



The Economics of Video Compression

Why the Access Advance Video Distribution Patent Pool
Is Fair, Reasonable, and Nondiscriminatory

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Executive Summary

In this report, co-authors J. Gregory Sidak and Dr. Andrew P. Vassallo of Criterion Economics evaluate, as a matter of economics, whether the Access Advance Video Distribution Patent Pool (Advance VDP Pool) offers licensing terms for modern video codecs (MVCs) that are fair, reasonable, and nondiscriminatory (FRAND). Applying first principles of microeconomic theory to observed industry practices, Sidak’s and Vassallo’s analysis concludes that the Advance VDP Pool’s royalty structure comfortably satisfies FRAND criteria while generating substantial surplus for video service providers (VSPs) across all business models.

The economic value of MVCs—specifically HEVC, VVC, VP9, and AV1—derives from their superior compression efficiency relative to predecessor standards. By reducing the bitrate required to transmit a given video of a given quality, MVCs enable higher video quality, improved reliability, and an enhanced user experience. In economic terms, MVCs shift outward the demand curve (that is, increase demand) for streaming video by increasing consumer utility, regardless of whether a VSP monetizes streaming video through subscriptions, advertising, live commerce, or hybrid strategies.

MVCs enable widespread distribution of 4K and HDR content, reduce rebuffering and bitrate switching, shorten startup times, and preserve quality during periods of network congestion. Each of those quality improvements increases watch time, reduces churn, and increases consumers' willingness to pay for access to streaming services. Empirical evidence indicates that even modest reductions in rebuffering or startup delay can yield significant increases in user engagement, which translate directly into higher revenues for VSPs under every monetization model.

Importantly, the economic benefits of MVCs accrue similarly across VSPs, even though those benefits are monetized quite differently. A subscription-video-on-demand (SVOD) provider may capture surplus through higher subscription prices and longer customer lifetimes, whereas a free ad-supported-television (FAST) provider or social-media platform may capture surplus through increased advertising impressions or higher conversion rates in live commerce. The underlying mechanism, however, is invariant: higher video quality increases consumer surplus, which increases demand for access to and use of the service.

Against that backdrop, the Advance VDP Pool's royalty structure is economically modest. Advance estimates that the average per-subscriber royalty rate ranges from less than \$0.0072 to \$0.042 per month and that the average per-user royalty rates range from less than \$0.0007 to \$0.0042 per month, depending on the tier of the licensee. Sidak and Vassallo analyze the maximum potential per-subscriber and per-user monthly royalty rates. The implied royalty—at most \$0.042 per subscriber per month or at most \$0.0042 per active user per month—is de minimis relative to the incremental revenues and cost savings that MVCs generate. Such rates are far below any threshold that could plausibly distort downstream competition or inhibit adoption of MVCs. Indeed, the analysis shows that the royalties are so small relative to even the lowest-priced subscription offerings in global markets that the Advance VDP Pool's royalties are highly unlikely to affect pricing decisions or competitive positioning in downstream markets.

The Advance VDP Pool further enhances efficiency by reducing transaction costs. By offering a single license covering multiple sequential video standards at a constant royalty rate, the Advance VDP Pool obviates repeated bilateral negotiations and removes licensing friction from VSPs' codec selection decisions. The Advance VDP Pool structure encourages timely adoption of superior technologies and allows VSPs to deploy the profit-maximizing mix of codecs as market conditions evolve. From an economic perspective, the Advance VDP Pool effectively grants licensees a valuable real option: the flexibility to transition among codecs without incurring additional licensing costs.

Applying the hypothetical-negotiation framework, this report estimates that the Advance VDP Pool's royalties reserve for Advance less than 20 percent, and in many cases significantly less than 20 percent, of the surplus generated by licensing the patents covered by the Advance VDP Pool even under conservative assumptions concerning adoption rates

and attributable benefits. Thus, the Advance VDP Pool's royalties fall well within the FRAND bargaining range. Considering the Advance VDP Pool's nondiscriminatory tier structure, regional adjustments, and startup-phase discounts, the royalty program reflects a fair division of surplus consistent with good-faith FRAND licensing.

In sum, the economic evidence demonstrates that the Advance VDP Pool's licensing program promotes efficiency, accelerates innovation, and allocates surplus in a manner that is fair, reasonable, and nondiscriminatory. The proposed royalties are not merely FRAND, but are also exceedingly small relative to the value that MVCs deliver to modern video-distribution markets.