Appear *tv*

SOFTWARE-BASED VIDEO COMPRESSION

appeartv.com

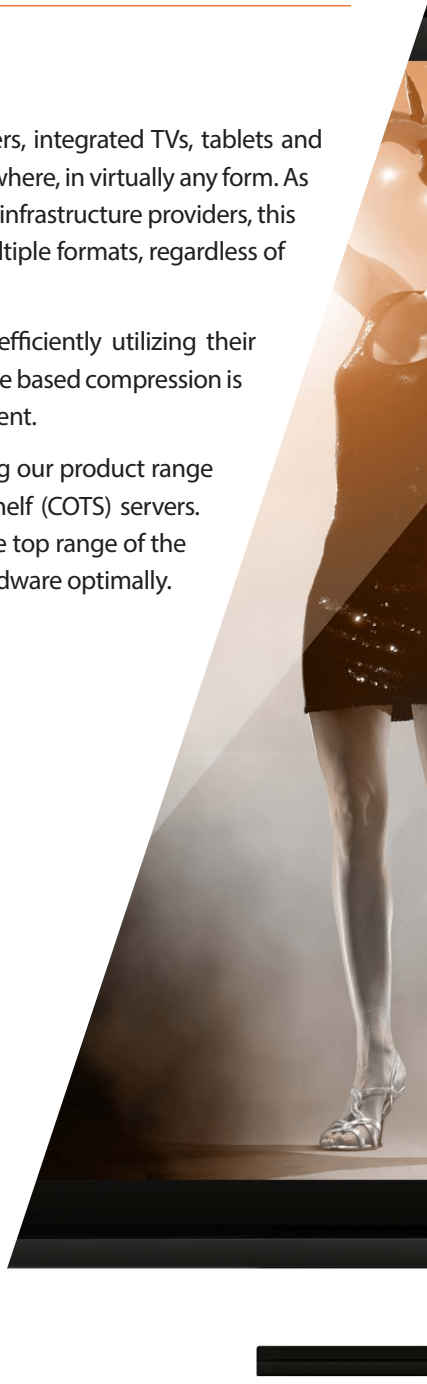
VERSION 2.2

SOFTWARE-BASED COMPRESSION FOR LIVE AND VOD

The availability and capacity of internet is increasing. So too is the prevalence of powerful computers, integrated TVs, tablets and mobile phones. These combined factors allow viewers to receive video content from broadcasters anywhere, in virtually any form. As content is becoming a commodity, viewers are starting to take it for granted. For content and network infrastructure providers, this same commodity poses more of a challenge: to deliver the best possible live video experience on multiple formats, regardless of distribution networks and viewing devices utilized.

Interest in software transcoding solutions is growing. Operators acknowledge the importance of efficiently utilizing their existing datacenter infrastructure and the know-how already embedded in their organizations. Software based compression is thus enabling new possibilities such as resource reallocation, virtualization and private cloud deployment.

As a natural development from the hardware-based compression solutions, Appear is complementing our product range with software-based compression on preconfigured appliances as well as on commercial off-the-shelf (COTS) servers. The Appear Live compression software provides pristine video and audio quality, and competes in the top range of the market. With smart built-in monitoring and flexible video quality controls, it utilizes the underlying hardware optimally.

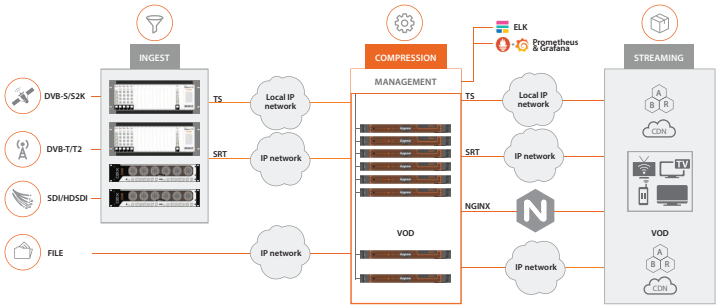


> Traditional TV delivery is no longer enough for broadcasters, customers want access to content everywhere.

> **Encoding quality levels can be chosen to achieve different quality vs. speed tradeoffs, making it possible to target a large number of different markets.**

HIGH QUALITY SOFTWARE TRANSCODING

High performance H.264 and H.265 encoders make up the core of the Software Transcoder. Services can be transcoded into different H.264 and H.265 profiles, with up to UHD resolutions and HDR for the ultimate theater experience. Encoding quality levels can be chosen to achieve different quality vs. speed tradeoffs, making it possible to target a large number of different markets. Together with flexible rescaling, deinterlacing, frame-rate conversion and logo-insertion options, all screens become picture perfect. Transcoded services can be streamed out as key-frame aligned transport streams via IP, UDP or RTP, or using SRT for enhanced security and reliability.



For OTT delivery, HLS segments and playlists can be generated directly. In combination with the embedded packaging, an integrated NGINX server provides live content in small-scale deployments offering both transcoding and streaming in a compact package. For large-scale video platforms content can be pushed into an existing CDN infrastructure. The software transcoder integrates seamlessly with Appear 's ABR packager and origin server, for a complete OTT packaging solution. The transcoder and ABR are both pre-integrated with Nagra GO Live for rapid deployment of live and VOD OTT services. Alternatively, the software transcoder integrates seamlessly with your preferred packager.

The Software Transcoder will run on most commercial-of-the-shelf (COTS) servers and adapt the service load to the underlying hardware. In addition to not requiring specific GPU or FPGA boards, this enables the automatic resource allocation to utilise clusters consisting of dissimilar servers. For customers looking for preconfigured hardware, the Software Transcoder can also be delivered on preconfigured appliances. Two models are available, an entry model for multichannel AVC transcoding in HD, and a high-performance model for customers looking for increased density and/or HEVC/UHD transcoding.

AUTOMATIC RESOURCE ALLOCATION

The management system measures and monitors transcoding performance, making sure that servers don't become overloaded. By smartly sharing or distributing workloads across multiple servers, the system maintains high performance and system stability. In case of server failure, a redundancy system moves affected services to servers with spare capacity, keeping program interruptions to a minimum.

USER FRIENDLY

A single centralized management interface allows for simple management of an arbitrary number of servers and services. Encoding settings, such as resolutions and bitrates, can be saved as presets, making it easy to scale a system up to dozens or even hundreds of services.

DATACENTER READY

Appear Software Transcoder runs on a wide range of COTS servers, making efficient use of the latest Intel® Xeon® Scalable CPU technologies. It does not require an embedded or dedicated GPU, making it ideal for use in datacenters. Docker® virtualization technology makes deployment on Linux® based platforms quick and simple.

SPECIFICATIONS

Input & Output	Live Input	: MPEG-TS over IP/UDP/RTP (SPTS, MPTS) : SRT
	Live Output	: MPEG-TS over IP/UDP/RTP (SPTS) : SRT
	File Input	: Transport stream file (.ts) : .mp4 : .mpg
	File Output	: Transport stream file (.ts) : .mov (QuickTime Self-Contained) : .mp4
	Packaged Output	: Apple HLS
Video Processing	Video Decoding	: MPEG-2 : AVC (H.264) : HEVC (H.265)
	Video Encoding	: AVC (H.264, up to 1080p HP@L4.2) : HEVC (H.265, 4:2:0, up to 2160p Main and Main10, 10 bit)
	Bitrate mode	: Constant Bit Rate (CBR)
	Video processing features	: Flexible rescaling : Deinterlacing : Intra-domain framerate conversion : Logo insertion : Keyframe alignment (IDR)
	Colorimetry	: SDR : HLG
Audio Processing	Audio Decoding	: MPEG1 Layer2 (Stereo) : AAC LC (Stereo and 5.1) : HE-AACv1 (Stereo and 5.1) : HE-AACv2 (Stereo) : AC-3 (Stereo and 5.1) : E-AC-3 (Stereo and 5.1)
	Audio Encoding & Pass-through	: MPEG1 Layer2 (Stereo) : AAC LC (Stereo and 5.1) : HE-AACv1 (Stereo and 5.1) : HE-AACv2 (Stereo) : AC-3 (Stereo and 5.1) : E-AC-3 (Stereo and 5.1)
	Audio Processing Features	: Resampling (Live) 48kHz to 48 kHz (VOD) : Automatic audio levelling control
Subtitling	Subtitle processing	: PT (Pass-through) : LS (Language Selection)
	TS -> TS (live)	: DVB-Teletext (PT) : DVB-Subtitle (PT)
	TS -> HLS (live)	: DVB-Teletext to WebVTT (LS)

Subtitling (cont.)	.mp4 -> .mp4 (file)	: Teletext/MOV_TEXT to Teletext (PT/LS) : DVB-Subtitle to DVB-Subtitle (PT/LS)
	.ts-> .mp4 (file)	: DVB-Teletext to MOV_TEXT (LS)
Signalling	SCTE35	: Maintain frame accurate splicing
OTT Features	Origin	: Apple HLS
	Delivery mode	: HLS Pull : HLS Push (WebDAV)
Broadcast Features	Multiplexing	: SPTS
	PSI/SI	: PAT : PMT : SDT
System Features	Management	: Single management interface for entire cluster : Dissimilar server configurations in same cluster : Easy to up-scale with off-the-shelf server
	Redundancy	: N+M redundancy for Input, Processing and Output : Input redundancy: Service fall-back : Input redundancy: SMPTE2022-7 Seamless : Output redundancy: Cloned output
	Monitoring	: RESTful API for external integration : Prometheus : Grafana
	Log aggregation	: ELK
	VOD Workflow Manager	: Seamless integration with Appear ABR packager/origin : Seamless integration with Nagra Conax GO Live
HW100 Appliance	Typical capacity	: 16x SD or 4x HD services*, 4 profiles per service in AVC
HW200 Appliance	Typical capacity	: 24x SD or 7x HD services*, 4 profiles per service in AVC : 4x HD or 1x UHD services*, 4 profiles per service in HEVC
Variable off-the-shelf hardware	Typical transcoder server*	: Docker on bare-metal Linux server : 2x Intel® Xeon® Silver 4216 : 96 GB RAM : 2x 240GB SSD : 6x 1GbE interfaces
	Typical management server*	: Docker on Linux server or virtual machine : Intel® Xeon® E series : 32 GB RAM : 2x 240GB SSD : 2x 1GbE interfaces

* Server performance will vary based on requirements (codec, resolution, number of services and profiles, bit-rate per profile etc.) Please contact us for recommended server configurations based on your requirements.

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