SOURCE : JAPAN

TITLE   : Cell Loss Recovery by Coding Algorithms

PURPOSE : Discussion

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1. Introduction

When the ATM network is congested with traffic, there is a finite
probability of cell loss occurrence. In order to remove the bad influence
of it, two kinds of countermeasures can be provided. One method employs
the transmission coding such as cell interleaving. And the other is
realized by source coding algorithms. However, with relatively high cell
loss rate, it is expected that the trasnmission coding alone is not
sufficient to obtain good picture quality. Therefore, cell loss recovery
by using source coding algorithms has been investigated here.

2. Cell Loss Recovery Method

Various cell loss recovery methods are shown on TABLE with some
expected action items for each of them. Simultaneous adoption of two or
more methods is considered to be possible for getting better results.

3. Conclusion

Coding algorithms for cell loss recovery have been investigated. Upon
fixing the Test Model common to CCITT and MPEG, it is very important
to include necessary elements to cope with cell loss.

TABLE   Cell Loss Recovery Methods and Action Points

Method	Standardization Items	Non-Standardization Items	Study Items
Leaky Prediction	Definition of Leak Factors inside Coding Loop *	Selection of a Leak Factor *	Availability to MC Coding Number of Bits used for Frame Memory
Layered Coding	Adoption of Layered Coding ** Definition of Video Multiplex considering CLP	Bit Allocation to each Layer	Availability to a Mode which does not use CLP
Cyclic Refresh	Definition of Intra Macro Block	Location of Intra Macro Blocks	Relationship between Cell Loss Rate and Cyclic Refresh Period
Demand Refresh	Definition of Intra Macro Block Handshake between Transmitter and Receiver	———	Unit of Refresh (Picture or GOB etc.)
Error Concealment	Protection of principal Informations (such as Motion Vector)	Manners of Decoder	———
Packetization	Definition of Video Multiplex for Packetization	———	Video Multiplex in which one Packet have small Influence on another Packet

*   One example of the Definition is described in   MPEG91/073 "Error Robustness and Leak Factor".

** Pel Split, Spectral Split, Quantization Split and Sub-band Coding etc.