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The IMTC would like to thank ECMA for requesting our feedback on Ecma's TC38 TG7 Technical Report on "A multi-disciplinary approach to Business Video Conferencing" (Edition 1.1).

After consulting with our members and the relevant IMTC Activity Groups, our SIP Parity and SVC AG provided the following comments:

1. SIP Parity AG

The AG was a bit unclear about what type of videoconferencing systems are in scope. It seems to be H.323 and SIP but it is not clearly mentioned. Would WebRTC also be in scope?

The AG thinks that it is not necessary to mandate the S-CHP video profile and that there is a need to propose a particular harmonized rendering order. The one proposed in ECMA's report is one out of many valid ones and it can easily change during the course of the conference, when active participants become inactive and vice-versa.

It is also not clear to the AG how much multi-stream systems are in scope. Although the table in page 1 includes high-end multi-stream telepresence systems, the issues regarding interoperability between multi- and single-stream systems seem to be uncovered by the document.

For SIP based video conference interworking, it would be valuable to add references to the SIP Parity AG best practices. The SIP Video Profile is already published as IMTC1012 (<http://www.imtc.org/documents/official-documents/>).

2. SVC AG

2.1 SVC and Simulcast Support

The report is centered exclusively on what today's is referred to as "legacy" systems, i.e., systems that feature transcoding MCUs. Recent technical developments have shown that there are technically superior alternatives. Most vendors today support, or have announced that they will support, Scalable Video Coding (H.264 Annex G/SVC), or simulcasting. The new H.265 HEVC standard also features scalability.

Scalability has demonstrated significantly superior error tolerance, low delay, and lower cost. Simulcasting may offer similar benefits. Both represent significant departures from the traditional model. The standardization landscape has not yet settled on how to handle the multi-stream and other requirements that these new architectures bring forward. It is therefore difficult to define today a set of interoperability points between such systems.

In summary, the area is actually experiencing considerable technical evolution, which makes the task of defining interoperability standards more difficult. Regardless, any effort in this direction should take these new architectures into account.

2.2 Profile Selection

The report suggests (p. 13) selecting the Scalable Constrained High Profile (SCHP) as a single profile for high-end telepresence systems, although it does acknowledge that industry consensus is lacking.

We note that support for the SCHP implies that decoders have to be able to support spatial and quality scalability. It is possible, however, to use temporal scalability alone within the context of AVC and obtain some of the benefits of scalable coding. UCI Forum's Mode 1 [1] includes only temporal scalability. The coding requirements for temporal scalability can be satisfied by the Constrained Baseline profile (an AVC, non-scalable profile). This has the added benefit of providing a media stream that is interoperable with AVC-capable endpoints.

2.3 Specific Comments

p. 3: "However, the multi-vendor interoperability is technically a key factor for end-users, because a system will not be a business tool when an end-user wishes (not often but) to hold inter-company conference but the system does not have the capability to interwork with other companies' systems."

There is a growing trend of desktop-based videoconferencing, where users download the client and participate. This is actually developing to be the norm rather than the exception.

In 5.1.1, "Guaranteed Interoperability", point (4) indicates (p. 7):

(4) backward compatibility for wider range of connectivity.

In an area where technology is evolving, this may be the wrong direction, especially since the new technology is proving to be substantially better. One can argue that the mediocre performance of legacy systems has limited BVC penetration. Limiting new designs to legacy operation would similarly limit their penetration.

p. 7: "The well-known solution is by connecting to MCUs and by converting protocols for interworking."

This solution is already challenged by nearly all vendors (SVC and simulcasting designs).

p. 7: 5.1.2, "Simple User Operation", unified operation of telephone systems

The phone system comparison may be unfair because the phone system runs just one application. It also does just one thing.

p. 7: "As end-user-friendly operations, the followings should be also considered"

Regarding single addressing, it should be considered that URL's are easier to handle in desktop systems whereas E164 addresses may be more appropriate for dialling in.

p. 10: 5.3.1, "With viewgraph presentation"

Continuous presence with simultaneous viewgraph presentation is already standard in desktop systems.

p. 10: 5.4, "Secure conferencing" – "In order to promote business video conferencing, a method not to mix video/audio streams at a MCU needs to be developed for multipoint video conference."

Techniques where the MCU does not mix audio and video are already in the market (e.g., Vidyo's VidyoRouter). Even in such cases, however, the server may have to be trusted (i.e., terminate secure connections).

p. 11: 6.1, "Fewer options in standards" – "the technical difference of systems should not be visible to end-users. End-user operation procedure is considered to exclude any procedures resulting from such technical differences."

This may be a poor choice of words – the technical differences of systems are visible to end-users because some systems are better than others. I presume the point here has to do with the user interface. There is a bigger picture here that relates to how interoperability and innovation coexist. The one should not prohibit the other.

p. 12: video coding profile - "As for video conferencing, 7 profiles shown below are feasible, but none of them has been explicitly specified for video conferencing, although BP (Baseline Profile) had been concerned for realtime applications. However, 7 profiles are still too many to implement guaranteed-interoperability for multi-vendor, multi-point, and mixed (latest and legacy products) environment."

Actually the later profiles (introduced in early 2012) incorporate industry experience. This includes CHP, SCBP, and SCHP (which were actually designed by the UCI Forum). The intention is that these new profiles are to be used instead of the original profiles, which were defined before companies had a chance to deploy products.

p. 12: Dual profile operation

It is not clear how dual profile operation is supposed to work. Maybe a more concrete example would help.

p. 23: Power consumption – "F2F conference: Power consumption does not depend on meeting hours."

The power consumption analysis appears slightly superfluous. For example, in a F2F conference there is increased power consumption if the meeting takes place in a meeting room (with full lighting, high power projection screen, etc.).

p. 29: 8 Subjects to be standardized

Standardizing MCU interfaces during a time where MCU's are challenged by media relay devices appears to be misplaced. It may be more interesting to consider – possibly in addition – multi-stream devices that provide media relay functionality and the associated standardization needs.

IMTC is looking forward to continuing our collaboration for multimedia communication standards and interoperability matters.
