Awareness of "Behavioral Targeting" Practice among King Abdulaziz University's Students

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Abstract

Behavioral Targeting is a generic name for a series of technologies that collect and organize, click stream data, develop date warehousing structures, apply data mining algorithms to uncover consumer browsing patterns and serve targeted ads matched to an individual. In this practice vast amount of data is collected anonymously and is largely invisible to the user, who is not asked to explicitly give consent for this practice. This paper examines the King AbdulAziz University (KAU) student's awareness to "User's tracking" practice and also to towards their security and privacy on World Wide Web. It gives an explanation of how the users are being tracked on web, based on the information collected on user's web search and browsing behavior. A survey, i.e. based on questionnaire, was conducted, to evaluate KAU student's awareness on Behavioral Targeting. The survey showed that 43% of the students are aware of this practice done on Web and only 17% of them know how to opt out of it. This paper also shows various ways in which a user can protect his privacy on Web using different browsers.

1. Introduction

Behavioral Targeting is an online marketing method in which the users (consumers) are targeted, based on their previous behavior, which indicates the possible interest or intent to purchase a particular product or service. Online advertisers track the user's behavior to refine advertisements based on user's web-surfing habits, and make them more effective and, most importantly, more lucrative [1]. In this tracking practice, the major roles are played by the Web Publishers and the Advertising Companies (ad network) that help the Online Advertisers to reach the targeted audience. Behavioral Targeting offers publishers a way to create new revenue stream and advertisers a way to consistently reach the right consumers. Behavioral Targeting hits the right target audience with the right target message [2].

Many a times, while surfing or browsing Web, users might have noticed that some of the advertisement (ads), notifications and links keep's on popping up their computer screen. If given a closer look, these ads will be more and more related to the user's interest, likes and previous searches. The user might also be pondered by the thoughts, as "how do they know my location, interest and needs?" This practice of targeting is called Behavioral Targeting (BT).

When the users use the search engines, they are vaguely aware of how the Website, generates a database of their search histories. They would probably be surprised at how many online publishers, search engines and advertisers are collecting information about them, when they search and browse the web or when they visit various websites. Further more if the user is a member of a social network site like Facebook or MySpace, which encourages the user to enter more extensive profile information like their favorite celebrities, favorite hotels, brands, foods and even their political and religious views. This opens up a whole new dimension of potential targeting. By revealing such information the user will make it even easier to predict what appeals to them and to what ads they will react favorably to. In simple words, BT is the most effective and targeted marketing of products and services to select a group of consumers exhibiting a particular behavior. The goal of Behavioral Targeting is to target right users at right time [3].

2. Types of Behavioral Targeting

Behavioral Targeting is a powerful tool, which is broadly classified in two categories although the basic essence of these two categories is same. They are Ad networking Behavioral Targeting and Onsite Behavioral Targeting [4].

### 2.1. Ad Networking Behavioral Targeting

This category helps the targeting companies, to target promotions outside the company's Website, i.e. through a publisher in between.

2.2. On Site Behavioral Targeting

This category helps the targeting companies, to target promotions inside the company's website. BT uses a combination of both of these to have successful conversion rates and promotions.

3. Working of Behavioral Targeting

The overall Behavioral Targeting network is in Figure 1.
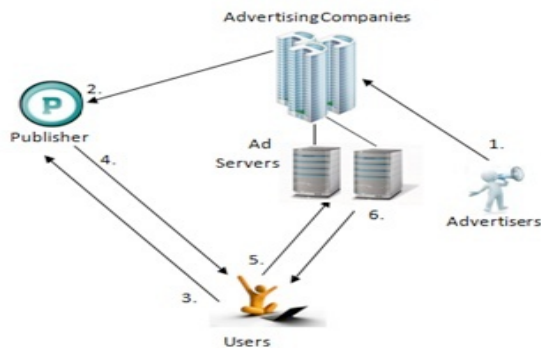
"Figure 1. Behavioral tracking network"

Figure 1 gives a pictorial representation of the overall web tracking process. In the Figure 1, Publishers refers to the people who have their own websites, Advertising companies (with their ad servers) host and serve Web based advertisements and Advertisers are those people who want to advertise their products on Web.

Most advertisers rely on advertising companies (ad networks) to do their targeting for them. Thus, advertisers send ads about their products to the Advertising Companies (Step 1). Advertising companies provide necessary infrastructure and scripts for displaying ads of the products on Publishers Websites. Advertising Companies work with the Publishers, who then vacate a space and embed the scripts that generate ads in its Web Page (Step 2). When a user browse Web page (Step 3), the Publisher sends back the Web page content along with the ads to the user (Step 4). When the user clicks the ads, this information is sent to the advertising network's server (Step 5) which in turn sends back ads with the embedded "cookies," or small pieces of data like web beacons or flash cookies, onto user's (consumer's) hard drives, to keep track of user preferences, the contents of their electronic shopping carts, their searches, and details on where and when user's click on a site. Finally the user targeting starts (Step 6).

Now that the user's browser has a cookie, the targeting begins. Data points as the user click the way from site to site, taking note of what the user buys, what the user reads and what the user searched for. The more time goes on, the more data is collected. Websites also collect visitors' IP addresses, which is numerical code that identifies each computer connected to the Web and its geographic location. With this raw data, an advertising network can use software and analytics to identify consumers with like interests and Web surfing habits. Many times this kind of targeting makes the user stand out among the hundreds if untargeted marketed messages that spam users inbox.

Some of the largest companies offering these targeting services include RevenueScience [5] and BlueLithium [6].

4. Behavioral Targeting and Search Engine

Google is clearly the best general-purpose search engine on the Web [7]. Google is seen everywhere around and is used by almost by all categories of people. Users are not aware of the fact that, Google makes money from the advertisements they post on the web pages. Everything the users, use from Google is free, so the main source of money for them is through *Advertisemen*t [8].

Google does not sell any tangible product and that's the beauty of their business. They sell something that doesn't really exist. They actually *sell traffic*. They get paid for sending traffic to other websites. This is the reason Google seems to be everywhere now.

Google began its Behavioral Targeting Ad Program in March 2008, with its integration with *DoubleClick* [6] *(*subsidiary of Google, that develops and provides Internet ad serving services) to make advertising on the Google content network more efficient and accountable. This new enhancement had the functionality on the Google content network for the users. Users had better experience on Google content network sites, improve the quality of ads and had more conversions for the advertisers.

5. Behavioral Targeting and E-Business

Behavioral Targeting is an important source of revenue for the publishers as well as the ad networks [9]. Users, publishers, and advertisers all are benefiting from behavioral targeting. Users are getting more relevant ads, publishers are getting money out of their Websites, and advertisers are finding it easier to reach

targeted audience. Some of the issues in the revenue model are as the followings:
- Advertising rates are significantly high for the BT ads. The averages cost per thousand impressions (CPM) are significantly higher for BT ads [9].
- Tests and statistics show a significant growth in Clickthrough rate (CTR), which is a way of measuring the success of an online advertising campaign, conversion rates, brand awareness as well as greater returns on investments [10].

As such it is appropriate to conclude that BT changes the web experience for the user. Thus the future search will know what a user is looking for, even before the user finishes typing the query. Users will be capable of customizing the interface of the web based on their preferences.

6. Privacy and Behavioral Targeting

According to Sandra Petronio (2002), "Trust and privacy have complex, but mutual dependant relationship. Trust can influence privacy management, and privacy breeches, which refers to as boundary turbulence" [11].

Though Behavioral Targeting is one of the fastest-growing businesses on the Internet, it can be said that it is the business of spying on Internet users. Behavioral Targeting has become the bogeyman for privacy advocates concerned about the ways advertisers are gathering data on the internet users and inducing them to buy more stuff. Therefore, the main issue arises is that, "Is Behavioral Targeting unsolicited marketing?" Behavioral Targeting by camouflaging the tracking of consumers, can damage the perceived trustworthiness of an e-commerce site it represents. Thus the users need to be sure that their privacy is protected and risks involved in performing transactions are also secured.

Behavioral targeting is undergoing some significant changes. With its recently proposed do-not-track legislation, the Federal Trade Commission has taken a bold stand and proposed to give Web users a new level of control over their online data, including the ability to *opt-out* of all tracking of their online behavior by third parties, and also with capabilities to allow consumers to manage their privacy with the click of a single button [10].

7. Online privacy controls in browsers

The followings are some of the measures that a user can take to prevent his/her information being tracked online and thus securing their privacy in different browsers.

7.1 Internet Explorer

- Check and delete cookies: In the toolbar, click Tools → Internet options →Settings →View files → delete them as required.
- Adjust browser settings: Some cookies can be blocked by clicking Internet Options →Privacy →"override automatic cookie handling" and then specifying first party cookies (these are useful for remembering username and passwords) and third party cookies (placed by marketers and advertising networks for user tracking).
- Use private browsing: Tools → "InPrivate Browsing".

7.2 Firefox

- Check and delete cookies: In the toolbar, click Tools →Options → Privacy → "remove individual cookies"/"remove all cookies".
- Adjust browser settings: Some cookies can be blocked by clicking Tools →Options→ Privacy →(in the drop down box) "use custom settings for history" →(uncheck) Accept cookies from sites (first party cookies) and also accept third party cookies.

7.3 Google Chrome

- Check and delete cookies: In the toolbar, click the wrench symbol and select options. Hood →Content Settings → "Show cookies and other site data" → Remove all.
- Adjust browser settings: Some cookies can be blocked by clicking, the toolbar, then click the wrench symbol and select options. Hood →Content Settings →(check) "Block all third party cookies without exception".
- Use private browsing: In Google chrome, this is called as "going incognito", which can done through clicking the wrench symbol and then selecting "New incognito window".

7.4 Safari

- Check and delete cookies: In the toolbar, open preferences →Security →Show cookies → remove or remove all.
- Adjust browser settings: In the toolbar, open preferences →Security → always or never or only from sites I visit.

- Use private browsing: To turn this feature on, click Safari→Private Browsing.

8. E-commerce Courses in KAU

The Faculty of Computing and Information Technology (FCIT) students in KAU especially from the Department of Information Systems take courses such as CPIS 358 (Internet Applications & Web Programming), CPIS 380 (Introduction to E-Business Systems), CPIS 461 (Business Information Systems), CPIS 483 (E-Systems Applications) and CPIS 486 (E-Business Strategies), where they learn about different aspects of e-commerce. They learn about the different components required for e-business, its architecture, applications along with the latest trends and technologies for its success. Finally as a part of their graduation projects, in the final semester, many of the students develop a Web based application combining the features in the stated courses.

9. Survey on Behavioral Targeting

A survey using a questionnaire was conducted in KAU campus, for FCIT students on general awareness of Behavioral Targeting practice. Conclusions have been drawn based on the 54 responses received from the students.

The key questions listed in the survey are as followings:
- How often do you use the search engine?
- Which search engine do you use most often?
- Some search engines and websites, keep a track of user's online activities and what they search for. Their authorities say that, it helps them provide customer with better search. Did you ever heard of USER'S TRACKING done by search engine/ website?
- Do you know how to come out off the hidden TRACKING services done by search engines/websites?
- When making an e-commerce website as a part of your project, would you as a developer implement USER'S TRACKING practice to improve your business and get a hold on user's data?
- Would you make the targeting legal or illegal on your website?

9.1 Result of Survey

The result as in Figure 2 shows that 91% of students use search engine several times a day and 100% of them use Google search engine. The survey allowed the students to select more than one option.

Therefore, the total number has added up to more than 100%.

Google	54	100%
Yahoo	10	19%
MSN	2	4%
Dogpile	0	0%
others	3	6%
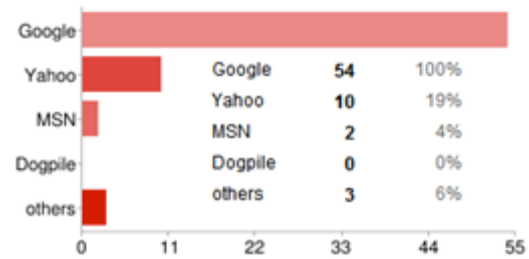
"Figure 2: Most popular search engine used"

Figure 3 illustrates the awareness of BT practice among students. 43% of students are aware of Behavioral Targeting practice done in e-commerce Website and others and just 17% of the students are know how to "OPT-OUT" of this hidden tracking.
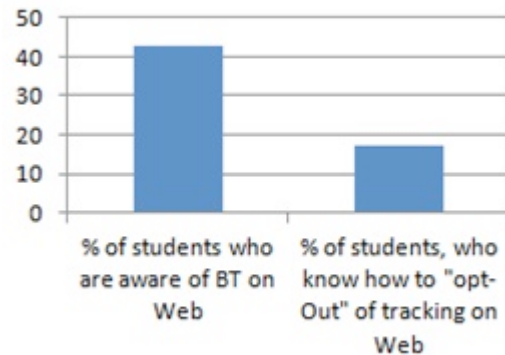
"Figure 3. Awareness of BT practice among students"

The final finding from the survey is that 72% of the students would like to implement Behavioral Targeting in their Websites to improve the e-commerce processes and also make it legal.

10. Recommendations

The result of questionnaire survey in KAU shows that students are aware of Behavioral targeting that is done almost in all e-commerce sites. However, very few students are aware of how to overcome this tracking.

Student's awareness can be increased by including more information about Behavioral targeting in the courses syllabus of CPIS 380 (Introduction to E-Business Systems) and CPIS 483 (E-Systems Applications). Students can also implement Behavioral Targeting practice, legally while developing any e-commerce Website in their graduation projects.

11. Conclusion

In short, behavioral targeting needs further improvements, but it has immense potential to change the way the user consumes and search for information. This potential is improve significantly every day as more data is collected and analyzed. Behavioral Targeting marketing is a continual dynamic process of collecting, enriching and analyzing data on customers and prospects in terms of their trading and interest behavior, and learning how best to influence them to enhance business returns. User also should create general awareness among themselves about users tracking practice, and how much amount of data they should provide on web. E-commerce sites should create more trust, by providing more transparency to data collection and implementing mechanisms of explicit consent for behavioral targeting. Users can use software, e.g. TOR, which can help the user to remain anonymous while Web browsing.

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