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Resources

Stalking Videoconferencing Interoperability

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By Tim Kridel, Special to InfoComm International®

The best videoconferencing endpoint is only as useful as its ability to connect to other videoconferencing endpoints, regardless of what company made them. That should go without saying, but it's often not the case even when enterprise-grade platforms are involved.

Interoperability problems aren't a minor issue. Just the opposite: In customers' eyes, difficulty connecting undermines videoconferencing's value proposition. If the problem is chronic enough that customers limit their spending — say, just to conference rooms and executive suites rather than companywide — it's a lost opportunity for integrators and vendors.

Plus, there's a ripple effect. When organizations don't deploy videoconferencing as extensively as they could because of interoperability issues, there are fewer opportunities for their business partners, suppliers and customers to use video to communicate with them. That can make those companies less inclined to spend on video. In some cases, it could nudge them toward consumer-grade video products such as Skype and Google Hangouts.

And for years, lack of interoperability between major videoconferencing platforms has been a problem. But over the past year or so, the situation has started to change.

Good News, Bad News

First, the good news. Today, when the endpoints and other hardware use standards such as Session Initiation Protocol (SIP) or H.323 (the most recent version of which was approved by the International Telecommunication Union in 2009), things usually go smoothly.

"Typically we see interoperability is pretty good when we're talking about SIP-to-SIP or 323-to-323," says Brad Johnston, chief operating office of Solutionz Conferencing, which sells, designs and integrates conferencing systems.

Perhaps more importantly, Cisco Systems' Telepresence Interoperability Protocol (TIP) is no longer a significant barrier between its conferencing systems and others'.

"Our customers wanted to connect with their partners, suppliers and customers who were using TIP-based rooms, and we obliged by natively supporting the protocol," says Chris Thorson, director of Polycom's product and solutions group. LifeSize and Radvision are among the other major vendors that now support TIP.

"TIP is publicly available for implementation by infrastructure suppliers and competing vendors under a royalty-free, non-exclusive and perpetual license," says Tom Richards, senior product manager of Cisco's Collaboration Technology Group. "Cisco transferred ownership of TIP to the International Multimedia Telecommunications Consortium (IMTC). This opens TIP up to an industry body."

In other words, videoconferencing vendors have heeded your cries and begun opening their systems.

Now the bad news. It took the industry years to get to this point — that's years of largely non-interoperable solution sales. And interoperability still isn't always 100 percent when legacy equipment is involved. For example:

"I have not had many pro-to-pro problems per se," says J. Scott Christianson, owner of Kaleidoscope Videoconferencing. "Probably the biggest has been

with Polycom infrastructure products that are trying to maintain backwards compatibility with their pre-H.239 standard content video.

"[They] will send out non-standard data that Cisco/Tandberg and LifeSize codecs can't understand. Generally this only happens when one of the older Polycom codecs (pre-HDX series) is in the call and the MCU defaults to some type of backward compatibility mode."

Call it growing pains — roughly two decades after the introduction of affordable broadband first gave birth to what we think of as videoconferencing. Though interoperability issues don't always fall squarely on equipment makers.

The WAN Factor

Videoconferences often span multiple wide-area networks, and interoperability between them can also affect performance. To help smooth out network-related issues, vendors and telcos such as AT&T, Polycom and Verizon founded the Open Visual Communications Consortium (OVCC) in October 2011

"When you're interconnecting various service provider networks and conferencing infrastructures, there is a strong dependency on additional network elements which insure interoperability, consistency and reliable service," says John Poole, OVCC Vice President. "That's where OVCC members focus: on the business and network levels.

"Elements such as the session border controller (SBC) manufacturer and model, version of SBC release/code, call control platform, version of call control release/code, etc. all play significant roles in defining what works and can be considered interoperable in a ubiquitous video environment like the OVCC envisions," Poole says.

The OVCC isn't developing protocols or profiles. Instead, it's created an interconnect network to support video over multiple service provider networks.

"Six service providers have already signed agreements based on the OVCC blueprint and are now offering multi-network, multivendor visual communications," Poole says. "The OVCC will continue broadening the scope of the OVCC-compliant service definitions. As market demand for endpoints rises, the OVCC will address the commercial and technical framework required to ensure the seamless operation of these technologies."

Is Unified Communications Divisive?

Other interoperability challenges center on the rise of unified communications (UC) platforms, such as Microsoft's Lync and Cisco's Jabber. UC is popular with enterprises partly because it uses their existing PCs, so they don't have to equip every employee with a specialized video endpoint. As a result, videoconferencing vendors are steadily adding UC support, including through mergers and acquisitions, as in the case of Avaya and Radvision.

"Compare the reluctance to integrate with consumer products [such as Skype] with the rush to integrate with a business class product like Lync," Christianson says. "Lync is not a free service, so one can assume that if a customer has desktop video via Lync, they are not about to purchase your RealPresence or ClearSea solution for the desktop, so that part of the sale is already off the table."

UC and traditional videoconferencing platforms have different architectures, and that's where interoperability issues often arise. Videoconferencing systems employ multipoint control units (MCUs), which field and decode video from multiple endpoints and then mix everything into a composite image that's fed to endpoints. In the process, the MCU adjusts to and resolves differences in endpoint capabilities, such as resolution.

UC operates in a switched environment, where every endpoint sends a video stream to the network, which intelligently routes it to all of the other participating devices. But the network doesn't do any transcoding. So if some participants are on PCs, but one is using a tablet, everyone's experience drops to the lowest common denominator.

Technologies such as scalable video coding help mitigate differences, but the task becomes increasingly complex as the number of participants grows.

"They're complicated, and there's really nothing yet standardized for how to implement those switched environments," says Bob Romano, Radvision vice president of global marketing. "Some people think of those synonymously with scalable video coding, and it's true that most of us are using it to do that. But all of the transport and signaling about how you route this stuff around is not yet standardized and won't be for a bit of time."

In the meantime, vendors are working on their own approaches.

"If you take Vidyo's, Polycom's, Microsoft's, and Avaya's approaches, they're all not interoperable in any way, shape or form," Romano says. "So if you consider that 'pro video,' we now have a whole other completely different protocol and communication paradigm."

And that paradigm could be the future, because UC caters to people who want— or even expect — video to be something they can use any time from anywhere, rather than sending out invitations days in advance and then going to a specially equipped room that has to be reserved. The UC paradigm also could be attractive to people responsible for managing IT and AV systems.

"It's a very attractive approach because it's one system to manage. With a single call control you manage all of the resources, authentications, permissions and everything else," Romano says. "But that's nirvana. We're quite a ways from that."

Another challenge is enabling interoperability between videoconferencing and UC systems. Some vendors use gateways to bridge the two worlds, while

others build native Lync support into their videoconferencing endpoints. "So from a Lync client, I can dial into an RMX bridge and meet any standards-based endpoint in a bridged call," says Solutionz's Johnston.

Which approach — gateways or native support — will wind up becoming the norm? "That's a religious war as to what's best and more scalable," Johnston says.

Trust But Verify

Even as they battle it out, vendors seem to realize that the customer experience can't be collateral damage. That outlook is based on how they ironed out differences such as TIP.

"What most pro platform vendors now realize is that in order for video to be truly ubiquitous, they must put aside legacy bias toward creating separate video islands and embrace the path that so many other industries, such as SIP telephones in the VoIP space, have taken as they matured and grew over the years," says Polycom's Thorson.

Détente or not, integrators must continue to be on the lookout for situations where different vendors' gear won't playing nicely together.

"Trust but verify," Thorson says. "At this stage, most enterprise-class vendors are claiming interoperability, but there are often feature limitations, and the set of actual, supported features can be somewhat basic. In my experience, it's always best to get the gear in labs and into the hands of the integrator's system engineering team to ensure they know what does and doesn't work and ask questions before selling the solution broadly to their customers."