

CLUE Framework

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draft-ietf-clue-framework-12

draft-groves-clue-multi-content-00

draft-duckworth-clue-switching-example-01

Framework Agenda

- Changes in -12 version
- Multiple Content Capture (MCC) proposal
 - MCC switched captures in multipoint example
- Open issues
 - Role attribute
 - Ticket #33 security

Changes in -12 version

- Make the document “Standards Track” and edit usage of RFC 2119 keywords
 - needs further review
- Resolve issues:
 - #36 remove computational complexity parameter from encoding group
 - #43 remove ability for consumer to choose value of attributes
 - #44 remove details about requiring configure after advertisement – signaling issue
- Editorial cleanup – add diagram of advertisement

Multiple Content Capture (MCC)

- draft-groves-clue-multi-content-00
- Interim meeting presentation
 - <http://www.ietf.org/proceedings/interim/2013/09/17/clue/slides/slides-interim-2013-clue-3-2.ppt>
- Proposal to add MCC as a type of media capture
- Allows the provider to give more information and control to the consumer
- Improves handling of switched and composed captures
- Improves ability to implement Media Switching Mixer topology

MCC Summary

- Provider can advertise MCs that cannot directly become a capture encoding
 - by omitting encoding group for the MC
- Provider can advertise MCCs that can include other MCs – either switched or composed
- Consumer can choose which constituent MCs to use in an MCC
- Synchron-id replaces the troublesome scene-switch-policy attribute

MCC proposal 1

- Definition: MCC - Media capture for audio or video that indicates the capture contains multiple audio or video captures. Individual media captures may or may not be present in the resultant capture encoding at any given time.
- Captures in an MCC may be from different scenes.
- Example:
 - CS#1(VC1,VC2)
 - CS#2(VC3,VC4)
 - CS#3(MCC1(VC1,VC3), MCC2(VC2,VC4))

MCC proposal 2

- May have MCC only attributes associated with it.
 - MaxCaptures: Indicates the maximum number of captures that may appear in a MCC capture encoding.
 - CompositionPolicy: Indicates the algorithm/policy for determining what appears in a MCC capture encoding.
 - Synch-id: This attributes synchronises the switching of multiple MCCs.

MCC proposal 3

- Consumer Behaviour
 - On receipt of an advertisement with an MCC the Consumer treats the MCC as per other individual captures with the following differences:
 - The Consumer would understand that the MCC is a capture that includes the referenced individual captures and that these individual captures would be delivered as part of the MCC's capture encoding.
 - The Consumer may utilise any of the attributes associated with the referenced individual captures and any capture scene attributes from where the individual capture was defined to choose the captures.
 - The Consumer may or may not want to receive all the indicated captures. Therefore it can choose to receive a sub-set of captures indicated by the MCC.

MCC example – Switched Captures

- The MCU wants to advertise three capture encodings. Each capture encoding would contain a capture from either Endpoint D or Endpoint E depending on the policy. The MCU would send the following:
- CaptureScene1[Description=AustralianConfRoom, VC1(left),VC2(middle),VC3(right), CSE1(VC1,VC2,VC3)]
CaptureScene2[Description=ChinaConfRoom, VC4(left),VC5(middle),VC6(right), CSE2(VC4,VC5,VC6)]
CaptureScene3[MCC1(VC1,VC4){encodinggroup1}, MCC2(VC2,VC5){encodinggroup2}, MCC3(VC3,VC6){encodinggroup3}, CSE3(MCC1,MCC2,MCC3)]

MCC Issues

- CompositionPolicy attribute proposed, but no detail
 - Need further proposal and discussion about the “values” for this attribute

MCC Next Steps

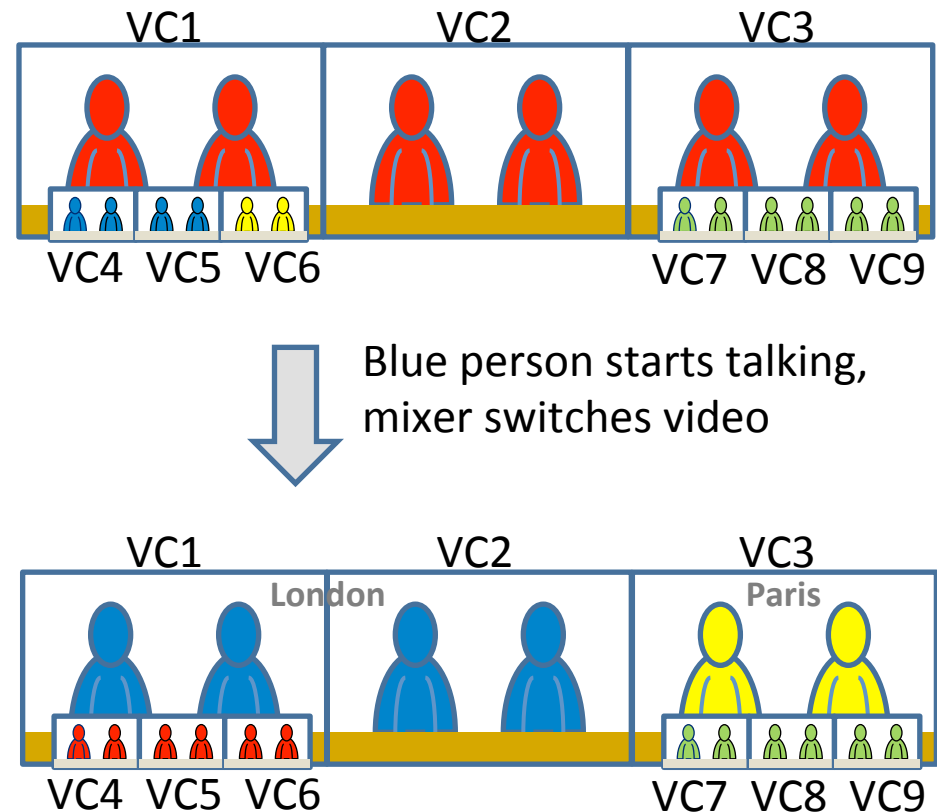
- Does the group want to include the MCC proposal in the framework and data model?
- Mark and Christian can work together to propose new text for framework document
 - much can be taken from the MCC draft
- Work with Roberta for data model

Switched Capture Example

- 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

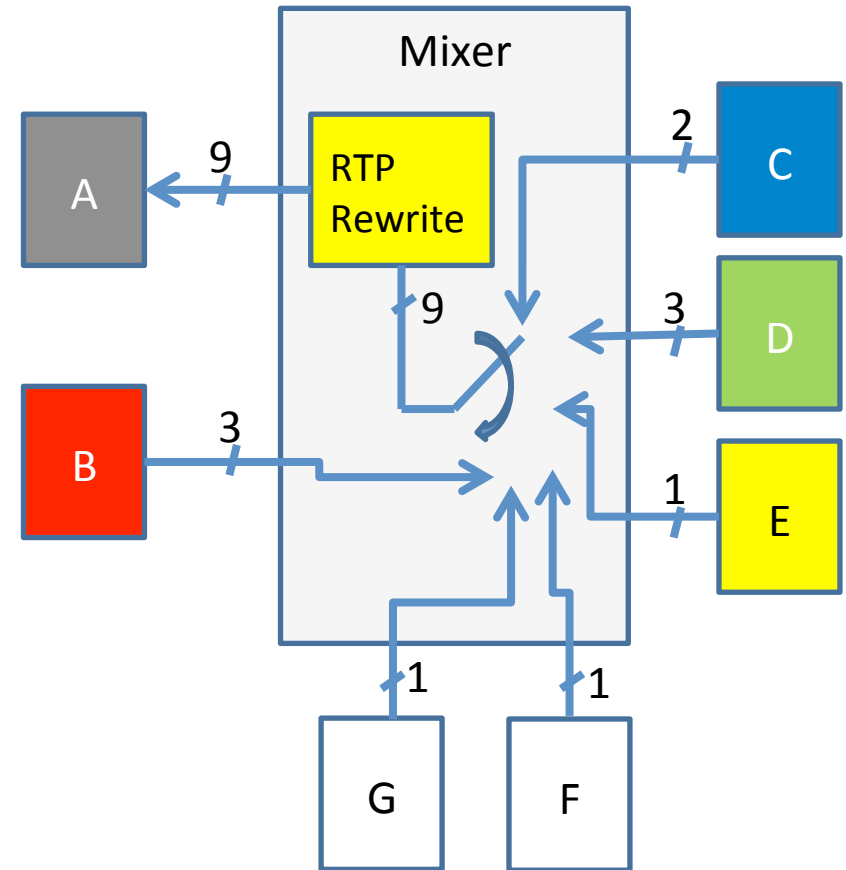
Example Video Layout

- This endpoint is receiving 9 video captures.
- VC1, VC2, VC3 has the current talker
- VC4 – VC9 has other recent talkers



Switching Mixer Diagram

- Mixer sends 9 Video Captures to A
- Mixer selects which sources to send
 - based on its own policy
 - or based on explicit requests from the consumer



Different Approaches

1. Provider (mixer) makes switching decisions, mixer's advertisement has one big capture scene with many MCCs, plus other information about the original source scenes and captures.
2. Same as above, but Consumer (terminal) makes switching decisions (I proposed this on email list, it is not in the draft).
3. Provider (mixer) makes switching decisions, mixer's advertisement has several smaller scenes with spatial information.

Approach 1 – Advertisement to A

- Scene1:
 - CSE1(video): MCC1(VC1,VC4,VC6,VC9,VC10,VC11)
 - MCC2(VC2,VC5,VC7,VC9,VC10,VC11)
 - MCC3(VC3,VC8,VC9,VC10,VC11)
 - MCC4, ... MCC9
 - CSE2(audio): MCC20(*), MCC21(*), MCC22(*) (three loudest)
 - if Adv has these VCs for each MCC, it might as well use Approach 3 with separate scenes
 - MCCs don't have spatial attributes
- Scene2 (B) CSE1: VC1, VC2, VC3
- Scene3 (C) CSE1: VC4, VC5
- Scene4 (D) CSE1: VC6, VC7, VC8
- Scene5 (E) CSE1: VC9
- Scene6 (F) CSE1: VC10
- Scene7 (G) CSE1: VC11
- Consumer picks number of captures it wants to receive

Approach 2 – Advertisement to A

- Advertisement could be the same as Approach 1, or it could be more flexible and allow any VC in each MCC
- Scene1:
 - CSE1: MCC1(*)
 - MCC2(*)
 - MCC3(*)
 - MCC4,MCC5,MCC6,MCC7,MCC8,MCC9
 - MCCs don't have spatial attributes
- Consumer sends Configure messages to select which VC it wants in each MCC, and sends a new message every time it wants a change

Approach 3 – Advertisement to A

- Each scene represents another endpoint, or small group of endpoints
- Capture Scene 1 (current talker, higher priority):
 - CSE1: MCC1(VC1,VC4,VC6,VC9,VC10,VC11)
 - MCC2(VC2,VC5,VC7,VC9,VC10,VC11)
 - MCC3(VC3,VC8,VC9,VC10,VC11)
 - CSE2(audio): MCC20(*), MCC21(*), MCC22(*) (three loudest)
- Capture Scene 2:
 - CSE1: MCC4(VC1,VC4,VC6,VC9,VC10,VC11)
 - MCC5(VC2,VC5,VC7,VC9,VC10,VC11)
 - MCC6(VC3,VC8,VC9,VC10,VC11)
- MCCs do have spatial attributes
- More scenes like the first two, with lower priority
- Could also be done without advertising VC1 – VC11 at all. In that case, MCCs would just be normal VCs I think.

	1 Provider choose, one large scene	2 Consumer choose	3 Provider choose, multiple scenes
Need to use MCC and Adv all VC	Yes	Yes	No, but might want to for other reasons (spatial audio/video relations?)
Need to relate incoming packets to original source MC	Yes, to get original spatial info	Yes, if using audio streams as basis for switching	No, but might want to for other reasons
Consumer needs recent speaker info	No	Yes	No
Disadvantages	Encodings can remap to different rendering area with each switch.		Provider and Consumer make more assumptions about what the other is doing
Advantages		Consumer knows best how to choose, based on it's desired UX	Simpler in terms of protocol messages

Role Attribute

- “Role” is not required by CLUE requirements or use cases
- SIP and XCON event packages already include a <roles> attribute
- Relating role to privileges for managing streams or conference is out of scope for CLUE
- Extensibility of data model allows for addition later, if there is a compelling use case for something additional
- Proposal – remove Role attribute from the framework

#33 security

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