Jingle RTP Source Events

juberti@google.com, jonasl@google.com
Version 0.5 [DRAFT]
September 2010

Table of Contents

Introduction

When participating in a Jingle RTP session that has multiple sources, there is currently no way for a participant to discover which sources are supported by the remote side, and to request a stream from these sources. This document proposes an extension to XEP-0167 for a participant to address this need.

One example use case is the scenario where an endpoint has an audio stream, a video stream, and a desktop sharing stream. The remote endpoint may want to listen to audio but only view one of the video streams, or perhaps display the desktop sharing stream as a large feed with the video stream as a small inset. Ideally in this case the remote endpoint would only receive the amount of data needed for the user interface it is choosing to display, instead of always receiving both video streams at full rate and resolution.

While this functionality is primarily targeted to MUC sessions, these concepts are also applicable for point-to-point sessions.

Specification

Notification of new sources

When the list of sources from an endpoint changes, the endpoint will communicate that to the remote end by sending a description-info message indicating a new description with the

appropriate <source/> elements to indicate what sources are available. These messages are additive - when new sources arrive, they will broadcast their <source/>s, but this broadcast will not include existing sources. Sources are removed by [TBD]

Endpoint broadcasts new sources via description-info

```
<iq from="conference@groupchat.google.com"
  id="ED1C1824"
  to="jonasl@google.com/client"
  type="set">
  <jingle action="description-info" initiator="jonasl@google.com/
client"
    id="c1397572184"
    xmlns="urn:xmpp:jingle:1">
    <content creator='initiator' name='audio'>
     <description xmlns='urn:xmpp:jingle:apps:rtp:1' media='audio'>
       <source ssrc="10" name="Webcam"
               usage="video" nick="alice_google_com"/>
       <source ssrc="20" name="Webcam" nick="bob_google_com"/>
     </description>
   </content>
   <content creator='initiator' name='video'>
     <description xmlns='urn:xmpp:jingle:apps:rtp:1' media='video'>
       <source ssrc="11" nick="alice_google_com"/>
       <source ssrc="21" nick="bob_google_com"/>
     </description>
   </content>
 </jingle>
</iq>
```

```
<iq from="jonasl@google.com/client"
  id="ED1C1824"
  to="conference@groupchat.google.com"
  type="result"/>
```

Requesting sources from the remote endpoint

In order to request the receipt of a source, the client will send a session-info message requesting the desired source at a particular resolution and framerate (typically the resolution of the display window). These requests have two forms: static and dynamic. Static requests simply indicate a specific source, identified by SSRC. Dynamic requests indicate a policy that the remote side should use when determining what source to send, and a generation number to indicate which of the N most recent streams that satisfied this policy is desired.

An example of a dynamic request is for the video of the loudest participant in a large size, the video of the previous 3 loudest participants in a small size, and to not display the client's own video stream regardless.

Examples of static and dynamic requests are shown below.

Requesting two sources via a static request

```
<iq from='jonasl@google.com/client'
  to='conference@groupchat.google.com'
  id='view1'
  type='set'>
  <jingle action='session-info' xmlns='urn:xmpp:jingle:1'
        id='c1397572184'>
   <view type='static' nick='alice_google_com'
        name="video" ssrc='11'>
    <parameter width="640"/>
    <parameter width="400"/>
    <parameter framerate="30"/>
    <parameter pixelrate="7680000"/>
    <parameter preference="2"/>
   </view>
   <view type='static' nick='bob_google_com'
        name='video' ssrc='21'>
    <parameter width="320"/>
    <parameter width="200"/>
    <parameter framerate="30"/>
    <parameter pixelrate="1680000"/>
    <parameter preference="1"/>
   </view>
 </jingle>
</iq>
```

```
<iq type='result'
    from='conference@groupchat.google.com'
    to='jonasl@google.com/client'
    id='view1'/>
```

Requesting the 4 most recent loudest speakers via a dynamic request

```
<iq from='jonasl@google.com/client'
  to='conference@groupchat.google.com'
  id='view1'
  type='set'>
```

```
  <jingle action='session-info' xmlns='urn:xmpp:jingle:1'
          id='c1397572184'>
    <view type='dynamic' policy="hide-self"
          name='video'
          generation='0'>
    <parameter width="640"/>
    <parameter width="400"/>
    <parameter framerate="30"/>
  </view>
  <view type='dynamic' policy="hide-self"
          name='video' generation='1'>
    <parameter width="320"/>
    <parameter width="200"/>
    <parameter framerate="30"/>
  </view>
  <view type='dynamic' policy="hide-self"
          name='video' generation='2'>
    <parameter width="320"/>
    <parameter width="200"/>
    <parameter framerate="30"/>
  </view>
  <view type='dynamic' policy="hide-self"
          name='video' generation='3'>
    <parameter width="320"/>
    <parameter width="200"/>
    <parameter framerate="30"/>
  </view>
  </jingle>
</iq>

<iq type='result'
    from='conference@groupchat.google.com'
    to='jonasl@google.com/client'
    id='view2'/>
```

Any number of static and dynamic requests can be combined in a single session-info.

TBD: Are changes additive, or do they replace the previous request? If additive, how can previous requests be changed or removed?

References

Internal Documents
- [Jingle RTP Source Descriptions](#)

Related Documentation
- RFC 3920: XMPP Core
- XEP-0166: Jingle
- XEP-0167: Jingle RTP Sessions