QoE Measurement Stack — Decision Checklist

A QoE measurement stack does three jobs: collect the truth at the player, aggregate it into readable metrics, and act before viewers leave. Use this sheet to choose the buy-pipe-build shape, sanity-check the cost crossover, wire the open standards, and read the dashboard honestly. The only honest place to measure the viewer's experience is the player itself.

1 · THE FIVE STAGES — IS EACH ONE OWNED?

- ☐ **Player beacon** — events emitted on stall, switch, error; resilient when the network drops.
- ☐ **Collection** — an SDK or agent batches events and sends them off the device reliably.
- ☐ **Aggregation** — events stitched into sessions, rolled into metrics sliced by dimension.
- ☐ **Dashboard + alerting** — humans read it; anomaly alerts fire on drift from the norm.
- ☐ **Action** — every alert maps to a real move: re-tune ladder, shift CDN, roll back player.

2 · BUY, PIPE, OR BUILD?

- ☐ **BUY managed (Mux Data / Conviva)** — below ~1B viewing min/yr or a team under ~10; ships in days.
- ☐ **PIPE raw (Datazoom)** — when you want to own the data and analyze it beside billing & product.
- ☐ **BUILD open stack** — only above ~1B min/yr, after a TCO analysis that counts engineers, not just cloud.
- ☐ **Map every screen to CTA-2066** — same metric definitions web/mobile/TV, or numbers can't be compared.

3 · OPEN-STANDARDS CHECK (BUILD ROUTE)

- ☐ **CMCD (CTA-5004)** — player attaches buffer level, bitrate, stall risk to CDN requests.
- ☐ **CMCD v2 (CTA-5004-A, Feb 2026)** — new keys & event mode; re-check player-library support.
- ☐ **CMSD (CTA-5006)** — servers attach data to responses (CMSD-Static / CMSD-Dynamic headers).
- ☐ **OpenTelemetry → Prometheus → Grafana** — collect, store time-series, draw dashboards.

4 · READ THE DASHBOARD HONESTLY

- ☐ **Event → session → aggregate** — know which layer a number lives on; the session boundary rules all.
- ☐ **Read the 95th percentile** — a healthy average hides the smart-TV region waiting eight seconds.
- ☐ **Keep the dimensions** — device, region, CDN, content, app version; trace a bad number to its cause.
- ☐ **QoE ≠ QoS** — the CDN can be 99.99% healthy while the last hop into the home fails. Measure at the player.

THE COST CROSSOVER — WHERE BUILD OVERTAKES BUY

Buy-vs-build is one calculation, not a philosophy. Take a platform serving 50 million views a month on a managed platform billed at $0.50 per 1,000 views: that is 50,000,000 ÷ 1,000 × $0.50 = $25,000 a month, or about $300,000 a year, and it ships in days with no infrastructure to run. The in-house alternative has no per-view fee but needs people: two data engineers at roughly $400,000 a year loaded, plus about $80,000 for cloud, storage, and on-call, is about $480,000 a year — so at 50 million views, buying wins comfortably. The lines cross only when per-view fees grow faster than a fixed team: at 300 million views a month the managed bill is about $1.8M a year while the team cost barely moves, and now building (or piping raw data into systems you own) starts to win. That crossover sits near the billion-viewing-minutes-a-year mark. Run it with your real view volume and your real loaded engineering cost before you commit to either path — and remember the open route is cheapest in dollars per view and most expensive in engineering attention, which is why it belongs at scale, not at launch.



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This checklist helps choose and run a QoE measurement stack: buy, pipe or build, open standards and honest dashboards. We wrote seven volumes on the video stack. Volume 3 covers players, ABR, CDNs and QoE monitoring, Volume 2 covers HLS, DASH and transport, and Volume 1 covers encoding and quality metrics.

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