MARTELLO

Monitoring the Performance of Your SBCs for Direct Routing Calls with Martello Vantage DX

The Challenge

Often when Microsoft Teams phone is being deployed companies often choose to use the Direct Routing configuration which requires you use a Session Border Controller (SBC). Typically, this device is managed by the UC team which makes it difficult for the Teams administrator to understand if Microsoft Teams phone calls are being affected by any issues related to the SBC.

Overview

See how you can easily monitor your SBC devices with Martello Vantage DX to detect any potential issues - even before it affects your Teams phone call quality. Also see how you can identify and qualify data performance issues between Teams and your PSTN provider.

Let's Get Started!

So, let's tackle the first challenge. How can you be aware of any issue with your SBC device that would affect your users using Teams phone for their work?

Let's go to our Alerting configuration board.

Usually, the SBC is managed by another team that has its own tool to monitor and alert on this kind of problem. Which means you cannot be proactive and rely on them to provide the data when you are already troubleshooting Teams phone call quality issues.

With Martello Vantage DX this process is easy. You can connect Vantage DX directly to the SBC devices which will retrieve the performance data and every potential alarm the SBC might be getting.

Let's focus on the SBC alert configuration first.
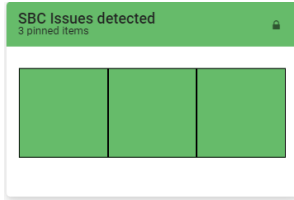
Click on the box to open it in go into the details.

In this test environment we have only one virtual SBC which limits the type of alerts we can receive. Click on any of them and make sure you are on the PROPERTIES tab.

Raw Properties

Product Type	Mediant VE SBC
Product Version	7.40A.250.265
Dsp Software	SOFTDSP => 724.20
Ip Address	172.16.29.74
Subnet Mask	172.16.29.1
Default Gateway	255.255.255.0
Serial Number	226270373406308
Ram Size	4096 MB
Cpu	Intel(R) Xeon(R) CPU E5-2680 v4 @ 2.40GHz, total 1 core(s), 1 cpu(s), 1 socket(s), HT disabled, avx supported
Number Of Dsp Cores	1
Qoe Features	VoiceQualityMonitoring MediaEnhancement
Security	MediaEncryption StrongEncryption EncryptControlProtocol
Control Protocols	MSFT FEU=3 SIPRec=3 CODER-TRANSCODING=3 EMS WebRTC=3 MGCP SIP SBC=3 TEAMS
Coders	G711 G726 G723 G729 G728 NETCODER GSM-FR GSM-EFR AMR EVRC-QCELP G727 ILBC EVRC-B AMR-WB G722 EG711 MS_RTA_NB MS_RTA_WB SILK_NB EVS
Mac Address	000c2980f49d
High Availability	Not Operational

Right away you can see the main device property and where it sits on the network.

You can click then on the alert tab: ALERTS (0) then make sure to open the filter on the left
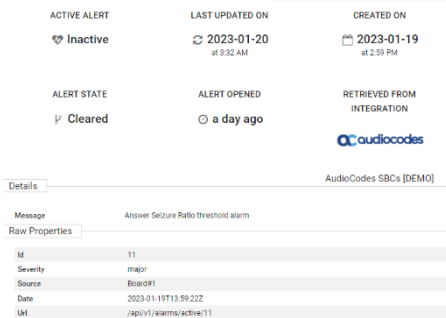
→ and unclick ☑ Show Only Active to see past alerts for this SBC.

Now you can see the list of every alarm that was generated on this device. You can click on any to get the details.

ACTIVE ALERT	LAST UPDATED ON	CREATED ON
🛡 Inactive	⟳ 2023-01-20 at 3:32 AM	📅 2023-01-19 at 2:59 PM
ALERT STATE	**ALERT OPENED**	**RETRIEVED FROM INTEGRATION**
⚑ Cleared	⏱ a day ago	**QC** audiocodes

AudioCodes SBCs [DEMO]

Details

Message	Answer Seizure Ratio threshold alarm

Raw Properties

|	
Id	11
Severity	major
Source	Board#1
Date	2023-01-19T13:59:22Z
Url	/api/v1/alarms/active/11

With this virtual SBC we only have one type of alarm.

The goal here for you is to proactively *know* when there is an SBC issue that can affect your users.

The alerts can be set for any devices, per device or per group of devices. Any condition impacting a configured group of SBCs will trigger an individual alert, unless they were received within the same 5 minutes span.

Any of the alerts can have an impact on the performance and availability of the SBCs so they should be monitored closely.

Let's click ↩ twice to be back on the main alerting board.

For each alert configuration like the SBC one you can configure the level of severity you want the issue to reach before being alerted.

![MARTELLO]

Let's click on the configuration button of the SBC board then Edit and Details:
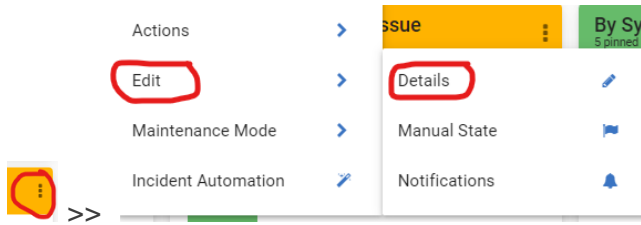
We access the Notification configuration that allows you to define when and how you want to be alerted.
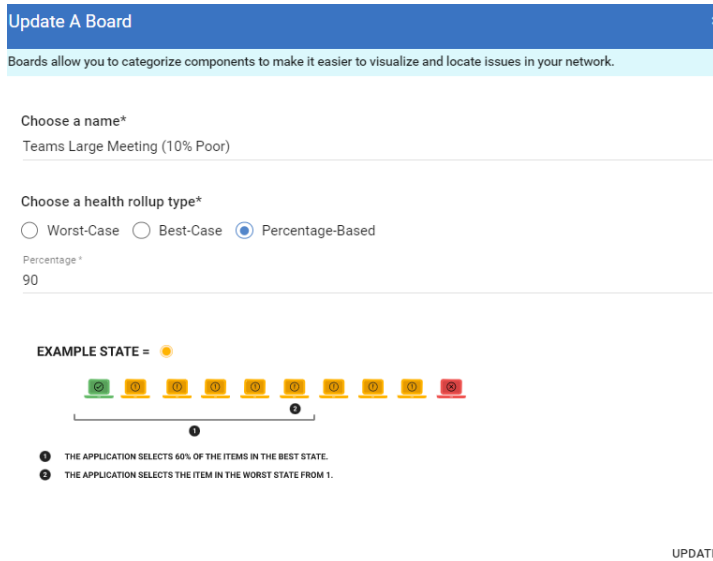

The health rollup type lets you choose if you want to be alerted if you find:

- If one of your devices is meeting the alerting condition (worst case)
- If 100% of the SBC have that condition (Best Case)
- Or if a % of your devices have issues.

Here you can see that we are configured to be alerted as soon as a device is experiencing an issue.

Now you know *how* to be alerted when the devices experience any issues that could affect the users.

Now let's see how to track the device and the data flow performance during Teams phone calls.
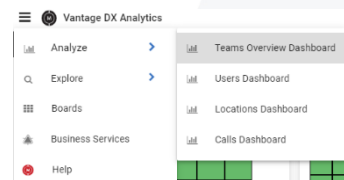
For that let's click on the burger menu then choose Teams overview.

This will bring you to our main dashboard based on call data performance.

This Teams Overview Dashboard is described in our video: Detect, Prioritize and Analyze Teams User Experience Issues with Martello Vantage DX: https://youtu.be/b0LHnnb8UHs

Let's focus on the SBC performance data.

For that, scroll down to find the top affected users and click on any of them.

Top Affected Users — Displays up to 50 Users

⬆ Export

Users	↓ Poor + Failed Calls	Top Location	Top Call Type	Top Connection Type
kmills@martellotech.com	75	Ottawa, Ontario, CA	Conference	Wired
cweston@martellotech.com	30	Ottawa, Ontario, CA	Conference	Wired
woree@martellotech.com	20	Cambridge, Massa...	Conference	Wired

Now click on "+" then Go to user dashboard.

On this dashboard you'll find the volume of the calls and issues over the time period but also how the user is connected, how are they using the calls and meetings and which ISPs is being used.

On every dashboard, you can change the time period on the top right:

📅 ⌄ Last 24 hours   Show dates
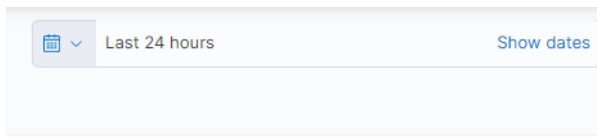
Here again for this use case we won't go too deep in this dashboard as we are just using it to get to one dedicated to call data.

So let's scroll down to the table showing the last bad call experienced by that user.

Recent Calls — Displays up to 50 Calls

⬆ Export

| Call ID	Date	↓ Start Time	End Time	Duration	Call Type	User Experience	Poor / Failed Reason(s)
30383336-3839-3032-3834-303030303032	2023-01-20	15:14	15:18	4.00 min	Conference	Poor	Round Trip Time, Packet Loss, Video Frame Rate
30383336-3839-3032-3630-303030303032	2023-01-20	15:10	15:14	4.00 min	Conference	Poor	Round Trip Time, Packet Loss, Video Frame Rate
30383336-3839-3032-3336-303030303032	2023-01-20	15:06	15:10	4.00 min	Conference	Poor	Round Trip Time, Packet Loss, Video Frame Rate
30383336-3839-3032-3132-303030303032	2023-01-20	15:02	15:06	4.00 min	Conference	Poor	Round Trip Time, Packet Loss, Video Frame Rate

Once again, select any of the one then "+", then Go to Call dashboard.

We are now in our dedicated call analysis dashboard.

Remove the filter at the top left to see all the data for the last 24 hours.

⊜ ─ labels.call_id: 31383336-3431-3836-3638-303030303032 ✕
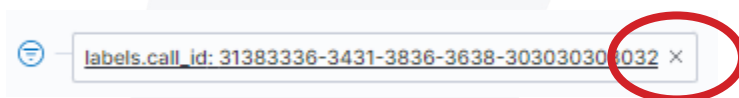
Now you can see all the data for all of the calls of the last 24 hours. Scroll down as the part that interest us is a bit below.
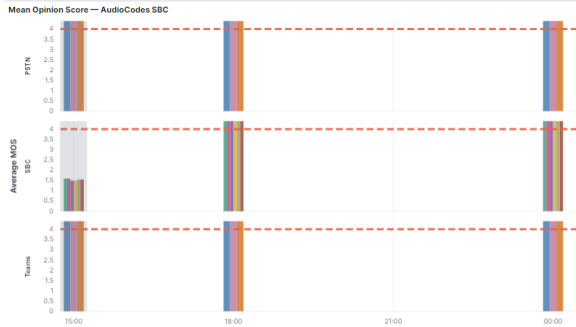
When you see the Mean Opinion Score chart, you are at the right place.

Starting from this point to the end of this dashboard, we only display SBC and data flow performance.

The first chart provides the MOS for all the calls going through the SBC. The chart is divided into several parts that show the performance of the data – both inbound and outbound - between Teams and the SBC *and* between the SBC and the PSTN provider.

If you hover over each bar, you will see the source and destination of the data:

This is the same for the following chart that goes more in detail with the data performance:
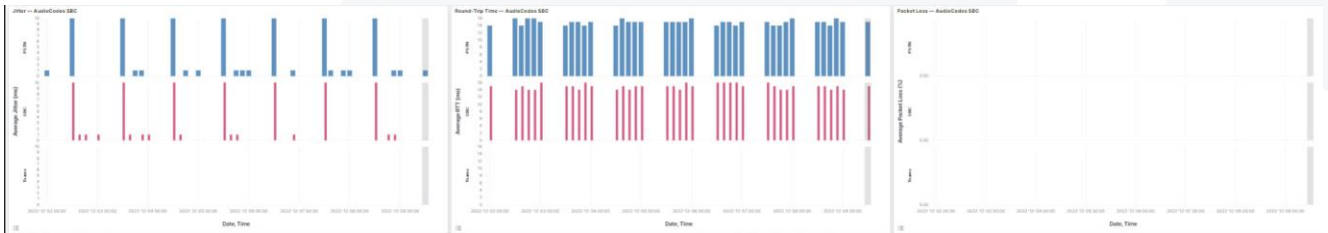
Here you can see in detail the 2 legs of the data in both directions. Just hover the mouse over each bar to have the all details of the data.

The goal here is to be able to spot any data performance issues between Teams and the PSTN provider. Microsoft Teams Call Quality Data cannot see what is going on after the SBC.

That is why connecting Vantage DX to your AudiocCodes SBC is important. It provides visbility into the performance of the data on the final leg which lets you detect and understand if the network between your SBC and your PSTN provider is good enough to support the call quality your business is expecting.

If you click on any of the columns, for example on round trip time, a pop up will open:

Select filters to apply

☑ @timestamp: Jan 20, 2023 @ 14:30:00.000 to Jan 20, 2023 @ 15:00:00.000

☑ agent.name: AudioCodes SBC 2 [DEMO]

☑ source.vdx_device_type: Teams

☑ destination.vdx_device_type: SBC

Cancel   **Apply**

This lets you to filter the entire dashboard by the list or filter that is proposed.

Click 'apply' and it zooms in on the chart for that time period of the column.

You now have the performance details for the MOS, Jitter, packet loss and round trip time for that specific time.
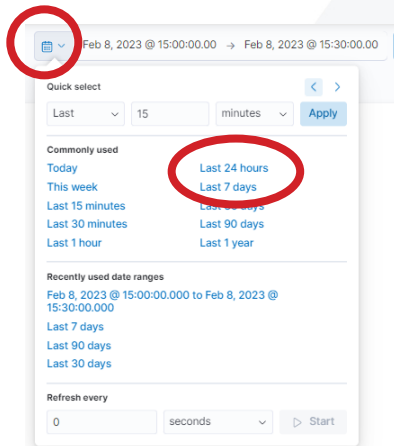
However, it removed the other charts. To come back to our initial state, just go on top of the dashboard, remove the filters that have been applied by the selections and put the time period back to cover the last 24 hours.

agent.name: AudioCodes SBCs [DEMO] ✕   source.vdx_device_type: Teams ✕   destination.vdx_device_type: SBC ✕
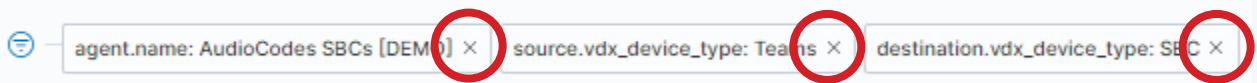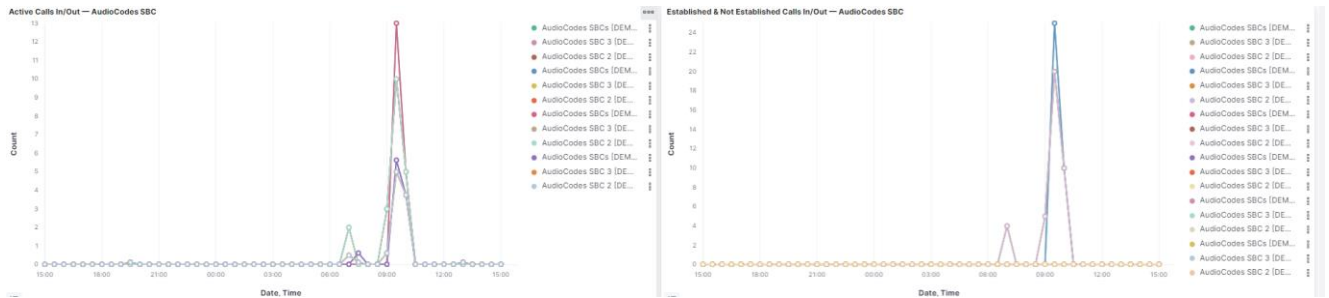
We are now back in our dashboard with all the data.

If you want more information on how to use this dashboard to troubleshoot Teams calls, please watch the video Troubleshooting Teams Call Quality Issues with Martello Vantage DX: https://youtu.be/iEccK9gEiY8

Feb 8, 2023 @ 15:00:00.00 → Feb 8, 2023 @ 15:30:00.00

Quick select   < >

Last ⌄ 15 minutes ⌄ Apply

Commonly used

Today   Last 24 hours
This week   Last 7 days
Last 15 minutes   Last 30 days
Last 30 minutes   Last 90 days
Last 1 hour   Last 1 year

Recently used date ranges

Feb 8, 2023 @ 15:00:00.000 to Feb 8, 2023 @ 15:30:00.000
Last 7 days
Last 90 days
Last 30 days

Refresh every
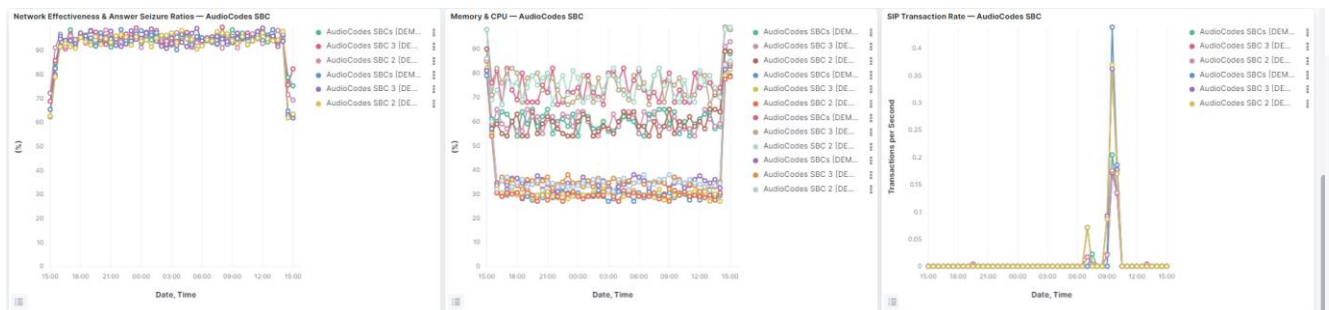
0   seconds ⌄   ▷ Start

Let's scroll down to finish to review the SBC performance data.

The next line of chart provides the usage of the SBC devices. It gives you trends and allows you to spot abnormally high activity or if a large volume of calls is linked with a large volume of problems.

Finally, the last raw data provides the performance data for the SBC itself.

Again, the goal would be to detect any spikes in memory and CPU or any decrease is network effectiveness ratio and link that with a potential high transaction rate or high volume of calls.

Once again, without directly managing the SBC, you have all the information you need to understand if your devices are responsible when Teams phone users are experiencing low call quality issues.

Conclusion

You have seen that Martello Vantage DX helps you to be alerted on any issue the SBC might face. Whether it is network, overloaded or an issue with configuration or security. You have seen how you can configure customizable alerts to be notified when the quality of service for your users is at stake.

But more than alerting, Vantage DX also reports on the performance of the data during Teams phone calls from the user to the PSTN provider. All this data is then correlated with the performance of the devices themselves and their usage.

With Vantage DX you get the SBC data you need to ensure the quality of service for your Microsoft Teams phone users. This end-to-end visibility saves you a lot of time when you have to troubleshoot any situation with Microsoft Teams phone performance.

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