

# Delivery Observability Checklist & Brownout Runbook

Instrument a stream so it describes its own health, then slice by where. Engineering guidance — CDN and player capabilities change, so date your assumptions and re-verify CMCD v2 (CTA-5004-A, 2026) support on both ends.

## 1 · INSTRUMENT THE CLIENT — CMCD (CTA-5004) (tick what your players send)

- sid** on every request — ties thousands of log lines into one viewer session.
- bs** (buffer starvation) — the flag that says THIS viewer is rebuffering now.
- bl** (buffer length) — the leading indicator: a buffer draining toward zero.
- mtp** (measured throughput) — what the player actually sees, kbps.
- Server propagates **sid** into access logs (CTA-5004 §4); plan for CMCD v2 event mode.

## 2 · INSTRUMENT THE SERVERS — CMSD + HTTP (tick what the chain reports)

- CMSD (CTA-5006) **n** + **du** — which hop handled it, and which is under duress.
- CMSD **etp** / **rtt** per hop — last-mile slow vs origin slow are opposite fixes.
- Cache-Status (RFC 9211) — hit/miss per hop = offload ratio + early brownout tell.
- Proxy-Status (RFC 9209) + 5xx ratio (RFC 9110) — which hop failed and why.

## 3 · THE DASHBOARD — four golden signals × dimensions

- Errors · Latency · Traffic · Saturation — the four signals (Google SRE).
- Compute EACH per Region × CDN × ISP/ASN × Device — never one global average.
- Real-time log streaming (CloudFront / Fastly / Akamai DataStream) — seconds, not morning.
- Sample the common path lightly; keep stall + error events at or near 100%.

## 4 · THE BROWNOUT RUNBOOK (the detect → confirm → act loop)

- DETECT: bs rate spikes in one slice while the global average barely moves.
- CONFIRM: CMSD du appears, rtt rises, 5xx and cache-misses climb in that slice.
- ACT: steer that slice to a healthy CDN (RUM-based) and/or shed bitrate.
- ALERT on rebuffering-per-slice, not on CPU; page on viewer impact, not machine symptoms.
- RECOVER: confirm the slice returns to baseline; write the post-mortem from the session logs.

## THE ONE RULE OF DELIVERY OBSERVABILITY

A 200 OK in a CDN log does not mean the viewer was happy — bytes can arrive successfully but too slowly to refill the buffer, so the viewer stalls while the server logs a clean success. Connect the two halves of the truth: CMCD (CTA-5004) carries the player's session ID and buffer-starvation flag into the server logs; CMSD (CTA-5006) carries each hop's throughput, round-trip time, and a duress flag back. Then watch the four golden signals — errors, latency, traffic, saturation — computed per region, per CDN, per ISP, and per device. A brownout (one CDN, one region, one ISP) is invisible in the global average and screaming in the slice. The average is the liar; the slice is the truth — and real-time logs are what let you catch it in minutes, not by morning.