



Avaya Aura[®] Call Center Elite Multichannel Overview and Specification

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Chapter 1: Introduction

Purpose

This document describes tested Avaya Aura® Call Center Elite Multichannel characteristics and capabilities, including feature descriptions, interoperability, performance specifications, security and licensing requirements.

This document is intended for sales engineers, implementation engineers, and system administrators who want to gain a high-level understanding of the Call Center Elite Multichannel features, functions, capacities, and limitations.

Chapter 2: Call Center Elite Multichannel overview

Avaya Aura® Call Center Elite Multichannel is a Microsoft Windows-based software suite. Companies can use this software suite to turn one-dimensional call centers into powerful multimedia contact centers. Call Center Elite Multichannel uses the phantom call capability of Communication Manager by which customers can make contact through phone, email, text message, or instant message.

Whether your customers communicate on mobile, emails, or chat, their communication is routed by identifying the agent using a phone call. The emails, SMS, or chat messages are then directly forwarded to the agent identified using this call. The agent can also reply using the same method of communication.

Easy to implement and simple to use, Call Center Elite Multichannel also delivers:

- Out-of-the-box desktop applications for supervisors
- Framework applications including intelligent routing, interaction data, and centralized configuration
- Automated or agent-initiated outbound preview dialing
- Powerful application development tools for complete customization and integration
- Simple and fast wizards for desktop screen pop-ups and routing rules

The following are the major components of Call Center Elite Multichannel:

Desktop

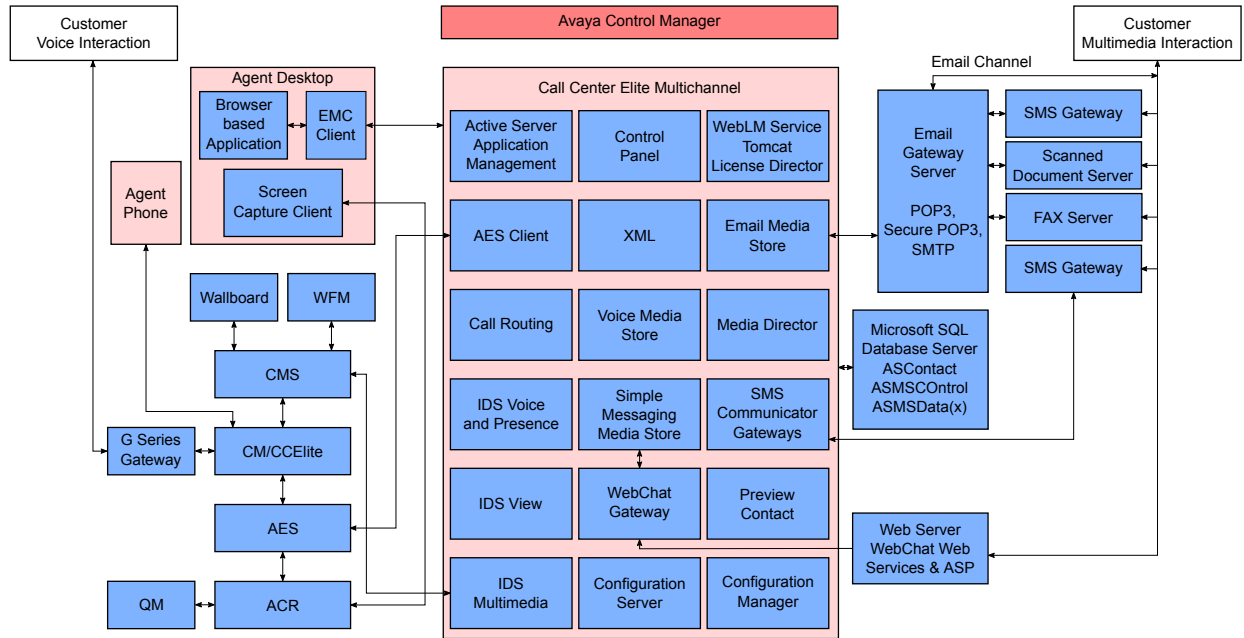
- Call Center Elite Multichannel Desktop
- Supervisor
- Call Center Elite Multichannel Reporting
- Call Center Elite Multichannel Control Panel

Server

- Application Management Director
- License Director
- Call Routing
- Configuration
- Task Director

- Media Director
- XML
- Virtual Agent
- Experience Portal Config
- Call Recording Config Service
- Interaction Data Service
 - Interaction Data Server-Multimedia
 - Interaction Data Server-Voice and Presence
 - Interaction Data Server-View
- Media Stores
 - Preview Contact
 - Simple Messaging
 - Email
 - Voice
- Media Gateways
 - Web Chat
 - Short Message Service
 - XMPP
- Plug-ins
 - SQL
 - Rules
 - SOAP
 - Script
- Trace System
 - TTrace Console
 - TTrace Config
 - TTrace Log2Zip
- Databases
 - ASContact
 - ASMSControl
 - ASMSDataX
 - ACS (Optional)
- Developer
 - Developer tools

The following diagram depicts the Call Center Elite Multichannel architecture:



Multimedia overview

The Call Center Elite Multichannel multimedia technology uses the phantom call capabilities of Communication Manager to deliver non-voice work items to contact center agents. Phantom calls are generated using the Computer-Telephony Integration (CTI) application. This application has no physical station as an originating point.

The multimedia suite blends emails, SMS, and web-based customer inquiries with inbound calls. The multimedia suite also distributes internally held customer records to the agents. After the distribution, the agents are prompted to interact with customers using deskphones.

You can control email inquiries and outbound call requests to coincide with different shifts. The shifts can be:

- The Quieter time of the day, such as low-peak call times
- The Time of the day when it is easier to contact customers, such as lunch break

Using the multimedia technology, you can:

- Provide queuing priority to inquiries from special customers
- Reject messages from certain customers

You can generate and distribute multimedia work items using the following components of Call Center Elite Multichannel:

- Media Director

- Media Proxy
- Media Stores
 - Email Media Store
 - Preview Contact Media Store
 - Simple Messaging Media Store
- Media Gateways
 - XMPP Gateway
 - Web Chat Gateway
 - Short Message Service Gateway

To view multimedia work items, agents use the Call Center Elite Multichannel Desktop interface.

New in this release

Avaya Aura® Call Center Elite Multichannel is upgraded to support the following:

- Microsoft SQL Server 2014 Standard, Express, and Enterprise
- Microsoft .Net 4.5.2
- Avaya Aura® 7.0 and 7.0.1
- Application Enablement Services 7.0
- Avaya Aura® Session Border Controller
- Call Management System 18
- Microsoft Dynamics CRM 2013 and 2015

The following new features are added to Call Center Elite Multichannel:

Support for IMAP

In addition to POP3 and SMTP, Call Center Elite Multichannel now supports Internet Message Access Protocol (IMAP). IMAP is an Application Layer Internet protocol through which an email client can access emails on a remote mail server.

IMAP offers the following functionalities:

- Allows you to map Email Media Store with a configurable folder within the mailbox.
- Helps in identification and retrieval of unread emails.
- Helps in storage of all emails in the mail server.
- Supports online mode feature so that Call Center Elite Multichannel does not require to connect to mail server for every poll.

IMAP is supported over secure and non-secure connections. Call Center Elite Multichannel also supports IMAP over SSL.

Support for multiple browsers with the new chat sample UI

The following Internet browsers are supported with the new chat sample UI:

- Microsoft Windows 8.x
 - Microsoft Internet Explorer 11.0
 - Firefox 45.0.2
 - Google Chrome 49.0.2623.112
- Microsoft Windows 7
 - Microsoft Internet Explorer 9.0, 10.0, and 11.0
 - Firefox 45.0.2
 - Google Chrome 49.0.2623.112
- Mac OS
 - Safari 8
 - Google Chrome 49.0.2623.112
- Android 4.x and 5.x
 - Google Chrome 49.0.2623.112
- iOS 6.x, 7.x, and 8.x
 - Safari that comes with respective iOS releases

Other features in the new chat sample UI

- Proactive Chat: The system proactively prompts the customers for initiating chat support after the configured time.
- Multi Tab Chat: The system displays the current chat session on multiple tabs of the same website URL.
- Embedded Chat window: The system displays the chat window within the browser and not in a pop-up window.

For more information about the new chat sample UI, see *CSPortal Web API Developer's Guide*.

History Search

With the History Search feature, an agent or a supervisor can search and view the Email, Chat, or Voice history of a customer or an agent. Additionally, a supervisor can view Customer History through the Directory window and Agent History through the Presence or Supervisor window.

Larger area for email in Call Center Elite Multichannel Desktop

On the Email toolbar of Call Center Elite Multichannel Desktop, an arrow button is added to the right of the **From** field. The arrow button shows and hides a part of the information from the upper section and provides a larger area for the original email.

Call Center Elite Multichannel Desktop interface with Ribbons

Call Center Elite Multichannel Desktop provides a new Ribbon-based user interface. The new interface contains UI controls, such as ribbon tabs, panels, and status bars.

This interface consists of a **File** menu and the following Ribbon tabs:

- **Home**
- **Voice**
- **Email**
- **Chat**
- **PCMS**
- **DMCC**
- **Custom**

Call Center Elite Multichannel Reporting Desktop interface with Ribbons contains a **Reporting** tab in addition to these Ribbon tabs.

VDN privacy

Call Center Elite Multichannel provides privacy for the station-monitored calls that are distributed through VDNs.

Secure communication

Call Center Elite Multichannel provides secure communication between Call Center Elite Multichannel Desktop and Call Center Elite Multichannel servers. For secure communication, Call Center Elite Multichannel uses encryption on .Net Remoting.

Agent lockout after multiple login failures

Call Center Elite Multichannel can be configured to lock an Agent ID if an agent makes multiple attempts to log in to the Call Center Elite Multichannel Desktop using an incorrect user ID or password.

The following are the two ways to unlock an Agent ID:

- The administrator can manually unlock the Agent ID through Call Center Elite Multichannel Control Panel.
- The Agent ID is automatically unlocked after the time specified in the Time Interval To Unlock The Agent (In Minutes) parameter in the `AXMLServer.ini` file.

Disallow concurrent Agent logins

Call Center Elite Multichannel can be configured to restrict two or more agents to concurrently log in to Call Center Elite Multichannel Desktop using the same Station ID or Agent ID.

Media Client

Call Center Elite Multichannel Desktop supports the Media Client plug-in. The Media Client plug-in directly connects to Avaya Aura[®] Communication Manager and registers itself as a station to enable the agent to make and receive calls directly from the Agent Desktop. When the Media Client plug-in is configured, Station Login/Logout and Voice Mute/Unmute buttons are available on the Agent Desktop.

With the Media Client plug-in, an agent can:

- Log on to a station using the **Station Login** button on the Call Center Elite Multichannel Desktop.

- Mute and unmute a voice call using the **Mute Audio** and **Unmute Audio** buttons.
- Select specific input and output devices.

*** Note:**

- Media Client is not supported in Citrix and Virtualized environments.
- When Media Client is configured on Agent Desktop, the agent cannot add collected digits during transfer or conference of calls.
- Do not run Media Client with Avaya one-X[®] Agent on the same Desktop.
- Media Client supports the H.323 mode only.

Installer option for DB alternate port connection from Desktop

The installer of Call Center Elite Multichannel Desktop provides an option to configure DB Alias so that Call Center Elite Multichannel Desktop can connect to the Call Center Elite Multichannel DB on a nonstandard or alternate port.

Support for multiple Voice Media Stores configuration

Call Center Elite Multichannel supports a configuration where you can install multiple Voice Media Stores on multiple servers or virtual machines. With this configuration, you can get a Busy Hour Call Completion (BHCC) of up to 12000 for voice calls.

Support for multiple Email Media Stores configuration

Call Center Elite Multichannel supports a configuration where you can install multiple Email Media Stores on multiple servers or virtual machines. With this configuration, you can get a Busy Hour Call Completion (BHCC) of up to 6000 for emails.

*** Note:**

The BHCC numbers for multiple Email Media Stores are applicable for Call Center Elite Multichannel Release 6.5.0.1 and later releases.

Chapter 3: Components

Call Center Elite Multichannel Desktop

Call Center Elite Multichannel Desktop is the flagship desktop component for presenting multimedia work items to agents. Call Center Elite Multichannel Desktop uses plug-ins so that agents can get all required functionality on one screen.

With the Call Center Elite Multichannel Desktop interface, agents can perform the following:

- Receive and reply to work items from customers who make contact using:
 - Phone
 - Email
 - Web Chat
 - Simple Message Service (SMS)
- Record specific work item-related notes and general session-related notes
- Work quickly and efficiently by inserting auto text, spell checking the work, and printing work items
- View the conversation history of the customer with whom the agent is interacting

 **Note:**

For all voice calls and inbound email, SMS, and chat interactions, Customer History is always available. However, for the Outbound email interaction, Customer History is available only when the interaction is initiated from the Directory plug-in.

- Search the directory for phone number or email address
- View real-time statistical information on the agent personal work performance
- Monitor the deskphone activity of other call center agents or staff with whom the agents work closely
- Record the conversation with the customer and replay the recorded calls later
- Use the built-in soft phone to take voice calls

Call Center Elite Multichannel Desktop also distributes internally held customer records to agents, prompting the agent to initiate contact with customers by deskphone.

In the Call Center Elite Multichannel Desktop interface, agents can gain access to external applications, such as Internet Explorer and Microsoft CRM without minimizing the work screen.

However, you can configure Call Center Elite Multichannel Desktop to run the external applications in a separate window.

Call Center Elite Multichannel Desktop also offers a complete range of telephony functions by using which agents can use the screen and mouse to:

- Make a call
- Answer a call
- End a call
- Hold a call
- Divert calls
- Send DTMF tones
- Transfer a call
- Conference a call with up to six members
- Drop yourself or another party from a conference call
- Forward all incoming calls to voice mail or another extension
- Record a call
- Replay the recorded call

Call Center Elite Multichannel Desktop is available in following languages.

- Simplified Chinese
- French
- German
- Italian
- Russian
- Lat-Spanish
- Portuguese (Brazilian)
- Japanese
- Korean

Supervisor

Supervisor is a plug-in available with Call Center Elite Multichannel Desktop.

Using the Supervisor plug-in, contact center supervisors can monitor the call activity of a group of 10 or less agents. Supervisor can perform the following:

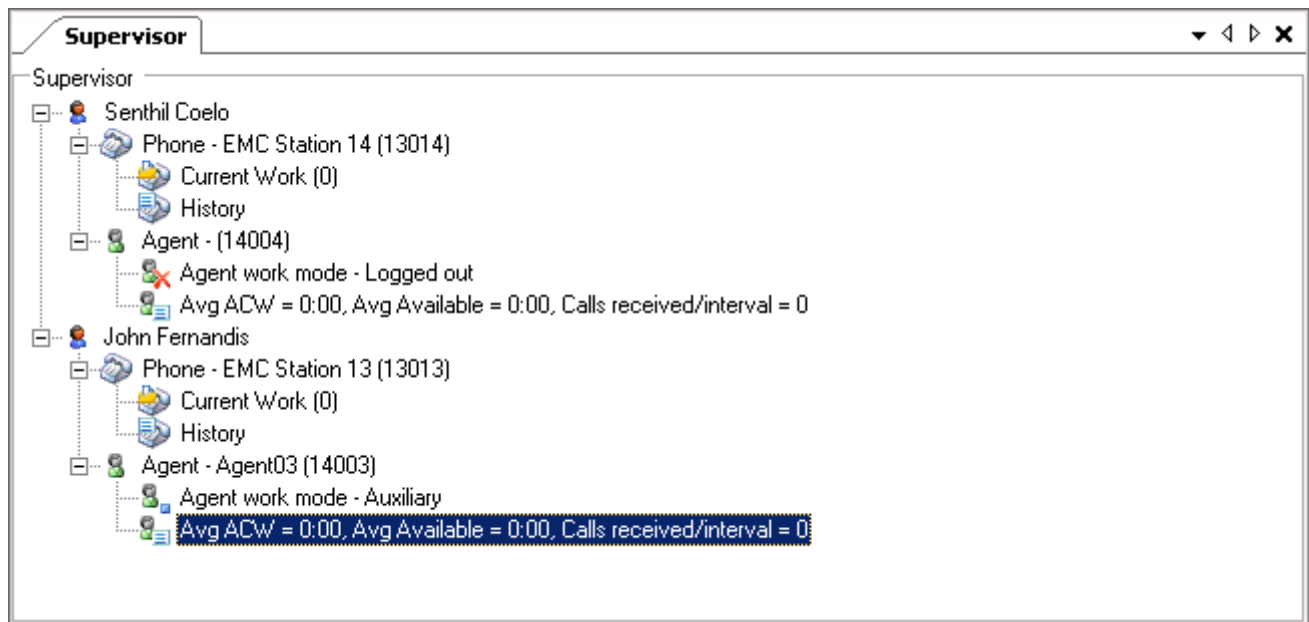
- See the request of an agent for help

- Join a call as an observer. For example, the supervisor can hear the conversation, but the agent and customer cannot hear the supervisor
- Join a call as a coach. For example, only the agent can hear and talk to the supervisor
- Join a call as a participant. For example, the agent and customer can hear and talk to the supervisor
- View the current state of each agent
- Record a call
- Replay the recorded call
- Log off an agent

Using the Supervisor plug-in to the Interaction Data Server - Voice and presence, supervisors can also perform the following:

- View statistics on the average length of time an agent is spending in After Call Work (ACW) and Available modes
- View statistics on the number of calls the agent has taken
- Send text-based messages to agents
- Send call-related data to the Interaction Data Server-Voice and presence and agents

Supervisor displays data in a simple tree-view and uses color coding to communicate information about agents and calls.

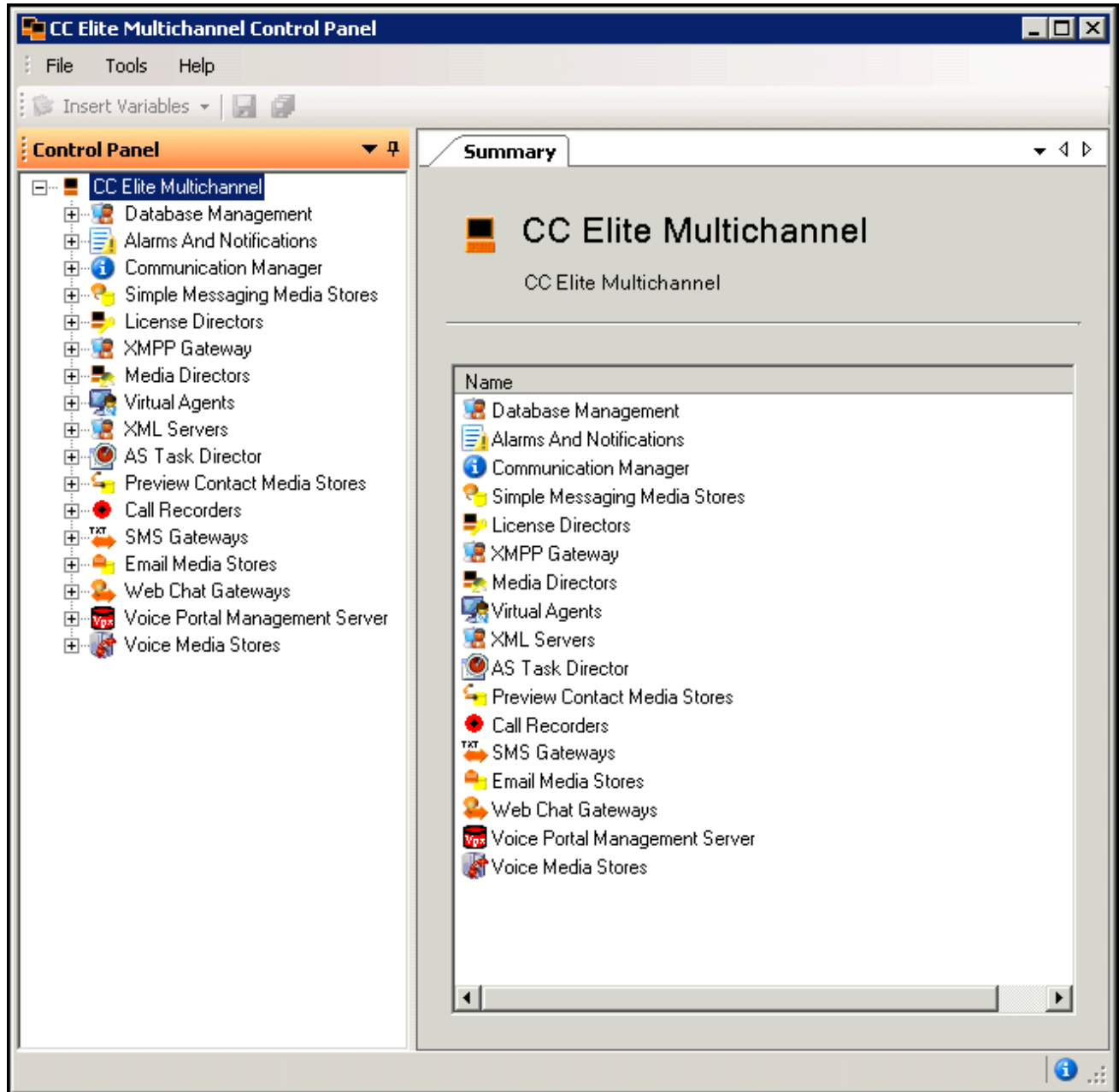


If an agent name is not associated with the station in the switch, the application configuration generates the agent name. If an agent name is specified in the switch, then agent name specified in the switch takes precedence.

Call Center Elite Multichannel Control Panel

Call Center Elite Multichannel Control Panel is a user interface through which you can configure and manage all Media Stores, License Directors, XML Servers, and Media Directors. In addition, you can add and manage data in the ASMediaStore and ASContact databases.

Call Center Elite Multichannel Control Panel receives information from the Application Management Director. Application Management Director is an application that runs in a Microsoft Server environment and collects information about the status and condition of the Call Center Elite Multichannel servers. Call Center Elite Multichannel Control Panel connects to Application Management Director and displays that information in a graphical tree structure.



If an agent name is not associated with the station in the switch, the application configuration generates the agent name. If an agent name is specified in the switch, the agent name specified in the switch takes precedence.

Call Center Elite Multichannel Reporting

Using Call Center Elite Multichannel Reporting, you can visually evaluate the activity of your Call Center Elite Multichannel contact center.

Call Center Elite Multichannel Reporting is an easy-to-use reporting application for managers and administrators, who can examine all facets of multimedia environment, including:

- Which customers make contact?
- How customers make contact?
- How often they make contact?
- How customers are treated, for example, how long the customers wait for the inquiry to be answered?
- How you can restructure your staffing according to the busiest periods of the day?
- How successful are the various methods of contact such as email versus simple messaging versus voice?
- How well agents meet up with expected levels of service?
- How long agents are taking to complete a task?
- How long agents are talking on the phone?
- How long customers wait for the call to be answered before hanging up?
- How many work items are being suspended and why?
- How work codes are applied?
- How well your multimedia system is performing, for example:
 - How long work items are spending at certain phases of the work flow process?
 - How many work items some queues are processing?
 - How many calls some VDNs are processing?
 - How busy some stations are?

With Call Center Elite Multichannel Reporting, you can also evaluate the details behind your multimedia activity, such as programs and schedules that governs when and how a work item flow through your call center.

Call Center Elite Multichannel Reporting provides the same functionality as Call Center Elite Multichannel Desktop, with the addition of the Reporting functionality. Installing both applications on each system is optional. Agents requiring desktop functionality can install only Call Center Elite Multichannel Desktop while Agents/Supervisors requiring the reporting functionality can install only Call Center Elite Multichannel Reporting.

SQL Server Reporting Services of Microsoft is now the reporting platform for Call Center Elite Multichannel. This lays the foundation for more standard orientated mechanism for custom report design and delivery. Call Center Elite Multichannel Reporting is an easy-to-use and helpful application that produces comprehensive reports on all major facets of a multimedia contact center

environment. Call Center Elite Multichannel Reporting renders a wide range of both historical and real-time reports that are essential for optimization of the contact center.

Call Center Elite Multichannel Reporting generates the following types of reports:

- Historical reports
- Real-time reports

Historical reports

Call Center Elite Multichannel provides the following historical reports:

- **Agent:** Agent Attendance, Agent Graphical Time Spent Daily, Agent Group Attendance, Agent Login-Logout (Skill), Agent Split Skill, and Agent Summary.
- **Interactions:** Conversations And Interactions, Customer Statistics, and Customer Statistics - Order By Agent.
- **Outcomes:** Queue Service Level, Work Code, Work Code - Order By Work Code, and Work Code - Order By Work Code Agent
- **Programs And Schedules:** Program Interactions, Program Interactions - Date Details, Program Interactions - Date Details (Order By Agent), Program Schedules, Program Schedules - Daily And Weekly Schedules, Program Schedules - Monthly And Yearly Schedules, Program Statistics, and Program Status.
- **Split Skill:** Split Skill, Split Skill (Graphical), Split Skill Call Profile (Graphical), Split Skill Service Level (Graphical), Split Skill Summary, and System Report.
- **VDN:** Call Profile and Call Profile (Graphical).

Realtime reports

Call Center Elite Multichannel provides the following Realtime reports:

- **Agent Reports:** Realtime Agent Status - State, Realtime Agent Status - State (Order by agent), Realtime Agent Status - Statistics, and Realtime Agent Status - Statistics (Order by agent).
- **Device Reports:** Realtime Device Status.
- **Queue Reports:** Realtime Queue Status - Count Statistics, Realtime Queue Status - State, and Realtime Queue Status - Time Statistics.
- **VDN Reports:** Realtime VDN Status.
- **Supervisor Reports:** Realtime Supervisor Status - State.

Chapter 4: Database and Server components

Database and server components

This chapter provides information about the following databases and server components available in the Avaya Aura® Call Center Elite Multichannel software:

- [ASContact Database](#) on page 23
- [ASMSControl Database](#) on page 23
- [ASMSDataX Database](#) on page 23
- [ACS Database](#) on page 23
- [Application Management Service](#) on page 24
- [License Director](#) on page 27
- [Call Routing Server](#) on page 28
- [Configuration Server](#) on page 29
- [Task Director](#) on page 30
- [Interaction Data Service](#) on page 31
- [TTrace System](#) on page 33
- [Call Recording](#) on page 33
- [Experience Portal Config Server](#) on page 33
- [Media Director](#) on page 34
- [Media Proxy](#) on page 34
- [Virtual Agent](#) on page 34
- [XML Server](#) on page 35
- [Media Stores](#) on page 36
- [Media Gateways](#) on page 40
- [Plug-ins](#) on page 42

ASContact Database

In Call Center Elite Multichannel, the ASContact Database is the repository of the contact information.

Call Center Elite Multichannel uses ASContact Database to identify and determine how to communicate with inbound customers. Call Center Elite Multichannel refers to ASContact Database for all contact-focused activities, no contact specific data is elsewhere in Call Center Elite Multichannel. Instead, ContactId of a contact resides with other Call Center Elite Multichannel databases. ContactId is a key that uniquely identifies a contact within Call Center Elite Multichannel, and might also be useful in other databases. This feature creates a link to the contact data in ASContact Database.

You can store the contact data in databases outside Call Center Elite Multichannel. ASContact Database includes a Contact Gateway that can indicate an external database. In this mode, Call Center Elite Multichannel updates the external data only when the gateway is available. However, when the gateway is available, the external data participates fully as contact data within Call Center Elite Multichannel.

ASContact Database provides all features of previous ActiveContact Database in Call Center Elite Multichannel. You can use the migration script to move contact data present in ActiveContact Database to ASContact Database.

ASMSControl Database

ASMSControl Database is a Media Store database that stores all the configurations related to Call Center Elite Multichannel. ASMSControl Database contains all the database code in the form of stored procedures, triggers, and functions. ASMSControl Database writes the detailed interaction based data to the current ASMSDataX database. For more information about ASMSControl Database, see *Administering Avaya Aura® Call Center Elite Multichannel*.

ASMSDataX Database

ASMSDataX Database is a Media Store database that contains data only in tables. ASMSDataX Database does not have any stored procedures, functions, or triggers. The stored procedures of ASMSControl Database read and write data to ASMSDataX Database. For more information about ASMSDataX Database, see *Administering Avaya Aura® Call Center Elite Multichannel*.

ACS Database

ACS Database is an SQL database that stores the application templates and configuration information about the desktop components of Call Center Elite Multichannel. For more information about ACS Database, see *Administering Avaya Aura® Call Center Elite Multichannel*.

Application Management Service

Application Management Service manages and monitors the Call Center Elite Multichannel media stores, License Directors, XML Servers, and Media Directors. You can use this feature to perform the following:

- View the status of servers
- Configure servers in real time
- Manage servers
- Gather statistics

In addition, with Application Management Service, you can add and manage the following data in the ASMSControl Database:

- Programs
- Schedules
- AutoText
- Priority contacts
- Denied contacts
- Allowed contacts

The Application Management Service consists of two components:

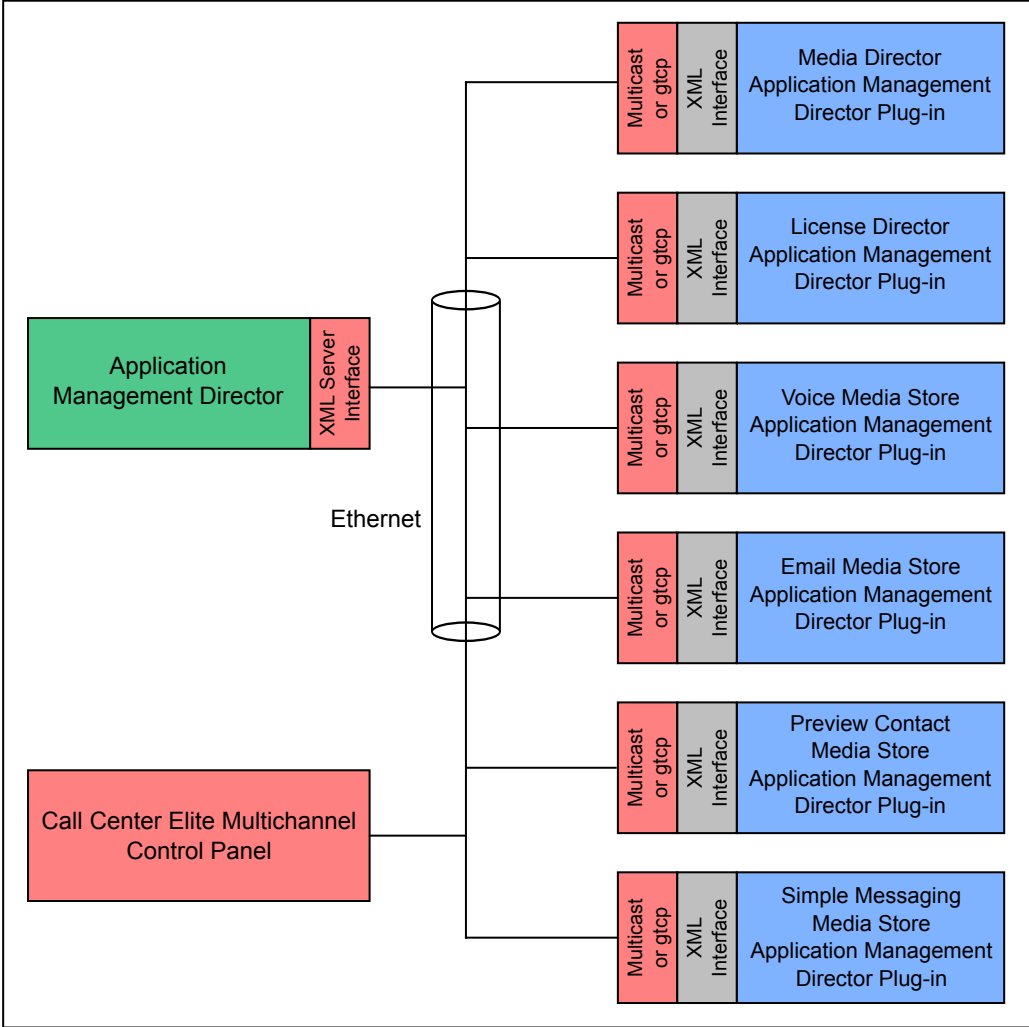
Application Management Director	An application that runs in a Microsoft server environment and gathers status and information about the condition of Call Center Elite Multichannel servers.
Call Center Elite Multichannel Control Panel	A component built using .Net Framework that connects to Application Management Director to display the state of available servers. Using the console, you can view and change the configuration information about the monitored servers.

 **Note:**

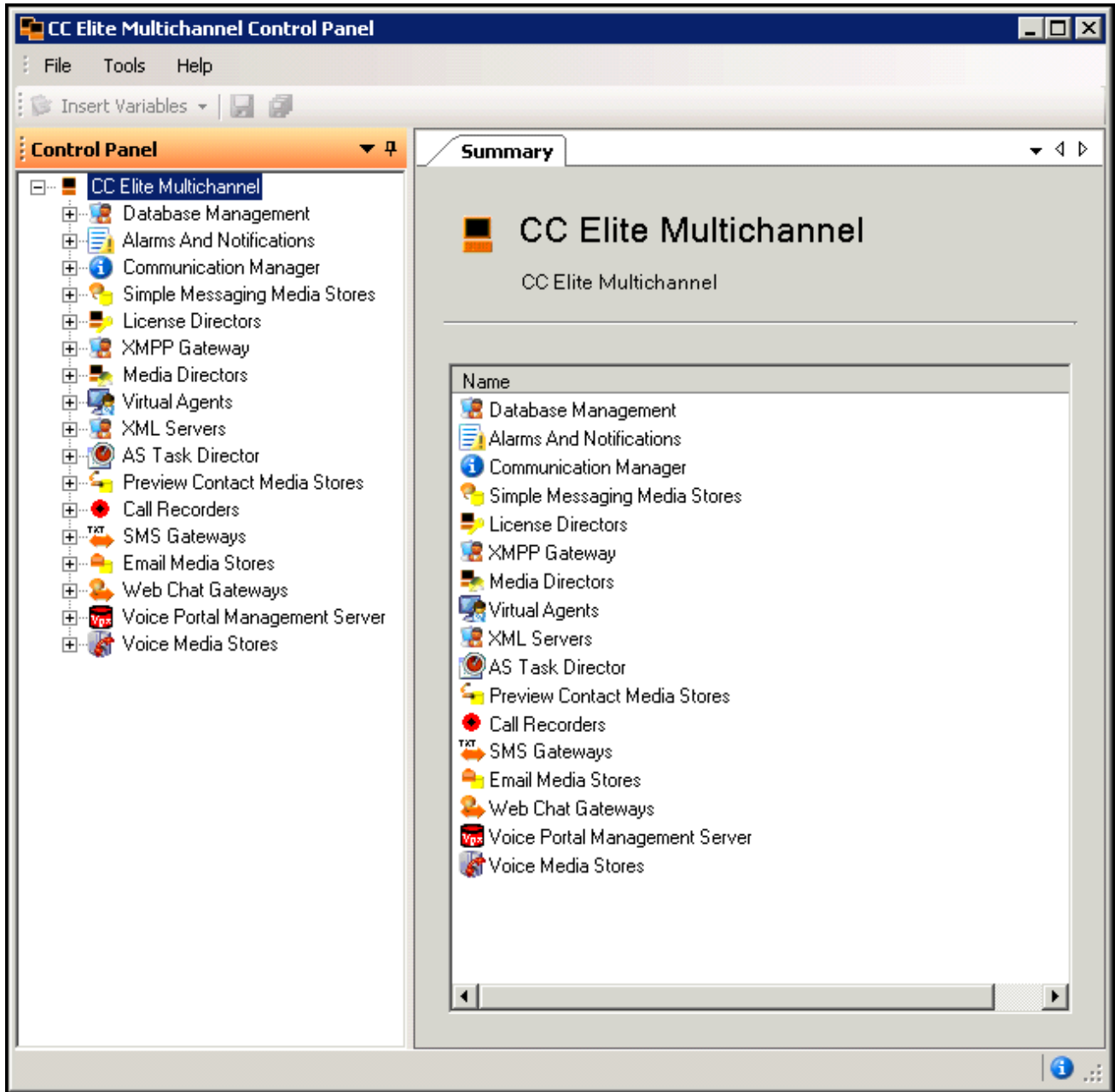
The document discusses the configuration of the Application Management Director.

For information on configuring Call Center Elite Multichannel Control Panel, see *Administering Avaya Aura® Call Center Elite Multichannel*.

The following diagram depicts the architecture of Application Management Director.



When you open the Application Management Director application, Application Management Director establishes a connection to all running Call Center Elite Multichannel components. For example, media stores, License Directors, XML Servers, and Media Directors. Application Management Director request the applications to forward information related to the configuration and operation. Call Center Elite Multichannel Control Panel then displays that information in graphical tree structure.



To establish a connection with Application Management Director, use multicast functionality or the preconfigured data from the configuration set or both. After connecting to Application Management Director, Call Center Elite Multichannel Control Panel functions as a management interface. In this role, Call Center Elite Multichannel Control Panel requests Application Management Director for a complete list of available information. The console receives a collection of XML documents that enables an accurate display of the information within a hierarchical node structure.

License Director

License Director is a central repository for all Call Center Elite Multichannel run-time licenses. License Director polls the licenses from the WebLM server.

License Director manages licensing by accepting the license requests from the Call Center Elite Multichannel applications. License Director issues only the number of licenses that are purchased or made available for trial. If the number of licenses requested exceeds the number of licenses purchased, the request is denied.

The number of run-time licenses purchased is encrypted in a WebLM license file installed on the WebLM server. The following are the types of license keys:

The VALUE_CCEM_VOICE license is required for the following:

- Call Center Elite Multichannel Desktop when used for voice, multimedia, or both - one voice license for each logged in agent
- Call Center Elite Multichannel Reporting Desktop - one voice license
- Voice Media Store - one voice license
- Media Director - one voice license
- Virtual agents
- Applications that are built using Call Center Elite Multichannel Developer

XML Server requests licenses for the mentioned applications.

Note:

A single VALUE_CCEM_VOICE WebLM key includes all voice licenses. The VALUE_CCEM_VOICE WebLM key covers all voice applications that you want to use within your call center environment. To add more users or applications, you must upgrade your WebLM license and reinstall the WebLM license on WebLM Server.

The VALUE_CCEM_MULTICHANNEL license is required for the following:

Call Center Elite Multichannel Desktop for multimedia users. To use all voice and multimedia functionalities of Call Center Elite Multichannel Desktop, you must have the following:

- One Call Center Elite Multichannel multimedia license key with run-time licenses to cover the number of logged in agents who use Call Center Elite Multichannel Desktop.
- One Call Center Elite Multichannel voice license key with the same number of run-time licenses.
- Virtual agents

The VALUE_CCEM_CRM license is required for the following:

- Microsoft Dynamics CRM connector - one Call Center Elite Multichannel Microsoft Dynamics license key provisioned in the WebLM license.

This single license key covers as many agents as the number of run-time voice licenses.

*** Note:**

License Director in Call Center Elite Multichannel cannot use uncounted licenses. Therefore, License Director shows the same number of CCEM_CRM licenses as the CCEM_VOICE licenses.

The VALUE_CCEM_MEDIACLIENT license is required for the following:

- Call Center Elite Multichannel Desktop for Media Client plug-in users
- Call Center Elite Multichannel Reporting Desktop for Media Client plug-in users

After installation, License Director has no direct user interaction.

You can add, delete, and change the license information using the WebLM server. For more information, see *Administering Avaya Aura® Call Center Elite Multichannel*.

! Important:

The DMCC plug-in functionality does not work with Media Client plug-in.

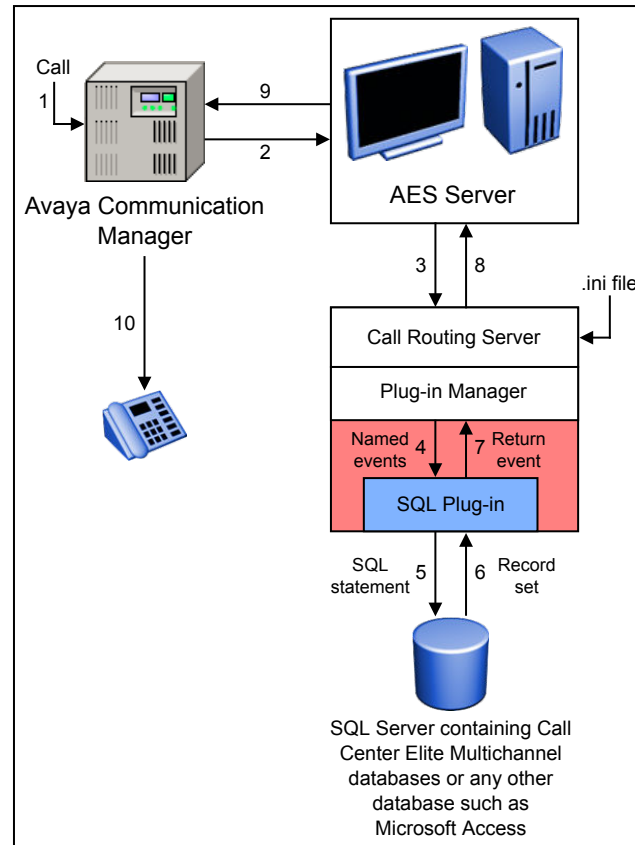
Call Routing Server

With Call Routing Server, you can perform intelligent call routing for inbound calls. The routing is based on:

- Call data matched with customer information
- Contact center statistics
- Agent availability information

Call Routing Server performs the following tasks:

- Monitors VDNs.
- Registers for routing services.
- Receives call events.
- Issues routing instructions.
- Loads and manages generic plug-ins, such as the SQL Plug-in, to provide server access to SQL Server databases.



For more information about Call Routing Server, see *Avaya Aura® Call Center Elite Multichannel Call Routing Server User Guide*.

Configuration Server

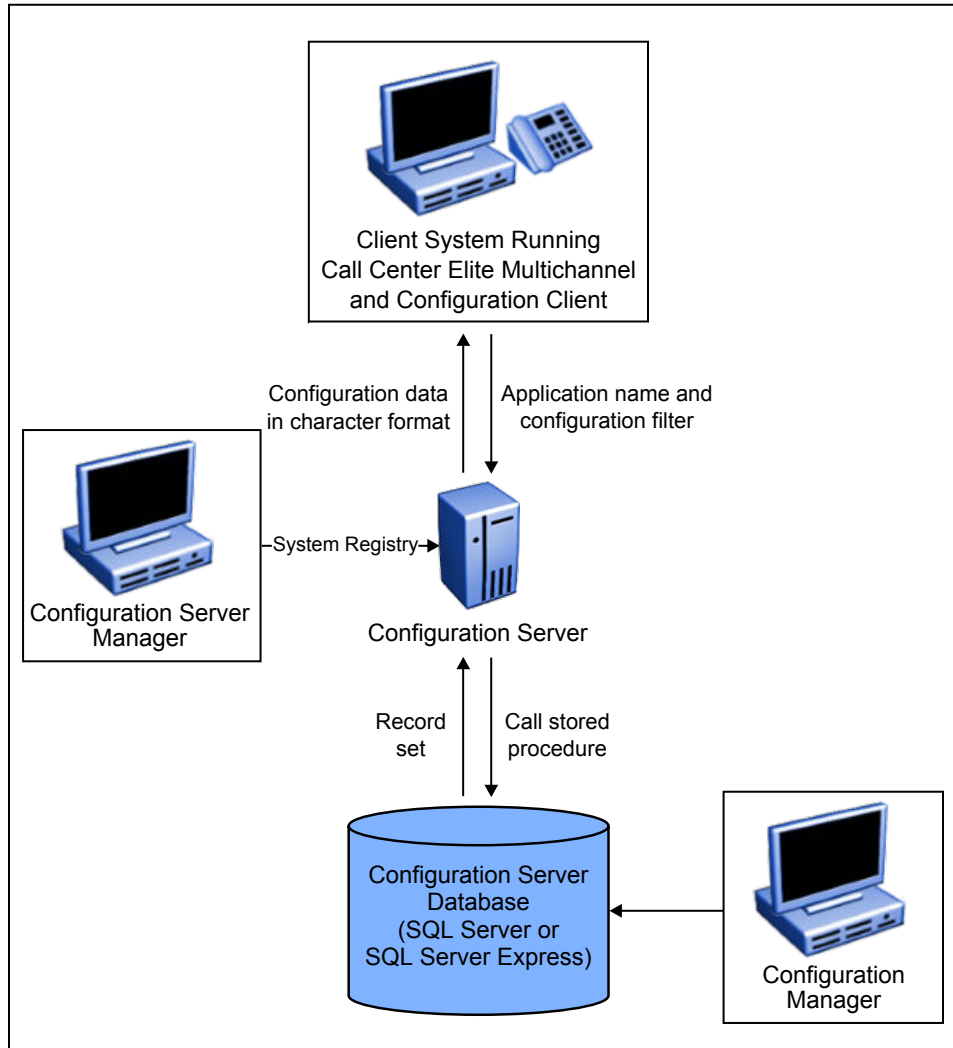
Configuration Server acts as a central repository of configuration information for Call Center Elite Multichannel Desktop. Using Configuration Server, a contact center or network administrator can change the program configuration information without the individual Desktop.

The information that the server processes is stored in a database such as Microsoft SQL Server or Microsoft SQL Server Express. The server operates as a service and has no user interface. You can add configuration data to the database by using a separate application called Configuration Manager.

You can configure Configuration Server through Configuration Server Manager. Configuration Server Manager is capable to start and stop Configuration Server.

The Configuration Client control integrates the Call Center Elite Multichannel feature with configuration information. The Configuration Client control enables Call Center Elite Multichannel to get information, regardless of the location of Call Center Elite Multichannel. You can store

Configuration Client control on the client system during the installation of Call Center Elite Multichannel.



Task Director

Task Director provides mechanisms to run tasks for each defined schedule. You can install and configure Task Director as a server component.

Using Task Director, you can perform the following:

- Define the task
- Store the task in a database
- Define an instance of a task

- Edit the task definition
- Access the defined tasks stored in a central database
- Manage the defined tasks:

Administrator can interact with the task definitions. With the task definition, the administrator can:

- View the tasks that are defined.
- View scheduling details of each task, such as:
 - Type of a task. For example: email, report, etc.
 - Where the task are executed.
 - Scheduled rules
 - When the next execution is scheduled
- Make a task active or inactive
- Request a one-off execution of a task
- Monitor the task execution:

An administrator can interact with task instances. Specifically, the administrator can view:

- Which tasks have been executed?
- When the tasks are executed?
- If and when they complete?
- What was the terminating condition for the task?
- Which tasks are running currently?
- Which tasks are scheduled to run in the next period where the period is provided by the administrator?
- Terminate a running task
- Schedule creating reports according to a predefined schedule

Interaction Data Service

Interaction Data Service is the suite name for three Call Center Elite Multichannel products:

- Interaction Data Server-Voice and Presence
- Interaction Data Server-Multimedia, and
- Interaction Data Server-View

All three servers work together to gather, store, and display statistical data on Call Center Elite Multichannel voice and multimedia work items. All use a single database.

Interaction Data Server-Voice and Presence: With the server, you can monitor VDNs, splits/skills, trunk groups, and agent extensions to gather detailed statistical information about all facets of a call.

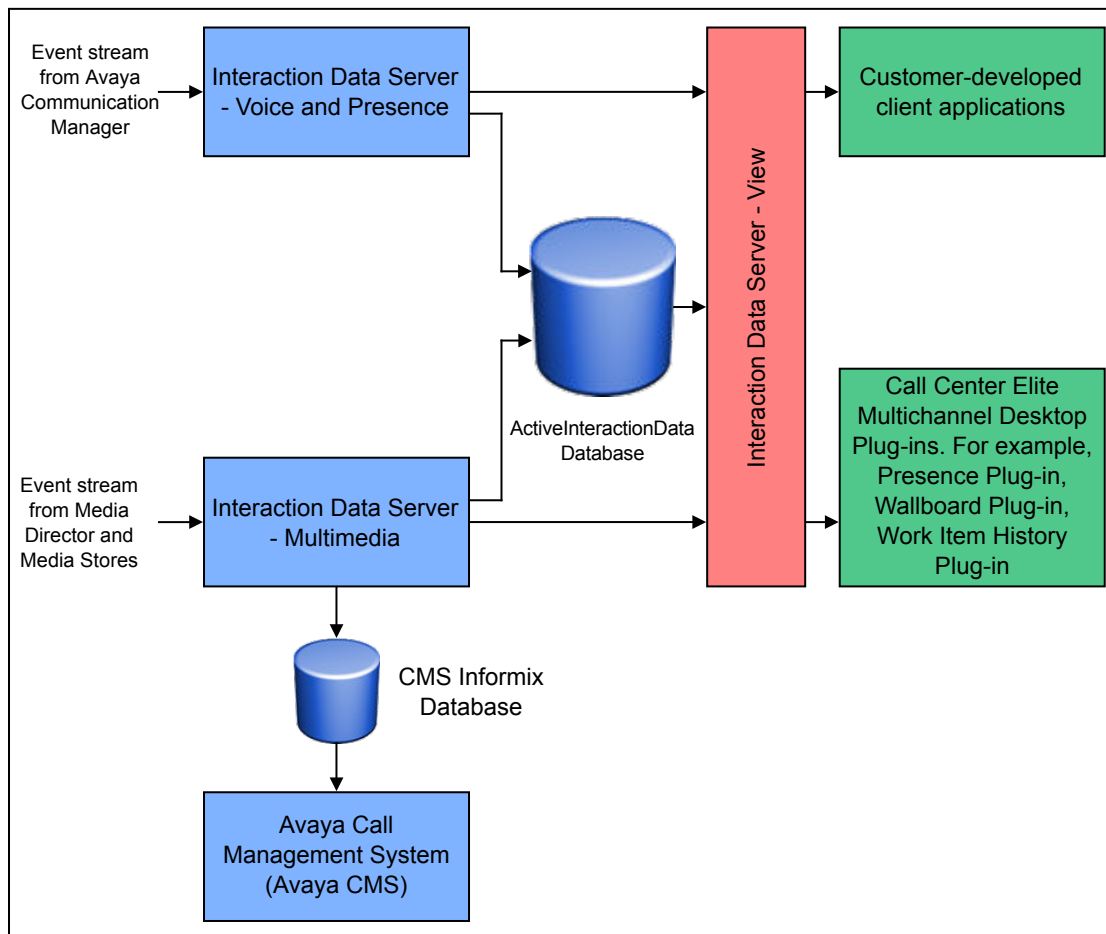
The server receives real-time information from your Avaya Communication Manager and, based on the regularity you specify, calculates statistics, such as talk and wait-time averages. The Media Store database stores data.

Interaction Data Server - Multimedia: With the server, you can receive a stream of event information from all Call Center Elite Multichannel media stores and Media Directors. The server aggregates this information into real-time and historical information on to all multimedia work items that flow through the call center. The Media Store database stores data.

Interaction Data Server-View: With the server, you can gain access to the statistical data that Interaction Data Server-Voice and Presence and Interaction Data Server-Multimedia generates. You can then display that data on client computers. Call Center Elite Multichannel desktop software uses Interaction Data Server-View. Developers can use Interaction Data Server-Multimedia to build custom client applications.

*** Note:**

Interaction Data Server-View replaces the current Interaction Data Client.



Call Center Elite Multichannel also makes some of the multimedia reporting data held within the Interaction Data Service available to the Avaya Call Management System (Avaya CMS) package.

For more information about reporting, see *Avaya Call Management System Supervisor reports* on the Avaya support site at: <http://support.avaya.com>.

TTrace System

TTrace stands for Avaya Trace System. TTrace System receives output such as logs/traces from applications and stores to the file system. The outputs are separated according to the originator.

The file system on a server is a critical resource. You can file the logs and traces of the TTrace System on a remote computer. You can view and control the output files using software. You can gain access to the files containing the records.

Call Recording

Using the Call Recording plug-in, agents can record the calls with a customer and replays the recorded calls.

In Call Center Elite Multichannel Desktop, you can integrate Avaya Contact Recorder (ACR) software to record calls. For more information on ACR, see the documentation provided with the software.

Agents can use the recording buttons on the Voice toolbar of Call Center Elite Multichannel Desktop to start and stop recording a call. The ACR server stores all recorded calls.

In Call Center Elite Multichannel Desktop, agents can search the recorded calls based on the date, agent name, customer, and VDN. Agents can also schedule a call recording, enter comments to a call recording, and give score to a call recording. Supervisors can also record and replay the recorded calls that agents in the group are handling.

For more information about recording and replaying recorded calls, see *Avaya Aura[®] Call Center Elite Multichannel Desktop User Guide*

For more information about configuring the Call Recording service, see *Administering Avaya Aura[®] Call Center Elite Multichannel*.

Experience Portal Config Server

Experience Portal Management Server facilitates agents to view and configure features from the Experience Portal software. Agents can also view the Experience Portal reports using the Call Center Elite Multichannel Reporting application. You can configure Experience Portal Management Server using Call Center Elite Multichannel Control Panel program.

For more information, see *Administering Avaya Aura[®] Call Center Elite Multichannel* and *Avaya Aura[®] Call Center Elite Multichannel Reporting User Guide*.

Media Director

Media Director distributes non-voice work items to contact center agents. The work item can be an email, a web chat, an SMS, or an outbound call request. You can distribute work items using the queuing algorithms built into your Avaya Communication Manager.

Media Director uses the phantom call capabilities of the switch to generate a call and put the call in a specified queue. Phantom calls are calls that a CTI application generates. Such calls do not originate from a physical station such as location. The switch distributes the phantom calls using standard queuing algorithms and blends the call with other traditional voice calls. When the system delivers a phantom call to an agent, Media Director associates the call with the highest-priority work item. Media Director then transfers data specific to the work item to the agent desktop.

Non-voice work items originate from plug-in modules called media stores. Media stores connect to disparate sources such as email servers or web servers and interact with the Media Director and clients using a well-defined protocol.

Media Proxy

Media Proxy is a bridge component that manages the connections between Media Director and any number of client applications running on the same computer.

Media Proxy runs as a Windows service in the background and performs the following:

- Reduces network traffic when multiple client applications on one computer require to connect to the Media Director.
- Automatically connects to the Media Director when Media Proxy restarts.

*** Note:**

Client applications do not require to reconnect to Media Director when Media Proxy restarts.

- Enables users to use Call Center Elite Multichannel Desktop when building client applications.

*** Note:**

Media Proxy can also be deployed on the server side to serve connections from multiple Agent Desktops. However, this configuration supports lesser number of Agents.

Virtual Agent

Virtual Agent is a Call Center Elite Multichannel service that facilitates you to process work items using “virtual” agents instead of real agents. You can send email or text messages to customers using a group of virtual agents, creating an automated messaging service. Customers who call a phone number answered by Avaya Experience Portal, can access data that is stored in the customer database of Call Center Elite Multichannel. Virtual Agent processes the multimedia work

items that are generated when incoming phone calls are received. No manual effort other than some initial setup by an administrator is required.

Virtual Agents process work items in the same way as the real agents. Virtual Agents log in to the XML server of Call Center Elite Multichannel and use a station DN and, if required, an agent ID. Virtual Agents then wait to receive and deliver Call Center Elite Multichannel work items. The Virtual Agent service supports up to 300 concurrent virtual agents, each capable of receiving one work item per second. The service starts automatically with the server operating system. You can configure the service using the Call Center Elite Multichannel Control Panel.

Virtual Agent Web Service

Most functions associated with a work item are available to applications using a web service, for example, Dialog Designer. You can use the functions to get complete control of the work item, such as accept, close, and suspend, and other Work Item-specific functions. Using web service, you can gain access to work item data, notes, and chat functionality.

Support for Dialog Designer Avaya IR/Voice Portal

Using Virtual Agent Web Service, you get direct access from Dialog Designer VXML to Call Center Elite Multichannel. The service also provides IR/VP script access to all Work Item data for all work item types. Each IVR Port that is configured as a Virtual Agent endpoint uses a Call Center Elite Multichannel IVR license.

Outbound Worker

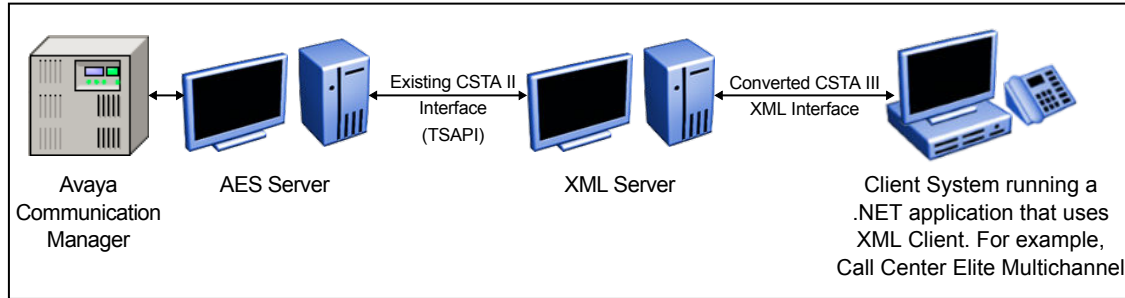
You can use Outbound Worker to automatically send simple outbound messages to a list of contacts loaded in to a Preview Contact program. You can use Outbound Worker to send SMS (Short Message Service) text messages to mobile phones and email messages. The outbound worker receives Preview Contact work items the same as a desk agent. Therefore Outbound Worker requires the same Voice and Multimedia licenses, and automatically processes these work items.

XML Server

XML Service consists of the following:

- An XML server, which converts the CSTA II interface of the Avaya Aura® Application Enablement Services (AES) TSAPI service to CSTA III XML.
- An XML client, which developers use to build CTI applications in a .Net framework.

XML Server represents the CSTA XML-over-TCP interface. The CSTA XML-over-TCP interface complies with the international standard for computer telephony interfacing as set by the European Computer Manufacturers Association (ECMA).



Media Stores

Preview Contact Media Store

Preview Contact Media Store interacts with Media Director, Media Proxy, and Call Center Elite Multichannel Desktop to deliver non-voice work items to contact center agents.

Preview Contact Media Store runs as a service. Preview Contact Media Store facilitates you to blend the on-screen customer contact prompts with the inbound or outbound calls, essentially using this work to fill in the gaps between peaks in inbound call traffic.

Preview Contact is defined as distributing a customer record to an agent so that the agent can initiate contact with the customer by phone.

You can install Preview Contact on a system running Microsoft Windows Server 2008 or Windows Server 2012. Preview Contact Media Store retrieves contact details from a SQL database. You can define the task to contact a group of contacts in the database as a campaign. You can start the campaign at a certain date and time and run until another date and time. The campaign can run over multiple time periods and might be recursive that means starting every Monday morning at 9:00.

You can schedule campaigns to coincide with:

- Different shifts
- Quieter times of the day such as low-peak call times
- Times of the day when easy to contact customers

A campaign configuration identifies which queue work items must queue to and the priority within that queue.

Simple Messaging Media Store

Simple Messaging Media Store is one of many media stores that interact with Media Director, Media Proxy and Call Center Elite Multichannel Desktop to deliver non-voice work items to contact center agents.

Simple Messaging Media Store runs as a service. Simple Messaging Media Store acts as an interface between Media Director and the following simple messaging gateways:

- Web Chat Gateway
- Short Message Service Gateway
- XMPP Gateway

Simple Messaging Media Store provides the common messaging functionality required by these gateways. Simple Messaging Media Store facilitates you to blend customer messages using an email, a web chat, or an SMS with inbound or outbound telephone calls.

You can install Simple Messaging Media Store on a system running Microsoft Windows Server 2008 or Windows Server 2012, Simple Messaging Media Store uses its configuration data and the information specified in database schema to:

- Send simple messages from different gateways to different Media Director queues.
- Give queuing priority to messages received from special customers.
- Reject messages from certain customers and automatically email them that rejection has happened.
- Only facilitates messages from certain customers to queue to certain Media Director queues.

Email Media Store

Email Media Store interacts with Media Director, Media Proxy, and Call Center Elite Multichannel Desktop to deliver non-voice work items to the contact center agents. Email Media Store facilitates you to blend the customer email inquiries with inbound/outbound calls, essentially using this work to fill in the gaps between peaks in call traffic.

Email Media Store receives emails from one or more mail servers using the POP3 or SMTP protocol (secure/unsecure).

You can install Email Media Store on a system running Microsoft Windows Server 2008 or Windows Server 2012. Email Media Store uses its configuration data and the information specified in database schema to:

- Distribute emails sent to certain mailboxes to certain queues in Media Director.
- Manage that distribution by making email queues *open* for certain times and days of the week.

- Give queuing priority to emails received from special customers.
- Assign different queuing priorities to the first email a customer sends and all subsequent emails send as part of the same conversation.
- Reject emails from certain customers and automatically email them that rejection has happened.
- Only allow emails from certain customers to queue to a certain email queue. Email Media Store automatically informs a customer through email that their email has been received during or outside the operating hours of that queue.

Email security

Transport Layer Security (TLS) and Secure Sockets Layer (SSL) are the cryptographic protocols that provide communication security over the Internet. These protocols use X.509 certificates to exchange a symmetric session key and assure the counterpart whom they are communicating with. The symmetric session key is used to encrypt the data that flows between the parties. The encryption allows the confidentiality of the data or message, message integrity of the message authentication codes, and authentication of by-product messages.

The X.509 certificate based authentication has two levels of certificate validation, namely, Unidirectional and Mutual.

- Call Center Elite Multichannel only supports the Unidirectional certificate validation, where Call Center Elite Multichannel expects the exchange server to send the certificate. Call Center Elite Multichannel receives the certificate and validates it. In this scenario, Call Center Elite Multichannel is present within the organization firewall and the exchange server is present outside the firewall as an external interface.
- In the Mutual authentication, both parties share their certificates during the initial certificate validation hand shake.

Call Center Elite Multichannel supports various security levels to secure the emails that Email Media Store receives from the mail servers.

The following are the supported security levels:

- Unsecured
- SSL/TLS
Microsoft Exchange Server does not support Implicit SSL/TLS for the SMTP protocol.
- STARTTLS
This security level is supported only for the SMTP protocol.

Voice Media Store

Voice Media Store delivers voice work items such as a visual representation of a call to contact center agents through Call Center Elite Multichannel Desktop.

Agents answer voice work items and verbally respond to a customer inquiry while processing and closing the work item on the screen.

Agents can use any number of the features available to them through Call Center Elite Multichannel Desktop, such as:

- Assigning a work code to the voice work item.
- Recording notes for the voice work item or displaying previously made notes for a work item that has history.
- Printing all information relating to the voice work item.
- Inserting autotext into the work item notes or any text field on a customized vertical tab.
- Viewing the conversation history of a customer, or retrieving a previously closed work item.

The system stores Voice work items as other multimedia work items. For example, email or simple message work items in the `ASMSControl` and `ASMSData` Databases.

In the following work item diagram, Voice Media Store creates and stores a sequence of data that shows the progress of the call through various devices within the switch:

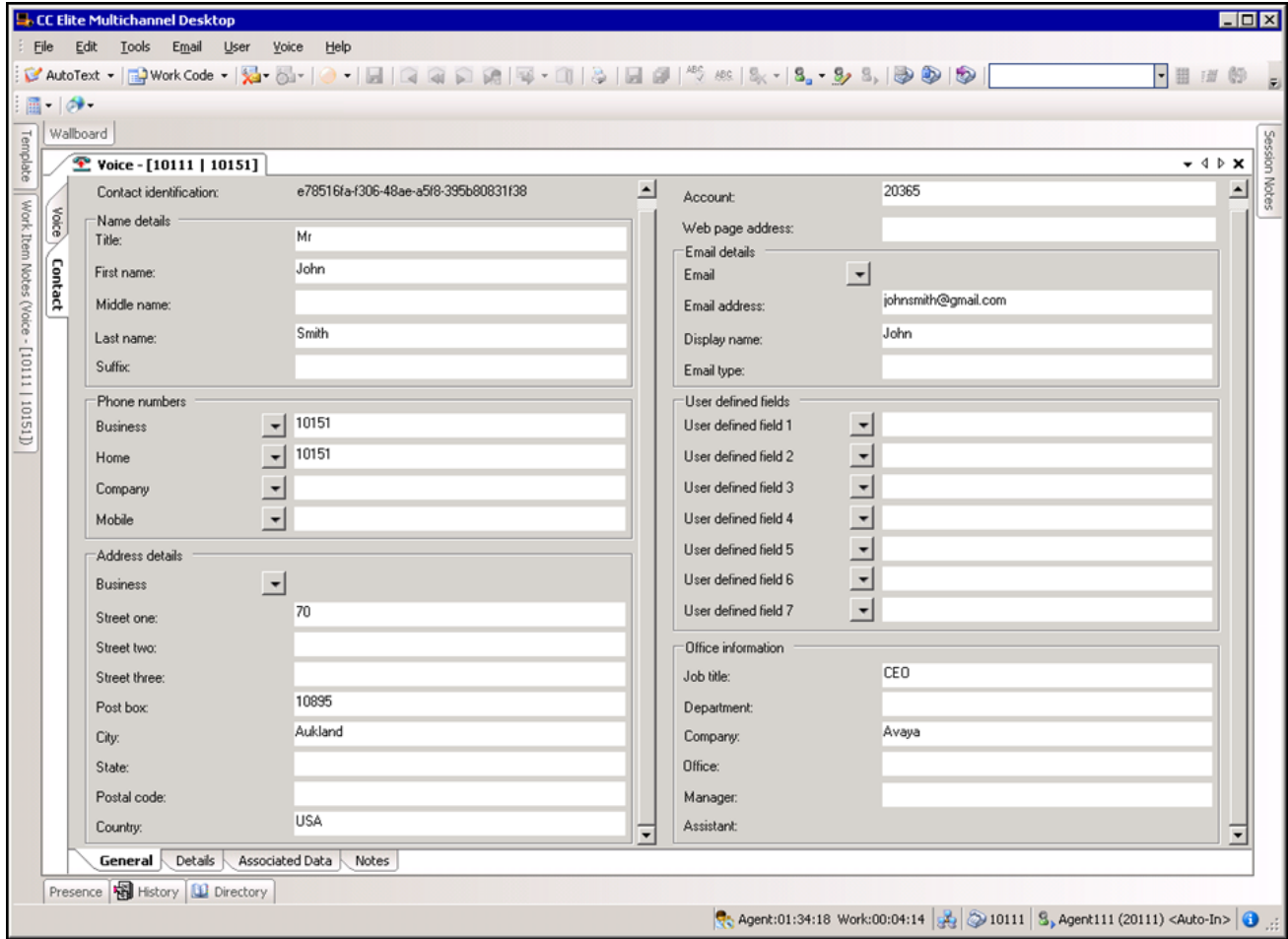
The screenshot displays the 'CC Elite Multichannel Desktop' application window. The main area shows a 'Voice - [10111 | 10151]' work item. The 'Delivered sequence' table is as follows:

Delivered Date / Time	Alerting DN	Alerting Device	UIUI	Collected digits
8/3/2012 4:40:49 PM	6450	Kaityap TBD V...		
8/3/2012 4:40:54 PM	10111	Kaityap Station...		

Below the work item details is a 'Directory' section with a search result table:

Business	Email	First Name	Home	Last Name	Mobile	Rating	Work Fax
		Group1				100	
10111		Agent1		Agent1	20111	100	
10112		Agent2		Agent2	20112	100	

If a customer calling number matches with a contact record in `ASContact` Database, the system displays a vertical contact tab on the left as part of the work item as shown above.



While handling the inquiry, an agent can click this tab and edit the customer contact record. If the customer calling number does not match with a contact record, the agent can create a new contact record and associate it with this work item. Next time the customer makes contact, the customer contact record automatically displays as part of the work item. Each contact record has a unique ContactId as listed at the top of the Contact tab.

Media Gateways

Web Chat Gateway

Web Chat Gateway interacts with the Simple Messaging Media Store and provides customers using Internet the capability to interact with call center agents. Web chat functionality facilitates the customer, browsing the client's website, to click a URL and have a session initiated with the call center agent. Using the chat session, the customer and agent can exchange text-based messages.

Short Message Service Gateway

Sending text message is a popular, convenient, and cheaper way of using your mobile phone to communicate.

Call Center Elite Multichannel broadens the customer service capability of your contact center by facilitating you to blend SMS (short message service) messages with inbound calls. Customers or business associates who prefer mobile messaging can make contact with you and receive the same treatment as regular callers.

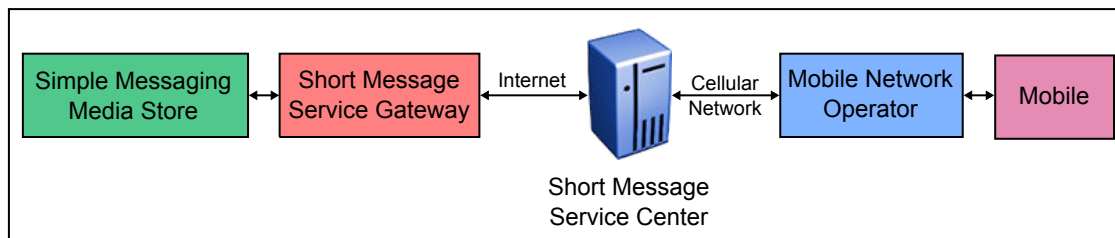
By using your computer telephony environment, you can enjoy the benefits of priority queuing and distribution to agents with relevant skills and knowledge.

Short Message Service Gateway interacts with the Simple Messaging Media Store, Media Director, and Call Center Elite Multichannel Desktop as part of a multimedia suite.

Simple Messaging Media Store is one of three media stores that deliver a range of non-voice work items to contact center agents. Providing base messaging functionality for the Web Chat Gateway, it:

- Gives queuing priority to messages received from special customers
- Rejects messages from certain customers and automatically email them that the message is rejected
- Only facilitates messages from certain customers to queue to certain Media Director queues.

Short Message Service Gateway sits between the remote server and Simple Messaging Media Store:



XMPP Gateway

The XMPP Gateway is a server application that provides conversion from XMPP (Extended Messaging and Presence Protocol) to Call Center Elite Multichannel Simple Messaging Media Store.

XMPP supports the following features:

- Instant messages
- Call Center Elite Multichannel Presence in XMPP Customer's client

- Outbound sessions
- Outbound session-checks presence of the contact

Plug-ins

Rules Plug-in

The Rules Plug-in facilitates you to create a simple set of rules that automatically perform actions on call events that meet certain criteria. Rules Plug-in rule functionality is similar to the email rules capability in Microsoft Outlook.

Without changing an application code, you can use the Rules Plug-in to enhance desktop functionality. For example, you can configure rules to:

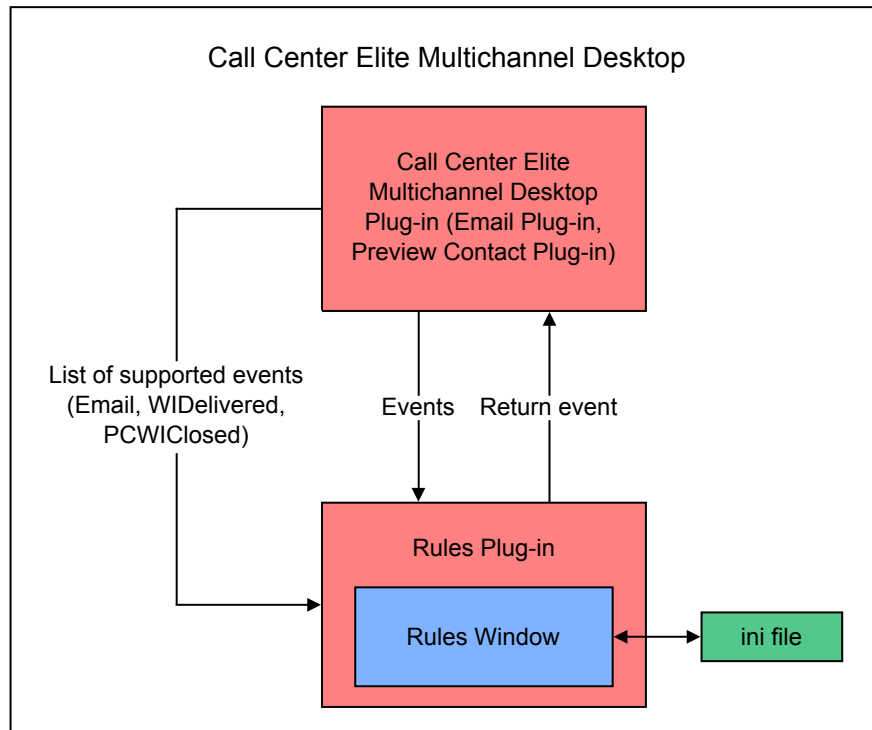
- Deflect calls from a specific CLI to voice mail
- Open another application or website
- Send data and key strokes to another customer-related application
- Bring another window to the front to help process a call
- Pass data to another application that supports DDE

Essentially, a rule fits into a simple statement. When a certain event occurs and a call property matches the value, perform the action. You can either continue rules processing or move to another rule or stop.

The controlling application starts the Rules Plug-in. The configuration data passed to Rules Plug-in consists of the following:

- Mandatory generic plug-in configuration data, and
- A list of rules that must be processed.

Individual controlling applications manage the functionality to build valid rules that relate to a specific desktop product. The application uses the Rules Plug-in to run those rules.



The Rules Plug-in and the Rules Wizard are installed as part of the Call Center Elite Multichannel Desktop installation.

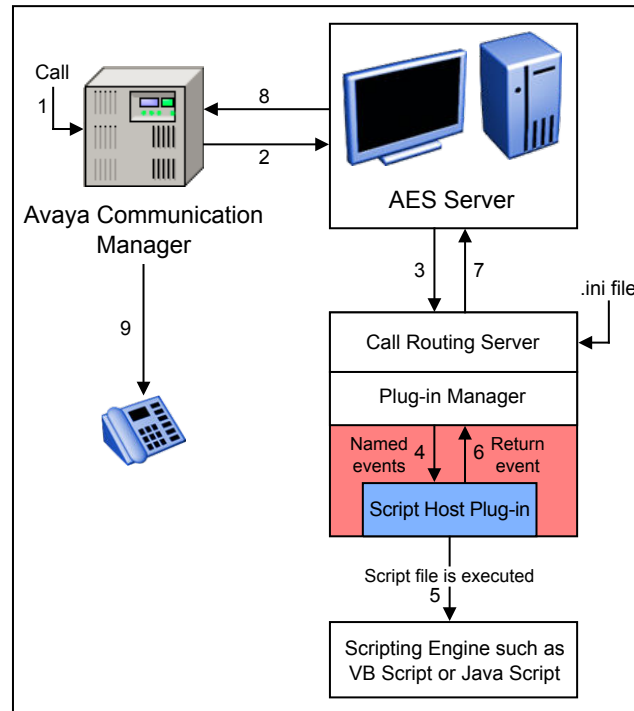
Script Plug-in

Script Plug-in is a simple plug-in that takes advantage of scripting engines developed by Microsoft and others. With Script Plug-in, you can write simple scripts in VB Script or Java Script to be executed and provide services to the Call Center Elite Multichannel suite.

This plug-in can be plugged in to any Call Center Elite Multichannel server application that supports Plug-in Manager, such as Virtual Agent and Call Routing Server.

The common interface facilitates all scripting engines to be consumed by parent applications in an identical manner regardless of the scripting language the script engine implement.

The two most commonly available scripting engines are VB Script and Java Script from Microsoft. These are components installed with Internet Explorer.



For more information about call routing through Script Plug-in, see *Avaya Aura® Call Center Elite Multichannel Call Routing Server User Guide*.

SOAP Plug-in

SOAP is a message-based protocol based on XML for accessing services on the Web. Initiated by Microsoft, IBM and others, SOAP employs XML syntax to send text commands across the Internet using HTTP.

SOAP Plug-in is a simple plug-in. With SOAP Plug-in, you can integrate Call Center Elite Multichannel server applications with any web service or SOAP service on an Intranet or Internet. SOAP Plug-in does not need new development on the server.

SOAP plug-in can be plugged in any Call Center Elite Multichannel server application that supports Plug-in Manager, such as IVR Server and Call Routing Server.

SOAP Plug-in uses the Microsoft Simple Object Access Protocol (SOAP) to connect to the web service and support web-based information to be available to the controlling application.

SQL Plug-in

SQL Plug-in integrates with Avaya Call Center Elite Multichannel server applications with any SQL Server database without the need for new development on the server.

Database and Server components

- Stations
- Skills
- VDNs
- HolidayTables
- ServiceHoursTables
- Software Version

In Call Center Elite Multichannel Control Panel, you can add a connection to the Communication Manager server that you can use for Call Center Elite Multichannel. For more information, see *Administering Avaya Aura® Call Center Elite Multichannel*.

Chapter 5: Interoperability

Supported Avaya products

Call Center Elite Multichannel Release 6.5 supports multiple Avaya products. For the latest and most accurate compatibility information, go to <http://support.avaya.com/CompatibilityMatrix/Index.aspx>.

Supported non-Avaya products

Call Center Elite Multichannel Release 6.5 supports the following non-Avaya products:

Non-Avaya Products	Desktop	Server	Notes
Microsoft Windows 10 Professional and Enterprise (32-bit or 64-bit)	✓		
Microsoft Windows 8.1 Pro and Enterprise (32-bit or 64-bit)	✓		
Microsoft Windows 8.0 Pro and Enterprise (32-bit or 64-bit)	✓		
Microsoft Windows 7 SP1 Professional, Enterprise, and Ultimate (32-bit and 64-bit)	✓		
Microsoft Windows Server 2012 R2 Standard		✓	
Microsoft Windows Server 2008 SP2 (32-bit and 64-bit)		✓	
Microsoft Windows Server 2008 SP1 (64-bit)		✓	
Microsoft Windows Server 2008 R2 SP1 (64-bit)		✓	Interaction Data Service - Voice and Presence is supported only if you have Microsoft Windows Server 2008 R2 SP1 (64-bit). Therefore, you must upgrade to Microsoft Windows Server 2008 R2 SP1 (64-bit) if

Table continues...

Non-Avaya Products	Desktop	Server	Notes
			you have an older version of Microsoft Windows Server 2008.
Microsoft Exchange Server 2007, 2010, 2013, and 2016		✓	
Microsoft Office 365 (Exchange only)		✓	<ul style="list-style-type: none"> The Use Reply Email Address for Agent Initiated Emails feature is not supported with Microsoft Office 365. For information about this feature, see <i>Administering Avaya Aura® Call Center Elite Multichannel</i> The number of emails polled from Microsoft Office 365 depends on the connection between the Call Center Elite Multichannel server and Microsoft Office 365. Call Center Elite Multichannel supports Microsoft Office 365 only with secure connections. Call Center Elite Multichannel does not support vulnerable SSL v2/v3 protocols. Office 365 connection will only be supported with TLS 1.0/1.1 protocols when TLS will be supported by Microsoft.
Microsoft SQL Server 2008 Standard, Express, and Enterprise (32-bit and 64-bit)		✓	
Microsoft SQL Server 2008 R2 (64-bit)		✓	
Microsoft SQL Server 2012 Standard, Express, and Enterprise (32-bit and 64-bit)		✓	
Microsoft SQL Server 2014 Standard, Express, and Enterprise		✓	
Microsoft SQL Server 2016 Standard and Enterprise		✓	
Microsoft Internet Explorer 9.0, 10.0, and 11.0	✓		
Microsoft Dynamics CRM 2011, 2013, 2015, and 2016		✓	
Citrix XenApp 6.5, 7.5, and 7.11		✓	

Table continues...

Non-Avaya Products	Desktop	Server	Notes
VMware vMotion 5.0, 5.1, and 6.0		✓	
VMware software components: <ul style="list-style-type: none"> • ESXi Host 5.0, 5.1, 5.5, and 6.0 • vSphere Client 5.0, 5.1, and 6.0 • vCenter Server 5.0, 5.1, and 6.0 		✓	
VMware Horizon View 5.3 and 7.0	✓		

! Important:

The installation of Call Center Elite Multichannel Server components is supported only for the English version of the Server operating system.

Secure Access Link

Secure Access Link (SAL) is the preferred mode for accessing Avaya services remotely. Call Center Elite Multichannel leverages the remote access functionality of SAL.

SAL uses the existing Internet connectivity of the customer to provide the remote support. The entire communication is outbound from the customer environment using encapsulated HTTPS. SAL requires minimum upload bandwidth of 90 KB/s (720 KB/s) with maximum round trip latency of 150 ms.

For remote access functionality, you can use one of the following methods:

- Web conferencing
- Remote Desktop Protocol (RDP)
- Third Party applications, such as GoTo Meeting

Customers must deploy SAL in their network. For more information, see the *SAL implementation guide*.

Chapter 6: Performance specifications

Capacity information


Capacity information without encryption

This section provides capacity information when you have unencrypted channels between Call Center Elite Multichannel Desktop and Call Center Elite Multichannel Servers.

The following table provides the capacity information for Call Center Elite Multichannel installed on multiple systems. For example, Core Server and Interaction Data Server are running on two separate systems.

Media	Multiple Servers and Single VMS/EMS		Multiple Servers and Multiple VMS/EMS*		Comments
	Maximum Number of Agents/ Maximum Number of Active Agents	Busy Hour Call Completion (BHCC)	Maximum Number of Agents or Devices	Busy Hour Call Completion (BHCC)	
Voice only	1000/1000	10000	1200	12000	-
Inbound Email only	1000/400	4000	1200	6000/4500**	<p>If you have a secure connection between the Call Center Elite Multichannel server and the exchange server, the system capacity reduces by 20%.</p> <p>With single EMS, to support BHCC of 4000, you must have at least four queues with a maximum BHCC of 1000 per queue. BHCC of 1000 per queue is permissible for 2 to 3 hours load with an average of 600-700</p>

Table continues...

Media	Multiple Servers and Single VMS/EMS		Multiple Servers and Multiple VMS/EMS*		Comments
	Maximum Number of Agents/ Maximum Number of Active Agents	Busy Hour Call Completion (BHCC)	Maximum Number of Agents or Devices	Busy Hour Call Completion (BHCC)	
					emails per hour per queue.
Chat only	1000/200	4000	-	-	With 200 concurrent chats.
Voice/ Email/Chat	1000/1000	6000/4000	1200	6000/6000	<p>Agents can handle multimedia traffic of 6000 multimedia contacts in any combination between email and chat.</p> <p>For Multiple Servers and Multiple VMS, 400 multimedia agents can be active at a time, with maximum 200 active chat agents.</p> <p> Note: Busy Hour loads are validated with an average email size of 50 KB for each email.</p>

* The capacity information is applicable for minimum 2 VMS/3 EMS servers.

** With Multiple EMS:

- BHCC of 6000 is applicable for up to 75 queues with a specification of 25 queues per EMS. 75 queues together support total BHCC of 6000 with an equal distribution of the BHCC among three EMS servers.
- Call Center Elite Multichannel supports up to 150 queues with a specification of 50 queues per EMS. 150 queues together support total BHCC of 4500 with an equal distribution of the BHCC among three EMS servers.

 **Important:**

When you have Voice, Email, and Chat channels together, the BHCC for any channel cannot exceed the maximum BHCC limit for that channel. For example, the BHCC distribution Voice: 4000, Email: 6000, Chat: 2000 is not valid because the maximum permissible BHCC for multimedia channels (Email and Chat) is 6000.

The following table provides the capacity information for Call Center Elite Multichannel on a single system. For example, Core Server and Interaction Data Server are running on a single system.

Media	Maximum Number of Agents or Devices	BHCC	Comments
Voice/ Email/Chat	400 (400/400)	4000/2000	400 agents can handle any combination of media. The upper limit of BHCC for voice is 4000 and for multimedia is 2000 in any combination of email and chat.

The following table provides the maximum number of queues that you can create in Media Director and Short Messaging Media Store.

Media Director Queues	Short Messaging Media Store Queues
25	25 (With BHCC of 4000)

The following table provides the maximum number of queues that you can create in Media Director and a single Email Media Store.

Media Director Queues	Email Media Store Queues (Single Email Media Store)
25	25 (With BHCC of 4000)
50	50 (With BHCC of 1500)
100	100 (With BHCC of 450)

The following table provides the maximum number of queues that you can create in Media Director and multiple Email Media Stores.

Media Director Queues	Email Media Store Queues (Three Email Media Stores)
75	75 (25 queues per EMS with combined BHCC of 6000*)
150	150 (50 queues per EMS with combined BHCC of 4500*)

* BHCC numbers are certified with maximum 50% emails having attachment size of up to 500 KB and the remaining emails having attachment size of up to 50 KB.

*** Note:**

For two Email Media Stores having the proportional number of queues, the BHCC numbers are proportionately lower than the BHCC numbers for three Email Media Stores.

*** Note:**

- You must create a separate queue for every 1000 emails per hour in Email Media Store. For more information, see *Administering Avaya Aura® Call Center Elite Multichannel*.
- You must set the Auto Growth and Auto Shrink values in the database size settings for the Microsoft SQL server to attain the specified capacity. For more information about the database settings, see *Installing Avaya Aura® Call Center Elite Multichannel*.
- On an average, each email interaction utilizes around 15-20 KB data of the ASMSdataX database.

- You must set the maximum flow value in Application Enablement Services (AES) to attain the specified capacity. For more information about the AES settings, see *Installing Avaya Aura® Call Center Elite Multichannel*.
- These capacity numbers are applicable for an unsecure connection between Call Center Elite Multichannel Desktop and Call Center Elite Multichannel Servers. The capacity numbers decrease when you configure a secure connection.
- These capacity numbers remain same for Unicast and Multicast connections except for the parameters that can be monitored through Wallboard and Presence plug-ins. For Unicast connections, only 200 agents can monitor 10 parameters each. For Multicast connections, only 1000 agents can monitor 40 parameters each. The capacity numbers are certified for a LAN environment.

Capacity information with encryption


This section provides capacity information when you have encrypted channels between Call Center Elite Multichannel Desktop and Call Center Elite Multichannel Servers.

Media Proxy Service running on Client



The following table provides the capacity information for Call Center Elite Multichannel installed on two separate systems. For example, Core Server and Interaction Data Server are running on two separate systems.

Media	Maximum Number of Agents or Devices	Busy Hour Call Completion (BHCC)	Comments
Voice only	1000	10000	-
Inbound Email only	400	2800	<p>If you have a secure connection between the Call Center Elite Multichannel server and the exchange server, the system capacity reduces by 20%.</p> <p>* Note:</p> <p>To support BHCC of 2800, you must have at least four queues with a maximum BHCC of 700 per queue. BHCC of 700 per queue is permissible for 2 to 3 hours load with an average of 500-600 emails per hour per queue.</p>
Chat only	400	3200	With 200 concurrent chats.
Voice/Email/Chat	1000	8000/2000	400 agents can be multimedia enabled. These 400 agents can handle multimedia traffic of 2000 multimedia contacts in any combination between email and chat.

Table continues...

Media	Maximum Number of Agents or Devices	Busy Hour Call Completion (BHCC)	Comments
			<p> Note:</p> <p>Busy Hour loads are validated with an average email size of 50 KB for each email.</p>

Media Proxy Service running on Server

Media	Maximum Number of Agents or Devices	Busy Hour Call Completion (BHCC)	Comments
Voice only	600	6000	-
Inbound Email only	400	2800	<p>If you have a secure connection between the Call Center Elite Multichannel server and the exchange server, the system capacity reduces by 20%.</p> <p> Note:</p> <p>To support BHCC of 2800, you must have at least four queues with a maximum BHCC of 700 per queue. BHCC of 700 per queue is permissible for 2 to 3 hours load with an average of 500-600 emails per hour per queue.</p>
Chat only	400	3200	-
Voice/Email/Chat	600 (600/200)	4000/2000	<p>200 agents can be multimedia enabled. These 200 agents can handle multimedia traffic of 2000 multimedia contacts in any combination between email and chat.</p> <p> Note:</p> <p>Busy Hour loads are validated with an average email size of 50 KB for each email.</p>

Capacity information for Citrix XenApp

You can deploy or install a Call Center Elite Multichannel agent desktop on Citrix Server.

The following table shows the observation related to the memory and CPU utilization for 10 agent desktops:

EMC instances	CPU usage (%)	Memory usage (KB)
1	0.11	130,780
2	0.06	117,776
3	0.06	116,212
4	0.07	115,568
5	0.08	115,504
6	0.07	112,584
7	0.06	104,812
8	0.07	102,584
9	0.08	100,400
10	0.11	101,108

Depending on the hardware configuration of your Citrix Server, you can determine the number of agent instances that you can run on your Citrix Server. For more information, see the Citrix XenApp documentation.

Network requirements

This section provides the minimum network requirements for Call Center Elite Multichannel.

*** Note:**

If the agent is using the voice traffic on the same network, you must refer to the network recommendations from the corresponding voice product.

Component	Network requirement
Network Bandwidth	> 6 Mbps
Network port Interface	1 Gbps
Network delay such as Round Trip	<= 300 ms
Jitter	<= 30 ms
Packet Loss	< 2%

*** Note:**

- For information about network recommendations for Call Center Elite Multichannel Agent Desktop, see the Network recommendations for Call Center Elite Multichannel Agent Desktop section in *Installing Avaya Aura® Call Center Elite Multichannel*.
- All performance numbers are benchmarked with an average network delay of less than 70 ms. The performance capacity decreases by around 50% when the average network delay increases to 100 ms. A further increase in the network delay has a proportionate decrease in the capacity. Therefore, for optimal performance of capacities, ensure that you maintain an average network delay less than 70 ms.

Email

This section provides information on the email contact display time with respect to the following:

- Round Trip Time (RTT)
- Jitter
- Packet Loss

The maximum history record to display is set to 20 in the Call Center Elite Multichannel Agent Desktop Customer History pane. The **Customer Details/Customer History Display** column indicates the time that the system takes to open an email, load the context information, and display the context information. These sample times are for ideal laboratory conditions.

* Note:

The data was generated using a 20KB email message, a customer history containing 20 contacts of 20KB each, on a network where bandwidth is not limiting the data transfer. Email messages of different sizes generate different results.

Email display time with RTT

The following table shows how varying RTTs affect the email contact display time on Agent Desktop.

RTT (ms)	Jitter	Packet Loss	Email Display time (seconds)	Customer Details/Customer History Display time (additional time in seconds)
100	0	0	1	1
50	0	0	1	0
20	0	0	0	0

Email display time with RTT and Jitter

The following table shows how varying RTTs and Jitter affect the email contact display time on Agent Desktop.

RTT (ms)	JITTER (ms)	Packet Loss (%)	Email Display time (seconds)	Customer Details/Customer History Display time (additional time in seconds)
100	30	0	2	2
50	30	0	1	1
20	30	0	1	0

Email display time with RTT, Jitter, and Packet Loss

The following table shows how varying RTTs, Jitter, and Packet loss affect email contact display time on Agent Desktop.

RTT (milliseconds)	JITTER (milliseconds)	Packet Loss (%)	Email Display time in seconds	Customer Details/Customer History Display additional time in seconds
100	30	2	3	2
50	30	2	2	1
20	30	2	1	1

Chat

This section provides information on the chat contact display time with respect to the following:

- Round Trip Time (RTT)
- Jitter
- Packet Loss

The maximum history record to display is set to 20 in the Agent Desktop Customer History pane. The **Customer Details/Customer History Display** column indicates the time that the system takes to open a chat, load the context information, and display the context information. These sample times are for ideal laboratory conditions.

Chat display time with RTT

The following table shows how varying RTTs affect chat contact display time on Agent Desktop.

RTT (milliseconds)	JITTER (milliseconds)	Packet Loss (%)	Chat Display time in seconds	Actual chat displayed (Message box to indicating contact) time in seconds
100	0	0	5	2
50	0	0	3	2
20	0	0	0	2

Chat display time with RTT and Jitter

The following table shows how varying RTTs and Jitter affect chat contact display time on Agent Desktop.

RTT (milliseconds)	JITTER (milliseconds)	Packet Loss (%)	Seconds after phone started to ring and Contact displayed in Desktop	Actual chat displayed (Message box to indicating contact)
100	30	0	3	2
50	30	0	2	1
20	30	0	1	1

Chat display time with RTT, Jitter, and Packet loss

The following table shows how varying RTTs, Jitter, and Packet loss affect chat contact display times on Agent Desktop.

RTT (milliseconds)	JITTER (milliseconds)	Packet Loss (%)	Chat display time in seconds	Actual chat displayed (Message box to indicating contact)
100	30	2	5	3
50	30	2	3	2
20	30	2	2	1

Chapter 7: Developer

Developer is a collection or toolkit of .Net assemblies for Avaya switches. Using Developer controls, developers can quickly build CTI applications without the agent. In addition, developers can build foundation of a soft phone without requiring any coding.

The toolkit includes:

- XML Client
- XML Station
- XML Routing
- XML VDN
- Multimedia

For detailed information on this toolkit, see the *Avaya Aura® Call Center Elite Multichannel - Software Development Kit* document on <http://www.devconnectprogram.com>.

Chapter 8: Resources

Documentation

The following table lists the related documents for the Avaya Aura® Call Center Elite Multichannel product. You can download the documents from the Avaya Support website at <http://support.avaya.com/>.

Title	Description	Audience
<i>Avaya Aura® Call Center Elite Multichannel Call Routing Server User Guide</i>	Provides an overview of Call Routing Server that enables intelligent call routing for inbound calls in Call Center Elite Multichannel.	<ul style="list-style-type: none"> • Sales engineers • Solution architects • Implementation engineers • System administrators
<i>Installing Avaya Aura® Call Center Elite Multichannel</i>	Provides product overview, supported products, installation, configuration, and licensing requirements for Avaya Aura® Call Center Elite Multichannel.	<ul style="list-style-type: none"> • Implementation engineers
<i>Avaya Aura® Call Center Elite Multichannel Configuration Client Developer Guide</i>	Provides information about the Configuration Client Developer application, which is a control that enables an application to transparently access the configuration information from any location.	<ul style="list-style-type: none"> • Programmers
<i>Administering Avaya Aura® Call Center Elite Multichannel</i>	Provides information about how to manage databases, configure Call Center Elite Multichannel services, and administer Avaya Aura® Communication Manager.	<ul style="list-style-type: none"> • Sales engineers • Solution architects • Implementation engineers • System administrators
<i>Avaya Aura® Call Center Elite Multichannel Desktop User Guide</i>	Provides information about Call Center Elite Multichannel Desktop and describes how to use Call Center Elite Multichannel Desktop to receive, view, and respond to	<ul style="list-style-type: none"> • Sales engineers • Solution architects • Implementation engineers • System administrators

Table continues...

Title	Description	Audience
	voice and multimedia work items.	<ul style="list-style-type: none"> • End users
<i>Avaya Aura® Call Center Elite Multichannel Application Management Service User Guide</i>	Provides information about how to install and administer Application Management Service in Call Center Elite Multichannel.	<ul style="list-style-type: none"> • Sales engineers • Solution architects • Implementation engineers
<i>Avaya Aura® Call Center Elite Multichannel Upgrade and Migration Guide</i>	<p>Provides information about how to upgrade or migrate Avaya Aura® Call Center Elite Multichannel from Release 6.2.x, 6.3.x, or 6.4.x to Release 6.5.</p> <p>The Upgrade Sequence section in the respective upgrading chapters provides a high-level overview of the process.</p>	<ul style="list-style-type: none"> • Implementation engineers • Solution architects
<i>Avaya Aura® Call Center Elite Multichannel Reporting User Guide</i>	Provides information about the reports for Agents, Customers, Interaction, Program and Schedule, Skills, and VDNs. This guide also provides information about historical reports and real-time reports.	<ul style="list-style-type: none"> • Sales engineers • Solution architects • Implementation engineers
<i>Avaya Aura® Call Center Elite Multichannel TTrace User Guide</i>	Provides information about TTrace and the components of TTrace, helps you to understand the TTraceConsole and TTraceConfig user interfaces, and explains the operations that you can perform by using TTraceConsole and TTraceConfig.	<ul style="list-style-type: none"> • Sales engineers • Solution architects • Implementation engineers

Finding documents on the Avaya Support website

About this task

Use this procedure to find product documentation on the Avaya Support website.

Procedure

1. Use a browser to navigate to the Avaya Support website at <http://support.avaya.com/>.

2. At the top of the screen, enter your username and password and click **Login**.
3. Put your cursor over **Support by Product**.
4. Click **Documents**.
5. In the **Enter your Product Here** search box, type the product name and then select the product from the drop-down list.
6. If there is more than one release, select the appropriate release number from the **Choose Release** drop-down list.
7. Use the **Content Type** filter on the left to select the type of document you are looking for, or click **Select All** to see a list of all available documents.

For example, if you are looking for user guides, select **User Guides** in the **Content Type** filter. Only documents in the selected category will appear in the list of documents.
8. Click **Enter**.

Training

The following courses are available on the Avaya Learning website at <http://www.avaya-learning.com>. After logging in to the website, enter the course code or the course title in the **Search** field and press **Enter** or click > to search for the course.

Course code	Course title
5C00092W	Avaya Aura® Call Center Elite Multichannel Overview
10C00010E	Knowledge Access: Avaya Aura® Call Center Elite Multichannel Implementation
10C00094V	Avaya Aura® Call Center Elite Multichannel Implementation and Maintenance
4302	Avaya Aura® Call Center Elite Multichannel Implementation Test
0C00060E	Knowledge Collection Access: Avaya Aura® Call Center Elite Portfolio
E: Self-paced in virtual campus	
W: Web (online) course	
V: Virtual	

Viewing Avaya Mentor videos

Avaya Mentor videos provide technical content on how to install, configure, and troubleshoot Avaya products.

About this task

Videos are available on the Avaya Support website, listed under the video document type, and on the Avaya-run channel on YouTube.

Procedure

- To find videos on the Avaya Support website, go to <http://support.avaya.com> and perform one of the following actions:
 - In **Search**, type `Avaya Mentor Videos` to see a list of the available videos.
 - In **Search**, type the product name. On the Search Results page, select **Video** in the **Content Type** column on the left.
- To find the Avaya Mentor videos on YouTube, go to www.youtube.com/AvayaMentor and perform one of the following actions:
 - Enter a key word or key words in the **Search Channel** to search for a specific product or topic.
 - Scroll down Playlists, and click the name of a topic to see the available list of videos posted on the website.

 **Note:**

Videos are not available for all products.

Support

Go to the Avaya Support website at <http://support.avaya.com> for the most up-to-date documentation, product notices, and knowledge articles. You can also search for release notes, downloads, and resolutions to issues. Use the online service request system to create a service request. Chat with live agents to get answers to questions, or request an agent to connect you to a support team if an issue requires additional expertise.

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