



Call Redirection with AACC 6.3 Application Note

Abstract

This application note applies to AACC 6.3 Service Pack 10 and Service Pack 11. It describes how Avaya customers can support call redirection scenarios in an Avaya Aura® Contact Center deployment. Detailed analysis of numerous call flows is provided, where transferred or conference call(s) to experts are redirected back to Avaya Aura® Contact Center using coverage path and/or call forwarding. The document is intended for all customers who have deployed or are in the process of deploying Avaya Aura® Contact Center with Avaya Aura® Communication Manager.

The application note is divided into parts I & II. Part I covers all of the technical aspects of call redirection and Part II outlines how Avaya customers can maximize Avaya Aura® Communication Manager telephony features such as “coverage path” or “call forward” to achieve greater efficiencies in an Avaya Aura® Contact Center deployment. We also show how Avaya Aura® Contact Center agents can utilize basic call transfer and conference to other agents, non-agents and experts in Avaya Aura® Contact Center deployments.

Version 1.3

⁽¹⁾ Avaya Aura Contact Center implies Full/Complete (Voice and Multi-channel) functionality when used throughout the document and not the “Complement” solution.

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New to AACC 6.3 SP10

The only change to the redirection feature for AACC 6.3 SP10 is the introduction of support for remote experts. It should be noted that the redirection feature needs to be manually re-enabled on installation of SP10. Refer to section 1.4.2 for more information.

Support for Redirection on Remote Experts

Avaya Aura® Contact Center integrates with Avaya Aura® Communication Manager using the SIP protocol (via Avaya Aura® Session Manager). The Avaya Aura® Communication Manager instance where the Avaya Aura® Contact Center agents reside is known as the local Avaya Aura® Communication Manager. However it is possible that a customer deployment may have a second Avaya Aura® Communication Manager instance. This instance of Avaya Aura® Communication Manager is referred to as a remote Avaya Aura® Communication Manager.

AACC 6.3 SP10 introduces support for call redirection scenarios where the redirection occurs on remote experts to send calls to Avaya Aura® Contact Center. The versions of both Avaya Aura® Communication Manager instances must be installed at version CM 6.3 SP0 at a minimum. Exact version numbers available in the table below. Note that CM 6.3 SP0 is bundled in Feature Pack 2 (FP2). See below for the full Avaya Aura® Unified Communications stack versions for Aura FP2.

A Special Application on CM (9124) needs to be enabled on CM to provide the appropriate messaging to support redirection on remote CM experts. This is performed via the SAT interface, and is located in the system-parameters special-applications section. See for Section 1.4.3.9 more details.

Aura FP2

Product	Release	Initial Software Version	Patch
SMGR	6.3	6.3.8.0	SP2_r1399
SM	6.3	Asm-6.3.0.0.630039	Asm-6.3.2.0.632023 (SP2)
CM	6.3	cm 06.3-03.0.124.0	06.03.0.124.0-20553 (SP0)
AES	6.3	6.3.0.0212-0	
Presence	6.3	PS-VA-6.2.0.0-182	

Foreword: Important Instructions for All Readers

This document contains important instructions for customers who are utilising an Avaya Aura® Contact Center solution with an Avaya Aura® Unified Communications platform.

The document contains over 70 pages of detailed instructions and guidance on numerous call flows and call paths that undergo “redirection”. A full discussion and explanation of redirection and its causes is presented in Chapter 1 of this document.

All of the topics and call flows presented in this document may not apply to all our customers. Therefore it is imperative that anyone reading this document pays careful attention to the following set of instructions. Here are the important points.

- The document is relevant to all versions of Avaya Aura® Contact Center from AACC6.3 SP9 onwards.
- The document is divided into two distinct sections- Part I & II.
- All customers and channel partners should be aware and understand the instructions given in Part I and therefore Part I is mandatory reading for all Avaya Aura® Contact Center customers regardless of the AACC version deployed.
- Part II is optional for all customers.
- Part II covers interactions with other Avaya products such as Avaya Aura® Experience Portal, Avaya Aura® Messaging and Avaya Aura® Communication Manager VDN's and Vectors.
- Chapter 1 is critical for Avaya Aura® Contact Center customers to read and understand. This section describes how to deploy additional functionality available (from AACC 6.3 SP onwards) that allow call flows that undergo redirection to be handled in an Aura® Contact Center solution.

PART I

1. Introduction

Call Center applications have traditionally been embedded in the software DNA of a host Telephony PBX/Switch platform. The PBX/switch platform provides the platform required to run a call center solution – two key features provided by the PBX are (i) PSTN trunks and gateways for callers to be able to reach the contact center and (ii) agent stations and associated station functionality required by agents to perform their work.

The embedded call center application provides the required routing, work assignment and agent management required by our customers. This is typically complemented by core telephony features and functions on the PBX used by the contact center staff in their day to day work. Examples of these PBX features are Call Park, Call Pickup, multiple call handling, queue/skillset announcement, call forwarding, call observe, coverage path or call forward, etc. In reality there is a symbiotic relationship between the PBX platform and the call center application – the two have traditionally worked hand in hand.

Avaya Aura® Contact Center is an evolution of these PBX embedded call center applications but with fundamental differences – the key one being that it has evolved “**outside**” of the PBX (Avaya Aura® Communication Manager) core and has adopted Session Initiation Protocol (SIP) at its core. This has enabled it to move customers into SIP (Session Initiation Protocol) based architectures in line with the emerging migration of both UC and CC enterprise applications to the SIP paradigm.

Avaya Aura® Contact Center has introduced a fundamental change to the traditional call center architecture with its software based component called Avaya Media Server (AMS). The AMS component is used to “anchor” all contact center calls and in effect take them off the traditional PBX gateways and associated DSP's. This means that the PBX in effect becomes a gateway for customer calls in that control of the customer call is now with the Avaya Aura® Contact Center application. The PBX still hosts the agent and supervisor telephones or stations which are also controlled and monitored by the Avaya Aura® Contact Center application.

The arguments for and against a SIP architecture, are not covered here in any detail. In the world of SIP based contact center applications like Avaya Aura® Contact Center, many of these PBX telephony features (frequently used by agents and supervisors) are still not present natively within the platform software or are simply evolving as the SIP standard evolves. This is not unique to Avaya Aura® Contact Center.

The purpose of this application note is to provide information regarding a call flow termed “Call Redirection”. It is important to note that call redirection is not an Avaya Aura® Contact Center specific call flow. The idea of redirection has been around for years and is a standard feature of any PBX. What is discussed in detail in this application note is the impact of redirected calls on the Avaya Aura® Contact Center application. The fact that the Avaya Aura® Contact Center application is dependent on the underlying Avaya Aura® Unified Communications Platform to perform certain telephony operations is important to keep in mind while reading this application note.

1.1. Redirection

Redirection is not a concept introduced by Avaya Aura® Contact Center. Redirection refers to a fundamental telephony operation of a call being sent to location A, but ending up at location B. This can occur due to telephony features too numerous to explicitly list. Examples of such features are as follows:

- Coverage Path
- Call Forward
- Automated transfers (i.e. from an IVR system)
- Routing capabilities of applications that interact with call servers
 - Route-to command from a Vector
 - Route Call command in Orchestration Designer

When a call gets redirected there are fundamental problems that need to be addressed which have led to the introduction of multiple configuration items on call servers. When a call encounters redirection it is a fact that multiple network entities can be involved in the redirection. As the call traverses the enterprise network it can lose information about the history of the call and about the original calling party.

Two sample problems with redirection are

- How does the final destination recognize that a call was redirected by an intermediate party
 - o Identify the history of the call
- What Calling Line ID should be presented to the final destination

1.1.1. Redirection and Avaya Aura® Contact Center

From the discussion on redirection above it is obvious that redirection plays an integral role in any contact center application. It is also a fact that calls can and will be redirected outside of the control of the contact center application.

Redirection is a wide ranging topic that could not be covered in a single application note. The purpose of this application note is to focus only on a specific subset of redirection call scenarios that can encounter some of the problems listed above when Avaya Aura® Contact Center is involved.

The subset of call scenarios that will be focused on are described in the definition below

1.1.1.1 Avaya Aura® Contact Center and Call Redirection Definition

For the purposes of this document, redirection in an Avaya Aura® Contact Center environment refers to the scenario where a contact center agent transfers an inbound contact center call to an alternative location (expert, VDN, Avaya Aura® Experience Portal) which subsequently re-routes the call back into the Avaya Aura® Contact Center.

For many customers the above scenario is a perfectly logical way to handle calls that cannot be answered by the intended destination of the transfer request.

Redirection can occur when an expert's station is configured with any of the following Avaya Aura® Communication Manager capabilities:

- Coverage Path On Busy
- Coverage Path No Answer
- Coverage Path All calls
- Call Forward All Calls
- Transfer / Conference

Redirection can also occur when a contact center call is sent to an automated entity (Avaya Aura® Communication Manager VDN(s) / Avaya Aura® Experience Portal) which routes the call back into the Avaya Aura® Contact Center.

We have used the terms agent and expert when describing redirection. It is important to understand what is meant by these terms and so they are defined as follows.

Agent Definition:

An **Agent** is any Avaya Aura® Communication Manager extension that is configured as an Agent in the Avaya Aura® Contact Center Management application. Agents are also referred to as In-Provider addresses in Avaya Aura® Contact Center.

- ▶ Avaya Aura® Contact Center Agent stations are provisioned on the same Avaya Aura® Communication Manager instance.
- ▶ Avaya Aura® Contact Center monitors and controls activity on agent stations via TR87 events and requests.
- ▶ The agent's voice URI (Universal Resource Indicator, used to represent the agent's telephone device i.e. extension@sip.domain.com) is configured in Avaya Aura® Contact Center. Once this is configured, Avaya Aura® Contact Center recognises the agent's address as a special type of address. It does not matter whether the agent is logged in or logged out.

Expert Definition:

An **Expert**, can be any telephone extension that is not configured as an Agent in the Avaya Aura® Contact Center Management application. Experts are also referred to as Out-of-Provider addresses in Avaya Aura® Contact Center. Experts are also commonly referred to as knowledge workers or back-office workers.

- ▶ An expert can be provisioned on the same Avaya Aura® Communication Manager as the agents, or on a remote Avaya Aura® Communication Manager or any remote call server (e.g. Communication Server 1000).
- ▶ Avaya Aura® Contact Center does not monitor or control any activity on expert stations.

Call Types Definition:

It is also important to state that the agent can receive two types of calls – contact center calls and personal calls (personal calls are often referred to as Ext In/Out in Avaya terms). Avaya Aura® Contact Center calls are delivered to the agent using a Controlled Directory Number (CDN) – similar to a VDN in an Elite environment. We will refer to any call delivered to an agent via a CDN as a CDN call. In the following sections we will refer to these terms many times.

1.2. Current Signaling Behavior

1.2.1. Basic Contact Center Call queued to agent and transferred to expert

Before getting into the call redirection scenarios it is important to outline the signaling that is currently employed when an agent transfers a call to an expert. The section outlines the signaling and media paths that are used by default when an agent transfers a contact center call to an expert.

In the diagrams that follow the scenario is a customer calling into Avaya Aura® Contact Center and getting routed to an Avaya Aura® Contact Center agent. The Avaya Aura® Contact Center agent transfers the call to an expert. It is important to pay attention to both the SIP signaling and the RTP signaling involved in the call flow.

The diagrams illustrate the RTP going to the customer directly (as opposed to the Gateway). This is purely to keep the diagrams as uncluttered as possible.

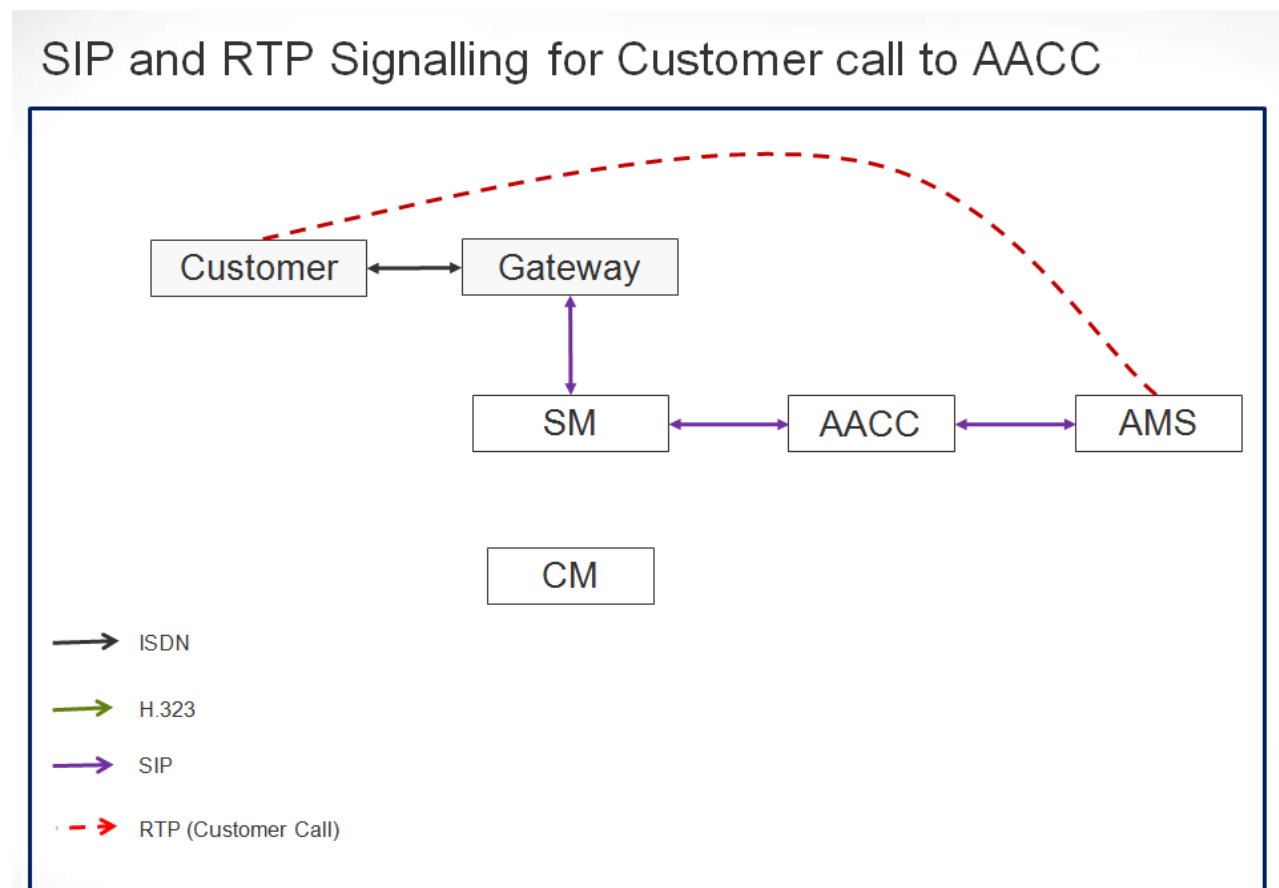


Figure 1.1

This diagram illustrates the fact that once the customer has contacted the Contact Center, the media path is “anchored” on the AMS.

SIP and RTP Signalling for Customer Queued to Agent

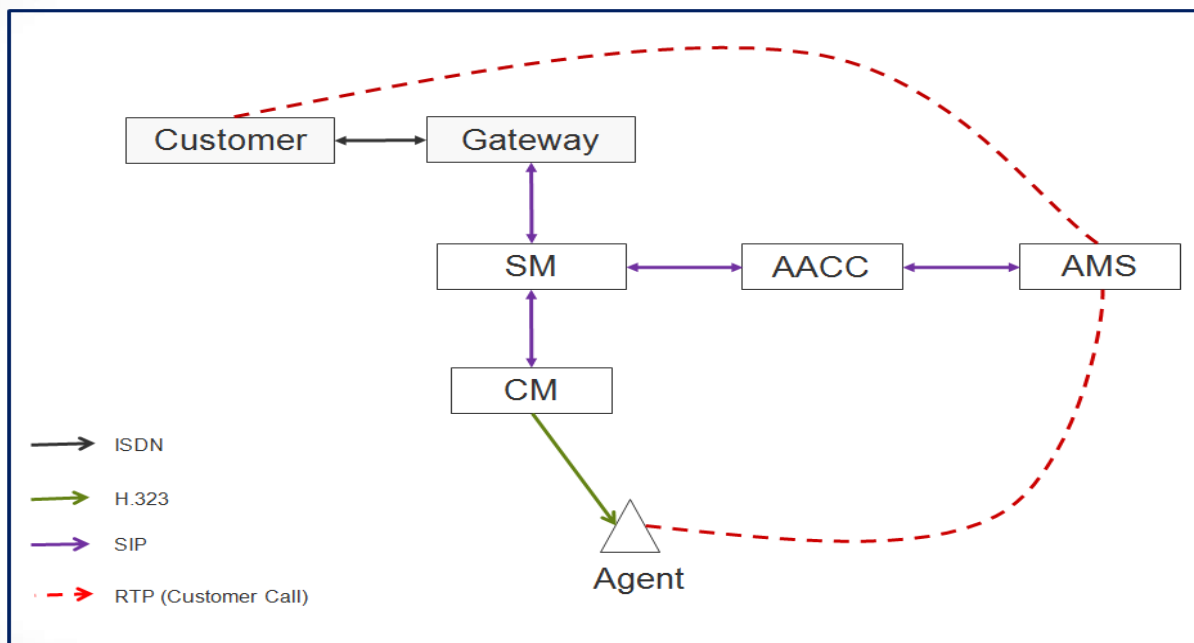


Figure 1.2

When the customer is routed to an agent the media path continues to be provided via the Avaya Aura® Media Server.

SIP and RTP Signalling for Agent consult to Expert

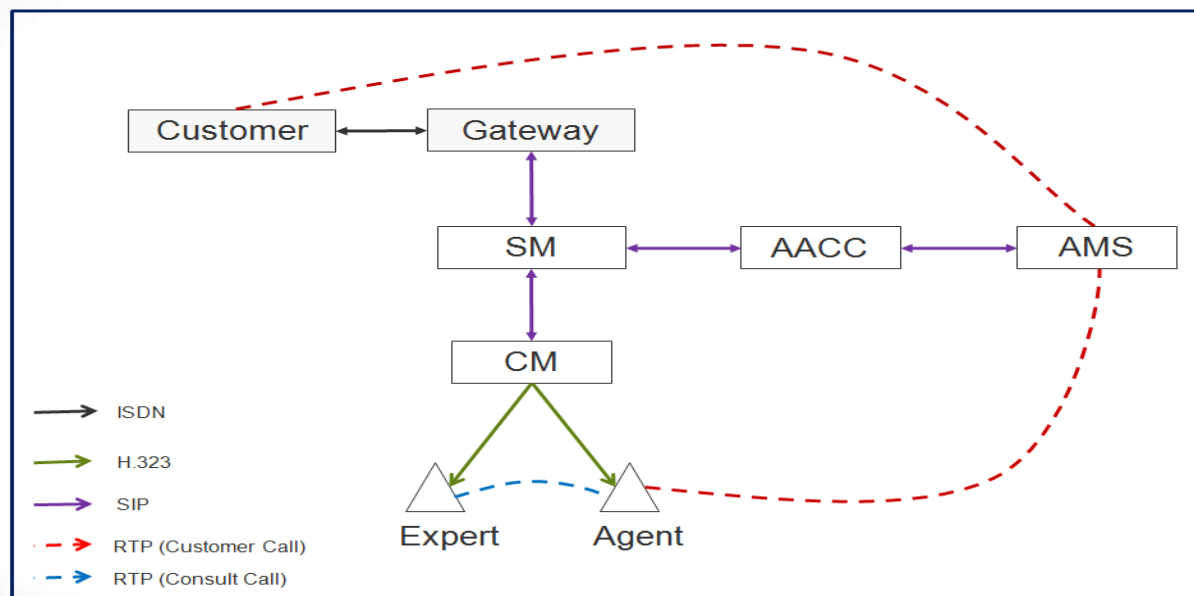


Figure 1.3

When the agent consults an expert, you can see that the media path is between the two stations and not on the AMS (strictly speaking the media is anchored on the CM Media gateway – but this is not relevant for this discussion).

SIP and RTP Signalling after the Agent completes the transfer to the Expert

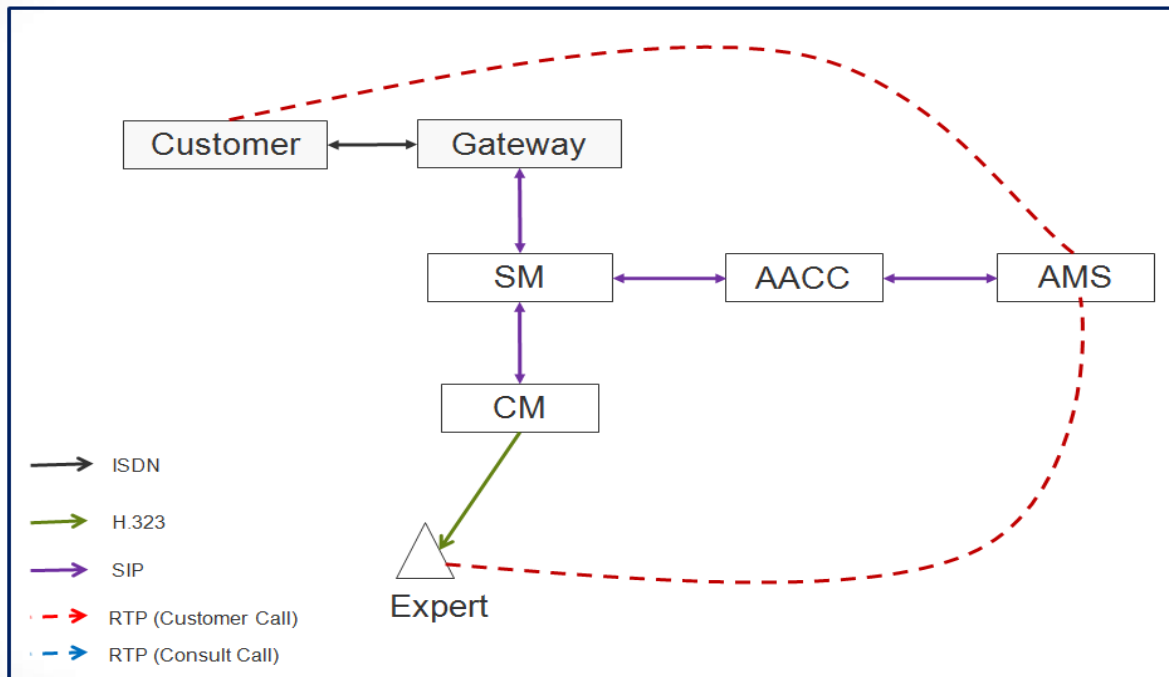


Figure 1.4

It can be seen that once the agent completes the transfer to the expert the Avaya Aura® Media Server is still used to anchor the media for the call. It is also a fact that Avaya Aura® Contact Center is still involved in the Signaling path.

Since Avaya Aura® Contact Center does not monitor or control either party in this call flow (customer or expert) then it can no longer influence this call and so it cannot add any value. More importantly there are Avaya Aura® Media Server resources tied up while the customer and expert are conversing that cannot be freed up for use for contact center call flows.

NOTE: It can be seen that no redirection has occurred on the call as per the definition in section 1.1.1.1. So this means that there is an efficiency improvement that can be gained while no redirection has occurred. This will be dealt with in a later section.

1.2.2. Redirection occurs after contact center call is transferred to expert

Following on from the diagrams above – what would happen if at the point the call is transferred to the expert that the expert redirected the call back into the contact center (via coverage path for example)? The diagram below shows what happens:

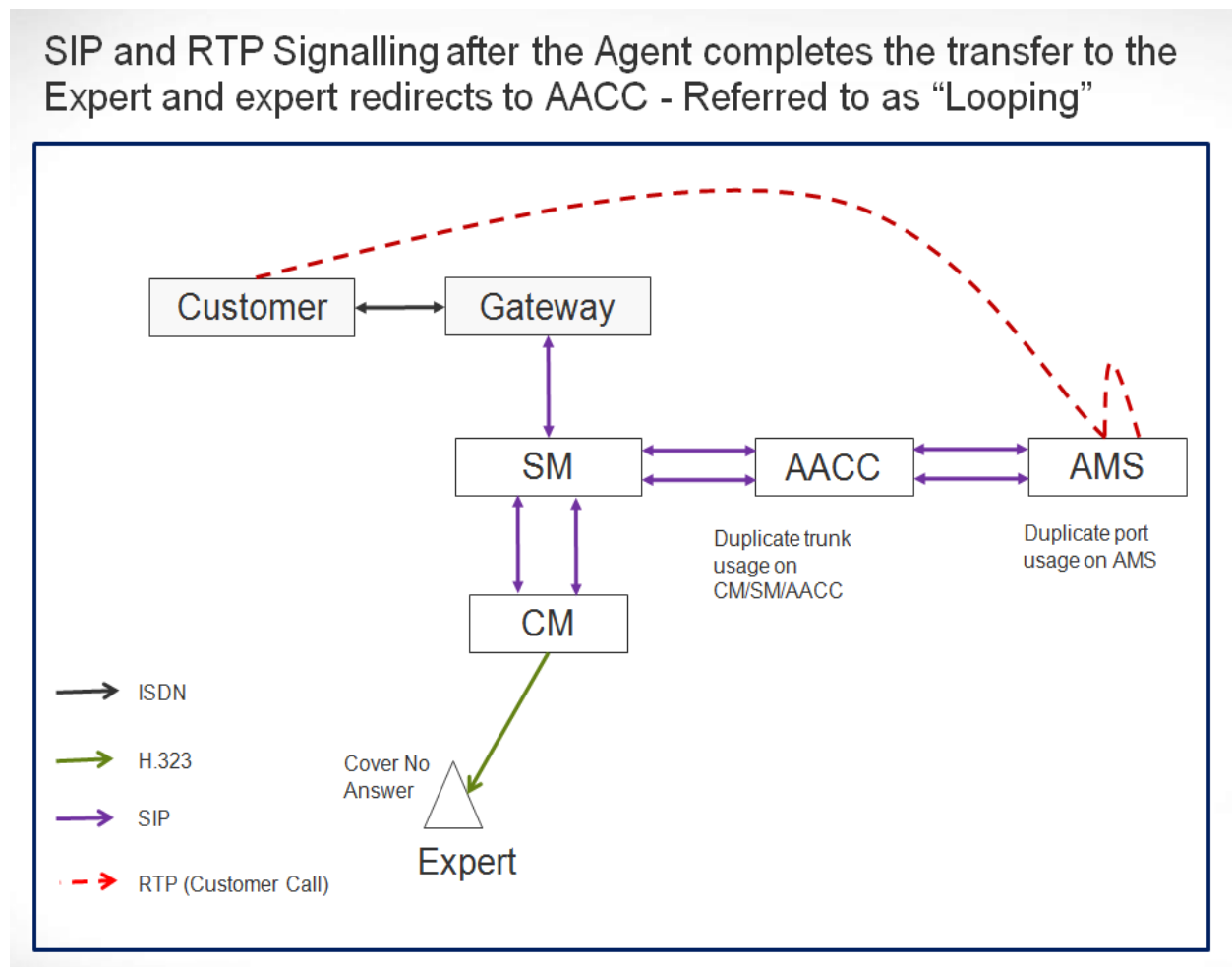


Figure 1.5

If redirection occurs at this point in the call flow, then it is possible to see that there is duplication of resources used. It is also a fact that at this point in the call flow that the Calling Line ID will not be correct for further agent interaction (due to looping).

1.2.3. Looping

The call flows just presented illustrate the condition known as “Looping”. As discussed above, “Looping” has the following side effects:

1. The Calling Line ID (CLID) that is presented to the agent will be incorrect. The CLID that is displayed depends on the call scenario in question.
 - a. In certain circumstances the CLID will be, for example, “12345_loopdetected”, where 12345 is a CDN number.
 - b. In other circumstances the CLID will be that of the expert involved in the redirection.
2. There will be duplicate resources utilized on the Avaya Aura® Media Server
 - a. For a standard call, there is one conference resource used on the Avaya Aura® Media Server.
 - b. Once a call is looped, then an extra conference resource is used on the Avaya Aura® Media Server.
 - c. It is possible for a call to be looped multiple times, thus using multiple conference resources on the AMS.
3. As per the conference resource usage on the Avaya Aura® Media Server, similarly there will be multiple trunk resources used on the Avaya Aura® Communication Manager/ Avaya Aura® Session Manager.
4. There is duplicate internal modeling of the call in the Avaya Aura® Contact Center software.

The means to avoid looping will be dealt with in Section 1.3.

1.2.4. Contact Center Call encounters Route Call Command to Expert

Before discussing the new signaling that will be used to solve the problems outlined above, it is first important to cover the scenario where a Route Call command is encountered in the Orchestration Designer Application of Avaya Aura® Contact Center.

This call flow **does not** fall into the category of redirection as per the definition in 1.1.1.1

The call flow described in the following two diagrams is where a customer calls the contact center and encounters a Route Call command that sends the call to an expert.

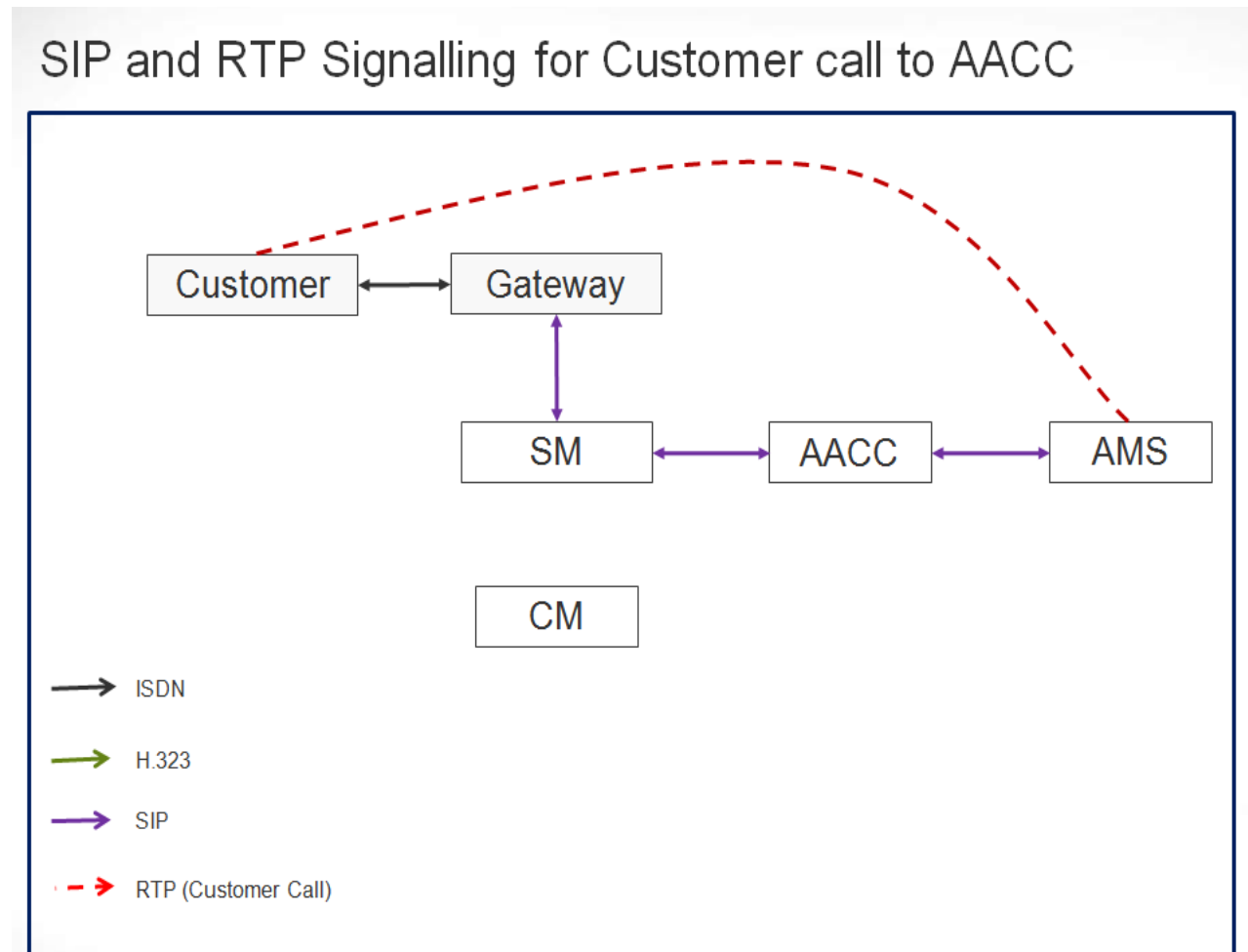


Figure 1.6

As per basic call, the signaling and media paths for customer call into Avaya Aura® Contact Center go to Avaya Aura® Contact Center and Avaya Aura® Media Server respectively.

SIP and RTP Signalling after Route Call to expert

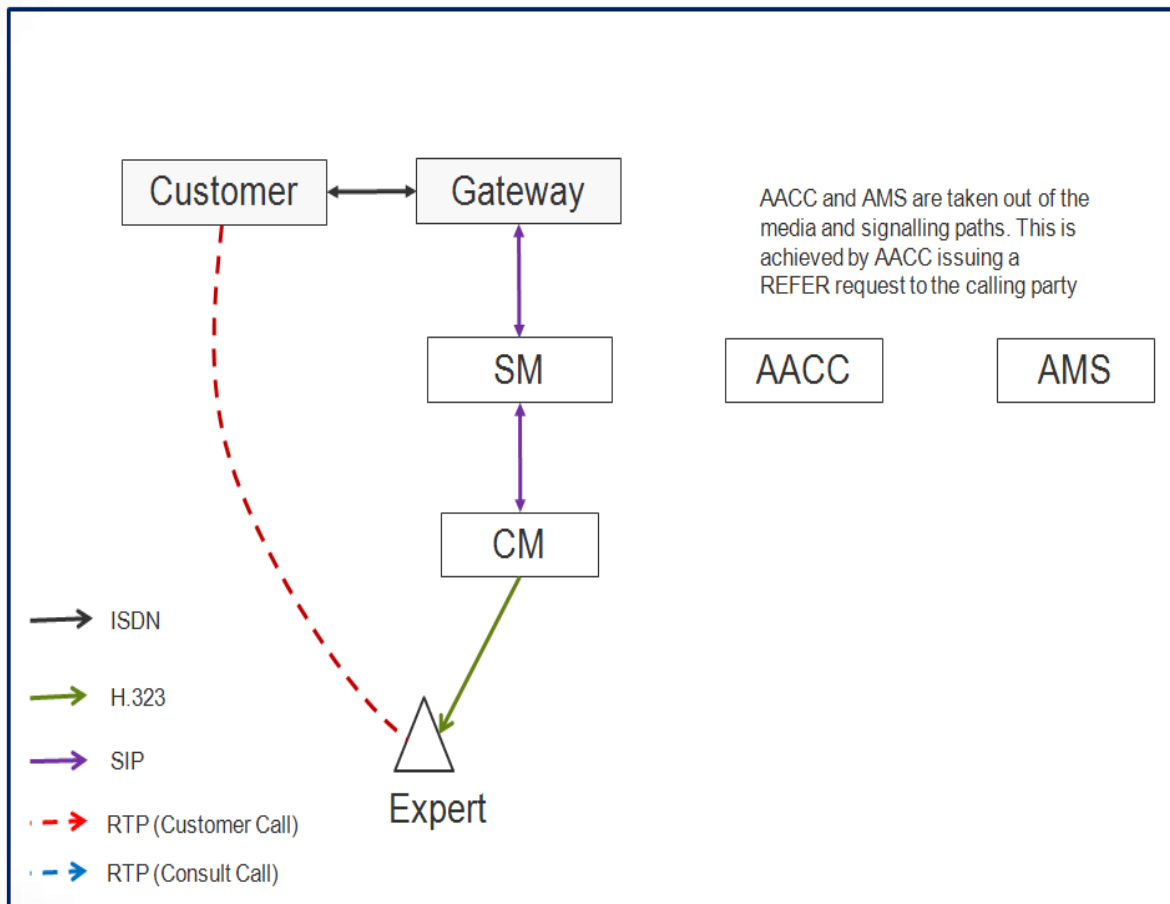


Figure 1.7

When a Route Call Command is encountered in the script, Avaya Aura® Contact Center will REFER the customer to the expert. This means that the signaling is removed from the Avaya Aura® Contact Center, and media from the AMS.

NOTE: This is how the logic has worked in Avaya Aura® Contact Center since Avaya Aura® Contact Center 6.0 i.e. no redirection changes required to make this call flow work as explained above.

1.3. New Signaling Behavior

(Available from Avaya Aura® Contact Center 6.3 SP9 onwards)

The section outlines the new signaling and media paths that are used when the redirection setting is enabled (see section 1.4 for information on how to enable the redirection setting). The same scenario as above is used to illustrate the change in signaling when the redirection setting is enabled.

SIP and RTP Signalling for Customer call to AACC

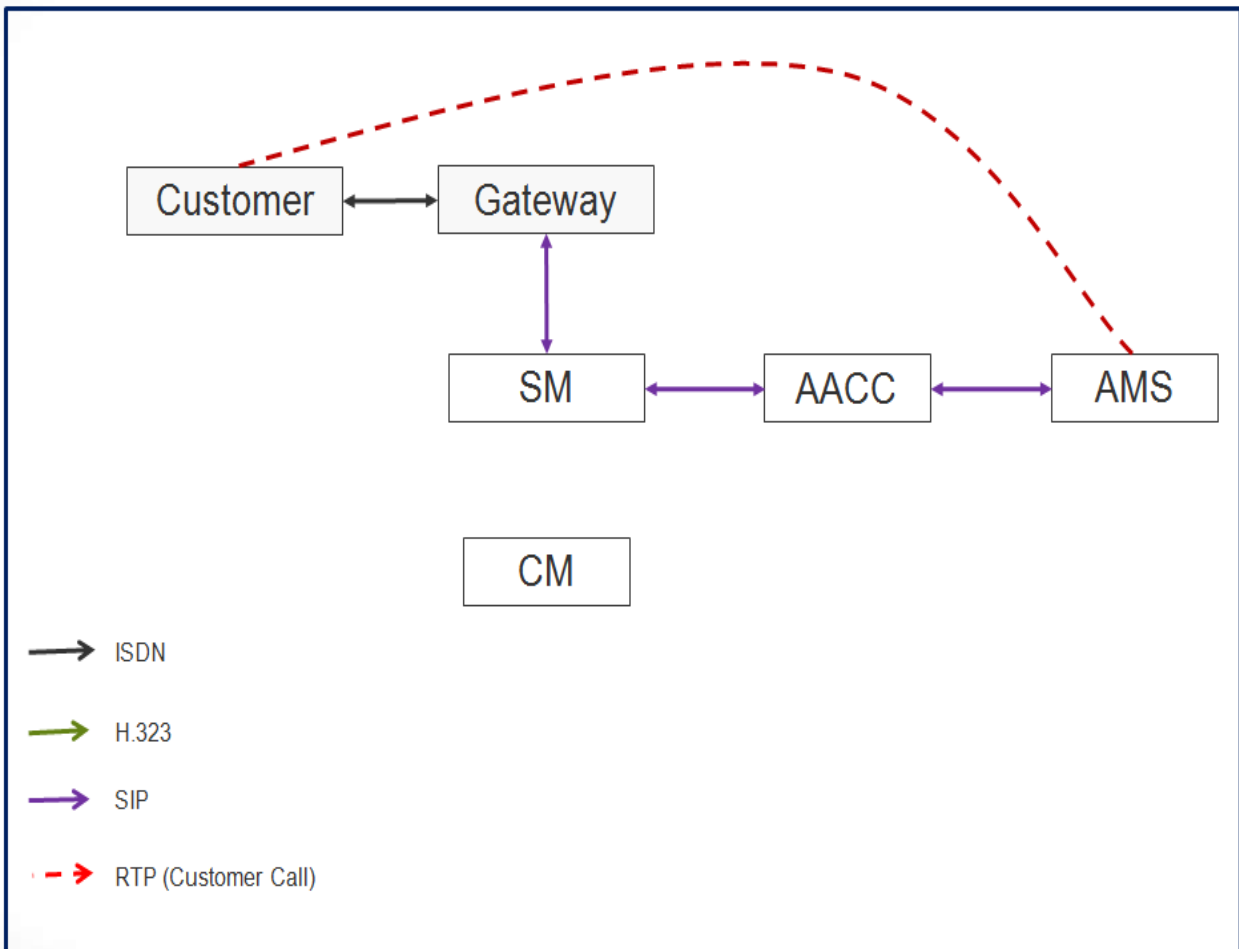


Figure 1.8

This diagram illustrates the fact that once the customer has contacted the Contact Center, the media path is “anchored” on the Avaya Aura® Media Server. There is no change to this part of the call flow.

SIP and RTP Signalling for Customer Queued to Agent

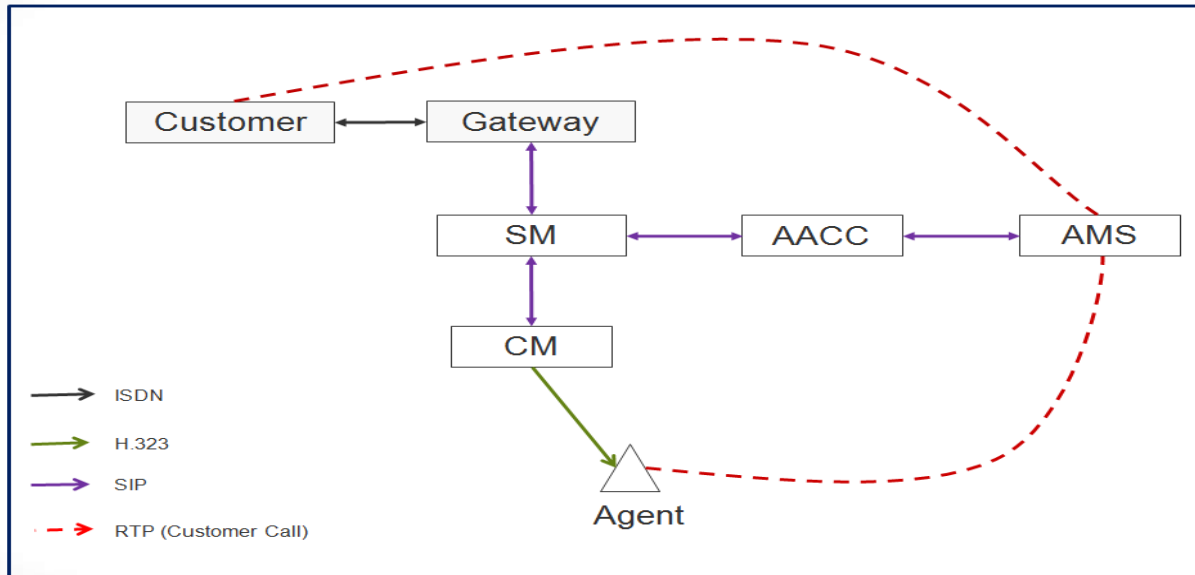


Figure 1.9

When the customer is routed to an agent the media path continues to be provided via the Avaya Aura® Media Server. There is no change to this part of the call flow.

SIP and RTP Signalling for Agent consult to Expert

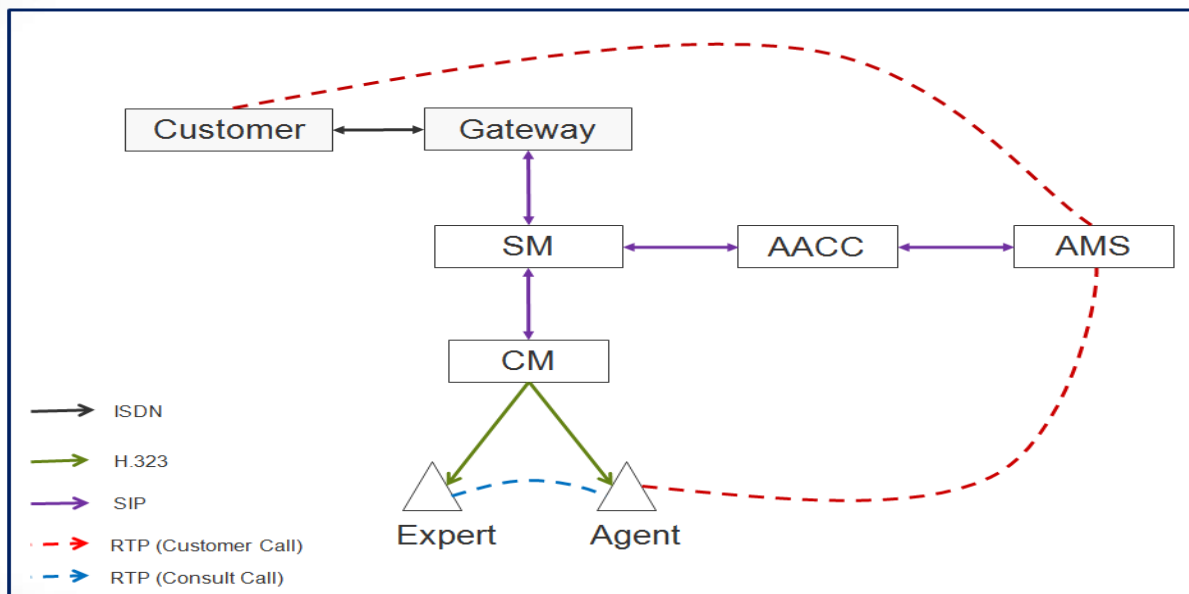


Figure 1.10

When the agent consults an expert, you can see that the media path is between the two stations and not on the Avaya Aura® Media Server (strictly speaking the media is anchored on the Avaya Aura®

Communication Manager Media gateway – but this is not relevant). There is no change to this part of the call flow.

SIP and RTP Signalling after the Agent completes the transfer to the Expert

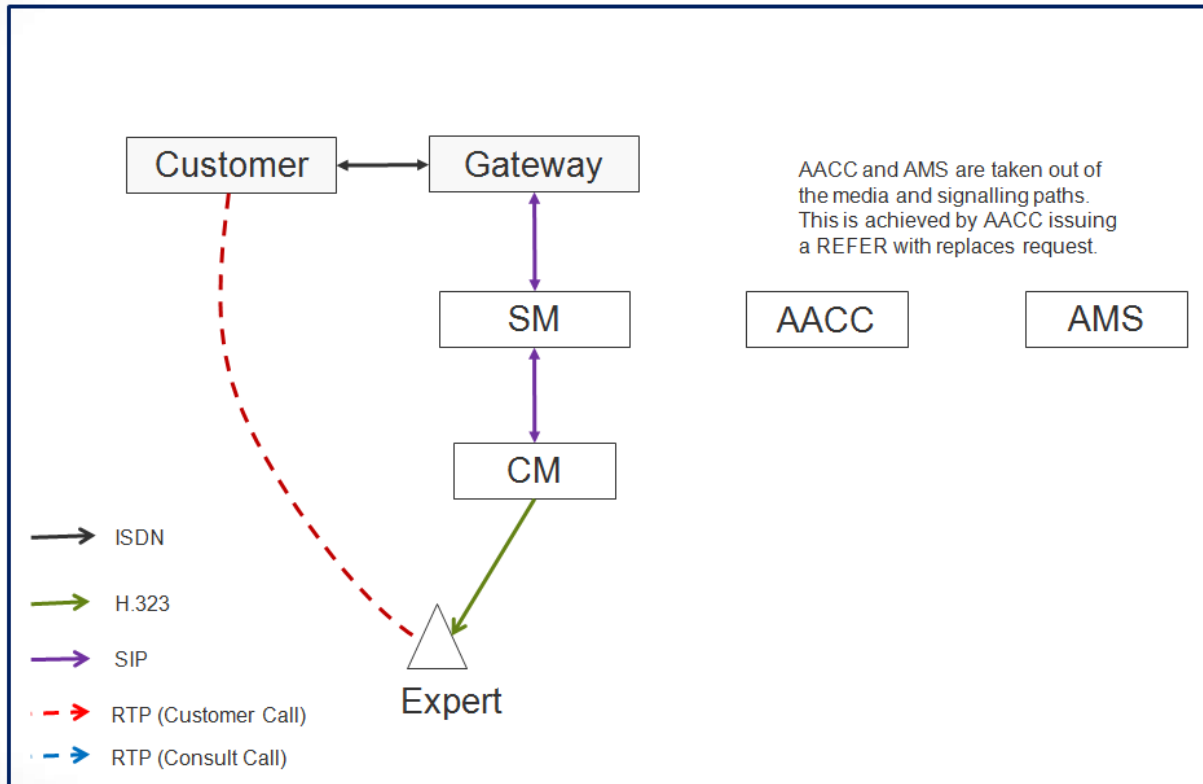


Figure 1.11

With the redirection setting enabled, it can be seen that once the transfer is completed that both Avaya Aura® Contact Center and Avaya Aura® Media Server are removed from the signaling and media paths respectively. This is achieved by Avaya Aura® Contact Center sending a REFER with replaces request to CM to take Avaya Aura® Contact Center and Avaya Aura® Media Server out of the signaling and media paths.

SIP and RTP Signalling after the Agent completes the transfer to the Expert and expert redirects to AACC

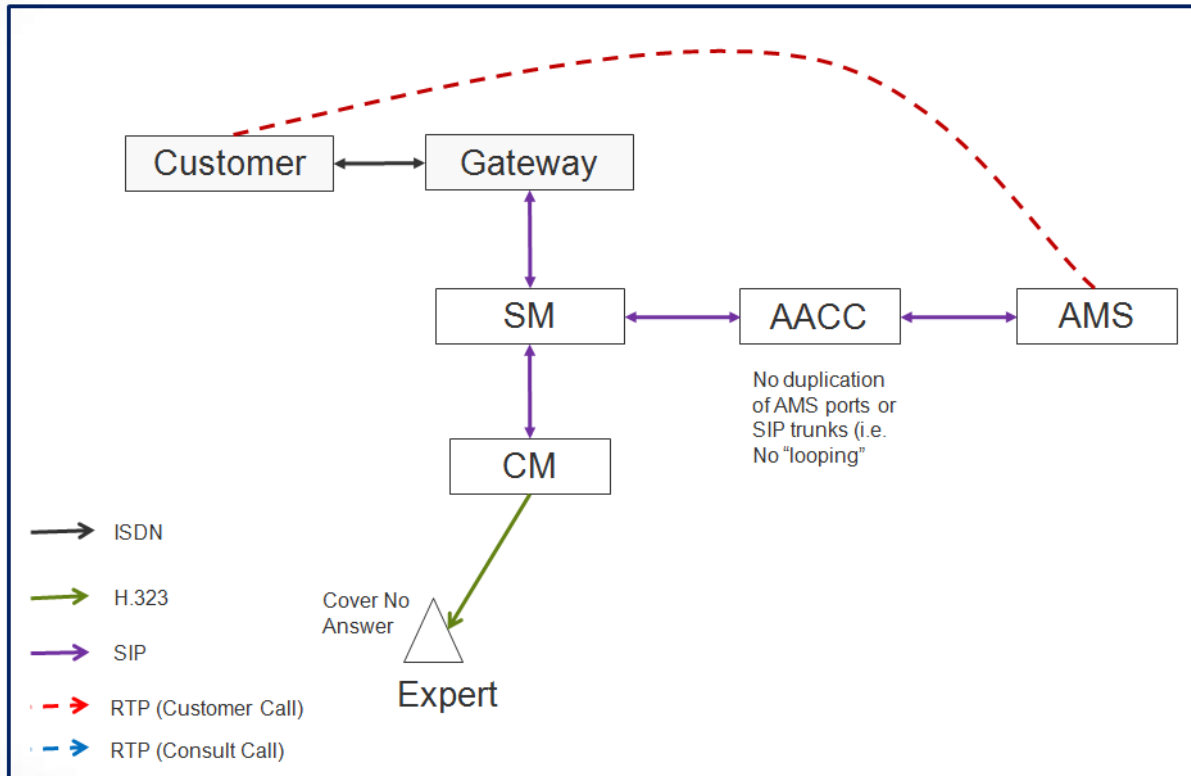


Figure 1.12

If redirection were to occur at this point in the call flow then it can be seen that there is no duplication of resources used (i.e. no "looping"). At this point in the call flow the CLID will be correct for further agent interaction.

1.4. Deploying Avaya Aura® Contact Center - Important Notes

The official support statement from Avaya, regarding redirected calls is documented in Avaya Aura® Contact Center Planning and Engineering reference document. For all software releases of Avaya Aura® Contact Center prior to and including SP10 (**without** the redirection functionality enabled), the statement is as follows -

“In SIP-enabled contact centers, agents must not use their desk phone or Agent Desktop to phone, transfer a call, or conference a call to an alternate phone number/location that is:

- *Routed to a CDN (Control Directory Number or Route Point). For example, a Virtual Directory Number (VDN) routed to a CDN (Route Point).*
- *Converted to a CDN (Route Point).*
- *Call forwarded to a CDN (Route Point).*

Agents may use their desk phone or Agent Desktop to transfer a call, conference or phone directly to a CDN (Route Point).”

Source: **Avaya Aura® Contact Center Planning and Engineering NN44400-21004.01** available from <http://downloads.avaya.com/css/P8/documents/100167786>

AACC 6.3 SP9 onwards customers have the option to turn on new capabilities that relax these restrictions.

The support for call redirection is **not enabled by default** in AACC. It is **not mandatory** in that every customer enable this setting as not every customer deployment will encounter redirection call scenarios.

To enable the setting, there are a number of configuration steps to be performed by qualified personnel. These steps are outlined in the following section.

1.4.1. Avaya Aura® Unified Communications Platform dependencies for Call Redirection Support



The Call Redirection Feature with Avaya Aura® Contact Center is only supported against the following software line-ups of the Avaya Aura® Unified Communications Platform **at a minimum**. If the Avaya Aura® Unified Communications Platform is not installed at the software line-up below (**at a minimum**) then the Call Redirection Feature **must not** be enabled,

Aura 6.2

Product	Release	Initial Software Version	Patch
SMGR	6.2	6.2.12.0	SP4 – r1993
SM	6.2	Asm-6.2.0.0.620120	6.2.3.0.623006 (SP3)
CM	6.2	cm 06.2-02.0.823.0	06.2-02.0.823.0-20199 (SP4)*
AES	6.2	r6-2-0-18	
Presence	6.1	06.01.00.00-0502	06.01.05.00-1204 (SP5)

Aura 6.2 FP1

Product	Release	Initial Software Version	Patch
SMGR	6.3	6.3.8.0	SP1 r1212
SM	6.3	Asm-6.3.0.0.630039	Asm-6.3.1.0.631004 (SP1)
CM	6.2	cm 06.2-02.0.823.0	06.2-02.0.823.0-20199 (SP4)*
AES	6.2	r6-2-0-18	
Presence	6.1	06.01.00.00-0502	06.01.05.00-1204 (SP5)

The difference between Aura 6.2 and Aura 6.2 FP1 is the SM & SMGR versions only.

* Requires an additional patch to be deployed as discussed below.



The Call Redirection Feature relies on a custom patch to be built on top of Avaya Aura® Communication Manager 6.2 SP4 to resolve the issues tracked by these identifiers Defsw130380, Defsw130385, Defsw122334, Defsw130393.

If a customer needs to turn on Call Redirection Feature support, they **must** first request a custom Avaya Aura® Communication Manager patch from their Avaya Representatives and install on their Avaya Aura® Communication Manager.



The Call Redirection Feature relies on a custom patch to be built on top of Avaya Aura® Communication Manager **6.2 SP5** to resolve the issues tracked by these identifiers: Defsw130380, Defsw130385, Defsw122334, Defsw130393.

If a customer needs to turn on Call Redirection Feature support against this version of CM, they **must** first request a custom Avaya Aura® Communication Manager patch from their Avaya Representatives and install on their Avaya Aura® Communication Manager.



With CM 6.2 SP6 and above, there is no requirement for custom patches to support redirection. The issues tracked by these identifiers: Defsw130380, Defsw130385, Defsw122334 and Defsw130393 have been incorporated into the base software from CM 6.2 SP6 onwards.

1.4.2. Configuration Steps to enable Redirection setting on Avaya Aura® Contact Center

It is recommended to perform these steps immediately after the successful installation of the Service Pack prior to any reboot of the server platform. Note again if redirection (as per definition in 1.1.1.1) is not occurring in the contact center call flows, then there is no need to perform these steps.

- (1) On the Avaya Aura® Contact Center server platform, logon with administrator rights. Navigate to the following folder - `D:\Avaya\Contact Center\Manager Server\iccm\sgm\config\`
- (2) Locate the file called “SGM.properties” and open it in a suitable text editor – Notepad, Notepad++, WordPad, etc.
- (3) Locate the following line

Enable or disable P2P media shuffle for CDN->DN transfers where both parties left on the call are OOP
com.nortel.contactcenter.sgm.EnableP2PMediaShuffleOnTransfer=~~false~~

- (4) And modify it to the following
Enable or disable P2P media shuffle for CDN->DN transfers where both parties left on the call are OOP
*com.nortel.contactcenter.sgm.EnableP2PMediaShuffleOnTransfer=**true***
- (5) Save and Exit the file
- (6) Note that this setting must be changed on **both** the active and standby Avaya Aura® Contact Center servers
- (7) Using standard Avaya Aura® Contact Center restart procedures initialize the contact center software.
- (8) Login and verify full operation

NOTE: As per the steps above, the SGM.properties file is static, and is not replicated in a HA environment. This means that changes to this properties only take effect after a system restart and need to be manually changed in both Active and Standby server in a HA environment.

IMPORTANT NOTE: if you have already enabled redirection on the AACC due to an SP9 upgrade – you will need to manually re-enable redirection after installation of SP10. You will need to re-enable the setting on both the active and standby servers in a HA environment. (Re-enabling simply means editing the configuration file and changing the setting from false to true as outlined in the steps above).

1.4.3. Configuration Settings required to support Call Redirection on Avaya Aura® Communication Manager

There are a number of configuration settings covered in this section of the document. It is important to note that this section covers a wide range of Avaya Aura® Communication Manager configuration settings – this is because there are numerous ways for calls to be redirected. Therefore it is highly likely that a number of these settings will not apply to all deployments. A note is added to each subsection to indicate the conditions when the setting is required.

It is also highly likely that the deployment will already have a number of these setting set to the values recommended below.

1.4.3.1 Enable agents to perform outbound transfers

NOTE: Enabling agents to perform outbound transfers is only required if the agents need to perform this operation as part of their day to day operations (therefore it is highly unlikely that this will drive any configuration changes) It is important that this configuration setting is performed by the administrator of the Avaya Aura® Communication Manager as it can be done in a number of ways.

When an agent completes a transfer to an expert Avaya Aura® Contact Center sends a REFER with replaces SIP request via Avaya Aura® Session Manager to Avaya Aura® Communication Manager on the SIP Call Leg that connects the Agent to Avaya Aura® Contact Center. From an Avaya Aura® Communication Manager point of view, this is akin to an agent performing an outbound transfer. Therefore in order for Avaya Aura® Communication Manager to process this REFER with replaces correctly the agents must be configured on Avaya Aura® Communication Manager to have the capabilities to perform an outbound transfer. There are multiple means to restrict the dialing capabilities of stations on Avaya Aura® Communication Manager (e.g. using Class of Restrictions (COR), Facility Restriction Levels (FRL), etc). This document is not intended to cover these standard Avaya Aura® Communication Manager setup options.

From a technical point of view the requirement is to enable Avaya Aura® Communication Manager to send an INVITE with replaces to an off-net location. E.g. a caller coming from an SBC which results in a REFER with replaces means that CM needs to send an INVITE with replaces on behalf of the agent station. If the agent station has a COR that does not allow this, then no INVITE with replaces can be sent.

Here is an **example** configuration to enable the REFER with replaces to be sent successfully. **It is best practice for the administrator of the Avaya Aura® Communication Manager to decide how best to enable this capability.**

1. Change Class of Restriction (COR) for agent stations so that calling party restriction is set to 'none'.

Calling party restriction: none

1.4.3.2 Configure the Outbound proxy

NOTE: This setting is required for all deployments that want to enable redirection. This is likely to already be configured as per the recommended setting below.

1. Change the locations form on Avaya Aura® Communication Manager so that 'Proxy Sel Rte Pat' parameter is set to the SM 'Route-Pattern'
 - This config setting can also be referred to as the outbound proxy on Avaya Aura® Communication Manager.

1.4.3.3 Universal Call Identifier (UCID)

NOTE: The configuration of UCID is recommended in the Avaya Aura® Contact Center customer documentation irrespective of redirection, but it is covered here for completeness.

System-parameters feature

There are two settings on the Avaya Aura® Communication Manager system-parameters feature form on the SAT required to configure UCID. The command to use is display (change) system-parameters features.

On page 5 ensure the following config changes are made:

UNIVERSAL CALL ID

Create Universal Call ID (UCID)? **y** UCID Network Node ID: **#**

UCID Network Node ID needs to uniquely identify this Node ID where other UDIC-generating network entities exist

The second setting is on page 13:

Send UCID to ASAI? **Y**.

Trunk group

If there is a requirement that external calls out from Avaya Aura® Communication Manager will send UCID information, then the trunk used must also be configured to send UCID information. The command to use here is display (change) trunk-group X. Where X is the trunk number on which the calls are traversing.

On page 3 ensure the following is configured:

UUI Treatment: **shared**

Send UCID: **y**

1.4.3.4 Network Call Redirection (NCR)

Note1: Network Call Redirection must be disabled on the trunk-groups between Avaya Aura® Communication Manager and Avaya Aura® Contact Center. It may be enabled for other trunk-groups on Avaya Aura® Communication Manager.

Note2: If turning off NCR across all Avaya Aura® Communication Manager trunks, it is necessary to turn off NCR at the trunk level first, and then turn NCR off at the system parameters customer options level. However, it is only necessary to disable it on the trunks between Avaya Aura® Communication Manager and Avaya Aura® Contact Center.

Trunk-group X (Page 5 of 22)

Network Call Redirection n

System-parameters customer-options (Page 4 of 11)

ISDN/SIP Network Call Redirection n

Note3: The NCR setting was a recommended setting for Avaya Aura® Contact Center deployments to cater for an issue with a single call scenario as per below. When NCR is turned off, it has a negative impact on this one specific call scenario

1. A customer dials into Avaya Aura® Contact Center and gets routed to Agent1.
2. Agent1 decides to conference in a second agent via a CDN
3. Agent1 dials the CDN number and gets routed to Agent2
4. Agent2 answers and Agent1 completes the conference.
5. Customer, Agent1 and Agent2 are now in a three party conference.
6. If either of Agent1 or Agent2 go on hold, then Music on Hold will be played into the conference when NCR is turned off.
7. If either of Agent1 or Agent2 go on hold, then Music on Hold will **not** be played into the conference when NCR is turned on.

If at step 2 Agent1 conferences Agent2 **directly** then Music On Hold is not played into the conference irrespective of the value of the NCR setting.

1.4.3.5 Coverage Path settings

NOTE: These settings on Avaya Aura® Communication Manager are only required if coverage path is being used to direct calls back to Avaya Aura® Contact Center.

In the system parameters configuration page on Avaya Aura® Communication Manager there is a separate section to deal specifically with coverage path / call forwarding settings. This section deals with a number of configuration options within this system parameters page.

1.4.3.5.1 Coverage of Calls Redirected Off-Net Enabled

Avaya Aura® Contact Center deployments must have this setting disabled

Coverage Of Calls Redirected Off-Net Enabled **n**

1.4.3.5.2 Simulated Bridged Appearance coverage option

NOTE: This setting on Avaya Aura® Communication Manager is only required if the bridged appearance feature is being used on expert stations. Bridged appearance is not a supported feature on Avaya Aura® Contact Center agent stations.

Avaya Aura® Contact Center strongly recommends that this setting is disabled.

system-parameters coverage-forwarding - Maintain SBA At Principal **n**

This is the scenario where if coverage is executed at a station, the call remains at that station and can be retrieved. This is a system wide parameter. This means that it cannot be enabled or disabled at a station/coverage-path level.

If set to 'y', the call is maintained at the original station while the coverage is being invoked, set to 'n' and the call is released from the station the moment coverage is invoked.

From an Avaya Aura® Contact Center point of view having this setting enabled means that an Expert station that redirects a call back to Avaya Aura® Contact Center can subsequently barge into the call at a later stage.

This may be against the security policies of certain contact centers – and it could be seen as undesirable experience for the customer / agent. It is also possible that the redirected call could be routed to an IVR

session where the customer is entering sensitive information – this again is undesirable from the customer's point of view. For that this reason we recommend the above configuration.

1.4.3.5.3 Activate Answer Detection (Preserves SBA) On Final CCRON Cvg Point

NOTE: This setting is only available as an option if Coverage Of Calls Redirected Off-Net Enabled is enabled. For all Avaya Aura® Contact Center deployments, this setting must be set to disabled as shown below.

Activate Answer Detection (Preserves SBA) On Final CCRON Cvg Point n

- If enabled, Expert has option to bridge into call until call is terminated. Expert can bridge into call between customer and Agent or potentially between customer and IVR (which poses a security risk as per 1.4.3.4.2)
- If disabled, Expert does not have option to bridge into call (this is a requirement for Avaya Aura® Contact Center)

1.4.3.6 Bridged Appearance Privacy Option

NOTE: This setting on Avaya Aura® Communication Manager is only required if the bridged appearance feature is being used on expert stations. Bridged appearance is not a supported feature on Avaya Aura® Contact Center agent stations.

Bridged Appearance DNS that are configured on multiple stations can result in multiple parties bridging onto the same call. For example:

- Customer C dials Bridged Appearance DN A.
- A is configured on Expert stations E1 and E2.
- E1 can answer the call and now converse with C.
- E2 will see that a call on A is active
- If Privacy option is on – E2 will not be able to join the call.
- If Privacy option is off – E2 will be able to join the call.

Avaya Aura® Contact Center deployments must have this option turned off.

1.4.3.7 Connected Event for Announcements

In an Avaya Aura® Contact Center deployment this setting must be disabled.

system-parameters features (Page 13)

Send Connect Event to ASAI For Announcement Answer? n

A special configuration setting was created for a customer on Avaya Aura® Communication Manager to send ASAI connected events when an announcement was encountered. Announcements are typically provided by a command associated with a vector. The default value for this setting is n. In order for Avaya Aura® Contact Center to process redirected calls from a VDN with an associated announcement in a vector this value should be disabled.

1.4.3.8 SEMT (SIP Endpoint Managed Transfer)

Note: This setting is not supported by Avaya Aura® Contact Center irrespective of redirection – but it is covered here for completeness.

Avaya Aura® Contact Center requires that this setting is disabled. SIP Endpoint Managed Transfer feature is not supported by Avaya Aura® Contact Center.

system-parameters features:

- Page 19 'SIP Endpoint Managed Transfer' n

If this parameter is enabled it can cause the following;

- The REFER replaces sent from Avaya Aura® Contact Center to CM (to execute the new signaling) will not terminate on Avaya Aura® Communication Manager even though Avaya Aura® Communication Manager is the destination in the Refer-To URI and the replaces dialog is local to Avaya Aura® Communication Manager. This causes Avaya Aura® Communication Manager to send out an Invite replaces even though it is the destination of the REFER request. Avaya Aura® Session Manager will proxy the Invite replaces back to Avaya Aura® Communication Manager and the new signaling will fail (effectively resulting in the old signaling being used).
- For Back to Back User Agents (B2BUA) on Avaya Aura® Communication Manager, any REFER's received on one side of the B2BUA, will be sent on the other side for the remote SIP UA to process (this can be Avaya Aura® Contact Center). This occurs in the following call scenario: Customer □ CDN, CDN queues □ Agent. Agent consults □ AAEP, Agent completes transfer. Now CM is B2BUA between CDN and Avaya Aura® Experience Portal. In this case if Avaya Aura® Experience Portal sends a REFER to Avaya Aura® Communication Manager (consultative transfer), it will forward the REFER to Avaya Aura® Contact Center instead of processing internally.

1.4.3.9 Special Application 9124 – AACC Connected Information Enhancement

Note: This setting on Avaya Aura® Communication Manager is only required if redirection needs to be enabled on remote CM experts.

System-parameters special-applications (Page 10 of 10)

(SA9124) - AACC Connected Information Enhancement y

All customers that remain on earlier releases of the Avaya Aura® Contact Center platform and the corresponding Avaya Aura® Unified Communication Platform are bound by the existing documented restriction as below:

“In SIP-enabled contact centers, agents must not use their desk phone or Agent Desktop to phone, transfer a call, or conference a call to an alternate phone number/location that is:

- *Routed to a CDN (Control Directory Number or Route Point). For example, a Virtual Directory Number (VDN) routed to a CDN (Route Point).*
- *Converted to a CDN (Route Point).*
- *Call forwarded to a CDN (Route Point).*

Agents may use their desk phone or Agent Desktop to transfer a call, conference or phone directly to a CDN (Route Point).”

1.5. Limitations

While enabling the Call Redirection feature opens up the possibility of supporting a wide range of call redirection scenarios there will remain some limitations regarding a subset of Call Redirection Scenarios.

1.5.1. Consult / Bridged Transfer from Avaya Aura® Experience Portal

Call Redirection Scenarios **are not** supported in the case where Avaya Aura® Experience Portal is involved in the call flow and the Avaya Aura® Experience Portal Application is designed to send the call to Avaya Aura® Contact Center via a Consult or Bridged Transfer request.

Call Redirection Scenarios **are** supported in the case where Avaya Aura® Experience Portal is involved in the call flow and the Avaya Aura® Experience Portal Application is designed to send the call to Avaya Aura® Contact Center via a Blind Transfer request.

See Section 5 for more information about interactions/call flows including Avaya Aura® Experience Portal.

1.5.2. Avaya Aura® Communication Server 1000

The redirection setting will not be supported where the deployment of Avaya Aura® Contact Center is against an Avaya Aura® Communication Server 1000 via SIP. AML deployments are not affected.

1.5.3. Avaya Aura® Unified Communications Platform versions

As discussed previously the Call redirection setting is not supported against the Avaya Aura® Communication Manager 5.2.1 or Avaya Aura® Communication Manager 6.0.1 versions.

1.5.4. Blind Conference Support

Blind conference is a term used to describe the scenario where an agent completes a conference request before the target party answers. For example an agent may be talking to an agent and decide that they need to conference in an expert into the call. The agent hits the conference key and enters the address of the expert but before the expert answers the call, the agent completes the conference operation.

From a contact center point of view this does not seem like a call scenario that would provide a good customer experience. In this case where the expert does not answer the call the conference will continue to have ringback played into the conference. If the expert has voicemail configured then it is possible that the expert's voicemail greeting will be played into the conference.

In any case, with respect to call redirection scenarios, if an agent completes a blind conference where the consultation leg experiences redirection back to Avaya Aura® Contact Center the consultation leg will not

be conferenced into the call. The end result is that the agent can continue to speak with the customer. The redirected leg will not have any parties associated and so will be disconnected gracefully.

1.6. Troubleshooting Redirection Scenarios

1.6.1. Confirm Call Redirection

Once the redirection feature is enabled the following steps can be taken to confirm that the redirection feature is operating as expected.

- Run the following scenario
 - Customer calls into Avaya Aura® Contact Center CDN
 - Avaya Aura® Contact Center queues to an agent
 - Agent completes a transfer operation to an expert station (either blind or consultative)
 - Customer is speaking with the expert
- Once you have run this scenario open the CCMS_SGM_SipMessages0.log file and search for the REFER request – here is a snapshot from a sample log file illustrating the REFER request being issued. Note that the REFER request is sent to the Agent Address that performed the transfer, and the Refer-to header contains the address of the customer.

Filter: I(TxMethod="OPTIONS")

Time	In <--> Out	Request Line	Other party	Tx I/O	Tx time
16:47:18.697	<--	INVITE sip:2820170@47.166.110.17:5...	PROXY	In	0.000
16:47:18.700	-->	SIP/2.0 100 Trying	PROXY	In	0.003
16:47:18.701	-->	INVITE sip:_sip-conf@47.166.110.17:...	AMS	Out	0.000
16:47:18.704	<--	SIP/2.0 200 OK	AMS	Out	0.003
16:47:18.706	-->	SIP/2.0 200 OK	PROXY	In	0.009
16:47:18.742	<--	SIP/2.0 200 OK	TR87	Out	0.077
16:47:18.747	<--	INFO sip:8820171@47.166.110.17:506...	TR87	In	0.000
16:47:18.749	<--	INFO sip:8820171@47.166.110.17:506...	TR87	In	0.000
16:47:18.751	-->	SIP/2.0 200 OK	TR87	In	0.004
16:47:18.752	-->	SIP/2.0 200 OK	TR87	In	0.003
16:47:18.775	<--	ACK sip:2820170@47.166.110.17:506...	PROXY	In	0.078
16:47:18.779	-->	ACK sip:_sip-conf@47.166.110.17:5...	AMS	Out	0.078
16:47:19.320	<--	INFO sip:8820171@47.166.110.17:506...	TR87	In	0.000
16:47:19.322	-->	SIP/2.0 200 OK	TR87	In	0.002
16:47:22.991	-->	INFO sip:8820171@47.166.110.17:506...	TR87	Out	0.000
16:47:23.068	<--	INVITE sip:2820170@47.166.110.17:5...	PROXY	In	0.000
16:47:23.069	-->	SIP/2.0 100 Trying	PROXY	In	0.001
16:47:23.071	<--	SIP/2.0 200 OK	TR87	Out	0.080
16:47:23.072	-->	INVITE sip:_sip-conf@47.166.110.17:...	AMS	Out	0.000
16:47:23.074	<--	SIP/2.0 200 OK	AMS	Out	0.002
16:47:23.076	-->	SIP/2.0 200 OK	PROXY	In	0.008
16:47:23.085	<--	INFO sip:8820171@47.166.110.17:506...	TR87	In	0.000
16:47:23.088	-->	SIP/2.0 200 OK	TR87	In	0.003
16:47:23.096	<--	ACK sip:2820170@47.166.110.17:506...	PROXY	In	0.028
16:47:23.220	-->	REFER sip:8820003@47.166.108.182;tag=709f9208-116ea62f-13c4-55013-17ca70-6f745615-17ca70	PROXY	Out	0.000
16:47:23.233	-->	ACK sip:_sip-conf@47.166.110.17:5...	AMS	Out	0.161
16:47:23.236	<--	BYE sip:2820170@47.166.110.17:506...	PROXY	In	0.000
16:47:23.238	-->	SIP/2.0 200 OK	PROXY	In	0.002
16:47:23.239	<--	SIP/2.0 202 Accepted	PROXY	Out	0.019
16:47:23.269	-->	BYE sip:_sip-conf@47.166.110.17:5...	AMS	Out	0.000
16:47:23.270	<--	SIP/2.0 200 OK	AMS	Out	0.001
16:47:23.294	<--	NOTIFY sip:2820170@47.166.110.17:...	PROXY	In	0.000
16:47:23.299	<--	BYE sip:2820170@47.166.110.17:506...	PROXY	In	0.000
16:47:23.305	-->	SIP/2.0 200 OK	PROXY	In	0.011
16:47:23.306	-->	SIP/2.0 200 OK	PROXY	In	0.007
16:47:23.307	-->	BYE sip:_sip-conf@47.166.110.17:5...	AMS	Out	0.000
16:47:23.311	<--	SIP/2.0 200 OK	AMS	Out	0.004

04/03/2013 16:47:23.220 --> message sent to 47.166.110.113:5060
Start-Line: REFER sip:8820003@47.166.108.182;transport=tcp SIP/2.0
From: <sip:2820170@47.166.110.17:5060>;tag=709f9208-116ea62f-13c4-55013-17ca70-6f745615-17ca70
To: <sip:8820171@47.166.110.17:5060>;tag=80f4fda5a394e21ab1515184e00%3Bfrom-tag%3D709f7420-116ea62f-13c4-55013-17ca69-309a8abc-17ca69
Call-ID: 72fe4eb6-75515870-5134d00b@47.166.110.17
CSeq: 2 REFER
Via: SIP/2.0/TCP 47.166.110.17:5060;branch=z9hG4bK-17ca7f-5cef03... ..efb2c0
Refer-To: <sip:8820003@47.166.108.182>;tag=804039a1a394e21a61515184e00%3Bto-tag%3D804039a1a394e21a51515184e00%3Bfrom-tag%3D709f7420-116ea62f-13c4-55013-17ca69-309a8abc-17ca69
Referred-By: <sip:2820170@47.166.110.17:5060>;tag=709f9208-116ea62f-13c4-55013-17ca70-6f745615-17ca70
Max-Forwards: 70
Supported: timer,replaces
Route: <sip:rw-3c64e402@47.166.110.113;transport=TCP;lr>
Route: <sip:47.166.110.112:15060;transport=tcp;lr;sap=-273581044*1*016asm-callprocessing.sar1886234159~1362417123479~1779735338~1>
Route: <sip:rw-3c64e402@47.166.110.113;transport=TCP;lr>
Route: <sip:rw-2b5b9182@47.166.108.186;transport=TCP;lr>
Route: <sip:47.166.108.185:15060;transport=tcp;lr;sap=-294821807*1*016asm-callprocessing.sar1184127441~1362416137757~1638282399~1>
Route: <sip:rw-2b5b9182@47.166.108.186;transport=TCP;lr>
Route: <sip:47.166.108.182;transport=tcp;lr>
Contact: <sip:2820170@47.166.110.17:5060;transport=tcp>
Content-Length: 0

Agent Address
Customer Address
REFER Request

Filtered 762 message(s), total time 2 days 20:00:46.632

Figure 1.14

3. After the agent has completed the transfer (i.e. at step d above). Confirm that there is no Avaya Aura® Media Server conferences resourced being utilized. Note: you must ensure that this is the only call in the system.
 - a. This can be viewed from Element Manager -> Monitoring -> Active Sessions

The screenshot shows the Avaya Media Server web interface. The top header includes the Avaya logo, the title "Avaya Media Server", and links for "Help" and "Logout". The left sidebar contains a navigation menu with categories like "Network", "System Status", "Monitoring", "Applications", "Cluster Configuration", and "System Configuration". The main content area is titled "Active Sessions" and shows a summary of active sessions and resources. Below this, there are filters and a table for viewing active sessions.

Managing: SIPSERVER17V, [redacted]
Home > System Status > Monitoring > Active Sessions

Active Sessions

(Cluster)

Active Sessions:	0	Conference Resources:	0	Session Attempts/Interval:	0
IVR Resources:	0	MRCP Resources:	0	CPU Load (%):	38

Filter: Viewing Active Sessions Sessions Listed: 0
Criteria: Filtered Sessions: 0

Select... Refresh Every 30 Seconds

Remote Party	Start Timestamp	Application Name	Endpoint	QOS R-Factor	QOS Round Trip Delay(msec)
--------------	-----------------	------------------	----------	--------------	----------------------------

Figure 1.14

1.6.2. Looping

If a looped call is encountered, then this can be recognized as follows:

- 1) The Avaya Aura® Agent Desktop AAAD will illustrate the “CDN_loopdetected”
Calling Line ID
- 2) It is also possible to search for the following string in the CCMS_SGM_SipSp.log file:
“Both calling and called addrs are type RP, process with '_loopdetected’”

1.6.3. Call Flows

Please refer to Appendix E for in-depth call flows when the redirection setting is enabled, and further troubleshooting guidelines.

PART II

2. Examples of Redirection in an Avaya Aura® Contact Center Solution

The purpose of the remaining chapters in this document is to provide example call flows so that the information in Part I can be put into context. In this and the following chapters, we will call out numerous call flows which can be supported in the standard base software and other call flows that require Call Redirection to be enabled. Note that Appendix A contains introductory information that should be read if there is any confusion over the terms used in the following sections of the document.

The examples that follow are just that, examples. As explained at the start of this document it is not possible to cover all potential call scenarios. The basic definition of redirection as outlined in 1.1.1.1 should be used as the guideline to determine whether or not a call scenario falls into the redirection category or not.

In the diagrams in these sections there are three commonly used symbols shown in several of the illustrations. Please note carefully their meaning.



This symbol implies that the functionality **is** supported on the Avaya Aura® Contact Center core/base software release with the basic SP9 software update but without the enabling of Call Redirection



This symbol implies that the functionality is supported on the core/base Avaya Aura® Contact Center software release with the basic SP9 software update and with the enabling of Call Redirection.



This symbol implies that the functionality is not supported at all in any current release of the Aura® Contact Center software including SP9

2.1. Coverage Path in Avaya Aura® Contact Center Deployments

Coverage Path Definition:

A call coverage path is a list of one to six alternate answering positions. The system sequentially accesses the coverage points when the called party or the called group is unavailable to answer the call. When a call meets the redirection criteria for a called telephone number, the system attempts to route the call sequentially to one of the points in the configured coverage path (up to a maximum of six). If no coverage points are available, the call may revert to the original called party.

For a full definition of the Avaya Aura® Communication Manager Coverage Path and its usage scenarios, the reader should consult the **Avaya Aura® Communication Manager Feature Description and Implementation Manual**.



Figure 2.1: Agent Coverage Path Support Statement

In many Avaya Aura® Contact Center deployments, **Coverage Path can be and is configured on expert stations**. It is the use of Coverage Path on these resources that we will now discuss in more detail.

2.2. Call Forward in Avaya Aura® Contact Center Deployments

Call Forward Definition:

Users use the Call Forwarding All Calls capability to redirect any incoming calls to another destination. For a full definition of call forward and all its usage scenarios, the reader should consult the **Avaya Aura® Communication Manager Feature Description and Implementation Manual**.

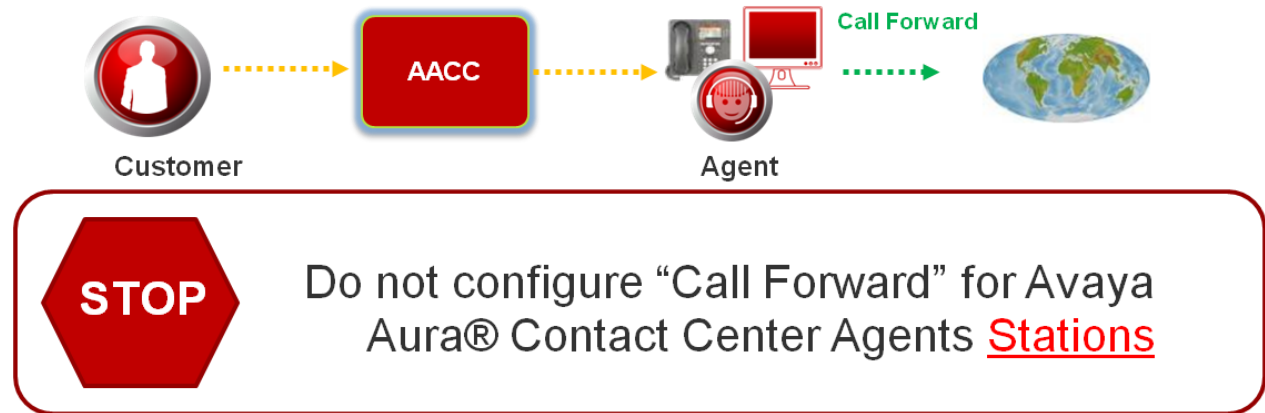


Figure 2.2: Call Forward Support Statement

There is no requirement to configure call forward on the agent stations for redirecting contact center calls to other answering destinations if the agent cannot answer the call.

Note: Avaya Aura® Contact Center will automatically take back (RONA) unanswered contacts without agent intervention or provisioning of coverage path or call forward features.

In many Avaya Aura® Contact Center deployments, call forward is configured on expert stations. It is the use of call forward on these resources that we also need to pay special attention to.

2.3. Transfer/Conference to VDN in Avaya Aura® Contact Center

The call flow diagram shown here is discussed in its own right as it is the most commonly encountered call flow where redirection occurs. If customers wish to implement this call flow as shown, then they will require a minimum of AACC 6.3 SP9 with redirection functionality enabled in order to be fully supported.

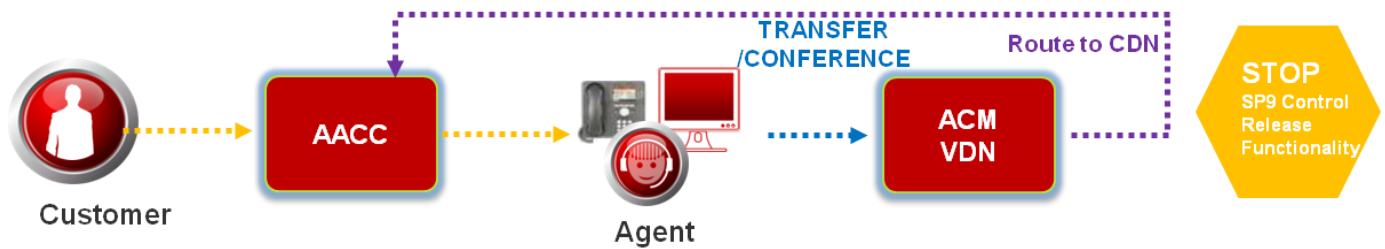


Figure 2.3.1: Agent Transfer/Conference to VDN to a CDN

If Avaya Aura® Contact Center agents must transfer a caller back to the contact center they can use direct transfer / conference to the Avaya Aura® Contact Center CDN's.

2.4. Resource Usage Implications for Avaya Media Server (AMS)

The Avaya Media Server plays a key central role in the Avaya Aura® Contact Center solution, in that it is the anchor point for all contact center calls. This document assumes a working knowledge of the role of the AMS component, its capabilities and its functions. The reader can consult the relevant Avaya Aura® Media server documentation available from support.avaya.com.

In this section we are concerned with the usage of ports or DSP's on the AMS platform for non contact center calls. A number of the call scenarios presented in the next section may cause the following temporary conditions to occur within the contact center logic

- Duplicate call modeling and duplicate AMS anchoring.
- Duplicate resource usage on the Avaya Aura® Communication Manager where duplicate trunks may be used for the duration of the call.

Where any of the above conditions occur, we will specifically call this out in the proceeding sections of this document. As explained earlier, when Call Redirection is enabled this duplication will not occur.

2.5. Supported Call flows undergoing coverage path and call redirection treatments

It is the expert destination that agents want to interact with that are utilising either Coverage Path or Call Forward features that we will now explain in more detail. The Avaya Aura® Contact Center agent may not be aware that these features are in use and may in fact only realize they've been redirected to the contact center when they hear the announcements.

Note 1: It is only Avaya Aura® Contact Center calls or CDN calls that we are concerned with in this section. Direct Ext In or Ext Out calls to the agent are not of concern to the Avaya Aura® Contact Center application other than from a reporting perspective.

Note 2: All of the following call flows are examples of where contact center calls are “redirected” to alternate answering positions which can now be supported with Avaya Aura® Contact Center 6.3 SP9.

We first document the call flows that are now supported with Avaya Aura® Contact Center 6.3 and which require no special handling or the redirection functionality.

The following examples show a number of different call scenarios that utilize call cover (coverage path or call forward) which are now supported in a basic Avaya Aura® Contact Center 6.3 deployment.

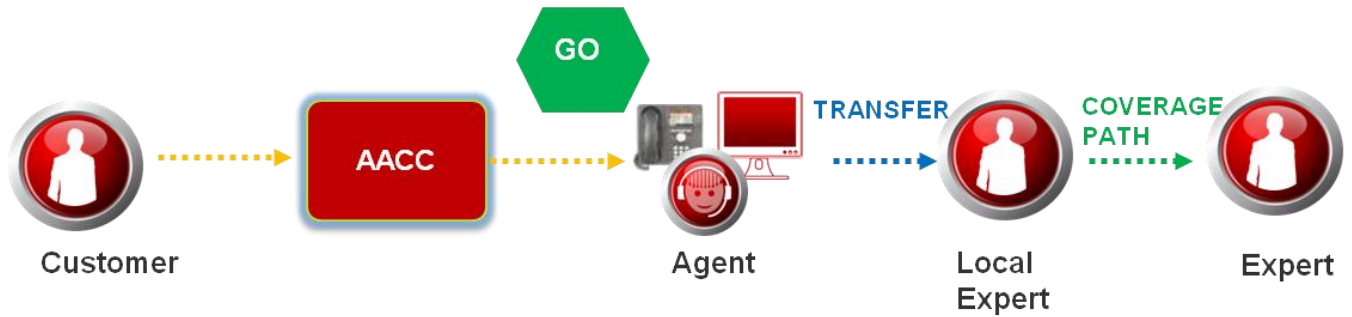


Figure 2.5.1: Transfer to Expert with coverage path to other Expert

The call flow for the example shown in Fig 2.5.1 is as follows:

- Customer call via CDN answered by contact center agent
- Agent attempts to transfer these calls to local expert
- Local expert has coverage path defined which directs call to other expert
- Other expert now answers call and agent completes call transfer
- Expert can be on local Avaya Aura® Communication Manager or remote site
- Call between customer and expert anchored on Avaya Aura® Media Server for duration of call

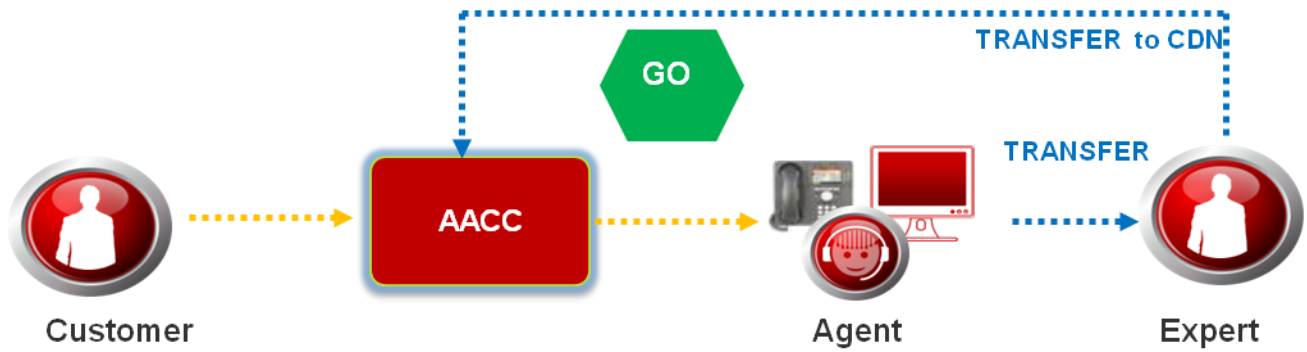


Figure 2.5.2: Transfer to Expert with Transfer to CDN

The call flow for the example shown in Fig 2.5.2 is as follows:

- Customer call via CDN answered by contact center agent
- Agent transfers (blind/consult) call to local expert and transfer completes.
- Expert answers and transfers directly back to a CDN and transfer completes.
- Expert does not need to have coverage path configured to automatically send calls back to CDN's.
- The expert stations must be located on the same Avaya Aura® Communication Manager and not across a trunking system
- When redirection is not turned on, looping can exist in such a call flow if UCID is not available on each leg of the call. If redirection is turned on, then looping will not be encountered.
- This incoming transferred call will be treated as a new call.
 - The customer will be routed to the next available agent as with a regular new call into the contact center.
 - The call is reported as a new call.
 - The calling line ID intrinsic (AD_CLID) will **not** be updated to be that of the customer for this call flow if redirection is turned off and UCID is not available. If redirection is turned on, CLID will be correct.

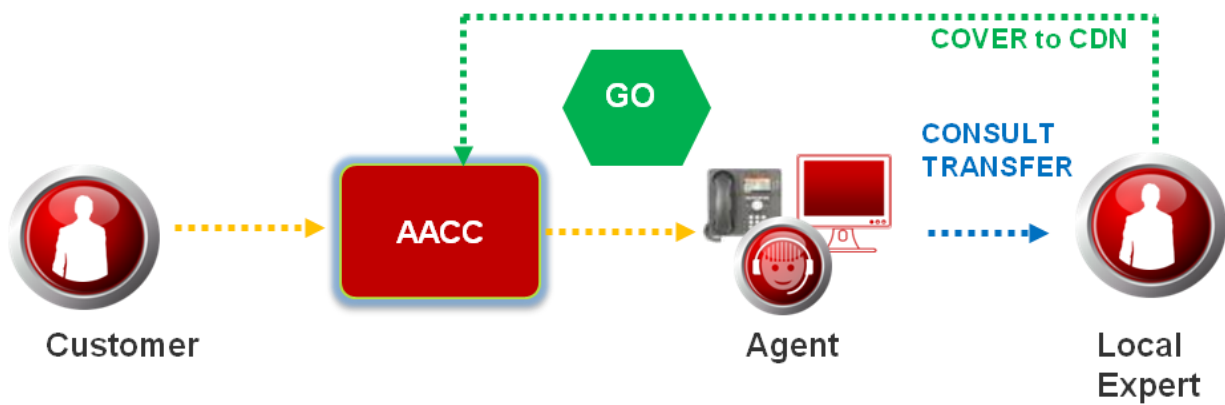


Figure 2.5.3: Consult Transfer to Expert with Coverage Path to CDN

The call flow for the example shown in Fig 2.5.3 is as follows:

- Customer call via CDN answered by contact center agent.
- Agent attempts consult transfer call to local expert.
- During consultative stage, local expert station covers back to CDN.
- The agent recognizes that they have arrived into the contact center application (by virtue of the fact that they are hearing scripted treatments). They now choose to complete the transfer of the call as it is now under control of the Avaya Aura® Contact Center workflow. Also the call has been anchored on the media server at this point.
- Local Expert means that the experts and agent stations are hosted on the same Avaya Aura® Communication Manager. Avaya Aura® Communication Manager version 6.3 (referred to as CM Feature Pack 2) is required to provide support for remote experts for this scenario.
- Call between customer and expert remains anchored on Avaya Aura® Media Server for the duration of the call.
- No looping occurs with this call flow.

Enabling of Coverage Path on an Avaya Aura® Contact Center agent stations is not supported at this time except for a limited case of Coverage Path to voicemail- see figure below. Coverage Path to contact center CDN's or VDN's is not supported.

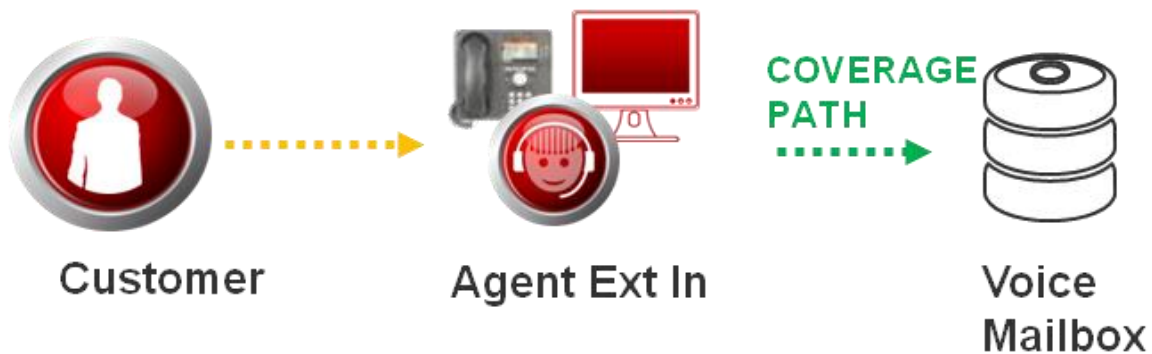


Figure 2.5.4: Direct Agent Calls cover to voice mail

The call flow for the example shown in Fig 2.5.4 is as follows:

- Customer call direct to Agent Ext In.
- Agent busy on contact center/Ext In call and this new call covers to their configured mailbox.
- Supported Voicemail systems and transport mechanisms are shown below. A link to the official application note can be found in section 13.

Voicemail Platform	Integration Mechanism	
	SIP	QSig
ACM Messaging	Supported	Not Supported
Modular Messaging	Supported	Not Supported
Aura Messaging	Supported	Not Supported

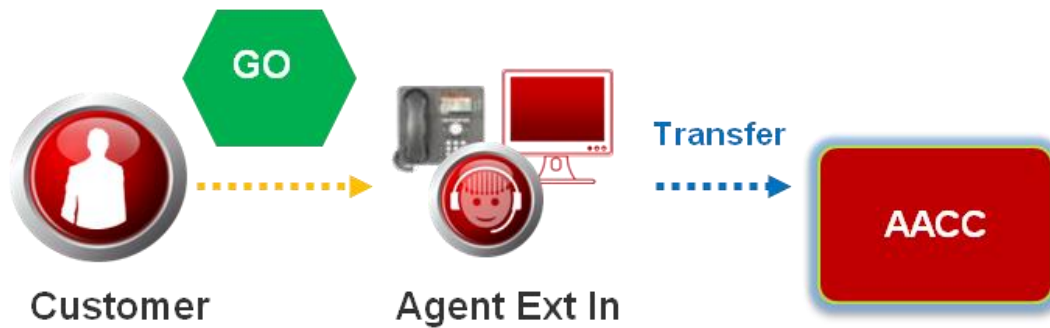


Figure 2.5.5: Agent Ext In Call Transfer to Avaya Aura® Contact Center

The call flow for the example shown in Fig 2.5.5 is as follows:

- Customer call direct to Agent Ext In (Direct Agent call: Non contact center call).
- Agent decides to transfer to Avaya Aura® Contact Center CDN
- Call between customer and CDN is now anchored on the media server
- Call now can continue on to other agents/experts subject to all of the rules around handling redirected calls

The following two call flows are supported but care must be taken to understand some limitations that occur in these scenarios. These are documented in Appendix B and C respectively.



Figure 2.5.6: Customer to Expert to CDN to Agent – see Appendix C

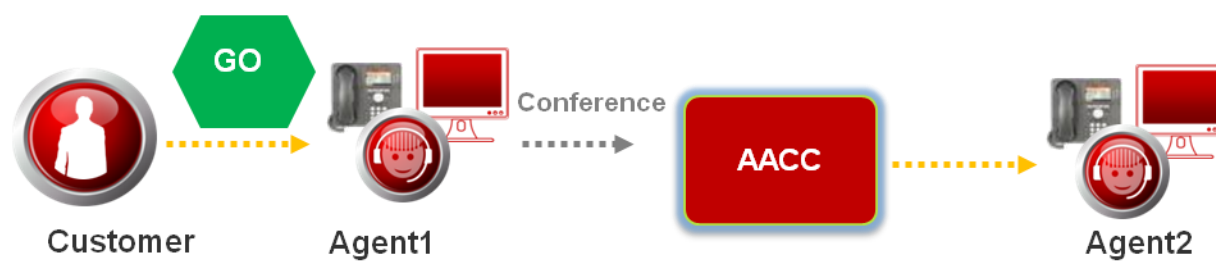


Figure 2.5.7: Customer to Agent to CDN to Agent – see Appendix B

The additional supported scenarios listed above do not require the agents to change their behavior. Agents can continue to transfer calls to destinations outside of Avaya Aura® Contact Center, via either blind or consultative transfer methods. This information presented here is intended to allow the contact center administrator / manager(s) to make routing decisions for where they want calls to be sent in scenarios where redirection has occurred. The agent will not need to be aware that redirection has occurred except in call flow 2.5.3 where they can choose to complete the consultative transfer or take back the call to their own telephone station.

In the next chapter we describe various call scenarios that undergo redirection and how they can be supported in an Avaya Aura® Contact Center deployment.

3. Redirection Call Scenarios Requiring AACCs Redirection Feature Functionality (available from SP9 onwards)

In this chapter we look at a number of call scenario's where the controlled release functionality in SP9 is required for these call flows to be fully supported.

3.1. Blind Transfers into Avaya Aura® Contact Center

When agents blind transfers a contact center call to an expert who redirects the call back to Avaya Aura® Contact Center then it is necessary to enable the redirection setting. An example call flow involving blind transfers is shown below.

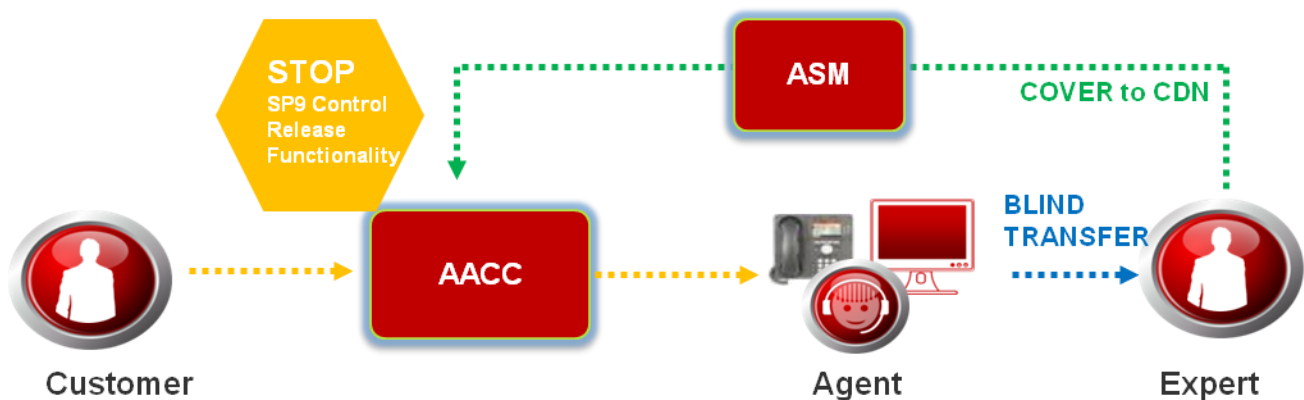


Figure 3.1.1: Blind Transfer to Expert, Cover to CDN,

The call flow for the example shown in Fig 3.1.1 is as follows:

- Customer call answered by agent
- Agent invokes a blind transfer to expert
 - If blind transfer, the agent completes transfer / conference operation before waiting for the expert station to answer. Therefore the agent is not aware of the expert's cover to alternate location. This is similar to "fire and forget".
- Expert station covers direct to CDN
- Avaya Aura® Contact Center Release 6.3 SP9 minimum (with redirection setting enabled) recognizes this as a redirected call and will process it accordingly inside the contact center

3.2. Use of VDN(s) in an Avaya Aura® Contact Center

This section describes call flows that are routed through Avaya Aura® Communication Manager VDN's and Vectors (if Avaya Aura® Call Center Elite is configured). Many customers today route incoming callers via VDN(s) to the Avaya Aura® Contact Center application. These VDN(s) then become known to the enterprise users who may start to use them to direct answered callers back into the contact center.



Figure 3.2.1: Transfer to Agent with Transfer to Expert with Transfer to VDN with route to CDN

The call flow described in 3.2.1 will receive normal treatment in an Avaya Aura® Contact Center 6.3 SP9 with redirection enabled. In the next chapter will examine call flows and redirection where the solution contains an Avaya Aura® Experience Portal.

4. Avaya Aura® Experience Portal

In this chapter we look at how the Avaya Aura® Contact Center application interacts with Avaya Aura® Experience Portal in terms of call redirection. The Avaya Aura® Experience Portal is now being deployed widely with Avaya Aura® Contact Center and we therefore need to understand calls flows and any redirection we need to cater for in customer designs.

4.1. Supported Avaya Aura® Experience Portal call flows undergoing coverage path and call treatments

In figures 4.1.1 to 4.1.4 there is no call flow that meets the redirection criteria as per 1.1.1.1 and so there is no issue with supporting these call flows.

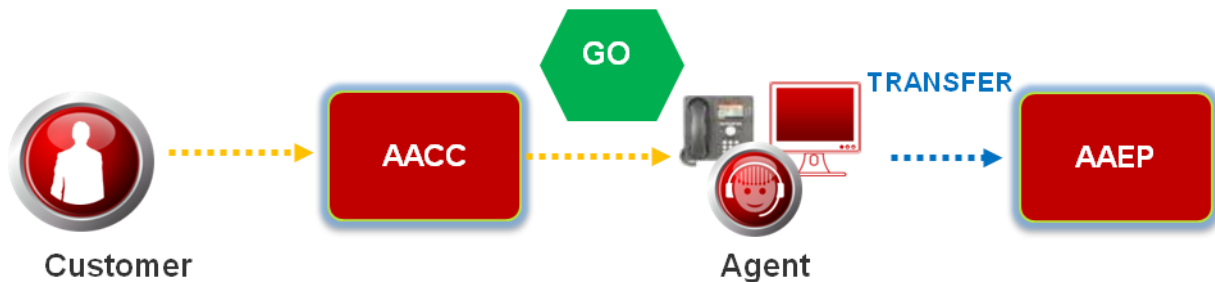


Figure 4.1.1: Transfer to AAEP from Agent

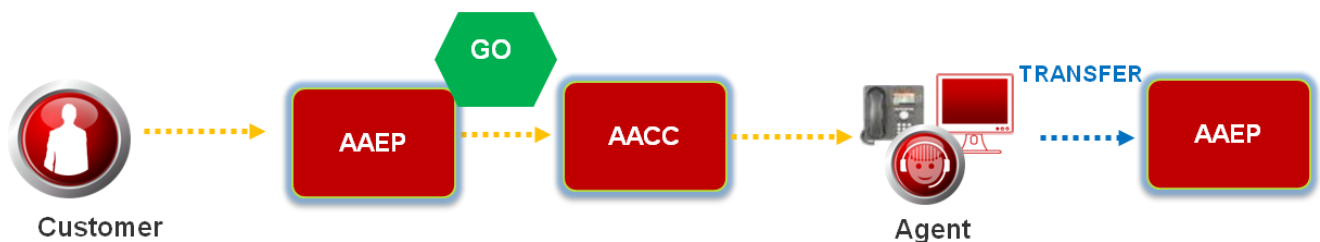


Figure 4.1.2: Front End AAEP to Agent back to AAEP

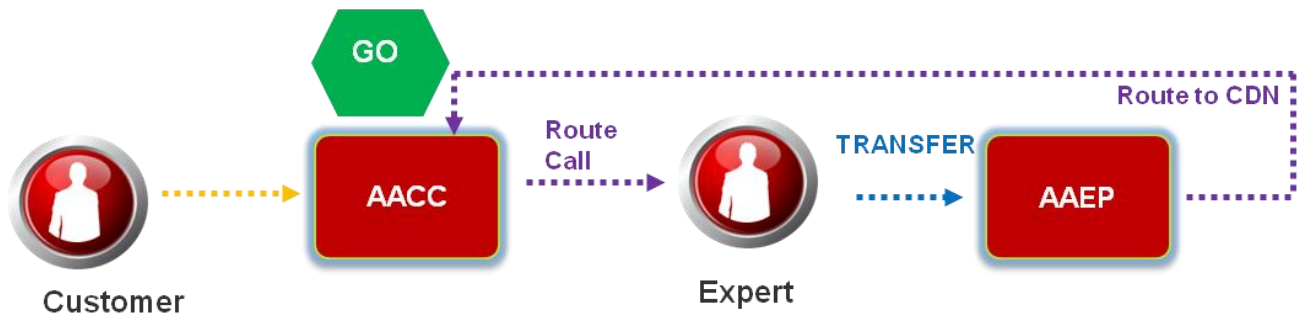


Figure 4.1.3: Customer Avaya Aura® Contact Center with Route Call to Expert to AAEP back to Avaya Aura® Contact Center



Figure 4.1.4: Customer to VDN to Expert to AAEP back to Avaya Aura® Contact Center

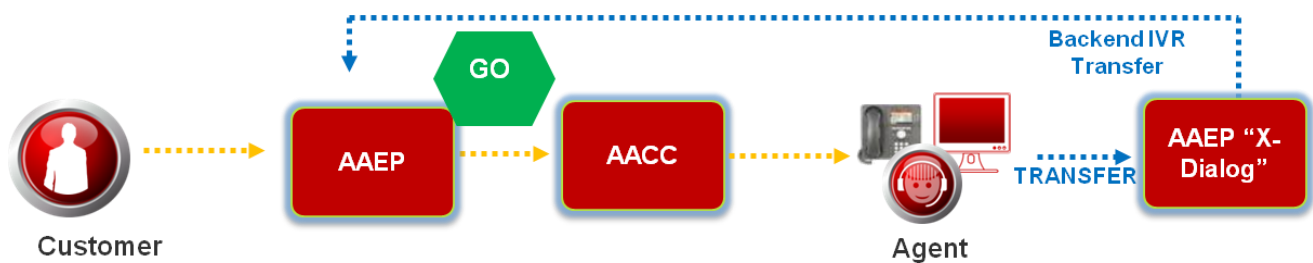


Figure 4.1.5: Customer to AAEP to Avaya Aura® Contact Center to Agent to AACC back to AAEP

In relation to Figure 4.1.5, back end IVR Transfer means that a call never leaves the control of the Avaya Aura® Contact Center application. In this scenario, the agent transfers the call to an Avaya Aura® Contact Center workflow which invokes a GIVE IVR request (which requests IVR from the configured external dialog system). The IVR will be conferenced into the Avaya Aura® Media Server as opposed to routing the call out to the IVR system. Once the customer completes and exits the application, the control of the call returns to the Avaya Aura® Contact Center application for further processing.

4.2. Avaya Aura® Experience Portal Call flows requiring AACC Redirection Functionality (available from AACC6.3 SP9 onwards)

All of the call flows in this section meet the redirection criteria as per 1.1.1.1 and so in required that the redirection setting be enabled so these call flows can be supported in an Avaya Aura® Contact Center 6.3 deployment. Note that only Blind Transfer from AAEP is supported here (not consult / bridged).

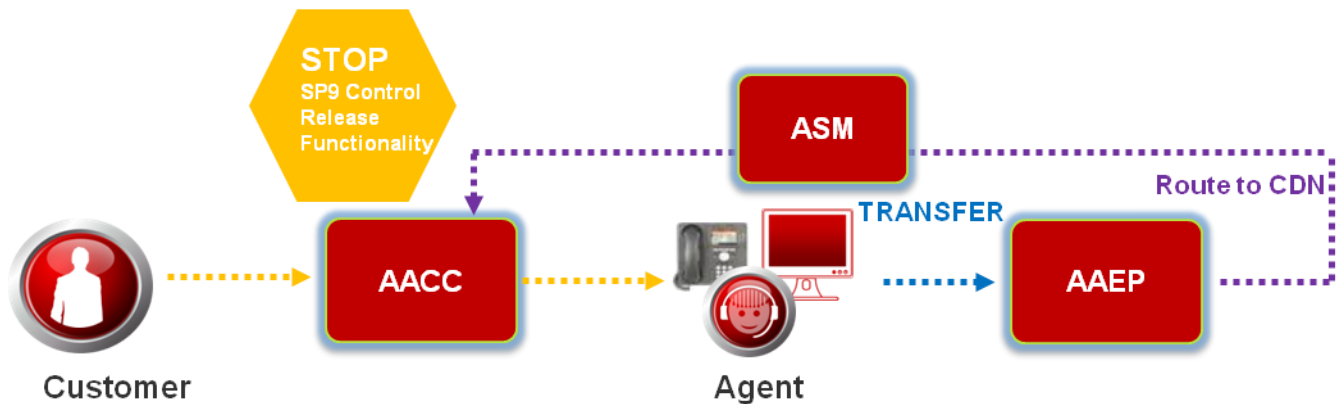


Figure 4.2.1: Agent Transfer to Avaya Aura® Experience Portal with route to CDN

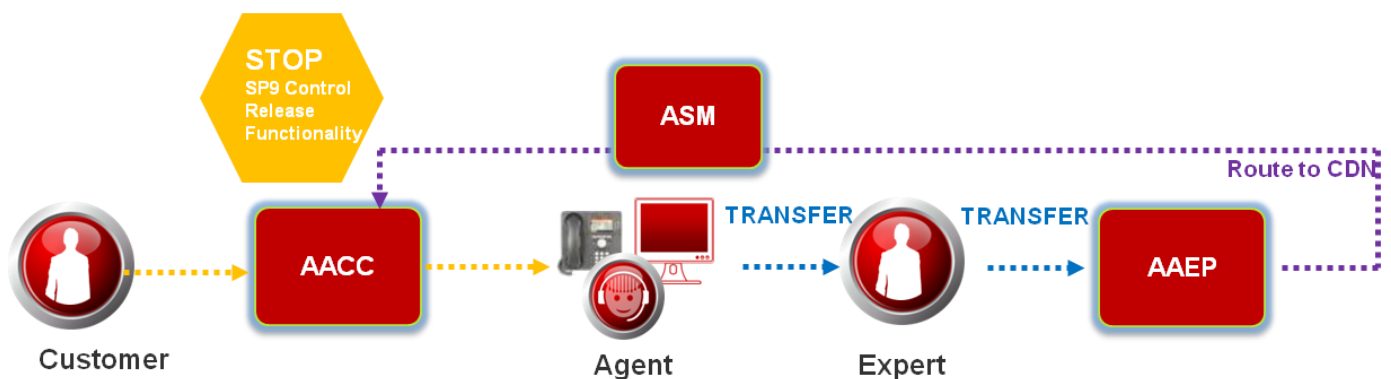


Figure 4.2.2: Transfer to Agent to Expert to Avaya Aura® Experience Portal with route to CDN

Both of these call flows show the Avaya Aura® Experience Portal “behind” the contact center application.

Many customers will deploy the Avaya Aura® Experience Portal “in front” of the contact center application. The following table describes the different call flows that require alternate routing in a solution with the Avaya Aura® Experience Portal in front of the contact center application.

Operation	AACC 6.2	AACC 6.3 SP9	AACC 6.3 SP9 Control Release Functionality
Customer to AAEP to AACC to Agent with Blind Transfer to Expert with cover to AACC	No	No	Yes
Customer to AAEP to AACC to Agent with Blind Conference to Expert with cover to AACC	No	No	Yes
Customer to AAEP to AACC to Agent with transfer to AAEP with Route to AACC	No	No	Yes
Customer to AAEP to AACC to Agent with Transfer to Expert with Transfer to VDN with Route to AACC	No	No	Yes
Customer to AAEP to AACC to Agent with Transfer to Expert with Transfer to AAEP with Route to AACC	No	No	Yes

This concludes Chapter 4 which has attempted to explain clearly different call scenarios that can be supported today in an Avaya Aura® Experience Portal deployment. Chapter 5 will now present and discuss another call routing feature of Avaya Aura® Contact Center termed “Route Call”

5. Avaya Aura® Contact Center: Route Call

What was introduced in section 1.2.4 is discussed in more detail in this chapter.

5.1. Route Call Definition

Route Call is an Avaya Aura® Contact Center flow command, accessible using Orchestration Designer (OD), which is the integrated workflow designer tool. This command enables the flow designer to redirect a queuing contact center call to an alternative answering position or location. This is generally used to send calls out of the contact center to an alternative destination (e.g. voicemail system) when the contact center is closed or all agents are busy. Alternatively, customers can be presented with an option to drop out of an Avaya Aura® Contact Center play prompt / collect digits session to a specialized attendant who is not an agent. The Route Call function can perform this task.

Note: Avaya Aura® Call Center Elite contains a route-to vector command which is different to the Avaya Aura® Contact Center route call command being discussed here.

5.2. Route Call Flows undergoing Coverage Path and Call Forward treatments

The following sections detail a number of supported call flows in an Avaya Aura® Contact Center which fall under the “Route Call” feature. These flows do not have any dependency on the redirection setting.

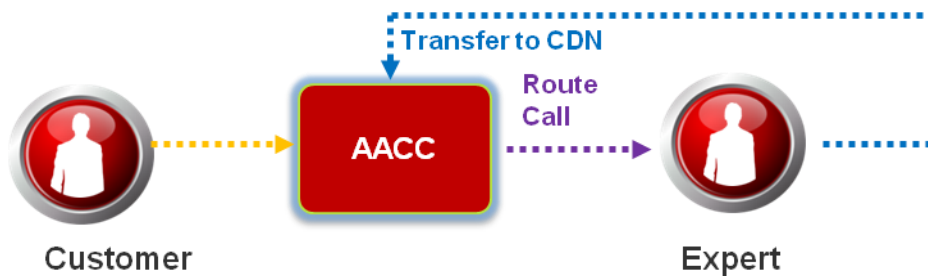


Figure 5.2.1: Route Call to Back Office Expert with Direct Transfer

The call flow for the example shown in Fig 5.2.1 is as follows:

- Customer call via CDN directed to non-agent / expert using **Route Call** – contact center conditions may be that all agents are busy.
- Customer call is removed off the media server.
- Expert decides to perform direct transfer back to Avaya Aura® Contact Center CDN.
- Customer call now returns through the contact center flow logic for treatment.

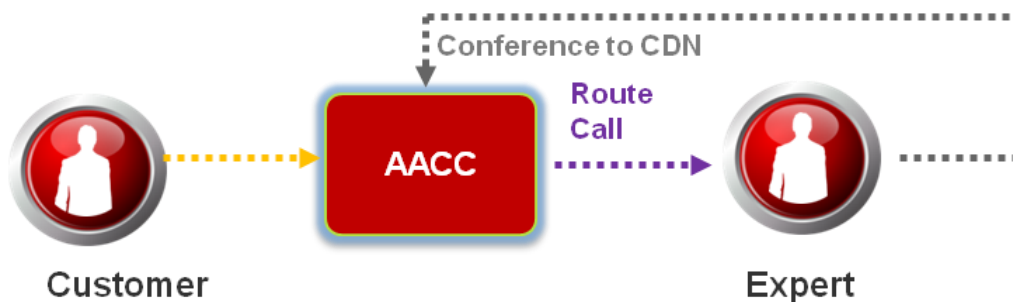


Figure 5.2.2: Route Call to Expert with Conference to CDN

The call flow for the example shown in Fig 5.2.2 is as follows:

- Customer call via CDN directed to non-agent / expert using **Route Call** – contact center conditions may be that all agents are busy.
- Customer call is now removed off the media server
- Expert decides to perform conference back to Avaya Aura® Contact Center CDN.
- Avaya Aura® Contact Center routes the call to the available agent and now agent, expert and customer are in a three party conference.

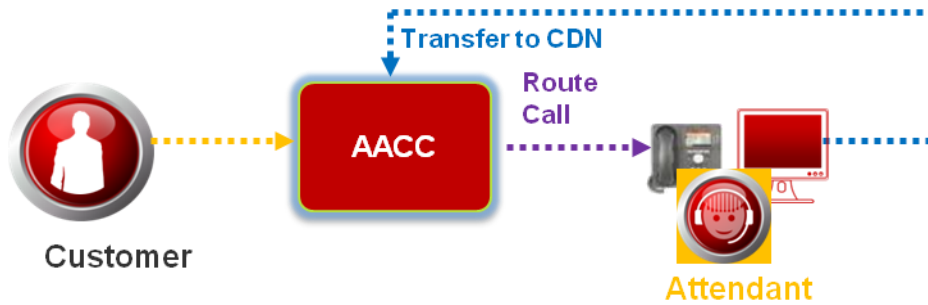


Figure 5.2.3: Attendant to CDN

The call flow for the example shown in Fig 5.2.3 is as follows (it is the same as that in Fig 5.2.1 as an attendant falls into the category of expert):

- Customer call via CDN directed to **Attendant** using **Route Call** – contact center conditions may be that all agents are busy.
- Call is now removed off the Avaya Aura® Media Server.
- Attendant attempts consult transfer call back to Avaya Aura® Contact Center CDN.
- Attendant completes transfer back to CDN for call processing.
- Customer call now returns through the contact center flow logic for treatment.

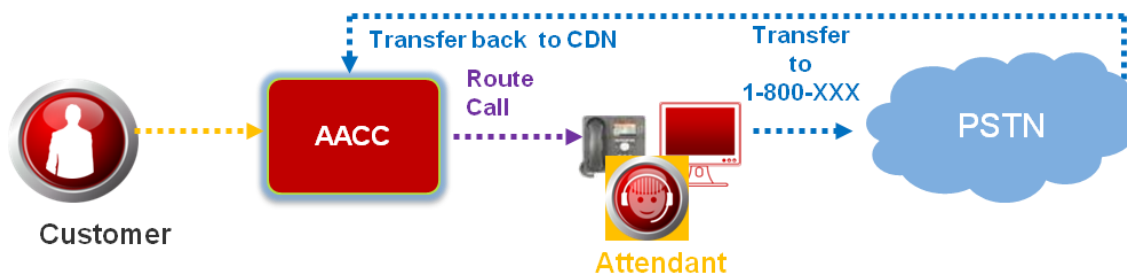


Figure 5.2.4: CDN to Attendant to PSTN 1-800-XXX back to CDN

The call flow for the example shown in Fig 5.2.4 is as follows:

- Customer call via CDN directed to **Attendant** using **Route Call** – contact center conditions may be that all agents are busy.
- Call is removed off the Avaya Aura® Media Server.
- Attendant attempts consult transfer to PSTN telephone number.
- PSTN number reroutes back into the contact center for normal processing.

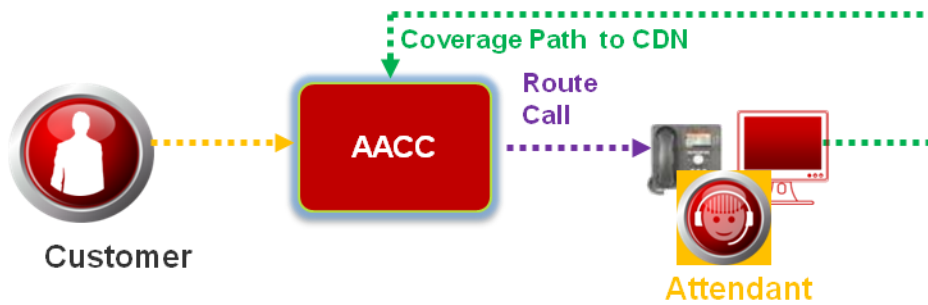


Figure 5.2.5: CDN to Attendant with Coverage back to CDN

The call flow for the example shown in Fig 5.2.5 is as follows:

- Customer call via CDN directed to **Attendant** using **Route Call** – contact center conditions may be that all agents are busy.
- Call is now removed off the Avaya Aura® Media Server
- However in this example, the attendant has left the office and has setup coverage path back to the Contact Center.
- Customer call is rerouted back into the contact center for normal processing.
- Note that the attendant in this flow could be replaced with any expert station.
- **Care should be taken here by the contact center administrator to avoid creating infinite loops by not utilising coverage path to the same CDN that issued the Route call in the first instance**

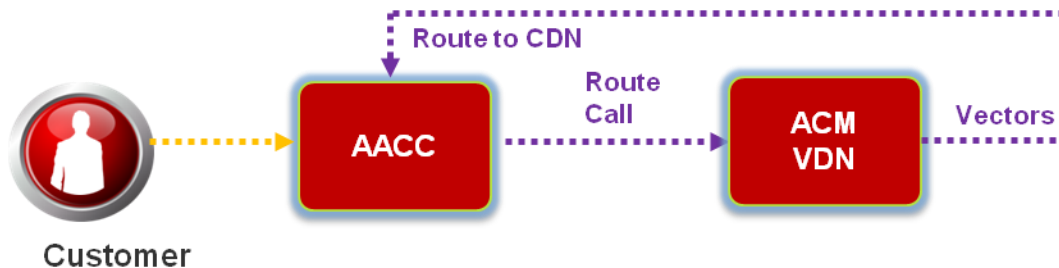


Figure 5.2.6: Route Call to VDN, back to CDN

The call flow for the example shown in Fig 5.2.6 is a follows:

- Customer call via CDN directed to **VDN** using **Route Call** – contact center conditions may be that all agents are busy.
- Call is now removed off the Avaya Aura® Media Server
- VDN and associated vectors route call back to the contact center for normal processing.
- **Care should be taken here by the contact center administrator to avoid creating infinite loops by not utilising coverage path to the same CDN that issued the Route call in the first instance**



Figure 5.2.8: Route Call to Expert with Route to CDN

The call flow for the example shown in Fig 5.2.8 is a follows:

- Customer call via CDN directed to **Expert** using **Route Call** – contact center conditions may be that all agents busy.
- Call is now removed off the Avaya Aura® Media Server
- Expert performs transfer to VDN(s) for routing back to the contact center for normal processing.
- Again the expert could be replaced with an attendant station here (i.e. expert and attendant are treated as the same type of entity from Avaya Aura® Contact Center point of view).



Figure 5.2.9: Queue to Agent, Xfer to CDN, followed by Route Call to Expert

The call flow for the example shown in Fig 5.2.9 is a follows:

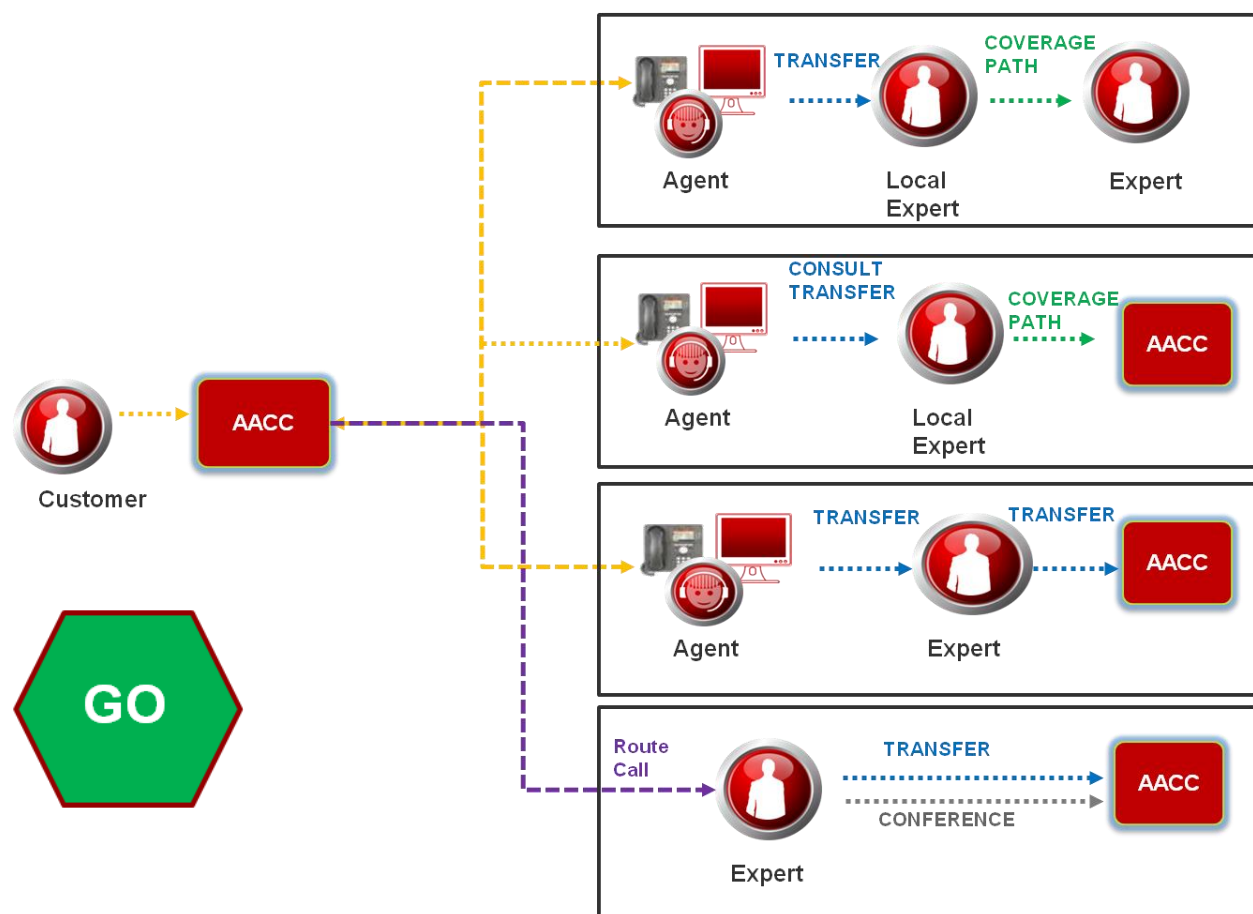
- Customer call answered by Agent
- Agent transfers customer to a CDN
- A Route Call Command is encountered in the script directing the call to an expert.
- Call is now removed off the Avaya Aura® Media Server

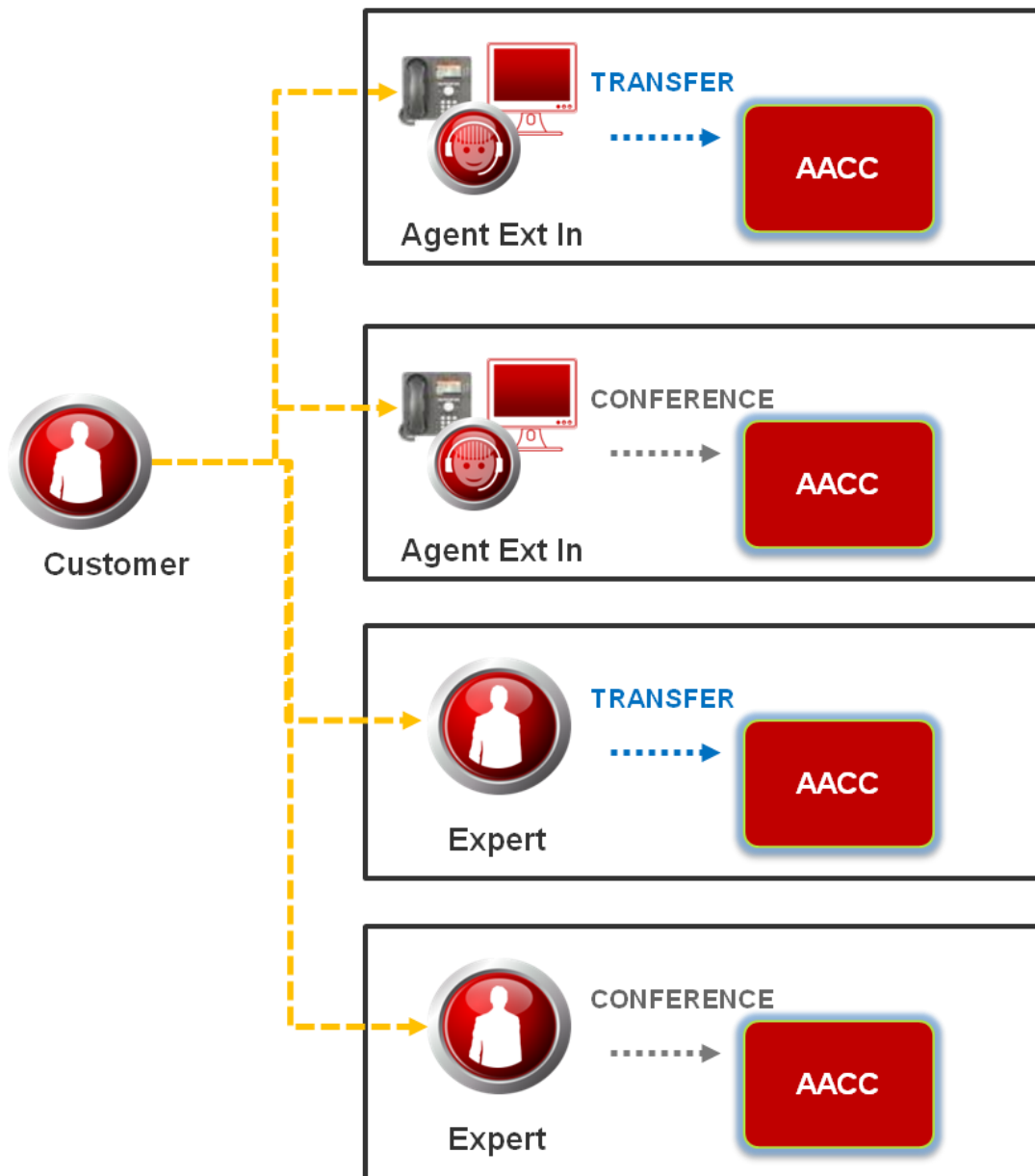
NOTE: Since the call is removed from the Avaya Aura® Media Server any redirection from the expert at this point will not meet the criteria as outlined in 1.1.1.1 for redirection and so does not need the redirection setting to be enabled on Avaya Aura® Contact Center.

6. Summary and Key Takeaways

In this application note we have outlined how beneficial features like coverage path and call forward can be better utilized in an Avaya Aura® Contact Center deployment. We have also stated and shown that basic transfer and conference capabilities can be fully utilized by our customers when they deploy Avaya Aura® Contact Center in their enterprise.

The following two diagrams summarizes numerous call flows we already covered in great detail, undergoing either transfer or conference with coverage path or call forward, which not require any special handling treatments and are fully supported in an Avaya Aura® Contact Center deployment.





In reality for our customers who deploy Avaya Aura® Contact Center 6.3, this means:

- Avaya Aura® Contact Center agents can confidently utilize transfer and conference features to help them resolve customer queries and achieve higher customer satisfaction rates.
- Experts such as back office personnel, mobile workers and all enterprise users outside an Avaya Aura® Contact Center environment can utilize and benefit from Avaya Aura® Communication Manager features for (a) call coverage and (b) call forward.
- The redirection functionality available from AACC6.3 SP9 onwards allows redirected calls to be more efficiently handled.

The following list of factors is designed to identify Avaya Aura® Contact Center deployments that will need to utilise the redirection functionality.

7. Appendix A – Dispelling the Myth – Call Transfers and Conference in an Avaya Aura® Contact Center Deployment

In this chapter we present typical call flows that occur every day in Avaya Aura® Contact Center deployments which are handled in a supported manner without issue.

One of the most basic and necessary actions required in any contact center solution is the ability to transfer or conference a customer contact, be it voice or multimedia to another agent or expert (front or back office worker) for processing of that contact. Avaya Aura® Contact Center deployments fully support this capability except in the special case where it is deployed with an Avaya Aura® Call Center Elite application. This special case is fully documented in the standard Avaya Aura® Contact Center documentation suite and in an application note titled “Avaya Aura® Contact Center and Avaya Aura® Call Center Elite on the same Avaya Aura® Communication Manager”. The content of that application note will not be discussed here and the reader can download the documents from normal support.avaya.com sites.

It is important to explain call transfers as our starting point so that our customers can be assured that these basic functions are supported with their Avaya Aura® Contact Center. Several misconceptions regarding Avaya Aura® Contact Center agent call handling exist in the marketplace today especially when the agent is required to transfer callers to other agents and experts in the contact center or to another location. The steps to perform a transfer or conference are not documented here as these are standard procedures covered in the official documentation suite. We will explain the supported transfer methods in Avaya Aura® Contact Center as this regularly leads to confusion.

7.1. Call Transfer in Avaya Aura® Contact Center

In the everyday life of the contact center agents and supervisors, there are numerous times when they will want to interact with other agents and experts to deliver the best customer service. One of the ways for doing this is using “call transfer”.

In terms of call transfer, Avaya Aura® Contact Center supports two step transfers. A two step transfer is referred to as a supervised transfer and a single-step transfer is often referred to as a blind transfer. The term “consultative” transfer may also be used to refer to a supervised transfer.

In reality, it is possible to achieve the equivalence of a single-step or blind transfer by changing the agent behaviour. When initiating the actual transfer, the agent does not wait for the destination party to answer the transfer part of the call but instead chooses to complete the operation. This is in effect a blind transfer (or early transfer) and this type of transfer mode is fully supported by Avaya. Direct single-step transfers are not available in an Avaya Aura® Contact Center deployment other than using the method described above.

In summary agents can transfer immediately (“blind transfer”) or wait for the called party to answer before completing the transfer (consultative, supervised or two step transfer)

This is clearly defined by the pop up screen that appears to an agent when attempting call transfers using the Avaya Aura® Agent Desktop application.

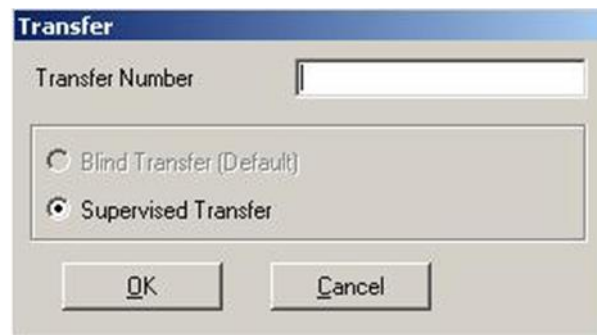


Figure 2.1.1: Avaya Aura® Contact Center Supervised Transfers

There is another element to call transfers we need to consider carefully. Avaya Aura® Contact Center supports the agent performing call operations using either the desktop client Avaya Aura® Agent Desktop or the actual agents physical station (if not using the embedded softphone option). Whether using the physical phone or the desktop client, each will reflect the state of the other simultaneously. Support for this mode of operation is available since Avaya Aura® Contact Center 6.0 release. Using the physical station the agent can perform either blind or consultative transfers as normal.

The following table lists out typical scenarios that are fully supported by Avaya Aura® Contact Center for transfers (blind or consultative) between agents and multiple destinations. The words “ To Agent” imply that the agent has answered the original call before attempting a transfer request. We are also stating that for each of the examples below the agent can use either of the transfer methods outlined previously and that the actual transfer takes place successfully – i.e the destination party answers the transfer request and takes over the call.

Voice Contact Flow	AACC 6.2	AACC 6.3	Notes
Customer to AACC to Agent Transfer to Agent Ext In	Yes	Yes	
Customer to AACC to Agent Transfer to Expert	Yes	Yes	
Customer to AACC to Agent Transfer to Expert Transfer to AACC to Agent	No	Yes	Now supported with 6.3
Customer to AACC to Agent Transfer to AACC to Agent	Yes	Yes	
Customer to AACC to Agent Transfer to Supervisor Ext In	Yes	Yes	
Customer to Expert Transfer to AACC to Agent	Yes	Yes	
Customer to Agent Ext In Transfer to AACC to Agent	Yes	Yes	Ext In calls are not anchored on the AMS. Speech path is provided by the ACM Gateway- covered in dedicated section of document
Customer to Agent Ext In/Expert Transfer to Agent Ext In/Expert	Yes	Yes	
Customer to AACC to Agent Transfer to ACM VDN**	Partial	Partial	If the VDN transfer back to AACC then Not supported at this time
Customer to AACC to Agent Transfer to AAEP	Partial	Partial	If AAEP application transfers back to AACC, this is Not supported at this time. Transfer to AAEP for Call Survey's supported – See later sections
Customer to AACC to Agent Transfer to Remote AACC	Yes	Yes	
Customer to AACC to Agent Transfer to Remote off PBX Telephone	Yes	Yes	
Customer to AACC to Agent Transfer to Elite Resources**	No	No	Currently not supported as per official documentation

Figure 2.1.2: Avaya Aura® Contact Center Supported Call Transfers

The above table refers to voice contacts only. Avaya Aura® Contact Center also supports the ability to transfer Instant Messaging (IM), email and web communication contacts to other skillsets and agents. These are not affected by redirection and are fully supported as per documented procedures.

7.2. Call Conference in Avaya Aura® Contact Center

Conferencing of calls between customers, agents and experts / knowledge workers is fully supported in an Avaya Aura® Contact Center deployment. Conference operation is supported from either the Avaya Aura® Agent Desktop application or from the agent's physical station (if not using the embedded softphone).

The following table lists out typical scenarios that are fully supported by Avaya Aura® Contact Center for conference between agents and multiple destinations. The words “To Agent” implies that the agent has answered the original call in the first place before attempting a conference request. We are also stating that the destination party accepts the conference request and a successful conference then takes place.

Voice Contact Flow	AACC 6.2	AACC 6.3	Notes
Customer to AACC to Agent Conference with Agent Ext In	Yes	Yes	
Customer to AACC to Agent Conference with Expert	Yes	Yes	
Customer to AACC to Agent Conference with Supervisor Ext In	Yes	Yes	
Customer to AACC to Agent Conference with AACC to Agent	Yes	Yes	
Customer to AACC to Expert Conference to AACC to Agent	Yes	Yes	
Customer to Expert Conference to AACC to Agent	Yes	Yes	See detailed section on this call flow
Customer to Agent Ext In Conference to AACC to Agent	Yes	Yes	See detailed section on this call flow
Customer to Agent Ext In/Expert Conference to Agent Ext In/expert	Yes	Yes	
Customer to AACC to Agent Conference with ACM VDN**	Partial	Partial	If the VDN transfer back to AACC then Not supported at this time – see later section
Customer to AACC to Agent Conference with AAEP	Partial	Partial	If AAEP application transfers back to AACC, this is Not supported at this time – see later section
Customer to AACC to Agent Conference with Remote AACC	Yes	Yes	
Customer to AACC to Agent Conference with Remote Telephone	Yes	Yes	
Customer to AACC to Agent Conference with Elite Resources**	No	No	Currently not supported as per official documentation

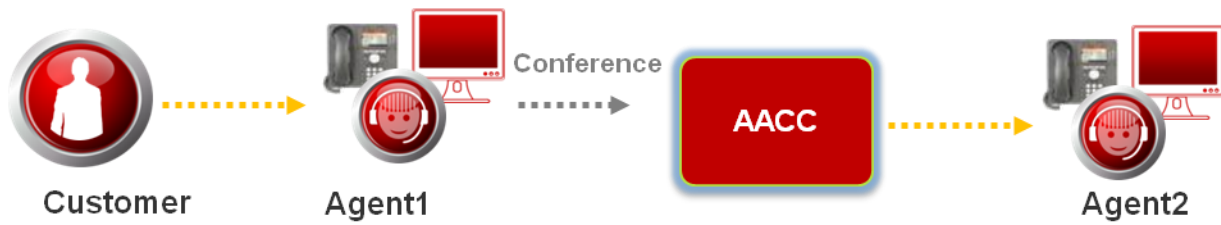
Figure 2.2.1: Avaya Aura® Contact Center Supported Call Conference

The above table refers to voice contacts. Avaya Aura® Contact Center supports the ability to conference Instant Messaging (IM) and web communication contacts to other skillsets and agents. These are fully supported as per documented procedures.

7.3. Summary

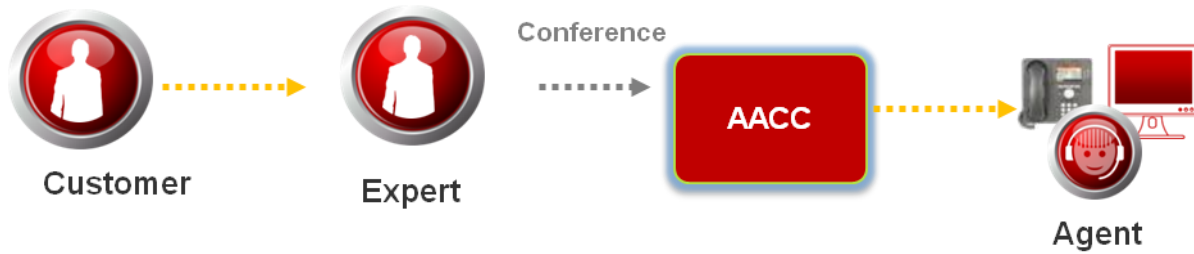
In an Avaya Aura® Contact Center deployment where customers want to utilize either (i) Call Transfer to multiple reachable destinations or (ii) Call Conference to multiple reachable destinations, they are fully supported in doing so.

8. Appendix B



If Agent2 (consulted party) disconnects from a three party conference (where the parties on the conference are Customer, Agent1 & Agent2), the entire main contact will be dropped inside the Avaya Aura® Contact Center call modeling software. Speech paths between the Customer and Agent1 will still be active, only the call model will be dropped. Reporting of this contact will be impacted. There is also a potential that another contact can be queued to Agent1, even though they still have an active call on their station but in this case the contact will be returned to the queue and Agent1 will be set Not Ready (NRDY).

9. Appendix C



When the expert transfers the customer into Avaya Aura® Contact Center, then the calling party (CLID) of the call is the expert. This means that any scripting decisions based on the CLID will act on the expert's CLID and not that of the customer. In Avaya Aura® Contact Center 6.2 and later releases, the AD_CLID intrinsic is updated on completion of the transfer so that screen pops can be activated using the CLID of the customer.

10. Appendix D – Messaging Platform Integrations

Avaya Aura® Contact Center supports integration with three different messaging systems when voicemail for agents is required:

- Avaya Aura Messaging (AAM)
- Communication Manager Messaging (CMM)
- Modular Messaging (MM)

On each of these messaging systems it is possible to configure a “zero out” mechanism. This is a means for the caller to choose not to leave a message, but instead choose an option (e.g. press “zero”) that means they get routed to another location.

If the destination of the zero out option is a CDN of the contact center then this can open the opportunity for redirection calls flows to be encountered.

The call flow would be as follows:

- Customer dials into Avaya Aura® Contact Center
- Avaya Aura® Contact Center queues to Agent1
- Agent1 answers and performs a blind transfer to agent2 (i.e. agent1 completes the transfer before agent2 answers the call)
- Agent2 does not answer and Agent2 has cover to voicemail configured (as per App Note)
- Customer now hears the voicemail greeting of Agent2
- Customer decides to “Zero Out” of voicemail
- Call is transferred to Avaya Aura® Contact Center CDN (the Zero Out destination)

This could be viewed as a complex call flow – but the basic rules of redirection still apply (the agent transferred a contact center call to a destination which forwarded the call to Avaya Aura® Contact Center).

If redirection is turned off, then the call flow will encounter Looping, and would be deemed an unsupported call flow. When redirection is turned on, then this call flow will be handled as per the call flows illustrated in Part I of the document.

NOTE: On AAM 6.1 SP1 functionality was delivered to support passing UUI information. This is not enabled by default. It is recommended that if a customer wants to use the zero out option discussed above that they open a case with their Avaya representative that this feature be configured on AAM.

10.1. Messaging Interaction Limitations

There is a particular call flow involving the Messaging system which is not supported. This is a very specific call flow and is outlined below.

- 1. Agent dials an expert station (i.e back office worker)
- 2. Expert station has coverage to voicemail configured
- 3. In the voicemail menu there is an option to Zero out
- 4. The Zero out option directs the caller to a contact center CDN number

The result of this call flow is that the agent (who is the caller in this instance) will receive busy tone at step 4

Note that if in step 1 the caller was any other party except an agent, the call flow would be supported and the caller would be routed to the Contact Center CDN as normal.

The problem does not occur if the expert station covers directly to the CDN number.

The workaround is that if an agent wishes to contact the contact center they should dial the CDN number directly. Alternatively the agent can also dial a VDN number that is routed to a CDN number.

11. Appendix E – Sample detailed call flow diagrams

The next few sections of this chapter deal with the detailed call flows. The illustrated scenario is where the calling party (customer) is coming in over a Session Border Controller (SBC). Figure 1 illustrates the initial signaling to establish a call between the customer and the agent. This flow is common to all subsequent call flow diagrams as it illustrates the signaling to get a customer connected to an agent.

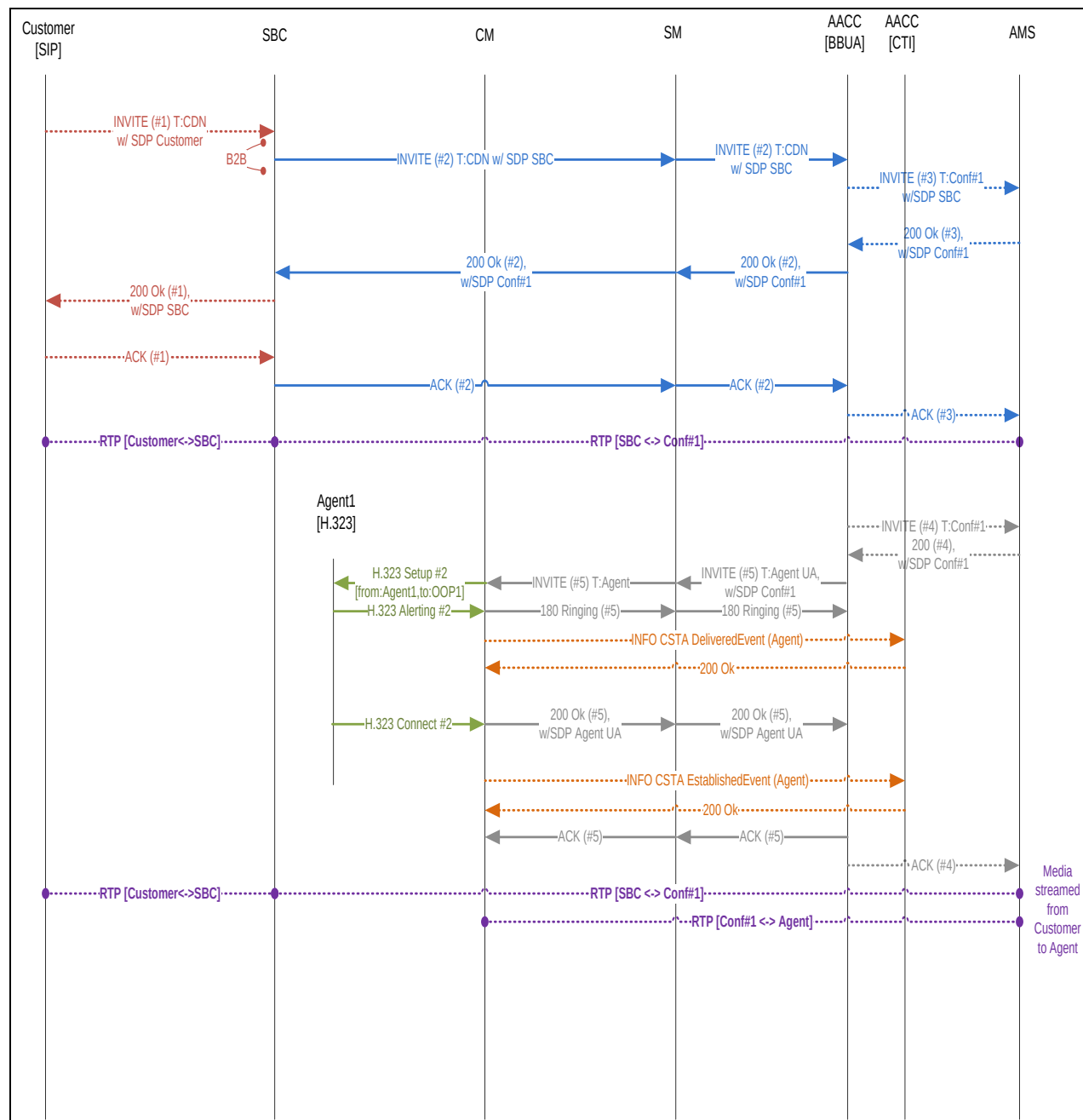


Figure 11.1: Customer queued to Agent

11.1. REFER with replaces call flow

The next three call flows illustrate consult and blind transfers to a remote party and the REFER solution to release duplicate resource usage. There is no redirection considered in these call flows. Figures 11.2 and 11.3 show a consult and blind transfer respectively. Figure 4 shows what happens after the transfer (blind or consult) has been completed (i.e. the REFER signaling).

11.1.1. Customer via SBC, Consult Transfer to Expert on remote CM

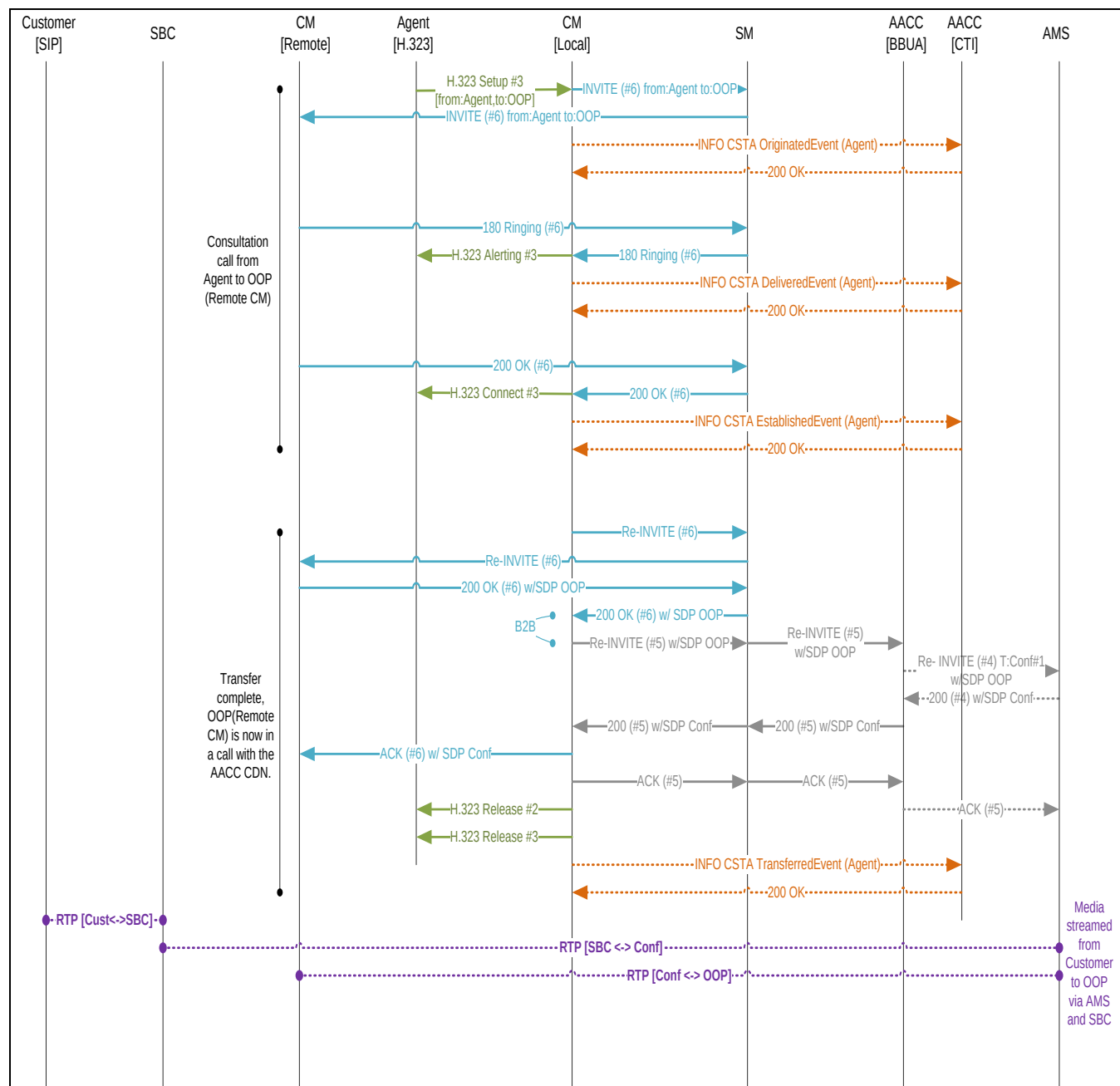


Figure 11. 2: Consult transfer competed to Expert on remote CM

11.1.2. Customer via SBC, Blind Transfer to Expert on remote CM

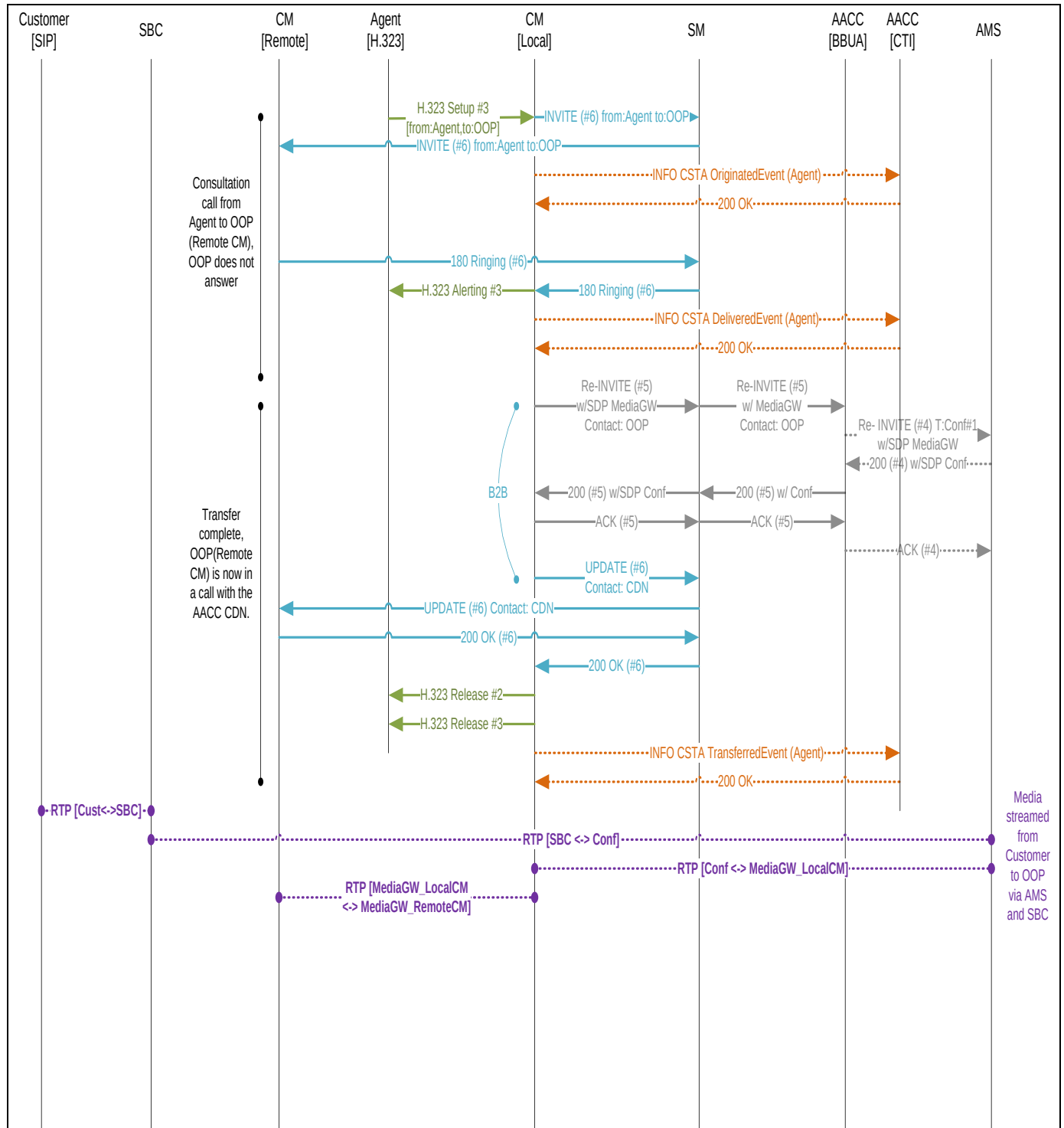


Figure 11.3: Transfer on ringing completed to Expert on remote CM

11.1.3. AACC issues REFER with Replaces to shuffle media off AMS

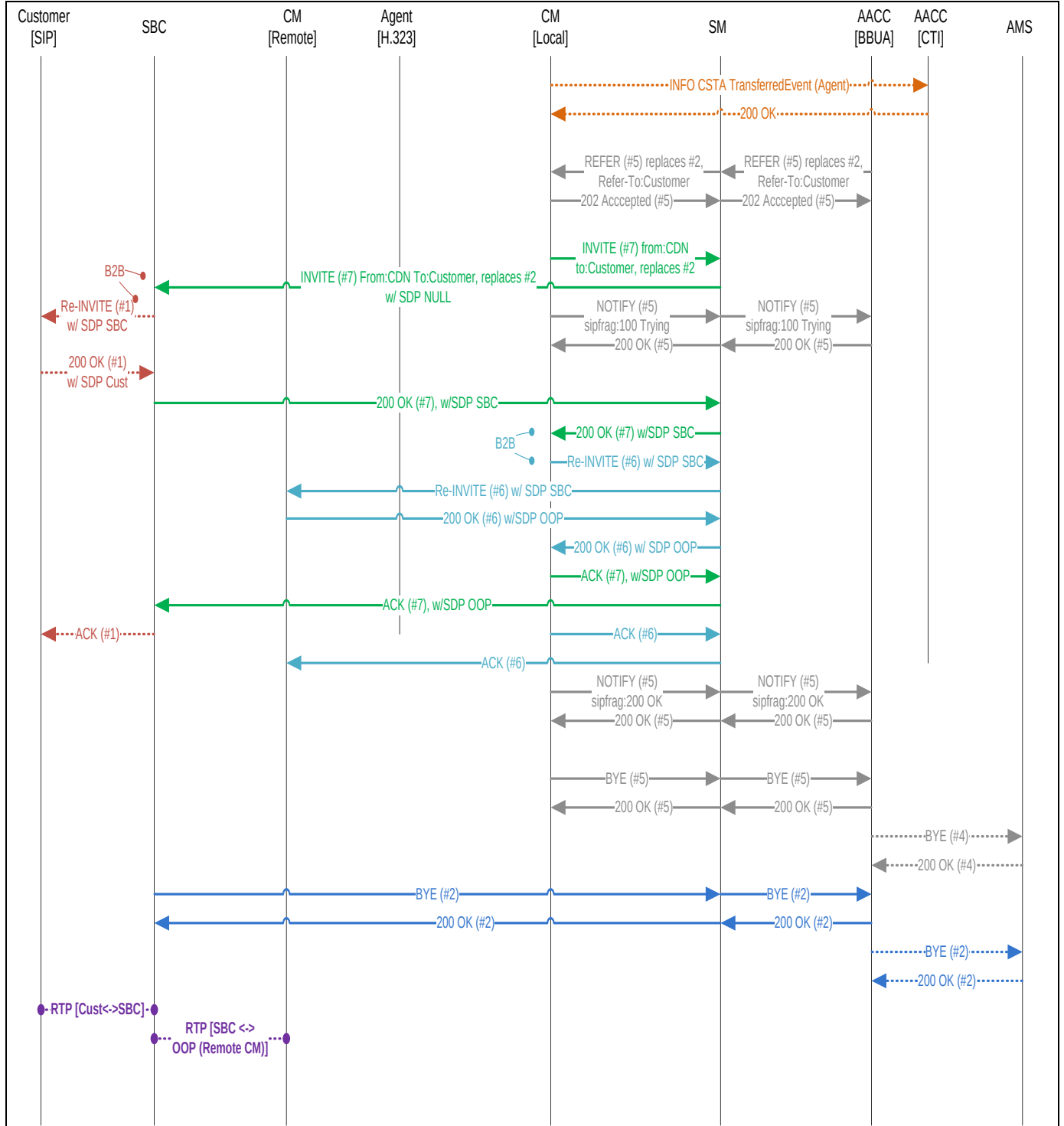


Figure 11.4: REFER with replaces on agent leg to shuffle media off AMS.

11.1.4. Sample logs

Here is a sample set of logs that illustrate the data required to send the REFER with replaces request. Only the relevant info from the logs is provided.

The customer number is 8620120
The CDN number is 2160960
The agent number is 8620961
The expert number is 8620121

Incoming INVITE from the customer:

Start-Line: INVITE sip:2160960@sipccocs.com SIP/2.0
From: "Test Customer" <sip:8620120@sipccocs.com>;tag=80f2f6d647ae2132235068aa7b00
To: <sip:2160960@sipccocs.com>
Call-ID: 80f2f6d647ae2133235068aa7b00
CSeq: 1 INVITE
Contact: "Test Customer" <sip:8620120@47.166.108.162;transport=tcp>
P-Asserted-Identity: "Test Customer" <sip:8620120@sipccocs.com>
User-to-User: 00FA0800A203D550645E67;encoding=hex
P-Charging-Vector: icid-value="AAS:981-d6f6f2801e20a47685023317baa"

200 OK for the customer leg:

Start-Line: SIP/2.0 200 OK
From: "Test Customer"<sip:8620120@sipccocs.com>;tag=80f2f6d647ae2132235068aa7b00
To: <sip:2160960@sipccocs.com>;tag=7561d458-606ea62f-13c4-55013-7ee8e-4b775ce-7ee8e
Call-ID: 80f2f6d647ae2133235068aa7b00
Contact: <sip:2160960@47.166.110.96:5060;transport=tcp>

Invite to Agent:

Start-Line: INVITE sip:8620961@sipccocs.com SIP/2.0
From: <sip:2160960@sipccocs.com>;tag=7561e4a8-606ea62f-13c4-55013-7ee90-3748ece2-7ee90
To: <sip:8620961@sipccocs.com>
Call-ID: 79c06ec0-7c0e9ef0-50645e69@47.166.110.96
User-to-User: 00FA0800A203D550645E67;encoding=hex
Contact: <sip:2160960@47.166.110.96:5060;transport=tcp>

200 OK from Agent:

Start-Line: SIP/2.0 200 OK
From: <sip:2160960@sipccocs.com>;tag=7561e4a8-606ea62f-13c4-55013-7ee90-3748ece2-7ee90
To: <sip:8620961@sipccocs.com>;tag=04c59d947ae2138235068aa7b00
Call-ID: 79c06ec0-7c0e9ef0-50645e69@47.166.110.96
Contact: "Agent 0961" <sip:8620961@47.166.108.162;transport=tcp>
P-Asserted-Identity: "Agent 0961" <sip:8620961@sipccocs.com>

Transferred Event:

Start-Line: INFO sip:8620961@47.166.110.96:5061;transport=tls SIP/2.0
From: <sip:8620961@sipccocs.com>;tag=1348251444692-50
Call-ID: 0000000079BC0CC0-000000007C0EB080-505c7933
To: <sip:8620961@sipccocs.com>;epid;tag=75590938-606ea62f-13c4-55013-977-38d9bbd3-977
<transferringDevice>
 <deviceIdIdentifier bitRate="constant" mediaClass="notKnown"
typeOfNumber="explicitPrivate:localNumber">tel:8620961;phone-
context=sipccocs.com</deviceIdIdentifier>
</transferringDevice>
<transferredToDevice>
 <deviceIdIdentifier bitRate="constant" mediaClass="notKnown"
typeOfNumber="explicitPrivate:localNumber">tel:8620121;phone-context=dialstring</deviceIdIdentifier>
</transferredToDevice>

REFER with Replaces Request:

Start-Line: REFER sip:8620121@47.166.108.162;transport=tcp SIP/2.0
From: <sip:2160960@sipccocs.com>;tag=7561e4a8-606ea62f-13c4-55013-7ee90-3748ece2-7ee90
To: <sip:8620961@sipccocs.com>;tag=04c59d947ae2138235068aa7b00
Call-ID: 79c06ec0-7c0e9ef0-50645e69@47.166.110.96
CSeq: 2 REFER
Refer-To: <sip:8620120@sipccocs.com?Replaces=80f2f6d647ae2133235068aa7b00%3Bto-
tag%3D80f2f6d647ae2132235068aa7b00%3Bfrom-tag%3D7561d458-606ea62f-13c4-55013-7ee8e-
4b775ce-7ee8e>
Referred-By: <sip:2160960@sipccocs.com>
Contact: <sip:2160960@47.166.110.96:5060;transport=tcp>
Content-Length: 0

Glare condition occurs in SIP due to accidental simultaneous reINVITEs by both parties in a dialog. Since both INVITEs seek to change the state of the session, they cannot be processed at the same time. The 491 response code is used in this scenario. The solution is for the two parties to wait for different intervals before resending their requests.

The diagram illustrates a SIP call flow involving a transfer to an Agent (AMS). The participants are Customer [SIP], SBC, CM [Remote], CM [Local], SM, AACC [BBUA], AACC [CTI], and AMS.

Key Events and Messages:

- Initial State:** The call is in progress between Customer [SIP] and SBC.
- Transfer Initiation:**
 - CM [Local] sends **ReINVITE (#5) T:CDN w/SDP OOP** to SM.
 - SM sends **ReINVITE (#5) T:CDN w/SDP OOP** to AACC [BBUA].
 - AACC [BBUA] sends **INVITE (#4) T:Conf#1 w/SDP OOP** to AACC [CTI].
 - AACC [CTI] sends **200 (#4), w/SDP Conf#1** to AMS.
- Processing Status:**
 - Annotation:** "The reINVITE is still being processed for the transfer. So REFER cannot be processed until this processing is complete."
 - Annotation:** "The REFER is retried within a specified period of time. And now that the reINVITE processing has been completed – the REFER is successful."
- Successful Transfer:**
 - CM [Local] sends **INVITE (#7) From:CDN To:Customer, replaces #2 w/ SDP NULL** to SBC.
 - SBC sends **Re-INVITE (#1) w/ SDP SBC** to Customer [SIP].
 - Customer [SIP] sends **200 OK (#1) w/ SDP Cust** to SBC.
 - SBC sends **200 OK (#7), w/SDP SBC** to CM [Local].
 - CM [Local] sends **200 OK (#7) w/SDP SBC** to SM.
 - SM sends **Re-INVITE (#6) w/ SDP SBC** to CM [Remote].
 - CM [Remote] sends **Re-INVITE (#6) w/ SDP SBC** to SBC.
 - SBC sends **200 OK (#6) w/SDP OOP** to CM [Local].
 - CM [Local] sends **200 OK (#6) w/ SDP OOP** to SM.
 - SM sends **ACK (#7), w/SDP OOP** to CM [Local].
 - CM [Local] sends **ACK (#7), w/SDP OOP** to SBC.
 - SBC sends **ACK (#1)** to Customer [SIP].
 - CM [Local] sends **ACK (#6)** to SM.
 - SM sends **NOTIFY (#5) sipfrag:100 Trying** to AACC [BBUA].
 - AACC [BBUA] sends **NOTIFY (#5) sipfrag:100 Trying** to AACC [CTI].
 - AACC [CTI] sends **ACK (#4)** to AMS.
 - SM sends **200 OK (#5)** to AACC [BBUA].
 - AACC [BBUA] sends **200 OK (#5)** to AACC [CTI].
 - SM sends **200 OK (#5)** to CM [Local].
 - CM [Local] sends **200 OK (#5)** to CM [Remote].
 - CM [Remote] sends **200 OK (#6) w/SDP OOP** to SBC.
 - SBC sends **200 OK (#6) w/SDP OOP** to CM [Local].
 - CM [Local] sends **200 OK (#6) w/SDP OOP** to SM.
 - SM sends **ACK (#6)** to CM [Local].
 - CM [Local] sends **ACK (#6)** to SM.
 - SM sends **NOTIFY (#5) sipfrag:200 OK** to AACC [BBUA].
 - AACC [BBUA] sends **NOTIFY (#5) sipfrag:200 OK** to AACC [CTI].
 - AACC [CTI] sends **200 OK (#4)** to AMS.
 - SM sends **200 OK (#5)** to AACC [BBUA].
 - AACC [BBUA] sends **200 OK (#5)** to AACC [CTI].
 - SM sends **200 OK (#5)** to CM [Local].
 - CM [Local] sends **200 OK (#5)** to CM [Remote].
 - CM [Remote] sends **200 OK (#6) w/SDP OOP** to SBC.
 - SBC sends **200 OK (#6) w/SDP OOP** to CM [Local].
 - CM [Local] sends **200 OK (#6) w/SDP OOP** to SM.
 - SM sends **ACK (#6)** to CM [Local].
 - CM [Local] sends **ACK (#6)** to SM.
 - SM sends **NOTIFY (#5) sipfrag:200 OK** to AACC [BBUA].
 - AACC [BBUA] sends **NOTIFY (#5) sipfrag:200 OK** to AACC [CTI].
 - AACC [CTI] sends **200 OK (#4)** to AMS.
 - SM sends **200 OK (#5)** to AACC [BBUA].
 - AACC [BBUA] sends **200 OK (#5)** to AACC [CTI].
 - SM sends **200 OK (#5)** to CM [Local].
 - CM [Local] sends **200 OK (#5)** to CM [Remote].
 - CM [Remote] sends **200 OK (#6) w/SDP OOP** to SBC.
 - SBC sends **200 OK (#6) w/SDP OOP** to CM [Local].
 - CM [Local] sends **200 OK (#6) w/SDP OOP** to SM.
 - SM sends **ACK (#6)** to CM [Local].
 - CM [Local] sends **ACK (#6)** to SM.
 - SM sends **NOTIFY (#5) sipfrag:200 OK** to AACC [BBUA].
 - AACC [BBUA] sends **NOTIFY (#5) sipfrag:200 OK** to AACC [CTI].
 - AACC [CTI] sends **200 OK (#4)** to AMS.
 - SM sends **200 OK (#5)** to AACC [BBUA].
 - AACC [BBUA] sends **200 OK (#5)** to AACC [CTI].
 - SM sends **200 OK (#5)** to CM [Local].
 - CM [Local] sends **200 OK (#5)** to CM [Remote].
 - CM [Remote] sends **200 OK (#6) w/SDP OOP** to SBC.
 - SBC sends **200 OK (#6) w/SDP OOP** to CM [Local].
 - CM [Local] sends **200 OK (#6) w/SDP OOP** to SM.
 - SM sends **ACK (#6)** to CM [Local].
 - CM [Local] sends **ACK (#6)** to SM.
 - SM sends **NOTIFY (#5) sipfrag:200 OK** to AACC [BBUA].
 - AACC [BBUA] sends **NOTIFY (#5) sipfrag:200 OK** to AACC [CTI].
 - AACC [CTI] sends **200 OK (#4)** to AMS.
 - SM sends **200 OK (#5)** to AACC [BBUA].
 - AACC [BBUA] sends **200 OK (#5)** to AACC [CTI].
 - SM sends **200 OK (#5)** to CM [Local].
 - CM [Local] sends **200 OK (#5)** to CM [Remote].
 - CM [Remote] sends **200 OK (#6) w/SDP OOP** to SBC.
 - SBC sends **200 OK (#6) w/SDP OOP** to CM [Local].
 - CM [Local] sends **200 OK (#6) w/SDP OOP** to SM.
 - SM sends **ACK (#6)** to CM [Local].
 - CM [Local] sends **ACK (#6)** to SM.
 - SM sends **NOTIFY (#5) sipfrag:200 OK** to AACC [BBUA].
 - AACC [BBUA] sends **NOTIFY (#5) sipfrag:200 OK** to AACC [CTI].
 - AACC [CTI] sends **200 OK (#4)** to AMS.
 - SM sends **200 OK (#5)** to AACC [BBUA].
 - AACC [BBUA] sends **200 OK (#5)** to AACC [CTI].
 - SM sends **200 OK (#5)** to CM [Local].
 - CM [Local] sends **200 OK (#5)** to CM [Remote].
 - CM [Remote] sends **200 OK (#6) w/SDP OOP** to SBC.
 - SBC sends **200 OK (#6) w/SDP OOP** to CM [Local].
 - CM [Local] sends **200 OK (#6) w/SDP OOP** to SM.
 - SM sends **ACK (#6)** to CM [Local].
 - CM [Local] sends **ACK (#6)** to SM.
 - SM sends **NOTIFY (#5) sipfrag:200 OK** to AACC [BBUA].
 - AACC [BBUA] sends **NOTIFY (#5) sipfrag:200 OK** to AACC [CTI].
 - AACC [CTI] sends **200 OK (#4)** to AMS.
 - SM sends **200 OK (#5)** to AACC [BBUA].
 - AACC [BBUA] sends **200 OK (#5)** to AACC [CTI].
 - SM sends **200 OK (#5)** to CM [Local].
 - CM [Local] sends **200 OK (#5)** to CM [Remote].
 - CM [Remote] sends **200 OK (#6) w/SDP OOP** to SBC.
 - SBC sends **200 OK (#6) w/SDP OOP** to CM [Local].
 - CM [Local] sends **200 OK (#6) w/SDP OOP** to SM.
 - SM sends **ACK (#6)** to CM [Local].
 - CM [Local] sends **ACK (#6)** to SM.
 - SM sends **NOTIFY (#5) sipfrag:200 OK** to AACC [BBUA].
 - AACC [BBUA] sends **NOTIFY (#5) sipfrag:200 OK** to AACC [CTI].
 - AACC [CTI] sends **200 OK (#4)** to AMS.
 - SM sends **200 OK (#5)** to AACC [BBUA].
 - AACC [BBUA] sends **200 OK (#5)** to AACC [CTI].
 - SM sends **200 OK (#5)** to CM [Local].
 - CM [Local] sends **200 OK (#5)** to CM [Remote].
 - CM [Remote] sends **200 OK (#6) w/SDP OOP** to SBC.
 - SBC sends **200 OK (#6) w/SDP OOP** to CM [Local].
 - CM [Local] sends **200 OK (#6) w/SDP OOP** to SM.
 - SM sends **ACK (#6)** to CM [Local].
 - CM [Local] sends **ACK (#6)** to SM.
 - SM sends **NOTIFY (#5) sipfrag:200 OK** to AACC [BBUA].
 - AACC [BBUA] sends **NOTIFY (#5) sipfrag:200 OK** to AACC [CTI].
 - AACC [CTI] sends **200 OK (#4)** to AMS.
 - SM sends **200 OK (#5)** to AACC [BBUA].
 - AACC [BBUA] sends **200 OK (#5)** to AACC [CTI].
 - SM sends **200 OK (#5)** to CM [Local].
 - CM [Local] sends **200 OK (#5)** to CM [Remote].
 - CM [Remote] sends **200 OK (#6) w/SDP OOP** to SBC.
 - SBC sends **200 OK (#6) w/SDP OOP** to CM [Local].
 - CM [Local] sends **200 OK (#6) w/SDP OOP** to SM.
 - SM sends **ACK (#6)** to CM [Local].
 - CM [Local] sends **ACK (#6)** to SM.
 - SM sends **NOTIFY (#5) sipfrag:200 OK** to AACC [BBUA].
 - AACC [BBUA] sends **NOTIFY (#5) sipfrag:**

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11.1.6. Benign Race conditions

There are a number of minor race conditions that can occur when processing the REFER with replaces request. These are handled in the code gracefully even though they show up as errors in the SIP logs. The call flow below illustrates an example of such a benign race condition.

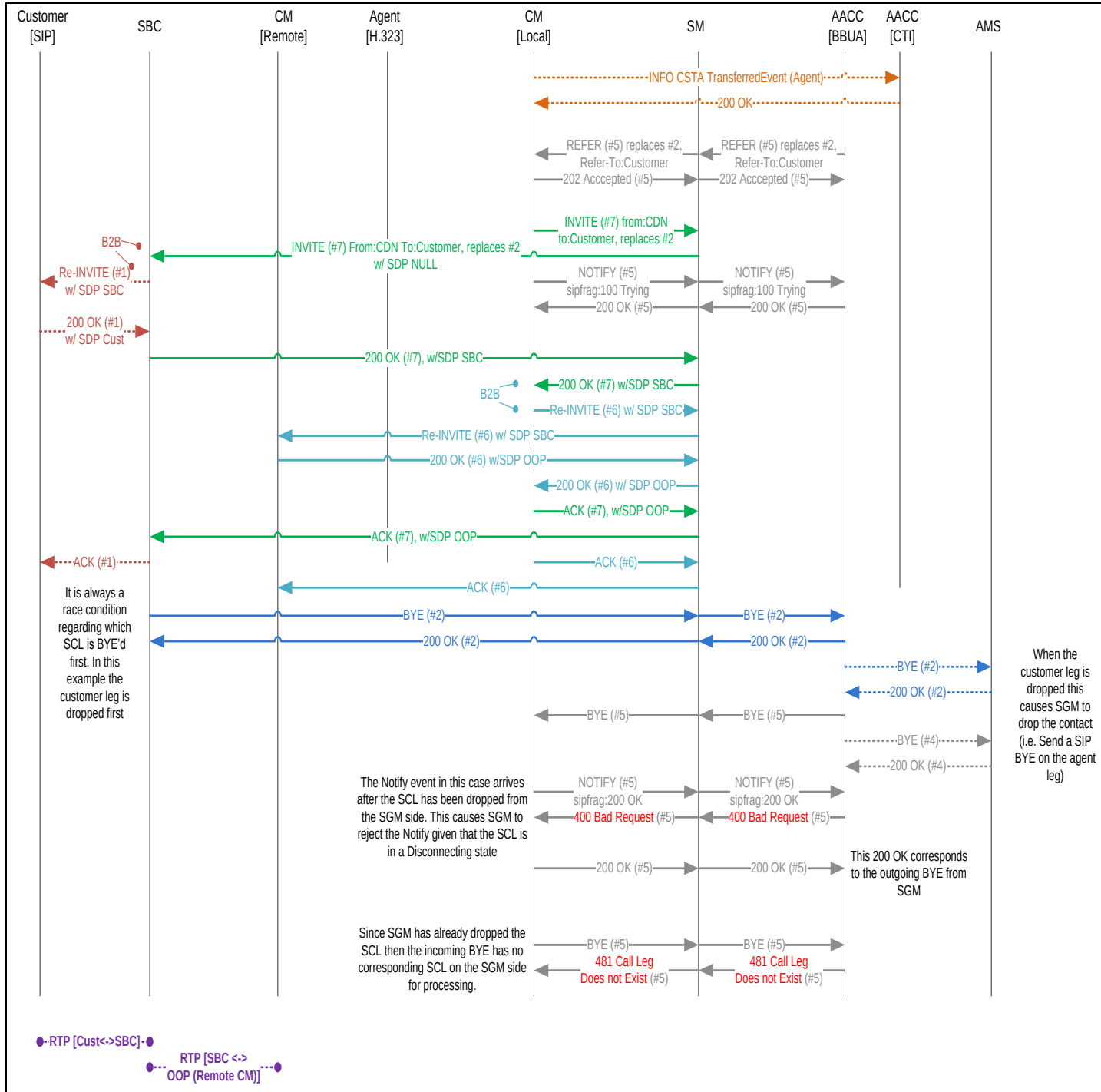


Figure 11.6: Minor Race conditions

12. Appendix F –CLID not appearing on Transfers

While this topic is not directly related to the redirection feature, it can be positively affected in certain scenarios by enabling the redirection feature.

In AACC the customer's Calling Line ID (CLID) is made available via the CTI application (i.e. AAAD). This can be used to drive screen pops or customer history lookups.

If the agent is using a physical phoneset then a CLID is also available here. However for contact center calls the CLID that is displayed on the agent's physical phoneset will be the CDN number that was used to queue the call, and not the customer's CLID.

Transfer scenarios

- Agent 1 is on a Contact Center call. The CLID on the agent's phoneset is the CDN number that queued the call.
 - If agent 1 transfers the call directly to agent 2's extension, the CLID on agent 2's phoneset after the transfer is completed will be the CDN number that queued the call.
 - If agent 1 transfers the call to agent 2 via CDN 2, the CLID on agent 2's phoneset after the transfer is completed will be CDN 2.
 - With the redirection feature **disabled**, if agent 1 transfers the call to expert 1, the CLID on expert 1's phoneset after the transfer is completed will be the CDN.
 - With the redirection feature **enabled**, if agent 1 transfers the call to expert 1, the CLID on expert 1's phoneset after the transfer is completed will be the customer's CLID. Note that there may be a short delay in updating the CLID on the expert to be that of the customer, and that the CDN number can show up temporarily (this occurs while the REFER is taking place, but is updated to the customer's CLID once the REFER has completed).

Note that for all the transfer scenarios above, the CLID at the consultation phase will be Agent 1, as expected. The statements above are intended to communicate what the CLID will be after the transfer has been completed.

13. References and Documentation

The following links contain all of the required standard documentation on the platforms described in this applications note. It is assumed that the reader(s) of this document are fully knowledgeable in the products described and their integration with each other.

Avaya Aura Contact Center Documentation Suite:

http://support.avaya.com/css/Products/P0793/All_Documents

Avaya Aura Contact Center Coverage to Voicemail Application Note:

This is available at <https://support.avaya.com> and must be consulted if deploying coverage path to voicemail.

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