



Avaya Aura[®] Conferencing Overview and Specification

Release 7.2.2
04-604358
Issue 1
January 2014

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Chapter 1: Introduction

Purpose

This document describes tested product characteristics and capabilities, including product overview and feature descriptions, interoperability, performance specifications, security, and licensing requirements.

Intended audience

This document is intended for people who want to gain a high-level understanding of the product features, functions, capacities, and limitations.

Related resources

Documentation

Obtain the following related documents and documents about other Avaya products mentioned in this guide from the Avaya Support website: <http://www.avaya.com/support>:

- *Avaya Aura® Conferencing Overview and Specification*
- *Avaya Aura® Conferencing Security*
- *Avaya Aura® Conferencing Accounting Records Reference*
- *Avaya Aura® Conferencing Alarms and Logs Reference*
- *Avaya Aura® Conferencing Operational Measurements Reference*
- *Avaya Aura® Conferencing Collaboration Agent Quick Reference*
- *Deploying Avaya Aura® Conferencing*
- *Administering Avaya Aura® Conferencing*

- *Maintaining and Troubleshooting Avaya Aura® Conferencing*
- *Using Avaya Aura® Conferencing Collaboration Agent*

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Course code	Course title
2U00110O	Selling Avaya Aura® Conferencing Solution Learning Bytes
2U00325O	Avaya Aura® Conferencing 7 L1 Customer Scenario
3U00026O	Designing Avaya Aura® Conferencing
5U00120V	Avaya Aura® Conferencing 7.x Implementation, Maintenance, and Troubleshooting
3202	Avaya Aura® Conferencing (R7.x) Implementation and Maintenance Exam

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Chapter 2: Overview

Avaya Aura® Conferencing is an enterprise conferencing and collaboration product providing on-demand audio, video, and Web conferencing and advanced conference controls for a seamless unified communications experience.

The Avaya Aura® Conferencing video conferencing supports high-definition resolutions upto 720p through a software video routing technology that is based on the H.264 SVC standard.

The distributed architecture of Avaya Aura® Conferencing utilizes advanced bandwidth management and optimization techniques where Avaya Media Servers are deployed at the edge of the network to optimize the WAN bandwidth usage. This supports large scale, high quality audio and video conferencing in an enterprise network.

Avaya Aura® Conferencing provides reliability by supporting redundancy for every element in the conferencing solution.

Avaya Aura® Conferencing is integrated with Avaya Aura® and supports various Avaya endpoints. A lower total cost of ownership is driven by a unified infrastructure, simplified management and lower acquisition, upgrade, and bandwidth costs.

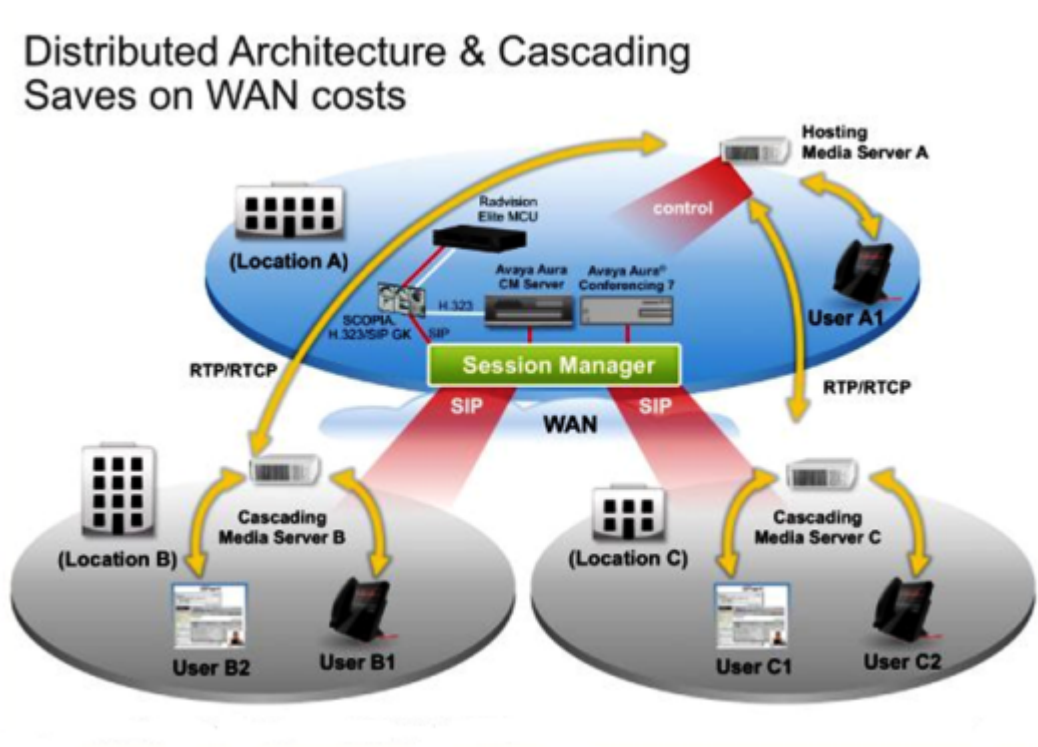


Figure 1: Avaya Aura® Conferencing network architecture

Avaya Aura®

Avaya Aura® comprises a number of key components that work together to provide a powerful unified communications solution. The following components provide integrated management of the solution:

- Avaya Aura® Session Manager
- Avaya Aura® System Manager
- Avaya Aura® Conferencing components
- Feature servers and access elements

The following sections describe the role of these components in providing Avaya Aura® Conferencing features and services.

Related topics:

[Session Manager](#) on page 10

[System Manager](#) on page 11

[Avaya Aura Conferencing components](#) on page 11

[Feature servers and Avaya Aura access elements](#) on page 11

Session Manager

Session Manager plays a critical role in Avaya Aura®. Session Manager determines the routing between components, manages the SIP registration of users, manages the bandwidth of the network, and performs a number of other key functions. Avaya Aura® Conferencing is dependent on the various roles of Session Manager, including:

- SIP routing of sessions between Avaya Aura® Conferencing and other components in the network. Avaya Aura® Conferencing is administered in Session Manager as an application that can originate and terminate SIP sessions.
- Management of the network bandwidth. Session Manager provides a shared bandwidth management interface so that Avaya Aura® Conferencing can request bandwidth for sessions that terminate in Avaya Aura® Conferencing.

System Manager

System Manager provides an integrated management interface for all the components in an enterprise network, including a common view of the network elements and navigation to the various components in the solution.

A Conferencing profile is required for a user to be able to host a conference on Avaya Aura® Conferencing. You can administer a Conferencing profile in Communication Profile of users through System Manager.

Avaya Aura® Conferencing components

The various components of Avaya Aura® Conferencing that are deployed in an enterprise network provide conferencing and collaboration capabilities to users and the tools to manage the resources used in Application Server.

Feature servers and Avaya Aura® access elements

Avaya Aura® supports various feature servers and access elements that provide features for a variety of devices and gateways. Avaya Aura® Communication Manager Releases 5.2.1, 6.0.1, and 6.2 or Avaya Communication Server 1000 Release 7.6 provide features in a network that is equipped with one or multiple instances of the Avaya Aura® access elements.

In addition to providing features, Communication Manager or CS 1000 support bandwidth management for resources that the Avaya Aura® access elements control. You can also manage bandwidth usage of the audio and the video media streams in the network through Session Manager. Using a shared bandwidth management interface, Avaya Aura® Conferencing performs network bandwidth management through Session Manager.

 Note:

You must have the following versions of these feature servers and access elements to support video conferencing:

- Communication Manager Release 6.2
- CS 1000 Release 7.6

New features in this release

There are a number of new features in this release of Avaya Aura® Conferencing

Related topics:

[Secure conferences](#) on page 12

[Session Border Controller](#) on page 12

[Event conferences with media cascading](#) on page 12

[Conference profiles](#) on page 13

[Collaboration Agent plug-in](#) on page 13

Secure conferences

Avaya Aura® Conferencing supports SRTP for the audio and the video streams. With this secure protocol, Avaya Aura® Conferencing supports the encryption of the audio and the video streams for secure conferences.

Session Border Controller

Avaya Aura® Conferencing supports the deployment of SBC between the enterprise and the end-user clients. SBC must reside at the edge of the enterprise and must be separate from the Avaya Aura® Conferencing infrastructure.

Event conferences with media cascading

With the media cascading support for Event conferences, the total number of participants that can join Event conferences is not limited to the capacity of the hosting Media Server. Media cascading of Event conferences optimizes the bandwidth use of Event conferences and increases the scalability of these conferences. The bandwidth use reduction is directly proportional to the number of participants who join Event conferences from the same remote location because the hosting Media Server sends only one audio stream and selected video streams to the cascaded Media Server.

Conference profiles

With the Microsoft Office Outlook delegate feature, you can create different conference profiles that contain the conference details of other users. You can use these conference profiles to set up conferences for the other users who delegate this activity to you.

For example, a senior executive in a company might delegate the activity of setting up conferences to an assistant.

Collaboration Agent plug-in

The Web collaboration feature of Collaboration Agent requires a Java applet for desktop sharing. Because of the recent modifications to Web browsers by developers to resolve security vulnerabilities, your Web browser might block Collaboration Agent from invoking the Java applet. With the Collaboration Agent plug-in, Collaboration Agent does not require the Java applet for desktop sharing.

Collaboration Agent prompts you to install the plug-in when you share your desktop for the first time. If you do not install the plug-in, Collaboration Agent prompts you to install the plug-in again when you share your desktop the next time, and continues to use the Java applet for desktop sharing. If you face issues with desktop sharing without the plug-in, you have the option to resolve the Java-related issues on your computer or install the plug-in.

You can also manually install the plug-in by clicking **Download Collaboration Plugin** from the **Begin sharing** options. For more information about installing the Collaboration Agent plug-in, see *Using Avaya Aura® Conferencing Collaboration Agent* at the Avaya Support website: <http://support.avaya.com>.

Key product features

Avaya Aura® Conferencing comprises the following key features:

- Audio and video conferencing
- Web collaboration

Related topics:

[Audio and video conferencing](#) on page 14

[Web collaboration](#) on page 15

Audio and video conferencing

Avaya Aura® Conferencing works in tandem with Avaya Media Server to support different audio codecs, such as G.711, G.722, and G.729, and video codecs, such as H.264 SVC and AVC for conferencing. Avaya Aura® Conferencing also supports different classes of service for audio and video conferencing to ensure that the best quality of audio and video classes are chosen for a conference based on the available bandwidth.

Avaya Aura® Conferencing supports single stream and continuous presence video conferences. In continuous presence video conferences, users can receive up to four video streams of the last four active speakers on the conference. Avaya Aura® Conferencing also supports conferencing features and events such as muting audio, muting video, muting audio and video, and muting all participants except Presenter.

The following sections describe the different type of conferences that Avaya Aura® Conferencing supports based on the requirements of users.

Related topics:

[MeetMe conferencing](#) on page 14

[Adhoc conferencing](#) on page 14

[Event conferencing](#) on page 15

MeetMe conferencing

MeetMe conferencing supports audio, video, and Web collaboration. MeetMe conferencing is used for planned meetings where the meeting owner distributes the conference number and the participant access code before the scheduled conference.

With MeetMe conferencing, a user can host a conference call using pre-configured conference access codes. The system administrator provisions one or more MeetMe SIP addresses and telephone numbers.

Conference participants can join a MeetMe conference by dialing the MeetMe SIP address or the telephone number. Each conference participant dials a participant access code to connect to the conference. This access code is unique for each conference. Moderator has a unique moderator access code for the MeetMe conference which identifies Moderator as the host of the conference.

Adhoc conferencing

Adhoc conferencing supports audio, video, and Web collaboration. Adhoc conferencing is used to conduct an impromptu conference. The system administrator provisions the Adhoc conferencing numbers. This number is also called the conference factory.

A user start an Adhoc conference by dialing out and adding a third user in a point-to-point call. A user can also merge two point-to-point calls to create an Adhoc conference. A user cannot manually dial in to an Adhoc conference.

A user who receives an Adhoc conferencing invitation can accept or decline the invitation.

Event conferencing

Event conferencing is used by enterprises to conduct large conferences that involve a large number of participants. Event conferences have the following unique characteristics:

- The audio of all participants in the conference are always muted. Moderator enables the audio of a participant who requests permission to speak by virtually raising a hand.
- The conference stays active until a Presenter is logged in to the conference.
- Presenters join the conference with a separate access code which identifies these participants as Presenters. This access code ensures that the audio of Presenters is not muted.
- Participants view a limited roster that lists Presenters and the participants who have speaking privileges. Moderator views the entire roster. Presenters can view requests to speak from the participants who virtually raise a hand.
- Entry and exit tones are disabled.

Web collaboration

Web collaboration tools support management of Web conferences and participation in these Web conferences. Through Web conferencing tools, you can:

- Join a Web conference by clicking the Collaboration Agent URL and entering your authentication credentials.
- Join only the audio conference of a Web conference through a telephone by dialing the MeetMe conference number.
- View the roster of conference participants in Collaboration Agent.
- Use conference controls, such as virtually raising a hand, to seek permission to ask a question or talk to the presenter.

Avaya Aura® Conferencing supports Web collaboration through Collaboration Agent. The following figure shows the Collaboration Agent interface on a computer:

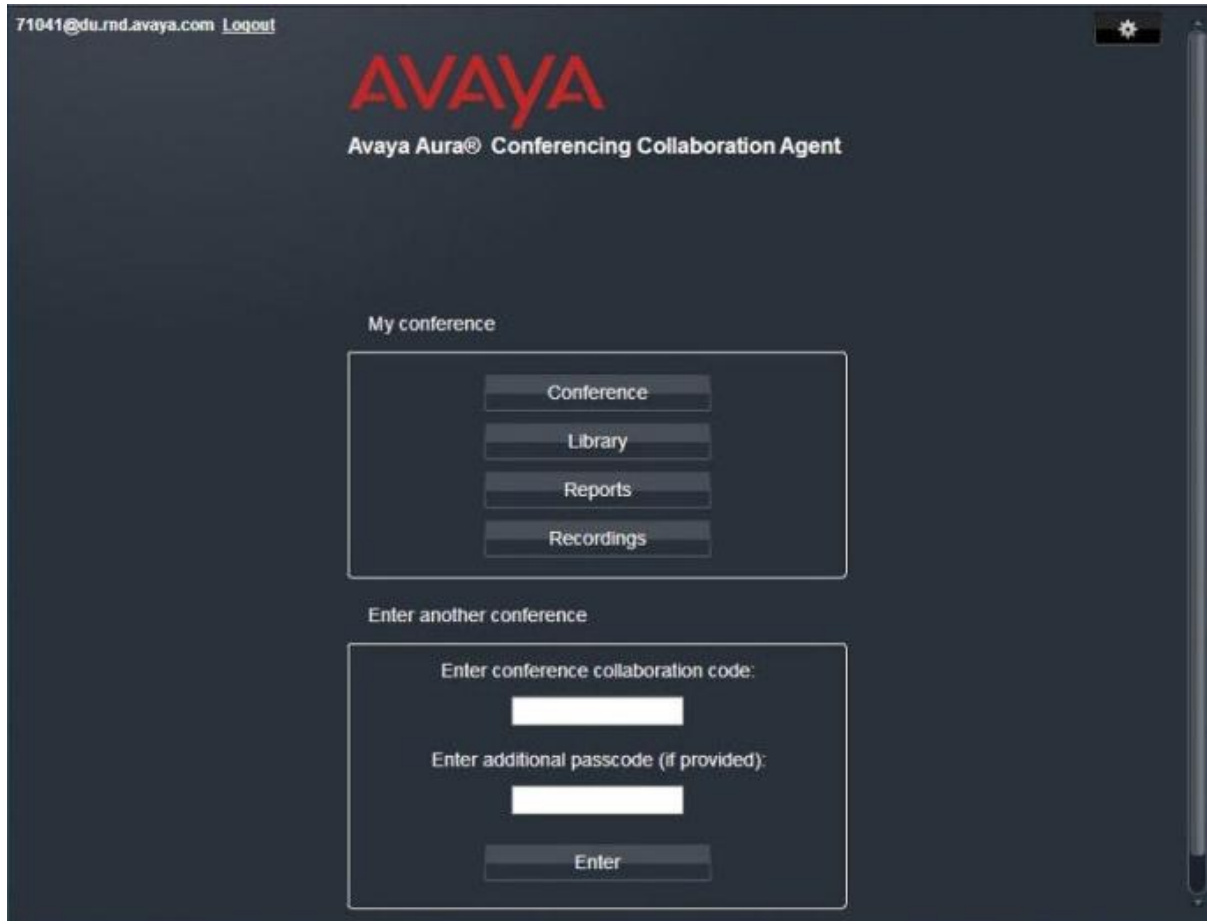


Figure 2: Collaboration Agent on a computer

The following figure shows the Avaya Web collaboration interface on iPhone:

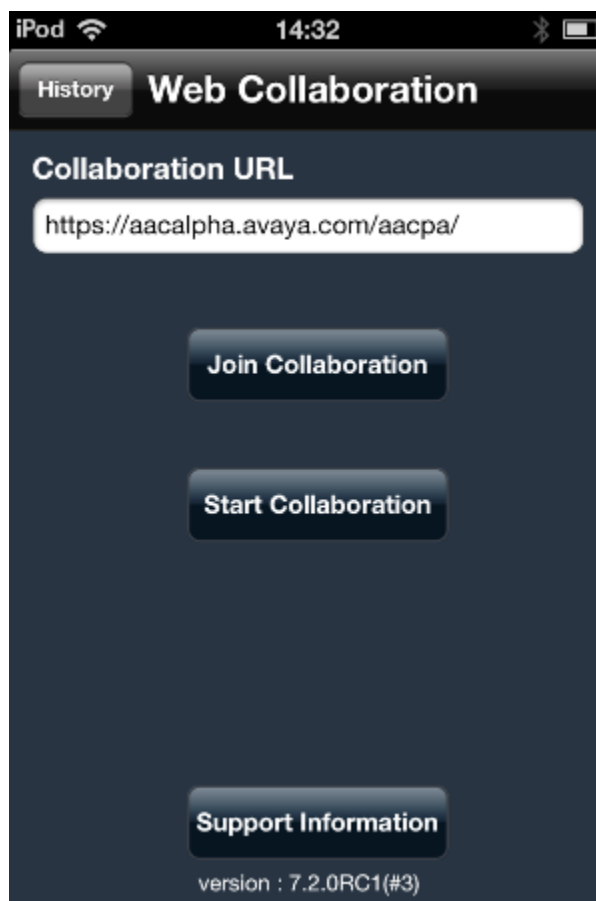


Figure 3: Avaya Web Collaboration on iPhone

The following figure shows Avaya Web collaboration interface on an Android-based phone:

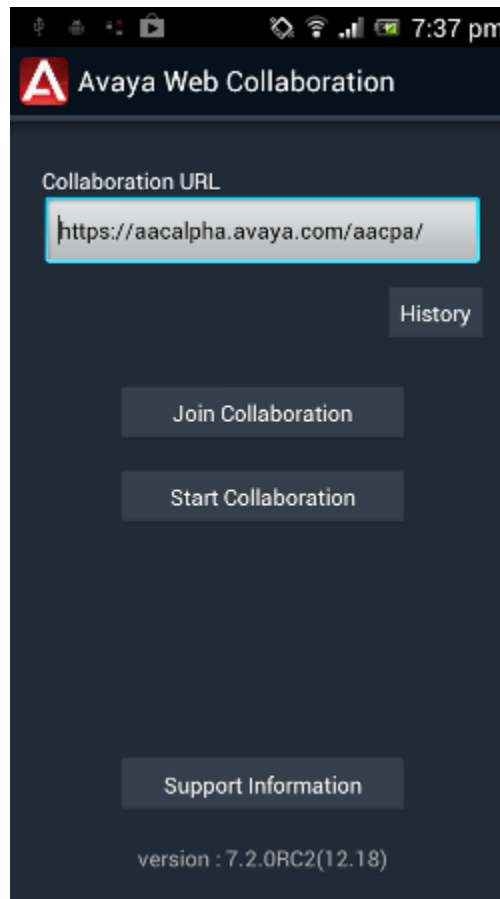


Figure 4: Avaya Web Collaboration on an Android-based phone

For more information about Collaboration Agent, see *Using Avaya Aura® Conferencing Collaboration Agent* at the Avaya Support website: <http://support.avaya.com>.

Related topics:

[About Collaboration Agent](#) on page 18

About Collaboration Agent

Collaboration Agent is an application that provides tools for managing and participating in conferences and sharing information. In the integral Web Collaboration workspace, participants can share content such as documents, virtual whiteboards and applications. Together, Collaboration Agent and Web Collaboration form part of Avaya Aura® Conferencing.

Avaya Aura® Conferencing provides web-based conferencing and online meeting tools that enable your organization's members and invited guests to join in conference calls and group meetings on site or from remote locations.

Participants join the conference quickly by logging into the link provided by Collaboration Agent and then dialing into the bridge number assigned for the conference call. Then, the participants can easily perform a number of tasks, such as:

- See a list of other participants
- Raise their hands

Additional participants can even be invited to join a conference already in progress.

With the Web Collaboration feature, the conference moderator or any selected participant can share:

- All or some of their desktop
- Specific applications
- Documents
- Virtual whiteboards

When Web Collaboration is running, participants can:

- Send messages
- Annotate shared content
- Record minutes

Using the Library feature, anyone with an Avaya Aura® Conferencing system account can store these presentation materials in advance and retrieve them in seconds when “given the floor.” Participants can truly collaborate by viewing these presentations, as well as making notes on any whiteboard. Throughout the conference, anyone who is logged into the Collaboration Agent can see the following:

- Who is on the call
- Who is currently speaking
- Who is taking part in Web Collaboration
- Who is presenting

Best of all, your organization can also use the Avaya Aura® Conferencing tools to boost productivity and track accountability for action items even after the conference call has ended. Conference moderators can:

- Record all aspects of a conference.
- Record and edit meeting minutes
- Create and distribute reports based on meeting minutes

At the end of each collaboration session, a transcript or Meeting Report is automatically generated and can be accessed from the Collaboration Agent. These reports contain the following information:

- Meeting minutes (including action items, notes, keywords and questions)
- All messages exchanged during the conference

- Library files that have been shared (including individual pages and slides)
- Whiteboard, desktop, screenshot, and application sharing events

All reports for conferences are stored on the Avaya Aura® Conferencing server for up to 90 days, and you can sort through these saved sessions by report name, the date and time of the conference, or the duration of the conference.

Related topics:

[Collaboration Agent plug-in](#) on page 13

[Collaboration Agent Permanent Association](#) on page 20

[Collaboration Agent customization](#) on page 20

Collaboration Agent Permanent Association

Collaboration Agent displays two entries in the roster for users logging in through Collaboration Agent and a PSTN phone. With the Collaboration Agent Permanent Association feature, users associate Collaboration Agent and the number of the PSTN phone to appear as a single entry.

This association also applies to actions such as muting. The muting feature in Collaboration Agent does not mute the audio of the PSTN phone.

Collaboration Agent customization

Enterprise users can choose to customize the login screens of Collaboration Agent with the enterprise brand and colors.

Avaya can customize Collaboration Agent by replacing:

- The Avaya log with the enterprise logo.
- The Avaya Aura® brand in the Collaboration Agent name with the enterprise brand.
- The background color with the color of the enterprise brand.

Collaboration Agent plug-in

The Web collaboration feature of Collaboration Agent requires a Java applet for desktop sharing. Because of the recent modifications to Web browsers by developers to resolve security vulnerabilities, your Web browser might block Collaboration Agent from invoking the Java applet. With the Collaboration Agent plug-in, Collaboration Agent does not require the Java applet for desktop sharing.

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in, see *Using Avaya Aura® Conferencing Collaboration Agent* at the Avaya Support website: <http://support.avaya.com>.

Key components

Avaya Aura® Conferencing consists of the following key components:

- Application Server
- Avaya Media Server
- Web Server
- Document Conversion Server
- Conference Recording Server
- Flash Media Gateway
- Session Border Controller

Depending on the deployment layout of an enterprise, some or all of these components might be co-resident on one server or deployed on separate servers.

Related topics:

[Application Server](#) on page 21

[Media Server](#) on page 22

[Web Server](#) on page 22

[Document Conversion Server](#) on page 22

[Conference Recording Server](#) on page 23

[Flash Media Gateway](#) on page 23

[Session Border Controller](#) on page 24

Application Server

Application Server is a functionally-rich SIP collaboration server which provides an audio, video, and Web collaboration session control software engine. Application Server is highly scalable and supports high availability and:

- Hosts the MeetMe, Adhoc, and Event conference applications.
- Processes the SIP signals from clients.
- Supports advanced client integration for the SIP events defined in RFC 4579, RFC 4575, and CCMP.

The functions of Application Server also include management and optimization of bandwidth usage and selection of the Media Server for cascading.

Media Server

Avaya Media Server processes the audio and the video media streams of a conference, including voice mixing. Media Servers can be distributed across different enterprise locations to provide bandwidth optimization that is aligned with the enterprise network topology. Application Server controls Media Server.

Media Server supports the following codecs:

- Audio: G.711, including the μ -law and the A-law algorithms, G.722, and G.729.
- Video: H.264, including AVC and SVC.

Web Server

Web Server is a solution component that supports content sharing through Collaboration Agent or from supported clients such as .

Document Conversion Server

Document Conversion Server is a Windows-based server that converts Microsoft Word, Microsoft PowerPoint, PDF, and other document types into a format for content sharing through Web collaboration.

Document Conversion Server is configured as a separate node. This node supports a document repository library for Web collaboration.

Conference Recording Server

Conference Recording Server is a pair of Media Server to record conferences and store these recordings. You can configure these server clusters for the conferencing function, for the recording function, or for the combined function of conferencing and recording.

- The co-resident deployment layout supports the Media Server clusters for conferencing and recording conferences.
- The standalone deployment layout requires a dedicated Media Server for recording conferences to ensure enhanced storage capacity.

 Note:

Conference Recording Server is an optional server with the optional Conference Recording feature.

Flash Media Gateway

Flash Media Gateway supports the Audio/Video in Collaboration Agent feature to provide integrated audio and video in Collaboration Agent to users located outside the enterprise network. These users can log in to a conference through a Web browser and use the Flash-based features of the browser that support audio and video in Collaboration Agent.

Flash Media Gateway supports communications between the clients in the Flash domain using RTMP and the network elements in the multimedia domain using SIP and RTP.

The following figure illustrates how Flash Media Gateway functions:

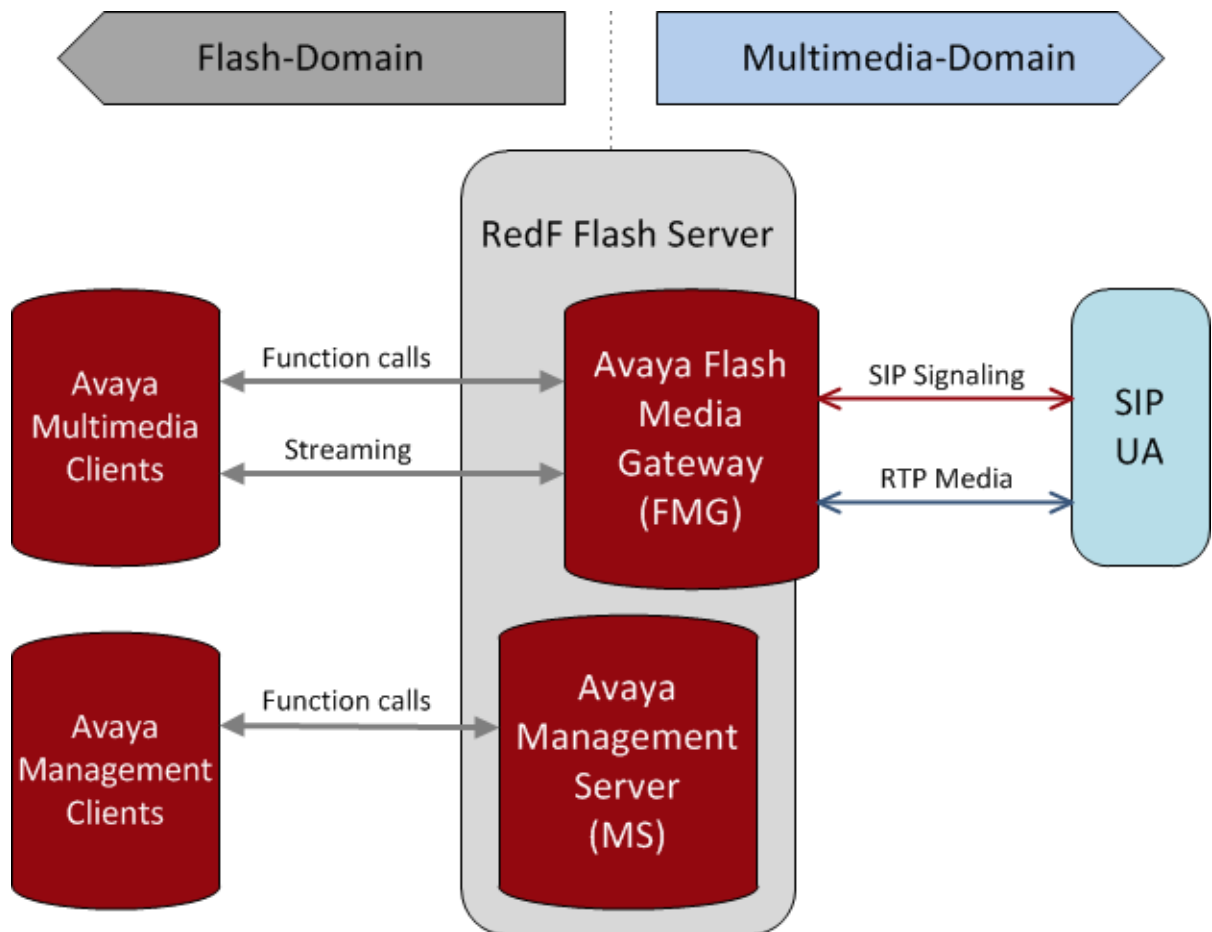


Figure 5: Flash Media Gateway

*** Note:**

Flash Media Gateway is an optional server with the optional Audio/Video in Collaboration Agent feature.

Session Border Controller

Avaya Aura® Conferencing supports the deployment of SBC between the enterprise network and the endpoints. You must deploy SBC only at the edge of the enterprise network between the Avaya Aura® Conferencing network and Session Manager, as illustrated in the following figure.

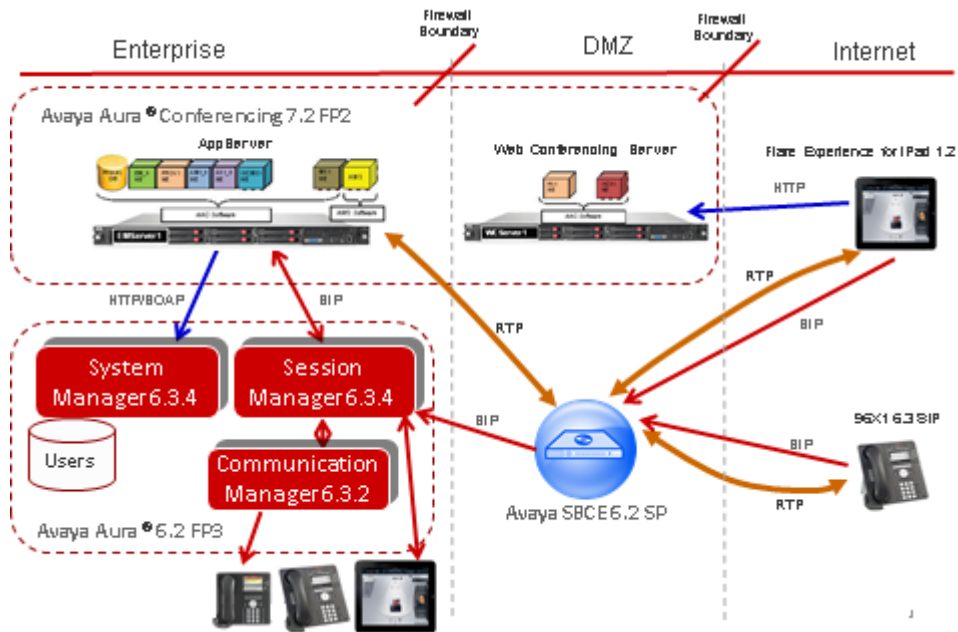


Figure 6: SBC between the enterprise network and the endpoints

Avaya Aura® Conferencing supports the deployment of SBC as a client application on the enterprise network. In this scenario, you do not need to administer Session Manager through System Manager, but you must add the IP address of the internal interface of SBC to the SIP firewall of Session Manager.

Conference features

The following sections describe the supported:

- Conference features.
- User roles in Collaboration Agent.
- Conference controls.

Related topics:

[Audio/Video in Collaboration Agent](#) on page 26

[Conference recording](#) on page 27

[Collaboration Agent user types](#) on page 34

[Lecture mode](#) on page 36

[Conference Lock and Unlock](#) on page 37

[Fast Start](#) on page 38

[Continuation](#) on page 38

[Conference profiles](#) on page 38

[Conference controls](#) on page 39

Audio/Video in Collaboration Agent

The Audio/Video in Collaboration Agent feature enables users to receive audio, video, and data content through a single device. Users can simply click on a conference URL (hyperlink), log in to the conference, and immediately share audio, video, and data using the Collaboration Agent Web page. Users do not need to dial into the conference and do not need to configure an additional application in order to share audio and video. This feature is aimed at guests and participants who reside outside of the enterprise and who do not have any other Avaya software products installed on their computers. The only requirement is that your computer must have a microphone.

Integrated audio

Collaboration Agent offers extensive flexibility in terms of the configuration of the audio feed into your conference. You can choose to dial into the conference using any telephone device. Alternatively, you can choose to use the audio capabilities that are embedded in Collaboration Agent. In this embedded scenario, you do not have to dial the conference telephone number separately beforehand. You can simply log in to Collaboration Agent and immediately use the audio features by speaking through your device microphone and hearing other participants through your device speakers.

Integrated video

In addition to embedded audio, Collaboration Agent offers embedded video streaming. If you have a camera, you can share your own live video feed to the conference. You can also receive live video from the other participants. At any given time, Collaboration Agent transmits the live video of the currently active speaker. Collaboration Agent also displays a self-view to show you what your camera is transmitting. If you do not have a camera, you can still see the live video but Collaboration Agent does not show a self-view.

An optional feature

Audio/Video in Collaboration Agent is an optional feature. You may not have access to this feature.

Note:

Your system administrator can control your access to certain Collaboration Agent features. Your system administrator may have restricted your access to the video feature but may have enabled your access to the audio capabilities.

Tuning wizard

Collaboration Agent provides a tuning wizard to help you to optimize your audio and video settings. You can choose to skip the tuning wizard after you first configure your selections.

Conference recording

The Conference Recording feature, which is an optional feature of Conferencing, provides the capability to record conferences. These conference recordings capture:

- Audio and information about the active speaker
- Library items such as presentation slides.
- Whiteboard.
- Conference notes, including questions, comments, and actions items, along with details about the author and the time when these events occurred.
- Conference events, including messages that the participants send, shared documents, and screen captures.
- The roster and the time when each participant enters and exits the conference along with information about the active speaker.

The recording feature requires a separate license. The system administrator enables or disables the conference recording permissions for users through the **Allow Conference Recording** parameter in the user communication profile.

The recording capacity is 900 GB for each recording media server cluster. Recording audio consumes approximately 35 MB of storage capacity per hour, while recording the Web conference consumes approximately 65 MB per hour with a combined storage consumption of approximately 100 MB per hour.

The owner of a conference and a delegated moderator can record a conference. The owner can also administer Conferencing to automatically start recording when a conference starts. Conferencing automatically assigns a name to each recording. This name is the time when the recording starts.

When the owner or the moderator starts a conference recording, Conferencing plays a notification to inform the participants that the conference is being recorded. Participants joining the conference also hear the message that the conference is being recorded.

Users can play these conference recordings from a URL that the owner sends.

Conferencing captures the following recording metrics:

- The number of recordings in progress.
- The total number of recordings.
- The total minutes of recordings.

Collaboration Agent

Collaboration Agent supports the Conference Recording feature. Users can play the conference recording in a Web browser through a URL for the recording that the owner sends.

The following figure illustrates the conference controls of the Conference Recording feature in Collaboration Agent:

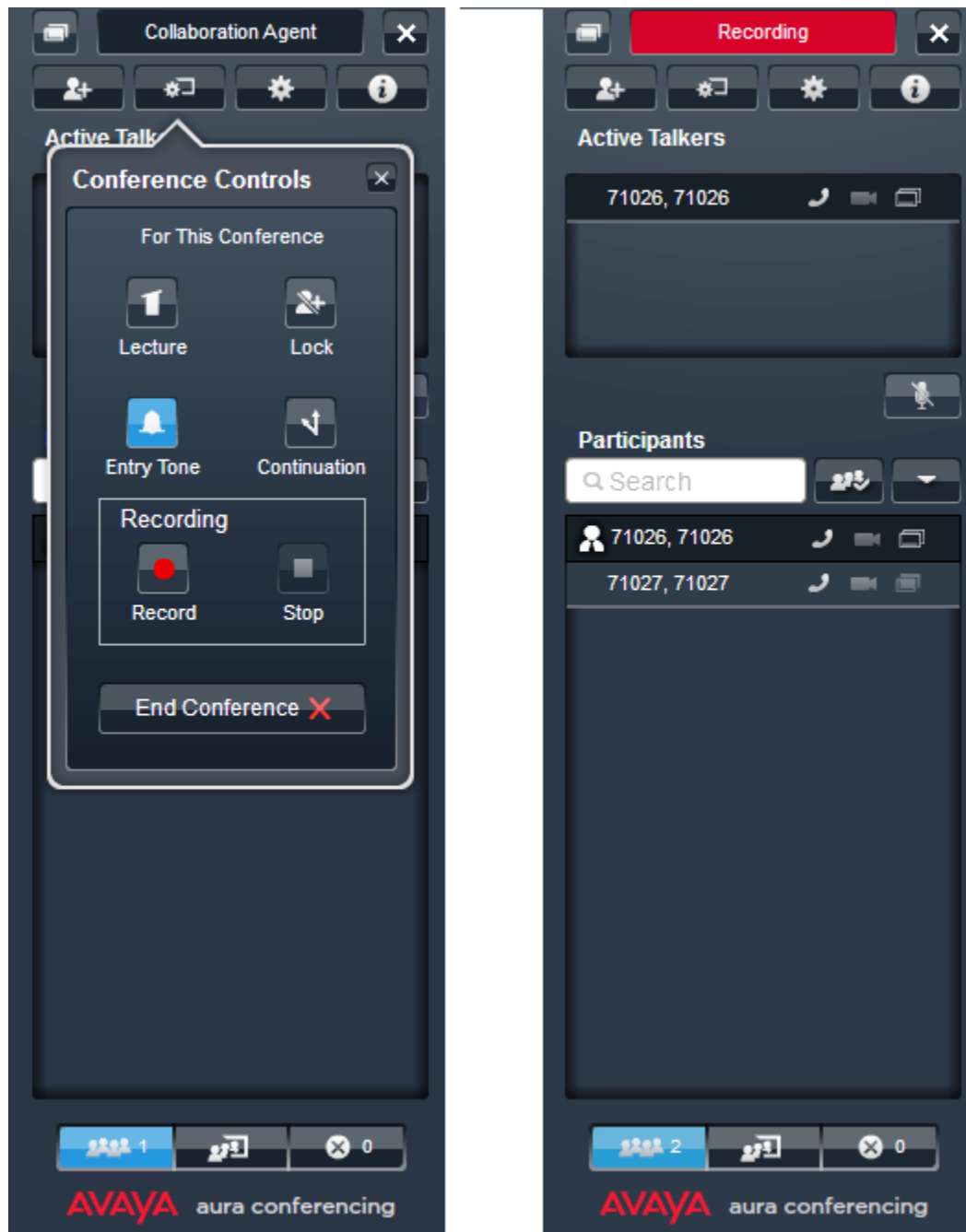


Figure 7: Conference recording controls

The following figure illustrates the conference Auto Record default setting of the Conference Recording feature in Collaboration Agent:

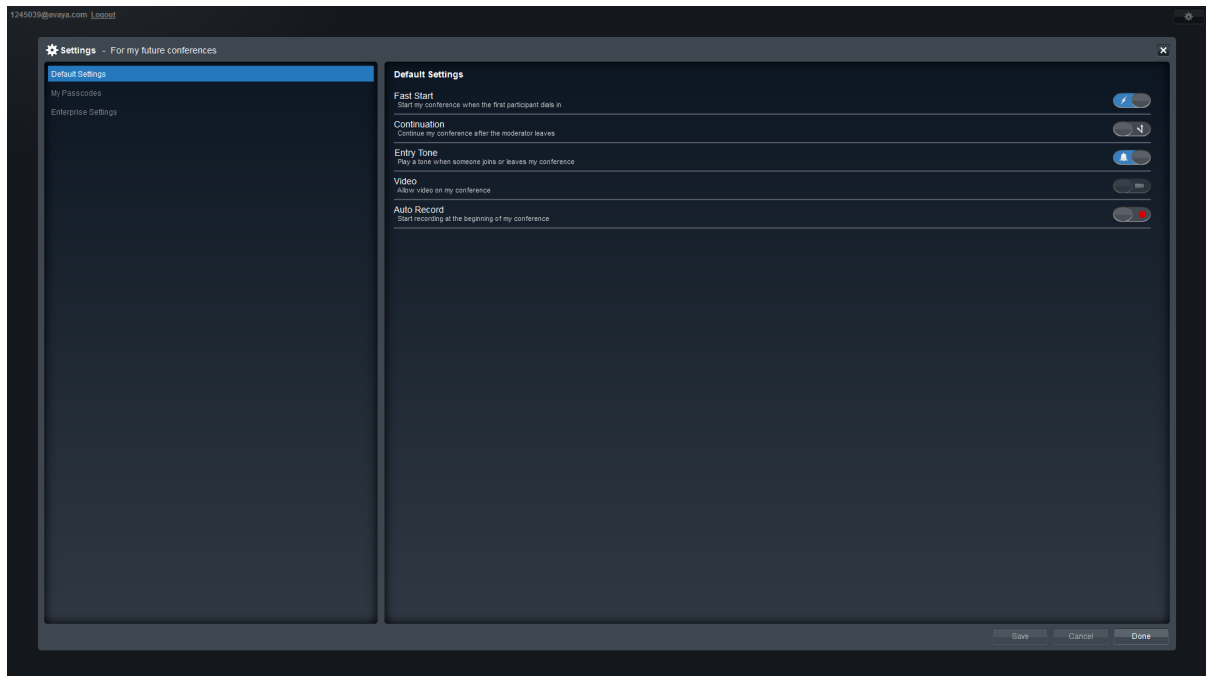


Figure 8: Conference default settings

TUI

The owner and the moderator of a conference can start and stop a conference recording through the phone keypad using TUI. Collaboration Agent displays the conference recording menu instructions through the keypad in the information tab.

For example, by default, the owner can gain access to the recording menu by pressing *2 and start the recording by pressing 1.

Conference recording components

Multiple components are involved in recording a conference.

- Application Server manages a recording, including the conference events in the recording.
- Media Server is the primary server for media recording and content storage.
 - If the host Media Server fails, the conference recording stops and the content storage contains the recording till the Media Server fails.
 - If the recording Media Server fails, the recording fails.
- The Web conferencing media server stores the metadata of the recordings.
 - If the Web conferencing media server fails, the Web conference recording fails. A new Web conference recording starts in the secondary server.
 - If the Web conferencing media server fails and there is no provision of a secondary server, saving the recording depends on when the server fails. If the server fails before the recording starts, the recording does not start. If the server fails when the

recording is stopped, the conference owner can manually encode the recording if the audio recording file and Web recording file is available.

- The Web collaboration server records the Web conferencing media and stores this media in the content storage of Media Server. Web collaboration server also contains the recording playback service.
 - If the Web collaboration server fails, the Web conference recording fails. A new Web conference recording starts in the secondary server.
 - If the Web collaboration server fails and there is no provision of a secondary server, the audio recording continues but the Web conference recording fails. The conference owner can manually encode the recording from the playback service interface. If the encoding service fails, the owner can again try to encode the recording from the recording management interface.
 - The database stores recordings, the metadata of the recordings, and the information required to play these recordings.

Conference recording sharing

In Collaboration Agent, the conference owner can view a list of recordings.

- For audio conferences, the recording is in the form of a .mp3 file.
- For audio and Web conferences, the recording is in the form of an .swf file which contains the audio and the Web content.

The owner can delete, rename, and share these recordings. The owner can also download a copy of the recordings.

The following figure illustrates the Recording window in Collaboration Agent:

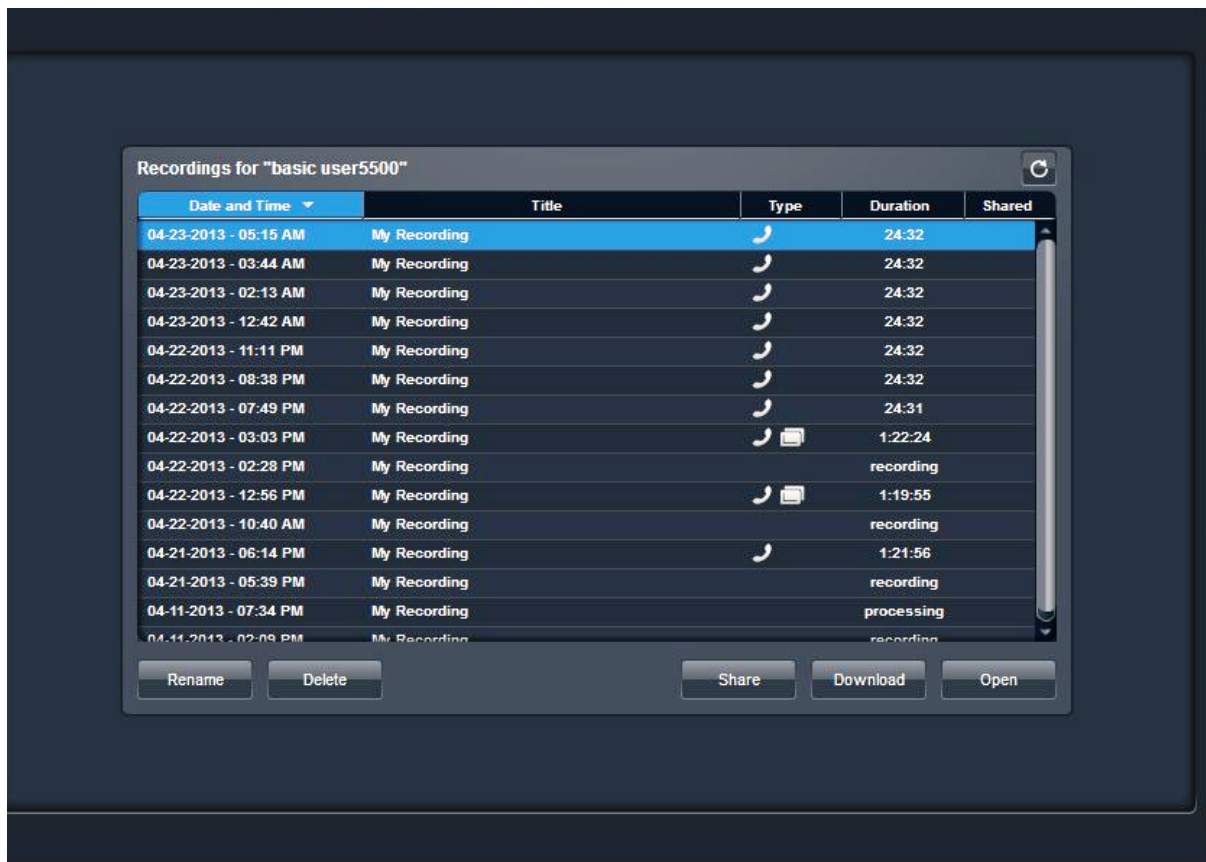


Figure 9: Conference recordings

Playback panel

The Playback panel uses a Flash-based application to display a timeline of the events in a conference recording.

The following figure shows the Playback panel and the timeline:

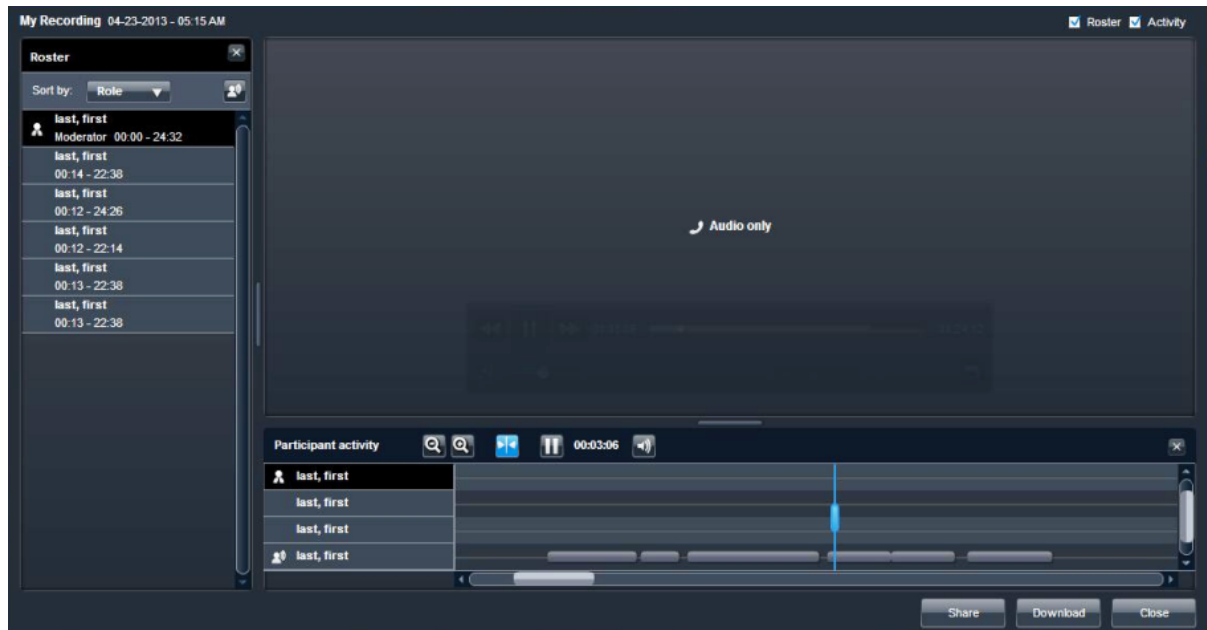


Figure 10: Conference recording playback panel

Backup and restoration of a conference recording

Conferencing performs a backup of the conference recordings daily. The system administrator can configure the time of this backup process.

The backup process only updates the existing backup with the new recordings that Conferencing generates since the previous backup process.

The system administrator can restore a conference recording or gain access to a subset of the recording. The administrator can search for a particular recording of a user to restore in the conference recording folder. This folder is named with the date of the recording.

Automatic disk management

An automatic disk management process on Media Server deletes old recordings to ensure availability of disk space for new recordings.

This process runs daily after the backup process.

Conference recording limitations

The Conference Recording feature has the following limitations:

- There is no recording limit for each user. A single user can record a large number of conferences which might consume a large amount of storage capacity.
- The recording conference controls do not have pause and resume buttons. The moderator can only stop and restart a recording.
- Conferencing does not correlate multiple recordings from a single conference. The owners must perform this correlation manually.

- The conference owners cannot share a recording with specific users. If the owners enable a recording for sharing, the recording is visible to all users. The owners can send a copy of the recording through email.
- The delete process deletes all the old recordings. There is no provision to mark a recording to be excluded from the delete process.
- Users cannot search or annotate recordings.

Conference recording feature permissions

The following table lists the conference recording feature permissions for each user role in Conferencing.

Table 1: Conference recording feature permissions

User roles	Permissions
Participant and viewer	Participants and viewers can play the recorded conferences and navigate by: • A slide and play only the relevant sections. • A contributor by browsing through messages and documents. • An event by browsing each action item, question, or note. • The moderator, a participant, a subject, date and time, and a key word. • An element in the conference recording.  Note: Participants and viewers can only play a conference recording if the owner of the conference sends a URL of the conference recording. A viewer might not be a participant of the conference but can still view the conference recording through the URL.
Owner	Owner has all the permissions that a participant or a viewer has along with the following additional permissions: • Start and stop the conference recording. • Control whether the conference is recorded. Conferencing records the audio, Web, roster, and the minutes of a conference. • Gain access to all conference recordings that an owner owns, and delete, rename, or replay these recordings. • Obtain a link to a conference recording or a link to an excerpt of a conference recording and distribute these links.
Administrator	Administrator has all the permissions that Owner has along with the following additional permissions: • Edit and maintain user accounts. • Enable and disable the Conference Recording feature for the entire system or for individual users.

Collaboration Agent user types

Within the Collaboration Agent environment, there are two types of users. These types are:

- Member
- Guest

During a conference, the user type is constant. It does not change.

Members require a password and an account on Avaya Aura® Conferencing. Members have access to a large number of privileges within the Collaboration Agent environment.

Guests do not require a password and do not have an account on Avaya Aura® Conferencing. If a guest wishes to become a member, an administrator must create a conferencing profile for them in Avaya Aura® System Manager. Guests have fewer privileges than members. For example, guests can log in to a conference, raise their hands, send messages, enter minutes, associate their audio line, and be promoted to a presenter. However, they cannot be promoted to a moderator. Guests can also mute themselves if their Collaboration Agent log-in is associated with their phone in the participant list.

A guest must know the collaboration code to join the Collaboration Agent.

Related topics:

[Collaboration Agent user roles](#) on page 34

Collaboration Agent user roles

Within the Collaboration Agent environment, there are five types of roles. These roles are:

- Owner
- Moderator
- Presenter
- Participant
- Operator

During a conference, user roles are not constant. They are dynamic. For example, a participant can become a moderator. Further, user roles are not mutually exclusive. A conference owner can be a moderator and a presenter, all at the same time. In addition, a conference owner can assign moderator or presenter roles to a participant.

Conference owner

A conference owner is a user who has complete control of the conference. You are the owner of the conference that is associated with your account and collaboration code on Avaya Aura®

Conferencing. Typically, you use these conference details for meetings that you schedule. In this conferences, you are the owner, a moderator, and a presenter.

Moderator

A moderator is a user who has access to a wide variety of conference privileges. The moderator usually signs into the Avaya Aura® conference using a phone or phone application, such as a SIP phone or mobile telephone. The moderator then logs in to the Collaboration Agent using the moderator credentials. Moderators may also make any other participant a presenter or moderator.

In any given conference, there can only be a single moderator on Collaboration Agent and a single moderator in audio mode. Typically, these roles are occupied by a single individual. The Collaboration Agent login and the audio login are linked together and one person is the moderator in both modes. However, this is not always the case. As a rule, Collaboration Agent allocates the moderator role to the first person to log in with the moderator code. If several people know the moderator code, it is possible that one person could become the moderator in Collaboration Agent and another person could become the moderator in audio mode. The Collaboration Agent moderator has access to all moderator features on the Collaboration Agent. The audio moderator only has access to the moderator features that are accessible using the dialpad commands.

There can be multiple presenters and participants. A moderator always has all of the privileges of a presenter for sharing info.

The moderator can be in one of the following modes:

- Collaboration Agent and Audio
- Audio only
- Collaboration Agent only

Note:

Certain features, such as lecture mode, are not available when the moderator is in Collaboration Agent only mode. Lecture mode functionality is disabled if the conference has no audio.

Presenter

Presenters may share information, but cannot moderate a conference. Presenters can share:

- The entire screen, a portion, or a selected application
- Whiteboards: these permit the team to collaborate through drawing
- Documents

A private library is maintained for any user with a login. Users can store and retrieve presentation materials here, including PowerPoint files, documents, and graphic files

Presenters can annotate shared content, take screen shots and send to all participants.

Moderators can only promote participants who already joined Web Collaboration to “presenter” role. Moderator can also demote a presenter to normal participant.

Participant

A participant is a user who is taking part in the conference and has limited control. A participant can see who else is on the conference, shared content and can only mute themselves, if their

Collaboration Agent is associated with their phone in the participant list. The participant should dial in to the audio conference and then sign in to Collaboration Agent. The participant can annotate a whiteboard, but cannot open a new whiteboard.

Participants can raise their hands, send messages, view meeting reports and enter minutes.

The participant can join in one of the following modes:

- Collaboration Agent only
- Collaboration Agent and Audio
- Audio only

A participant joins a conference by entering a participant code on the phone and/or the Collaboration Agent. A participant may be a guest or an Avaya Aura® account holder.

Participants cannot add users to the conference.

Audio participant

An audio participant joins the audio conference only by dialing in to the bridge and entering the collaboration code.

Operator

The conference operator controls every aspect of a conference, including the control of the meeting, in the same manner as a moderator, over any conference the operators select in the Collaboration Agent.

The operator can also:

- Silence, unsilence, and drop specific participants.
- Enable and disable conference continuation after the moderator leaves the conference

Some of the moderator controls that the operator can handle include:

- Enable and disable audio entry and exit tones
- Lock and unlock the conference
- Drop all participants immediately

Note:

The operator can only change the default settings of their own conference and cannot start or end a Web Collaboration session. Operator cannot promote themselves to presenter.

Lecture mode

All participants of a conference are muted when the Lecture mode is enabled. Moderator can enable the Lecture mode. Event conferences start in the Lecture mode.

When the Lecture mode is enabled:

- There can be more than one Presenter.
- Presenters are not automatically muted.
- Audio of Participant who is promoted to Presenter is enabled.
- Audio of Presenter who is demoted to Participant is automatically muted.
- Audio of Presenter joining an active conference in the Lecture mode is automatically muted but Presenter can mute or enable audio.
- Moderator can mute and enable the audio of Participant.
 - If Moderator enables the audio of a Participant, the Participant can mute and enable audio.
 - Moderator can return Participant to the Lecture mode by muting the audio of Participant.

Audio of Participants in a conference that is in the Lecture mode or in an Event conference is automatically muted. Participants virtually raise a hand to indicate to Moderator that they want to talk. Audio of Participants in Adhoc or MeetMe conferences is not muted, but these Participants can virtually raise a hand to indicate that they want to talk. Moderator can lower a virtually raised hand of Participant.

Conference Lock and Unlock

The Conference Lock feature is used only by Moderator to block new participants from joining a conference. This feature does not lock the bandwidth or other resources the conference is locked.

Moderator can lock a conference through Collaboration Agent, Avaya Communicator, or through the telephone dial pad. A conference is unlocked by default, but Moderator can lock or unlock the conference after joining the conference. After the conference is locked or unlocked, an audible message is played to notify participants of the change in the conference state. If a participant attempts to join the locked conference, an audible message plays to indicate that the conference is locked.

Moderator can unlock the conference at any time. If the conference is in a locked state, Moderator must dial out to add participants in the conference. Moderator can rejoin the conference if the conference is locked. Participants can disconnect from the locked conference but cannot rejoin the locked conference. Participants cannot dial out to add participants to a locked conference.

Moderator can promote a user to Moderator during a locked conference. If the moderator leaves the conference, the conference is unlocked.

Participant in a locked conference can:

- Upgrade from audio-only to audio and video or downgrade from audio and video to audio-only.
- Enter or exit Collaboration Agent.
- Disable or pause video.

MeetMe and Adhoc conferences support the Conference Lock feature.

Fast Start

With the Fast Start feature, participants can join a conference before Moderator joins. MeetMe conferences support the Fast Start feature. The Fast Start must be enabled before the start of a conference.

If Moderator does not join the conference, a participant can assume the Moderator control by joining with the Moderator code. Participants can also assume the Moderator control through Collaboration Agent, Avaya Communicator, or by dialing *51 on the telephone dial pad.

Continuation

With the Continuation feature, participants can continue a conference even after Moderator disconnects. By default, a conference ends after Moderator disconnects and the grace period expires. If Moderator rejoins the conference before the grace period expires or another participant assumes Moderator control, the conference continues.

Moderator can enable the Continuation feature through Collaboration Agent, Avaya Communicator, or by dialing *98 on the telephone dial pad. During a conference, Moderator can disable the Continuation feature for the conference even if the Continuation feature is enabled in the default settings of the conference.

MeetMe and Adhoc conferences support the Continuation feature.

Conference profiles

With the Microsoft Office Outlook delegate feature, you can create different conference profiles that contain the conference details of other users. You can use these conference profiles to set up conferences for the other users who delegate this activity to you.

For example, a senior executive in a company might delegate the activity of setting up conferences to an assistant. The executive provides the conference details to the assistant, and the assistant enters these details while creating a conference profile in Conferencing Manager. If the executive has more than one set of conference details, the assistant can create

up to 20 conference profiles which contain a different set of conference details in each profile.

While creating a conference for another user, you can select a conference profile that contains the relevant conference details. Conferencing Manager automatically adds these conference details in the body of the conference invitation. If you want to join a conference that you set up for another user, Conferencing Manager provides you with the **Join as Moderator** and **Join as Participant** drop-down options in the **Join** button. The **Join as Moderator** option is available only if you enter the Moderator code while creating the conference profile associated with this conference. Also, if the conference requires an additional passcode, the **Join as Moderator** option is available only if you enter the Moderator and the passcode in the conference profile.

Conference controls

Conference users can use a supported audio or video endpoint to use the call functions. Users can gain access to a conference through:

- The dial pad of an audio or video endpoint
- A supported client, such as Collaboration Agent, and advanced clients, such as Avaya Communicator for Windows and Avaya Communicator for iPad devices.

For a complete list of supported clients, see [Supported clients](#) on page 64.

Through Collaboration Agent users can use the advanced conference controls for scheduled conferences such as MeetMe and Event conferences.

The following tables describes the advanced and integrated conference control features available to Moderator, Participant, and Guest through a supported client user interface:

Table 2: Conference controls for a supported client

Feature	Description	Moderator	Participant	Guest
Continuation	Toggle this control on or off. This control is disabled by default. • If you enable this control, the conference continues even after Moderator leaves the conference. • If you disable this control and Moderator leaves the conference, Conferencing notifies the participants on the number of minutes remaining until the conference ends. If Moderator joins the conference again or a Participant assumes the Moderator role, the	yes	no	no

Feature	Description	Moderator	Participant	Guest
	conference returns to the normal conference state. For more information about continuation, see Continuation on page 38.			
Lock and unlock conference	The moderator can lock the conference to block new participants from joining. The moderator can dial out to add new participants at any time or unlock the conference. For more information about lock and unlock, see Lock and unlock on page 37.	yes	no	no
Lecture mode	The moderator becomes a lecturer and is the only one who can speak or be seen in video on the conference. All other participants are considered passive participants and in a mute for audio and paused for video state. For more information about lecture mode, see Lecture mode on page 36.	yes	no	no
Fast start	Toggle this control on or off. This control is disabled by default. • If you enable this control, Participants can start the conference even if Moderator does not join first. • If you disable this control, Participants must wait till Moderator joins for the conference to start. For more information about fast start, see Fast start on page 38.	yes	no	no
Display dropped participants	Displays participants who have left the conference.	yes	yes	yes
Sort participants by roles	Displays participants by role (moderator, participant, guest, and presenter).	yes	yes	yes
Dial out	The moderator can invite a new participant to the conference.	yes	no	no
Dial out to operator (if provisioned by the administrator)	Contacts the operator.	yes	yes	no
End conference	All participants are released from the conference even if conference continuation is enabled.	yes	no	no

Feature	Description	Moderator	Participant	Guest
Entry and exit tones	Toggle on or off. Disabled by default. If enabled, an audible entry or exit tone plays when a participant joins or leaves a conference. If disabled, no audible entry or exit tone plays.	yes	no	no
Audio mute or unmute	Individual participants: A moderator can mute or unmute the audio of an individual conference participant. The moderator cannot self mute. A participant can mute audio for self only.	yes	yes, only self	yes, only self
	Audio mute or unmute all participants: If enabled, only the moderator can speak and all other participants have the audio muted.	yes	no	no
Video pause or unpause	Individual participants: A moderator can pause or unpause the video for an individual conference participant. The moderator cannot self pause. A participant can pause video for self only.	yes	yes, only self	yes, only self
	Video pause or unpause all participants: If enabled, only the moderator can send video and all other participants have the video paused.	yes	no	no
Move user	Move a participant from one conference to another.	yes	no	no
Drop user	Remove a participant from the conference.	yes	no	no
Promote to moderator	Promote participant to moderator.	yes	no	no
Promote to presenter	Promote participant to presenter.	yes	no	no
Silence or unsilence	Silence or unsilence all participants.	yes	no	no
See the participant count	See the number of participants in the meeting.	yes	yes	yes
Raise and lower hand	To signal to the moderator and others in the conference that you wish to speak.	no	yes	yes
Record and stop recording	Start and stop a conference recording	yes	no	no
List feature keys	Show a list of the available feature keys.	yes	yes	yes

The following tables describes the advanced and integrated conference control features available to Moderator, Participant, and Guest through a the dial pad of an audio or video endpoint:

Table 3: Conference controls using the dialpad of an audio or video endpoint

Key	Feature	Description	Moderator	Participant	Guest
**	Help	Plays an audio list of the commands available. This is played only to the issuer.	yes	yes	yes
#	Count participants	Audio indication of the number of active users in a conference. This is played only to the issuer.	yes	yes	yes
##	End conference	Stops the conference even if conference continuation is enabled.	yes	no	no
*0	Dial out to operator	The administrator must provision to allow dial out to operator.	yes	yes	no
*1	Dial out	Joins a new participant to the conference.	yes	no	no
*4	Entry or exit tone	Enable or disable the play entry and exit tones to participants. If enabled, tones are played to participants upon entering or exiting a conference.	yes	no	no
*21	Record and stop recording	Start and stop a conference recording	yes	no	no
*41	Raise hand	Signal to moderator and others in the conference that you wish to speak. Audio only participants receive audio feedback for a raise hand request. The audio feedback is: • your hand is raised • your hand could not be raised Video endpoint users can see a raised hand icon next to the user in the roster list.	no	yes	yes
*42	Lower hand	The moderator can lower the hand of participants. The participant can lower hand for self only.	yes-participants only	yes, only self	yes, only self

Key	Feature	Description	Mode rator	Partici pant	Gues t
		Audio only participants receive audio feedback for a lower hand request. • your hand is lowered • the moderator lowered your hand •  Note: For event conferences, the moderator must use a user interface such as Collaboration Agent to lower the hand of participants. Video endpoint users can see the hand request has been lowered as the raise hand icon next to the user in the roster list is no longer visible.			
*5	Lecture mode	Enable or disable lecture mode for a specific conference. The moderator becomes a lecturer and is the only one who can speak or be seen in video on the conference. All other participants are considered passive participants and are in a mute for audio and paused for video state. For more information about lecture mode, see Lecture mode on page 36	yes	no	no
*51	Assume moderator	Assume the Moderator role if Moderator does not join the conference. Enter the Moderator code and the Pound key (#) to assume the Moderator role.  Note: If Moderator does not join a conference or Moderator for a conference is not identified, the first user to dial in with the Moderator code or the first user to assume the Moderator role becomes Moderator. If you join a conference as a participant, you must disconnect and again join the conference with the Moderator code or press *51 on the dial pad to assume the Moderator role. After a user is established as Moderator for a conference, all the users who join the conference with the Moderator code subsequently are added as participants.	no	yes	yes
*6	Mute or unmute audio and video	Mute or unmute audio and video.	yes, only self	yes, only self	yes, only self

Key	Feature	Description	Moderator	Participant	Guest
*61	Mute or unmute audio	Mute or unmute audio.	yes, only self	yes, only self	yes, only self
*62	Pause or unpause video	Pause or unpause video.	yes, only self	yes, only self	yes, only self
*7	Lock or unlock conference	The moderator can lock the conference to block new participants from joining. The moderator can dial out to add new participants at any time or unlock the conference. For more information about lock and unlock, see Lock and unlock on page 37.	yes	no	no
*71	Disable video	Turns off video for the conference for the duration of the conference. New participants join without video functionality.	yes	no	no
*81	Audio mute all (on or off)	Silences or unsilences all participants in the conference.	yes	no	no
*82	Video mute all (on or off)	Turn video on or off for all participants in the conference.	yes	no	no
*96	Silence all participants	Silences all participants in the conference; however, participants have the ability to unsilence.	yes	no	no
*98	Continuation	Enable or disable. If enabled, conference continues after the moderator leaves the conference. If disabled and the moderator leaves the conference, participants are notified of the number of minutes remaining until the conference ends. The conference returns to a normal conference state if the moderator rejoins the conference or one of the participants assumes moderator control. For more information about continuation, see Continuation on page 38.	yes	no	no

 Note:

Operator has the same privileges as Moderator and Presenter has the same privileges as Participant with some exceptions.

Key system features

The following section describes the key system features.

Related topics:

[Bandwidth management](#) on page 45

[Avaya Media Server selection](#) on page 45

[Media cascading](#) on page 51

[Monitoring and reporting](#) on page 57

[Stateful failover](#) on page 60

[Automated Disaster Recovery](#) on page 61

Bandwidth management

A key capability in Avaya Aura® Conferencing is to manage bandwidth usage to ensure the best video quality possible within the bandwidth available in the network, while minimizing the cost of network resources. Administrators can define maximum bandwidth limits that can be consumed for audio and video on a location basis and control minimum levels of quality that must be maintained for each user at every site. Avaya Aura® Conferencing adapts to the network conditions by optimizing the quality and bandwidth usage within these limits to maximize the number of audio and video sessions allowed. Management tools monitor bandwidth usage as an aid in planning, deployment, and ongoing support of audio and video conferencing network resources. For more information about the KPI client, see [Monitoring and reporting](#) on page 57.

Avaya Media Server selection

Avaya Media Servers are deployed in Media Server clusters that are associated with physical locations. All Avaya Media Servers within a cluster have identical capabilities. These capabilities include IVR and hosting and cascading functions that Avaya Aura® Conferencing controls through MSML and SIP signaling.

Session Manager and Avaya Aura® Conferencing must be provisioned with all the locations in a network. All conference sessions must be associated with a location in the network either through network address mapping or by provisioning the SIP Entity Location field in Session Manager.

*** Note:**

Avaya Aura® Conferencing cannot manage the sessions that are not associated with a location. If bandwidth management is enabled, Avaya Aura® Conferencing blocks these sessions.

Related topics:

[Avaya Media Server algorithms](#) on page 46

Avaya Media Server algorithms

Use Avaya Media Server selection algorithms to select Media Servers for the various roles in a conference. A Media Server can have different roles for various conferences at any time. For example, an Avaya Media Server can act as an IVR Media Server for one conference, a Hosting Media Server for another conference, and also a Cascading Media Server for another. You create Media Server clusters from the Avaya Aura® Conferencing Element Manager Server and assign a physical location, one or more serving locations and hosting locations in the Avaya Aura® Conferencing Provisioning Client. During conference creation, the user location and Avaya Media Server configuration and state are examined to determine the appropriate Media Server cluster for Avaya Aura® Conferencing to use. Server selection can be one of the following:

- Media Server selection by location
- IVR Media Server selection
- Hosting and cascading Media Server selection

Related topics:

[Avaya Media Server selection by location](#) on page 46

[Avaya Media Server by load factor](#) on page 47

[IVR Media Server selection](#) on page 48

[Hosting and cascading Media Server selection](#) on page 49

Avaya Media Server selection by location

There can be numerous scenarios that require consideration for optimal selection of a Media Server for a given location while allowing the pooling of server resources between locations.

For example, it is preferable from a bandwidth utilization perspective for a new participant to use the Media Server that is physically located at the same location. However, if local resources are not available, a Media Server with the lowest load factor that is servicing the location of the participant is selected. This is a common selection algorithm for finding the optimal Media Server for a specified location.

The following flowchart shows the logic used to select the optimal Media Server for a specified location during IVR and hosting Media Server selection.

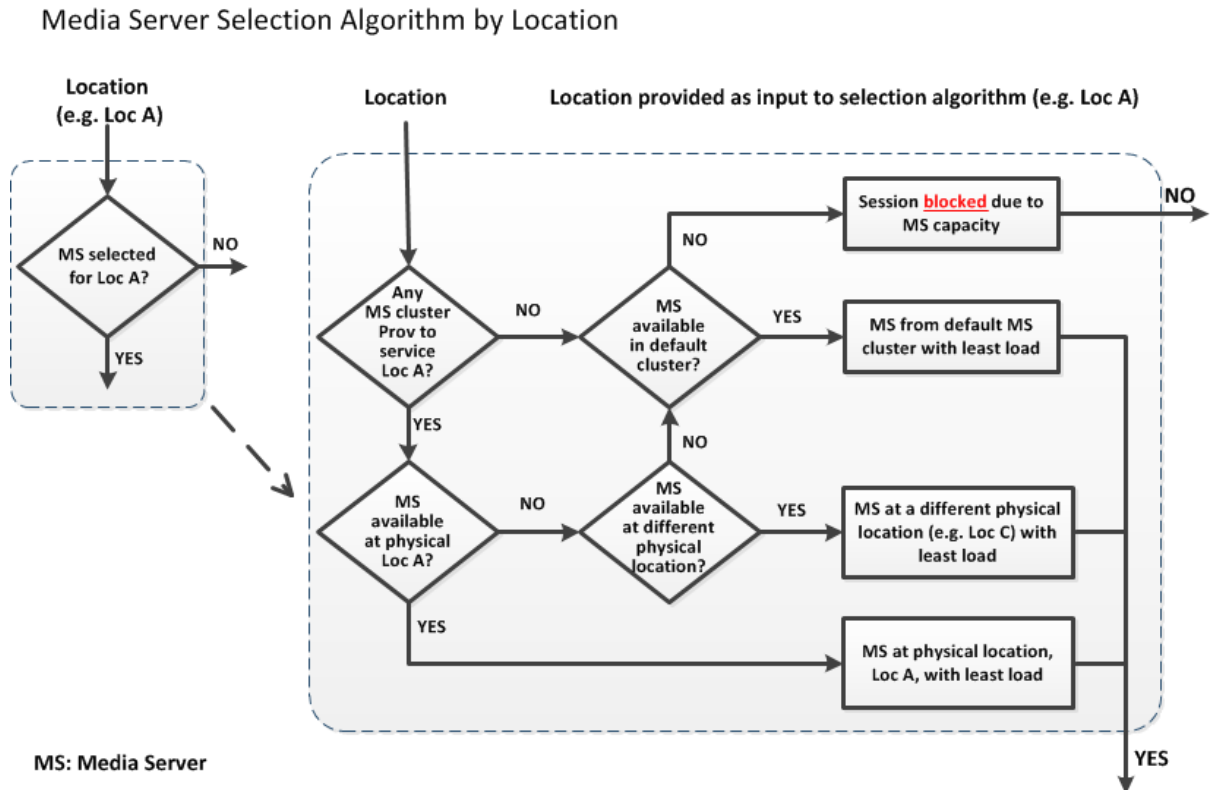


Figure 11: Media Server selection by location

Avaya Media Server by load factor

Avaya Aura® Conferencing uses the Avaya Media Server load factor and the number of sessions on the Avaya Media Server to determine the optimal server to host a conference. Any Avaya Media Server that meets the following criteria is a candidate:

- operational
- unlocked
- has a load factor of less than 70
- is available to the cluster at the target location

Avaya Aura® Conferencing maintains an ordered list of Avaya Media Servers by issuing an OPTIONS request to the Avaya Media Server every five seconds to request the load factor to keep the order up to date.

Avaya Aura® Conferencing uses the following algorithm to select the Avaya Media Server: For load factors greater than zero, the algorithm is $(70 / [\text{load factor}] * [\text{number of sessions}]) - [\text{number of sessions}]$. The results are stored against the Avaya Media Server from high to low.

*** Note:**

The first Avaya Media Server in this list is the least loaded.

For example, to determine the least loaded Avaya Media Server see the following table.

Table 4: Example calculation to determine load factor

	Avaya Media Server A	Avaya Media Server B
Sessions:	1000	900
Load Factor:	35	33
Calculation:	$(70 / [35] * [1000]) - [1000] = [1000]$	$(70 / [33] * [900]) - [900] = [1009]$
Therefore, Avaya Media Server B is the least loaded		

IVR Media Server selection

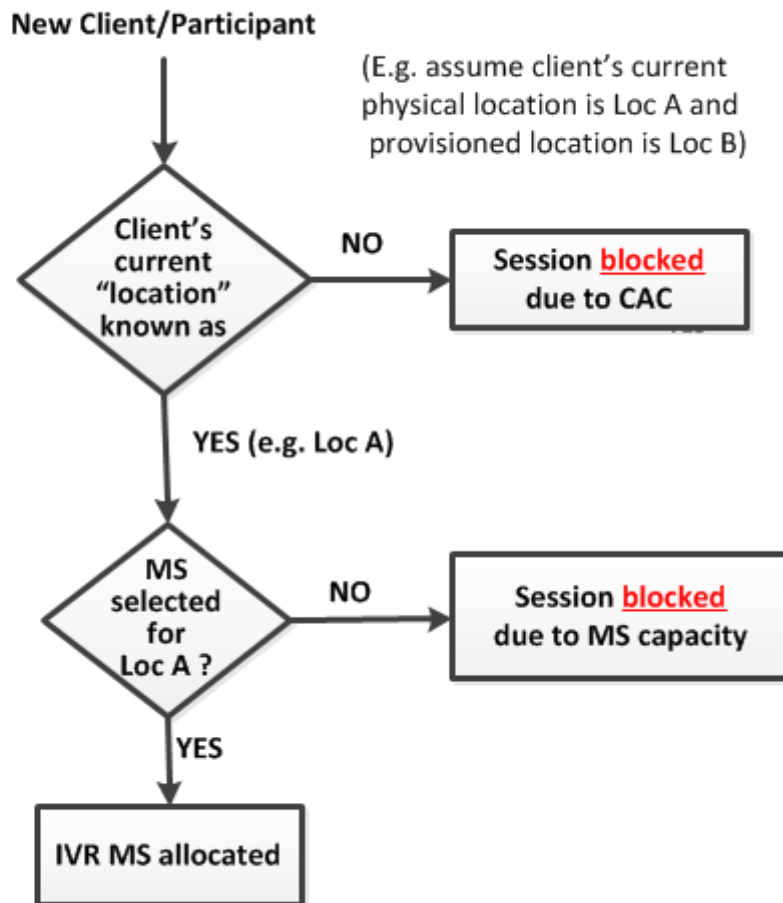
The IVR Media Server is selected from the current location of the caller which is extracted from the initial INVITE message.

*** Note:**

If the initial INVITE from a participant already has the conference access code embedded, the IVR Media Server is not required and the participant is redirected to a Hosting Media Server or Cascading Media Server.

The following figure shows the algorithm used to select the IVR Media Server upon arrival of a new client or participant.

IVR Media Server Selection



MS: Media Server

Figure 12: IVR Media Server selection

Hosting and cascading Media Server selection

A hosting Media Server is a logical role for mixing audio, selection of the current Active Speaker and top-level handling of SVC video media streams/layers for the overall conference call.

The target conference is identified after the IVR session. Selection of the hosting Media Server is based on the configuration of the conference moderator. For example:

- The hosting Media Server for an existing conference is found by entering the participant or moderator code and running a search for an existing conference with the participant or moderator code information. If media cascading is disabled for the domain, location, or conference number of the new participant then the new participant is redirected to the existing hosting Media Server.
- The hosting Media Server for a new conference is based on the provisioned location of the conference moderator. This can be different than the moderator's current physical

location due to the moderator being at a different physical location than usual or because centralized Media Servers are configured due to site bandwidth limitations.

To select the hosting Media Server, determine the preferred hosting location. This location is then used to select a Media Server using the Media Server selection algorithm.

The following figure shows the algorithm used to select the hosting Media Server upon arrival of a new client or participant.

Hosting Media Server Selection

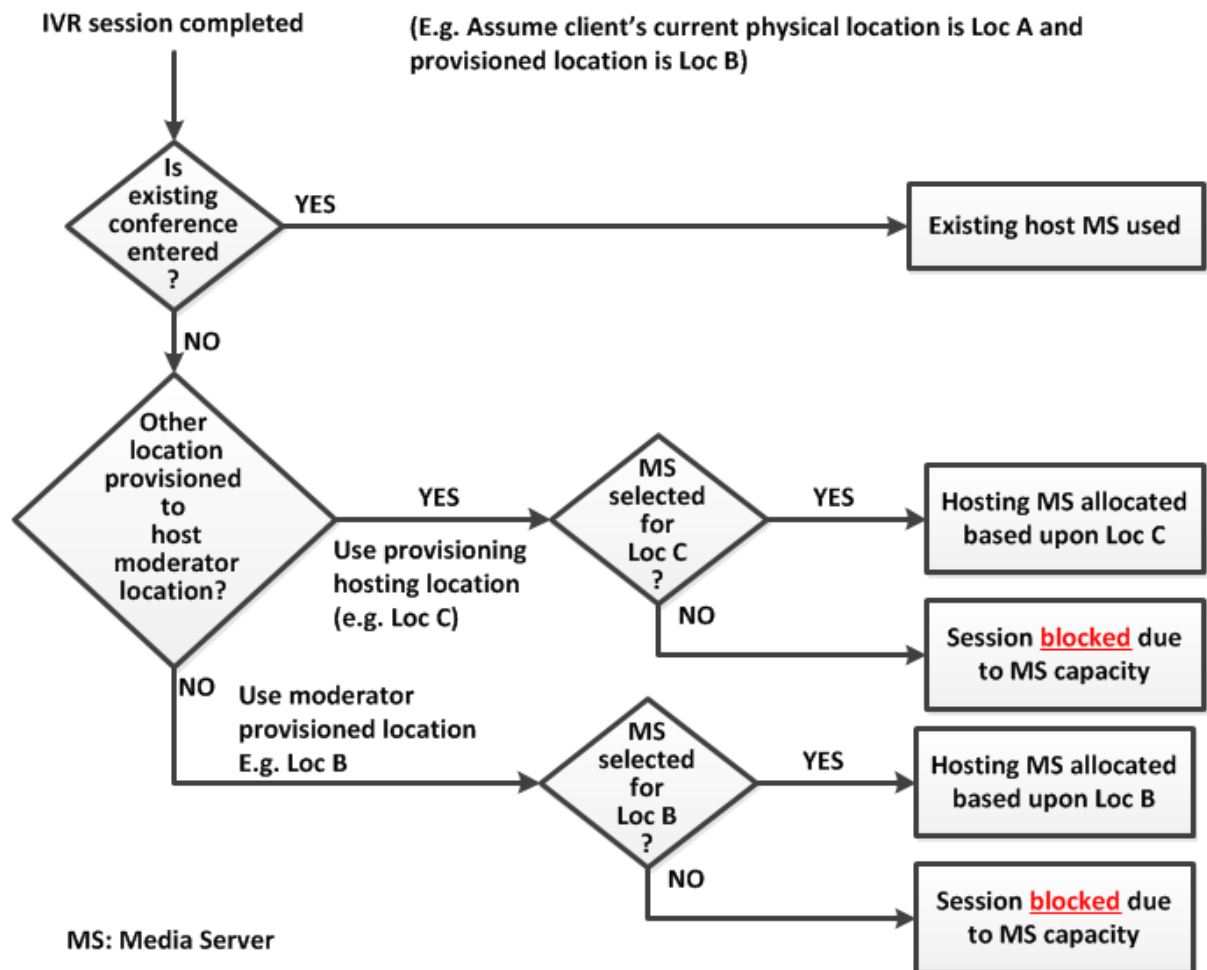


Figure 13: Hosting Media Server selection flow

After the hosting Media Server has been selected, a cascading Media Server can be required.

The following figure shows the algorithm used to select the cascading Media Server upon arrival of a new client or participant to a conference.

*** Note:**

The cascading Media Server selected must be at the same physical location as the participant in order to minimize WAN bandwidth. If there is no available local server, cascading cannot occur. The participant is redirected to the hosting Media Server.

Cascading Media Server Selection

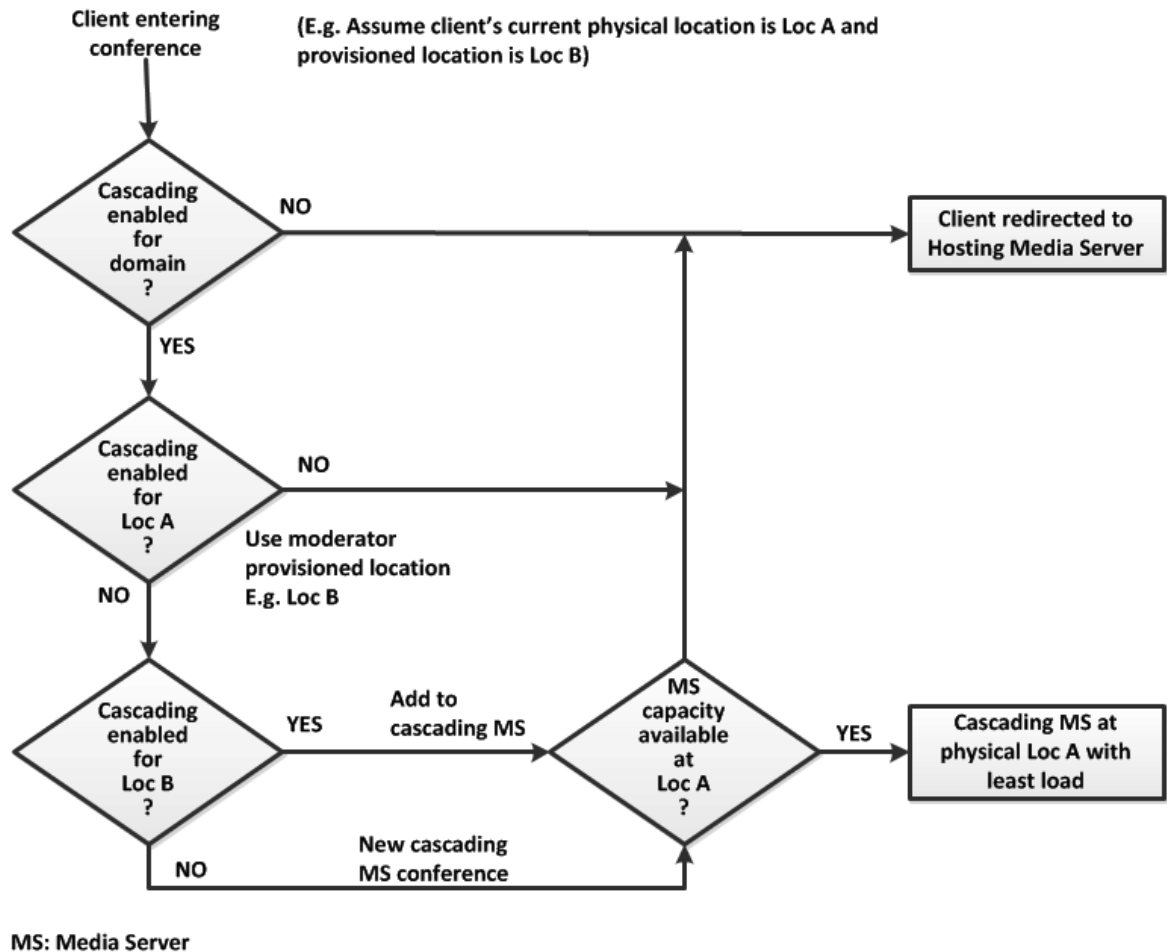


Figure 14: Cascading Media Server selection

Media cascading

Media cascading reduces the number of media streams travelling across the WAN by consolidating these streams based by location. This technique is applied to both audio and video streams. Media cascading provides bandwidth optimization with no significant reductions

in the quality of audio or video. Conferences are scalable with proper configuration and management which is fully transparent to end users.

Multimedia sessions without media cascading

The following figure shows an example of three locations that use a single centralized Avaya Media Server without the benefits of media cascading. In this scenario, every client receives an independent stream of audio and video from the hosting Media Server A. Without media cascading, the identical media stream is delivered to all clients. Therefore, as the number of participants in the conference increases, the valuable WAN resources at the non-hosting location are consumed.

Central Hosting Media Server without Cascading

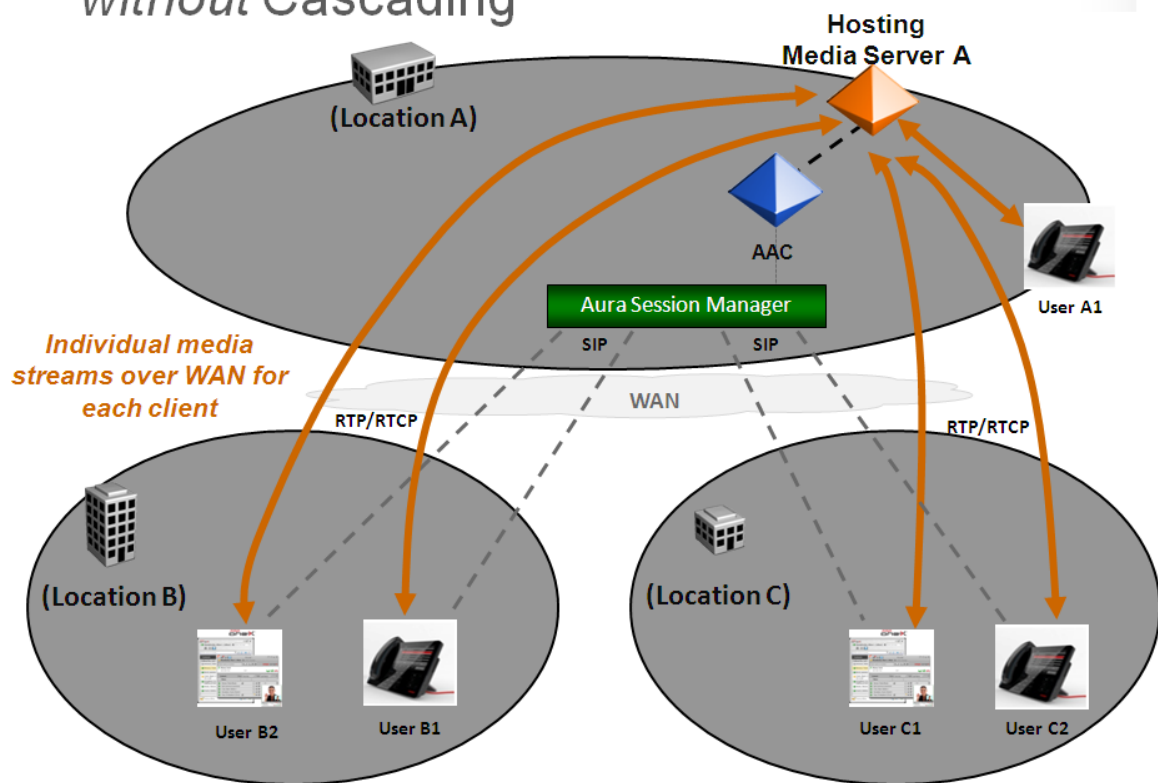


Figure 15: Central hosting Media Server without media cascading

Multimedia session with media cascading

To optimize the bandwidth usage using media cascading, Avaya Aura® Conferencing continues to use a centralized Avaya Media Server to provide a single point to accurately determine the Active Speaker from all of the media streams but allows additional Media Servers in different locations in the network so media streams can be distributed to (or from) multiple clients at the location or aggregated locally before routing to the central server (depending upon the session scenario).

In the following figure, you can optimize WAN bandwidth usage by using media cascading. For example, by distributing Media Servers at locations B and C, you can consolidate your

media streams at those locations. In this simplified example, only the current active speaker is shown in video to demonstrate that media can be limited to a single video stream from each location (the active speaker) and a single audio stream (mixed stream of all local audio streams).

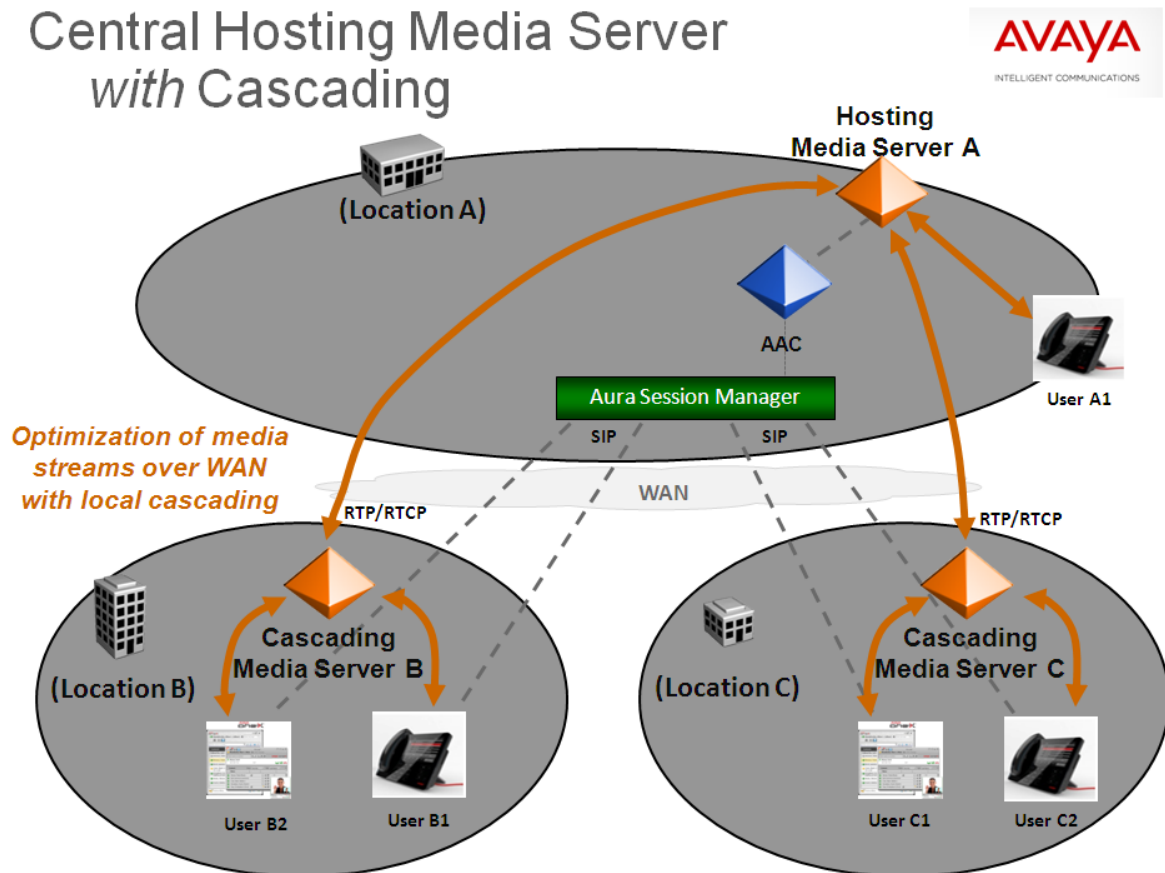


Figure 16: Central hosting Media Server with media cascading

*** Note:**

- A single media stream of audio and video from the central Application Server is sent from the hosting Media Server to the local Media Server involved in the cascading scenario. This media stream is cascaded by the cascading Media Server to all clients locally. This eliminates the WAN bandwidth usage of additional streams sent to clients after the first when compared to a scenario without media cascading.
- Audio and video is sent from the cascading Media Server to the hosting Media Server based upon monitoring of the speech activity from local clients.
- A single bidirectional audio stream is sent between the local cascading Media Server and the hosting Media Server. These streams are mixed together and sent in a single stream, reducing WAN bandwidth usage.

The previous figure is just one example of many possible topologies. The following factors must be considered for bandwidth savings and when setting the video display policies:

- the location of the Media Servers in the network, with respect to the multimedia clients and endpoints
- layout of video: number of participants shown and whether it is common to all clients
- active speaker algorithm: the number of recent active speakers to display

Related topics:

[Multimedia sessions with regional cascading](#) on page 54

[Event conferences with media cascading](#) on page 56

Multimedia sessions with regional cascading

With regional cascading, you can assign a media cascading location that is geographically close to a remote location that is not equipped with a media server.

Remote locations that are not equipped with media servers also must be able to take advantage of the media cascading feature of Avaya Aura® Conferencing to optimize the WAN bandwidth usage.

With regional cascading, you can assign regional cascading locations for media cascading to remote locations . These remote locations receive the cascaded media from the assigned regional cascading locations that are equipped with a media server.

You can only assign regional cascading locations to remote locations that are connected with a good quality network link and can manage additional data packet delay because of media cascading. Do not assign regional cascading locations to remote locations that are not equipped with a good quality network link and cannot manage additional data packet delay because of media cascading. These remote locations without remote cascading locations receive the multimedia stream directly from the media servers at the hosting locations.

Event conferences and Meetme conferences support regional cascading.

In [Multimedia sessions with regional cascading](#) on page 54, Location C, Location D, and Location E are not equipped with media servers. Location C and Location D are equipped with a good quality network link and can manage additional data packet delay because of media cascading. Configure Location B as the regional cascading location for Location C and Location D. Users located at Location C and Location D connect to the cascaded conference at Location B. A media cascading trunk is set up between the regional cascading Location B and the hosting Location A.

Location E is not equipped with a good quality network link and cannot manage additional data packet delay because of media cascading. Do not configure a regional cascading location for this location. Users at Location E connect to the conference at the hosting Location A.

Central Hosting Media Server with Regional Cascading

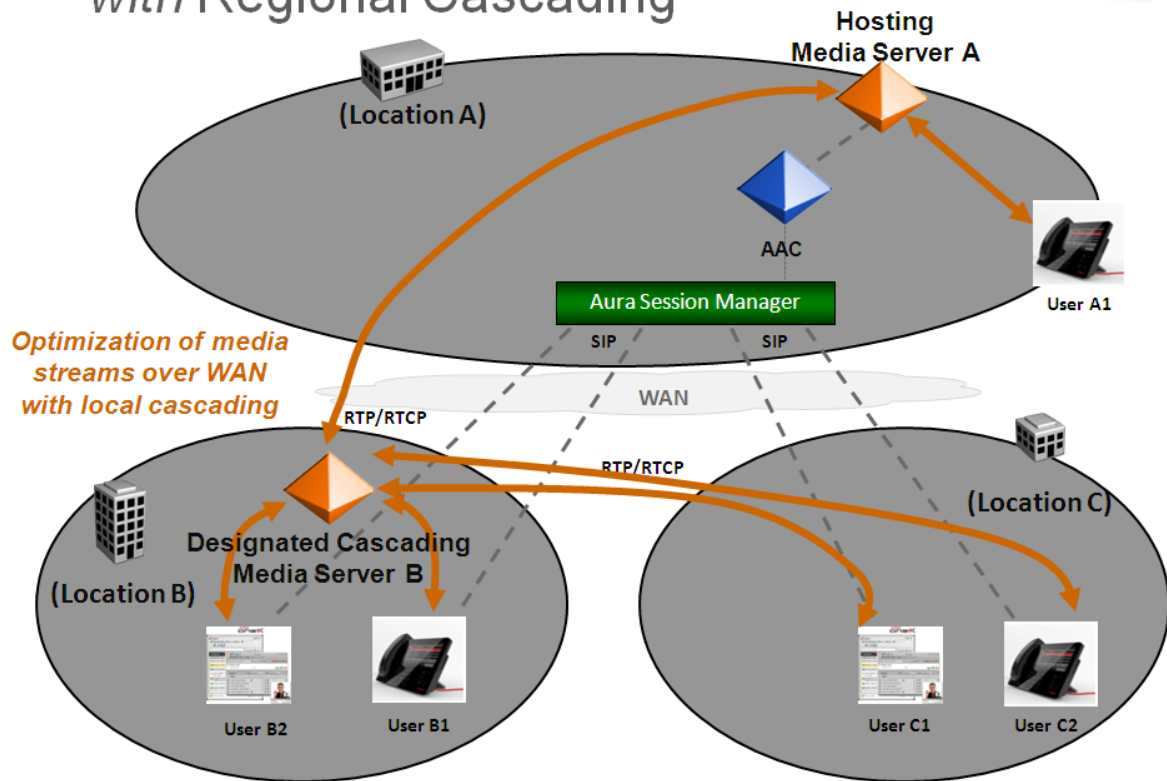


Figure 17: Multimedia sessions with regional cascading

Regional cascading with a remote IVR server

A remote location can be assigned a cascading Media Server and an IVR server that are deployed at different locations. When a user joins a cascaded conference, Avaya Aura® Conferencing connects the user to the remote IVR server. After the IVR session is complete, Avaya Aura® Conferencing transfers the user to the cascading Media Server to join the conference.

[Media cascading with a remote IVR server and a designated cascading server](#) on page 56 illustrates how Avaya Aura® Conferencing processes a user at a location that is administered a remote cascading Media Server and a remote IVR server. Avaya Aura® Conferencing connects a user at Location E to the IVR server at Location F. After the IVR session is complete, Avaya Aura® Conferencing transfers the user to the designated cascading Media Server at Location B to join the conference that is cascaded from the hosting Media Server at Location A.

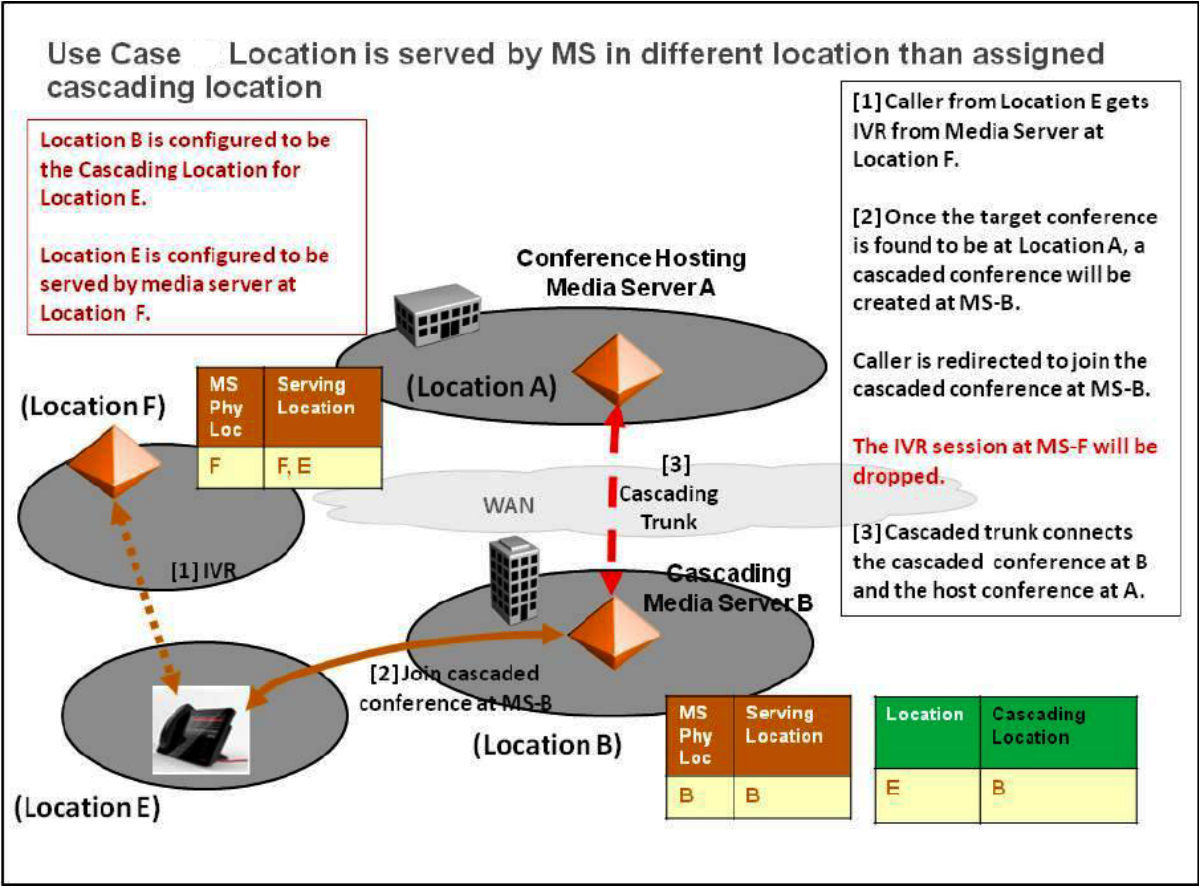


Figure 18: Media cascading with a remote IVR server and a designated cascading server

Event conferences with media cascading

With the media cascading support for Event conferences, the total number of participants that can join Event conferences is not limited to the capacity of the hosting Media Server. Media cascading of Event conferences optimizes the bandwidth use of Event conferences and increases the scalability of these conferences. The bandwidth use reduction is directly proportional to the number of participants who join Event conferences from the same remote location. The bandwidth use is reduced because, when participants join from the same location, the hosting Media Server has to send only one audio stream and selected video streams to the cascaded Media Server. For example, conference participants at Location B use the processing capacity of the local Media Server B in the following illustration. Because the participants at Location B do not use the processing capacity of the hosting Media Server A at Location A, the hosting Media Server A can support more cascading trunks to Media Servers at other locations and support participants who must directly connect to the hosting Media Server.

*** Note:**

You need a dedicated Media Server to host an Event conference.

Avaya Aura® Conferencing creates a trunk between Media Server at a remote location and the hosting Media Server to cascade Event conferences. The following figure shows the topology of a cascaded Event conference:

For more information, see *Media Cascading*.

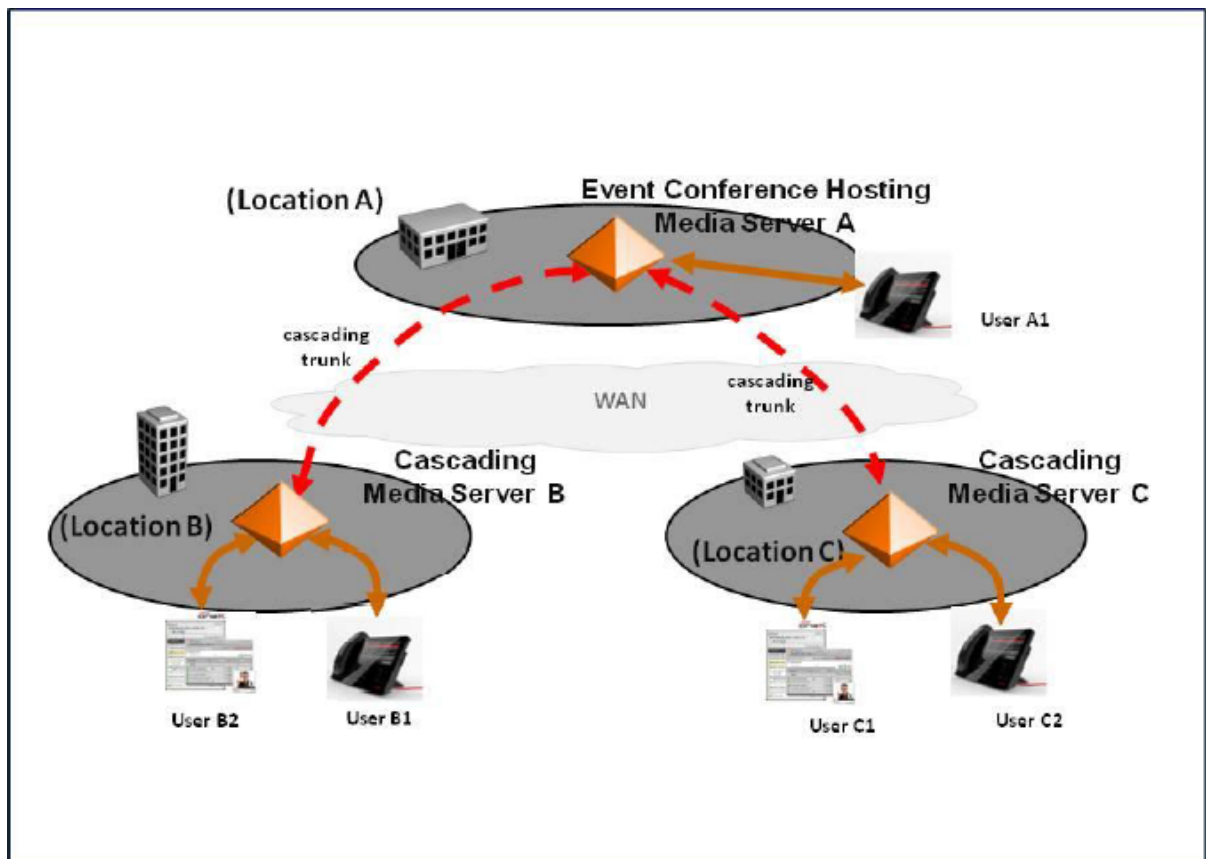


Figure 19: Media cascading for Event conferences

Monitoring and reporting

Key performance indicator monitoring and reporting client

Administrators of Avaya Aura® Conferencing can monitor key performance indicators (KPI) to determine the current or past state of the system and to generate reports. The KPI client is accessed from the Element Manager Console. A network path is required for communication with Element Manager and the Media Server.

With the KPI client, you can view the following:

- View the number of active conferences or sessions from the Application Server dashboard.
- View bandwidth usage at a specific location.
- View the number of licenses in use.
- View system history to troubleshoot problems or plan for system expansion.

For more information about KPI monitoring, see the *Maintaining and Troubleshooting Avaya Aura® Conferencing* document.

The administrator can use the information from the KPI dashboard to troubleshoot problems or plan for system expansion. Recent data is collected at up to 15-minute intervals. The Data is then flushed and the collection starts again. The update period timer can be configured from 5 seconds through 300 seconds with a default value of 10 seconds. The data collection period is represented on the dashboard chart. The following figure shows the Application Server Dashboard page which includes four charts with information about conferences, sessions, and bandwidth usage.

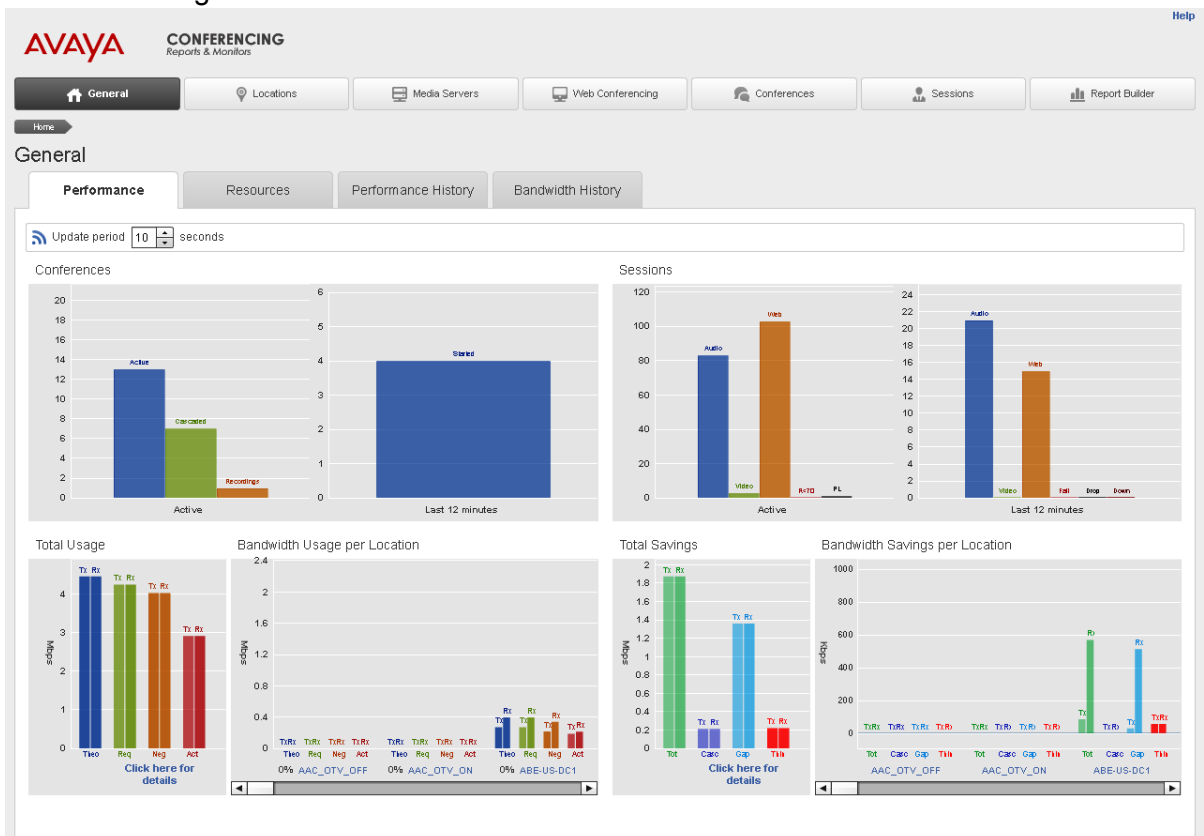


Figure 20: KPI dashboard

On the History tab, the Usage chart shows the average transmitted and received values for requested bandwidth, negotiated bandwidth, and actual bandwidth during a specified time period for each location. The Performance chart shows information about the number of conferences and the number of successful, failed, dropped, and downgraded sessions during a specified time period. Session Completion Ratios can be collected for a specific time period

such as last hour, last 24 hours, last 7 days, and last 30 days. If there is more than one Application Server instance, select the instance ID for the Application Server from which you want to view data. The following figures show the Application Server Dashboard pages displaying historical information about Bandwidth, Performance, and Session Completion Ratios.

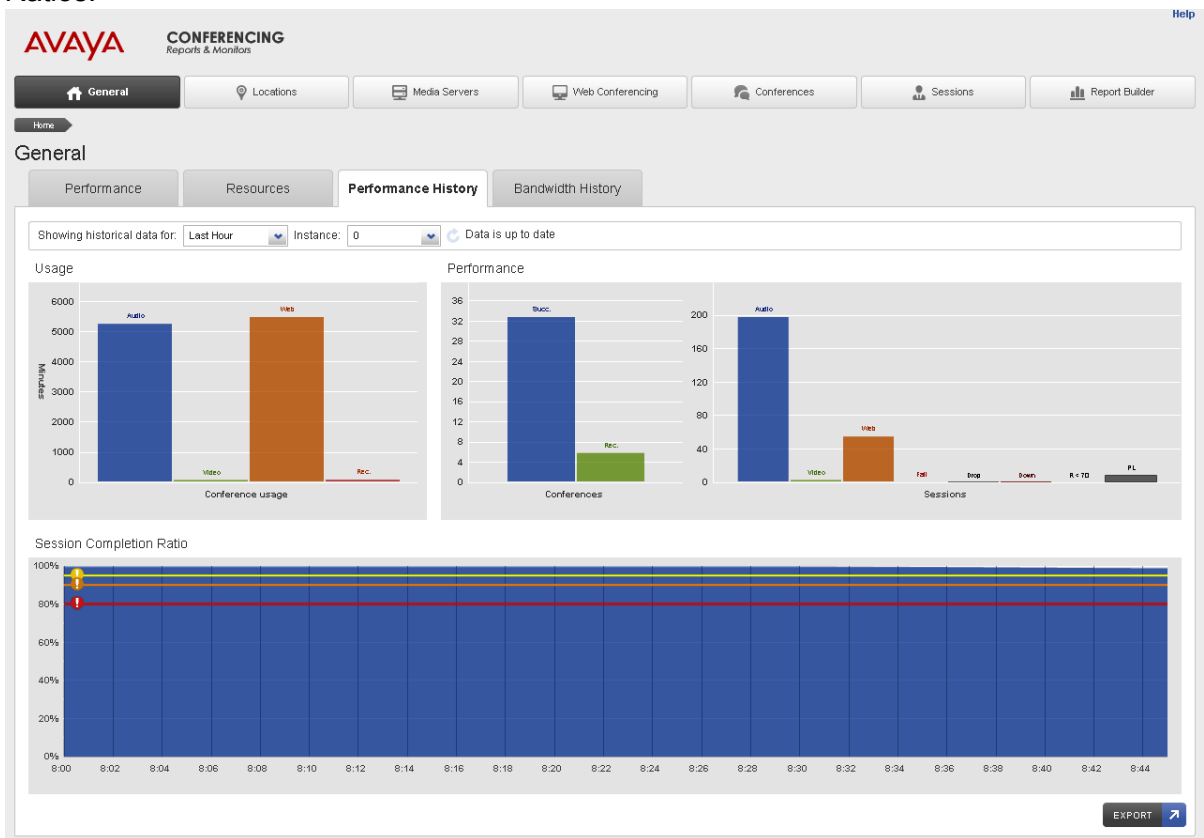


Figure 21: KPI dashboard—Performance History tab

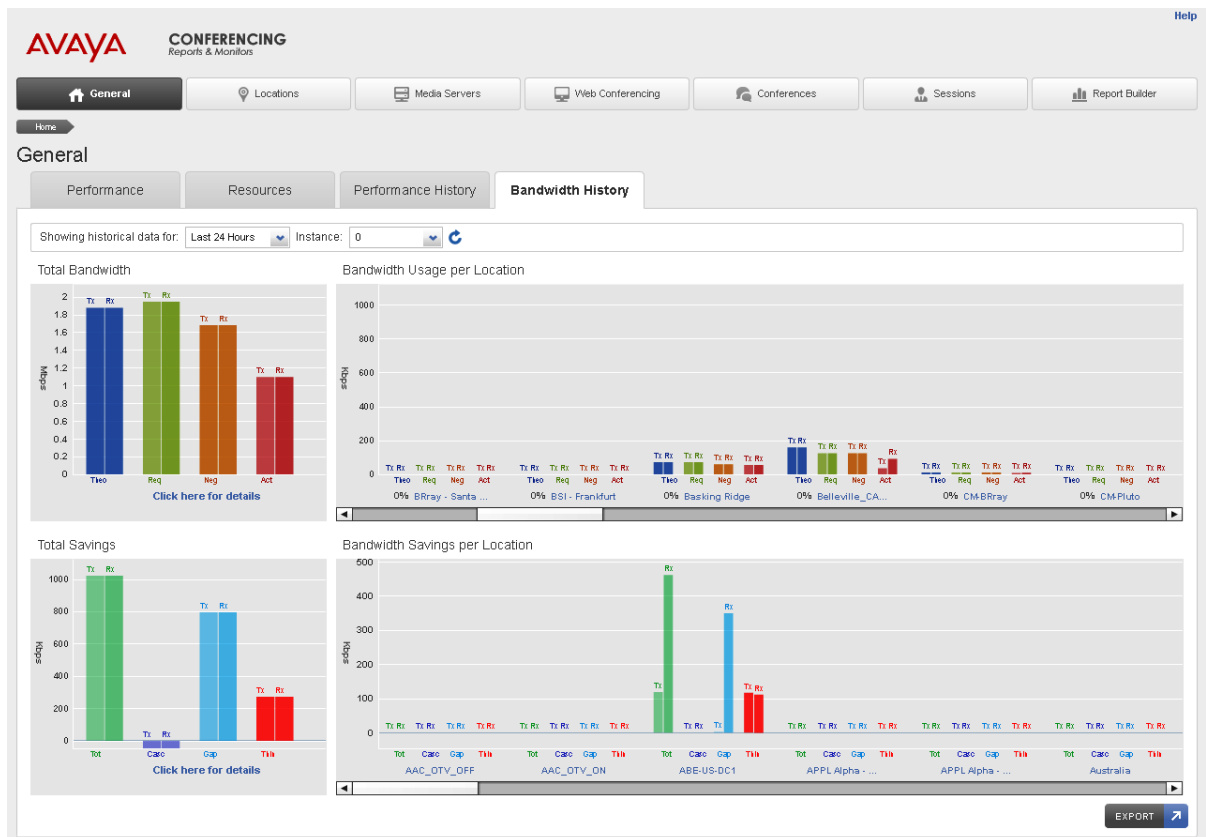


Figure 22: KPI dashboard—Bandwidth History tab

Stateful failover

Configuring stateful failover on your system provides reliability and ensures high availability.

Media Server redundancy

If a Media Server fails, the Application Server routes an incoming session to one of the available Media Servers. During an established session, transparent media failover is not supported. If the session is already established and the Media Server fails, the client must reestablish the session. If the server detects the Media Server failure, an attempt to cleanup the client session is made. The client can also detect a failure and attempt to reestablish the session.

Media Server cluster

A Media Server cluster is a collection of Media Servers. The Media Servers are deployed within clusters with common attributes such as the same physical location, with load sharing redundancy among the servers but no retention of sessions upon failure. All configuration settings are replicated to the Media Servers in the cluster.

A Media Server can be used for either hosting or cascading. It does not matter whether the Media Servers are in the same cluster or different clusters.

A serving location is a list of locations that are served by a Media Server cluster. This is a many to many relationship. A cluster can serve many locations. A location can be served by many clusters.

Document Conversion Server redundancy

Avaya Aura® Conferencing monitors the load of the document conversion tasks on Document Conversion Servers. If the processing capacity of a Document Conversion Server is full, Avaya Aura® Conferencing sends the document conversion tasks to another Document Conversion Server in the network.

If Document Conversion Server fails, and other Document Conversion Servers are not available, Avaya Aura® Conferencing sends the document conversion tasks to the default Document Conversion Server administered in **Feature Server Elements > Web Conferencing > Default Web Conferencing Server Group** on Element Manager Console.

Avaya Aura® Conferencing failover

Avaya Aura® Conferencing supports 1+1 failover of the Avaya Aura® Conferencing Application Server. In this scenario, there are two instances of the Application Server. One server is the Active server and the other server is in a Hot Standby state. The server in Hot Standby has the same data as the Active server instance but is unused until the Active server fails. If a failover occurs during a call, the state of the call is kept alive because the established session is check-pointed. Pending operations such as lock conference, do not always survive the failover.

Database redundancy

Avaya Aura® Conferencing supports an Active-Active configuration for a redundant database.

Automated Disaster Recovery

The Automated Disaster Recovery feature provides redundancy to Avaya Aura® Conferencing. This feature consists of administering two Avaya Aura® Conferencing systems in geographically-remote locations with the secondary system being a replica of the primary system.

The primary location operates in normal scenarios. If the primary location fails, the secondary location detects the failure through a heartbeat mechanism. The secondary location becomes active and takes over the Avaya Aura® Conferencing system.

The failover of the primary location to the secondary location can be performed manually by a system administrator or administered as an automatic process. The system administrator must restore the system operation to the primary location manually.

During the failover of the primary location to the secondary location, all existing conference calls and Web collaboration sessions are lost and users must again initiate the calls and the Web collaboration sessions.

Data migration from existing systems

Avaya Aura® Conferencing 7.2 supports migrating your Avaya Aura® Conferencing 6.0 or Meeting Exchange 5.2 data.

Avaya Aura® Conferencing supports the HP ProLiant DL360 G7. You can re-purpose your Dell™ PowerEdge™ R610 or IBM S8800 servers as Web Conferencing Server and Flash Media Gateway for the co-resident with redundancy or co-resident simplex layouts.

 Note:

A separate WebLM server is required if you want to maintain your current Meeting Exchange or Avaya Aura® Conferencing license while adding a new Avaya Aura® Conferencing 7.2 license.

For more information about migrating your data, see *Deploying Avaya Aura® Conferencing* at the Avaya Support website: <http://support.avaya.com>.

Chapter 3: Interoperability

The following sections describe the Avaya products, third-party products, and product releases that are compatible with Avaya Aura® Conferencing.

For the latest and most accurate compatibility information, go to <http://support.avaya.com/CompatibilityMatrix/Index.aspx>

Supported operating systems

Avaya Aura® Conferencing supports the following operating systems:

- Server operating systems: Red Hat Linux Enterprise Edition 5.4
- Administration operating systems: Microsoft Windows XP and Microsoft Windows 7 (32-bit and 64-bit)

Supported Web browsers

Avaya Aura® Conferencing supports the following browsers for Collaboration Agent users:

Browsers	Operating System	Collaboration Agent
Microsoft Internet Explorer 7.0 and 8.0	Windows XP Windows 7.0	yes
Microsoft Internet Explorer 9.0	Windows 7.0	yes
Mozilla Firefox version 10 and later	Windows XP Windows 7.0	yes
Google Chrome version 17 and later	Windows XP Windows 7.0 Mac OS 10.7.x Chrome 17 only	yes
Safari 5.x for Apple Macintosh excluding iPad and iPod	Mac OS 10.7.x	yes

Possible limitations

When running the Audio/Video in Collaboration Agent feature, Google Chrome may demonstrate poor lip synchronization. When Collaboration Agent detects when a user wishes to use the Audio/Video in Collaboration Agent feature in Google Chrome, it displays an information message to inform them of this possible limitation.

In addition, users running Google Chrome for the Mac operating system may experience issues when sharing their desktop. Avaya recommends using Apple Safari or Mozilla Firefox for desktop sharing instead.

Supported clients

Avaya Aura® Conferencing supports the following clients:

Client	MeetMe	Adhoc	Advanced conference controls	Web conferencing
Avaya Flare® Communicator for iPad Devices (1.x)	yes	—	—	—
Avaya Communicator for iPad devices (1.x)	yes	yes	yes	yes
Avaya Flare® Communicator for Windows (1.x)	yes	—	—	yes
Avaya Communicator for Windows (1.x)	yes	yes	yes	yes
Collaboration Agent  Note: Collaboration Agent supports the MeetMe conferencing only for the Audio/Video in Collaboration Agent feature.	yes	—	—	yes
Avaya 9600 Series IP Deskphones 6.2 for H.323-based calls: • 9608 IP Deskphone • 9611G IP Deskphone • 9621G IP Deskphone • 9641G IP Deskphone	yes	—	—	—
9600 series IP Deskphones 6.2 for SIP-based calls: • 9608 IP Deskphone • 9611G IP Deskphone	yes	yes	yes	—

Client	MeetMe	Adhoc	Advanced conference controls	Web conferencing
• 9621G IP Deskphone • 9641G IP Deskphone				
Avaya 1000 series	yes	—	—	—
Avaya one-X® Communicator 6.1 for H.323-based and SIP-based calls * Note: Avaya Aura® Conferencing with Communication Manager Release 6.2 and later support Avaya one-X® Communicator for H.323-based and SIP-based audio and video conferencing. Avaya Aura® Conferencing with Communication Manager Releases 5.2.1 and 6.0.1 support Avaya one-X® Communicator for H.323-based and SIP-based audio conferencing.	yes	—	—	—
Avaya one-X® Agent	yes	—	—	—
Avaya LifeSize 10XX	yes	—	—	—
Android-based devices: • Samsung Galaxy Ace GT-S5830 • Samsung Galaxy S3 I9300 with Android OS 4.0 Ice Cream Sandwich • Motorola Fire XT 530 • HTC Desire S S510E with Android OS 2.3 Gingerbread	yes	—	yes	yes
Apple iPhone	yes	—	yes	yes
TDM-based phones	yes	—	—	—
Other cellular phones	yes	—	—	—
Other analog phones	yes	—	—	—

Related topics:

[Avaya Communicator integration](#) on page 66

[Collaboration Agent for iPhone and Android-based phones](#) on page 66

Avaya Communicator integration

With the Avaya Communicator for Windows and Avaya Communicator for iPad Devices integration feature, you can log in to the enterprise server and dial and receive voice calls and video calls from a telephone extension through a computer.

Using the Avaya Communicator client, you can also:

- Send email messages and instant messages.
- Gain access to the call history, the Avaya Aura® contacts, and the Microsoft Outlook contacts.
- Search the enterprise directory for contacts.
- Manage your presence status.

The Avaya Communicator client provides enterprise users with access to all the communication tools in a single interface along with automatic integration with Avaya Aura® Conferencing.

Collaboration Agent for iPhone and Android-based phones

With the integration of Collaboration Agent with iPhone and Android-based phones, you can start, join, and manage Web collaboration sessions on the Avaya Aura® Conferencing system from your smartphone.

Support for Radvision Scopia

Radvision Scopia integrates with Avaya Aura® Conferencing through a SIP trunk between Session Manager and Radvision Scopia Management.

You must manually coordinate the provisioning of subscriber data between Avaya Aura® Conferencing and Radvision Scopia.

Currently, administration of settings, conference control, and Web conferencing are not integrated between these two solutions. Web conferencing requires one of the following:

- A physical connection between the computer installed with Collaboration Agent and a Radvision endpoint to share data through a video cable.
- The installation of Collaboration Agent and Scopia Desktop on the same computer to simultaneously share data on both these applications.

Radvision endpoint users connect to an Avaya Aura® Conferencing conference through Radvision Scopia Elite MCU. Scopia Elite MCU creates a separate conference for the Radvision endpoint users and connects this conference to the Avaya Aura® Conferencing conference through the SIP trunk.

Avaya Aura® Conferencing and Scopia Elite MCU display separate rosters. The Avaya Aura® Conferencing conference roster displays the Scopia Elite MCU conference as one participant. Similarly, the Scopia Elite MCU conference roster displays the Avaya Aura® Conferencing conference as one participant.

Radvision Scopia components

The Radvision Scopia components involved in this solution include:

- Scopia Management
- Scopia Elite MCU
- Radvision Scopia Desktop Server
- Radvision endpoints



Note:

Scopia Desktop Server is an optional component.

CS1000

Avaya Communication Server 1000 interoperates with Avaya Aura® Conferencing through the CS1000 Collaboration Pack feature. With this feature, CS 1000 supports collaboration between CS 1000 users and Avaya Aura® Conferencing users.

CS 1000 users can also use endpoints that are not CS 1000-based, such as Avaya Flare Experience, which is based on Communication Manager, to collaborate with other users through the Avaya Aura® Conferencing features.

The Collaboration Pack feature supports interoperability with Avaya Aura® Conferencing through the Converged User concept. Converged User is a user who is associated with a pair of twinned endpoints, such as a CS 1000 endpoint and Flare Experience. These twinned endpoints have a single:

- Number for incoming and outgoing calls.
- Voice mail box.
- Aggregated presence.

The twinned endpoints simultaneously ring for an incoming call. A CS 1000 user can answer calls from one of the twinned endpoints. If the CS 1000 user does not answer a call or, if the CS 1000 user is busy on another call, the call is redirected depending on how the CS 1000

user profile is administered. For example, CS 1000 might forward the call to the voice mailbox of the user.

Avaya Aura® Conferencing users can dial out to CS 1000 users and establish a conference with the users.

 Note:

None of the endpoints that connect to Avaya Aura® Conferencing through CS 1000 support secure video conferences.

Chapter 4: Reference configurations

Avaya Aura® Conferencing supports the following deployment layouts:

- Co-resident with redundancy
- Co-resident simplex
- Standalone with redundancy
- Standalone simplex

For more information about the deployment layouts, see *Deploying Avaya Aura® Conferencing* at the Avaya Support website: <https://support.avaya.com/>.

Deployment layouts

Avaya Aura® Conferencing supports the following deployment layouts:

Table 5: Deployment layouts

Deployment layout	Description	Features	Scalable	Enterprise DMZ deployment
Co-resident with redundancy	For small scale deployments where redundancy is required. The Avaya Media Server is co-resident with the Application Server.	• Avaya Media Server with load sharing • Web Conferencing Management Server • Active/active redundancy for Document Conversion Server for Web Conferencing Server/ Collaboration Agent • Active/standby redundancy with an additional Application Server	Yes, scalable to a standalone deployment	Yes, add Web Conferencing Server components within your firewall demilitarized zone (DMZ) for added functionality. For more information about DMZ, see Enterprise DMZ deployment on page 72.

Deployment layout	Description	Features	Scalable	Enterprise DMZ deployment
Co-resident simplex	For small scale deployments where all the Application Server components reside on a single server and redundancy is not required. The Avaya Media Server is co-resident with the Application Server.	• Web Conferencing Server with Collaboration Agent • Web Conferencing Management Server	Yes, scalable to a standalone deployment	Yes, add Web Conferencing Server components within your firewall demilitarized zone (DMZ) for added functionality. For more information about DMZ, see Enterprise DMZ deployment on page 72.
Co-resident with redundancy with DMZ	For small scale deployments where redundancy is required. The Avaya Media Server is co-resident with the Application Server. Web Conferencing Server components are deployed within your firewall DMZ.	• Avaya Media Server with load sharing • Web Conferencing Management Server • Active/active redundancy with Document Conversion Server for Web Conferencing Server/ Collaboration Agent • Active/standby redundancy with an additional Application Server	Yes, to a standalone deployment	Yes
Co-resident simplex with DMZ	For small scale deployments where all the Application Server components reside on a single server and redundancy is not required.	• Avaya Media Server with load sharing • Web Conferencing Server with Collaboration Agent • Web Conferencing Management Server	Yes, to a standalone deployment	Yes

Deployment layout	Description	Features	Scalable	Enterprise DMZ deployment
	The Avaya Media Server is co-resident with the Application Server. Web Conferencing Server components are deployed within your firewall DMZ.			
Standalone with redundancy	For medium to large scale deployments. One pair of redundant Application Servers are dedicated for element management, database, application and service, and accounting functions. One server is dedicated to Avaya Media Server components.	• Avaya Media Server with load sharing • Web Conferencing Server with Collaboration Agent • Web Conferencing Management Server for web conferences with more than 1500 participants. • Active/active redundancy with Document Conversion Server for Web Conferencing Server with Collaboration Agent • Active/standby redundancy with an additional Application Server	Yes, scalable with additional servers, if required.	Yes, with additional Web Conferencing Server components in the enterprise Demilitarized Zone (DMZ) for added functionality. For more information about DMZ, see Enterprise DMZ deployment on page 72.
Standalone simplex	For medium to large scale deployments where all the Application Server components reside on separate servers to provide higher	• Avaya Media Server with load sharing • Web Conferencing Server with Collaboration Agent • Document Conversion server • Web conferencing management server	Yes, with additional servers, if required.	Yes, with additional Web Conferencing Server components in the enterprise DMZ for added functionality. For more information about DMZ, see

Deployment layout	Description	Features	Scalable	Enterprise DMZ deployment
	capacities and where redundancy is not required.	for Web conferences with more than 1500 participants.		Enterprise DMZ deployment on page 72.

Enterprise DMZ deployment

For standalone with redundancy and standalone simplex deployment configurations, you can deploy the Web conferencing server within the Enterprise DMZ of your network firewall. This allows you to connect to an Avaya Aura® Conferencing conference as a member or guest from outside the company firewall while still ensuring a strong and secure network defense. The moderator of a conference can also be located outside of the corporate firewall and still have access to most command functions. You also have the benefit of using Avaya Aura® Conferencing for off-site conferences and events.

Example

The following figure shows a basic DMZ configuration for a standalone with redundancy layout.

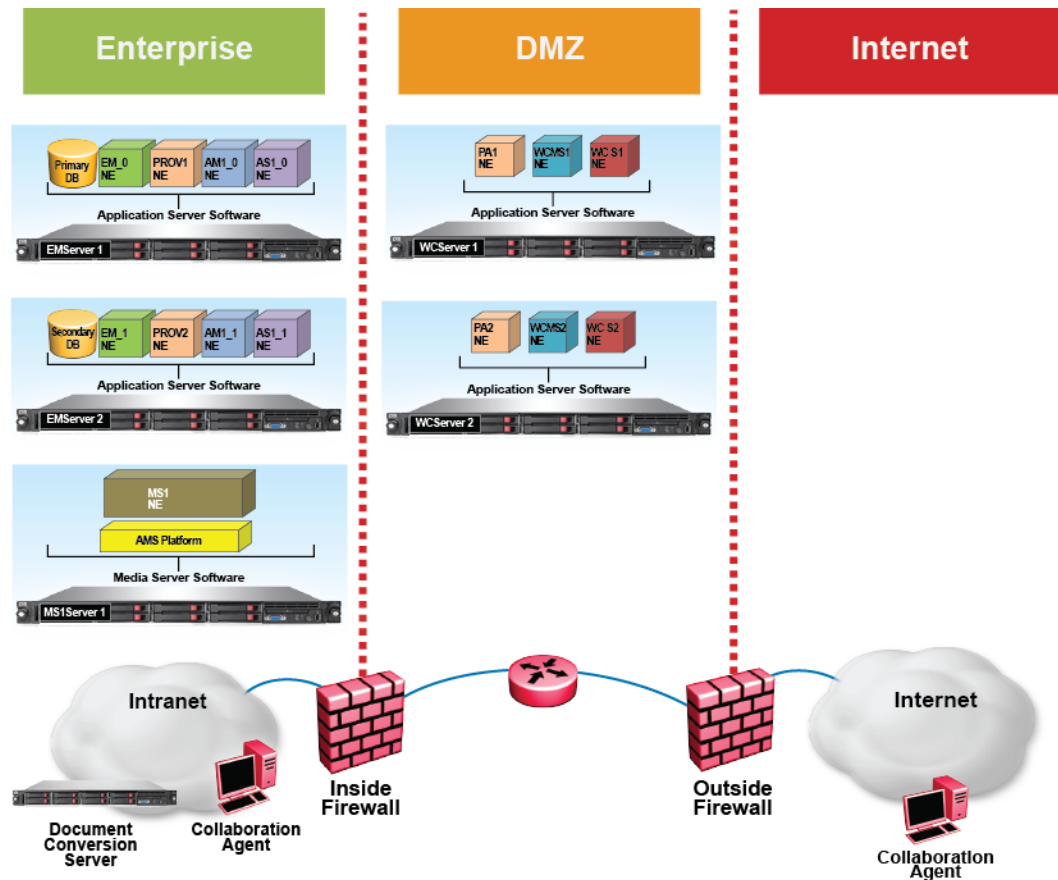


Figure 23: Basic DMZ configuration

In the preceding figure, the components required for interaction on both sides of the corporate firewall (the Personal Agent Manager, Web Conferencing Management Server, and the Web Conferencing Server) are located within the DMZ. These components require a small number of ports opened on the Enterprise and the Internet side, which has minimal firewall impact. With this configuration, conference members can connect to a conference outside of the corporate entity while continuing to maintain firewall integrity. The Document Conversion Server is located within the Enterprise side of the firewall and is fully protected; however, the Web Conferencing Server can still access and disperse the required documents.

Feature interactions

A moderator cannot upload documentation to the Document Conversion Server when outside the corporate firewall.

The following are some possible workarounds:

- the moderator can upload the required documents in advance of the offsite meeting while they are still within the corporate firewall
- the moderator can connect to the VPN outside of the firewall and upload the required documents

For information about the port matrix, go to <http://support.avaya.com> and download the latest version of the Avaya Aura® Conferencing 7.2 Port Matrix.

Chapter 5: Performance specifications

The following sections provide the performance specifications for Avaya Aura® Conferencing.

Servers

The following table provides the specifications of the Avaya Aura® Conferencing servers.

*** Note:**

- If your deployment contains more than one Web server, you must administer a third-party Web load balancer for Collaboration Agent.
- The IBM S8800 and Dell™ PowerEdge™ R610 servers can only be repurposed if you are migrating from Avaya Aura® Conferencing Release 6.0. You cannot deploy these servers as coresident servers in an Avaya Aura® Conferencing Release 7.2 deployment.

Table 6: Server specifications

Server	CPU	Memory (GB)	Hard disk drive (GB)	Applications
HP ProLiant DL360 G7 as an application server	Intel® Xeon® E5620 2xQuad core @ 2.4 GHz	6 x 2 = 12	2 x 300	An application server with the following network elements: • Application Server • Provisioning Manager • Element Manager • Database Manager • Accounting Manager • Web Conferencing Management Server

Server	CPU	Memory (GB)	Hard disk drive (GB)	Applications
HP DL360 G7 as one of the following servers: • Coresident server • Coresident server with the licensed Recording feature enabled • Standalone recording server	Intel® Xeon® X5670 2xHEX core @ 2.93 GHz	(6 x 2) + (6 x 4) = 36	2 x 300 or 2 x 900	A coresident server with the licensed Recording feature enabled and the following network elements: • Application Server • Provisioning Manager • Element Manager • Database Manager • Accounting Manager • Media Server • Collaboration Agent • Web Conferencing Server • Web Conferencing Management Server or A recording media server with the Media Server network element that has the licensed Recording feature enabled.
HP DL360 G7 as one of the following servers: • Standalone media server • Standalone Web server • Flash media gateway	Intel® Xeon® X5670 2xHEX core @ 2.93 GHz	6 x 2 = 12	2x300	Media Server that: • Manages local conferences. • Hosts cascaded conferences. • Manages cascading sessions at remote sites. or Media Server with the Event Conference Server network element. or A Web server with the following network elements: • Personal Agent Manager • Web Conferencing Server or Flash Media Gateway with the Audio/Video in Collaboration Agent network element

Server	CPU	Memory (GB)	Hard disk drive (GB)	Applications
HP DL360 G7 is a low cost server that is deployed as one of the following servers: • Web server. • Cascading media server. • Document conversion server.	Intel® Xeon® E5620 1xQuad core at 2.4 GHz	4 x 2 = 8	2x300	A low cost Web server with the Audio/Video in Collaboration Agent network element for a coresident deployment or A Web server for a coresident deployment or A low cost Media Server for cascaded sites or A document conversion server for a standalone deployment
IBM S8800 repurposed as a Web server	Intel® Xeon® X5670 2xQuad core at 2.93 GHz	6 x 4 = 24	5x146	A repurposed server with the following network elements: • Web Server • Audio/Video in Collaboration Agent
Dell R610 repurposed as a Web server	Intel® Xeon® X5670 2x HEX core at 2.93 GHz	6 x 4 = 24	5x146	A repurposed server with the following network elements: • Web Server • Audio/Video in Collaboration Agent

Deployment layouts and DMZ

For the Audio/Video in Collaboration Agent feature, you must deploy:

- A separate Web server in the enterprise DMZ for Web conferencing and Collaboration Agent.
- An optional Flash Media Gateway in the enterprise DMZ for external users to join a conference using the Audio/Video in Collaboration Agent feature.

*** Note:**

If you want external users to join a conference using the Audio/Video in Collaboration Agent feature, you must deploy Flash Media Gateway in the enterprise DMZ.

The following table lists the network elements that are deployed in the enterprise network and DMZ:

Table 7: Network elements

Network elements in the enterprise network	Network elements in the enterprise DMZ
• Application Server • Media Server • Web Conferencing Server • Web Conferencing Management Server • Collaboration Agent	• Web Conferencing Server • Collaboration Agent • (Optional) Flash Media Gateway

Coresident deployment without the DMZ access and the Audio/Video in Collaboration Agent feature

The following table provides the performance specifications of a coresident server.

Table 8: Performance specifications of a coresident server deployment without the DMZ access and the Audio/Video in Collaboration Agent feature

Server	Codec			Pixels (p) x 30fps	Bandwidth usage (kbps)	Active sessions		
	Audio	Video				Audio	Web and Collaboration Agent	Video
A coresident server with the following network elements and the licensed Recording	Audio and Web	—	—	—	—	500 audio, 500 Web and Collaboration Agent, and 320 720p, SVC video sessions		
	G.711	—	—	—	83	500	—	—
	G.722	—	—	—	83	500	—	—
	G.729	—	—	—	30	300	—	—

Server	Codec			Pixels (p) x 30fps	Bandw idth usage (kbps)	Active sessions		
	Audio	Video				Audio	Web and Collab oration Agent	Video
feature enabled: • Application Server • Media Server • Web Conferencing Server • Web Conferencing Management Server • Collaboration Agent This deployment supports a maximum of: • 5000 users. • 250 sessions for each conference. * Note: The bandwidth usage of sharing the library and desktop depends on the type of document and might vary.	G.711	H.264	AVC	720	1264	500	500	400
				360	512	500	500	500
			SVC	720	1530	500	500	320
				360	512	500	500	500
	G.722	H.264	AVC	720	1264	500	500	400
				360	512	500	500	500
			SVC	720	1530	500	500	320
				360	512	500	500	500
	G.729	H.264	AVC	720	1264	300	300	300
				360	512	300	300	300
			SVC	720	1530	300	300	300
				360	512	300	300	300
	Library sharing	—	—	—	32	—	—	—
	Desktop sharing	—	—	—	453	—	—	—
	Collabo ration Agent	—	—	—	—	—	—	—
	Recordi ng	—	—	—	—	80 simultaneous sessions		
	Playbac k	—	—	—	—	30 simultaneous sessions, which might be a combination of the streaming and downloading sessions		

Coresident deployment with the DMZ access and the Audio/Video in Collaboration Agent feature

These tables provide the performance specifications of the coresident server and a separate low-cost Web server that is deployed in the enterprise DMZ with Flash Media Gateway for the Audio/Video in Collaboration Agent feature.

The following table provides the performance specifications of a coresident server:

Table 9: Performance specifications of a coresident server

Server	Codec			Pixels (p) x 30fps	Bandwidth usage (kbps)	Active sessions		
	Audio	Video				Audio	Web and Collaboration Agent	Video
A coresident server with the following network elements and the licensed Recording feature enabled: • Application Server • Media Server • Web Conferencing Server • Web Conferencing Management Server • Collaboration Agent This deployment	Audio and Web	—	—	—	—	500 audio, 500 Web and Collaboration Agent, and 320 720p, SVC video sessions		
	G.711	—	—	—	83	500	—	—
	G.722	—	—	—	83	500	—	—
	G.729	—	—	—	30	300	—	—
	G.711	H.264	AVC	720	1264	500	500	400
				360	512	500	500	500
			SVC	720	1530	500	500	320
				360	512	500	500	500
	G.722	H.264	AVC	720	1264	500	500	400
				360	512	500	500	500
			SVC	720	1530	500	500	320
				360	512	500	500	500
	G.729	H.264	AVC	720	1264	300	300	300
				360	512	300	300	300
			SVC	720	1530	300	300	300
				360	512	300	300	300

Server	Codec			Pixels (p) x 30fps	Bandwidth usage (kbps)	Active sessions		
	Audio	Video				Audio	Web and Collaboration Agent	Video
supports a maximum of: • 5000 users. • 250 sessions for each conference. Note: The bandwidth usage of sharing the library and desktop depends on the type of document and might vary.	Library sharing	—	—	—	32	—	—	—
	Desktop sharing	—	—	—	453	—	—	—
	Collaboration Agent	—	—	—	—	—	—	—
	Recording	—	—	—	—	80 simultaneous sessions		
	Playback	—	—	—	—	30 simultaneous sessions, which might be a combination of the streaming and downloading sessions		

The following table provides the performance specifications of the low-cost Web server with Collaboration Agent and the Audio/Video in Collaboration Agent feature that is deployed in the enterprise DMZ:

Table 10: Performance specifications of a low cost server used as a Web server for the DMZ access and Flash Media gateway

Server	Protocol	Pixels (p) x 30 fps	Maximum Audio/Video in Collaboration Agent sessions	
			Audio and Video	Web
Web server and Flash Media Gateway on one of the following: • An HP DL360 G7 low cost server • A repurposed IBM S8800 server • A repurposed Dell R610 server Each of these servers supports a maximum of 500 Web sessions.	RTMP	720	200	200
		360	300	300
		180	300	300
	RTMPT	720	150	200
		360	225	300
		180	225	300
	RTMPS	720	120	200

Server	Protocol	Pixels (p) x 30 fps	Maximum Audio/Video in Collaboration Agent sessions	
			Audio and Video	Web
 Note: You must administer RTMPS for Flash Media Gateway.		360	180	300
		180	180	300

Standalone simplex and standalone with redundancy deployment layouts

With dedicated servers for the following network elements, the standalone deployment layout supports higher capacities than a coresident deployment layout:

- Media Server
- Web Server
- Web Conferencing Management Server
- Document Conversion Server
- Event Conference Server

This deployment layout supports maximum 250 active sessions for each conference. This limit does not apply to Event conferences. The following table provides the performance specifications of the standalone simplex and the standalone with redundancy deployment layouts:

Table 11: Performance specifications of standalone simplex and standalone with redundancy deployment layouts

 Note:

You require a dedicated Web Conferencing Management Server for more than 3000 Web sessions. This limit is based on the assumption that 50% sessions are for desktop sharing and 50% sessions are for library sharing.

Session type	Active sessions
Provisioned users	150000
Audio and video	15000
Web	7500

Session type	Active sessions
Collaboration Agent	7500
Audio, video, Web, and Collaboration Agent	7500 audio and video + 7500 Web + 7500 Collaboration Agent
Audio/Video in Collaboration Agent audio and video using RTMPS at a 360p x 30fps resolution	1600 with the maximum supported four Flash Media Gateways
Recording	375 simultaneous recordings
Playback	500 simultaneous sessions, which might be a combination of the streaming and the downloading sessions

Related topics:

[Standalone Media Server](#) on page 83

[Standalone Web Server](#) on page 84

[Standalone Web Conferencing Management Server](#) on page 84

[Standalone Document Conversion Server](#) on page 85

[Event Conference Server](#) on page 85

Standalone Media Server

The following table provides the performance specifications of a standalone Media Server that is deployed in a standalone deployment layout:

Table 12: Performance specifications of a standalone Media Server

Server	Codec			Pixels (p) x 30fps	Bandwidth used (kbps)	Active sessions
	Audio	Video				
Standalone Media Server using TCP/RTP or TLS/ SRTP * Note: • The standalone Media Server can also be administered as a media	G.711	—	—	—	—	3000
	G.722	—	—	—	—	2500
	G.729	—	—	—	—	2000
	G.711	H.264	AVC	720	1264	600
				360	512	1500
			SVC	720	1530	480
				360	512	1200
	G.722	H.264	AVC	720	1264	575
				360	512	1360

Server	Codec			Pixels (p) x 30fps	Bandwidth used (kbps)	Active sessions
	Audio	Video				
cascading server. • As a cascading server, the final capacity of Media Server depends on the number of media cascading sites and the number of users in each conference and might be lower than the capacities provided in this table.	G.729	H.264	SVC	720	1530	460
				360	512	1200
			AVC	720	1264	540
				360	512	1200
			SVC	720	1530	440
				360	512	1080

Standalone Web Server

The following table provides the performance specifications of a standalone Web Server that is deployed in a standalone deployment layout:

Table 13: Performance specifications of a standalone Web Server

Server	Session type	Active sessions
Standalone Web Server with the following network elements: • Collaboration Agent Manager • Web Conferencing Server	Total simultaneous sessions	1500 Web conferencing + 1500 Collaboration Agent
	Web conferencing sessions only	1500
	Collaboration Agent sessions only	1500

Standalone Web Conferencing Management Server

The following table provides the performance specifications of a standalone Web Conferencing Management Server that is deployed in a standalone deployment layout:

Table 14: Performance specifications of a standalone Web Conferencing Management Server

Server	Deployment	Active sessions
Web Conferencing Management Server  Note: - You must change the Maxclient/Server limit from 72 to 200 for a standalone Web Conferencing Management Server - The maximum active sessions are based on the assumption that 50% sessions are for desktop sharing and 50% sessions are for library sharing.	Standalone Web Conferencing Management Server	7500
	Web Conferencing Management Server coresident with Application Server	3000

Standalone Document Conversion Server

The following table provides the performance specifications of a standalone Document Conversion Server that is deployed in a standalone deployment layout:

Table 15: Performance specifications of Document Conversion Server

Server	Session type	Active sessions
Standalone Document Conversion Server	Simultaneous document upload sessions	200
	Simultaneous Web sessions	3000

Event Conference Server

The following table provides the performance specifications of Event Conference Server that is deployed in a standalone deployment layout:

Table 16: Performance specifications of Event Conference Server

Server	Codec			Pixels (p) x 30fps	Bandwidth used (kbps)	Active sessions		
	Audio	Video				Audio	Video	Web
Standalone Media Server and a standalone Web Server using TCP/RTP or TLS/SRTP	Any combination of G.711, G.722, or G.729	—	—	—	—	2000	—	1500
		All codecs	H.264	AVC	720	1200	2000	500
	360				420	2000	1500	1500
	SVC		720	1500	2000	400	1500	
			360	515	2000	1200	1500	

Table 17: Performance specifications of an Event Conference Server with the Audio/Video in Collaboration Agent feature

Server	Codec		Pixels (p) x 30fps	Bandwidth used (kbps)	Active sessions			
	Audio	Video			Audio	Audio/Video in Collaboration Agent	Web	
Standalone Media Server and standalone Web Server with Flash Media Gateway	All codecs	H.264	AVC	720	1200	2000	400	1500
				360	420	2000	400	1500
			SVC	720	1500	2000	400	1500
				360	515	2000	400	1500
 Note: The performance specifications of the Audio/Video in Collaboration Agent sessions are based on								

Server	Codec		Pixels (p) x 30fps	Bandwidth used (kbps)	Active sessions		
	Audio	Video			Audio	Audio/Video in Collaboration Agent	Web
RTMPS at a 360p x 30fps resolution.							

Media cascading

You can use the standalone Media Server or the low cost server as a cascading media server.

The following table provides the performance specifications of a low cost server that is used as a media cascading server:

Table 18: Performance specifications of a low cost server used as a media cascading server

Server	Codec			Pixels (p) x 30fps	Bandwidth usage (kbps)	Active sessions
	Audio	Video				
Low cost server used as a media cascading server for audio and video streams * Note: The final capacity of the low cost server for media cascading depends on the number of media cascading sites and the number of users in each conference and might be lower than the	G.711	—	—	—	—	850
	G.722	—	—	—	—	700
	G.729	—	—	—	—	475
	G.711	H.264	AVC	720	1200	350
				360	420	450
			SVC	720	1500	350
				360	515	450
	G.722	H.264	AVC	720	1200	300
				360	420	400
			SVC	720	1500	300
				360	515	400
	G.729	H.264	AVC	720	1200	200

Server	Codec		Pixels (p) x 30fps	Bandwidth usage (kbps)	Active sessions
	Audio	Video			
capacities provided in this table.		SVC	360	420	275
			720	1500	200
			360	515	275

For the performance specifications of a standalone Media Server that is deployed as a cascading media server, click *Standalone Media Server in the Related topics section*.

Related topics:

[Standalone Media Server](#) on page 83

Flash Media Gateway

The following table provides the performance specifications of a standalone Flash Media Gateway.

Table 19: Performance specifications of a standalone Flash Media Gateway

Server	Protocol	Pixels (p) x 30 fps	Maximum Audio/Video in Collaboration Agent sessions
Standalone Flash Media Gateway - Flash Media Gateway supports a maximum of 250 Audio/Video in Collaboration Agent sessions for each conference. - Avaya Aura® Conferencing supports a maximum of four Flash Media Gateways. * Note: - For the best user experience of the Audio/Video in Collaboration Agent feature, administer a maximum of four Flash Media Gateways using the RTMPS protocol at a 360p x 30fps resolution. With this configuration, you can have a total of 1600 active sessions simultaneously. - If you want external users to join a conference using the Audio/Video in	RTMP	720	300
		360	700
		180	850
	RTMPT	720	225
		360	525
		180	625
	RTMPS	720	180
		360	400
		180	500

Server	Protocol	Pixels (p) x 30 fps	Maximum Audio/Video in Collaboration Agent sessions
Collaboration Agent feature, you must deploy Flash Media Gateway in the enterprise DMZ. • You can use the Audio/Video in Collaboration Agent feature in the audio-only mode. The performance specifications of the audio-only mode are the same as the specifications for the audio and video at 180p x 30fps resolution mode.			

Chapter 6: Security specifications

The following sections provide the security specifications for Avaya Aura® Conferencing.

Platform security

Avaya uses the Linux operating system. All security vulnerability fixes are incorporated into the operating system through the patch process. Avaya has taken numerous steps to minimize vulnerabilities and improve security by modifying or hardening the Linux operating system.

The following table describes the platform security features:

Security feature or configuration	Description
RPM Package Management	Unused RPMs removed.
Least Privilege	Root SSH access disabled. The following roles are defined for administrative accounts: • System Security Administrator (SSA) • Security Auditor (SA) • Application Administrator (AA) • Backup Administrator (BA) • Database Administrator (DBA) • Operational Support System Administrator (OSS)
Audit	Provides an audit log to the Security Auditor of system calls to provide a means to analyze relevant events that have occurred on the system.
File system integrity Management	Create baselines of the file system to detect changes to determine what has changed over a given period of time.
Disabled Services	Services that are not required are disabled, for example, telnet, ftp, nfs, netfs and kudzu.
Unix STIG Compliant	Operating System hardening based on the DISA UNIX Security Checklist.

Application security

Avaya Aura® Conferencing uses the TLS protocol to prevent eavesdropping and tampering of communications sent across a network. TLS is used for all SIP signaling traffic as well as all Web-based communication. Integration with the System Manager Trust Management (TM) Service allows certificate enrollment for certificates issued by System Manager to the Avaya Aura® Conferencing components directly from the Element Manager Console.

Audio and video security

Avaya Aura® Conferencing supports SRTP for the audio and the video streams. With this secure protocol, Avaya Aura® Conferencing supports encryption of the audio and the video streams for secure conferences.

Avaya Aura® Conferencing establishes video streams independently, regardless of whether the streams are unidirectional or bidirectional. If the SRTP negotiation of the video streams is successful, Avaya Aura® Conferencing encrypts all video streams of a conference.

If the SRTP negotiation for a video stream fails, depending on the administration of Media Security Policy, Avaya Aura® Conferencing establishes an unencrypted video stream or disables video and establishes only a secure audio call for the endpoint. However, if the SRTP negotiation for an audio stream fails and Media Security Policy is SECURITY ENFORCED, Avaya Aura® Conferencing might not establish the call.

 Note:

- The additional processing required to encrypt the audio and the video streams impact the system capacity.
- Avaya Aura® Conferencing does not encrypt conference recordings.
- Avaya Aura® Conferencing supports encrypted audio and video streams in a conference only if you install Communication Manager Release 6.2 FP3 or 6.3.2 in the network.
- Communication Manager Release 6.2 FP1 supports only audio encryption.
- Communication Manager Release 6.3 supports only a video call with encrypted audio and unencrypted video.

Avaya Aura® Conferencing provides the following Media Security Policy options:

- Security Enforced
- Best Effort
- Security Disabled

You can configure these Media Security Policy options through Element Manager Console. With Media Security Policy, you can control the media security that Avaya Aura® Conferencing specifies for the audio and the video streams.

Avaya Aura® Conferencing encrypts video streams between different Media Servers only if you administer Media Security Policy to *Security Enforced* or *Best Effort*. If Avaya Aura® Conferencing receives a call establishment offer to establish a secure call using SRTP, Avaya Aura® Conferencing only encrypts the streams if you administer Media Security Policy to *Security Enforced* or *Best Effort*.

Security Enforced

With the Security Enforced option, Avaya Aura® Conferencing, using SRTP, supports only secure audio and video streams.

Avaya Aura® Conferencing specifies only SRTP in SDP messages for the call establishment with far-end endpoints. If a far-end endpoint does not support SRTP for video streams, Avaya Aura® Conferencing disables video and establishes only a secure audio call. Similarly, if Avaya Aura® Conferencing receives a call establishment message to establish unencrypted audio and video streams, Avaya Aura® Conferencing denies the offer and does not establish the call.

However, using the **Video Allowed for Security Enforced Calls** setting, you can administer Avaya Aura® Conferencing to establish unencrypted video streams in a secure audio call.

Best Effort

With the Best Effort option, Avaya Aura® Conferencing, using SRTP, supports secure audio and video streams and, using RTP, supports unencrypted audio and video streams.

Avaya Aura® Conferencing specifies SRTP with additional capability negotiation in the SDP messages for the call establishment. If the far-end endpoint does not support SRTP for video streams, Avaya Aura® Conferencing, using RTP, establishes unencrypted video streams in a secure audio call.

Security Disabled

With the Security Disabled option, Avaya Aura® Conferencing, using RTP, supports only unencrypted audio and video streams.

Avaya Aura® Conferencing specifies only RTP in the SDP messages for the call establishment. If Avaya Aura® Conferencing receives a call establishment message for encrypted streams, Avaya Aura® Conferencing denies the call request.

Related topics:

[Endpoints that support audio SRTP](#) on page 94

[Endpoints that support video SRTP](#) on page 94

Endpoints that support audio SRTP

The following endpoints support SRTP for secure audio conferences:

- Avaya 9600 Series IP Deskphones 96x1 H.323 Release 6.2
- Avaya 9600 Series IP Deskphones 96x1 H.323 Release 6.3
- Avaya 9600 Series IP Deskphones 96x1 SIP Release 6.2
- Avaya 9600 Series IP Deskphones 96x1 SIP Release 6.3
- Avaya Flare Experience Release 1.1 for Windows
- Avaya Flare Experience Release 1.1 for iPad Devices
- Avaya one-X Communicator Release 6.1
- Avaya one-X Communicator Release 6.1.1
- Avaya one-X Communicator Release 6.1.6

Endpoints that support video SRTP

Avaya one-X[®] Communicator Release 6.2 supports video SRTP for secure video conferences.

Account management

User accounts along with password policies are centrally managed on the Avaya Aura[®] System Manager. Single sign-on is used for administrative user accounts through the Avaya Aura[®] System Manager.

Audit trails and logs

Avaya Aura[®] Conferencing sends application log feeds to the System Manager. System security logs are stored at `/var/log/secure`. The security logs are accessible to only administrators with the System Security Administrator (SSA) role.

Cryptography

The cryptography certificates support the following keys for the Certification Signature algorithm:

- 1024-bit, 2048-bit, and 4096-bit RSA asymmetric keys
- SHA-1 with RSA encryption
- SHA-256 with RSA encryption

Table 20: HTTPS cipher suites

Cipher name	Enabled by default
SSL_RSA_EXPORT_WITH_DES40_CBC_SHA	no
SSL_RSA_EXPORT_WITH_RC4_40_MD5	no
SSL_RSA_WITH_DES_CBC_SHA	no
SSL_DH_RSA_WITH_3DES_EDE_CBC_SHA	no
SSL_RSA_WITH_3DES_EDE_CBC_SHA	no
SSL_RSA_WITH_RC4_128_MD5	no
SSL_RSA_WITH_RC4_128_SHA	yes
TLS_RSA_WITH_AES_128_CBC_SHA	yes

Table 21: Signaling cipher suites

Cipher name	Enabled by default
TLS_RSA_WITH_NULL_SHA	no
TLS_RSA_WITH_AES_128_CBC_SHA	no
TLS_RSA_WITH_AES_256_CBC_SHA	yes

Table 22: SSH cipher suites

Cipher name	Enabled by default
aes128-ctr	yes
aes192-ctr	yes
aes256-ctr	yes
arcfour256	yes
arcfour128	yes

Cipher name	Enabled by default
aes128-cbc	yes
3des-cbc	yes
blowfish-cbc	yes
cast128-cbc	yes
aes192-cbc	yes
aes256-cbc	yes
arcfour	yes

Table 23: Secure audio and video cipher suites

Cipher name	Enabled by default
AES_CM_128_HMAC_SHA1_80	yes
AES_CM_128_HMAC_SHA1_32	no
AES_192_CM_HMAC_SHA1_32	no
AES_192_CM_HMAC_SHA1_80	no
AES_256_CM_HMAC_SHA1_32	no
AES_256_CM_HMAC_SHA1_80	no

Avaya Services Access

With Avaya Aura® Conferencing, the Secure Access Link (SAL) provides remote access to the Avaya Aura® Conferencing servers through SSH, to the Provisioning Manager using HTTPS, and to the Element Manager Graphical User Interface (GUI). SAL can also be configured to receive SNMP alarms from Avaya Aura® Conferencing.

Port utilization

For the complete *Port Matrix: Avaya Aura® Conferencing* document, see <http://support.avaya.com>. For more information about the DMZ port matrix, see *Deploying Avaya Aura® Conferencing*.

Chapter 7: License key requirements

The license key is installed on the WebLM server which is co-resident with System Manager. Obtain the license key before starting the deployment. The allocated licenses are deducted from the total license keys available on the WebLM server. The license key remains allocated to Conferencing as long as the network elements that are allocated the license key are active.

For information about installing the Conferencing license key, see *Deploying Avaya Aura® Conferencing* at the Avaya Support website: <http://support.avaya.com>.

A unique multimedia license is required for each provisioned user in Conferencing. A user can use this license for all conferencing sessions. This unique license gives the user the ability to moderate a conference, use the supported audio codecs, and present in a Web sharing session. Guest users do not require a user license as these users cannot moderate a conference when logged in as Guest.

On the System Manager console, click **Services > Licenses > Conferencing** to view the license capacity and the license usage.

The following table list the licensing attributes for Conferencing:

Table 24: Licensed features

Feature name	Feature description
VALUE_CONF_AUDIO_WEB_USERS	The maximum number of audio and Web users.
VALUE_CONF_AUDIO_WEB_VIDEO_USERS	The maximum number of audio, video, and Web users.
VALUE_CONF_MEDIA_RECORDING_SYSTEMS	The maximum number of media recording systems..
VALUE_CONF_MGW_SERVERS	The maximum number of Media Gateways allowed.
VALUE_CONF_MEDIA_SERVERS	The maximum number of Media Servers allowed.
VALUE_CONF_WEB_SERVERS	The maximum number of Web conferencing servers allowed.

Glossary

Access control list	A set of data that informs the operating system of a computer which permissions, or access rights, that each user or group has to a specific system object, such as a directory or file.
Advanced video codec (AVC)	H.264 AVC supports the video conferencing features and events.
Application Server	This element is responsible for all conference call processing and stores information about conferences. To get current data about sessions and conferences Element Manager sends a request to the network element.
Avaya Media Server	The Avaya Media Server hosts conferences and relays media.
AV MeetMe conference	A planned Web conference supporting audio and video.
Bandwidth	Requested bandwidth: This is the bandwidth that is requested at the time of initiating a conference call. This bandwidth request may be negotiated down to a lower bandwidth, or can be thinned by Avaya Aura[®] Conferencing at some point during the conference. Negotiated bandwidth: This is a bandwidth that the server allocates to the client and is based on your system configuration and the total available network bandwidth. Actual bandwidth: This is the bandwidth that is used for a session as determined by the Avaya Media Server.
Centralized Conferencing Manipulation Protocol (CCMP)	CCMP is an alternative method of issuing commands during a conference rather than using a telephone dialpad. In this document, CCMP commands are referred to as the user interface of clients such as the Collaboration Agent, Avaya Communicator for Windows, and Avaya Communicator for iPad devices.
Collaboration Agent	The Collaboration Agent application provides tools for managing and participating in conferences. Web-based conferencing allows users or guests to join a conference either on site or from a remote location. Users can access Collaboration Agent using a supported Web browser and an audio endpoint.

Communication Manager	A key component of Avaya Aura®. It delivers rich voice and video capabilities and provides a resilient, distributed network for media gateways and analog, digital, and IP-based communication devices. It includes advanced mobility features, built-in conference calling, contact center applications and E911 capabilities.
Database (DB)	The database stores configuration information for all Network Elements, such as long and short names, server IP address, and historical OM data.
DMZ	In computer networks, the demilitarized zone (DMZ) is a physical or logical subnetwork between your Enterprise and the Internet. The DMZ is required to allow conference access from outside your firewall.
Down sessions	Down sessions are the number of sessions where bandwidth is downgraded because of proactive or reactive thinning.
Dropped sessions	Dropped sessions are the number of sessions that dropped by a system due to bandwidth management issues.
Element Manager (EM)	Client receives almost all information from the Element Manager using OMI methods. The client sends an OMI request to Element Manager. Element Manager processes this request and determines what to do with it. To get the data for client Element Manager, a request is sent to the database or to other network elements, such as the Application Server or the Web Conferencing Server.
Gap	The gap is the difference between the negotiated and actual bandwidth. For example: A request for bandwidth is initiated for a video or audio call (requested bandwidth). The Media Server responds with bandwidth and bandwidth is applied (negotiated bandwidth). Bandwidth continually changes during a call due to factors such as codec, packetization, and time. Therefore, a gap between the actual and negotiated bandwidth occurs.
Guest	A guest is an unprovisioned user. The guest has the same privileges as a participant but cannot be promoted to presenter or moderator.
Hosting and hosted location	A hosting location is the location where a conference is hosted. The hosting location is determined by the location provisioned for the user. If there are network limitations, a hosting location can be mapped to another location for hosting conferences. This is then referred to as the hosted location.
Hybrid Conference	A hybrid conference includes Web and Audio sessions.
KPI client	Client receives almost all information from the Element Manager using OMI methods. Usually to get some information client sends an OMI request to Element Manager. Element Manager processes this request

and decides what to do with it. To get the data for client Element Manager sends a request to database or to another network elements, such as the Application Server or the Web Collaboration Server.

IPv4	The fourth revision in the development of IP, and the first version of the protocol to be widely deployed.
License	There are two types of system licenses: Audio and Video. A unique license is required for each Avaya Aura® Conferencing provisioned user. The License key is installed on the Web License Manager (WebLM) server which is co-resident with System Manager.
Load factor	An engineering number that is used to gauge CPU utilization of the Avaya Media Server process on a particular Avaya Media Server.
Moderator	A moderator is a provisioned user and has full control of the conference using either Telephone User Interface (TUI) and User Interface (UI) commands on one of the supported clients.
Open Management Interface (OMI) call	SOAP based Web Services provides operations required for Avaya Aura® Conferencing.
Operator	An operator controls every aspect of a conference in the same manner as the moderator. An operator does not attend the conference but can be called upon by issuing a Telephony User Interface (TUI) code, if assistance is required.
Participant	Participants are people who attend conference calls. A participant can access a conference using an Avaya Aura® Conferencing user account or log in as guest. A participant can be promoted by the moderator to be a presenter or a moderator but cannot change the state of the conference.
Physical location	A physical location is where the Media Server physically resides. The physical location association is configured against a cluster to ensure that all Media Servers in the cluster are at the same location (to support Media Server failover).
Presenter	A presenter is a provisioned user. The presenter has the same privileges as a participant but has been promoted to presenter to allow presentation of content using Web collaboration.
Provisioning Manager	The Provisioning Manager is a Web-based administrative interface for configuring system wide conferencing details and templates, and managing user configuration.

Representational state transfer (REST)	A software architecture style for distributed systems such as the Web.
R-factor	R-factor is a measure of audio quality; the lower the number, the poorer the audio quality. R-factor uses a scale of 0 to 100.
Scalable video codec (SVC)	Scalable video codec (SVC) is based on the H.264 advanced video codec (AVC) standard and heavily leverages the tools and concepts of the original codec. SVC video technology allows video conferencing devices to send and receive multilayered video streams composed of a small base layer and optional additional layers that enhance resolution, frame rate, and quality
Serving location	A serving location is a list of locations that are served by a Media Server cluster. This is a many to many relationship. A cluster can serve many locations. A location can be served by many clusters.
Session Completion Ratio	The percentage of rejected sessions compared to the total number of sessions. A session can be rejected for different reason, such as, not enough Bandwidth or not enough licenses.
Simple Object Access Protocol (SOAP)	Protocol specification for exchanging structured information in the implementation of Web Services in computer networks.
Standalone Web conference	A user starts a standalone Web conference using the Collaboration Agent client before starting an AV MeetMe conference. After an AV MeetMe conference is started, the standalone Web conference is merged with the AV MeetMe conference and is no longer in a standalone state.
System Manager	A common management framework for Avaya Aura® that provides centralized management functions for provisioning and administration to reduce management complexity.
Web Conferencing Server (WCS)	This server handles user actions and media during Web collaboration.
Web Service (WS)	A software system designed to support interoperable machine-to-machine interaction over a network.

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