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Adstream

TRANSLATING BROADCAST AD COPY PRINCIPLES TO THE DYNAMIC AD INSERTION AGE

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Abstract - *Dynamic ad insertion into streamed video offers the ability to create value through hyper-targeting, which is set to exploit full programmatic delivery. Commercial rights, regulations and technical specifications are governing factors for ad copy management. In the online arena, managing these touchpoints can be highly manual and error-prone when trafficking first-party sold digital ad copy. Furthermore, there is currently little confidence in third-party sold / programmatic networks' ad copy workflows, however broadcasters and consumers alike expect ad insertion into online video to be delivered with a "TV-quality" experience. The route forward is a fully connected ecosystem that leverages proven practices, experience and technology within broadcast operations. The challenge that faces the market is that none of these touchpoints are ever connected in their entirety. There are a multitude of endpoints offering different opportunities for inventory and targeting. Yospace and Adstream wish to present the integration of the yospaceCDS Dynamic Ad Insertion platform and Adstream Connect which addresses these challenges but also delivers unique benefits to ad agencies and brands.*

INTRODUCTION

Today, more and more consumers are turning to online sources for video entertainment and this has created an ecosystem of online advertising technology to take advantage of the revenue opportunities presented by advertising-supported online video.

In this paper, we outline the need for leveraging established broadcast ad creative management practices to address key quality challenges and to furthermore add value to the online advertising proposition.

Section 1 provides a primer to the key principles and benefits of the existing ad creative management practices in the traditional broadcast arena. Section 2 outlines some of the key technical challenges faced by online advertising insertion mechanisms, while section 3 illustrates how improved ad creative management may add value to the online advertising proposition. In sections 4 & 5, we contrast the existing online advertising with our proposed ad creative management centric solution.

THE ROLE OF AD COPY MANAGEMENT IN BROADCAST

I. Principles

Advertising media is changing. As traditional broadcast services converge with digital ad serving we see greater opportunity for marketers to better target their messaging to a much larger audience. In order to benefit from the greater reach and richer targeting afforded by digital ad serving technologies, an expansion of content is required and an increase in content availability. Few advertisers and brands are taking advantage of this, and are instead simply providing the same video content used in traditional broadcast, with perhaps a minor regional change, to targeted audiences.

In addition, there are challenges across rights management to ensure that media and artists are cleared for use across not only media but also across regions. As VOD and OTT services become available outside of a media owners' traditional geographical reach, how can they and advertisers be sure that the ad content they are serving is cleared for usage for this extended reach?

The challenge that presents itself is threefold:

- How do we enable advertisers to better benefit from the more detailed targeting available in digital ad serving by driving the creation of highly targeted content?
- How do we ensure that the content is cleared and rights managed to be served on demand to a target audience and geography?
- How can we know that when a programmatic buy requests a piece of targeted content, the correct media is prepped and ready for insertion into a live stream?

If we can solve these challenges of content availability or "Content Now", then we can also begin to use the metrics harvested from targeted ad serving, to produce more accurate reporting on campaign and media effectiveness. But without proper chain of custody and standardized metadata, the true value of a targeted ad campaign cannot be realized.

II. Content Availability

Content availability or Content Now is a concept where advertising and marketing media is produced to be instantly made available to all media publishers, in the correct

technical specifications, with usage and rights management validated, and targeting metadata, linked campaigns and media, documented and available alongside content.
Enabling a content availability model allows media owners to maximize engagement and advertisers to increase media effectiveness.

III. Accuracy Of Metadata

Advertising media typically passes through many processes throughout its lifecycle. From brief to creation, to distribution, a video ad will touch advertiser systems where briefs are estimated and approved, to agency systems where the creative process is tracked and shared, to broadcaster systems where the media is surfaced for playout or serving. Each time a piece of content passes from one of these systems to another, some metadata is lost or rekeyed. This leads to misspelling of brand names, or the loss of key targeting demographic information.

The result of this is that the reporting and analytics systems, used to track the exposure or effectiveness of an ad, has to contend with data integrity issues when matching content.

Without accurate metadata that describes the content and its desired targeting captured up front during the campaign brief, and carried alongside that content throughout its lifecycle, the true media effectiveness cannot be measured and therefore cannot be realized. By ensuring this workflow is connected, wastage and ad fatigue can be significantly reduced.

IV. Usage Rights

Whilst tracking and managing content usage rights with entertainment media is a well-established process within broadcasting, the reliance on tracking rights management with advertising media is the responsibility of the media agency and brand. Often the rights contracts that have been negotiated upfront on an ad campaign may not include all variances of digital ad serving, and are quite often limited to close geographical constraints which are in turn tied to talent payment contracts and processes which vary considerably from country to country. This means that traditionally media agencies have been very cautious about how they expose content to VOD platforms for fear of being caught out by an out of usage contract penalty.

Because the upstream services cannot be sure that media is going to be regionally confined, they would not expose this content to that service. From a Content Now perspective, we can turn this traditional model on its head. By defining the usage rights and contract restrictions against the media at the point of creation, and essentially publishing this media with not only regional, but also presentation and clearance data (watershed, time of day, mature audience, etc.) the ad serving technologies can make decisions about the relevance of the content alongside the targeting decisions. By ensuring that this data is cleared throughout the supply chain, the media agencies and brands can have the confidence to better maximize the exposure of media to the right audience while minimizing the risk of rights-related fines or penalty payments.

V. Targeting

Ad content creation in most cases is still based on the broad demographic targeting driven by the traditional linear TV model. Reusing this traditional TV content in the digital ad serving world is sub-optimal. We see a significant uptick in campaign effectiveness through a collaborative approach between the media owner and the advertiser. To capitalize from more effective exposure additional content needs to be produced to satisfy that demand. In many cases, we find that a single traditional TV ad would be more effectively represented by up to15 different variants to be served across a targeted environment. Whilst all 15 of these pieces of content may have the same theme or overall message, the nuances of that message are augmented for each variance in demographic data, from gender, age range, geo-location, as well as customer intelligence gained from broadcaster metrics that can be used to add value to the advertiser as part of a targeted ad sale.

Each element of a targeting system should be captured or at least considered during the campaign brief, to enable the production process to account for these variances in the marketing message, and tailor the content to the individual. In addition it opens the possibility for a more engaging episodic approach to advertising campaigns, as we know exactly who each piece of content has been served to, and, in some cases, how and if they engaged with that content.

Effective capture of downstream targeting parameters is essential for the effective upstream production of targeted content. Without standards and a system for managing that supply chain, real campaign effectiveness cannot be realized in a Content Now approach.

VI. Chain Of Custody

A documented chain of custody is essential in any connected supply chain to independently verify action and amendments, and provide a source of truth for data and the integrity of media. Content chain of custody becomes important when we start tagging rights management and payment events against media and becomes imperative in the content availability model. Unless the content served by a programmatic ad system can be verified to have a valid lineage, and has not been subject to media substitution through 3rd party ad servers for fraudulent or ‘malvertising’ purposes, then accurate attributions can be made, and can easily skew the effectiveness of the data being reported by the analytics platforms.

Documented chain of custody not only prevents misuse of content but also allows advertisers and media owners a view of how and where in the supply chain the media is, and helps them analyze cost and savings.

Because of the diverse range of events and activities media passes through on this journey to the consumer, any chain of custody system must be inherently open, to ease adoption and be integrated with existing systems, but also secure in its ability to provide an immutable record of events related to the custody of that content.

TECHNICAL CHALLENGES FOR ONLINE AD INSERTION TECHNOLOGIES

A very important and fundamental point is that online video is delivered, usually via content delivery networks, directly to end user devices. When compared to traditional broadcast, which is designed to be standardized within a given territory for all broadcasters, online broadcasters have a relatively large amount of latitude in terms of technologies, architectures and standards they can choose to meet their requirements on device reach, cost and content protection.

When inserting advertising into a content stream, regardless of whether that content stream is on-demand content or live, it is usually important that the encoding of the advertising matches the content. The level of importance may vary depending on the ad insertion model deployed. The industry is moving to a server-side model for ad insertion, an architecture that stitches ads into the stream on an individual user basis on the server-side, such that the receiving device is effectively unaware that content has been switched. In this model, the need for ad copy to match the technical specifications of the content is essential to ensure that the user device receiving the stream is able to play the inserted ad seamlessly.

Server-side ad insertion into online streaming is managed by what is generically described as Ad Management Service ("ADM"), the yospaceCDS service is an example of a leading globally deployed ADM solution. The ADM acts as middleware between the content stream production and encoding, the distribution of video content via a content delivery network, and the Ad Decisioning Server ("ADS") that determines which users should see which ads.

When the ADM determines that ad content is required for insertion into a stream, it makes a call to the ADS, on behalf of the user for whom it is managing the stream to get a response to determine which advertising is to be inserted. This request/response is usually governed by either the IAB specification VAST or SCTE-130, the former being the most common within the online digital space. The response that comes back from the ADS indicates the ad copy that should be used, which may include a unique ID of the ad copy required and a URL that points to the actual video data.

The ADM is responsible for ensuring that the ad is stitched into the stream, and in the case of yospaceCDS will automatically transcode the specified ad copy to perfectly match the content stream specification, which may include audio normalization. The ADM cannot insert an ad that has not been prepared, so any ads that it doesn't recognize as being successfully prepared, it must skip, with the commensurate loss of revenue for the broadcaster until the ad is available.

Amongst Yospace's customer group there are broadly two categories of workflow for ad copy preparation. Most customers utilise a "just in time" approach whereby newly launched ads are transcoded on-the-fly with the acceptance that this simplified approach results in some loss of revenue when new ads are trafficked for the first time and are not available for stream insertion. There is a minority of customers that build workflows with their ad trafficking teams to ensure that new ad copy is pre-transcoded by yospaceCDS when it is put live, ensuring that every response from the ADS can be honored.

Today, there is no standard way of indicating what ad copy should be used, neither is there a standard way for digital ad trafficking teams to make ad copy available for digital use. We discuss this point in more detail in section 4.

This lack of standardization in ad copy management leads to a variety of issues which range from quality assurance problems to ad availability, which leads to loss of revenue. In live streaming, it is not uncommon for very large audiences to flock to a specific event that may have a very limited number of ad spots. Therefore an errant or unavailable ad creative can lead to significant loss of revenue as it is excluded from inclusion into users' streams.

The need for each broadcaster to invent their own workflow to take broadcast ad copy into the digital domain needs addressing. This not only reduces costs, it will improve quality and eliminate loss of revenue caused by failures of these ad hoc workflows.

ENHANCING ONLINE ADVERTISING WITH ACM

The technical architecture of online video distribution presents opportunities to enhance value to the advertising proposition. The most significant of these is the fact that online distribution offers the ability for users to be targeted individually. The methods employed by broadcasters and the greater advertising ecosystem vary based on the ad sales proposition, but have been steadily becoming more sophisticated over recent years with burgeoning user appetite for online video consumption and the industry desire to maximize this revenue opportunity.

I. Closing The Creative Process Loop

The act of an individual user watching an ad that has been selected for them needs to be tracked and verified in order for the broadcaster to be paid. Today, when advertising content is played out in an end user's device, the tracking beacons are usually sent to the broadcaster's platform measured ads they have sold and, when appropriate, to the "demand side platform" operated by intermediaries of the

ad buying agencies and the sell side platforms through which the advertising is surfaced. This "carbon copying" of the tracking beacons is to allow both sides to verify and reconcile ad performance independently.

The integration of the broadcast ACM concept into the digital domain creates a bridge between the ad delivery mechanism and the source of the ad creative, the agencies or brands that commissioned the content. By including the ACM platform into the list of destinations for ad beaconing, the ACM in turn can deliver richer feedback to the agencies and brands on user interaction, which in turn influences the creative and commissioning process.

Ad units in online advertising can present either interactive elements or direct calls to action. By connecting the creative process to individual calls to action, brands are given the opportunity to increase the effectiveness of their campaign.

II. Reducing Ad Fatigue

In traditional broadcast distribution, it is common for a significant proportion of finalized ad copy to never make it to final transmission because content is overproduced to cover all bases, local agencies do not know what is available, or poor reporting and communication within agencies mean copy gets produced and never aired. In online video distribution, ads are targeted against individuals rather than channels thus rendering different advertising to every user watching the same channel. This affords the opportunity to present episodic advertising – a series of ads that when experienced in a specific sequence create a story into which the viewer becomes invested. This technique can be used to reduce end user ad 'fatigue' -- the idea of a user being overexposed to a particular ad -- by utilising and rotating equivalent ad copy for individual users from the pool of ad copy that would have been otherwise unused.

III. Global Reach And Localised Compliance

Broadcast distribution is usually constrained by physical boundaries. The broadcast industry has largely been structured as a response to these physical transmission limits whereas in online video distribution, there are no technical geographical limits to where video can be delivered on the internet. Broadcasters with broad geographic ambitions not only need to be concerned with securing the rights to distribute content outside their traditional broadcast territory, but also ensure that the pool of advertising sold into their international market are also rights cleared for their extended reach.

This underlines the importance of ensuring that usage rights associated with advertising copy are accurate and associated throughout the ad trafficking workflow. The usage rights are further supported by content compliance, where the governance of the online advertising takes its lead from TV. The advertisement has been produced with a specific message targeted to the viewer and the content must follow strict guidelines imposed by trade bodies and supported by the broadcasters where each measure defines the eligibility of the advertisement. All compliance measures have been carefully appraised to protect the integrity of the message, the platform owner and the consumer. Together, the advertising's rights and compliance metadata provides a comprehensive level of certification which protects the advertiser, broadcast publisher and consumer upon playout.

AD COPY MANAGEMENT CENTRIC WORKFLOW

I. Introduction

To meet the future challenges of a burgeoning online video advertising ecosystem, Adstream and Yospace are working together to pioneer an ACM-centric architecture for the management of digital video advertising. Furthermore, it is proposed that the integration between AdStream Connect and Yospace act as a basis for open specification to allow key components with the online advertising ecosystem to interoperate and benefit from this ACM-centric approach.

II. Digital Ad Management Today

The digital advertising ecosystem comprises a number of elements responsible for allowing publishers (broadcasters) to sell advertising into the content directly (first party selling) or open their content to third party networks that have sold placement to media agencies. The components that form this ecosystem, which are illustrated in Figure 1, are as follows.

- **Buying & Selling**: The Media Agency ("MA") is responsible for buying ad placement; Demand Side Platforms ("DSP") allow Media Agencies to purchase advertising through a single interface into multiple ad exchanges; Supply Side Platforms ("SSP") allow broadcasters to manage advertising inventory.
- **Delivery**: The Ad Decisioning Server ("ADS") is responsible for the execution of advertising campaigns sold by the broadcaster (first party) and to delegate unsold inventory through ad exchanges through to the platforms on the demand side (DSPs). The Ad Management Service ("ADM") is responsible for the delivery of advertising to the end-user device. The yospaceCDS Ad Insertion Platform is an example of a server-side ADM and therefore is responsible for transcoding ad creatives to ensure they match the source content stream.

Commercial media management is heavily reliant on understanding where the media needs to be played, on which devices and on which publisher platforms. Furthermore, the creative must be supplied and ingested into a workflow which is able to match the parameters of the media buy and its platform.

With the majority of ad spend targeted at TV it means that the TV production processes are prioritised over

the digital commercial conditioning. Understandably therefore, the system is bias to ensuring the TV media buy is prioritized over online.

The advent of online content services initiated the start of parallel production systems and introduced processes which are more agile and able to support the publishers' OTT platforms. The new systems and workflows ensured that TV production could continue uninterrupted.

Publishers established online content services to expand the reach of the their primary programme content. The productions services and infrastructure were installed to support the new platforms though these did not factor in the advertising. Online advertising, as with TV, became incumbent to primary content production processes and to protect revenues and to support the gap in the production workflow the ad sales & operations function within the publisher had to push back onto the creative agencies to ensure copy could be received in-time.

Production quality and continuity between the primary content and the advertising content quickly became out-of-sync where the creative agencies were supplying the content pre-conditioned for the online service. Ad operations required better control to meet the advertisers' expectations, and digital ad creative management required an established digital production/encoding solution to ensure better consistency for the viewer and the content owner/s. However, challenges remained. How was the ad creative going to be introduced in the online production workflow and where would the advertiser/creative agency source the ad copy?

The Ad Creative Management System (ACMS) began as a solution to enable the seamless delivery and digital conversion of TV commercials, sending media directly and digitally into the TV ingest systems.

Until recently the creative/media agencies were not aligned to the same media plan. Media buying took place independently via the TV marketing teams and via their digital counterparts. This disconnect meant that the ACMS was only aware of TV ad copy and was therefore only configured to facilitate the broadcast ingest workflow despite being fully enabled to handle the rigors of digital content management. Many of the traditional TV service providers and agencies are still working under these legacy practices.

Ad creative, which was required for digital platforms and services, was not effectively communicated between the agency teams, leaving the online/digital creative exposed. So with the onus of the digital creative being with the digital agency teams, requesting directly from them meant using many open and unsecured protocol/transfer services and production encoding tools, that were unfamiliar and were not aligned to the TV centric ACMS. The video quality became compromised and it became hard to meet the playout requirements of the online platform.

To mitigate this, ad operations mandated that all digital adverts were passed into the OTT content production workflows to transcode the commercials and to produce high-quality video on par with the actual content. The online production teams defined the production specifications for the mezzanine files so that the commercials could be delivered in a format which could be readily transcoded and with greater efficiency.

III. The ACMS-centric Architecture

It is apparent that the current ad hoc methods employed to manage ad creatives in the online advertising environment must be addressed with a robust standardized practice to not only improve quality, but to further enhance the value of online advertising as is described earlier in this paper.

Adstream and Yospace are working together to build a best practice that places the ACMS in the centre of the architecture. This architecture enables the content availability model which we argue is vital for the future of ad creative management ensuring high quality and timely delivery of content to the delivery channels, driving the capture of key upstream metadata for presentation, clearance and targeting. The ACMS becomes the content hub for availability. Figure 2 illustrates this architecture.

Events Subscription

The design implements a events bus to which interested parties may subscribe and receive events for specific *delivery contexts*. A streaming context defines the product through which the advertising will be surfaced, an example of which may be a combination of broadcaster/device/channel.

When a client component subscribes to the ACMS bus, it announces the delivery contexts for which it wishes to receive events. The delivery context ID is allocated by the broadcaster using a global namespace. Systems (including the ACMS) that are required to service the requirements of the delivery context must be provisioned with this ID.

The ACMS coordinates the functions that will be carried out by each subscriber for a given delivery context. This design allows for situations where not all components are ACMS-aware, and to ensure that a function that can be carried out by multiple subscribers is only performed by one. For example, where both the ADS and ADM are ACMS-aware they are capable of adding additional tracking beacons to allow the ACMS to track user engagement. In this situation, the command to add the tracking information is only sent to one component.

Key Events

Typical ACMS events have been identified as, but are not limited to:

- **Flight update**: This event describes changes in the flight dates derived from the booking systems. These

are often dynamic during the campaign, and need to be matched against usage or rights data for that media, in order to ensure flights are run across approved media and geographies.

- **Creative update**: As a flight progresses it may be desirable to dynamically swap out copy because of poor performance metrics from campaign effectiveness monitoring systems, or content becoming out of rights or usage. Alternative copy must be identified, and grouped accordingly within the ACMS. Unique creative IDs must be maintained with a relationship model within the ACMS to ensure that connected content is relevant. Creative IDs must be used to associate content with flights, and provide a secure chain of custody with the booking system and creative process to ensure that correct content is prepared and served to the downstream systems.

Key creative update events are:

Event	Description
Associate Creative ID to Flight	An event is generated when creative content is added to, or removed from flight or campaign
Group membership	An event is generated when media is added or removed from a group membership. This would include change in relationship status
Media availability	An event is generated when any downstream subscriber to ACMS has posted content to their edge servers.
Change in usage	An event is generated on any change of usage, this might include expiry of artist rights, geographical or media usage.
Contextual metadata	An event is generated when any changes to content metadata is affected within the ACMS
Compliance metadata	An event is generated when there is a change in presentation, compliance or legal approval of media.
Change in Chain of Custody	An event is generated when content is registered on a service in the supply chain.

- **Creative group update:** Creative group events describe the changes in the relationships between content in the ACMS. These would include media equivalence, which describes alternative content that can be shown in place of another to introduce a wider message or to reduce ad fatigue, and episodic content that must be served in a specific order to end users.

CONCLUSION

The challenges facing ad creative activation persist and are directly impacting campaign activation and content availability, where the digital media commercials are prioritized behind the long-form content ingest workflows, often using ad hoc and error-prone workflows.

To create ubiquity across the advertising management process it is essential to ensure digital commercial management and production can meet expectations. Content availability is key to meeting the demands of creative exposure to the end-user, to achieve the value from the paid for campaigns, and to meet any reseller revenue targets that exist across the non-linear/OTT services.

We highlight the importance of Streamlining legacy system processes and removing the many touch points and complexities of unrefined ad hoc workflows which are focused on the long-form content production. Driving new industry best practices to support video advertising across the entire market place, through mechanisms which enable absolute content availability, must be achieved. The ACMS is well positioned, and should be centric to the systematic connectivity into the online/OTT ecosystem.

From an advertiser's perspective, implementing an ACMS drives reuse of content and reduces the wastage during the production of an ad campaign. It connects downstream targeting data to the upstream production process, enabling marketing content to be better matched with target audiences. A media owner can use this to manage and report on their own cross channel promotional content, enabling campaigns to be tuned for their optimal effectiveness. The centralized content availability removes the barriers to true programmatic ad sales, allowing the ad decision engines to place more appropriate content, with a higher engagement value, and drive an increase in media effectiveness. In a live environment, high quality media can be scheduled and served through dynamic ad insertion with access to a much greater ad inventory, and with greater immediacy. Content can quickly be swapped from campaigns and replaced with alternative and relevant copy. Complex integration projects can be reduced to a single implementation at the ACMS level, and can provide detailed metrics to brands and media owners on the production cost, value and reach of their campaigns across all media.

We welcome you to keep in touch and follow our conversation over the coming months.

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APPENDIX

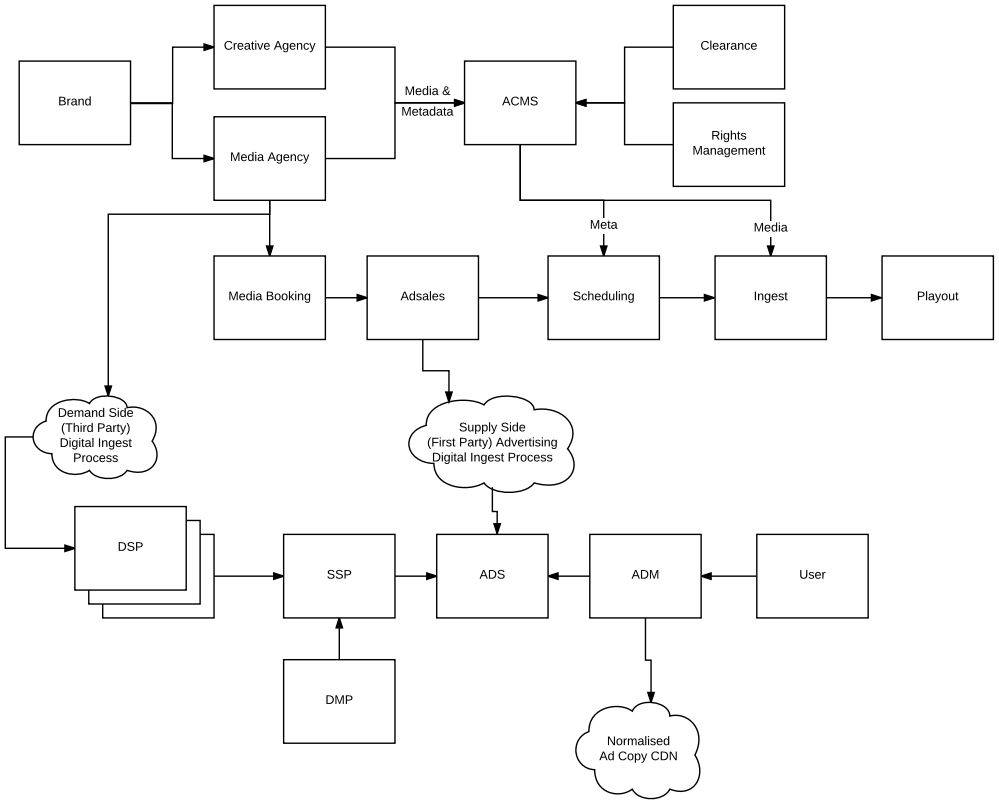

FIGURE 1: LOGICAL ARCHITECTURE OF A TYPICAL ONLINE VIDEO ADVERTISING ECOSYSTEM

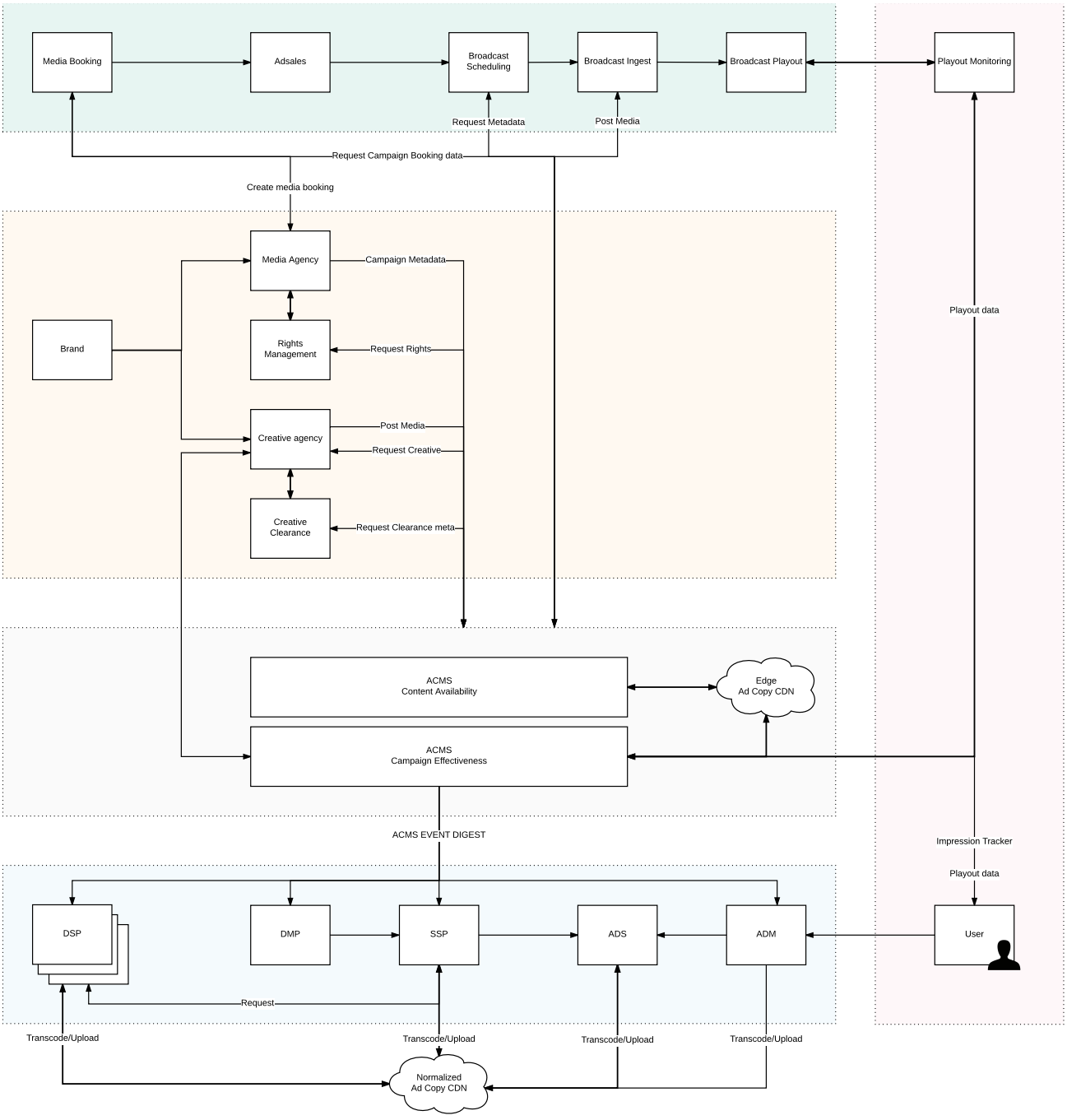

FIGURE 2: LOGICAL ARCHITECTURE OF THE ACMS-CENTRIC MODEL FOR ONLINE ADVERTISING AD MANAGEMENT