



Avaya Contact Center Express

Release 4.1

Overview

Release 4.1
January 2010

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Avaya provides a telephone number for you to use to report problems or to ask questions about your product. The support telephone number is 1-800-242-2121 in the United States. For additional support telephone numbers, see the Avaya Support Web site:

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Preface

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Website

For the latest information on all Avaya Contact Center Express products, visit the **Avaya Contact Center Express** Web site: <http://www.avaya.com>.

Contact Center Express users looking for more information and technical support can also visit the **online forum**: <http://forum.avayacce.com/>.

Knowledge Base

For information on any errors and updates relating to this document, visit the **Avaya Contact Center Express** Knowledge Base Web site: <http://support.avayacce.com>.

Product Name Changes

Avaya Contact Center Express

The Avaya Contact Center Express suite of CTI applications and development tools was previously known as Avaya Active Telephony.

Active Telephony was previously known as Avaya Active Enterprise.

Avaya Telephony Services

Avaya Application Enablement Services (AE Services) was previously known as Avaya Computer Telephony (Avaya CT) software.

Avaya CT was previously known as CentreVu Computer Telephony (CentreVu CT).

Avaya Product Support

Avaya Contact Center Express 4.1 has been fully tested with the following Avaya products:

- Switch - Avaya Communication Manager, 3.1, 4.0 and 5.0.
- Telephony Services - Application Enablement Services (AE Services), Release 4.1 and 4.2
- Reporting applications - Call Management System (CMS) Release 14
- Client - Application Enablement Services (AE Services) Release 4.2.1.

AES Client 3.1.1 is the minimum version to run CCE 3.x

AES Client 4.2.1 is the minimum version to run CCE 4.x

Note:

All references to the Telephony Server refer to the machine running AE Services

Service Packs

For the latest copy of this document and to download service packs for Avaya Contact Center Express applications, visit the **Avaya Contact Center Express** Web site: <http://www.avaya.com>.

Chapter 1: Introduction

Avaya Contact Center Express is Microsoft Windows-based software. Companies can use this software to change one-dimension call centers into powerful multi-media contact centers.

Using the phantom call capability feature supported by Avaya Definity, MultiVantage and Communication Manager switches in Avaya CCE 4.1, agents can communicate through various options, such as phone, email, text, or instant messaging.

Whether your customer likes sending messages from the phone, sending emails, or chatting over the internet, their method of communication will be treated exactly the same as a traditional phone call - it'll be placed in a priority queue and distributed to an agent with relevant skills and knowledge. What's more, the agent can reply using the same method of contact, conducting a helpful conversation, just like you'd expect over the phone.

Easy to implement and simple to use, Contact Center Express 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 application development tools for complete customization and integration
- Simple and fast wizards for desktop screen pop-ups and routing rules

Contact Center Express products fall into following major categories:

- **Desktop** - Contact Center Express Desktop, Contact Center Express Reporting, Contact Center Express Control Panel, and Supervisor.
- **Server** - Media Director, Preview Contact Media Store, Email Media Store, Simple Messaging Media Store, Voice Media Store, MSN Messenger Gateway, AOL-ICQ Instant Messenger Gateway, Short Message Service Gateway, Web Chat Gateway, Virtual Agent, License Director, Application Management Director, Configuration Server, XML Server, Call Routing Server, Interaction Data Service (Interaction Data Server - Multimedia, Interaction Data Server - Voice and Presence and Interaction Data Server - View), ASContact Database, SQL Plug-in, Rules Plug-in, SOAP Plug-in, and Script Plug-in.
- **Developer** - Developer

Multimedia Overview

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

The multimedia suite blends email and web-based customer inquiries with inbound telephone calls. It also distributes internally held customer records to agents, prompting them to initiate contact with customers by phone.

Email inquiries and outbound call requests can be controlled 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. It also allows you to reject messages from certain customers.

Multimedia work items are generated and distributed using the following Contact Center Express 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 and Short Message Service Gateway.

Multimedia work items are displayed on the agent's screen using the desktop application Contact Center Express Desktop.

Licensing Overview

License Director is a central repository for all Contact Center Express run-time licenses. License Director can also poll licenses from the WebLM server, which can be configured in the Contact Center Express Control Panel. For more information, see Avaya CCE License Director user guide.

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

The number of purchased run-time licenses are encrypted in a license key. There are following types of license keys:

- **CCE Voice 4.0.** Required by:
 - Contact Center Express Desktop (when used for its voice functionality only)
 - Supervisor (for the number of supervisors using Supervisor)

- XML Server (for the number of client applications that connect to XML Server)
- Applications built using Developer (for the number of users)

Note:

You will only ever be issued with one CCE Voice license key, which will cover all the voice applications you wish to run within your call center environment. If you ever wish to add an extra voice application, your existing license key will be upgraded to accommodate the additional run-time licenses.

- **CCE Multimedia 4.0.** Required by Contact Center Express Desktop. To use Contact Center Express Desktop's full range of functionality (voice, multimedia and reporting), you need to buy one CCE Multimedia license key with enough run-time licenses to cover the number of agents using Contact Center Express Desktop and one CCE Voice license key with the same number of run-time licenses.
- **CCE IVR 4.0.** Required by Virtual Agent for the number of IVR ports it is configured to monitor.
- **CCE MS-CRM 4.0.** Required by Microsoft Dynamics CRM Plug-in. To use Microsoft Dynamics CRM Plug-in, you need to buy one CCE MS-CRM license key (this will cover unlimited users) and one CCE Voice license key with enough run-time licenses to cover the number of agents using Microsoft Dynamics CRM Plug-in.

License Director has no direct user interaction once it has been installed.

License information is added, deleted and modified using the Contact Center Express Control Panel. For more information, refer to the Application Management Service User Guide.

Trial licenses

You can request a free, ten-user, 30-day trial license of each license type through the Avaya Contact Center Express Web site: <http://www.avaya.com>. You will receive the trial license keys through email. When the trial period expires, you will need to purchase licenses to use the Contact Center Express suite.

Chapter 2: Contact Center Express Components

Contact Center Express Desktop

Contact Center Express Desktop is Contact Center Express's flagship desktop application for presenting multimedia work items to agents. Contact Center Express Desktop uses plug-ins to give agents everything they need in one screen.

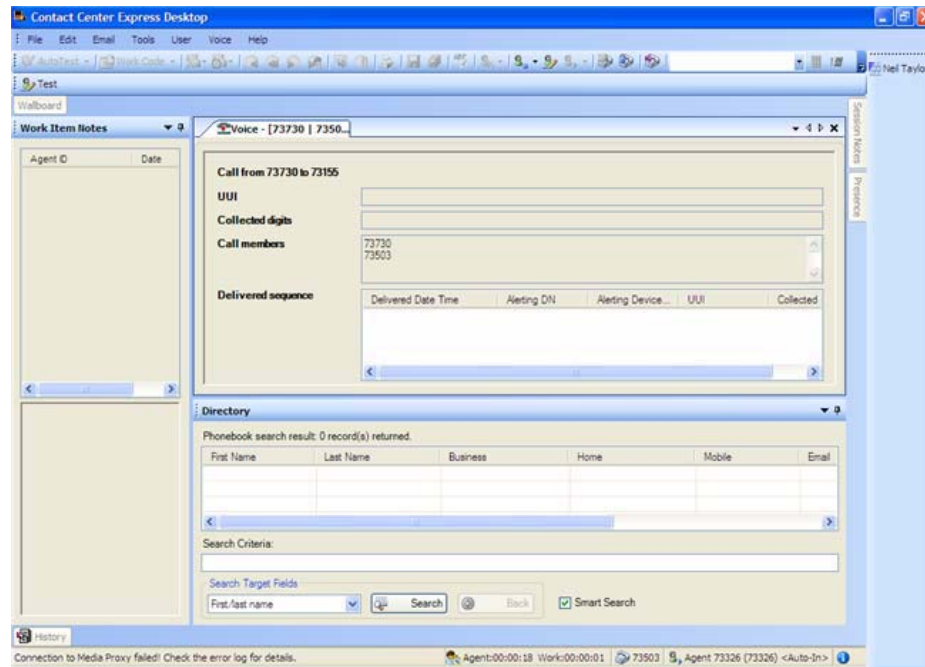
Without leaving their screen, agents can:

- receive and reply to work items from customers who make contact using:
 - telephone
 - 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 they are dealing with
- search a directory for a phone number or email address
- view real-time statistical information on their personal work performance
- monitor the telephone activity of other call center agents or staff they work closely with.

Contact Center Express Desktop also distributes internally held customer records to agents, prompting them to initiate contact with customers by phone. It also gives agents, an access to external applications, such as Internet Explorer and Microsoft CRM within the Contact Center Express Desktop interface so they don't have to minimize their work screen.

Chapter 2: Contact Center Express Components

Contact Center Express Desktop can also be configured to launch external applications in a separate screen. The application can be different depending on the work item type and task required.



Contact Center Express Desktop also offers a complete range of telephony functions by which user can use their 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 voicemail or another extension

What's more, if your company chooses to integrate Avaya iClarity with Contact Center Express Desktop, agents can complete their telephony tasks using voice over IP functionality. When an agent makes or receives a call, iClarity enables them to speak to and hear the other party through a headset connected to their PC or the built-in microphone and speakers of the PC.

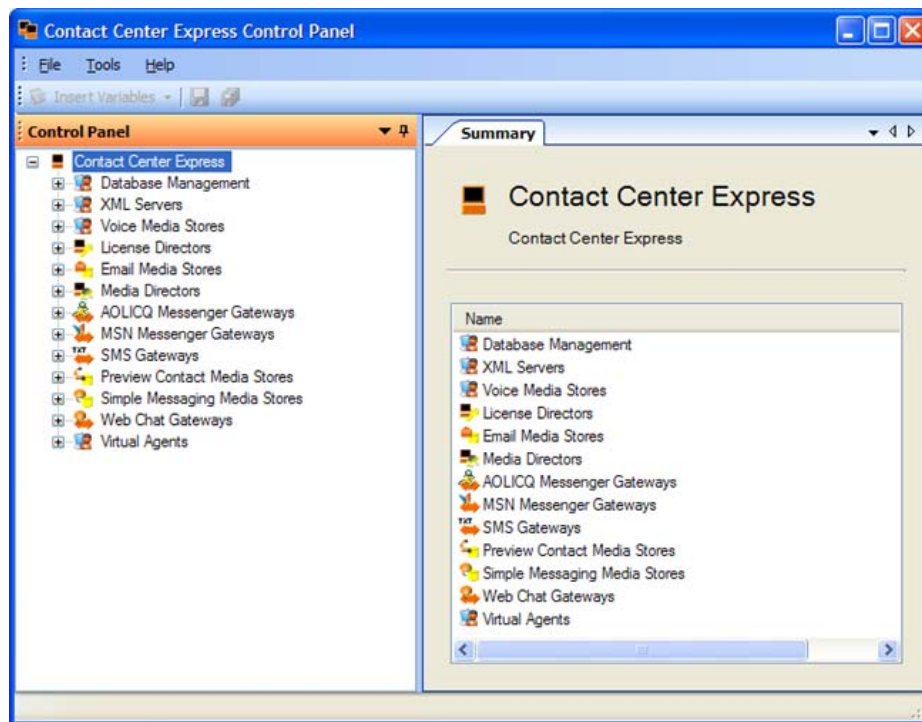
Contact Center Express Desktop is available in following languages.

- English
- Chinese (Simplified)
- Chinese (Traditional)
- French
- German
- Italian
- Japanese
- Korean
- Portuguese (Brazilian)
- Russian
- Spanish (Castilian)
- Spanish (Colombian)

Contact Center Express Control Panel

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

Contact Center Express Control Panel receives information from the Application Management Director, an application that runs in a Microsoft server environment and gathers status and health information about Contact Center Express servers. Contact Center Express Control Panel connects to Application Management Director to display that information in graphical tree structure.



Connections to Application Management Director are established either by multicast functionality or the pre-configured data from the configuration set or both. When a connection is established to Application Management Director, Contact Center Express 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 that allow it to accurately display that information within a hierarchical node structure.

Contact Center Express Reporting

Contact Center Express Reporting allows you to visually evaluate the activity of your Contact Center Express 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 (e.g. 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

Contact Center Express 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.

The reporting application provides the same functionality as the Contact Center Express Desktop application, with the addition of the Reporting functionality, so it is not necessary to install both applications on each Desktop. Agents requiring Desktop functionality can install only Contact Center Express Desktop while Agents/Supervisors requiring the Reporting functionality can install only Contact Center Express Reporting.

Microsoft's SQL Server Reporting Services is now the reporting platform for CCE. This lays the foundation for a more standards orientated mechanism for custom report design and delivery. CCE Reporting is an easy-to-use and helpful application that produces comprehensive reports on all major facets of a multimedia contact center environment. It renders a wide range of both historical and realtime reports that are essential for optimization of the contact center. Reporting generates the following types of reports:

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

- **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

Supervisor

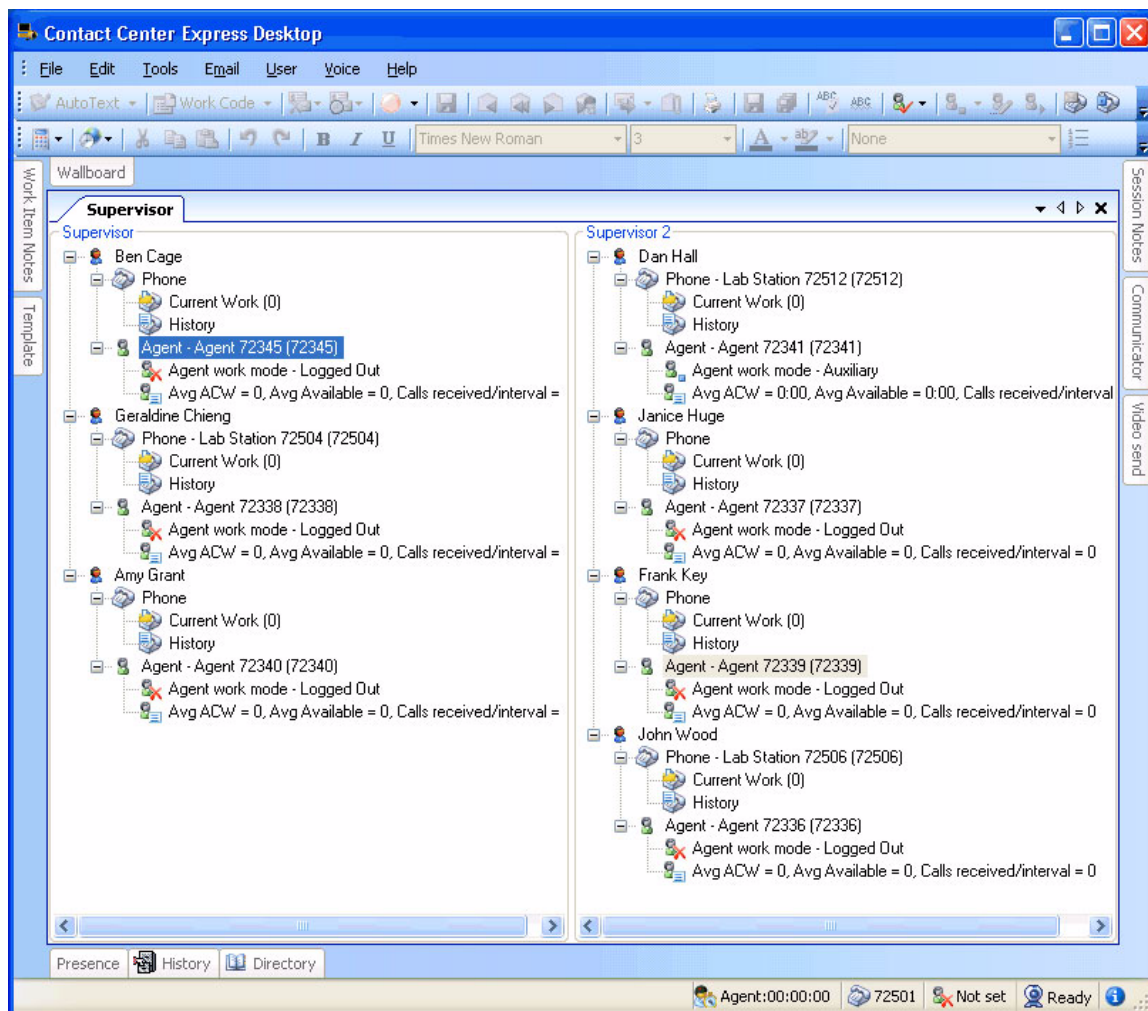
Supervisor is a plugin in a desktop application that allows contact center supervisors to monitor the call activity of a group of ten or less agents. The application allows supervisors to:

- 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

What's more, if Supervisor is connected 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.



Note:

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

Chapter 3: Contact Center Express Server Components

ASContact Database

ASContact Database is Contact Center Express's repository for all contact information.

Contact Center Express uses ASContact Database to identify people and to understand how it should communicate with them. Contact Center Express refers to ASContact Database for all its contact-focused activities; no contact specific data is held elsewhere in Contact Center Express. Instead, other Contact Center Express databases hold a contact's ContactId (a key that uniquely identifies a contact within Contact Center Express, and potentially, beyond it) to link contact data in ASContact Database.

We appreciate that many organizations prefer to store their contact data in databases external to Contact Center Express. So ASContact Database comes with a Contact Gateway that can point directly to external data, and then use it as if it were its own. In this mode Contact Center Express never updates the external data. However once the gateway is in place, the external data participates fully as contact data within Contact Center Express.

ASContact Database provides all the features of Contact Center Express's previous ActiveContact Database and more. Use the migration script to move existing contact data in ActiveContact Database to ASContact Database.

Contact Center Express will use ASContact Database more and more in the future. As ASContact Database accumulates history and detail about its contacts, Contact Center Express will increasingly offer communication tailored specifically to contact preferences, and to their value to your organization.

Application Management Service

The management and monitoring of all Contact Center Express media stores, License Directors, XML Servers and Media Directors is accomplished by the Application Management Service. This service enables you 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

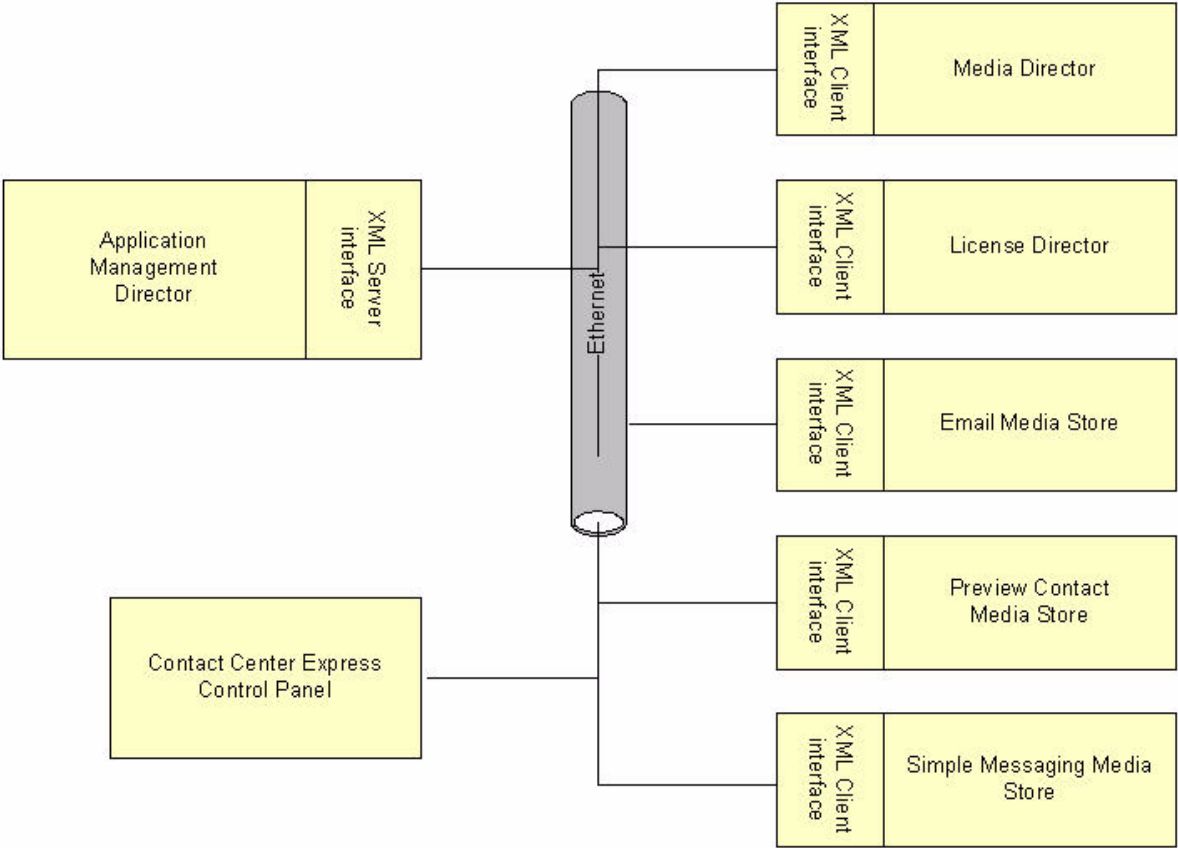
The Application Management Service consists of two components:

Application Management Director: An application that runs in a Microsoft server environment and gathers status and health information about Contact Center Express servers.

Contact Center Express Control Panel: A component built using .Net Framework that connects to Application Management Director to display the state of currently available servers. Using the console, a user can view and change configuration and operation information about currently monitored servers.

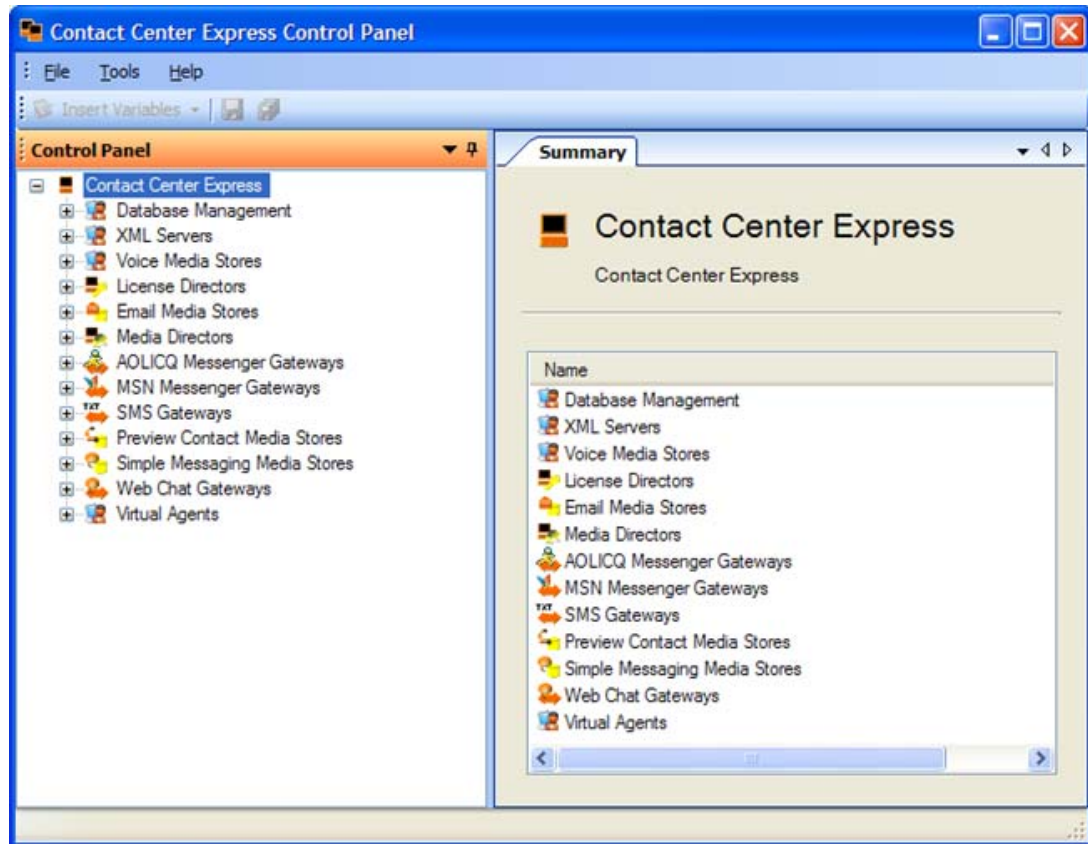
Note:

This document discusses the configuration of the Application Management Director. For information on configuring and operating Contact Center Express Control Panel, refer to the Contact Center Express Control Panel User Guide.



Chapter 3: Contact Center Express Server Components

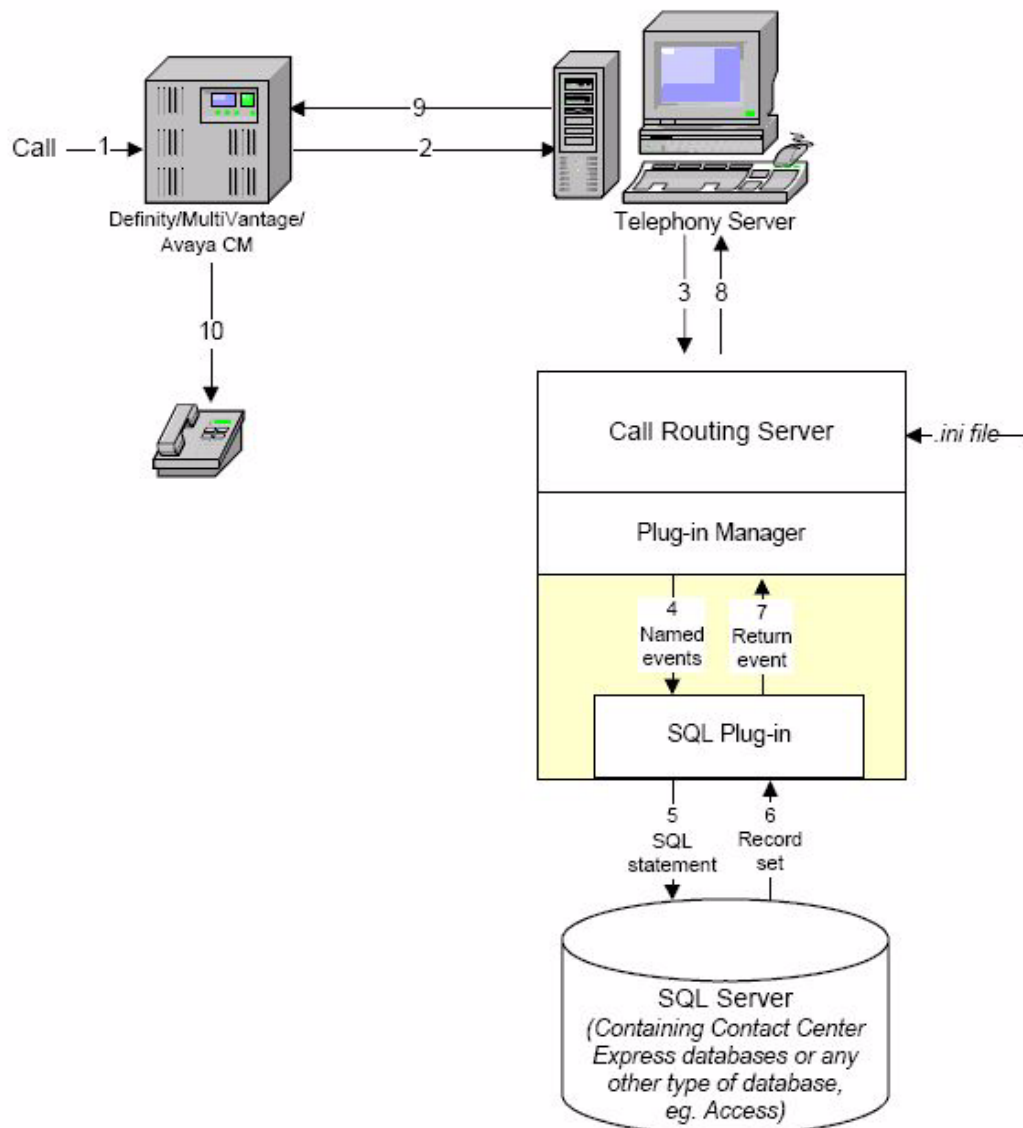
When Application Management Director starts up, it opens a connection to all running Contact Center Express media stores, License Directors, XML Servers and Media Directors it finds on the network. It asks those applications to forward information relating to their configuration and operation. Contact Center Express Control Panel then displays that information in graphical tree structure.



Connections to Application Management Director are established either by the multicast functionality or via the pre-configured data from the configuration set or both. When a connection is established to Application Management Director, Contact Center Express Control Panel indicates that it is a management interface and asks the Application Management Director to send a complete list of available information. The console receives a collection of XML documents that allow it to accurately display that information within a hierarchical node structure.

Call Routing Server

The Call Routing Server enables intelligent call routing for inbound calls. The routing is based on received call data matched with customer information, contact center statistics or agent availability. The Call Routing Server monitors VDNs, registers for routing services, receives call events, issues routing instructions, and loads (manages) generic plug-ins, such as the SQL Plug-in, which gives the server access to SQL Server databases.



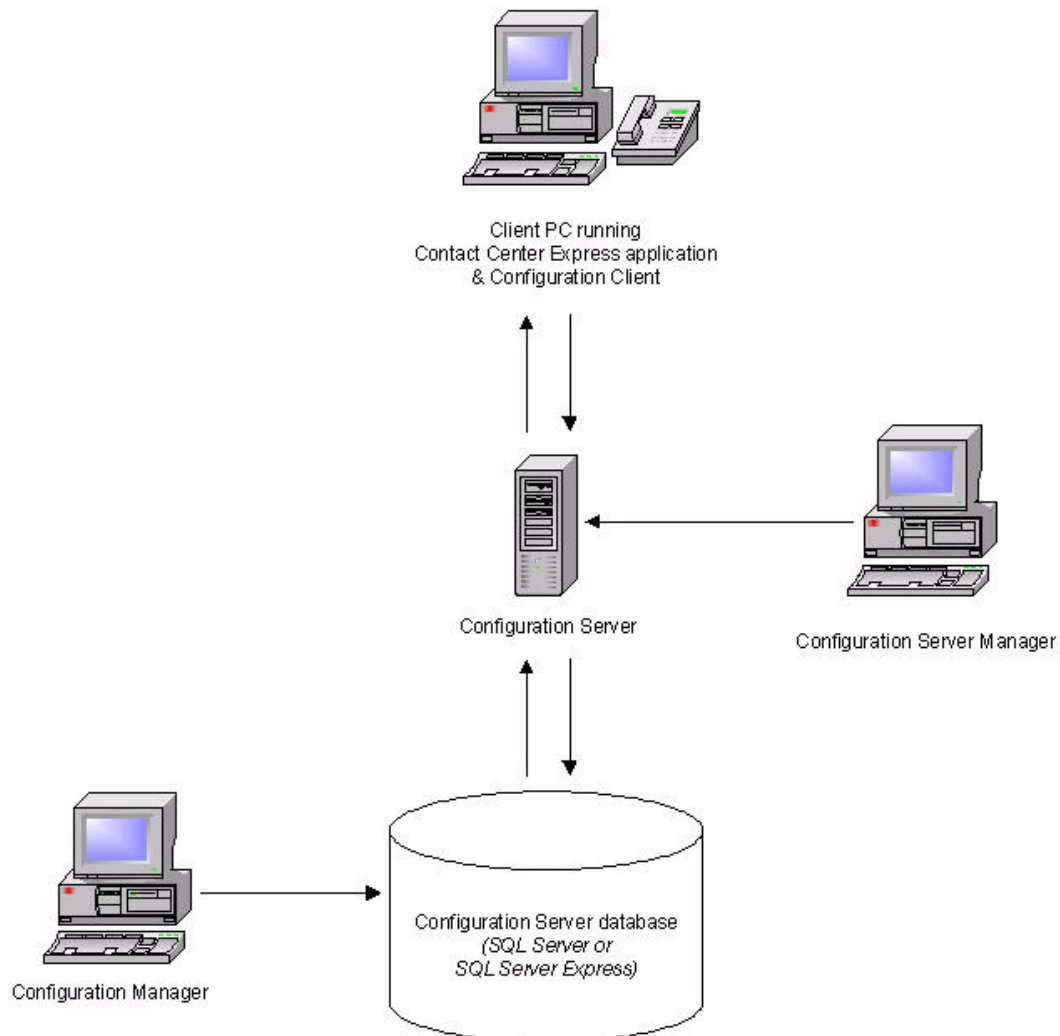
Configuration Server

The Configuration Server acts as a central repository for configuration information for Avaya Contact Center Express desktop applications. It allows a contact center or network administrator to change an application's configuration information without needing to go to individual desktops.

All the information processed by the server is stored in a backend database (SQL Server or SQL Server Express). Because the server operates as a service and has no user interface, adding configuration data to the database is done via a separate application called Configuration Manager.

Configuring the server itself it is done via the Configuration Server Manager. This application also has the ability to start and stop the server.

The Configuration Client control integrates a Contact Center Express application with its configuration information. It allows an application to transparently access information, regardless of its location. This control is stored on the client PC during the application install.



Email Media Store

The Email Media Store is one of many media stores that interact with the Media Director, Media Proxy and Contact Center Express 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 machine running Microsoft Windows 2003 Server (Enterprise & Standard) or Microsoft Windows Server 2008, it 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.

Interaction Data Service

The Interaction Data Service is the suite name for three Contact Center Express 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 Contact Center Express voice and multimedia work items. All use a single database (ActiveInteractionData).

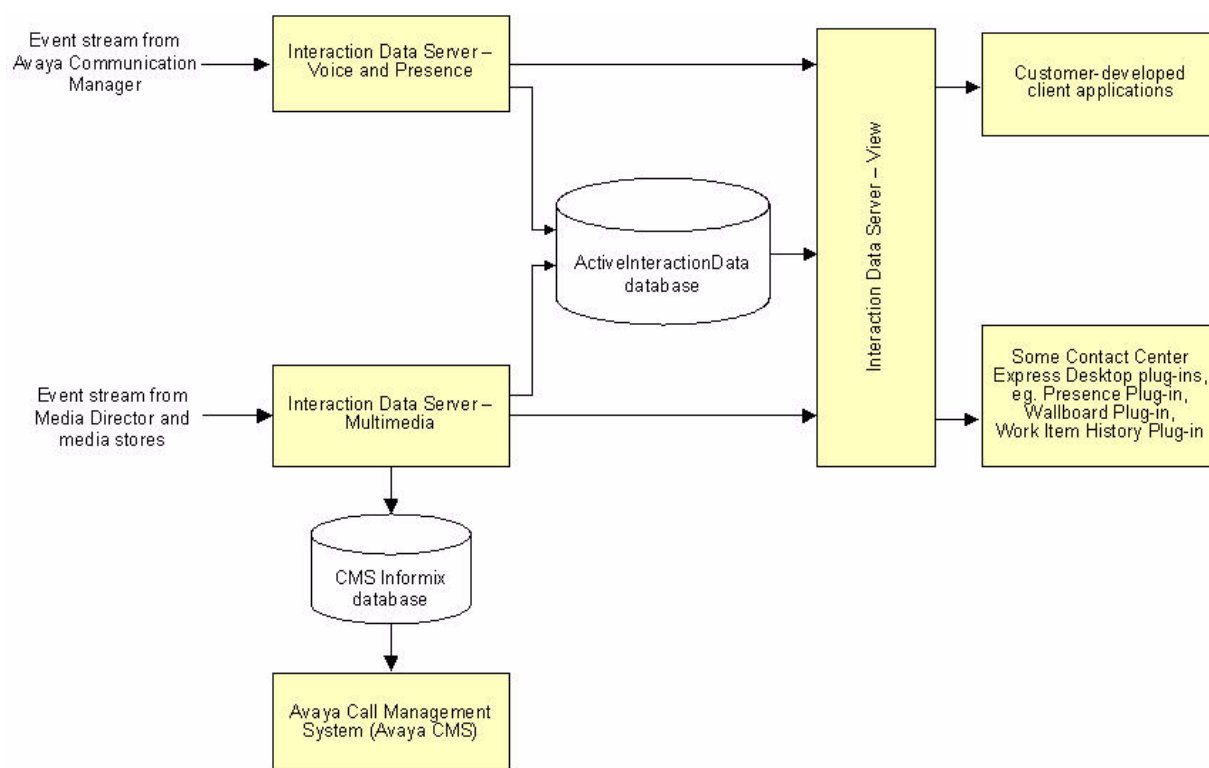
Interaction Data Server - Voice and Presence: This server monitors VDNs, splits/skills, trunk groups and agent extensions to gather detailed statistical information about all facets of a call. The server receives real-time information from your Avaya Communication Manager and, based on the regularity you specify, calculates statistics such as talk and wait-time averages. Data is stored in the ActiveInteractionData database.

Interaction Data Server - Multimedia: This server receives a stream of event information from all Contact Center Express media stores and Media Directors and aggregates this into real-time and historical information on all multimedia work items that flow through your call center. Data is stored in the ActiveInteractionData database.

Interaction Data Server - View: This server allows you to access the statistical data generated by Interaction Data Server - Voice and Presence and Interaction Data Server - Multimedia and to display that data on individual client PCs. Interaction Data Server - View is currently used by Contact Center Express's premier desktop application Contact Center Express Desktop, and it can also be used by developers to build their own client applications.

Note:

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



Contact Center Express also makes some of the multimedia reporting data held within the Interaction Data Service easily available to the Avaya Call Management System (Avaya CMS) package. For more information, see the chapter Reporting in Avaya CMS.

Task Director

The Task Director provide mechanisms to execute tasks as per the defined schedule. In Avaya Contact Center Express, Task Director is provided as server component that user can install and configure. Using Task Director, users can do 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

Following are the tasks that can be scheduled using the Task Director:

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

License Director

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You will only ever be issued with one CCE Voice license key, which will cover all the voice applications you wish to run within your call center environment. If you ever wish to add an extra voice application, your existing license key will be upgraded to accommodate the additional run-time licenses.

- **CCE Multimedia 4.0.** Required by Contact Center Express Desktop. To use Contact Center Express Desktop's full range of functionality (voice, multimedia and reporting), you need to buy one CCE Multimedia license key with enough run-time licenses to cover the number of agents using Contact Center Express Desktop and one CCE Voice license key with the same number of run-time licenses.
- **CCE IVR 4.0.** Required by Virtual Agent for the number of IVR ports it is configured to monitor.
- **CCE MS-CRM 4.0.** Required by Microsoft Dynamics CRM Plug-in. To use Microsoft Dynamics CRM Plug-in, you need to buy one CCE MS-CRM license key (this will cover unlimited users) and one CCE Voice license key with enough run-time licenses to cover the number of agents using Microsoft Dynamics CRM Plug-in.

License information is added, deleted and modified using the Contact Center Express Control Panel. For more information, refer to the Application Management Service User Guide.

Trial licenses

You can request a free, ten-user, 30-day trial license of each license type through the Avaya Contact Center Express Web site: <http://www.avayacce.com>. You will receive the trial license keys via email. When the trial period expires, you will need to purchase licenses to use the Contact Center Express suite.

Media Director

Media Director distributes non-voice work items to contact center agents. This item could be an email, a web chat, AOL or MSN session, an sms, or an outbound call request. The distribution of the work item is achieved 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 place it into a specified queue. Phantom calls are those generated by a CTI application that have no physical station as the originating point. This call is distributed by the switch using standard queuing algorithms and blended with other traditional voice calls. When the phantom call is delivered to an agent, the Media Director associates it with the highest-priority work item and allows data specific to the work item to be transferred 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 machine need to connect to the Media Director
- Automatically connects to the Media Director when it restarts (client applications do not need to re-connect to the Media Director when it restarts)
- Allows users to use Contact Center Express Desktop when building client applications.

Preview Contact Media Store

Preview Contact Media Store is one of many data stores that interact with the Media Director, Media Proxy and Contact Center Express Desktop to deliver non-voice work items to contact center agents.

Running as a service, the 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 machine running Microsoft Windows 2003 Server (Enterprise & Standard) or Microsoft Windows Server 2008, 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.

Voice Media Store

Voice Media Store delivers voice work items (a visual representation of a phone call) to contact center agents through Contact Center Express 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 Contact Center Express 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

Chapter 3: Contact Center Express Server Components

- 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:

The screenshot displays the 'Contact Center Express Desktop' application. The main window is titled 'Voice - [73501 | 73503]'. It shows a call log with the following details:

- Call from 73503 to 73907
- UUI: [Empty field]
- Collected digits: 20365
- Call members: 73501, 73503
- Delivered sequence table:

Delivered Date / Time	Alerting DN	Alerting Device Name	UUI	Collected digits
20/02/2009 1:47:06 a.m.	73175	Insurance Group		
20/02/2009 1:47:08 a.m.	73505	Lab Station 73505		
20/02/2009 1:47:19 a.m.	73907	AccountQuery		
20/02/2009 1:47:28 a.m.	73161	PersonalAccount Group		20365
20/02/2009 1:53:52 a.m.	73501	Lab Station 73501		20365

Below the call log is a 'Directory' section with a search result of 3 records. The table shows the following data:

Business	Email	First Name	Home	Last Name	Mobile	Rating	Work Fax
73506		John		Clark		100	
73503		Bill	73503	Gates		100	
		Allison	99667210	W...		100	

The interface also includes a 'Search Criteria' section with a 'Search Target Fields' dropdown set to 'First/last name', a 'Search' button, and a 'Smart Search' checkbox. The bottom status bar shows 'Agent:00:13:04' and 'Agent 73356 (73356) <Auto-In>'.

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).

The screenshot displays the 'Contact Center Express Desktop' application window. The main area is titled 'Voice - [73501 | 73503...]' and contains a form for editing a contact record. The form is organized into several sections:

- Contact identification:** A text field containing the unique ID '80235888-a854-4bbe-b8f9-8096a83bbc6a'.
- Name details:** Fields for Title (Mr.), First name (Bill), Middle name, Last name (Gates), and Suffix.
- Phone numbers:** Fields for Business, Home, Company, and Mobile, each with a dropdown menu and a text input. The Business and Home numbers are currently set to '73503'.
- Address details:** Fields for Business, Street one (70), Street two (Constellation Dr.), Street three (Mairangi Bay), Post box (10895), and City (Auckland).
- Account:** A text field containing '20365'.
- Web page address:** An empty text field.
- Email details:** Fields for Email (a dropdown menu), Email address (Bill.Gates@gmail.com), Display name (Bill), and Email type.
- User defined fields:** Seven empty text fields labeled 'User defined field 1' through 'User defined field 7'.
- Office information:** Fields for Job title (CEO), Department, and Company (Microsoft).

At the bottom of the window, there is a status bar showing 'Agent:00:17:12 Work:00:17:12' and a list of agents including '73501', 'Agent 73356 (73356) <Auto-In>', and '73503'.

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.

Virtual Agent

Virtual Agent is a CCE service that allows you to process work items using 'virtual' agents instead of real agents. It gives you the ability to send out email or text messages to customers via a group of virtual agents - essentially creating an automated messaging service. What's more, Virtual Agent gives customers who call a phone number answered by an Avaya Voice Portal, access to data that is stored in CCE's customer database. Once again, 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 Agent's process work items the way 'real' agents do - they log into CCE's XML Server, consume a station DN and (optionally) an agent ID, and then wait to receive and deliver CCE 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, and is fully configured via CCE Control Panel.

It is envisaged that in time, Virtual Agent working in tandem with the Web Service Worker Plugin will render much of the same control and functionality (if not more) provided by IVR Server in CCE 3.x (which has since been discontinued in CCE 4.0).

Virtual Agent Web Service

Much of the functionality associated with this work item is made available via a web service that will be available to consuming applications (like Dialog Designer) and will allow complete control of the work item such as accept, close, suspend, and other Work Item specific functions. The web service also gives access to work item data, notes and chat functionality.

Support for Dialog Designer (Avaya IR/Voice Portal)

Previously, CCE 3.03 integrated with IR using TAS code and a custom DIP. This functionality has been replaced by the Virtual Agent Web Service. This allows direct access from the Dialog Designer VXML into CCE and will give IR/VP script access to all Work Item data for all work item types. Each IVR Port will be configured as a Virtual Agent end-point and will consume a CCE IVR license.

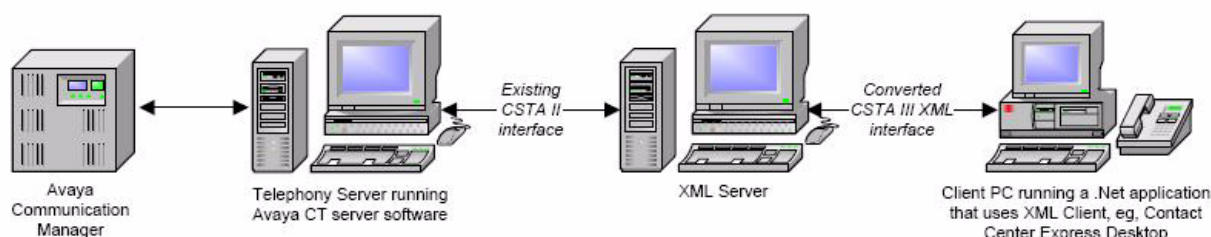
Outbound Worker

This is the second Virtual Agent worker currently available in CCE 4.0. The Outbound worker is intended as a mechanism to automatically send simple outbound messages to a list of contacts that have been loaded in to a Preview Contact program. The Outbound Worker can be used to send SMS (Short Message Service) text messages to mobile phones as well as simple email messages as well. The outbound worker receives Preview Contact workitems the same as an agent sitting at a desk would, therefore requires the same Voice and Multimedia licenses, and automatically processes these workitems.

XML Server

The XML Service consists of the XML Server, which converts the existing CSTA II interface of Avaya Computer Telephony software to CSTA III XML (eXtensible Markup Language), and XML Client, which allows developers to build CTI applications in a .Net framework.

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



Simple Messaging Media Store

The Simple Messaging Media Store is one of many media stores that interact with the Media Director, Media Proxy and Contact Center Express 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 machine running Microsoft Windows 2003 Server (Enterprise & Standard) or Microsoft Windows Server 2008, 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.

AOL-ICQ Instant Messenger Gateway

AOL-ICQ Instant Messenger Gateway interacts with the Simple Messaging Media Store to give customers or business associates who enjoy using AOL or ICQ Instant Messenger the ability to interact with call center agents. AOL-ICQ Instant Messenger Gateway allows you to blend AOL or ICQ instant messages with inbound telephone calls. By using your existing computer telephony environment, they can enjoy the benefits of priority queuing and distribution to agents with relevant skills and knowledge.

MSN Messenger Gateway

MSN Messenger Gateway interacts with the Simple Messaging Media Store to give customers or business associates who enjoy using MSN Messenger the ability to interact with call center agents. MSN Messenger Gateway allows you to blend MSN instant messages with inbound telephone calls. By using your existing computer telephony environment, they can enjoy the benefits of priority queuing and distribution to agents with relevant skills and knowledge.

Short Message Service Gateway

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

Contact Center Express now broadens the customer service capability of your contact center by allowing you to blend SMS (short message service) messages with inbound telephone calls. Customers or business associates who like the convenience of mobile messaging can make contact with you and receive the same treatment as regular callers.

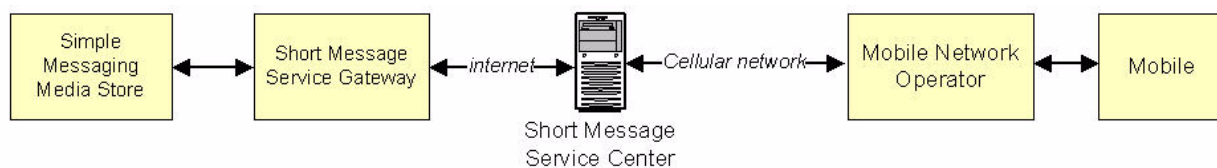
By using your existing computer telephony environment, they can enjoy the benefits of priority queuing and distribution to agents with relevant skills and knowledge.

Short Message Service Gateway works alongside the Simple Messaging Media Store, Media Director and Contact Center Express 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 this has happened
- 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:



Web Chat Gateway

Web Chat Gateway interacts with the Simple Messaging Media Store to give internet-using customers the ability to interact with call center agents. Web chat functionality allows the customer, browsing the client's web site, to click a URL and have a session initiated with the call center agent. Using this session, the customer and agent can exchange text-based messages allowing a simple conversation to take place.

Plug-ins

There are currently four Contact Center Express plug-in components.

Rules Plug-in

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

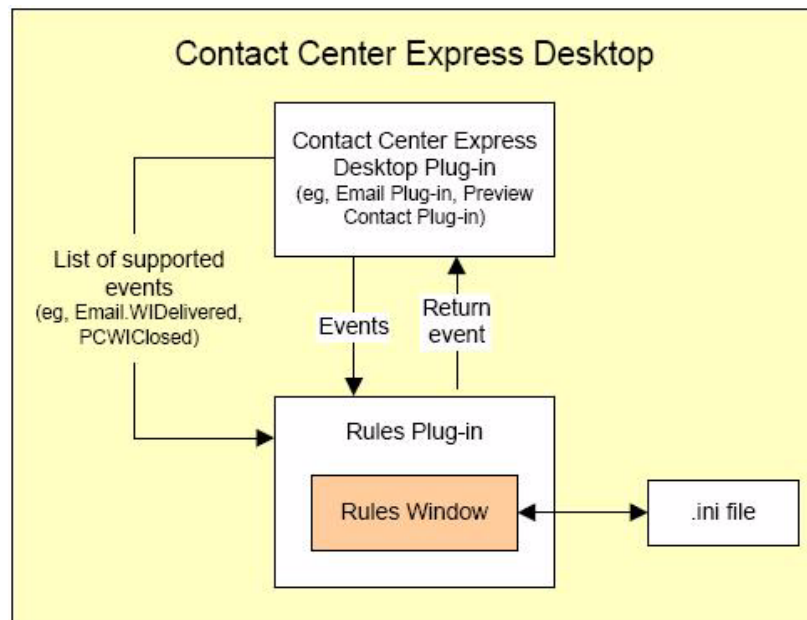
Without changing an application's code, you can use the Rules Plug-in to enhance desktop functionality. For example, you can configure rules to:

- Deflect calls from a specific CLI to voicemail
- Open another application or web site
- 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 Rules Plug-in is started by the controlling application. The configuration data passed to it consists of the mandatory generic plug-in configuration data and a list of rules to be processed.

The functionality to build valid rules that relate to a specific desktop product is managed by the individual controlling application. The application uses the Rules Plug-in to execute those rules.



The Rules Plug-in and the Rules Wizard are installed as part of the Contact Center Express Desktop installation.

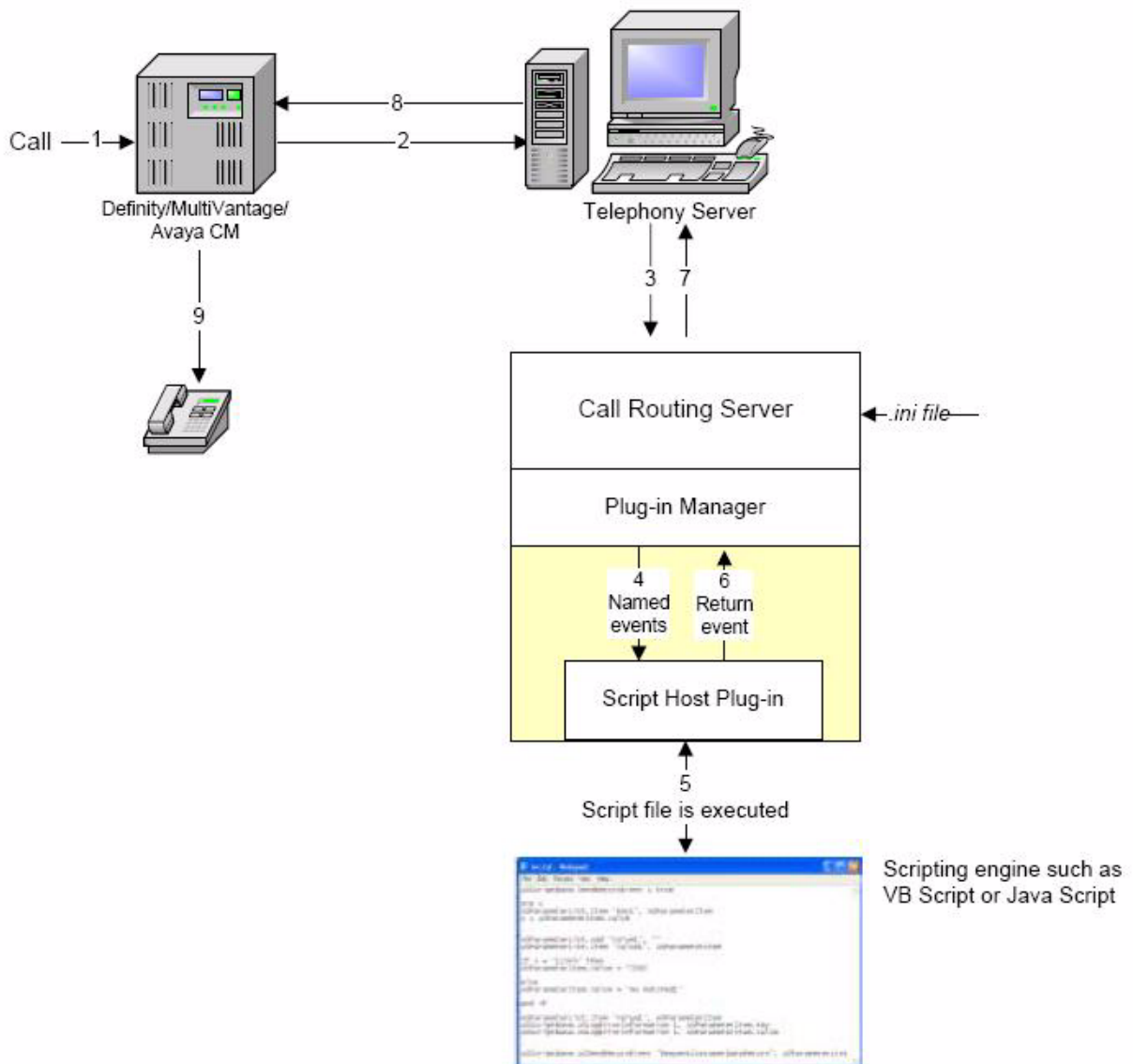
Script Plug-in

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 Contact Center Express suite.

This plug-in can be plugged in to any Contact Center Express 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 IActiveScript 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

The SOAP Plug-in is a simple plug-in that allows you to integrate Avaya Contact Center Express server applications with any web service or SOAP service on an intranet or the internet, without the need for new development on the server.

This plug-in can be plugged in to any Contact Center Express 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.

What is SOAP?

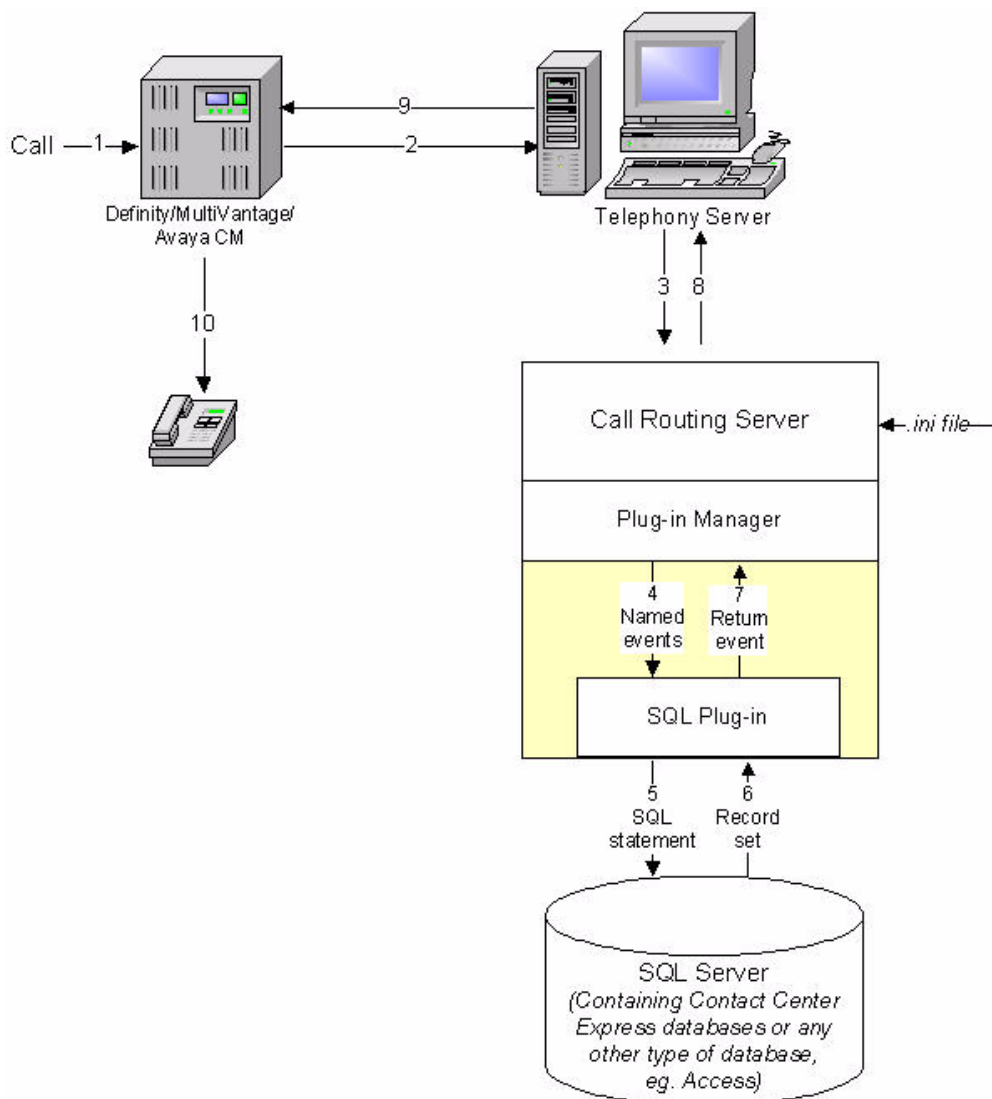
SOAP is a message-based protocol based on XML for accessing services on the Web. Initiated by Microsoft, IBM and others, it employs XML syntax to send text commands across the Internet using HTTP.

SQL Plug-in

The SQL Plug-in is a simple plug-in mechanism that allows you to integrate Avaya Contact Center Express 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 Contact Center Express 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 allow 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 associated 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 via an associated return event.



Communication Manager (CM) Plug-in

The Communication Manager Plug-in is a simple plug-in that allows you to view and configure the settings of the Communication Manager server that are using for Contact Center Express.

Chapter 3: Contact Center Express Server Components

In the Contact Center Express Control Panel, you can add a connection to the communication manager server that you want to use for CCE. For more information, see the Control Panel user guide.

You can configure the settings for the following objects:

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

Chapter 4: 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 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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