Multi-Media Concepts and Relations

draft-burman-rtcweb-media-structure-00
Bo Burman
Background

› Intended as input to RTP Taxonomy
  – Same motivations

› Built on a draft UML model of RTP Taxonomy and added more media concepts from CLUE and WebRTC to give overview and ease understanding
  – Focus on finding commonalities

› This is an attempt to draw conclusions from that work
More Taxonomy Concepts 1

› Encoding
  – Particular encoded representation of a Media Source Output

  – Must fit established parameters such as RTP Payload Type, media bandwidth, other more or less codec-specific configurations (resolution, framerate, fidelity…)

  – Fundamental in simulcast and layered/scalable encoding

  – Probably maps well to CLUE Capture Encoding output

  – RTCWeb currently has no corresponding concept
More Taxonomy Concepts 2

› Synchronization Context
  – All Media Stream Output that share the same Synchronization Context have information allowing time synchronization on playout

  – Each Media Source Output is associated with one and only one Synchronization Context

  – Re-use Synchronization Context when appropriate and possible

  – RTP level Synchronization Context identifier, CNAME, is currently overloaded as an Endpoint identifier, which can cause issues
    › Same Endpoint could carry streams that do not have so strict timing relation that they share Synchronization Context
Identified WebRTC Issues

› Need Encoding to fully support simulcast and scalability
  – Only a single Encoding for a particular Media Source Output per PeerConnection?

› Need unique but anonymous ID of Media Source Output
  – Due to re-use in multiple RtcMediaStreamTracks, in turn re-usable in multiple RtcMediaStreams, in turn re-usurable in multiple PeerConnections, and possibility to relay RtcMediaStreamTracks

› MediaStream API handling of Synchronization Contexts
  – Synchronization Context must be preserved when possible
  – New Synchronization Context must be created and re-synchronization must occur when combining Media Source Output from different Synchronization Contexts
SDP Evolution

› Likely applicable to both CLUE and WebRTC use of SDP

› Requirements:
  – Encoding negotiation
    › Number of and boundary conditions for Media Source Output Encodings
  – Media Resource Identification
    › Common Media Source Output ID across signaling contexts
    › Which set of Encodings share same Media Source Output
    › Application level IDs referencing concepts defined in this draft
  – Synchronization Source Parameters
    › Sets of different Synchronization Sources share same set of parameters

› SDP likely not only option for all of the above
  – Could for example use RTCP or other media signaling methods
Multi-Media Concepts and Relations | IETF 86 - AVTEXT | March 2013 | Page 7 (7)