SSAI vs CSAI — One-Page Decision & Architecture Reference

CSAI joins the ad on the device; SSAI stitches it into the stream on the server. Choose per surface (web, mobile, CTV) and goal (revenue, experience, interactivity) — not once platform-wide. Engineering guidance; ad-insertion specs and vendor capabilities evolve in 2026 — confirm live.

1 · WHEN CSAI (CLIENT-SIDE) WINS

- **Interactivity is the point** — clickable / expandable performance ad units (SIMID).
- **Precise client measurement** — exact viewability and per-device signals by default.
- **Low ad-block exposure** — audience not heavily blocked, so the ad call is safe.
- **Easy frequency capping** — the client already knows the viewer and what they saw.

2 · WHEN SSAI (SERVER-SIDE) WINS

- **Ad-blocker resistance** — no separate client call to a known ad domain to cancel.
- **Broadcast-smooth breaks** — ad in the same buffer; no dial-out, spinner, or slate.
- **One consistent experience** — identical across a fragmented smart-TV fleet, no SDK.
- **CTV by default** — TV demands TV-grade transitions; SSAI / SGAI is the home turf.

3 · THE SSAI STITCHING PIPELINE

- **SCTE-35 cue** — the in-stream marker that says 'ad break here, this long'.
- **VAST call (server-side)** — the stitcher asks the ad decision server for the ad.
- **Condition the ad** — transcode it to match every rung of the content ladder.
- **Rewrite the manifest** — stitch ad segments with #EXT-X-DISCONTINUITY; one stream plays.

4 · MEASUREMENT & FREQUENCY-CAPPING GOTCHAS

- **Measure with VAST 4.1 + OMID** — restore real viewability; don't beacon blindly server-side.
- **Pass session identity** — thread a per-viewer id / history to the ad server (this is DAI).
- **Avoid 'same ad x5'** — frequency-cap at the ad server and dedupe within a break.
- **Watch caching cost** — per-session manifests are less cacheable; budget the egress.

WHERE IT'S HEADING — SERVER-GUIDED INSERTION (SGAI / HLS INTERSTITIALS)

The converging third option keeps SSAI's gap-free playback while handing back CSAI's measurement and interactivity. Instead of splicing ad bytes into the content manifest, the server inserts a pointer (an HLS EXT-X-DATERANGE interstitial with X-ASSET-LIST, or DASH 6th-edition SGAI markers) and the player fetches and renders the ad natively. Because the ad payload is decoupled from the content stream, the content manifest stays shared and cacheable — cheaper to deliver — while the client-side ad fetch restores accurate viewability and easier interactivity. AWS Elemental MediaTailor added HLS-interstitials support for VOD (2024) and live (2025); the direction is 'server decides, client renders'. Most serious platforms run mixed: server-side on connected-TV, server-side or the hybrid on web for blocker resistance, with measurement wired through VAST 4.1 and OMID regardless. Confirm spec status and vendor support at build time — this area is moving fast in 2026.

Companion to: 'Server-Side Ad Insertion (SSAI) vs Client-Side (CSAI)'
www.forasoft.com/learn/ott/articles-ott/server-side-ad-insertion-ssai-vs-csai



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This reference helps you choose client-side or server-side ad insertion per surface and explains the SSAI pipeline. We wrote seven volumes on the video stack. Start with Volume 3 for players and delivery economics, then Volume 2 for HLS and DASH packaging, and Volume 1 for encoding ad renditions.

WHAT YOU WILL FIND INSIDE

- Players and delivery economics
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