

# Identifying Voice Quality of Service Mismatches With nGeniusONE

Like many organizations, this financial services company relies on high-quality Unified Communications & Collaboration (UC&C) technology to support daily business conference calls and video sessions. One of the company's regional business centers serves as a primary operations base for many members of the executive management team. In this regional location, the executive team uses Microsoft® Skype (Skype) to deliver voice and video services for important, high-level business communications.

## Impact

In early-2020, company executives began contacting the information technology (IT) Service Desk to express concerns with the sudden emergence of poor-quality telephone calls and their adverse impact on daily business. Given the business-relevance of their daily communications, the executives expressed their loud-and-clear frustrations with these poor-quality calls.

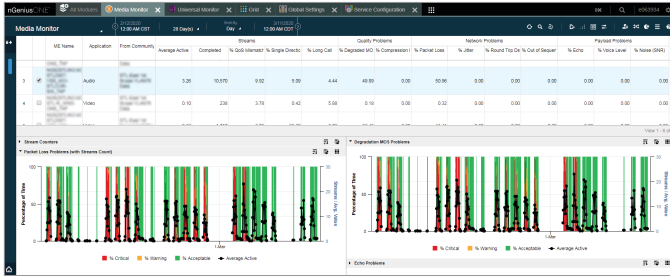
Poor experience with voice or video communications can range from connectivity issues (e.g., dropped calls or lengthy delay connecting) to voice quality issues (e.g., choppy voice, echo, or one-way voice). Depending on the type of problem, the impact can be minor (e.g. a slow connection with the rest of the call being fine), to poor quality voice that frustrates a customer, to perhaps dropped calls that make the customer take their business to another company.

With nearly 750,000 annual voice calls at this executive facility, the impact on customer service, business productivity, and possibly revenue made this an IT service priority.

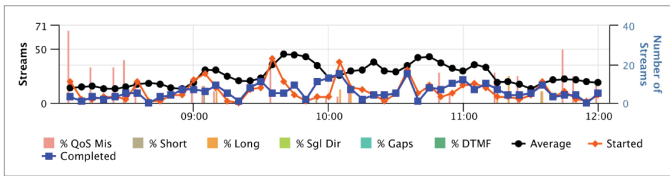
## Troubleshooting

This company is a long-time nGeniusONE® Service Assurance customer, and they leveraged their contracted NETSCOUT® Remote Site Engineer (RSE) to investigate the Skype issues. nGeniusONE was the logical starting point to analyze these Skype voice issues, offering performance analytics, reporting, Quality of Service (QoS) assignments, and workflows for analysis.

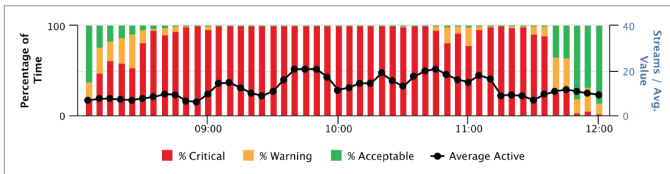
The RSE was well-versed in the network traffic flows throughout the company's enterprise environment, including between the executive facility and two data centers and how that architecture impacted service delivery. The voice traffic from the executive facility initially routes to a secondary data center, then onto a primary data center. In assisting the IT team with troubleshooting, the RSE used nGeniusONE Service Monitor views based on NETSCOUT InfiniStreamNG with Smart Data installed at the two data centers to determine whether the IT team's efforts to change voice performance QoS values had a positive impact on voice performance. As part of that troubleshooting, the RSE used an nGeniusONE Media Monitor view to show calls with critical voice degradation traversing from the secondary data center to a monitored network link into the primary data center, as seen in Figures 1 through 4.



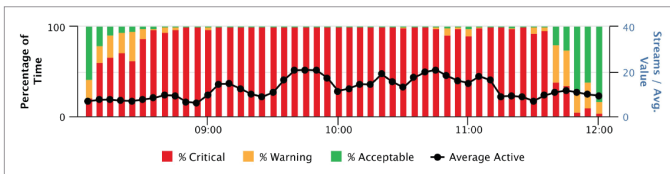
**Figure 1: nGeniusONE Media Monitor view providing quantifiable metrics to measure QoS for degraded voice communications. In this example, the nGeniusONE Packet Loss Problem and Degraded MOS Problems analytics panels each show voice degradation of call flows traversing from the secondary data center to the primary.**



**Figure 2: This nGeniusONE Streams Counters view shows a high percentage of QoS mismatches, ranging from 70%, to 50%, to 30%.**



**Figure 3: This nGeniusONE view shows a high percentage of calls with critical Degradation MOS Problems.**



**Figure 4: Similarly, call quality was impacted by a high degree of packet loss.**

## Remediation

Based on the Media Monitor evidence, the NETSCOUT RSE then used nGeniusONE troubleshooting workflows to identify a potential issue regarding how the secondary data center had defined DSCP (Differentiated Services Code Point) value of voice traffic to enable Skype UC&C QoS. Reviewing nGeniusONE metrics generated from the NETSCOUT smart data sources operating at the secondary data center, the RSE could see the DCSP QoS was set at a priority voice queue for traffic flowing from the executive office to the secondary data center. However, when voice traffic was forwarded from the secondary to the primary data center, the DCSP QoS class was getting stripped from the priority voice queue, which resulted in the packet loss, jitter, and low MOS scores adversely impacting Skype call performance for the executive team. QoS mismatch configuration issues of this kind can result when configuration changes are made across switches and routers at multiple data center and business centers.

With the RSE’s consultation, the IT team then modified the DSCP across all locations to quickly correct the issue. With these configuration changes made, high-quality voice performance was quickly returned to company executives.

## Summary

The financial company was able to quickly troubleshoot and resolve this critical voice performance issue using available nGeniusONE performance analytics and NETSCOUT smart data sources already established in their production environment.

While this IT housekeeping is part of the value nGeniusONE delivers to this customer on an everyday basis, solving this voice performance issue in a timeline so close to the publicized arrival of the North America COVID-19 pandemic was key to assuring future business continuity of executive voice communications and remote videoconferencing – all of which would soon prove crucial in running the business out of remote offices.



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