

Source : NL, UK, F, I, B, S, D
Title : Terminal capability sets for multimedia support
Purpose : Discussion

1 Introduction

Most of the CCITT SGXV WP XV/1, the Experts Group for ATM Video Coding, contributions dealing about the multimedia multiplex method, describe the merits and demerits of the *cell* (VC,VCI) multiplex method, the *SAR* (SAR-PDU, packet) multiplex method, the *message* multiplex method and the *user* multiplex method. Finding a multimedia multiplex method is mainly choosing between flexibility (cell multiplex method) and the capability to interwork with N-ISDN. This contribution makes it clear that there is no good choice, in favour of one of the multimedia multiplex methods. Therefore, two new terms are introduced *capability set 0* and *capability set x*. Capability set 0 stands for the minimum configuration which every H.32x terminal has to offer. Capability set x stands for the maximum configuration which is possible for a H.32x terminal.

2 Flexibility

Recommendation I.374 of SG XVIII/5-3: "Network capabilities to support multimedia services" describes the multimedia application requirements for B-ISDN. Multimedia applications demand a high form of flexibility while setting up a call and during a call. The B-ISDN has the capability to offer this in a flexible way by Virtual Channel Connections (VCCs). For example, during a multimedia session connections and parties have to be added or removed easily on demand. Also, if the different information streams have to be routed along different nodes through the network (for example speech has to be routed along a translation unit), there is a need for using different VCCs for different information types. This is best supported by the cell multimedia multiplex method.

The cell multimedia multiplex method has the possibility to support multimedia applications in a flexible way. The SAR multiplex method and the message multiplex method offer not as much flexibility as the cell multiplex method. For example, when a multimedia information stream has to be changed during a telecommunication session.

For a flexible communication between H.32x terminals the cell multimedia multiplex method is best suited. In the next paragraph the interworking between H.32x terminals and H.320 terminals is discussed.

3 Interworking with N-ISDN

The multimedia multiplex method which enables interworking with N-ISDN must be compatible with the H.221 recommendation. The frame-structure proposed in the H.221 recommendation is a user multiplex method. If H.22x is compatible with H.221, the frame structure is similar for both B-ISDN and N-ISDN. So one major problem for interworking

between VCCs and $2*B + D$ is solved. There are two basic reasons for choosing a user multimedia multiplex method:

- If H.22x enables a user multiplex method for B-ISDN that is compatible with H.221; interworking with N-ISDN is possible in a reasonable manner.
- The flexibility demanded by a one-purpose B-ISDN terminal (e.g. a B-ISDN videophone) is very low. In case of a communication session between H.32x terminals the user multiplex method (H.22x) offers sufficient flexibility.

4 Terminal capability

The H.32x terminals must have the capability to interwork with each other and with H.320 terminals, this purges a decision for one of the above multimedia multiplex methods. This choice however is not necessary. For example not all the H.32x terminals need the flexibility offered by a B-ISDN. The BAS code in the H.22x frame structure will offer enough flexibility for multimedia one-purpose terminals. In figure 1 the **capability set 0** for the H.32x terminals is introduced, which is a subset of the terminal described in AVC 256 R. Every H.32x terminal has to offer at least this capability set 0. The term capability set 0 is justified because H.221 and probably H.22x also offer monomedium communication if necessary. For example the BAS of the H.221 frame structure offers mode 0 force (only audio) in a communication session between videophones.

For interworking with H.320 terminals, H.22x has to be compatible with H.221 to enable the choice of a common frame structure. To visualise this, a small H.221 box is drawn in the H.22x box in figure 1. The VC mux and VC demux in figure 1 just multiplex the user information stream with the signal information stream, they do not offer a cell multimedia multiplex method for several user information streams.

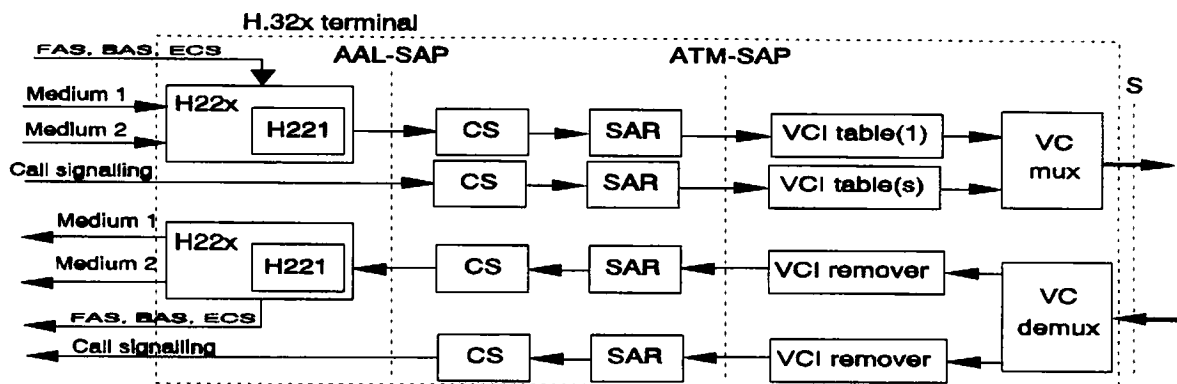


Figure 1 H.32x terminal capability set 0

Within the H.22x frame structure several different information types are captured. Consequently, the information type with the highest demands determines the AAL service type. The AAL type service has to be independent of which information a H.221 frame contains. Hence, the AAL type service which is suitable for every information type has to be chosen. At this moment in standardisation, this would be the AAL type 1 service.

H.32x terminals, which have no preferred use, need as much flexibility as possible. The set of frame structure offered by the BAS is too limited for such terminals. Those terminals have to make use of the VCI method to enable multimedia multiplex method. Hence, the capability

set 0 has to be available to be able to have interworking with an one-purpose multimedia terminal. For some application even the SAR multiplex method and the message multiplex method has to be available. In figure 2 the maximum **capability set x** for a H.32x terminal is introduced, which is described in AVC 256 R. The VC mux and VC demux in this H.32x terminal has to multiplex several user information streams plus the signalling information stream.

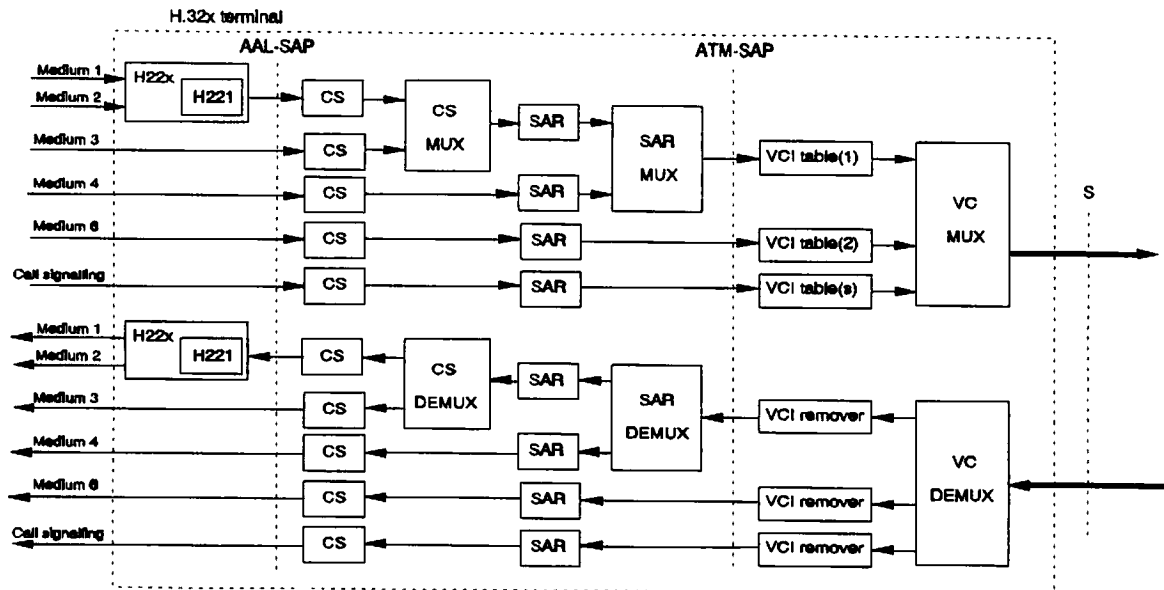


Figure 2 H.32x terminal capability set x

A lot of capability sets are possible between terminal capability set 0 and capability set x. It is important for terminals to exchange their terminal capability, to enable communication at the highest possible common mode. The exchange of terminal capability information has to be carried out by H.24x. H.24x has to be compatible with H.242 for the exchange of terminal capability information between H.32x terminals and H.320 terminals.

5 Conclusion

In this contribution it is explained as a solution that the choice for one multimedia multiplex method has not to be made. For the H.32x terminal a minimal terminal capability set 0 is proposed. The capability set 0 is available on each H.32x terminal. Terminal capability set 0 enables under all conditions interworking between each other and with H.320 terminals and even offers enough flexibility for one-purpose H.32x terminals. A maximum terminal capability set x is introduced for terminals with higher requirements. Terminals with capability set x can make use of the cell multiplex method, the SAR multiplex method and the message multiplex method. A lot of capability sets are possible, between capability set 0 and capability set x, but they all contain the capability set 0.