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Media Control Protocol Requirements
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Abstract

This document provides requirements for a protocol, that will enable one physical entity that includes the media policy server, notification server and the focus to interact with one or more physical entities that serves as mixer or media server. It will address all phases and aspects of media handling in a conferencing service including announcements and IVR functionality.

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1. Overview

The IETF XCON conferencing framework presents an architecture that is built of several functional entities. The framework document does not specify the protocols between the functional entities since it is considered out of scope.

There is an interest to work on a protocol that will enable one physical entity that includes the media policy server, notification server and the focus to interact with one or more physical entities that serves as mixer or media server.

The document will present the requirements for such a protocol. It will address all phases and aspects of media handling in a enhanced conferencing service including announcements and IVR functionality. The following items are out of scope of this document:

- Mechanism for MS to advertise its capabilities and other attributes (e.g, Geolocation).

- Mechanism for the AS to discover a MS.

- Ability to move an existing conference from the current Media Servers supporting it to other Media Servers, where the latter have been identified to the AS.

2. Terminology

The Media Server work uses when appropriate and expands on the terminology introduced in the SIP conferencing framework and XCON conferencing framework. The following additional terms are defined for use within the Media Server work.

Application Server (AS) - The application server includes the conference policy server, the focus and the conference notification server as defined in [draft-ietf-sipping-conferencing-framework](#).

Media Server (MS) - The media server includes the mixer as defined in [draft-ietf-sipping-conferencing-framework](#). The media server source media streams for announcements, it process media streams for functions like DTMF detection and transcoding. The media server may also record media streams for supporting IVR functions like announcing participants

Notification - A notification is used when there is a need to report event related information from the MS to the AS.

Request - A request is sent from the controlling entity, such as an Application Server, to another resource, such as a Media Server, asking that a particular type of operation be executed.

Response - A response is used to signal information such as an acknowledgement or error code in reply to a previously issued request.

Need to add additional definitions

3. Requirements

3.1. Media Control Requirements

The following are the media control requirements:

REQ-MCP-01 - There MUST be a requirement for a control protocol that will enable one or more Application Servers to control a media server.

REQ-MCP-02 The protocol MUST be independent from the transport protocol.

REQ-MCP-03 The protocol MUST use a reliable transport protocol.

REQ-MCP-04 - The application scope of the protocol shall include Enhanced Conferencing Control and Interactive Voice Response.

Though the protocol enables these services, the functionality is invoked through other mechanisms.

REQ-MCP-05 - The protocol will utilize an XML markup language.

REQ-MCP-06 - A Media Server SHOULD be application/service independent. It should be possible to have a many-to-many relationship between Application Servers and Media Servers that use this protocol.

REQ-MCP-07 - Media types that are supported in the context of the applications shall include audio, tones, text and video.

REQ-MCP-08 - The protocol should allow, but must not require, a media server resource broker or intermediate proxy to exist between the Application Server and Media Server.

REQ-MCP-09 - The solution MUST enable one control channel between an AS and MS, and shall allow for the support of multiple channels.

One channel could control multiple conferences, but you could have multiple channels controlling one or more conferences.

There can be a connection per conference or one connection from the AS to MS for controlling many conferences

REQ-MCP-10 - On the control channel, there shall be requests to the MS, responses from the MS and notifications to the AS.

REQ-MCP-11 - SIP/SDP SHALL be used to establish and modify RTP connections to a Media Server.

REQ-MCP-12 - It should be possible to support a single conference spanning multiple Media Servers.

Note: The previous draft used "must". It is probably true that spanning multiple MSes can be accomplished by the AS and does not require anything in the protocol for the scenarios we have in mind. However, the concern is that if this requirement is treated too lightly, one may end up with a protocol that precludes its support. Therefore, we are reluctant to weaken this requirement any further than "should".

REQ-MCP-13 - It must be possible to split call legs individually or in groups away from a main conference on a given Media Server, without performing SIP re-establishment of the call legs to the MS (e.g., for purposes such as performing IVR with a single call leg or creating sub-conferences, not for creating entirely new conferences).

REQ-MCP-14 - The protocol should be extendable, facilitating forward and backward compatibility.

REQ-MCP-15 - The protocol shall include security mechanisms.

REQ-MCP-16 - During session establishment, there shall be a capability to negotiate parameters that are associated with media streams.

REQ-MCP-17 - The AS shall be able to define operations that the MS will perform on streams like mute and gain control.

REQ-MCP-18 - The AS shall be able to instruct the MS to play a specific announcement.

REQ-MCP-19 - The MS shall be able to retrieve announcements from an external connection.

REQ-MCP-20 - The MS shall be able to request the MS to create, delete, and manipulate a mixing, IVR or announcement session.

REQ-MCP-21 - The AS shall be able to tell the MS if the message can be delayed if the MS cannot play it immediately.

REQ-MCP-22 - The AS shall be able to instruct the MS to play announcements to a single user or to a conference mix.

3.2.

Media Mixing Requirements are for further discussion.

3.3. Operational Requirements

REQ-MCP-23 - The AS-MS control protocol must allow the AS to audit the MS state, during an active session.

REQ-MCP-24 - The MS shall be able to inform the AS about its status during an active session.

4. Security Considerations

As an XML markup, all of the security considerations of [RFC3023](#) [[RFC3023](#)] and [RFC3406](#) [[RFC3406](#)] must be met. Pay particular attention to the robustness requirements of parsing XML.

The protocol shall include security mechanisms.

5. Changes from Version-01

The document was updated per the notes from the BOF meeting in March, and comments from Roni Even.

6. References

6.1. Normative References

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[Appendix A](#). Acknowledgments

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