

# Quasar

## Native Cloud file-based QC Service

Quasar is industry's first native cloud based QC service available as 'SaaS' or installed in 'Virtual Private Cloud'. It is a perfect fit for workflows using content ingest, transcode and delivery on the cloud.

### SaaS

QC without infrastructure worries

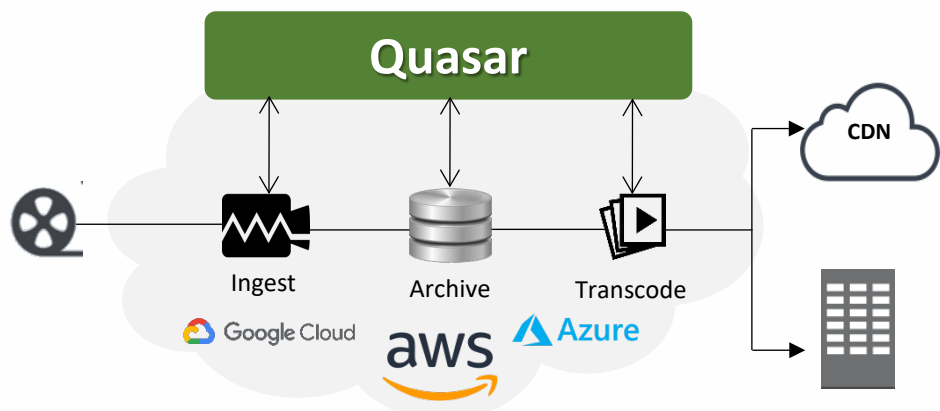
- Hosted Service
- Use with REST API
- Dynamic scaling
- Automatic regional resourcing
- Flexible annual/monthly plans

### Private

QC within your own environment

- Resource tagging for secure usage
- Use with REST API
- Dynamic scaling
- Automatic regional resourcing
- Flexible annual/monthly plans

Designed to meet the requirements of OTT, OVP and Content Providers, Quasar comes with flexible, usage based monthly & annual plans.



Quasar combines the power of Pulsar QC with worldwide reach and compelling economics of Cloud infrastructure. With "Quasar SaaS" option, you can focus on delivering pristine content to your customers while we manage the infrastructure for you. "Quasar Private" is optimized to run under your own Virtual Private Cloud infrastructure.

With its easy scalability, Quasar eliminates long content queues and waiting period for any content volume. This flexibility and instant access, allows you to start scalable QC operations for all your cloud based assets without worrying about any infrastructure hassles.

Quasar Advantages

|                        |                                                                                      |
|------------------------|--------------------------------------------------------------------------------------|
| Multi Cloud Support    | Optimized to process content present on AWS, Azure, Google Storage and Backblaze     |
| Storage Browsing       | Ability to browse content on your native cloud storage                               |
| REST API               | Easy integration with REST API                                                       |
| Dynamic Scalability    | Adjust QC capability to perfectly match your content volume with dynamic scalability |
| Secure                 | Support for pre-authenticated URL, user roles and whitelisting                       |
| Low latency            | Automatically select the processing instance in the same region as the content       |
| Fast Provisioning      | No installation or hardware provisioning required, start using QC within minutes     |
| Popular Templates      | Factory templates for Netflix, ARD-ZDF, iTunes, Amazon Prime and DPP                 |
| Deployment Flexibility | Based on your business requirements, choose between our "SaaS" or "Private" options. |
| Payment Flexibility    | Volume based pay-per-use plans that align with your business                         |
| QC Review              | Quasar QC reports can be reviewed with QCstudio                                      |

Formats

|           |                                                                                                                                                                                                                 |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Container | MXF, GXF, LXF, MOV, MP4, 3GPP, MPEG-2 TS, MPEG-2 PS, FLV, WMV, AVI, WAV, BWF, AIFF, Smooth Streaming, HLS, MPEG-DASH, IMF, DCP, Elementary                                                                      |
| Video     | H.265, H.264 (incl. AVC-Intra 50/100 and SONY XAVC), MPEG-2 (incl. D10, XDCAM, HDCAM, IMX-30/50), VC-1, DV (incl. DVCPro25, DVCPro50, DVCPro100/HD), Avid DNxHD (VC-3), Apple ProRes, JPEG 2000, Canopus HQ/HQX |
| Audio     | LPCM, AES3, SMPTE 302M, MPEG-1/2, AAC, HE-AAC, WMA (Standard & Professional), Audio stems, Dolby Atmos (ADM BWF, IMF IAB, DCP IAB)                                                                              |
| HDR       | Dolby Vision, HDR-10, HDR-10+, HLG                                                                                                                                                                              |

Verification Checks

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|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General                  | Compliance, Factory templates - Netflix, DPP, ARD-ZDF, Loudness (R128, CALM, OP-59, ARIB), iTunes & CableLabs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Track Layout             | Video Property: Black Frames, Color Bars, Freeze Frames, Slate<br>Audio Property: Mute, Test Tone, Silence                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| IMF/DCP                  | CPL based analysis, Package validation, CPL cross checks, CPL checks, PKL cross checks, OPL checks, Assetmap check, IMSC checks, Sidecar checks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ABR                      | Playlist cross checks, Segment cross checks, Profile cross checks, Encrypted Packages                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Video Bitstream          | Codec, Video Format, Color space, Chroma Format, Color Matrix, Scan Mode, Duration, Frame Rate, Resolution, Display/Pixel Aspect Ratio, GOP Length, GOP Type, Field Order, Frame Sizes, Buffer Size, Bitrate (CBR/VBR), Profile/Level, Entropy Coding, Reference Pictures, MBAFF, Timecode Discontinuity, Timecode frame drop, 2020 Color Space                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Video Baseband           | Black Frames, Blockiness, Brightness, Cadence, Chroma Hits, Chroma Line, Clipping, Colored Frames, Color Bars, Color Gamut, Combing, Credit Roll, Camera Dead Pixels, Dead Pixels, Digital Hits, Field Dominance, Flash Frames, Freeze Frames, Luma/Chroma levels, Cadence, Half/Full lines, Bar Artefacts, Letter/Pillar Box, Active Region, Photosensitive epilepsy (Harding),Low Video level, Low Black level, FBI Warning Card, URL detection, Postal Stamp, Slate Detection, QR code, Burnt-in Text, logo overlapping, Title Safe area, Grey Scale, Statistics.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Reference Based Analysis | Time Alignment, Ref-Q, SSIM, PSNR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| HDR Parameters           | HDR Formats, Reporting of HDR10, HDR10+, and Dolby Vision metadata<br>Static Metadata: Verify (display Color primaries, mastering display luminance, content light level)<br>Dynamic Metadata: Compliance, Validate HDR10+ metadata (MaxSCL, Average Max RGB, Distribution values, Tone-mapping information, Targeted system display maximum luminance), Validate Dolby Vision metadata (Metadata version, shot must not contain <0,0,0> in level 1 metadata, Detect duplicate dynamic metadata, Crosscheck canvas aspect ratio, Crosscheck Video track information, Crosscheck (Calculated/metadata) Image aspect ratio                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Audio Bitstream          | Codec, Sampling Frequency, Quantization Bits, Channels, Bitrate (CBR/VBR), Endianness Check, Duration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Audio Baseband           | Drops, Silence, Mute, Test Tones, Loudness (R128, CALM, AGCOM, ARIB, Speech Gated), Loudness Range, Dialnorm, Sample Peak (DBFS, PPM), True Peak, Dual Mono, Clipping, EAS tone, Phase Mismatch, Language ID, LFE Validation, Mosquito Tone, Quasi Peak, Dolby Atmos rendering Validation, Speech Presence, Audio Level, Profanity, White Noise                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Container                | Conformance, Format, File Size, File Name Validation, No of streams, Incorrect extension<br>MXF: Version, Operational pattern, Timecode presence/track count/mode/start value/source, Index table presence/location/completeness/correctness, Origin parameters, KLV alignment grid/fill elements, Partitions validity/Status/Completeness/Instance count/Index table presence/Essence presence/Max length, Essence wrapping/external check/referencing/partition strategy, Audio track numbers/element size/channel count/configurations, Descriptive metadata presence/scheme, Run-in sequence, Random index pack, Segmentation track, File package count, Index edit rate, Index duration, Audio/Video sample rate, Audio/Video stream type, Audio/Video edit rate, Video line map, System item presence, Block Align, Channel status mode, Fixed channel status data, Stored F2 offset, Display F2 offset, Sampled X/Y offset, Display X/Y offset, Identical GOP indicator, Edit unit byte count, Slice count, Dark metadata, Timecode frame drop, Audio locked/unlocked status, Audio ref level, Index start position, Single index location, Single essence location, Forward index direction, Image start/end offset, Colour siting, Padding bits, Black ref level, White ref level, Colour range, Constant B picture flag, Single sequence, Low delay, AS-02 Support<br>Transport Streams: SCTE35, Program count, PCR Jitter, Packet Length, PID Usage, PIDs, PID Bitrate, Packet Intervals, PAT checks, PMT checks, Stream checks, PES checks, Language Metadata Verification<br>QuickTime: Checks and correction for PASP, FIEL, GAMA, CLAP, COLR. Channel Configuration, Track properties, Movie properties, Language Metadata Verification, Check disabled tracks, Check multiple codec entries, Check Timecode properties |
| Cross checks             | Video-Container: Width, Height, Frame rate, Aspect ratio, Bitrate, Profile/Level, Scan mode, Field order, Chroma format, GOP type, GOP length, B-pictures, Low delay, Duration, Component depth<br>Audio-Container: Sampling frequency, Bit depth, Channels, Bitrate, Duration<br>Audio-Video: Duration in meta-data, Actual duration<br>Quality: Voice over validation w.r.t on screen text(Telephone number), Audio sync (Primary audio vs dub)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Meta-data                | Closed Captions (608/708) presence/conformance/format/location, AFD, Bar, V-Chip, Teletext, ARIB Caption presence                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Correction               | LID tag, QuickTime metadata, Loudness correction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |