Cloud Media Workflow Automated QC

QCloud Datasheet

Media workflows are increasingly being operated in the Cloud to take advantage of the instant scalability and usage-based pricing models of Cloud platforms. Due to the significant size of the media files in these Cloud-resident workflows, it becomes cost and time prohibitive to move them back to onsite storage to perform QC. Tektronix has solved this problem by developing a File-based Media QC solution that is optimized to run on Cloud platforms. This solution is based on Tektronix' file-based QC engine with over seven years of field-experience and usage.

Key features

- No upfront CapEx cost
- Instant scalability always ensuring perfect sizing to workflow
- Metered usage billing ensures you only pay for what you use
- QC content from Amazon S3 location
- EBS optimized to ensure persistence of data across instance reboots
- Provides exception-based technical compliance to enable QC teams to focus on problem content and subjective requirements
- Performs consistent and thorough checks of incoming video files against user-defined templates
- Ensures compliance to regulatory requirements such as U.S. CALM Act, EBU R128, Canadian Closed Caption mandates, U.K. Ofcom & Japan NAB Photo-Sensitive Epilepsy (PSE)
- Ensures quality of all audio tracks contained in the file simultaneously
- Automatically corrects audio loudness and peak audio level issues to increase workflow efficiency and reduce CapEx/OpEx
- Logs errors, informs automation systems, plus programmable actions such as e-mail user alert, quarantine and move files
- Integrates with video servers, automation and MAM/DAM systems via Web-services (SOAP) API
- Web-based multiuser interface
- Unlimited scalability from Stand-alone (single server) to Enterprise (multi-instance cluster for higher parallel processing and high availability requirements)

Applications

- Broadcasters and Video Service Providers – Ensuring quality, compliance, and playability of audio and video after encoding, at ingest, after editing, after transcoding, and before playout for terrestrial, satellite, cable, internet, and video-on-demand content
- Archiving – Ensuring quality, compliance, and playability of archive content before archiving, while in archival or before retrieval from the archive
- Content Providers – Ensuring post production and aggregated content has been correctly encoded and conforms to the required quality and format

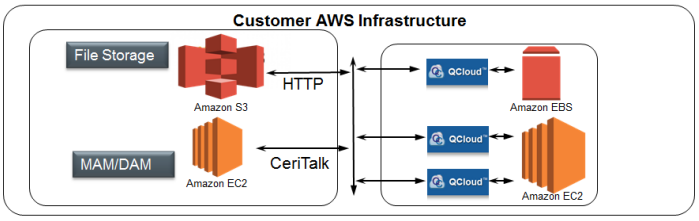
With QCloud you can ensure that your content is ready for delivery

Quality control of file-based video that may be ingested from different sources and encoded at different bit rates, formats, and compression standards for SD/HD, VOD, and IPTV delivery presents considerable operational challenges. QCloud checks for:

- **Correct Encoding Syntax**: At the digital level, the audio and video must be correctly encoded without errors in accordance with the compression standard, so that it plays out correctly at the playout server and at the customer's STB/playout device
- **Correct Encoding Parameters**: The bit rates, playtime, aspect ratio, GOP structure, video color-space, color depth, frame size, frame rate, and quantization levels
- **Correct Baseband and Quality Levels**: The analog parameters of signal levels, luma, chroma, gamut, quality levels of black frames, freeze frames, black and color bars, field order, video quality (blockiness), loss of audio, audio clipping, and video and audio playtime, and verification of audio loudness and peak level
- **Correct Ancillary Data**: Closed captions, teletext, DVB subtitles, and timecode
- **Regulatory Compliance**: US CALM Act, EBU R128, Canadian CC mandates, U.K. & Japanese PSE regulations

Manual inspection can playout, watch, and listen but is subjective and cannot look inside the encoding to check that the correct syntax and parameters have been used. Moreover, manual inspection is prohibitively expensive, especially given today's increasing content growth.

QCloud solves these problems, and can be easily integrated with Automation and Asset Management systems using the ***CeriTalk*** API; thus feeding them with data required to automatically decide on next workflow steps or drawing attention to the few assets that need review by experts.

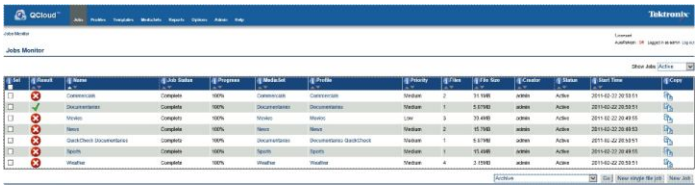


Customer AWS infrastructure

The XML-based test templates can be exchanged between QCloud systems, and applied as the definition of the required test standards between suppliers and broadcasters to establish Service-level Agreements and reduce costly churn (rework of content).

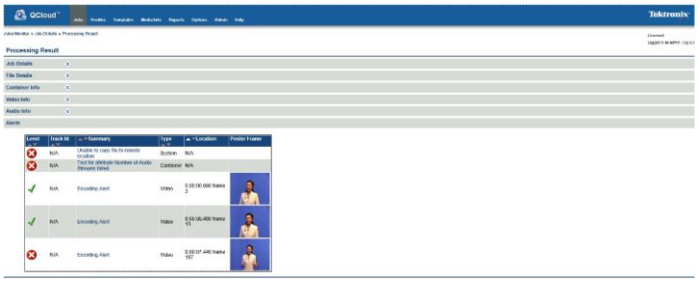
User interface

The easy-to-use Web browser interface shows job status results at the top level.

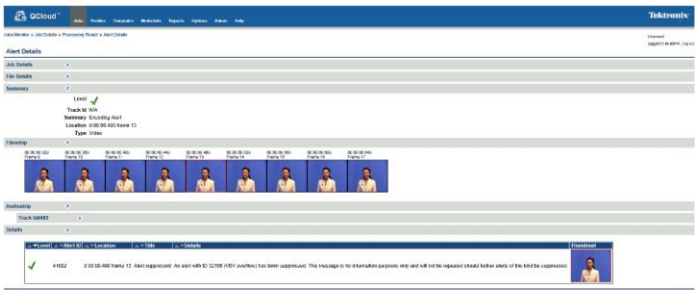


You can view details for each file within a job.

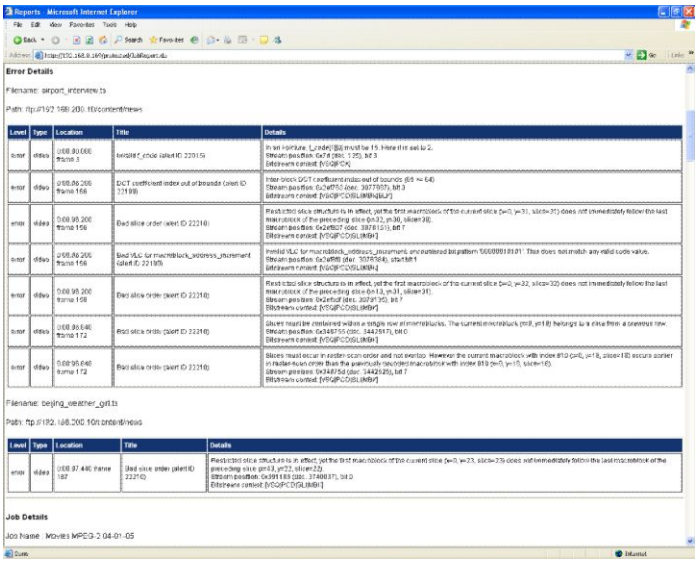
You can view alerts for each error within the file.



You can view details of each alert including video thumbnails and audio waveforms of the erroneous frame and surrounding frames.

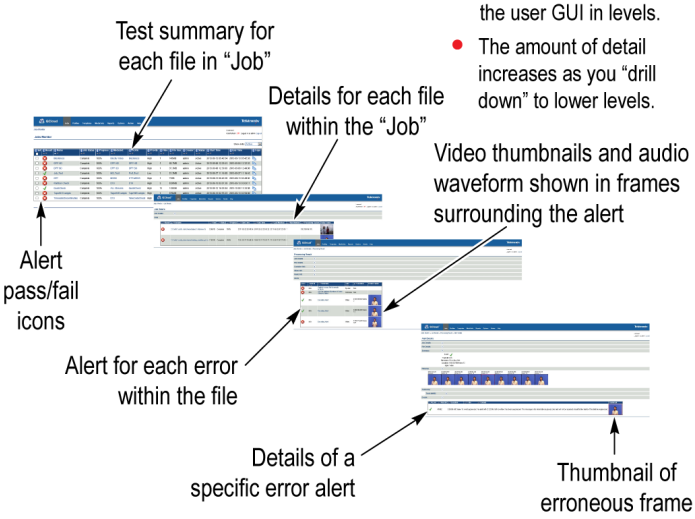


You can view reports by job, type, date range, file name, etc.



With just a few clicks, you can quickly "See and Solve" test results.

- Details of QCloud results are displayed on the user GUI in levels.
- The amount of detail increases as you “drill down” to lower levels.



Specifications

Standards supported

Format	All frame sizes, bit rates, and resolutions for SD/HD and mixed workflows
Container	MPEG TS/PS, MXF, GXF, MP4, QuickTime, ASF, 3GPP, AVI, LXF, Apple HLS, Microsoft SS
Video	MPEG-2 (IMX, XDCAM), H.264/AVC, MPEG-4, H.263, VC-1/WMV, DV/DVCPro25/50/100/HD, Apple ProRes 422/422(HQ)/422(Proxy)/422(LT)/444, AVC-Intra (High10 Intra, High422 Intra, High444 Intra, and CAVLC Intra), JPEG-2000, DNxHD, Raw YUV and RGB
Audio	MPEG-1/2, AAC, HE AAC (LOAS/LATM), PCM (AES, BWF, AIFF, WAV, SMPTE 302M), DV, WMA, Dolby D / AC-3, Dolby E

Test templates and levels are user-controlled and include:

Container-level transport stream tests	Correct standard and integrity
	File size, bit rate, playtime, number of video and audio streams in transport container
	Packet size, CableLabs VOD compliance
	Signaling and integrity of closed captioning, teletext, DVB subtitles, and XDS content advisory tests
	Timecode continuity, integrity, and synchronization
	MXF metadata testing
	Apple HLS and/or Microsoft SS ABR content readiness testing for OTT services
Video tests	Correct encoding standard, profile and level, and syntax checks for encoding errors
	GOP structure, frame rate, bit rate, playtime, AFD, frame size, picture scan type, aspect ratio
	Baseband tests including gamut levels, luma, chroma, signal levels, letterbox/pillarbox, playtime
	Color depth, chroma sampling, copyright
	Black frames (lead in, lead out, and during the video), video quality (blockiness), frozen frames, field order, missing frame, quantization, cadence, tape artifacts
	PSE testing per U.K. Ofcom and Japan NAB standards
Audio tests (simultaneously on all audio tracks)	Correct encoding standard, profile, and syntax checks for encoding errors, Dolby-E guard band interval
	Sample rate, bit rate, playtime
	Number of channels, peak and minimum signal levels
	Audio silence, clipping, mute, test tones
	PPM audio ballistics
	Long and short audio loudness tests for all supported audio codecs per ITU-R BS.1770-2 standard (including different audio loudness tests on different channels)
	True peak-level tests for all supported audio codecs
	Audio loudness tests across multiple tracks (i.e. situations where grouped channels are spread across tracks)
	Automated audio loudness correction across all audio tracks using Dolby Dialog Intelligence

Test templates and levels are user-controlled and include:

Action templates and reporting	Copy or move file on success or error
	E-mail alerts with test reports
	Web-based on-screen job reports and detailed drill-down
	Text/HTML/PDF query reports of all files in the database
Services	SOAP based Web-services
	CeriTalk Automation API
Multiple user templates and profiles	Configurable for different content types and sources
XML-based templates	Can be imported and exported
File reprocessing	Automatic reprocessing of previously tested files after rework

System requirements

Single media asset processing	A single media file can be processed with optimal performance on an Amazon EC2 Extra-Large instance type with the following specifications:
Memory	15 GB
EC2 compute units	8 (4 virtual cores with 2 EC2 compute units each)
Instance storage	1,690 GB
Platform	64-bit
I/O performance	High
EBS-optimized available	1,000 Mbps
API name	m1.xlarge
Two media asset processing	Two media files can be processed with optimal performance on an Amazon EC2 2Extra-Large instance type with the following specifications:
Memory	30 GB
EC2 compute units	26 (8 virtual cores with 3.25 EC2 compute units each)
Instance storage	EBS only
Platform	64-bit
I/O performance	High
EBS-optimized available	1,000 Mbps
API name	m3.2xlarge

Ordering information

Please contact your Tektronix Sales Representative to understand how QCloud may be customized for your specific workflow needs and content volume.

Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.

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