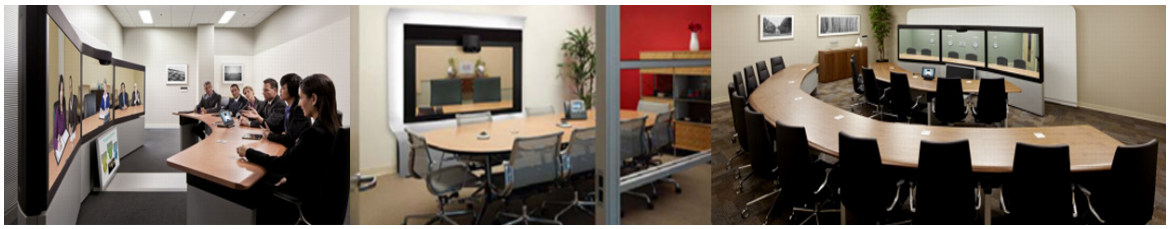


CHAPTER 1

Information About the Cisco WebEx Enabled TelePresence Feature

Revised: December 2013

Contents

This chapter provides an overview of the Cisco WebEx Enabled TelePresence solution. It contains the following sections:

Cisco WebEx Enabled TelePresence Experience

This section contains the following information about the Cisco WebEx Enabled TelePresence meeting experience:

Scheduling the Meeting

The meeting organizer can schedule the meeting using the Cisco WebEx and TelePresence Integration to Outlook, Cisco Smart Scheduler, Cisco TelePresence Management Suite (Cisco TMS) or Cisco WebEx Scheduling Mailbox.

For more information about how to schedule a meeting using the different scheduling options, refer to Chapter 11, “Scheduling Cisco WebEx Enabled TelePresence Meetings”.

Starting/Joining the Meeting

The meeting is started the following way:

- At the scheduled start time of the meeting, the MCU/TelePresence Server calls into WebEx.
  - If the WebEx host has not joined the meeting, the MCU/TelePresence Server becomes the default WebEx host.
  - If the WebEx host joins before the scheduled start time of the meeting, he/she becomes the WebEx host.
- TelePresence participants join the meeting.
  - If meeting was scheduled using Auto Connect, Cisco TMS dials and connects each supported endpoint.
  - If meeting was scheduled using One-Button-to-Push (OBTP), participants using endpoints that support OBTP press the button on their endpoint to join the meeting.
  - Participants using endpoints that don't support either Auto Connect or OBTP, join the meeting by dialing the video dial-in number listed in the meeting invitation.
- WebEx Participants join the meeting using the link in the meeting invitation.

Cisco TelePresence Meeting Experience

Cisco TMS is used to configure and manage the Cisco WebEx bridging feature in Cisco TelePresence meetings. During the meeting, telepresence participants see live video of both WebEx participants and telepresence participants.

The Cisco WebEx bridging feature integrates the Cisco WebEx conferencing server with multipoint meetings on the Cisco TelePresence MCU or Cisco TelePresence Server. Cisco Telepresence callers connect to meetings using One-Button-to-Push (OBTP) or Automatic Connect technology. The MCU/TelePresence Server connects at the meeting start time, automatically connects with the Cisco WebEx conference and joins the two meetings. Upon connecting with Cisco WebEx, the Cisco Telepresence presentation screen shows a Welcome page.

For presentation sharing, the TelePresence user connects the video display cable to their computer and (if required) presses a button to start sharing their presentation to TelePresence and WebEx participants. Video of the active speaker in the Cisco TelePresence system is streamed to the Cisco WebEx Web client.

Cisco WebEx Meeting Experience

Remote participants join the Cisco WebEx meeting by logging in to the Cisco WebEx Meeting Center Web and/or mobile clients*. Content shared from the Cisco TelePresence endpoint is displayed automatically in the Cisco WebEx Meeting Center clients and Cisco WebEx participants can share their desktop or application with Cisco Telepresence endpoints. Cisco WebEx users see the live video of the actively speaking Cisco TelePresence participant or WebEx participant. WebEx participants can go into Full Screen view to see all the other WebEx and TelePresence participants in the meeting. When in full screen mode, WebEx participants can see all WebEx participants who have their video turned on. While in full-screen mode, participants will see video sent from TelePresence when a TelePresence participant is the active speaker. Cisco WebEx users also see an integrated list of all Cisco WebEx meeting participants. The WebEx annotation feature is supported. WebEx participants can annotate using the standard WebEx Meeting Center client annotations tools and both WebEx and TelePresence participants can see the annotations. The annotation tools are not available, however, for TelePresence participants.

When the first WebEx participant joins, “TelePresence systems” appears in the list of WebEx participants (Figure 1-1 on page 1-4) and in the row of WebEx participants in Full Screen vview (Figure 1-2 on page 1-5). This indicates that it is a Cisco WebEx Enabled TelePresence meeting. individual TelePresence users are not listed in the WebEx participants list. Instead, only “TelePresence systems” is listed and is displayed in the active speaker window when a TelePresence participant is the active speaker.

For Cisco WebEx participants to share their presentation with TelePresence participants, they must do the following:

1. Log into the Cisco WebEx Web client on their laptops.
2. Grab the ball or be designated as presenter by the WebEx host.
3. Start application or desktop sharing.

* For a list supported mobile clients, refer to the Cisco WebEx Enabled TelePresence release notes.

Recommended Screen Resolutions for Presentation Sharing

To utilize the full screen while presenting, Cisco recommends setting your computer to a 4:3 aspect ratio screen resolution. The following screen resolutions are recommended:

- 1024 x 768
- 1152 x 864
- 1280 x 1024
- 1600 x 1200

Passing the Ball

WebEx users share a presentation by taking the ball and then selecting the content to present. If the WebEx site does not allow WebEx participants to take the ball, the WebEx host must pass the ball to the WebEx participant. Alternately, an attendee can use the host key to become the new host. Then this new host can assign the presenter ball to him/herself to present. For more information about using Cisco WebEx meeting functions, log into your Cisco WebEx Meeting Center account and click **Support** in the left navigation pane.

Viewing the Meeting in WebEx

When attending the meeting using the WebEx Meeting Center web client (Windows or Mac), you have two basic ways to experience the meeting:

- Default View, page 1-3
- Full Screen View, page 1-4

Default View

When you log in to the meeting, the WebEx client displays the default view (see Figure 1-1). The default view displays a video window and participant list on the right and the presentation being shared on the left. The video window shows the current active speaker (either TelePresence or Webex).

Figure 1-1 Cisco WebEx Meeting - Default View

Full Screen View

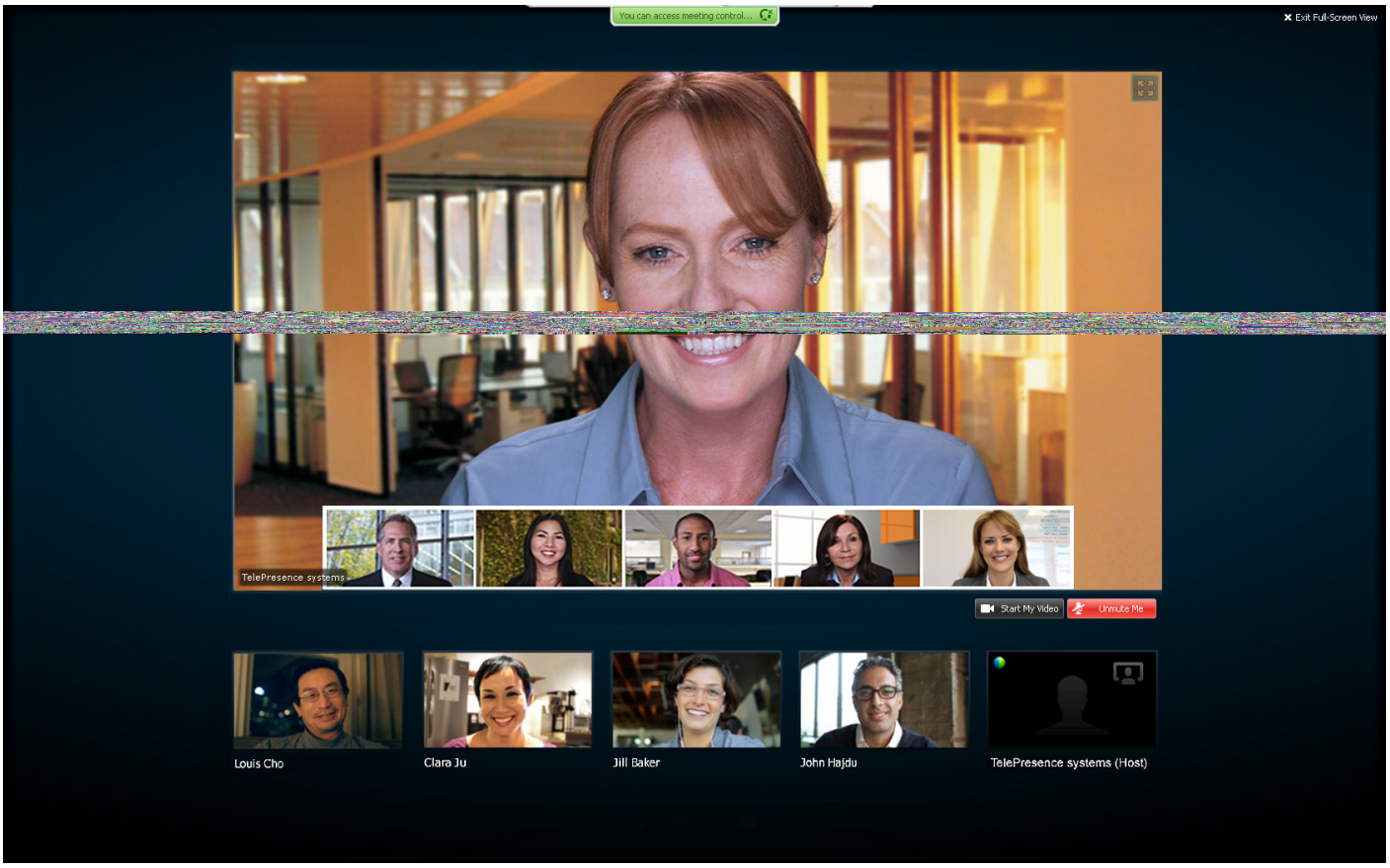
Full Screen view displays the active speaker in a large image at the top of the window and WebEx participants at the bottom of the window (see Figure 1-2). When in Full Screen mode, the presentation is not visible.

To go into Full Screen mode, click the Full Screen button in the video window in the default view.

Cisco TelePresence Server or MCU can be configured to display other TelePresence participants in the active speaker window. See Figure 1-3 for an example of Active Presence enabled by default on the TelePresence Server. MCU sends a full screen layout.

Figure 1-2 Cisco WebEx Meeting - Full Screen View

Figure 1-3 Cisco WebEx Meeting - Full Screen View with Cisco TelePresence Server in Active Presence Mode



Understanding How Cisco WebEx Enabled TelePresence is Deployed

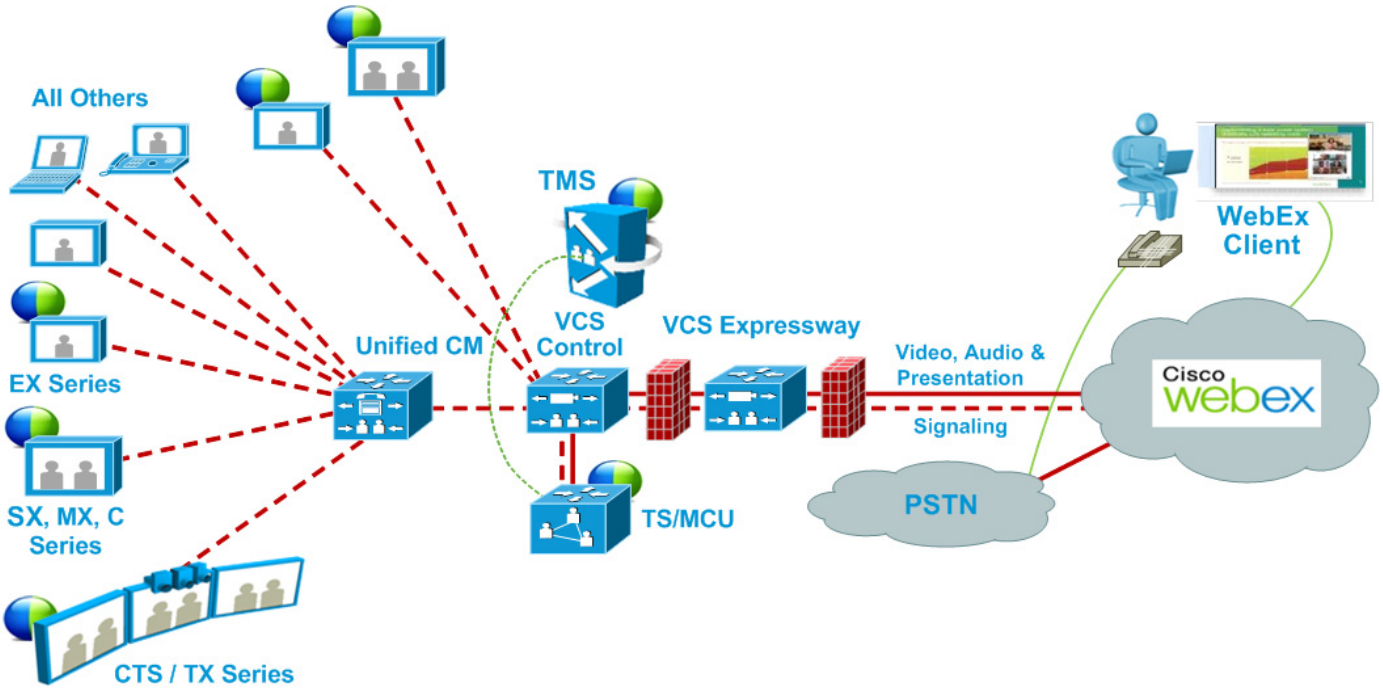
There are three possible network topologies for Cisco WebEx Enabled TelePresence:

- SIP Video, Presentation and Audio, page 1-6
- SIP Video, Presentation and PSTN Audio, page 1-7:
  - Using a gateway registered to Unified CM
  - Using a gateway registered to Cisco VCS Control

SIP Video, Presentation and Audio

WebEx is deployed using WebEx Audio. Main video, content, and audio to and from the WebEx cloud is negotiated between the Cisco VCS Expressway on the customer site and the WebEx Cloud. All media (main video, content, and audio) flows over IP negotiated using SIP. Blue and green balls symbolize WebEx-enabled endpoints (ball displayed on endpoint display) (OBTP).

Figure 1-4 Network Topology - SIP Video, Audio and Presentation



SIP Video, Presentation and PSTN Audio

WebEx is deployed using WebEx Audio using PSTN. Only main video and content is negotiated through the VCS Expressway on the customer site and WebEx cloud (SIP/IP).

At the time of scheduling, Cisco TMS provides the MCU PSTN access information (Dial number, Conference ID, Attendee ID). The Cisco MCU calls out and sets up the audio-only call over PSTN to the WebEx cloud, passing the conference ID and attendee ID using DTMF.

This deployment can be set up either of the following ways:

- Using a PSTN gateway registered to Unified CM - See Figure 1-5.
- Using a PSTN gateway registered to VCS - See Figure 1-6.

Note This deployment type is not supported with Cisco TelePresence Server.

Figure 1-5 Network Topology - SIP Video and Presentation with PSTN Audio Using Unified CM

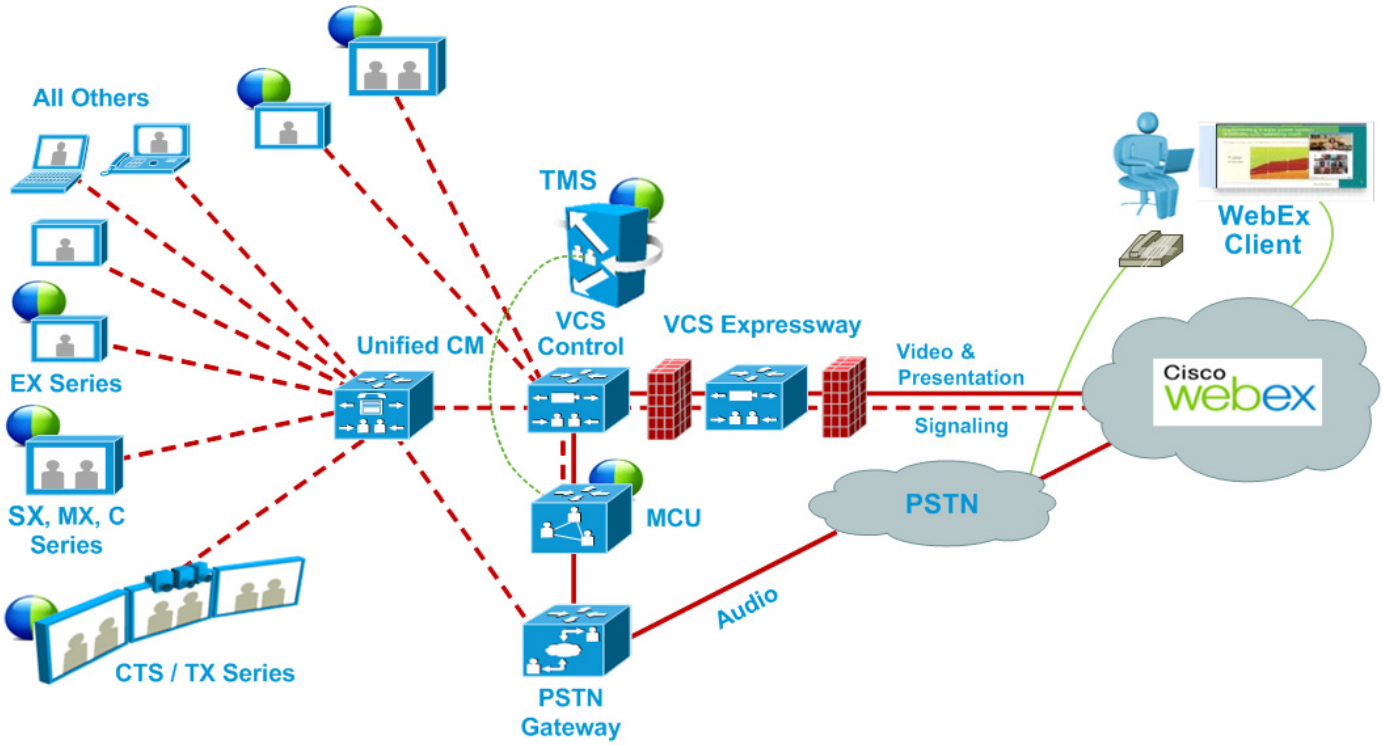
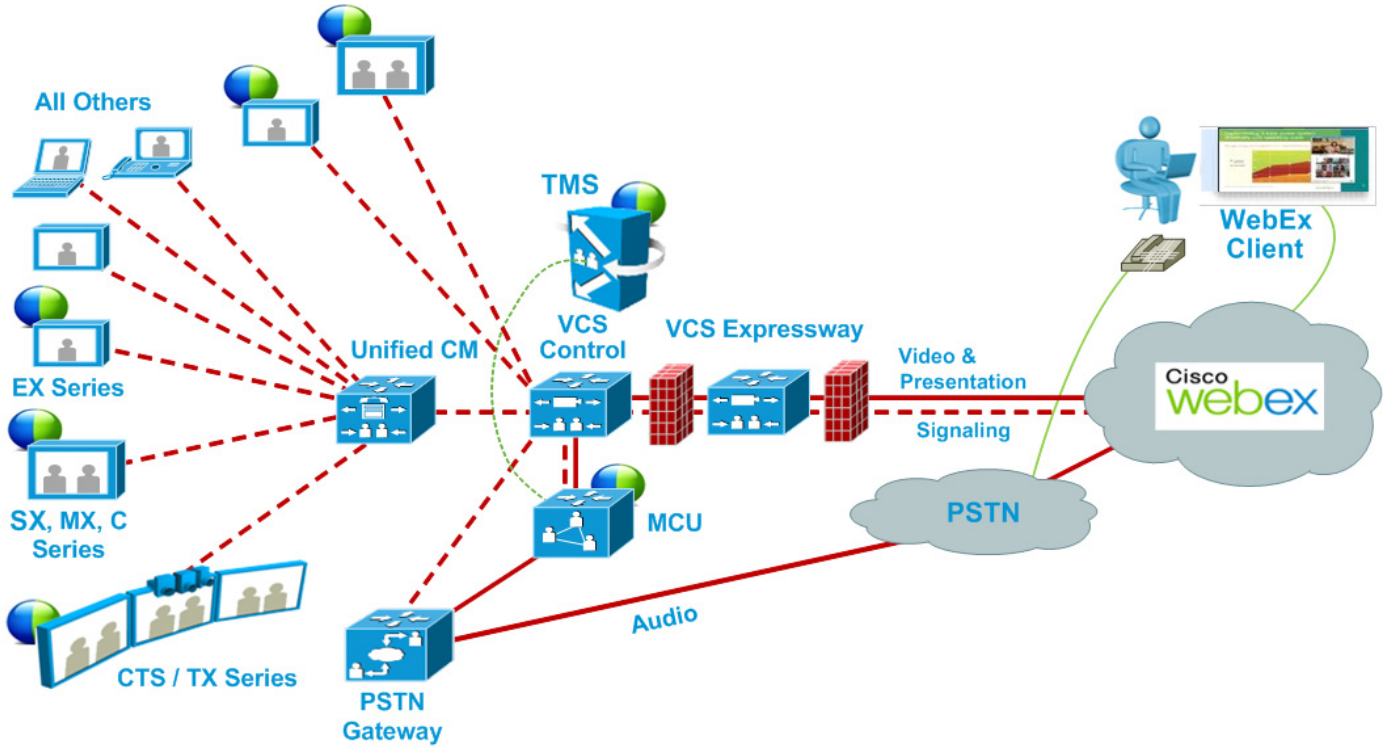


Figure 1-6 Network Topology - SIP Video and Presentation with PSTN Audio Using VCS Control



Cisco TMS Scheduling Role

Cisco TMS provides a control link to the Cisco WebEx site. This interface allows Cisco TMS to book a WebEx enabled meeting on behalf of the WebEx Host, and to obtain Cisco WebEx meeting information that is distributed to meeting participants. Cisco TMS then pushes Cisco WebEx meeting details to the TelePresence Server/MCU.

TelePresence Server and MCU Roles

Cisco TelePresence Server/MCU will send/receive two-way main video with up to 720p30 between WebEx Meeting Center clients and TelePresence endpoints. The MCU/TelePresence Server sends a single transcoded video stream to the WebEx Meeting Center client.

The MCU/TelePresence Server will send a single mixed audio stream of the TelePresence meeting participants to the WebEx cloud. Likewise, the MCU/TelePresence Server will receive a single mixed audio stream from all WebEx participants, including WebEx Meeting Center participants joined over PSTN or VoIP.

Support for two-way content share XGA (1024x768) resolution between telepresence endpoints and WebEx clients.

Each meeting creates its own SIP connection to avoid Transmission Control Protocol (TCP) congestion and potential TCP windowing issues.

Presentation Display Details for Multiple Presenters

For TelePresence users to present, the presenter connects the video display cable to the endpoint and (if necessary) presses a presentation button on the endpoint. When multiple TelePresence users are presenting at the same time, the endpoint that started presenting last is the one that is displayed. As cables are unplugged, the next presenter must start presenting again.

For WebEx users to present, they grab the ball and then select the content to present. If a WebEx user cannot grab the ball, the host must pass it to them. Alternatively, they can use the host key to become the new host.

Note The WebEx site can be provisioned so that any WebEx attendee can grab the ball to present without the host passing them the ball or using the host key.

Meeting Participant List

The TelePresence participant list, a roster of endpoint names currently connected to the TelePresence Server (if used), is displayed on the TelePresence endpoint display device. MCU and certain endpoint models do not support this feature.

The TelePresence participant list is not, however, displayed in the participant list available to WebEx users. WebEx users see only other WebEx participants and one participant called “TelePresence systems” that identifies all TelePresence participants in the meeting.

Ports and Protocols Used in WebEx Enabled TelePresence

The following ports and protocols are used between different components of the WebEx Enabled TelePresence solution.

Table 1-1 Ports and Protocols Used in WebEx Enabled TelePresence

Component Communication	Port and Protocol Used
TMS to WebEx cloud	Ephemeral port using TLS.443
WebEx and TelePresence Integration to Outlook to TMSXE	Ephemeral port using TLS.443
VCS Expressway to WebEx cloud	TLS and UDP ports

Understanding Cisco WebEx Enabled TelePresence Scheduling Flow

This section describes what takes place when a Cisco WebEx Enabled TelePresence Meeting is scheduled using the following:

- Scheduling with the Cisco WebEx and TelePresence Integration to Outlook, page 1-11
- Scheduling with the Cisco Smart Scheduler, page 1-13
- Scheduling with the Cisco WebEx Scheduling Mailbox, page 1-15

Note Multiple deployments are possible at the same time. For example, when using Smart Scheduler, if Microsoft Exchange is deployed, the calendar of any rooms booked for a meeting is updated with the meeting details.

Scheduling with the Cisco WebEx and TelePresence Integration to Outlook

Figure 1-7 Cisco WebEx and TelePresence Integration to Outlook Scheduling Flow

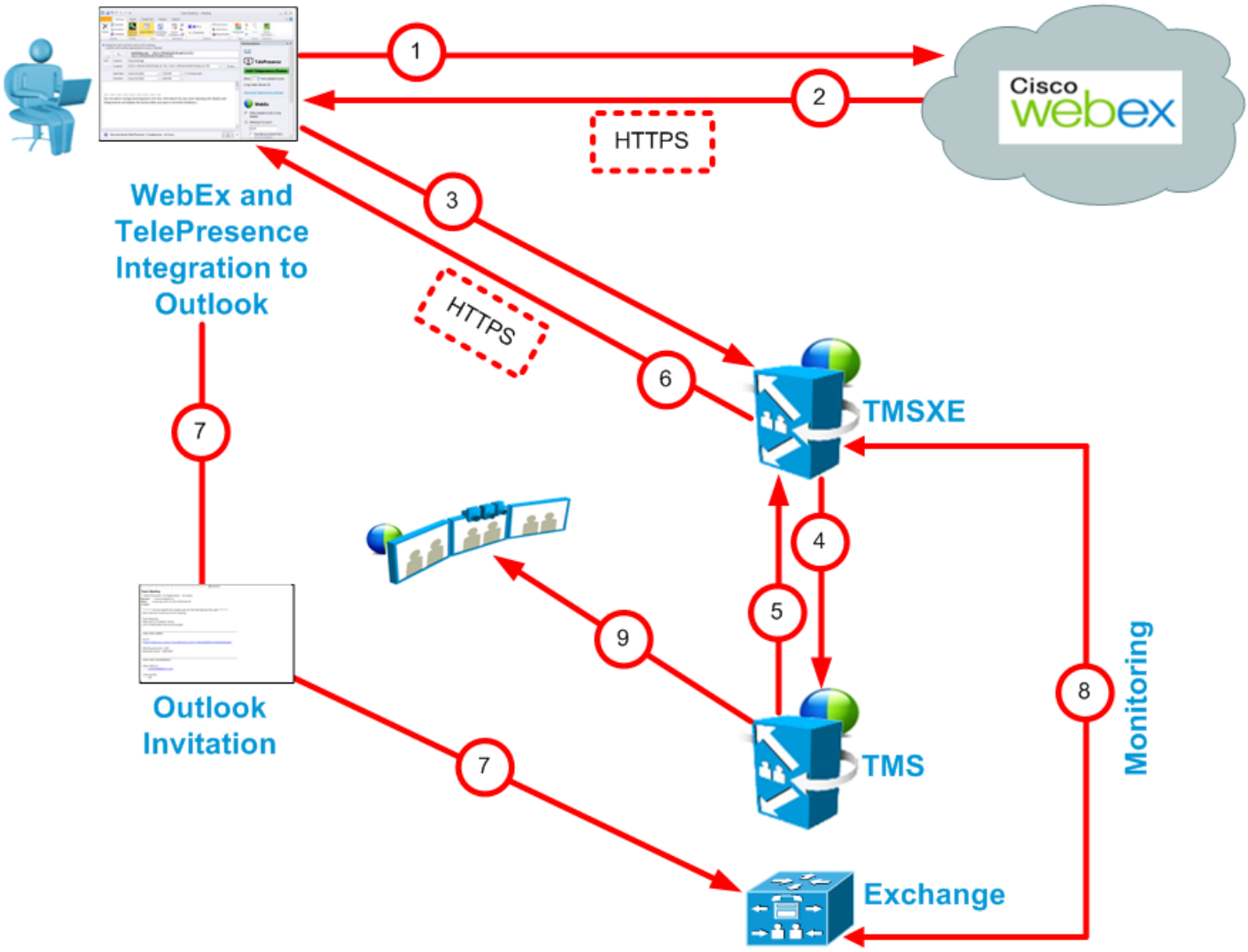


Table 1-2 Cisco WebEx and TelePresence Integration to Outlook Scheduling Steps

Step #	Description
1	User books meeting with Cisco WebEx and TelePresence Integration to Outlook. • Adds users • Adds rooms • Meeting request is sent to WebEx and books the WebEx portion of meeting.
2	WebEx responds with meeting information: • Date and time of meeting • Meeting subject • Audio dial-in information – If TSP audio, then the audio will contain additional info for the MCU to dial the TSP provider. • SIP video and audio (if SIP audio) dial-in information for the bridge to dial into WebEx • Meeting URL for participants to click
3	Cisco WebEx and TelePresence Integration to Outlook contacts TMSXE and does a booking request which includes the WebEx info from step 2.
4	TMSXE sends a booking request with the same information to TMS.
5	TMS confirms the meeting and returns the meeting details to TMSXE.
6	TMSXE sends the meeting confirmation to the Cisco WebEx and TelePresence Integration to Outlook.
7	Outlook invitation is sent back to Exchange to book the rooms and to also any added participants.
8	TMSXE monitors the room mailbox to make sure the rooms accept the meeting.
9	If user invited TelePresence rooms, TMS One-Button-to-Push information is sent to the TelePresence endpoints.

Scheduling with the Cisco Smart Scheduler

Figure 1-8 Cisco WebEx Smart Scheduler Scheduling Flow

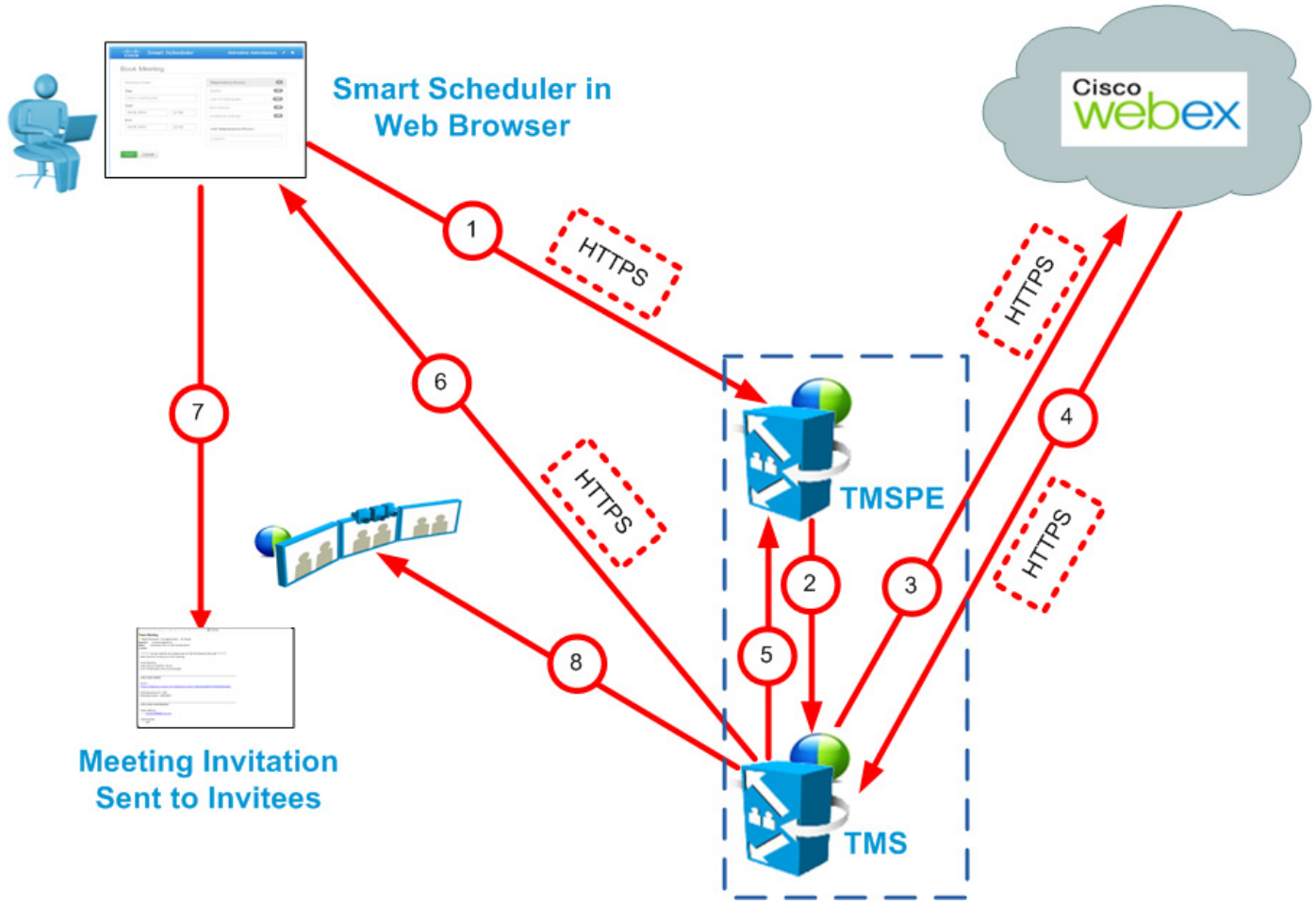


Table 1-3 Cisco Smart Scheduler Scheduling Steps

Step #	Description
1	User books meeting with Smart Scheduler. • Adds rooms • Adds WebEx • Clicks Save.
2	• TMSPE sends a booking request to TMS.
3	• TMS sends booking request to WebEx. • WebEx books WebEx portion of meeting.

Step #	Description
4	WebEx sends meeting details in response to the booking request from TMS: • Date/time of the meeting • Meeting subject • Audio dial-in information – if TSP audio, then the audio will contain additional info for the MCU to dial the TSP provider. • SIP video and audio (if SIP audio) dial-in information for the bridge to dial into WebEx • Meeting URL for participants to click
5	TMS responds to TMSPE with booking confirmation information.
6	TMS sends confirmation email to user.
7	User sends meeting invitation with meeting details to invitees.
8	If user invited TelePresence rooms, TMS sends One-Button-to-Push information to the TelePresence endpoints.

Scheduling with the Cisco WebEx Scheduling Mailbox

Figure 1-9 Cisco WebEx Scheduling Mailbox Scheduling Flow

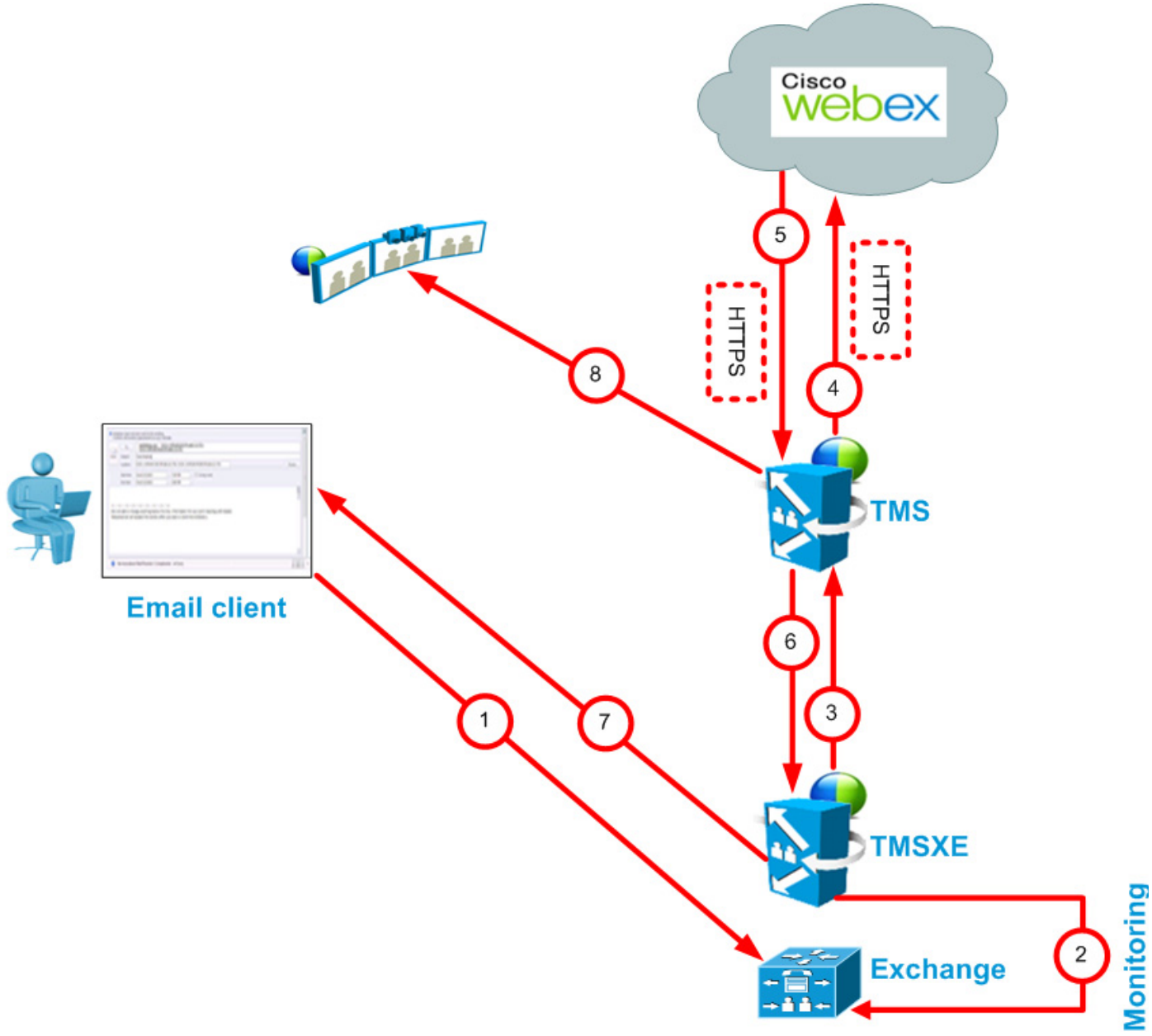


Table 1-4 Cisco WebEx Scheduling Mailbox Scheduling Steps

Step #	Description
1	User books meeting in email/calendar client supported by Microsoft Exchange: • Adds rooms • Adds WebEx Scheduling Mailbox (e.g. webex@example.com) • Adds participants • Clicks Send • Meeting request is sent to Exchange.
2	TMSXE monitors mailboxes for the rooms and the WebEx Scheduling Mailbox.
3	TMSXE communicates with the booking API on TMS to request a WebEx Enabled meeting.
4	TMS requests WebEx to book the WebEx portion of the meeting.
5	WebEx sends meeting details in response to the booking request from TMS: • Date/time of the meeting • Meeting subject • Audio dial-in information – if TSP audio, then the audio will contain additional info for the MCU to dial the TSP provider. • SIP video and audio (if SIP audio) dial-in information for the bridge to dial into WebEx • Meeting URL for participants to click.
6	TMS responds to TMSXE with booking confirmation information.
7	TMSXE sends email confirmation to meeting organizer.
8	If user invited TelePresence rooms, TMS sends One-Button-to-Push information to the TelePresence endpoints.

Understanding Cisco WebEx Enabled TelePresence Call Flow

This section describes the call flow of the following Cisco WebEx Enabled TelePresence Meetings:

- SIP Audio Call Flow, page 1-17
- TSP Audio Call Flow with API Command to Unlock Waiting Room, page 1-19
- TSP Audio Call Flow with Waiting Room and MCU/TelePresence Server as Host, page 1-21
- WebEx Audio (PSTN) Call Flow, page 1-23

SIP Audio Call Flow

Figure 1-10 SIP Audio Call Flow

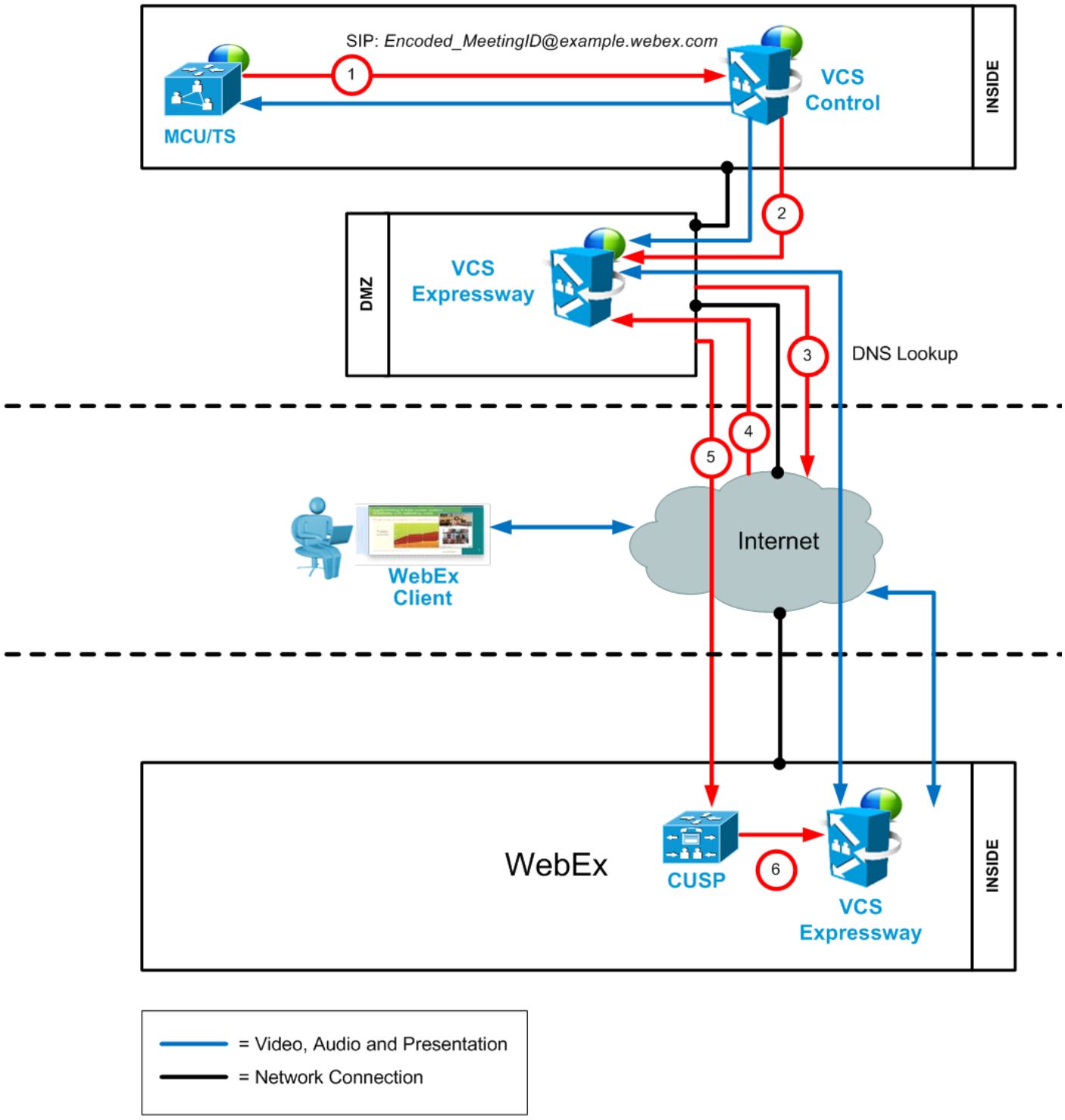


Table 1-5 SIP Audio Call Flow Steps

Step #	Description
1	MCU calls WebEx using SIP URI and the call is routed through VCS Control
2	VCS control sends call to VCS-E through the traversal zone.
3	VCS Expressway does a DNS lookup for example.webex.com.
4	DNS resolves example.webex.com to the CUSP servers.
5	VCS Expressway sends call to CUSP. This step is always encrypted (mandatory) (encryption is optional on previous steps). - VCS Expressway and the CUSP server verify each other's certificates.
6	CUSP forwards the call to VCS Expressway inside the WebEx dmz. - This leg is encrypted also (mandatory).
7	Media is connected. - Media is encrypted between the two VCS Expressways (across the Internet) - It's optional whether it's encrypted between the MCU and the VCS Expressway in the customer's site.

TSP Audio Call Flow with API Command to Unlock Waiting Room

Figure 1-11 TSP Audio Call Flow with API Command to Unlock Waiting Room

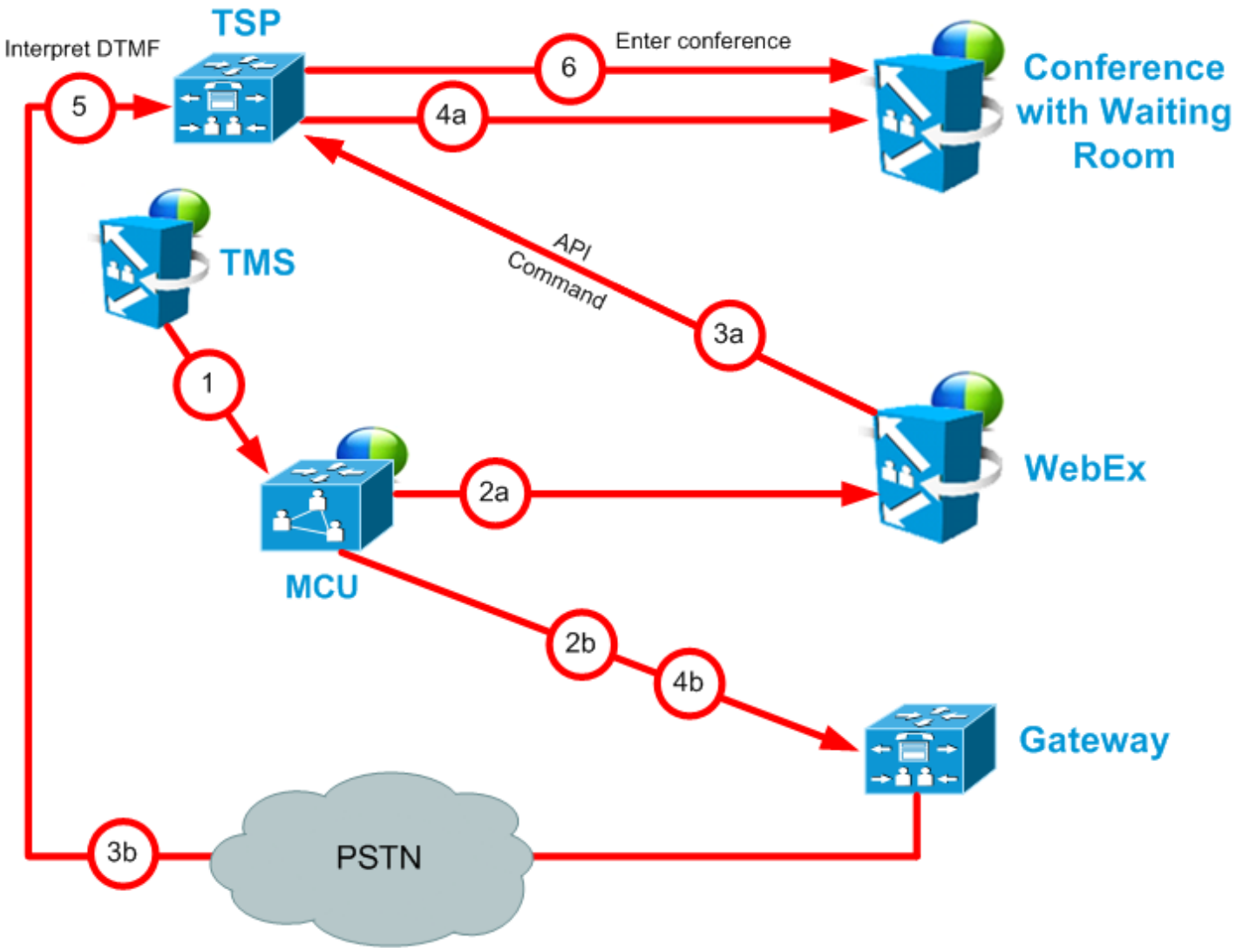


Table 1-6 TSP Audio Call Flow with API Command to Unlock Waiting Room Steps

Step #	Description
1	TMS starts the conference on MCU/TelePresence Server, providing it with the SIP URI, telephone number (if using PSTN audio) and DTMF String (if using PSTN audio) to dial into WebEx
2a	MCU/TelePresence Server dials WebEx via SIP. (refer to Figure 1-10 for details).
2b	At the same time as step 2a, MCU/TelePresence Server dials PSTN call-in number for WebEx.

Step #	Description
3a	WebEx notifies TSP provider using API command to start the audio conference, and as part of that, Webex tells the TSP provider that the conference type = telepresence and that it should unlock the waiting room.
3b	At the same time as step 3a, TSP provider prompts the MCU/TelePresence Server for the meeting access number.
4a	TSP provider unlocks waiting room, in response to step 3a.
4b	At the same time as step 4a, MCU/TelePresence Server sends DTMF tones it was prompted for in step 3b to TSP.
5	TSP provider receives the DTMF tones.
6	TSP provider places MCU/TelePresence Server into the audio conference.

TSP Audio Call Flow with Waiting Room and MCU/TelePresence Server as Host

Figure 1-12 TSP Audio Call Flow with Waiting Room and MCU/TelePresence Server as Host

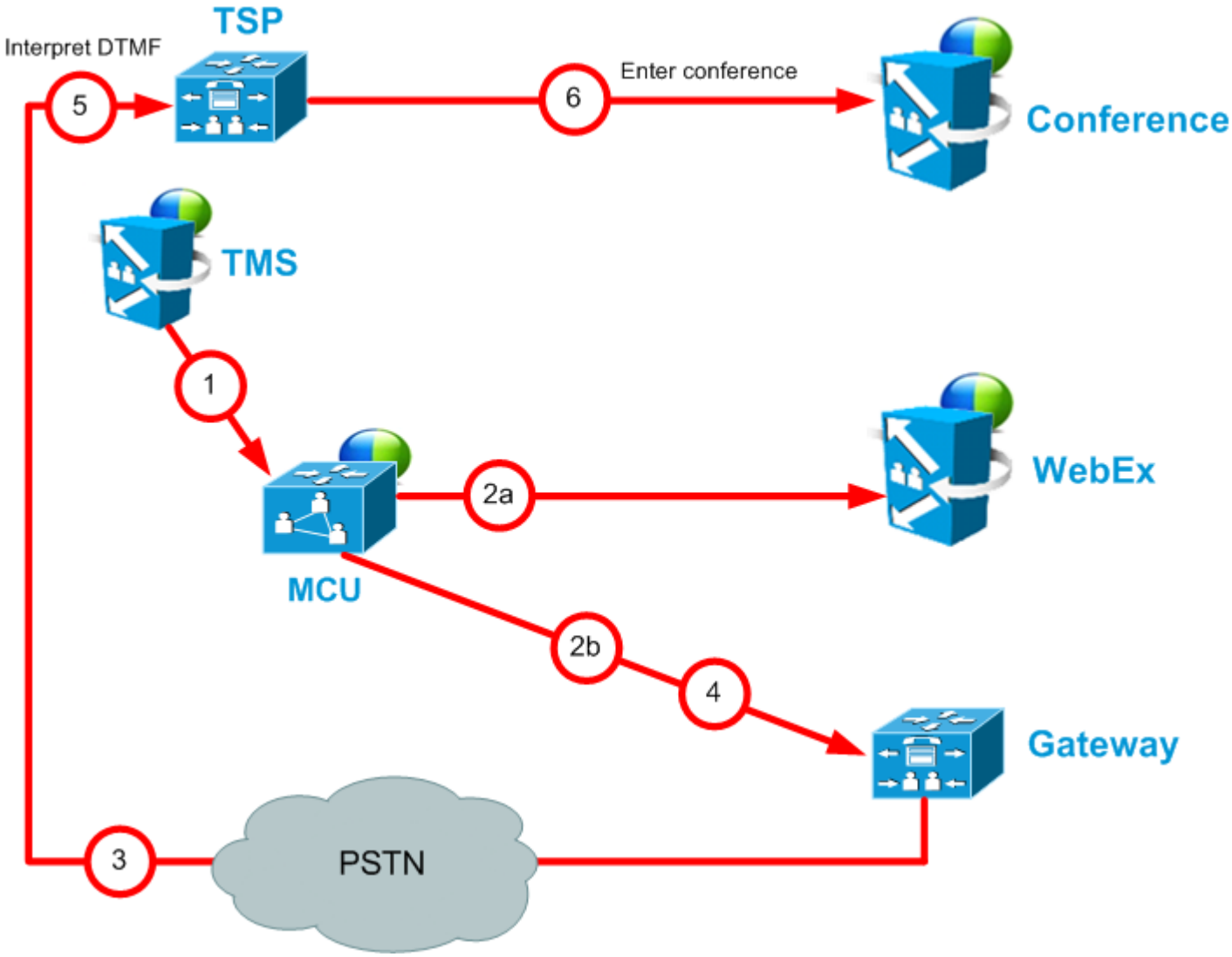


Table 1-7 TSP Audio Call Flow with Waiting Room and MCU/TelePresence Server as Host Steps

Step #	Description
1	TMS starts conference on MCU/TelePresence Server, providing it with the SIP URI, telephone# (if using PSTN audio) and DTMF String (if using PSTN audio) to dial into WebEx
2a	MCU/TelePresence Server dials webex via SIP. (refer to Figure 1-10 for details).
2b	At the same time as step 2a, MCU/TelePresence Server dials PSTN call-in number for WebEx.
3	TSP provider prompts the MCU/TelePresence Server for the meeting access number and host key.

Step #	Description
4	MCU/TelePresence Server sends DTMF tones and host key it was prompted for in step 3.
5	TSP provider receives the DTMF tones.
6	TSP provider unlocks the waiting room and places the MCU/TelePresence Server into the audio conference.

WebEx Audio (PSTN) Call Flow

Figure 1-13 WebEx Audio (PSTN) Call Flow

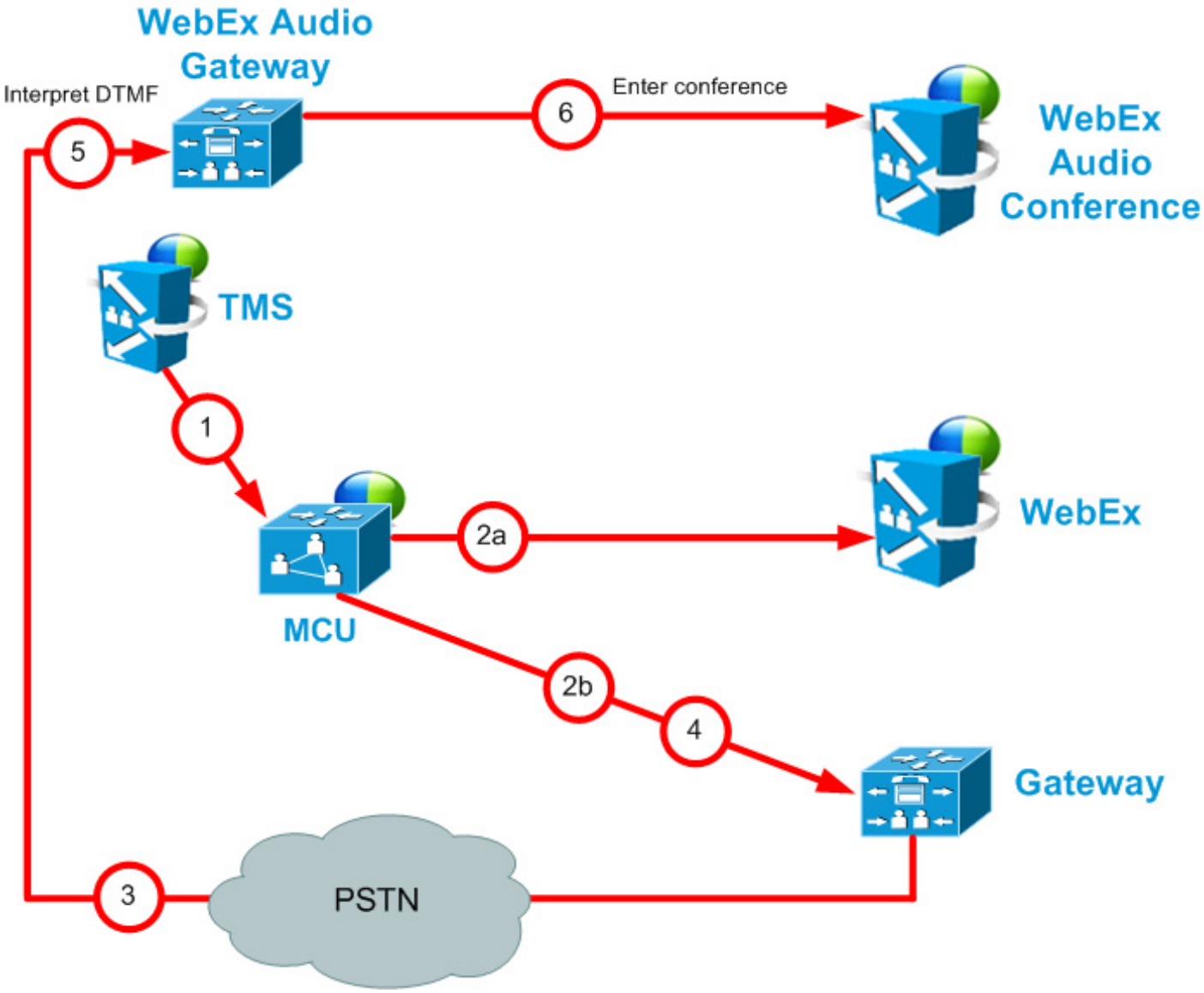


Table 1-8 WebEx Audio Call Flow Steps

Step #	Description
1	TMS starts conference on MCU, providing it with the SIP URI, telephone number and DTMF string to dial into WebEx.
2a	MCU dials WebEx via SIP. (refer back to Figure 1-10 for details).
2b	At the same time as step 2a, MCU dials PSTN call-in number for WebEx.
3	WebEx prompts the MCU for the meeting access number.
4	MCU sends DTMF tones it was prompted for in step 3 to TSP.

Step #	Description
5	WebEx receives the DTMF tones.
6	WebEx places the MCU into the audio conference.