MORE THAN JUST THE METADATA: HOW CONSUMPTION DATA AND USER PATTERNS HOLD THE KEY TO PERSONALIZING TV

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Abstract

Cable operators and programmers are looking to content recommendations solutions as a way to offer a more personalized TV experience. First and foremost, next-generation recommendations technologies must be capable of personalizing the primary TV experience. The set-top box experience is critical and often more challenging than performing recommendations across the second screen. This is because delivering second screen content is similar to VOD architecture and traditionally easier to implement in comparison to the primary TV experience, which involves dynamic and linear TV (including EPGs).

These next-generation recommendations systems rely on a combination of robust metadata and a variety of recommendations algorithms, including implicit and explicit data points, direct user feedback such as likes and dislikes, and consumer viewing behavior. But also crucial to these recommendations and navigation technologies is understanding the consumption data and user patterns of linear real-time programming so that operators can maximize their content libraries and add value to existing services. Success hinges on being able to extract valuable and useful learnings from all the noise in the zapping data, and relying on a methodology and approach that is capable of scaling across the demands of real-world operator deployments. For example, a pay-TV provider with 10 million subscribers offering 80,000 programs would need interacting algorithmic technology capable of supporting 800 billion recommendations combinations.

Incorporating these consumer-centric metrics creates an opportunity to understand a consumer's unique preferences, incorporating data such as explicit preferences, implicit preferences, moods, likes, dislikes, etc. Additionally, this kind of data can extend the use of important consumer learnings to any part of an operator's organization, such as marketing, retentions, package configuration, acquisition, and channel marketing.

The paper will delve into the technical specifications and advantages of implementing personalized recommendations techniques that personalize cable TV services on the primary screen and extend that experience across the broader device ecosystem. It will compare and contrast competing approaches, and outline how incorporating consumption patterns and viewer usage patterns improve the overall accuracy of content recommendations. It will look at real-world implementations of how operators today are using these new data sets to truly understand and enrich the subscriber experience.

OVERVIEW

According to the Nielsen Cross-Platform Report (http://www.nielsen.com/us/en/newswire/2013/the-cross-platform-report-how-viewers-watch-time-shifted-programming.html)

Americans spent more than 34 hours per week in front of a TV set in the third quarter of 2012. In addition, Americans spent close to five hours a week on a computer screen, using the Internet and watching video content.

Around the world, the average consumer has 400+ programming channels to choose from yet only watches an average of eight channels.

The sheer volume of content is the root cause of one of the most prevalent misperceptions among TV subscribers - that there's "nothing on to watch." In reality, there are so many choices available that it's virtually impossible for consumers to discover what's really there. The challenge is proactively presenting subscribers with a personalized experience which includes content recommendations that truly reflect the viewing preferences of the individual subscriber, instead of forcing them to work hard to find something they like to watch.

Personalized content recommendations help operators provide higher consumer engagement, promote content and boost revenues. Once deployed, operators can further leverage the content usage patterns and viewership data provided by recommendations engines to help aid in customer acquisition, retention and loyalty.

SEARCH, DISCOVERY AND RECOMMENDATIONS DEFINED

Discovery is the new buzz word, but in reality, it isn't new at all. Relying on discovery alone means that subscribers have to work hard to find new content.

Search and basic discovery solutions assume that subscribers know exactly what they want to watch at any given moment. These approaches assume that viewers know the actor, name of the movie, or the type of show. For example, mood-based content recommendations are just another form of search, and require customers to do the leg work to find which content reflects their "mood."

Search is only useful if the consumer already knows exactly what they want to watch, which is only about 4% (http://advertising.yahoo.com/blogs/events-blog/tv-doesn-t-just-live-tvs-anymore-181752027.html) of the time.

A recent study (http://www.rovicorp.com/insights/index.htm) conducted by Rovi revealed that even when a viewer knows what they want to watch, the vast majority can't find it. Specifically, 72% of those surveyed indicated that they could not find the desired content when searching an on-demand library.

The most successful approach to personalized recommendations is a proactive tool that suggests new content, uniquely created for each viewer, based on their viewing history, likes, dislikes, and moods. These advanced systems expand customers' tastes, pulling from the entire content library, whether that is VOD, live linear TV or other types of content. Personalized recommendations also allow for operators to individualize recommendations to subscribers within a household, not just delivering household level recommendations.

Earlier this year, Cox Communications (http://cox.mediaroom.com/index.php?s=43&item=643) became the first cable operator in the U.S. to launch a new class of personalized TV recommendations as part of its *Trio Program guide*(SM). The guide presents recommendations across live TV and VOD content choices that can be

personalized to individualized members of a household, and it's a bellwether of what's to come for TV viewing across the U.S.

Personalized recommendations can be a tool for operators in helping subscribers easily find and discover new content and subsequently, gain more value from their subscription packages. In addition, by adding search features to recommendations the viewer gets the best of both worlds with fully personalized and appropriate recommendations plus the ability to search for specific items of interest and content.

CONTENT RECOMMENDATION TYPES

Basic Vs. Advanced Recommendations

There are multiple types of content recommendations ranging from the most basic applications to the highly advanced. Each type of recommendations has its own use case. Broadly speaking, content recommendations can be grouped into the following categories: Collaborative Filtering, Unique Preference Profile, Mood-Based and Content-to-Content Recommendations. The specific types are outlined in Figure 1 below:

Figure 1: Content Recommendation Types

Social recommendations or collaborative filtering

One of the most common forms of content recommendations is Collaborative Filtering. Collaborative Filtering is a basic type of recommendations that uses a web-based approach and relies on driving the most popular content offerings based on viewing patterns. This is similar to the social recommendations approach, "people who watched this also watched that." The disadvantage, however, is that this technique simply drives the most popular content i.e. "the Harry Potter effect", in that everybody gets offered only the most popular content.

It's more advantageous for operators to ensure that a wider range of content is presented to the user that broadens viewing across both VOD and linear TV. This ensures that consumers get overall value from their subscriptions as well as leading them into other areas of content, including Pay-Per-View and transactional VOD.

Mood-based recommendations

Mood-based recommendations also fall into the basic recommendations category. This form of content recommendations relies on a consumer to identify what mood they are in and select from predefined categories, e.g. "I am in the mood for a dark comedy." Another shortcoming is the categorization of the content itself. Placing content into static categories does not allow for a dynamic content recommendations experience in which new content is being offered on an ongoing basis. Mood-based recommendations are really just another form of search, where the user is doing the up-front work of telling the system what to find for them.

Content-to-content recommendations

Content-to-content recommendations are a basic form of recommendations that relies on matching related content based on program content similarity. This means

recommending content that has similar actors, genre, mood, etc.

Unique personalized recommendations

Advanced recommendations use automated techniques such as real-time data-mining, natural language analysis, consumption, ratings and other semantic and analytic techniques to constantly learn the preferred viewing habits of a customer. These forms of recommendations take into account many different factors about the content and the user, adapting instantly to customer feedback and to the constantly evolving content.

Intelligent search and navigation

Intelligent Search means that different results can be offered for different subscribers that happen to search for the same term. These results are based on an understanding of individual subscribers and their unique behavior patterns, likes and dislikes and generate search results that are unique to them.

Intelligent search and navigation features include the ability to use user's behavior and preferences to target searches more effectively.

Most deployments of recommendations today need to move beyond basic recommendations to encapsulate a combination of basic and advanced techniques in order to be successful.

Operators need a broad-based comprehensive search and recommendations solution to drive optimum customer value and satisfaction. Personalization, in addition to social recommendations is fundamental.

Recommendations technology that encompasses a comprehensive range of fully automated analytical techniques will offer operators a long-term recommendations solution with the ability to cope with the variety of scenarios that will be needed in the long-term; thereby avoiding the limitations of a one-size fits all, black-box solution. A multi-faceted approach incorporating basic and advanced recommendations ensures that recommendations will support variety of use cases and be executed across the entire device ecosystem.

METADATA

Content metadata and other associated metadata is a key component in providing accurate and successful content recommendations. Metadata is used to identify key attributes generating an enhanced content description such as – star rating, era, mood, theme, atmospheric, age certificate, classification, etc.

Metadata and content profiling

Advanced recommendations engines should provide a content classification process that spans across multiple metadata sources including TV programming, VOD and third-party content. This classification process should integrate with the operator's existing and available metadata sources such as broadcast TV, time shift TV, VOD, third-party product data, marketing campaign systems, etc.

SUBSCRIBER PROFILING

Implicit/explicit preferences

Both Explicit (manual) and Implicit (learned) preferences are a key part of building subscriber profiles so that the

learned preferences can be used to influence the profiles in certain directions.

Explicit preferences include information that the consumer deliberately tells the system through answering a questionnaire or rating content e.g. I like/don't like the following content. Implicit preferences, on the other hand, involve information that the recommendations engine learns from the consumer's behaviors and actions (e.g., watching a program, recording, or downloading, etc. Learned preferences (implicit) are used to capture customer preferences without the customer having to go through a series of forms or questions. A key element of learned preferences is that they enable the capture of more subtle information that will allow the recommendations engine to widen the customer's view and get them out of their narrow view of the programming that they typically watch and the channels they would browse.

Incorporating explicit and implicit preferences enables the recommendations system to become increasingly accurate as it continues to learn and adjust as the consumer's tastes change and evolve.

Customer profiling

Recommendations engines provide support for a number of user profile levels such as anonymous users, individuals, households and communities.

By identifying the individual, greater accuracy in recommendations is achieved as the engine identifies distinct behavioral patterns leading to successful recommendations and targeted marketing. Stored historical recommendations become invaluable pieces of consumer intelligence.

CONTENT AND VIEWING HABITS

It is essential when analyzing consumer and viewer behavior that no matter where subscribers view content that the recommendations experience is consistent and aligned to the operator's objectives.

The growth of viewing platforms provides both the consumer and operator to engage in viewing experiences beyond the Set Top Box and this is increasing by a magnitude of around 3-4 from 2012 to 2016. Sales of connected devices such as tablets and smart phones will grow from approximately 750 million today to over 2.5 billion by 2016. The consumption of content will increase in line. Figure 2 below outlines the types of content and platforms that should be supported in order to deliver advanced and personalized recommendations.

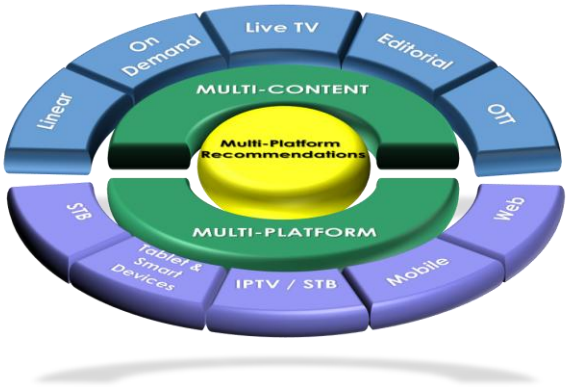

Figure 2: Multi-Platform Recommendations: Content and Device Platforms

Data ownership and storage

The data viewership and usage data is hugely valuable as it reflects not just genre preferences but individual program likes and dislikes. This ongoing data and derived intelligence should be owned and controlled by the operator and can be stored wherever the operator chooses. If not, this

highly valuable data about operator's own customers could be owned by a third-party, such as a recommendations engine provider and the value to the operator is significantly diminished.

Broadening consumer tastes based on viewing patterns

To improve customer retention and grow ARPU, it is essential to expose consumers to a wider range of content than they would normally discover for themselves. Where the consumer explicitly declares a wide range of tastes this is relatively simple to achieve, but in most cases (especially during the critical early phase of the relationship with the recommendation system) the customer is cautious and will declare a narrow range of tastes or even none. In response, instead of recommending a default Top 10 list based on collaborative filtering, the recommendations engine can generate a fresh and diverse list of programs every time, using analytic techniques and not on random selection or wholly marketing based manual selections.

In this way, different programs are selected from the live content, including Long Tail surprises or one-offs to intrigue the consumer, and as a result he is encouraged to divulge more and progress his relationship through the crucial start-up phase.

Viewership data as an operator marketing tool

The viewership and content usage data that is gathered for content recommendations can also be used as a real time marketing tool. This can be highly effective with inbound and online campaigns. It allows the marketing message to be precisely targeted based on the very latest data, constantly adapting throughout the interaction with the consumer.

Support for live and on demand content

The preferred content recommendations engines should be able to provide recommendations on-demand and in real-time.

It is much more difficult to develop and manage an intelligent navigation system and recommendations engine capable of handling dynamic, linear EPGs. The sheer scale of the content involved – typically 500 or so channels offering up to 120,000 programs over a two-week period - makes this much more of a challenge, especially for solutions based on collaborative filtering or other single-algorithm/black-box solutions. Live linear or EPG content is constantly updated, meaning that the recommendations engine and intelligent navigation system needs to work much harder than in a VOD environment.

As the subscriber uses the EPG the recommendations engine can be invoked to provide recommended content for that consumer at an individual and/or household level. When the EPGs are updated advanced recommendations engine should process new items, producing and appending new and enhanced content feature classifications for each item.

IMPLEMENTATION AND RESULTS

Operators around the world are operating in mature, highly competitive markets. They want to keep their best customers and drive revenue growth through increasing usage of existing services and creating personalized offers that will lead to increased up-take of these services while at the same time reducing churn in the core customer base.

In one commercial deployment for example, an operator noticed valuable customers leaving to join competitors. These customers did not view offering as a good value and were not able to find 'good' content. This caused high attrition rate, poor communication and not engaging the customer at the point of contact.

Using a personalized recommendations system provided insight on how a uniquely intuitive, personalized and intelligent initiative would lead to an increase in their subscriber base while improving their customers' personal experience with content through the various communication and interactive channels. In order to support this initiative, the operator deployed a recommendations system with ThinkAnalytics to achieve the following objectives:

- Engage and retain existing subscribers
- Entice subscribers to discover more programs
- Show subscribers that "there is something on"
- Raise awareness of the breadth of channels and programs available across the live EPG and VOD platforms
- Make subscribers aware of the range of content and guide them to select more appropriate packages through personalization
- Entice subscribers to take up other value added services and products

As a whole, the customers of ThinkAnalytics as the largest worldwide provider of personalized recommendations deployments have seen significant business benefits in the viewing of recommended content, increased consumption of transactional/paid content and improved customer satisfaction and loyalty, with the recommendations themselves having a positive response from the consumers.

SUMMARY

Research and results from large scale deployments have proven that delivering better TV recommendations can have a profound impact on business results. Fundamentally, any recommendations deployment needs to support the operator's current objectives and have the inherent flexibility and scalability necessary for the system to evolve. The technology now exists to let operators configure the parameters that best meet their objectives based on analysis of viewing and usage patterns of consumers in order to provide them with a personalized TV experience across platforms. Personalized recommendations can provide a powerful tool to reduce churn, market new or underexposed content, increase on-demand sales, and improve consumer satisfaction.