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

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Source: RAPPORTEUR FOR Q.3/15 (N. KENYON)
Title: CONSIDERATIONS FOR H.24X - Communication Procedures for Multimedia on ATM
Purpose: DISCUSSION

Scope

The starting point for H.24X is that it should be to H.32X (videophone etc. for ATM) as H.242 is to H.320. However, it may be that when the drafting becomes clearer we will decide to merge the material into H.22X, but for now this is not important.

Building on H.242

Here I give some thought to the contents that might be needed, drawing on the experience of H.242. [NB the codepoints used in H.242 are actually specified in H.221 and H.230, but I do not worry about this detail below.]

H.242 contains, or will contain in the proposed 1995 revision, the procedures listed below, and to these I have added in {brackets} my comments as to what might be similar or not in the new exercise.

1. Declaration of capabilities

An end-point (terminal, MCU, {and shall we say also a server of some kind?}) declares its capabilities to

- accept and aggregate a number of digital connections (including restricted networks, or not), at or up to certain bitrates
- demultiplex into appropriate streams, including 0/1 audio, 0/1 video, 0/1 or more data logical channels
- decode various forms of audio, and/or video (with associated parameters in the H.261 case)
- accept T.120 and/or H.224 protocols (and certain other "applications" we would do better to forget....)

{Is there a case for declaring *capabilities to transmit*?} {Should "negative capabilities" be avoided this time?}

{On the basis that even broadband terminals will not be designed to receive everything the standards provide for (not this century, anyway), capabilities will still be needed in H.24X. Video could start with a minimum of H.261-only; what higher steps should there be? Similar for audio. What about transmission rate ranges - what are the parameters? What about "profiles" - preferably we do not encourage non-interworkable proliferation.}

2. Procedures for selecting an appropriate "mode" of transmission

{The BAS commands themselves - effective from the start of the next submultiframe and until countermanded by an alternative from a set defined in H.242 - are really descriptors of the multiplex; it is not anticipated that they would be needed in the ATM scene, where each cell is identifiable from its header.}

Procedures (now under consideration) whereby the receiving end may express a preference for the mode sent to it. Originally, we said that once a receiver/decoder had declared its capabilities it was the transmitter's choice, within that range, which to use. {But for most circumstances it seems more logical that the receiver (*ergo* user) of the information sent should have first choice; can I assume that the system should provide both options, with some form of sensible default to take the onus away from the poor uncomprehending users most of the time when it is obvious, or doesn't seem to matter ?}

3. Procedures to do with the Phases of a call:

- initiating the session
- procedures preparatory to changing the communication "session" - ending the call, holding or transferring it, etc - especially avoiding apparent fault conditions.

{It would seem sensible to go further than we did in H.320 to integrate the whole set of operations involved, including both "out-band" signalling and "in-band" signalling; there were (are still) many problems for implementers of terminals, having to try to piece together Q.931, Q.939, H.242 and H.320 - we should insist on a unified complete procedure appearing in one place this time! And how to deal with the Supplementary services provided from the network should also be included.}

4. Other matters in H.242

Procedures (suggested) when a real fault occurs, or seems to have occurred.

{Actually, most of the faults mentioned have to do with frame synch and aggregation; what are the likely fault conditions in ATM.}

Dealing with restricted networks. {No comment};

Do's and don'ts of data channel management {can be included with the "selection of transmitted mode" matter listed above}. {The data aspect must be fundamental this time, not an afterthought.}

Communication of network addresses {the additional channel concept will not apply to ATM, so probably this facility will not be needed}.

Other matters not in H.242

H.242 did not specifically deal with multipoint working, but we did put [MCC] in H.320 with multipoint in mind, and when it came to developing MCU procedures we saw that we were rather bound by H.242, on the basis that H.242 included all the tricks we had taught our terminals to do, and we could not *post facto* demand that they do more! {H.24X must bear multipoint in mind.

It is vital that procedures for interworking with ISDN and PSTN multimedia terminals be included, with clear indications as what is/is not mandatory for conformance. Thus H.32Y is also a customer for H.24X.

Physical channel

As secure as necessary (how secure is that, given that multiplex control is not at issue here, as it was in BAS approach)

MPEG-2 multiplex gives a data/control channel; or could use a separate VC - how good/bad an idea is the latter?

Protocol

This is one of the most urgent things to get settled, and the most difficult - assuming that harmonization with several other multimedia initiatives is necessary.

Use ACK-NACK messages as in other disciplines? (Capabilities and commands were simple and efficient, but restrictive, and now harmony across the Information Technology patch is more important.)

Same method as call-control signalling, but a "logical" distinction?

Relationship to C&I for storage/retrieval and other "terminal-server" situations?

Relationship to T.120 protocols, and to other telematic protocols.

Need to provide urgent/priority path as well as a more leisurely one.

High-level / low-level language approach (??).

What has ATM/SA&A to say about this? MPEG-DSM-CC? SG8? Tom, Dick and Harry?

END