SIP Conferencing: Sub-conferences and Sidebars
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Abstract

This document discusses the creation, management of operation of sub-conferences in a centralized conferencing architecture, also known as "sidebars". This work uses the SIP Conferencing Framework and builds on the descriptions of sub-conferences in that document. Examples of SIP and XCON protocols are given.
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1. Introduction

This document uses the concepts and definitions from the high level requirements [9] and the SIP conferencing framework [10] documents.

While the SIP conferencing framework document describes both SIP and XCON methods for creating and managing a centralized conference, this document will assume a non-SIP method, as sidebars are an advanced conferencing application. Examples of the non-SIP methods include the XCON protocols (used as examples) an IVR, or a web page.

2. Sidebars and Dialogs

Conference establishment using SIP dialogs is described in the SIP conferencing framework document. The set of XCON protocols to also establish a conference is currently being developed and designed by the XCON working group. Since the details are TBD, this document will refer to the protocol as CPCP (Conference Policy Control Protocol) and omit the details of the messages until they are developed.

In SIP sessions, it is not uncommon to have a single dialog with multiple media sessions. The SIP Conferencing Framework assumes this - that a participant uses the Conference URI to establish an INVITE dialog that results in the establishment of one or more media streams. Media streams established using separate dialogs are usually assumed to be unrelated. For example, a pair of SIP/PSTN gateways may have a number of dialogs established between them, and the resulting media streams represent separate calls or sessions.

As a result, the simplest sidebar dialog model is to reuse the existing main conference dialog to establish the sidebar. This has the advantage of allowing even the simplest endpoints which are incapable of any local mixing to participate in a conference with sidebars, provided a non-SIP method of controlling the conference is provided.

It is also possible for a sidebar to have a separate dialog. However, the motivation and advantages for this are not obvious. As a result, this document will be restricted to the case of a single dialog and the reuse of that dialog for sidebars.

Like a main conference, a sub-conference is identified by a URI. This URI is an alias for the main conference - that is, it must resolve to the same focus as the main conference. If an intended sidebar participant is not a participant in the main conference, the intended participant joins the conference using the sidebar URI using normal SIP means and is added into the sidebar only. If that
participant wishes to become part of the main conference, either a re-INVITE with the main conference URI in the Contact is used, or an INVITE with Replaces from the main conference is issued. Of course, if the participant wishes to maintain separate dialogs, a simple new INVITE would be sent to/from the main conference URI.

3. Creating Sidebars

The SIP conferencing architecture supports multiple media types and both centralized and distributed mixing. Sidebars also have this same property. The media type and mixing mode of a sidebar need not be the same as the main conference.

In the simplest case, the sidebar has the same media types as the main conference, and is centrally mixed. In this case, the focus changes the mix for the sidebar participants, and no SIP signaling is necessary - the existing main conference mix is replaced with the sidebar mix.

On the other hand, if the sidebar has different media types than the main conference, then the focus will need to re-INVITE, adding the new media stream(s). Non-SIP means will be used so that the User Agent renders the new media stream in the proper context to the user.

For fully distributed mixing of single dialog sidebars, the focus may need to re-INVITE to add a media stream if the media stream is not already being sent to the participant. The participant will be notified of the desired mix using a non-SIP protocol which will result in the creation of the sidebar.
4. Adding Participants to a Sidebar

Participants can be added to a sidebar in a number of ways. If the intended sidebar participant is already a participant in the main conference and desires a single dialog, then some non-SIP means will be used to add the participant.

On the other hand, if the participant is not in the main conference, a SIP means such as a REFER with the Refer-To URI set to the sidebar URI can be used, or a non-SIP means. Either way, a new dialog will be established with the participant and they will join the sidebar.

Participants who request multiple dialogs will be INVITEd to the sidebar, perhaps as a result of a REFER. As above, a new dialog will be established with the participant, and they will join the sidebar.
Alice                Focus                 Bob                Carol

|<---------------|<---------------|<---------------|
|Alice adds Carol to the sidebar using CPCP|
|CPCP Add participant to sidebar F1 |
|CPCP Acknowledgement F2 |

|------------------|<---------------|<---------------|
|Focus re-INVITEs Carol to add Carol to the sidebar |
|INVITE Contact:Conf-ID;isfocus F3 |
|------------------|<---------------|<---------------|
|Alice sends a REFER to Devon to join to the sidebar |

Figure 2. Adding a participant to a sidebar.
Figure 3. Adding a participant to a sidebar who is not a member of the Main conference.

5. Terminating a Sidebar

Participation in a single dialog sidebar is terminated by non-SIP means. When the last participant leaves it, the sidebar ceases to exist. A multiple dialog sidebar is terminated by a BYE on the dialog for each of the participants. When the last participant leaves it, the sidebar ceases to exist, and the sidebar URI becomes unusable. Note that a single participant sidebar is permissible — another participant may join later.
Alice and Carol leave the sidebar.

Figure 4. Terminating a sidebar.

6. Security Considerations

This document discusses call control for SIP conferencing. Both call control and conferencing have specific security requirements which will be summarized here. Conferences generally have authorization rules about who may or may not join a conference, what type of media
may or may not be used, etc. This information is used by the Focus
to admit or deny participation in a conference. It is recommended
that these types of authorization rules be used to provide security
for a SIP conference. For this authorization information to be used,
the focus needs to be able to authenticate potential participants.
Normal SIP mechanisms including Digest authentication and
certificates can be used. These conference specific security
requirements are discussed further in therequirements and framework
documents.

For call control security, a user agent must maintain local policy on
who is permitted to perform call control operations, initiate REFERs,
and replace dialogs. Normal SIP authentication mechanisms are also
appropriate here. The specific authentication and authorization
schemes are described in the multiparty call control framework
document.

7. References

7.1 Normative References

[1] Bradner, S., "Key words for use in RFCs to Indicate Requirement

[2] Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A.,
Peterson, J., Sparks, R., Handley, M. and E. Schooler, "SIP:


(SIP) Event Package for Conference State",
draft-ietf-sipping-conference-package-03 (work in progress),

‘Join’ Header", draft-ietf-sip-join-03 (work in progress),

[7] Rosenberg, J., "Indicating User Agent Capabilities in the
Session Initiation Protocol (SIP)",

7.2 Informative References


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