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Introduction

This document contains comments and revisions for the currently published H.323 and H.225.0 as of November 24, 1995. The comments are listed in order of the original documents. It attempts to fill in some missing information, and align some inconsistencies

H.323 Comments

Section 1.3.6 Mixed conference

This section is confusing and adds no information to the H.323 connection models or compatabilities. As each terminal is unaware of the type of connections that other terminals may have in a multipoint conference, it is not necessary to explain this. Recommend to remove this section.

Section 1.3.3 Multipoint Ready

As MC functionality can be located with a Terminal, Gatekeeper, Gateway or MCU the section should be re-worded to add *or gateway* following the reference to gatekeeper.

Section 5.1 Information Streams

The third paragraph, second sentence should state:

Video is transmitted at a rate no greater than that selected as a result of the capability exchange.

Section 5.2.7 Control Channel

Second paragraph, fourth sentence starting with *Note that an MCU, gatekeeper, or gateway may support many connections* should be changed to

Note that an MC, gatekeeper or gateway may....

(I'm not even sure gateway should be in there. A 'gateway' may be considered one 323/32(0,1,4) pair. The fact that a 'box' may support multiple connections might be logically considered multiple gateways. Probably this should be discussed at Ipswich.)

Section 5.2.7.1 Capabilities Exchange

There should be some method by which capability sets can be sent which signify N*this set, where N signifies some arbitrary, and undefined number of channels. In other words, a terminal can signal that it can receive N number of H.261 video streams, whether it chooses to display all of them is up to the manufacturer/configuration. This is especially useful in a multipoint conference where the number of participants may change over time.

Section 5.4 Gatekeeper Characteristics

First bullet should state:

Transport Address Translation - The Gatekeeper shall perform.....

(or the bullet item could be moved to the optional function section)

Under optional functions, the third to last bullet is misleading and should be changed from Network management information data structure to

Gatekeeper management information data structure

Section 5.5

There are initial references to H.243 (SCM) and *using H.245 messages and methods to implement the features found in H.243*. H.243 obviously resides on H.242 within the H.320 environment; it is not clear how H.245 is/should emulate this. The messages or methods should either be explained explicitly, or this section should be removed.

Section 5.5.2

The first sentence, should state:

If the terminals have decentralized multipoint capability, the terminals communicate with the MC in a point-to-point mode on the control channel and data channels only.

Section 5.5.3

This section is generally confusing. It might simply be reworded to reference "Multipoint - with centralized and decentralized media streams" or some such. The capability exchange and call setup for this mode should be clearly explained.

Section 5.5.6

The audio mixing functionality as contained within an RTP 'mixer' should be clearly outlined. At a minimum this section should state that the MP should provide enough information such that all endpoints may retain lip synchronization in the same manner that they might if in a point to point conference.

Section 6

The last sentence in the first paragraph of page 27 states:

If another call is made, there is no need to send the release.

This should be removed. It is not acceptable to re-use the same control channel for a new call. First, the Gatekeeper must perform admission control on each call separately, and secondly there is no clear definition of when a following call is related to a previous one.

The next paragraph states: (this should probably be moved to 7.4.2)

A need also exists for the gatekeeper to be informed of terminals that are turned off, or otherwise enter a failure mode. The gatekeeper may use the SRQ/SRR message sequence (see H.225.0) to poll the terminals on active calls at an interval decided by the manufacturer. The terminal shall respond within 5 minutes, and the polling interval shall be greater than 10 seconds. Note that this message may also be used by a diagnostic device as described in section 10.2.

This changes the previous status model from a *push* (as agreed to in Yokosuka) to a *pull* model. This guarantees inefficiency. The gatekeeper must detect when a call goes away without proper signaling (which will be common on PC platforms). Given this premise, the SRQ message is wasted overhead. The terminal should send an unsolicited SRR. If the gateway determines that it would like to asyncronously determine the state of the call, it may send a SRQ. The recommendation is to therefore amended to state:

A need also exists for the gatekeeper to be informed of terminals that are turned off, or otherwise enter a failure mode. The terminal shall issue a SRR to its gatekeeper (if present) every 5 minutes for the duration of a call. The gatekeeper may use the SRQ/SRR message sequence (see H.225.0) to poll the terminals on active calls at a different interval decided by the manufacturer. Note that this message may also be used by a diagnostic device as described in section 10.2.

Section 6.1 Terminal Addresses

Please refer to a prior document labeled **Intel8** which describes Terminal addresses in detail. Note that the H.323 ID length has been established at 64, although this can be revised.

The optional access code should be standardized so that Gateways, Gatekeepers and Terminals may interact in a standardized manner when requesting call setup. I'm not sure what to do here, but a minimum, there should be some default actions.

Section 6.2 Terminal Registration

Pleas refer to a separate document labeled Intel10 which attempts to clarify this section.

Section 7.1.6.2 Gateway Outbound Call Set-up

The last sentence in the first paragraph should replace Gatekeeper with *terminal.*

Section 7.1.7 Call Setup with an MCU

The first sentence should have MC replace with *MCU.* The last sentence in the second paragraph is not needed. The data channel is opened with the MCS top provider, this may or may not have anything to do with the MP.

Section 7.4.1 Bandwidth Changes

I think that the last two paragraphs in this section are very confusing and overly complicated in their explanation. To simplify I might suggest replacing with the following:

Terminal bandwidth changes shall always be proceeded by a BRQ except in the case of an MC mediated multipoint conference, in which the ***multipointModeIndicate*** *has been issued. In this case, it is assumed that the MC has reserved sufficient bandwidth for all its requests.*

Section 7.4.3.1

In the current two examples, both text sections finish with references to MCS top providers. There does appear to be any technical reason for requiring the MCS and the MC to reside in the same terminal. Other than opening a data channel via H.245 signalling, the coordination between these two stacks has been left to the application. I suggest that both of these be removed.

It should be application dependant to whether a 'call' fails if the MCS or MC fails. There may be instances in which one failure does not necessitate the shutdown of the other.

Intel7 document submitted in November is the model for both of these ad-hoc examples. A third example is needed to complete the functionality for the true 'call anybody' model. The ability for a terminal to call another terminal which is currently involved in another conference has not been provided for as allowed in

Intel7. This can be compared with the invite/join paradigm from the T.120 world. The following text is proposed:

Terminal 3 wishes to call terminal 1; it may or may not know that terminal 1 is in a conference terminal 2.

1) Terminal 1 calls Terminal 2 (CID=0)
2) Terminal 2 sends Terminal 1 the CID=1.
3) Using H.245 master/slave determination procedure, it is determined that Terminal 2 is the master, and hence has the MC. **[note that even if Terminal 1 IS MC capable, only one terminal will be the master]**
4) Terminal 1 and Terminal 2's H.245 control channels may be attached to MC at Terminal 2 now, or when the user initiates the conference function, at the choice of the manufacturer.

(at this point terminal 3 decides to call terminal 1, maybe not knowing that it is already involved in a conference with 2)

5) Terminal 3 sends a Setup for Terminal 1 with (CID=0).
6) Terminal 1 returns a disconnect back to Terminal 3 (because it is not the MC). Contained in the disconnect is information referencing Terminal 2 (the MC) and the CID=1. This allows terminal 3 to *join* the conference by starting at step 1 with CID=1.

(at this point Terminal 3 knows that it will be 'joining' a pre-existing conference)

7) Terminal 3 calls Terminal 2 (CID=1)
8) After the completion of Terminal 2/Terminal 3 call signaling, Terminal 2 attaches Terminal 3's H.245 channel to its MC. .All negotiation of multi-cast vs uni-cast is done on the H.245 plane.

Section 7.4.3.2

Step 4) -- *....the gatekeeper by definition shall always win the master/slave determination process.* This statement mandates that the customer must always have the most capable MC located in the gatekeeper. If an H.320 Gateway was to offer MCU functionality that covered both the H.320 world and the H.323 world, this would be disabled in the above case. The following sentence is not needed; *In the event that the gatekeeper does not have an associated MC, it shall chose the call model of Figure 6B.* The MC is not involved with call setup in therefore it should have no impact on Q.931 signaling.

This section is confusing

Consider again Figure 6A, but as modified by Figure 6D (H.245 channel directly between Terminal 1 and Terminal 2). It is not recommended that gatekeepers choosing to offer ad hoc conferencing operate in this mode. Possible initiation of ad hoc conferencing in this mode is for further study.

I think what is meant is; *if call signaling is handled by the gatekeeper AND the gatekeeper wants to offer ad-hoc conferencing, the gatekeeper should mediate the H.245 stream between the terminals. (as per figure 6C)*

This text should be added:
Ad-hoc conferencing is not precluded by the gatekeeper involvement, as long as MC functionality resides in at least one of the terminals.

Section 7.5.2 Call Clearing with a Gatekeeper

The following sentence should be appended:

In any and all cases involving a Gatekeeper, the terminal will release the bandwidth with the appropriate H.225 message. (should this be a BRQ with 0, or the inadvertently dropped DRQ???)

H.225.0 Comments

Section 1 Scope

The last sentence in the second paragraph has no technical backing and should be struck.

Footnote #2 at the bottom of the page. Rate matching should or should not, be required on all media streams simultaneously. (Using H.245 flow control this seems as though it should be a non-issue in any case.)

Section 3 Definitions

The definition of LAN specifically excludes the transport layer. I think that this is inappropriate given that this specification assumes many functions provided by the transport layer. (It specifically references transports and required functionality in a number of sections) Additionally the term "limited area" is vague.

Section 6.1 General Approach

The last sentence in the 4th paragraph states that:

However, an optional mode can be signaled via H.245 where audio and video are mixed in a single packet.

This should be removed as it is specifically disallowed the RTP Internet draft (additionally it conflicts with section 6.2)

RTP Draft (11/20/95). Section 2.2, first paragraph states:

If both audio and video media are used in a conference, they are transmitted as separate RTP sessions. That is, separate RTP and RTCP packets are transmitted for each medium using two different UDP port pairs and/or multicast addresses. There is no direct coupling at the RTP level between the audio and video sessions, except that a user participationg in both sessions should use the same distinguished (canonical) name in the RTCP packets for both so that sessions can be associated.

The paragraph under the table of ports ends with the sentence *The reliable port shall be kept active throughout the call in either case.* This should be changed from *shall* to *may*, as losing the call setup port should not hang-up an already connected conference.

Section 7.12 PDU Common Parts

A revision field is needed in the H.225 PDUs as these may be utilized independently of the H.245 channel. It is not clear from the editor's comment whether the H.245 mechanism will be used within the H.225 PDUs.

Section 7.17 Status Request Messages

SRQ should include a ConferenceID field.

Fourth paragraph, first sentence - *gateway* should be *MCU*