Recommended Guidance for DMCC Applications Utilizing Call Media

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Target Audience:

Developers of applications using the Avaya Aura® Application Enablement (AE) Services' Device Media & Call Control (DMCC) API to utilize one or more of the following types of call media information: voice (RTP) traffic, in-band tones, DTMF via RTP payload type indications, and/or out-of-band DTMF events for calls.

Specifically, developers that make use of the Selective Listening Hold (SLH) service and/or Multiple Registrations (MR) to utilize call media information from one or more parties in a call.

Applicable Avaya Platform(s):

Avaya Aura® Suite, including Avaya Aura® Communication Manager and Avaya Aura® Application Enablement (AE) Services.

Applicable Releases:

All; While this guidance is issued at the release of Avaya Aura® 8.0.1, it is broadly applicable to earlier releases.

Terminology:

- **Call Media** – A generic reference to any one of, or a collection of voice (RTP) traffic, in-band tones, DTMF via RTP payload type indications, and out-of-band DTMF events for calls. An application may utilize one or more of these types of call media.

- **Selective Listening Hold (SLH)** – Also known as Third-Party Selective Listening Disconnect, an AE Services' service which allows an application to prevent a specific party in a call from receiving call media being sent by one or more parties in the same (common) call.

- **Multiple Registrations (MR)** – A DMCC feature which allows, among other uses, additional call media listeners to be associated with an existing party (extension) in a call.

Recommended Approach for DMCCc Applications to Acquire Call Media:

DMCC applications that require *complete and uninterrupted* call media information from one or more parties in a call should adhere to the following guidance:

- **The application should add a new party (extension) to the call, where the new party is *dedicated* to acquiring the call media.**

- **If the application is to be deployed in environments where additional applications are expected to operate on the same extensions (e.g. deployment of both call recording and PCI-DSS applications for the same agent), developers should *NOT* utilize the Multiple Registrations feature to register a device with an existing party (extension) in the call as the method used to obtain the call media.**

The DMCC API offers multiple services to application developers, and there are a variety of techniques for building an application that acquires call media. One technique involves registering a device with an existing party in a call (i.e. Multiple Registrations) to receive the call media. However, applications utilizing the Multiple Registrations feature may only receive a ***subset*** of the call media. To ensure that ***all*** call media is received by the application, the proper methodology is to make use of a separate dedicated extension and add it as a new party to the call using services such as Single Step Conference, Service Observing, or invoking individual *Hold()*, *MakeCall()*, *Conference()*, or *Transfer()* call control operations.

The new dedicated party added to the call can be a DMCC device registered using MAIN dependency mode, or it can be a station, trunk or IVR type of endpoint. Applications may join the dedicated party into the call as the call begins and remain connected as long as some other party is active in the call, or the application may dynamically join the dedicated party for only a period of time when the call media is to be acquired. The implementation is a development choice. However, if a dynamic approach is used, the application must be aware that there is a period of time between when a request is made to add the party to a call, and when the call media actually begins to be delivered to that newly added party.

Selective Listening Hold and Multiple Registrations Interactions:

The use of the Selective Listening Hold service by any deployed application to modify the call media to a specific extension will impact the call media received by any/all other applications using the Multiple Registrations feature that are associated with the same extension.

The interaction between Selective Listening Hold and Multiple Registrations may therefore result in an unintended or unexpected behavior in some application contexts, including loss of some or all call media.

Depending on the nature of the call media application and its expected use case, this interruption of specific media streams being delivered may be viewed as normal or inconsequential. For other applications, where the media stream from all call participants must be available to meet service requirements, the results of this interaction will be more significant.

If the application is tolerant that some or all the call media may not be provided when Selective Listening Hold is used by an external application acting on the same call, then Selective Listening Hold with Multiple Registrations may be an effective option for the application.

Considerations for DMCC Applications That Utilize Call Media:

It is generally recommended that Multiple Registrations feature should *NOT* be used by DMCC application utilizing call media.

Before using the Multiple Registrations feature, consider what the impact of receiving a subset of the overall call media would be to the application, and the possibility that another application may be manipulating the media channels through a Selective Listening Hold operation.

In addition, developers and customers deploying one or more applications using any of these approaches should explicitly consider the following impacts:

• The sizing and engineering requirements of total party count, due to addition of an additional unique party in the call. For Avaya Aura Communication Manager Release 8 and earlier releases, this limit is 6.

• The limitation imposed by a maximum of two service observers in a call and the reduction in overall party count.

• Application tolerance for potential of delay in audio cut through possibly experienced by using Single Step Conference or real time use of Service Observing.

References:

Selective Listening Hold:

• *Avaya Aura® Application Enablement Services TSAPI for Avaya Communication Manager Programmer's Reference* – Chapter 6 - Selective Listen Hold

• *Avaya MultiVantage® Application Enablement Services CVLAN Programmer's Reference* - Section 9 - C_3PSL_DISC

• *Avaya MultiVantage™ Application Enablement Services ASAI Protocol Reference* - Third Party Listen Disconnect Procedure

• *PSN020382u - Avaya Aura® Communication Manager 8.0.1 Selective Listening Hold (SLH) Behavior Changes*

Multiple Registrations:

- *Avaya Aura® Application Enablement Services Device, Media and Call Control API Java Programmers' Guide* - Registration Services

- *Avaya Aura® Application Enablement Services Device, Media and Call Control API XML Programmer's Guide* - Registration Services

- *Avaya Aura® Application Enablement Services Device, Media and Call Control .NET API Programmer's Guide* – Registering Devices

Custom Media Streams:

- *Avaya Aura® Application Enablement Services Device, Media and Call Control .NET API Programmer's Guide* – Custom Voice Streams

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