CLUE Framework

IETF 87 - July 29, 2013

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draft-ietf-clue-framework-11

draft-duckworth-clue-switching-example-01

Framework Agenda

- Recent changes
- Open issue and task summary
- Switched Captures
  - example scenario
  - potential solutions
  - issues

Changes from framework-10

- Add description attribute to Media Capture and Capture Scene Entry
  - need to fix copy and paste error
- Remove contradiction about responding to Advertisement with Configure
  - still open issue for the protocol
- Update examples
  - should be consistent now, with same amount of detail

#20 rejecting configure

- Propose addition to framework
  - Provider acknowledges receipt of the message and indicates to the Consumer that it is rejecting it. The Provider's behavior regarding its transmitted capture encodings should not be affected by a rejected Configure message.
- More details can be in the protocol/signaling

#19 and #26 site switching

- "It needs to be consistent. May need real-time updates for spatial information, time synchronization, etc. - e.g., RTCP, XCON notifications."

- Not sure if this is covered by recent discussions of switched captures or not

- Please speak up if these issues need any more attention

#33 security

- Framework should mention security threats
- Mary said she will start
- Input from group would be helpful

#34 update examples

- Examples updated in framework-11
- Propose to close this ticket

#35 framework and data model consistency

- Recent updates to both documents bring them in line

- This will be an ongoing task to keep them consistent

- Keep open for now, as reminder to keep them consistent for any new changes

#36 computational complexity parameter

- "Clean up Encoding parameters for pixels/sec (computational complexity), should be independent of codec (e.g. H.264, H.265, …) . Note, need input from WG"

- CLUE protocol and relation to SDP should give a more concrete context for how encoding parameters will really work

# Remove idea of attributes with Consumer choices

- Provider can Advertise multiple values for scene-switch-policy, and Consumer can choose in the Configure message

- email list discussion has pointed out unintended complications and side effects of this

- Proposal: do not allow Consumer to choose the value. Provider can Advertise different Captures with different values, just like all the other attributes.

- change applies to data model also

Switched Capture Example

- draft-duckworth-clue-switching-example-01
- Topo-Mixer – media switching variety
  - see draft-ietf-clue-rtp-mapping and draft-ietf-avtcore-rtp-topologies-update
- Mixer (middle box) provides conceptual sources (Media Captures), selecting one source at a time from the original sources

Example Video Layout

- This endpoint is receiving 9 video captures.

- VC1, VC2, VC3 has the current talker

- VC4 – VC9 has other recent talkers

- When the switch occurs, the renderer momentarily displays the other endpoints' names

Blue person starts talking, mixer switches video (site-switching)
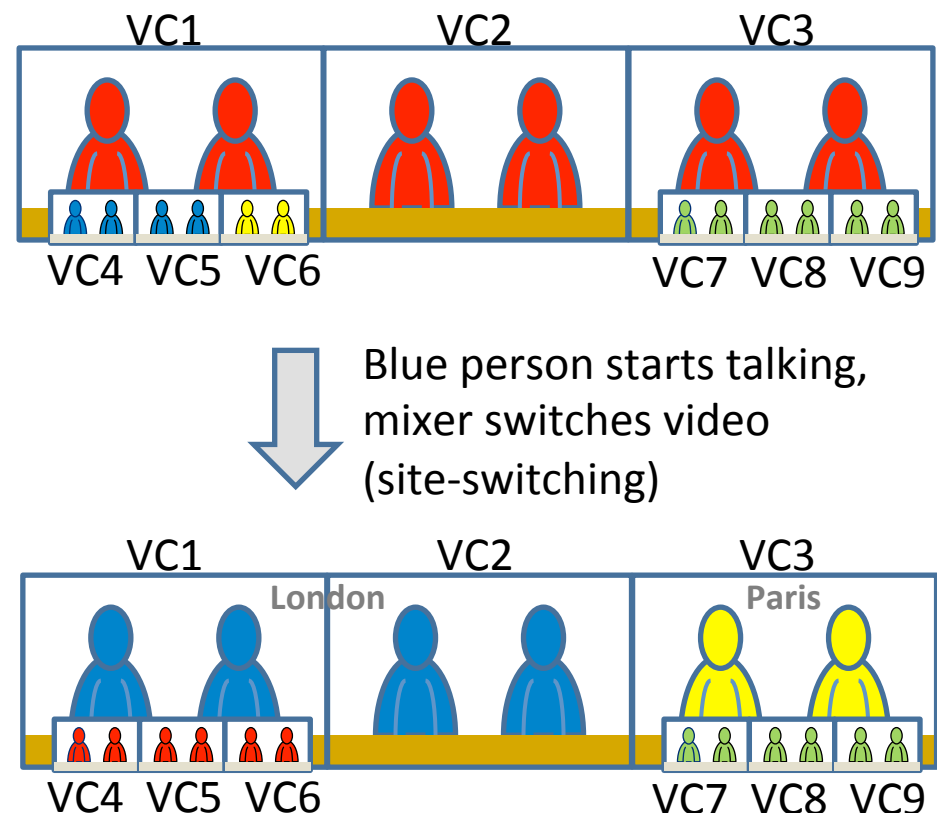
Switching Mixer Diagram

- Mixer sends 9 Video Captures to A

- Mixer selects which sources to send, and when to switch them, based on its own policy
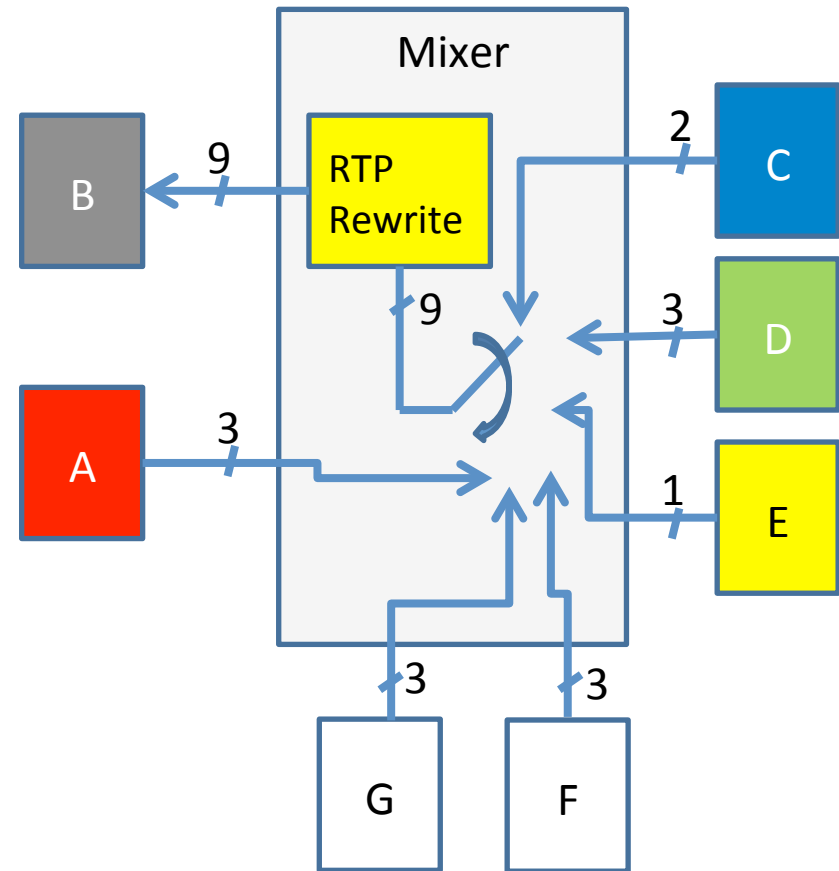
Advertisement – 1 Scene

- Put all the captures into one big scene
- Capture Scene:
  - CSE1: VC1,VC2,VC3,VC4,VC5,VC6,VC7,VC8,VC9
  - CSE2: VC1,VC2,VC3,VC4,VC5,VC6,VC7,VC8
  - CSE3: VC1,VC2,VC3,VC4,VC5,VC6,VC7
  - etc
  - CSE9: VC1
- Could be repeat of same captures in different CSE, or could be unique captures, such as CSE2: VC10,VC11,VC12,…
- Consumer picks number of captures it wants to receive
- Priority attribute indicates VC1-VC3 are most important
- Spatial relationships are a problem here
- maybe issues with audio

Advertisement – Multiple Scenes

- Each scene represents another endpoint, or small group of endpoints
- Capture Scene 1 (current talker, higher priority):
  - CSE1: VC1,VC2,VC3
  - CSE2: VC4,VC5
  - CSE3: VC6
- Capture Scene 2:
  - CSE1: VC7,VC8,VC9
  - CSE2: VC10,VC11
  - CSE3: VC12
- More scenes like the first two, with lower priority
- Works well enough, but maybe issues with audio

Switching Example Issues - Single Scene

- If using 1 big scene, what does spatial relationship mean?
- Does the Consumer need the original source's spatial relationships, among captures that come from the same endpoint?
  - How does it get it?
    - Clue messages?
    - Extensions to SIP Event Package?
- Should we consider again draft-hansen-clue-consumer-layout as a solution?
  - no, too drastic for now
- Recommend against this approach

Switching Example Issues – Multiple Scenes

- Multiple scene approach solves some spatial problems

- Does it still require implementations to make assumptions about what the other side is doing?
  - maybe, but even wrong assumption should result in reasonable end result

- Would it help to have more possible values for scene-switch-policy, or add other similar attributes?

Switching Example Issues - Audio

- Need to add audio to example
  - Each scene could have audio CSE with multiple audio captures
- Associating audio with video is important for lip-sync
  - existing standard should cover this
- Is it always desirable to spatially map audio to video? Maybe not.
- Audio and video might not always be "associated"
  - Could be receiving audio of just four most recent talkers, and be receiving video that is not one of the four.
  - Could be receiving just a single video capture, so some audio has no associated video at the moment

Switching Example Issues - Roster

- How does the Consumer associate actual received media with roster information?
  - SSRC/CSRC and event package?

Switched Captures – next steps

- Is the working group interested in pursuing this topic?

- Need more discussion on the email list before updating my draft or any working group documents

  – proposal – multiple scene approach works "good enough" without drastic framework changes

- Expect new draft from Christian soon