

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

Document AVC-803
July 21 1995

ITU - TSS

Extracted from Temporary Document TD.73 (P)

Study Group 13

Geneva, 10 - 21 July 1995

Questions : 6 / 13

SOURCE : Rapporteur Q.6.1 (K. Yamazaki, KDD Japan)

TITLE : Report of the Q.6.1 meeting

1. General

The Q.6.1 group met for 3 days under the chairmanship of Mr. Katsuyuki Yamazaki (KDD, Japan). The report of the interim Stockholm meeting (TD.4[WP2]) was presented in the WP2/SG13 opening plenary. After discussions and drafting activities, the group produced the frozen text of the draft Recommendation I.363.1 for AAL types 1 and 2, which will be submitted to the Resolution 1 procedure at the next April 1996 meeting.

2. Summary of discussions

2.1 Voice support in ATM

D.728[Ericsson], D.751[Germany], D.752[Germany], D.754[UK], D.777[NTT], D.844[Italy], D.878[USA], D.894[USA], D.848[Spain]

All contributions support to use AAL1 for voice, with the assumption that appropriate mechanisms can minimize delay (introduced in SN counting and CDV handling) at the receiver. The drafting group led by Mr. Helmut Schink (Germany) produced a text on voice support of AAL1. The group also did an excellent work and developed a text on mechanisms of SN counting and CDV handling. Those texts were incorporated into I.363.1. Additional text was also produced for further study, which is attached as Annex A.

2.2 FEC method

The group received a request from the SG15 ATM Video Coding Experts Group (TD.9[WP2, SG15]) on inclusion of an FEC method without an interleaver. Such a method can correct bit errors only, but will not introduce delay of an interleaver. Proposed method utilizes RS codes and the block size of the FEC method with an interleaver already specified in I.363.1. The meeting agreed upon the proposal, and the drafting group led by Mr. Javier Lecuit (Spain) produced a text of I.363.1.

2.3 Other topics

D.849[Spain], D.711[Korea], D.778[NTT], D.685[Germany], D.755[UK], TD.18[WP2], D.847[Indonesia]

Based on the contributions above, the following advancements were made on I.363.1:

- Clarification on CSI processing when it is not used.
- Clarification on use of a primitive with an ATM layer.
- Reference to Recommendation on A-law and μ -law conversion.
- Description on interactions between SAR and CS.
- Clarification on CS protocol and functions.
- Clarification on support of SDH circuit.

3. Liaisons

Taking the resolution of voice issues, a Liaison document was drafted by Mr. Behram Bharucha (USA) and will be sent to SG12, 14 and 15. Another Liaison document on video topic was drafted by Mr. Jean-Yves Cochenec (France) and will be sent to SG9 and 15, and ITU-R SG11. The draft I.363.1 will be attached to the two Liaisons.

ATTACHMENT to the report:

TD. 53[P] : Draft I.363.1

Annex-A : Study point on SN processing [Not included in a PostScript version]

Annex-B : Proposed Liaison on voice issues to ITU-T SG1, 12, 14 and 15

Annex-C : Proposed Liaison on video issues to ITU-T SG9 and 15, and ITU-R SG11

SOURCE : Q.6 / SG13
TITLE : Proposed Liaison to ITU-T SG1, 12, 14 and 15
(for information)
SUBJECT : Voice and voiceband modem signal support in B-ISDN

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1. Voice and voiceband modem signal support

This liaison is being sent to inform you that SG13 has reached agreement on using AAL1 for the support of CBR voiceband signals. The following is a summary of the agreement:

- AAL1 will be used for the support of 64 kbit/s, PCM encoded, Constant Bit Rate voiceband signals (i.e., G.711 voice and modem signals).
- The AAL will support this signal by providing synchronous service (neither SRTS nor adaptive clock method is used) with single octet delineation (pointer is not used).
- All 47 octets of the AAL-PDU payload are used for the voiceband signal from a single source (i.e., cells are completely filled and the ATM virtual circuit supports a single voiceband connection).
- Misinserted cells need not be detected. However, the AAL1 receiver must detect / compensate for lost cells while limiting the de-packetization delay to the nominal value of the Cell Delay Variation. The AAL1 receiver must also accommodate a sudden increase or decrease in the nominal cell transfer delay which might result, for example, from a protection switching event.
- Example receiver techniques using a buffer management, possibly supplemented by an Sequence Number processing algorithm that does not introduce additional delay, are given in Appendix III of the draft Recommendation I.363.1.

2. Draft Recommendation I.363.1

The Q.6.1/SG13 experts group at its July 1995 meeting produced a frozen text of the draft Recommendation I.363.1, the revised version of I.363/1993 version. A copy of I.363.1 is attached to this liaison. I.363.1 is planned to be in Resolution 1 procedures at the SG13 April 1996 meeting.

AAL type 1 protocol aims at having as many common procedures as possible among various types of CBR services in an ATM network. As such, AAL type 1 CS protocol is somewhat of

a tool kit, whereby a specific higher layer needs to choose procedures given in this Recommendation, taking account of required service features (e.g., synchronous or asynchronous transport), required performance (e.g., error and delay characteristics at the AAL service boundary), and anticipated network performance (e.g., cell losses and delay variations).

Section 2.5.1 describes CS functions needed for four layer services, i.e., circuit transport, video signal transport, voiceband signal transport, and high quality audio signal transport. These sections also refer to a specific procedure which is defined in § 2.5.2, where the description of each procedure is independent from CS functions. These four layer services and associated description of required procedures are general and not exhaustive. Appendix II gives informative and example parameters, i.e., a set of procedures and options, for some specific AAL type 1 services. Having this structural description, this Recommendation gives the ground for a generic protocol to support a large number of CBR services.

Attachment : Draft Rec. I.363.1

SOURCE : Q.6 / SG13
TITLE : Proposed Liaison to ITU-T SG9 and 15, and ITU-R SG11
(for information)
SUBJECT : Video signal support in B-ISDN

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1. FEC without an interleaver (specific to SG15)

In the scope of the Q.6.1, SG13 has examined the Liaison coming from the AVC Group of SG15 requesting an FEC without an interleaver in the AAL type 1. This liaison expresses the view that a new FEC method should be included in the AAL type 1 description in addition to the two methods already available which are known under the names of "long interleaver" and "short interleaver".

It is the view of SG13 that it is SG13's responsibility to provide AAL users with the tools they need for their applications. Therefore it has been agreed to include the FEC method proposed by SG15 in Rec. I.363.1.

The main characteristics of this method, which consists of RS codes (128, 124) without octet interleaving, are given in the Liaison from the AVC Group. SG13 confirmed that correction capabilities are up to 2 errored octets in a block of 128 octets, no correction of cell losses being provided.

However, after careful examination of the behavior of the method, SG13 came to the conclusion that in the case where a cell loss would occur, some problems might appear. This is due to the fact that when a cell loss has been detected by the SN, dummy information (i.e., 47 octets) are inserted in data flow in order to maintain bit count integrity. This means that the corresponding block will have at least 47 octets to correct, whereas it is only capable to correct 2 octets. The behavior of RS decoders has to be further examined to check if corrupted blocks will be forwarded to upper layers in that case.

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