



Avaya™ Meeting Exchange Solution Description

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Chapter 1: Solution overview

About Avaya Meeting Exchange™

With the successful introduction of Avaya Aura® Conferencing 8.0 and Avaya Scopia® 8.3, which bring the full integration of Audio, Video and Web Conferencing to market, Avaya is discontinuing the sale of several obsolete elements of the Avaya Meeting Exchange™ 6.2 Suite. These include Avaya Web Conferencing and the UC integrations for Notes and Lync.

With the broad standardization of direct SIP trunks, Avaya is also discontinuing the sale of Media Gateways as part of the Avaya Meeting Exchange™ offer. These may be purchased directly from gateway vendors in cases where direct SIP trunks are not readily available.

Avaya Meeting Exchange™ 6.2 itself will continue to be available for the foreseeable future serving both our Service Provider customers, as well as providing advanced Audio Conferencing features for our Enterprise Customers that require them.

Solution overview

The Avaya Meeting Exchange solution, based on the S6200 Conference Bridge, is a feature-rich audio conferencing system which supports Avaya's Meeting Exchange conferencing applications. The Meeting Exchange software, which is deployed on the S6200 1U Server, enables enterprises to roll-out adaptable, resilient, highly redundant and cost-effective conferencing solution in IP or PSTN Network environments.

The S6200 can operate in two complimenting formats depending on a customer's feature requirements. With the S6200 Single Server deployment, both the Application and Media Services are combined and operated on the single platform.

Alternatively, the Application and Media Services can be separated onto independent physical servers offering higher port scalability in addition to conference service resiliency. This will be referred to as the S6200 Distributed architecture in this document.

At high level, the features of the S6x00 series are:

- The S6200 Conferencing server can provide conferencing bridge services on either a Single Server or as a Distributed Application and Media server
- Control and management of large conferences through DTMF / TUI or a web-based user interfaces.

- Dynamic partitioning of Conference Bridge ports between Scheduled & Reservationless conferences.
- Avaya's S6200 Single Server offers a total port capacity of 3200 (on the IBM server) or 4000 (on the Dell or HP servers) SIP or PSTN Audio Ports (with an external Media Gateway) or a mixture of both
- Avaya's S6200 separate Distributed Application and Media Server architecture can offer up to 8000 ports per Application Server spread across at least 2 Media Servers depending on the Codec selected.
- The Meeting Exchange architecture in the Single and Distributed Server will support G.711, G.729, G.726, G.722 and iLBC Codecs
- Web-based conference scheduling, notification & management with integrated web conferencing support.
- Specified-interval or ad-hoc conference scheduling options.
- Fully integrated into the Avaya Aura® SIP Architecture.
- Operator assisted conferences and additional security code verification.
- Flexible conferencing configuration enables service providers to configure and implement a mixture of predefined call flows.

Related links

[Avaya Aura architecture](#) on page 7

Avaya Aura® architecture

This release of Meeting Exchange is fully integrated with the Avaya Aura® architecture. This level of integration means that the architecture of the Meeting Exchange 6.2 release is substantially different from the architecture of the Meeting Exchange 5.2 release.

Avaya Aura® simplifies complex communications networks, reduces infrastructure costs and quickly delivers voice, video, messaging, presence, Web applications and more to employees anywhere. It adds powerful new capabilities to Communication Manager, including session management that enables multi-vendor hardware and software to communicate across the enterprise network. Avaya Aura orchestrates a wide array of communications applications and systems by decoupling applications from the network. As a result, services can be deployed to users depending on what they need rather than by where they work or the capabilities of the system to which they are connected.

Avaya Aura® consists of a number of key components:

- Avaya Aura® System Manager is a central management system that leverages the Avaya Converged Application server based on the JBoss application server. JBoss hosts the Web application container that delivers a common console along with a set of shared management services. System Manager provides frameworks that internal services and external applications use. External applications include the authentication framework that provides authentication across System Manager and its components. A common Web console is a management interface for managing various products in System Manager. The common console is primarily

a framework for the aggregation of management presentation views. Using this Web console, administrators can manage users, faults, data replication, logging, bulk imports, authentication, and so on. System Manager is highly usable and provides a single location for the management of all of the Avaya products that are installed within the Avaya Aura® framework.

- Avaya Aura® System Platform technology delivers simplified deployment of unified communications and contact center applications. This framework leverages virtualization technology, predefined templates, common installation, licensing, and support infrastructure. System Platform:
 - is a software platform running CentOS plus Xen open source hypervisor for virtual machine monitoring and management
 - hosts one or more Avaya products, each running on its own virtual server (virtual machine), all running on a single physical server platform
 - provides a set of utilities commonly required for Avaya products, including installation, upgrade, backup/restore, licensing server, hardware monitoring and alarming, and remote access
- Avaya Aura® Session Manager is a SIP routing and integration tool and the core component of the Avaya Aura® Enterprise Edition solution. Session Manager integrates all SIP devices across the entire enterprise network within a company and leverages the existing PBX infrastructure. This integration ensures an evolutionary path forward that protects investment in the current systems and software of Avaya. Session Manager provides the following advantages:
 - Business agility driven through holistic enterprise architectures for connecting users, applications, and multivendor solutions
 - New cost savings from SIP connectivity and reduced public switched telephone network (PSTN) usage through centralized, enterprise-wide routing
 - Lower total cost of ownership with a centralized, easy to use management interface and 6 the efficient deployment of enterprise-wide central applications
 - Unprecedented enterprise-wide scalability with support for truly global deployments
 - Strong reliability, security, and redundancy support

Related links

[Solution overview](#) on page 6

Features

This section consists of a description of general features, a table listing the benefits of these features, and a more lengthy section containing a detailed description of features.

Related links

[General features](#) on page 9

[Benefits of features](#) on page 10

[Detailed features](#) on page 11

General features

At a very high level, the Avaya Meeting Exchange solution has the following features:

- Scalability

Avaya S6200 Single Server

- Up to 3200 (on the IBM server) or 4000 (on the Dell or HP servers) SIP VoIP Audio ports per server
- Up to 3200 (on the IBM server) or 4000 (on the Dell or HP servers) PSTN Audio ports with an external Media Gateway device.
- Expand further with either the Meeting Exchange Multicabinet or Multisite topologies for added capacity, scalability and redundancy

Avaya S6200 Distributed Servers

- The S6200 Application Server will support 8000 Conferencing Connections. This will require a minimum of two media servers with additional media servers added depending on the codecs used.
- Also supports Multicabinet and Multisite designs
- Fully automatic S6200 system failover in the event of hardware isolation or failure, thus enabling service continuity of all conferencing features to end-users.
- Integration with Avaya one-X® Portfolio for 'Click to Conference' functionality and session management of conferences with Avaya one-X® Portal or Avaya one-X® Communicator.
- Integration of Avaya Meeting Exchange Audio Conferencing with Microsoft Lync Server 2010 in addition to IBM Lotus Sametime (Version 8.5.2 with Domino 8.5.2) for 'click-to-call' and 'click-to-conference' functionality.
- Integration of Avaya Meeting Exchange Audio Conferencing with IBM Sametime and Adobe Connect-Pro for feature-rich Web Conferencing solutions
- Up to 1,000,000 scheduled conferences or user profiles
- Single, Dual or Triple-level participant authentication for flexible and secure Audio Conference access.
- Up to 800 concurrent recording sessions are supported on both the Single and Distributed S6200 architecture.
- Manual, Automatic or Mandatory Conference Recording settings available per conference, user or company-wide.
- 3,000 Dialed Number Identification Service (DNIS) entries
 - Customizable/multi-language greeting messages may be based on DNIS/DDI.

- Support for the G13 language set.
- Flexible Digital API (FDAPI) lines (for Operator or API Connections to the Conference Bridge):
 - 255 Operator audio lines
 - A configurable number of link, record, and music channels
- Comprehensive Channel Management Web solution (Wholesaler and Reseller entities with branding).
- Combined Audio & Web conferencing solutions
- Synchronised Recording and Streamed playback of Audio and Web conferences as a single, streamable file.
- LDAP or Active Directory integration to facilitate User Account creation, notification and overall administration.
- Video-streaming of presenters in Web Conferences
- Web-enabled reservation, management and control functionalities with Audio Console or IBM Sametime
- Unrivalled Telco-grade billing and reporting configurations
- Robust and Open API interfaces for profile creation, scheduling and conference management.
- Indexed Audio conference recording & playback options.
- Polling, Voting & Q&A functionality in Audio and Web conferences.

Related links

[Features](#) on page 8

Benefits of features

Application	Benefit
Broadcast TV / Radio	Supports phone and internet-based debate or phone-in talk shows.
Call Centre	Training sessions can be arranged, hosted and managed at any time of the day. Conferencing offers simultaneous delivery of instructor led training and course material on a single platform.
Crisis Management	The ability to instantly launch a conference allows for the rapid response from various experts in assessing extent of crisis and best plan to resolve it.
Distance Learning	Delivers real time on-line class sessions across the country or across the world. Only need a telephone and browser.

Table continues...

Application	Benefit
Distribution	Ease of management of logistics / multi-site stock control.
Government / Political	Offers easy support for broad-based meetings on policy discussion. De-centralized government departments can introduce conferencing so as to reduce travel commitments.
Language translation	Offers real-time language translation to support multilingual business applications.
Legal	Solicitor and client meetings can easily be hosted, involving multiple partners, advisers and clients, particularly useful in merger and acquisition activity.
Multi-Level Marketing	Supports thousands of Participants – perfect for a new product roll-out.
Police	Instant conference set-up offers a rapid meeting medium for speedy decision-making.
Project Meetings	Easy-to-use regular meetings improve communication among a project team and maximize productivity.

Related links

[Features](#) on page 8

Detailed features

This section consists of a more detailed description of conference, system, administration, and maintenance features.

Related links

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Conference features**Related links**

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Conference set-up modes

The Avaya Conferencing Bridge will accommodate the following conference setup modes:

- Meet-Me
- Dial Out Facility

Meet-Me

In a Meet-Me conference, Participants dial into the platform at a predetermined time. The types of Meet-Me conferences are:

- Attended conferences

The Avaya Conferencing Bridge supports a full range of Operator-attended conferencing capabilities. Attended conferences can be silently monitored by the Operator to ensure quality and provide help to Participants. Operators can greet all Participants as they call into the Enter queue and place them into their conference.

- Unattended conferences

The Avaya Conferencing Bridge can also permit conference Participants to dial directly into the system and access their conference without any attendant assistance. Because it is highly automated, no dedicated staff are required to set up or administer unattended such conferences. Conference security is through the use of conference codes and optional individual PIN code.

- 'On Demand' (Reservationless) conferences

The Avaya Conferencing Bridge can permit first-come-first-serve reservation-less conferences. The System may be partitioned to allow both reserved and reservation-less conferences on the same platform.

- Flex-Flow Conferencing

The Avaya Conferencing Bridge may have an optional 'On Demand' conference type that contains a single Conference Code with an additional Leader PIN for conference security. It allows the Leader to modify their conference attributes via DTMF, including additional one-time secure PIN.

Dial Out Facility

In this type of conference configuration, a conference moderator or operator can dial out to Participants and adds them to a conference. The types of Dial Out conferences are:

- Manual Dial

In this scenario, an operator dials out to conference Participants individually using Avaya's Bridgetalk application and brings them into the conference.

- Fast-Dial

The Fast-Dial feature, also referred to as speed-dial, allows an operator to initiate outbound calls using minimal keystrokes. The operator accesses a stored list of names and numbers and highlights an individual to be called. After the call has connected, the operator repeats this procedure until all Participants are placed in conference.

- Blast-Dial or Crisis Dial

The Blast-Dial feature is very similar to Fast-Dial whereby the operator can use a stored dialing list to quickly set up a conference. Blast-Dial, however, allows the operator to initiate all of the

calls simultaneously. The Participant is greeted by an annunciator message that provides further instructions. At this point, the Participant may be required to enter a security code to gain access, and is then automatically placed in the appropriate conference.

- **Moderator Blast-Dial**

A Moderator also has the ability to initiate a Blast Dial, and can dial out to a list of participants, either automatically, upon entering the conference, or manually by entering a DTMF command. The conference schedule contains the dial-list and the action required to initiate the blast dial, either Auto or Manual.

End user participation requires either a touch-tone telephone, be it landline or cell-phone or a VoIP soft-client. The Avaya Conferencing Bridge facilitates simple touch-tone commands, therefore increasing Participant call control and interaction.

An Administrator can configure DTMF detection for one or two digits. As such, conference participants are instructed to implement various features quite simply by pressing the designated number on their touch-tone telephone. If DTMF detection is set for two digits, that number is preceded by the star key (i.e. "0" or "*0"). All examples below are for two digits.

The Administrator can also change any of the DTMF digits used for any command. This feature takes the form of support for flexible configurable DTMF-activated commands.

Related links

[Conference features](#) on page 11

Moderator DTMF features

Moderators are granted special privileges that can be activated using their touch-tone telephone. These features include:

Operator Assistance

With the *0 DTMF command a conference moderator can request assistance from an Operator or System Administrator. The request for assistance from the conference moderator will be alerted to an Operator or System Administrator through the Avaya Bridgetalk application.

Conference Dial-out

A Moderator can initiate a Conference Bridge dial-out with the *1 DTMF command. During an active conference, a Moderator can easily access an available line, dial out to a new Participant and speak privately before bringing the individual back in conference.

Conference Record

A Moderator can begin conference call recording by using the *2 DTMF command. Once initiated, the recording file name will be announced to the Conference Moderator and this file number can then be shared with other participants for Conference recording playback after the recording has completed.

Lecture Mode

The Moderator can use his touch-tone telephone to initiate a lecture in which all lines, except those designated as Moderators, are muted. This is done by pressing *5.

Security

A Moderator can secure a conference by pressing *7. Security effectively locks the conference room, preventing others from entering, and preventing the Operator from listening to or recording the conference. Note: Security can only be activated if the feature is enabled.

Headcount Request

Moderators can request that a headcount of meeting Participants be played into the conference. This feature is available for unattended conferences that have Name Record enabled and is done by pressing *8. Non-NRP calls will just play the headcount.

Moderator Blast Dial (Crisis Conference)

During scheduling of a conference a list of numbers is created and associated with the conference. A security code is determined if needed during scheduling.

There are two forms of Moderator blast dial. There is the Auto Blast Dial based on DNIS, where a person dials a phone number, and the list is automatically blasted with no further commands.

The other form is the Moderator Blast Dial via DTMF, where any time during the conference, the Moderator can initiate a blast dial with DTMF command *92. Either form can be used for an Emergency Blast notification in case of crisis.

Unattended Sub-Conferencing

Up to 9 sub-conferences can be generated via DTMF during a call. This is a DTMF command that allows one to enter a specific sub-conference and to return to the main conference. When a caller presses *93, they are then prompted to enter the number of the sub-conference they wish to join, 0 – 9 (0 returns them to the main conference).

Billing Code

A conference can be scheduled to prompt the Moderator upon entry for a Billing Code to be used for the client's billing purposes. Alternately, at any time during a conference, a Moderator can press *91 and be prompted for the number. This Billing Code will be sent to the CODR for reference after the conference.

Meeting Exchange now enables the ability to set a mandatory billing code for a conference. This means that when a moderator enters the conference, they must enter a billing code on their telephone keypad.

Moderator Hang up – Toggle

The Moderator has the ability to toggle on/off the conference attribute that ends the call when the Moderator disconnects. The toggle affects only the current call.

Flexflow Enhancements

The first person message no longer plays when a participant is added via the Avaya Conferencing Provider Application Programming Interface (ACP API), for example, if an Operator adds them using BridgeTalk. This behavior is in line with SCAN conferences. There is also a new message played when a conference enters lecture mode. Again, this is in line with SCAN conferences.

Related links

[Conference features](#) on page 11

Participant DTMF features

Help

The "help" request with *0 is equally available to all conference participant. Help can be set on a per line basis whereby the operator removes the Participant from the conference to provide required assistance. Help can also be set on a conference wide basis. Here, the operator responds by addressing the entire conference.

Mute

Similarly, Participants can mute their line by pressing *6 ("M" for mute), placing their line in listen-only mode. This is a toggle button.

Polling

The Avaya Conferencing system's polling feature lets conference Participants use their touch-tone phone to participate in voting sessions or respond to multiple-choice questions asked by an Operator.

Q&A (Electronic Hand-Raising)

Q&A provides an orderly method for processing questions during an operator-attended conference. When a Participant has a question to ask, they press a one or two digit key combination on their telephone. An operator can then open each line individually in the order that they are received. The Operator can preset each person's Q&A priority to Normal, High, or Exclude.

Single person disconnect

In previous releases, if a single person remained in a conference, a message played after a system-configurable period. This message was: "Press any key to remain in the conference". In the current release, the number of participants that are in the conference can be configured. For example, up to five people can remain in a conference.

Related links

[Conference features](#) on page 11

Maintenance features

On-line Diagnostics

The Avaya Conferencing Bridges are monitored by comprehensive on-line diagnostic capabilities. A software check is performed regularly. The system periodically polls each software process to ensure that the functionality is in order. If there is no response, the controller assumes that the process has stopped. The System will automatically restart the process and log an error message. If the process does not restart, a major or minor alarm is initiated based on the error assigned.

Remote Diagnostics

All systems are configured with a modem for remote access (by Avaya Support technicians) to the system. The features that are available through remote access include attendant, administrator, maintenance, reboot, file transfers, software updates, dump analysis, network management statistics and system logs. This functionality allows Avaya to participate in maintenance and troubleshooting through remote diagnostics, ensuring prompt response to service issues.

Maintenance Reports

Reporting capabilities are also available for system maintenance. These reports include alarm reports, system message logs, network statistics and network configurations. The reports can be printed to a printer or to disk.

Enhancements to the Alarms and Logging Features

Logs and alarms are now viewable on the System Manager interface. Moreover, System Manager can be configured to forward the alarms as SNMP traps to a specified NMS location and port. The Client Registration Server (CRS) can also send certain SNMP traps directly to System Manager and/or directly to specified NMS locations and ports. All outgoing and incoming SIP messages are logged to a text file. This logging can be enabled or disabled. In this release, there are also new entries in many of the logs, such as the UserTransactionLog and in Call Detail Records (CDRs).

Management Information Base (MIBs)

In addition to the SNMP functionality which is configured using System Manager, Avaya provides a Management Information Base (MIB). You can obtain this MIB from the Avaya Product License and Delivery System (PLDS) Web site at <https://plds.avaya.com/submitRegistration.htm>. If you have any difficulties in locating this file, contact your Avaya Support Representative. You can use this MIB tool to integrate Meeting Exchange alarms with your own external trap receiver.

The MIB tool provides a context for each alarm. This tool is useful for customers who wish to send alarms from many installed systems to a single trap receiver for easier monitoring.

Related links

[Detailed features](#) on page 11

Administration features

For the most part, administration features are now centralized in a single location. Administrators can now perform a large number of administration tasks using the System Manager Web interface. In previous releases, administrators had to access a large number of separate applications and components in order to perform these tasks.

System Configuration

From the administration main menu, an Administrator is able to configure the system to reflect specific requirements. Items that can be modified by an Administrator include system, supervision, blast dial, and operator and channel configuration. The Avaya Conferencing Bridges are shipped from the factory with defaults that can be changed as required. The configuration settings can be stored and implemented upon re-initialization of the bridge.

Administration Reports

Comprehensive system statistics are available to aid in system administration. These reports include Call Detail Reports (CDR), Conference Detail Reports (CODR), Conference Reports (COR), traffic statistics, operator transaction logs, operator configurations, port configurations, and system configurations. Such reports, as well as operator output (i.e. dialing lists, polling results, etc.) can be printed to a system printer, a local printer, disk and also be exported to other computers.

PIN Code Administrator Utility

This utility provides an easy way to manage the PIN Code database. It has a Windows interface that allows the Administrator to create and modify PIN Codes, add and modify PIN Code Lists as a way

to isolate separate company or department lists, and import and export PIN Codes and Lists between systems.

Related links

[Detailed features](#) on page 11

System features

The Avaya Conferencing Bridge is feature offers all of the functionality necessary to facilitate and execute productive and successful conference services, including:

SNMP (Simple Network Management Protocol)

The Avaya Meeting Exchange SNMP Agent (Agent) is a component of Avaya Meeting Exchange (MX) application that provides system management information to any SNMP Manager that is configured to receive this information.

Avaya will feed all gathered SNMP information to the customer's SNMP monitoring solution and will monitor both hardware and software elements of the S6200 Conferencing Application and Media server entities.

The SNMP agent will provide support for RFC1213 MIB II. This MIB standard provides information about the system and network status. The SNMP agent also supports the Avaya Meeting Exchange MIB, which is specific to Meeting Exchange application. This MIB defines traps that are sent when MX processes start or stop or become frozen state.

These alarms and logs are viewable in a single, centralized location, on the System Manager Web interface.

On-Demand Partitioning

The Avaya Conferencing Bridge can be partitioned to support different categories of conference calls on the same Conference Bridge. On-Demand conference profiles are conferences that are available on a first-come, first-served basis, and reserved conference calls are pre-scheduled conferences.

For further flexibility, On-Demand profiles can be always available 24x7 or restricted to certain hours, such as peak or off-peak, weekends, or weekdays. Overbooking is configurable for the Reserved, scheduled ports, which allows reservations to be made for more than the actual number of ports (similar to airline reservations).

The following is an example using a 400-port bridge. The system can be partitioned into two sections; 300 ports for On-Demand conference call profiles, and 100 ports for Reserved conference calls, with an Overbooking setting of 25% offering a total of 125 schedulable ports.

The system will not restrict the number of On-Demand profiles, as the Overbooking percentage is set to infinite on the On-Demand partition. The On-Demand ports are available on a first-come-first-served basis. Once the 300 ports are used, no more On-Demand calls will be accepted by the system until another On-Demand call ends and ports are made available.

Likewise, the system will not allow the 100 Reserved ports to be used for anything other than a scheduled conference.

If Over-booking is enabled, Reserved calls are allowed to 'borrow' unused On-Demand ports. A Reserved conference can be scheduled for the total number of Reserved ports plus the percentage of overbooking ($100+25\%=125$ in this example).

Auto-extend Duration and Ports Messages

Auto-extend duration will automatically extend the call duration in 25-minute increments up to 4 times if ports and security code is available. Auto-extend ports will allow more people into the conference than scheduled, if ports are available. The setting can be turned on as a bridge-wide setting or per conference.

Early Access Messages

A system-wide setting allows Participants into conference a per-set number of minutes early if there are no conflicts (customer configurable time, i.e. 15 minutes early).

Name Record and Playback

This feature prompts a Participant upon entering a conference call to speak their name. The name is recorded and stored for line identification, allowing the Moderator of a call to track attendance without viewing activity from their PC. The recorded name replaces generic system messages for Entry or Exit Tones. For example, conference Participants will hear — *Entering the conference is Tom Jones* instead of — *Entering the conference*. This can be scheduled either Off, Individual, Conference and Operator. (Operator can listen to recording regardless of settings).

Voice Roster

Voice Roster utilizes the Name Record/Playback feature for an automated roll call capability. Each line in the conference is identified with the recording of the Participant's name. With Voice Roster, a Moderator or a conference Participant is able to request a voice list of current Participants using a simple DTMF command, default configured as *8.

Operator NRP (Name Record/Playback) Listen

The NRP Listen feature allows Participants to enter the conference via passcode, enter name at the Name Prompt and enter the conference. The operator can then initiate playback of this name (heard through their audio path) and fill in the names of the Participants during the conference. This speeds up the process of starting conference with fewer operators needed.

This file can be copied to PC, converted to wav, and listened to via speakers. The annunciator prompt is selected when scheduling, allowing customizable prompts for different bits of information. The default is set to name, with additional options of name, company, region, department available during scheduling process.

Annunciators

Annunciator messages are pre-recorded greetings that are played to incoming callers. All Annunciators can be customized to suit a customer's needs, such as including their company name or translating messages into a language other than American English.

Multiple Prompt Sets (Language options)

The S6200 system supports the G.13 set of languages. This allows for different sets of messages to provide multiple languages and customizable customer messages throughout the conference call. These Prompt Sets are selectable by DNIS, schedule, or both.

Entry/Exit Tones and Voice Messages

Voice messages, alone or in conjunction with warning tones, make Participants aware of conference events as they occur and also can prompt Participants for further action. Voice messages and tones can signal: security on/off, Participant entry/exit, incorrect security/PIN code, and warning of

conference termination. First person in conference message is also played for the first Participant joining the conference. In this release, the single caller disconnect message is now configurable.

Music

The Music feature provides for music on hold. This functionality is used to entertain Participants that are waiting to enter the conference. The attendant can also place music into a conference while Participants wait for the conference to begin.

Attended Conference Protection

This feature allows an operator to set up and reserve a conference —roomll in advance. If the operator assigns a name to the conference, the system prevents Participants dialing into unattended conferences from entering the set up conference.

Conference ID

The Conference ID feature provides for the identification of conferences for report generation and differentiates conferences with the same name. Using up to 50 characters on the latest 6.2 release, an operator or scheduler can assign an ID number to associate each conference with a Cost Center or Customer Identifier.

Conference Note

An operator is able to record notations (of up to 60 characters) during a conference. Such notes appear on the screen, but do not appear on Conference Reports.

Listen Mode

This feature allows conference operators to listen to individual lines or a range of lines to test the audio quality or detect disturbances without affecting conference activity. Listen Mode is designed to provide operator with improved quality control. Operators are not able to listen to secured conferences.

Conference Scan

Conference Scan provides an audio scan of the entire conferencing system. This feature allows the operator to automatically access all conferences (except secured conferences) in assigned interval of 1-59 seconds.

Series Start & End Dates

Recurring (daily, weekly, monthly) conferences can be scheduled for a specified time period. This reduces administrative responsibilities and frees resources for future reservations.

Operator Chat

Operator Chat is a feature that allows two or more attendants to send electronic text messages to each other without disrupting active conferences. Such messages appear unobtrusively at the bottom of the conference screen.

Conference Hang-up

All of the lines in a specified conference may be hung up simultaneously at the conclusion of a conference. This immediately frees up lines for other conferences.

Update (Screen Refresh)

If the system and Bridgetalk are to get out of synch, the Update button allows an operator to reload all information without having to logout/login. This action may take 15-30 seconds depending on bridge activity.

Conference Reports

The Avaya Conferencing system has several reports that can be either available during (Conference Activity Report) following the conference conclusion (Past conference activity). The Operator selects date and specific conference; one conference at a time can be viewed and printed from the view window. Information gathered is the Company, Name, PIN Code, Phone number, start time, and end time for each individual line in the conference.

Filtered Enter Queue based on DDI

DDI numbers can be sorted per Avaya Bridgetalk session. Both filtered and All Enter totals are shown in the Status bar. Toggle ability between showing all and filtered DDI. This allows for operators to handle certain callers based on the DDI dialed.

Audio Conference Record / Playback

The Avaya S6200 Conferencing Bridge is configured to provide 800 concurrent recording sessions on both a single server S6200 and a S6200 Distributed system. Recordings are saved onto the Server Hard-disk and total recording time available is 2300 hours. Obviously, if your architecture includes an external recording server, you will be able to save many more recordings. The capacity is limited only by the size of the external recording server.

For wideband codecs such as G.722, conferences are recorded with 32K/sec writes, thereby halving the capacity to 1215 hours. A conference recording can be initiated by Operator or Moderator via DTMF.

Avaya Meeting Exchange now offers a number of conference recording choices. System Administrators can choose to set recording at company level or at conference level. They can enable automatic mandatory recording of all conferences for a specific company meaning that recordings will start as soon as a conference begins and can not be stopped at any time.

Alternatively, operators can enable all moderators in a specific company to choose to record their conference as they wish. Administrators can also set recording on a per conference basis such that recording will start as soon as the conference begins but can be turned off by the Moderator or Operator if desired.

PIN Code

Personal Identification Number (PIN) Codes are supported in addition to normal conference security codes. After entering the Conference Security Code, the Participants are prompted to enter their own personal ID number.

Trusted Identity Mode

Meeting Exchange now supports a new feature called Participant ID Mode. Using this feature, CRS Front End Operators and Web Portal Moderators can book conferences that require participants to enter additional codes on their telephone keypad, prior to entering a conference.

In Identify mode, participants must enter a unique employee identifying number following the conference passcode. In Identify and Validate mode, participants must enter a unique employee identifying number and a secret, hidden PIN Code, following the conference passcode.

Co-chairperson Option

Avaya Meeting Exchange now supports the concept of a co-chairperson. A co-chairperson has access to the same features as a conference moderator, such as an extended set of DTMF keypad options. Participants with co-chairperson status receive an e-mail notification which includes a special co-chairperson passcode. This feature is especially useful if moderators are on vacation or cannot attend a conference due to a scheduling clash. The co-chairperson feature is not supported in the Microsoft and IBM integrations.

DDI Routing (Dial Digit Identification)

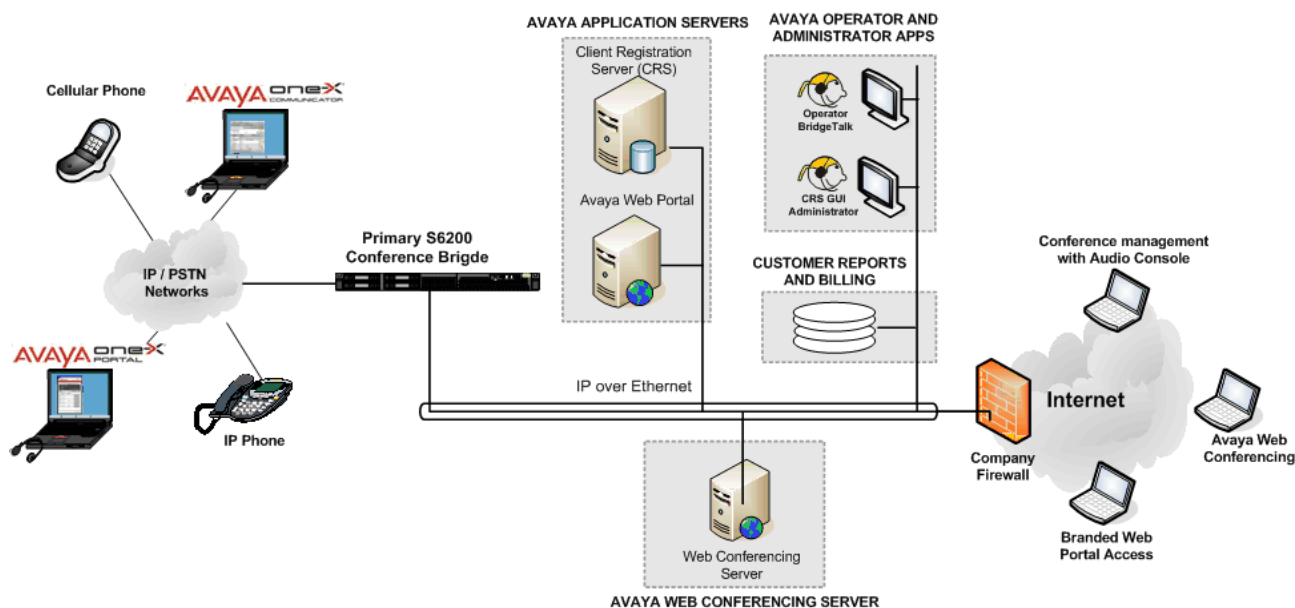
DDI automatically processes incoming calls to support Call Branding, Call Routing, and Conference Identification. Customizable/multi-language greeting messages may be based on DDI.

Related links

[Detailed features](#) on page 11

Solution topology

The following diagram is a sample topology for the Single S6200 Conferencing Bridge together with complimenting Avaya Meeting Exchange applications. The Avaya Meeting Exchange Audio Conference Bridge can operate in both Enterprise and Service Provider environments and can also interconnect with not only the Avaya Aura[®] Communication Manager platform but with a range of other tested 3rd party vendor Voice Switches over SIP or PSTN.



The Single Server S6200 will handle both SIP Signalling and RTP traffic streams. The Meeting Exchange application will operate in conjunction with the Avaya CRS Application for conference service creation, management and administration.

All client account management and conference scheduling and configuration is carried out on the Avaya CRS Server. The CRS Application will place all conference schedules and associated detail, such as PIN Codes, times and durations, onto the S6200 Conference Bridge in preparation for the Conference opening.

With the Avaya S6200 Distributed architecture, the Application Server handles the Meeting Exchange software services including SIP Signalling, conference management, all annunciator messages, Conference Passcode validation and DTMF monitoring and execution.

All Conference Data Records (CoDRs) and Caller Data Records (CDRs) are managed and collated on the Application Server and are made available to the Avaya CRS Server for processing or collection if so required.

All Conference Operators will connect into the Application Server with the Avaya BridgeTalk application in order to provide In-conference call management services and administration. The Avaya CRS database will also communicate with the Application Server for conference configurations and management.

The separate Media Servers will handle all the RTP traffic streams that are directed to it from the Application Server in the event of a Conference Opening. While there may be physically multiple Media Servers (depending on Codec selected) they are all seen and managed as a single resource by the Application Server.

Each codec operates in a slightly different manner. The higher quality or lower bit rate codecs have higher CPU processing requirements. As a result, you must configure Meeting Exchange in a specific way for the codec that you wish to support. For example, Meeting Exchange supports 8000 ports (telephone lines) of the G.711 codec on a single Dell or HP server. G.711 has the lowest CPU processing requirements. In contrast, Meeting Exchange supports 1000 ports of the lower bit rate G.729 codec on a single Dell or HP server. For more information about the specific configuration tasks associated with each codec, consult your Avaya Support Representative.

For reference, this table shows the number of Dell or HP servers required for each codec to support the Meeting Exchange capacity of 8000 ports in a Pyramid system (this type of system is also called a distributed deployment). Each of these servers should be running twelve softms processes.

Codec	Number of Dell or HP servers required for 8000 ports
G.711	2 + 1 redundant server = 3 servers
G.726	4 + 1 redundant server = 5 servers
G.729	8 + 1 redundant server = 9 servers
G.722	7 + 1 redundant server = 8 servers
iLBC	12 + 1 redundant server = 13 servers

In contrast to the Dell or HP servers, the IBM servers have a maximum capacity of 2000 ports. For reference, this table shows the number of IBM servers that required for each codec to support the Meeting Exchange capacity of 2000 ports. Each of these servers should be running eight software media servers (or softms processes).

*** Note:**

The IBM servers are also known as S8800 servers.

Codec	Number of IBM servers required for 2000 ports
G.711	1 + 1 redundant server = 2 servers
G.726	3 + 1 redundant server = 4 servers
G.729	5 + 1 redundant server = 6 servers
G.722	4 + 1 redundant server = 5 servers

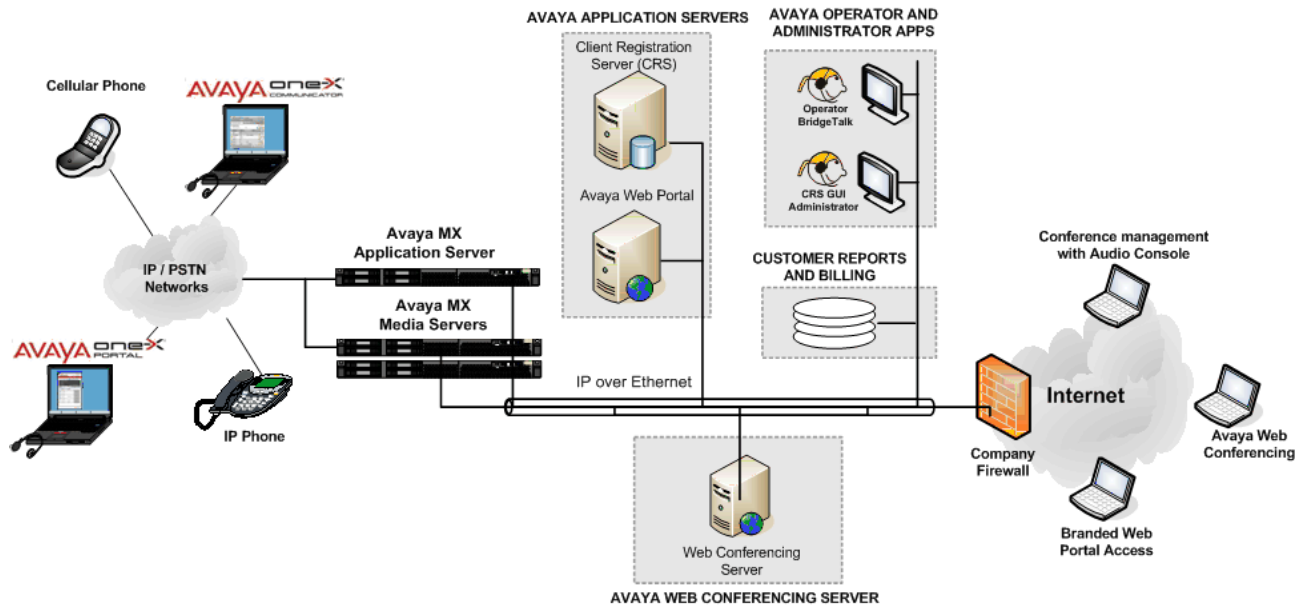
Codec	IBM 3550	Dell R610 and HP DL360
G.711	2000 Ports	4000 Ports*
G.722	550 Ports	1000 Ports*
G.726	900 Ports	2000 Ports*
G.729	400 Ports	1000 Ports*
iLBC	350 Ports	450 Ports*

* = In the Distributed Server architecture, each S6200 Application Server will handle 4000 conferencing connections to the associated Media Servers regardless of which Codec is in use on the Customer Network. However, in this Distributed architecture, each Media Server will have a Codec Capacity as listed in Column A in the Table 1 above. In order to calculate the total number of Media Servers required, take the number of required ports and divide by the Codec Port Capacity as shown above.

For example, if a Customer requires 1000 Ports of G.729 they will require, in this example, 1 Application server (for up to 4000 ports of any Codec) and 3 Media Servers (3 X 400 = 1200) and if they required server redundancy they can add 1 additional Application Server and 1 additional Media Server. This resilient design then constitutes 6 servers in total or 4 without redundancy.

If a customer requires a mix of Codecs across their Network then a more complex calculation requiring Codec Weight factors will be necessary when each Codec will have a Weight-factor and this will define the number of Media Servers needed in such circumstances. Please ask your Avaya contact for the Weight-calculator for this scenario.

The following figure shows the Avaya S6200 Distributed architecture.



Solution components

Meeting Exchange consists of the following components:

- Avaya Bridgetalk
- Avaya Client Registration Server
- Avaya Web Portal
- Avaya Audio Console
- Avaya Web Conferencing
- Meeting Exchange integrations with a number of Avaya applications, Microsoft applications, IBM Lotus applications, and Adobe applications.

About Avaya Meeting Exchange™

With the successful introduction of Avaya Aura® Conferencing 8.0 and Avaya Scopia® 8.3, which bring the full integration of Audio, Video and Web Conferencing to market, Avaya is discontinuing the sale of several obsolete elements of the Avaya Meeting Exchange™ 6.2 Suite. These include Avaya Web Conferencing and the UC integrations for Notes and Lync.

With the broad standardization of direct SIP trunks, Avaya is also discontinuing the sale of Media Gateways as part of the Avaya Meeting Exchange™ offer. These may be purchased directly from gateway vendors in cases where direct SIP trunks are not readily available.

Avaya Meeting Exchange™ 6.2 itself will continue to be available for the foreseeable future serving both our Service Provider customers, as well as providing advanced Audio Conferencing features for our Enterprise Customers that require them.

Chapter 2: Solution specification

Solution specification

This section describes each of the components of the solution in more detail.

Related links

[Bridgetalk](#) on page 26

[Client Registration Server](#) on page 28

[Web Portal](#) on page 33

[Audio Console](#) on page 35

[Avaya Web Conferencing](#) on page 36

[Avaya one-X Portal and Avaya one-X Communicator with Meeting Exchange](#) on page 41

[Avaya Conference Scheduler for Microsoft Outlook™ and IBM Lotus Notes™](#) on page 44

[‘Click to Conference’ with Microsoft Lync™](#) on page 46

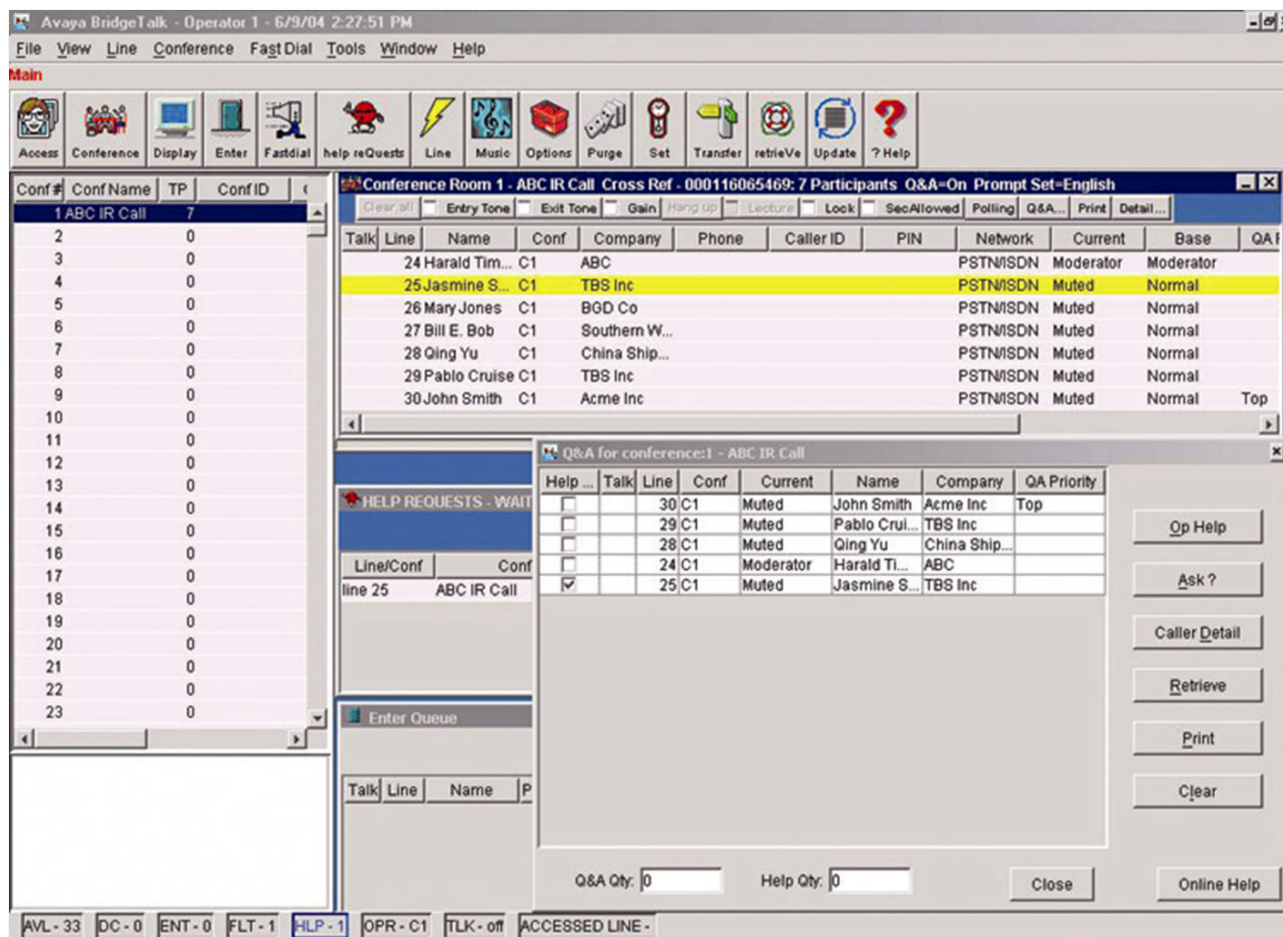
[‘Click to Conference’ and Web Conferencing with IBM Lotus Sametime™](#) on page 47

[Adobe Connect](#) on page 49

Bridgetalk

Avaya Bridgetalk uses a Windows™ Graphical Users Interface to communicate with the Conferencing System. The Bridgetalk application will be primarily used by a Conference Service Operator or a System Administrator in order to view and manage all activity occurring on the Conference Bridge.

With Avaya’s Bridgetalk, Service Operators can easily see status of all conference activity being carried out on the S6200 Conference Bridge through the Menu-driven interface and can engage with conference participants in order to assist with any problems or requests such participants may have.



All active lines on the conference bridge will be in Pending Window, Help Queues, and Polling and Q&A sessions. With minimal experience, Operators can assist callers, place them into the correct conference, assist with that conference, and communicate with other linked operators.

They can also provide value added services such as Conference Record and Playback, Polling with instant tabulation, Q&A sessions with full control of all Participants, including setting question priority, and dial-out to Participants individually or using dial lists. See Figure 5 for a screenshot of Bridgetalk.

System Access

The Avaya Conferencing platforms provide three levels of system access: Operator, Administrator and Maintenance. The level of access determines the functions that are available to the user. Using the Sign-In Management menu, the user can change the password to customize sign-in privileges.

Using the Avaya Conferencing Bridge, an operator can access the Conference Scheduler and all functionality necessary for managing daily conference activity. An Administrator can access all of these conference features plus any administrative functions.

A user with maintenance privileges can access all conference and administrative features in addition to all maintenance functions. Maintenance privileges allow for the locking of window placement. This creates consistent view from training through production. This creates a standardized window view for all users. Operators are not able to move window placement.

Related links

[Solution specification](#) on page 26

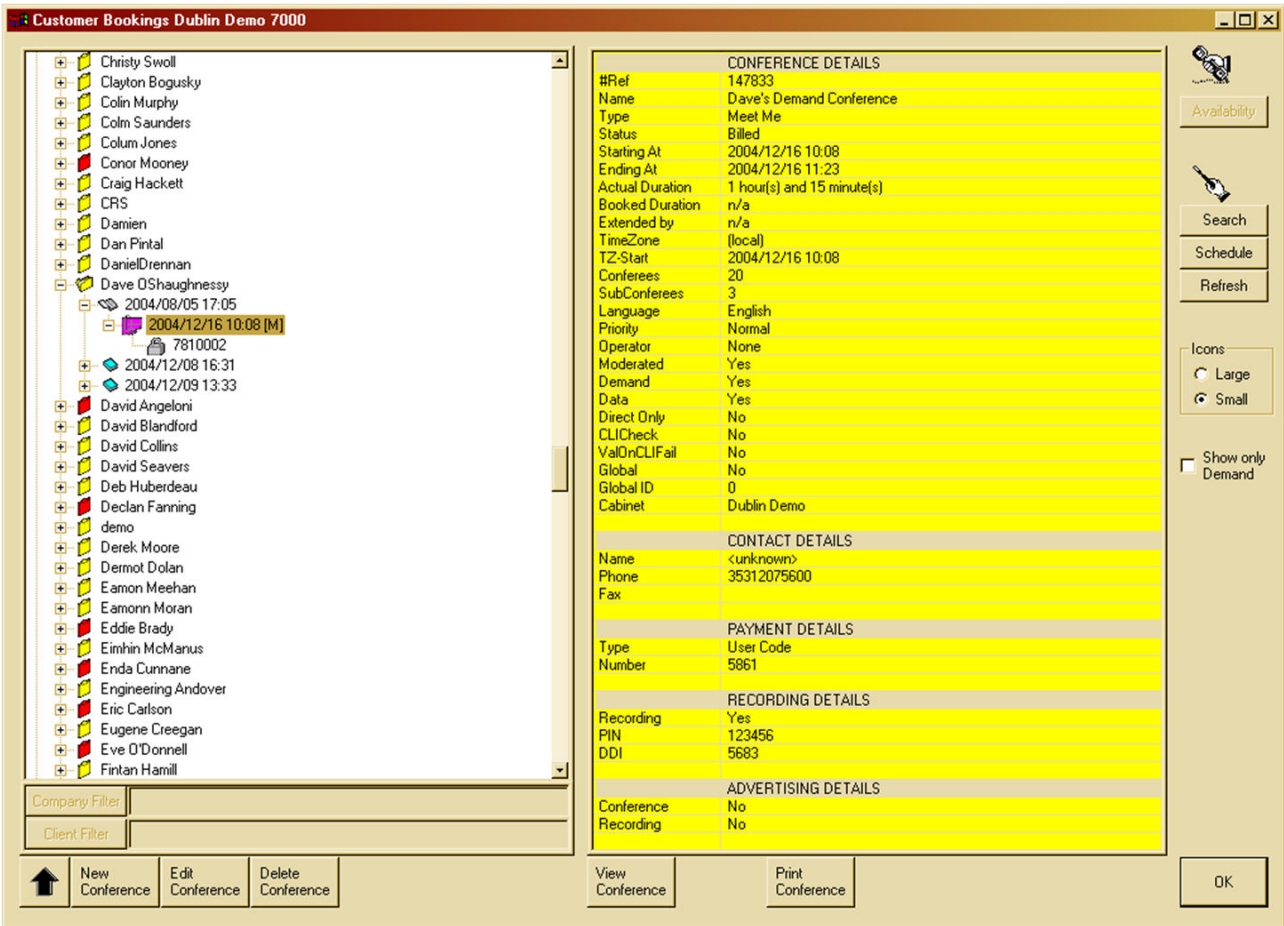
Client Registration Server

The CRS server is essentially a profile management system. It tracks the details of all the users of the system: companies, clients, participants, wholesalers and resellers. It can store one million profiles for conferencing.

With the Multicabinet feature, a single CRS can manage multiple bridges, facilitating expansion of capacity while maintaining a single administration point. Replication is available so that a backup CRS can be maintained with a real-time copy of the database, for disaster recovery management.

CRS Front-end client

The CRS Front-end client application allows Operators and Administrators to manage accounts, reservations, report generation and billing from a single GUI interface.



Using the CRS Front-end, Administrators can build the user profiles of the system, whether they are end-users, companies, wholesalers or resellers. They can also associate attributes to a conference, such as name record and playback or integrated Web conference capabilities. Email and SMS

notifications can be scheduled for distribution to conference Participants, and the conference Moderator can view conference attendance reports. Call detail records can be produced with customisable billing output and invoicing.

Wholesaler/reseller information

The system owner can build a network of wholesalers, who, in turn, can build a network of resellers and customers via the CRS Front end or through the Avaya Web Portal interface.

Wholesalers may also have specific DDI phone lines associated with their account and respective customers. Each of these associated DDIs may be branded according to the wholesaler's preferences or call-flow format. Wholesalers, and any associated Resellers, will be created as billing attributes on the CRS Server in order to facilitate billing creation and management for the original system owner.

Company information

The CRS server retains information about companies, including the name, address, phone number, e-mail address and a contact details.

Client Information

Each account holder on the CRS has a unique client identifier. The information associated with each client includes the contact name, e-mail address, address, phone and mobile numbers. An account number is either generated automatically by the system or manually entered by the Operator.

If generated manually, a uniqueness check is performed before the number is accepted by the system. Using this account number, clients can access the booking system through Reserver for Lotus Notes or Microsoft Outlook and the Web Portal.

The Account retains details of conferences, past, present and future for this client. These conferences are retained until manually deleted. They cannot, however, be deleted unless they have passed through the billing processes.

Directory Services Client Application (DSCA)

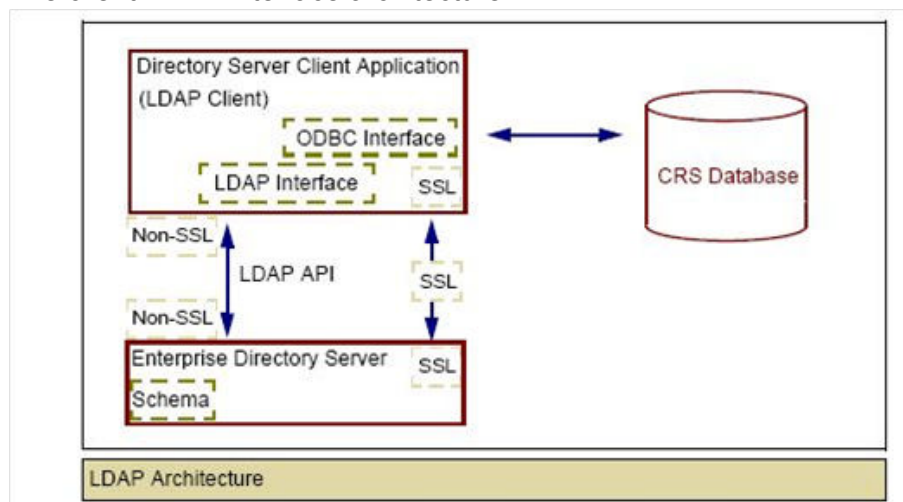
The CRS Server has the ability to import user-account information for a customer's DSCA architecture such as Active Directory server in addition to create both a user account and associated On-Demand conference entity through this integration. Such integration with the DSCA Architecture can be done on a periodical basis, in either incremental or full-import formats. With such functionality, Avaya is reducing the work-load when introducing the Avaya Meeting Exchange system into an Enterprise environment.

This DSCA integration with the Avaya CRS ensures that registration details stored on the CRS are continuously synchronized with registration details stored on the customer's directory server. Registration data on the CRS is updated using the directory server registration data.

The LDAP Protocol is the standard for accessing directory servers. Most directory servers use a standard schema to store typical user information. These schemas can be extended as required. Any directory server can be integrated with the CRS, provided that it contains the following items of user information:

- Name
- E-mail address (optional)
- Phone

The client LDAP interface architecture:



Password at Client Level

To enhance security access to the Web Portal, client details include a password field, which can be populated at time of registration. In order to authenticate the user, they will be prompted for their account number and password. This is a 16 digit alphanumeric field. Other combinations of attributes may be used to authenticate users for access to the Web Portal.

Enable / Disable Companies and Clients

In addition to the standard create, modify and delete functions, the CRS provides the facility to enable or disable Wholesalers, companies & clients. When a wholesaler, company or client has been disabled, they both may still schedule conferences but will not be able to open or access a conference.

Conference Reservation

Conference reservations and their details are recorded on the CRS SQL 2005 database. The Administrator has the ability set to the following reservation details:

- Start Time: (Date: The meeting can be scheduled between now and 31st December 2036)
- Duration: The minimum duration of a conference is ten minutes and maximum is 9,999 minutes (circa 6 days).
- Time-zone selection.
- Number of Participants: The minimum number of participants in a conference is 2. The maximum is the amount of ports available on the system.
- Conference Type (i.e. Secure Meet-Me, Demand etc)
- In conference messaging language.
- Conference DDI (used for branding)
- Conference Priority
- Avaya Web Conferencing enabled
- Moderator Control: It is possible to schedule a conference with or without a moderator. Multiple participants can access the system using the moderator passcode.

- Auto/Manual PIN Generation: When a conference is scheduled, a participant code is automatically or manually assigned with the conference.
- Repeat Conferences
- Conference Attributes: (Entry/Exit tones Roll call Q&A, and so on)
- Reservation Modification: Conference modifications can occur up to three minutes prior to the conference start time. While the conference is in-progress, the conference duration and resources can be extended or reduced.

Notification Management

The Operator/Conference Moderator has access to email or SMS notification options for the conference booking via the CRS Client (operator) or the Web Portal (Conference Moderator). Five types are currently supported:

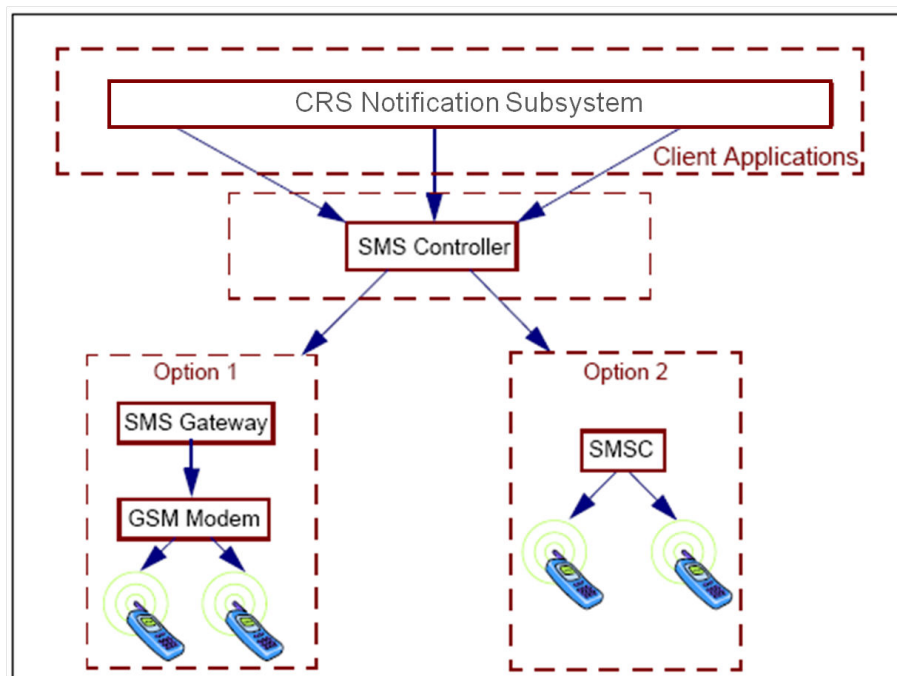
- Confirmation/ Invitation
- Cancellation
- Modification
- Reminder
- Attendance

A conference confirmation is sent to both the Moderator and Participants once a conference has been booked. Reminder notifications are then sent to each Participant 'X' minutes before a conference is due to start. Notifications may be sent to all Participants if conferences are cancelled or changed.

The instructions for gaining access to a conference depend on the type of conference booked. Some conference types require that a Participant is responsible for dialing a given number and entering a PIN while other require the Participants to wait for the chairman or an Operator to dial them directly.

The system can be configured to send a conference reminder to all participants 'X' minutes prior to the conference start time. Once the conference ends, the client will receive a conference attendance report.

The option for SMS notifications is also available with the Avaya CRS and Web Portal systems. SMS messages contain less information than email or SMS notifications, as the message size is restricted to 160 characters.



Participant List Management

Using the CRS Front-end or the Web Portal, the client has the ability to associate Participants with their account. Participant details are held on the database and can be created, modified or deleted at any time.

The information stored includes:

- Name
- Phone number
- Mobile phone number
- E-mail address

When scheduling a conference, the client can associate any or all of these Participants with the conference. When Operators wish to dial out to Participants, their contact details will be pre-loaded into the dial list for the conference.

The Operator can select one or many of the Participants listed to perform individual or blast dial. When dialed, the Participant information is automatically populated on the Operator Console. All participant information is stored on the Client Registration Server (CRS).

Time-zone management

The Administrator has the ability to store a preferred time zone for each client at the time of registration. This field is editable and is an extra attribute associated with the client. When this client makes a reservation, the conference time zone will default to this value. Conference time-zone information is included in the notification details sent to the Participants.

Related links

[Solution specification](#) on page 26

Web Portal

The Avaya Web Portal enables end users to create, schedule and manage their own audio and integrated Web conference calls via a dynamic HTML web page. The Web Portal will enable users to take control of their own conferencing account and deliver other features to enable a richer conferencing service to end-users, via a simple, web-based application.

1. Login to Web Portal

To gain access to the Avaya Web Portal, the customer must enter their Account number and Account Name or e-mail address. The Avaya Web portal allows customers to manage their account, their conferencing schedule, generate personal conferencing reports and manage their in-progress conferences via the Audio Console application.

2. Web Reservation

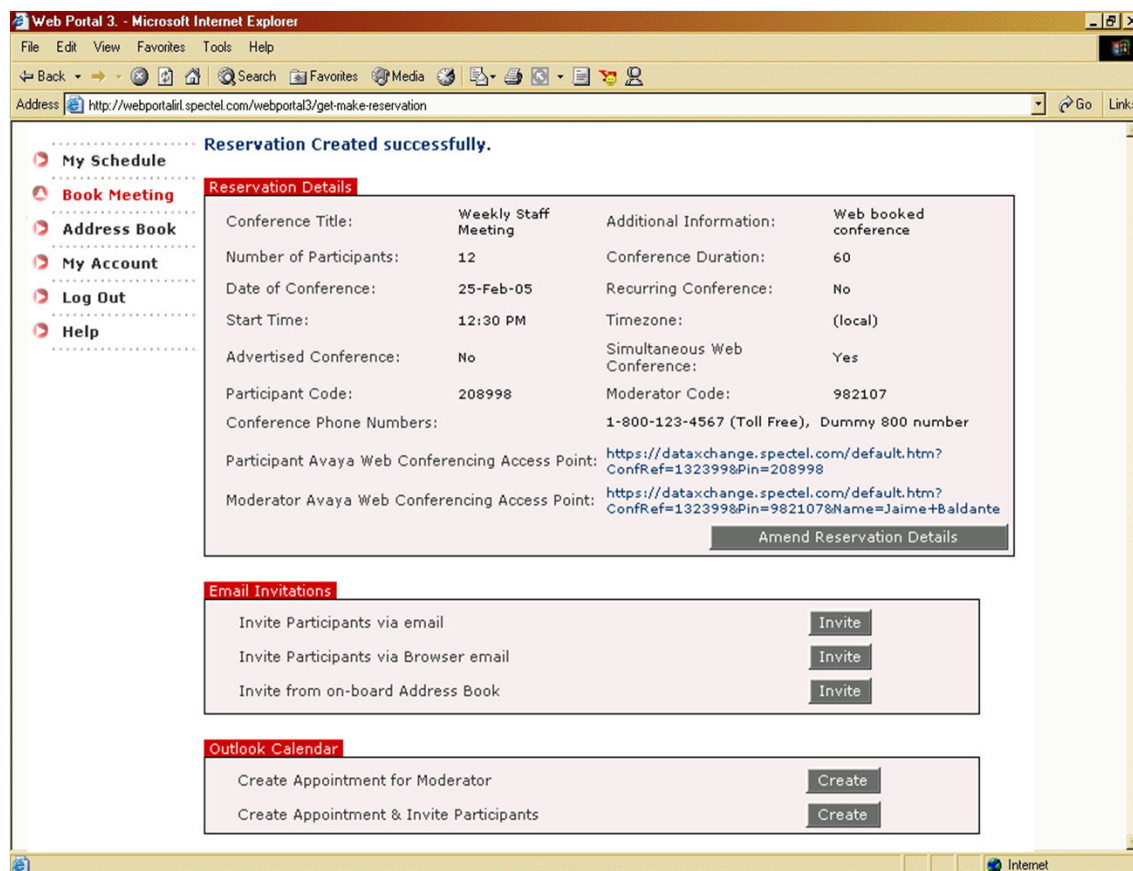
Web reservation enables the client to make a conference booking through the Internet using a web browser. The client is presented with a booking form (as below) where conference details are entered.

This booking form contains fields for Date, Time, number of Participants, etc. The Conference organizer need only complete the booking form with these short details and click 'Book' to complete a reservation, but there are additional features available on the other tabs: Recurrence, Recording and Advanced.

The following attributes can be set:

- Start Time
- Duration
- Time zone
- Number of Participants
- Web Conference enabled
- Automatic PIN Generation
- Repeat Conferences
- Conference Attributes (Entry / Exit tones, Roll call, Notifications, Wait for moderator etc)

The booking information is then sent to the CRS Server where details are checked against available resources and a response is sent to the client over the Internet confirming or rejecting the reservation request.



3. Audio and Web Conference options

When the user accesses their schedule list from web portal, they are provided with edit, delete and console buttons for each conference. The Console button appears when the conference time has arrived. Click this button to launch the Avaya Audio console. If a Web

conference has been scheduled with this audio conference, you will also have the ability to open the Avaya Web Conferencing windows from this console button.

4. Edit Conference

Using the Web Portal, the client has the ability to modify the start date & time, the number of Participants and conference duration prior to the conference occurring.

5. Modify in-progress

A conference may be expanded (add ports) or extended (add time) as required whilst in progress, if resources are available.

6. In-built notification with MS Outlook

There are 3 Notification options available when an end-user has completed a booking on the Web Portal:

- Copy and paste a pre-populated text into any email client ('copy and paste to a browser e-mail')
- Use the on-board address book ('invite from on-board address book')
- End-user's own Outlook opens an email with text pre-populated ('invite from Outlook').

Related links

[Solution specification](#) on page 26

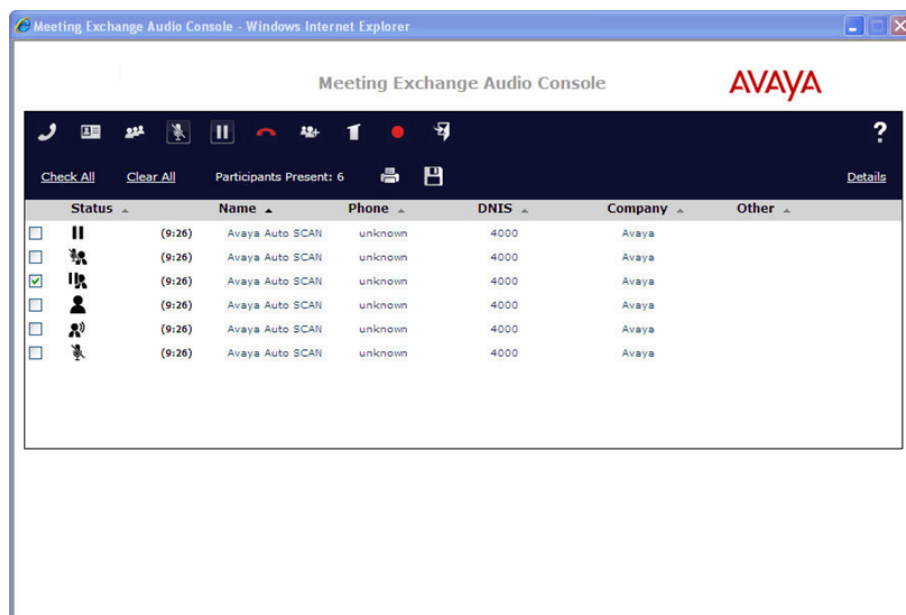
Audio Console

The Audio Console tool gives the moderator the ability to manage an in-progress conference. At the time of the conference, the Moderator downloads a Java applet (Web Console) to their browser.

The applet is approximately 70kbytes in size and runs in the client's browser. The requirement is that the Moderator has Internet access with a Java enabled browser.

The Moderator has a view of all Participants in the conference. An icon, with an open/close mouth animation, is activated when the Participant speaks. At any moment, the Moderator can view the active speaker.

The Moderator may dial out for new Participants from a Participant list, in groups, or one by one. Participants can be placed on hold, muted, disconnected or intercepted by the Moderator. The conference can be locked / unlocked and recording can be paused / un-paused.



Moderator commands from Web Portal Audio Console:

- Mute/ unmute participants
- Intercept in-bound callers
- Dial out to add new participants
- Put participants on hold
- Start a Sub-conference for selected participants
- Start, pause and stop recording of the conference

The Audio Console can be accessed by the conference moderator from within their Web Portal session by clicking the console button next to the scheduled conference. Invited conference participants may also access the Audio Console instance by having the Audio Console URL for that specific conference. Conference Participants will be able to see other conference participants and moderator, but will only have self-mute / unmute capabilities. The Audio Console application can be sold separately or is provided as part of the Avaya Web Portal application.

Related links

[Solution specification](#) on page 26

Avaya Web Conferencing

For the first time, the complete Avaya Web Conferencing solution can be housed on a single server. In previous releases, the playback and recording functions were housed on a separate server. For this release, the single server means that installation, configuration, and administration are far simpler than ever before.

Avaya's audio and Web collaboration solution allows conference participants to view, listen, speak and share documents from remote sites, as if they were in the same room.

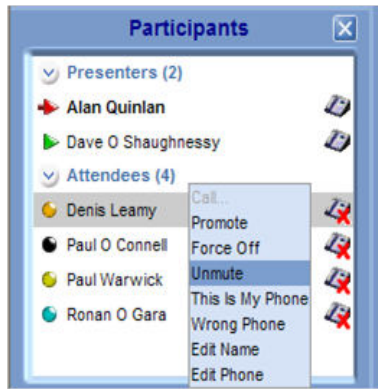


Avaya's conferencing bridge is seamlessly brought together with data networks in a collaborative conference, giving an effective alternative to face-to-face communication.

Work processes are improved through key personnel interacting verbally, while reviewing supporting documents (slides, proposals, contracts, spreadsheets and so on) in real-time.

Web conferencing, over the Internet or private networks, allows meeting Participants to share agendas, documents, applications and presentations universally. Participants can view the presentation in real-time as it is hosted by the chairman on their Desktop.

The Web conferencing feature of the Avaya Web Portal application allows users to engage in an audio and Web conference through one interactive forum. Designed for use by conference Moderators and Participants, in order to compliment the audio conferencing experience, the Web conferencing feature provides robust data sharing capabilities.



Avaya's Web Conferencing product seamlessly integrates these two elements to give an easy-to-use and interactive collaborative solution. Avaya can now deliver fully featured recording options for Web Conferences, allowing the conference moderator to record the Audio and Data portion of the conference, and storing this multi-media file on their own server, and allowing other participants to stream this file post-conference.

The Web browser enables customers to perform functions over the Internet such as:

- Simultaneous audio and data communication
- E-mail conference reminder, with Web conference hyper-link sent to Participants prior to conference
- Ability to create and control presentations to Participants through the Internet
- Application sharing for users with appropriate permissions
- Real-time text messaging (point to point/multi-point)
- White boarding annotation
- Remote control for all conference users
- Video streaming of conference presenter to participants

Conference Features

- Slideshow push (*.ppt, *.jpeg, *.gif)
- Slideshow annotation
- White board
- Chat: private, public
- Q&A sessions and polling capability
- Collaborative browsing
- Single page – audio / data control (with Web Portal)
- Moderator control delegation
- Secure session entry: conference reference & PIN
- Synchronised Recording and streamed playback of the combined audio and Web session (.wmf format)

Management Features

- Profile creation using Avaya CRS front end
- Reserved and on-demand Web session support
- Session reservation using Avaya Web Portal (user) and Avaya CRS front end
- Audio and Web access parameters are the same (conference reference, PIN number)
- Integrated data reporting using comprehensive reporting application

Conference Recording and Playback

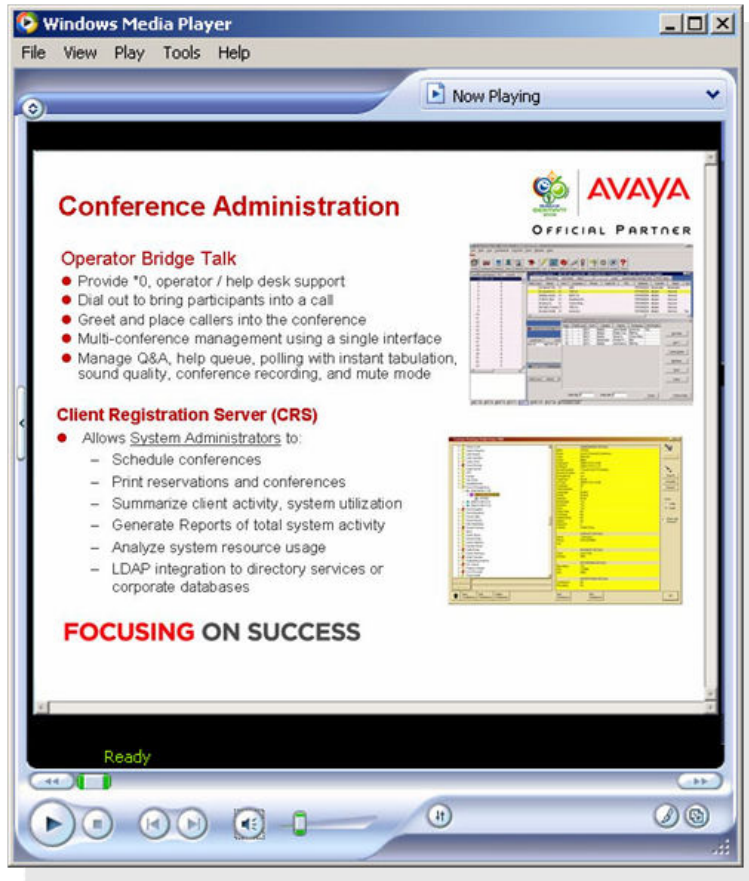
With the Avaya Web Conferencing recording option, the Conference Moderator can choose to record the Audio and Data portion of a Web conference, and the Avaya solution will combine these two formats into one single .ASF file for post-conference streaming.

Users could leverage post-conference recordings for a wide range of uses, from e-learning to corporate training to sales presentations.



Features of the Web Conferencing Solution with Synchronised Record and Playback include:

- Simultaneously record the audio and web portions of the conference including the slide show
- Recording of all application sharing, and white boarding for a real-time replay of the meeting
- Management of recordings on a branded web interface for convenient user access
- Ensure security of the recordings by permitting — or prohibiting — access to specific users
- Play back recordings via Windows Media Player:



Architecture Features

- Firewall-friendly communication (port 80 – http)
- Complete client to server security (https Port 443 using SSL)
- No client application downloads required
- Lightweight browser based thin client
- Distributed architecture for network deployments
- Scalable and reliable
- Optional support port (5405) on network side.

It is recommended that each user have a 50K connection speed for Web Conferencing without Video presentation or viewing, but at least 110K for Web Conferencing with Video presentation and viewing.

Related links

[Solution specification](#) on page 26

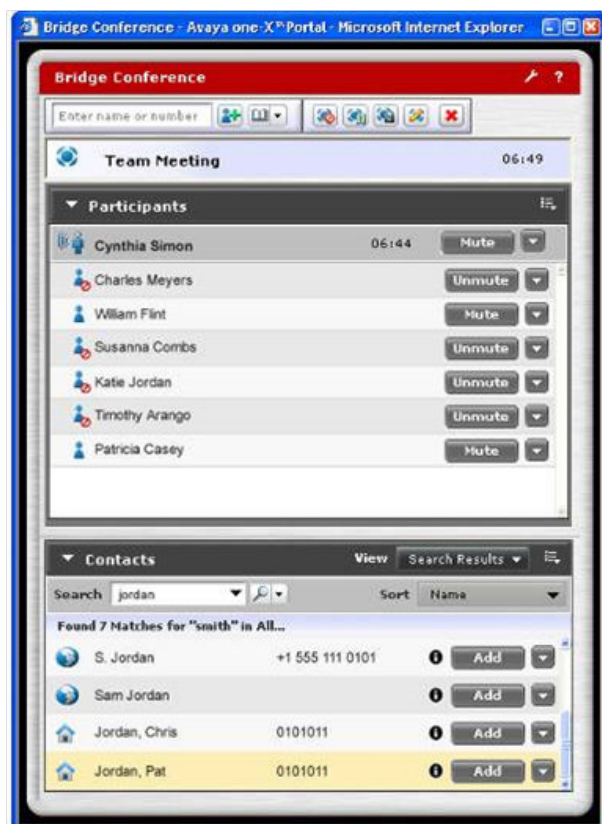
Avaya one-X® Portal and Avaya one-X® Communicator with Meeting Exchange

Meeting Exchange can offer flexible integration with the wider Unified Communications solutions from Avaya, enabling the end-user to combine multiple forms of communications into a single client interface. By combining the Meeting Exchange Enterprise conferencing solution with the Avaya one-X portfolio of solutions, the ability to quickly communicate and collaborate has never been easier.



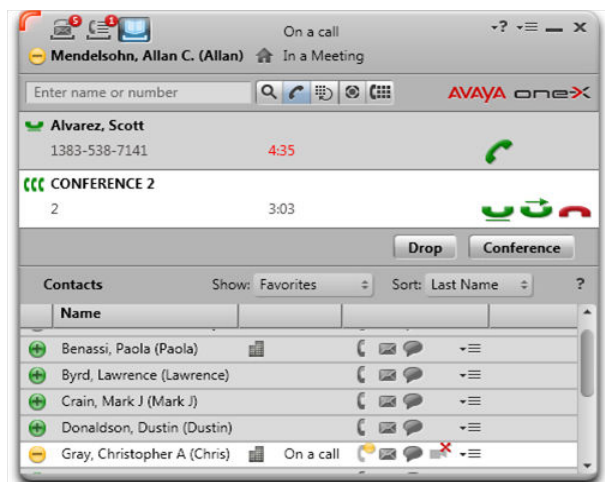
In addition, the combination of the Avaya Intelligent Presence Services with the Meeting Exchange system means users see the presence of other associates from their client and will know the likelihood of reaching an associate by phone, IM, email or request for conferencing, both with the Avaya one-X® Portal and Avaya one-X® Communicator.

The Avaya one-X® Portal is a web browser-based client offering access to Avaya telephony, messaging, conferencing, and mobility services provided by Avaya Communication Manager, Avaya Modular Messaging and Avaya Meeting Exchange. The solution brings the full power of Unified Communications to the PC in a single, intuitive tool.



With the integration with Meeting Exchange, the conference Moderator can select users to bring into a conference through a simple 'click-to-join' and is able to view and control and audio conferences on the Avaya Meeting Exchange Conference Bridge. The moderator can now see the dynamic roster of attendees change as participants join or leave; see who is speaking, mute noisy lines, mute or unmute participants.

The Avaya one-X® Communicator is a Unified Communications client that provides enterprise users with simpler, more intuitive access to their everyday communications tools. Users can better manage communications tasks, making them more productive, responsive, and collaborative regardless of where they are working on any given day.



The client combines a softphone client, intelligent presence, voice and video telephony, visual voicemail, visual voice and video conferencing, as well as access to corporate directories and call logs improve workforce productivity across your enterprise.

The integration with Meeting Exchange and Avaya one-X[®] Communicator offers a Click-to-Join feature that makes it easy to start or join an audio conference call. Participants can see who is taking part in the conference and who is speaking. Moderators can identify noisy lines and music on hold, and mute or drop the line from the call with the intuitive interface.

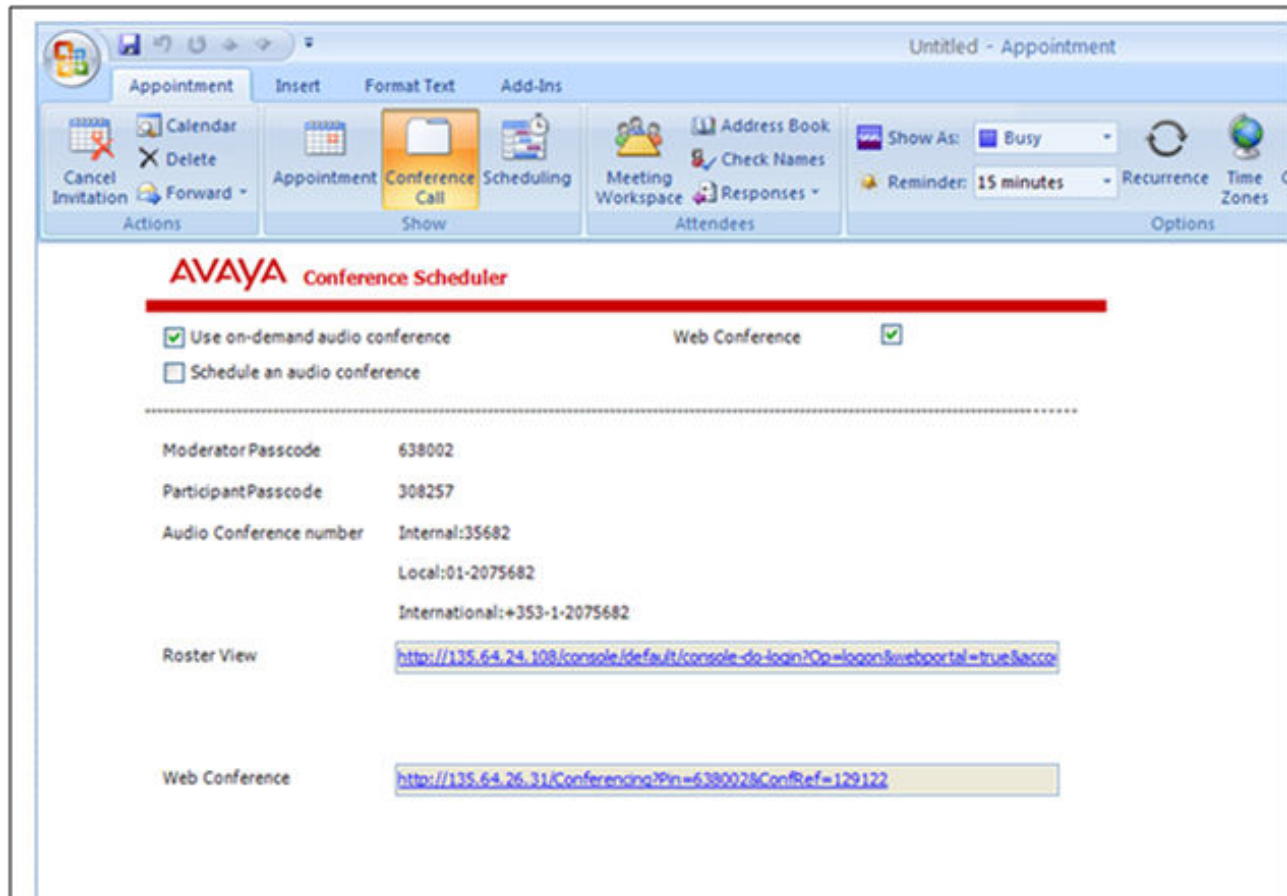


Related links

[Solution specification](#) on page 26

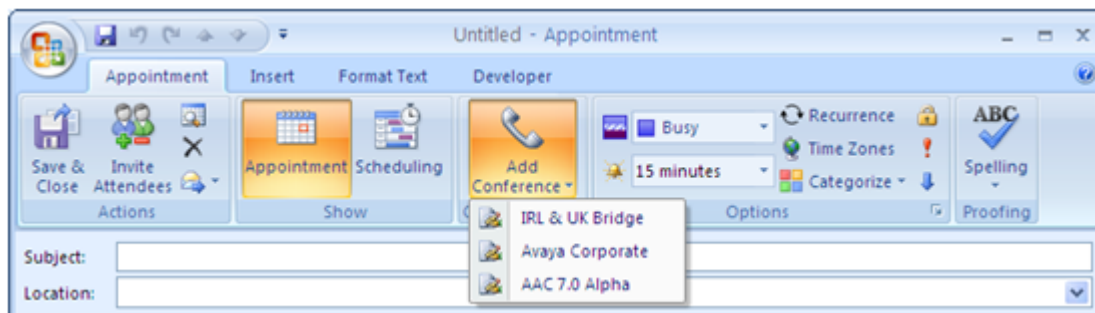
Avaya Conference Scheduler for Microsoft Outlook™ and IBM Lotus Notes™

Avaya delivers convenient conference scheduling to every desktop within an organization's firewall, with the Avaya Conference Scheduler Plug-in feature for Lotus Notes and Microsoft Outlook. Through seamless integration with Lotus Notes and Microsoft Outlook, the Avaya Conference Scheduler application allows end users to schedule voice or data conferences on an Avaya conferencing platform, from their familiar calendar interface.

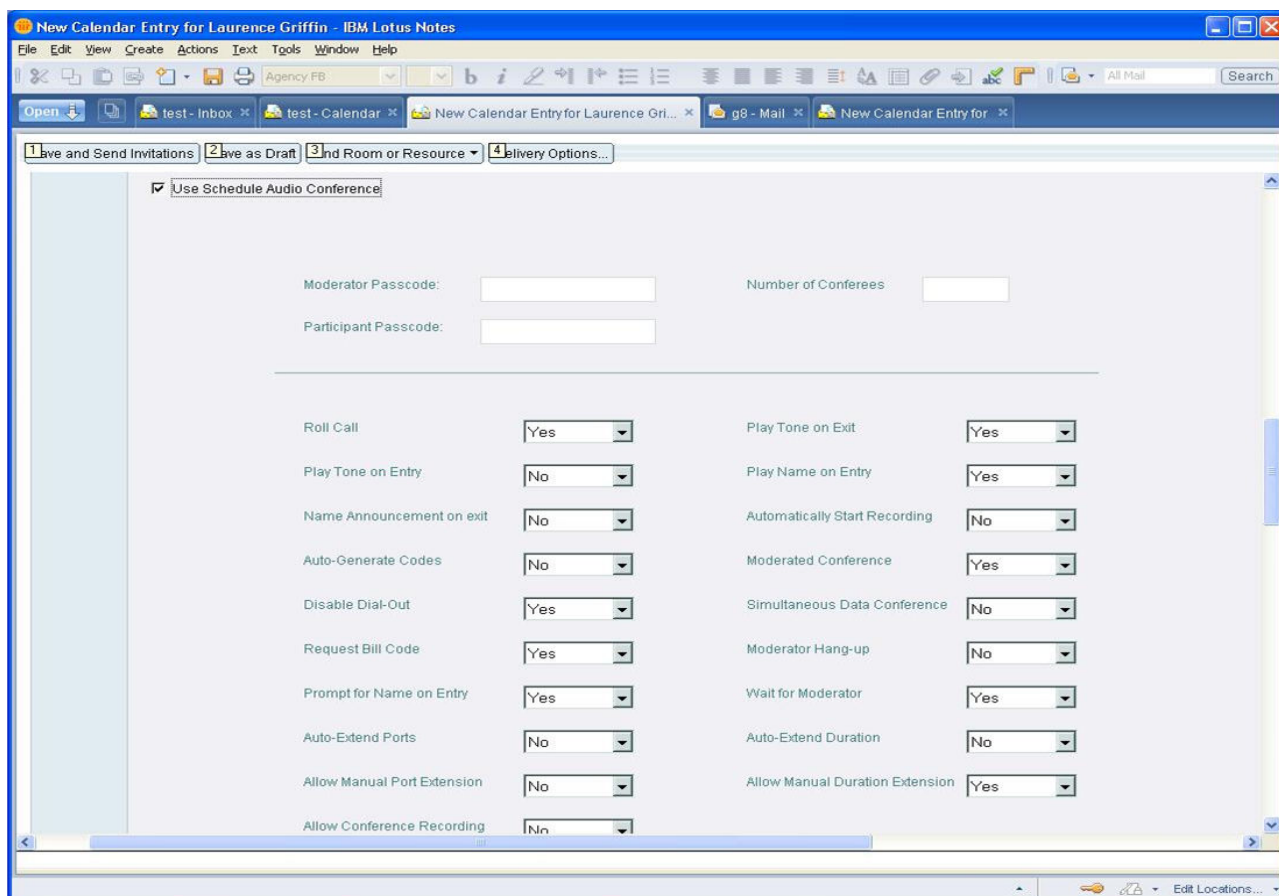


Avaya delivers convenient conference scheduling to every desktop within an organization's firewall, with the Avaya Conference Scheduler Application for Lotus Notes and Avaya Conference Scheduler Application for Microsoft Outlook.

Avaya has also created a new utility for the Avaya Conference Scheduler Application for Microsoft Outlook. This utility consolidates access to multiple application servers (bridges). For example, if a user uses several application servers, it can be difficult for them to recall all the dial-in numbers and passcodes. This utility auto-populates the dial-in number and passcode information for the user when they select the application server that they want to use. In this example, the user can choose between three application servers, called: IRL & UK Bridge, Avaya Corporate, and AAC 7.0 Alpha.



The following diagram shows the IBM Lotus Notes™ integration.



Using the calendar and address book functions, a meeting organizer can create a standard meeting invitation, reserve capacity on the Avaya conferencing platform, and invite desired Participants. Accepted invitations automatically populate a Participant's calendar, including conference access details and relevant information.

By allowing the calendar to communicate directly with the conferencing platform, the Avaya Conference Scheduler application simplifies the scheduling process for the end user – making it as easy to schedule a global conference call, as it is to schedule a local meeting.

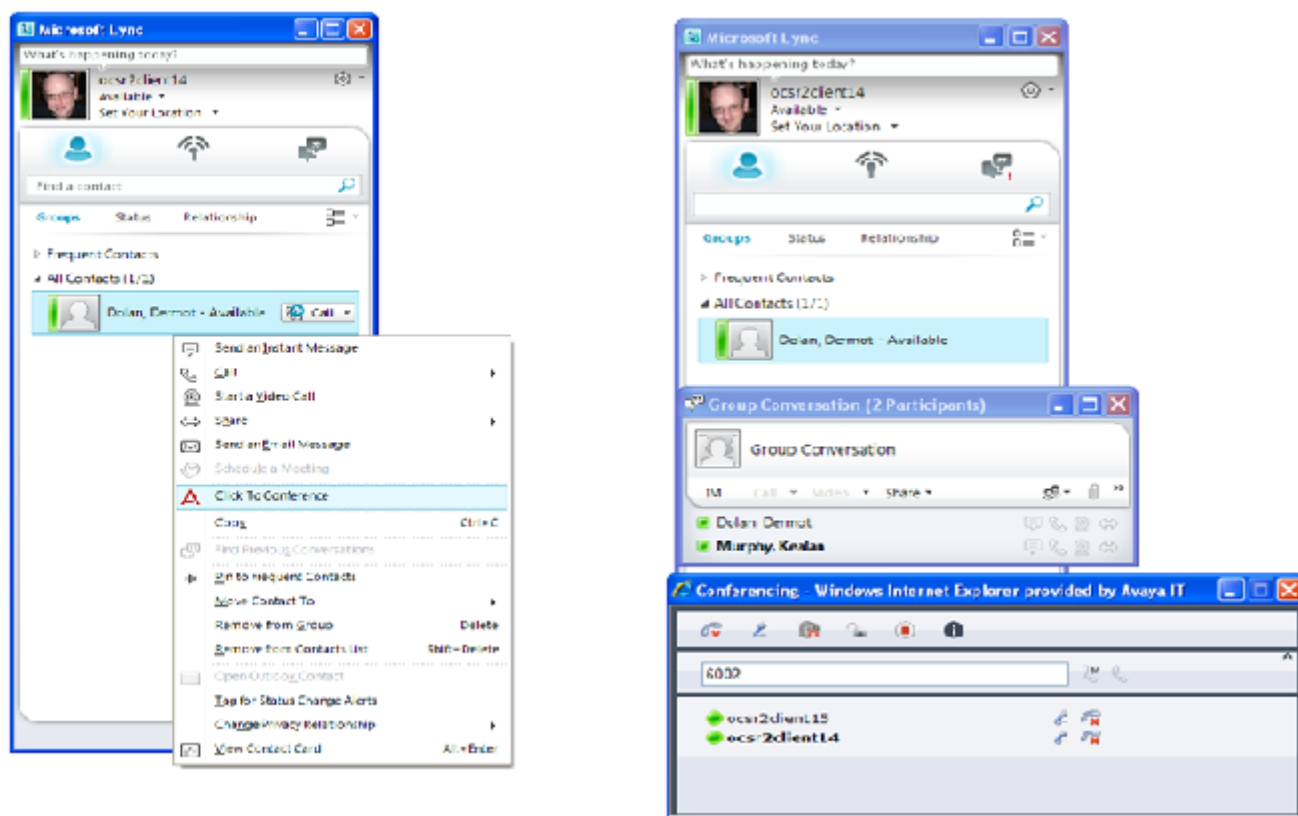
Related links

[Solution specification](#) on page 26

'Click to Conference' with Microsoft Lync™

Integrating Avaya Meeting Exchange with Microsoft Lync brings new functionality to the Instant Messaging capabilities of Microsoft Lync. Users can 'click-to-conference' from the Lync interface simply by clicking on multiple names in their buddy list. Users can also escalate from an IM conversation to a conference call, at the click of a button. Once in conference, the host can control the call from their Microsoft Lync interface with the ability to mute or disconnect participants, lock the conference or dial out to bring more people into the call. Users have similar click-to-conference capability from Outlook, which allows them to start a conference call with others on an email string.

An Audio Conferencing Provider (ACP) gateway is required as the interface between Microsoft Lync Server and Meeting Exchange. This enables the conversion between the Microsoft SIP CS/CCCP and the Bridge Control Application Programming Interface (BCAPI) to the Meeting Exchange Bridge. Avaya also provides licenses to enable the integration.

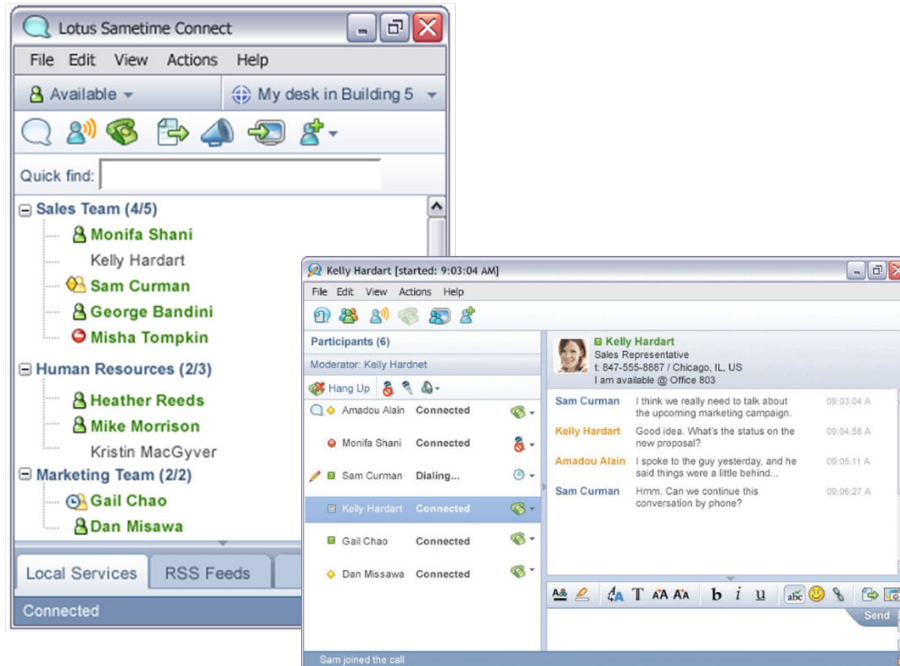


Related links

[Solution specification](#) on page 26

'Click to Conference' and Web Conferencing with IBM Lotus Sametime™

Avaya Meeting Exchange with IBM Lotus Sametime Edition 8.5.2 combines Meeting Exchange audio conferencing with IBM Lotus Sametime Connect, Web Conferencing, or IBM Lotus Notes, providing both 'click-to-call' and 'click to conference' capabilities from the Sametime Connect client, contact lists, and e-mails. This Sametime Integration also allows users to control audio participants from a Web conference screen, which adds convenience and productivity to any virtual meeting.



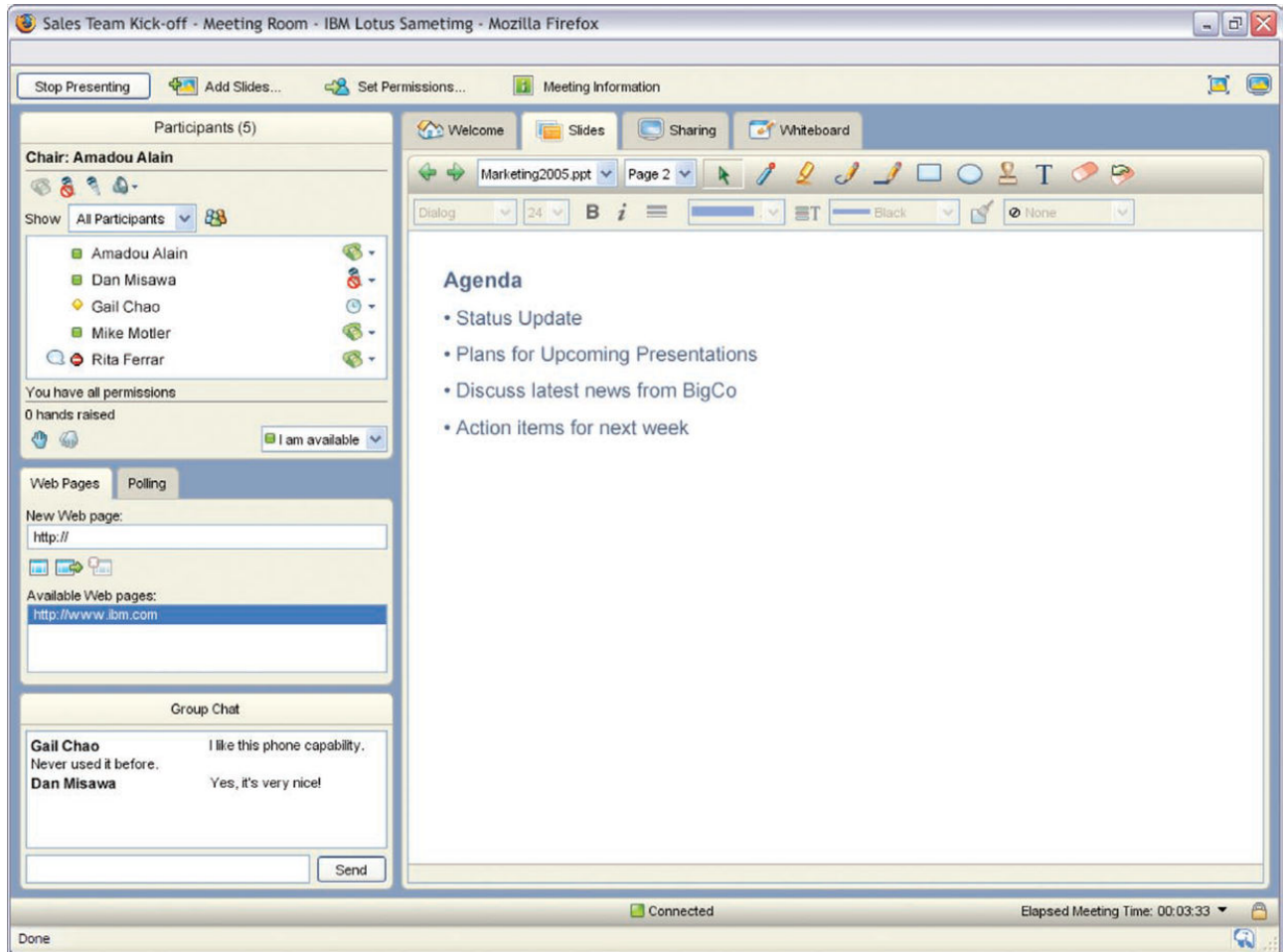
By simplifying the ability to locate and bring key participants into a conference, the solution's 'click to call' and 'click-to-conference' functionality allows users to collaborate whenever the need arises, and without requiring several different tools.

With Lotus Sametime or Lotus Notes, users can click to place a telephone call to a contact directly from the Lotus Sametime Connect Client or Lotus Notes Contact List. Users can also select multiple contact names, enabling decision making and problem solving in context and in real time.

With audio controls embedded in the Lotus Sametime Web Conferencing Meeting Room, users have a single, unified tool to manage both the audio and web portions of a conference. Icons on the audio control portion of the interface allow a range of capabilities, including:

- A visual indication of who is speaking and who has joined the conference (audio and Web).
- The ability to mute individual or all lines.
- Dial out capability, allowing moderators to dial out to new participants.
- A "join the call" button, enabling participants to join the Web conference, and then prompt the system to dial out, bringing them into the audio portion of the meeting.

- Ability to disconnect participants that do not belong in the meeting.
- Moderator ability to lock and unlock the conference.



Features and benefits

- Significantly decrease conferencing related expenses with on-network deployment.
- Helps businesses increase productivity by providing easy access to integrated, real-time collaboration tools, without the need to juggle multiple tools or devices.
- Simplifies a user's ability to locate and join key participants with fast and easy click-to-call functionality, for real-time decision making.
- Eliminates the complexity and cost associated with installing, running, and managing separate platforms.
- The Managed Lotus Sametime Integration Edition Service delivers the benefits of in-house conferencing without the ongoing management responsibilities.

Related links

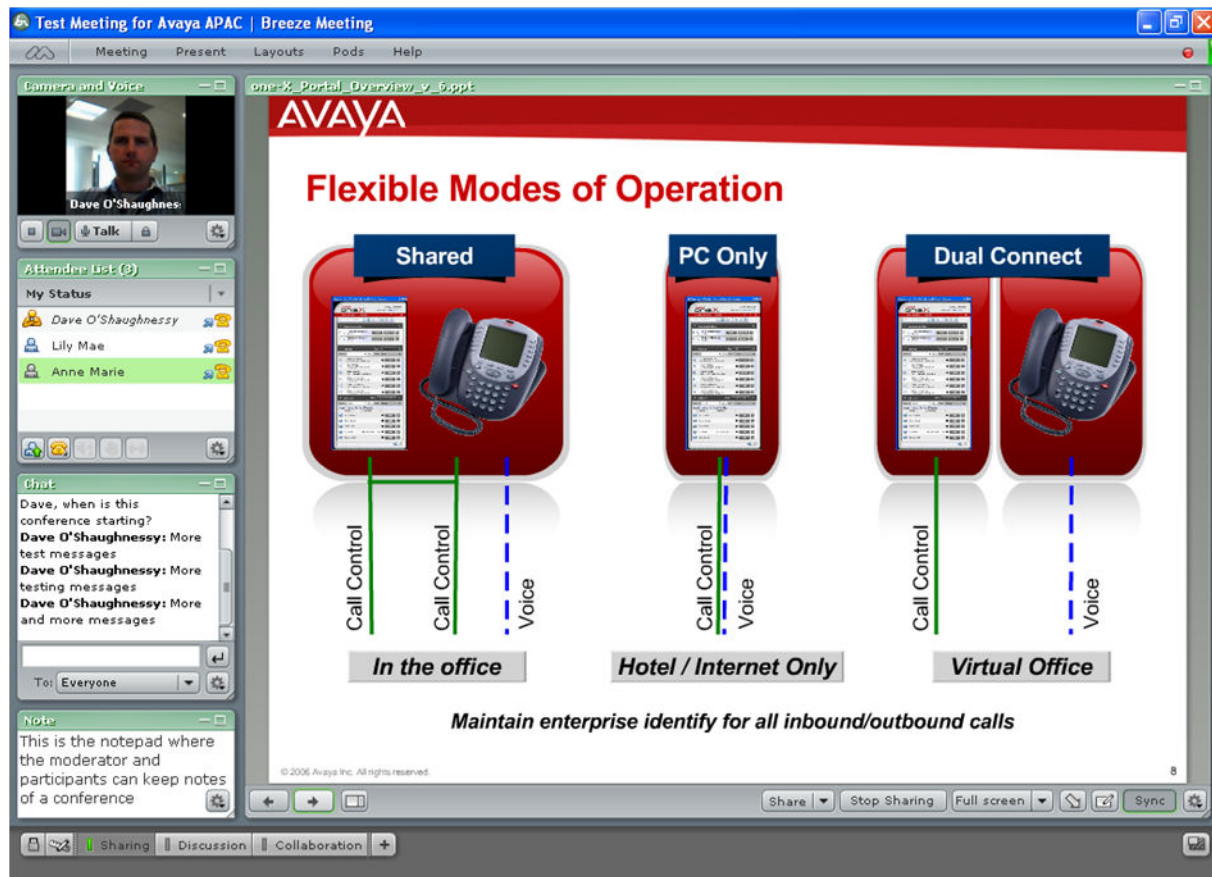
[Solution specification](#) on page 26

Adobe Connect

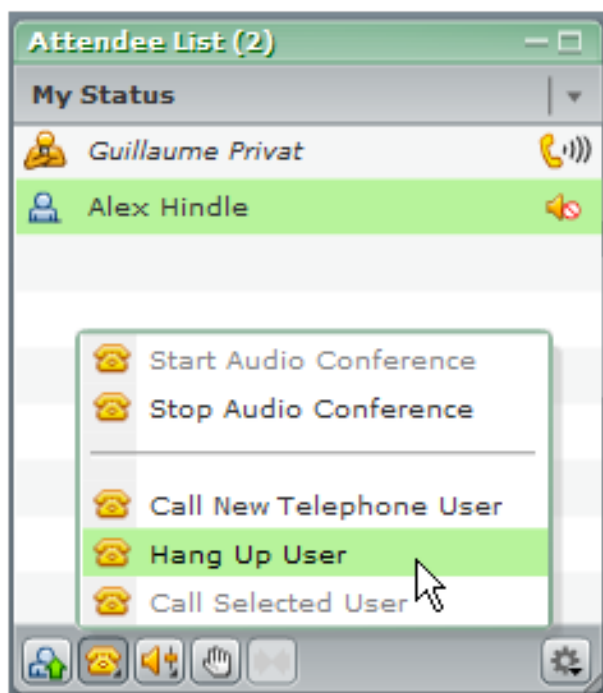
Avaya and Adobe offer a collaboration solution that integrates Avaya's Meeting Exchange audio conferencing with Adobe's Connect Pro Web conferencing solution.

*** Note:**

Meeting Exchange supports version 9.1 of Adobe Connect.



With a broad set of combined audio and Web conferencing features, the solution is appealing to government, education, financial services, healthcare, telecommunications, and other organizations who want an integrated audio and web conferencing solution that can be installed on-premise, behind their firewalls, for security or confidentiality reasons.



The solution also enables telecommunications and conferencing service providers to use their existing networks to quickly bring to market differentiated audio and web conferencing offers that provide a more integrated user experience, lower their operating expense, and increase margins.

Adobe Connect Pro users can conveniently access Avaya Meeting Exchange audio conference controls from the Connect Pro Meeting room, such as dialing out, muting or disconnecting participants, and identifying speakers. Users can also record both Audio and Web conferencing portions of a Connect Pro meeting, including synchronized recording of the audio conference.

Adobe Connect Pro Web Conference solution Features

- Instant access to audio and Web conferences across browsers and platforms
- Embedded control of the audio conference directly from the Acrobat Connect Meeting room
- Support for interactive, high impact content, including Adobe Flash, live multipoint video, and simulations
- Flexible meeting room layouts
- Synchronized recording and playback of audio and Web meeting
- Moderated Q&A and registration for conference entry (ideal for high-touch, large group, or distance learning meetings)
- 'Always Available' persistent meeting rooms retain content and layout for future use
- Single conference window; no client download
- Searchable meeting archives
- Scalable to 2,500 attendees

Key Applications

Collaborate Across Teams:

- Communicate instantly across departments and projects
- Share plans and schedules with team members worldwide
- Conduct frequent partner briefings

Deliver Effective Online Training:

- Eliminate travel time and expense
- Train more frequently
- Use software and video to increase effectiveness

Related links

[Solution specification](#) on page 26

Chapter 3: Design considerations

Hardware and software options

IBM 3550

Hardware	Description
Where Used	S6200 Bridge — Limited to a maximum of 4000 ports
Processor Type	Quad Core Intel Xeon Processor X5570 4C (2.93GHz 8 MB L3 Cache 1333MHz 95w)
# Processors	2
Memory	8 GB (4 x 2GB DDR3–1333 2Rx8 LP RDIMM)
RAID	RAID 5 - MR10i Integrated RAID Controller
Disk Drives	146GB SAS 2.5" 10K RPM 6G DP Hard Drive
Additional NIC	Broadcom Corporation NetXtreme II BCM5709 Gigabit Ethernet
Removable Media	DVD-R/W SATA slimline
Power Supply	2 x 675W 12V Hotplug AC power supply
Fans	Redundant Multi-Speed Fans
Management Card	-

Hardware	Description
Where Used	Client registration Server, Web Portal/Audio Console, AWC, Conference Viewer & Lync Server
Processor Type	Quad Core Intel Xeon Processor X5570 4C (2.93GHz 8 MB L3 Cache 1333MHz 95w)
# Processors	2
Memory	8 GB (4 x 2GB DDR3–1333 2Rx8 LP RDIMM)
RAID	RAID 5 - MR10i Integrated RAID Controller
Disk Drives	146GB SAS 2.5" 10K RPM 6G DP Hard Drive
Additional NIC	Broadcom Corporation NetXtreme II BCM5709 Gigabit Ethernet
Removable Media	DVD-R/W SATA slimline
Power Supply	2 x 675W 12V Hotplug AC power supply

Table continues...

Hardware	Description
Fans	redundant Multi-Speed Fans
Management Card	-

Dell R610

Hardware	Description
Where Used	S6200 Bridge
Processor Type	Intel Xeon X5670, 6C, 2.93Ghz, 12M Cache, 6.40GT/s, 95W TDP, Turbo, HT, Memory runs at 1333MHz Max
# Processors	2
Memory	24 GB (6 x 4GB DDR3-1333 2Rx8 LP RDIMM)
RAID	PERC H700, Integrated RAID Controller, 512MB Cache (RAID 5)
Disk Drives	146GB, SAS 6Gbps, 2.5-in, 10K RPM Hard Drive
Additional NIC	Broadcom NetXtreme II 5709 Dual Port Gigabit Ethernet NIC, supporting TOE, x4 PCIe
Removable Media	16X DVD +/- RW ROM Drive SATA for Win2K8 R2
Power Supply	High Output Power Supply, Redundant (2 PSU), 717W, Performance BIOS Setting
Fans	Redundant Multi-Speed Fans
Management Card	iDRAC6 Express Server Management Card

Hardware	Description
Where Used	Client registration Server, Web Portal/Audio Console, AWC, Conference Viewer & Lync Server
Processor Type	Intel Xeon X5670, 6C, 2.93Ghz, 12M Cache, 6.40GT/s, 95W TDP, Turbo, HT, Memory runs at 1333MHz Max
# Processors	2
Memory	12 GB (6 x 2GB DDR3-1333 2Rx8 LP RDIMM)
RAID	PERC H700, Integrated RAID Controller, 512MB Cache (RAID 5)
Disk Drives	146GB, SAS 6Gbps, 2.5-in, 10K RPM Hard Drive
# Disk Drives	3
Additional NIC	Broadcom NetXtreme II 5709 Dual Port Gigabit Ethernet NIC, supporting TOE, x4 PCIe
Removable Media	16X DVD +/- RW ROM Drive SATA for Win2K8 R2
Power Supply	High Output Power Supply, Redundant (2 PSU), 717W, Performance BIOS Setting

Table continues...

Hardware	Description
Fans	Redundant Multi-Speed Fans
Management Card	iDRAC6 Express Server Management Card

Interoperability

Meeting Exchange 6.2 is compatible with the following components:

Product	Release
Avaya Aura® System Manager	6.2
Avaya Aura® System Platform	6.2 (Client Registration Server CRS, Avaya Web Conferencing, and Web Portal)
Avaya Aura® Communication Manager	5.2.1 and 6.2
Avaya Aura® Session Manager	5.2 and 6.2
CS 1000	7.7
Avaya one-X® Communicator	6.0 and 6.1 (6.1 standalone on Communication Manager only)
Avaya one-X® Portal	5.2
RedHat Enterprise Linux	5 Update 6 (32-Bit) (Application server and Web Portal server)
Microsoft Windows Server	2006 R2 (CRS, Avaya Web Conferencing, Conference Viewer, and Lync Servers)
Microsoft Windows Client	XP Pro and Win 7 Pro (32 and 64 Bit)
Microsoft SQL Server	2008
Microsoft Outlook	2007 and 2010
Microsoft Office	2007 and 2010
Microsoft Lync Server	2010
Microsoft Active Directory	2010 (CRS and Web Portal)
Microsoft Internet Explorer	8 and 9
Google Chrome	12.X
Mozilla Firefox	5.X
IBM Domino Server	8.5.2
IBM Lotus Sametime Server	8.5.2
IBM Lotus Notes	8.5.2
Sun Java Directory Server	7.0
DoubleTake Availability	5.3

Table continues...

Product	Release
AudioCodes M2K	— (Tested by Solutions Interoperability Laboratory SIL)
Cisco Call Manager	8.X (Tested by SIL)
Dialogic IMG 1010	— (Tested by SIL)

Reference configuration

This section describes some planning and design considerations.

Related links

[Multisite and Multicabinet configurations](#) on page 55

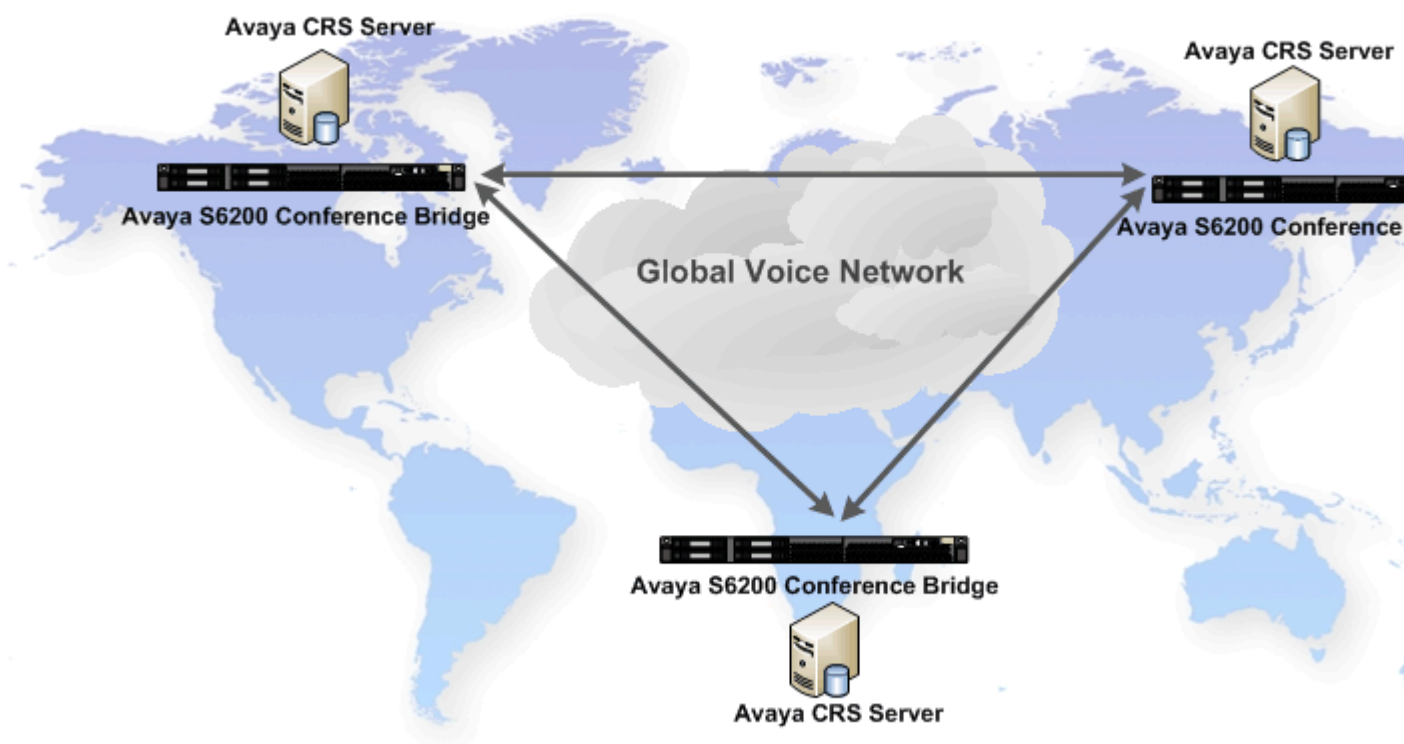
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Multisite and Multicabinet configurations

Multisite

The Avaya Multisite application is intended to provide seamless conferencing across up to 3 geographically distributed Meeting Exchange systems (S6200 plus CRS Server), allowing for booking and access to global conferences in all applicable sites and establishing audio links between the 2 or 3 separated sites when needed for 'Global' conferences. In this release, Avaya supports 1,500 concurrent global conferences. (3 Conference Bridges X 8000 G.711 Port capacity).

As a result, the Customer can significantly reduce their levels of inter-site conferencing traffic be that over IP or ISDN links and can inter-connect up to 3 Conferencing bridge locations enabling globally dispersed teams collaborate without the connection overhead.



When a conference has been booked on a local CRS and designated as a 'Global' conference, that CRS will replicate that conference booking on both the local Conference Bridge and onto the other 1 or 2 CRS servers in the other locations.

When the global conference opens on one of the Conference Bridges, it remains local to that site until a caller dials into that same conference instance on another Conference Bridge in another site. When this occurs, the Multisite application opens a telephony (SIP or PSTN depending on WAN interconnection media) link-line between the 2 conferences in order to provide an audio connection between the conference participants on each bridge.

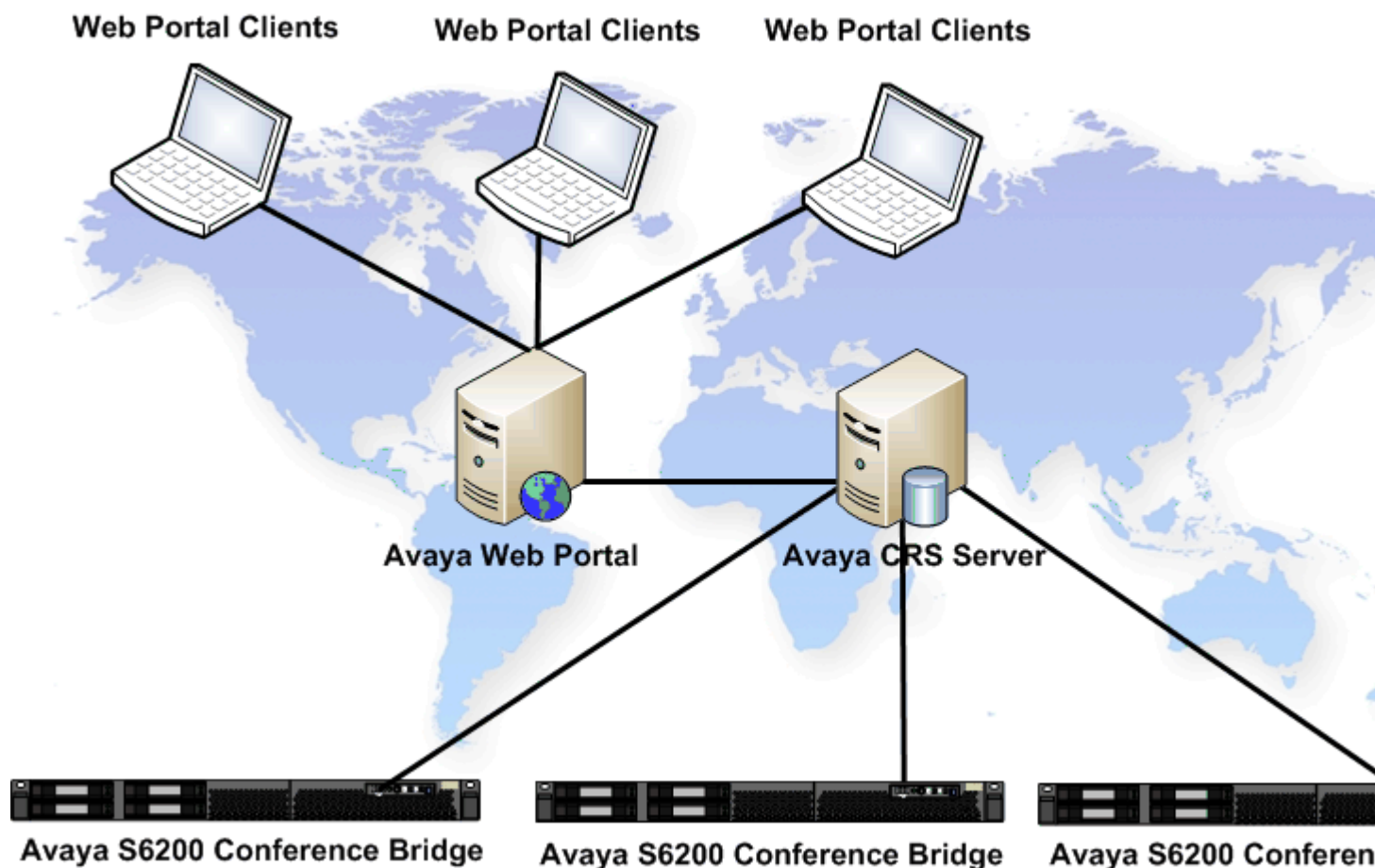
The Multisite application requires a communications link between each of the CRS servers in the Multisite topology. The communications between each of the CRS servers is for the purposes of replicating bookings across each of the Conference Bridges in the network and for communicating the runtime activity of the conferences through the CRS Servers. As a result, there are recommended minimum bandwidth and latency recommendations associated with the communications link between the 2 or 3 sites.

In addition, the Multisite architecture can help offer a redundancy solution across the enterprise network should one of the Conference Locations become unavailable due to fault occurrence. As previously described, each conference instance created on the CRS server with the 'Global' attribute will be replicated across all two or three locations.

Therefore provided the Customer has the ability to redirect the conference service traffic away from the unavailable network to the other 1 or 2 other Conference Service locations, the end user will still use the same Conference PIN Code and possibly, with some intelligent Voice traffic routing, the same phone number, offering a globally resilient conferencing service.

Multicabinet

With the Multicabinet feature, a single CRS manages multiple S6200 conference bridges, facilitating expansion of conference port capacity while maintaining a single administration point with the CRS. A single Web Portal application enables end-users to book a conference either to a single specified S6200 Bridge or have that conference booking replicated across all associated conference bridges. In this release, Avaya supports 24,000 ports in a multicabinet solution.



The primary difference between the Multisite and Multicabinet architectures is that there is no automatic conference linking between the S6200 Bridges such as that explained in a global conference scenario and there is a single CRS application server managing all conference bridges in the design.

There are two deployment options for Avaya's Multicabinet architecture:

- **Logical Cabinet Redundancy** The principal aim of this configuration is to provide an option for S6200 conference bridge failover. In this case, each of the conference bridges is configured as logical entities to provide S6200 bridge redundancy using a 1:N configuration (i.e. 1 or more bridges can backup several other bridges).

Conferences that have been created on the Web Portal or CRS are pushed down to all the S6200 Conference bridges in the Multicabinet group. Therefore, in the event of a single S6200 Bridge failure, all the other Conference Bridges within the Multicabinet domain have the same Conference reservations details as the failed bridge.

- **Non Logical Cabinet Redundancy** The main aim of this configuration is consolidation of conference applications. For example, one CRS or Web Portal server controls several bridges. In this case, bridges are configured as separate physical entities without any service redundancy.

Any Conferences created on either the CRS or Web Portal servers are pushed down only to the specifically selected S6200 conference bridge. An End-user selects which bridge they wish to associate the conference with through a drop-down menu in the Web Portal or a system administrator does likewise on a drop-down menu within the CRS Front-end application.

Related links

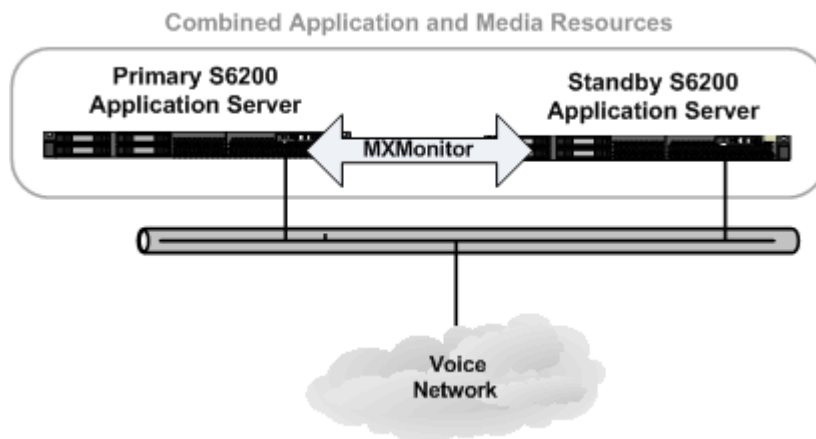
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Resiliency and redundancy

As with any communications medium, service continuity is basic feature that should not be difficult to deploy, manage or depend upon. The Avaya Meeting Exchange Redundancy architecture provides a duplicate copy of the primary conferencing platform, account profiles, PIN codes, conference schedules, billing records, and conference configurations in order to secure organizations against extreme environmental conditions or other disaster situations. With near real-time replication of conference and system data, and back up conferencing platforms and applications in place, there will never be any disruption in the conference service or lost information

One of the primary advantages in deploying an Avaya Meeting Exchange solution is the superior levels for Conferencing System and Service resiliency and redundancy configurations available. Avaya will deliver a conferencing service resiliency at a number of distinct levels:

1. **At individual Server Redundancy level** - the S6200 and CRS servers come with standard hardware resiliency as previously described
2. **At Local Site Redundancy level** - with the Meeting Exchange MXMonitor application a system administrator can implement automatic failover between a Primary and Standby Conference Bridge thus avoiding any time lost with manual intervention in the event of server failure.



With a 'Primary - Standby' design there is an Avaya that is continuously monitoring the status of Primary S6200 Conference Bridger called MXMonitor. Each of these S6200 Conference Bridges has a configuration file called MXMonitor.reg which contains the present list of Conference Bridges in operation within its domain and a section containing the conferencing configuration of both the Primary and Standby servers, including DDI / DNIS numbers and associated IP addresses.

In the event of the Primary S6200 Conference Bridge becomes unavailable, the Standby S6200 Conference Bridge will immediately and automatically take over all conferencing services in order to minimise service down-time. All Dial-in numbers, conference bookings and associated passcodes remain identical to those on the now failed Conference Bridge, thus reducing any user experience due to the failure.

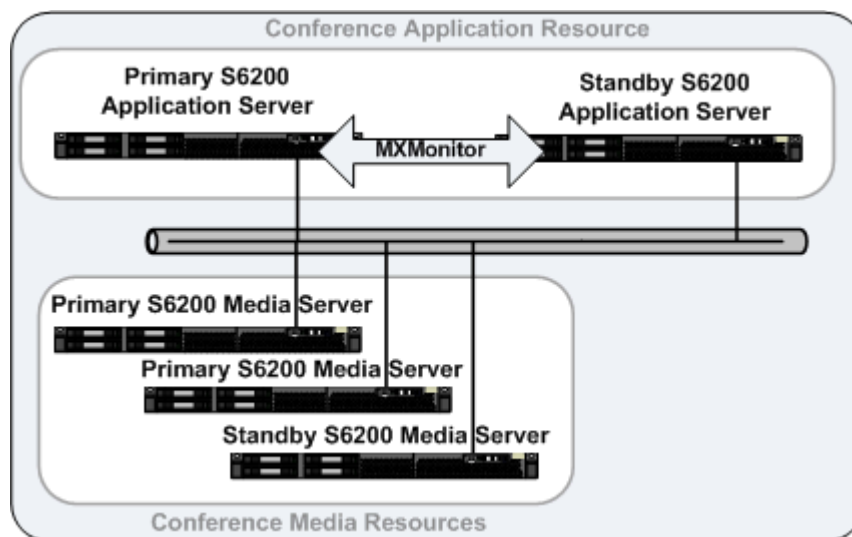
With the distributed architecture, the Application Server redundancy works in the exact same way as the Single Server example given above through the use of the MXMonitor process between the Primary and Standby Servers.

The Media Server redundancy will operate in an N+1 arrangement whereby there will always be a spare Media Server capacity available should any of the other live Media Servers become unavailable. All Media Servers are managed and controlled as a single pool of resources by the Application Server.

The Application Server balances conferences across all the available Media Servers and in the event that a single Media Server becomes unavailable, then all conferences from that Media Server will be realigned across the remaining Media Servers according to a Meeting Exchange algorithm on the Application Server.

3. **At Disaster Recovery site level** - with Multicabinet and Multisite architectures.

The Avaya Multisite and Multicabinet architectures are optional approaches to providing dispersed audio conferencing services across local, regional or global customer locations in order to reduce some of the associated overheads that would normally be presented with large-scale implementations or dispersed users.



These architectures can provide for service resiliency in the event of a single system or complete site becoming unavailable and a Systems Administrator or Service Provider has an urgent need to re-establish the conferencing service without the need for manual intervention.

Avaya Meeting Exchange can offer unrivaled flexibility when designing reliable and resilient conferencing architecture in order to ensure service continuity a server level, local level and across regional locations with minimal system administration.

Related links

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[A special implementation of CRS redundancy](#) on page 60

A special implementation of CRS redundancy

The Avaya Meeting Exchange architecture also supports the Double-Take™ solution from Vision Solutions™.

Avaya can offer a design with active and standby CRS servers, enabling immediate and automatic switch from an unavailable CRS server to the standby CRS server in order to deliver continuous provision of the conferencing services features on the Avaya Aura CRS Application. Avaya uses third party software called Vision Solutions Doubletake to manage the replication and activity monitoring between both servers. This Vision Solutions DoubleTake application operates at a very low level, detecting hard-disk write commands on the primary CRS server and then replicating those individual write commands onto the standby CRS server hard-disk, in essence, a hard-disk mirroring. This will include all databases, conference details, call and conference logs, billing, reports, all activity. As a result of not needing to be aware of higher-level protocols in order to deliver replication, the overhead for replication is very low on a continual basis. The link between the active and standby CRS is continuously open, and the replication is a continuous process across this IP Connection between the active and standby servers.

In this solution, an active CRS is separated from a standby CRS across a wide area network (WAN). Vision Solutions Double-Take ensures that a CRS server is available at all times. This configuration consists of an active and a standby CRS. If an active server fails, the standby server initiates failover and becomes the new active server. This configuration detects an active server failure in two ways:

- The standby server decides that the active server has failed. The standby server sends monitor requests to the active server at user-defined intervals. In return, the active server sends monitor replies back to the standby server. If the active server does not send monitor replies back to the standby server, the standby server decides that the active server has failed.
- The active server decides that it has failed. An application called BSMonitor ensures that all critical CRS components are running. BSMonitor can restart CRS components if they stop running. BSMonitor tracks the number of failures on each CRS component. BSMonitor can trigger an action if a critical component reaches a configurable limit of failures. The action that BSMonitor triggers is the failover process on the standby server.

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