

Zoom Integration with Mist

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RELEASE

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About This Guide

Use this guide to understand how you can link your Zoom account to your Mist organization. With this integration, Juniper Mist™ can use the application metrics from Zoom to generate insights about Zoom calls.

Zoom Integration Overview

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Zoom integration with Mist enables Mist to gather information about Zoom calls from the Zoom cloud. This information contains Zoom's observed packet loss, latency, and jitter data for a client. Using this information, Mist identifies Zoom calls during which problems—such as dropped calls and bad audio or video—occur, resulting in a bad user experience.

Mist correlates the information that it obtains from the Zoom cloud with the wired, wireless, and WAN network insights to determine the root cause for the Zoom call issues. Marvis leverages the correlated data to help you find out whether the root cause is WAN link latency or wireless interference.

Subscription Requirements for Zoom Integration

To integrate Zoom with Mist, you'll need a Marvis for Wireless subscription.

Mist Data Collection from Zoom

Mist uses the OAuth 2.0 protocol to link a Mist organization with a Zoom user account. Mist fetches the following data from Zoom:

- Administrator information
 - Name and the e-mail ID of the administrator who linked the account
- Meeting information
 - Meeting details—Meeting ID and meeting host information
 - Meeting participants—Participant information such as the display name, public and private IP address, MAC address, and hostname
 - User's quality-of-service (QoS) information—Latency, jitter, loss, bit rate, resolution, client CPU, and so on
- User feedback—Rating provided by the user at the end of the call

Mist correlates the meeting data with the network data from the wired, wireless, and WAN devices to:

- Provide insights
- Help perform a root cause analysis on the health of the collaboration applications
- Get to a faster resolution of the issue causing a poor experience

Personally Identifiable Information (PII) Data Security

Mist Zoom integration is an **Opt-in** service. In addition to the data specified in the *AI-Driven Enterprise Privacy Regime* section of [Mist AI Cloud Service Description](#), Mist collects the e-mail IDs of the Zoom meeting participants, and the CPU and battery information about their devices. Mist uses this information to measure and describe the user experience. If your organization is subject to the Health Insurance Accountability and Portability Act ([HIPAA](#)), check with your legal team before opting for this service.

Integrate Your Zoom Account with Mist

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- [Zoom Account Settings for Integration with Mist | 3](#)
- [Permissions Required for Mist to Access Data in Zoom | 4](#)
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To enable Mist to collect data from the Zoom application, you must link your Zoom account to your Mist organization.

Zoom Account Settings for Integration with Mist

We recommend that you enable the following options in Zoom. Enabling these options allows Mist to gather data about a Zoom call and display the data on the Insights page:

- **Meeting quality scores and network alerts on Dashboard**

Enabling this option allows Mist to get the quality score for a Zoom call. For information about how to configure this setting, see [Using meeting quality scores and network alerts](#).

- **Feedback to Zoom**

Enabling this option allows Mist to obtain the user feedback for a Zoom call. For information about how to configure this setting, See [Sending feedback to Zoom](#).

- **Only authenticated users can join meetings**

Enabling this option requires participants to sign in before joining a Zoom call. Mist uses the login details to correlate the Zoom call data with the respective user. If a user joins a meeting without signing in, Zoom identifies the user as a guest user and Mist cannot correlate the data. See [Allowing only authenticated users in meetings](#).

Permissions Required for Mist to Access Data in Zoom

Mist requires the following permissions in Zoom to access the data:

- `dashboard_meetings:read:admin`—This permission enables Mist to view the meeting information of all the users on the Zoom dashboard.
- `user:read:admin`—This permission enables Mist to view all user information.

Link Your Zoom Account to a Mist Organization

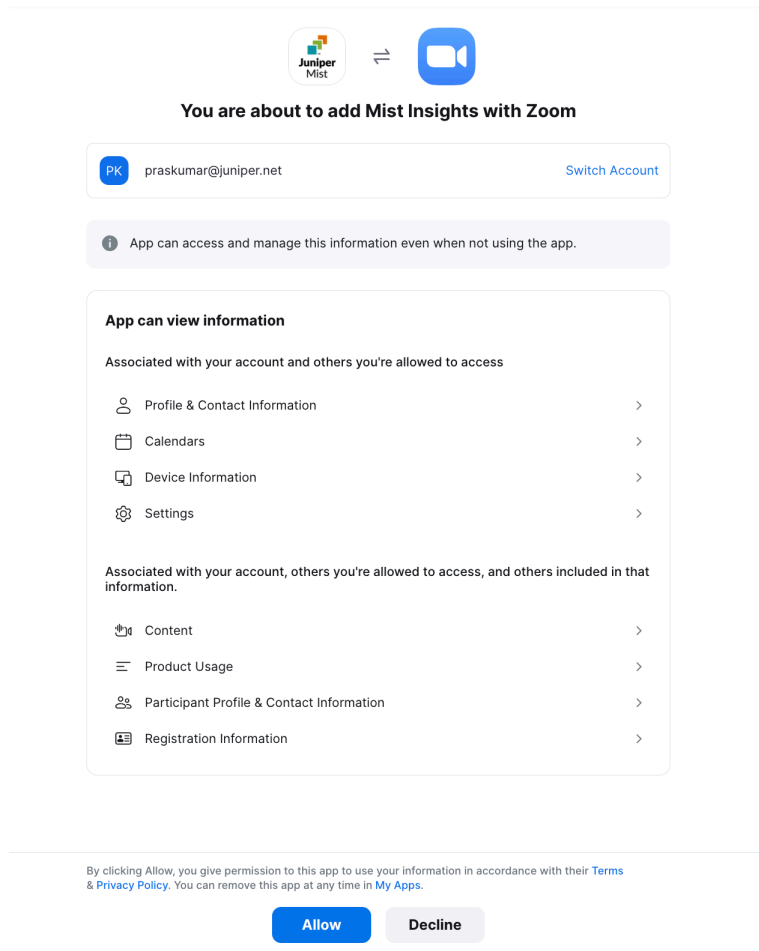
You can add one Zoom account to multiple Mist organizations. One Mist organization supports multiple Zoom accounts.

To link your Zoom account to an organization on the Mist portal:

1. On the Mist portal, select **Organization** > **Settings**.
2. Under Application Insights Integration, select **Zoom** from the **Link Account** drop-down list.
3. Click **Yes** in the Confirm Redirect dialog box.
You are redirected to the Zoom SSO page.
4. Enter your Zoom credentials and click **Sign In**.

NOTE: Use an administrator account. Do not use personal administrator accounts.

You will see a permissions page.



The screenshot shows a permissions dialog for connecting the Juniper Mist application with Zoom. At the top, the Juniper Mist logo and Zoom logo are shown with a double-headed arrow between them. Below this, the text reads "You are about to add Mist Insights with Zoom". A user profile is displayed with the email "praskumar@juniper.net" and a "Switch Account" link. An information icon and text state: "App can access and manage this information even when not using the app." The main section, titled "App can view information", lists two categories of permissions. The first category, "Associated with your account and others you're allowed to access", includes: Profile & Contact Information, Calendars, Device Information, and Settings. The second category, "Associated with your account, others you're allowed to access, and others included in that information.", includes: Content, Product Usage, Participant Profile & Contact Information, and Registration Information. At the bottom, there is a disclaimer: "By clicking Allow, you give permission to this app to use your information in accordance with their Terms & Privacy Policy. You can remove this app at any time in My Apps." and two buttons: "Allow" and "Decline".

You are about to add Mist Insights with Zoom

PK praskumar@juniper.net [Switch Account](#)

App can access and manage this information even when not using the app.

App can view information

Associated with your account and others you're allowed to access

- Profile & Contact Information >
- Calendars >
- Device Information >
- Settings >

Associated with your account, others you're allowed to access, and others included in that information.

- Content >
- Product Usage >
- Participant Profile & Contact Information >
- Registration Information >

By clicking Allow, you give permission to this app to use your information in accordance with their [Terms & Privacy Policy](#). You can remove this app at any time in [My Apps](#).


[Allow](#) [Decline](#)

5. Click **Allow**.

You are redirected to the Mist portal. You can now see the Zoom application listed in the Application Insights Integration section.

Application Insights Integration ? BETA

Link Account ▾

Status	Application	Company Name
●	 Zoom	Mist

6. Click the row to view more information.

You can see the relevant account details on the [Zoom Account Information](#) page.

Zoom Account Information ✕

Last Sync:	Friday, July 28, 2023 8:30 AM
Last Status:	Success
Account Id:	7022099444
Linked By:	mist.user100@hotmail.com
Company Name:	Mist
Linked Timestamp:	Wednesday, June 21, 2023 4:53 AM
Application:	Zoom

[Unlink Account](#) [Done](#)

Unlink a Zoom Account from Mist

To unlink a Zoom account from a Mist organization:

1. In the Mist portal, select **Organization > Settings**.
2. Under Application Insights Integration, click the account that you want to unlink.
3. Click **Unlink Account**.

Zoom Account Information ✕

Last Sync: Friday, July 28, 2023 8:30 AM

Last Status: Success

Account Id: 7022099444

Linked By: mist.user100@hotmail.com

Company Name: Mist

Linked Timestamp: Wednesday, June 21, 2023 4:53 AM

Application: Zoom

[Unlink Account](#) [Done](#)

You can see that the Application Insights Integration section no longer lists the account.

Application Insights Integration ? BETA

Link Account ▾

Status	Application	Company Name
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View Zoom Meeting Insights

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- [View Client List for a Site | 16](#)
- [View Client Insights | 18](#)
- [View Client Events | 18](#)

Mist collects Zoom meeting data and displays the insights only if a client joins a Zoom call when connected to a Mist access point (AP). Mist does not display insights for calls that you make outside of the Mist network. You can view the meeting insights both at the site level and the client level.

View Site-Level Zoom Meeting Insights

To view site-level meeting insights:

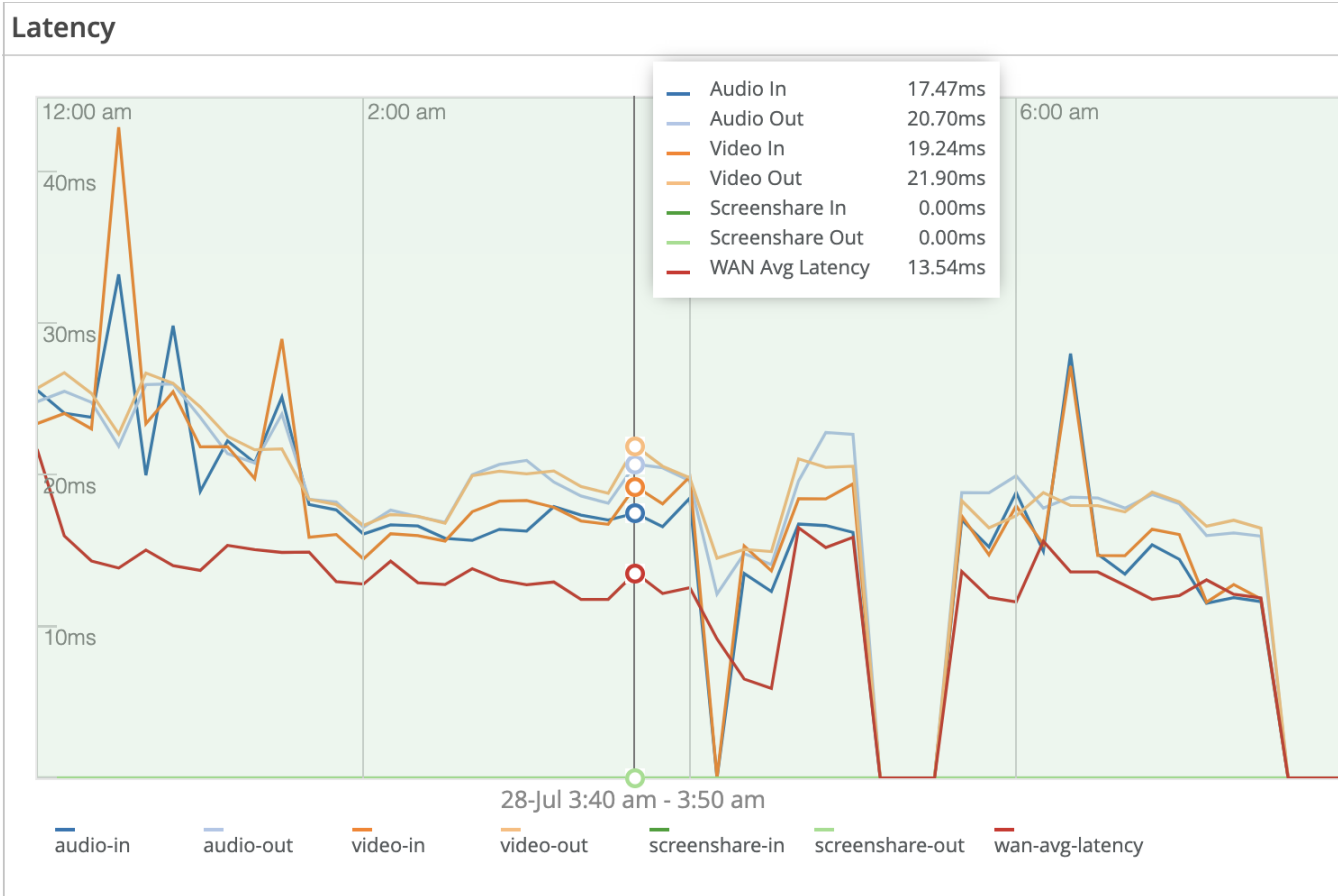
1. In the Mist portal, select **Monitor > Service Levels**.
2. Select **Insights**, the site, and time range.
3. Scroll down to the Meeting Insights section. You can see a graphical representation of the data that Mist aggregates for all the clients in the site for the selected duration.

The aggregation interval is:

- 10 minutes for a duration that is less than 24 hours
- 1 hour for a duration that is greater than 24 hours

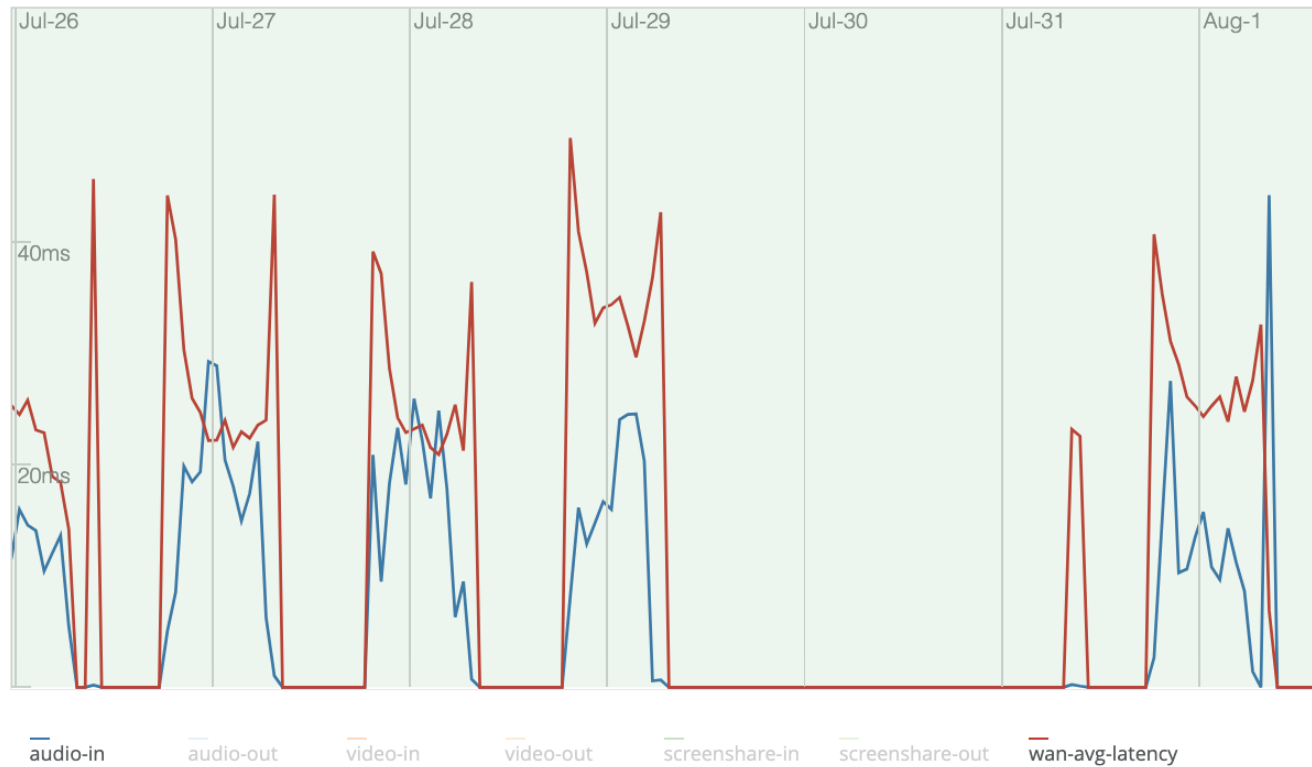
Mist provides the following time series graphs. You can click the legends in each of the graphs to filter the data.

- **Latency:** Provides client-to-cloud input and output latencies for audio, video, and screen sharing.



You can compare the latency that Zoom observes with the average WAN latency, represented by **wan-avg-latency** for the site. You can also compare the latency for a specific parameter with the **wan-avg-latency** value. For example, the following screenshot provides a comparison between the **audio-in** parameter and **wan-avg-latency**.

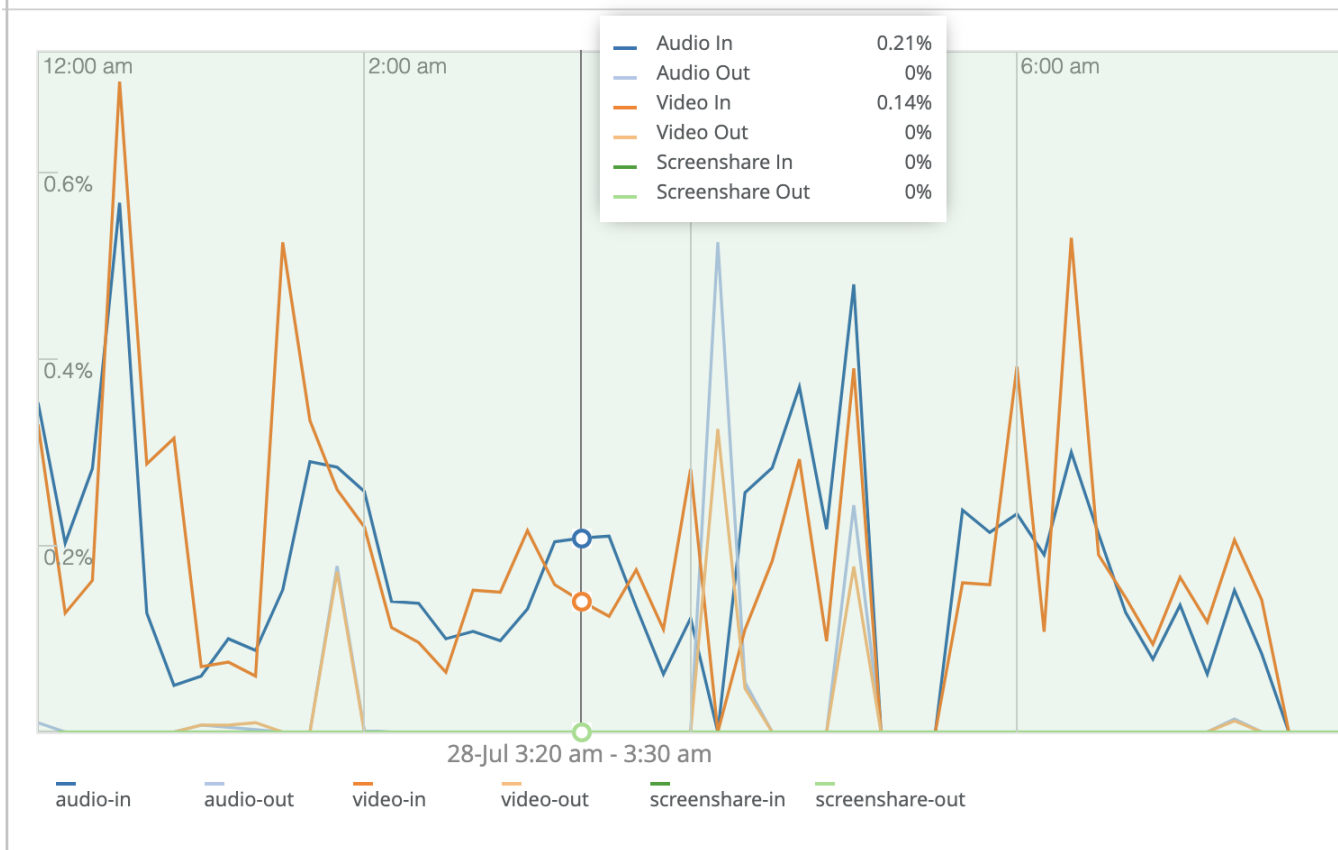
Latency



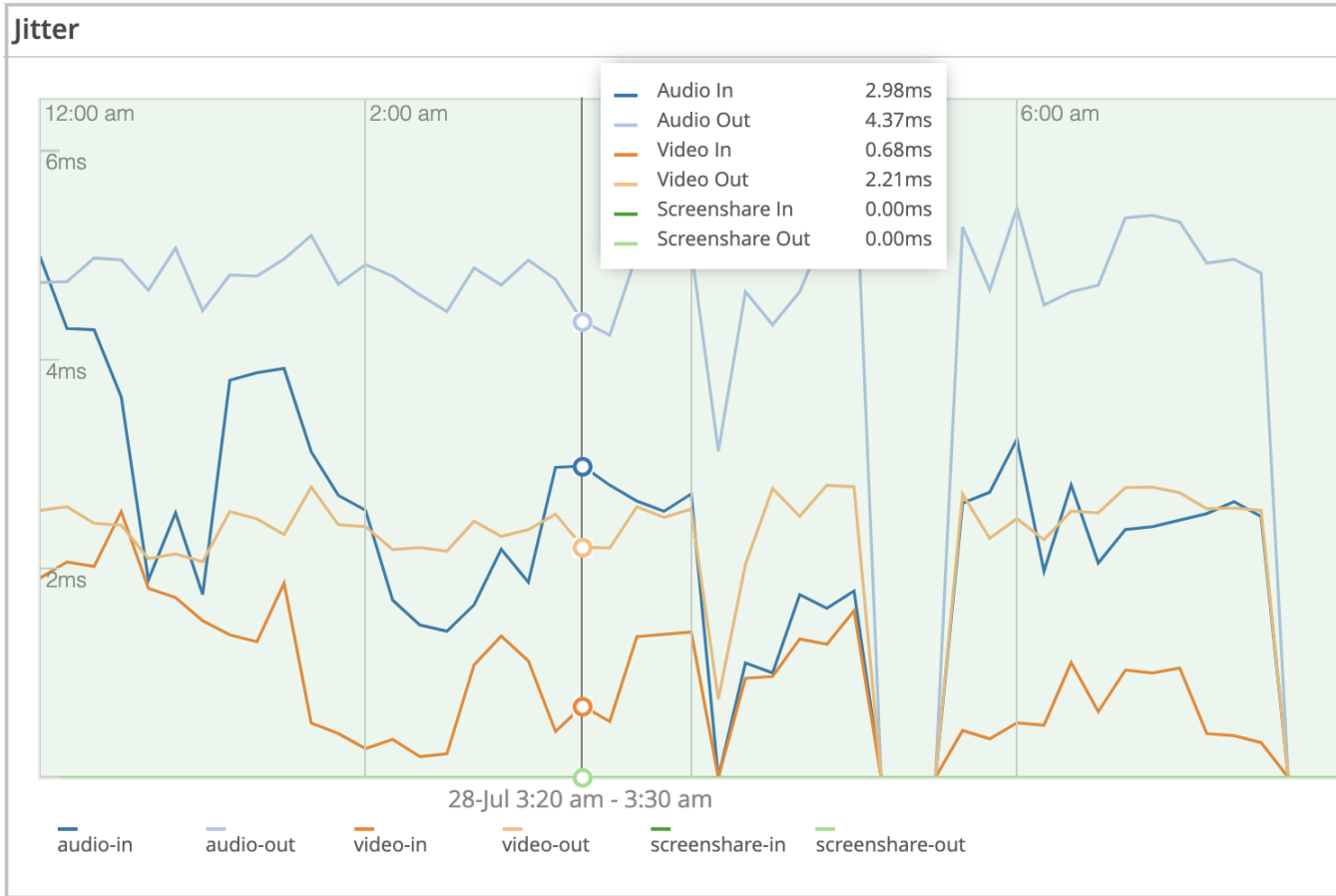
NOTE: All the parameters are enabled by default in the graph. To select a parameter, click all the other parameter labels to disable the parameters and hide their data in the graph. You can click the labels again to enable the parameters and see the data in the graph.

- **Packet Loss:** Provides client-to-cloud input and output packet loss for audio, video, and screen sharing.

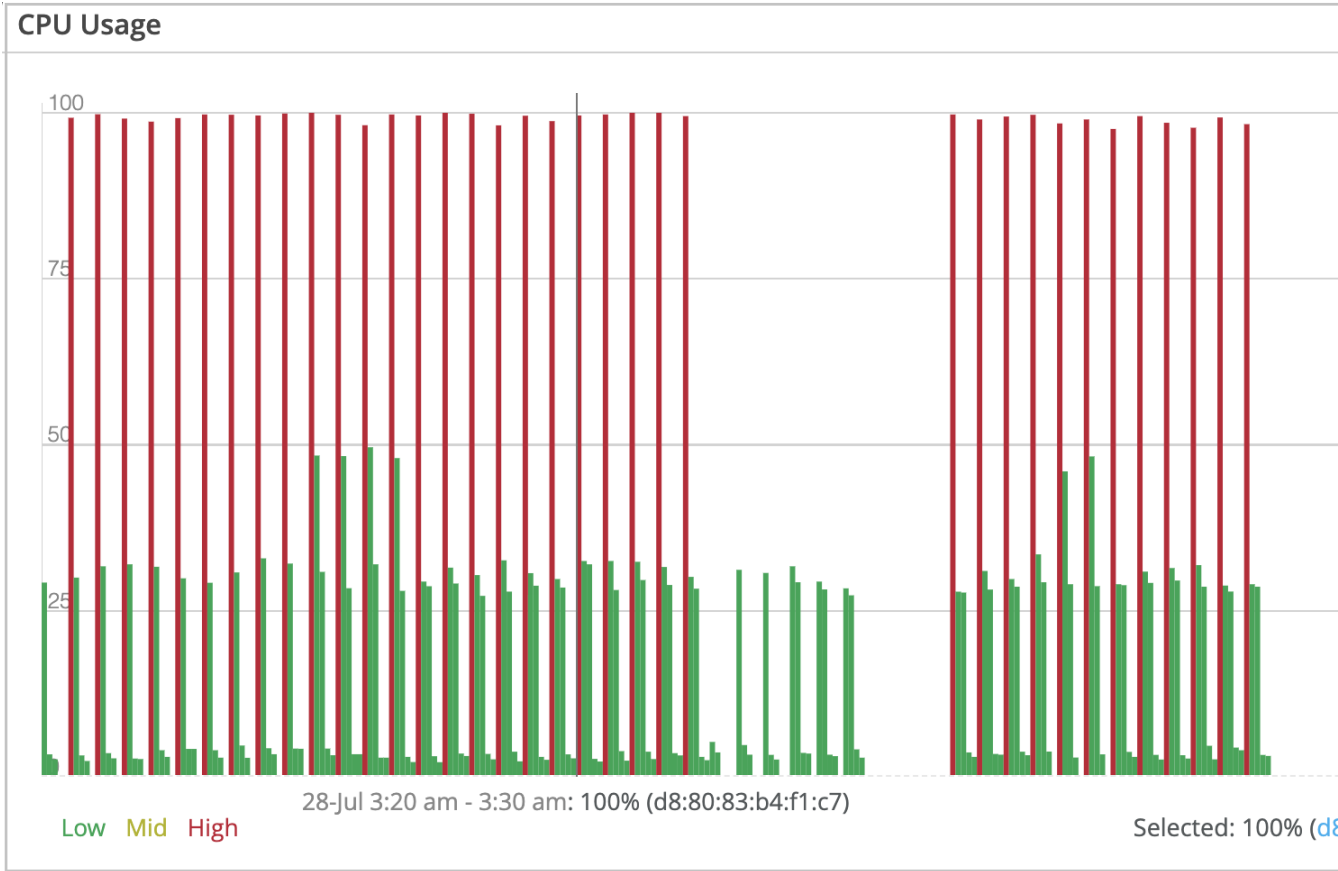
Packet Loss



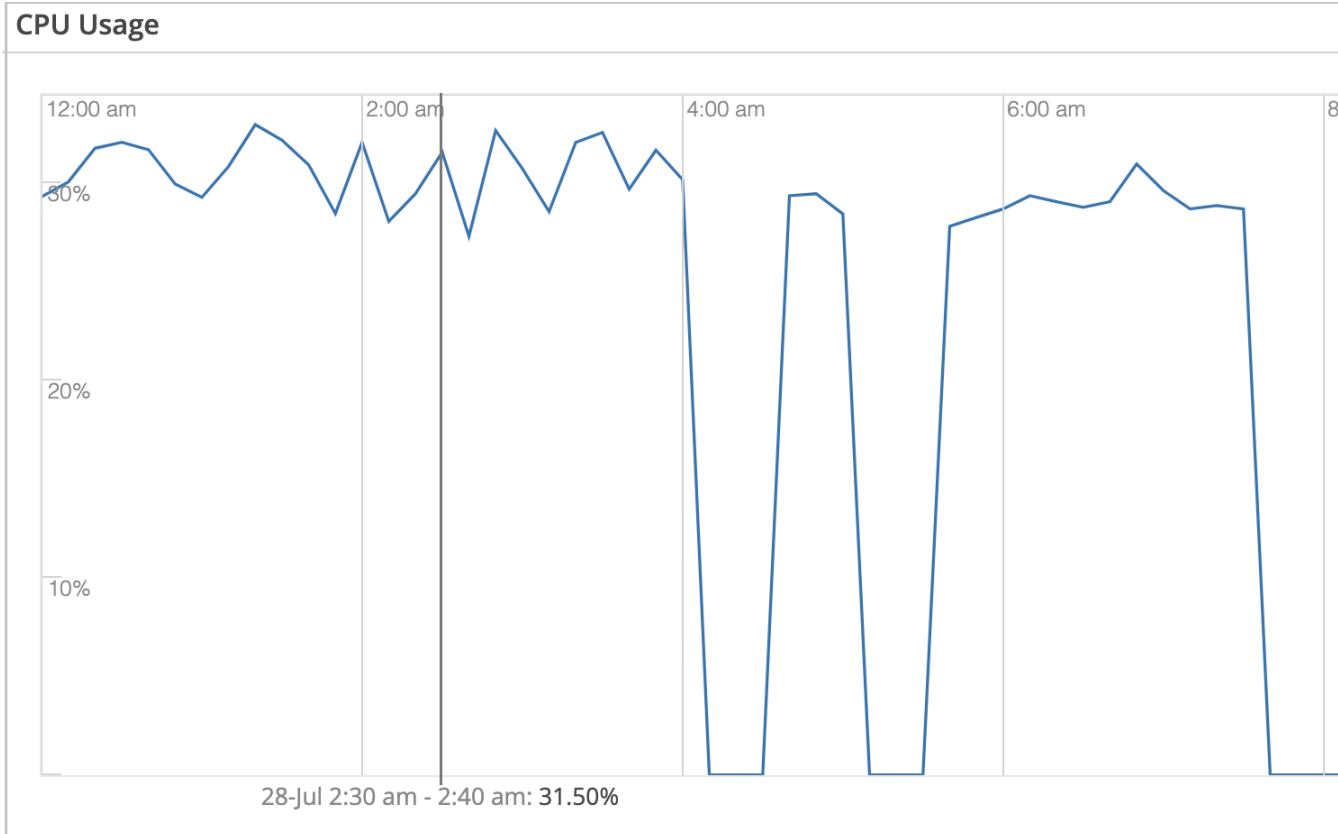
- **Jitter:** Provides client-to-cloud input and output jitter for audio, video, and screen sharing.



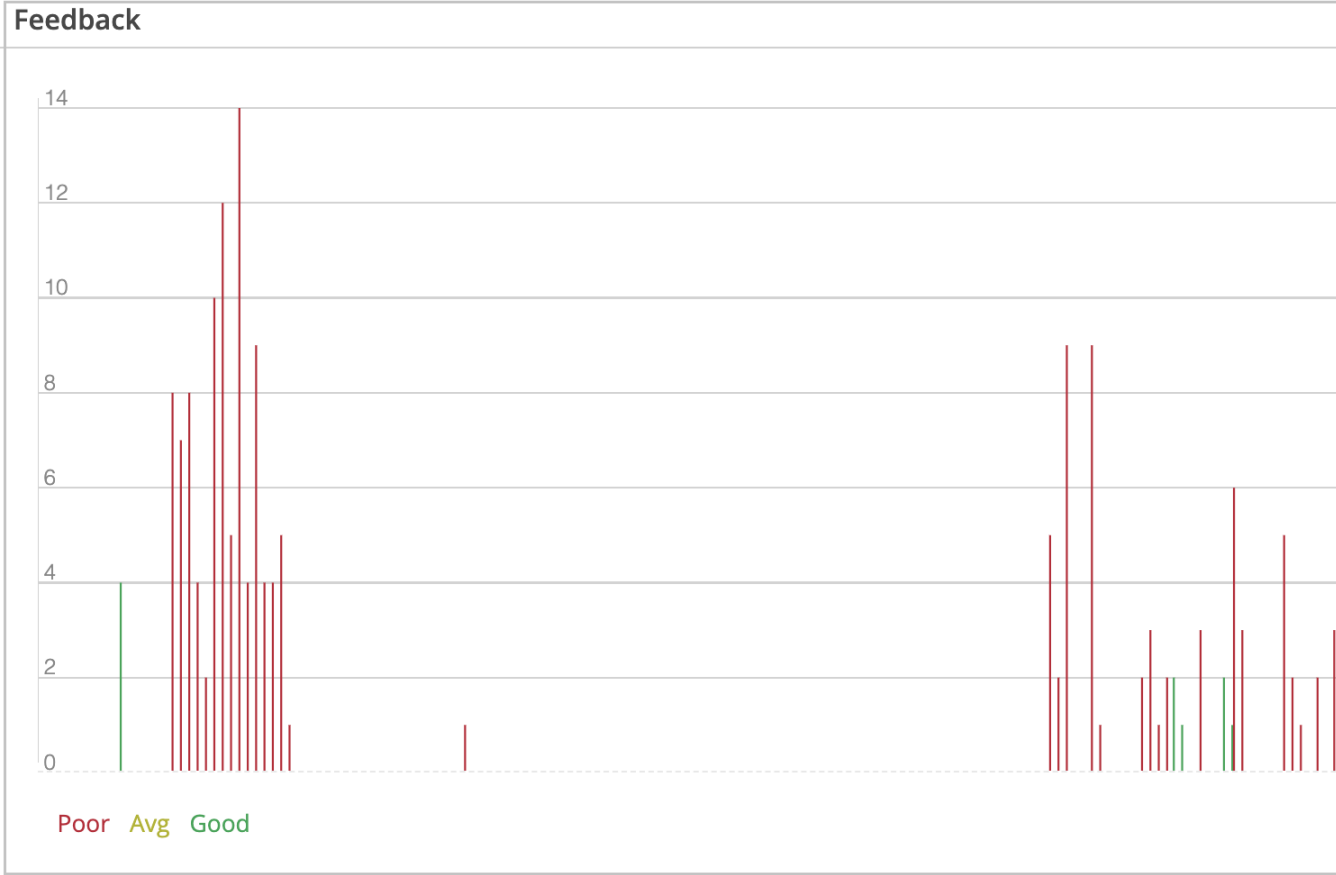
- **CPU Usage:** Provides client CPU usage data.



You can click a data point on the graph to see the CPU usage and the client MAC address. You can click the MAC address (in blue) to navigate to the Client Insights view for that client.



- **Feedback:** Provides a histogram of user feedback. The Y-axis indicates the number of users who have given feedback. The color of each bar indicates whether the feedback is poor, average, or good.

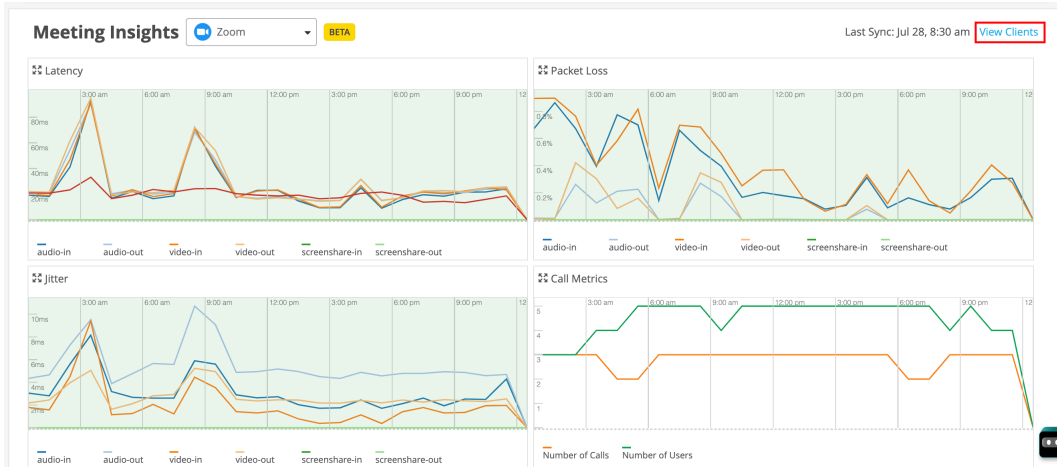


View Client List for a Site

To view the client list for a site:

1. In the Mist portal, select **Monitor > Service Levels**.
2. Select **Insights**, the site, and time range.
3. Scroll down to the Meeting Insights section.

4. Click **View Clients**.



Mist lists the clients that are connected to Zoom meetings. You can click a MAC address (in blue) to go to the Client Insights page for that client.

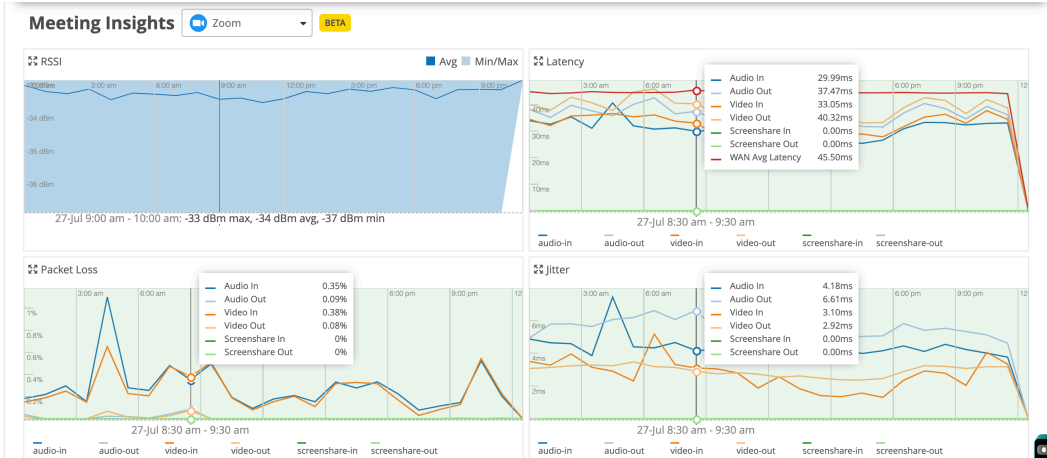
Client calls for app "zoom"

Client MAC Address	Hostname	IP	Min. Rating	U
4c:03:4f:d5:60:f6	DESKTOP-J3LM8V5	192.168.2.19	*	--
00:a5:54:3b:49:30	DESKTOP-56O3JJE	192.168.2.16	--	--
08:8e:90:50:30:ac	LAPTOP-Q3HRNHI3	192.168.2.51	--	--
60:e9:aa:8d:3f:47	HP	192.168.2.42	--	--
d8:80:83:b4:f1:c7	DESKTOP-MLCUAGF	192.168.2.47	--	--

View Client Insights

The Client Insights page provides insights for a specific client. ["View Client List for a Site"](#) on page 16 describes how you can go to the Client Insights page.

Scroll down to the Meeting Insights section in the Client Insights page. You can see the time series graphs for latency, packet loss, jitter, and CPU usage for a specific client.



For an individual client, you can compare the received signal strength indicator (RSSI) value with the latency, packet loss, and jitter data.

The Meeting Details section provides details of the meetings that the client joined.

Application	Meeting ID	Join Time	Leave Time	Duration	Audio Quality	Video Quality	Screen Share Quality	User Feedback
Zoom	86711524129	11:31:22 PM Jul 27	11:58:24 PM Jul 27	27m	Good (Mos:4-5)	Good (Mos:4-5)	Unknown (Data not coll...	--
Zoom	89435104612	11:01:20 PM Jul 27	11:28:22 PM Jul 27	27m	Good (Mos:4-5)	Good (Mos:4-5)	Unknown (Data not coll...	--
Zoom	85464757100	10:31:30 PM Jul 27	10:58:32 PM Jul 27	27m	Fair (Mos:3-4)	Good (Mos:4-5)	Unknown (Data not coll...	--
Zoom	88572717580	10:00:49 PM Jul 27	10:27:51 PM Jul 27	27m	Fair (Mos:3-4)	Good (Mos:4-5)	Unknown (Data not coll...	--
Zoom	86354241098	09:31:05 PM Jul 27	09:58:07 PM Jul 27	27m	Fair (Mos:3-4)	Good (Mos:4-5)	Unknown (Data not coll...	--
Zoom	81548185049	09:01:12 PM Jul 27	09:28:14 PM Jul 27	27m	Fair (Mos:3-4)	Good (Mos:4-5)	Unknown (Data not coll...	--
Zoom	82607938410	08:30:52 PM Jul 27	08:57:54 PM Jul 27	27m	Fair (Mos:3-4)	Good (Mos:4-5)	Unknown (Data not coll...	--
Zoom	83603723666	08:01:05 PM Jul 27	08:28:07 PM Jul 27	27m	Fair (Mos:3-4)	Good (Mos:4-5)	Unknown (Data not coll...	--

View Client Events

On the Client Insights page, Mist displays events such as a client joining the call and a client leaving the call. These events are interleaved with the existing wireless client events. ["View Client List for a Site"](#) on

page 16 describes how you can go to the Client Insights page.

Client Events		111 Total	104 Good	1 Neutral	6 Bad
DNS Success	d4:20:b0:f1:03:5c	11:58:30.663 PM, Jul 27			
Client Left Call (Zoom)	d4:20:b0:f1:03:5c	11:58:24.001 PM, Jul 27			
DNS Failure	d4:20:b0:f1:03:5c	11:57:18.546 PM, Jul 27			
Client Joined Call (Zoom)	d4:20:b0:f1:03:5c	11:31:22.001 PM, Jul 27			
DNS Success	d4:20:b0:f1:03:5c	11:31:21.993 PM, Jul 27			
DNS Failure	d4:20:b0:f1:03:5c	11:30:50.261 PM, Jul 27			
Client Left Call (Zoom)	d4:20:b0:f1:03:5c	11:28:22.001 PM, Jul 27			

You can click each event to view the details.

AP	d4:20:b0:f1:03:5c	App	zoom
Audio Quality	good	Meeting ID	86711524129
Video Quality	good	Description	Left the meeting.

Troubleshoot Zoom Sessions Using the Marvis Conversational Assistant

IN THIS SECTION

- [List Zoom Sessions Using the Marvis Conversational Assistant | 20](#)
- [Troubleshoot Zoom Sessions Using the Marvis Conversational Assistant | 21](#)

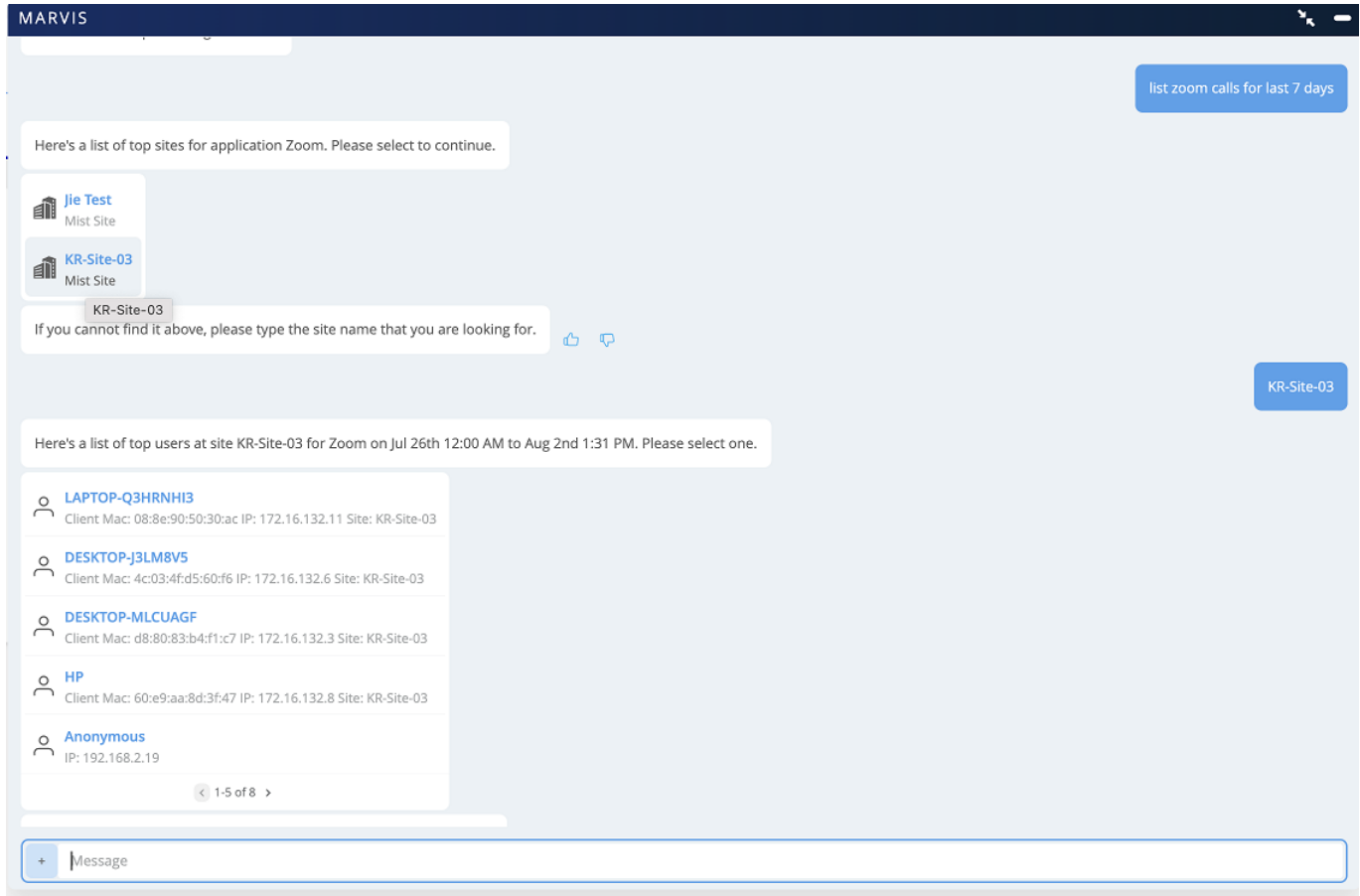
You can use the Marvis conversational assistant to list and to troubleshoot Zoom sessions. Network administrators can use the conversational assistant to quickly identify sites that experience issues with Zoom sessions.

List Zoom Sessions Using the Marvis Conversational Assistant

To list Zoom calls using the conversational assistant, you can use the following phrases:

- list zoom calls for last 7 days
- list bad zoom calls in last 7 days

Here is an example that shows the details that Marvis displays for "list zoom calls for last 7 days":



Troubleshoot Zoom Sessions Using the Marvis Conversational Assistant

You can troubleshoot Zoom session issues using the conversational assistant. Marvis helps you to identify the root cause for the issue. To troubleshoot a Zoom session:

1. In the Marvis conversational assistant window, enter the details of the client that you want to troubleshoot. In the following example, we use the phrase "troubleshoot application Zoom for LAPTOP-Q3HRNH3 on Jul 28 between 10:00 AM to 10:28 AM".

Marvis displays all the Zoom sessions that the client joined on the specified date.

2. Click a session to view more details.

In this example, Marvis reports that the user experience was bad.

MARVIS

Troubleshoot application Zoom for LAPTOP-Q3HRNH13 on Jul 28

I found the following Zoom sessions for LAPTOP-Q3HRNH13 on Jul 28th between 12:00 AM to 11:59 PM. Please select one.

- 11:01 AM to 11:28 AM, Jul 28th
Usage: 364.9 MB
- 10:31 AM to 10:58 AM, Jul 28th
Usage: 364.6 MB
- 10:00 AM to 10:28 AM, Jul 28th
Usage: 367.9 MB
- 9:30 AM to 9:57 AM, Jul 28th
Usage: 370.7 MB
- 9:00 AM to 9:27 AM, Jul 28th
Usage: 322.0 MB

1-5 of 10

Troubleshoot application Zoom for LAPTOP-Q3HRNH13 on Jul 28th between 10:00 AM to 10:28 AM.

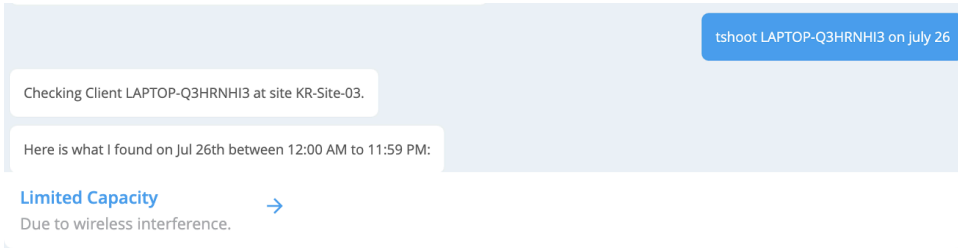
Client Overall BETA

LAPTOP-Q3HRNH13
088e905030ac

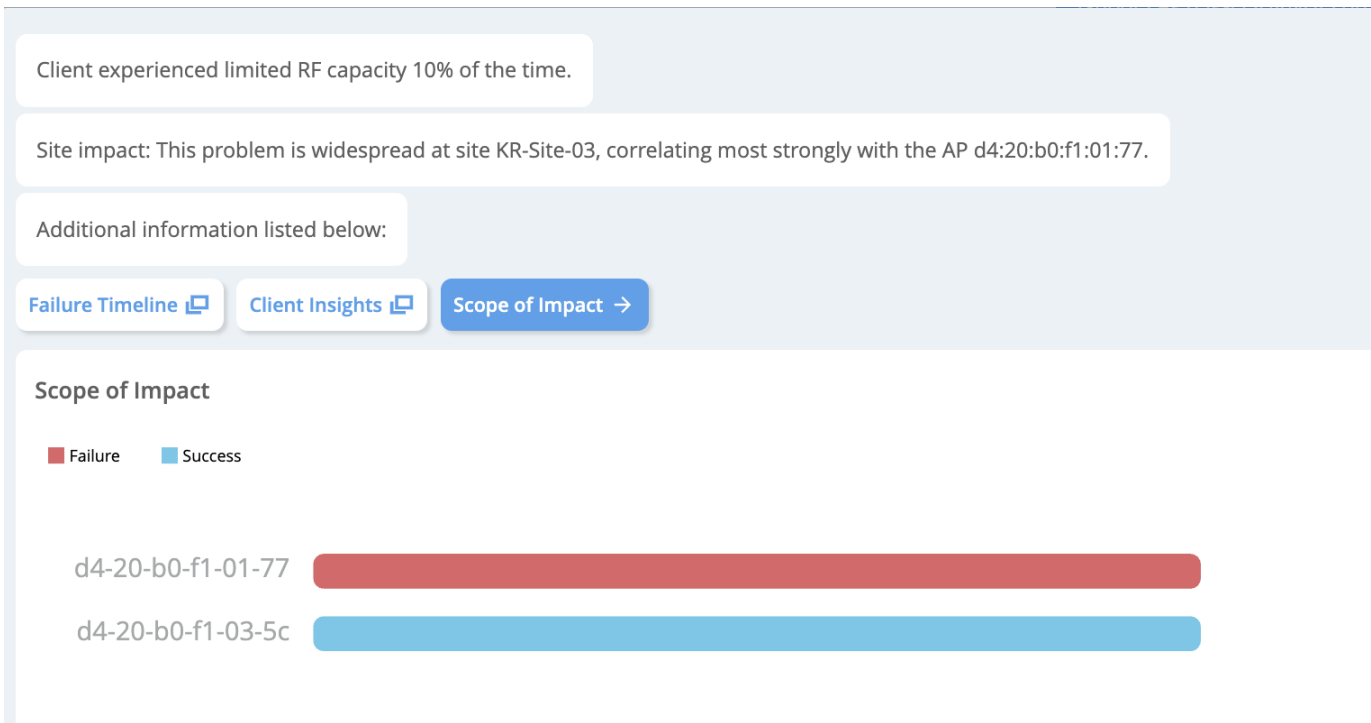
Poor rating issued from user for end-of-meeting feedback

+ Message

You can troubleshoot further by checking the client's overall experience in the network. In this example, you can see that the client experienced radio frequency (RF) capacity issues due to wireless interference.



You can click the issue, which is **Limited Capacity** in this case, to view more details.



Troubleshoot Zoom Sessions Using Shapley Feature Ranking

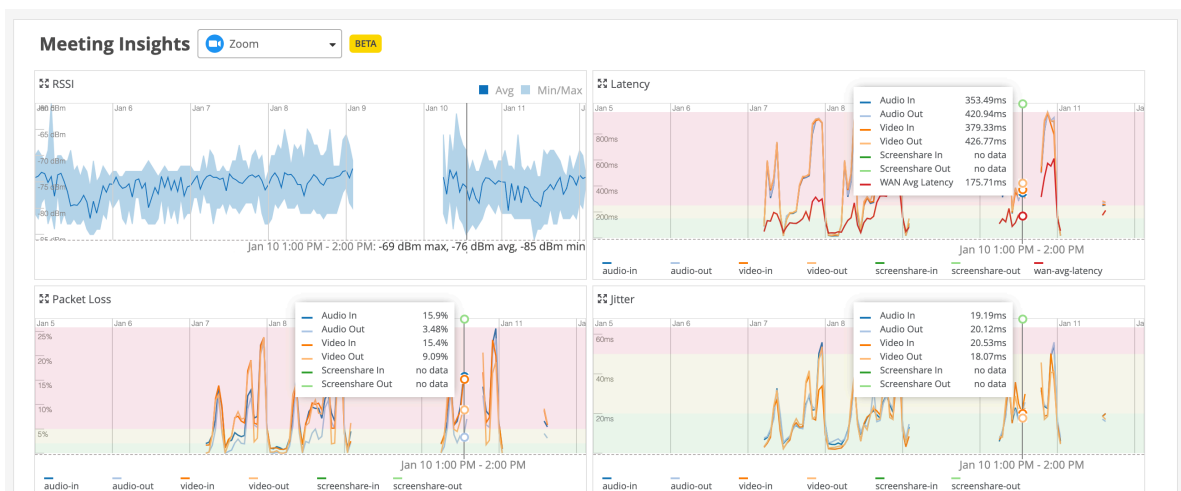
You can use Shapley feature ranking to troubleshoot Zoom sessions. Shapley feature ranking is a technique that determines the average marginal contribution of each feature to the user experience. It

takes into account all possible permutations of features to generate a *Shapley value* that indicates a feature's contribution.

Juniper Mist™ uses the Shapley feature ranking technique to rank the impact of each feature on Zoom calls. Here, features indicate network characteristics such as received signal strength indicator (RSSI), latency, jitter, and so on. The Shapley feature ranking is computed for every minute of bad audio or video that a user experiences. This ranking helps you to quickly identify the WAN, wireless, and client issues that impact Zoom calls. You can read more about Shapley feature ranking computation for user experience [here](#).

You can see information about Shapley feature ranking from the Client Insights page, which lists details of all the meetings that a user joined over a certain period of time. See [View Client Insights](#) for information about how you can access and view the Client Insights page. The Client Insights page provides:

- Meeting Insights—This section provides time series graphs depicting RSSI, latency, packet loss, and jitter.



- Meeting Details

Action	Application	Meeting ID	Join Time	Leave Time	Duration	Audio Quality	Video Quality	Screen Share Quality	User Feedback
⋮	Zoom	83871359877	Jan 11, 2024 2:31 PM	Jan 11, 2024 2:58 PM	27m	Good (Mos:4-5)	Good (Mos:4-5)	Not Applicable	★
⋮	Zoom	83214103391	Jan 11, 2024 2:02 PM	Jan 11, 2024 2:29 PM	27m	Good (Mos:4-5)	Good (Mos:4-5)	Not Applicable	★
⋮	Zoom	86088126907	Jan 11, 2024 1:31 AM	Jan 11, 2024 1:47 AM	16m	Good (Mos:4-5)	Good (Mos:4-5)	Not Applicable	---
⋮	Zoom	86927129106	Jan 11, 2024 1:01 AM	Jan 11, 2024 1:28 AM	27m	Good (Mos:4-5)	Good (Mos:4-5)	Not Applicable	★
⋮	Zoom	87803077254	Jan 11, 2024 12:31 AM	Jan 11, 2024 12:58 AM	27m	Good (Mos:4-5)	Good (Mos:4-5)	Not Applicable	★
⋮	Zoom	82510608183	Jan 11, 2024 12:01 AM	Jan 11, 2024 12:28 AM	27m	Good (Mos:4-5)	Good (Mos:4-5)	Not Applicable	★
⋮ ^	Zoom	83890006951	Jan 10, 2024 11:31 PM	Jan 10, 2024 11:58 PM	27m	Good (Mos:4-5)	Fair (Mos:3-4)	Not Applicable	★
⋮ ^	Zoom	85077475781	Jan 10, 2024 10:31 PM	Jan 10, 2024 10:58 PM	27m	Fair (Mos:3-4)	Poor (Mos:2-3)	Not Applicable	★

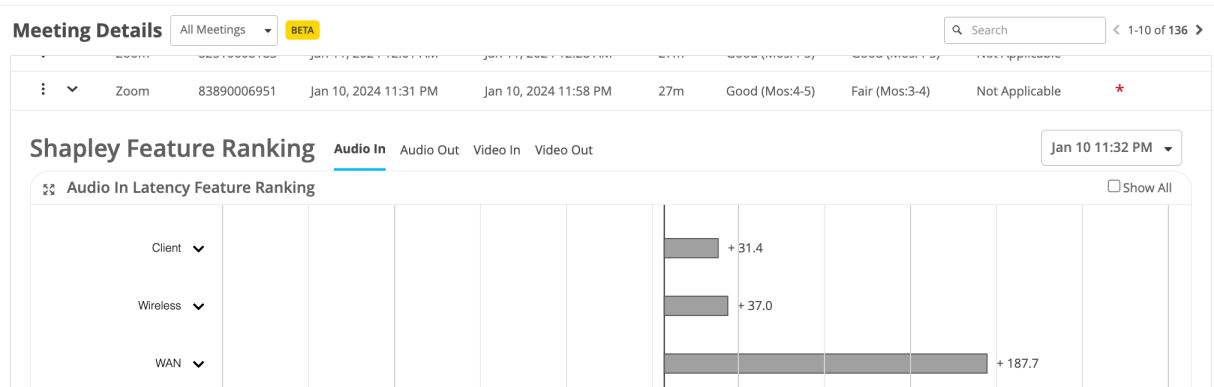
This section provides a Shapley feature ranking graph for each meeting which reports bad user experiences. In this example, the last two rows include the caret symbol (^), which indicates that the meeting has a Shapley feature ranking graph associated with it.

Meeting Details All Meetings BETA Search 1-10 of 136

Action	Application	Meeting ID	Join Time	Leave Time	Duration	Audio Quality	Video Quality	Screen Share Quality	User Feedback
⋮	Zoom	83871359877	Jan 11, 2024 2:31 PM	Jan 11, 2024 2:58 PM	27m	Good (Mos:4-5)	Good (Mos:4-5)	Not Applicable	*
⋮	Zoom	83214103391	Jan 11, 2024 2:02 PM	Jan 11, 2024 2:29 PM	27m	Good (Mos:4-5)	Good (Mos:4-5)	Not Applicable	*
⋮	Zoom	86088126907	Jan 11, 2024 1:31 AM	Jan 11, 2024 1:47 AM	16m	Good (Mos:4-5)	Good (Mos:4-5)	Not Applicable	--
⋮	Zoom	86927129106	Jan 11, 2024 1:01 AM	Jan 11, 2024 1:28 AM	27m	Good (Mos:4-5)	Good (Mos:4-5)	Not Applicable	*
⋮	Zoom	87803077254	Jan 11, 2024 12:31 AM	Jan 11, 2024 12:58 AM	27m	Good (Mos:4-5)	Good (Mos:4-5)	Not Applicable	*
⋮	Zoom	82510608183	Jan 11, 2024 12:01 AM	Jan 11, 2024 12:28 AM	27m	Good (Mos:4-5)	Good (Mos:4-5)	Not Applicable	*
⋮ ^	Zoom	83890006951	Jan 10, 2024 11:31 PM	Jan 10, 2024 11:58 PM	27m	Good (Mos:4-5)	Fair (Mos:3-4)	Not Applicable	*
⋮ ^	Zoom	85077475781	Jan 10, 2024 10:31 PM	Jan 10, 2024 10:58 PM	27m	Fair (Mos:3-4)	Poor (Mos:2-3)	Not Applicable	*

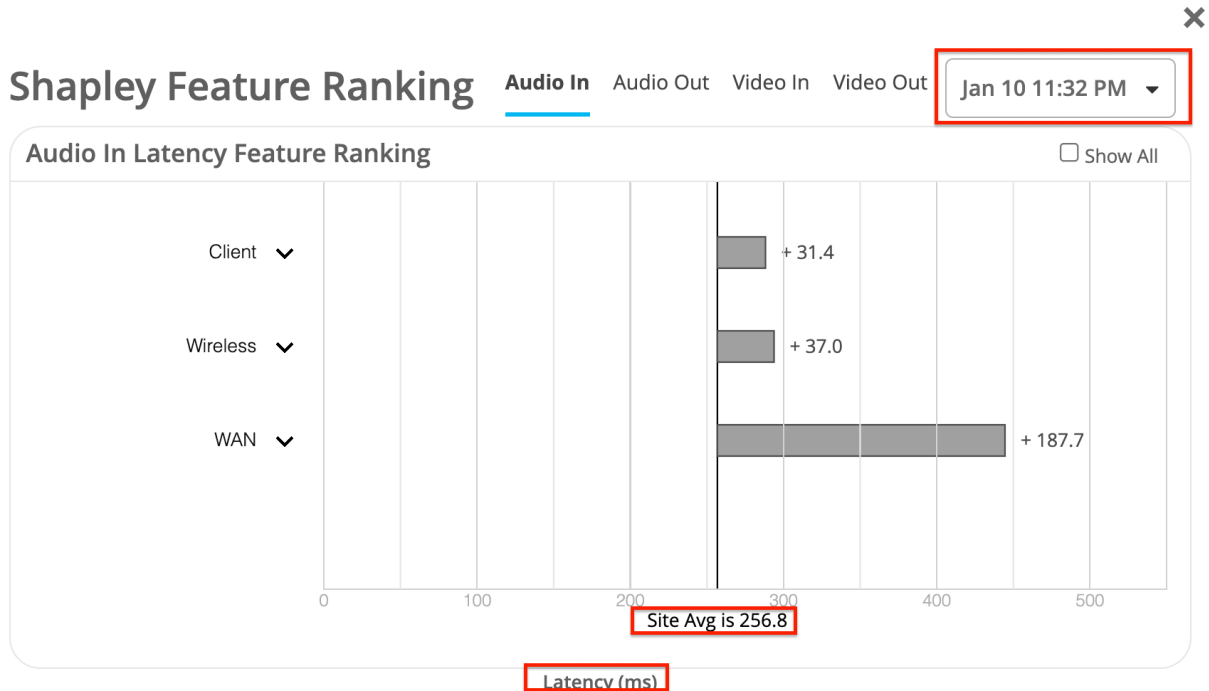
Click ^ to view the Shapley feature ranking graph. Here is an example that shows feature ranking for audio latency. The X axis indicates latency in milliseconds (ms). The Y axis shows the average latency that the wireless, client, and WAN features contribute. The graph provides:

- Observed average latency for all Zoom calls associated with a site.
- Aggregate latency attributed to each feature category (wireless, client, and WAN).



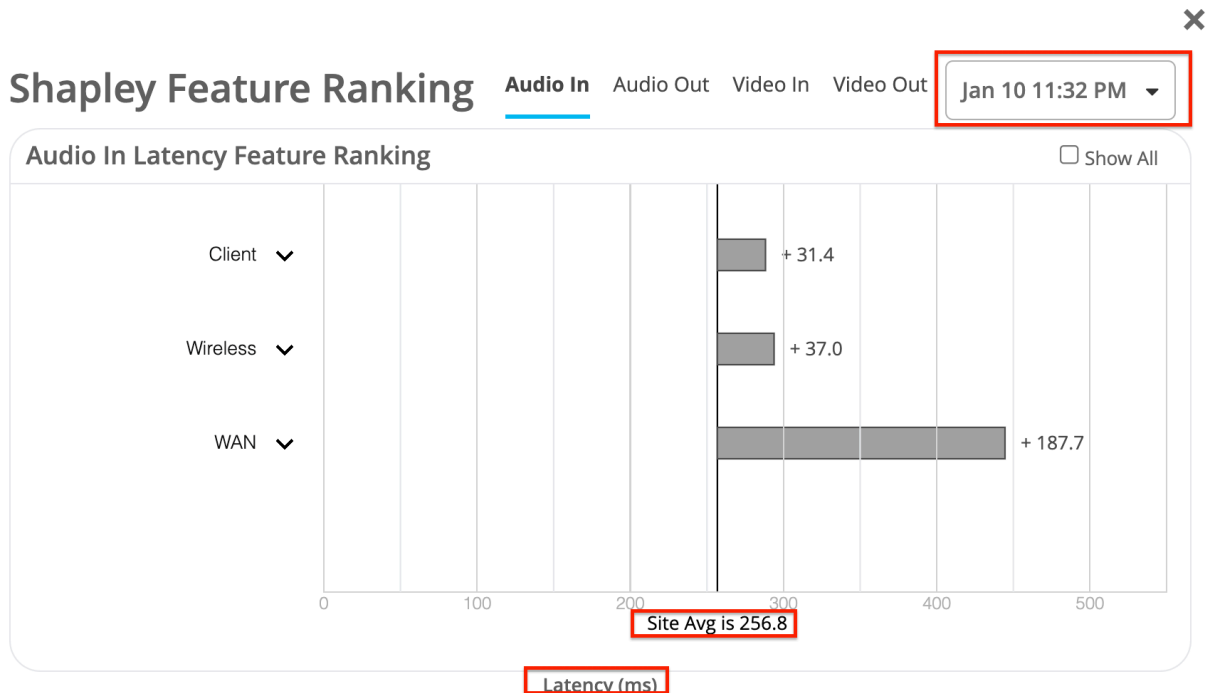
This graphical representation enables you to quickly identify the network segment that needs attention.

If you observe several minutes of bad user experience in a Zoom meeting, you can select the date and time of that meeting to view the associated feature ranking computation. You select the date and time from the drop-down list above the graph.



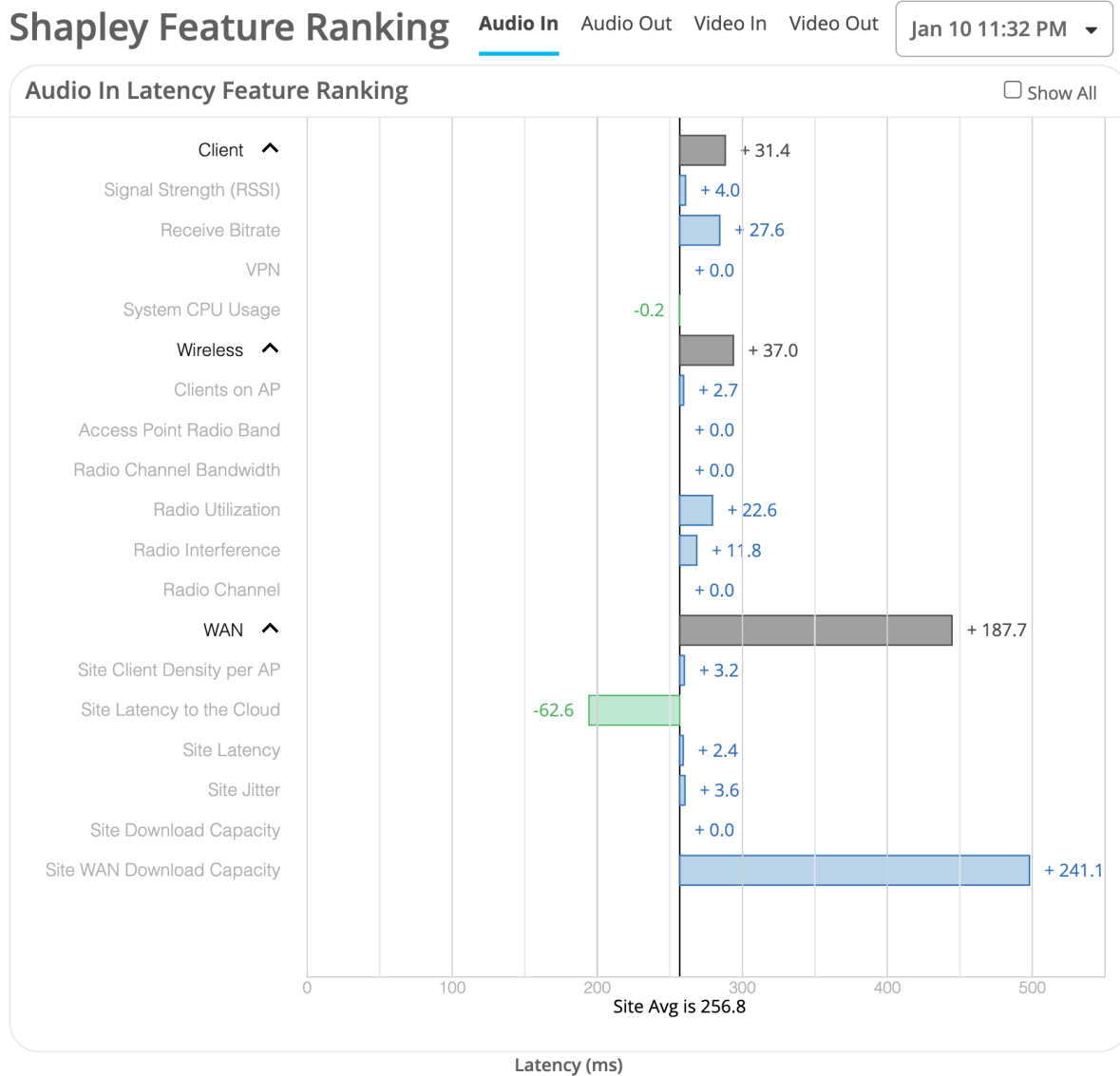
Here are two examples that show how you can use Shapley feature ranking to troubleshoot user experience issues.

Example 1:



In this example, you can see that the average latency for the site is 256.8 ms. The dominant feature category is WAN, which increases the latency by 187.7 ms.

You've now identified the feature category that contributes the most to the increase in latency. You can drill down further—click the drop-down list in the WAN section—to see the specific WAN feature that causes the maximum latency. In the following expanded view of the graph, you can see that among the WAN features, Site WAN download capacity contributes to the longest period of latency.



Example 2:

In this example, you can see that the highest contributor to latency is the client. Within this feature category, the dominant feature is VPN. This scenario occurs when a client is connected through a full tunnel VPN instead of local egress.

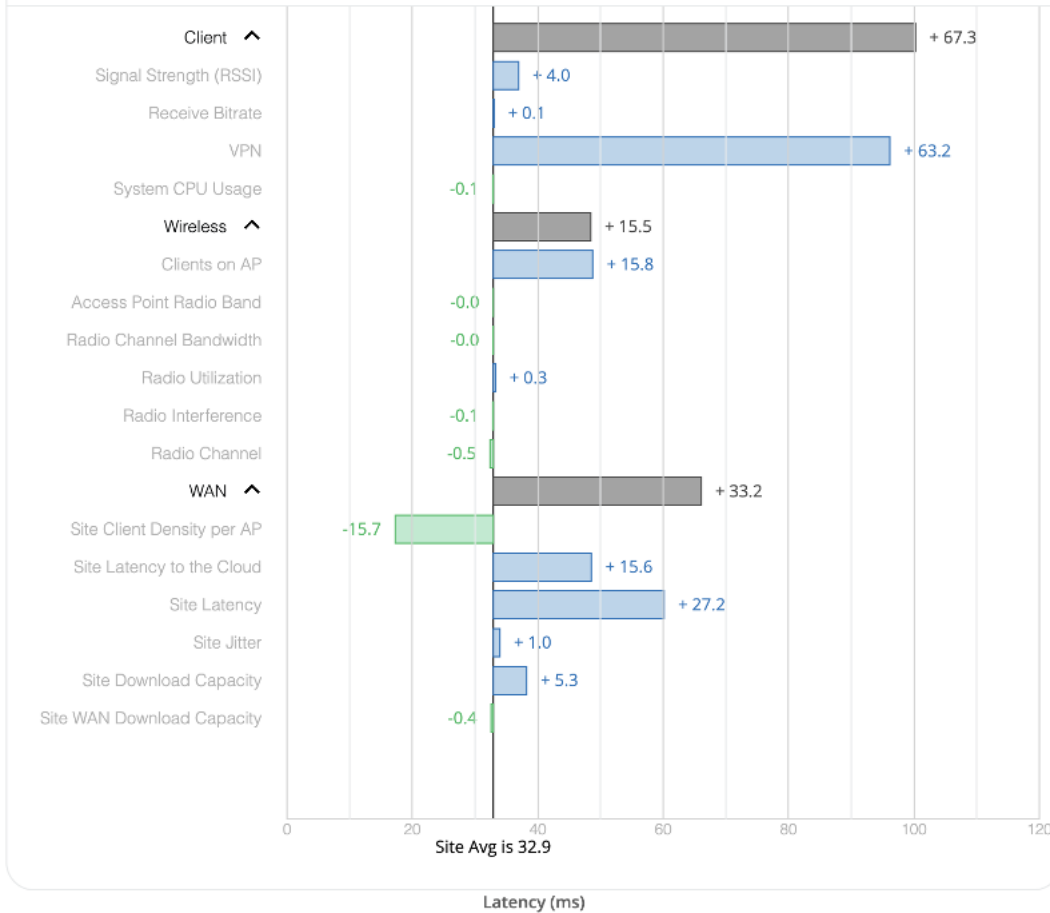
Shapley Feature Ranking

Audio In

Jan 11 6:00:31 AM

Audio In Latency Feature Ranking

Show All



Troubleshoot Mist Zoom Account Integration Issues

IN THIS SECTION

- [Authorization Error | 29](#)
- [Zoom Meeting Details Not Listed in the Insights Page on the Mist Portal | 29](#)

This topic presents two common issues that you might come across when you link your Zoom account with Mist.

Authorization Error

Problem:

You see the **You cannot authorize the app** error message when you sign in to Zoom.

Solution:

Log into Zoom using an administrator account.

Zoom Meeting Details Not Listed in the Insights Page on the Mist Portal

Problem:

You do not see the Zoom meeting insights for a client in the Mist portal.

Solution:

- Ensure that the client is connected to a Mist access point (AP) installed at the site.
- Verify that the user has a Zoom business account subscription.
- Ensure that the user logs into the Zoom application before joining the meeting.

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