

DETERMINING WHAT IMPACTS END USER VIDEO QUALITY THE MOST



In a multi-CDN environment, how do video streaming providers find out if their end users are experiencing bad quality on their TV services? And what are their means to correct this when issues occur – and preferably even before they impact end users' QoE?

INTRODUCTION

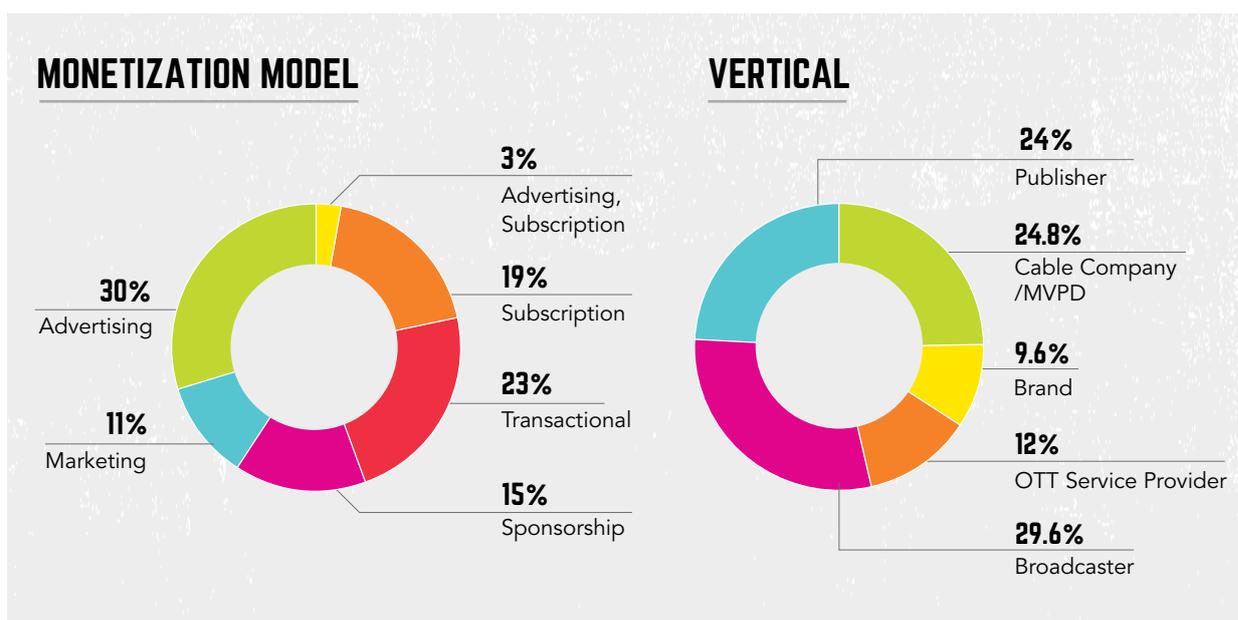
For providers of streaming TV services, video quality is one of the most important parameters in retaining existing customers and attracting new ones. Video quality is also a competitive advantage that can attract advertisers and help ad-funded streaming TV providers to partner with the world's most prestigious and well-known brands.

Today's providers often use multiple CDNs for the distribution to help offload peak traffic, increase reach, keep cost down and gain redundancy. However, the multi-CDN set up makes it more difficult for streaming providers to get real-time visibility of the video quality experienced by its end viewers. Furthermore, this makes it difficult to control the delivery. The fact that video distributed over the open internet takes a somewhat complex route – crossing several different ISP networks, access networks and WiFi networks – makes the visibility issue even more challenging.

To find out what providers of streaming video services know of their customers' quality of experience (QoE) we teamed up with streaming media expert Dan Rayburn to conduct an online survey with 300+ leading broadcasters, OTT service providers, cable companies, publishers, and brands. We asked several questions related to video quality, including if and how they find out about quality issues experienced by their customers, which parts of the distribution chain they believe are causing issues, and if/how they fix problems, as well as how they measure quality and how often.

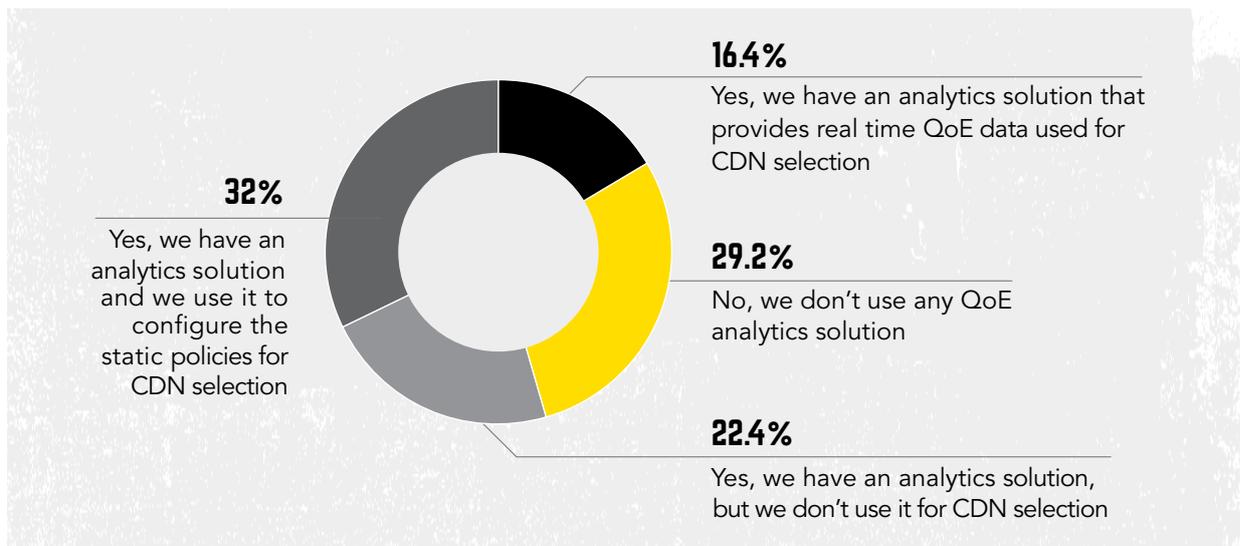
ABOUT THE SURVEY

The online survey was conducted in May 2020 via an email-distributed questionnaire to 300+ streaming industry decision makers. The below charts show how the respondents' monetization models and vertical affiliations were distributed.



QUESTION 3

Are you using any kind of end user analytics solutions to measure video quality, and if so, are you using input from that solution as part of your multi CDN selection?



55%
said they lack means to correct quality-affecting issues in real time.

As much as nearly 30% (29.2%) of the respondents said they do not use any kind of end user QoE analytics solution.

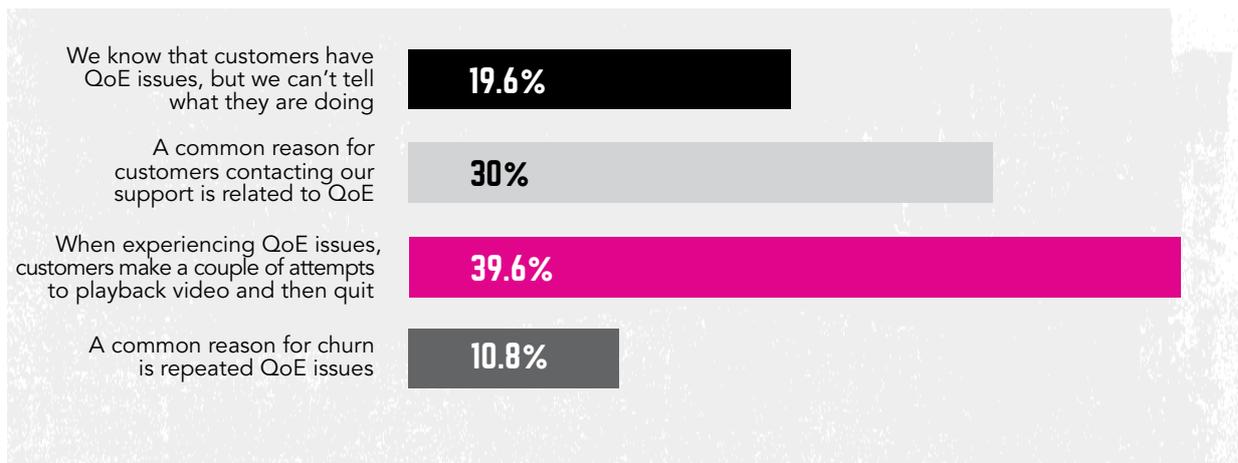
Even though 70% of respondents said they had an analytics solution in place, **55%** (32% + 22.4%) **said they have no means to correct any quality-affecting issues in real time.**

KEY CONCLUSION

Without any tool to indicate video quality, providers are left with no insights whatsoever into QoE issues. And, without any possibility to fix issues within the buffered time, it becomes difficult to optimize end-users' viewing experience. This could have a considerable impact on customer churn and loyalty.

QUESTION 4

Do your customers experience QoE related issues, and if so, what do they do when they happen?



39.6%

said their customers quit the service after a couple of attempts to play back the video when experiencing QoE issues.

The respondents' answers indicated that the consequences of bad quality can be significant.

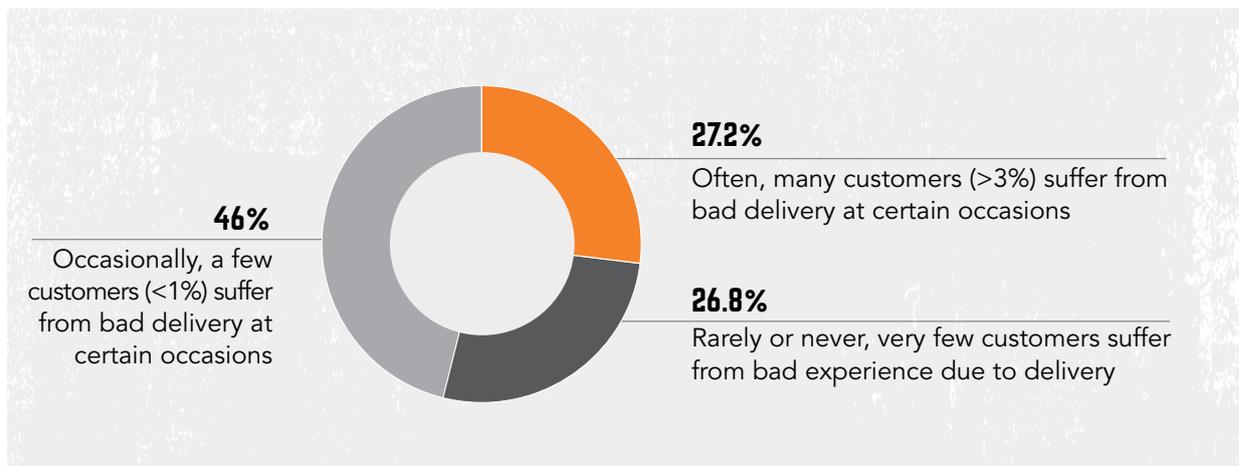
39.6% of respondents said that their customers quit the service after a couple of attempts to play back the video when they experience QoE issues. 20% said that they do know their customers have QoE issues, but are not able to tell how their customers react.

KEY CONCLUSION

Without knowing who is experiencing issues and not being able to compensate for the bad quality experience, the risk is of course that these customers won't stay long. Even worse, they might spread their negative impression to others.

QUESTION 5

To what extent and how often do you experience that problems with delivery impacts your business in a negative way?



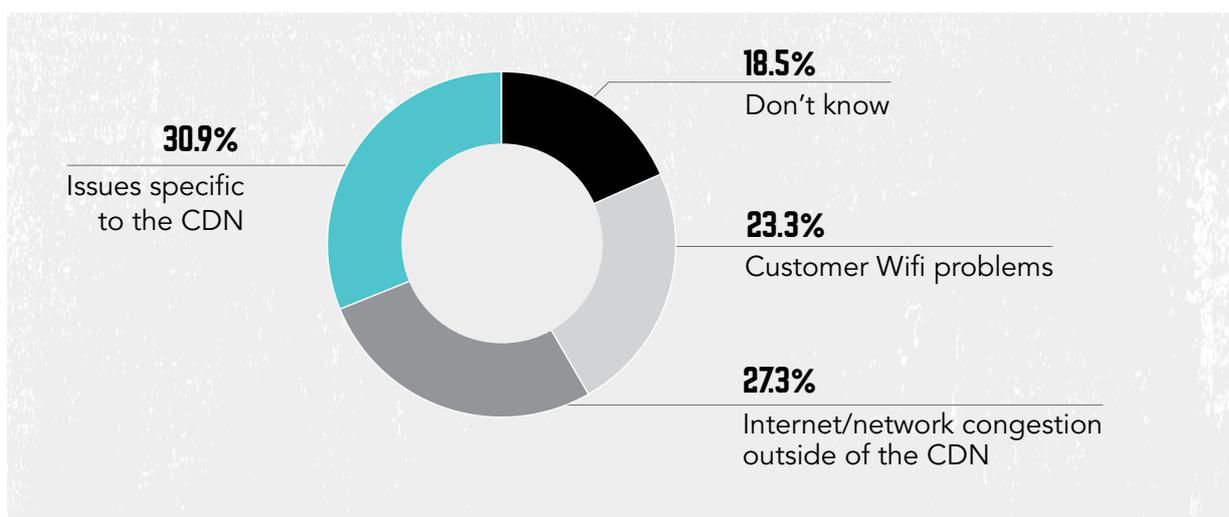
Just over a quarter (27.2%) said that more than 3% of their customers often suffer from bad delivery on certain occasions.

KEY CONCLUSION

The frequency of QoE related issues is another factor to consider when judging the impact quality drops might have on the overall business.

QUESTION 6

In your view, what affects the end user experience most?
(Select all that apply)



30.9%

said "issues specific to the CDN" is the number one factor affecting end user experience.

There are several factors that impact the end users' experience, including the CDN used, the internet/network congestion outside of the CDN, and WiFi problems. **Nearly a third (30.9%) said that "issues specific to the CDN" is the number one factor affecting end user experience.** Internet problems and WiFi issues together account for 50% of the QoE cases, and almost 20% (18.5%) didn't know what affects the experience.

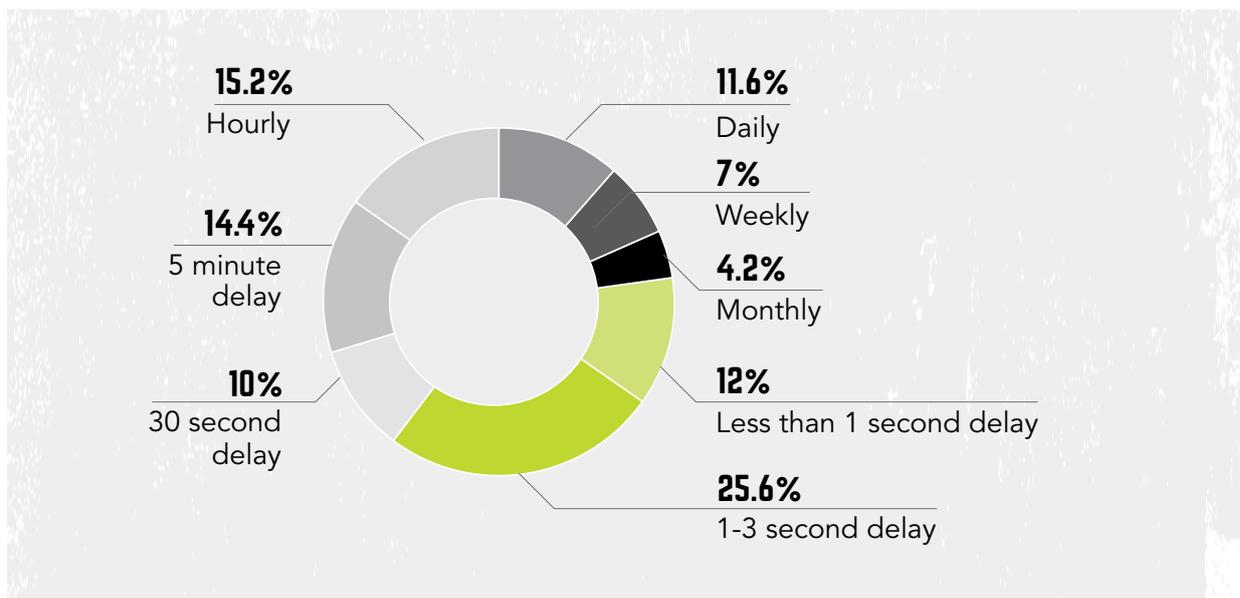
KEY CONCLUSION

The ability to isolate and analyze problems reduces the time customer support centers need to spend on troubleshooting and diagnosing problems. Separating CDN-related problems from internet- or WiFi-related problems can speed up the resolution time dramatically and impact customers' video quality significantly.

By presenting customers with a reason as to why they are experiencing problems, they tend to be more understanding compared to those situations where no reasons are given.

QUESTION 7

What speed of real-time performance monitoring and management in your distribution infrastructure is required?



37.6%

requires 1-3 sec or less delay

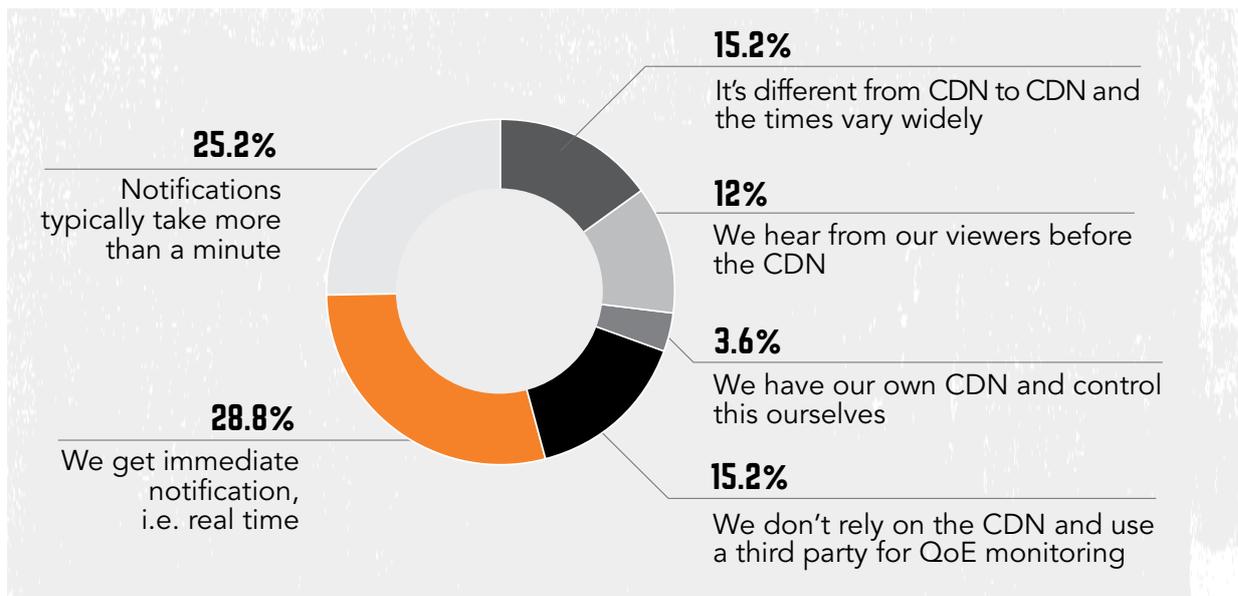
Almost 38% of respondents said they require a 1-3 second or less delay.

KEY CONCLUSION

Speed is important when problems are to be prevented. The earlier an indication of a CDN performance issue is known, the better the chances are to fix it within the buffered time and thus preventing it from turning into a real end user QoE problem.

QUESTION 8

If using third party CDNs, how long does it take for them to notify you of a performance problem impacting your QoE?



INCONSISTENT

QoE measurement reporting among CDN vendors

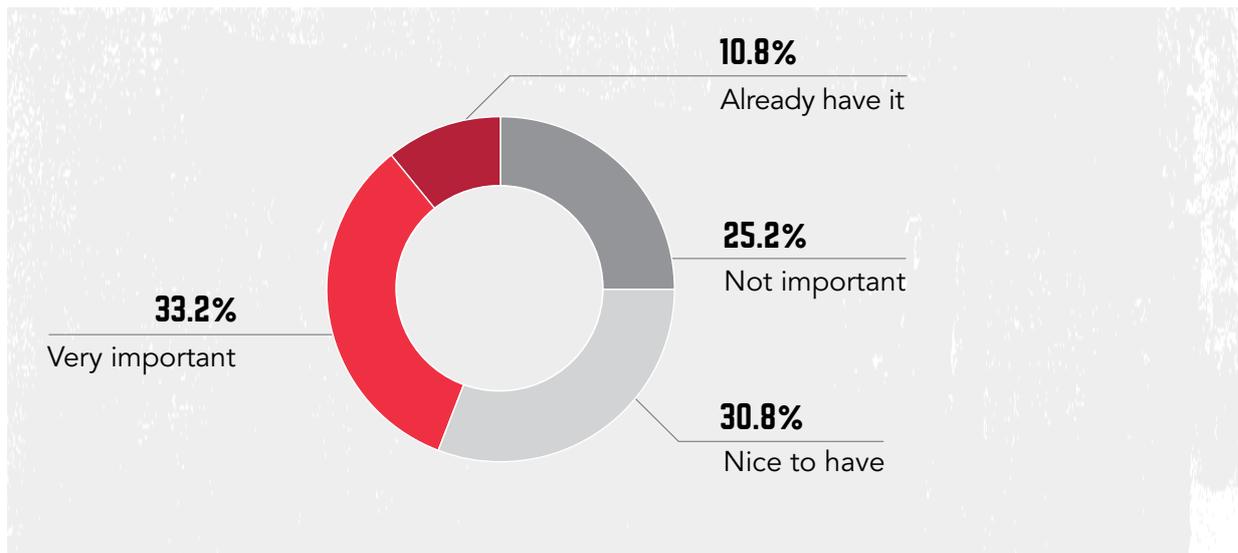
While the answers were widely spread out across the options available, 15.2% said that each CDN vendor reports performance problems impacting the QoE differently, and that the times vary widely.

KEY CONCLUSION

The lack of a unified view of all CDNs' performance makes it more difficult to act on performance issues in-time. Mitigating *early indications* of problems before they actually turn into *real* customer-impacting problems is key to keep quality high.

QUESTION 9

How important would it be to be able to manage and monitor your infrastructure and viewers performance within 1-3 seconds?



44%
believe real-time (1-3 sec)
monitoring and managing
capabilities are key

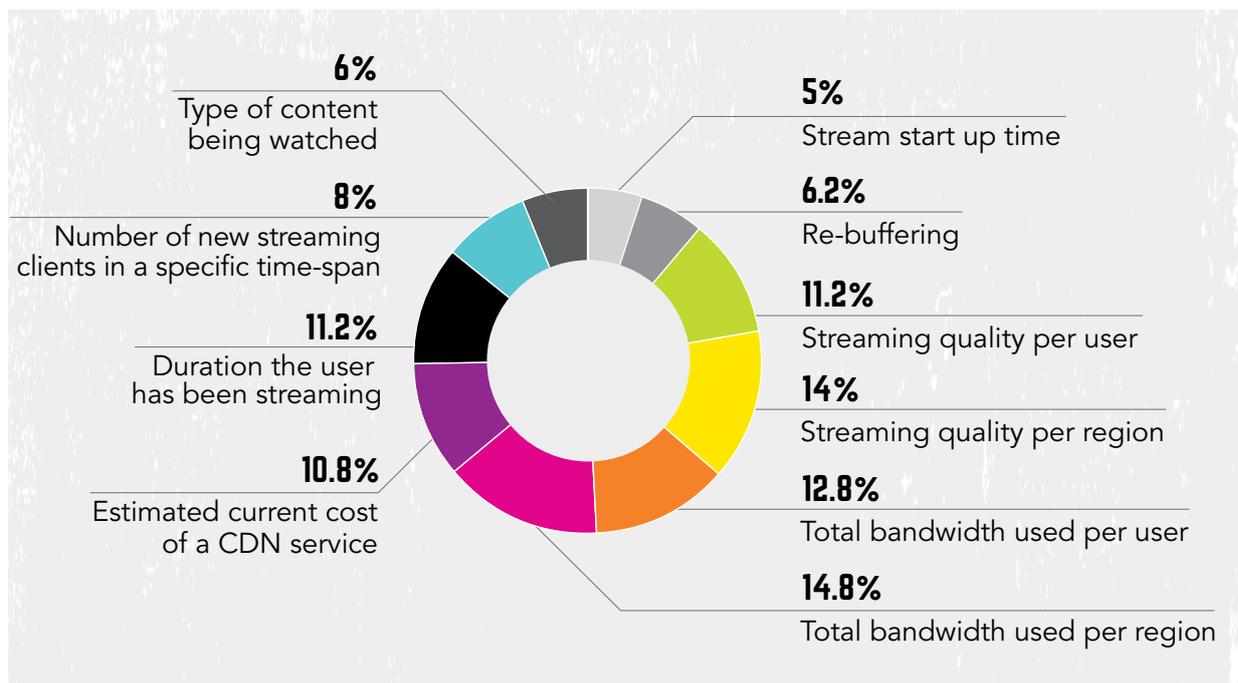
33.2% said it was "very important". Almost 11% (10.8%) said they already have this capability. Adding the two together, **44% of the respondents believe real-time (1-3 sec) monitoring and management capabilities are key**, and 30.8% think it is "nice to have".

KEY CONCLUSION

Pairing these responses together with the responses from question 7, it is widely accepted that it is important to have a real-time system that quickly measures and reacts to potential quality drops.

QUESTION 10

Which real-time parameters would be the most important to you? (Select tree)



A BROAD
range of
data is
wanted

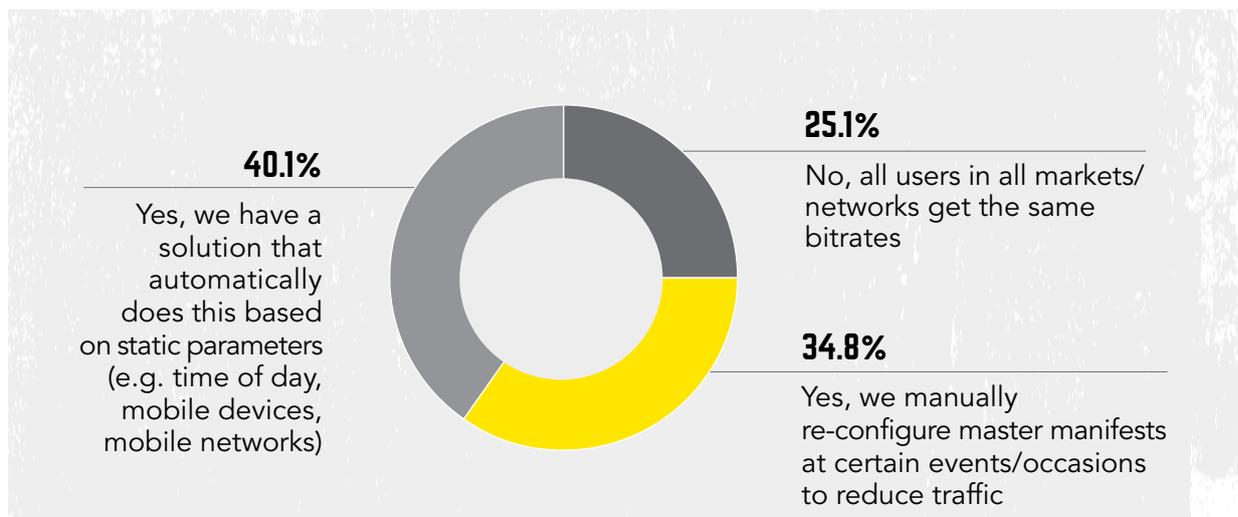
The answers were distributed pretty equally between the eight answering options given, indicating that a **broad range of data is wanted**.

KEY CONCLUSION

Accessing large amounts of data can enable 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 on streaming TV providers will alleviate.

QUESTION 11

Do you shape streams/bitrates in order to e.g. reduce traffic on the entire platform or in selected markets or networks?



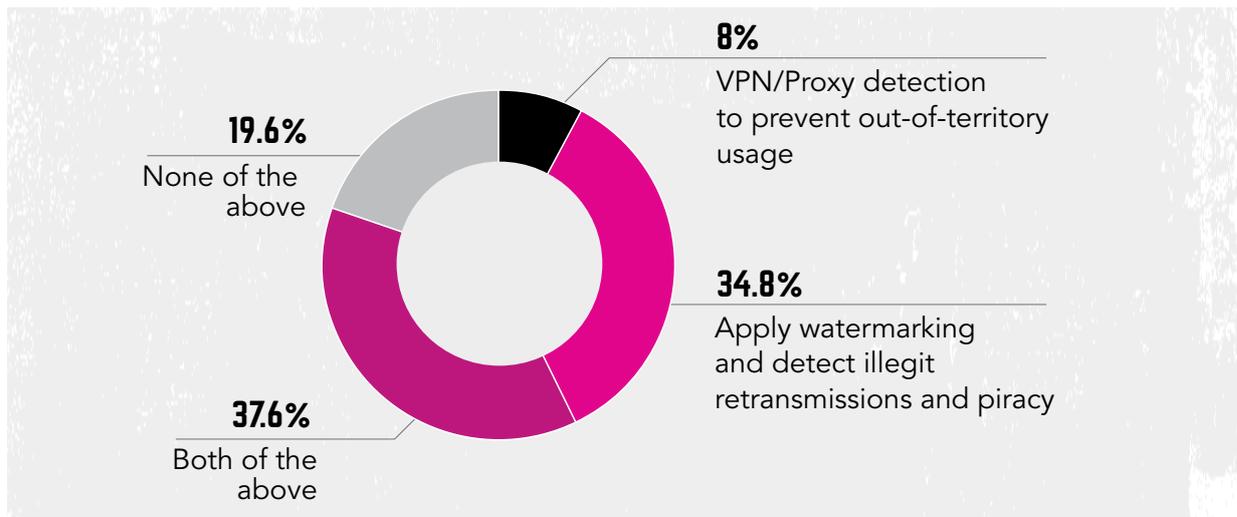
More than a third (34.8%) said “Yes, we manually re-configure master manifests at certain events/occasions to reduce traffic.”

KEY CONCLUSION

The ability to shape streams/bitrates enables streaming TV providers to adjust end users’ QoE to what the current network capacity level is efficiently. However, to avoid unnecessarily degrading the QoE it would be even more valuable to be able to dynamically shape streams/bitrates based on the user, the device, the location in the network and the current congestion level.

QUESTION 12

Which content protection means would be the most valuable to enhance your platform with?



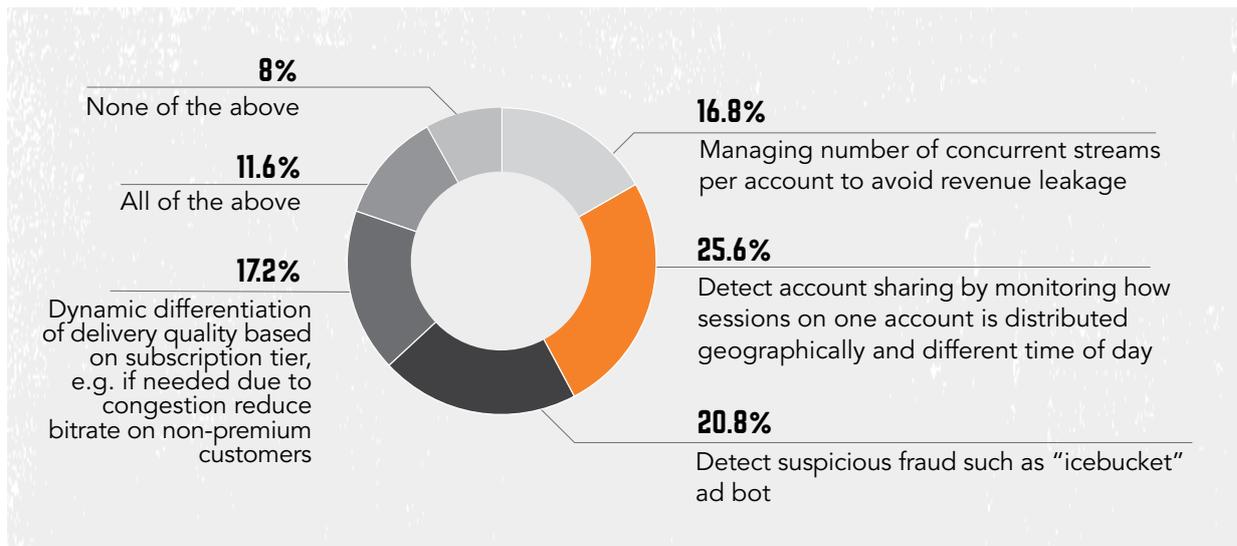
More than 70% of respondents (34.8% and 37.6%) wanted to apply watermarking and detect illegit re-transmission and piracy.

KEY CONCLUSION

For streaming TV service providers with a direct monetization model like SVOD or TVOD, piracy and illicit service access can generate a huge cost for premium content services. In today's streaming-first market, the means to prevent piracy in a cost-efficient manner is increasingly important, particularly as windowing principles evolve.

QUESTION 13

Which revenue assurance means would be the most valuable to enhance your platform with?



"Detect account sharing by monitoring how sessions on one account are distributed geographically and at different times of the day" was selected by one quarter (25.6%) of the audience.

KEY CONCLUSION

Having the means to detect and mitigate account sharing is important for streaming TV providers with a subscription monetization model. The advertising monetization model is heavily dependent on trust in the currencies. So, the ability to transparently detect and fight fraud is essential for all parties in the advertising value chain.

SUMMARY

With as much as 40% of respondents saying their customers would give up after a few attempts to play back the video when experiencing poor video quality, it's clear that streaming quality issues pose a significant threat to the bottom line in terms of dissatisfied customers, reduced customer retention and the potential reputational damage.

The survey indicates that 30% don't use any QoE analytics solution and even if the remaining 70% do, it is still a majority of them (more than 50%) who cannot fix potential problems in real time.

CONTROL THE MULTI-CDN DELIVERY

TO OPTIMIZE END USERS' QOE

Edgeware's cloud-based delivery control platform, StreamPilot, is built to solve the challenges pointed at in this survey. StreamPilot's server side QoE monitoring identifies the early key indicators of CDN performance issues, by "listening" in to every segment request from the client. As soon as a client asks for a segment at a lower bitrate than what is available, StreamPilot gets an early indication that the CDN delivering the segment is not performing at 100%. With this information, StreamPilot provides the option to move the stream to another CDN during the ongoing session, thereby avoiding a quality problem for the end user. This process can also be automated, ensuring your customers always have the most optimized CDN delivering their video streams.

StreamPilot delivers in-stream CDN selection based on key session data. This, in combination with additional information such as client location and which ISP it is connected to provides valuable insights to detect and prevent quality issues.

StreamPilot is a cloud-based service and operates totally independent of delivering CDN, client device type and video formats.

If you're struggling to identify and fix video streaming issues, get in touch to find out how we can help.

More information about StreamPilot can be found here:

www.edgeware.tv/products/streampilot/

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