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Click Fraud

Learning Objectives

- Students will understand about Different Frauds can be done in digital era.
- Learn about Source of Click Fraud
- Why Does Click Fraud Matter?
- Google’s AdWord and AdSense Advertising Model
- How Click Fraud works & some basic pracautions

Definition

- Click Fraud is a type of internet crime that occurs in pay per click online advertising when a person, automated script, or computer program appears like a authorized user of a web browser clicking on an ad, for the purpose of generating a charge per click without having actual interest in the target of the ad's link.

Source of Click Fraud

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- Competitors of advertisers: These parties may wish to harm a competitor who advertises in the same market by clicking on their ads.
- Competitors of publishers: These persons may wish to frame a publisher. It is made to look like the publisher is clicking on its own ads. The advertising network may then terminate the relationship.
- Other harmful intent: There's an array of motives for wishing to cause harm to either an advertiser or a publisher, even by people who have nothing to gain financially.
- Friends of the publisher: Sometimes upon learning a publisher profits from ads being clicked, a supporter of the publisher (like a fan, family member, or personal friend), will click on the ads to help.

Pay Per Click Advertising

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- Pay Per Click advertising or **PPC advertising** is an arrangement in which webmasters (operators of web sites), acting as **publishers**, display clickable links from **advertisers**, in exchange for a charge per click. As this industry evolved, a number of **advertising networks** developed which acted as middlemen between these two groups (publishers and advertisers). Each time a (believed to be) valid web user clicks on an ad, the advertiser pays the advertising network, who in turn pays the publisher a share of this money. This revenue sharing system is seen as an incentive for click fraud.

- The largest of the advertising networks, Google's AdWords/AdSense and Yahoo! Search Marketing.

Why Does Click Fraud Matter?

- Google's' 99 percent of its turnover through Pay-Per-Click advertising. If click fraud is not countered in the near future, the backbone of its business threatens to collapse.
- Google's advertising revenues have risen from 6.07 billion US dollars in 2005 to 10.49 billion dollars in 2006.
- In 2006, 60 per cent of the revenues (i.e. 6.29 billion dollars) were made through Google AdWords, a system that is susceptible to competitor click fraud, while the remaining 40 per cent (i.e. 4.2 billion dollars) were made through Google AdSense, a system that is susceptible to publisher click fraud.

Ref.- https://www.clickcease.com/blog/what-is-click-fraud/

Key Measures of how effective an advertisement

- *Click-Through Rate (CTR):* it specifies on how many ads *X*, out of the total number of ads *Y* shown to the visitors, the visitors actually clicked; in other words, *CTR = X/Y*. CTR measures how often visitors click on the ad.

- *Conversion Rate:* it specifies the percentage of visitors who took the conversion action. Conversion rate gives a sense of how often visitors actually act on a given ad.

Internet Advertising Payment Method

- *CPM – Cost per Mille* – an advertiser pays per one thousand impressions of the ad ("Mille" stands for "thousand" in Latin); an alternative term used in the industry for this payment model is *CPI (Cost per Impression)*.

- *CPC – Cost per Click* (*Pay per Click or PPC*) – an advertiser pays only when a visitor clicks on the ad, as is clearly stated in the name of this payment model.

- *CPA – Cost per Action* – an advertiser only pays when a certain conversion action takes place, such as a product being purchased, an advertised item was placed into a shopping cart, or a certain form being filled. This is the best option for an advertiser to pay for the ads from the advertisers' point of view.

How Click Fraud works?

- Simulating a Click
- Distributed Click Fraud with Botnets Also **known as the "bot-herder."**

  Taking over a Computer

  Command & Control
- Referrer Click Fraud

Simulating a Click

- Typical online advertisement services work by providing webmasters a

  copy of JavaScript code to add to their pages. This code is executed by the web browser of a visitor to the site, and downloads ads from the advertiser's server at that time. The ad download triggers a rewrite of the frame in which the JavaScript appears, replacing it with the HTML code necessary to display the ads. When a user clicks an advertisement link, they "click through" the ad provider's server, giving the ad provider the opportunity to bill the client for the click. The user is then taken to the ad client's homepage"

Distributed Click Fraud with Botnets

- When the program sends an HTTP request to the advertiser's server, the IP address of the computer making the request is transmitted in order to establish a connection between client and server.

- To increase the efficiency of the fraud, the fraudster can distribute the program so that it does its work from all over the internet, with the help of a so called *botnet*.

Taking over a Computer

- The targeted computer(s) can be compromised by exploiting security holes. The program which does the exploiting is commonly referred to as an exploit. Attackers either write these exploits themselves or, more commonly, use exploits for known security holes that are available on the internet.

- Attacker begins scanning (IP) address blocks for systems which fulfill the requirements of the exploit by using open source program Nmap.

Command & Control

- Internet Relay Chat (IRC) is used as command and control centre (C&C) for a botnet. An IRC consists of one or more servers which relay messages and/or commands to the connected clients. That way the botnet owner can centrally command the clients to download and execute a program which will commit click fraud on the owner's website(s).

Referrer Click Fraud

- The dishonest publisher puts a script on his website that is automatically downloaded onto a visitor's computer when said visitor goes to the publisher's website.

- The script then appears like a click onto the advertisement. The log files of the advertiser will thus show the visitor's client ID and IP address.

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Proposed Solutions

- Cost-Per-Action (CPA)
- Duplicate Detection
- Association Rules

Cost Per Action

- In the Cost-Per-Action model, advertisers don't pay for clicks, but rather for specific actions that are performed on the advertiser's

  page *after* the click.

- These actions might, for example, be making a purchase, filling out a form, or registering.

- Such systems are used by Amazon, for example, to sell books on web pages: a service provider, say Expedia, can list an Amazon ad for a travel guide with the understanding that, should a user purchase the product advertised, then the service provider will receive a payment"

Duplicate Detection

- In order to differentiate between authentic and fraudulent clicks, the advertising publishers “tracks individual customers by setting cookies.

Association Rules

- This is a proposed a solution to the *referrer click fraud*. They propose encouraging ISPs (Internet Service Providers) to provide the data

  stream necessary to detect this kind of click fraud. This data stream would contain the HTTP requests to page P, which might or might not be fraudulent. They would devise an algorithm to detect associations

  between one or more sites that refer to P very frequently, and clicks

  on an ad on P. If strong associations are found, it is very probable that P is using one or more ‘decoy’ websites in order to commit undetected click fraud.

Google's Approaches to detecting invalid clicks

- *Anomaly-based* Approach : According to this approach, one may not know what invalid clicks are. However, one can know what constitutes “normal” clicking activities, *assuming* that abnormal activities are relatively infrequent and do not distort the statistics of the normal activities. Then invalid clicks are those that *significantly differ* from the established norms..

- *Rule-based Approach :* In this approach, one specifies a set of rules identifying invalid clicking activities; alternatively, one can also identify a set of other rules identifying valid clicking activities.
- Each Rule has form “IF Condition1 AND Condition2 AND … AND ConditionK hold THEN Click X is Invalid (or respectively Valid).”
- An example of such a rule is “IF Double-click occurred THEN the second click is Invalid.”

Conclusion

- The assumption of human purpose underpins each conceptual definition of invalid clicks. This indicates that none of these meanings can be put into practice in the sense of developing invalid click detection techniques that would automatically identify only invalid clicks meeting these definitions. This is the core issue with invalid interactions that makes click fraud a challenging issue to address.

Set up a remarketing campaign?

- **Create a dynamic remarketing campaign**
- Sign in to Google Ads.
- Click Campaigns from the page menu.
- Click the plus icon , then select New campaign.
- Select Sales as your campaign goal.
- Select Display as the campaign type.
- Provide the website URL that you want people to visit.
- Enter a name for the campaign.
- Click Continue.

Learning Outcomes

- Students understand about Different Frauds can be done in digital era.
- Learning about Source of Click Fraud & how to be cautious.
- Learned about Google's AdWord and AdSense Advertising Model

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Thanks