

CLICKS AHOY! NAVIGATING ONLINE ADVERTISING IN A SEA OF FRAUDULENT CLICKS

By Sajjad Matin

Except for black-and-white television, no medium has penetrated fifty percent of U.S. households as quickly as the internet.¹ As a means of communication, entertainment, and commerce, the internet has helped to shape the modern global economy.² Advertisers have recognized the internet's capacity to target specific consumers.³ The history of the internet, however, has also been fraught with privacy concerns and a bevy of technological nuisances including viruses, spyware, and denial of service attacks.⁴ The latest of these concerns, and the subject of this Note, stems from the misuse of a seemingly innocuous "click" to generate excessive costs for online advertisers.

Click fraud arises from an exploitation of a common online advertising price model: cost per click. Under this pricing model, an advertiser pays the host of her displayed ad only when a user clicks on that advertisement.⁵ An advertiser's rival might generate significant costs for its competitor by repeatedly clicking on that competitor's ad. With absolutely no intention of purchasing its competitor's goods or services, the rival has committed click fraud. Internet advertising is a multi-billion dollar industry and fraudulent clicking accounts for an estimated ten percent of that revenue.⁶

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1. Assuming the internet became publicly accessible with the introduction of the Mosaic web browser in 1993, the internet and the black-and-white television took eight years to reach 50% of Americans. That compares to nine years for the radio, 10 for the VCR, 17 for personal computers, 39 for cable television, and 70 for the telephone. See RICK E. BRUNER, *THE DECADE IN ONLINE ADVERTISING, 1994-2004* 3 (2005), available at http://www.doubleclick.com/us/knowledge_central/documents/RESEARCH/dc_deca derinonline_0504.pdf.

2. Peter S. Menell, *Regulating "Spyware": The Limitations of State "Laboratories" and the Case for Federal Preemption of State Unfair Competition Laws*, 20 BERKELEY TECH. L.J. 1363, 1364 (2005).

3. Menell, *supra* note 2, at 1369-70.

4. *Id.* at 1364-65. See generally Liying Sun, Note, *Who Can Fix The Spyware Problem?*, 22 BERKELEY TECH. L.J. 555 (2007).

5. See *infra* Section I.B

6. Brian Grow, Ben Elgin & Moira Herbst, *Click Fraud: The Dark Side of Online Advertising*, BUSINESSWEEK, Oct. 2, 2006, http://www.businessweek.com/print/magazine/content/06_40/b4003001.htm?chan=g1.

Part I of this Note describes the evolution of the internet as a medium for marketing and describes innovations that enabled advertisers to target ads to specific consumers.⁷ Part II explores the anatomy of click fraud, its growing sophistication, and its impact on the advertising industry. Part III considers possible legal, regulatory, and market-based solutions to mitigate the effect and prevalence of click fraud.

I. ONLINE ADVERTISING

Just as the early twentieth century saw the proliferation of billboards targeting captive consumers driving along the nation's highways,⁸ advertisers in the twenty-first century have found potential in the information superhighway. Prior to the advent of the internet, advertisers targeted consumers based largely on demographic surveys and preconceived social dispositions.⁹ Such advertising lacked the ability to target particular individuals or recognize idiosyncratic behavior. The internet, however, has allowed advertisers to track user surfing activity using cookies and other technology and infer certain consumer behavior and predilections from that behavior.¹⁰

Online advertising began as simple banner ads displayed at the top of webpages.¹¹ The online advertising industry expanded rapidly, and following a brief downturn in revenues during the late 1990s, has grown into a \$12.5 billion industry.¹² With revenue projected to reach \$29 billion by

7. See generally P.K. Kannan & Praveen K. Kopalle, *Dynamic Pricing on the Internet: Importance and Implications for Consumer Behavior*, 5 INT'L J. ELEC. COMMERCE 63 (2001).

8. See Charles R. Taylor & Weih Chang, *The History of Outdoor Advertising Regulation in the United States*, 15 JOURNAL OF MACROMARKETING 47 (1995).

9. Menell, *supra* note 2, at 1369 (providing an example that feminine hygiene producers would not likely purchase advertising during a football game although female consumers are likely to watch football games).

10. See *id.* at 1370.

11. By most accounts these banner ads, named due to their rectangular shape (60 pixels tall by 468 pixels wide), were first introduced in October 1994 by HotWired, which advertised brands like Zima, Club Med, and AT&T. The shape of banner ads remain the market standard even today. BRUNER, *supra* note 1, at 3.

12. An industry survey conducted by PricewaterhouseCoopers LLC and sponsored by the Interactive Advertising Bureau showed a 30.3 % increase in online advertising revenue between 2004 and 2005. The industry earned \$ 267 million in revenue for 1996, experienced negative growth during the dot com years and immediately following the dot com burst. Over the past few years, the industry has experienced double-digit growth. PRICEWATERHOUSECOOPERS LLC, IAB INTERNET ADVERTISING REVENUE REPORT (2006), available at http://www.ameinfo.com/pdf/iab/IAB_PwC_2005full.pdf.

2010,¹³ online advertising has quickly climbed the ranks among the leading advertising markets.¹⁴

The largest revenue shares within internet advertising are generated by display-based and search-based advertising.¹⁵ Display-based advertising includes a mixture of sophisticated rich media technology,¹⁶ as well as the older, lower tech banner ads. Search-based advertising utilizes the internet user's search engine query to determine which advertisements are displayed.¹⁷ Search-based advertising accounted for approximately \$5.1 billion in 2005, forty-one percent of total internet advertising revenue.¹⁸

Google and Yahoo!, leaders in the search-based advertising market, allow advertisers to bid on specific keywords. When a user types in that keyword, ads from the highest bidders are displayed prominently on the same page as the search-query results.¹⁹ The ability to target consumers with specific, sometimes eccentric, interests has made search-based online advertising flourish.²⁰

A. Targeted Advertising and Real-time Metrics

The internet has grown significantly since banner ads first appeared. This growth, along with the burgeoning popularity of online marketing, has led to an increase in ad publishers, which are websites willing to sell ad space. Middlemen soon arrived to mitigate the increasing transaction costs between advertisers and countless publishers by organizing the latter

13. Grow et al., *supra* note 6.

14. In 2005, internet advertising accounted for nearly 4.7% of the roughly \$ 267 billion spent on domestic advertising. The Internet has surpassed both outdoor marketing (e.g., billboards, street furniture, etc.) and business magazines for market share in domestic advertising. See PRICEWATERHOUSECOOPERS LLC, *supra* note 12, at 11.

15. *Id.* at 8.

16. "Rich media" is a term used to describe a variety of online advertising media experiences, including high-quality animation, streaming audio and video, and software-like features that can be embedded in relatively small ad files, such as games, registration forms and detailed marketing information. A user can explore all of those features in the ad unit without ever leaving the content page on which the ad appears.

BRUNER, *supra* note 1, at 9-10.

17. See Welcome to AdWords, <https://adwords.google.com> (last visited Jan. 27, 2007); see also Pay-Per-Click Ads from Yahoo! Search Marketing (formerly Overture), <http://searchmarketing.yahoo.com/srch/pricing.php> (last visited Jan. 27, 2007).

18. PRICEWATERHOUSECOOPERS LLC, *supra* note 12, at 8.

19. See Welcome to AdWords, *supra* note 17; see also Pay-Per-Click Ads from Yahoo! Search Marketing, *supra* note 17.

20. See PRICEWATERHOUSECOOPERS LLC, *supra* note 12, at 3.

into collective bargaining units. Ad networks,²¹ as these consortia are known, categorized their client websites based on content, theme, and other demographic criteria similar to traditional media. By pooling together similar websites, ad networks provided advertisers with better opportunities to target likely consumers. In exchange for their efforts, ad networks share in the fees charged to advertisers for displaying ads with affiliate publishers.

Unlike traditional media, online advertising provides an advertiser with real-time information of an advertisement's efficacy. The click-through-rate (CTR) of an advertisement, the number of times an advertisement is clicked compared to the number of times that advertisement has been displayed, is a standard real-time metric.²² This provides a simple analysis of an advertisement's performance. Low CTRs might result from the failure to interest potential customers or because the publishing website failed to provide prominent, visible locations for the ad.²³

Among the many advertising networks, search engines earn the majority of advertising revenue. Search engines provide advertisers with access to large affiliate networks as well as opportunities for display-based and search-based advertising. For search-based advertising, the search engine reaps all the profit by acting as both ad network and publisher.

In addition to keyword-based advertisements, advertisements can be delivered based on geographical data contained in a consumer's IP address. For example, a user with an IP address originating from Baltimore might receive an offer to purchase Baltimore Ravens tickets while visiting a football-related website. Visiting the same website at the same time, a user from Philadelphia might instead receive an ad for Philadelphia Eagles tickets.

B. Payment Models

As internet advertising has grown more sophisticated, so too have the methods to handle pricing and payment. Payments for the first generation

21. Prominent ad networks include search engines, media companies, and technology vendors such as Google (AdWords and AdSense), Yahoo! (Yahoo! Search Marketing), Microsoft (Microsoft adCenter), 24/7 Real Media, Gorilla Nation, Tribal Fusion, Undertone Networks, and ValueClick.

22. ALEXANDER TUZHILIN, *THE LANE'S GIFT V. GOOGLE REPORT 7* (2005), available at http://googleblog.blogspot.com/pdf/Tuzhilin_Report.pdf.

23. See Google AdWords Help Center: Tips for Success, <http://adwords.google.com/support/bin/static.py?page=tips.html> (last visited Feb. 12, 2007). A variety of online sources provide a range of values for average CTRs for 468 x 60 banner ads, all less than 1%. See, e.g., Online Advertising Glossary, <http://www.internetadsales.com/modules/-glossaire/glossaire-comm.php?sid=9> (last visited Apr. 9, 2007).

of online advertising were based on a *cost per impression* or *cost per mille* (CPM) method.²⁴ Adopted from older, less interactive advertising markets, bulk rates were set for the display of a predetermined number of advertisements. For example, an advertiser might pay an ad network \$X for every Y times the advertisement was displayed on an affiliate's site. The norm across the advertising industry has been to set Y at 1,000, whence *mille* derives.²⁵

A major drawback of the CPM payment method is that the advertiser is forced to pay for all displayed advertisements regardless of whether they were actually seen by the consumer or not.²⁶ Online ads, just like advertising in traditional media, often go unnoticed. Thus, an advertiser may find it unfair to pay for ads that were displayed but never seen or clicked. Even those that are noticed must pique sufficient interest to overcome the inertia of consumer complacency. CPM is a useful and efficient tool for media that lack accurate, real-time measurement of consumer behavior like newspapers and magazines.²⁷ Internet advertising, however, does provide such real-time metrics to instantly measure consumer activity.²⁸

As the number of sites willing to publish ads steadily increased, so too has the bargaining power of advertisers. Advertisers were soon provided with a performance-based payment method, the *cost per click* (CPC).²⁹ The CPC method only charges the advertiser when a user clicks on an ad. The per-click charge is determined by the ad network and is based on the reputation of the ad network, the traffic generated by the ad network's affiliated sites, the ad's CTR,³⁰ and other related economic factors.³¹ Adver-

24. TUZHILIN, *supra* note 22, at 8.

25. *Id.*

26. *Id.*

27. Menell, *supra* note 2, at 1369.

28. *Id.* at 1370.

29. See TUZHILIN, *supra* note 22, at 8.

30. Generally, a higher CTR results in a lower the price charged by the ad network to the advertiser for each click on an advertisement. A low CTR, however, requires a greater price charged for each time a user clicks on the ad. The price difference is meant to generate similar cash flows for the ad network regardless of the displayed ad's efficacy. See Google AdWords Help Center: What's the lowest amount I can pay per click?, <http://adwords.google.com/support/bin/answer.py?answer=21374&topic=10265> (last visited Jan. 27, 2007).

31. Seasonal effects, like the time period prior to the Christmas shopping season, yield significant increases in the rates charged per click. See Watch for Seasonal Variations in Your PPC Metrics, <http://www.knowthis.com/internet-marketing-insights/report-summary/watch-for-seasonal-variations-in-your-ppc-metrics.htm>. (last visited Jan. 27, 2007); see also Wendy Davis, *Keyword Costs Show Seasonal Spike*, ONLINE MEDIA DAILY, Feb. 22, 2006, <http://publications.mediapost.com/index.cfm?fuseaction=Articles>.

tising networks will often give advertisers flexibility in their billing by offering CPM, CPC, or a combination of both.³²

Payment models for search-based advertising require advertisers to bid on the per-click charge for a specific keyword, with higher premiums for popular keywords.³³ Higher bids give the advertiser priority in the ranking of ads.³⁴ This hierarchy dictates the prominence and order of ads displayed alongside search-query results.³⁵

Many ad networks incrementally debit per-click charges from an advertiser's account.³⁶ If an advertiser's account is depleted, the ad network will stop displaying the ad with the results of the keyword search.³⁷ As discussed below, this billing policy promotes inequitable behavior among advertising competitors through click fraud.

C. Click Fraud, The Shortfall of CPC

Although the CPC model was designed to address the concerns of advertisers weary of wasted advertising budgets, the CPC model suffers a major drawback: it encourages fraudulent clicking. Google has defined

san&s=40109&Nid=18603&p=223422. CPC rates can vary greatly, from \$ 0.01 to \$ 0.05 for low-scale networks, up to \$0.35 or more for more reputable ad networks. Online Advertising Glossary, <http://www.internetadsales.com/modules/glossaire/glossaire-comm.php?sid=10> (last visited Jan. 27, 2007).

32. TUZHILIN, *supra* note 22, at 8.

33. Yahoo! and Google use advertiser bids to determine a maximum per-click charge. The actual per-click charge, which depends on certain factors including ad quality, relevancy to users and CTR, might be lower than this bid price, but is never greater. *See Pay-Per-Click Ads from Yahoo! Search Marketing*, *supra* note 17; Ask Yahoo! Search Marketing Help: How is cost/PPC determined in the new ranking system?, http://help.yahoo.com/l/us/yahoo/ysm/sps/faq/adrank/moreclicks//cost_ppc.html; Google Adwords Help Center: How do I choose my maximum CPC, <https://adwords.google.com/support/bin/answer.py?answer=6385> (last visited Jan. 27, 2007); Google Adwords Help Center: What's the lowest amount I can pay per click? <https://adwords.google.com/support/bin/answer.py?answer=21374&ctx=sibling> (last visited Feb. 14, 2007).

34. Yahoo! and Google determine the positions of keyword-targeted ads through a dynamic ranking order based on the per-click bid and some qualitative scoring of each advertisement. Google's "Quality Score" measures the quality and relevance of the ad determined by the ad's CTR, ad text relevance, keyword popularity, and target site operability. *See Google Adwords Help Center: Quality Score*, *supra* note 33; *see also* How is my ad's placement on the page determined?, http://help.yahoo.com/l/us/yahoo/ysm/sps/faqs/presignup/ad_placement.html (last visited Jan. 27, 2007).

35. *See Google Adwords Help Center: What is position preference?*, *supra* note 33.

36. *See How do I pay/how am I billed*, http://help.yahoo.com/l/us/yahoo/ysm/sps/faqs/presignup/payment_billing.html (last visited Jan. 27, 2007).

37. *See Google Adwords Help Center: Why can't I see my ad?*, <https://adwords.google.com/support/bin/answer.py?answer=6105&topic=7036> (last visited Jan. 27, 2007).

click fraud as the intentional clicking of an online advertisement for a reason “other than to view the underlying content.”³⁸ In recent litigation, to be discussed in Part III, click fraud was noted as an industry term used to describe a click on an advertisement with no intention of doing business with the advertiser.³⁹

The perpetrators of click fraud knowingly exploit the nature of the CPC model to force an advertiser to pay for a click with no possibility of completing a sale. There are two common forms of click fraud, one committed by individual publishers and another by business competitors. Individual publishers—the owners of websites affiliated with the ad network—abuse the system for their own financial gain while business competitors attempt to exact monetary punishment on rivals.⁴⁰

An advertiser is charged by the ad network every time its ad is clicked. As reward for participating in the network, a portion of that payment is given to the affiliate website featuring the clicked ad. An underhanded publisher might accumulate significant revenues from these residual payments by repeatedly clicking every ad displayed on *her own* site.⁴¹ The publisher generates income from the fraudulent clicks while artificially inflating the CTRs of ads appearing on her site. The publisher, and her ad network, might thereafter demand advertisers pay an increased premium for the opportunity to display future ads on such a “popular” site.

Click fraud by business competitors similarly imposes significant charges on an advertiser for clicks without any prospective return.⁴² Such fraudulent clicking might deplete a company’s entire advertising budget within a few days and force the ad network to stop displaying those ads.⁴³ Furthermore, the pricing policy for search-based advertising creates an incentive for a competitor to commit click fraud. By depleting the funds in an advertiser’s account, a competitor might remove a business rival’s ads

38. GOOGLE ANNUAL REPORT 28 (2005), available at http://investor.google.com/pdf/2005_Google_AnnualReport.pdf.

39. Complaint at 7, *Click Defense, Inc. v. Google, Inc.*, No. 5:05-cv-02579-PVT, 2005 WL 1813081, at *7 (N.D. Cal. filed June 24, 2005).

40. See *Google, Inc. v. Auction Expert Int’l*, No. 1-04-CV-030560, 2004 WL 2826489 (Cal. Sup. Ct. Nov. 15, 2004) (asserting claim that affiliate website owner breached contractual agreement against committing fraudulent clicks); see also TUZHILIN, *supra* note 22, at 18.

41. Although a monetary valuation of time might make such a brute force method seem inefficient, many individuals are willing to perform such tedious tasks. N. Vidyasagar, *India’s Secret Army of Online Ad “Clickers,”* TIMES OF INDIA, May 3, 2004, <http://timesofindia.indiatimes.com/articleshow/msid-654822,curpg-1.cms>.

42. TUZHILIN, *supra* note 22, at 18.

43. See Google Adwords Help Center: Why can’t I see my ad?, *supra* note 37.

from the hierarchy of ads displayed for a keyword. The unscrupulous rival's own ads would then jump in priority and receive more prominent display.

Although defining click fraud may seem simple, the ability to recognize every single fraudulent click would require the ability to read the perpetrator's mind. How should a click committed without the requisite intent, yet without any possibility of conversion into a sale, be interpreted? For example, a user might accidentally double-click on an ad without any perceivable malicious intent. Should an advertiser pay for such a non-fraudulent, yet nonetheless "invalid," click?⁴⁴ Questions like these are greatly relevant to the scope of click fraud detection.⁴⁵

II. SCOPE OF THE PROBLEM

The current system of advertisement pricing provides little incentive for advertising networks and publishers to deter fraudulent clicking. An advertising network is paid and the publisher earns a commission regardless of whether a click is fraudulent. Deterring click fraud would reduce the overall revenue generated from online advertising, forcing ad networks and publishers to forgo profits. In terms of such lost profits, fraudulent clicks cost advertisers an estimated \$800 million in 2005.⁴⁶ An estimated 14.1% of online sale referrals generated by clicks on text advertising links were fraudulent.⁴⁷ Nearly 12.8% of the clicks generated from the two leading search engines, Yahoo! and Google, were found to be fraudulent.⁴⁸

Because there is no industry-accepted definition for an "invalid click,"⁴⁹ estimates for the prevalence of click fraud vary. The findings by ad networks and third-party auditors are rough estimates,⁵⁰ ranging from a

44. Until March 2005, Google's answer to that question would have been "yes." Google's policy had been to charge double-clicks as two distinct, chargeable actions. The change in policy had "non-trivial financial implications for Google." TUZHILIN, *supra* note 22, at 30.

45. *See infra* Section II.A.

46. Verne Kopytoff, *Click Fraud a Huge Problem: Study Finds Practice Widespread; Many Cut Back Online Ads*, SAN FRANCISCO CHRONICLE, July 5, 2006, at C-1 (referring to a study of 407 online advertisers conducted by Outsell, Inc.).

47. Press Release, Click Forensics, Industry Average Click Fraud Rate Climbs in Second Quarter 2006 (July 17, 2006), available at <http://www.clickforensics.com/news/pressreleases/07-17-06.htm>.

48. *Id.*

49. *See* TUZHILIN, *supra* note 22, at 15-18.

50. *Id.*

few percent to more than twenty percent of all clicks.⁵¹ Although critical of the methodology and rigor of these third-party auditors, Google has recognized that click fraud is a problem under the current system.⁵² In its 2005 Annual Report, Google acknowledged the potential harm of click fraud:

If we fail to detect click fraud or other invalid clicks, we could lose the confidence of our advertisers, thereby causing our business to suffer . . . If invalid clicks are not detected, the affected advertisers may experience a reduced return on their investment in our advertising programs because the invalid clicks will not lead to potential revenue for the advertisers. This could lead the advertisers to become dissatisfied with our advertising programs, which has led to litigation, could lead to further litigation, [and] could lead to a loss of advertisers and revenues.⁵³

Google has every right to be concerned. In 2005, 99% of its \$6.1 billion revenue was derived from advertising.⁵⁴ Similarly, 87% of Yahoo!'s \$5.3 billion revenue was generated from its marketing services.⁵⁵ With total revenues for both companies so strongly dependent upon online advertising and the satisfaction of advertisers, fraudulent clicks could jeopardize future earnings and organizational viability.

Google's CEO, Eric Schmidt, however, did little to assuage advertisers' fears. Schmidt insisted that the situation was self-correcting—that the “perfect economic solution” to click fraud would be to “let it happen.”⁵⁶ If ad networks chose not to rectify the problems with click fraud, Schmidt reasoned, the natural economic result would be a decrease in what advertiser's would pay.⁵⁷ The resulting decrease in ad costs would slowly balance the lost revenues created by fraudulent clicks. Schmidt, however, recognized the short-term effects of click fraud as deleterious to advertisers and said Google engineers were developing click fraud detection algo-

51. See Clickfraudreport.com, How prevalent is click fraud?, <http://www.clickfraudreport.com/2.html> (last visited Jan. 27, 2007).

52. See CLICK QUALITY TEAM, GOOGLE, INC., HOW FICTITIOUS CLICKS OCCUR IN THIRD-PARTY CLICK FRAUD AUDIT REPORTS (2006), available at <http://www.google.com/adwords/ReportonThird-PartyClickFraudAuditing.pdf>.

53. GOOGLE ANNUAL REPORT, *supra* note 38.

54. *Id.* at 22.

55. YAHOO!, ANNUAL REPORT 17 (2005), available at <http://www.shareholder.com/shared/dynamicdoc/YHOO/1183/YHOO.pdf>.

56. Donna Bogatin, *Google CEO on click fraud: 'let it happen' is perfect economic solution*, ZDNET, July 9, 2006, <http://blogs.zdnet.com/micro-markets/index.php?p=219>.

57. *Id.*

gorithms.⁵⁸ Nevertheless, Schmidt's nonchalance has led some to ask whether click fraud has simply become a cost of doing business with Google.⁵⁹

Although ad networks do indeed profit as unwitting benefactors of click fraud, these companies have much more to lose in the long-term. The valuation of an ad network is based almost wholly on its ability to maintain a successful relationship with advertisers. One ad network's failure to address the concerns of advertisers would be met with several rival ad networks rushing to fill any voids in the service. Google's engineers are tackling click fraud not out of beneficence, but economic necessity.

A. Invalid Click Detection.

Advertising networks and third-party auditors utilize many different, often proprietary, methods to identify invalid clicks. One common method involves defining an invalid click as any substantial deviation from the past clicking history for a specific ad.⁶⁰ This method assumes previous activity as a standard baseline and anything that deviates from this norm is considered invalid.⁶¹

Rules-based algorithms, which define specific conditions or a series of conditions which may be defined as an invalid click, represent another method to identify invalid clicks.⁶² Every click generated through the advertising network is filtered through this algorithm. Should a click match the set of conditions defined for invalidity, that click is marked invalid and any charges are credited back to the advertiser. These rules are created by individuals whose quality assurance experience allows them to define what conditions should be utilized in parsing clicks as either valid or invalid.⁶³

These two methods identify invalid clicks based upon specific identification procedures. The underlying definition of an invalid click remains essential to detection. Thus, the scope of click fraud detection is constrained by the definition of an "invalid click." Advertisers would prefer an expansive definition, with an over-inclusive ambit, to capture even valid clicks that were likely, but not definitively committed without the intention of a conversion. Advertising networks, on the other hand, prefer a

58. *Id.*

59. *Id.*

60. TUZHILIN, *supra* note 22, at 19.

61. *Id.*

62. *Id.* ("An example of such a rule is 'IF Doubleclick occurred THEN the second click is Invalid.'").

63. *Id.* ("These experts can be either local experts from [the advertising network] or some globalization committees that collectively develop rule-based standards of invalid clicks."). This will be discussed in Part III.

narrower definition that maximizes their profits by limiting the number of invalid, unchargeable clicks.

Another method of invalid click detection is based upon statistical models which recognize invalid clicks based on an individual's previous clicking activity.⁶⁴ As the database of click history grows, it is possible to define appropriate clicking behavior without defining an invalid click.⁶⁵ This method rests upon the assumption that past clicking behavior is free from invalid, or fraudulent, clicking. The method also assumes that an individual's past clicking behavior is indicative of her future behavior.

Adequate detection of invalid clicks, fraudulent or not, has been a major source of contention between advertisers and ad networks, the latter claiming reasonable steps have been adopted, the former skeptical that such steps amount to little more than an under-inclusive system of capturing only grossly fraudulent clicking.⁶⁶ Advertisers are demanding greater transparency over operational definitions and the right to know why a particular click was marked valid, and therefore chargeable.⁶⁷ Advertising networks, however, refuse to disclose operational definitions, proprietary algorithms, and per click analyses to their advertisers out of fear that an advertiser might divulge information to click fraudsters or otherwise use it to circumvent its invalid click detection system.⁶⁸

B. The Arms Race

As detection of invalid clicks has become more sophisticated so, too, has click fraud itself. Unscrupulous users can now use programs developed to automatically generate clicks.⁶⁹ Such evolving techniques have been countered by ever vigilant ad networks and advertisers who can log each visitor's IP address. Repeated clicks from the same IP address within a short period of time are *per se* invalid, and the subjective intent of the visitor, although unknown, is inferred as malicious.⁷⁰

To counter such detection, IP addresses can be masked through anonymous proxy servers and the automation of clicks staggered to resemble natural web traffic.⁷¹ However, advertisers can implement scripts that re-

64. *Id.* at 20.

65. *Id.* at 19-20.

66. *Id.* at 14-15.

67. *Id.*

68. *Id.*

69. Burt Helm, *Click Fraud Gets Smarter*, BUSINESSWEEK ONLINE, Feb. 27, 2006, http://www.bebusinessweek.com/technology/content/feb2006/tc20060227_930506.htm.

70. TUZHILIN, *supra* note 22, at 15-16.

71. See Living On The Edge, About Clicking Agent, <http://www.clickingagent.com/cacamore.html> (last visited Feb. 14, 2007) (describing Clicking Agent, a tool used to

quest information from a visitor's internet browser prior to loading the webpage.⁷² A forged IP address is not likely to provide such information and can therefore be detected as an invalid click.⁷³ Similar scripts can detect how long a visitor spends viewing the target site's content and can track cursor movement as well.⁷⁴ An insignificant amount of time on the site with little or no activity could be construed as an invalid click.⁷⁵

The latest generation of click fraud also raises online privacy concerns⁷⁶ by using unsuspecting individuals to inflate traffic and CTR on affiliate websites.⁷⁷ Networks of computers infected with hidden scripts and programs can be controlled remotely without arousing concern from the individual computer users.⁷⁸ Such programs, known as bots, are designed to virally self-propagate onto unaffected computers and thereby increase the size of the network.⁷⁹ These networks, or botnets, have been successfully utilized in the past for e-mail spamming as well as mounting denial of service attacks. Botnets have recently been used by affiliate publishers to generate chargeable clicks and inflate the CTRs for their own site.⁸⁰ Because the clicks are generated from valid IP addresses and can be programmed to fire at reasonable time intervals, this form of click fraud proves difficult to detect.

III. POSSIBLE SOLUTIONS

The growing sophistication, prevalence, and impact of click fraud have engendered concern for the future of online advertising.⁸¹ Frustrated ad-

generate fraudulent clicks). *See generally*, Vinod Anupam et al., *On the Security of Pay-Per-Click and Other Web Advertising Schemes*, 31 *COMPUTER NETWORKS* 1091, 1093 (1999), available at <http://www.ece.cmu.edu/~reiter/papers/1999/CN.pdf>.

72. *See* Anupam et al., *supra* note 71, at 1097.

73. *Id.*

74. *Id.*

75. *Id.*

76. *See, e.g.*, Eve Caudill & Patrick Murphy, *Consumer Online Protection: Legal and Ethical Issues*, 19 *J. PUB. POL'Y & MARKETING* 7 (2000).

77. LURHQ, Threat Intelligence Group. Pay-Per-Click Hijacking, <http://www.lurhq.com/ppc-hijack.html> (last visited Jan. 27, 2007).

78. *Id.*

79. The size of such herds can be staggering. Dutch officials recently discovered a botnet comprising over 1.5 million computers. Greg Keizer, *Dutch Botnet Suspects Ran 1.5 Million Machines*, *TECHWEB*, Oct. 21, 2005, <http://www.techweb.com/wire/security/172303160>.

80. John Leyden, *Botnet Implicated in Click Fraud Scam*, *THE REGISTER*, May 15, 2006, http://www.theregister.co.uk/2006/05/15/google_adword_scam.

81. Grow et al., *supra* note 6.

vertisers have reacted by bringing suit against large ad networks.⁸² Although limited, the effect of these suits has been to publicize the problem and force conciliatory settlements from the ad networks. Any lasting solution to click fraud, however, cannot be formulated solely through litigation but must address the definition, detection, and control of click fraud. Ad networks must work with advertisers to properly identify the characteristics of a fraudulent click. Defining click fraud allows for the industry-wide adoption of detection protocols through industry self-regulation or governmental oversight to ensure an acceptable baseline for controlling invalid clicks.

A. Legal Action

Click fraud detection is a reactive step; it is a response to a fraudulent click already committed that will likely harm an advertiser if undetected. Click fraud prevention, however, attempts to proactively eradicate click fraud. Preventative solutions must remove the incentives to commit click fraud by making penalties outweigh any potential benefits.

Google recently took to task a former AdSense affiliate partner, Auction Experts, for inequitable behavior, claiming breach of contract, breach of an implied covenant of fair dealing, and fraud.⁸³ The California Superior Court awarded Google \$75,000 including compensation for an estimated \$50,000 in fraudulent clicks.⁸⁴ By hiring individuals to repeatedly click on ads appearing on its website, Auction Experts breached its advertising affiliation contract with Google. The victory highlighted Google's efforts to control click fraud through new policies and detection systems.⁸⁵

That victory was muted, however, by two recent lawsuits brought against major ad networks by, or on behalf of, advertisers.⁸⁶ The complaint in *Lane's Gifts & Collectibles LLC v. Yahoo! Inc.* questioned the motivations and efforts of ad networks in detecting invalid clicks in the face of lost profits. The claims for breach of contract, unjust enrichment, and civil

82. *Lane's Gifts & Collectibles LLC v. Yahoo! Inc.*, No. CV-2005-52-1 (Ark. Cir. Ct. filed Feb. 17, 2005); *Click Defense, Inc. v. Google, Inc.*, No. 5:05-cv-02579-PVT, 2005 WL 1813081 (N.D. Cal. filed June 24, 2005).

83. *Google, Inc. v. Auction Expert Int'l*, No. 1-04-CV-030560, 2004 WL 2826489 (Cal. Sup. Ct. Nov. 15, 2004).

84. Nathan Weinberg, *Google Wins Click-Fraud Case Vs Auction Experts*, WEB-PRONews, July 5, 2005, <http://www.webpronews.com/insidesearch/insidesearch/wpn-56-20050705GoogleWinsClickFraudCasevsAuctionExperts.html>.

85. *Id.*

86. *Lane's Gifts and Collectibles LLC v. Yahoo! Inc.*, No. CV-2005-52-1 (Ark. Cir. Ct. filed Feb. 17, 2005); *Click Defense, Inc. v. Google, Inc.*, No. 5:05-cv-02579-PVT, 2005 WL 1813081 (N.D. Cal. filed June 24, 2005).

conspiracy asserted a belief by the advertisers that the ad networks, including Yahoo!, Ask Jeeves, and Google, had knowingly charged for and profited from invalid clicks.⁸⁷ According to the plaintiffs, the duty to detect fraudulent clicks arose out of contractual agreements under which the ad networks promised to refund charges for invalid clicks.⁸⁸

Under a settlement agreement in *Lane's Gifts*, Google was required to credit any overcharges towards the purchase of future advertisements.⁸⁹ The total settlement was not to exceed \$90 million, which included \$30 million in attorneys' fees.⁹⁰ Google further agreed to an independent assessment of its anti-fraud policies and systems by Professor Alexander Tuzhilin of the Stern School of Business at New York University.⁹¹ The settlement has been criticized as inequitably favorable to Google and plaintiff's attorneys at the expense of the plaintiff class.⁹²

Under a settlement to similar litigation claiming breach of contract and unfair business practices,⁹³ Yahoo! agreed to allow the plaintiffs' counsel and experts to scrutinize the company's Clickthrough Protection (CTP) system and speak with its engineers.⁹⁴ Although there was no fixed amount to the settlement, Yahoo! agreed to pay plaintiffs' legal fees estimated at \$4.95 million.⁹⁵ In promising to settle advertiser claims dating as far back as January 2004, Yahoo! has assured advertisers full cash refunds, as opposed to Google's advertising credits.⁹⁶ In addition, Yahoo! agreed to dedicate personnel to address advertiser inquiries about fraud and traffic quality.⁹⁷

Click Defense, Inc., a click fraud consulting firm, also filed a class action suit in the Northern District of California against Google.⁹⁸ After hav-

87. Complaint at 10-11, *Lane's Gifts and Collectibles LLC v. Yahoo! Inc.*, No. CV-2005-52-1 (Ark. Cir. Ct. filed Feb. 17, 2005).

88. *Id.*

89. Final Order and Judgment Approving Settlement at 7, *Lane's Gifts and Collectibles LLC v. Yahoo! Inc.*, No. CV-2005-52-1 (Ark. Cir. Ct. 2005).

90. *Id.*

91. See TUZHILIN, *supra* note 22.

92. Kevin Ryan, *The Big Yahoo! Click Fraud Settlement*, IMEDIA CONNECTION, July 5, 2006, <http://www.imediaconnection.com/content/10294.asp>.

93. See *Checkmate Strategic Group, Inc. v. Yahoo!, Inc.*, No. 2:05-CV-04588-CAS-FMO (C.D. Cal. preliminary settlement approved June 28, 2006).

94. Yahoo! and Click Fraud: Our Commitment to Protecting Advertisers (2006), <http://yahoo.client.shareholder.com/press/ReleaseDetail.cfm?ReleaseID=202354>.

95. Ryan, *supra* note 92.

96. *Id.*

97. *Id.*

98. *Click Defense Inc. v. Google, Inc.*, No. 5:05-cv-02579-PVT, 2005 WL 1813081 (N.D. Cal. filed June 24, 2005).

ing contracted with Google to display its ads whenever a user queried the term “click fraud,” Click Defense claimed that it was a victim of click fraud. The complaint addressed Google’s conflicting interests between preventing click fraud and maximizing profits, as well as concerns similar to those raised in *Lane’s Gifts*, namely Google’s alleged failure to track, prevent, or warn advertisers about the prevalence of fraudulent clicks.⁹⁹ The plaintiffs alleged breach of contract, negligence, unjust enrichment, and unfair business practices in violation of California’s Business & Professions Code Section 17200.¹⁰⁰ Click Defense was later replaced by Advanced Internet Technologies, Inc. (“AIT”) as the lead plaintiff and proceedings were stayed pursuant to the disposition of the *Lane’s Gift* settlement.¹⁰¹ The court has yet to rule on the effect of that settlement on the disposition of this current suit or future suits.

The plaintiffs in *Lane’s Gifts*, *Checkmate Strategic Group*, and *Click Defense* asserted common law breach of contract claims.¹⁰² Future click fraud litigation is also likely to include such claims. The contractual agreements between ad networks and advertisers or between ad networks and affiliates regularly contain limitations and prohibitions on click fraud and make payments contingent upon validation of clicks.¹⁰³ In addition, broad state unfair competition laws provide another route by which advertisers might contest the acts of ad networks or rivals who perpetrate click fraud. The *Click Defense* and *Checkmate Strategic Group* complaints included such a claim under California’s broad unfair competition statute.¹⁰⁴

Finally, search engine ad networks may be able to enlarge the scope of contractual obligations to include any internet user through Terms of Service agreements required from visitors to their sites. Currently, any member of the general public, who is neither an advertiser’s rival, an ad network, nor an affiliate publisher, can click on an advertisement with abso-

99. Complaint at 10, *Click Defense Inc. v. Google, Inc.*, No. 5:05-cv-02579-PVT, 2005 WL 1813081 (N.D. Cal. filed June 24, 2005).

100. *Id.* at 11-14.

101. *Advanced Internet Techs., Inc. v. Google, Inc.*, 2006 WL 889477 (N.D. Cal. Apr. 5, 2006).

102. Complaint at 10, *Lane’s Gifts and Collectibles LLC v. Yahoo! Inc.* (No. CV-2005-52-1); Complaint at 11-12, *Click Defense Inc. v. Google, Inc.*, No. 5:05-cv-02579-PVT, 2005 WL 1813081; Order Preliminarily Approving Class Action Settlement at 2, *Checkmate Strategic Group, Inc. v. Yahoo!, Inc.*, No. 2:05-CV-04588-CAS-FMO.

103. *See, e.g.*, Google AdSense Online Standard Terms and Conditions, ¶ 11, <https://www.google.com/adsense/localized-terms> (last visited Jan. 27, 2007).

104. Complaint at 13, *Click Defense Inc. v. Google, Inc.*, No. 5:05-cv-02579-PVT, 2005 WL 1813081 (N.D. Cal. filed June 24, 2005). Complaint, *Checkmate Strategic Group, Inc. v. Yahoo!, Inc.*, No. 2:05-CV-04588-CAS-FMO (C.D. Cal. preliminary settlement approved June 28, 2006).

lutely no intention to complete a sale without fear of civil or criminal liability. By including anti-click fraud obligations in Terms of Service, click fraud by anyone visiting such a website could become actionable. The success of such contracts, however, remains uncertain.¹⁰⁵

B. Let the Market Decide

The very structure of the CPC model is its ultimate detriment. This underlying weakness has allowed the click fraud arms race to mature and established click fraud as a billion dollar industry.¹⁰⁶ Bill Gross, an early innovator of the CPC model, believes the next evolutionary step for online advertising is the *cost per action* (CPA) model.¹⁰⁷ Gross recently started Snap.com, which provides search-based advertising, and charges advertisers only when a user performs some specified action on the advertiser's website.¹⁰⁸ This conversion action could be an actual purchase, manual registration with the advertiser, or some other action such as placing items in a virtual shopping cart suggesting the user's genuine intent to make a purchase.¹⁰⁹ The advertiser, therefore, is less likely to be affected by accidental clicks and click fraud.

The growing appeal of CPA has led other ad networks, most notably Google, to begin testing this payment model.¹¹⁰ CPA would complement, not supplant, other forms of advertising in recognition of advertisers' different needs. Although CPA benefits those advertisers whose main goal is to generate online sales, others might only hope to generate name recognition, improve branding, educate consumers, or direct consumers to retail stores.¹¹¹ A combination of CPA, CPC, and CPM models would adequately address advertisers' diverse goals while reducing the overall effect of click fraud.

CPA shifts the risk of fraud from the advertiser to the ad network and affiliate sites. The specified conversion action might be dependent upon

105. For a review of the current status of clickwrap contracts, see Nathan J. Davis, Note, *Presumed Assent: The Judicial Acceptance Of Clickwrap*, 22 BERKELEY TECH. L.J. 577 (2007).

106. Grow et al., *supra* note 6.

107. In 1998, Gross began GoTo.com, which was the first to utilize the CPC model for search-based advertising. GoTo.com was later renamed as Overture.com and then bought by Yahoo!. Paul Bruemmer, *Snap.com: Even Better than Google?*, iMEDIA CONNECTION, Aug. 4, 2006, <http://www.imediaconnection.com/content/10625.asp>.

108. *Id.*

109. *Id.*

110. TUZHILIN, *supra* note 22, at 8.

111. It is this diversity of marketing goals which has maintained the popularity of the CPM payment method for online advertising. CPM accounted for 46% of the \$12.5 billion revenue generated in 2005. PRICEWATERHOUSECOOPERS LLC, *supra* note 12, at 10.

factors wholly outside the ad network's control. Operability, or user-friendliness, of the advertiser's website will remain largely at the discretion of the advertiser, who might also have discretion in how ad networks are notified about conversion events.¹¹² This shift in control could place the ad network at the behest of the advertiser for information transparency. An unscrupulous advertiser could then hide completed conversion actions and short-change the ad network, constituting reverse click fraud.

Transaction costs of dealing with each advertiser to define specific conversion events might be prohibitive to some ad networks. Google, for example, has recently introduced Google Checkout, an online payment processing service designed to simplify online purchasing.¹¹³ After saving shipping and billing information with Google, users are able to purchase items directly from Checkout-affiliated merchants with a simple click.¹¹⁴ Google intends to charge merchants for each Checkout-related purchase and has not ruled out using data derived from the Checkout system to track sales performance of keywords, to modify its AdWords auctions or bid prices, or combine the data with its new CPA pricing model.¹¹⁵

CPA promises advertisers a near-perfect use of their advertising dollars to attract legitimate consumers.¹¹⁶ These chargeable conversion events, however, will occur less often than chargeable clicks under the CPC model. To ensure profitability under decreased chargeable actions, ad networks will likely increase the rates for each CPA transaction.¹¹⁷ Smaller advertisers, unable to afford these costs, may be forced to continue advertising under the CPC model thereby perpetuating the click fraud problem among those least capable of handling it. While large advertisers have the budget to pay for third party auditors or maintain in-house IT specialists, small advertisers will remain subject to the unsubstantiated assurances of ad networks.

C. Regulation

Advertising, including internet advertising, has long been subject to both private and public regulatory constraints.¹¹⁸ In the face of growing

112. Bruemmer, *supra* note 107.

113. See Google Checkout, <http://checkout.google.com> (last visited Jan. 27, 2007).

114. Elinor Mills, *Google Checkout checks in*, CNET NEWS.COM, June 29, 2006, http://news.com.com/2100-1038_3-6089351.html.

115. *Id.*

116. Bruemmer, *supra* note 107.

117. Elinor Mills, *Google tests new ads*, CNET NEWS.COM, June 22, 2006, http://news.com.com/Google+tests+new+ads/2100-1024_3-6086846.html.

118. See Peter S. Menell & Suzanne Scotchmer, *Intellectual Property*, in HANDBOOK OF LAW AND ECONOMICS (A. Mitchell Polinsky & Steven Shavell eds., forthcoming

public concern and possible legislative intrusion, industry associations attempt to self-regulate by codifying and enforcing standards, acceptance of which is required for membership in the association.¹¹⁹ These associations, better suited than the government to promulgate nuanced performance guidelines, provide cost effective public policy functions. The government is then able to focus on implementing broad policies without concerns of stifling the market with over-regulation.¹²⁰

1. *Industry Self-Regulation*

Self-regulation may help balance the information disparity between ad networks and advertisers with respect to click fraud definition, detection, and control. A collective association of the online advertising community could establish a set of best practices for, or issue mandatory directives to, ad networks, third-party auditors, publishers and advertisers.¹²¹ The guidelines would only establish “acceptable” baseline parameters. Competitive ad networks wishing to capture greater shares of the market could always provide a better service by implementing additional proprietary algorithms to refine their detection methods. Establishing a threshold of acceptable practices simply permits advertisers to understand the limitations of click fraud detection.

The Interactive Advertising Bureau (IAB) created the Global Internet Ad Impression Measurement Guidelines to measure impressions in display advertising.¹²² The IAB is an organization that works to increase interactive media’s share of advertising and marketing dollars.¹²³ The ad impression guidelines address long-standing concerns about the need for a standardized method of measuring interactive advertising as well as simplifying the transaction process between advertisers, ad networks, and affili-

2007) (discussing the range of private and public institutions governing the advertising industry).

119. See J.J. Boddewyn, *Advertising Self-regulation: True Purpose and Limits*, 18 J. ADVERTISING 19 (1989).

120. See *id.*

121. See Neil Gunningham & Joseph Rees, *Industry Self-Regulation: An Institutional Perspective*, 19 LAW & POLICY 363, 366 (1997).

122. IAB Standards and Guidelines—Ad Campaign Measurement and Audit Guidelines, <http://www.iab.net/standards/measurement.asp> (last visited Jan. 27, 2007).

123. The IAB represents over 250 companies responsible for selling over eighty-six percent of online advertising in the United States, including AOL, CNET, Google, MSN, Walt Disney Internet Group, Yahoo! and other interactive leaders. Donna Bogatin, *Interactive advertising bureau CEO on click fraud in ‘real deal’ exclusive interview*, ZDNET, Oct. 2, 2006, <http://blogs.zdnet.com/micro-markets/?p=497>.

ates.¹²⁴ These guidelines are intended to hasten the growth of internet advertising spending.¹²⁵

The IAB has also formed the industry-wide Click Measurement Working Group to develop a set of Click Measurement Guidelines.¹²⁶ The working group will gather many of the largest ad networks, including Ask.com, Google, LookSmart, Microsoft Corp., and Yahoo!,¹²⁷ to derive a common definition for “click” and a standard for invalid click detection.

In order to address its wide constituency and promote its public relations, a self-regulating organization must remain publicly accessible. An unintended consequence of the wide distribution of such detection protocols is their increasing susceptibility to circumvention.¹²⁸ Because of organizational inertia, any reactive decision made by the organization would likely be outpaced by advances in fraud-enabling technology.

2. Proxy Representation

Ad networks must make a difficult choice between appeasing advertiser demands for transparency and keeping proprietary detection methods safe. Such proprietary systems define the usefulness and reliability, and therefore ultimate success, of the ad network. Ad networks might be more willing to divulge proprietary detection methods to large, established advertisers, like large retail or automotive firms, whose deep pockets and fear of litigation would deter breaches in confidentiality. If these few, pre-selected advertisers had access to each ad network’s detection process, it would be possible to objectively grade the effectiveness of each network. These few large corporations would, therefore, represent the larger community of online advertisers. In this way, detection methods would remain confidential and advertisers would be provided with an up to date accounting of each ad network’s capabilities.

One major drawback of this system is the assumption that large advertisers can adequately represent the interests of small advertisers. Large advertisers tend to diversify their online marketing campaigns with display ads, search-based advertising, and rich media to promote brand recognition and ad recall as well as for generating online sales.¹²⁹ Smaller advertisers are more likely to rely on online advertising to generate revenue, and

124. IAB Standards and Guidelines, *supra* note 122.

125. *Id.*

126. Bogatin, *supra* note 123.

127. Notably absent from the list of members in this formative working group are advertisers and third-party auditors. *See id.*

128. *See* TUZHILIN, *supra* note 22, at 15.

129. *See* BRUNER, *supra* note 1, at 10-15.

don't have the resources to internalize click fraud. Similarly, the system assumes that large advertisers would adequately represent the concerns of the smaller advertisers when evaluating ad networks.¹³⁰ In a competitive market, such an arrangement almost assures rent seeking by the larger advertisers.

3. *"Let it Happen:" The Status Quo as the Perfect Economic Solution?*¹³¹

The solutions described above assume the concerns of the individual advertisers are strong enough to compel collective bargaining. Advertisers, however, may find the initial costs of such organizing prohibitive, believe that the costs outweigh any possible benefits, or simply eschew change. For example, local television advertising is still priced according to the archaic, artificially inflated "sweeps week" rating system because of an inability, or apathy, of local advertisers to unite.¹³² Click fraud, then, becomes another variable in the valuation of advertisements, or, simply put, a cost of doing business.¹³³

4. *Government Regulation*

A valid skepticism of the self-regulation panacea questions the motives and ability of self-interested, profit-maximizing businesses to safeguard the public. When the market fails to adequately reign in its members or address public concerns, the government often responds.¹³⁴ Failure to properly self-regulate has led to the adoption of legislation as diverse as

130. Recent litigation has pitted advertisers against print media for inflating circulation estimates, and therefore inflating advertising rates. One such aggrieved advertiser has shown collusion by the Audit Bureau of Circulations, the self-regulatory agency overlooking proper circulation estimates by all U.S. print media outlets. Interestingly, corporate advertisers (e.g., Target, Pfizer, J.C. Penny, L'Oreal, Walgreen's, Sears, and Kraft) compose a large portion of the ABC's board of directors. The failure of these large advertisers to adequately represent the needs of other advertisers casts doubt on the effectiveness of such an organizational structure. See Nat Ives, *Audit Bureau of Circulations Hit with Fraud Lawsuit*, ADAGE, Apr. 19, 2006, <http://chicagobusiness.com/cgi-bin/news.pl?id=20264>; see also Jack Shafer, *Ghost Readers: Is Everybody in the Newspaper Business Inflating Circulation?*, SLATE, Aug. 18, 2004, <http://www.slate.com/id/2105344>.

131. Bogatin, *supra* note 56 (statement by Google CEO Eric Schmidt).

132. See Sean Rocha, *How Does Sweeps Week Work?: Why Networks Roll Out the Big Guns—and Why Advertisers Put Up with It*, SLATE, Feb. 16, 2004, <http://www.slate.com/id/2095577> (noting that modern technology can provide real-time statistics about television viewership, but commenting about local television advertising, sweeps and lack of collective bargaining).

133. See Bogatin, *supra* note 56.

134. See generally Daniel F. Spulber, *Regulation and Markets* (1989).

the Highway Beautification Act,¹³⁵ the Cigarette Labeling and Advertising Act,¹³⁶ and Utah's Spyware Control Act.¹³⁷ The latter state legislative initiative raises federalism concerns, which inhere in many internet-based concerns due to the borderless, expansive nature of the internet.¹³⁸

A federal regime regulating click fraud would best serve the public interest. Recent click fraud litigation has included state unfair competition claims along with other contract based causes of action.¹³⁹ On the whole, however, advertiser concerns are not likely to differ over state boundaries and the federal government is in a better position to deal with the global nature of the internet than individual states. Regulation according to decentralized state legislation would ultimately lead to a *de facto* national policy with advertisers and ad networks forced to adopt the policy of the most restrictive state.¹⁴⁰

A similar concern, however, can be raised regarding the effect of any federal regulation on foreign nations and the global economy.¹⁴¹ The international business community would essentially adopt the click fraud regulations of the most restrictive national regime to ensure *de facto* international compliance.¹⁴² Barring formation of an international standard for defining, detecting, and controlling click fraud, a federal system of regulation might prove satisfactory.

IV. CONCLUSION

Click fraud is merely the latest in a long laundry list of undesirable consequences from the growing dependence on the internet for communi-

135. The Highway Beautification Act, 23 U.S.C. § 131 (1965) (allowing billboards in commercial and industrial areas, mandating a state compliance program, requiring the development of state standards, promoting the expeditious removal of illegal signs, and requiring just compensation for takings).

136. The Federal Cigarette Labeling and Advertising Act, 15 U.S.C. §§ 1331-1340 (1970) (prohibiting cigarette advertising on any medium of electronic communication subject to the jurisdiction of the FCC and requiring conspicuous "Surgeon General's Warnings" to be placed on all packages of cigarettes and on all cigarette advertisements and billboards).

137. UTAH CODE ANN. §§ 13-40-101 (2006).

138. See Menell, *supra* note 2, at 1373.

139. See Click Defense, Inc. v. Google, Inc., No. 5:05-cv-02579-PVT, 2005 WL 1813081 (N.D. Cal. filed June 24, 2005).

140. See Menell, *supra* note 2, at 1373.

141. See Zhihong Gao, Harmonious Regional Advertising Regulation? A Comparative Examination of Government Advertising Regulation in China, Hong Kong, and Taiwan, 34 J. ADVERTISING 75 (2005) (analyzing advertising regulations in China, Hong Kong, and Taiwan and concluding that a balance of interests is possible).

142. See Menell, *supra* note 2, at 1415-17.

cation, entertainment, and commerce. The online advertising industry has recognized the scope of the problem and has adopted policies aimed at reducing that threat. Transparency between advertisers and ad networks, however, remains elusive.

Although litigation has brought greater attention to the issue, it has yet to provide lasting control over click fraud. The evolving nature of the internet has offered a possible solution in the form of innovative pricing models, but this, alone, is insufficient. Proper regulation of the industry, private or public, in coordination with these market-based remedies, and judicial intervention, would allow for improved communication and consensus building between ad networks, advertisers, and affiliates. The complexity of the market demands the adoption of baseline standards and industry best practices to provide clarity in the definition, detection, and control of click fraud.