

Origin Shield Configuration Checklist

Five-layer hierarchy, per-vendor knobs, five common pitfalls, and the math for projecting egress savings.

1. Per-vendor names for the shield layer

CDN	Shield name	Mid tier	Default for streaming?
AWS CloudFront	Origin Shield	Regional Edge Caches	Off; manual
Cloudflare	Smart Tiered Cache (upper tier)	Regional Tiered Cache	Plan-dependent
Fastly	Shield POP	Shield POP doubles	Per-service
Akamai	Tiered Distribution Map	Parent tier	On for AMD
Google Media CDN	Origin shield (integrated)	Region-tiered cache	Streaming default
Varnish (self-host)	Origin Shield	Layered Varnish	Manual
Bunny.net	Origin Shield	Perma-Cache	Off

2. Five common pitfalls — and the one-line fix

Symptom	Fix
Per-viewer query string in cache key (token, sessionId)	Strip from cache key; verify the signed URL token at the edge separately.
SSAI rewrites the manifest per viewer	Switch to SGAI; the manifest stays shared, ads personalise at the player.
VOD Cache-Control: max-age=60	Set max-age in days or weeks; purge by versioned filename on re-encode.
Shield placed close to the audience	Pick the Region closest to the origin. RTT shield-to-origin under 50 ms.
No shield because the default was off	Compare origin egress to CDN edge egress; if the ratio is near 1:1, the shield is not engaged.

3. Five-layer hierarchy, viewer to origin

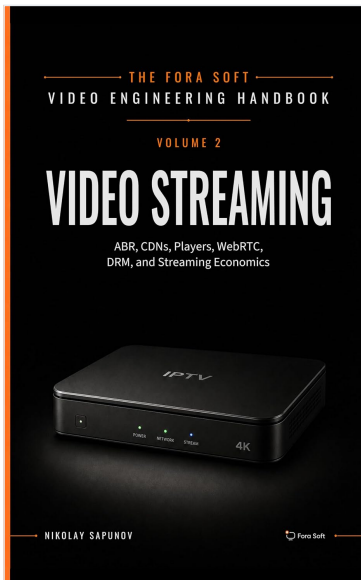
- Player — viewer device, 2–4 segment buffer.
- Edge POP — nearest CDN node; serves 95–99% of requests.
- Regional cache — mid tier behind a group of edges.
- Origin shield — single Region; the only gate to the origin.
- Origin — operator's packager / storage.

4. Math worksheet for projected savings

Viewers × bitrate × seg/sec = viewer egress rate
 × (1 – edge CHR) = origin-bound rate (no shield)
 × (1 – shield CHR) = origin-bound rate (with shield)
 × segment size (MB) = origin upload (MB/s)
 × 86,400 × 30 × \$/GB = monthly egress bill
 Ratio of (no shield) ÷ (with shield) ≈ 10× to 30× saving

5. Pre-flight checklist before the next big event

Check	Pass criterion
Shield is on for every origin in the property	Origin Shield / Tiered Cache flag = enabled
Shield Region close to origin	RTT shield-to-origin < 50 ms (dashboard)
Cache key excludes per-viewer tokens / session ids	Edge CHR > 95% on the property
Manifests are cacheable across viewers (SGAI not SSAI)	Manifest hit ratio > 90%
VOD assets carry long Cache-Control	max-age in days or weeks
Origin egress dashboard shows shield offload	Origin egress / edge egress < 5%



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This checklist names the shield layer per CDN, fixes five common pitfalls and projects egress savings. Volume 3 covers CDN delivery in depth: caching and tiered caches, CDN selection, ABR and the bitrate ladder that sets segment traffic, QoE monitoring, and the economics of delivery.

WHAT YOU WILL FIND INSIDE

- CDN caching, tiers and cache keys
- Egress costs and the economics of delivery
- Multi-CDN strategy and traffic steering
- QoE monitoring during live events

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