VisualOn Optimizer

VisualOn Case Study

Axinom Selects VisualOn Optimizer to Enhance Cost Savings and Video Encoding

VisualOn Optimizer reduces bitrates by up to 70% without replacing existing encoder

axinom!

Sample calculation - single video, 90 minutes
ABR asset with 2HD and 4SD renditions

Encoding Cost (EUR)	Non-optimized	Optimized
Cost per minute (SD)	0.011	0.0154
Cost per minute (HD)	0.022	0.0308
Total cost of video encodes	7.92	11.09

CDN Cost	
Average bandwidth w/o Optimizer (kbps)	2,500
Average bandwidth with Optimizer (kbps)	1,750
Cost per GB	0.005
Delivery cost per non-optimized video	0.0084
Delivery cost per optimized video	0.0059

Cost difference 3.17 EUR

Cost savings per video delivered 0.0025
Start saving after this many views 1,252

With a significant CDN cost reduction of 0.0025 euros per optimized video delivered, the point at which the video platform begins to realize savings is an impressive 1252 streams. This data underscores the long-term economic benefits of implementing optimized video encoding, demonstrating that the initial investment is swiftly recouped through ongoing operational efficiency and substantial savings in CDN costs.

Available as an FFmpeg plug-in, this patented technology has gained global adoption among service providers, delivering an array of benefits. It significantly enhances User Experience KPIs by reducing bitrate, buffering, and startup times, while also improving visual quality, resulting in a VMAF score increase of over 6 points on average and a minimum increase of 18.

OPTIMIZE VIDEO ENCODING FOR COST SAVINGS AND ENHANCED QOE

Axinom chose VisualOn Optimizer for its transcoding workflow based on several key factors:

- Optimizer reduces video bitrates by over 40% on average while maintaining or improving visual quality, enhancing the user experience.
- As a single-pass transcoding technology, Optimizer supports VOD and live services without added latency.
- With Optimizer, there is no need to change the encoder or add hardware.
- Optimizer seamlessly integrates as a FFmpeg plug-in, making it easy to incorporate into the workflow.
- The Optimizer solution is compression format and codec agnostic, adapting effortlessly to Axinom's specific requirements.
- The solution is backed by patent-pending technology and world-renowned expert support.

ENHANCING OPERATIONAL EFFICIENCY AND USER EXPERIENCE YIELDS BENEFITS FOR AXINOM CLIENTS

Presenting a versatile and user-friendly solution, Axinom Encoding stands out as a streamlined HTTP-based API meticulously crafted to effortlessly generate video-on-demand (VOD) content from an extensive array of source formats. This user-centric service offers a unique blend of simplicity and power, distinguishing itself through its robust video transcoding capabilities. Notably, Axinom Encoding has recently expanded its capabilities with the seamless integration of VisualOn Optimizer, enhancing its arsenal of features to empower users with a comprehensive toolkit for optimizing their video content.

VisualOn has taken a significant step forward by developing its own solution, CAE (Content-Adaptive Encoding), which seamlessly integrates with FFMPEG and employs the VMAF score as a robust metric for assessing visual quality. This innovative approach involves content analysis either prior to or in parallel with the encoding process to determine the most appropriate encoder quality settings.

By opting to transcode content with VisualOn Optimizer, clients of Axinom Encoding are realizing substantial savings across a spectrum of content types. This transcoding not only drives cost efficiency but also maintains or elevates image quality, marking a notable stride toward an improved streaming experience.

HOW VISUALON OPTIMIZER IMPROVES PERFORMANCE

The Optimizer continually conducts real-time content analysis to ascertain the most suitable encoder configurations, ensuring the target video quality at the frame level. Moreover, it further augments the output through the application of AI models tailored to various content categories. Its encoding for consistent quality eliminates the need for resource-intensive multi-pass encoding methods.

With single-pass encoding, VisualOn Optimizer cuts the bitrates in half while maintaining similar or better visual quality. It also reduces CPU consumption compared to dual-pass encoding. Optimized encoding for LIVE content achieves substantial bitrate savings while maintaining superior visual quality and no added latency. Optimizer's universal CAE technology remains encoder-agnostic and seamlessly integrates with the existing encoder infrastructure to yield consistently superior results, as exemplified in the table below.

		FFmpeg			Optimizer				
Source	Output	Avg. kbps	Peak kbps	VMAF	Avg. kbps	Saving %	Peak kbps	Saving %	VMAF
Documentary	1920x1080 7Mbps	5867	8409	90.869	3061	**48**	4746	**44**	93.654
Sports		6277	8123	93.432	3868	**38**	5520	**32**	94.128
News		6611	8100	94.797	2514	**62**	5480	**32**	95.223
Series episode		6173	7447	93.692	2444	**60**	4827	**35**	98.602
Documentary		6217	7819	92.787	3787	**39**	5173	**34**	94.578
					Avg. Saving	**50%**		**35%**	

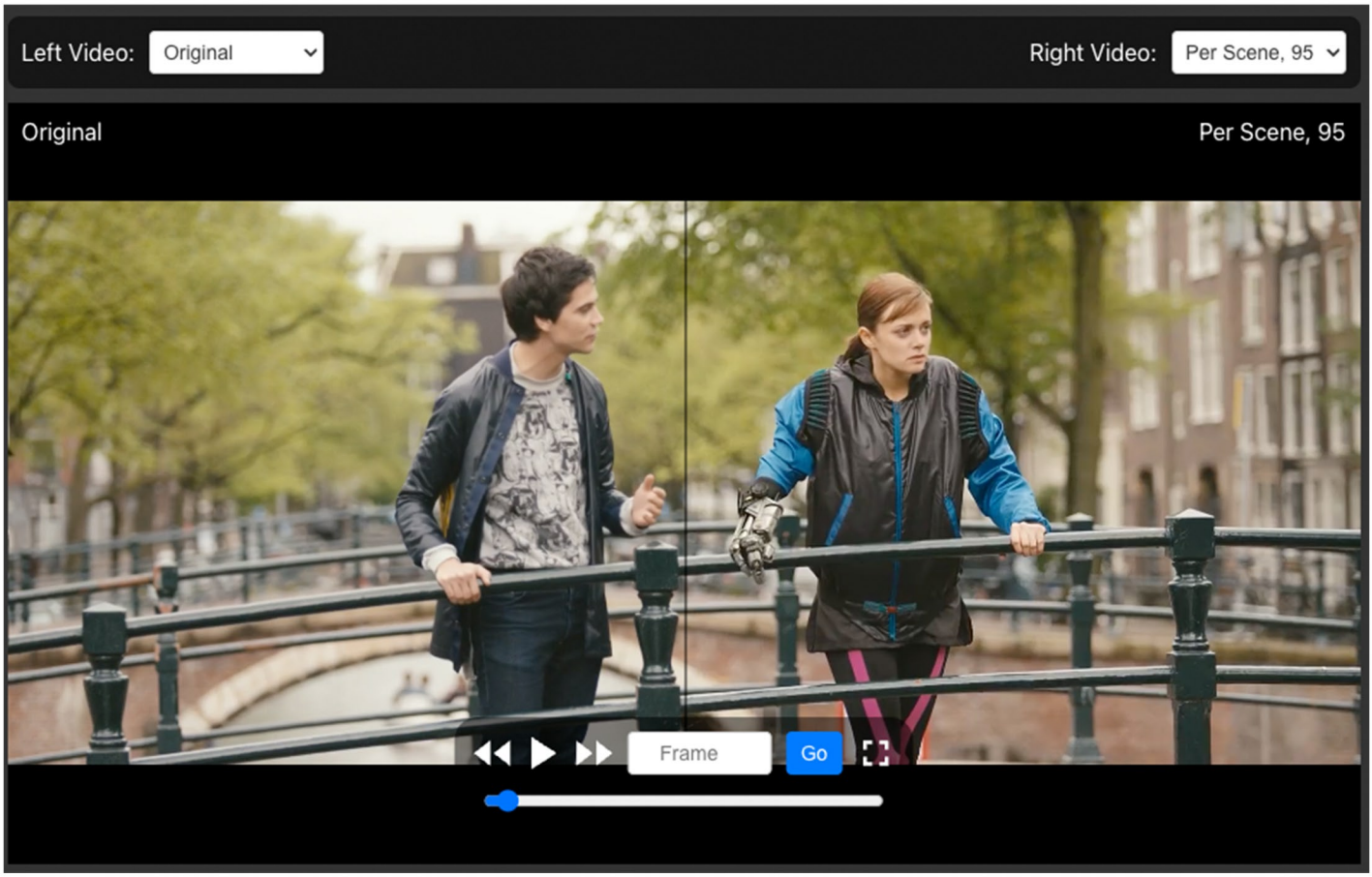
LIVE - Customer Content

		FFmpeg kbps	Optimizer kbps	Saving %
HD	HEVC	3509	2242	36
		2012	1027	49
		1214	636	48
		814	461	43
		365	243	33
	AVC	3001	1308	56
		1802	792	56
		1302	585	55
		602	310	49
		382	207	46

		FFmpeg kbps	Optimizer kbps	Saving %
UHD	HEVC	11468	3819	67
		7979	3645	54
		4991	1802	64
		3496	1688	52
		2002	942	53
		1207	587	51
		810	454	44
		362	246	32

Avg. Saving 49%

VOD - Customer Content



Side-by-Side Playback

VMAF	% saving	Avg bitrate, kbps	Traffic, GB	Traffic cost, €	Saving, €	Views to break even
Original	-	2500	1,688€	16,875€	-	-
99	20%	2000	1,350€	13,500€	33,750€	939
98	48%	1300	878	8,775€	81,000€	392
95	67%	825	557	5,569€	113,063€	281

Cost of Full-Length ABR Video Encoding

A 90-minute movie encoded for ABR with six representations costs €7.92, plus a 40% (€3.17) surcharge for per-scene encoding. Streaming data varies by network conditions, with an average unoptimized bitrate of 2500 kbps (max 6000 kbps). Per-scene optimization reduces bitrate proportionally while maintaining quality based on the target VMAF score.

About Axinom Encoding

Axinom Encoding is a service that secures the ingestion, transcoding, and encryption of video content. Built on Axinom Mosaic, it ensures seamless playback on multiple platforms and devices by using popular codecs (H264 and H265), adaptive streaming formats (HLS and MPEG-DASH), and the CMAF specification. Compatible with all storage and DRM services, Axinom Encoding protects premium video—including content from Hollywood studios—conforming to MPAA specifications. Learn more at **axinom.com/products/encoding**

About VisualOn

VisualOn is a leading provider of streaming solutions, known for its Universal Content-Adaptive Encoding and advanced media players. Trusted by top media companies, VisualOn delivers high-quality, widely compatible streaming with unique features and fast time to market. Their VisualOn Optimizer won the NAB 2024 Product of the Year award, highlighting the company's innovation and excellence in the industry. More information is available at **www.visualon.com**

CONTACT US

VisualOn Headquarters
10080 N. Wolfe Rd.,
Suite SW3-200
Cupertino, CA 95014
USA

Tel: (408) 645-6618
E-mail: sales@visualon.com

VisualOn