

Two Lanes Tangled in Digital Video Preventing Automation

Introduction

Video is rapidly becoming a ubiquitous medium. Once the stronghold of television sets and prime-time viewing, video content has escaped the confines of the living room television and may now be found on devices – and surfaces – of all sizes and forms. Make no mistake, video is still in the living room and a renaissance of high quality content is driving viewership to new levels. However, video is also in hands, on the road, at the checkout counter, at the gas pump, even on the sides of buildings – the list goes on. With this comes the opportunity for advertisers to engage audiences in new ways, reaching them with never-before-possible levels of precision and targeting and presenting them with compelling brand stories that resonate.

The opportunities this presents to video advertisers are exciting and the technologies for buying targeted audience segments are rapidly evolving. These technologies leverage high degrees of automation, based upon standardized protocols for computer-to-computer information exchange. Even traditional linear television is seeing a trend toward more automation in buying and selling, known as “programmatic TV,” as well as a dramatic growth in the use of traditional screens and set-top boxes repurposed for Video on Demand (VOD), where it is possible to use dynamic ad insertion to tailor messages to individual users.

The result is a dynamic marketplace where media can be identified and bought in milliseconds. As the audience has spread out to more and more devices, unfortunately the process for identifying and securing the video ad creative to execute against the purchased media remains bogged down in archaic, manual workflows that are in sharp contrast to the automation available in the buying and selling of media.

Problem Statement

While the media buying and selling process reaches new levels of automation and sophistication every month, the creative execution aspect of video advertising remains mired in manual processes that introduce unnecessary costs, significant delays, and opportunities for mistakes and compliance issues. When purchased through an automated marketplace a typical audience-targeted video advertising media buy may be executed in milliseconds. However, fulfilling the corresponding creative execution can take hours, days, or even weeks. A typical scenario might go like this:

1. A digital media agency (“Media Agency”) uses a demand side platform (DSP) to identify and buy a target audience from one or more media properties (“Media Vendor”) for a video ad campaign for its brand client (“Brand”). Media Agency has chosen a video ad tech company (“Ad Server”) as its preferred video ad server for serving the campaign.

2. Media Agency then must secure the video ad that will run on Ad Server. Often the video ad is also being used by another agency ("TV Agency") for a corresponding TV ad campaign for Brand.
3. Media Agency contacts TV Agency to get a copy of the video ad. TV Agency asks Media Agency which Brand video ad is needed by asking Media Agency to specify the ad identifier. Media Agency often does not know the ad identifier, but may describe the video ad ("It's the one with the woman in the yellow raincoat, you know the one?"), or they may provide a title if they know it. Regardless, there may be several back-and-forth exchanges before the correct video ad is identified.
4. The process above may be further complicated if Brand uses multiple agencies and Media Agency may need to spend time identifying which TV Agency to source video ad from.
5. Once determined and the correct ad identifier is known, TV Agency will ask if Media Agency is authorized to obtain a copy of the Brand video ad. It will also need to determine if the correct talent payment and/or rights have been secured to authorize use of the commercial in the desired medium (e.g. network TV, internet, etc.) or region (e.g. North America, Europe, etc.). This may require additional communication and legwork, possibly even involving additional parties, such as a Creative Agency or Talent Agency.
6. After all of these hurdles have been cleared and the video ad is known and authorized, the Media Agency must obtain a copy of the video ad file in the correct format(s) for the Ad Server or media properties where the ad will be used.
7. Typically it will request that a special production job be initiated by the Creative Agency to its TV Ad Delivery Vendor to fulfill a production services request to generate copies of the video ad transcoded to the format(s) needed. This request can only be performed after Media Agency has contacted Ad Server and/or Media Vendor(s) to determine the video format(s) that are required.
8. After the video ad is converted to the appropriate format(s), the file(s) are uploaded via FTP to Media Agency. Media Agency then uploads the file(s) to Ad Server and may also FTP copies of files to Media Vendor in cases where it requires the file to be site served.
9. Ad Server and Media Vendor may subsequently transcode the file(s) again for use in their systems.
10. Only now, after all of these manual steps have been completed, can the campaign that was bought in milliseconds be executed.

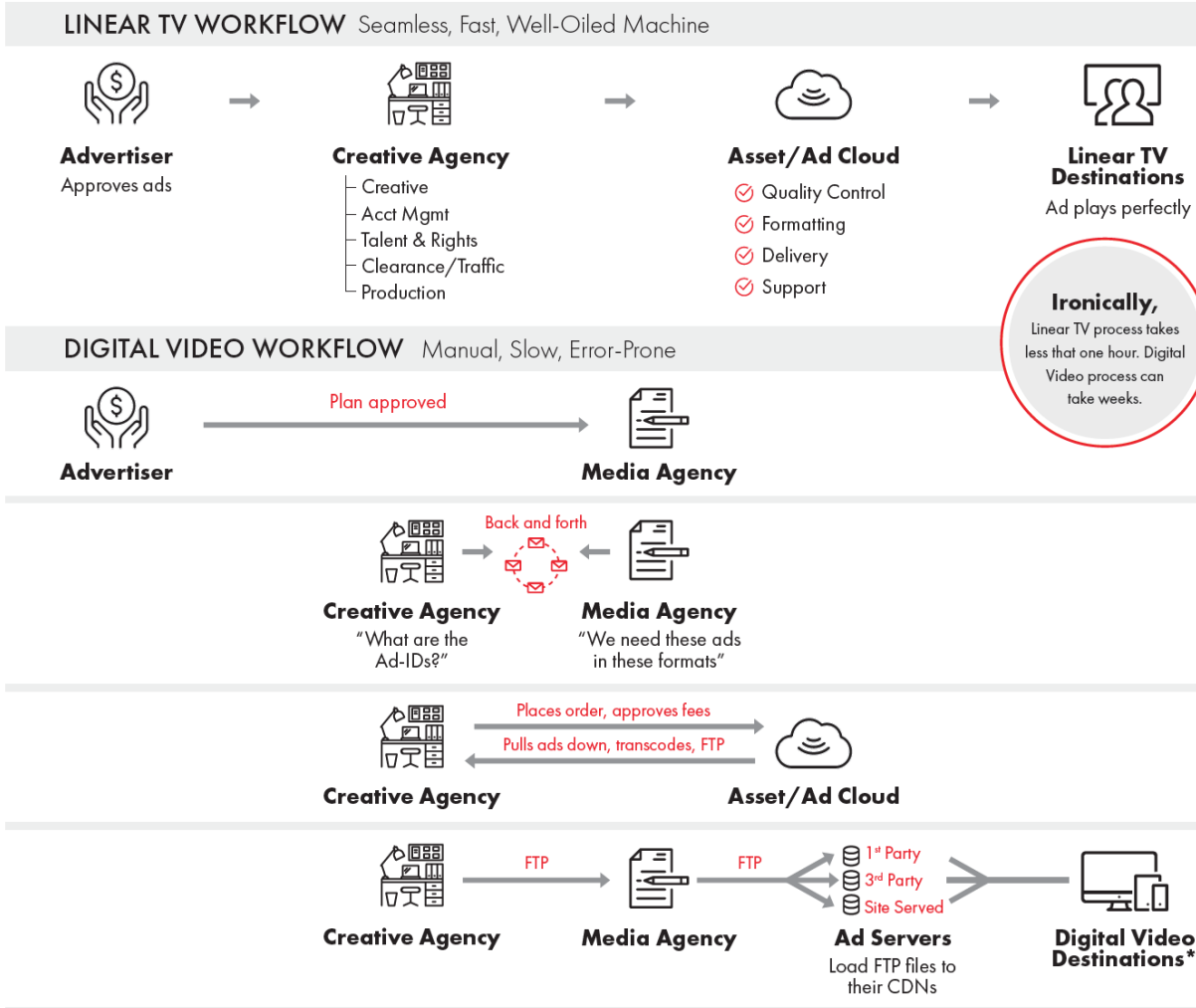
The process described above is brutal and costly. There are also numerous opportunities for mistakes, misunderstandings, delays, and talent and/or rights compliance violations to creep in. Even worse, there are numerous variations to the workflow above, with different parties taking on different responsibilities depending on the specific scenario. Brands themselves may play an active role in the process and the need to coordinate among multiple agencies and ad tech vendors can lead to even further confusion and delay.

For brands to truly benefit from the audience-targeting opportunities presented by new channels, they must produce and manage more relevant content. This content, in turn, needs to be tagged and rights-cleared for the medium. These data must accompany the content, enabling the ad decision engine to provide the right media to the targeted viewer.

This picture is bad enough when viewed in the context of a single campaign, but consider the implications if hundreds or thousands of video ad campaigns are being executed, as is expected in the future of ubiquitous video. A better solution is needed to allow the execution of the creative messaging side of video advertising to match the sophistication and speed of automated buying and selling.

Even the handling of video ad assets for traditional TV can be improved. Traditional ad trafficking requires multiple copies of ads to be sent to each station, network, or cable system that appears on the buy, where they enter duplicative asset libraries that are out of reach of the advertiser or agency that is responsible for managing and tracking the use of the ad. Emergency revocation of an ad requires extensive manual work to contact each location to request removal.

> How Creative Assets are Sourced and Deployed Today



* Does not include OTT, Programmatic TV, and VOD which have their own workflow and specifications, adding to complexity.

Dynamic Ad Insertion (DAI) & Fragmentation

As audiences have migrated their viewing habits to new platforms, this has created a challenge for programmers and publishers. In order to maintain audience for their premium content they are challenged to get deep libraries of their programs in the hands of viewers who are anxious to watch their favorite programs in a time-shifted format (VOD). The revenue models for programmers to monetize this content is often advertiser supported utilizing Dynamic Ad Insertion (DAI). One place where this is coming together in very unique ways is within the systems of Multichannel Video Programming Distributors (MVPDs), which include cable providers. Interestingly, these are closed systems which operate very differently than traditional digital or IP-delivered VOD content. This creates another example of the challenges in getting ad content into these systems and ready-to-serve ad impressions, as there is yet another host

of workflows used to pass the video from advertisers/agencies and programmers into the cable environments.

Media & Creative Swim Lanes

Part of the reason for the broken workflow described above is the interweaving of media and creative workflows in the digital video ecosystem. In the traditional linear TV world, media and creative operate largely in independent “swim lanes.” Media planning is performed, buyers and sellers negotiate on inventory avails and rates, media is purchased and recorded in accounting systems. Meanwhile, ad concepts are developed, creative teams produce video commercials, perform post-production tasks such as captioning or encoding, and upload the resulting assets to distribution platforms. The trafficking process connects the two swim lanes, with specific instructions on which ads are to be run against which media buys. Standard (Ad-ID) or nonstandard ad codes are used to link the traffic/media information with the creative to ensure that the correct ad is delivered and runs on the correct network/station at the correct time.

This is contrasted with the digital video world, where media teams typically manage media buying, trafficking, and sourcing of creative. Due to the lack of standards and process around the latter step, it is often being handled in an ad hoc fashion that results in the tangled workflow described above.

The Internet as a Model for Content Sourcing

The problems described above are in large part due to the lack of a standardized workflow and information-exchange protocol for video ads. Only when processes implement standard methods and protocols may they be automated and streamlined. The good news is this type of thing has been done before with great success – and it is called the internet.

The internet is largely based around the concept of resources, such as documents, images, data, etc., that are hosted within a “web” of interconnected devices that communicate with one another using standardized methods and protocols. This process works because there are standard means for identifying, authorizing, accessing, and delivering resources.

Resources are identified using a Uniform Resource Locator (URL). This represents the unique location for a resource on the web. The same file is not copied to every device around the web that needs it, rather it is always sourced from its unique URL. The URL includes an element that uniquely identifies the location, or host, of the resource – the IP address – which is often aliased using a domain name for convenience. The domain name is guaranteed to be unique because it is issued by a trusted authority. This allows all systems to be able to recognize this unique location and communicate with it. The Domain Name System (DNS) is used to manage these domains and handle traffic routing across the web of interconnected devices. When a new resource host is created, a domain name is secured for it. Individual resources are assigned a URL and may then be accessed from that single location from anywhere on the web. Identity of hosts may be guaranteed through the use of Secure Sockets Layer (SSL) certificates

that provide assurance that the host being accessed is associated with the expected organizational entity.

In addition to these basic elements that govern the operation of the internet, there are other protocols that are available to further refine the behavior of the devices/systems connected to the network. For example, caching of resources is built into the infrastructure to allow for performance optimization and specific needs, such as offline viewing. Resources may be temporarily cached at various points in the network, allowing for quicker access or offline use. However, the caching model still recognizes the “origin” of the resource as the one “source of truth” and caches are periodically refreshed to obtain the latest version of a resource. Caches may also be “flushed” when a resource no longer exists at the origin.

Another feature built into the internet is the concept of specifying the desired format for resources when accessing them. For example, data may be requested as HTML for human consumption, PDF for printing, and XML or JSON for machine consumption. This ability for the resource consumer to request the format that is best suited to them is an important layer of flexibility that allows systems to be highly interoperable across the internet.

The benefits of this strategy are many, and they are part of the reason why the internet has been so rapidly and successfully adopted worldwide, across country boundaries and cultures. Resources are able to be centrally managed and versioned, yet they may be easily accessed by any connected device or system. The system includes well-defined identification and authorization schemes that prevent ambiguity and ensure that a resource may be uniquely identified and securely accessed.

Linking Function – Universal Ad ID

The severe workflow issues that plague the video asset handling portion of video advertising can be solved by applying the principles of the internet to video assets. There are many components to the workflow that may be improved when the concepts of centralized “Ad Cloud” resource hosting are applied.

First, video ad assets must have a unique identification scheme that permits them to be easily and unambiguously identified and accessed. A ‘serial number’ (ad code) for each video ad asset guarantees that every reference to that ad asset will return the correct instance. The good news is systems already exist that provide this capability. Centralized ad identification registries, such as Ad-ID (a joint venture of the ANA and 4A’s), provide standard guaranteed unique “ad codes” that may be used to uniquely identify video ad assets. Similar to how DNS provides unique domains for identifying internet hosts, these ID registries utilize well-known “prefixes” that are tied to individual advertisers, brands, agencies, etc.

Nonstandard methods exist to serve this purpose as well. However, these nonstandard methods are based on a decentralized “honor system” and there is no central authority that guarantees uniqueness of the resulting ad codes. This is analogous to allowing companies to choose their

own internet domain name without verifying its uniqueness with DNS. If two companies chose the same domain name, how would a web browser know which host to connect to?

Another downfall of nonstandard methods of naming is that the same ad, as it moves through the ecosystem, can be assigned a new name. As ads are served into various programs on multiple outlets, it becomes almost impossible to correlate or validate that the intended ad will play properly in compliance with the original campaign. This has implications for the analysis of agency data relative to reach and frequency. Programmers and broadcasters are increasingly selling audience rather than just specific programs, which means they sell impressions across the many platforms that their content reaches. Nonstandard naming also hinders payment and verification for this important means of monetizing content for programmers and broadcasters

Second, metadata for video ad assets should be hosted in centralized systems and keyed on unique ad code (such as Ad-ID). Video ad assets have extensive, related metadata that describes the ad, such as title, length, keywords, format (SD/HD/UHD), creative agency, production company, talent and rights information, and many other possible attributes. This metadata are carried with the ad asset, or accessible using industry standard APIs. Video ad metadata constitute the descriptive information that supports human identification and use, as well as a wide variety of automation systems that operate throughout the execution of a video campaign, both on TV and online.

Finally, and perhaps most importantly, video ad assets themselves should be managed and accessed through centralized asset repositories (Ad Clouds) and obtained via URL rather than by indiscriminately transmitting multiple copies of the same asset to sites across the globe. Like the fundamental concept of any resource on the internet, the video ad asset is an important resource that is required to fulfill the creative message aspect of a video ad campaign. By utilizing a centralized Ad Cloud, the complexities of location, authorization, format conversion, and delivery to target may all be consolidated into a simple set of automated processes.

Assets are uniquely identified in the Ad Cloud using the ad code scheme described above. The Ad Cloud can connect to the identification authority to verify the ad code to confirm an asset's identity. Similarly, the Ad Cloud may connect to any external metadata system to obtain asset metadata. In some cases the Ad Cloud may supplement the asset metadata contained in the identification authority.

Physical video assets (digital video files) are uploaded directly from post-production in the highest fidelity master format. These constitute the "origin resource" that all other renditions/formats may be generated from. These assets are linked to their associated metadata using the unique ad code. This metadata is used to automatically process the source files, and perform the correct inspection and QC based on expectations set in the metadata. Specialized services such as closed captioning, tagging, re-slating, etc. may be automated using the combination of high-quality source files and metadata.

Once assets are housed in the Ad Cloud, with associated metadata and, optionally, talent/rights information, the assets may be readily accessed using a URL scheme that includes the unique Ad-ID. This scheme can incorporate the target format as well. As with other types of internet

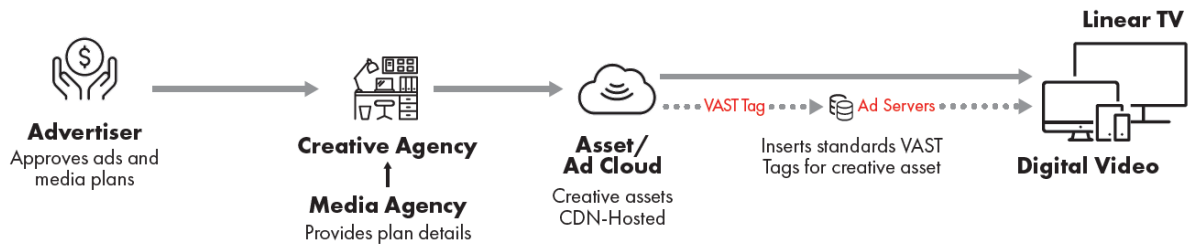
resources, each recipient can request the specific format rendition of an asset to match its requirements. Even better, the Ad Cloud may host and maintain a registry of the specific format requirements of common network endpoints. For example, the formats needed by all TV, digital video, mobile, out of home, etc. endpoints may be maintained in the Ad Cloud so that all that must be specified in the URL is the target network endpoint, along with the Ad-ID. Upon receiving such a request, the correct rendition(s) of the ad will be transcoded directly from the master origin file.

Finally, the Ad Cloud can apply the necessary authorizations and permission to allow authorized parties to access the video ad assets. Approved parties, i.e. agencies, ad tech vendors, media platforms, media vendors, etc., may be granted access to only the assets that they need to fulfill the campaigns that they are involved with. Brands themselves may manage the Ad Cloud if they choose, granting the correct asset access to the correct parties involved with their campaign(s). This eliminates the manual steps needed to source and obtain permission to utilize video ad assets. The 10-step process noted earlier is thus reduced to three simple steps.

Video ad assets accessed via the URL are then streamed directly to the endpoint where they are consumed. No longer are multiple copies needed; a single URL can be used to stream the correct rendition to the correct endpoint – all derived directly from the high-quality origin master file. In cases where existing technology prevents live streaming from the Ad Cloud, such as TV station broadcast playout systems, the caching mechanism may be used to temporarily cache the video asset on local systems. This allows for local use with such systems for backward compatibility, while still recognizing the Ad Cloud as the origin source for the asset. Assets that are removed or expired from the Ad Cloud origin would be automatically flushed from the local cache.

An additional benefit of the centralized streaming model is the complete control that is provided to the advertiser or agency responsible for the campaign. Ads that need to be quickly removed to protect brand safety or address other concerns may be immediately halted from the Ad Cloud. No longer is it required to locate all possible copies of files at all endpoints and request removal of assets. Similarly, by leveraging centralized streaming of assets, talent and rights compliance may be tracked in real time to ensure that use of assets does not violate talent and/or rights agreements. Complete process automation may be achieved by leveraging API's available from the Ad Cloud to integrate with other technology platforms, buying systems, etc, as shown in the diagram below from the IAB Guide to Digital Video Advertising.

> Sourcing and Deploying Creative Assets in a Cross-Screen World



VAST – Facilitating Ad Cloud Execution

The Ad Cloud streaming model may be implemented using standards that exist today. The IAB Video Ad Serving Template (VAST) specification includes support for “wrapper” VAST tags. This allows an Ad Server to perform the key functions of ad serving, such as campaign management, targeting creative selection, rotation, measurement, etc. while still delegating the actual delivery of the creative asset to the Ad Cloud. Instead of uploading copies of the video ad assets into the Ad Server (following the disjointed workflow described in the Problem Statement above), the Ad Operations team simply enters the URL for the Ad Server VAST tag, which prompts the wrapping of the creative ad asset by the Ad Server’s VAST tag. The resulting ad experience for the user is the same, with the ad targeting, creative selection, etc. being performed by the Ad Server and the delivery of the video asset being handled by the Ad Cloud.

The other key feature that helps Ad Cloud implementation is the introduction of the *UniversalAdId* node as a required field in VAST 4. This allows VAST clients to either use the URL provided in the Media File directly, or to use the Universal Ad ID to access Ad Cloud streams directly.

Conclusion

The execution of the advertiser’s creative message deserves the same sophistication, efficiency, and automation that is currently available for targeting audiences. As video continues to stream to a growing range of devices, in ever greater volumes, a modern solution is needed for the management, delivery, and tracking of video ad assets. The internet provides a proven model that has been widely used to drive extensive automation of complex systems throughout the world. By applying some of these principles to the handling of video ad assets, dramatic improvements to campaign execution may be realized. A standards-based approach to ad

identification, metadata capture, and asset management can support the levels of automation that are required to complement highly automated media buying.

This is not a vision for some distant future. Technologies and platforms exist today that provide the features and functionality needed to realize all of the benefits described here. The only barriers are in the education of the many parties still involved in the workflows of yesterday. Advertisers, agencies, and their media and ad tech partners need to be encouraged to move beyond the familiar-yet-dysfunctional world they know and explore the opportunities that are available to them today to streamline their video advertising.

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