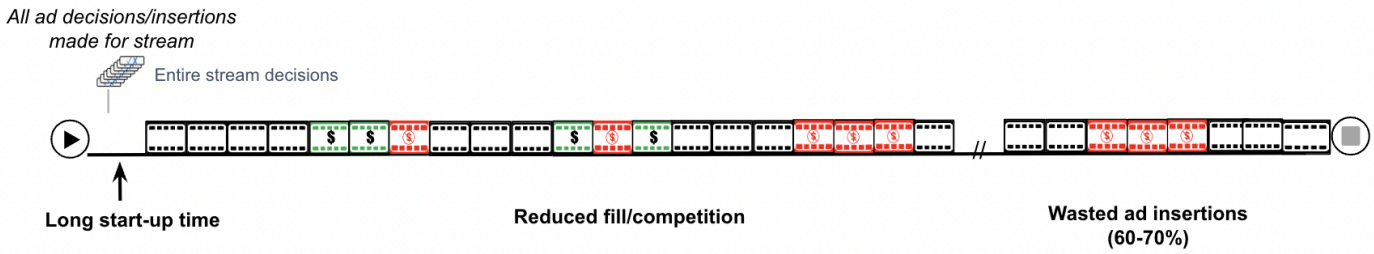
Penthera 2nd Look® Overview

Ad-Supported Publishers' Revenue Challenges

When used with Video On Demand (VOD) streaming, Server-Side Ad Insertion (SSAI) requires ad decisions for the entire video asset must be made at the beginning of playback in order to be stitched into the stream. This constraint hinders the ad decisioning process and user experience, and results in:

- Reduced programmatic demand
- Low render rates
- Time-out errors
- Long video start-up times
- Lower fill throughout the stream
- Lower RPMs
- Higher stream abandonment
- Wasted ad insertion expense

AVOD SSAI Requires All Ad Insertions Upfront

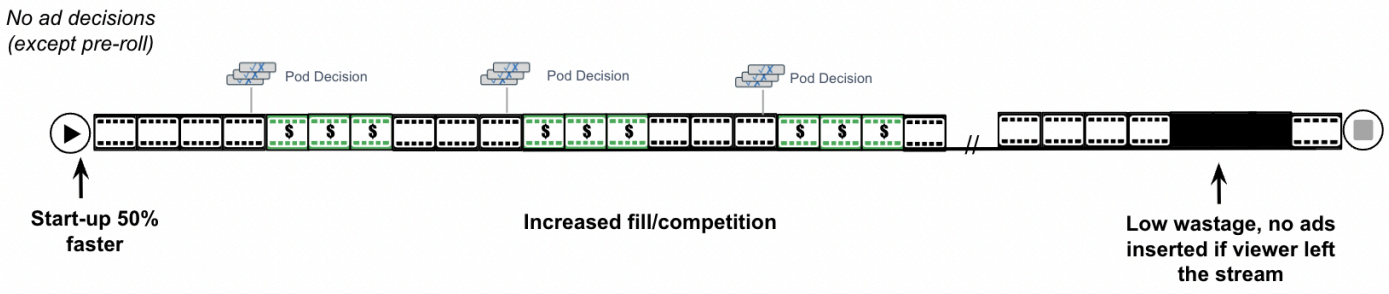


The Penthera Solution

The cloud-based 2nd Look allows ad-supported publishers using SSAI to defer ad decisions until the most optimal time, before each ad pod. The ability to make just-in-time ad decisions results in:

- Increased programmatic demand
- Reduced time-out errors
- Faster video start-up times with lower abandonment
- Increased fill throughout the stream
- Higher RPMs
- High render rates (90%+) with low wastage

2nd Look Enables Just-In-Time Ad Insertion for VOD



Publisher Use Cases and Outcomes

1. **Improve Programmatic Demand - Improved Fill Rate and RPM:** Programmatic bidding systems expect to bid on ad pods that will serve in the next few minutes. With VOD using SSAI, programmatic buyers are being asked to bid on ad pods that could be served outside these windows, even hours later, causing less frequent, discounted bids or no bids. 2nd Look enables publishers to present their inventory the way programmatic systems will value it most.

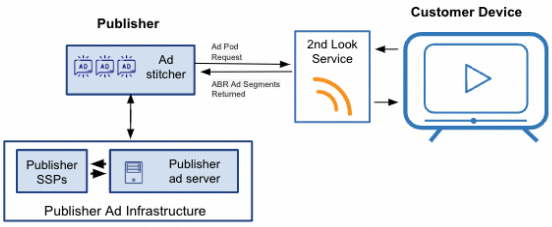
2. **Improve Render Rates:** Render rate is an increasingly important KPI that measures what portion of the ads that are inserted into a stream are actually seen by the viewer. Low render rates can cost higher serving/insertion fees and reduced attractiveness of inventory to programmatic buyers. By ensuring that only ads that are likely to be seen are inserted into a stream, 2nd Look helps publishers achieve much higher render rates.

3. **Improve Video Start-up Time:** Video start-up times are a critical KPI for publishers looking to engage their audience quickly. Ad decisions for an entire VOD asset can easily add 3+ seconds to video start-up times. By delaying ad decisions until after playback begins, 2nd Look enables the video to start significantly faster.

4. **Migrate from Client-Side Ad Insertion to Server-Side Ad Insertion:** Large publishers look to simplify their ad stack and improve their customer experience by migrating VOD traffic to SSAI. Doing so contributes to issues with start-up times, programmatic demand, and decreased render rates. 2nd Look provides publishers the ability to migrate to SSAI without sacrificing the benefits of making ad decisions throughout the video stream.

How It Works

2nd Look is responsible for initiating rounds of ad decisioning throughout the VOD stream via the publisher's existing ad technology infrastructure for all inventory in a 2nd Look treated VOD stream. 2nd Look works with the existing ad stitcher to trigger ad decisions from the publisher's ad server.



Getting Started

Testing 2nd Look in a publisher environment requires integration with the ad stitcher via standard APIs (currently completed for Amazon MediaTailor and Google; others in process) by Penthera. Simple asset request pathways will need to be altered on the publisher's player such that it requests the initial video manifest from 2nd Look.

About Penthera

An Amazon Monetization Partner whose award-winning solutions are featured in the Amazon Web Services Marketplace and Amazon Partner Network, Penthera provides video streaming and monetization solutions to OTT providers in more than 40 countries and over 250 million devices. Clients include Amazon, Paramount, FOX, BritBox, and Liberty Global. Learn more at Penthera.com and Penthera.com/2nd-look.