CLUE design meeting discussion points

CLUE/SDP division

CLUE channel

- Captures
- Capture Scenes
- Simultaneous Transmission Sets
- Receiver selection of captures

SDP

- Encodings
- Encoding Group Constraints
- Receiver selection of encodings

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CLUE channel

- Captures
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SDP

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Plan Z

- Initial call-flow design with **no** changes to SDP
- Separate m-line per send/receive stream
- Separate 5-tuple per stream – no multiplexing

Plan Z

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- Required for disaggregated media case
- Allows CLUE call-flow design to be separated from SDP multiplexing design
- Later incorporate new multiplexing syntax

Initial O/A: Offer

```
...
m=video 8000 RTP/AVP 96
a=rtpmap:96 H264/90000
a=fmtp:96 profile-level-id=42e016;max-mbps=108000;max-fs=3600
a=sendrecv
```

Initial offer, single video stream
Interoperable with legacy systems

2nd O/A: Offer

```
…
m=video 8000 RTP/AVP 96
a=rtpmap:96 H264/90000
a=fmtp:96 profile-level-id=42e01e
a=label:label1
a=sendonly
m=video 8002 RTP/AVP 96
a=rtpmap:96 H264/90000
a=fmtp:96 profile-level-id=42e01e
a=label:label2
a=sendonly
m=video 8004 RTP/AVP 96
a=rtpmap:96 H264/90000
a=fmtp:96 profile-level-id=42e01e
a=label:label3
a=sendonly
```

Can send up to three video streams

CLUE Advertisement

Advertisement

- Capture Scene 1
  - Capture 1: Spatial params <left camera>, Encoding Group 1
  - Capture 2: Spatial params <centre camera>, Encoding Group 1
  - Capture 3: Spatial params <right camera>, Encoding Group 1
  - Capture 4: Spatial params <switched>, Encoding Group 1
  - Capture Scene Entry: 1,2,3
  - Capture Scene Entry: 4
- Simultaneous Sets: 1,2,3,4
- Encoding Group 1: label1, label2, label3

Three-camera system
can send all three cameras
OR
can send single, switched stream

3rd O/A: Answer

Negotiate two receive video streams

```
m=video 8000 RTP/AVP 96
a=rtpmap:96 H264/90000
a=fmtp:96 profile-level-id=42e01e
a=label:label1
a=sendonly
m=video 8002 RTP/AVP 96
a=rtpmap:96 H264/90000
a=fmtp:96 profile-level-id=42e01e
a=label:label2
a=sendonly
m=video 8004 RTP/AVP 96
a=rtpmap:96 H264/90000
a=fmtp:96 profile-level-id=42e01e
a=label:label3
a=sendonly
m=video 8006 RTP/AVP 96
a=rtpmap:96 H264/90000
a=fmtp:96 profile-level-id=42e016;max-mbps=108000;max-fs=3600
a=label:foo
a=recvonly
m=video 8008 RTP/AVP 96
a=rtpmap:96 H264/90000
a=fmtp:96 profile-level-id=42e016;max-mbps=108000;max-fs=3600
a=label:bar
a=recvonly
```

CLUE Configure

Configure

- Stream foo: Remote Capture 100
- Stream bar: Remote Capture 101

Associate receive streams with specific far-end captures

What about encoding group constraints?

Encoding Group Constraints
The rationale

- Represents limitations of real-world telepresence systems
- Finite resources means it may not be possible to encode all streams at max resolution
- Hardware limitations mean encoding resources may not be arbitrarily divisible

Encoding Group Constraints
The issues

<No specific codecs>

bandwidth

Encoding Group Constraints
The issues

<No specific codecs>	bandwidth
H264 baseline profile	max-mbps

Encoding Group Constraints
The issues

<No specific codecs>	bandwidth
H264 baseline profile	max-mbps
+ H264 high profile	???
+ H265	?!?!
+ …	