Aquila Streaming

Single set of tools for a rich user experience

Aquila Streaming is designed to provide a rich experience across all devices leveraging its state-of-the-art live encoding and packaging components by providing:

- The best-in-class picture quality across multiple codecs (MPEG-2, H.264 & HEVC) and resolution up to UHD with enhancements every year

- Stereo and surround audio experience as your own personal home theater

- Rich subtitles management including ingest of DVB subtitles, teletext and closed caption and their translations for each format

- Wide player and device support for all major segment and manifest formats (HLS, SS, DASH, CMAF)

Single solution for all infrastructures

As operating a video headend is not the same for all, Aquila Streaming can be deployed in different ways:

- Deployed either on:
    - MediaKind reference hardware
    - Dedicated data center hardware
    - Private Cloud infrastructure
    - Public Cloud deployment
    - Optional nCompass control

- Or choose our As a **Service** option so you do not have to manage the infrastructure and can only focus on channels processing!

Through integral industry and technology partner integrations Aquila Streaming provides a turnkey solution from securely delivering content from a contribution link to the end user on any device.

MediaKind's Aquila Streaming solution delivers an end-to-end system designed to process and deliver video content for OTT and IPTV consumption. This solution addresses the need to provide a high-end user experience while ensuring operational costs remain under strict control.

With Aquila Streaming, MediaKind empowers media operators to deliver the most unique and immersive ways for their subscribers and viewers to consume video .

Highly available and optimized blueprints

MediaKind's knowledge of video headend deployments and operations all over the world has been leveraged to ensure Aquila Streaming is efficient on any given infrastructure. It ensures highly available deployment by using:

- Deployment strategies based on **validated blueprints**. These blueprints guarantee the availability and the scalability of your headend.

- Built-in **N+M and 1+1 redundancy schemes** to simplify operations and limit any forced downtime,

Aquila Streaming also ensures that you get the best Total Cost of Ownership and Quality of Experience by leveraging technologies such as:

- **Split and Shared encoding** ensuring that 100% of the infrastructure resources are in use to provide added value to the viewer.

- **Shared CMAF segments and Common Encryption** of HLS and DASH reduce by up to 50% the need of storage in DVR and caching across a CDN.

- **Constant Video Quality (CVQ)** to reduce bandwidth and storage usage without impacting video quality.

- **Low latency OTT** using the CMAF LLC standard and the MediaKind Direct path to lower the end-to-end latency down to approximately 5 seconds.

Total control of your Headend operations

MediaKind's Aquila Streaming comes with a management layer providing one-click operations during the headend deployment and for all its lifecycle.

The solution provides all the components to process audio and video but also all the required tools for your operations to deploy and evolve the headend based on your day-to-day needs:

- Deployment is highly simplified as a single tool is used to deploy the entire system on your infrastructure. Deploy up to 200 servers with a single command.

- Once deployed, evolve and grow the headend to fit your needs at a service level. All changes (upgrade, rollback, repurposing) can be done at a service level with no impact on the others.

- Access detailed system-wide monitoring from a central access point. Obtain all the essential information from the headend (logs, metrics) and be automatically alerted when a deviation occurs.

Input

	Aquila Streaming Software deployment
Compressed Input	**Type**: IP (IGMPv3-based redundancy and dual multicast redundancy), Dual source redundancy (active / active & active / passive modes), Pro-MPEG FEC support, Secure reliable Transport (SRT) ASI inputs (max 8 per server) for transport stream multiplexing with redundancy support **Monitoring**: ETR 290, Packet loss statistics **Protocols**: MPEG-2 TS (MPTS & SPTS), RTMP **Codec**: MPEG-2, H.264, HEVC – MPEG-1 LII, Dolby Digital (AC-3), Dolby Digital Plus (E-AC3), AAC, HEAAC v1 and v2, Dolby E (baseband input only) **Data rate**: SD / HD up to 50 Mbps, UHD up to 80 Mbps
Baseband input **(optional hardware required)**	3G / HD / SD-SDI (max 16 per server) SDI over IP (SMPTE ST 2022-6) SDI over IP (SMPTE ST-2110) with NMOS IS-04 and NMOS IS-05 and 2022-7

Pre-Processing

	Aquila Streaming Software deployment	Aquila Streaming Appliance deployment	Aquila Streaming as a Service deployment
Aspect ratio	WSS, AFD, Video index		
Metadata	SCTE-104, SCTE-35, IA 608 / 708 Closed Caption, SCTE-20, DVB Teletext, DVB-VBI, SCTE-27, OP47, SMPTE 2031, VITC , ARIB B24		
Image settings	Brightness, Contrast, Saturation, Hue, Gamma, Temperature		
Enhancement filters	**Video**: De-interlacing, Cropping, Letter boxing, Stretching, SD and HD Cross-scaling, 3:2 Pull down, MCTF[1], Deblocking filter[1], Spatial Denoising filter[1], Cross Talk filter[1], Sharpening[1], Diamond filter[1] **Audio**: Automatic loudness control (A/85), Audio gain adjustment, Mute		
Image overlays	Image insertion on input loss		

Video Encoding

	Aquila Streaming Software deployment	Aquila Streaming Appliance deployment	Aquila Streaming as a Service deployment
Video codec	HEVC Main 10, HEVC Main Profile, H.264 Baseline / Main / High profile, MPEG-2 HDR: HDR10, HLG10, PQ10. Dolby Vision 8.1 & 5.0		
Rate control	CBR, VBR, Constant Video Quality		
Data rate	From 10 kbps to 30 Mbps		
Resolutions	**Progressive**: from QCIF to 4K, up to 60 fps **Interlaced**: 480i, 576i, 720i and 1080i		
Multi-stream	Shared and Split encoding for ABR outputs		
Templates	Channel templates creation and management Default profiles templates for SD, HD & UHD services		

(1) Option

Audio Encoding

	Aquila Streaming Software deployment	Aquila Streaming Appliance deployment	Aquila Streaming as a Service deployment
Audio channels per service	Up to 8 stereo pairs. Radio Channels for IPTV		
Audio encoding	MPEG-4 / MPEG-2 AAC, HE-AAC v1 and v2, AMR-NB, AMR-WB, Windows Media Audio / Audio Pro, Transcode to Dolby Digital Plus (DD+)		
Pass-through	MPEG 1 LII, AC-3, Dolby Digital Plus (E-AC3) 5.1-ch or stereo, Dolby E (baseband only)		
Data rate	From 4.75 kbps to 320 kbps (from 64 to 1024 kbps for DD+)		

Metadata

	Aquila Streaming Software deployment	Aquila Streaming Appliance deployment	Aquila Streaming as a Service deployment
Subtitles pass-through and translation	EIA 608/708 Closed Caption, SCTE-20, DVB Teletext, DVB Subtitles, SCTE-27, ARIB B24		
Ad insertion	EBIF / EISS / AITSCTE-35 pass-through		
Nielsen	Watermark extraction for multi-screen devices		

Output Processing

	Aquila Streaming Software deployment	Aquila Streaming Appliance deployment	Aquila Streaming as a Service deployment
Formatting	Apple HTTP Live Streaming (Over CMAF or TS), Microsoft Smooth Streaming, DASH Common CMAF segment delivery for HLS and DASH Low Latency Chunking support for DASH		
Subtitling	**Closed Captions**: WebVTT for HLS, DFXP for HSS, WebVTT or SMPTE-TT for DASH **DVB-Teletext page 888**: WebVTT for HLS, DFXP for HSS, WebVTT or SMPTE-TT for DASH **DVB-Subtitles**: DFXP for HSS, SMPTE-TT for DASH		
Multi audio	Multiple audio streams per output for HLS, Smooth Streaming and DASH		
Content protection	Microsoft PlayReady DRM support for HLS / TS, Smooth Streaming and DASH Apple Segment for HLS / TS FairPlay support for HLS / TS and HLS / CMAF Adobe Primetime Access support HLS / TS Widevine, PlayReady and Marlin support in CTR mode for DASH Widevine and PlayReady support in CBC mode for DASH Key provisioning interface to leading CAS & DRM vendors		

Output

	Aquila Streaming Software deployment	Aquila Streaming Appliance deployment	Aquila Streaming as a Service deployment
Content publishing	Support for pull scenarios in just-in-time packaging Support publishing to local storage or to WebDAV servers		
Origin server	Built-in live and VOD origin server for HLS, Smooth Streaming and DASH Up to 8000 simultaneous connections Custom HTTP headers management (Expiry settings, CORS headers…) Built-in support of HTTP 1.1 Chunked Transfer Encoding for Low Latency		
CDN	Interfaces to leading CDNs Certified with Akamai MSL 4 for HLS and DASH		

Monitoring & Control

	Aquila Streaming Software deployment	Aquila Streaming Appliance deployment	Aquila Streaming as a Service deployment
Control interface	Up to 2 IP ports, monitoring and control ports (primary and spare) through API & GUI		Access through API & GUI is provided by MediaKind
Control and system protocols	REST, HTTP, NTP, FTP, IGMP v2 / v3, SNMP v2 / 3c		
High availability	Support both 1+1 and N+M redundancy schemes Service synchronization on encoder and packager		High availability managed by MediaKind based on agreed uptime
Content replacement	SCTE-35 in-band / ESAM out-of-band **Triggers**: Time signal, Splice-out / Splice-in, Alternate command, or manually triggered from GUI		
Licensing	Centralized floating license	Appliance node locked license	Pay per use

Infrastructure

	Aquila Streaming Software deployment	Aquila Streaming Appliance deployment	Aquila Streaming as a Service deployment
Servers	MediaKind referenced HW IT Datacenter based on COTS servers (DELL, HP, Cisco) Private and public clouds	Aquila Streaming Appliances (G8, T1)	MediaKind selected cloud infrastructure
Option boards		SDI option boards	
Blueprint deployment	Centralized management and licensing (3x) with processing servers for channels transcoding and packaging	Centralized management with control over the different processing appliances	Per channel deployment managed by MediaKind