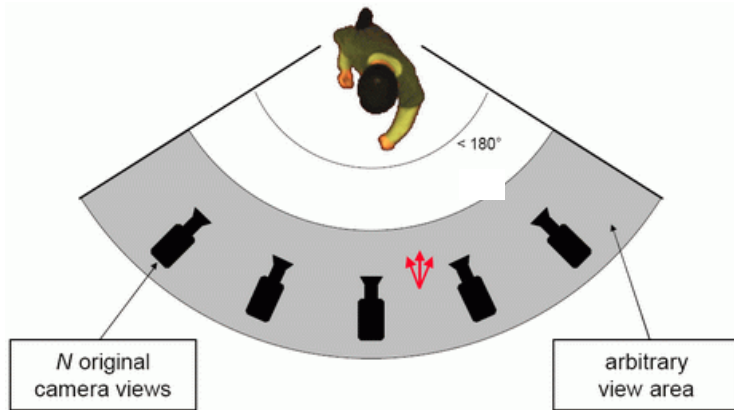


Multi-view Streams in SDP and RTP Sessions

draft-huang-mmusic-multiview-00

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Multi-view Video



- Multi-view video consists of multiple views taken by multiple cameras from different positions and angle.



- Free view-point TV/3D TV

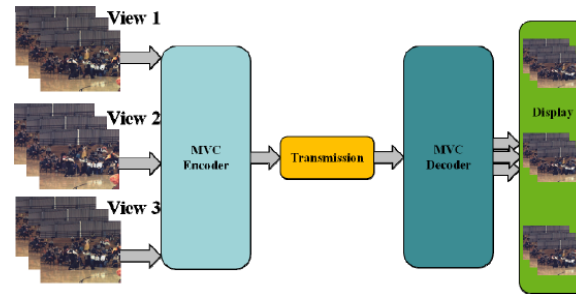
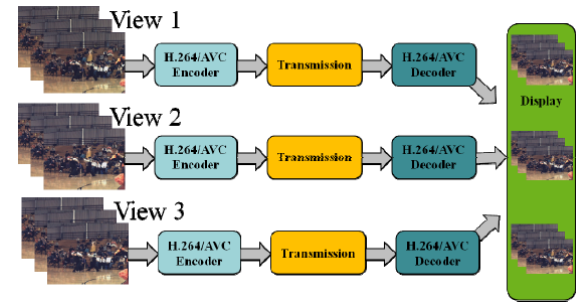


- Multi-view Conferencing

Streaming of such multi-view applications on Internet should be offered at varying speeds and costs over a variety of physical infrastructure.

Multi-view Video Transmission

- Multi-view simulcast
 - ❑ Encode each view and/or depth map independently using a monocular video codec
- Multi-view video compression
 - ❑ Encode all the views using specific technique to decrease the overall bitrate by exploring the inter-view redundancies.
 - ❑ MVC
- Combination transmission
 - ❑ Multi-view simulcast and multi-view video compression may be combined to use in some specific scenarios. E.g., the multi-view video compression technique may work well for closely related views but not for widely differing views.



Related IETF Work

- **RFC5583**
 - Used to signal the usage of SVC or MC.
 - Cannot be used to signal multi-view simulcast, adaptive multi-view transmission and combination transmission.
- **Simulcast [I.d-ietf-mmusic-sdp-simulcast]**
 - Mainly used for the same video source encoded with different video encoder types or image resolutions.
 - Will it consider multi-view transmission case?
- **CLUE**
 - CLUE involves multiple devices like multiple cameras.
 - Currently, 3D or multi-view video is not considered in the CLUE scope.
 - Telepresence is just one use case of multi-view video.
- **3D Signaling**
 - There are 3 expired documents in MMUSIC to propose signaling solution for 3D video.
 - They are out of date and may not be closely to current techniques like simulcast.

SDP Signaling Requirements for Multi-view Video

- REQ-1: It must be possible to signal whether multi-view simulcast or multi-view video compression is used.
- REQ-2: It must be possible to signal adaptive multi-view video transmission.
- REQ-3: It must be possible to signal combination transmission where multi-view video compression is used with simulcast.
- REQ-4: Bundled usage must be considered.
- REQ-5: It must be possible to signal multi-view video related decoder constraints, e.g., maximum number of video streams.
- REQ-6: It must be possible to support both declarative SDP and offer/answer.
- REQ-7: It must be possible to have some ways to allow receivers to ask for required view stream that they want to receive when simulcast is used.
- REQ-8: It must work with other existing mechanisms, e.g., RTP retransmission, FEC.

Discussion

- Is this work interesting enough to work in IETF?
- Proposals for possible solutions are welcomed.
- Welcome reviews and suggestions.

THANK YOU