

Fast Content Switching with RTSP 2.0

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Outline

- Introduction & Background
- Motivation
- High Level Procedures
- Examples
- Summary of features

Some background

- 3GPP defined “Fast Content Switching and Start-up” for RTSP 1.0 within 3GPP Release 7
 - Defined in 3GPP TS 26.234 (Release 7 & later) Chapter 5.5 (<http://www.3gpp.org/ftp/Specs/html-info/26234.htm>)
 - Annex M contains examples for most cases
- IMTC has done successful interoperability tests for Fast Content Switching & Start-up
 - Commercial clients and servers from several vendors
- It would be good, that a similar feature is available for RTSP 2.0

Motivation for this feature

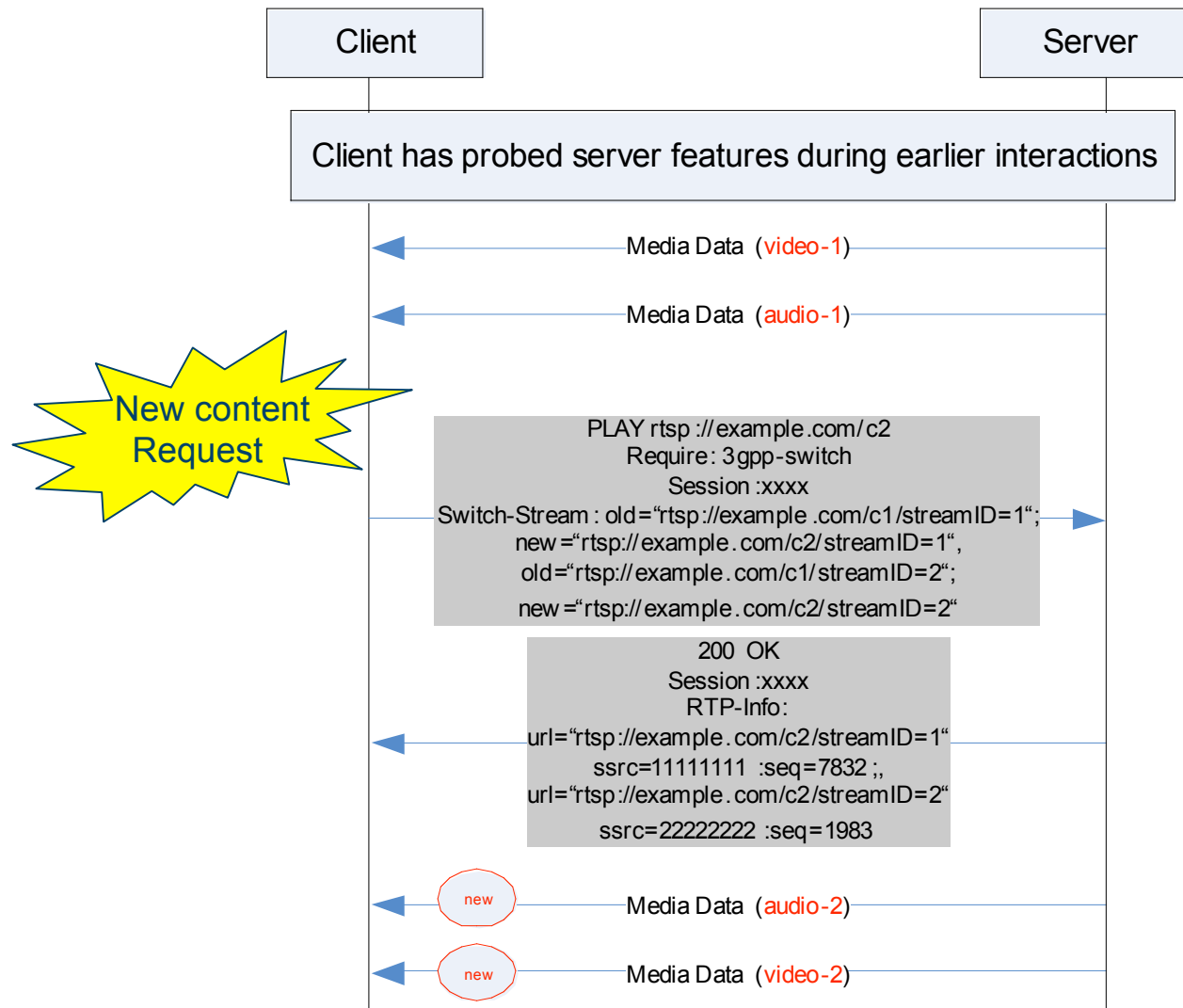
- RTSP 2.0 defines the establishment and control of a single content item using RTP
- RTSP 2.0 does not consider the consumption (or snack-ins) of several content items.
 - Example: Users “browse” through Video Portals
- The present proposal decouples the RTSP session from the actual content
 - RTSP & RTP sessions can be re-used for different content
 - Release and Establishment of RTSP & RTP sessions is avoided
- Goals:
 - Minimize Round-Trips to get new content played
 - Ensure fast content switch for most common cases without breaking the on-going streaming session

High Level Procedure

- Prerequisite: A RTSP client has established a streaming session
 - Example: the streaming session consists out of the RTSP control session, and two RTP sessions (i.e. audio & video)
- The user would like to continue with different content from the same site
- The RTSP client sends (typically) only a single RTSP PLAY message with the new content URI to the server
 - The new “Switch-Stream” header describes the replacement of the Media Control URIs
 - The RTP sessions are re-used for transport of the media components of the new content
- The states of the streaming sessions are changed to the new content

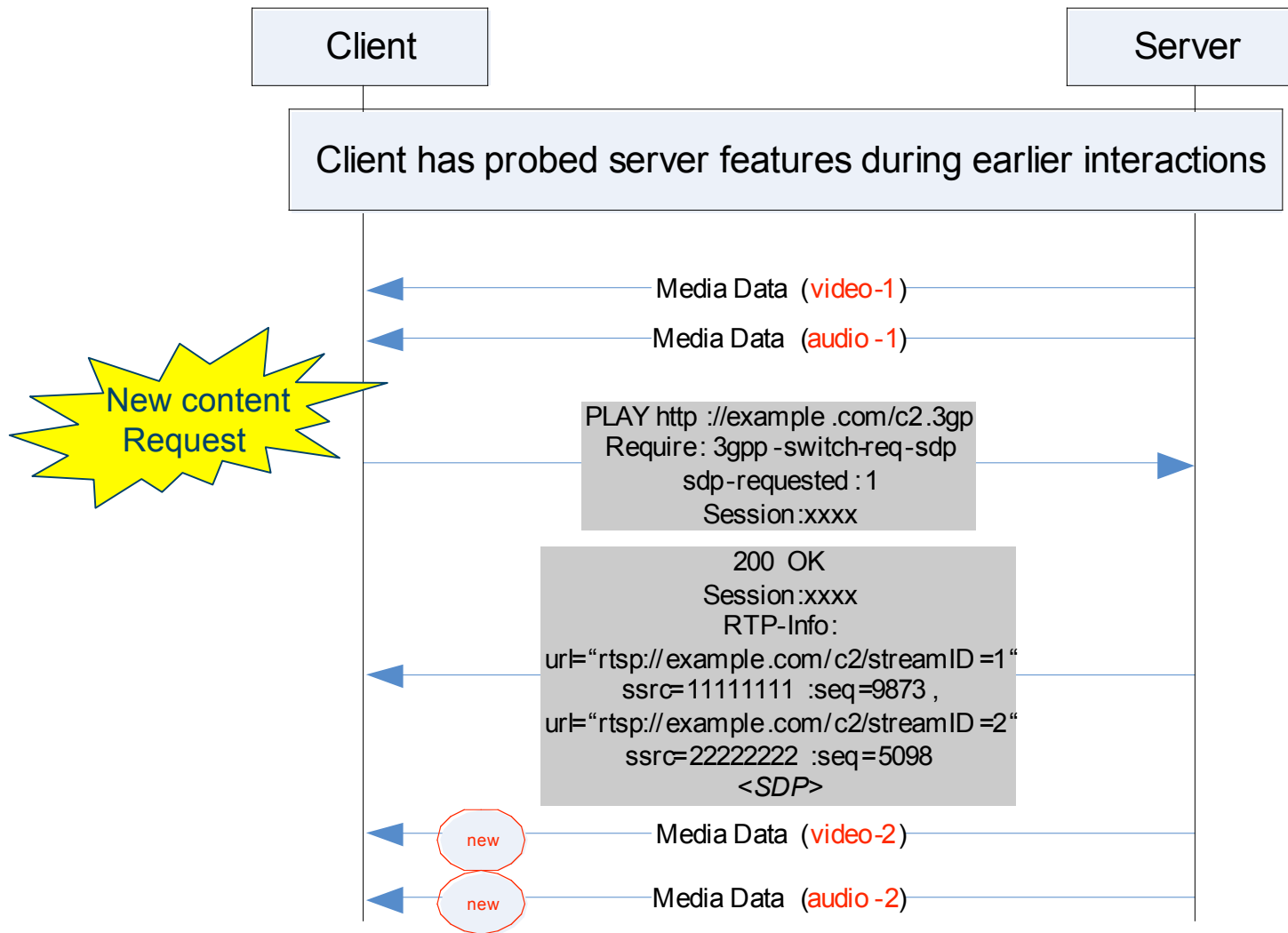
Example Sequence Chart

Content Switch with available content description



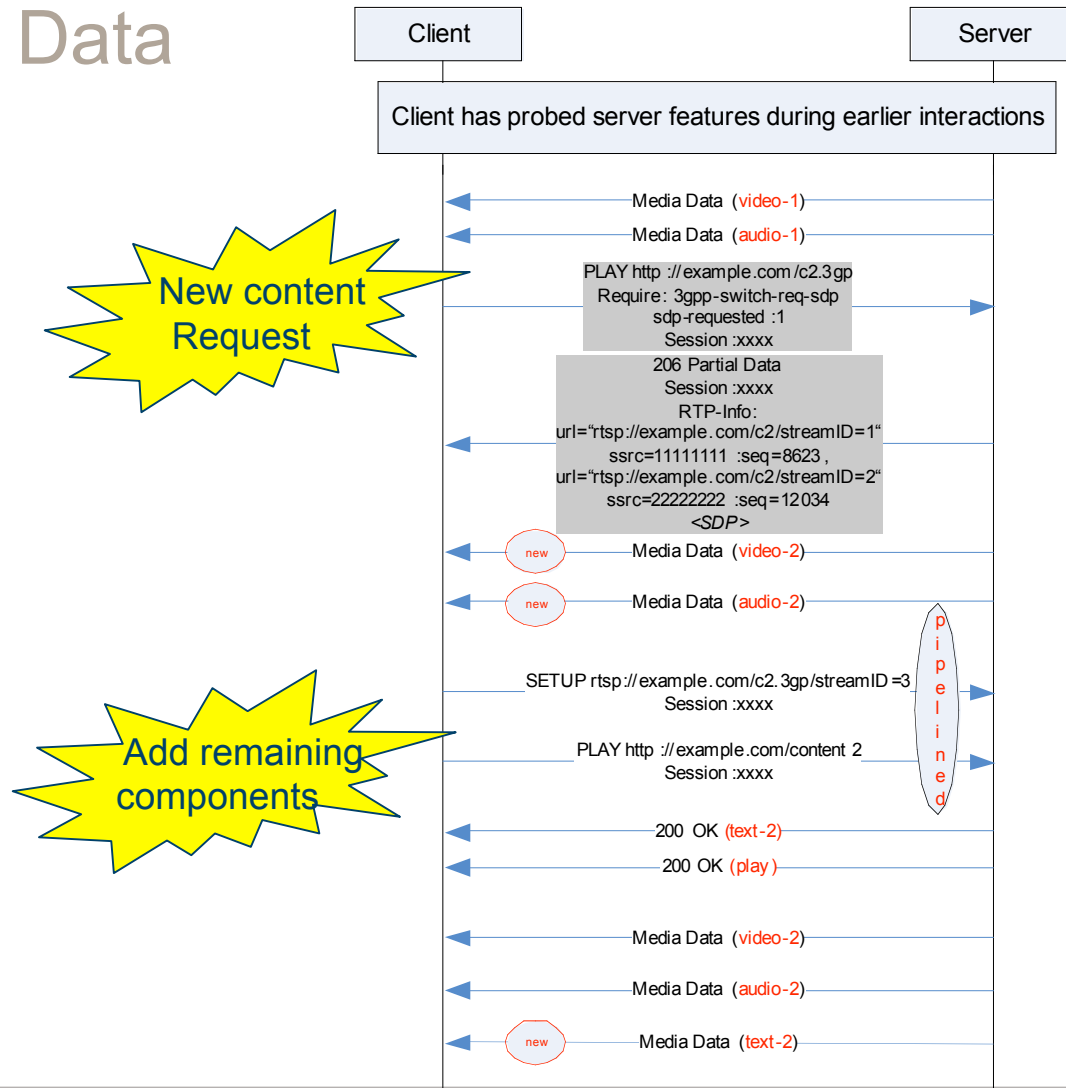
Example Sequence Chart

Content Switch without content description



Example Sequence Chart

Content Switch without content description, Partial Data



Summary of Features

- Content Switch with available Content Description (SDP)
 - The RTSP client has fetched the SDP file for the new content during an earlier transaction
 - Thus, the RTSP client knows about number of media components, codec information and media URIs
 - The RTSP client may establish RTP sessions for new content before or after the actual content switch
- Content Switch without new Content Description (SDP)
 - The RTSP client uses the URI to the SDP file to identify the content
 - The RTSP client receives the full SDP with the RTSP PLAY response
 - The RTSP client may need to add or remove RTP sessions, however, the playout may start in most cases
- Switching Media within an RTSP session
 - The content description defines e.g. multiple video tracks for F1 races
 - The RTSP client can change single media components during an ongoing session