Cisco TelePresence and the Telepresence Interoperability Protocol

Standards such as H.264 and Session Initiation Protocol (SIP) are important enablers of interoperability, but they do not have the additional capabilities needed to meet the demands of multi-screen, multi-streaming telepresence.

To fill that need, Cisco developed the Telepresence Interoperability Protocol (TIP), an innovative solution built upon several Internet Engineering Task Force (IETF) specifications. Cisco then later transferred TIP to the International Multimedia Telecommunications Consortium (IMTC), so it can be openly managed by the industry. Cisco is also one of the founding members of the ControLling mUltiple streams for tElepresence (CLUE) working group within the IETF which is focused on standards for controlling telepresence with multiple streams and extensible functionality.

Q. What capabilities does TIP provide?

A. TIP communicates the spatial relationships needed for multi-screen experiences and multiplexes multiple streams in a way that enables an efficient switching architecture for telepresence. The protocol offers enhanced video mechanism negotiation, such as context-adaptive binary arithmetic coding (CABAC), long-term reference pictures (LTRP), and gradual decoder refresh (GDR). TIP is also designed to make telepresence easier to deploy on customers' existing networks with session border controllers (SBCs) and firewalls.

Q. What devices can implement TIP?

A. Generally, TIP devices are higher-end, high-definition video conferencing devices capable of handling multiple audio and video streams. These devices can include endpoints, multipoint control units (MCUs), or multipoint switches.

Cisco TelePresence® Endpoints, Cisco® TelePresence Server, and the Cisco TelePresence Multipoint Switch support TIP.

Q. What interoperability features can TIP help enable?

A. The following features are expected to be supported by third-party products:

- Mix of triple- and single-screen sessions
- H.264 video up to 1080p
- Spatial AAC-LD and G.722/G.711 audio
- Auto-collaboration and presentation sharing
- Point-to-point and multipoint conferences

Q. Will the Cisco one-button-to-push (OBTP) feature be available on third-party products?

A. At this time, OBTP will not be supported on third-party endpoints.

Q. What is the benefit of TIP to Cisco customers?

A. Customers with TIP devices can integrate those devices into Cisco Unified Communications Manager and have them transparently interoperate with Cisco TelePresence products.

Q. What is the benefit of adopting TIP for video conferencing vendors?

A. In implementing TIP, vendors can:

- Provide the better immersive experience that customers expect from a telepresence experience
- Achieve multi-screen interoperability
- Take advantage of either MCU or switching architectures
- Promote their equipment into Cisco TelePresence and Cisco Unified Communications deployments

Q. How does a video conferencing vendor implement TIP?

A. The TIP license and open source software are both available royalty-free. Cisco has published a quick start page for developers.

Q. How does TIP fit into Cisco's interoperability strategy for telepresence?

A. Cisco TelePresence products already offer interoperability and interworking with standard- and high-definition video conferencing, Cisco WebEx® meeting applications, and other forms of video and collaboration applications. Cisco is expanding telepresence interoperability options through the following industry-leading initiatives:

- Donation of TIP to the IMTC, where industry members can openly steer the TIP specifications
- Launching the TIP open source project so that video conferencing vendors can accelerate their own development
- Publishing interoperability implementation guides for video conferencing vendors to better integrate with Cisco
- Participation in industry events such as SIP it and SuperOp to test interoperability with third-party products
- Addition of native SIP interoperability in point-to-point, single audio, and video stream modes
- Leading the development of new standards for telepresence, including its role as one of the founders of a newly formed IETF workgroup, CLUE, working on specifications for multi-streaming

Q. Who are some of the vendors who are implementing TIP?

A. There are a number of video conferencing and telepresence vendors who are actively engaged in implementing TIP. The International Multimedia Telecommunications Consortium (IMTC) announced successful completion of TIP testing as part of SuperOp! 2011, the premier testing event of the telecommunications industry for multimedia communication standards and products. Vendor results are available online. http://www.imtc.org/imwp/idms/popups/pop_download.asp?contentID=20450.