



# Keeping Live Streaming LIVE

## THE CHALLENGE

Consumption of digital video over IP networks has become the global standard for video viewing. While OTT dominates current video industry conversations, it is significant to remember that even multiscreen customers are as likely to consume video that is authenticated for mobile devices as they are to click on a playlist of YouTube videos.

As global IP video expects to dominate internet traffic by 2018 (CISCO VNI), we are inclined to view this as an accurate, if somewhat conservative, estimate. The reasons are clear: Consumers have evolved their expectations for live and on-demand media as a persistent, instant supplement to services to which they have subscribed.

In all of this IP video growth, live video is the bellwether, and the key determinant of how consumer expectations are met. Multiple industry reports confirm that live streams are viewed at least 10 times longer (or more) than on-demand streams (Ooyala, GVI). Even linear TV delivers substantially higher viewer rates than on-demand. Yet live streams present enormous challenges for production and delivery when compared to the on-demand universe. The quality of service (QoS) issues that surround live video require a highly dependable architecture that tightly monitors and controls multiple points throughout a standard workflow. With live

video streams, the issue of what is referred to as “high availability” is critical to the equation of how all of the players in the production are viewed, from the production company to the CDN to the mobile carriers.

At the end of the day, brand and customer loyalty become diluted when sub-par performances of live streams are delivered. The customary finger pointing, in this case, typically aims in the direction of operators who are now inheriting challenges that were not central to their business even four years ago. Video is the pixelated beast that gnaws at every operator’s daily business, affecting data plans, content delivery satisfaction, and future capital expenditure plans. Yet the live streaming industry is a massive opportunity that can be successfully harvested for higher returns, despite elevated production and delivery costs.

## LIVE STREAMING

Despite the challenges that on-demand content delivery present with regard to quality control and service availability, it is the live streaming arena that presents the most challenges, due to real-time and reliability issues. Operators need to invest in providing for the highest quality video, with the highest QoS possible in order to prevent faults, rather than correcting them after the fact.

The same genre that makes huge profits for television broadcasters is

what makes money for live streaming: sports and news events. Last year’s World Cup was the defining moment for truly global live streaming, with broadcasters reaping the benefits of providing truly real-time multiscreen video. This was more than a brand-building exercise for broadcasters; they knew that uptime and QoS for such high-profile content would create new audiences. Now, of course, demands for higher-quality video (such as Ultra HD) are growing at a faster pace. Infrastructure investments are being made to dramatically increase operational efficiencies with higher-quality video.

## HIGH AVAILABILITY

High availability is gaining importance for high-profile live events (e.g. the Olympics or Super Bowl), as well as for 24x7 linear TV services (e.g. AT&T U-verse or BBC iPlayer). In both cases, the stakes are high in terms of maintaining operational efficiency without jeopardizing service uptime.

For the past 15 years, Media Excel has powered the most high-profile video encoding and transcoding deployments worldwide for Fortune 500 operators; from mission-critical U.S. Department of Defense operations to Verizon’s Super Bowl and from LGU+ Google TV to AT&T U-verse’s 300-channel 24x7 services. While most legacy architectures struggle to provide 3 nines of uptime

(10 minutes downtime per week), Media Excel's architecture's highly-available characteristics have proven delivery of 5 nines of uptime in an N+1 configuration (5 minutes downtime per year), and 7 nines of uptime in an 1+1 configuration (3 seconds downtime per year).

Based on the experience and feedback accumulated, we can solidly present 4 key aspects that operators need to evaluate for a live video encoding solution with highly available services:

#### **High Availability by Design**

The high-availability quality of a solution needs to be evaluated upfront, and it is wise to inquire about its maturity and evolution. If the high-availability features are introduced at a later time and separately from the encoding solution itself, it is safe to conclude that the high-availability "add-on" is only there to mask and mitigate failures rather than prevent or contain them. Media Excel's product line, on the other hand, has been designed with high-availability in mind from day one and has powered 7 nines live streaming solutions to more than 12 million pay TV subscribers even in its first year of deployment.

#### **Redundancy**

For ground, virtual, and cloud deployments, multiple levels of redundancy is considered a critical service component. From the operating system and chassis to upstream and downstream service quality monitoring, a carrier-grade transcoding platform needs to leave nothing unchecked prior to actual deployment.

Media Excel's product line has been designed as a carrier-grade hardware redundancy as well as evergreen features to compensate for upstream and downstream service disruptions.

This has been instrumental to its success with major telcos and pay TV operators worldwide, as this complements their corporate image and public perception in terms of overall reliability.

#### **High Density vs. High Availability**

As the number of live streaming services grow, operators seek high-density encoding solutions to increase operational efficiency. Often, this conflicts with high-availability considerations that expect fewer eggs per basket. Therefore, there is no real value to a high-density encoding solution that does not confidently address high-availability. The challenge is further magnified when a multi-tenant architecture is deployed and a fault can affect multiple individual stakeholders simultaneously.

The Media Excel architecture addresses this challenge, as it ensures full isolation between live services deployed on the same platform and enables the failover automation to individually migrate services across platforms, instead of failing over the entire platform and impacting the uptime of all hosted services.

#### **Heuristics and Monitoring**

A failover architecture is only as good as the mechanisms it utilizes in order to detect and mitigate a service failure. The ideal high-availability logic constantly monitors



the health of both input and output feeds—rather than merely determining whether a service is running—and compares them against operator-defined thresholds.

Media Excel's solutions are constantly probed to provide a comprehensive report on input and output parameters that the high-availability architecture incorporates in real-time into the decision-making process. Those heuristics (e.g., rate fluctuation, frozen frames, packet loss, etc.) are also exposed to the operator and can be fine-tuned to match the SLA expectations of each individual service or group of services.

#### **OUTLOOK**

As more operators move towards Ultra HD workflows to enhance service quality, service availability is further highlighted as the key factor in safeguarding quality of experience. This is further highlighted by the broader shift towards hybrid (ground and cloud) transcoding architectures, where redundancies and high-availability considerations are elevated.

Media Excel is already on the forefront of Ultra HD and HEVC deployments worldwide and our highly-available architecture delivers 7 nines of uptime (3 seconds downtime per year).

#### **ABOUT MEDIA EXCEL**

Media Excel is the leading supplier of reliable software solutions for realtime multiscreen video delivery. Founded in 2000 and headquartered in Austin, Texas, the company has been the industry leader in the development of real-time video processing software to distribute video over IP networks. Solutions from Media Excel provide the reliability, scalability and performance required to deliver high quality video via appliance and cloud deployment models. Powering more than 300 million multiscreen subscribers worldwide, and with the #1 market share in multiscreen delivery for wireless carriers in North America, Media Excel assists Pay TV operators, content providers, broadcasters and telcos worldwide. To learn more, please visit [www.mediaexcel.com](http://www.mediaexcel.com) or contact us at [info@mediaexcel.com](mailto:info@mediaexcel.com).

