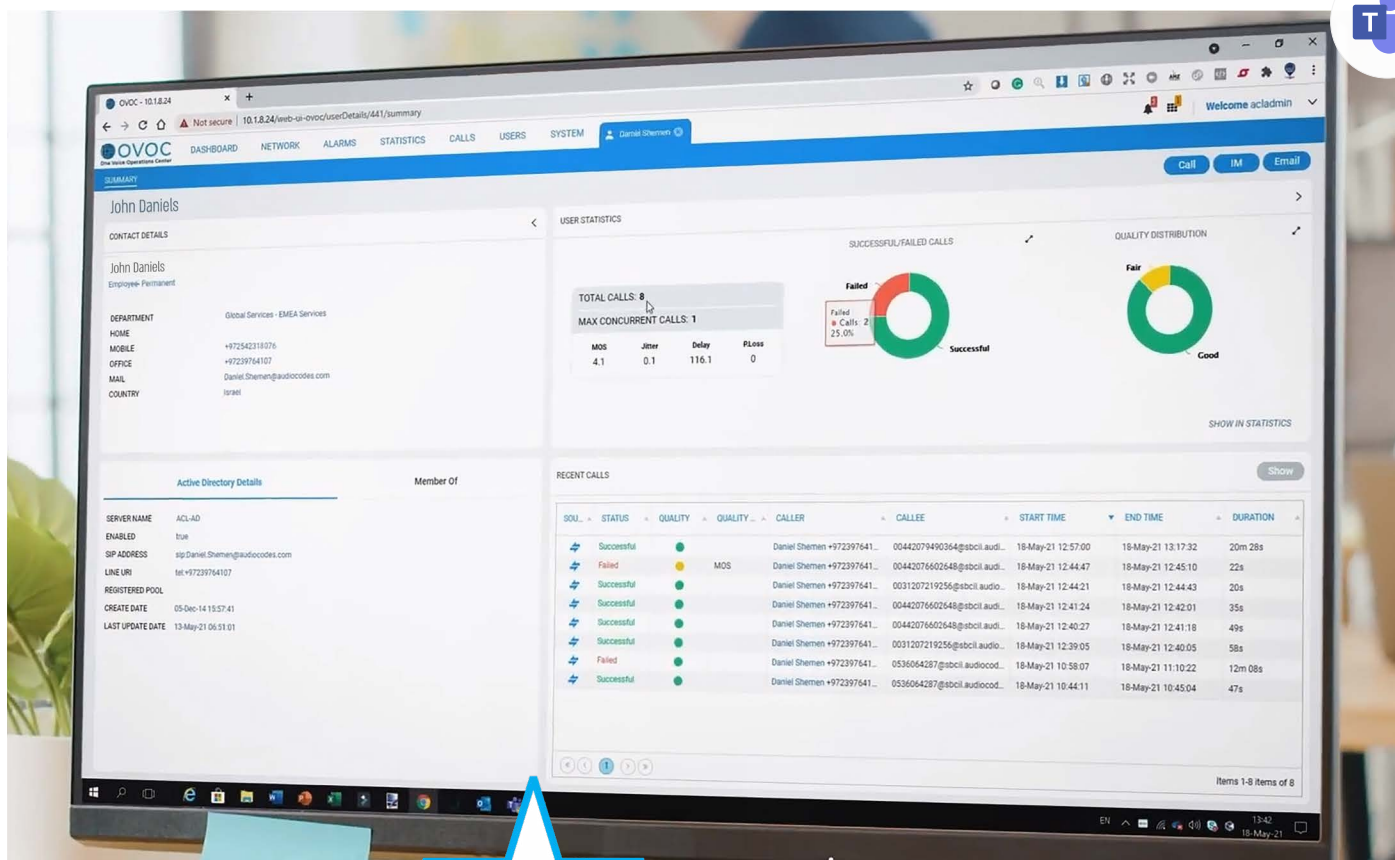# AUDIOCODES APPLICATION NOTE

# One Voice Operations Center

Quality of Experience Monitoring for Microsoft Teams Calling

Since Graham Bell invented the telephone almost 150 years ago, not much has changed in the basic concept of a phone call. Certainly, the media has changed over time – analog lines, digital lines, VoIP, underwater cables, satellites, cellular networks. But the idea of two remote parties talking to each other over two virtual lines has remained largely the same.

In recent times, however, particularly during the last year when most of us have been working from home using unified communications and collaboration solutions to communicate with our colleagues, business partners and customers, this concept has been shattered. The familiar notion of a 2-party telephone call has undergone a seismic shift.

Leading the way in this communications revolution is Microsoft Teams, with an impressive 270 million monthly active users as of January 2022. In Teams, calls, meetings or collaboration sessions can have anything from one to hundreds of participants. Determining when a call starts or finishes is also much harder to define: participants can join and leave calls at any time, as well as going on hold or muting themselves. They can join in audio-only mode and add video or vice versa, and any participant can start sharing their screen whenever they want.

A Seismic Shift in Telephony

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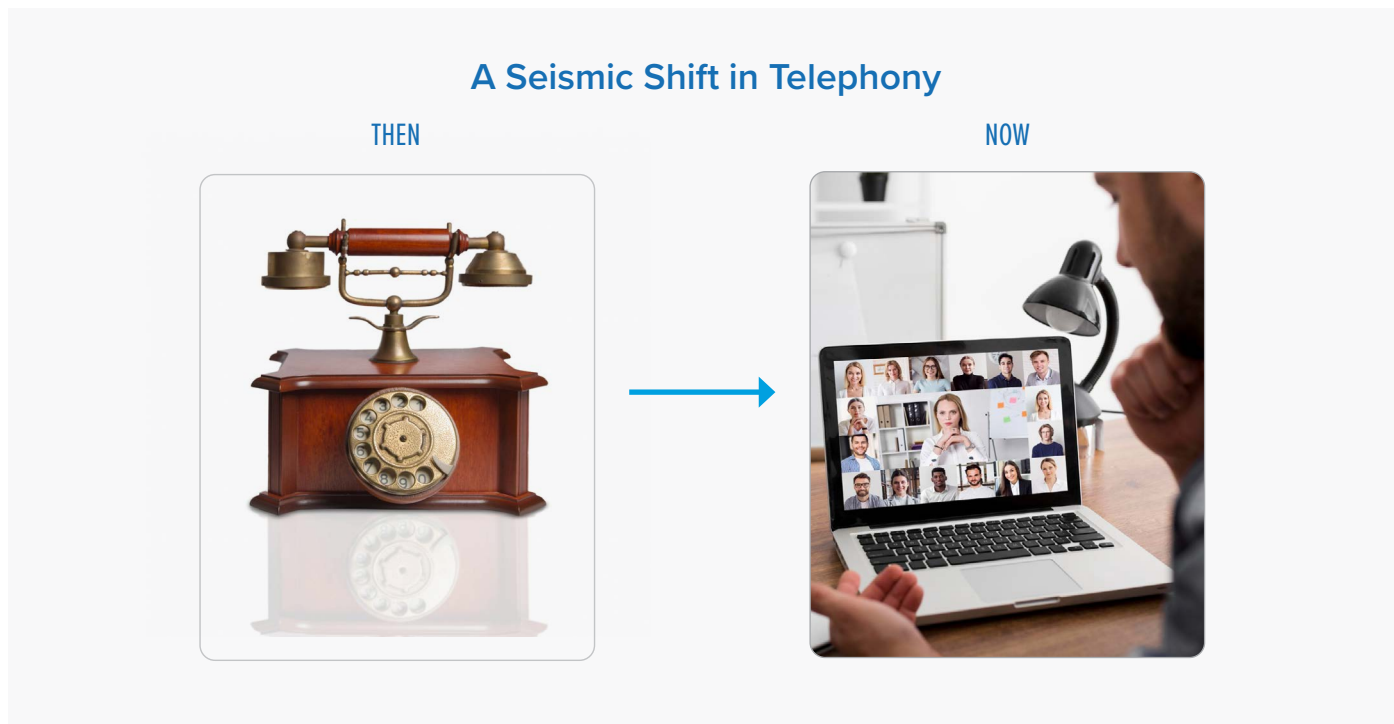
Part of the success of a new communications experience can be gauged by how readily users adopt the new technology and that will depend to a large extent on the quality of experience that the system offers. However, with the concept of the call becoming so fluid, measuring and monitoring quality of experience becomes much more complex. With potentially so many parties and modes involved how do we measure the quality of experience and from whose point of view?

In this application note, we will look at the challenges involved in Microsoft Teams quality of experience monitoring for both internal, peer-to-peer Teams sessions, as well as Direct Routing calls between Teams users and external parties via SIP trunks and the PSTN. Then we will describe AudioCodes' solution for QoE monitoring delivered by the One Voice Operations Center (OVOC).

QoE Monitoring in Teams – The Challenge

Delivering high quality of experience is critical in boosting adoption rates for new unified communications solutions such as Microsoft Teams. If calls are dropping unexpectedly, participants cannot be heard or speakers' voices sound distorted, administrators will be facing an uphill battle to convince users to use the new UC platform as their default for day-to-day business.

In a Teams environment, Direct Routing SBCs provide connectivity between Teams clients and endpoints on one side and SIP trunks and the PSTN on the other. By virtue of their position within the Teams calling architecture, Direct Routing SBCs are able to monitor and record the voice quality of each call directly, end-to-end from the Teams client via the SBC out to the SIP trunk. This can provide IT managers with essential insights into their users' quality of experience.

However, SBCs do not have any visibility into peer-to-peer Teams calls between clients and endpoints within the same tenant. Microsoft does offer the Call Quality Dashboard (CQD) application for quality monitoring but it only covers internal Teams sessions. Fortunately, Microsoft's Graph API exists to export a vast array of information relating to all forms of Teams-to-Teams calls, including conference calls, chat, video and voice quality of service. In addition, the API provides information about call participants and the devices they are using, as well as technical information about call signaling and lower-level network layer protocols.

Thus, we have the ability to monitor voice quality for Direct Routing calls via the SBC and SIP trunk on the one hand and for internal Teams calls via the Graph API on the other. Until now, administrators needed two separate applications to view and analyze the data provided from the two different sources. To make life easier, we need a solution that combines these two sources of data into a single repository enabling IT managers to achieve a holistic, network-wide snapshot of voice quality, reduce time-to-repair and improve users' quality of experience.
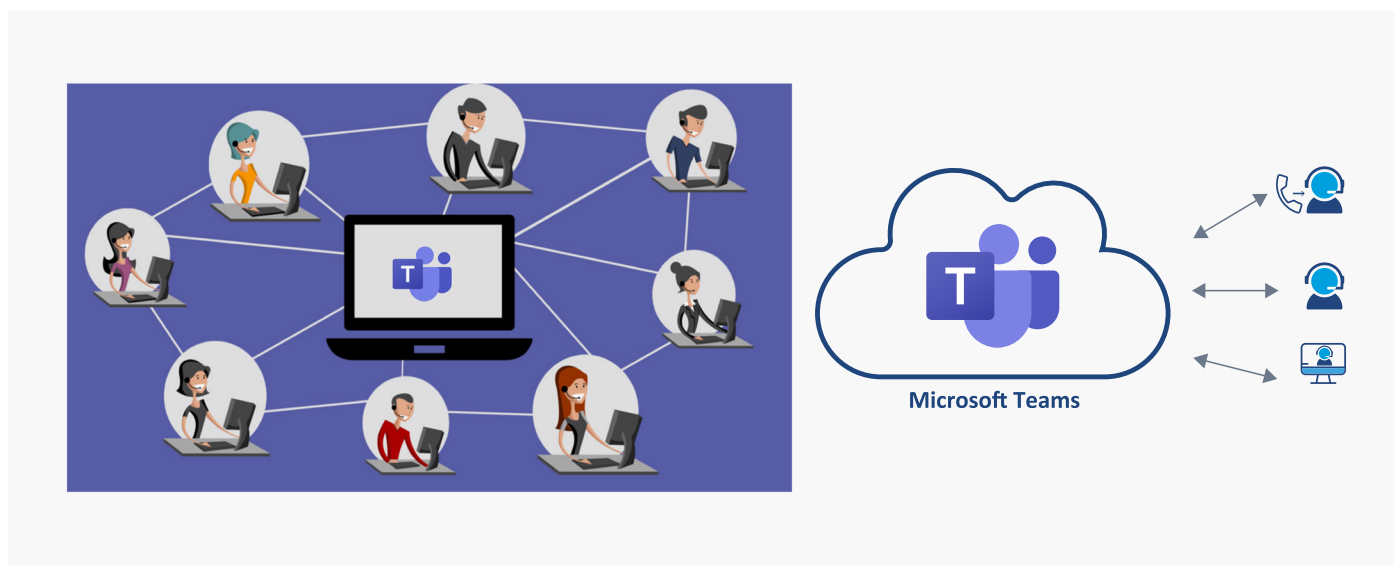
Putting it all together – OVOC End-to-End Teams QoE Monitoring

AudioCodes provides an answer to this dilemma with the innovative One Voice Operations Center (OVOC) management solution. OVOC is a voice network management solution that combines management of voice network devices and quality of experience monitoring into a single, intuitive application. OVOC enables administrators to adopt a holistic approach to network lifecycle management by simplifying everyday tasks and assisting in troubleshooting all the way from detection to correction.

OVOC supports voice quality monitoring through call data that it constantly gathers from all the SBCs in the voice network, including Direct Routing SBCs in a Teams environment. This enables OVOC to identify quality issues in real time and mitigate them before they become service affecting.

Starting with software release 8.0, OVOC offers full integration with Microsoft Teams QoE monitoring services. The information provided by these services is combined with the SBC quality data to offer comprehensive end-to-end QoE monitoring for any Teams call or meeting session, presented clearly in OVOC's intuitive GUI screens. The end result for Teams administrators is the ability to ensure SLAs are fulfilled with reliable and high-quality Teams calling delivered to their users.
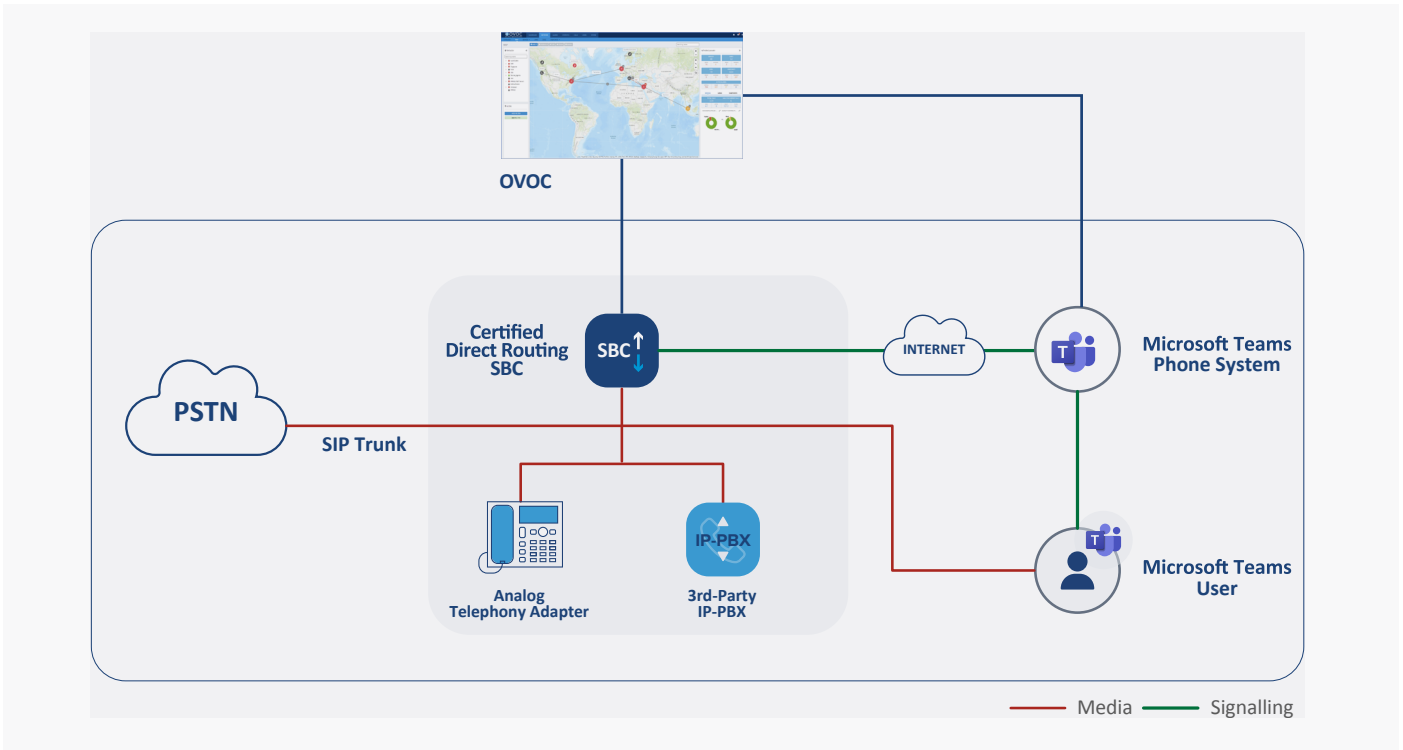
Figure 1 - OVOC in the Microsoft Teams Architecture

OVOC's QoE Monitoring Capabilities

So, what are the new capabilities offered by OVOC in the light of the new integration with Microsoft Teams?

OVOC enables administrators to monitor calls and identify voice quality issues by drilling down from the level of the network device or entity, right down to individual call legs.
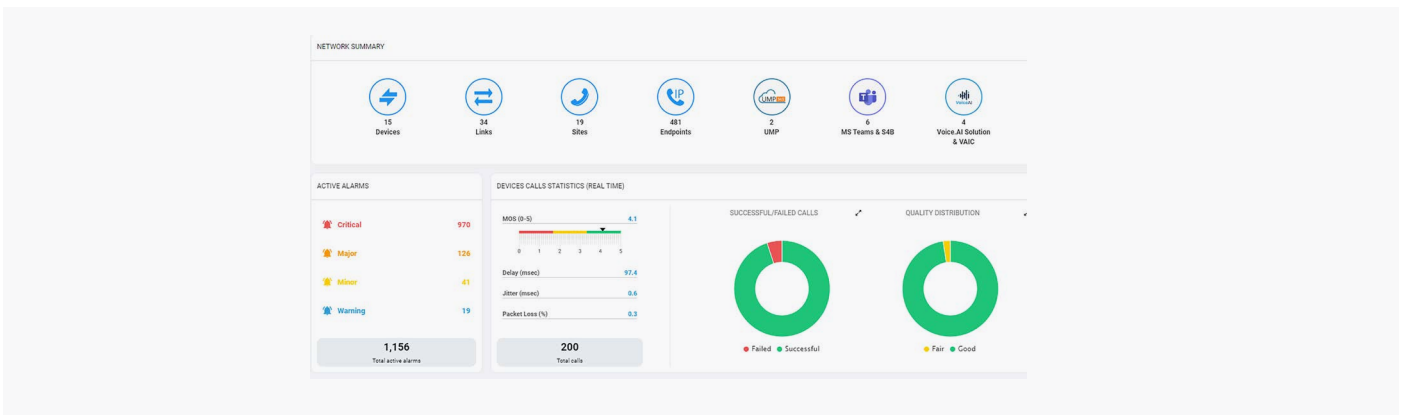

Figure 2 - OVOC Dashboard Screen

All call statistics (successful/failed calls, concurrent calls, call quality metrics) can be displayed for all sessions (including SBC and Teams calls) or for a specific call type.

Each Teams tenant is displayed as a standalone entity in the OVOC network topology map. To get an overall summary of call quality for a particular tenant, a single click on the Teams icon in the topology map will display a list of all the calls involving that tenant.

Figure 3 - OVOC Calls View

More detailed information can be viewed by clicking on each individual call. OVOC displays a huge array of statistics relating to call quality, network parameters and the devices involved in the call. Quality parameters are color-coded based on flexible QoE thresholds that can be defined by administrators to help easily identify the root causes of quality issues in the network.

Figure 4 - OVOC Call Details for SBC and Teams Call Correlation

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OVOC also enables multi-party Teams sessions and conference calls to be monitored by filtering the call list based on the specific conference ID.

OVOC includes extensive reporting tools that allow administrators to analyze their network's performance based on a wide range of parameters and metrics.

In addition to Microsoft Teams, OVOC supports quality monitoring for Skype for Business environments, as well. This means that companies migrating from Skype for Business to Teams can enjoy QoE monitoring for both environments during the migration and coexistence phases.

Conclusion

One of the major concerns of company executives when migrating to a new UC solution such as Microsoft Teams is how will their users' quality of experience be affected. Thanks to Graph API, AudioCodes' Direct Routing SBCs and OVOC putting all the pieces together, a comprehensive and effective solution is now available.

But don't just take our word for it. In their *Unified Communications Management and Endpoints: 2021-22* report, research firm Metrigy discovered that, when it comes to the most popular vendor for UC performance management tools, AudioCodes led the field. In fact, a very impressive 23.3% of respondents from companies with cloud infrastructure named AudioCodes as their primary vendor.
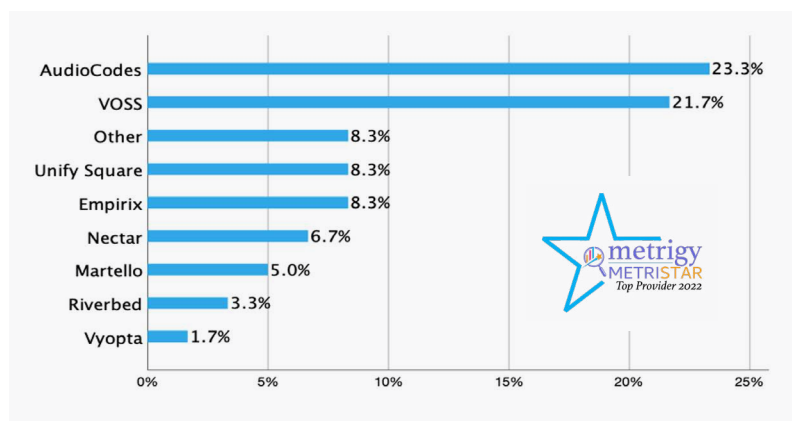
If you would like to learn more or arrange a no-obligation live demo, contact your AudioCodes representative. In addition, you can also try OVOC out for yourself with a free four-month demo license.

About AudioCodes

AudioCodes Ltd. (NasdaqGS: AUDC) is a leading vendor of advanced voice networking and media processing solutions for the digital workplace. With a commitment to the human voice deeply embedded in its DNA, AudioCodes enables enterprises and service providers to build and operate all-IP voice networks for unified communications, contact centers and hosted business services. AudioCodes' wide range of innovative products, solutions and services are used by large multinational enterprises and leading tier one operators worldwide.

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