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STUDY GROUP XV - CONTRIBUTION

SOURCE: T1Y1 (Proposed U.S. contribution to CCITT)

TITLE: Requirements for m x 56/64 kbps Frame Structures for Visual Telephony

This contribution is provided to the CCITT Specialists Group on Coding for
Visual Telephony which reports to Study Group XV. It is provided to assist
that body and also Study Group XV, Working Party One in evaluating all
contending frame structures against a common set of requirements.

We have listed requirements and priorities for framing structures for m x 56/64
kbps visual telephony, borrowing in part from Document #247 (07 July 1987,
Reference SGXV-L375, Auth: Sakae OKUBO, Chair, Specialists Group). Our
priorities for these recommended requirements are listed as:

> 1. Essential,
> 2. Desirable but not essential,
> 3. Nice if it's convenient.

The recommended requirements are:

1. Interworking with ordinary telephone service and with audio-only
    teleconferencing terminals (e.g., G.722, G.72Y)   (ESSENTIAL)

2. Multimedia capability (Sound, picture, control and indication systems,
    user signaling systems, data); i.e., the ability to interwork with
    stand-alone systems supporting any of the identified features.
                                                              (ESSENTIAL)

3. Adaptability for public switched networks.   (ESSENTIAL)

4. Efficient channel utilization (less overhead, more bits for video).
                                                              (DESIRABLE)

5. Allow dynamic bit allocation for video, audio, and data. Fast bit
    allocation.   (ESSENTIAL)

6. Terminal procedure to allow operation over two ISDN "B" channels (at
    128 kbps) without requiring Time Slot Sequence Integrity to be
    maintained between the two "B" channels. (I.e., does not require time
    or clock synchronization between the B channels within the network.)
                                                              (ESSENTIAL)

7. Provide real time transmission for low bit rate (e.g., 2400 bps) data.
(NICE)

8. Minimize the absolute transmission delay, taking into account processing delays in video CODECS, Forward Error Correcting (FEC), and encryption.
(DESIRABLE)

9. Assure proper operation in the presence of transmission errors.
(ESSENTIAL)

10. Support multipoint working.
(ESSENTIAL)

11. Permit forward compatibility with emerging ISDN recommendations for terminal parameter negotiating.
(ESSENTIAL)

12. Provide for ease of implementation, be relatively inexpensive.
(DESIRABLE)

13. Provide for microprocessor implementation.
(NICE)

14. Provide for flexibility in bit rates; i.e., $m \times 56$ kbps, $m \times 64$ kbps, $m = 1, \ldots, 6$.
(ESSENTIAL)

15. Provide for the terminal to dynamically alter the channel bit rate during a session. I.e., the ability to bid for additional digital bandwidth from transmission networks having the ability to provide same.
(DESIRABLE)

16. Provide for frame structure compatibility between $m = 6$, $m \times 56/64$ kbps and $n = 1$, $n \times 384$ kbps.
(DESIRABLE)

It is not clear at this time whether the present version of DRAFT Recommendation Y.221 is sufficiently robust to satisfy all of the essential requirements identified above. Accordingly we support discussion at the Specialists Group meeting that will evaluate the DRAFT Recommendation against these criteria.