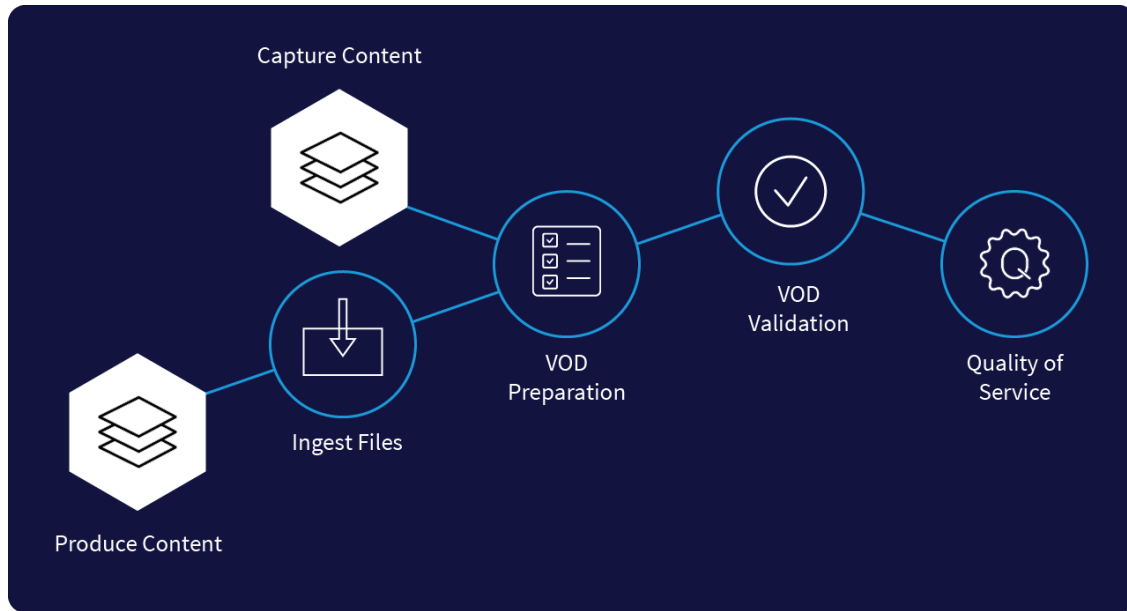


Telestream Live to VOD

Solution Brief



Save Cost and Time Going from Live to VOD with Automated Workflows

When looking at the current trends of media & telecom companies battling for rights to broadcast events like sports and entertainment, it becomes clear that bets are being placed on live events as a preferred way to differentiate brands and grow revenue. Part of the successful monetization of live content is turning it into compelling VOD packages in the timeliest fashion for viewers who either missed an event or want to re-live the highlights. Because a lot of the content has a relatively short shelf-life with regards to maximizing returns, the speed at which derivative content can be created is a key factor to success. How can media organizations maximize revenue of this valuable VOD content? One answer is through automation. The following diagram depicts a high-level VOD workflow and the opportunities for doing just that.

Automated Content Pipelines Maximize Revenue

When it comes to quickly turning live content into either SVOD or AVOD streams, there are a lot of steps to the workflow. It turns out that many of those steps can (and should) be automated to save time and resources. Here's a representative list of processes (also shown in the high-level diagram) that might be eligible, either fully or partly, to benefit from automation:

- Produce and capture content
- Ingest files
- VOD preparation
 - Transcoding and packaging
 - Captioning
- VOD validation
 - Quality Control (QC)
 - VOD library quality assurance
- Quality of service
 - Video quality monitoring
 - Video quality analytics



Most of the above processes can be automated. From live or studio production capture, creating files for edit and archive, and adding captions, to creating all the file formats and containers necessary to deliver the content to any screen and monitoring distribution quality. Some aspects, such as correcting errors in caption transcripts, are not fully automatable, but they are either a small part of the entire workflow, or they are an offline activity.

Automating a workflow is not only efficient, but it also reduces errors typically introduced by humans performing manual, repetitive tasks. And to maintain flexibility, any automated workflow must be capable of being executed on-prem, entirely in the cloud, or in some combination of both.

Automating Ingest

When it comes to capturing content at live events that will be re-purposed for catch-up TV or creating highlights programs, it's important to ensure that the files are created in the correct format for editing and post-production. Since edit systems are more frequently located remotely from the event, utilizing a system such as Telestream's Lightspeed Live Capture, that supports high-speed transfer and an 'edit-while-capture' workflow as files grow, gives editors the fastest possible access to media as it's being recorded. The workflow may also dictate getting specific media formats to local, remote, or cloud-based storage.

Automating ingest consists of applied business rules that automatically transcode the captured feed into the required formats, which might include mezzanine and proxy versions, then sending files to the designated storage for postproduction access. Depending on where an event takes place and where the content may ultimately be viewed, the media transformation process can be quite complex. As an example, media captured at 50fps (in a 50 Hertz country) may need to be viewed at 29.97 or 59.94fps (in a 60 Hertz country). That same media may have been captured in HDR (High Dynamic Range) but needs to also be playable in SDR (Standard Dynamic Range). The production may have introduced custom LUTs (Look Up Tables) that further define the color pipeline. These complex media transformations must be in place to ensure a quality viewing experience for every viewer, regardless of platform or geography. Such complex media handling, a hallmark of the Vantage Media Processing Platform, needs to be part of a well-orchestrated and automated process to succeed.

Automated Caption and Subtitle Creation

In many countries, captioning and subtitling is not just a courtesy deliverable, it's the law. Organizations that skip captions/subtitles risk being assessed a fee for non-compliance.

Captions and subtitles can be an expensive, labor-intensive process, so it befits any organization to find the most efficient process possible when creating caption data derived from live or studio sources. The following diagram is an example of a (mostly) automated captioning workflow.

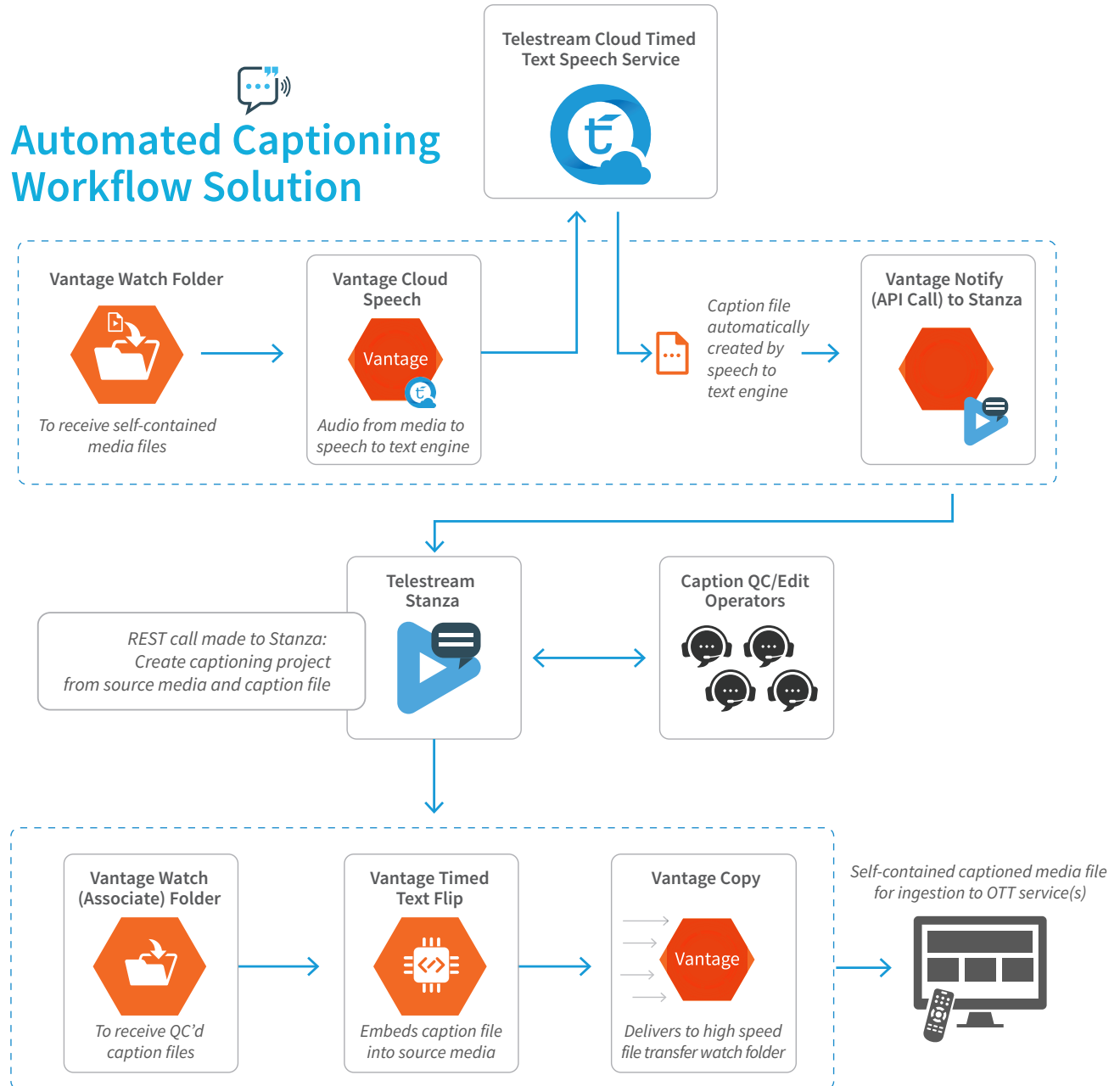
To automate file-based captioning and file creation for delivery to any screen, it's helpful to leverage a speech to text service to perform an AI transcription. While the output of the transcription needs to be QC'd by a human, it can be sent automatically to a captioning application so that captioning technicians can review, edit, and export the final caption file. If no edits are performed after a predetermined amount of time, the AI transcribed caption file can be used automatically. Caption editing in the cloud can save substantial costs by having captioning editors work from any location with no requirement to download large media files or proxies locally. Automation kicks back in when the caption file is automatically picked up and merged with the source file. The newly captioned media file is then auto delivered for ingest into a variety of platforms that require source files with embedded captions.

Automated and manual QC to ensure quality

Quality Control (QC) is critical to ensuring content not only looks good but is also packaged correctly for any system tasked with delivering the content. Automating this process is a must since certain errors, such as ABR package analysis, dead pixels, dropouts, loudness levels, and delivery package compliance for IMF, DPP, or other mastering formats cannot be expeditiously checked by humans. The QC process must also take place wherever the media is located, cloud or on-premises, to avoid unnecessary costs of moving the media. At any point in the process, editors and operations personnel should be able to view and manually QC any files to make sure they are up to the level of quality required for customers and clients. A complete report can be generated and sent along with the deliverable to demonstrate delivery compliance.

Manual QC is still required, especially to check errors flagged by the automated system. Performing a manual QC used to require that the master media file be downloaded if the operator was not co-located with the media. Thankfully, there are new solutions available for QC personnel to view these large master media files remotely, without creating proxies, regardless of where the media resides.

Automated Captioning Workflow Solution



Monitor everything and test your VOD assets regularly

Whether it's 4K HDR or HD/SD content over OTT, IPTV, Live or VOD, with ad insertion, in the cloud or on-prem, it's critical to monitor video quality at every stage of the distribution pipeline. This requires a broad portfolio of monitoring tools that can measure everything from uncompressed camera streams, including ST 2110, throughout production to delivery of compressed linear transport and packaged ABR streams which can be deployed whenever and wherever required. When monitoring from source to edge, it's also imperative to see the edge of new OTT Content Delivery Networks or distributed access Remote PHY networks with monitoring solutions that can correlate data with player analytics to achieve a full understanding of what viewers are experiencing; thus, reducing subscriber churn. Products like Telestream's Inspect 2110 automatically monitor every IP stream looking for issues to proactively alert staff to any problems. Once a problem is flagged, a single click launches a PRISM waveform monitor for deep forensic investigation to find and fix the problem quickly.

For VOD assets, it's important to automate testing to ensure that each piece of content in the VOD library responds appropriately when it's called by a viewer and plays back at the quality level expected. Imagine a human being tasked with playing every episode of a multi-season show to ascertain quality? This is a perfect example of where automation is paramount to keeping viewers happy while keeping humans from jobs they should not be doing. If any errors are detected, the system should proactively notify engineering with precise details of the issue.

Automation is the answer to harvesting revenue from VOD assets

Whether it's ingest, captioning/subtitling, QC, transcoding, or distribution quality monitoring, automation is a key element in successfully monetizing VOD content. When it comes to live events, time is of the essence to harvest peak ad revenues for events with a defined shelf life. All these automation processes are available today, and Telestream products are in use around the world ensuring top tier content owners and distributors maximize revenue opportunities while streamlining their processing pipelines.

Learn More

To learn more about automating your Live and VOD workflows, please join us for an informative webinar here:

<https://pages.telestream.net/Live-to-VOD-Workflows-Webinar>

