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Advertising through Sponsored Search and its Optimisation

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Abstract

The traditional organic searches have yielded a ranking based paid model by the publishers for better visibility of the advertiser's offerings.Sponsored search is one such marketing technique which along with SEO (Search Engine Optimisation) that forms the umbrella concept of SEM (Search engine marketing). The paper tries to explore the current best practices that are prevailing in the marketing industry relating to this services and what are the dominant techniques to get the most out of it. For this we explore the vast area of computational advertisement to understand the techniques currently used to optimise the services for a better customer experience. Also we try to find whether the current popular techniques are the only ones that can be used for the purpose keeping in mind that most of them are focused to optimise the service to benefit the publisher earn revenues from user clicks. We try to develop a model that can optimise the service usability for the advertisers who are the users of this services by combining the findings of some past researches and also by proposing some new strategies developed by us. With the help of the dataset and existing practises we try to orient the focus towards the advertiser's offering in alignment with the optimization facets of the current sponsored search environment.

This model we aim to develop can help the advertisers to get the most out of their advertising budget and time and generate higher revenues because that is what they really need from the services i.e. higher sales and not only higher clicks on their ads.

Introduction

In the current scenario where e-commerce has started to stand at par with traditional commerce the ways of marketing have also changed and with this arises the need to understand and improve the new methods of selling goods online.

Sponsored search is one such marketing technique which along with SEO (Search Engine Optimisation) that forms the Umbrella concept of SEM (Search engine marketing). In this paper we focus our efforts to develop a better understanding of this marketing technique and the various prevalent best practices for its optimisation [1]. Sponsored search allows advertisers to get their advertising content featured on a publisher platform for a certain amount of fee where the money could be charged in various ways, right now Sponsored search is made available to advertisers in three different charging methods that are:

1. PPC (Pay per Click) → under this charging method the advertisers pay the publishers a set amount of money every time their ad gets clicked.

2. PPM (Pay per Mille) → advertisers pay per thousand clicks and only after the agreed amount of clicks is achieved.

3. Surround Sessions → This is a relatively new method and got popular with the advent of banner ads. 3In this method the publisher agrees to serve the customers with marketing content of a single advertiser for a set number of pages and the advertiser has to pay only if the user views those number of pages and also he would not pay for any extra pages that the customer views with his content.

These methods can use two types of fee as per the facility provided by the publishers, a relatively old way of charging is on flat rates that are predefined by publisher and advertiser negotiations or a new one to go for a real time bidding rates which are decided by a program used by publishers to manage the competing advertisers on their platform, this program is generally called as the AdExchange.

techniques and mathematical probability based algorism along with ranking techniques for advertisements. Studies have also explored potential optimisation of ad CTRs based on the positions that they are featured on the page or whether they were presented in isolation or as part of an ad group generated for a user's query. The search engines have the sponsored search services are managed as underlying algorithms that help them manage the ads campaigns by the publishers and aim to deliver the in context of the positions that they would take up on advertisers maximum business by delivering high the page and frequency with which they would be CTRs(Click through ratio or click yield) on their ads presented to the user [2,3], that could translate in sales or deliveries commonly In this paper that we have written for our M.B.A. measured by DPVR(Deliveries per view ratio) for a research study we try to understand the current state of given amount of total campaign cost and campaign services offered by different publisher platforms and time.Generally studies are focused mainly on also we try shift the focus of our study towards optimisation of this service from the side of the service optimisation of cost and time on the side of advertisers providers or the publishers that aim to generate high to develop a way for better utilisation of the said CTRs for an Ad campaign by using different service for the purpose of sales maximisation (Figure 1).

Exploring the Service

The service of sponsored search advertising has evolved over time be it in the manner the publisher's charging method or the service's features itself. We look to understand the current state of offered

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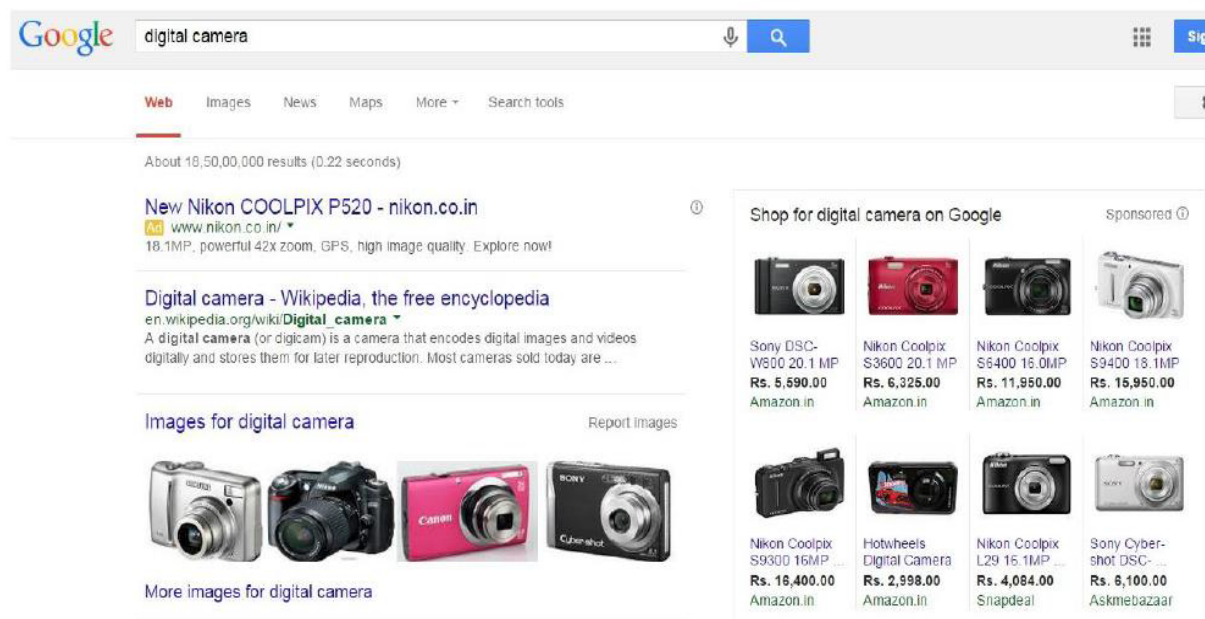
Figure 1: Example of sponsored search advertisements on the search engine results page of Google, for the query "Digital Camera". Ads are shown on the right side under the label Sponsored Ads.

services to find gaps or opportunities related to our study. So we make a logical structure of the service on the basis of generic features of the service offered by different publisher platforms.

The above diagram outlines the interacting databases and user of a complete query resolution of a user's query in form of relevant ads. When a user fires a query the platform searches for relevant ads based on the keyword or phrase in the query and the process of real time bidding starts. This ends up in selection of bidding winners and their creative content is then featured on the page (Figure 2).

Key Players and their important factors in the sponsored search environment are:

Impressions

- Relevancy to query
- Campaign duration and budget
- Targeting rules: user details, location, profile and seasonality
- Bids
- Historical performance of ad

Clicks

- Relevancy to query
- Position
- Advertisement design and attractiveness
- Trust towards the brand

CTR

Click through ratio= Clicks/Impression

DPVR

Delivery per view to generate sales via the online service of e ratio=number of conversion/impressions. For being specific we would focus mainly on two giants in this field that are Google and Amazon. We start on any platform be it Amazon Marketing or Google AdWords by signing up and defining the specifics of our campaign. These specifics include basically the time duration of the campaign and the budget spared for it by the advertiser. This here is an opportunity itself in the form of campaign time but we deliberate on it in later part of the paper. Next up the advertiser goes for ad submission which he could have predesigned or design there itself on the publisher platform by the provided tools. This is the second point of interest for our paper but we also keep it for later discussions and right now just keep exploring
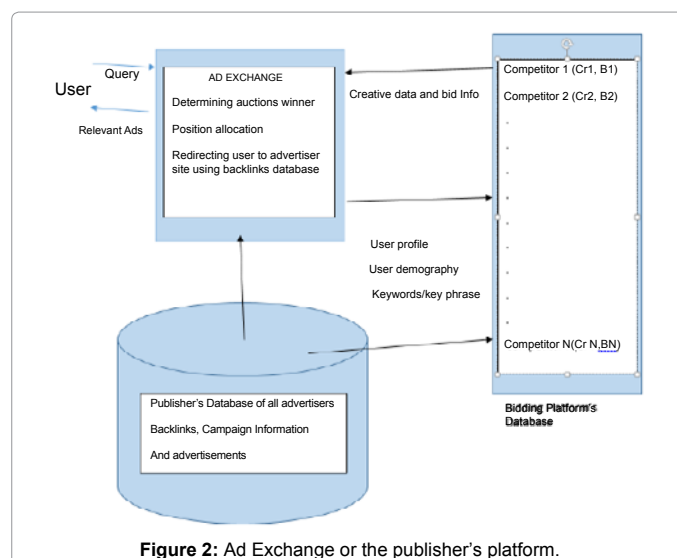

Figure 2: Ad Exchange or the publisher's platform.

the service. After ad submission we go up to select a list of keywords to bid on which generally is a list of 200 words that one can compete for by defining a minimum and maximum bid for each word and also the match type for it that may be exact match or phrase match.

That's it, these were the simple steps to launch an online sponsored ad campaign. Here we also have to pay heed that these platforms provide us with different performance matrices that help us gauge the campaign's performance like the C.T.R. (click through rate/ratio) or the D.P.V.R (Deliveries per view rate/ratio) combined with quantified data such as cost per dollar of sales etc. [3]. These are really good scales to measure performance but the question is of what and whom?

These metrics tell us that how well the platform is able to deliver us the service but we have to understand that getting more and more clicks is not the ultimate goal of the advertiser but it is commerce and make the most of his campaign. So can we agree that getting higher CTRs is a measure of publisher performance and yes it does create an awareness of our products but that's not the only thing wanted from this campaign. We wanted to generate sales and not garner attention because what's the use of it if it can't make money for us.

Methodology

We base our research on the concept of A.I.D.A of marketing i.e. Attention, Interest, Desire and Action which says that a marketing campaign must be considered successful when it completes these four phases in context to a consumer. While when we use CTR as our base metric we ignore the fact that it goes effectively only up to the third phase of garnering attention towards our products but does not guarantee final sales.

We can prove our point that we need to stop using CTR as a scale to measure the service's performance but instead we should move on to DPVR because it is the actual metric that tells us that out of the numerous web impressions how many where really translated into sales to generate revenue for us and not the publisher. And this can be substantiated by a simple correlational analysis of the data for the two metrics for any given campaign. We chose data from five different ad campaigns and performed correlational analysis over them and the findings fell into the range of 0.015-0.043 which is not a substantial correlation and just to counter the point that it is not a spurious finding we have the fact that only after clicking an ad a purchase would be made via the service (Table 1).

Optimization facets in sponsored search

Optimization of the sponsored search advertising has become one of vital area of concern for both the publisher and the advertiser. It is very important for the publisher to gain deep insight into enhancing the campaign experience of the advertisers such that their platform caters not only the revenues but also to the customer satisfaction for prolonged relationships with the customer.From choosing of the right advertisement for the query fired to the relevance of the of the retrieved advertisement, it very vital that the publisher delivers the

optimal for all. Since this online model of paid advertising follows a mechanism in which the advertiser pays for the clicks rather than the impressions, the publisher tries to maximize the clicks to the impressions such that the campaign budgets of the advertisers are utilized to the maximum. The order of the placement and the relevance of the advertisement is very subjective to the probability that a user will click on the advertisement and deliver to the revenue of the publisher. This ranking mechanism purposes to platform real time bidding algorithms which may or may not be platform specific.

A publisher has two objectives pertaining to the optimization of sponsored search advertisement, revenue maximization and the allocation efficiency. Revenue maximization primarily focuses on the CTR (click through rate) performance criterion. A publisher must be able to predict the CTR for a specific advertisement on the historical performance of the advertisement or similar advertisements [4]. This is very vital for the ranking of the new advertisements and assisting the advertisers with the effective designing of the advertising campaigns. The primary goal of the publisher lies with CTR maximization such that maximum of the revenues can be generated by driving the traffic to convert the click into the Coin. With the CTR optimization facet in mind of the publisher.

$$CTR = \frac{Clicks}{Impressions}$$

Revenue generation can be optimally maximized by

Increasing the number of clicks and decreasing the number of impressions of a particular advertisement of a particular advertiser: The publisher must design this optimality strategy for varied number (n_{max}) of advertisers such that maximum benefits(b_{max}) can be extracted out of each customer advertiser and such that the publisher can achieve maximum revenue (R_{max}) out of each advertiser campaign by standard impression flashings and maximum clicks to their respective impressions. With this regard the publisher must aim to get (n_{max}) advertisers to bid for an impression campaign such that the RTB bid touches the rung for that particular campaign such that the advertisers compete for the positional dominance. The focus orients itself to the clicks which are based on varied variables of importance to the deliverables of expected satisfaction of the advertisers and the revenues to the publishers. The factors pertaining to the optimality of the above cited equation to deliver maximum clicks are:

(a) Relevance of the retrieved advertisement for the fired query [5].

(b) Targeting to specific users increases the welfare by 63.7% [6].

(c) Brand image of the advertiser.

(d) Positional allocation of the advertisement (Figure 3).

Since CTR is a prime criterion of revenue for the publisher we can subsequently propose that revenue generation is indirectly supported by the other facet of publisher side optimization i.e. positional relevance and ranking algorithms.

An advertiser seeks to gain the effective ROI (return on investment) from the campaign. It is very essential for the advertiser to bid on the relevant keywords such that their advertisement is in alignment with the customer need. The various facets of optimization on the advertiser's side relate to effective and efficient keyword selection and bidding. With regard to the optimal selection of keywords a bidder has to carry extensive data research to filter out the non performing ones. Bidders have limited budgets and the bid optimization problem which

Sample No.	Sample Size	Correlation value
1	450	0.013884
2	500	0.017886
3	550	0.040679
4	600	0.043553
5	650	0.044928

Table 1: Summary of the results of the correlation on the dataset of Ad words.

they face is a discrete resource optimization problem [7]. The cluster of keywords can be optimized based on the historical performance of the keywords. Many researchers have taken into account the criteria of feature selection to filter out the best keywords for an advertisement campaign [8]. Their research primarily models focus on collection of the logs generated from the parent websites of the advertisers such that a feature selection criteria could be applied onto those collected keywords from the logs and a set of relevant and efficient keywords could be obtained. Joint optimization of bid along with budget is vital concern for the advertiser. In this context, an advertiser can have a number of campaigns and set a budget for each of them. Advertiser can further create several ad groups with bid keywords and bid prices. Data analysis shows that many advertisers are dealing with a very large number of campaigns, bid keywords, and bid prices at the same time, which poses a great challenge to the optimality of their campaign management [9]. Managing many campaigns for optimization may or may not balance the overall investment by the advertiser by it certainly poses a vital drawback for the individual campaign performance. Campaign duration and quality of advertisement are vital parameters towards the optimality of the campaign management. Majority of the sponsored search optimization research facets are in regard to the publisher end .The advertiser is not only concerned with keyword, budgets optimization but also with the ultimate goal of increasing the dpvr (deliveries per view ratio).With regard to the various optimization facets on both the publisher and the advertisers end, we align a direct link to the product orientation of the advertiser to be vital constraint for the sponsored search environment optimization. We trace back our focus on the advertisers offering (product) such that it could relate to the sponsored search optimization matrices and vice versa.

Right from the start of signing up for the service the process of self-motivated optimization would start. The first step would be to choose the option of campaign spread i.e. how should the service provider lay out our campaign for the targeted period of time. Here we have two options that are to spread the campaign over the period or to get it delivered as soon as possible [3].

The advertiser must pay close attention to these as if he is targeting a seasonal or event focused consumer base the option should be to deliver as soon as possible because of the fact that such a campaign can have more impressions over the consumer minds. Next up comes the bidding strategies and bid allocation, this is more related to cost optimization unlike the first option which aims to optimize time for the campaign.

Flexible Bidding Strategies

Flexible bid strategies allows user to set bids automatically in order to optimize their performance across any particular campaigns, ad groups and keywords. These strategies can be applied to any relevant ad groups, keywords (Figure 4).

Types of flexible bidding strategies:

- **Maximize clicks:** It sets bid automatically so that user gets maximum clicks well within the target amount initially allocated for the bidding process.

- **Search page allocation**: It adjusts bid to help user get their ads flashed at the top of the advertising platform or at the top of search results.

- **Outranking share:** It adjusts bids so as to help any particular ad outrank another domain's ads in search results. This is used when advertiser has to gain an edge over its competitors.

- **Cost per acquisition**: It adjusts bids so that user gets maximum possible conversions while average cost per acquisition is also achieved. A conversion is a process of getting your ad clicked and it is then converted into something useful in terms of the advertiser.

- **Enhanced cost per click**: It sets up the user's manual bid up and down in such an order that each click is most likely to be converted. This is used when conversions is the main objective but keyword bidding is also to be controlled.

- **Return on ad spend:** It adjusts user's bid such that its conversion value is maximized while average return on ad spend has also been achieved. One last thing could be to add a feedback form at the end of a consumer's visit which should be a concise one aimed only to collect the point of dissatisfaction for a customer who actually clicked and visited our website and still did not make a purchase. This would help us improve our offering based on genuine feedbacks that could be accommodated by the advertisers.

Conclusion

We have to understand that converting page impressions to clicks and page visits satisfies the goal of the publisher but not that of the advertisers. Advertisers aim is to magnify sales and it is not necessary
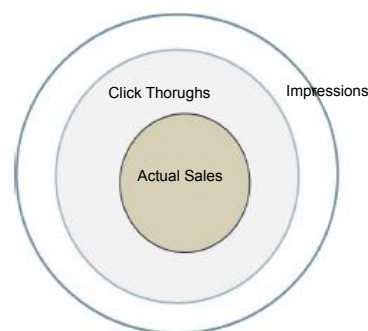
Figure 3. The CTR of an advertisement typically decreases with lower positioned advertisements, due to reduced visual attention [7].

Figure 4: Establishing the fact that deliveries made per view (DPVR) hold more importance than CTR (Click received per impression) as sales is what matter to the advertiser at the end of the day.

only by visiting parent websites through clicking on the impressions a customer may buy his products. So we through our research would look to orient the focus to the maximization of the DPVR in place of CTR as done by the publishers. The advertiser is the one who designs and put up the banners and ads to be used in his campaign so designing is a major concern that he has to look up for attracting more customer queries to his products. So if keywords are not performing well in terms of CTR then it is an issue of ad design and campaign management. But if even with good CTRs the DPVR are not putting up with the campaign then he has to understand that the fault lies somewhere with his offerings. So in order to understand the points of dissatisfaction that turns away customers who actually visited and looked up his goods, the Advertiser must turn back to them to get their views and feedbacks over the rejection.

This feedback could be incorporated with the visiting customer's exit point where he could be asked to give a brief feedback of the offerings. It is very vital for the advertiser to establish a direct orientation towards the offering along with the other parameters like campaign budget ,bid in order to extract maximum benefits both in monetary and in customer satisfaction facet of the sponsored search and its optimization.

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