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Title: MULTIPOINT FOR THE H.261 CODEC

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This document deals with the basic requirements of the H.261 codec when working a multipoint configuration. To facilitate swithed multipoint three signal paths are required:

- Advance Warning of Interruption
- Fast Update Request
- Freeze Picture Release.

Advance Warning of Interruption is used to warn a decoder that its received signal may be interrupted due to a multipoint switch. On receiving this signal a decoder must display a fixed picture for a period of not more than one second, or until a freeze picture release signal is received.

The Fast Update Request signal, when received by a decoder, causes the encoder to code a complete picture in intra mode. This is normally achieved by the transmitter decreasing its buffer state to a very low value and then encoding a complete frame with all blocks coded intra.

Freeze Picture Release is transmitted by the encoder after receiving a fast update request and indicate that a decoder should release the fixed picture envoked by the advance warning of interruption signal.

During a multipoint switch the following sequence of events occur:

An advance warning signal is transmitted to a decoder. The multipoint unit then waits for a period while the decoder freezes its display. The time slots containing video are then cut and reconnected to a new encoder source. A fast update request signal is then sent to the new encoder source. The new encoder source generates a complete encoded picture (in intra mode). The picture header information at the start of the intra-coded picture contains the freeze picture release signal. When this arrives at the decoder, normal decoding is resumed. Thus, during a multipoint switch a viewer will see a moving picture from the first encoder, followed by a momentary picture freeze and then a normal moving picture from the second encoder. The period of picture freeze will be influenced by the bit rate being used.

From a timing point of view, the freeze picture release signal is the most critical. All of the picture data following this signal must be decoded by a decoder and thus freeze picture release must be part of the video multiplex. The other two signals, fast update request and advance warning of interruption need not be performed synchronously with the video. Also, these two signals are derived at the multipoint control unit. It is therefore appropriate to put advance warning of interruption and fast update reqest in the H221 framing structure.

Proposal

Use bit three of "Type One" in the picture start code to indicate freeze picture release. "0" should be used for normal operation. "1" should be used in the picture start code preceeding the intra coded frame.

Include fast update request and advance warning of interruption signals in the H221 framing. This could be achieved by using some of the spare BAS codes.