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ITU Telecommunication and Standardization Sector
Study Group 15
Expert Group for Video Coding and Systems
in ATM and Other Network Environments

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Source: Japan
Title: Integration of video frame asynchronous C&I in DSM-CC
Purpose: Discussion

1. Introduction

ITU-T SG15 Expert Group presented an intended proposal for support of ITU-T Video, Audio and C&I signals in MPEG2 SYSTEM at the previous MPEG meeting (MPEG94/262). The proposal was agreed to have no technical problem at the SYSTEM group discussion but further study was requested to determine whether ITU-T C&I can be integrated to the MPEG2 DSM-CC or not. The Japanese ITU-T members re-examined the necessity of the specific stream_id and reached a conclusion that the allocation of the stream_id is necessary at least for the video frame synchronous C&I signals (AVC-693). As for the video frame asynchronous C&I signals, such as for negotiating a common mode of operation at the start of the communication, the answer is still open. This contribution discusses the possibilities of the integration of the video frame asynchronous C&I and DSM-CC.

2. Consideration

MPEG is currently studying the following two options in parallel (WG11 N0745)but does not distinguish video frame synchronous and asynchronous signals.

* allocate ITU-T specific stream_id and provide separate channel
* include ITU-T C&I signals in the DSM-CC Extension

Firstly, a comparison of the standardization schedule of the C&I and the DSM-CC reveals that a time lag exists between ITU-T standardization schedule concerning H.32X related recommendations ('95 Nov.) and the DSM-CC Extension (ISO/IEC 13818-6) standardization schedule ('95 March CD, '96 July IS). The seriousness of this 8-month time lag needs to be discussed.

If these two options are compared from the users point of view, integration in the DSM-CC Extension seems to be superior in that it would provide greater flexibility for the future use. At the current stage, it is unclear which transmission protocol should be used for the ITU-T C&I transmission, and an approach allowing some flexibility in the transport layer, which is shown in the protocol model of the DSM-CC Extension, is attractive. This flexibility seems to be also suitable for the characteristics of H.32X terminals that they may have many kind of applications for their usage and may be used in various network environments.

Third point is transmission efficiency. It has been pointed out that transmission of small amount of data like C&I signals using PES syntax has a drawback of low transmission efficiency. Use of separate VC may give a solution for this point.

Current DSM-CC PWD seems to concentrate on API description but some negotiation mechanism will also be required between servers and settops in VOD system. Will this mechanism be involved in the coming DSM-CC specification? If the answer is yes, that part will be able to have a common framework with ITU-T C&I, and C&I may become a subset of the DSM-CC Extension.

3. Summary

Integration of the frame asynchronous C&I signal and DSM-CC Extension was examined and the following points to be considered have been raised for discussions.

(1) Standardization timing
(2) Flexibility
(3) Transmission efficiency

Integration of video frame asynchronous ITU-T C&I in DSM-CC will give a generic solution for AV related control signals and it seems that integration have merits in some other points, but it is not clear at this stage what range will the specification of the DSM-CC Extension cover.

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