Telecommunication Standardisation Sector
Study Group 15
Experts Group for ATM Video Coding
(Rapporteur's Group on Part of Q.2/15)

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Title: Proposal for a profile incorporating minimum complexity scalability

Status: Proposal

Background

In the New York joint meeting, the "Next" profile was defined. Put simply, this profile incorporates the features of the "Main" profile, with the addition of 4:2:2 capability and scalability using spatial, temporal and SNR scalability techniques.

While accommodating the identified applications by inclusion of all these features, we have concerns that the inclusion of all these features, which may not be required in a single application, into the one profile may mean that some particular applications may be disadvantaged by its complexity and consequent implementation cost.

Applications for low cost, low complexity, efficient scalability

In particular, we see applications for a simple, efficient scalability function, without necessarily providing backward compatibility (multiple decoding loops) or the extra memory and processing required for 4:2:2.

These include video services delivered over an ATM-based network such as B-ISDN which could benefit from multilayer representation, providing connectivity and trade-offs depending on the terminal or other network to which the bitstreams are delivered. Application areas are broad, and include business video and computer-based multimedia. Efficiency of the layered representations is important in this case, where the transmission cost can be expected to be dependent on bitrate.

Proposed Profile

As a result of these perceived benefits, we believe that an additional profile should be defined. This profile would incorporate the features of the "Main" profile, and would also provide SNR scalability (2 layers) from the "Next" profile. However, it would not include 4:2:2 or spatial scalability.

This proposal is consistent with the "onion skin" model of profile capabilities, filling a gap between "Main" and "Next".

Conclusion

There are potentially important applications that could use H.26X/MPEG-2 video coding, and which are of importance to the ATM Experts Group, but which require only a subset of the features defined in the "Next" profile. There is a risk that development of some of these applications may be discouraged by the lack of a profile that would define an inexpensive solution. To permit their definition in compliance with a well-defined compliance test and encourage their development, we recommend the definition of a minimum scalability profile, incorporating those features currently in "Main", but also allowing 2-layer SNR scalability.