

# BEYOND BROADCAST

An e-Magazine From Edgeware About Next-Gen Online TV Delivery

#2:20



## STREAMING PROVIDERS DEMAND REAL-TIME QOE INSIGHTS NOW

*Revealed: the findings of our survey with Dan Rayburn on streaming video quality issues*

# WELCOME TO THE SECOND EDITION OF BEYOND BROADCAST!

#2:20

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October 2020

An e-Magazine From Edgware  
About Next-Gen Online TV Delivery

**CONTACT US**

Phone: +46736126840

Editors: [marketing@edgware.tv](mailto:marketing@edgware.tv)

Edgware Sales: [sales@edgware.tv](mailto:sales@edgware.tv)

[www.edgware.tv](http://www.edgware.tv)



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A lot has changed since we last spoke. Local and international lockdowns have been lifted and then reinforced, sectors such as sport and hospitality have slowly reopened their doors and, most importantly, businesses have found ways to maintain their operations in challenging circumstances.

The media industry is still experiencing widespread disruption and broadcasters, content owners and online TV providers have faced new challenges as the pandemic has evolved. Developments such as the return of sport and the intense fight for internet capacity that followed, placed a huge amount of pressure on streaming TV providers to provide a quality viewer experience – which has forced businesses to innovate.

For example, one customer recently deployed our cloud-based elastic CDN solution in a large-scale commercial trial that will deliver content to thousands of OTT service subscribers, giving it the flexibility to quickly spin up and down streaming resources when needed. In addition, our multi-CDN delivery control platform StreamPilot was deployed by Norway’s leading commercial streaming service – TV 2 Sumo – enabling it to monitor, control and optimize content delivery from different CDNs.

You also might have seen that we recently conducted a survey with streaming media expert Dan Rayburn, looking into the factors affecting end users’ quality of experience when streaming content and the challenges facing service providers.

We found that 30% of streaming TV providers have no visibility at all into their customers’ QoE, despite real-time QoE being high up on their agendas.

You can read more about the findings from this survey, and what they mean for streaming providers, in this issue of Beyond Broadcast. Also, learn about enabling video for 5G and check out the article by our CPTO, Johan Bolin, looking into how broadcasters can engage younger audiences.

But most importantly, stay safe and healthy wherever you are.



*Karl Thedéen*

CEO, EDGEWARE

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# STREAMING PROVIDERS SAY NOW IS THE TIME FOR REAL-TIME QOE INSIGHTS

## *Revealed: the findings of our survey with Dan Rayburn on streaming video quality issues*

**Have you ever quit a streaming service due to buffering issues, bad video quality or glitches? Leaving the app or, worst-case scenario, unsubscribing to the service is something many of us have done when experiencing issues while watching video over the internet.**

Despite being more common when technology was less developed than today's advanced systems, problems like these still remain, and losing a customer is something any service provider wants to avoid.

As a provider of streamed video content, it's important to have insights and control of its delivery. However, when video is distributed over the open internet, there are many factors that can impact the end users' quality of experience (QoE), such as ISP networks, access technology, wi-fi networks, as well as the CDN – either third party or owned. This complexity makes it harder to tackle QoE issues before they become known to the viewer.

Managing these streaming environments will only become more challenging as traffic builds. With streaming popularity growing more rapidly in the pandemic according to Samsung's Behind the Screens report – with usage increasing 36% between January and June in comparison to 11% for linear TV – it's imperative for streaming providers to gain insights and control of viewers' QoE right now. With quality issues closely related to churn, streaming TV providers that focus on these capabilities can win market and audience share at a time when it's needed most.

The immediacy of equipping yourself with the ability to gain QoE insights is one thing; but the speed in which you obtain these insights, analyze them and then correct

potential issues is another. For streaming TV providers – both those with multi-CDN set ups and those relying on their own distribution network – getting real-time visibility into the end user's experience can be difficult. However, it's something many are seeing as an essential capability in order to cut through the competition, retain audiences and ensure subscriber growth.

### **IMPORTANT REAL-TIME PARAMETERS**

Our recent survey with streaming media expert Dan Rayburn asked 300+ industry decision makers including broadcasters, OTT service providers, cable companies, publishers, and brands about their means to correct QoE insights in real time. Despite discovering that 30% of streaming TV providers have no visibility at all into their customers' QoE, it found out that almost 75% of participants realize the importance of managing and monitoring their infrastructure and viewers performance in under three seconds. In other words, real-time QoE is high up on their agendas.

Streaming environments are packed with opportunities to reap valuable client data. But where time is of the essence, the amount of data can be overwhelming, raising questions on how it can be used instantaneously to identify and present potential problems, diagnose or exclude what's causing them, and then eventually fix those that can be corrected.

Diving deeper into the need for real-time QoE insights, we wanted to better understand which real-time parameters are most important to streaming TV providers by their vertical. With ten parameters to choose from concerning streaming quality, total bandwidth used, cost, performance issues, and viewing behavior, we asked our survey participants to select three they would most like to measure.

Across every vertical, 'total bandwidth used' featured in the top three, either per region or per user. As increases in streaming traffic add strain on internet resources – a trend that became particularly evident as live sports returned recently after a temporary hiatus – being aware of bandwidth issues enables streaming TV providers to see early indications of bandwidth issues that could affect the customers' QoE.

Armed with real-time bandwidth usage data, streaming TV providers can move sessions from one CDN to another before any issues relay into bad video quality. Additionally, they can dynamically shape streams/bitrates to adjust the end users' QoE to the current network's capacity.

What's more is the ability to isolate CDN-related problems from internet- or wi-fi-related problems in real time. This shortens the troubleshooting time dramatically and equips customer support centres with better insights into what's causing quality problems for its customers.

Measuring streaming quality – either per region or per user – also featured in the top three for every vertical apart from broadcasters, which favored the duration the viewer has been streaming, estimated cost of CDN service and total bandwidth used per viewer. For streaming TV providers which rely on the internet to deliver their content and internet-enabled devices to view their content – like OTT services – it's unsurprising that real-time streaming quality insights came out on top. Video quality gives a competitive advantage that can attract advertisers and help ad-funded streaming TV providers to partner with the most prestigious and well-known brands. Often when it's jeopardized, it's a key indicator of poor service quality – having a considerable impact on customer churn and loyalty.

If there's an early indication of a video quality problem, moving the stream from one CDN to another during an ongoing session in real time can avoid a negative QoE. Better still, automating this process can ensure the customer always has the most optimized CDN delivering the video stream.

**WIDESPREAD DESIRE**

Speed is important when problems need preventing. Where end users have increasingly shorter attention spans and little patience with TV services not performing, automation becomes important as a means to act fast. The earlier streaming TV providers are notified about a potential quality issue, the better their chances are to fix it within the buffered time. And for this to work, the data and insights need to not only be relevant and actionable, but they also need to be fast. Getting ahead of the problem by beating it at its own game means you can prevent it from becoming a fully-fledged QoE problem.

Accessing large amounts of data enables streaming TV providers to see and understand viewing patterns, conduct A/B testing, develop innovative TV services and more. As AI and machine learning become more powerful in analyzing this broad range of data, the pressure that mounts on streaming TV providers to be aware of and fix issues quickly will alleviate – reducing churn and eventually increasing their customer lifetime value.

With widespread desire for real-time QoE monitoring and management, the onus is on technology suppliers to deliver advanced solutions that bring such capabilities. We're ready – are you?

*To explore the findings from our QoE survey in more depth, you can watch the webinar with Dan Rayburn on-demand and download our full report on our website. ▶*

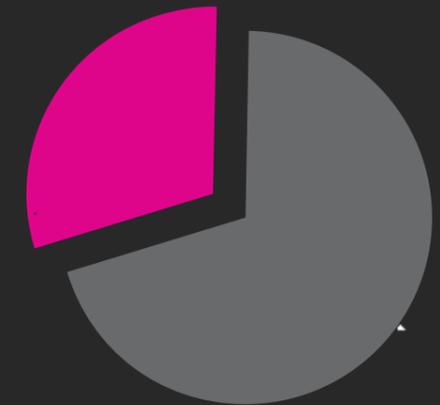


**VIDEO QUALITY GIVES A COMPETITIVE ADVANTAGE THAT CAN ATTRACT ADVERTISERS AND HELP AD-FUNDED STREAMING TV PROVIDERS TO PARTNER WITH THE MOST PRESTIGIOUS AND WELL-KNOWN BRANDS.**

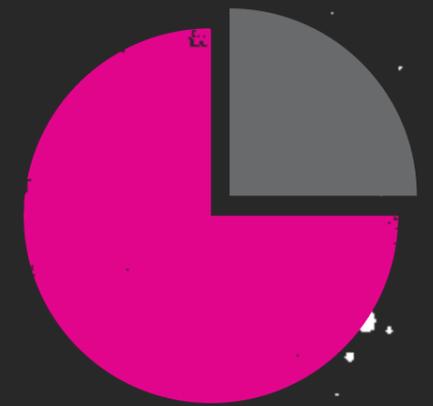
**36%** increase in streaming usage between January and June in comparison to 11% for linear TV



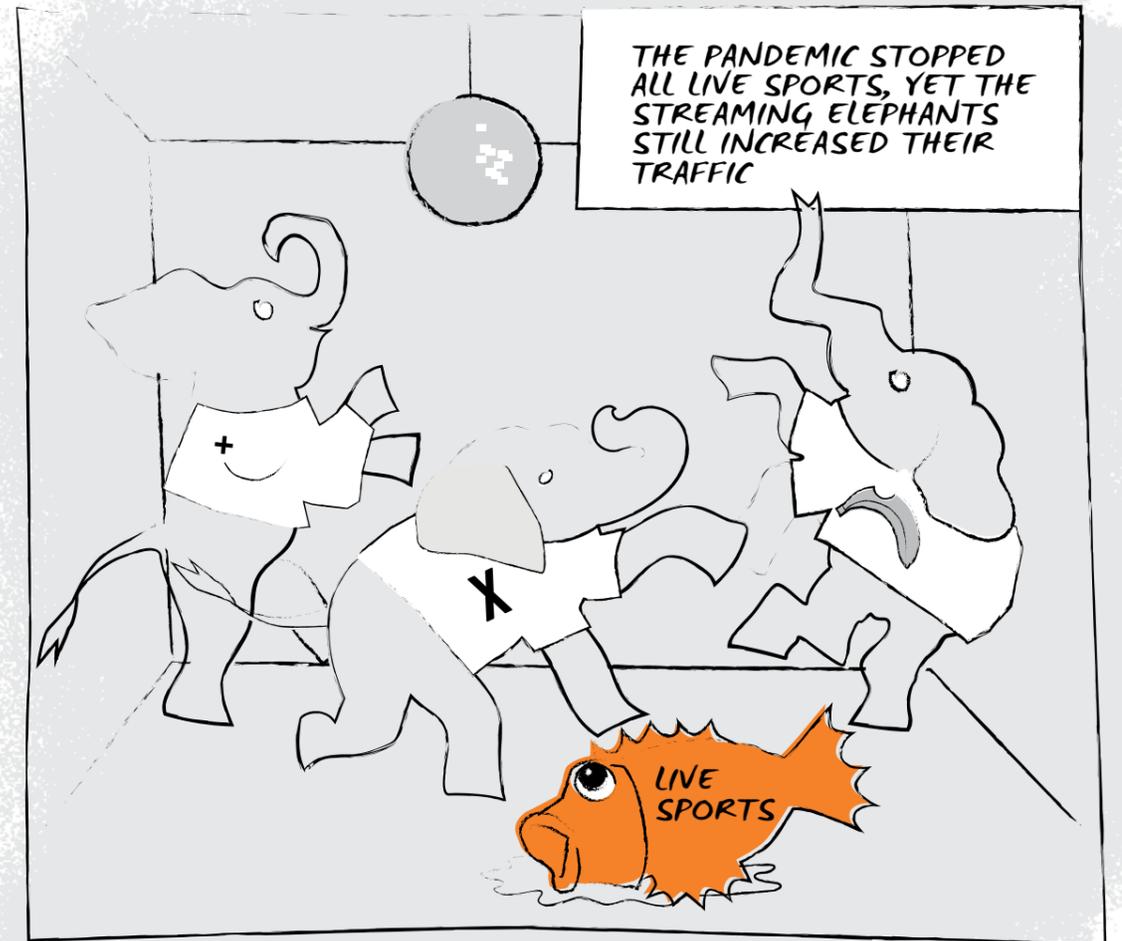
**30%** of streaming TV providers have no visibility at all into their customers' QoE



**75%** of participants realize the importance of managing and monitoring their infrastructure and viewers' performance in under three seconds



# WHY THE RETURN OF LIVE SPORTS INTENSIFIES THE FIGHT FOR CAPACITY



This year has been different, in many ways. To control and minimize the pandemic, lockdowns and social restrictions have changed how we live, almost instantly. It has changed how we consume TV and video. In fact, we're watching more TV than ever. But what we watch and how we watch it is quite different as we explore the wide and deep catalogues of VOD services to escape the world around us and be entertained.

For some, this change has been good. SVOD giants like Netflix and the new kid on the block Disney+

have onboarded subscribers in numbers well above expected, and streaming figures have risen as a result. For others, the economic setback has eroded advertising budgets drastically with tough consequences for Free To Air (FTA) services. In some places this has resulted in a higher load on the internet, but in most places the actual peaks have not been higher than before.

Sports – which gather audiences in their millions both at venues and via TV – have also been cancelled to help prevent the virus spreading. Right now, we are

seeing virus cases increasing and societies facing new lockdown measures. But we must hope that at some point in time, societies will slowly open up again and sport will come back fully, albeit under different circumstances than before. To maintain social distancing, we can expect that our favorite sports will be played with less or no audience in the stadiums or in the local sports bar. The expected majority will turn to TV, on whatever device they choose, to experience the event. Despite there being fewer sports to watch on TV, we are likely to see sport viewing numbers increase – from the hardcore fans in hats and scarves who have been starved from watching their favorite team live to the general spectator.

During the outbreak, streaming service usage via the internet has rocketed. New viewing habits are established in the absence of sports and many other local entertainment formats that are typically watched on traditional TV. This has made viewers cut the cord and turn to – and trust – internet-based streaming services as their go-to source for TV-based entertainment.

This means that as live sport returns, it is joining at a time when the overall internet traffic load is significantly higher than it was before the outbreak. In other words, the fight for capacity just got even more intense.

### THE ANIMAL KINGDOM OF STREAMING

In a previous blog, our chief product and technology officer, Johan Bolin, described the internet as a dancefloor and the streaming services as elephants. In contrast to ordinary nightclubs that are now temporarily closed, or at least have restrictions in place, the streaming dancefloor is now more crowded than ever. So crowded in fact, that the EU had to ask a couple of the biggest elephants to adopt a (unnecessary blunt) bit-rate limitation diet.

So, with the full return of sports, we will probably see an increased demand for live streaming sport events.

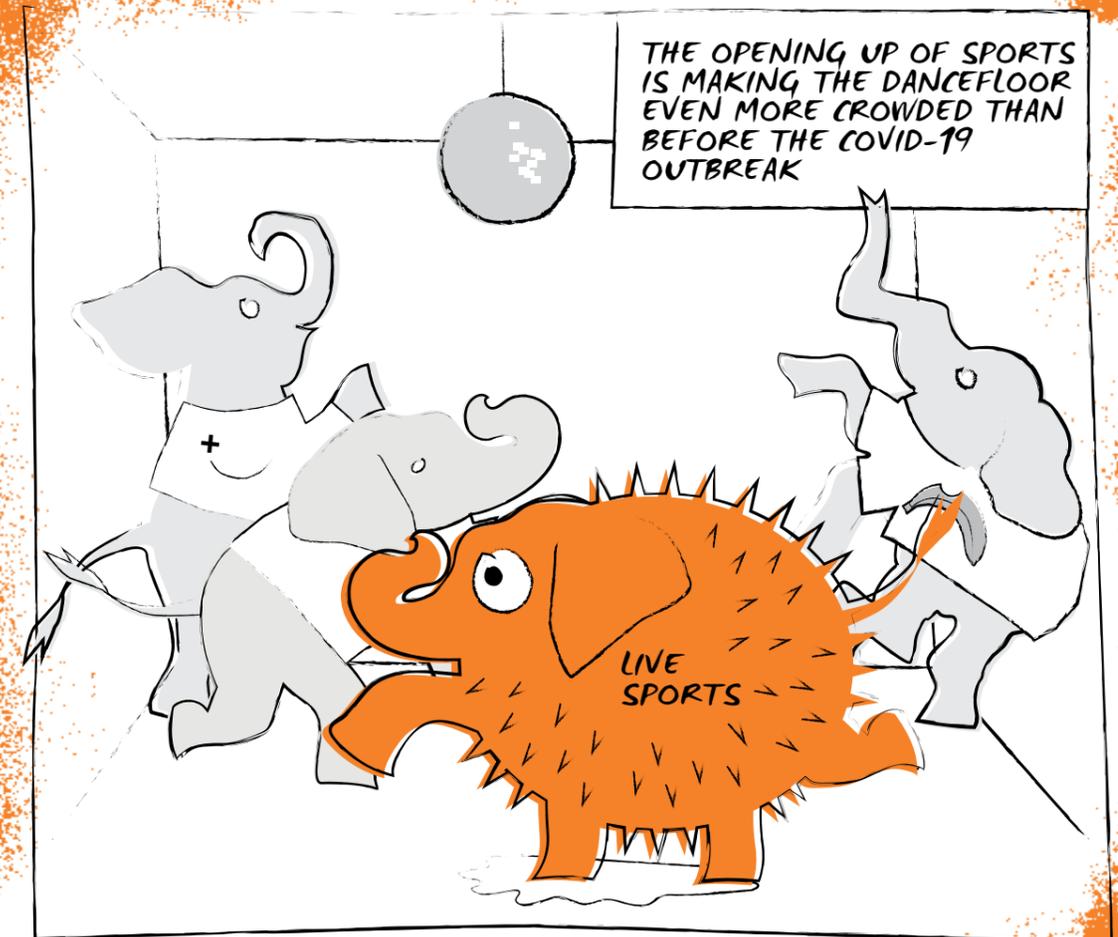
Some live sports events have returned already, but the main global sports events are yet to come back. For this reason, we want to introduce a new animal to join the elephants at the party. Since these animals represent the typical behavior of big live events, such as high traffic peaks during the start of the event, the new addition can be illustrated as blowfishes. Blowfishes have an unpleasant behavior of rapidly changing in size which makes their moves and tricks hard to predict.

What are we trying to get to, you might wonder? Well, this all boils down to the internet's shared capacity. With another animal now trying to get onto the dancefloor, it has become more crowded, especially over the last eight months. The fight for capacity is getting pretty fierce.

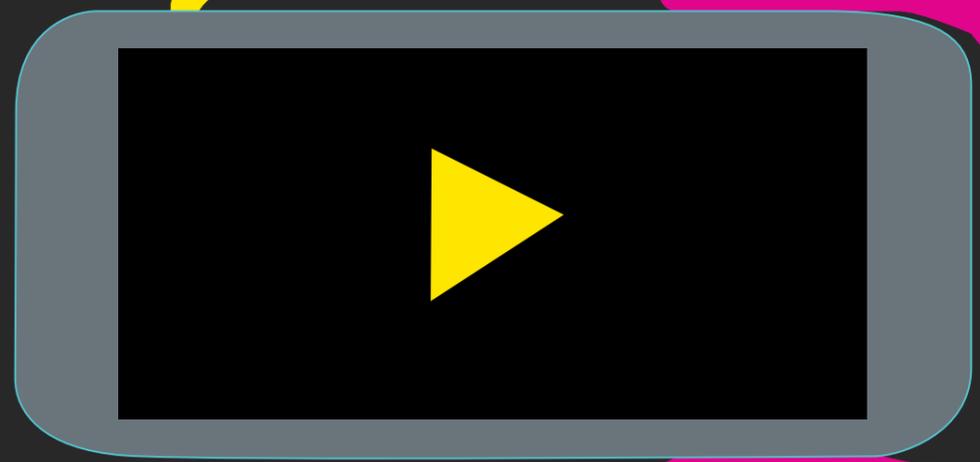
Johan talked about how different parts of the internet impact the viewing experience in an [earlier blog](#). While we're not so worried about access networks in general, we'd like to raise a concern about cable and mobile networks as these are typically shared media and thus, can become easily congested. Even more challenging are the backhaul network and peering interfaces with CDNs calling for network upgrade investments and interconnect discussions.

We won't go into detail about the different parts of the internet and how their technical characteristics dictate potential viewing issues. But we will highlight that these play an important role here. It's become extremely obvious during the last year that with the internet being a shared resource and the foundation for delivering huge amounts of TV content, there is a need for more comprehensive and real-time means of control. A means where streams can be steered with precision and where actions to manage congestions are done with the network, the content and especially the viewer's quality of experience in mind.

*Are you ready for the return of live sports? Find out how Edgware can help over on our website. ►*



# HOW VIDEO STREAMING CAN BE ACCELERATED FOR THE 5G ROLLOUT



5G has been edging its way to the forefront of the broadcast and media industry's mind over the last year as a revolutionary technology standard that accelerates connectivity and enhances experiences. But conversations around 5G have gained speed in a pandemic world, where – conspiracies aside – its benefits such as low latency video streaming, remote production and real-time communication have really shone.

We can't ignore the impact this next-generation wireless standard can have on the way video is consumed and the speed in which the video market can grow and evolve. Where video quality has become a key value parameter for streaming TV providers and consumers alike, 5G opens the door to create a better quality of experience (QoE) and quality of service (QoS). But how can you open that door and utilize what's behind it?

#### **OPPORTUNITIES**

The deployment of 5G will cause video usage to grow to account for 70% of mobile network traffic in 2022, up from 47% in 2015. The promise of faster, higher quality video streaming through 5G has made consumers sit up and take notice. Not only is it set to generate momentum in the consumption of general live video such as sports and live events, but also on-demand video too – on-the-go via mobile devices and in the home via home internet access.



As these findings from IHS Markit's Digital Orbit report suggest, there's an urgency for technology suppliers and mobile operators to prepare for widespread 5G deployment. In the video streaming space in particular, it's paramount to develop cutting-edge technology that facilitates its growth. This concerns every aspect of the video lifecycle spanning production, delivery and distribution. After all, video streaming is deemed a key driver for 5G rollout, with participants in IHS Markit's study ranking it as the activity they'll do the most when 5G arrives, with social media, mobile gaming and virtual reality following.

Omdia's 5G and beyond: Connecting the dots at MWC20 survey predicts that the global 5G smartphone market will only climb in demand due to declining device costs – a factor holding back the standard's adoption to date. With 231 million units predicted to be shipped by the end of 2020, up from 29 million in 2019, and then doubled again in 2021, the accessibility and affordability of 5G-enabled mobile devices will contribute to its growth. This will resonate with younger consumers particularly well, who continue to demonstrate a favorable usage of mobile compared to other devices such as TV sets and PCs.

While 5G welcomes high bandwidth and low latency for content distribution and delivery, it also builds a sturdy and reliable infrastructure for content production, a point referenced in ABI's New Opportunities for 5G in Content Production report. From driving partnerships between network operators and broadcasters to provide dedicated access to locations, to creating new revenue streams, the standard can power fruitful new business models.

With 5G expected to promote cellular mobile networks to 'contribution networks', content production can become simplified, making remote production easier by complementing professional equipment such as high-resolution professional cameras.

#### REQUIREMENTS

But ultimately, relying on 5G as a TV production network puts pressure on the CDN. A TV CDN that's optimized for 5G needs to capture the growth of video and make sure the rollout of 5G delivers on its promise.

For example, a CDN that's located at the edges is well suited for mobile networks, enabling operators

to quickly scale streaming instances up and down as necessary. The highly granular management possibilities that can be on offer are unparalleled in any access technology, but they become even more powerful in a wireless network where capacity constraints typically occur.

As mobile networks become more congested, the ability to shape bitrates and manage sessions on a highly granular level enables efficient network utilization and QoE optimization. If video quality is jeopardized, it risks the viewer leaving the service temporarily or worst-case scenario, permanently. By load balancing between PoPs and on-net CDNs, and off-loading to third-party CDNs to optimize peaks, reach and redundancy, it's possible to deliver better, high-quality and more cost-efficient 5G video applications.

It's critical to build a CDN on Software Defined Networking (SDN) design principles to simplify infrastructure management and enable the ability to automate the scaling of sessions. Because of this, advanced routing functionalities and the ability to optimize QoE, common issues like network

congestion when delivering video content over wireless networks can be tackled.

Functions and applications in 5G are deployed as virtual instances in virtualized data centers or in the cloud, either private or public. A CDN built with SDN design principles is engineered to be deployed in a Network Functions Virtualization (NFV) environment as a virtualized software instance, running in a data center with separated control and data planes. This approach simplifies configuration management and the orchestration of streaming instances, including associated caches in a 5G architecture. It allows mobile operators to adapt their architecture to topology and geography with edge and mobile edge computing (MEC) capabilities.

As adoption nears, the clock is ticking faster on getting video streaming ready for the 5G era. It's a matter of optimizing a 5G-compliant video streaming infrastructure to ensure the opportunities the standard presents are not missed.

*Discover Edgware's CDN offering for 5G video applications on our website. ►*

# GETTING BACK THE



# GENERATION

## *Bridging TV's age gap: improving relevancy and reach with younger audiences*

Broadcasters and content owners are experiencing an age problem. In contrast to viewers aged 26 and above, the large majority of teenagers and young adults flock to social and online channels to get their video content fix – abandoning traditional TV formats and platforms and their content in the process (Ofcom 2019).

Teens and young adults' viewing habits will always be different to the older generation. Their interests, lifestyle, expectations, and values are heavily influenced by the digital-first world they grew up in and the vast majority will, therefore, want digital-first content via digital channels. And a lot of it.

Broadcasters can't change this – and they shouldn't try to either. But what they can do is deploy a strategy which allows them to evolve with the younger generation and reach them on their favourite platforms, while keeping their established and respected brand intact.

### **AN UNSOLVED ISSUE**

Let's start by illustrating the situation at hand.

While streaming services have achieved rocketing success in the last ten years, conventional TV viewing (via public service broadcasters) by under-25s has halved since 2010 (The Lords' Communications Committee 2019). It suggests that unlike previous generations, today's younger TV-watching demographic find opening a streaming or social app via an on-the-go device more natural than picking up the remote in front of a TV.

With online channels from tech giants such as YouTube, Twitch and Facebook creating and hosting enticing video content that resonates with its internet-native users, there's a risk that they won't return to traditional TV platforms like previous generations have. This presents an uncertain future for broadcast TV. Who will be tuning into broadcast TV in 25 years'

time? Can broadcast TV maintain its roots and stay afloat in a largely digital landscape?

After years of attempting to lure younger audiences to watch broadcast TV, nothing has quite hit the mark. Until now, the industry's answer to closing this age gap has been for broadcasters and content owners to expand their offerings by creating new programming for numerous online platforms and their respective audiences. While this can welcome more relevant content for niche target groups, it isn't greatly efficient. Not only does it increase the volume of content, but it increases the amount of resources needed to meet that demand.

### **WHAT IF YOU COULD IMPROVE YOUR REACH AND RELEVANCY WITHOUT HAVING TO PRODUCE NEW PROGRAMMING ENTIRELY?**



Yes, broadcasters need to realize the advantages of having both a broadcast and online offering; this has been muttered for years now. As Matt Hill, a research and planning director at Thinkbox, the marketing body for commercial TV in the UK, argues in his Mediatel article: "it is unhelpful not to look at TV as a whole" when you're creating content for and distributing it across both broadcast and online channels.

However, many broadcasters are yet to implement a strategy which marries the two together in a way that streamlines their offering and attracts audiences of all ages to their service and brand.

At Edgware, it has got us thinking. What if you could improve your reach and relevancy without having to produce new programming entirely?

And instead of multiplying your content ideas and production pipelines to cater for different audience demographics, simplify them to make it a lot more manageable, flexible and future-proof?

### EXTEND THE REACH

Adapting the format of your existing content for each online platform enables broadcasters and content owners to maximize brand exposure with the younger demographic. Better still, creating streams that publish different live and linear content adaptations on social media empowers broadcasters and content owners to extend their reach beyond traditional channels.

Finding a way to do this cost-effectively and efficiently has been at the top of broadcasters' wish list for years. And with various social media specifications to adhere to and subtitles to be added, duplicating content into numerous formats and then publishing the right format on the right platform can be a time- and labor-intensive task.

This is where channel stitching technology can shine. By utilising the technology to compose multiple channels in the compressed domain, broadcasters and content owners can deliver professional-grade TV on social media cost-effectively and therefore, tap into their missing audience.

### INCREASE RELEVANCE

Coming up with new content ideas is challenging for even the most seasoned broadcaster. Often, when a broadcaster steps away from the programming it's most known for, it risks having a negative effect on its brand; a brand which, in a large number of cases, has taken years to establish. The change in tone of voice and strategic direction can leave loyal audiences feeling isolated and new, younger audiences unable to make that connection; the connection that will drive them to return to broadcast TV in years to come.

By harnessing influencer commentary to add to existing content, broadcasters can boost their

relevancy while eliminating the need to segregate programming per channel.

This is something we've seen with the NBA G League, which has broken out of traditional broadcast and tapped into the videogame streaming platform Twitch to increase its exposure with their younger fans. By enabling any streamer to add their own commentary to the live games and stream it on their own channel, users are not only given a live broadcast experience, but an experience with the production value expected by the Twitch audience. This provides insights into the production elements and influencers which resonate best with younger audiences to inform the future of broadcast TV, but also shows the pitfalls and successes of your current distribution and financial model – what works and what doesn't.

### GIVING YOUNGER AUDIENCES THE CONTENT THEY WANT ON THE PLATFORMS THEY WANT IS THE HOLY GRAIL



Ultimately, broadcasters and content owners can mitigate the age gap problem by transforming the traditional broadcast distribution model to one that best complements the online viewing behaviors of these much lusted after younger audiences. From the technology that is decoupled from the creative side of production to the dialogue between engineers and creators to do things different, there's work to be done.

Giving younger audiences the content they want on the platforms they want is the holy grail; you won't be able to get them back on the sofa in front of the TV without doing so. But only when broadcasters recognize this and amend their TV distribution strategy accordingly can the age gap bridge be built.

*Watch Johan's presentation on how broadcasters can boost their reach and relevancy with the younger demographic [here](#).* ▶



## **ON-DEMAND WEBINAR:**

# **DETERMINING WHAT IMPACTS END USER VIDEO QUALITY THE MOST!**



*Streaming media expert Dan Rayburn and Edgeware's Peter Sergel reveal new survey findings in this webinar.*

**For streaming TV providers that rely on third-party or multi-CDN distribution, it can be difficult to get real-time visibility and control of their customers' video quality. But just HOW difficult is it? And WHY do difficulties remain?**

To find out, we teamed up with streaming media expert Dan Rayburn and conducted a survey with streaming TV providers to discover what's impacting their customers' video quality and how they're fixing quality problems. Watch our webinar where we present the key findings from the survey and discuss:

- ✓ What kind of end user analytics data is valued as most important
- ✓ How QoE problems can be determined and isolated – and what effect they have on customer support
- ✓ Whether problem mitigation can be automated

**WATCH ON-DEMAND**