Application Note

Onsight Mobile Collaboration – Video Endpoint Interoperability v2.1

Onsight Mobile Collaboration – Video Endpoint Interoperability

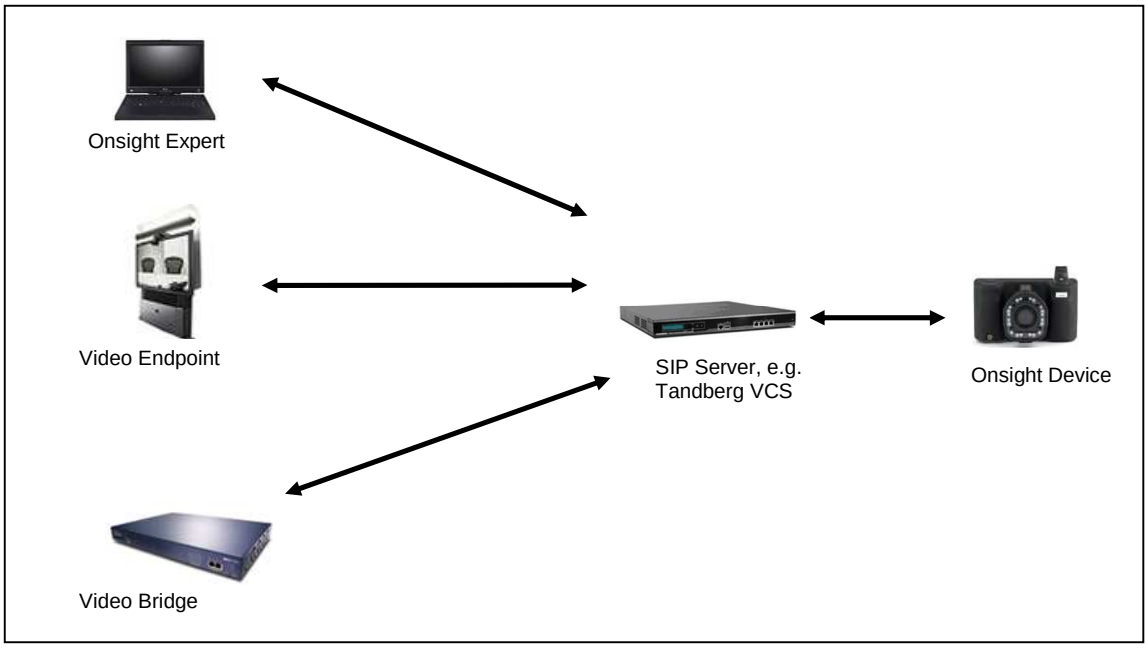
Introduction

The Onsight system utilizes standards based SIP protocols (RFC 3261) to negotiate calls and allow users to collaborate using VOIP (G.711, GSM.610), video (MPEG-4, H.263+) and data RTP streams. The data stream allows users to share captured images, draw on-screen with telestration and control the remote Onsight Device.

The Onsight Device is a SIP endpoint and supports MPEG4 and H.263/H.263+ video.
It can stream to different video endpoints including a:

- PC running the Onsight Expert desktop collaboration software
- Compatible SIP video endpoint (e.g. Tandberg MXP)
- A video bridge (e.g. Codian MCU)

Note: A SIP Proxy server like the Tandberg Video Communications Server (VCS) or the InGate SIParator is required when the SIP traffic is crossing Firewall/NAT borders between networks.



Adding Onsight to a Video Conference Meeting

There are two ways for Onsight to join a standard videoconferencing or TelePresence meeting. In most cases, customers use both approaches depending on the specific environment and use case.

1. Connecting an Onsight Expert PC within a video room: In this approach, the Onsight Device and desktop with Onsight Expert are engaged in a direct collaboration session. The Onsight Expert PC is shared with the participants in video rooms through H.239.

2. Connecting an Onsight Device directly to a video room: In this approach, the Onsight Device either calls a SIP video endpoint directly or though a video conference bridge. This document describes direct calls between the Onsight Device and Tandberg video endpoints as an example.

Benefits and Limitations of Both Approaches

There are benefits and limitations associated with both approaches. In the first approach, the Onsight Expert application remains a core component of the collaboration session. In this case, the advanced Onsight collaboration features such as onscreen telestration, remote camera control, image sharing and recording capabilities are all available. In the second approach where the Onsight Device calls directly into a video bridge or to a video endpoint, collaboration with the Onsight Device operator is limited to audio and video only. The advanced collaboration features such as telestration are not available.

The second approach can provide a simpler way for audio communication between the Onsight Device and the additional video endpoints. A direct call from the Onsight Device includes both the video and audio directly to all the video endpoints, whereas the Onsight Expert approach relies on the PC to share the Onsight Device audio with the other video endpoints.

As stated earlier, most customers will use both approaches depending on the specific situation.

Approach 1: Connecting the Onsight Expert PC

The majority of situations benefit from the additional Onsight Expert collaboration features. When this approach is needed, the set-up is simple.

1. A live Onsight session is established between an Onsight Device operator and the Onsight Expert software on the PC of one of the video meeting participants.
2. The meeting participant connects this PC to the video endpoint using the VGA cable in the videoconferencing room.
3. The Onsight Expert view is shared using Presentation mode (i.e. H.239).

As soon as the Onsight Expert PC is connected and presentation mode is selected, all the meeting participants can see the video, images and telestration coming from the Onsight Device. Through Onsight Expert, the meeting participant can still telestrate, control the Onsight camera, record and share visuals with the Onsight Device operator. Additional participants can also be brought in by calling another Onsight Expert user or through online meeting tools such as WebEx.

Approach 2: Direct Video Endpoint calling with the Onsight Device

The Onsight Device can directly call SIP based video endpoints or through H.323/SIP multi-protocol servers. This document describes the set-up of direct calls between the Onsight Device and a SIP-enabled MXP-series (or newer) Tandberg endpoint.

In a simple networking environment where the call is between two points on a single LAN, you can call directly using the IP address of the endpoint. In a more complex network where there are firewalls and NATs along the network path you will require the introduction of a SIP registrar and traversal solution such as the Tandberg Video Communications Server (VCS). This enables the use of SIP URI addressing, firewall and NAT traversal, and can provide a SIP to H.323 gateway service.

This document provides instructions on making calls between an Onsight Device and a Tandberg MXP1700 endpoint in two network scenarios:

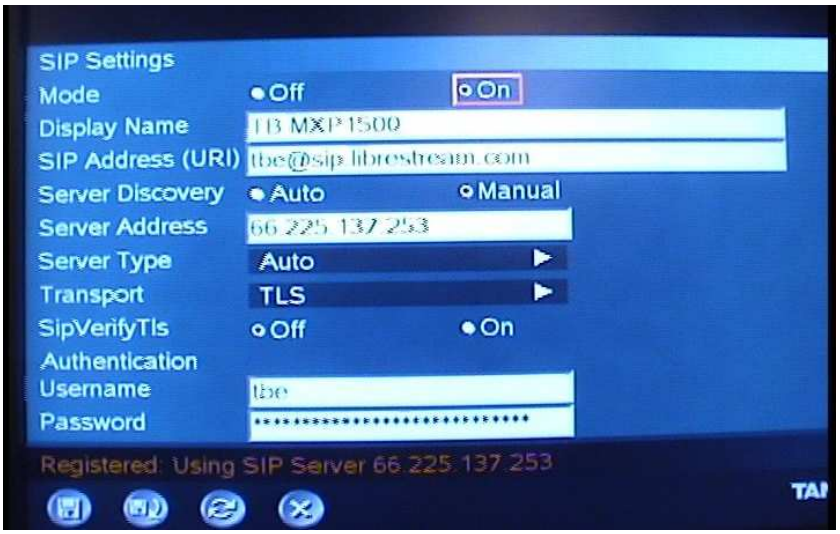
- Both are on a single LAN (with no firewalls or NAT between them). These instructions also apply to the case where they are both directly attached to the internet and have public IP addresses.
- A VCS is used to support calls in the general case where end points are behind a Firewall\NAT.

Example 1a: how to call from Onsight Device to a MXP1700 on a LAN

Requires:

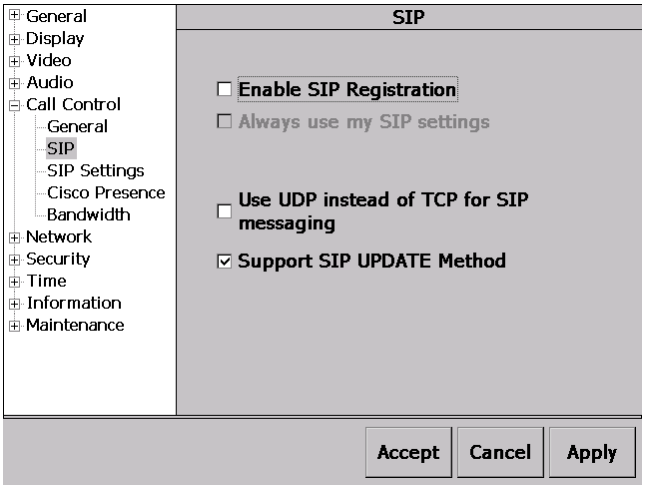
- Onsight Device OS version 4.2 or higher
- Tandberg MXP version F6.3 or higher

1. Enable SIP on MXP1700. On the MXP1700 SIP Settings screen, set **Mode** to **On** (see below). The other fields (Display Name, SIP Address, etc) do not need to be set because you are not using a SIP server in this example.

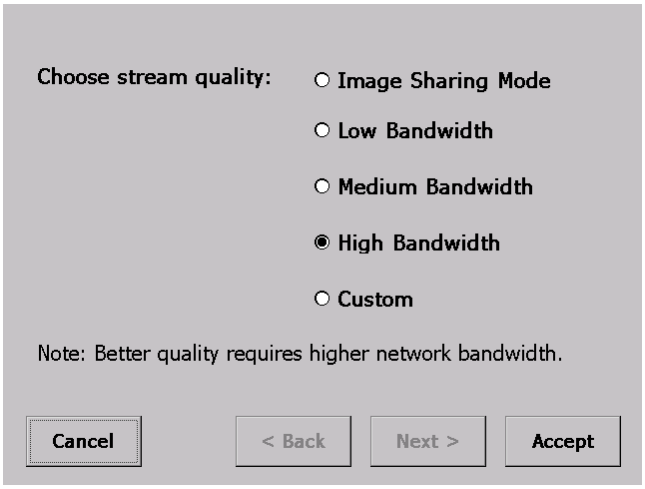


2. Connect the MXP1700 to your LAN.
   Determine the IP address of the MXP1700 eg. 192.168.1.2

3. Connect the Onsight Device to your LAN using a wired Ethernet or wireless connection.
    - Verify it acquires a DHCP IP address (see: Status Menu\Network Status)
    - Do not enable SIP Registration (there is no SIP registrar used in this example)



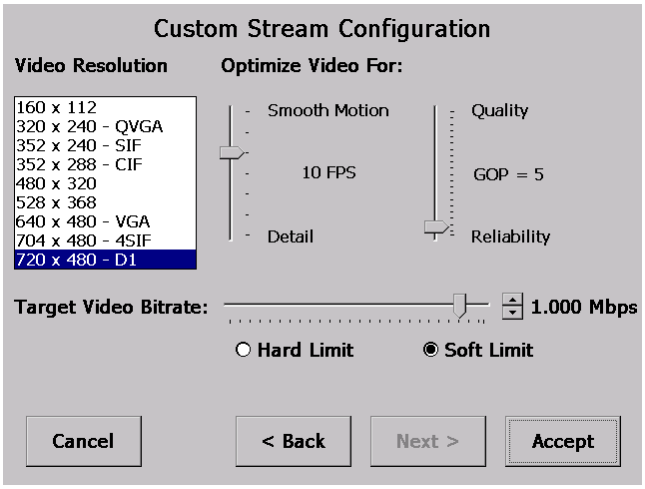
- Set Onsight Device to start the video in Low Bandwidth - see below. The MXP1700 will only accept Low Bandwidth and Custom calls.



4. To make a call from the Onsight Device, press the Send button on back of Onsight Device to view the Local Contacts/Dial window.

    - Enter the IP address of your MXP1700 e.g. 192.168.1.2 Note: the format text@address is only required if you are using a SIP server.
    - Press Dial.
    - You should see an incoming call on your MXP1700
    - Audio will start first.
    - Press the Green streaming button on Onsight Device to start streaming video.

5. You may adjust the stream settings while the call is in progress to change Video resolution, FPS, GOP. See: Stream Setup\Custom (see Custom Stream Configuration – below).



If you choose a large Video Resolution and a high Frames per Second Rate then make sure you also use a high Target Video Bitrate.

For example at 704x480 and 15 FPS, try a Target of 1500 to 2000.

(For more detail see the Application Note: Optimizing the Onsight Experience in Low and Variable Bandwidth Environments. Available at http://www.librestream.com/support.html)

Example 1b: how to call from MXP1700 to Onsight Device on a LAN

You can also call from the MXP1700 to the Onsight Device.

Configure the Onsight Device and MXP1700 as described in the previous example.

1. On the MXP1700 dial screen, use a Dial address in this form: sip:abc@192.168.1.1 This format ensures that the call is made using SIP regardless of the default call Type setting. Any text can be used in the 'abc' portion.

2. Initiate the call from the MXP1700
   - ➔ An incoming call message is displayed on the Onsight Device
   - ➔ Accept the incoming call
   - ➔ VOIP audio will start first
   - ➔ Press the Green streaming button on Onsight Device to start streaming video

Example 2: how to call from Onsight Device to a MXP1700 with Tandberg VCS

Requires:

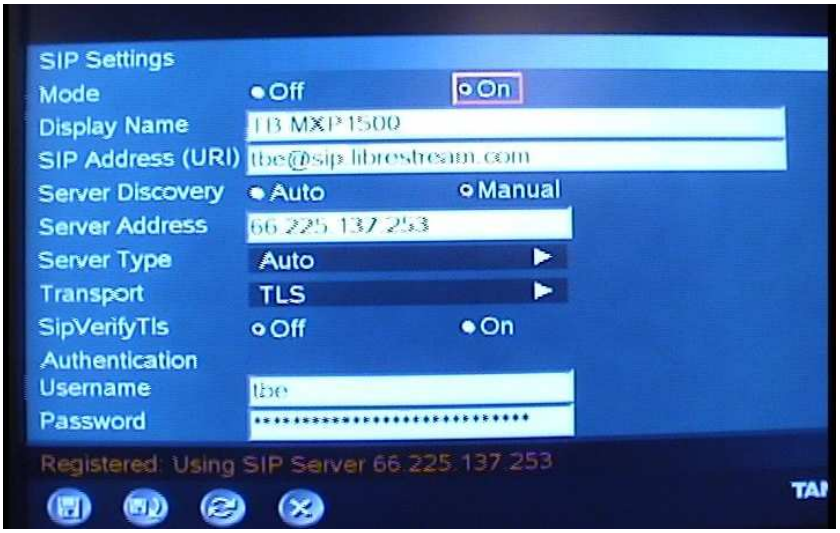
- Onsight Device OS version 3.76 or higher
- Tandberg version F6.3 or higher.
- Tandberg VCS

Detailed VCS configuration is outside the scope of this Application Note. Refer to the Tandberg VCS documentation for detailed assistance with configuration.

The VCS will handle traversal of the local firewall; however, ports on the remote firewall must be opened to permit the following:
a) SIP packets using UDP and TCP destined for the VCS IP address and ports 5060 and 5061; and
b) media packets using UDP destined for the VCS IP address and ports 50000-51200 (default).

The VCS will be configured with a Server Address and a SIP domain. Accounts for the MXP1700 and Onsight Device will need to be created on the VCS with Authentication Name, Password and SIP URI.

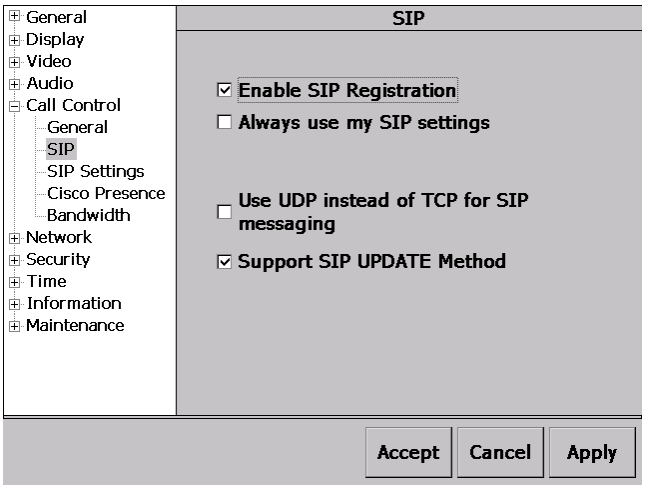
1. Enable SIP on MXP1700
   On the MXP1700 SIP Settings screen, set **Mode** to **On** (see below). Set the SIP Address (URI), Server Address, Authentication Username and Password as provided by the VCS account for the MXP1700.



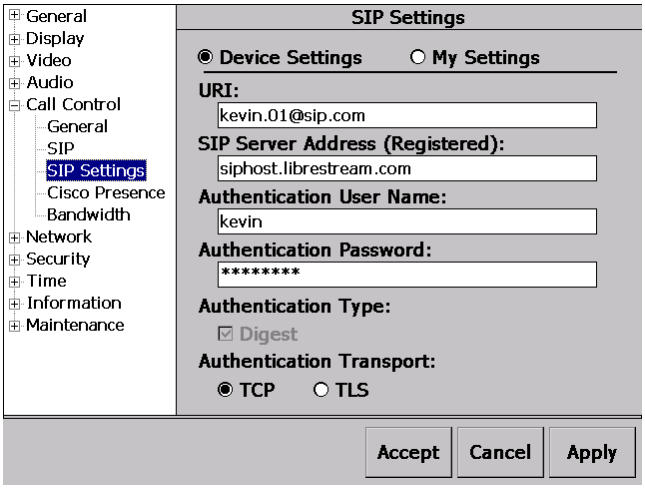
2. Connect the MXP1700 to your LAN.

3. Connect the Onsight Device to your LAN using a wired Ethernet or wireless connection

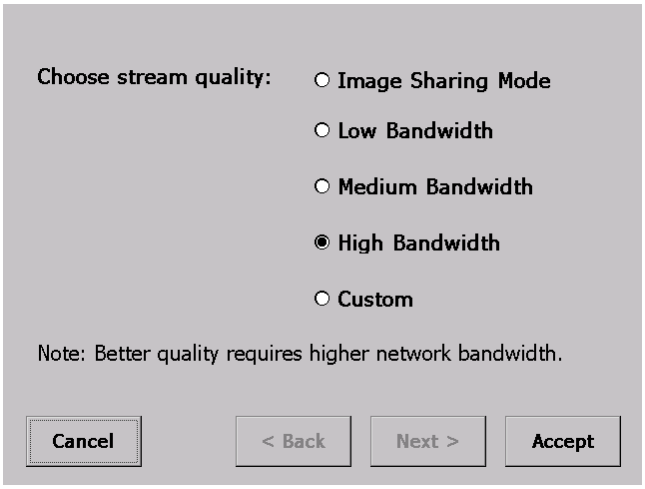
   a. Verify it acquires a DHCP IP address (see: StatusMenu> Network Status>)
   b. Select Enable SIP Registration as shown below (the VCS provides a SIP Registrar function)



- Set the SIP Address (URI), SIP Server Address, Authentication User Name and Password as provided by the VCS account for the Onsight Device. See below.



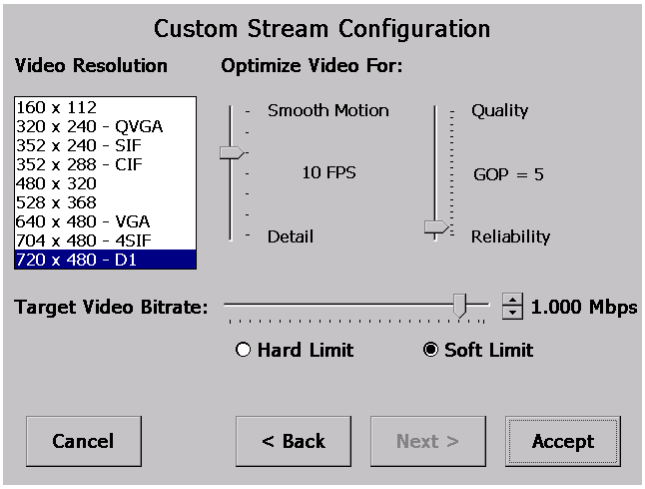
- Set Onsight Device to start the video in Low Bandwidth - see below. The MXP1700 will only accept Low Bandwidth and Custom calls.



4. To make a call from the Onsight Device, press the Send button on back of Onsight Device to view the Local Contacts/Dial window.

   - Enter the SIP URI address of your MXP1700, eg: myuser@sip.mycorp.com
   - Press Dial.
   - You should see an incoming call on your MXP1700.
   - Audio will start first.
   - Press the Green button on Onsight Device to start streaming video.

5. You may adjust the stream settings while the call is in progress to change video resolution, video bitrate or FPS. See Stream Setup\Custom (see Custom Stream Configuration – below).



If you choose a large Video Resolution and a high Frames per Second Rate then make sure you also use a high Target Video Bitrate.

For example at 704x480 and 15 FPS, try a Target of 1500 to 2000.

(For more detail see the Application Note: Optimizing the Onsight Experience in Low and Variable Bandwidth Environments. Available at http://www.librestream.com/support.html)

Troubleshooting Q&A

***Q:** When I telestrate on the Onsight Device while in a direct call with a 3rd party video endpoint, the Onsight telestration is not visible at the endpoint. Why?*

A: The Onsight telestration is not supported by the 3rd party video endpoint. You require the Onsight Expert desktop software to exchange telestration data. In addition, the image sharing capability and remote camera operation are not supported by the 3rd party endpoint.

***Q:** When I start a custom stream at the Onsight Device I get an error message – see below. Why?*

A: The Onsight Device Custom Stream has been configured with a Resolution (image size) that is not supported by the endpoint. You must choose a supported Resolution on the Onsight Device. The supported resolutions for H263 are 320x240, 352x240, 352x288 and 704x480.

Q: *Some stream parameter values are missing. For example my Onsight Device doesn't list the 720x480 video resolution. Why?*

A: Only resolution and parameter values supported by both video endpoints are listed. See the above list of supported resolutions.

***Q:** Can the Onsight Device be configured with 'Prefer low bandwidth voice or subject audio codec'?*

A: Yes you can set this preference (see Configuration> Audio> General>). If the video endpoint supports the low bandwidth GSM6.10 audio codec, then low bandwidth will be used. Otherwise the G.711 audio codec will be used.

Q: *I get blank video when calling from the camera to a Tandberg endpoint* OR
There was video visible when Low was selected at the camera, but when High was selected there was perhaps audio but no video.

A: The standard Onsight 'High' setting of 720x480 is not compatible with Tandberg video endpoints and so it refuses to accept the video stream. However, the pre-set Low (320x240)configuration is compatible and you can create additional custom configurations.

To confirm that the video resolution setting was the issue, do the following:

On the Device go to the Stream Setup and select 'Low Bandwidth'.

1. Start a call with the video endpoint and verify video is working at Low.
2. Then while in the call, go to Stream Setup - Custom and see what resolutions have been negotiated between the Device and the video endpoint for the current call. You may be able to move up to 704x480.
3. Try some alternate Custom settings and see what is best for you.

Q: *In a direct call from the Onsight Device into a 3rd party video endpoint, how should I adjust the Target Bitrate for my Custom media configuration to match the video resolution and FPS settings?*

A: When moving up to a higher resolution or FPS you will need more bandwidth to support it, so be sure to increase the Target bitrate. For example a h263+ call to a Tandberg endpoint at 704x480/10fps would require approximately 800kbps or higher to improve image detail. Use the chart below as a guide for minimum values.

Table 1: Resolution: H.263 Minimum Bit Rates

H.263 Minimum Bit Rates

	320x240	352x240	352x288	704x480	**Resolution**
Framerate					
3	55	70	80	260	
5	100	120	115	390	
10	200	245	250	800	
15	300	330	355	1100	
30	490	580	660	2100	

Note: If you stream from the Onsight Device to Onsight Expert, the video codec will instead be MPEG4 which is more efficient and will require about 60-80% of the numbers in the chart.

Q: *How do I get Echo Free Audio when connecting an Onsight Expert PC to a Cisco Video endpoint?*
A: Call Setup:

- Confirm the Onsight Expert (OE) software is running vR4.2 or greater.
- Connect PC running OE via VGA cable to TB Edge using presentation mode.
- Connect TB Edge to the Cisco Unified Videoconferencing Solution (CUVC) via SIP. CUVC participants will see the PC desktop with OE running.
- Connect OE to CUVC via SIP. Mute PC audio and mic, otherwise CUVC participants would hear the people in the conference room from the OE and TB Edge room mic.
- Connect OD to OE via SIP and stream video. OE is now in host conference mode with the OD and CUVC. CUVC participants now hear OD user via OE conference and see OD stream via TB Edge presentation mode.

Known Issues:

1. Multiple Onsight Experts with Tandberg Codian Calls:

In a call scenario that includes multiple Onsight Expert desktop users who need to connect into a Codian bridge, the following process is required:

1. The Onsight Device and Host Onsight Expert establish a call
2. The Host Onsight Expert calls into the Codian to join the video conference meeting
3. The Host Onsight Expert calls the other client Onsight Expert users to join the call - (Note: telestration, image sharing, etc. will be available to the Onsight Expert participants).

Multiple Onsight Expert clients cannot call into the Codian directly because the data stream is not accepted by the Bridge. ***The Initial Host Onsight Expert can call a Codian successfully because it has already established a data stream with the Onsight Device and is therefore capable of streaming video to the Codian.***

2. Tandberg Movi Client

The Onsight Device can call a PC running the Tandberg Movi client. However, Movi and the Onsight Expert software cannot run simultaneously on the same PC as both products use port 5060 for SIP traffic.