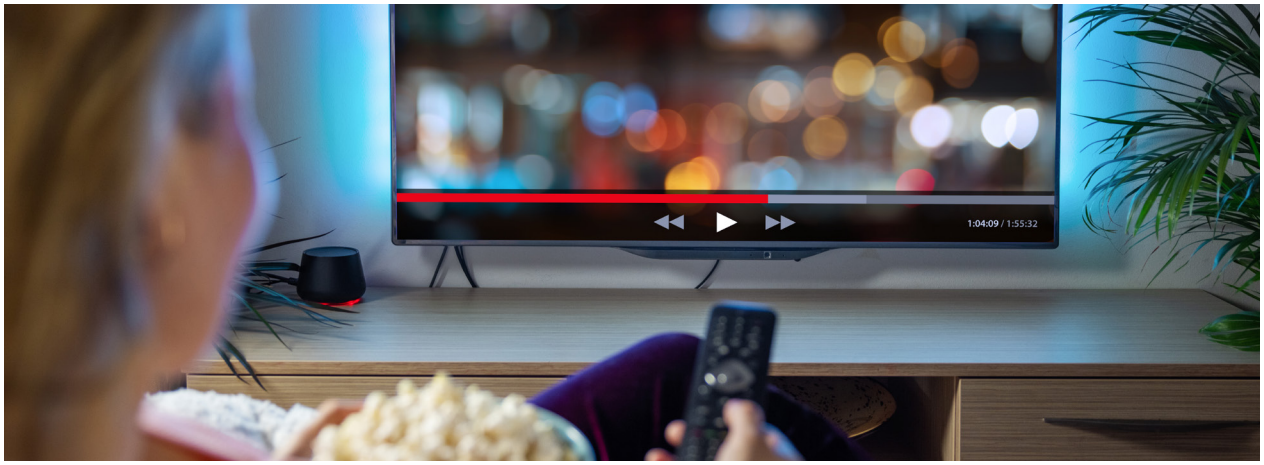


Monitoring Video On-Demand and Time-Shifted Content

Introduction

As video service providers take steps to ensure they're meeting consumer demand for TV-caliber viewing experiences across all modes of delivery, they face new challenges when it comes to monitoring the quality of time-shifted content.

The new expanded offerings of scheduled programming with advertising-supported VOD (AVOD) and free ad-supported streaming TV (FAST) services are imposing new demands on quality management. The need to offer on-demand viewing options with these linear service strategies has added significant complications to quality control in the time-shifting space.

Advanced Modes of Time Shifting Are Now the Norm

In all types of streaming services, providers have expanded on the traditional mode of archiving movies and TV programs for on-demand access by offering options like start-over, catch-up and cloud DVR. These strategies introduce many potential points of impairment to video quality that must be accounted for in the monitoring and troubleshooting processes service providers employ to maintain the best viewing experience.

Given the role VOD and time-shifted viewing is likely to continue playing in users' video consumption for the foreseeable future, service providers clearly need to be taking these quality monitoring challenges into account. When looking at viewing trends where streamed content has become increasingly prominent owing to the penetration of connected TV sets, online video tracking analysis from Omdia suggests 2021 was the last year that the amount of time spent viewing linear content on TVs in the U.S. and the U.K. would surpass the amount of time spent viewing time-shifted content.

The new network-based options available through VOD, cloud DVR and catch-up/start-over services are rapidly gaining share as they become more widespread. For example, researcher IndustryARC recently predicted cloud DVR services will be the driving force behind growth in the global DVR market through 2025. Technavio, another researcher, predicted the cloud DVR market would grow by $6.35 billion between 2020 and 2024, which it said equated to a 21.5% CAGR. Consumers' desire to use cloud DVR is now baked into many OTT streaming services like fuboTV, YouTube TV, Philo, Hulu, and Sling TV.

Time Shifting Introduces New Points of Vulnerability to Video Quality

Whatever types of network-supported time-shifted viewing options service providers choose to offer, making sure viewing experiences comport with the subscriber's expectation is now a priority. That's the case whether content is stored for 24 hours, a few days, or several months.

Consumers have as little tolerance for sub-par quality when they are watching streaming content, especially when it comes to video consumed on the most dominant viewing device, the connected TV. According to Nielsen, 77% of consumers consider picture quality to be extremely or very important. And, as many studies like the recent report from Bitmovin have shown, it only takes a few hiccups in the viewing experience to drive them to other streaming service.

In catch-up and start-over operations, service providers must be sure that content quality is always preserved with ingestion into storage as they cycle through the constantly shifting lineup of linear programming. And they must be able to confirm quality is preserved with each output from storage, whether it's from a turnkey cloud storage service, a CDN caching service or network-assisted storage (NAS) residing in service providers' facilities.

The need to support the multiple bitrate profiles used with adaptive bitrate (ABR) streaming adds another complication. In some cases, the service provider chooses to avoid having to transcode playout from storage by opting to store all profiles transcoded for linear distribution. In other cases, service providers choose to minimize storage costs by storing mezzanine copies of the linear streams and transcoding them into the required profiles as they're fed to origin servers. Either way, video quality monitoring and analysis must be applied to the origin outputs to each user.

These same principles apply to the pre-ingest and playout stages in longer-term storage used by cloud DVR services, but with an additional complication in private-use scenarios. Here, the video quality monitoring system must be responsive to content flows into storage as they are triggered by individual users executing their cloud DVR options.

Moreover, the use of DAI on streams from storage adds another aspect to the VOD-related monitoring requirements. As explained in this white paper, the points of potential failure in the complex DAI processes employed with streamed services complicate service providers' efforts to confirm compliance with ad commitments.

Telestream iQ Provides Cloud Solution Optimized for VOD Monitoring

In response to the new quality management challenges raised by the advanced VOD strategies, Telestream iQ Video Quality Monitoring solution provides a comprehensive and cost-effective approach to executing essential monitoring and analytics processes. With Telestream iQ solutions, service providers ensure their users' quality of experience and fully capitalize on time-shifted viewing.

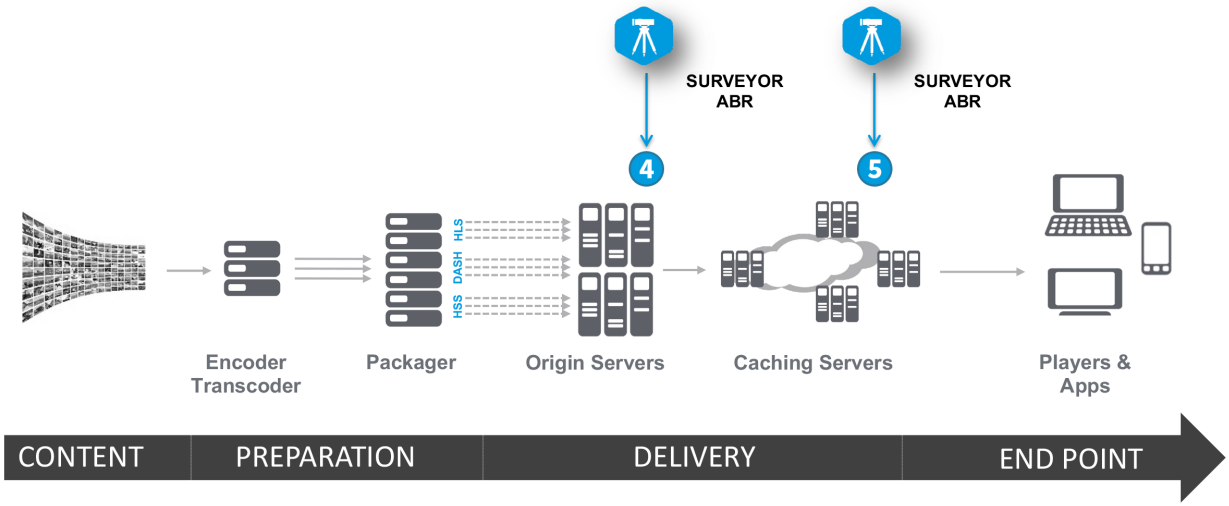
Telestream iQ offers a flexible platform that can be deployed on-premises or in the cloud depending on the needs of the VOD workflow. The solution streamlines identification of quality impairments by correlating test results into a concise report from any number of monitoring points required to meet needs of content scale or visibility throughout the distribution network.

Telestream iQ has tailored its VOD monitoring solution with the objective of validating that each asset is ready to be streamed by a user in the most efficient way possible given the priority of the content. This validation requires analysis across multiple dimensions required for streaming media, including – accessibility, streaming protocol, availability, and optionally content quality.

Leveraging Telestream iQ solutions, service providers can support preemptive action against problems that might occur with playout from storage through an automated VOD testing and reporting system that can be used to validate content readiness before customers start streaming.

Telestream iQ's ability to execute routine testing ensures 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. If any errors are detected, the system proactively notifies technicians with precise details of the issue and ample data to diagnose root cause.

If objects like trees and buildings block the antenna's view of the sky, the number of satellites available will be limited. Thus, antenna site selection is crucial. You must also consider the appropriate antenna, cable length, and power amplifier (if required) to ensure the GNSS signal can be decoded by the receiver. Antenna systems vary depending on the operating environment and safety / regulatory requirements. Therefore, there are trade-offs to be made when selecting system components.



*Validate thousands of **Video on Demand (VOD)** assets faster than real-time to ensure **premium quality** and **seamless delivery** from CDNs to subscribers*

Telestream IQ Benefits for Monitoring VOD Content

A major benefit of Telestream iQ solutions has to do with enabling monitoring of the high volumes of content that has to be encoded and prepared around the clock for storage related to catch-up and start-over services. Monitoring performed by the Surveyor ABR probes used in VOD operations can keep pace with the high-speed transcoding processes used for VOD content by delivering quality analysis at up to five times the speed of playback or real-time viewing.

Surveyor ABR probes focus on what might go wrong downstream for VOD and any other form of time shifted content. It enables measuring start-up times and failures, rebuffering rates, black screen interruptions, pixelation, adherence to bitrate profiles, stream latency, and whether and how accurately ads have been placed in fulfillment of DAI commitments.

Surveyor ABR probes can be positioned to address monitoring requirements related to content ingests into and output from CDNs, outputs from encoders and transcoders, points of input and output from storage, and locations suited to monitoring DAI performance.

Service URLs used by each probe can be set for activation on a round-robin basis 24/7 with adjustments that account for variations like multiple audio and video tracks, enhanced feature elements, and location-based service blackouts. Monitoring metrics can be configured to focus on just the HTML header or all segments of the media flow.

The Telestream iQ centralized video monitoring management system collects data from all the probes at regular intervals, correlating information from different video distribution points. It significantly reduces Mean Time To Repair (MTTR) by identifying and isolating the root causes of issues by program, time, and location to determine the fastest, most effective ways to return performance to prescribed levels.

In the VOD domain, the analysis can be mapped to the specific nuances in time-shift service workflows, providing operators immediate insight into any problems in their areas of responsibility. Managers can set up automated generation of periodic reports summarizing performance related to any aspect of time-shift operations.

The unique VOD-optimized capabilities of the Telestream iQ solutions have been put to use by service providers worldwide in every time-shifted scenario imaginable. For example, in one instance the platform is being used by a Tier 1 U.S. cable company in an approach to cloud DVR that involves monitoring all linear content as it's live streamed into cloud storage to ensure there are no problems in the transfer process.

Such vigilance provides operators with the confidence they need to be as aggressive as they choose in delivering the convenience of time-shifted viewing to their customers. Whatever approaches they take, they know they can proceed with adherence to the highest quality standards.

Learn More

To learn more about VOD monitoring visit Telestream iQ VOD Monitoring application page here.

To learn more about Surveyor ABR click here.

Ready to talk to us and see it in action? Contact us today.

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