Solbox Ad Zipper

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1. Contents

1.1. Problems Faced by Legacy Video Ads

Advertising is the main source of revenue for any media industry. Advertising plays a very important role not only in traditional media such as TV, newspapers and magazines, but also in the newly emerging digital media industry. As devices such as PCs, smartphones, smart TVs, and tablet PCs become popular, the video service environment becoming increasingly complex, and video advertisements are also facing technical limitations.

Existing video ads use a technology that allows clients to continuously play ads and videos using SDK, plug-ins, or JavaScript. However, the client-side Ad insertion method requires manpower and resources to allow playback on each different device. But there is an issue of fragmentation of the online ad system depending on the device. Also, buffering occurs between ad and video playback, reducing the effectiveness of advertisement, which is an obstacle to increasing revenue.

1.2. Server-side Ad Insertion technology

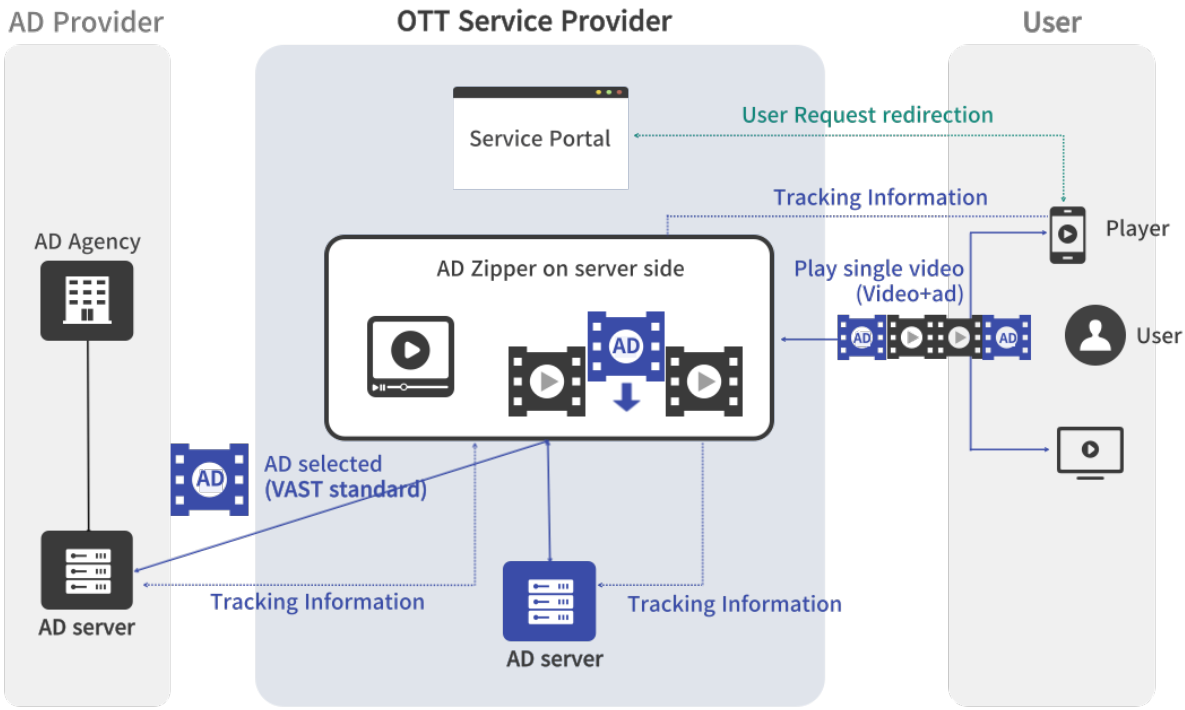
To overcome above problems, Solbox introduces server-side Ad insertion technology to OVP providers, CDN operators, and video service providers. These operators can provide ad services that video service providers are satisfied with through our Ad insertion technology.

Solbox Ad Zipper comes with a technology that combines advertisements and videos into one file or stream on the server side and plays them as a single video on various devices such as smart TVs, OTT set-top boxes, smartphones, tablets, game terminals, and PCs. Ads can be easily inserted into videos without SDKs and plugins on the server without additional manpower or resource required for client-side Ad insertion services. The ads can be inserted in the desired position within the video frame, and targeted ads are also possible depending on the customer. It also reduces buffering between ads and videos, improving service quality like watching TV commercials, and reducing business loss from ads blocking.

Most of all, Solbox Ad Zipper supports HLS and DASH protocols that can be supported in both PC and mobile environments, ensuring streaming reliability on multiple platforms. As a result, advertisers can provide video service providers with a higher level of advertising solution and maximize sales revenue by finding a way to efficiently deliver video ads while ensuring compatibility among end-user devices.

Solbox Ad Zipper supports standard protocols such as VAST and VMAP to link with an ad server and to perform targeted ads in real time so it can maximize customer profit.

1.3. Solbox Ad Zipper Concept Diagram



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2. Benefit

- Minimizes the technical problems that occurred to support SDKs or plugins for various devices and platforms in the existing client-side Ad insertion method, which allows advertising services in a shorter time on a wider variety of devices.
- Improves service quality by eliminating the buffering that previously occurred during playback between ads and video contents by combining advertisements and videos and transmitting them as one file or stream
- Maximizes the effectiveness of ads and improves ad revenue by stopping the client-side ad-blocker, and providing targeted ads to each viewer in the desired location in the video
- Guarantees smooth and stable streaming services on most devices by supporting various codecs and streaming protocols.
- Provides efficient local caching for ads and videos to ensure fast response speed and high performance of the service

3. Key Features

- **Real-time Ad Stitching**

  From the point of receiving the request, ads and video contents are stitched together like a single file and delivered in real time.

- **Multi-Protocol Support**

  Supports HTTP Live Streaming (HLS) and Dynamic Adaptive Streaming over HTTP (DASH) protocols to playback on a variety of end-user devices.

- **Support for Many Different Ways of Ad Insertion Methods**

  Allows online ads to be inserted any point in the video frame in a pre/mid/post-roll.

- **Local Media Caching**

Supports caching the original video before stitching on local disk to reduce request volume on the source storage

- **Content Splitting**

  Extracts only a specific part of a video in real time, such as "3 minute preview" or "1 minute view of hot topic".

- **Specific Audio Source Extraction**

  Allows selecting specific audio in Ad Zipper from an MP4 file containing multiple audios

- **EXT-X-DISCONTINUITY support**

  Supports a method that looks like a single video and a method of stitching ads and video content with different attributes using the EXT-X-DISCONTINUITY tag in HLS

- **Fast Playback Start**

  Unlike some mobile devices that start playing only after downloading 3 to 5 TS files, Ad Zipper dynamically changes the length of the TS file for faster playback initiation

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4. Specifications

Category	Types
Service Type	VOD/LIVE
File Format	MP4, MP3
Video Codec	AVC (H.264), HEVC (H.265)
Audio Codec	AAC (AAC-LC, HE_AAC), MP3
Access Protocol	HTTP/1.1
Streaming Protocol	HTTP Progressive Download