ITU Telecommunication Standardization Sector
Study Group 15
Experts Group for Video Coding and Systems
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Title: Identification of H.32X, H.32Y and H.320 at the start of the call
Purpose: Discussion

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1. Introduction

Audiovisual terminals conforming to H.32X, H.32Y and H.320 should be interworkable, but they have different outband and inband signalling procedures. If they can not identify each other at the start of the call, a proper communication mode can not be activated (see Section 8.3 of AVC-707R [1]). This document discusses the mechanism for this purpose.

2. Call setup procedures

Each terminal has the characteristics as shown in Table 1 regarding the call setup and inband negotiation. The column "H.32X in B-ISDN" indicates a B-ISDN proper mode intending to use H.262, H.222.1, etc. and the separate VC solution for H.24X signalling [2] is assumed here. It should be noted, however, that any H.32X terminal is required to behave as an H.32Y terminal when it is operated in the H.32Y interworking mode [3].

Table 1 Call setup and inband negotiation

Items	H.32X in B-ISDN	H.32Y in B-ISDN	H.320 in N-ISDN
Initial call	a channel used for H.24X signalling with peak cell rate equivalent to about 64 (?) kbit/s	a B or H0 or H11/H12 channel	a B or H0 or H11/H12 channel
Call setup message	Q.2931 with AAL5 parameters	Q.2931 circuit transport with/without HLC [4]	Q.931 with/without HLC
Inband negotiation channel	separate VC with AAL5	H.221 BAS	H.221 BAS
Inband negotiation procedures	H.24X	H.242	H.242

3. Interworking

There are nine different combinations of calling terminal and called terminal as shown in Table 2. It should be noted that H.32X and H.32Y terminals accommodated in B-ISDN see an H.320 terminal accommodated in N-ISDN through Interworking Function and vice versa. The question is whether an incoming call is properly responded by the called terminal.

Table 2 Combinations of calling and called terminals

Calling \ Called	H.32X in B-ISDN	H.32Y in B-ISDN	H.320 in N-ISDN
H.32X in B-ISDN	A	B	C
H.32Y in B-ISDN	D	E	F
H.320 in N-ISDN	G	H	I

It is obvious that cases A, E, I should have no problems. Cases F and H are for interworking between H.32Y and H.320. These two terminals are equivalent through the assistance of Interworking Function, thus cases F and H have no problems either.

For cases D and G, where H.32X is called with the circuit emulation corresponding to B or H0 or H11/H12 channel call, the connection should be established because H.32X is required to behave as H.32Y in this interworking mode. In other words, H.32X should be programmed to respond to the circuit transport call with or without indication of audiovisual HLC, in addition to the H.32X proper call.

The remaining cases B and C need a solution. The problem is that H.32X expects the broadband proper mode of operation without knowing the terminal type at the remote end, places the initial call with e.g. about 64 kbit/s peak cell rate and AAL5 for H.24X signalling, then the called terminal or the Interworking Function does not respond due to the incompatible mode of operation. There may be three possible solutions;

1) If the setup message can include two or more modes of operation when an H.32X terminal places a call, H.32X proper mode and H.32Y mode in our case, the problem can be avoided. {Is this function is provided by B-ISDN?}

2) H.32X may be designed to redial in the H.32Y interworking mode after receiving direct or indirect (time-out) indication for the absence of compatible mode. This can be recommended in H.32X. A similar description is included in H.320 for the case of an ISDN visual telephone terminal placing a call to a PSTN telephone terminal.

3) If the calling H.32X knows by some means in advance of placing the call that the remote end is H.32Y or H.320 accommodated in N-ISDN, it can switch to the H.32Y mode of operation and the connection is established. This may be analogous to indicating the distinction of voice and fax numbers in the business card.

4. Conclusion

This document has analyzed the interworking among H.32X, H.32Y and H.320 terminals at the call setup phase of communication. A potential problem is in H.32X placing a call in the broadband proper mode of operation. Three possible solutions are provided for further discussion.

References

[1] AVC-707R "Report of the seventeenth Experts Group meeting in Singapore (1-11 November 1994) - Part I and Part II (Rapporteur)", November 1994
[2] AVC-724 "H.24X channel (Japan)", January 1995
[3] AVC-716 "Draft H.32X (C-C. Li)", November 1994
[4] AVC-717 "Draft H.32Y (H. Radha)", November 1994

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