Avaya Aura® Call Center Elite Multichannel Overview

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Chapter 1: Introduction

Purpose

The purpose of this guide is to provide an overview of the Avaya Aura® Call Center Elite Multichannel features for Release 6.3.x.

Intended audience

This guide is for customers using the Call Center Elite Multichannel application. You can use this guide as an information source for components, servers, databases, gateways, and plug-ins that the Call Center Elite Multichannel provides.

New in this release

In this release, Avaya Aura® Call Center Elite Multichannel supports the following:

Access Security Gateway (ASG)

Call Center Elite Multichannel Release 6.3.1 supports ASG.

Access Security Gateway (ASG) is a challenge and response based authentication mechanism that eliminates the need for a shared password. ASG provides a secure access of provisioned Avaya services logins to customer equipment. Authentication is done by a challenge-response authentication mechanism. ASG utilizes one-time tokens for authentication.

Avaya ASG plug-in for Microsoft Windows is a module that is installed on Microsoft Windows server operating system alongside Avaya product. ASG plug-in provides the opportunity for Avaya services associates to access a customer product using solely Avaya services logins and hence without the need of using customer credentials.

Language support for Desktop and Reporting application

Call Center Elite Multichannel Release 6.3.1 supports the following languages for Desktop and Reporting application:

- Japanese
- Korean

Avaya Aura® Work Force Optimization Release 11 and 12

Call Center Elite Multichannel supports Avaya Contact Recorder (ACR) Release 11 and 12. On-Demand recording from Agent Desktop is supported. You can use the supervisor plug-in to start or stop recording the calls for monitored agents.

Increased capacity of concurrent Voice Agents

The capacity of supported concurrent Voice agents is increased to 1000. For more information, see Chapter 3: Network and Capacity on page 15.

SIP endpoints

Call Center Elite Multichannel supports 96x1 SIP endpoints for logging in Agents and Supervisors. Agent coaching from a Supervisor using SIP endpoints is also supported. For supported SIP endpoints, see *Avaya Aura® Application Enablement Services Release Notes*.

Single Server installation of Call Center Elite Multichannel

Call Center Elite Multichannel supports full server installation and configuration on a single system. In this configuration, the IDS server is installed in the same system where EMC Core Server is installed.

For using single server configuration on a physical machine, you must install EMC Core and EMC IDS on the same server. For more details, see *Installing Avaya Aura® Call Center Elite Multichannel Guide*.

You must install Microsoft SQL Server and Avaya WebLM on separate systems.

Platform upgrades

Call Center Elite Multichannel added support for the following:

- Microsoft Exchange Server 2010 and 2013
- Microsoft SQL Server 2012 (all variants)
- Internet Explorer 10
- Avaya Aura® Experience Portal

Related resources

Documentation

Title	Description
Avaya Aura® Call Center Elite Multichannel Call Routing Server User Guide	Provides an overview of the Call Routing server, which enables intelligent call routing for inbound calls in Call Center Elite Multichannel.
Avaya Aura® Call Center Elite Multichannel Configuration Client Developer Guide	Provides information about the Configuration Client Developer application, which is a control that allows an application to transparently access the configuration information, regardless of its location.
Administering Avaya Aura® Call Center Elite Multichannel	Provides information about managing databases, configuring Call Center Elite Multichannel services, and administering Avaya Aura® Communication Manager.
Installing Avaya Aura® Call Center Elite Multichannel	Provides product overview, supported products, installation, configuration, and licensing requirements for Avaya Aura® Call Center Elite Multichannel.
Avaya Aura® Call Center Elite Multichannel Desktop User Guide	Provides information about the Desktop application, and how to use the application to receive, view, and respond to voice and multimedia work items.
Avaya Aura® Call Center Elite Multichannel Application Management Service User Guide	Provides installation and administration information about the application management service in Call Center Elite Multichannel.
Avaya Aura® Call Center Elite Multichannel Upgrade and Migration Guide	Provides information about how to upgrade or migrate Avaya Aura® Call Center Elite Multichannel from Release 6.2.x to Release 6.3. The Upgrade Sequence section in the respective upgrading chapters gives a high-level overview of the process involved.
Avaya Aura® Call Center Elite Multichannel Reporting User Guide	Provides information about the reports for Agents, Customers, Interaction, Program and Schedule, Skills, and VDN. This guide also provides information about historical reports and real-time reports.

Title	Description
Avaya Aura® Call Center Elite Multichannel TTrace Console User Guide	Provides a brief overview of the TTrace Console application.
Installing TTrace Console for Avaya Aura® Call Center Elite Multichannel	Provides information necessary for installing and configuring TTrace.

Training

The following courses are available on http://avaya-learning.com. Enter the course code in the **Search** field and click **Go** to search for the course.

Course code	Course title
ASC00206WEN	Contact Center Intelligence
ASC00207WEN	Contact Center Automated
ATA00781VEN	Avaya Aura® Call Center Elite Multichannel Solutions Basic Implementation
AVA001002H00	Avaya Aura® Call Center Elite Multichannel Solution - Configuration
AVA00989H00	Avaya Aura® Call Center Elite Multichannel Solutions - Basic System Supervisor
AVA01013WEN	Avaya Aura® Call Center Elite Multichannel Solutions Overview
AVA01043H00	Avaya Aura® Call Center Elite Multichannel Solutions - Basic Installation
AVA00990H00	Avaya Aura® Call Center Elite Multichannel Solutions Advanced System Supervisor

Avaya Mentor videos

Avaya Mentor videos are available to provide technical content on how to install, configure and troubleshoot Avaya products. Videos are available on the Avaya support site, listed under the video document type, and on the Avaya-run channel on YouTube.

To find videos on the Avaya supported site, select the product name, and check the videos checkbox to see a list of available videos.

> **Note:**
> Videos are not available for all products.

To find the Avaya Mentor videos on YouTube, go to http://www.youtube.com/AvayaMentor and perform one of the following:

1. Enter a key word or key words in the Search channel to search for a specific product or topic.

2. Scroll down Playlists, and click the name of the topic to see the available list of videos posted on the site.

Support

Visit 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.

Chapter 2: Overview

Avaya Aura® Call Center Elite Multichannel works on Microsoft Windows operating system. Companies can use the Call Center Elite Multichannel Feature to change one-dimension call centers into powerful multimedia contact centers.

Using the phantom call capability feature supported by Avaya Communication Manager switches in Call Center Elite Multichannel 6.3, agents can communicate through various options, such as phone, email, text, or instant messaging.

Whether your customer sends messages from the phone, emails, or chats over the Internet, the method of communication is treated exactly the same as a traditional phone call, which is placed in a priority queue and distributed to an agent with the relevant skills and knowledge. The agent can reply using the same method of contact, conducting a helpful conversation, similar to the conversation over the phone.

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.
- Outbound preview dialing, either automated or agent-initiated.
- Powerful software development tools for customization and integration of the software.
- Simple and fast wizards for desktop screen pop-ups and routing rules.

The components of Call Center Elite Multichannel fall into the following major categories:

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
- Voice 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
- Gateways
  - Web Chat
  - MSN Messenger
  - AOL-ICQ Instant Messenger
  - Communicator
  - Short Message Service
  - XMPP
- Plug-ins
  - SQL
  - Rules
  - SOAP
  - Script
- Trace System
  - TTrace Console
  - TTrace Config
  - TTrace Log2Zip
- Databases
  - ASContact
- Developer

   —   Developer tools

Multimedia Overview

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

The multimedia suite blends email and web-based customer inquiries with inbound calls. The multimedia suite also distributes internally held customer records to agents, prompting the agents to interact with customers using the deskphone.

You can control the email inquiries and outbound call requests to coincide with different shifts, quieter times of the day (low-peak call times), and times of the day when it is easier to contact customers.

Multimedia technology allows you to give queuing priority to inquiries from special customers. Multimedia technology also allows you to reject messages from certain customers.

You can generate and distribute the Multimedia work items using the following Call Center Elite Multichannel products:

- Media Director
- Media Proxy
- Email Media Store
- Preview Contact Media Store
- Simple Messaging Media Store
- MSN Messenger Gateway
- AOL-ICQ Instant Messenger Gateway
- Web Chat Gateway
- Short Message Service Gateway

An agent can view the multimedia work items using the Call Center Elite Multichannel Desktop interface.

Interoperability matrix

For more information about supported Avaya products and supported non-Avaya products, see *Installing Avaya Aura® Call Center Elite Multichannel.*

Chapter 3:   Network and Capacity

Capacity information

The following table provides capacity information of Avaya Aura® Call Center Elite Multichannel installed on two separate system (Call Center Elite Multichannel Core Server and Interaction Data Server are running on two separate systems).

Media	Number of Agents	BHCC	Comments
Voice only	1000	10000	
Inbound Email only	1000	4000	
Chat only	1000	4000	
Voice/Email/ Chat	1000 (1000/ 400)	8000/ 2000	1000 Voice agents, out of which 400 agents can be multimedia enabled. 400 Agents handling multimedia traffic of 2000 multimedia contacts in any combination between email and chat. **Note:** Busy Hour loads validated with an average email size of 50 KB per email.

The following table provides capacity information of Call Center Elite Multichannel on a single system (Call Center Elite Multichannel Core Server and Interaction Data Server are running on a single system).

Media	Number of Agents	BHCC	Comments
Voice/Email/ Chat	400 (400/ 400)	4000/ 2000	400 agents handling any combination of media where Voice upper limit is 4000 and Multimedia upper limit is 2000 in any combination of email and chat.

The following table provides the maximum number of queues allowed:

Media Director Queues	Email Media Store Queues	Short Messaging Media Store Queues
50	25	25

Note:

- In Email Media Store, for every 1000 emails/hour a separate queue must be created. For more details on adding a queue for Email Media Store refer to *Administering Avaya Aura® Call Center Elite Multichannel*.

- The Auto Growth and Auto Shrink values must be set in the Database size settings for the Microsoft SQL server to attain the specified capacity. For more details on Database settings refer to *Installing Avaya Aura® Call Center Elite Multichannel*.

- The Max flow allowed value must be set in AES to attain the specified capacity. For more details on Application Enablement Services settings refer to *Installing Avaya Aura® Call Center Elite Multichannel*.

Network requirements

This section provides the minimum network requirement for the Call Center Elite Multichannel Agent Desktop application.

Note:
If the agent is using Voice traffic on the same network, then network recommendation from the corresponding voice product must be referred.

Component	Network requirement
Network Bandwidth	> 6Mbps
Network port Inerface	1Gbps
Network Delay (Round Trip)	<= 300ms
Jitter	<= 30ms
Packet Loss	< 2%

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 how much time passes between the email being opened on the Agent Desktop and the additional context information being loaded and displayed. 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)
300	0	0	3	3
200	0	0	2	2
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 the Call Center Elite Multichannel Agent Desktop.

RTT (ms)	JITTER (ms)	Packet Loss (%)	Email Display time (seconds)	Customer Details/Customer History Display time (additional time in seconds)
300	30	0	6	4
200	30	0	4	4
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
300	30	2	7	5
200	30	2	4	5
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 was set to 20 in the Agent Desktop Customer History pane. The "Customer Details/Customer History Display" column indicates how much time passes between the chat being opened on the Agent Desktop and the additional context information being loaded and displayed. 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 Call Center Elite Multichannel Desktop Agent.

RTT (milliseconds)	JITTER (milliseconds)	Packet Loss (%)	Chat Display time in seconds	Actual chat displayed (Message box to indicating contact) time in seconds
300	0	0	12	5
200	0	0	9	4
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 Call Center Elite Multichannel Desktop Agent.

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)
300	30	0	9	2
200	30	0	6	3
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 Call Center Elite Multichannel Desktop Agent.

RTT (milliseconds)	JITTER (milliseconds)	Packet Loss (%)	Chat display time in seconds	Actual chat displayed (Message box to indicating contact)
300	30	2	12	5
200	30	2	9	4
100	30	2	5	3
50	30	2	3	2
20	30	2	2	1

Chapter 4:   Components

This chapter provides information about the Avaya Aura® Call Center Elite Multichannel Multichannel components, sub-components, and their functions.

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 to give agents all required functionality on one screen.

Without leaving the Call Center Elite Multichannel Desktop interface, agents can:

- Receive and reply to work items from customers who make contact using:
  - Phone
  - Email
  - Web chat
  - MSN Messenger
  - AOL or ICQ Instant Messenger
  - Simple message service (SMS)
- Record specific, work item-related notes as well as general, session-related notes
- Work quickly and efficiently by inserting auto text, spell checking their work and printing work items
- View the conversation history of the customer and the agent is interacting with
- 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 with.
- Record the conversation with the customer and replay the recorded calls later

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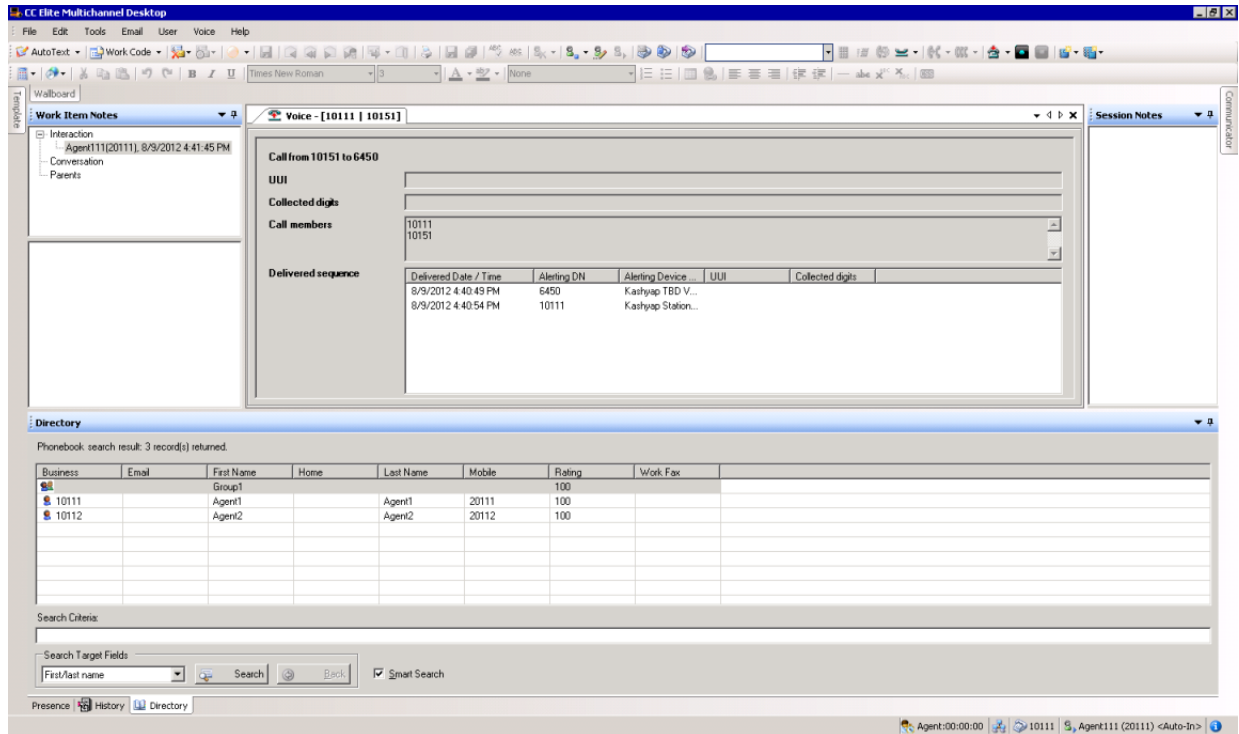
Call Center Elite Multichannel Desktop also offers a complete range of telephony functions using which agents can use the screen and mouse to:

- 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

If your company chooses to integrate Avaya iClarity with Call Center Elite Multichannel Desktop, agents can complete their telephony tasks using voice over IP functionality. When an agent makes or receives a call, agents can speak to and hear the other party through a headset connected to the agent's computer or the built-in microphone and speakers of the computer.

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 also:

- See an agent's request for help
- Join a call as an observer (the supervisor can hear the conversation, but the agent and customer cannot hear the supervisor)
- Join a call as a coach (only the agent can hear and talk to the supervisor)
- Join a call as a participant (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

Connecting to the Interaction Data Server - Voice and Presence, supervisors can:

- 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.
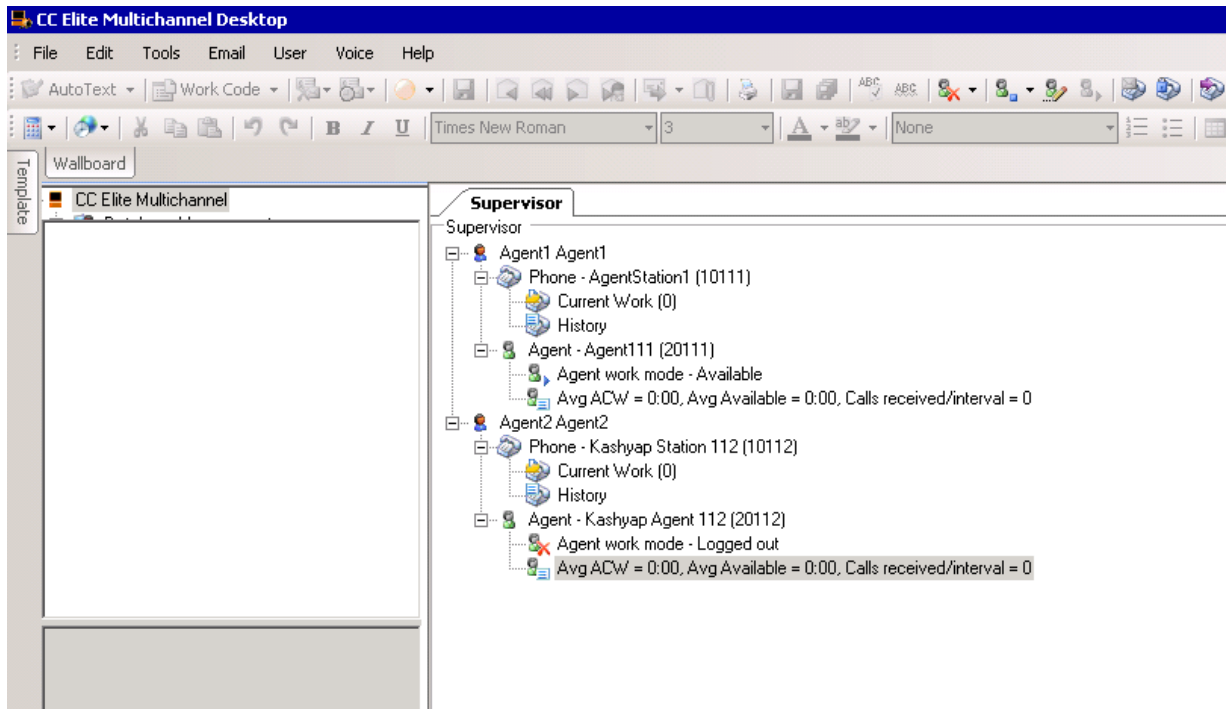
If no Agent names are associated with the station in the switch then the Agent names are derived from the application's configuration. If an agent name is specified in the switch, then agent name specified in the switch takes precedence.

Call Center Elite Multichannel Control Panel

Call Center Elite Multichannel Control Panel is the user interface that allows you to configure and manage all Call Center Elite Multichannel media stores, License Directors, XML Servers, and Media Directors. Call Center Elite Multichannel Control Panel also allows you to add and manage data in the `ASMediaStore` and `ASContact` databases.

Call Center Elite Multichannel Control Panel receives information from the Application Management Director, an application that runs in a Microsoft server environment and gathers status and information related to the condition of Call Center Elite Multichannel servers. Call Center Elite Multichannel Control Panel connects to Application Management Director to display that information in graphical tree structure.
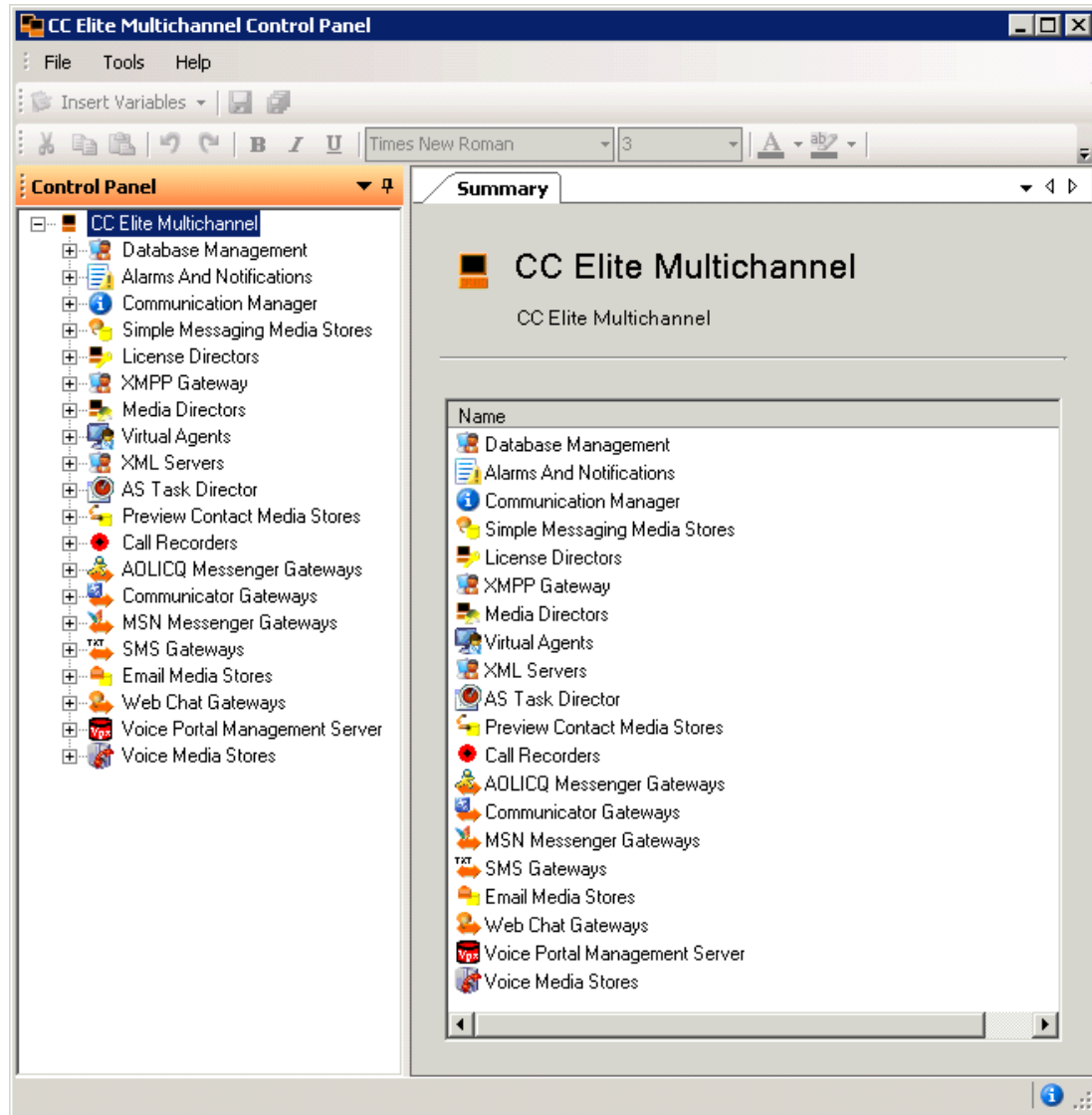
Call Center Elite Multichannel Control Panel connects to the Application Management Director multicast functionality or the pre-configured data from the configuration set or both. When a connection is established to Application Management Director, Call Center Elite Multichannel Control Panel indicates that it is a management interface and asks the Application Management Director to send a complete list of available information. The control panel receives a collection of XML documents using which the system accurately displays the information within a hierarchical node structure.

Call Center Elite Multichannel Reporting

Call Center Elite Multichannel Reporting allows you to visually evaluate the activity of your Call Center Elite Multichannel contact center. It is an easy-to-use reporting application for managers and administrators, who want to examine all facets of their multimedia environment, including:

- Which customers make contact?
- How customers make contact?
- How often they make contact?
- How customers are treated (for example how long they wait for their inquiry to be answered)?
- How you could restructure your staffing according to the busiest periods of the day?
- How successful various methods of contact are (email vs. simple messaging vs. voice)?
- How well agents are meeting 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 their call to be answered before hanging up?
- How many work items are being suspended and why?
- How work codes are being 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?

Call Center Elite Multichannel Reporting also allows you to 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.

Microsoft's SQL Server Reporting Services is now the reporting platform for Call Center Elite Multichannel. This lays the foundation for a more standards 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 realtime reports that are essential for optimization of the contact center.

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

- Historical reports
- Realtime reports

Historical reports

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, Agent Summary
- **Interactions:** Conversations And Interactions, Customer Statistics, Customer Statistics - Order By Agent
- **Outcomes:** Queue Service Level, Work Code
- **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, Program Status
- **Split Skill:** Split Skill, Call Profile (Graphical), Split Skill Service Level (Graphical), Split Skill Summary, System Report
- **VDN:** Call Profile, Call Profile (Graphical)

Realtime reports

Elite Multichannel provides the following realtime reports:

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

Chapter 5:   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

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 held 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.

Store the contact data in databases outside of 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.

The 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.

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:

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

In addition, the Application Management Service allows you to 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:
This 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*.
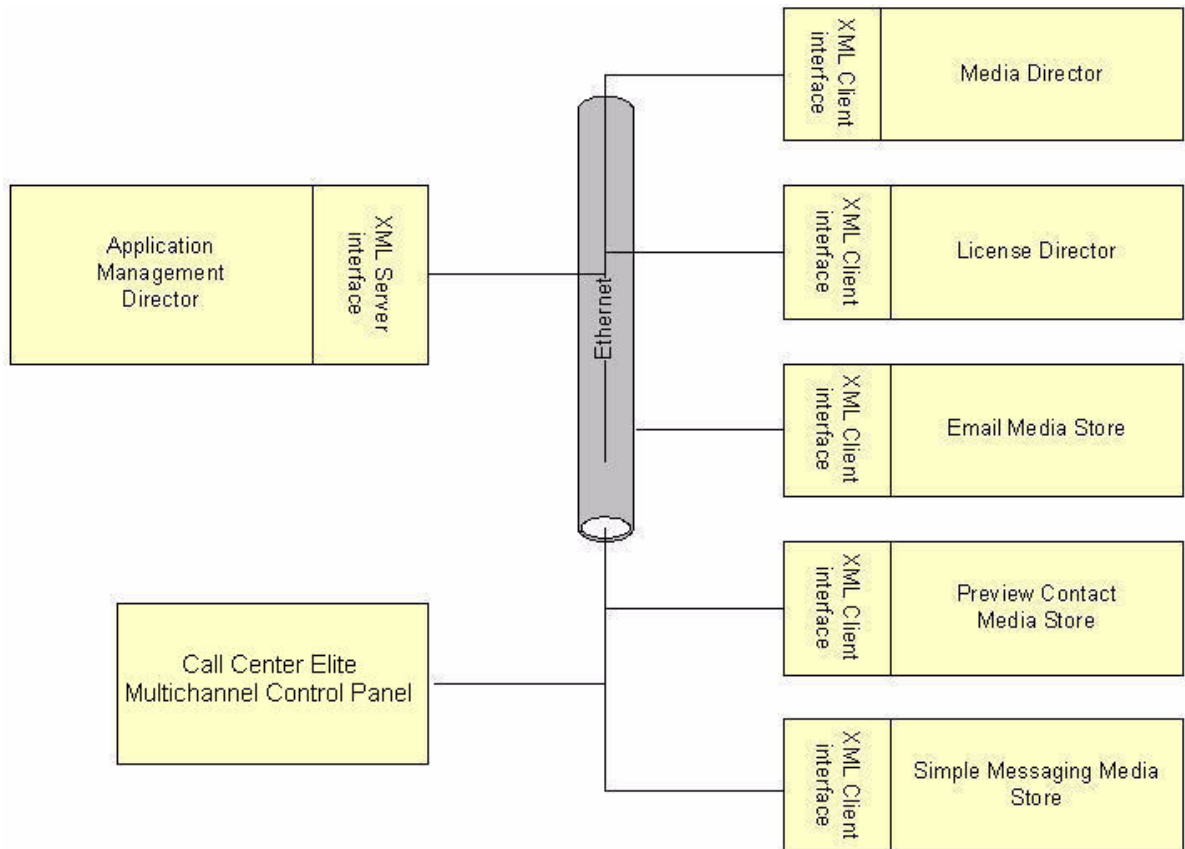
When you open the Application Management Director application, Application Management Director establishes a connection to all running Call Center Elite Multichannel components. For example, media stores, License Directors, XML Servers, and Media Directors. Application Management Director request the applications to forward information related to their configuration and operation. Call Center Elite Multichannel Control Panel then displays that information in graphical tree structure.
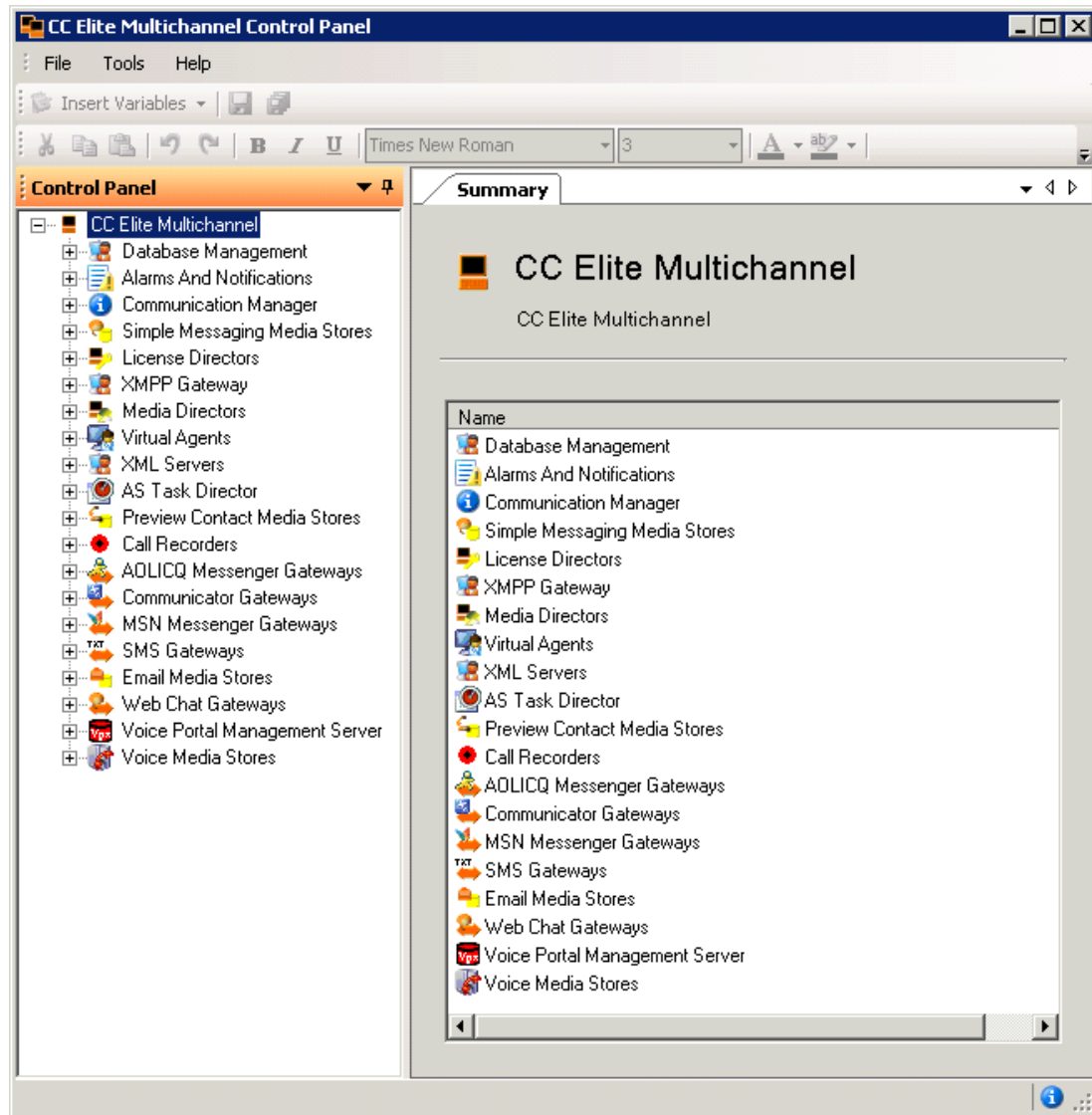
To establish a connection with Application Management Director, use multicast functionality or the preconfigured data from the configuration set or both. After connecting to Application Management Director, Call Center Elite Multichannel Control Panel functions as a management interface. In this role, 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 allows to accurately display that information within a hierarchical node structure.

License Director

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

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

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

VALUE_CCM_VOICE. Required by:

- Call Center Elite Multichannel Desktop when used for voice functionality and/or multimedia - one voice license per logged in agent.

- The Voice Media Store - one voice license

- The Media Director - one voice license

- Virtual agents

- Applications that are built using Developer

The XML server requests licenses for the above applications.

> **Note:**
> All the voice licenses are included in a single VALUE_CCM_VOICE WebLM key, which covers all the voice applications that you want to use within your call center environment. To add additional users or applications, your existing WebLM license must be upgraded and re-installed on the WebLM server.

VALUE_CCM_MULTICHANNEL. Required by:

- Call Center Elite Multichannel Desktop for multimedia users. To use the full range of Desktop functionality, that is, voice and multimedia, you must have one Call Center Elite Multichannel Multimedia license key with run-time licenses to cover the number of logged in agents using Call Center Elite Multichannel Desktop and one Call Center Elite Multichannel Voice license key with the same number of run-time licenses. Virtual agents also require VALUE_CCM_MULTICHANNEL licenses.

VALUE_CCM_CRM. Required by:

- The Microsoft Dynamics CRM connector. To use the Microsoft Dynamics CRM connector, you must order one Call Center Elite Multichannel Microsoft Dynamics license key provisioned in the WebLM license. This single license key covers as many agents using MS-CRM connector, as the number of run-time voice licenses.

  Note:
  The License Director in Call Center Elite Multichannel does not allow uncounted licenses, therefore the License Director will show the same number of CCM_CRM licenses as CCM_VOICE licenses.

License Director has no direct user interaction once installed.

License information is added, deleted, and modified using the WebLM server. For more information, see *Administering Avaya Aura® Call Center Elite Multichannel*.

Call Routing Server

Call Routing Server enables you to 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.
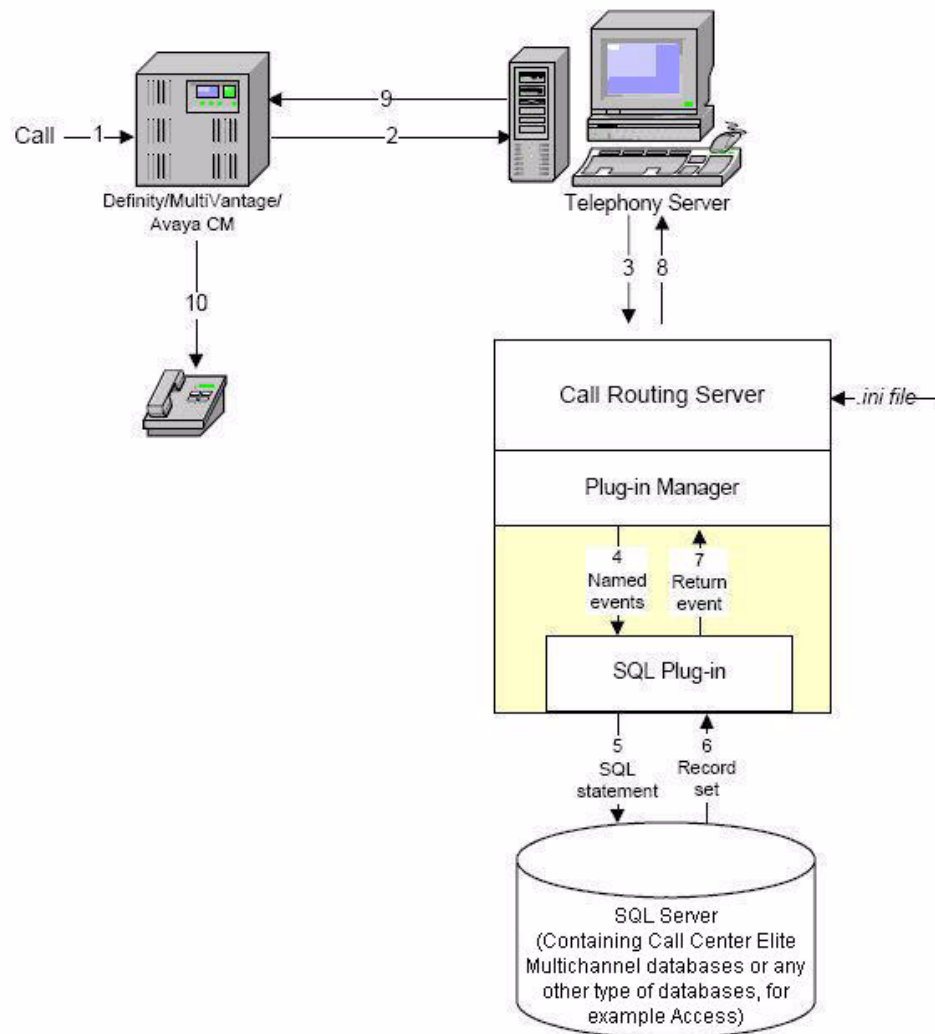
Configuration Server

The Configuration Server acts as a central repository of configuration information for Call Center Elite Multichannel Desktop. Configuration server allows a contact center or network administrator to change an application's configuration information without needing to go to individual desktops.

The information that the server processes is stored in a database (Microsoft SQL Server or Microsoft SQL Server Express). The server operates as a service and has no user interface. Adding configuration data to the database is done using a separate application called Configuration Manager.

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

The Configuration Client control integrates the Call Center Elite Multichannel feature with its configuration information. The Configuration Client control allows Call Center Elite Multichannel to access information, regardless of the location of Call Center Elite Multichannel. This Configuration Client control is stored on the client system during the installation of Call Center Elite Multichannel.
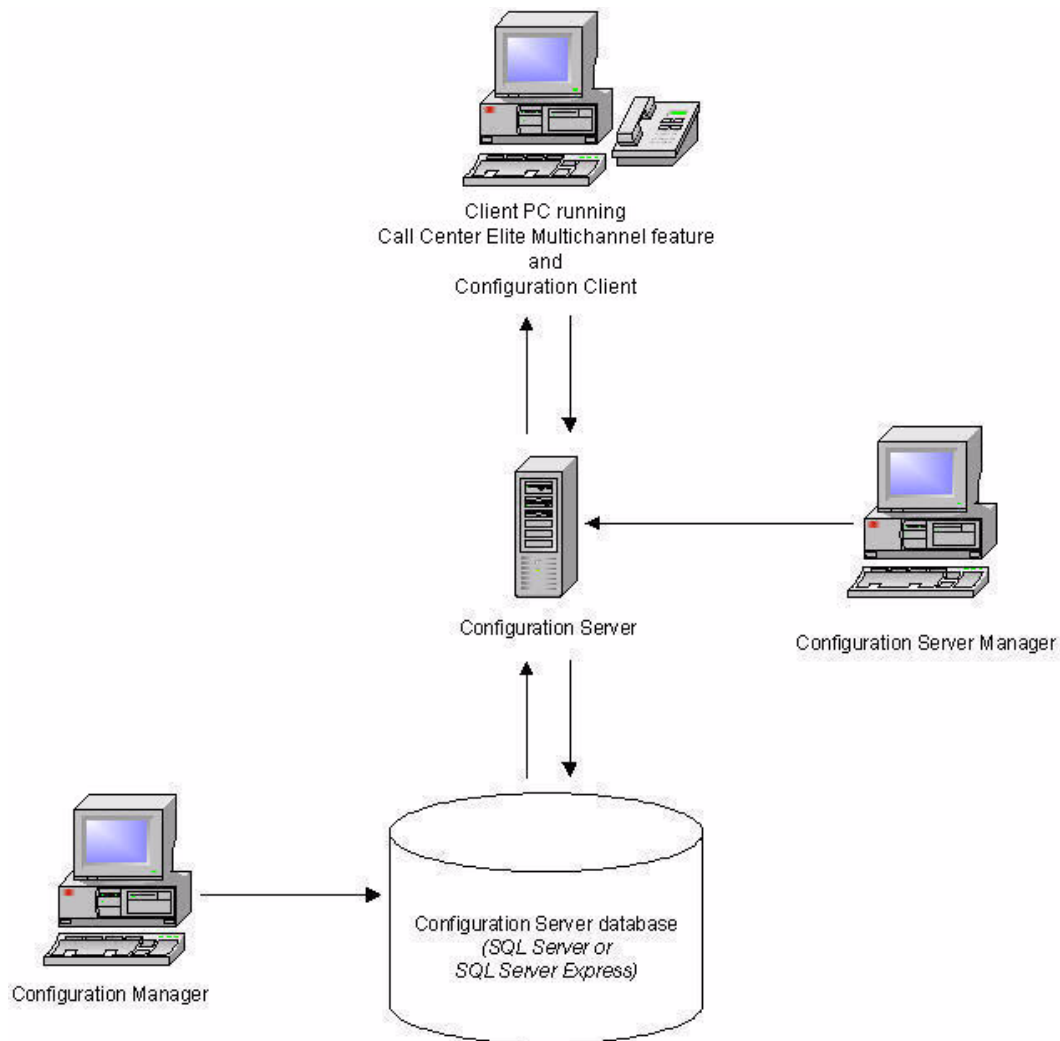
Task Director

The Task Director provide mechanisms to run tasks as per the 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. This allows the administrator to:

  - View the tasks that have been defined
  - View scheduling details of each task, like:
    - Type of a task. For example: email, report, and so on
    - Where the task will be 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:
- In this, an administrator can interact with task instances. Specifically the administrator will be able to view:
  - Which tasks have been executed?
  - When they were executed?
  - If and when they completed?
  - What was the terminating condition for the task?
  - Which tasks are currently running?
  - Which tasks are scheduled to run in the next period where the period is provided by the administrator?
  - Terminate a running task

Using Task Director, you can schedule the following tasks:

- Create reports

- Create ASMSData databases
- Import data into ASContact database
- Create Preview Contact lists
- Cleanup Databases

Interaction Data Service

The 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 this 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. Data is stored in the Media Store database.

Interaction Data Server - Multimedia: With this server, you can receives 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. Data is stored in the Media Store database.

Interaction Data Server - View: TWith this 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.
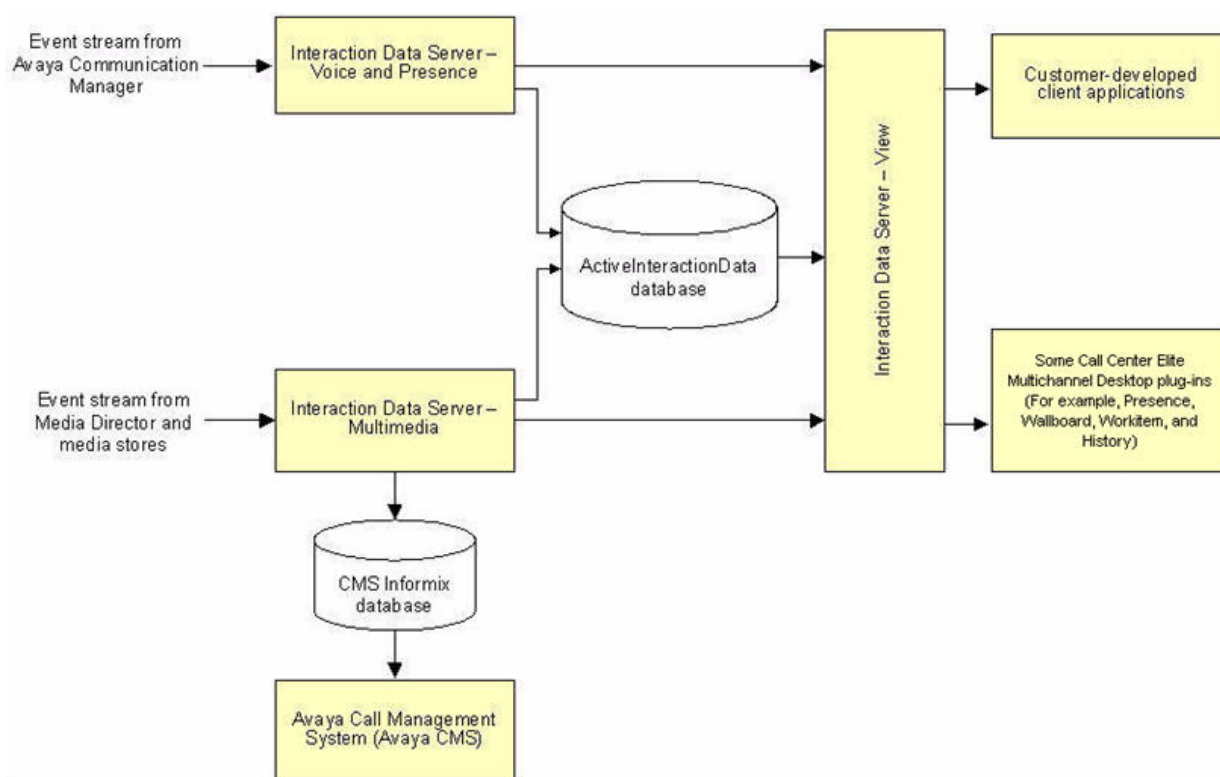
Call Center Elite Multichannel also makes some of the multimedia reporting data held within the Interaction Data Service available to the Avaya Call Management System (Avaya CMS) package. For more information about reporting, see *Avaya Call Management System Supervisor Reports* on the Avaya support site at: http://support.avaya.com.

TTrace System

TTrace stands for Avaya Trace System. The Trace System receives output (logs/traces) from applications and stores it 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 a software. Access to the files containing the records is not restricted.

Attributes of TTrace

TTrace offers the following attributes.

- Centralized generation and administration of log files.
- Online evaluation of log contents with the option of responding automatically to certain contents (escalation)
- Easy to change categories on and off
- Short explanation for the categories
- Compact protocol helps in low network load
- Send simple commands to the TTrace clients
- Categories managed in the component (Library, Executable)
- Debuggable
- Flexible (you can use TTrace without predefined instrumentation macros)

For more information about TTrace system and the system components, see the following guides:

- *Avaya Aura® Call Center Elite Multichannel TTrace Console User Guide*
- *Installing TTrace Console for Avaya Aura® Call Center Elite Multichannel*
- *Administering Avaya Aura® Call Center Elite Multichannel*

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*.

Voice Portal Config Server

Voice Portal Management Server (VPMS) allows agents to view and configure features from the Voice Portal software. Agents can also view the Voice Portal reports using the Call Center Elite Multichannel Reporting application. You can configure Voice 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 might be an email, a web chat, AOL or MSN session, 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 (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.

Running as a Windows service in the background, Media Proxy:

- 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 (client applications do not require to reconnect to the Media Director when Media Proxy restarts)

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

Virtual Agent

Virtual Agent is a Call Center Elite Multichannel service that allows 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 Voice Portal, can access data that is stored in the customer database of Call Center Elite Multichannel. Virtual Agent's process the multimedia work items that are generated when these incoming phone calls are received. There is no manual effort (other than some initial set-up by an administrator) 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's 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. This 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 end-point 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 workitems the same as an 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 Avaya Computer Telephony software 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 that complies with the international standard for computer telephony interfacing as set by the European Computer Manufacturers Association (ECMA).
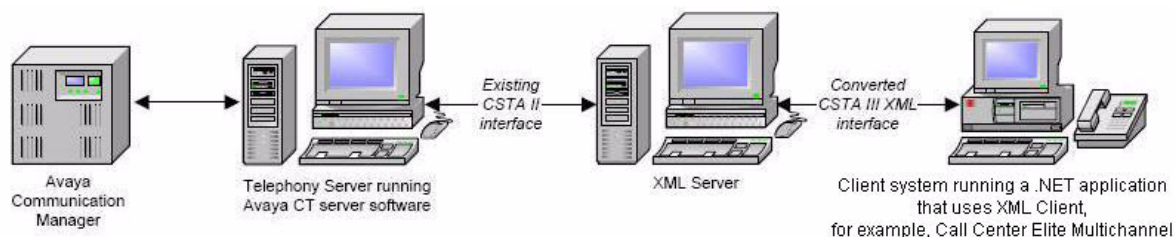
Media Stores

Preview Contact Media Store

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

The Preview Contact Media Store runs as a service. Preview Contact Media Store allows you to blend on-screen customer contact prompts with inbound/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.

Installed on a system running Microsoft Windows Server 2008 R2 SP1 (Enterprise and Standard) 32-bit and 64-bit, the Preview Contact Media Store retrieves contact details from a SQL database. The task to contact a group of contacts is defined in the database as a campaign. The campaign is prescribed to start at a certain date/time and run until another date/time. It can run over multiple time periods and may be recursive that means starting every Monday morning at 9:00.

Campaigns can be scheduled to coincide with:

- different shifts
- quieter times of the day (low-peak call times)
- times of the day when it is easy to contact customers.

A campaign's configuration identifies which queue work items must queue to and their priority within that queue.

Simple Messaging Media Store

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

Running as a service, it sits between Media Director and the following simple messaging gateways: Web Chat Gateway, MSN Messenger Gateway, AOL-ICQ Instant Messenger Gateway and Short Message Service Gateway.

Simple Messaging Media Store provides the base (common) messaging functionality required by these gateways, allowing you to blend customer messages via email, a web chat, AOL or MSN sessions, and sms with inbound/outbound telephone calls.

Installed on a system running Microsoft Windows 2008 Server R2 SP1 (Enterprise and Standard) 32-bit and 64-bit, the Simple Messaging Media Store uses its configuration data and the information specified in its 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 this has happened
- Only allow messages from certain customers to queue to certain Media Director queues.

Email Media Store

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

Running as a service, the Email Media Store allows you to blend customer email inquiries with inbound/outbound telephone calls, essentially using this work to fill in the gaps between peaks in call traffic.

The Email Media Store receives emails from one or more mail servers using the POP3 protocol.

Installed on a system running Microsoft Windows 2008 Server R2 SP1 (Enterprise and Standard) 32-bit and 64-bit, the Email Media Store uses its configuration data and the information specified in its database schema to:

- Distribute emails sent to certain mailboxes to certain queues in the 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 they send as part of the same conversation

- Reject emails from certain customers and automatically email them that this has happened

- Only allow emails from certain customers to queue to a certain email queue automatically inform a customer (via email) that their email has been received during or outside the operating hours of that queue.

Voice Media Store

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

Voice work items are 'answered' by agents who verbally respond to a customer's inquiry while processing (and closing) the work item on their 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 their voice work item

- Recording notes for their voice work item (or displaying previously made notes for a work item that has history)

- Printing all the information relating to their voice work item

- Inserting autotext into their work item notes (or any text field on a customized vertical tab)

● Viewing the conversation history of a customer, or retrieving a work item that was previously closed.

Voice work items are stored like other multimedia work items (for example: email or simple message work items) in the `ASMSControl` and `ASMSData` Databases.

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

If the customer's calling number has been matched with a contact record in the ASContact Database, a vertical contact tab appears on the left as part of the work item (as shown above).

While handling this inquiry, an agent can click this tab and edit the customer's contact record. If the customer has not been matched 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, their contact record will automatically display as part of the work item. Each contact record has a unique Contact ID 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 allows 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.

MSN Messenger Gateway

MSN Messenger Gateway interacts with the Simple Messaging Media Store to give customers or business associates using MSN Messenger the ability to interact with call center agents. MSN Messenger Gateway allows you to blend MSN instant messages with inbound deskphone calls. Using the existing computer telephony environment, you can set priority queuing and distribution to agents with relevant skills and knowledge.

AOL-ICQ Instant Messenger Gateway

AOL-ICQ Instant Messenger Gateway interacts with the Simple Messaging Media Store to give customers or business associates using AOL or ICQ Instant Messenger the capability to interact with call center agents. AOL-ICQ Instant Messenger Gateway allows you to blend AOL or ICQ instant messages with inbound deskphone calls. Using the computer telephony environment, you can set priority queuing and distribution to agents with relevant skills and knowledge.

Communicator Gateway

In Avaya Aura® Call Center Elite Multichannel, Communicator Gateway is a server application that provides conversion from Office Communicator Server to Call Center Elite Multichannel Simple Messaging Media Store. Using Communicator Gateway, agents can communicate with clients who uses Office Communicator.

For more information, see *Administering Avaya Aura® Call Center Elite Multichannel* and *Installing Avaya Aura® Call Center Elite Multichannel*.

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 allowing you to blend SMS (short message service) messages with inbound deskphone 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 message is rejected

- Only allows 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:
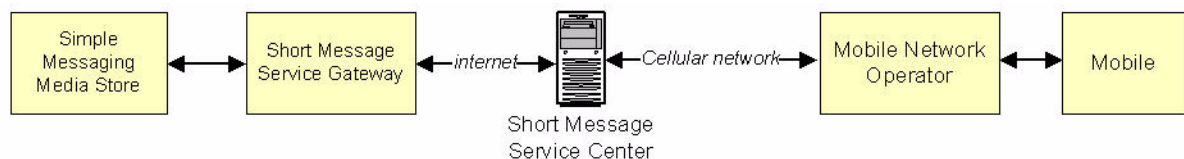
XMPP Gateway

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 allows 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's 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 this value, do this action then either continue rules processing, jump 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 application 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.
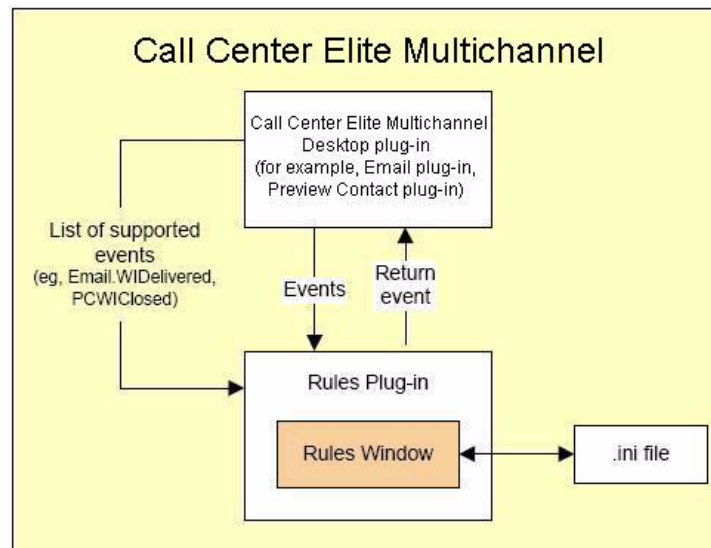
The Rules Plug-in and the Rules Wizard are installed as part of the Call Center Elite Multichannel Desktop installation.

Script Plug-in

Script Plug-in is a simple plug-in that takes advantage of scripting engines developed by Microsoft and others, to allow simple scripts written 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 the Plug-in Manager, such as Virtual Agent and the Call Routing Server.

All scripting engines that conform to the Microsoft standard implement the ActiveScript interface. This common interface allows all scripting engines to be consumed by parent applications in an identical manner regardless of the scripting language they implement.

The two most commonly available scripting engines are VB Script and Jscript from Microsoft. These are components installed with Internet Explorer.
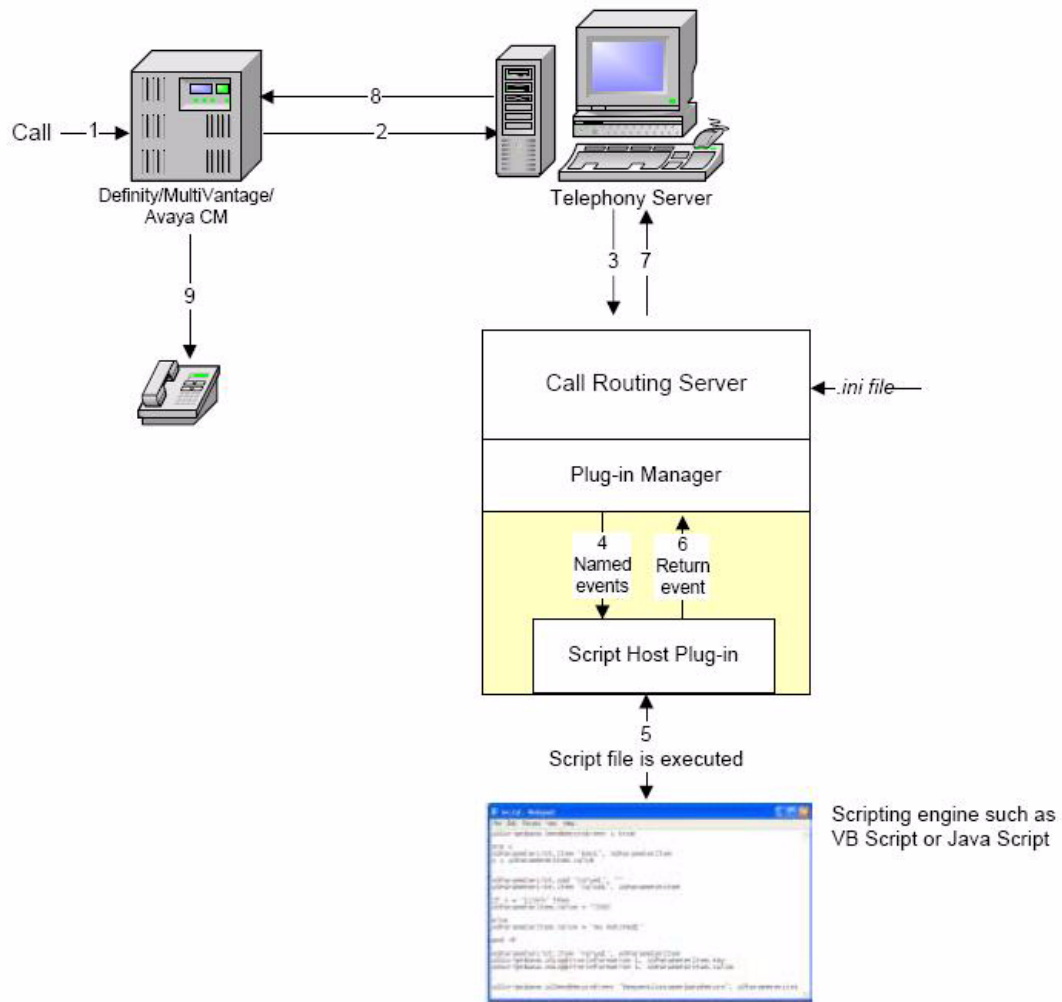
SOAP Plug-in

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

The SOAP Plug-in is a simple plug-in that allows you to integrate Call Center Elite Multichannel server applications with any web service or SOAP service on an Intranet or the Internet, without the need for new development on the server.

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

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

SQL Plug-in

The SQL Plug-in is a simple plug-in mechanism that allows you to integrate Avaya Call Center Elite Multichannel server applications with any SQL Server database without the need for new development on the server.

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

SQL Plug-in uses Microsoft ADO to connect to a database and provide simple SQL functionality to be available to the controlling application. The plug-in's detailed configuration set allows named events to be received from the controlling application. The events and parameters are converted to a direct SQL statement which is then passed to the database for processing. Returned results are extracted from the returned record set and passed back to the controlling application using an associated return event.
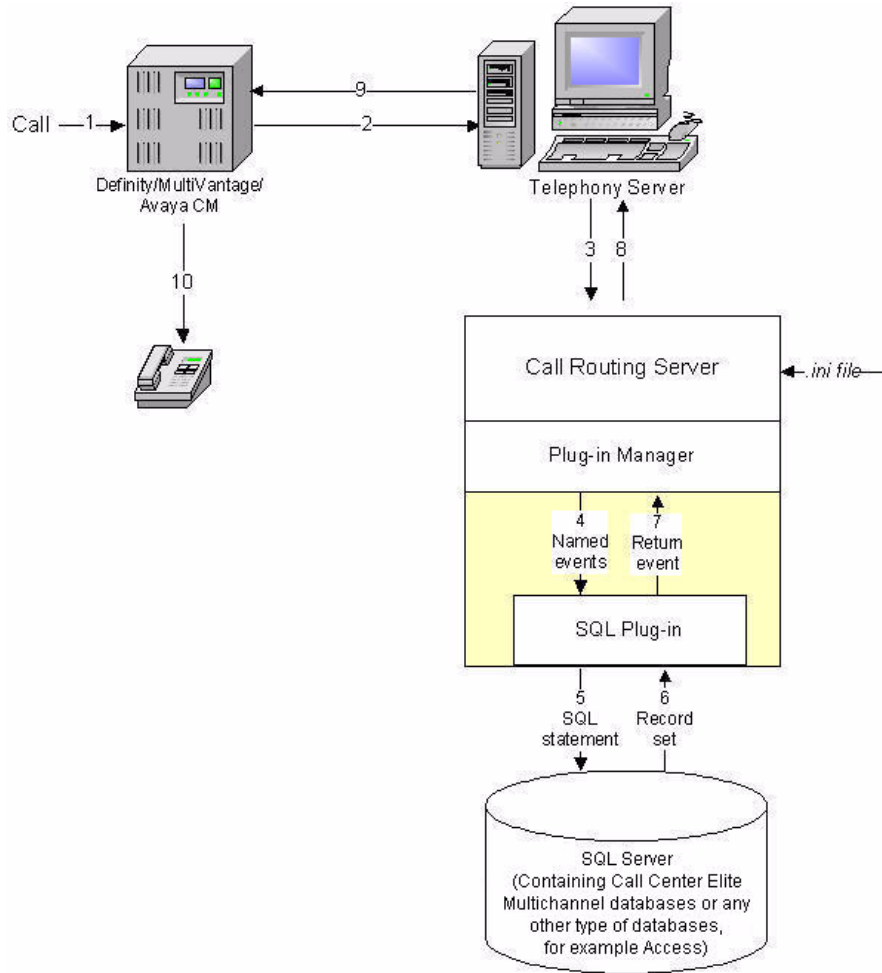
Communication Manager (CM) Plug-in

The Communication Manager Plug-in allows you to view and configure the settings of the Communication Manager server that are using for Call Center Elite Multichannel.

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

You can configure the settings for the following objects:

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

Chapter 6:   Developer

Developer is a collection or 'toolkit' of .Net assemblies for Avaya switches. Developers can use these controls to quickly build CTI applications without Agent. Developer controls make it is possible to build the foundation of a soft phone with no coding required. The toolkit includes:

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

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