INCREASING MSO ADVERTISING REVENUES THROUGH MANAGEMENT OF AD SKIPPING

Dan Holden
Comcast Media Center

Abstract

New capabilities that allow customers to enhance their viewing experience, such as the ability to skip advertisements, can be disruptive to traditional business models. However, these new functions also provide an occasion for the industry to seize market opportunities that are created by shifts in consumer behavior. Rather than seeking to defeat the customer's desire to fast-forward through content that doesn't respond to his or her personal interests, it is more effective to acknowledge that desire and present alternative content. Proactively responding to the consumers actions changes the traditional spot advertising approach and benefits consumers and advertisers alike.

This paper outlines a revolutionary approach for using new technology to present advertising to consumers. The innovative solution leverages the action of ad skipping as a catalyst for allowing advertisers, cable programming networks, and cable system operators to generate additional revenue that is currently lost as a result of ad skipping.

INTRODUCTION

Many consumers actively choose to skip ads. They purchase or lease technology that helps them with this endeavor. Advancements in technology provide cable system operators with the ability to support the customer's preference to skip through ads, while presenting an alternate paid campaign that runs in the foreground while viewers are skipping the original ads or content in the background.

Industry trends and consumer sensitivities drive advertisers to be creative when placing ads. For example, digital signage has gained great penetration in retail outlets and movie theaters thus presenting consumers with campaign material regardless of their location or activity. In the same way, consumers viewing habits can be leveraged to present alternative and creative means by which linear advertising content can be presented. Specifically, time-shifted non-linear programming can be enhanced to add value to the traditional thirty-second spot. For example, it is possible to place advertising "on top" of media, much like animated bugs. This and other techniques, which we will collectively call "trick-file advertising", offer great revenue opportunities by replacing or enhancing advertisements while consumers engage trick modes such as fast forward, pause or rewind.

The main goal of trick-file advertising is to leverage consumer behavior for the benefit of consumers and advertisers alike. As consumers opt to skip advertising, they are becoming conditioned to reach for the remote at the beginning of every break. This behavior demonstrates that:

- Consumers are actively interacting with the television and the displayed programming
- They have the remote in their hand
- They are not interested in the commercial content being presented

This is truly interaction with the television platform. During the instances where viewers choose to fast forward through content, it is possible to insert alternative content in the foreground while the original content appears to be fast forwarding in the background. At

this point in time, there are two clear objectives: to get more impactful content in front of the consumer and to log the event. If the alternative content is unique and compelling, it will be more valuable and relevant to the consumer. As an example, in 2005 Burger King created a viral buzz and therefore drawing increased viewership to their linear commercials as viewers flocked to see alternative content hidden in the 30-second spot.

AD SKIPPING

DVR penetration

Customers skip ads for various reasons including burnout and lack of interest in the advertised product. The potential for consumer ad skipping is increasing on a yearly basis. According to data collected in 2008 on DVR penetration, twenty-nine percent of U.S. television households are equipped with DVRs, placing the potential for ad-skipping in front of approximately 33 million households (Nielsen data)[i].

Moreover, nearly two thirds of U.S. households with $100,000-plus incomes subscribe to time shifting services or own a time-shifting device, which translates to at least one DVR in at least 15 million affluent households (Ipsos Mendelson[ii])

In the first four weeks of the Fall 2008 TV season research from IPG's Magna, indicated DVR time shifting accounted for 11 percent of all prime-time ratings on the five broadcast networks. They found DVR playbacks now equal 16 percent of all prime time viewing by consumers age 18-49. That's more than double the impact VCRs had, which was at the 90-percent penetration level. In DVR-only homes, nearly 40 percent of household prime-time viewing (and 50 percent of prime-time viewing in the 18-49 age range) is now time shifted content.[iii]

The statistics indicate that use of time-shifting equipment and functions to skip ads will continue to grow. DVR penetration is projected to increase from its current 23 percent to 37 percent of all TV households, by 2012. In addition, 25 percent of primetime content will be time-shifted by the 18-49 demographic (Magna[iv]).

Least-skipped ads

However, viewers with the capability to skip ads don't skip through all ads indiscriminately. For example, TiVo commissioned a study (Jan 2008) on advertising and determined not all advertising is skipped. The least-skipped ads include theatrical film releases, which accounted for six of the ten most-viewed commercials in DVR playback mode. In addition, eight of the ten most-watched time-shifted cable spots occurred while viewers were watching the show "Psych" on USA Network. TiVo attributed this statistic to integration of characters from the TV show into the advertising, making it difficult for viewers to distinguish between commercial and program content.

Earlier research by TiVo (covering May 2008) supported the idea that viewers skip fewer ads that they see as relevant to their circumstances and interests. TiVo's PowerWatch study specifically evaluated spots skipped by demographic. The data indicated that viewing for children's skincare products in homes with children under 12 was 37 percent greater than in homes with adults 50-plus. Advertising for toys and games had 22 percent more viewing in homes with children under 12. Contrast this to political ads, which had 15 percent more viewing in the homes with adults 50-plus. Finally, ads

for hair restoration products and wigs had 10 percent more viewing in those same homes.[v]

Additionally, Fox TV has found through testing that viewer attention levels to commercials are higher for shows with shortened commercial pods. Biometric engagement research company Innerscope found that viewers watching shorter commercial pods had ad attention levels 31 percent higher; with ad engagement levels 21 percent higher. Unaided recall levels were recorded 250 percent higher and ad likeability levels 61 percent higher than viewers who watched the standard-length ad pods.[vi]

Yet another study from Innerscope used eye tracking to measure gaze location and duration and smart vests that measure arousal, respiration, heart and motion responses. During their testing, prescreened DVR users were given remote control devices that allowed them to fast-forward, pause and play at their discretion. The viewers whose programming had shorter commercial pods, and 50 percent less commercials in the program, fast-forwarded 136 percent less than viewers who watched the standard-length commercial pods. [vii]

It is possible to reduce ad skipping by disabling the fast-forward function. However, in light of the data presented this type of solution is likely to have a negative impact. An alternative approach would be to leverage the ad skipping behavior of subscribers for the benefit of advertisers and consumers. This approach can benefit customers by presenting them with an abbreviated, impactful message that would appear during the same time interval as the skipped ads.

Trick-file advertising also benefits advertisers. During fast-forward, the advertiser can be certain the viewer is engaged with the television. Captured viewers interested in the linear scheduled program but not interested in the inserted commercial is a very specific demographic. Identifying and presenting alternative content – related to the inserted 30-second spot or unrelated (alternative campaign) adds value to the inventory.

TRICK-MODES AND TRICK-FILES

Trick modes or trick play

VCR-like functions such as pause, rewind, fast-forward, replay and skip, are collectively known as 'trick modes' or 'trick play.' Trick modes are currently available on DVRs, VOD, PCs and other CE devices. A trick mode is essentially a command that controls the playback of video. Specifically, when consumers press the fast forward button, this interaction indicates their choice to skip that material. This action also represents the opportunity for inserting an alternative message rather than the traditional mapping to fast forward. Caution must be exercised when implementing this new type of functionality, as the consumer could become easily confused. The proposed solution resolves this issue by inserting alternative content that only covers a portion of the real estate. Additionally, clear delineation between ads can be created by a spatialecial separation (lines or frames between the new message)which appears in the foreground and the original content, which appears as background The ability to still see the original content in fast forward mode will allow the consumer to see that an advertising trick mode has been activated

Trick-files

A trick-file is the video a consumer experiences when they activate a trick mode, e.g. fast forward. When trick-file video is streamed, it gives the illusion of a VCR

running in faster than normal mode. One method for the creation of a trick-file is to extract all I-Frames then create a new file comprised of fewer frames than the original video. For instance, a thirty second spot encoded to VOD specifications would contain exactly 900 frames of video. In order to play the spot in five seconds 750 frames of video would be removed in order to reach a total frame count of 150.

There are three general methods deployed today for VOD trick file displays: files, indexes, and dynamic video generation. The file method creates a new trick file (video file) that is played when a trick mode is activated. Indexing is a similar approach. However, rather than creating a new video file, indexes are assigned to frames of the original video. These indexes are utilized by the video pump to select the correct frames to display in order to achieve a fast forward effect. The dynamic video generation approach uses tools to calculate how many frames to skip in real-time as the video is played.

Each method outlined above may be used to create a trick file advertisement. While each method described has its own complexities associated with the creation of the trick file ad, the true complexity surrounds the successful mapping and tracking of these enhanced ads. To meet the need of the advertising community for detailed data, it is key that methods be developed to track original advertising as well as the replacement ad, while exposing the consumer to replacement spot.

Trick-file Advertising

Trick-file advertising is essentially the blending of two distinct concepts: ad-skipping and paid campaigns. Today, when customers press the fast forward button, they are indicating they wish to jump through the current programming. At this instant, it is possible to insert into the viewer's screen alternative content that is different from the advertisement or other content that had triggered the ad-skipping response. While the alternative message must be presented in a unique and compelling way, it can be from the same advertiser or content source For example a traditional 30-second car ad could be replaced by a shorter message from the local dealer containing a special offer.

Since customers will choose to view content that matches their interests, this new approach represents a win / win for the advertiser and consumer. User behavior is the key. Once the customer has the remote in his or her hand, the content presents an opportunity to turn the original commercial pod into an interactive experience. This principle also applies to other content that viewers may seek to skip. For example, a viewer that fast forwards through the first several moments of a TV series that contains clips from previous episodes could be exposed to a short promotional segment about one of the leading characters or a product endorsement.

As previously noted, trick-file advertising is consistent with the direction that consumers and advertisers are driving technology. Advertisers are open with their plans to move advertising dollars to platforms that offer greater levels of audience engagement. Meanwhile, studies such as the ones cited earlier in this paper demonstrate that viewers equipped with ad-skipping technology will choose to watch ads that interest them.

The new paradigm represented by trick-file advertising is comprised of a process that will present, when prompted by the consumer, new advertising in the foreground while the original advertising that is running in a trick mode, such as fast forward, continues to appear in the background. The customer views an alternative message during the same amount of time that they are fast-forwarding

through the original content. For example, a thirty-second advertisement may be replaced with a shorter, five-second message. This type of advertising is restricted to time-shifted content (VOD, DVR, StartOver, etc), since it is not possible to fast-forward through real time content, such as a live sports cast.

In addition, trick-file advertising represents the opportunity to create new forms of personalized content. For example, another way to expand further the potential of trick file advertising would involve providing unique messages for multiple buttons on the remote, by using trick modes with each button that are mapped to a different message. This capability will allow selling more avails per placement opportunity.

To radically change the fast forward experience would not be advisable, as it is sure to confuse the subscriber. A better approach is to place the new advertising video in the foreground, and distinguishing it from the original content, which appears in the background through the use of a spatial separator. This "picture-in-picture" affect will allow the user to track the timeline of the original programming, while being presented with the alternative content ((figure 1).

Figure 1

CREATING TRICK-FILE ADVERTISING

The implementation of technology to support trick-files builds upon other advanced video developments, including VOD and the tru2way™ platform. Three approaches discussed in this paper include are file based, VOD based, and DVR based creation

File based

The first step for developing file-based trick files is to create a file, which will move the current advertising into the background and implements the fast-forward effect. For example, a normal two minute break has 3600 frames of video. To run the break in the 20 seconds that simulate a fast-forward mode, the original 3600 frames of advertising would be cut to 600 frames of video. This decrease in frames is suitable since the background video will only be utilized to track original programming. This process involves creating a file that uses only a fraction of the frames contained in the original content. Once extracted from the original ads, the 600 frames are re-constituted as a new file that creates the illusion of a background content running in fast forward mode.

Next, the replacement content is placed in the foreground. Each and every frame of this alternative content will be squeezed and appear inside a spatial separation via a black border, so that it may be easily viewed as different content from the background video.

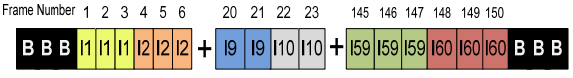
Once these steps are completed, the file must be indexed, tied to specific content and prepared for distribution to a playback device (VOD, DVR etc) When the new trick-file enhanced advertisement is experienced the customer views the four thirty-second spots running in the background while one twenty-second spot is running in the foreground at normal speed. This approach creates an alternative experience during trick mode but

in no way modifies the experience during normal play All of the advertising being displayed is tracked via VOD server logs and can provide metrics down to the unique subscriber level.

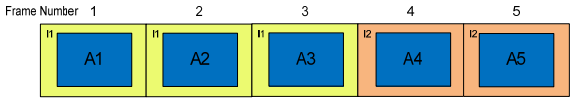
A more detailed look at the process to create trick-file advertisements begins with the following assumptions:

- One thirty second spot
- Video is encoded to VOD specification (MPEG-2 transport stream, long GOP set to fifteen, thirty frames per second)
- CMC standards for advertising (900 frames of video with bookend twelve frames of black)

Based on the specifications above, there are approx 60 I-frames of content after removing the black that appear before and after ads, resulting in approx. 60 frames of background video. In this example, the I-frames are labeled "I1" to "I60." As all of the black frames are equivalent, they are collectively referred to as "B". Creating a five second trick-file ad will require a total of 150 frames of video (5 seconds * 30 frames/second). A simple algorithm for reconstruction would be 3(I1) + 3(I2) + 2(I3) + … + 2(In), where n=location of the frame in the original asset. This would result in a trick-file of approximately 120 frames, thirty frames short of the 150-frame objective. Next, additional I-Frames are added at the beginning and end of the file to achieve the 150 frame objective, and to bookend the file with frames of black in order to provide smooth video transition. This process results in having the original 912 frames of video reduced to 156 frames of video that will run in five seconds. This new file will then be used to provide the background video of the original spot running in fast forward mode.



The next step in the process is to overlay the new advertising on the newly created trick-file. This process involves encoding the replacement spot to exactly 150 I-Frames. For example, these frames may be labeled "A1" through "A150". Each of these I-Frames will have dimensions slightly smaller than the I-Frames from the trick-file background video. The following diagram is representative of the first five frames in the newly assembled trick-file advertisement.



Once the video has been correctly assembled, the next step is to add the audio track. Then, the newly created elementary stream is wrapped with an MPEG-2 transport stream component. Now it is ready for distribution to VOD pumps, DVRs, or other CE devices. This algorithm can be adapted to support a wide range of durations.

VOD based

There are two options for creating trick files as part of the VOD process. First, with a few enhancements to the video pump, it should be possible to create the picture-in-picture video effect dynamically. This would allow late binding of the advertising replacement spot. As the pump plays trick-file video, the replacement advertisement and appropriate spatial separation would be spliced into the reserved section of the trick-play video.

Alternately, it is possible to orchestrate the VOD pump, which in essence would make a copy of the trick file and provide the appropriate enhancements to it. The output of at "trick file generation device" could be attached to a feed that's capable of splicing portions of the video.

DVR based

DVR implementation of trick-file advertising is essentially the same as VOD. The biggest obstacle to overcome is getting the trick-files on the DVR and associating them with content correctly. Within the tru2way specification, the ability to push content to and from web servers has been defined. These features have yet to be implemented within the tru2way 1.0 specification, but should be available in the future. Work is currently underway at CableLabs to enhance the metadata specifications thus allowing advertising triggers to be inserted into video and read by DVRs. Advertising engines on DVRs will then be able to dynamically insert advertising on top of trick-file playback, provided the DVR is either equipped with multiple rendering devices or splicing capabilities.

COMPARISON TO OTHER ADVANCED ADVERTISING TECHNOLOGIES

Personally relevant advertising is a key concept in the advanced advertising tool kit, and revolves around matching a campaign's message to consumer interests. Additionally, the collection of metrics to measure campaign effectiveness is sought. Trick-file advertising has the ability to achieve both of these objectives without massive upgrades to the cable plant infrastructure.

The simplest types of trick-file advertising can be implemented within the VOD infrastructure. It will not consume additional bandwidth like telescoping or linear addressable to the set top box, but will require additional VOD functionality and resources. Unlike eTV, the simpler forms of trick file advertising do not require a two-way plant. Advertising content can be pre-produced and checked for quality then staged on the VOD platform. For some VOD systems, a few changes to the pre-encryption distribution process should suffice for content delivery. In the base case, the VOD server would simply play the trick-files as it does today. VOD server logs may be used for collecting advertising metrics in a manner that upholds strict privacy guidelines.

When compared with other advanced advertising activities, trick file advertising can offer compelling opportunities for revenue generation using technology that is largely available today. These types of advanced advertising opportunities include:

Telescoping – The process of launching long form advertising from triggers that are embedded in linear or non-linear content.

Addressable – The process of placing unique advertising to match viewer interests.

Request for Information (RFI) – Is the process of gathering customer interest to create mailing lists of print, or other forms, of advertising.

Trick-File – Is the placement of adverting "on top" of standard trick play (fast forward) video.

	eTV	Additional Bandwidth	Behavior Modification
Telescoping	Yes	Yes	Yes
Addressable	No	Yes	No
RFI	Yes	No	Yes
Trick-file	No	No	No

In addition, the capabilities of trick file advertising can incorporate a number of advanced features in a two-way operating environment. For example, trick modes may be captured as state changes on the VOD platform and then mapped to specific functionality. This type of state machine will

allow for the creation of a contest that is embedded within the content. One type of contest could be an Easter egg hunt, where video widgets may be placed across the span of content and accumulated into a basket, much like a shopping cart on the web. Each of these interactions would be captured and persisted. Once the consumer has interacted with all of the specified widgets they would be notified of contest results.

Other contests could span across multiple pieces of content. For example, a Monopoly-like game could be created where property widgets are hidden and embedded in multiple pieces of content for collection by consumers.

A wide variety of contests are possible. Some may be complex and last months, or they may involve simple techniques, like pressing fast forward twice followed by reverse during an advertisement in order to win a prize. The goal is to provide capabilities to both content providers and advertisers for innovative campaigns to connect with consumers. A flexible advertising architecture is sure to make advertising much more compelling and of interest to a wide segment of cable customers.

Multiple Avails

Trick-file advertising will allow for more avails per break. It is in effect a second opportunity to reach the consumer. As previously stated, different buttons on a remote can be used for creating multiple opportunities by associating different messages with each of the modes, such as Fast-forward, 2X Fast-forward, Rewind, 2X Rewind are just a few. Added value may also be realized due to the nature of the advertising, the additional opportunities and how the content that is constructed creates the option for different kinds of impressions.

CONCLUSION

Trick-file advertising offers the industry an innovative approach to harness ad skipping. It is activated at the request of the consumer, and sits squarely between ad-skipping and disabling fast forwarding. Since much of the required technology is already deployed, capital expenditure for implementation should be minimal. When deployed trick file advertising offers a dynamic way to reach specific demographic groups, and can collect advertising metrics while upholding stringent privacy guidelines.

The next step for this exciting technology is to get creative. Enlisting the talent of ad agencies will help align the new technology to consumer expectations and provide the best possible user experience. Organizations like Comcast Spotlight and Canoe may be called upon to determine how to sell the new placement opportunities and additional avails, as well as develop strategies for maximizing potential revenue.

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[i] *"Report: More Than Half of $100K Households Time Shift,"* By Anthony Crupi, Mediaweek, January 8, 2009

[ii] Ibid

[iii] "*Study: DVR Ratings Impact Rises,"* Steve McClellan, Adweek, Nov. 6, 2008

[iv] "*MAGNA Global updates On-Demand forecasts,"* Radio Business Report, September 10, 2008

[v] *"King of Beers Defies TiVo Timeshifting,"* Television Broadcast magazine, January 2008

[vi] *"Fox Goes Sci-Fi to Measure 'Fringe' Ad Effectiveness,"* By Jon Lafayette, TVWeek, September 7, 2008

[vii] Ibid