

Targeted Advertising

Processes and Systems to Deliver Relevant Ads

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1 Abstract

Targeted advertising is expected to be driven strongly by the popularity of channels such as the Internet, mobile and digital TV, which have feedback paths and the capability required to track consumer behavior. Behavioral targeting, a key constituent, is expected to grow rapidly from \$0.53 billion in 2007 to \$4.4 billion in 2012 in the US. To effectively tap into this fast growing market, TME players need to implement processes and systems for managing customer intelligence, identifying appropriate sub-segments and delivering targeted ads. Many implementations of customer intelligence management systems suffer from inadequate support for real-time data analysis and new data sources (such as social networks), proprietary data models and fragmented consumer views. Operators need to mitigate these issues by implementing systems based on an event-driven architecture. The systems should also use Service-Oriented Architecture (SOA) to gather data from multiple disparate sources and create a unified view of the customer through techniques such as data federation and identity management. Additionally, operators need to implement an advanced analytics system and a delivery/reporting system to identify appropriate customer sub-segments and target them with relevant, ROI maximizing ads. Lastly, operators need to adopt a learn-and-adapt approach in their process and system implementations to respond to changing consumer behavior, business models and IT system standards.

2 Introduction

Advertisers are perennially challenged by the need to identify and reach out to their target segments without wasting advertising dollars on non-responsive consumers. Traditional media such as analog TV, radio and newspapers typically do not enable the customization of ads to different customer segments. However, new media such as the Internet, mobile and IPTV allow dynamic insertion of ad messages into content units¹ based on information about consumer demographics, location, behavior and other parameters. This method, called targeted advertising, allows relevant ads to be delivered to different consumers viewing the same content.

Thus, targeted advertising offers the ability to accurately deliver marketing messages only to the desired consumer sub-segments, thereby promising higher effectiveness and RoIs to advertisers. For instance, behavioral targeting² currently commands a superior Click-Through-Rate (CTR) of 0.72% and Cost-Per-Mille (CPM) of up to \$10, compared with 0.20% CTR and up to \$2.50 CPM for non-targeted ads.

Although targeted advertising is currently in a nascent stage, it promises to be a large business opportunity with high growth rates. For instance, behavioral targeting is expected to grow more than eight-fold from \$0.53 billion in 2007 to \$4.4 billion in 2012 in the US (see Figure 1). Moreover, it is expected to comprise around 8% of total online ad spending and over 23% of online display ad spending in particular in 2012.

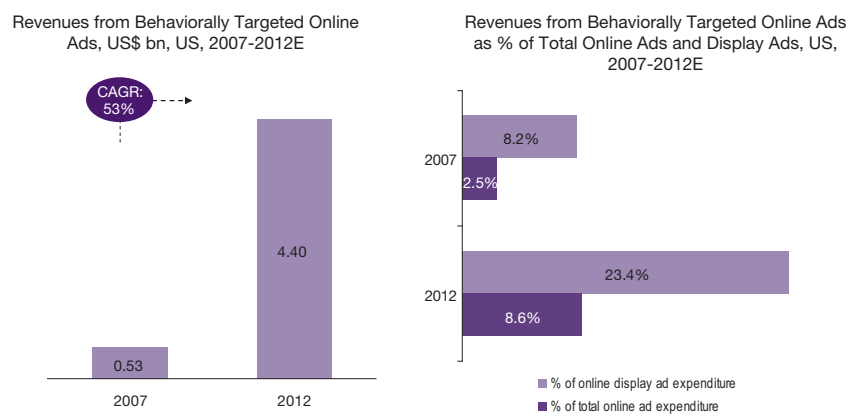
This demonstrates that targeted advertising represents a significantly large opportunity that should not be ignored by telcos. Moreover, by the virtue of owning delivery networks, telcos can play a key role in serving targeted ads and grab a share of the revenue pie.

In this paper, Capgemini assesses the emerging opportunity of targeted advertising from the viewpoint of operators and highlights their strengths in gathering customer information. This paper also discusses processes and systems that operators need to implement to translate their strengths into actionable consumer intelligence and the delivery of targeted ads.

¹ Content units include programs on digital TV and web pages rendered over the fixed-line or mobile Internet.

² Behavioral targeting is an advanced form of targeted advertising that serves targeted ads based on the combination of several behavioral traits of a consumer such as interests, opinions, lifestyle, etc.

Figure 1: Expected Growth in Revenues and Share of Behaviorally Targeted Advertising in Online Ads, US, 2007-2012E



Source: Capgemini TME Analysis; eMarketer, "Behavioral Targeting: Marketing Trends", June 2008; Efficient Frontier Insights, "Search Engine Performance Report Q42007", January 2008; Morgan Stanley Technology Conference, March 2007; Business Week, "So Many Ads, So Few Clicks", November 2007; ZenithOptimedia, Annual Ad Spending Forecasts, 2007

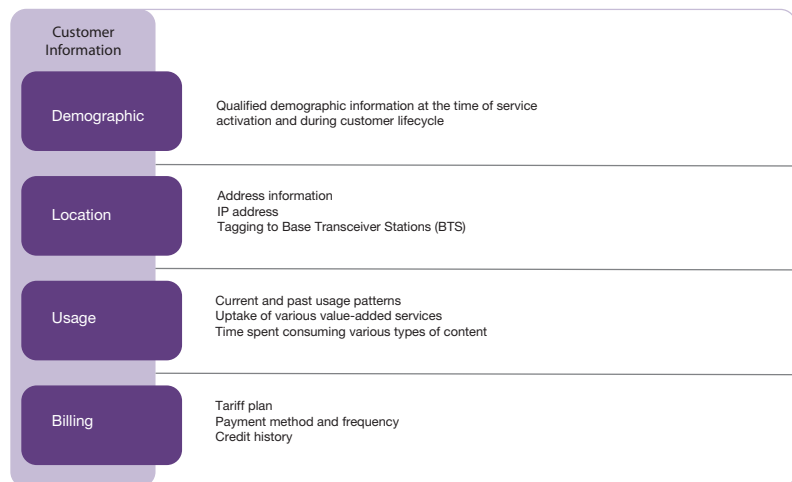
3 Initiatives to Gather Customer Intelligence for Targeted Ads

Targeted Advertising is a significant opportunity for operators

Operator Strengths in Gathering Customer Intelligence

Due to their existing customer relationships and control over network infrastructure, operators have inherent strengths in gathering information on demographics, location, network usage and periodic billing of their consumers (see Figure 2).

Figure 2: Customer Information Accessible to Telcos



Source: Capgemini TME Analysis

Demographic information can be ascertained during service activation by using detailed questionnaires with mandatory³ and optional⁴ questions that seek to gain a better understanding of the consumer's stage in the relevant buying process or general lifecycle. Operators can ascertain the location information of consumers based on their postal address, IP address and proximity to Base Transceiver Stations (BTS). Operators also have information regarding consumers' usage of fixed, mobile and Internet services in terms of duration and content consumed. Lastly, operators also have access to consumers' billing and payment history, which can be used to get an estimate of their spending capabilities.

Thus, telcos have multiple strengths that can be useful in targeted advertising. However, consumer information available to operators has traditionally been static in nature. It does not accurately reflect current consumer behavior, preferences and interests or changes in them. Moreover, customers now use multiple platforms such as the Internet, mobile and TV to consume content. They also extensively interact with their peer groups through non-traditional platforms such as social networks,

³ Parameters such as name, age and sex can be required to be mandatory.

⁴ Parameters such as marital / relationship status, number of household members, income bracket and possession of various consumer durables can be optionally filled by consumers.

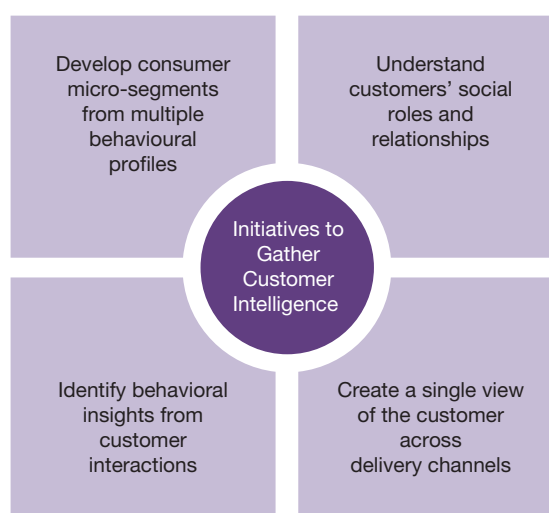
emails and blogs. Traditionally deployed data sources, processes and systems do not capture consumer behavior on non-traditional⁵ or multiple platforms, hindering the creation of a unified user profile.

Therefore, operators need to take certain initiatives to gain actionable customer intelligence that can be used to create cross-channel consumer profiles, separate consumers into relevant sub-segments and deliver targeted ads effectively.

Key Initiatives to Convert Operator Strengths into Actionable Customer Intelligence

Key operator initiatives for gathering in-depth and actionable customer intelligence, necessary for creating consumer sub-segments and delivering targeted ads, are shown in Figure 3.

Figure 3: Key Initiatives to Capture Customer Intelligence Required for Targeted Ads



Source: Capgemini TME Analysis

Develop customer micro-segments from multiple behavioral profiles

Tracking user behavior across multiple delivery channels such as mobile, Internet and digital TV is necessary for gaining deeper insights into customers' multiple behavior and personal preferences. Such an initiative would assist in classifying customers into multiple micro-segments. These initiatives include monitoring Internet usage in terms of sites visited, type of content, time of day and duration of visits. Inferences should also be drawn from calls made from the fixed or mobile platform in terms of origination/ destination geography, time of day, value-added-services used and other parameters.

Players such as BT, Virgin Media and Talk Talk have collaborated with Phorm, an ad network, to monitor approximately 70% of British broadband households⁶. Users are tracked via a random number stored in the Phorm cookie, which is persistent across browser sessions and shutdowns. User data is observed anonymously and the system does not log or store any personal information or IP addresses, thereby safeguarding consumer privacy issues.

⁵ Non-traditional data sources include social networks, search patterns, broadband usage, etc.

⁶ Company websites.

Existing customer relationships and network control provide inherent strengths to operators for targeted ads

Understand customers' social roles and relationships

Consumers use social networks to interact with a larger community. Analysis of these interactions can describe consumers' individual and group relationships as well as their social roles. This information can then be utilized not only to target individuals but also to shape the opinion of an entire group. For instance, identifying "alpha users" or group-influencers and then targeting them with special product offers can help to indirectly influence a wider audience of consumers with similar interests.

Telcos such as SK Telecom that own social networks can perform this quite effectively. However, other telcos may need to partner with social networks to get access to consumer data and profile as well as target specific consumer segments for customized ads.

Identify behavioral insights from customer interactions

User interactions on various channels such as emails, blogs, photo/video sharing, etc. carry valuable information about consumer behavior, interests and preferences. However, this information is available in an unstructured format unlike in the case of traditional information (for instance, from billing). Operators should, therefore, use advanced analytics to extract useful information from hitherto unused data such as text, image or video content. From this information, inferences should be drawn regarding the type of content that consumers are interested in and their preference areas.

Telcos such as Orange, AT&T and T-Online that own content portals can study consumers' usage of various services on their websites and thereby add important behavioral information to consumer profiles. Mobile players can similarly gain significant insights from consumers' usage of mobile Internet as all URL requests pass through them. Other telcos would need to partner with online players such Yahoo! to gain the necessary customer data and subsequently draw inferences.

Create a single view of the customer across delivery channels

Operators have traditionally relied on legacy systems that have data scattered across a number of sub-systems, for example CRM⁷, billing, and usage monitoring sub-systems in fixed-line, mobile and Internet services. However, this provides only fragmented views of the customer and is unsuitable for making actionable consumer profiles for targeted ads. Therefore, operators need to create a single, 360-degree view of the user to capture user preferences and interests in detail and build in-depth, cross-channel consumer profiles.

To implement the initiatives discussed above, operators need to put in place IT systems for gathering and managing customer intelligence, identifying appropriate sub-segments through advanced analytics and delivering targeted ads as well as reporting their effectiveness.

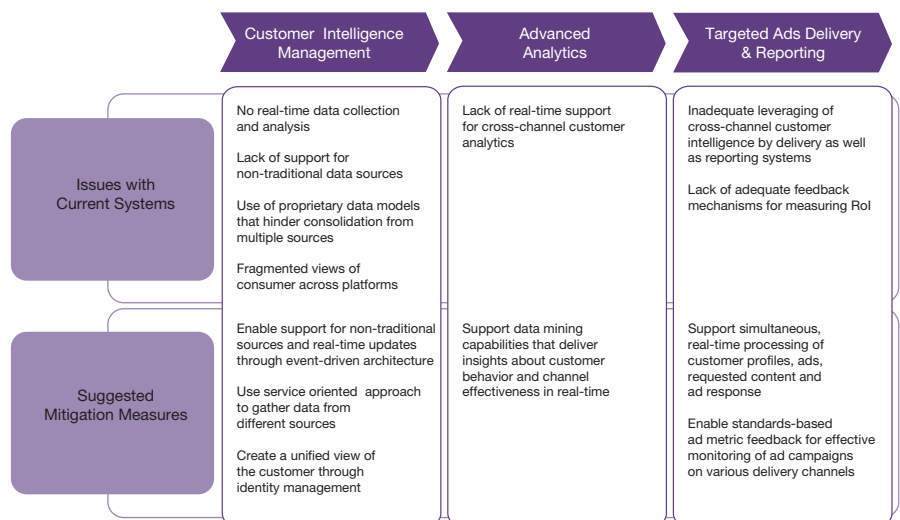
⁷ Customer Relationship Management.

4 IT Systems Required for Effective Delivery of Targeted Ads

Operators need to implement customer intelligence management systems that support real-time updates

Traditional implementations of IT systems for ad delivery have certain shortcomings that need to be addressed for effective customer intelligence management, consumer segmentation and delivery, as well as the reporting of targeted ads. Figure 4 provides a snapshot of the key issues as well as the suggested mitigation initiatives. The salient architectural features of the required IT systems are then discussed subsequently.

Figure 4: Analysis of Issues with Targeted Ads IT Systems and Suggested Mitigation Measures



Source: Caggemini TME Analysis

Customer Intelligence Management System

Many of the current implementations of customer intelligence management systems suffer from four primary drawbacks. First, analysis of user behavior is not performed in real-time, leading to latency in reporting and action. Second, there is a lack of adequate support for gathering and analyzing unstructured data⁸ from non-traditional sources such as social networks, search patterns, broadband usage, etc. Third, the prevailing use of proprietary data models prevents faster integration of non-traditional data and interoperability with third-party sources. Lastly, current systems offer only fragmented views of the consumer across multiple platforms.

To counter these problems, operators need to implement a system that solves the first two problems through the use of an event-driven architecture and a tokenization and classification procedure that helps convert unstructured data into structured data. This enables support for real-time updates and non-traditional data

⁸ Unstructured data refers to information from non-traditional sources and can be in the form of e-mails, notes, search keywords, feedback forms, documents and images/videos referenced.

Operators should implement advanced analytics systems for developing cross-channel behavioral profiles of consumers

sources⁹. The pitfalls of proprietary data models should be avoided through the use of a service-oriented approach, which exposes native data through a set of well-defined interfaces. Lastly, the system should create a single 360-degree view of the customer by consolidating data from multiple channels and sub-systems into a standard unified data model through techniques such as data federation¹⁰ and identity management¹¹. These systems should also have the ability to assign anonymous attributes to customer data in order to maintain privacy.

Players such as France Telecom (FT) have started using similar architectures as they increasingly face the challenge of gathering consumer information from disparate data sources managed by different functional units such as fixed-line, Internet, mobile and online. FT has addressed this problem by tying up with a leading IT services provider to implement a data federation solution. This system allows data support staff to gain virtual access to consumer data from multiple business units as if from a single source. FT can consequently profile consumers based on their behavior across multiple platforms.

Advanced Analytics System

Operators also need to implement an advanced analytics system, capable of analyzing customer usage across multiple channels and developing multi-dimensional behavior profiles in real-time.

The analytics system needs to address the current issue of lack of real-time support for cross-channel customer analytics. The system should implement effective data mining procedures that perform examination, pattern-extraction and analysis of data from existing sources, including the system discussed in the earlier sub-section. These data mining capabilities enable the system to deliver insights about customer behavior across multiple channels and effectiveness of various channels in real-time. The system should also have an open architecture to interface with a centralized data source or multiple disparate data sources.

Moreover, the system should support the creation of well-defined and distinct customer segments either manually or through the use of automatic clustering based on a combination of parameters such as demographic, behavioral, etc. The system should also use predictive modelling to make predictions about future customer actions by analyzing current and historical data. Finally, the system should aggregate usage information about different channels and analyze the relative effectiveness of each channel.

Targeted Ads Delivery and Reporting System

The targeted ads delivery and reporting system needs to support simultaneous, real-time processing of customer profiles, as well as content requests on multiple channels, and deliver relevant ads. The system should also address the inadequate leveraging of cross-channel customer intelligence by current delivery and reporting systems.

The targeted ads delivery system should be designed to take inputs from the advanced analytics system and select suitable customer micro-segments for targeting. It must select and insert relevant ads in the correct format into the appropriate channel in real-time, based on rules or targeting triggers for the ad inventory. Triggers include customer behavior profiles, type of content and device characteristics, and are based on information generated by customers through usage events such as browsing, streaming video, etc. The system should also allow

⁹ Non-traditional data sources include social networks, search patterns, broadband usage, etc.

¹⁰ Data Federation refers to the combining of data from various data sources into one single virtual data source or Data Service; the data can then be accessed, managed and viewed as if it were part of a single system.

¹¹ Identity management allows building a complete view of the customer by managing multiple identities spread across services and networks.

Operators need to adopt a learn-and-adapt approach and have flexibility in their implementations of targeted advertising systems

customization of the campaign based on parameters such as duration, frequency capping and ad sequencing. Lastly, the system should enable standards-based ad metric feedback for the effective monitoring of advertising campaigns on various delivery channels.

The processes and systems described above can be used to identify sub-segments and micro-segments that would respond favorably to specific marketing messages, and deliver ads targeted at those segments. Such highly targeted ads would be more relevant to consumers and generate higher ROI for advertisers.

In conclusion, operators should not ignore the potential opportunity offered by targeted advertising. However, operators' success in offering targeted advertising would depend on their ability to address the rising expectations of advertisers in delivering highly effective, ROI-enhancing ads. To achieve this, operators need to deploy extensive processes and systems to capture and analyze advanced customer intelligence on an ongoing basis, form customer sub-segments and deliver targeted ads. They need to collate information from multiple data sources as well as databases, such as CRM, billing and network monitoring systems. The information may then be used to accurately profile consumers, understand their roles as well as interactions with the larger community and obtain their 360-degree views.

Lastly, operators should not consider the implementation of processes and systems discussed earlier as only a one-time activity. Since consumer behavior, business models and IT system standards are constantly evolving, there are no clear best practices yet in the realm of targeted advertising. Therefore, operators need to adopt a learn-and-adapt approach and have flexibility in their implementations of customer profiling, segmentation and delivery of targeted ads. This iterative approach would also help operators manage risk and counter competitor moves by aligning their implementations with market evolution.

¹² Company websites.

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