



All About Ads

How Dynamic Ad Pacing, Frequency, and Placement Optimizes Ad Performance at Tubi

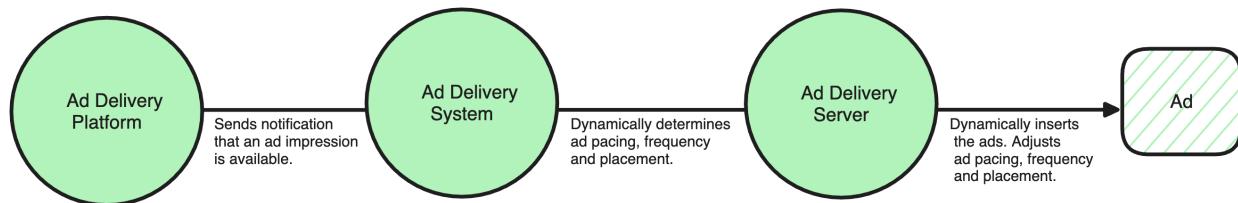
As an ad-based video-on-demand service (AVOD), Tubi earns revenue by selling ad impressions to Demand-Side Partners. An ad impression is an instance of space within a content stream where an ad is dynamically inserted, such as a natural break between scenes.

Tubi dynamically determines the pacing, frequency, and placement of the ad based on real-time data, such as viewer engagement and ad campaign objectives. This process begins the moment that the ad is sold and within seconds of dynamically inserting the ad into a content stream.

For example, when a viewer watches content on Tubi, the ad serving system dynamically determines the optimal moments to insert the ad based on real-time data. If the viewer pauses the content or reaches the end of a scene, the ad serving system uses viewer engagement data and ad campaign objectives to decide the next time to display an ad.

Real-time data analysis enhances ad delivery

The ad delivery process starts when the ad delivery platform notifies the ad delivery system that an ad impression is available. This process occurs when the ad delivery system detects an ad break within the content stream.



The notification triggers the ad delivery system to start analyzing real-time data to create dynamic ad strategies, schedules, and ad placement instructions for the ad server to insert ads dynamically.

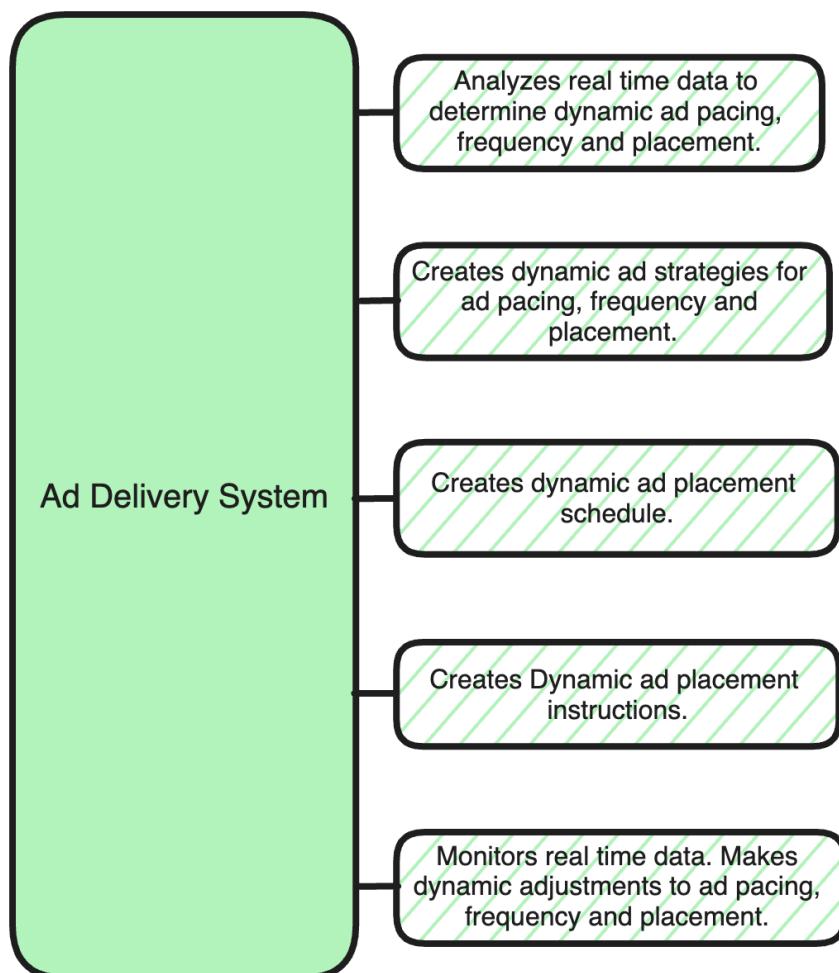
The real-time data that the ad delivery system analyzes includes:

Real-time data	Analyzed to determine...
Ad break timing	Ad break timing and frequency within the content stream.
Ad inventory	Ad slot availability within the content stream.
Campaign goals	Campaign budget and objectives. For example, brand awareness.
DSP preferences	Ad pacing, frequency, and placement requirements from the Demand-Side Partner.
Frequency caps	Number of times a viewer sees an ad within a specific time.
Pacing thresholds	Specific spacing of an ad during ad delivery.
Viewer behavior	Determines viewers' interactions when they see the ad. For example, they may select a different program to watch.
Viewer demographics	Tubi viewer demographics include age, sex, and geographic location.

Real-time data analysis determines dynamic ad insertion

Once the real-time data is analyzed, machine learning algorithms and predictive analysis identify patterns and trends, including peak viewing times and engagement levels during specific time slots, to create dynamic ad insertion strategies. These dynamic strategies seamlessly integrate ads into a content stream. This integration ensures that viewers continue to have a positive Tubi viewing experience without encountering issues such as buffer disruptions.

The ad insertion strategies are available within the ad placement instructions that the ad delivery system sends to the ad server. The ad server refers to the ad insertion strategies to dynamically adjust an ad's pacing, frequency, and placement. The ad server continuously monitors the ad strategies to ensure they are effective and updates them whenever there are changes in real-time data, ad performance, or campaign objectives.



Ad pacing strategies

Tubi uses ad insertion strategies for dynamic ad pacing, frequency, and placement.

Ad Pacing Strategy	Description
Bid-based	The ad server algorithm makes dynamic, real-time decisions about the placement of all ad impressions won during real-time bidding according to the highest bid, ad relevance, user targeting data, and available ad inventory.
Frequency capping	The ad server monitors viewer behavior, tracks ad impressions in real-time, and enforces the frequency capping limits set by the Demand-Side Partner for their ad campaigns so that Tubi viewers do not experience ad fatigue.
Session-based	Determines the frequency of ads shown within a single viewing session or session duration so that viewers can enjoy uninterrupted content consumption.
Targeted	Ads that are shown to specific audience segments based on demographic information, interests, or browsing history. Targeted ad pacing ensures that ads are relevant to a viewer's interests.
Time-based	Ads that are scheduled to display at natural breaks within the content, such as between TV show episodes or during designated breaks in movies, are strategically placed within the content to avoid disrupting its flow while maximizing viewer engagement.

Real-time data analysis determines an ad's placement schedule

Once the ad delivery system decides the optimum pacing, frequency, and placement of an ad based on real-time data analysis, it creates an ad schedule. The ad schedule indicates when to insert an ad within the content stream based on designated intervals and ad break points. It also dynamically updates the following real-time data parameters:

- Frequency caps
- Pacing thresholds

- Ad break timing

Real-time ad placement instructions

Ad placement instructions contain real-time data, including ad insertion strategies, an ad placement schedule, frequency caps, pacing thresholds, and ad break timing. It also includes specific details about the ad placement, such as targeting criteria and preferred ad slots.

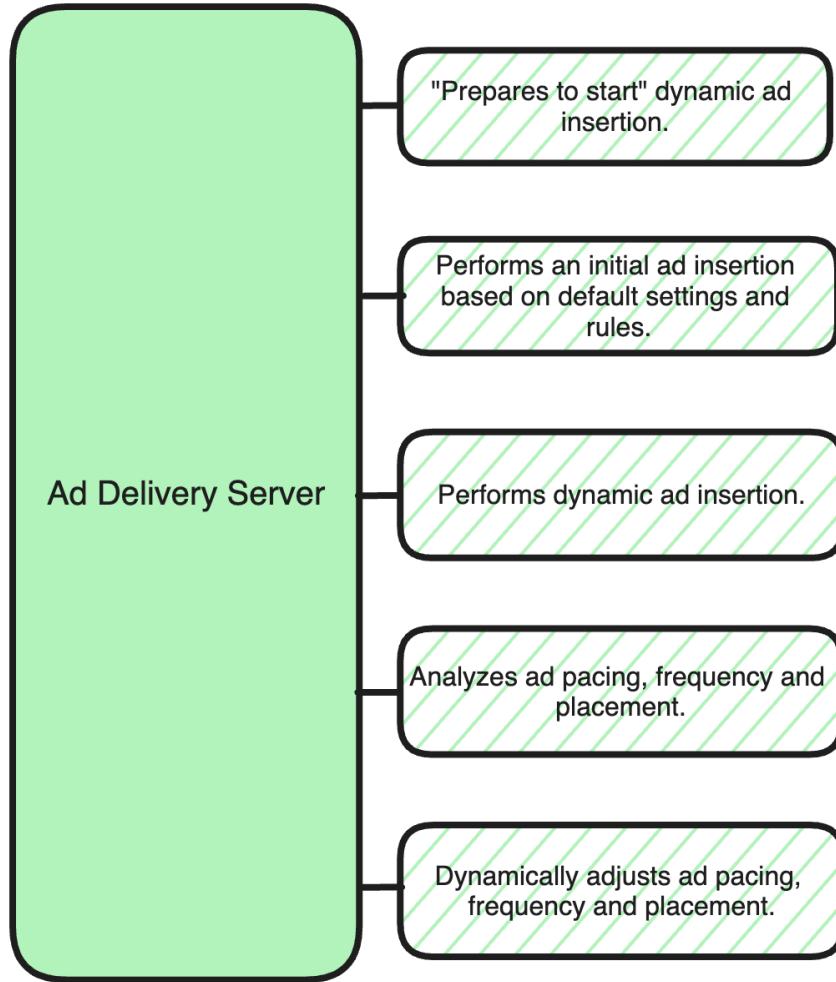
The ad delivery system revises the ad placement instructions when there are new dynamic adjustments for ad pacing, frequency, and placement or when the ad insertion strategies or ad schedules are updated.

Whenever there are new ad pacing instructions, the ad delivery system sends them to the ad server. The ad server references the ad placement instructions to dynamically execute ad pacing, frequency, and placement based on those instructions.

For the ad server to dynamically insert ads, it must prepare to start.

Prepare to start dynamic ad insertion

The ad server immediately prepares for the dynamic ad insertion process upon receiving a “prepare to start” notification from the ad delivery system when an ad impression becomes available.



Initial ad placement ensures an uninterrupted ad viewing experience

An ad is initially inserted into a content stream based on the default rules and settings defined by the ad delivery system for ad pacing, frequency, placement, and target criteria. This initial ad insertion happens in real-time to ensure an uninterrupted ad viewing experience. At the same time, the ad server waits for the ad delivery system to send ad placement instructions for the dynamic ad insertion process.

In preparation for starting the dynamic ad insertion process, the ad server:

- Identifies and reserves optimal ad slots within the content stream for inserting ad impressions that will not disrupt the Tubi viewer's experience.
- Ensures that there are enough ad slots to maintain the ad impressions.

- Coordinates with the content delivery system to determine the optimal times and placements for ad insertions.
- Dynamically selects an ad delivery method in real-time for inserting the ad into a content stream.

Ad Delivery Type	Description
Ad stitching	Seamlessly integrates ads into the content stream at insertion points dynamically determined in real-time by the ad server as the content is delivered to viewers.
Client-Side Ad Insertion (CSAI)	Dynamically inserts ads within the client-side device or app of the Tubi viewer. CSAI identifies the ad insertion points predetermined by the ad server but decides in real time about where and when to place the ad based on programming logic.
Dynamic Ad Insertion (DAI)	Dynamically inserts targeted and personalized ads based on real-time data into predetermined insertion points identified in the ad placement instructions.
Server-Side Ad Insertion (SSAI)	Dynamically inserts ads into the content stream on the server side based on the real-time decisions of the ad server.

Dynamic ad insertion is in real-time

Once the ad server receives dynamic ad placement instructions from the ad delivery system, it retrieves ads from the ad exchange.

The ad placement instructions provide the ad server with ad placement strategies, an ad placement schedule, targeting criteria, ad pacing, frequency, and placement parameters that it uses to dynamically insert the ads into streaming content.

For example, the ad server dynamically adjusts the initial ads that were inserted with real-time adjustments for ad pacing, frequency, and placement identified in the ad placement instructions.

The ad server continues to monitor ad pacing, frequency, and placement for the duration of the ad campaign, as follows:

- Refers to the dynamic ad placement instructions for guidance.
- Communicates with the ad delivery system to provide updates on ad pacing, frequency, placement, and performance.

- Performs predictive analysis of real-time data to anticipate future trends and behaviors so that it can adjust ad pacing, frequency, and placement.
- Applies machine learning algorithms to adjust pacing and frequency based on real-time feedback and historical data.

Daily dynamic metric reports

The ad platform generates a daily report that indicates an ad campaign's strengths and weaknesses and provides actionable insights. Tubi shares this daily report with Demand-Side Partners, who use it to adjust ad targeting, bidding strategies, and ad placement.

Conclusion

Dynamic metrics ensure that the pacing, frequency, and placement of an ad dynamically inserted into streaming content do not diminish Tubi viewers' positive viewing experience.