

Trick Play, Seek, and DVR — Pre-Launch Checklist

Companion to article 5.9 · One-page reference for the three features that quietly break at launch

1. GOP and segment boundary discipline

- ☐ Encoder produces fixed-cadence keyframes (default: every 2 s) at the same wall-clock time across every rung of the bitrate ladder.
- ☐ Closed-GOP mode is enabled in the encoder — no B-frames reference across GOP boundaries.
- ☐ Packager confirms segment boundaries align across renditions (segment N at 1080p ends at the same PTS as segment N at 480p).
- ☐ Per-title and per-shot encoding pipelines pin the keyframe cadence; encoder-driven scene-cut placement is reviewed for boundary alignment.

2. Trick play and scrubber thumbnail wiring

- ☐ I-frame-only secondary stream encoded alongside the main ladder (~5% bitrate of the main stream).
- ☐ HLS: EXT-X-I-FRAME-STREAM-INF declared in the multi-variant playlist; EXT-X-I-FRAMES-ONLY tag in the I-frame media playlist.
- ☐ DASH: trick-mode AdaptationSet declared with the correct @maxPlayoutRate and @codecs attribute.
- ☐ Player team has verified fast forward at 2x, 4x, 8x actually switches to the I-frame stream (network tab inspection).
- ☐ Image rendition track encoded at the declared cadence (typically 1 image per 2 s, 160×90).
- ☐ HLS: EXT-X-IMAGE-STREAM-INF declared. DASH: image AdaptationSet per DASH-IF thumbnail guidelines.
- ☐ Scrubber preview displayed in the player matches the actual segment shown after release (no thumbnail-cadence drift).

4. DVR storage arithmetic (reference)

Composite bitrate (all renditions + I-frame + thumbnails) 9.65 Mbps

Storage per channel-hour 4.34 GB

4-hour DVR window per channel 17.4 GB

24-hour DVR window per channel 104 GB

50 channels × 4-hour DVR (typical sports platform) 868 GB always-on

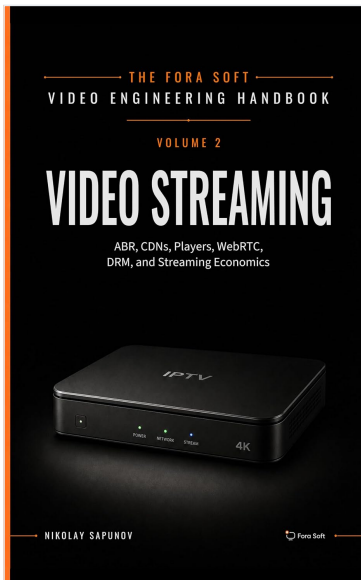
200 channels × 24-hour DVR (large OTT) ~65 TB always-on

3. DVR window, storage, and cache rules

- ☐ DVR window length agreed with product (typical: 30 min for casual live, 4 h for sports, 24 h for major broadcasts).
- ☐ DASH MPD@timeShiftBufferDepth set to the agreed duration in ISO 8601 form (PT30M, PT4H, PT24H).
- ☐ HLS media playlist retains the matching number of segments (segments × duration = window length).
- ☐ Packager storage retention exceeds the manifest window (overprovisioned by ≥ 15 minutes to absorb clock drift).
- ☐ CDN cache TTL: live segments 2 s, DVR segments 1 h, manifest 1 s. Cache-Control headers set at origin, not just at CDN.
- ☐ Origin shield tier configured between leaf edges and origin; DVR segments held with multi-hour TTL.
- ☐ Cache key strips session/analytics query strings (?token=, ?session=, ?_t=).
- ☐ Player exposes 'rewind 30 s' button and a scrubber with a visible 'live edge' marker.
- ☐ Live-to-VOD bridge tested: EXT-X-ENDLIST appears after broadcast end; DASH MPD@type transitions from dynamic to static.
- ☐ Live origin keeps serving the old URLs with a 301 redirect to VOD for at least one cache TTL after transition.

Common pitfalls discovered the day after launch

- Manifest claims PT4H DVR but storage retains 30 min — players get 404s on seek.
- Cache key includes ?session= — DVR replays bypass the cache entirely.
- I-frame stream encoded but not declared in the manifest — fast forward shows a black screen.
- Thumbnail track cadence drifts from manifest declaration — scrubber preview misaligned.
- Live-to-VOD transition without EXT-X-ENDLIST — players keep polling, never see the VOD asset.



GO DEEPER · VOLUME 3 OF 7

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This checklist covers GOP discipline, I-frame tracks, thumbnails and DVR window rules before launch. Volume 3 covers the player side in depth: trick play and seeking, recovery after stalls, CDN caching for live and DVR segments, ABR ladders, and QoE monitoring that catches broken scrubbing in production.

WHAT YOU WILL FIND INSIDE

- Trick play and seeking in players
- Player recovery after stalls
- CDN caching for live and DVR
- QoE monitoring in production

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Launching live with DVR, fast-forward and thumbnail scrubbing?

We will check your encoder, packager, CDN and player settings against this list and fix the ones that break seek, scrubbing or live-to-VOD. 250+ video products shipped since 2005.

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