Secure Real-Time
Communications

ribbon

Network Edge Orchestration for Microsoft Teams

Simply Powerful

White Paper

The Move to Microsoft Teams Calling

Microsoft got everyone's attention when they announced that Microsoft Teams would be their strategic client for unified communications, displacing Skype for Business. They were already promoting the use of Teams by including it in their enterprise licenses. Focusing on it for chat, calling and web conferencing effectively formed a potential combined market of the Skype for Business and enterprise Office 365 customer bases.

Two years after launching Teams, Microsoft were claiming victory; touting more than 500,000 organizations using the collaboration software on a regular basis. Though not all of these organizations are taking advantage of the calling capabilities we're finding that many are investigating the possibility. The biggest step toward widespread adoption by Microsoft was their introduction of Direct Routing: a capability of Microsoft Phone System that allows enterprises to connect their Session Initiation Protocol (SIP) telephony trunks to Teams through a certified session border controller (SBC). This allowed organizations to keep their existing service provider and on-premises systems and add calling capabilities to Teams at their own pace.

Teams and its calling capabilities are based in the Office 365 cloud. Phone System, like Office 365, is on the Azure cloud. There is no on-premises version. It is the certified SBC that connects on-premises equipment (e.g., PBX, common area phones, faxes) to Phone System. More and more applications have moved to the cloud, in recent years. This has made it possible to outsource some management and administration responsibilities and save money, especially for smaller organizations, through economies of scale.

Telephony has been a laggard in this pilgrimage for a number of reasons: Companies have existing contracts with their service providers. Some telephony is still on a different, non-IP, network. Traditionally, telephony was managed by a different group. Moving voice communications to the cloud, and off a network over which enterprise have complete control, surfaces concerns around privacy and security. Concerns about call quality has led many to a "wait and see" approach to migrating to unified communications as a service.

The Fastest Path to Success

As applications move to the cloud, we need to rethink the network for large distributed organizations. When applications were housed in a data center, it made sense to optimize the connections between headquarters and branch offices. The purchase of Multiprotocol Label Switching (MPLS) circuits has been the solution for connecting all network traffic back to headquarters from the branch office. Now that the applications are in the cloud, backhauling traffic to the data center and accessing the cloud from there may not be as optimal as having an internet connection at each branch office.

Microsoft recommends egressing Office 365 network traffic to the Internet close a user's location for better performance. The reasoning behind this is that Microsoft has a much faster global network that connects its cloud offerings. They have over 145 Internet peering interconnection locations where organizations can connect into the network. They have invested in both infrastructure (dark fiber) and technology (software defined networking) to ensure performance.

While latency is a topic for conversation when moving to cloud applications, it is a higher concern with real-time communications. Waiting for a file to upload may be annoying, but people have a lower tolerance for distorted audio. Given the robustness of the aforementioned Microsoft Global Network, any problems are likely to stem from the enterprise LAN or its connection to Phone System.

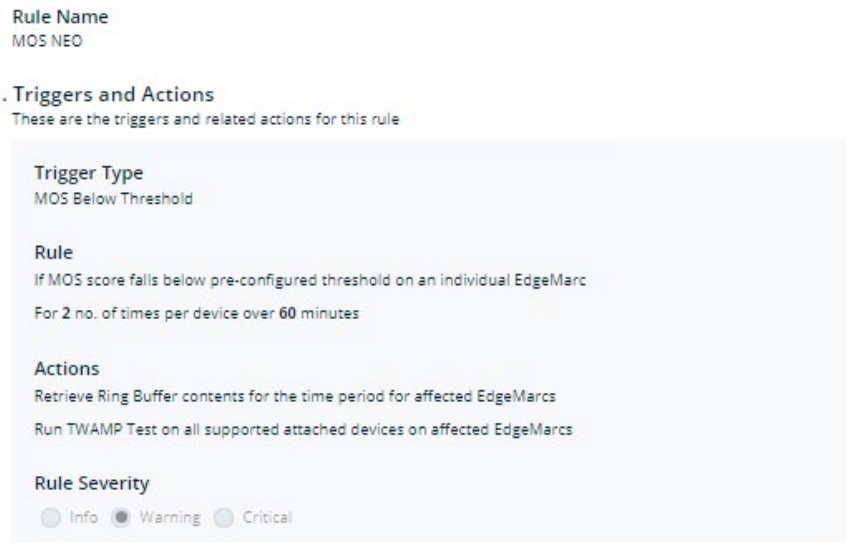
Having a device at each location that securely connects the office to Phone System reduces latency associated with backhauling traffic through a datacenter. Microsoft-certified SBCs are the fully supported way to connect to Phone System. Ribbon's SBCs are tested with the continuous improvements that are applied to Phone System, before they become generally available. This helps to ensure that there is no disruption to voice services. Additionally, Ribbon's technical support works closely with Microsoft support teams, sharing information so that problem resolution is expedited.

Orchestrating the Network Edge

One of the major advantages of data centers is their centralized monitoring and management. Subject matter expertise can be centralized with the hardware and software providing solutions to distributed offices. One concern with moving functionality to remote offices is that qualified individuals would need to be present for the administration of devices. Additional headcount would need to be added or resources allocated for travel of an administrator.

Ribbon has overcome this problem through zero-touch provisioning and centralized cloud management. An SBC shipped to a remote office requires only someone to connect it to the wide area network (WAN) for it to automatically download its configuration from a centralized server. This saves money by precluding the need for on-site expertise. Standard configurations can be tested and distributed across multiple sites, reducing steps in the troubleshooting process and speeding time to resolution.

Ribbon EdgeView Service Control Center (SCC) manages and monitors the SBCs from a single pane of glass. Devices can be grouped into collections, making them easier to manage. Triggers can be set, and actions defined for individual and groups of devices. Once alerted to issues, administrators can remotely troubleshoot; drilling down to SIP call ladders and making necessary changes to configurations. EdgeView SCC makes it possible to manage the SBCs as if they were in the data center.

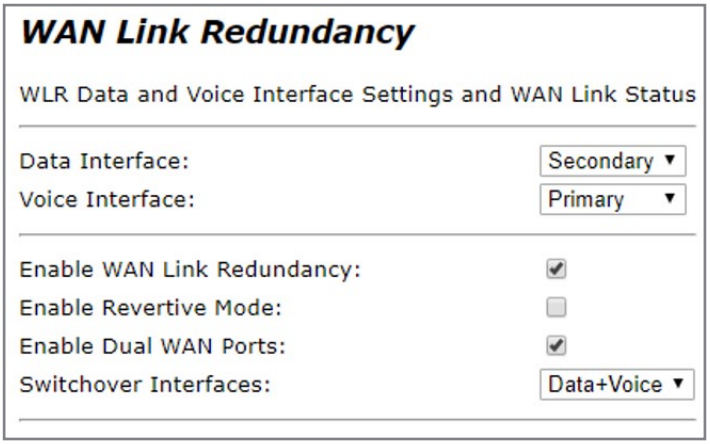


A Simply Powerful Way to Address Service Assurance

You only get one opportunity to make a good first impression. It's difficult to overcome a poor initial experience. This is especially true when moving from a technology with which people have become accustomed. It's natural for people to resist new ways of doing things when they are comfortable with the current practice, and they'll look for reasons why the old way was better. In an enterprise, this can delay the rollout of a new technology and adversely affect the IT department's reputation. If you are a service provider rolling out the technology to a customer, it can cause them to reverse their decision.

One challenge for software as a service providers is that the lack of capital outlay makes the decision to abandon one application for another, early on in the adoption, much easier. Avoiding delays and reducing customer churn can be accomplished using some simple, but powerful functionality.

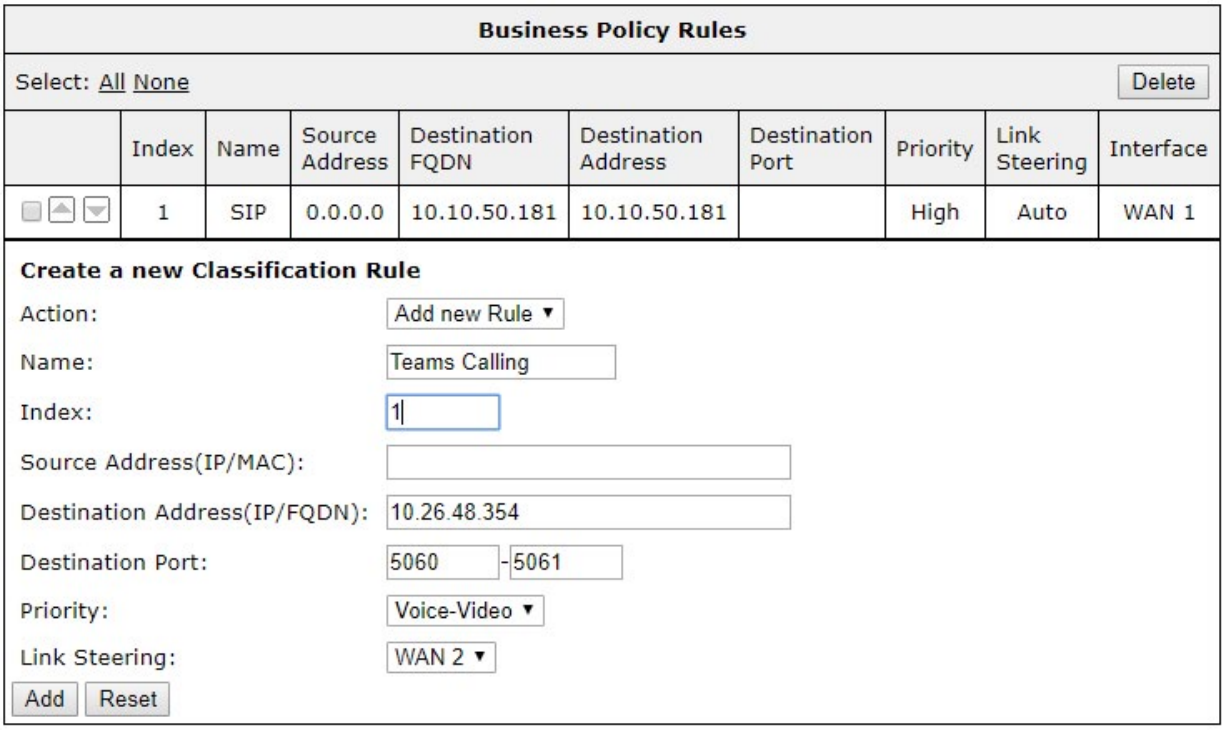
Software defined networking in a wide area network (SD-WAN) is one way to enhance the performance of a new technology over your network. SD-WAN can be complex, however, requiring knowledge of networking and topology. Ribbon's Network Edge Orchestration (NEO) includes some simple functionality that can have a profound effect on people's first impression of making phone calls from Teams.



Business continuity is an important, but often overlooked topic. When lines of communications are down, business suffers. One simple path to service assurance is redundancy. Ribbon SBCs have additional WAN ports that can be used in the event that the primary connection is interrupted. A wireless network antenna provides another option for connectivity. EdgeView SCC can be used to configure network traffic to failover to an alternate connection when needed.

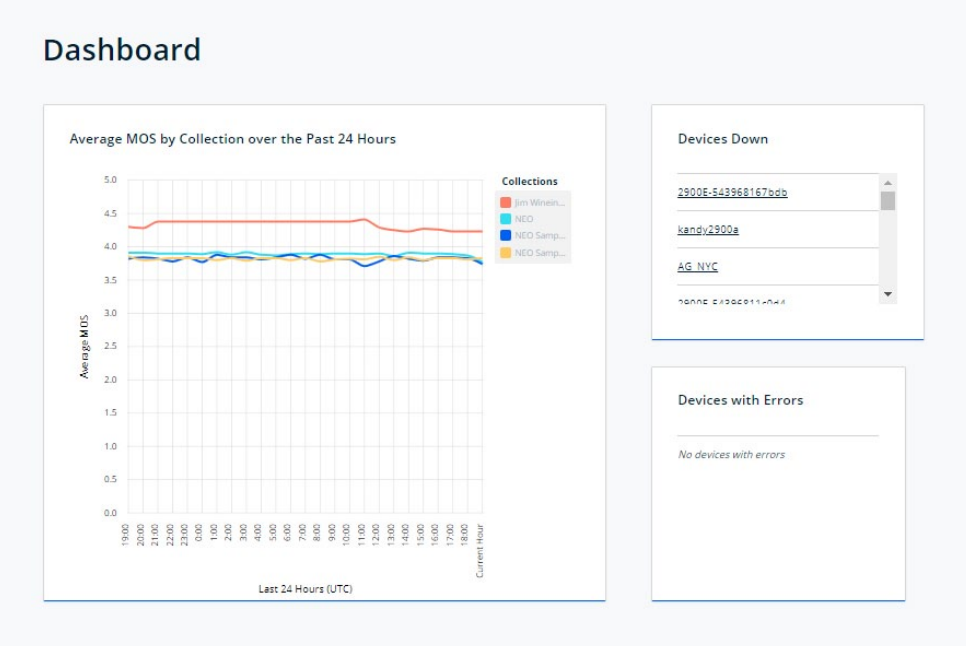
The major attraction to voice over IP (VoIP) is that it takes advantage of the same network that is used for data applications. There is no need to pay for, manage and maintain a separate network for voice calling. That attribute can be seen as a detriment when voice and application traffic are fighting for the same bandwidth. A colleague uploading a large file that negatively affects your customer call is cause for concern. Of course, the network and data application don't get blamed, because that's not where problem surfaces. The blame falls on Teams. People will complain about the call quality of the new system.

You can prioritize Teams traffic with NEO to enhance call quality. Teams traffic can be given a higher priority and directed over a dedicated connection to avoid conflicts with other applications. Prioritizing Teams traffic can reduce latency and packet loss that creates jitter in voice communications. "Jitter" is used to describe the garbled voice communications that we've all experienced at one time or another. With VoIP, sound is converted to digital form for transmission over the network. The digital representation of your voice is broken up into packets. The packets are sent over the network and put back together on the receiving end. If any of these packets are lost or don't arrive in time to be reassembled, you get jitter. Traffic prioritization smooths the path for these communications, making packet loss, latency and, therefore, jitter less likely.

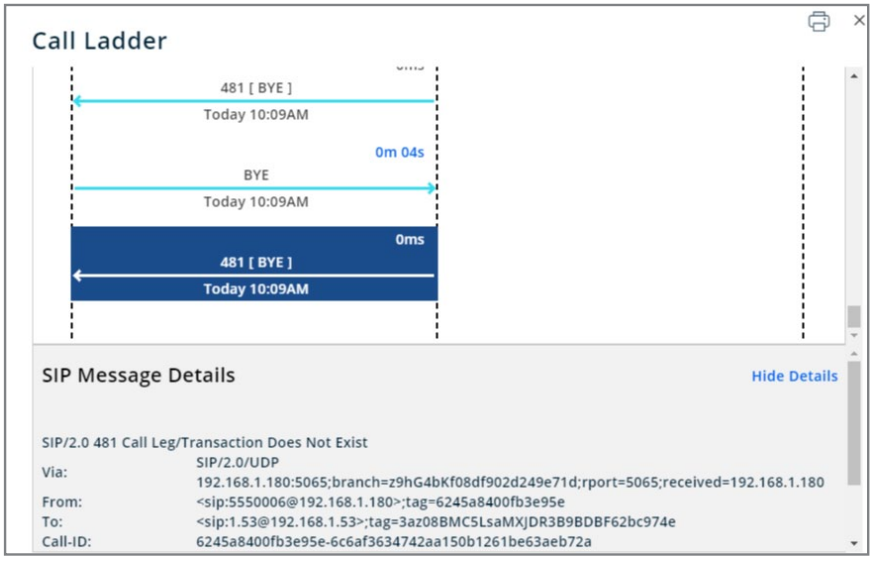


Reduced Costs for Service and Support

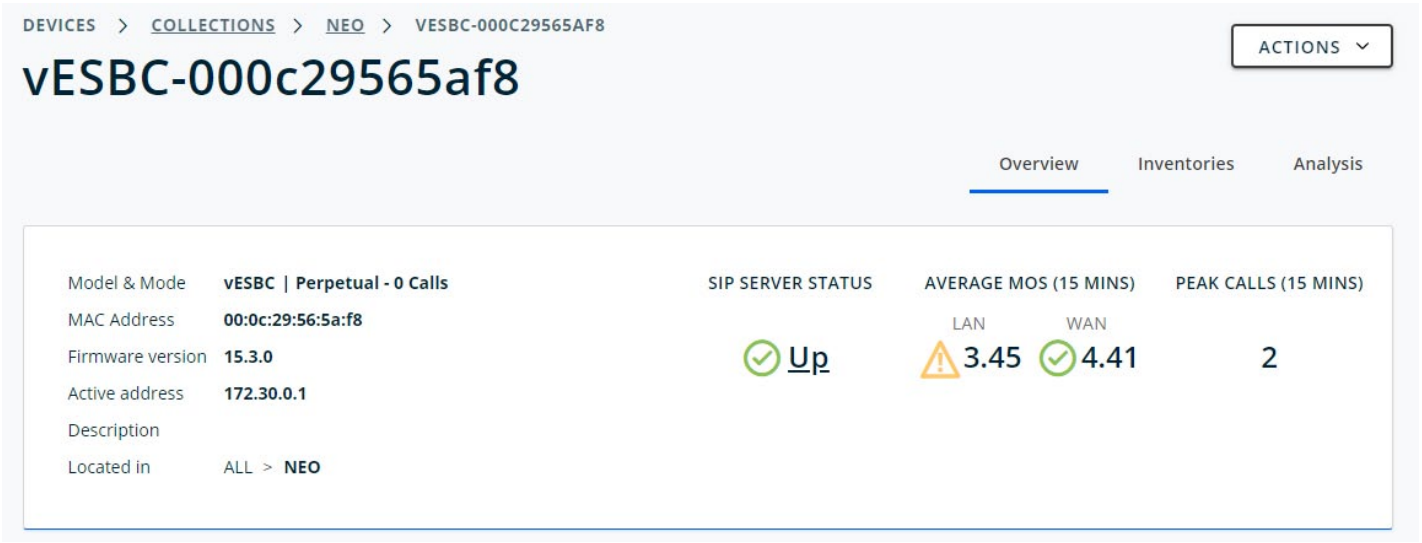
NEO provides the opportunity to address issues remotely. From a single pane of glass, administrators can monitor groups of devices (collections) for issues. The dashboard offers a summary of all the devices under one's purview. It includes lists of devices with issues, along with a graph of average Mean Opinion Scores (MOS), a numerical measure of human-judged call quality. Access can be given to select collections for security or ease of management. From this high-level view, administrators can proceed to drill down to resolve issues.



EdgeView monitors each call and when a MOS dips below a defined threshold an alert can be triggered. Administrators can drill down into the details of an offending call, searching the information found in the SIP ladder diagram to inspect the cause. Modifying the configuration of the device remotely can preclude the need for local expertise, shortening the time to resolution and saving costly travel expenses.



EdgeView provides MOS scores for both the local area network (LAN) and WAN sides of the call to help determine the source of the issue. Service providers can accurately judge whether the problem is stemming from the customer's network or their own. Evidence of the problem's foundation can be shared with the customer. This helps to get past any finger pointing and leads to faster problem resolution, increasing customer satisfaction.



Using standard configurations for devices at remote sites can also reduce the time to problem resolution. Preliminary assessment of the configuration is eliminated, allowing support personnel to hone in on probable causes more quickly. Anything that decreases time to resolution will serve to mitigate customer frustration and enhance their support experience.

EdgeView also offers the opportunity to manage any IP phone or group system that exposes its application programming interface (API). This presents an opportunity to manage phones from multiple vendors like Poly, Cisco, Yealink and Snom. The endpoint's configuration can be modified remotely through its graphical user interface. The source of problems often emanates from the way the phone is configured. EdgeView monitors the receiver state (on-hook, off hook, no power) and uses the IP endpoint's API to open the configuration screens so that admins can make changes from a central location.

Plan on a Successful Migration to Teams Calling

A successful move to Teams for calling includes a well-thought-out plan. Understand how calls flow differently through the network now that the PBX is in the cloud. Decide whether remote offices will connect to Phone System locally or through a data center and optimize the connection to reduce latency and packet loss. Monitor MOS scores to address issues proactively. Develop a plan to support SBCs and handsets located in remote locations.

Always use a certified SBC to connect to Phone System. Know that the connection has been tested and approved by Microsoft. The last thing that you want is to have your business disrupted because of an unsupported environment.

A solid plan includes tools that provide insight to remote locations from both the LAN and WAN side of the network. The ability to monitor, troubleshoot and manage from a central location will drastically decrease support costs. Setting thresholds for quality of service to proactively deal with issues will greatly enhance the end user experience.