

SCTE'S CABLE-TEC EXPO® 2009

The Evolution of the Ad Campaign:

The Dynamic Insertion of Digital Overlays into Linear & On-demand Content

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INTRODUCTION

As the Internet's popularity continues to climb, consumers are becoming more and more accustomed to the addressability, personalization, and interactivity that this engaging medium has to offer. Faced with this growing competition from the Web for subscriber attention as well as a limited advertising revenue pie, cable operators increasingly realize that they must pursue new, more advanced technologies to broaden the appeal of traditional TV commercials, particularly by transforming them into compelling, engaging, and even interactive experiences wherever possible.

For the past several years, the landmark SCTE 30 and 35 Digital Program Insertion (DPI) standards have served as the cornerstone of cable ad management. But now a new generation of ad insertion standards has begun to develop, multiplying the number of potential options available to cable viewers and boosting the potential value of cable advertising for commercial sponsors.

Digital overlay insertion is one of the most intriguing of these new options. Powered by MPEG video processing technology, digital overlays enable cable operators to deliver new, localized, personalized, and addressable advertising to viewers of both linear broadcast television programming, as well as on-demand TV content. By employing the emerging advanced advertising framework of SCTE 130, along with new asset descriptor information that is being added to SCTE 35 insertion cue messaging, advertisers, ad agencies, broadcasters, cable operators, and others can now craft ad campaigns that incorporate digital overlays in the form of text, graphics, and video messages.

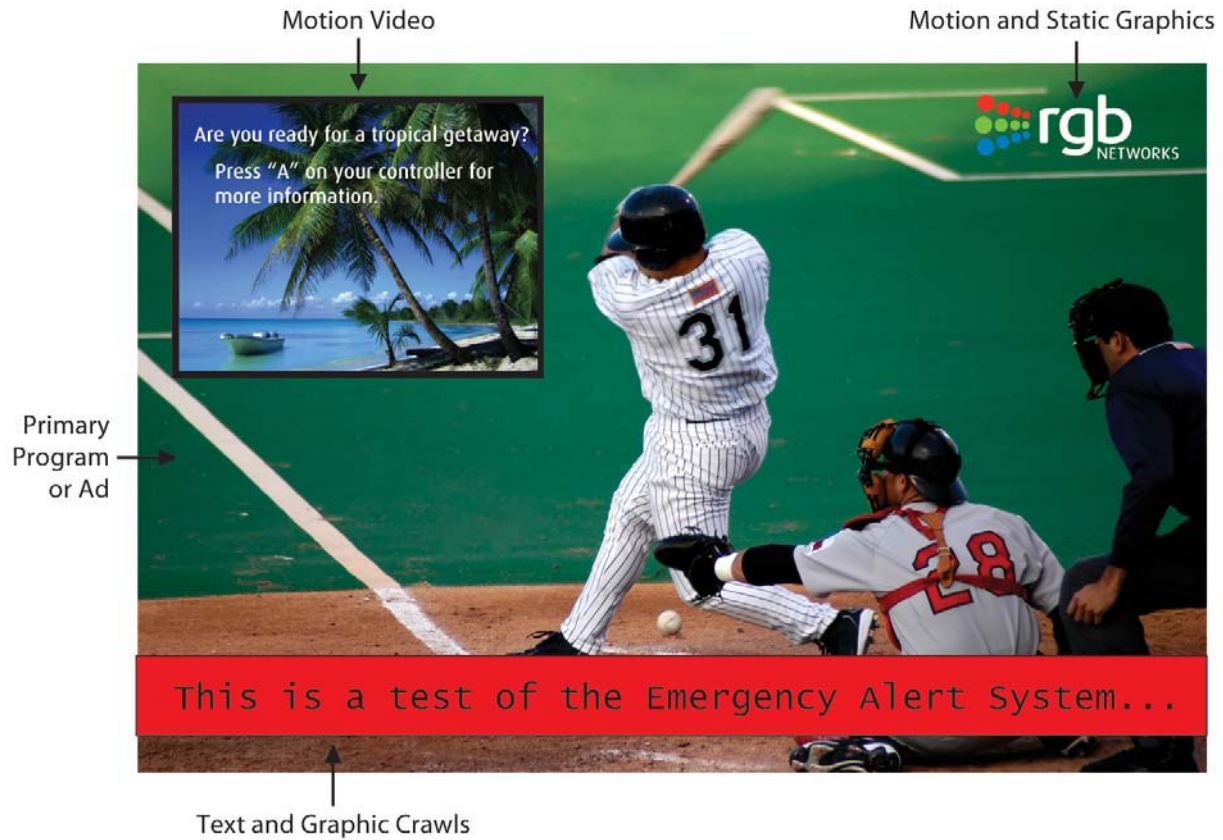


Figure 1: Examples of Digital Overlays

Digital overlays can be used for a variety of purposes, including:

- *Tagged advertising* -- Dynamic, late-binding updates to traditional TV ad spots with longer production cycles; can be used for local spot ad insertion in linear and on-demand programming or as late-binding inserts in national ad campaigns;
- *Ad content* -- A new type of localized, audience-focused ad messages that can be inserted into either linear programming or on-demand content, ranging from cable operator and commercial sponsor logos to full motion graphics and video overlays;
- *Enhanced TV (ETV) call-to-action messages* -- Digital overlays that encourage request-for-information (RFI) responses, the initiation of telescoping content sessions, and/or other interaction by subscribers;
- *Information/Alerts* -- Vital community information, emergency alerts, and other content messages that are not ad-based.



Figure 2: Late-Binding Digital Overlay / Tagged Ad Example

By leveraging these advanced advertising standards, cable operators can easily integrate key technologies to create end-to-end ad insertion and campaign management solutions. Indeed, such strong integration is crucial to the successful adoption, deployment, and ultimate profitability of the new advertising technologies. Without intuitive, powerful management capabilities that seamlessly fit and enhance the established campaign management workflow, the deployment of even a moderately new form of ad delivery would prove too great a burden on cable personnel and other critical resources.

This paper will review a proposed addressable advertising system for inserting digital overlays into on-demand content under the collective control of SCTE 35 message processing and SCTE 130 ad management. The integrated technology implementation uses enhanced SCTE 35 real-time cue processing and SCTE 130's Ad Management Service (ADM) interface interoperability to coordinate SCTE 130 Ad Decision Service (ADS) ad campaign management. This case study demonstrates how this integrated approach can empower the four key applications outlined above.

Through this review of the proposed advertising system, readers will learn:

- How digital overlay insertions can be used for on-demand services;
- What fundamental technology components and mechanisms are needed for an addressable advertising system that makes use of overlay insertion;
- How well this application can work in a linear environment;
- Why it's important to thoroughly model digital overlay advertising opportunities within the campaign management workflow and software platform;
- How to couple unicast, on-demand video services with digital overlays to customize messages for tightly focused audiences;
- How these capabilities tie in with other cable industry initiatives.

Thanks to ongoing advertising system enhancements by SCTE, CableLabs[®] and other industry groups, cable operators can leverage the capabilities already inherent in their existing networks to keep their subscribers fully engaged. As a result, they can continue to deliver the eyeballs that advertisers demand in order to maintain their investment in cable advertising. This paper will offer some suggestions on how cable operators can meet these goals.

BACKGROUND

In early June 2009, RGB Networks and OpenTV jointly participated in a CableLabs Addressable Advertising Interfaces interoperability event to demonstrate how digital overlays could be inserted into on-demand content during a typical video-on-demand (VOD) session. The novel advertising system demonstration showcased the fundamentals of digital overlay insertion based on SCTE 35 splice and segmentation descriptors and SCTE 130 ADM/ADS ad service management, which can be applied to both on-demand and linear programming applications. The demonstration covered most of the key applications listed earlier, including localized and late-binding ad content updates, cable operator and sponsor logo branding of on-demand content, and viewer call-to-action prompts.

Specifically, the demonstration incorporated SCTE 35 2007 message splice descriptors with segmentation descriptor extensions that included information relevant to the overlay insertion opportunities. SCTE 35 Local Advertisement segmentation descriptor types were used to provide the insertion start and duration information for each digital overlay advertisement. This information was then parsed from the SCTE 35 cue message by the in-stream video processing system with an ADM interface that presented an overlay placement request to the ad campaign manager, which had the complimentary ADS interface, in an SCTE 130 ADM / ADS Placement Request and Placement Response message exchange. In return, the campaign manager instructed the video processing system to insert a specific

overlay depending on criteria associated with the current on-demand ad or entertainment content being streamed and processed.

The multi-vendor integration used an ad splicer to process the SCTE 35 cues, which contained overlay insertion parameters. These cues then triggered the transmission of an SCTE 130 ADM message from the splicer to an SCTE 130 ADS ad campaign manager as part of an advanced audience-focused advertising solution.

The demonstration showed how digital overlay ads can be inserted into an on-demand subscriber session, using an automobile maker's conventional TV commercials as on-demand pre-roll advertisements and a rock concert as on-demand video footage. The on-demand ads and entertainment video for this integrated ad system demonstration came from a commercially available VOD server.

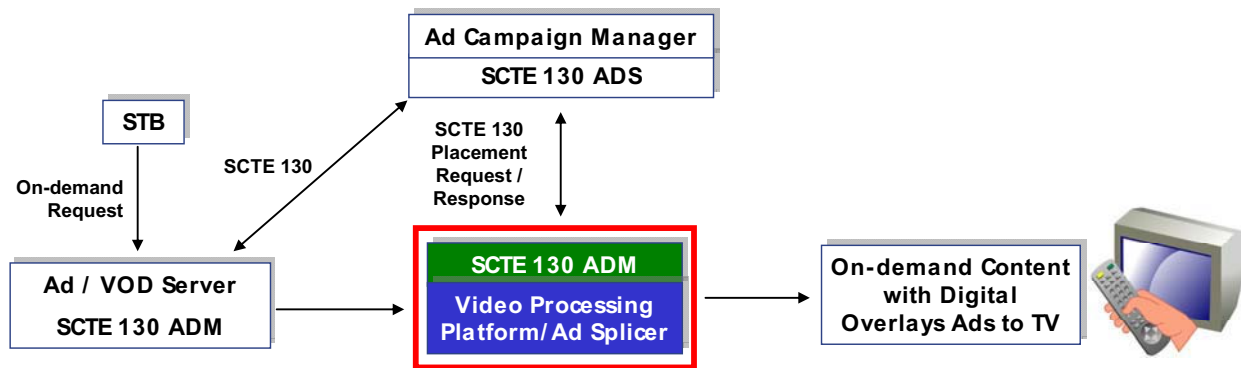


Figure 3: Digital Overlay Insertion Demonstration Set-up

Building on the results of the digital overlay insertion demonstration, this white paper presents a summary of the baseline requirements for digital overlay insertion using the SCTE 130 and SCTE 35 standards for both on-demand and linear ad applications. The paper also explores the digital overlay applications that the SCTE standards can support, the market opportunities and challenges, the parameters for overlay insertion control, and recommended next steps that the industry should take to make advanced advertising a reality.

EVOLUTION OF CABLE AD STANDARDS

Thanks to the adoption of the ground-breaking SCTE 30 and SCTE 35 standards earlier this decade, digital program insertion (DPI) is widely used today to splice commercials and other secondary video content into all kinds of broadcast and cable programming. Cable operators rely on these two landmark technical standards to place ads directly and precisely into digital

programming using video servers and software-controlled switches, instead of the clunky videotape and audible cueing tones of the old analog world.

Specifically, SCTE 35 defines the Digital Program Insertion Cueing Message for cable operators. The message, which is transmitted along with the digital programming, indicates where the advertisement should be placed in the programming stream. The companion standard, SCTE 30, defines the Digital Program Insertion Splicing API. This standard creates a method for communicating between ad servers and ad splicers so that the ad can be inserted into MPEG video content managed by the splicer.

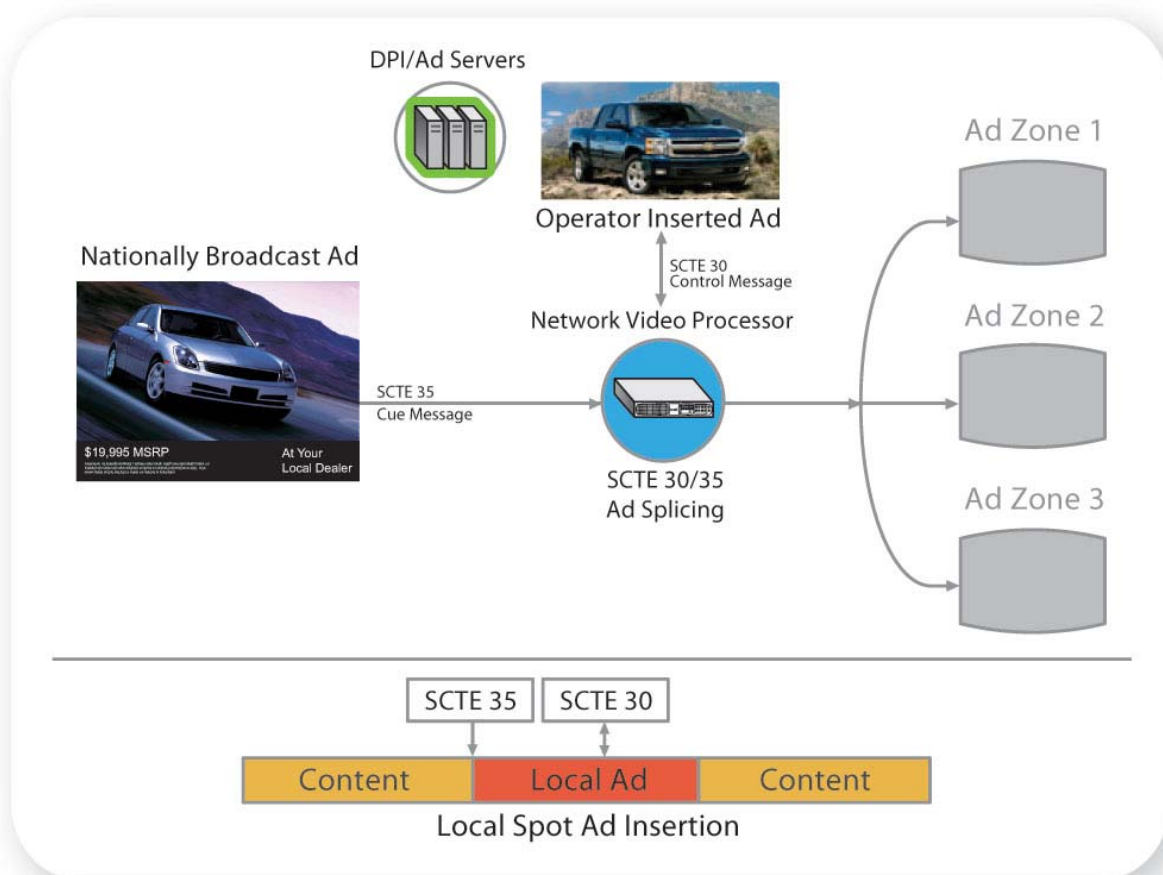


Figure 4: Today's Local Spot Ad

Working together, these two standards enable the interoperability and interchangeability of ad insertion equipment. More importantly, they serve as the basic platform for implementing audience-focused advertisements and other time-triggered applications, including enhanced TV and other interactive ads.

Now, with the addition of the emerging SCTE 130 standard to the mix, cable operators have an extended advertising system tool set that can include the use of a wide range of graphic, text, and video overlays as a new form of ad content type. As a result, they can customize content and content combinations to a far greater extent than ever before. The applications supported by overlay content insertion processing (which combines both program and overlay insertion) include advanced cable operator advertising, localized broadcaster advertising, operator logo branding, Emergency Alert System (EAS) messages (when SCTE 18 EAS services are not available), and operator alert text and graphic crawls.

A key attribute of SCTE 130/35 digital overlay insertion management is that it offers an open standard interface that cable vendors and operators can immediately leverage, similar to the SCTE 30 standard for ad splicing. SCTE 130 also provides standardized interfaces that tie in closely with the CableLabs advanced advertising initiatives. In addition, SCTE 130 offers an open interface that could be leveraged by other partners and customers outside the U.S. cable industry framework.

THE SCTE 130 FRAMEWORK

The SCTE 130 architecture defines a set of interfaces among logical components of an advanced advertising system supporting linear, on-demand, and digital video recorder (DVR) delivery platforms, as well as enabling a more granular level of advertising. The interfaces address the various elements of the advertising system, including: Ad Delivery Manager (ADM), Ad Decision Service (ADS), Content Information Service (CIS), Subscriber Information Service (SIS), and Placement Opportunity Information Service (POIS).

SCTE 130 creates a framework of common technical interfaces and data collection systems for delivering advanced advertising in many different types of programming. Originally known as DVS 629, the new standard also enables cable operators to pick and choose hardware and software for their advanced advertising systems from different vendors and avoid getting locked into one or two suppliers.

The emerging SCTE 130 architecture enables the integration of well-proven technologies into an operational framework that can support interoperability and innovation while allowing for appropriate operational and business controls. This architecture is represented by a service framework that breaks down the functional aspects of the overall system.

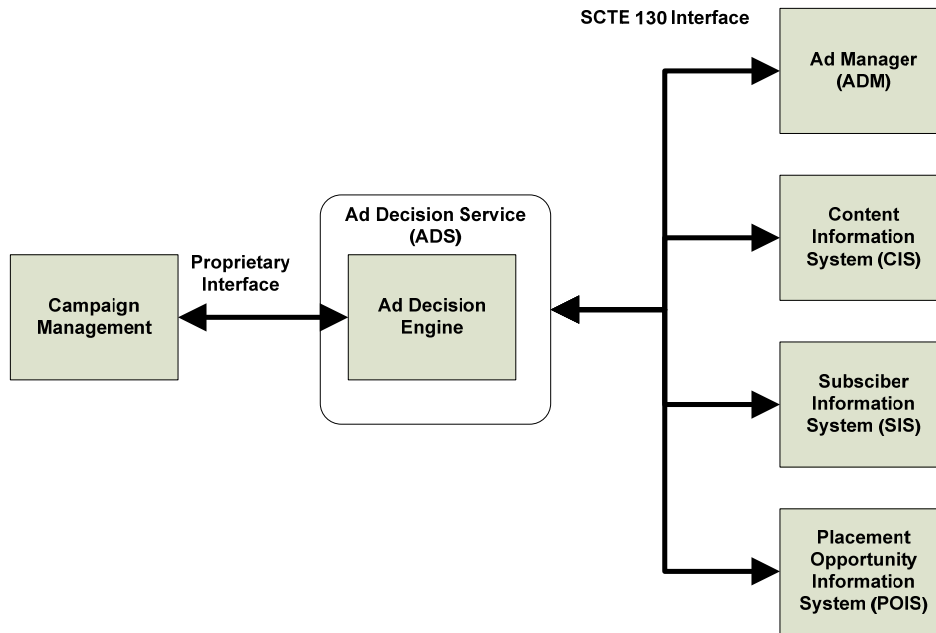


Figure 5: SCTE 130 System Framework

The interface to Campaign Management is called an Ad Decision Service (ADS) and the interface to insertion systems is called an Ad Management System (ADM). The standard also defines a Content Information Service (CIS) and, in the most recent next phase, will define services for subscriber information (SIS) and placement opportunities (POIS) within entertainment content to support avails inventory exchange.

Clearly, many of the supporting services are becoming well-defined in the cable industry. Building on this basic capability, the next step is to create the central elements in the framework – the operational systems needed to manage the advanced advertising infrastructure.

By leveraging these various technologies, cable operators can create a “componentized” architecture that enables them to place all types of ads throughout their networks. These components can then be adapted to fit a number of video delivery techniques, including linear broadcast, session-based video, and DVRs.

With this componentized, distributed architecture, ad insertion can take place at any point in the system, as long as there’s enough storage available and the addressing goals can be met. Where area-wide addressing is sufficient, ads may be inserted at the server with obvious efficiencies. When the campaign requires addressing a smaller, more specific audience, an edge device or a DVR could insert ads.

Further, the ads inserted at a higher, more general level in the architecture may be enhanced at a lower, increasingly viewer-specific level. This enhancement might be accomplished through insertion of additional content from local storage, or by real-time selection from content in the input stream (splicing).

The Ad Decision Service approach plays the central role of determining which ad should be played during any given avail. This decision could be based on time, channel, event, user profile, ad sequencing, or numerous other parameters, as defined by the advertiser or cable operator. The SCTE 130 messaging model supplies the underlying infrastructure for enabling this decision-making process.

This module implements the logic that selects each ad to be played – for this reason, the module is sometimes called the Decision Engine. As before, the decision can be based on time, channel, event, user profile, ad sequencing, or numerous other parameters, as defined by the advertiser or cable operator. The ADS can also make multi-part decisions based on combinations of these various parameters. The complexity of the decision engine is determined by the power of the hardware platform that runs the software, the volume of advertising that it is expected to handle, and the time constraints of the environment.

SCTE 130 splits the advertisements being managed into two parts. The Ad Segment Metadata describes the advertisement, its content, and its intended audience. This information is stored in a database that can be accessed by the ADS either online or offline. In contrast, the Ad Segment Files are the actual audio/video assets that are associated with the advertisement. These files are typically stored on a video playback device, such as an ad server, VOD server, or the hard drive in a DVR set-top.

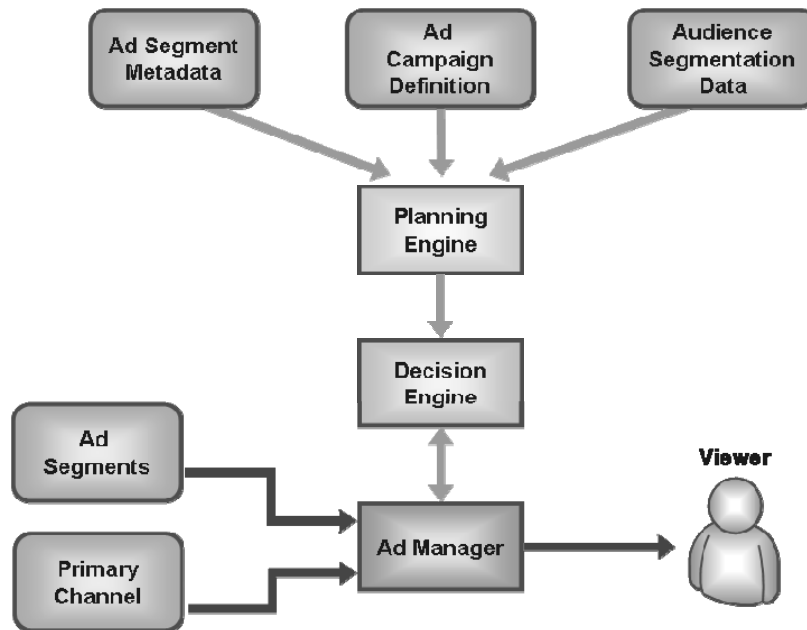


Figure 6: Ad Decision Service Logical Architecture

The Ad Campaign Definition describes the inventory that has been sold and depicts how it has been sold. In other words, it establishes a set of parameters that indicate which ads are to be played during which avails. However, there are considerable complexities involved in creating, managing, and fulfilling these campaigns. The information that may be stored in the Ad Campaign Definition includes the desired networks or events, temporal targets (days of week, dayparts, time of day, etc.), geographic targets, demographic segments, or even information customized by the advertiser (e.g., show ads only to pre-existing customers).

The final input to the Ad Decision Service is the Audience Segmentation Data. This is a set of data that describes the viewers who can be addressed by the given ADS. This data set is used to address advertising to specific viewers. The Audience Segmentation Data can be matched to addressing information stored in the Ad Segment Metadata, as well as patterns established in the Ad Campaign Definition. The anonymity of subscriber data is maintained through a set of processes and algorithms that ensure advertisers do not receive any personally identifiable information about viewers.

As described above, the Ad Decision Service uses the combination of inputs to enable its decision engine to select which ad or set of ads should play in any given avail. Those avails may vary depending on the video platform in question: 30- or 60-second spots in linear broadcasts; bumper or bookend ads in VOD sessions; in-program replacement of ads for switched digital video (SDV), DVR, or network DVR (nDVR) sessions; or substitution of ads during “trick

mode” payout. In any case, the decision about which ad to play is communicated to the Ad Manager (also called the ADM).

The Ad Manager is the component that is responsible for playing the audio/video streams. While SCTE 130 deliberately makes this element generic, there are clearly numerous implementations. In a traditional linear model, the ADM would be the Ad Server and DPI Splicer. In a VOD system, it would typically be the VOD server. For DVR boxes, the Ad Manager is actually the hard drive in the box, coupled with the media playback system.

Using this general framework, a variety of solutions for dynamic advertising management can be created and deployed across a wide range of networks and devices. The following sections will examine two specific implementations.

Ad Decision Service for Linear Broadcast Networks

This example shows an implementation of the Ad Decision Service that allows addressing of advertisements based on geographic zoning. In this case, the linear Campaign Manager implements an SCTE 130 ADS interface and the Ad Servers implement SCTE 130 ADM interfaces. As SCTE 35 cue messages are detected in the linear program stream, the Splicers pass corresponding SCTE 30 messages to their respective Ad Servers. The Ad Server uses the ADM interface to post a Placement Request to the ADS specifying the ad zone in which it is operating, the time of day, and information about the current program and break structure obtained from the 35/30 messages. The ADS consults the Campaign Manager’s store of required ad placements and returns a set of placement decisions that optimize delivery for the advertising customers.

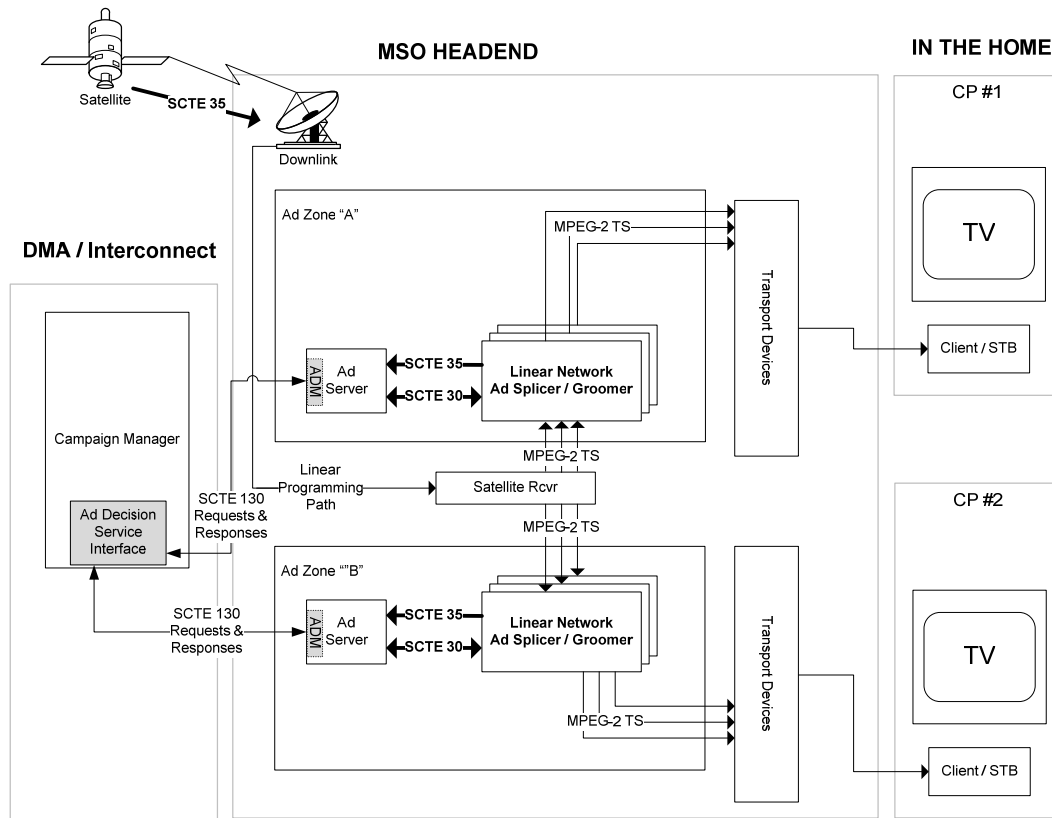


Figure 7: Linear Advertising Using Ad Decision Service

In order to make decisions regarding which ads to play in any given ad zone, the Ad Decision Service utilizes the data from the Viewer Profile Database to create an aggregate profile for the zone. This aggregate profile is then matched against the set of targets provided by the Campaign Definitions that are available to the Ad Decision Service. The result is a set of playlists for each ad zone.

Ad Decision Service for Session-based Video

In this example, the Ad Decision Service is used to make real-time decisions about which ads to play during a VOD session. To accomplish this, the infrastructure leverages the SCTE 130 messaging specification to send a request to the Ad Decision Service at the appropriate points in the VOD session. In response, the Ad Decision Service correlates the Audience Segmentation data for the requesting household with the available set of Campaign Definitions. The response then specifies the Provider ID/Asset ID of the Ad Segment to be played after that information has been retrieved from the Ad Segment Metadata for the specific ad selected. In the example, we also see how a splicer/groomer might be employed in this on-demand environment to further enhance the ads with graphic overlays.

It is also possible to use the Ad Decision Service in an offline manner for VOD, which would allow the pre-generation of a set of playlists that are statically assigned to networks, events, or dayparts. Either of these implementations – dynamic using SCTE 130 or static using playlists – could also be adapted to network DVR or SDV deployments.

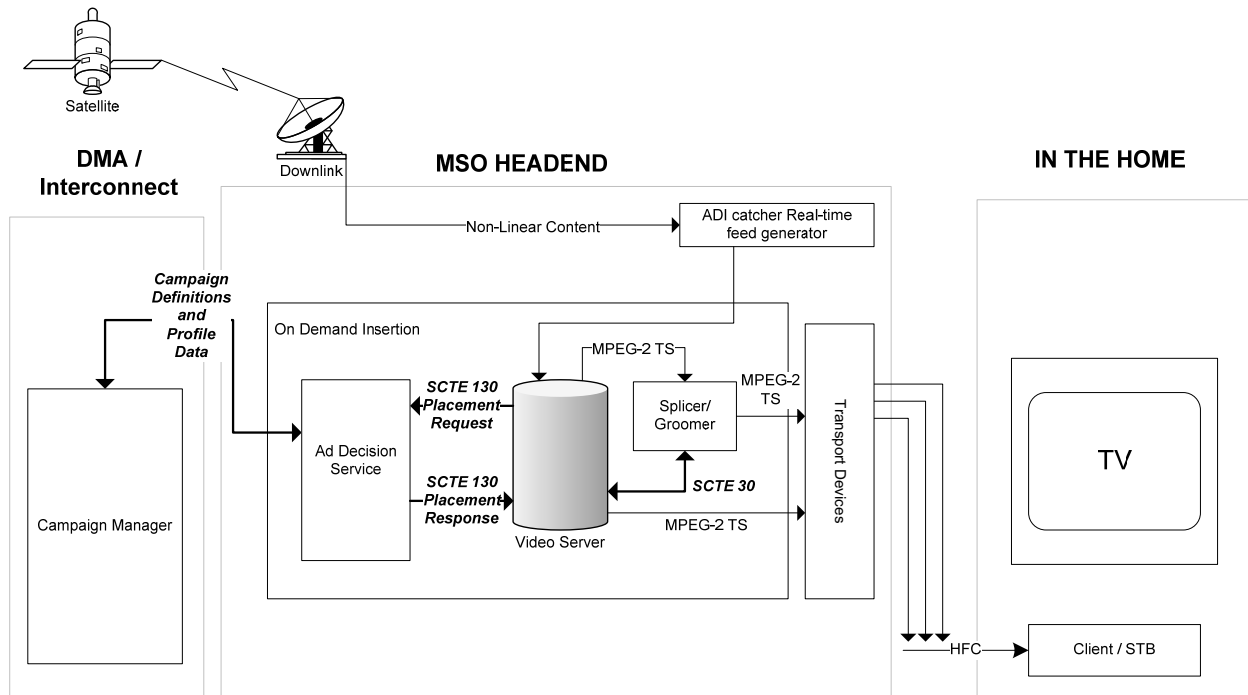


Figure 8: VOD Advertising Using Ad Decision Service

SCTE 130 DIGITAL OVERLAY APPLICATIONS

As this paper spells out, cable operators can use SCTE 130/35 Digital Overlay Insertion to place messages in both linear programming and on-demand content. The linear and on-demand versions of the SCTE 130/35 solution differ mainly by the source of the content. The on-demand version, which was demonstrated at the CableLabs interoperability event in June of this year, relies on ads and other content streamed from conventional VOD servers.

While the linear and on-demand content ecosystems differ in terms of content production and distribution, back office traffic, billing, and scheduling systems, the fundamental SCTE 130 interfaces are all basically the same. Both ecosystems make use of the SCTE 35 standard for digital overlay insertion in the same fundamental manner.

As a result of these similarities, the combination of SCTE 35 cues and SCTE 130 advertising management offers an ideal framework for managing digital overlay content insertion in both

linear and on-demand content. A key objective is to establish a common set of SCTE 130 and SCTE 35 message types to support the various customer applications and projected uses.

A linear ad insertion version, which is now under consideration for the next CableLabs interoperability event, extends the current linear ad insertion model to digital overlays. The current model consists of an ad server and splicer using the legacy SCTE 30/35 standards for local ad splicing into linear programming. The encoding of ad content targeted for late-binding overlay insertion with an SCTE 35 cue is used to identify the new SCTE 130-managed placement opportunity for the overlay within the traditional spot or national ad.

This section runs through the key digital overlay applications that the SCTE 130 standard can support. It also explores the main market opportunities for each type of digital overlay application.

Digital overlays as ads in on-demand content

In the first example, the digital overlays are inserted into a streaming on-demand session as ad content. The insertions are triggered by SCTE 35 cue message processing in the streaming on-demand content and the SCTE 130 ADM/ADS Placement Request/Response message exchange. The use of SCTE 35 cues in on-demand content is relatively new, but effectively follows the successful model used in digital linear ad insertion processing.

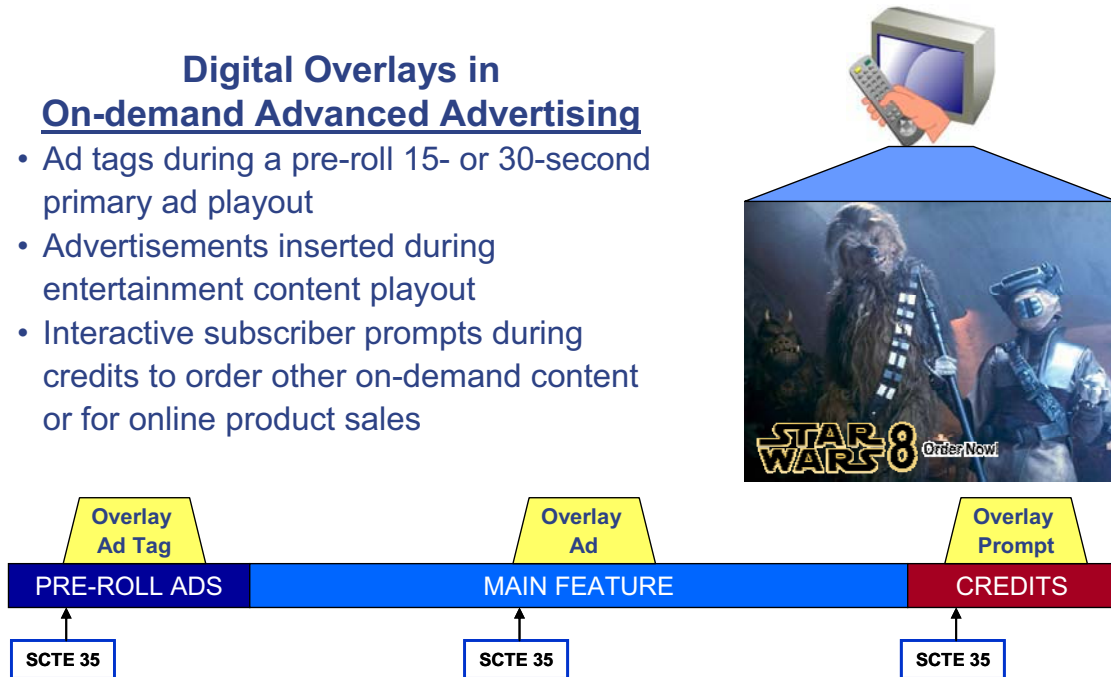
The market opportunities for on-demand content digital overlays are fairly clear. Cable operators can use the text, graphic, and video overlays to create a new type of on-demand ad inventory for potential advertisers, greatly expanding their portfolio. Besides offering the traditional pre-roll and post-roll ads before or after the on-demand content, or even mid-roll ads in between on-demand entertainment segments, service providers can offer highly customized ad messages within the entertainment content itself. A very effective example would be to insert an overlay during movie credits to promote other VOD title offerings in which a subscriber might likely have interest.

Digital overlay insertions also offer the opportunity to create ads directly related to the on-demand content because they can run within the programming itself. Furthermore, these embedded ads are far less vulnerable to skipping by time-shifting DVR users than traditional commercials because skipping through the overlays would mean skipping through the programming as well.

Tagged advertising with late-binding digital overlays for on-demand content

In this related example, the dynamic, late-binding updates are inserted as digital overlays into ads running in and around on-demand content streams. Once again, the inserts are triggered by SCTE 35 cue message processing and completed with the SCTE 130 ADM/ADS Placement

Request/Response message exchange. More precisely, the on-demand content ads are encoded with SCTE 35 cue messages to identify placement opportunities for the digital overlays. The idea is similar to the linear ad insertion model in using SCTE 35 cues for both the addressed on-demand ad content ployout and for any associated ad tag overlay insertion. The primary difference between the linear ad insertion and on-demand ad “insertion” applications is that the linear ad insertion is based on a true frame-accurate DPI ad splice operation while the on-demand ad actually plays out in similar fashion to the entertainment content streaming.



Digital overlays as ads in linear programming

In this case, the digital overlays are inserted into linear programming rather than on-demand content. As in the on-demand content example cited above, the overlays are triggered by the same SCTE 35 cue message processing and SCTE 130 ADM/ADS Placement Request/Response message exchange.

The market opportunities for these types of digital overlays are similar to, if not greater than, the opportunities for on-demand content overlays. Besides extending traditional 30- and 60-second ads with late-binding overlay opportunities, as well as other spots in between program segments, service providers can offer customized ad messages directly within the linear programming. An ideal application for this is to use overlays as ads during continuous-play sports coverage where ad breaks are not traditionally available or are, at best, challenging to schedule.



Figure 10: Digital Overlay Inserted as Advertisement During Linear Programming

Because they can run within the linear programming itself, digital overlays also offer the opportunity to create ads and promotions directly related to the program schedule. Moreover, overlay ads within the programming are far less likely to be skipped by DVR users than traditional commercials.

Tagged advertising with late-binding digital overlays for linear ad content

In this scenario, dynamic, late-binding updates are inserted into more conventional TV commercials during linear programming. The tagged advertising can be inserted during the ad splicing (SCTE 30 DPI) of local programming or even as an overlay to a national ad.

As in the previous two cases, the inserts are triggered by SCTE 35 cue message processing and completed with the overlay insertion details associated with each specific opportunity using the SCTE 130 ADM/ADS Placement Request/Response message exchange. More precisely, the linear content ads are encoded with SCTE 35 cue messages to identify placement opportunities for digital overlay insertion. The idea is to complement the current SCTE 35 cues for linear ad

insertion with new cues encoded in the targeted local and national ad content for an associated ad tag overlay. The existing SCTE 30/35 spot ad insertion model does not need to be overhauled and can fit into the new SCTE 130 framework that works as a coordinating umbrella layer with the new late-binding applications.

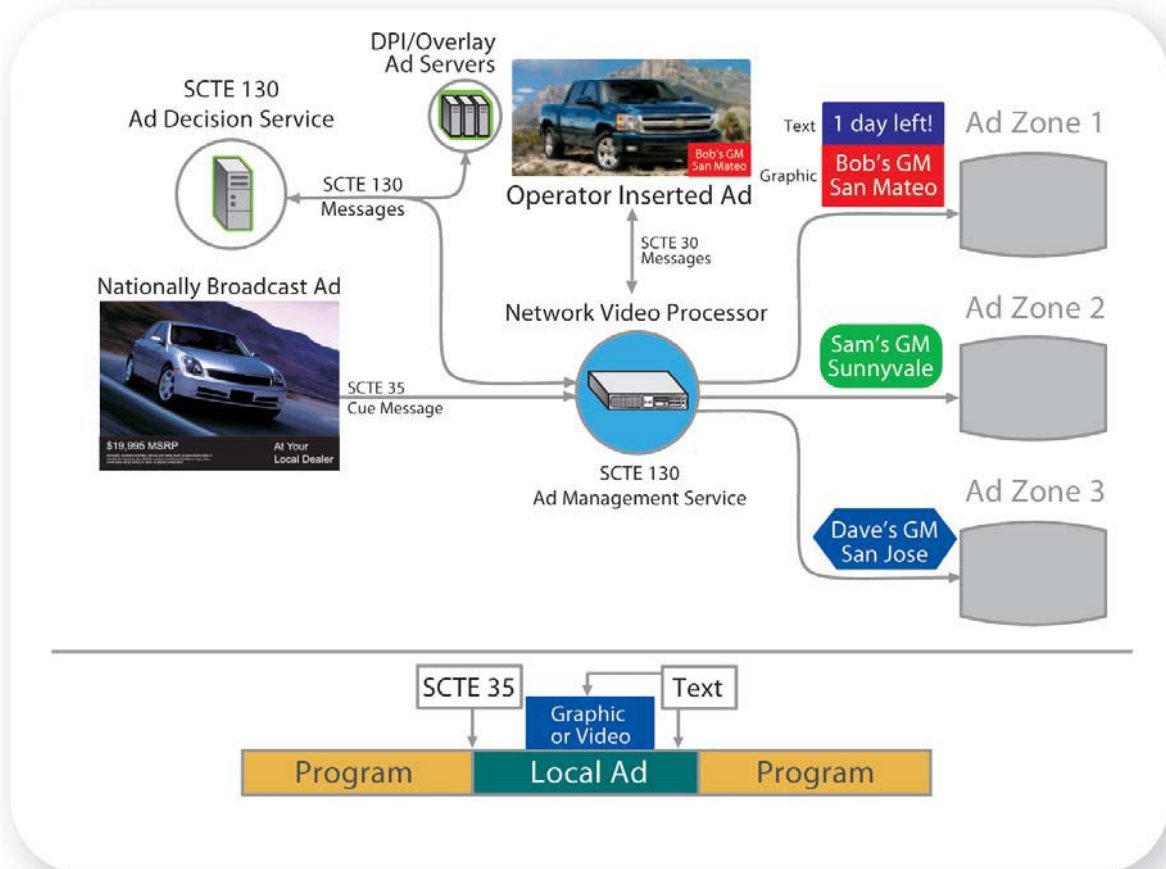


Figure 11: Late-Binding Digital Overlay / Local Linear Ad Splice Example

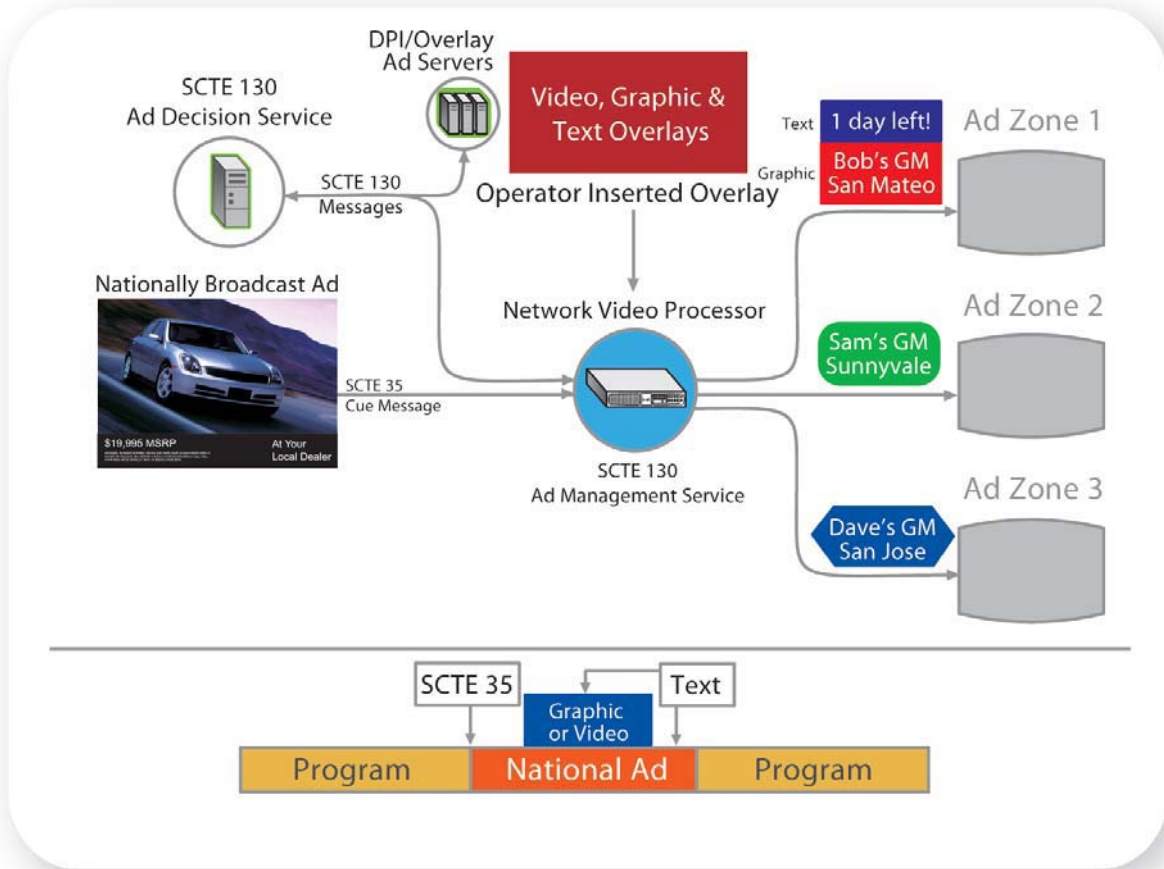


Figure 12: Late-Binding Digital Overlay / National Linear Ad Splice Example

Digital overlays as interactive TV “call-to-action” prompts

In this instance, the digital overlays are inserted into a network program or on-demand content for initiating interactive subscriber sessions. As in the previous cases, the overlay insertions are controlled through the Scte 130 ADM/ADS interface.

There is a great market opportunity to use digital overlays in interactive TV applications to spark viewer response, such as through viewer polls or telescoping, and RFI ads. In a prime example, one major MSO is now using digital overlays to spur linear TV viewer response to shopping network offers by initiating a telescoping promotional session (“Press the A button on your remote control NOW.”).



Figure 13: Digital Overlay as Interactive Prompt Message

These applications can also take advantage of SCTE 35 cues to identify opportunity placements for late-binding messages to subscribers. Combined with SCTE 130 ADM/ADS campaign management, these cues would enable the use of digital overlays for dynamic updates in polling, voting, RFI, and other interactive applications.

An opportunity here is in coordinating SCTE 130 use cases with the CableLabs' Enhanced Binary Interface Format (EBIF) standard for enhanced TV (ETV). While the two industry standards share the Campaign Information Package (CIP) element, which is designed to coordinate between interactive programming and advertising applications, the technical complexities of this effort are still in their formative stages. Equipment and software suppliers will need to work closely together to make these high-value applications work.

SCTE 130/35 DIGITAL OVERLAY CONTROL PROCESS SUMMARY

Under the CableLabs Advertising System framework, the SCTE 35 cueing message triggers the SCTE 130 digital overlay insertion for both linear and on-demand content. The SCTE 35 message would include the segmentation descriptor information, such as ad content identifier and provider, for the associated linear or on-demand ad content with the overlay opportunity.

Taken together, the SCTE 35 and 130 messaging can provide the key insertion parameters for managing the required “*what, when, where and who*” information.

In the proposed SCTE 130/35 digital overlay insertion model, the SCTE 35 cue indicates a pending ad insertion opportunity, or avail, and typically provides the time-related information associated with the insertion event. SCTE 130 ad placement messages supply the ad insertion details per overall execution by the ad campaign manager. Key ad asset characteristics originate with the production of the overlay content and can then be captured in asset metadata distributed with that content. The steps listed below illustrate a potential processing sequence that starts with a SCTE 35 cue message for overlay insertion.

Digital overlay insertion control process

1) What overlay content will be inserted?

Provider ID/Asset ID - The Provider ID/Asset ID is the Provider and Asset identification for the ad asset associated with the current placement opportunity. It would directly apply to the digital overlay if it were a standalone advertisement, as compared to an ad tag for an existing advertisement. In a tagged ad application, this identifies the advertisement that has an additional placement opportunity associated in the form of an optional late-binding overlay insertion.

The ADM processes the SCTE 35 cue message containing the Asset ID and the Provider ID and communicates this information to the ADS using a Placement Request message. The ADS then sends back a Placement Response message identifying to the ADM which particular digital overlay should be inserted. The ADM and ADS will participate in the overlay content distribution and scheduling process in preparation for the dynamic overlay insertion.

2) When will the overlay be inserted?

Insertion Start Time - The insertion start time is the specific time at which the overlay insertion will begin. The solution uses the time signal field of the SCTE 35 splice insert command, which provides a time-synchronized data delivery mechanism in splice events.

3) How long should the digital overlay be inserted?

Insertion Duration Time - The insertion duration time is the amount of time that the overlay insertion will last. The solution proposes using a new SCTE 35 segmentation descriptor parameter, which carries the segment duration in PTS units.

4) Where should the overlay content be inserted on the primary content?

Placement Opportunity Constraints - SCTE 130 Opportunity Constraints offer the ability to create detailed messages shared between the ADM and ADS to manage a specific ad placement opportunity. They can also be used for such information as display positioning (for example, x and y coordinates), overlay type (graphic, video, or text), crawl rate (text or graphic), alpha blending, transition fade in/out, background color, text color, etc. They could also include supplemental event scheduling information (e.g. time start/stop and duration) as an update to information in the SCTE 35 cues.

5) Which service group or client is being sent the inserted overlay?

Terminal Address - The terminal address is the destination address identification (typically the network address, IP, or MAC) that is used in ADM/ADS Placement Request and Response Messages. For example, a terminal address would be either the service group multicast address for a linear/broadcast program or the session unicast address for a piece of on-demand content.

INTEGRATED MANAGEMENT TOOLS

To make all of this practical, the Campaign Management system must integrate audience addressability and ad enhancement into the everyday workflow and framework. Figure 14 illustrates one such system for managing advanced copy as part of the advertiser's campaign. The user is able to easily specify the characteristics by which the ads should be addressed to the audience directly within the standard interface for bundling ad copy into rotation groups. Here the ads are addressed to the audience by proximity to a car dealership. For each dealership in the serviced market, the user can enter the text for the address tag and immediately preview its position and accuracy as it will appear when the overlay is placed when the ad is delivered. The technique can be used for either linear or on-demand addressing techniques and the overlays can be "baked" into the spots where required or late bound where the technology described here is available.

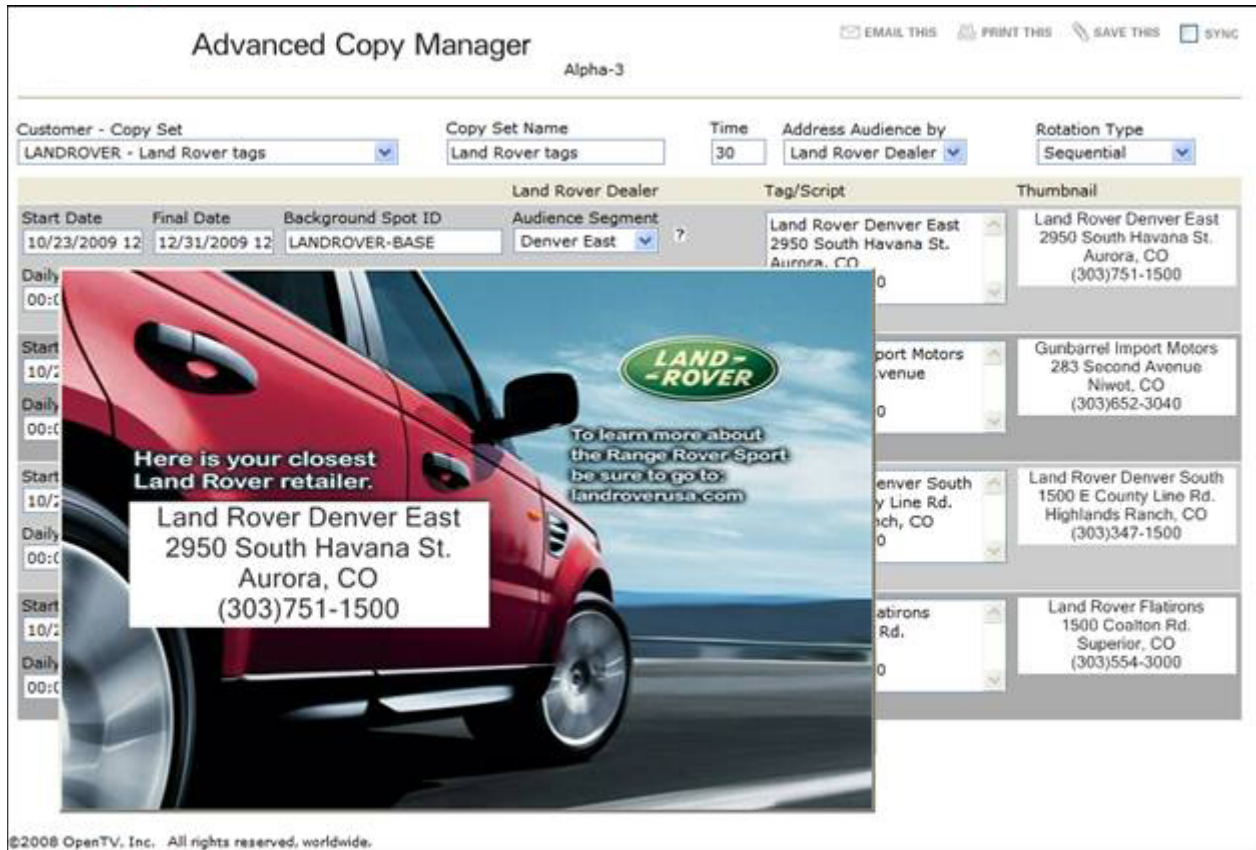


Figure 14: Integrating Overlay Enhancements into Campaign Management Tools

KEY NEXT STEPS

Now that the proposed SCTE 130/35 advanced advertising system for inserting digital overlays into on-demand content has been demonstrated to work at the CableLabs interoperability event, the next step for the cable industry is to make the budding system a reality. To accomplish this task, the industry must tackle some challenges raised within the various overlay applications. We believe that the following steps should be taken to overcome these challenges.

Most importantly, the cable industry should continue to refine and adopt a uniform SCTE 130/35 solution that all industry players can accept and easily leverage. Cable operators and vendors could take the lead in developing and driving this solution, as well as in promoting its adoption by the rest of the industry.

In particular, cable equipment suppliers and operators should work to bring content providers into the fold. Without the full, enthusiastic participation of the large, influential content community, the proposed digital overlay insertion solution will not gain much traction in the field.

Second, cable vendors and operators should continue to explore the readiness of the on-demand market to embrace the proposed SCTE 35 cue encoding for on-demand content in general. Otherwise, the advanced advertising system's usefulness could be limited to linear programming.

Third, cable operators and vendors should determine the points where the digital overlay insertions would work best in the content delivery network. For example, the overlays may be best addressed for such local linear programming as sports broadcasts, where the current ad splice breaks are far more intrusive than the proposed digital overlay ads would be.

Fourth, SCTE 130/35 advocates should continue to explore the overall market readiness for creating and applying ad tags and other late-binding events. This process must include not only equipment vendors and cable operators, but also encompass the advertising community as well.

Finally, there is a pressing need for further extending exploration of the applications that encompass both dynamic content insertion, such as digital overlay applications discussed in this paper, and interactive TV applications under a comprehensive framework. SCTE 130 and CableLabs' ETV initiatives appear to be heading in this direction under a potential common framework that will make these applications possible in the near future.

With these key next steps, cable vendors and operators can ensure that the proposed SCTE 130/35 advanced advertising system advances from CableLabs equipment interoperability demonstrations to a vital contributor to industry revenue. By taking these steps, vendors and operators can also ensure that the industry at least maintains its competitive footing against the Internet and other new media.

CONCLUSION

In today's fiercely competitive media environment where consumers and advertisers are demanding greater interactivity, personalization, and flexibility from service providers, cable operators must find new ways to stand out from their rivals. Fortunately, the industry has numerous new tools at its disposal to differentiate its ad offerings from the pack. The ability to insert digital overlays in both linear and on-demand programming and commercials is one such powerful tool.

As we have spelled out in this paper, the proposed SCTE 130/35 advanced advertising solution offers a promising way to insert text, graphic, and video overlays into cable and broadcast programming and advertising. Demonstrated at the CableLabs Addressable Advertising Interfaces interoperability event in early June 2009, the SCTE 130/35 system provides a solid

framework for delivering new, localized, updated, customized, and interactive ads and other messages to TV viewers.

To be sure, some significant hurdles still stand in the way of implementing the SCTE 130/35 system on a wide scale any time soon. Some of the challenges include: the industry's embrace of advanced advertising solutions in general; the still-to-be-determined response of network programmers; acceptance of late-binding ad concepts by advertisers and other content providers; the on-demand market's readiness to adopt SCTE 35 cue encoding; and the complexity of coordinating the cable industry's separate enhanced TV and interactive advertising standards.

But, as we have shown, cable operators and vendors can jointly take a number of key steps to overcome these challenges. By working together and coordinating their technical efforts, vendors and operators can refine the development of the SCTE 130/35 solution and promote its adoption by the rest of the industry, as well as by content providers, on-demand players, advertisers, and ad agencies.

After years of promises and waiting, the addressable future of cable advertising is finally just around the corner. There is no reason to turn back now.

THE SCTE 130 STANDARD DOCUMENTS

- SCTE 130-1 2008 Digital Program Insertion - Advertising Systems Interfaces Part 1
- Advertising Systems Overview (Informative)
- SCTE 130-2 2008a Digital Program Insertion - Advertising Systems Interfaces Part 2
- Core Data Elements
- SCTE 130-3 2009 Digital Program Insertion - Advertising Systems Interfaces Part 3
- Ad Management Service (ADM) Interface
- SCTE 130-4 2009 Digital Program Insertion - Advertising Systems Interfaces Part 4
- Content Information Service (CIS)
- SCTE 130-5 2009 Digital Program Insertion - Advertising Systems Interfaces Part 5
- Placement Opportunity Information Service (POIS)
- SCTE 130-6 2009 Digital Program Insertion - Advertising Systems Interfaces Part 6
- Subscriber Information Service (SIS)
- SCTE 130-7 2009 Digital Program Insertion - Advertising Systems Interfaces Part 7
- Message Transport
- SCTE 130-8 2009 Digital Program Insertion - Advertising Systems Interfaces Part 8
- General Information Service (GIS)

Abbreviations & Acronyms

ADM	Ad Management Service
ADS	Ad Decision Service
CIP	Campaign Information Package
CIS	Content Information Service
DPI	Digital Program Insertion
DVR	Digital Video Recorder
EAS	Emergency Alert System
EBIF	Enhanced Binary Interchange Format
ETV	Enhanced TV
IP	Internet Protocol
MAC	Media Access Control
MPEG	Moving Picture Experts Group
MSO	Multiple System Operators
nPVR	Network Personal Video Recorder
POIS	Placement Opportunity Information Service
RFI	Request for Information
SIS	Subscriber Information Service
VOD	Video-on-Demand
SCTE	Society of Cable Telecommunications Engineers
SDV	Switched Digital Video