This sequence diagram shows an IMS user creating a conference by using a conference-factory URI. The conference is created at a MRFC-AS of the users home network. The steps involved in the conference scenario covered here are:

1. The conference initiator UE uses the conference factory URI to initiate a conference with the MRFC-AS (Multimedia Resource Function Control/Application Server).
2. The MRFC-AS assigns a conference URI to the conference and configures the MRFP (Multimedia Resource Function Processor).
3. The conference call is setup and the RTP data begins flowing between the conference initiating UE and the MRFP.
4. The conference initiator then uses the refer procedure to add more users to the conference. The new users establish a call to the conference URI passed in the refer message.
5. When the conference is in progress, RTP media streams are being mixed and propagated to all the participants.
6. The conference user drops out of the conference. All users are notified for this exit from the conference.

### Event Studio Sequence Diagram

<table>
<thead>
<tr>
<th>Event</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INVITE</td>
<td>The Conference Caller (Conference Initiator UE) sends an INVITE to the MRFC-AS.</td>
</tr>
<tr>
<td>100 Trying</td>
<td>The INVITE is received by the MRFC-AS.</td>
</tr>
</tbody>
</table>
| PRACK | The Conference Caller sends a PRACK.
| 200 OK | The MRFC-AS acknowledges the PRACK request with a 200 (OK) response. |
| UPDATE | The Conference Caller sends an UPDATE with a 200 (OK) response. |
| 200 OK | The MRFC-AS acknowledges the UPDATE request with a 200 (OK) response. |

### IMS Conference (IMS Conference Call)

<table>
<thead>
<tr>
<th>Calling UE</th>
<th>IMS 1</th>
<th>IMS 1 MRFP</th>
<th>IMS 2</th>
<th>Called UE</th>
<th>Called User Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiating P-CSCF</td>
<td>Initiating S-CSCF</td>
<td>MRFC-AS</td>
<td>Participating I-CSCF</td>
<td>Participating S-CSCF</td>
<td>Participating P-CSCF</td>
</tr>
</tbody>
</table>

### IMS Network

- **IMS 1**: IMS network used for the conference.
- **IMS 1 MRFP**: Multimedia Resource Function Processor for session handling.
- **IMS 2**: IMS network for the called user.
- **Called UE**: User equipment of the called party.
- **Called User Equipment**: Equipment used for the called party.

### Conference

- **Initiator**: The conference initiator is the user who first initiates the conference by sending an INVITE request to the conference-factory URI.
- **Participant**: Any user who joins the conference after the initial INVITE request is sent.
- **Conference URI**: A unique identifier for the conference that all participants use to identify the session.

### Event Studio System Designer 4.0

The EventStudio System Designer 4.0 (http://www.EventHelix.com/EventStudio) was used to generate this sequence diagram. Copyright © 2008 EventHelix.com Inc. All Rights Reserved. The EventStudio source files for this document can be downloaded from http://www.eventhelix.com/call-flow/ims-conference.zip.

The media stream capabilities of the MRFP are returned along the signaling path, in a 183 (Session Progress) provisional response. The Conference Initiator UE determines which media flows should be used for this session, and which codecs should be used for each of those media flows. If there is any change, Conference Caller sends a new codec request in PRACK.

The P-CSCF forwards the INVITE request to the S-CSCF.

The S-CSCF forwards the INVITE request to the MRFP that is indicated in the host part of the Request URI.

The MRFC-AS allocates a conference URI, based on local information and information gained from the conference-factory URI in the Request URI field of INVITE message.

The MRFC creates a focus for the newly created conference, assigns it conference URI and returns it in Contact header. On receiving 200 (OK) with isfocus parameter, the Conference Initiator stores the Contact header content as the conference URI.
User inviting another user to a conference by sending a REFER request

Conference Caller creates a conference and then sends REFER message with Refer-To containing the conference URI as learned during the conference establishment. Additionally the "method" uri parameter indicates that the other user is requested to send an INVITE request to this conference URI.

The originating S-CSCF performs an analysis of the destination address, determines the terminating I-CSCF and forwards the REFER message to it.

The terminating I-CSCF performs a location query to the HSS to find out the terminating S-CSCF and forwards the REFER request to that S-CSCF.

The Called Conference Participant accepts the REFER request by sending a 202 (Accepted) response.

The NOTIFY message is sent to inform that the REFER message is being processed.

The "200 OK" Acknowledges the NOTIFY message.

Called Conference Participant enters Conference

The S-CSCF forwards the INVITE request to the MRFC-AS that is indicated in the message.

The S-CSCF performs an analysis of the destination address, determines the terminating I-CSCF and forwards the INVITE message to it.

The terminating I-CSCF performs a location query to the HSS to find out the terminating S-CSCF and forwards the INVITE request to that S-CSCF.

The Called Conference Participant accepts the INVITE request by sending a 200 (Accepted) response.

The NOTIFY message is sent to inform that the INVITE message is being processed.

The "200 OK" Acknowledges the NOTIFY message.

Conference Caller leaving the Conference

The Conference Caller wants to leave the conference. For this purpose it sends a BYE message to the P-CSCF with the Conference-URI as the Request-URI.
To release resources reserved for the Conference Caller, the MRFC-AS interacts with the MRFP to release the resources reserved for the Conference Caller in this conference.

The MRFC-AS generates a NOTIFY Request to indicate that the Called Conference Participant has left the conference and automatically unsubscribes it from the subscription to the conference event package. The MRFC-AS similarly notifies other conference participants that have subscribed to the conference event package that the Called Conference Participant has left the conference.

The conference initiator is also notified about a user dropping out of the conference.