).

Part of the discrepancy in audience measurement results is due to the different methods employed by various analytics organizations. Panel-based audience measurements, offered by firms including comScore and Nielsen NetRatings, rely on information reported by tracking software installed on the computers of a sample of Internet users, from which total web traffic numbers are extrapolated. In contrast, census-based (or server-based) measures rely on information reported from a website’s own servers to determine web traffic and visitors’ behavior (Graves & Kelly, 2010). Today, these metrics are often analyzed and reported by third-party firms such as Chartbeat, Parse.ly, Moat, or Google Analytics.

Nevertheless, the variance in web traffic measurement cannot be attributed entirely to differences among methodologies. Even firms using the same methodology sometimes report dramatically different results. Graves and Kelly (2010) cite an example in which

comScore and Nielsen's measurement of web traffic to Yahoo for a single month differed by 34 million people. While this instance is particularly egregious, "Nielsen and comScore frequently disagree about even basic measurements," (Graves & Kelly, 2010, p. 28) including rankings of the top online companies as determined by web traffic.

Despite the widely recognized irregularities inherent in audience size measurement, data on page views and visitors remains important because it "can be monetized by attracting more advertisements to news sites" (Vu, 2014, p. 1079). Just as online audience measurement began with metrics reflecting models from older mass media, early online ad currencies were based on previously existing volume-based performance measures.

The most frequently used pricing method in the advertising industry at large is a currency called CPM, which represents the cost of reaching one thousand audience members (Evans, 2008). The same basic CPM currency has been used since the beginning of online advertising (around 1994), and it became widely used beginning around 1995 when Netscape, an early web browser, and Infoseek, an early search engine, adopted it as the basis of their display ad pricing models (Yamaguchi, 2014). 1996 saw a "major milestone" (Oberoi, 2013) in display advertising with the launch of online ad services platform DoubleClick, which also used CPM as the basis for its ad pricing. DoubleClick's use of the metric was key to popularizing the use of CPM to sell display ads (Yamaguchi, 2014).

A second major online ad currency, cost per click (CPC), came into use just a few years later, driven by search engines' need to generate revenue. Search engines turned to search advertising, where relevant sponsored links are listed along with organic search results, as a way to earn money. While specific timelines of CPC's first appearance vary, it's generally agreed upon that an important turning point for CPC's adoption came in 1998, when search engine GoTo.com introduced the first search advertisements as we now know them and sold them on a CPC basis (Evans, 2008). Other search engines followed suit. Yahoo eventually acquired GoTo.com and emerged as the leader in search advertising in 1999. Google launched Adwords in 2000 and surpassed Yahoo in search traffic in 2003.

Since the early days of online advertising, the systems used to buy and sell ads have changed dramatically. Originally, advertisers or ad agencies would buy ad space directly from publishers based on CPM (Interactive Advertising Bureau, 2012). Now, there are a series of middlemen including ad networks, which buy excess inventory from publishers and sell it to buyers (Interactive Advertising Bureau, n.d.-b), and ad exchanges, which link publishers to ad networks and advertisers and provide a platform for automated (programmatic) and real-time ad purchasing (Interactive Advertising Bureau, n.d.-a).

Generally speaking, publishers still try to sell their most desirable ad space (“premium inventory”) directly to advertisers on a CPM basis at a relatively high rate. Unsold ad space (“remnant inventory”) is more often sold through third parties at lower rates, typically based on CPC, or the similar currency cost per action (CPA) (Graves & Kelly, 2010). Although there has been intense debate over which of the two metrics is a better pricing model for online advertising, CPM and CPC — both volume-based metrics — remain the two most popular online advertising currencies (Adsemir, 2012).

Where things stand

It’s important to note that recent years have seen serious debate about the limitations of volume-based metrics and ad currencies. As digital publishers struggle to generate revenue from advertising, many believe the digital media economy’s focus on audience volume over depth of engagement is part of the problem. As a result, publishers are now using an array of engagement metrics for editorial purposes, and some are experimenting with selling ads using currencies that are based on users’ attention rather than impressions.

It remains to be seen how much these engagement metrics will chip away at the dominance of volume metrics for digital measurement. What’s certain, though, is that measuring the performance of digital media in the same basic manner as a radio broadcast ignores the rich array of audience data that digital platforms can provide.

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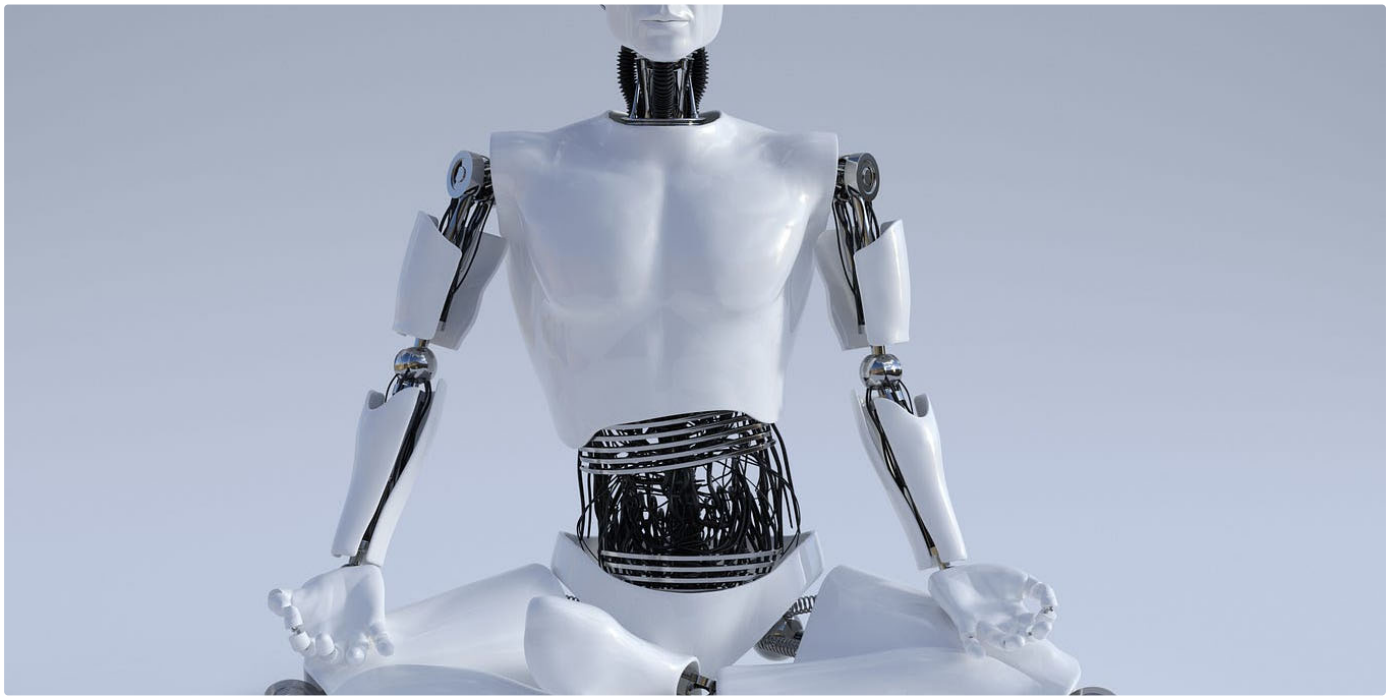


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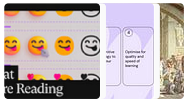


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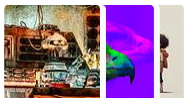
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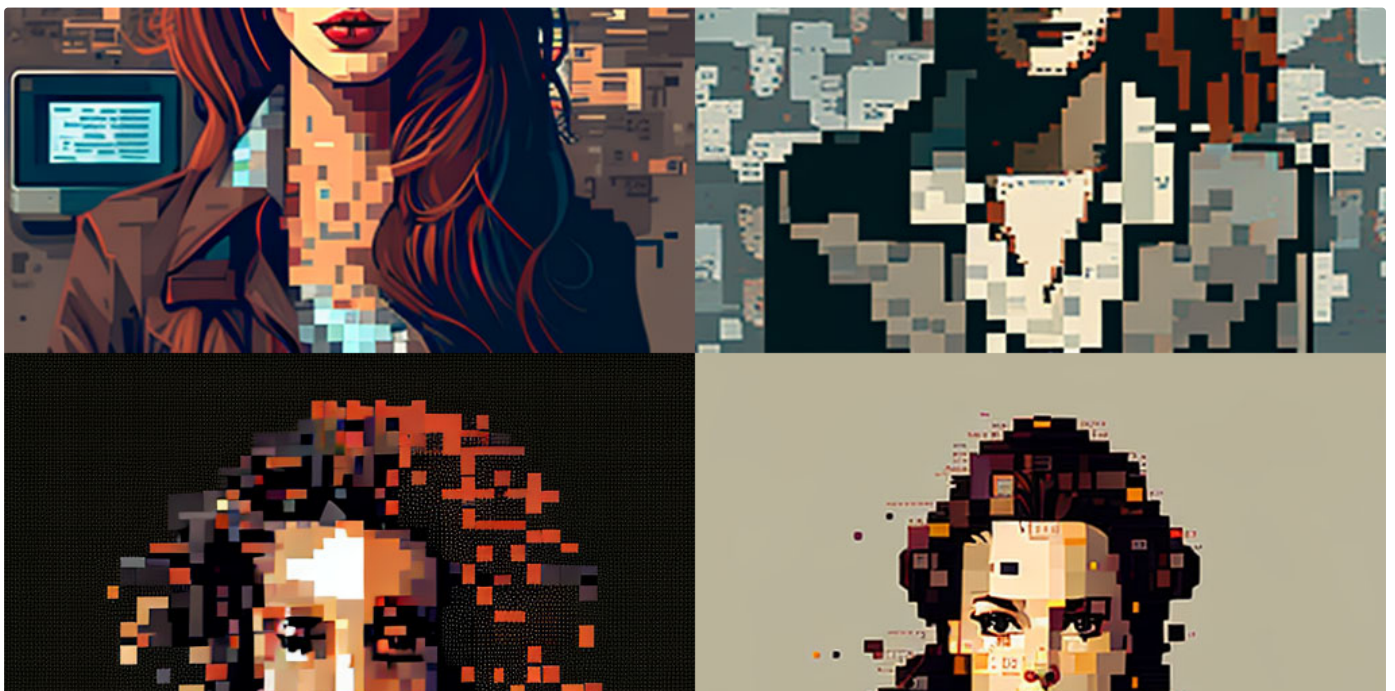
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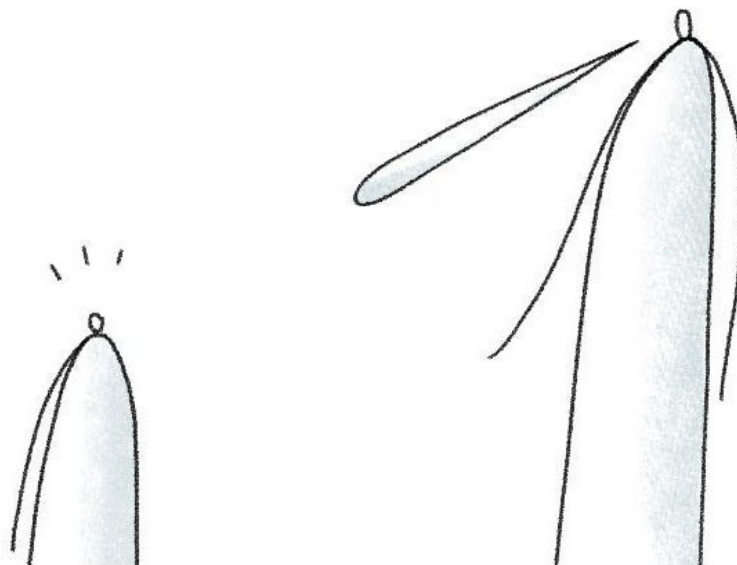


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