2010-10-19 Meeting Minutes

Tuesday, October 19, 2010

10:00 AM

**Attendees:** Sakae OKUBO, Paul Jones, Muthu Arul, Parthasarathi R, Youichi TAKASHIMA, Brody Kenrick

We discussed [AMS-0024](http://ftp3.itu.int/av-arch/avc-site/2009-2012/AMS_emeetings/AMS-0024.zip) ("C&I signals and their transport in AMS"). This document served to recap some of the discussions we had in Geneva, as well as to spur further discussion on Control and Indication messages. The three primary areas of consideration are transmission methods, types of messages, and network performance considerations.

Table 1 showed a few C&I messages and the interface over which those messages might be transmitted. Though the "mute" indication signal is traditionally used to advise the remote user that hearing nothing is not due to any system trouble, it was noted that a "mute" function might be implemented locally and result in no messages over Interface A. However, even if that were the case, there would likely be some communication over Interface B between the Container and the applications that are "mutable". It was also noted, as we discussed Table 1, that a "session hold" might result in an indication going over Interface A.

(The point about "mute" raised an interesting question: should some applications register with the Container and indicate whether they are mutable or not? Does pressing "mute" cause more than one application to mute? Are there other kinds of functions, like mute, for which applications might want to register some capability? One example is whether an application is "alertable" or not. As we had discussed in previous meetings, incoming sessions might cause a lamp to illuminate when an alertable application is alerted. A "mute" function has user control associated with it, whereas alerting does not. Perhaps we need to register properties and an indication of whether there is a control element associated with the property?)

We also discussed the fact that user control is associated with each application and that control may be "remotable". So, transmission or control of certain features that result in C&I messages may be through user interfaces that are presented on one device that is controlling another device.

The contributor requested that one person volunteer to write down more details of a particular application (see section 5) to help drive further discussion of how to handle C&I. We don't have a generic solution for C&I at the moment. We may need to consider C&I on an application-by-application basis, but having a generic approach would be simpler.

We then discussed [AMS-0025](http://ftp3.itu.int/av-arch/avc-site/2009-2012/AMS_emeetings/AMS-0025.zip) ("C&I signals in TIP 7.0").

It was noted that TIP is using RTCP as a signaling mechanism. The protocol was selected as a means of avoiding to need to update call control devices. While not all messages are best transmitted over RTCP, it may be appropriate to send some of these signals over RTP or RTCP, especially if the signal is time-sensitive.

It was asked whether a TCP connection (or other "Interface K") be a better choice?

TIP multiplexes video channels over the same RTP port, differentiating streams by SSRC values. A similar approach is taken with audio. For each, there is an RTCP port used.

We need to figure out how to make C&I reliable when they need to be. Not all C&I messages necessarily have to be reliable. A "Video Fast Update" would not have to be reliable, for example, since the delay introduced in trying to get an acknowledgement, timing out, and issuing a new request would render the indication stale and useless.

A separate TCP connection for C&I messages (Interface K) between applications might be ideal. This has the advantages of providing an efficient and reliable interface for the transmission of messages and would go directly between applications, thus not introducing scaling issues that might be inherent in sending C&I messages over Interface A. That said, a TCP connection introduces challenges for NAT/FW devices. In a system where devices might be located on a variety of networks and exist behind different NAT/FW devices, TCP might present challenges.

More discussion is needed to reach a conclusion on the appropriate means of transporting C&I messages.

There was also a discussion on whether AMS signaling in general should be specified over TCP or UDP or both. It was noted that UDP can result in additional complexity in application design to take care of reliability and sequencing. As the message size approaches the MTU it would force the application to switch to TCP, and SIP is facing this problem today. On the other hand, TCP poses additional challenges with NATs/firewalls as noted above.

Contributions related to transport selection and considerations are encouraged.