In the COVID-19 era, service quality matters more than ever

Assuring quality for key applications

Use case

The massive increase in network traffic caused by the COVID-19 crisis has made it incredibly hard for many communications service providers (CSPs) to assure the service quality of popular applications such as video streaming and online gaming. To meet customers’ expectations, CSPs need real-time visibility into network and service quality, supported by operational automation and the intelligence to proactively detect and resolve issues.

This use case looks at how CSPs can use Nokia Assurance Center and Nokia AVA Predictive Video Analytics to accurately identify where issues are coming from and then respond in the most appropriate way to improve the customer experience.
CHALLENGE

More traffic, more problems

Some applications have proven to be more essential than others during the COVID-19 crisis. Videoconferencing solutions such as Houseparty and Zoom top the list, whether used for business meetings or personal get-togethers.¹ One Nokia CSP customer saw WebEx and Skype for Business traffic increase by 1000% and 600%, respectively, during the first week of lockdowns.² Cloud gaming services and video streaming have also surged as people look for ways to stay entertained at home, with one CSP reporting a 300% increase in streaming video traffic driven mainly by Netflix and YouTube.

Video traffic, however, is quite sensitive to network congestion: as more people use video services, there’s a greater chance the quality of experience will suffer. The real-world impact of heavy traffic volumes was seen in a Nokia analysis of crowd-sourced data³ from Milan, Italy: self-reported customer experience scores for video and content-sharing services fell by up to 19% in March 2020 compared to January.

In some countries, the major streaming services reduced their default video quality to ease network congestion, but that’s a short-term fix. CSPs need to find a way ensure consistently high quality for these key services if they are to increase customer loyalty and decrease churn now and over the long run.

For videoconferencing platform Zoom, the number of lunchtime calls and meetings increased by 500% — and weekend calls by nearly 2,000% — in April when compared to February.

¹ CNET. Zoom calls on weekends are up almost 2,000%.
² Nokia. Working efficiently to deliver your connectivity in extraordinary times.
³ Data was sourced by Tutela, an independent data company with a global panel of more than 300 million smartphone users.
APPLICATION

The hyper-connected household

Picture a housebound family during the COVID-19 lockdown. The parents are both working remotely, with one trying to run a small business. The kids are attending virtual classes and gaming online with their friends. Everyone is streaming a lot more video and doing more videoconferencing to stay connected with friends, family and colleagues.

Now imagine this family is in a market where fixed-line broadband service isn’t totally reliable and speeds are sometimes sub-par. They often rely on LTE, tethering their laptops and other devices to their smartphones. But lately they’ve been experiencing issues watching Netflix over LTE, including decreased video resolution plus plenty of freezing and buffering.

From the CSP’s perspective, Netflix might be considered “just another OTT service” — getting no different treatment than any other mobile data. Yet while there’s no contractual commitment to ensure a certain level of Netflix performance, during the pandemic, the family “feels” poor video quality more than ever. If the problem persists, they may take their accounts to another provider.

The perception of quality is a huge issue for CSPs. To provide the best possible experience to this family and others like them, they need to take advantage of automation and machine learning so they can see the full picture of how the network and services are performing.
SOLUTION

Assuring service quality for key applications

To make informed decisions about how to improve network and service quality, CSPs first need near real-time visibility into how those services are performing against their defined quality and threshold standards. Nokia can provide that visibility and more.

Nokia Assurance Center

Nokia Assurance Center is a cloud-native platform that provides end-to-end network and service assurance. When combined with the Nokia Orchestration Center and FlowOne service fulfillment solutions, it makes up the Nokia Digital Operations Center, enabling the closed-loop operations CSPs need to monitor and drive operational prioritization for OTT services such as Netflix.

Dynamically defined datasets let CSPs monitor the network infrastructure according to categories of applications, network elements or locations, such as a densely populated area or one that’s heavily served by a specific group of cells. Dynamic definition allows that area to be monitored especially closely. When problems are identified — “top offenders” such as parts of the network where congestion is happening due to poorly performing resources — action can be taken. For instance, traffic steering reports can be generated to analyze and optimize traffic on the existing 3G and LTE networks that are bearing streaming video.

Nokia Assurance Center enables dynamic datasets to monitor focus areas

4 The new Nokia Assurance Center includes many of the capabilities featured in the previous Nokia Performance Manager and Nokia Service Quality Manager solutions.
Nokia AVA Predictive Video Analytics

Predictive analytics can provide CSPs with highly granular insights and automatic recommendations to improve mobile video quality. Nokia AVA Predictive Video Analytics collects data from live traffic, comparing the quality of experience (QoE) for different subscribers across geographic locations, device types, time of day and other factors. Integration with the Nokia Assurance Center enables CSPs to accurately identify and quickly resolve the top issues affecting mobile video QoE (e.g., radio interference) and where they are occurring (e.g., cells experiencing initial playback delays, geolocation of instances where video freezing is happening).

In Nokia AVA, QoE is represented by a video mean opinion score (VMOS) for individual subscribers that ranges from 1 (very bad) to 5 (perfect, without any perceived audio or visual degradations). Machine learning accelerates troubleshooting by generating an automated library of network issues known to affect QoE (“signatures”) as well as recommended fixes for each signature. The entire end-to-end delivery chain is analyzed: radio, transport and core domains within the network as well as OTT content delivery networks streaming video services.

Example of a dashboard from Nokia AVA Predictive Video Analytics

By predicting where video quality improvements will produce the best results for the business, Nokia AVA also allows CSPs to boost the quality of experience for high-value subscribers while improving the way field engineers and network investments are allocated.

Nokia AVA Predictive Video Analytics helped a Tier 1 CSP in the U.S. reduce Netflix buffering by 59%.
BENEFITS

The smarter way to boost quality of experience

An automated, intelligent approach to network and service assurance makes it possible for CSPs to:

- **Get granular, real-time visibility** into the quality of experience received by customers
- **Identify and resolve the root causes of quality-affecting issues** faster and more efficiently
- **Optimize the customer experience in real time** by using machine learning to analyze live traffic
- **Reduce video streaming buffering** through the use of predictive video analytics
- **Decrease site visits and truck rolls** by providing customers with self-care recommendations

Quick solutions to secure network performance and scale to meet dynamic demand

COVID-19 has had a huge impact on all of society and especially how people connect and communicate. By embracing automation and intelligence in their operations, CSPs can overcome the immediate challenges they face today during the pandemic, including the need to assure quality of experience for key applications and services. By adopting these capabilities today, CSPs will also set themselves up for longer-term 5G success: automation and AI will be essential to capitalizing on 5G opportunities in new vertical markets and assuring end-to-end quality across a diverse range of use cases and business models.

The investments CSPs make today in operations automation and intelligence will pay off in the long run as they evolve toward the 5G era.

Nokia offers a robust portfolio of software-based solutions that can be deployed quickly and remotely right now to help CSPs overcome their COVID-19 challenges, often with no extra hardware or on-site installation required.

Find out how you can deliver the extraordinary during the COVID-19 crisis. Visit our Operations in 5G webpage to learn more.