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

Document AVC-873
10 January 1996
Version 1

Source: Japan
Title: Terminal protocol identification by B-HLI
Purpose: Discussion & Proposal

---

1. Introduction

This document discusses the objectives and a necessary mechanism to identify the terminal protocol compatibility through the out-band signalling. The focus is a composite terminal which may implement multiple terminal protocols e.g. on a PC or a Work Station.

It also discusses different type of ROTs which need their own identifications. At the Yokosuka meeting, relationship between H.310 ROT/SOT and dedicated VoD terminals (DAVIC STU, server) was discussed to conclude that the latter family needs a terminal protocol identification different from the former because they are not compatible due to different control protocols [1].

An idea of indicating multiple terminal protocols by enumeration is raised and communication with SG11 is proposed.

This document proposes that these should be discussed at the meeting and the outcome should be communicated with SG11.

2. Purpose of compatibility check through the out-band signalling

It is understood from Annex B to Q.2931 that the purpose of compatibility checking using B-HLI is to reject such an incoming call which is clearly incompatible due to different terminal protocols supported by the calling and called terminals.

3. Current status

3.1 Q.2931 definition

Currently, the Q.2931 living document is going to include the following ids [2]:

- H.310 ROT & SOT
- H.310 RAST
- H.321 (H.320 emulation for ATM)
- H.320 (N-ISDN videophone)

This is based on our Kamifukuoka conclusion (January 1995) that the Q.2931 out-band signalling should indicate only essential elements (terminal type and the start up options) [3].

3.2 Elaboration at and after the Yokosuka meeting

As agreed in Yokosuka, however, at least H.310 ROT and H.310 SOT need different codepoints because two ROTs cannot communicate each other thus the call between them should not be established [1]. Another element of possible incompatibility is AAL, hence the full definition of H.310 terminal protocol is raised in the draft H.310 [4].

- H.310 SOT/AAL-1
- H.310 SOT/AAL-5
- H.310 SOT/AAL-1 & AAL-5
- H.310 ROT/AAL-1

- H.310 ROT/AAL-5
- H.310 ROT/AAL-1 & AAL-5
- RAST-P {RAST-P/AAL-1?}
- RAST-P/AAL-5 {RAST-P/AAL-1 & AAL-5?}
- RAST-C/AAL-1 {identical to RAST-P/AAL-1? Useful for gateway operation?}
- RAST-C/AAL-5
- RAST-C/AAL-1 & AAL-5 {identical to RAST-P/AAL-1 & AAL-5? Useful for gateway operation?}

3.3 Consideration of different receiving only terminal protocols

A minimum capability H.310 ROT terminal and

- DAVIC VoD terminal
- VoD terminal conforming to ATMF Specifications
- J.82 receiving terminal

have some elements in common but some other elements specific to each terminal (Table 1), hence they may need different codepoints to avoid clearly incompatible cases.

Table 1 Different receive only terminals

Elements	H.310 ROT	DAVIC STU	VoD terminal to ATMF Spec.	J.82 terminal
Network interface	ATM	ATM or others	ATM	ATM
AAL	AAL1 or AAL5 or both	AAL5	AAL5	AAL1* or AAL5
Communication control protocol	H.245	DSM-CC	?	?
H.222.1 logical channel signalling	Acknowledged procedures	Unacknowledged procedures	Unacknowledged procedures	Unacknowledged procedures
Number of programs in TS	Single	Single	Single	Multiple

*with long interleaver

4. Terminal implementation

One of the H.310 objectives is to achieve service integration on B-ISDN; namely an H.310 should be able to access various type of services, not only conversational but also distributive, retrieval, messaging services. Hence it should be easy to implement e.g. H.310 RAST which can also operate as H.310 ROT or H.310 SOT.

As to the relationship between H.310 ROT and DAVIC STU, we reached the conclusion that "when an H.310 RAST terminal also wants to work in the VoD service environment with SRM in it, it has to support not only H.245 but DSM-CC as well" [5], based on the understanding that both are implemented as software thus supporting both in a terminal is relatively easy.

More generally, judging from Table 1 which shows much similarity among different protocols, it is probable that a physically single terminal would support more than one terminal protocols forming a composite terminal, particularly if they are implemented on a PC or a Work Station.

5. Indication of multiple terminal protocols in B-HLI

5.1 Terminal protocol identification mechanism

Since the composite terminal is believed to be the future direction, we need a terminal protocol identification mechanism beyond the current Q.2931 framework which allows indication of only one protocol in B-HLI.

The following principle is provided for discussion:

1) According to the wish of calling user, the calling terminal indicates ALL terminal protocols expecting that the called terminal will respond if it supports ANY one of them and is willing to respond. For example, if the terminal has capabilities of A (say H.310 RAST), B (say T.120 over ATM), then it can indicate A and B. As this method can not express the wish of being responded only when the called terminal is equipped with both A and B, we need definition of C (=A&B) as a new terminal protocol which indicates the use of A and B simultaneously.

2) According to the wish of called user, the called terminal can program to which calling terminal protocol(s) it will respond. For example, when the terminal supports both A (say H.310 RAST) and B (say T.120 over ATM) terminal protocols, it can respond to either of the calling side indications:

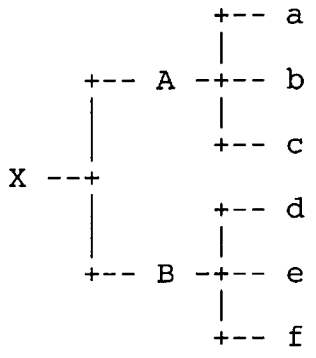
- if A is included
- if B is included
- only if C is included

The choice is left to the user's wish.

5.2 Methods of indicating multiple terminal protocols

To meet the requirement of indicating either one of multiple terminal protocols may respond, there are two methods:

#1: to structure terminal protocol in a hierarchical way



Indicating A means that either of a, b or c may be responded while X means that either of A or B (namely either of a, b, c, d, e, or f) may be responded. This mechanism is necessary if only one information element is conveyed.

#2: to enumerate all

This is a method to list up terminal protocols one by one which can be responded by the remote partner.

Since the first method needs a neat framework from the start and since we can hardly predict the future of multimedia communications, the second method is practical because of its flexibility.

5.3 B-HLI codepoints

The following need separate codepoints:

- H.310 family as listed in Section 3.2 above
- DAVIC STU
- Terminal conforming to ATMF Specifications
- Terminal conforming to J.82 {AAL-1, AAL-5, AAL-1 and AAL-5???}

6. Response from the called terminal

Currently Q.2931 CONNECT message does not include B-HLI. Hence when the calling terminal has indicated multiple terminal protocols, it can not know what terminal protocol the responding terminal has in the out-band signalling.

Do we need such information to facilitate identification of different in-band signalling protocol? Or since the calling terminal indicates whatever terminal protocol the responding terminal should have, the information regarding the actual terminal protocol can be left to the H.245 capability exchange? {This is true if ALL terminals employ H.245 for control.}

If the indication of the responded terminal protocol is required, Q.2931 needs a new mechanism for this purpose.

7. Communication with SG11

In response to the following statement in the SG11 liaison [1]:

"The extensions of the B-HLI for SG 15 terminal protocol indications (and the new information element related to session / correlation Id.s) will be documented within the living document for Q.2931 extensions on a provisional basis, i.e. they may still be changed based on your comments. We would appreciate your view whether this solution complies with your requirements."

the outcome of Ipswich discussion should be communicated with SG11 which will meet January - February in Japan.

8. Conclusion

This document discusses the composite terminal which support multiple terminal protocols and raises a necessity to enumerate supported protocols. Since this requires actions in the definition of B-HLI, communication with SG11 is proposed.

END

References

[1] AVC-854R Report of the twentieth experts group meeting in Yokosuka - 24-27 October 1995 (Rapporteur), 27 October 1995, Section 2.8.5

[2] AVC-806 Proposed liaison response to ITU-T SG15 Q.2/15 (Rapporteur for Q.15/11, B. Petri), 28 July 1995

[3] AVC-743R Report of the eighteenth experts group meeting in Kamifukuoka - 24-27 January 1995 (Rapporteur), 27 January 1995, Section 6.3

[4] AVC-868 Draft Recommendation H.310 revised by WP1/15 (Editor; Hayder Radha) 21 December 1995

[5] AVC-854R Section 2.7.3