The lowly ad banner has grown up a lot since its birth on October 27, 1994. Today, trillions of ad impressions across desktop, mobile, and tablets communicating sophisticated messages that excite, motivate, intrigue, and target consumers. Online ads have come a long way in the past couple decades and advertisers face more complexity than ever. Added to this is the challenge of ensuring an advertiser’s digital media investment isn’t eroded by fraudulent, malicious, or unintended delivery of impressions – the primary currency of digital media. Even the Wall Street Journal agrees. They recently reported that about 36% of web traffic has the potential to be fake. Although this number is disputed, it still points out that there are a lot of unknowns when it comes to online advertising accountability. How can advertisers know what is quality inventory and what is not? What proactive steps can advertisers take to avoid impression waste?

In this paper, we analyze the sources of wasted delivery and offer guidance on reducing it.
**Impression filtering/bot traffic**

In order to keep the Internet organized, hundreds of automated programs (bots) scour every page of millions of websites across the globe every minute of every day. In December of 2013, website security company Incapsula reported that more than 61% of all traffic to websites is not human. Most of these bots are harmless and can even be helpful for search engine optimization. But other more nefarious automated bots also exist. These are programmed to continually visit specific sites to falsely drive up visitor count. These bots can mechanically view pages and even click on ads. The hackers responsible for these bad bots find tricky ways to make money off them. In some countries and “back alleys” of the Internet, they even take kickbacks from media owners. The most common and pervasive form of wasted impressions comes from these bots.

The Media Ratings Council (MRB) and Internet Advertising Bureau (IAB) have specific guidelines for filtering out known perpetrators of this activity. Legitimate ad servers usually have several lines of basic defense against this problem before an ad is served. They include:

- Algorithmically identifying the trends and activities of nonhuman activity and removing such data from results
- Maintaining an updated list of full and valid user agents that are meticulously cross-referenced against an updated invalid IP address list
- Automatically removing data originating from multiple sequential activities, i.e., when an abnormal number of ads clicks or pages visited over a specified period of time from the same user I.D. appears
- Automatically remove outlier activities, such as users with suspiciously high activity share or users whose page/ad impressions are equal or near equal to the total pages of the site

More advanced ad servers that deal with multiscreen activity go further than the MRC and IAB guidelines by maintaining a methodology that encompasses desktop, mobile, and all IP-enabled devices. Because these ad servers see such large quantities of impressions daily, this allows consistent monitoring of worldwide ad traffic patterns, autodetection of even small amounts of hacker activity, and monitoring of discussion forums to stay ahead of the bad bots.

**Ghost sites**

Another corrupt activity that wastes ad impressions is ghost sites. Operators of ghost sites copy someone else’s content either manually or through an automated content scraper and display it on their site strictly for the purpose of loading that space with ad slots. In many cases, the site has no value to consumers. Battling this type of fraud requires a system that can judge the quality of the content on the page.

This type of wasted delivery is rampant in the programmatic space. The best way to police this is to use software that monitors the traffic patterns of sites for abnormal behavior, flags suspiciously high traffic sites, and combines information on site volume, page structure, and both the type and quality of content, all in real-time. This policing must then be incorporated with data at the user level, including unique users, IP addresses, and browser activity.
Holistic attribution modeling

While attribution and wasted delivery may not seem intuitively connected, attribution provides a way for both brand- and response-driven digital marketers to track potential wastage in their media investments. The digital nature of online marketing provides opportunities to attribute the effectiveness of marketing activity for each consumer. A consumer’s path to conversion (P2C) can include media exposure from mobile, desktop, search, social, display, and affiliate. If someone buys a $2,000 laptop on a computer site, what better way to understand that customer than to look at what marketing led to that sale?

How does one attribute the value of different media activities? Are search clicks the most important? What about video ads or engagement with rich media? Today you can find common attribution models that act as scorekeeper and referee.

The most common attribution model is Last Click/Last Event. Though easy to understand, these models are flawed, leading marketers to overvalue lower-funnel ads and channels and undervalue upper-funnel marketing techniques. Overdependence on these models can lead to wasted delivery in the form of unbalanced ad impressions geared toward “closing” consumer sales.

Other attribution models available in online advertising are linear or position-based. These are also flawed because they can be gamed. Cookie-bombers can inflate the importance of their own efforts by serving large volumes in order to take some credit for any conversion that may happen. Worst case, this tactic can damage advertisers' overall digital marketing efforts through overexposure, an impact not reflected in many static attribution models.

Experienced analysts recognize the value of holistic models – models that consider the entire set of touchpoints and use statistical or algorithmic modeling to determine the true value contributed by each. Furthermore, algorithmic models consider not only touchpoint events that lead to a conversion, but also touchpoint events that don’t lead to one (both sides of the coin).

The more advanced and global third-party ad servers sit in an enviable position. They are the “source of truth” for campaigns, so they are the best suited to provide attribution accuracy. These ad servers also have enough client exposure to consult on which attribution approach will work best, regardless of location or vertical. Finally, the best third-party ad servers provide advanced integration with premium attribution vendors, which allow the most sophisticated advertisers to attribute marketing activity to the most granular level without fear of rampant discrepancies and duplicated conversions.
Deduplication of audience

Brand advertisers often have specific goals for reach and frequency that are designed to drive brand awareness or affinity. This requires a delicate balance on the part of all the ad technology in a digital campaign. Sophisticated ad servers provide tools for managing the frequency of creative delivery at the user level. Features such as frequency capping and rotation methods ensure that each user isn’t overexposed or underexposed to an ad or a rich media experience.

Meanwhile, direct response advertisers build complex rules for ad delivery. Their creative strategies prioritize what ad is displayed to whom based on combinations of account status, geography, product availability, recency of site visit, or the categorization of content the user is reading. If a brand displays an ad offering an upgrade to a service when the user hasn’t even signed up, the brand has wasted that impression. If a brand displays an offer for product X when product X isn’t available in the user’s city, the brand has wasted that impression.

Quality ad servers have tools to prioritize the ads in rotation based on factors that include exposure to a previous ad, visits to a particular URL, content on the publisher’s page, data keywords provided by publishers or third parties, the device showing the ad, and the geographic location of the user.

When viewed through the lens of reporting, deduplicating audience becomes even more critical. A campaign that has served one million impressions doesn’t mean that one million people have viewed the campaign’s ads. Frequency can be separated to show the number of unique users who were exposed to the campaign. Analyzing the number of unique users can help uncover wasted impressions. When this capability is combined with the prioritization capabilities listed above, the ability to detect wastage becomes even more sensitive.
HTML5/Flash

We analyzed thousands of Sizmek campaigns from 2013 and learned that one out of five rich media impressions were wasted because they did not have an HTML5 counterpart. These impressions turn a brand opportunity into boring static image ads. While simple logic might suggest that it would be better just to build an entire campaign in HTML5 to ensure the engagement, the fact is that in many environments Flash still provides a richer and more engaging experience. So the best of both worlds is to have the ideal experience delivered for each impression. As media consumption shifts toward tablet and mobile devices, the potential impact for rich media increases thanks to smaller screens. The smartest marketers take advantage of all situations by creating messages that support both Flash and HTML5 without any loss of creative impact. They can rotate these versions of an ad within a single ad tag, so the data present at the time of an impression decides which ad gets delivered.

Sophisticated ad servers allow advertisers to employ advanced business rules to perform real-time decision-making based on screen size, bandwidth, flash enablement, and other data available at the time of the impression. These decisions ensure that the right version of every ad is served to the right screen, every time.

1 in 5 rich media impressions were wasted because they did not have an HTML5 counterpart.
Verification

Ad performance is critical, but KPIs tell only half the story. Verification allows advertisers to determine whether or not an ad has been delivered in the proper context. It’s more than just a publisher enforcement tool. Rather, verification should be viewed as a tool for holistic campaign insights. If an ad impression is not running in the environment intended by the advertiser or an ad isn’t resonating within a specific environment, the dollars invested into that media are wasted.

Verification data provide the greatest value when it’s viewed in totality for a campaign. A full-featured verification solution should provide insights that help determine performance based on:

- **Safety**
  A sophisticated solution uses semantic analysis to infer meaning and context from web pages vs. determining if a page contains an objectionable keyword (a clumsy and outdated methodology for brand protection that drastically limits available inventory).

- **Context**
  Content should be classified on a page-level basis. Existing site-level solutions rely on the myriad ways in which publishers classify their own content (typically into one of a handful of broad categories). This is both unsophisticated and inconsistent from publisher-to-publisher. A page-level solution, however, is based on actual page content and meaning.

- **Geography**
  Often overlooked but important in even premium buys, advertisers must make sure that placements are being delivered to the correct geographic area. Premium sites are just as likely (if not more so) to have traffic from abroad.

- **Channel/device**
  As mobile delivery becomes a more important component of digital campaigns, advertisers want to know device- and OS-level information about delivery of their campaigns.
**Viewability**

If an ad is delivered to a targeted audience member but he or she never sees it, that is the worst slap-in-the-face form of wasted delivery. Ad viewability tools determine whether a website viewer actually saw an ad. It also allows an advertiser to reduce waste by eliminating inventory where ads have low chances of being viewable.

Although IAB standards for viewable inventory are beginning to take hold in the online advertising ecosystem, more education is needed. More than 40% of ads are placed in locations unlikely to be viewed (often called “below-the-fold,” a throwback reference to newspaper placements). This issue becomes readily apparent when media is purchased programmatically and the inventory sources are often unknown to the advertiser.

Many premium sites share this problem, particularly for video ads. Sites can set their video inventory to be “auto-play” videos (those that do not require a viewer to “click-to-play”). If a video impression is counted when play begins, the advertiser is charged without any confirmation that a viewer actually saw the ad. Worse still, these videos can be muted by default, giving the site visitor no clue they are running. Given the high cost of video advertising, this form of wasted delivery can be very expensive.

Given the complexity of the digital ad ecosystem, advertisers also need a media-agnostic solution. Some viewability providers actually own a media interest. This conflict of interest may color their commitment to offering full ad placement transparency.

### Viewability rate for rich media ads globally by format.

**% of rich media ad impressions served that were in view**

<table>
<thead>
<tr>
<th>Format</th>
<th>Viewability Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial break</td>
<td>96.5%</td>
</tr>
<tr>
<td>Billboard</td>
<td>86.3%</td>
</tr>
<tr>
<td>Wallpaper ad</td>
<td>83.1%</td>
</tr>
<tr>
<td>Floating ad with reminder</td>
<td>82.7%</td>
</tr>
<tr>
<td>Filmstrip</td>
<td>82.2%</td>
</tr>
<tr>
<td>HTML5 expandable banner</td>
<td>76.2%</td>
</tr>
<tr>
<td>Pushdown banner</td>
<td>73.1%</td>
</tr>
<tr>
<td>Sidekick</td>
<td>72.9%</td>
</tr>
<tr>
<td>Expandable banner</td>
<td>69.6%</td>
</tr>
<tr>
<td>Floating ad</td>
<td>62.0%</td>
</tr>
<tr>
<td>Single expandable</td>
<td>60.6%</td>
</tr>
<tr>
<td>Polite banner</td>
<td>56.4%</td>
</tr>
<tr>
<td>Viewability average of all formats</td>
<td>75.2%</td>
</tr>
</tbody>
</table>

*Source: SizmekMDX ad serving statistics Q1, 2014*
The cost

Imagine a six-month global advertising campaign with a $5,000,000 budget. Fifteen sites, 250 placements, and 210 ads will deliver 2 billion impressions targeted to specific types of customers viewing content across Macs, PCs, iOS tablets, Android phones, and iPhones. Multiple creative agencies build 35 targeted video messages, 70 Flash-based messages without HTML5 counterparts, and 100 static image ads. Sites are serving some items directly and point-solution providers are serving others. Other vendors are verifying the audience targeting and content brand-safety. Managed piecemeal, this campaign will be a Swiss-cheese of wasted delivery.

Conservatively, let’s say 8% of impressions are from bots, 15% of impressions are not viewable, 12% of impressions are unsafe to the brand, 25% of rich media impressions are lost on mobile devices, and 10% of impressions are poorly targeted. Accounting for overlap, 38.5% of the campaign’s impressions are wasted. At an average media CPM of $2.50, the money lost to wastage is $1.9 million.

Total wasted delivery

While media selection and placement may still cause some wasted delivery, a premium third-party ad server can reduce overall wastage by 78% ($1.9M to $.4M) by consolidating impression-level intelligence and targeting creative to ensure the highest probability for brand-safe ad engagement.

Conclusions

While the hypothetical campaign described in the previous section sounds scary, superior third-party ad stacks have been handling complicated scenarios such as these for years. Marketers can worry less about wasted impressions and more about pushing the performance of their campaigns.

A single-platform solution eliminates discrepancies and additional tagging, set-up, and billing, and provides valid consolidated campaign reporting. While many ad tech vendors offer point solutions, typically they have limited campaign insight, as these vendors often touch only a relatively small component of large ad campaigns. To assess what’s truly valuable versus what’s wasted, sophisticated marketers need a holistic advertising management system such as Sizmek’s to join together every piece of the campaign puzzle.

A sophisticated ad server provides a consolidated solution to reduce wasted delivery.