SOURCE : JAPAN

TITLE   : Interworking of H.32x terminals

PURPOSE : Discussion

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1. Introduction

As discussed in AVC-86, it is recognized that the interworking of the H.32x terminals with the various kinds of service terminals is necessary to achive the integration of video communication services and to realize the effective multipoint system in the B-ISDN environment.

This document describes the methods for interworking of H.32x terminals from the view points of bit stream level compatibility and algorithm level compatibility.

2. Bit stream level compatibility

Existing H.320 terminals can transmit and receive only the coded bit stream according to H.320 (H.261). Then, in the interworking of H.32x terminals with H.320 terminals, bit stream level compatibility is necessary as shown in Fig.1. That applies similarly in case of multipoint communication involving H.320 terminals (Fig.2).
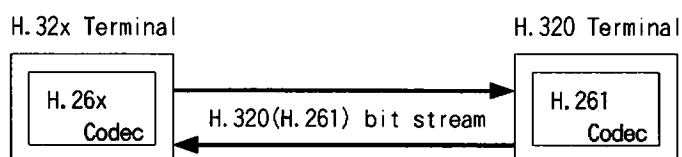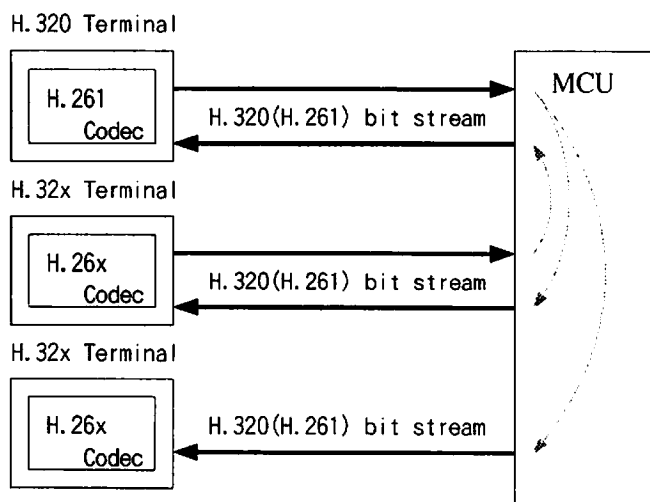

Fig.1 Interworking with H.320 terminal.

Fig.2 Multipoint system including H.320 terminal.

3. Algorithm level compatibility

Video information is considered to be coded according to other standards than H.26x in network database and distributive service center. The coded bit stream may be different from that of H.26x to adopt to each type of service characteristics, even if the compatibility of source coding is guaranteed.

Then, the intercommunication between H.32x terminal and other service terminal is realized only by bit stream conversion in video multiplex coder and/or transmission coder.

(1) Converted at the center (Fig.3)

Network database or distributive service center converts the video information coded and stored in the center to the bit stream which is decodable by the receiving terminal.

In this case, terminal can be simple. However, such conversion process may not always be provided by the center.

(2) Converted at the terminal (Fig.4)

Terminal has multiple video multiplex decoders and/or transmission decoders to receive and decode several kinds of bit streams corresponding to respective service classes. Source decoder is identical and can decode video informations from all service terminals.

In both cases, the unified algorithm makes the interworking easy, since conversion is necessary only in the video multiplex and/or transmission coder. Furthermore, it is obvious that this conversion should be kept as minimum to facilitate the service integration.

4. Negotiation

Appropriate mode of communication is selected by the negotiation between terminals at the beginning of the communication in the conversational service.

Other than the conversational service, for example access to the network database, the return channel from the terminal to the center may be exist for information selection etc. If the conversion of bit stream at the center is possible (see 3.(1) above), the center may select the coding mode for the interworking with the receiving terminal by negotiation using this return channel as shown in Fig.5 (a).

However, in the distributive service, negotiation between the terminal and the center may be impossible, because information is transmitted in only one direction (Fig.5 (b)).
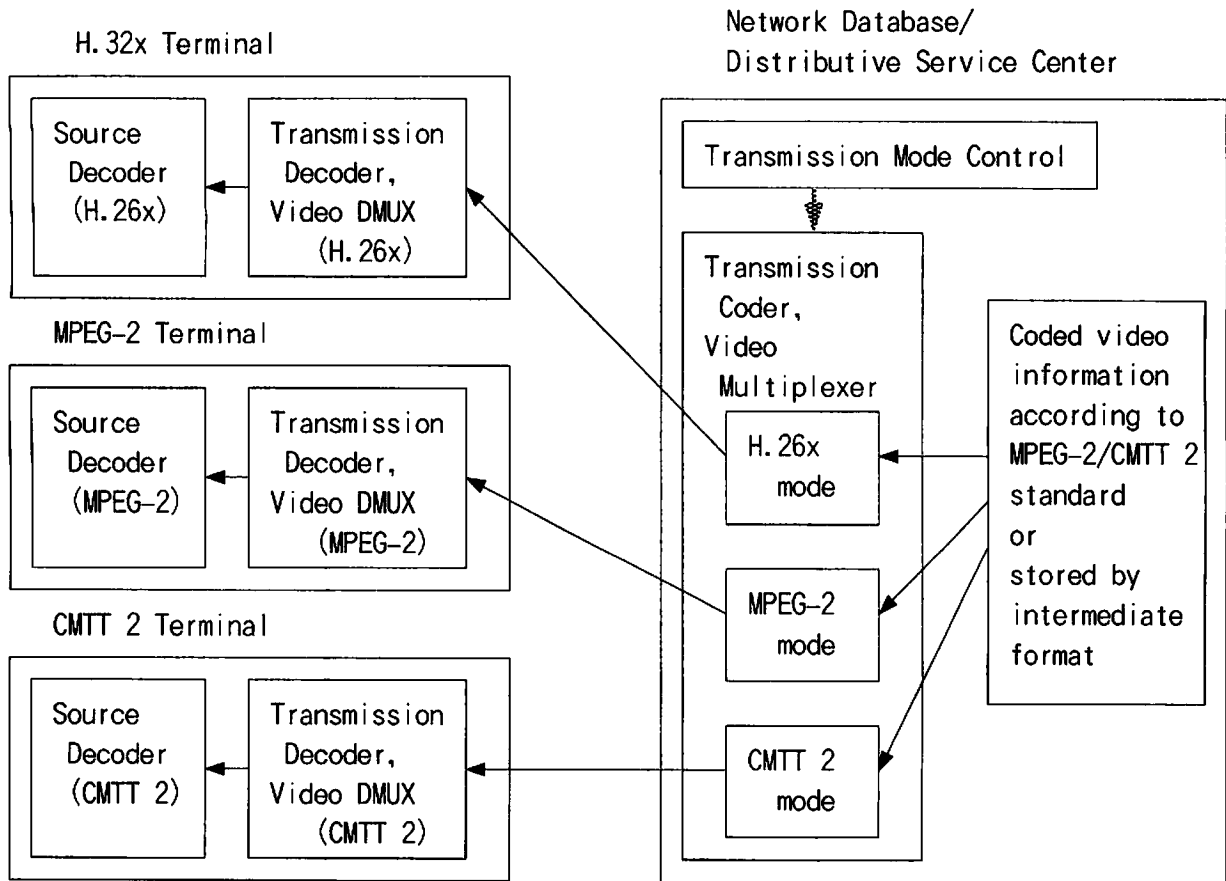
H.32x Terminal

Source Decoder (H.26x) ← Transmission Decoder, Video DMUX (H.26x)

MPEG-2 Terminal

Source Decoder (MPEG-2) ← Transmission Decoder, Video DMUX (MPEG-2)

CMTT 2 Terminal

Source Decoder (CMTT 2) ← Transmission Decoder, Video DMUX (CMTT 2)

Network Database/ Distributive Service Center

Transmission Mode Control

Transmission Coder, Video Multiplexer
- H.26x mode
- MPEG-2 mode
- CMTT 2 mode

Coded video information according to MPEG-2/CMTT 2 standard or stored by intermediate format

Fig.3 Converted at the center.

H.32x Terminal

Decoder Mode Control

Transmission Decoder, Video Demultiplexer
- H.26x mode
- MPEG-2 mode
- CMTT 2 mode

Source Decoder (full set capability)

H.32x Terminal

Transmission Coder, Video MUX (H.26x) ← Source Coder (H.26x)

Network Database/ Distributive Service Center

Transmission Coder, Video MUX (MPEG-2) ← Source Coder (MPEG-2)

Transmission Coder, Video MUX (CMTT 2) ← Source Coder (CMTT 2)
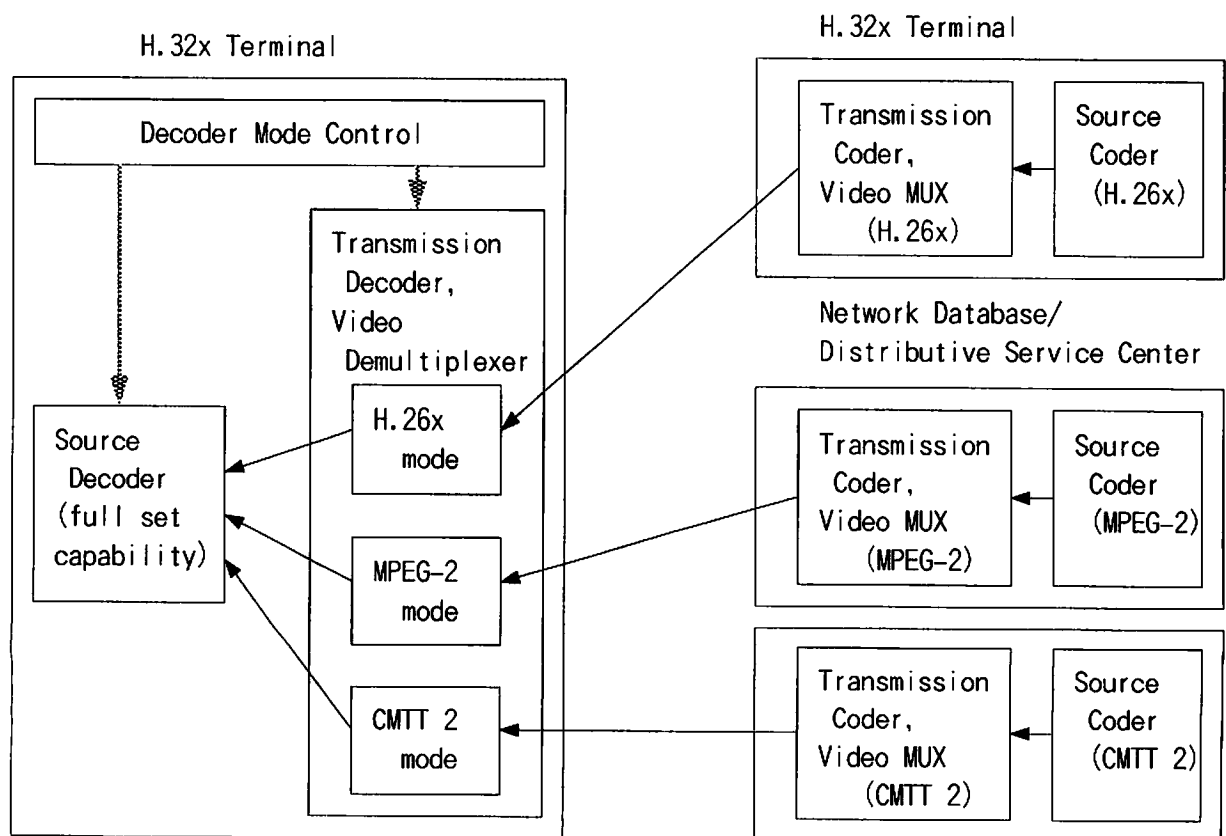
Fig.4 Converted at the receiving terminal.

5. Conclusion

In this document, we have discussed the interworking methods of H.32x terminals with various kinds of terminals from the view points of bit stream level compatibility and algorithm level compatibility. We have pointed out the followings;

- H.32x terminal must have bit stream level compatibility with H.261.
- Conversion between different service classes becomes easier by the unified source coding algorithm.
- This conversion in video multiplex and/or transmission codings should be kept as necessary minimum by proper design.
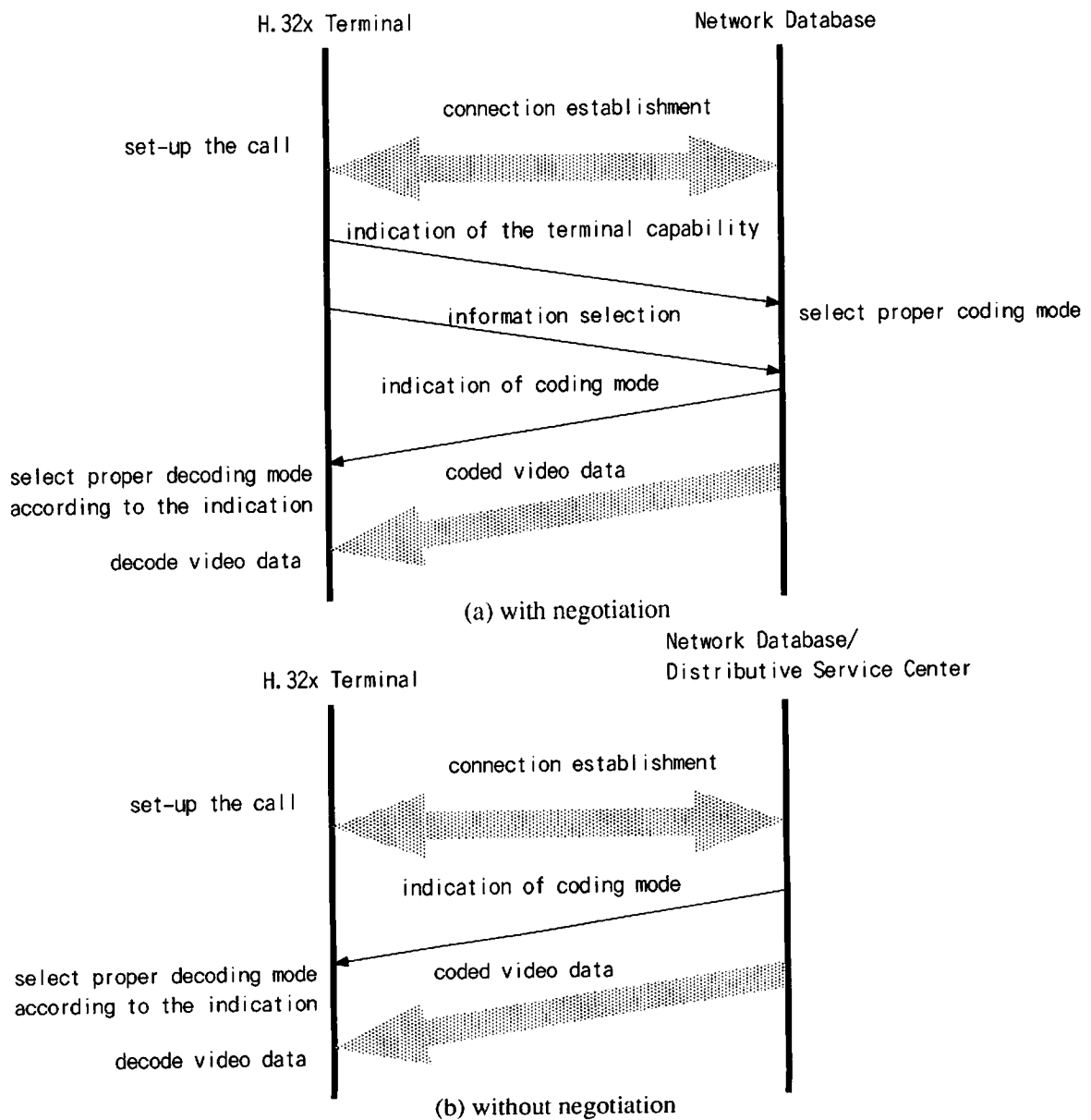
END

(a) with negotiation

(b) without negotiation

Fig.5 Negotiation with the center.

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