

WHITE PAPER

Understanding the Spectrum: Videoconferencing to Telepresence Solutions

Sponsored by: Cisco

Jonathan Edwards
May 2010

IDC OPINION

The U.S. military adheres to a series of principles of war that can be found in the U.S. Army Field Manual. One of these principles is called "Economy of Force," which is defined as the ability to "employ all combat power available in the most effective way possible; allocate minimum essential combat power to secondary efforts. Economy of force is the judicious employment and distribution of forces." The goal of this principle is to leverage all U.S. military assets (be they human, machine, or intelligence) in the most effective and scalable way possible. The same can be applied to any business or organization.

Videoconferencing and telepresence in particular give organizations the ability to effectively message and align an entire company. Videoconferencing and telepresence not only help executives communicate critical messaging to employees but also allow organizations to scale critical human capital so that key leaders can be virtually present in multiple locations simultaneously. Even in non-real time, recordings allow employees to view and gather the information they need from their colleagues without disrupting them.

Many companies, especially large, distributed multinational corporations and their partners, have difficulty aligning and allocating the most appropriate resources and enabling them with the most critical intelligence to "defeat the enemy" (aka the competition). Communication in business is like the game of telephone — critical pieces of information are often lost in translation as they move down the hierarchy.

Like it or not, corporatewide communications memos, lengthy emails, and even earnings calls are often overlooked and at best glanced over or listened to while employees multitask. All these forms of communication fail to effectively engage because they lack the ability to communicate emotion, passion, or other nonverbal cues. Large organizations in particular have tremendous difficulties humanizing their leadership teams, which in turn can create feelings of disassociation and isolation among their employees.

Videoconferencing and telepresence are not only for corporate communications and messaging activities. There is opportunity to view and apply them more holistically. For example, video can be leveraged as a means to drive more frequent and fruitful collaboration, training, and communication between employees, partners, and customers (including students and patients). In the future and as present in leading organizations today, videoconferencing and telepresence endpoints will be used for connecting people as well as for video surveillance and digital media delivery. When coupled with touch technology, video will also be used for rich and interactive data delivery and manipulation.

SITUATION OVERVIEW

The Burgeoning Market

The markets for telepresence and videoconferencing are rapidly accelerating worldwide. IDC forecasts that the number of telepresence systems shipped annually will grow from 4,000 in 2009 to over 49,000 in 2014 and will reach a global installed base of 127,000 systems within five years. As the demand builds, market dynamics are changing at a fast pace. Telepresence-enabling technologies are continually improving. High-end high-definition (HD) screens and televisions are being commoditized and IP networks are becoming faster. To tap into this market opportunity, videoconferencing vendors from start-ups to Fortune 100s are attempting to leverage the marketing-friendly term "telepresence" to sell any and all videoconferencing solutions, even at the desktop.

Whether in words, pictures, or even YouTube videos, drawing the line between telepresence and videoconferencing is not an easy task. Generally, to truly appreciate the differences between telepresence and every other form of videoconferencing, people must experience these solutions live for themselves. Because this is not always feasible, this Technical Brief aims to explain the critical differences between these two technologies.

Distinguishing Telepresence from Videoconferencing

What differentiates telepresence from videoconferencing? The key point to understand is that telepresence is a technology that is greater than the sum of its parts; it is not just a simple combination of visual, audio, infrastructure, and networking components that meet certain technical specifications. Telepresence — as the name suggests — is best distinguished from high-end videoconferencing by the near lifelike experience it creates.

IDC considers certain technical specifications to be requirements for the delivery of telepresence that distinguish the technology from the majority of videoconferencing systems. These specifications include:

- ☒ HD video of at least 720p (1080p should be standard, but telepresence systems that can adjust to 720p to avoid audio and visual latency are still considered.)
- ☒ Video delivery should be 30–60 frames per second (fps) or higher, providing near-zero latency and full band audio with echo cancellation capabilities.
- ☒ Most importantly, systems should be architected in such a way that the participants can sense the spatial relativity of their counterparts on the other screen(s). For example, this can be accomplished when the speakers are positioned to deliver the audio from the specific person speaking relative to where they are positioned on the screen.

Other key items to consider are:

- ☒ Telepresence is not a conference room–setting only technology and does not require that a system deliver multipoint capabilities or be multiscreen.
- ☒ The key differentiator between telepresence and videoconferencing is a feeling, and it therefore becomes difficult to explain to those who have not experienced it.
- ☒ Telepresence can no longer be considered inside a telepresence-only vacuum. The maximum benefits of the technology are realized only when these high-end systems integrate with all other forms of video and audio communication on both fixed and mobile device types.
- ☒ Cross-vendor equipment interoperability is a critical next step to driving telepresence adoption as well as customer value received. This includes not only cross-vendor telepresence-to-telepresence interoperability but also cross-vendor telepresence to videoconferencing as well as telepresence to audio and Web conferencing equipment and services.
- ☒ IDC expects the number of applications telepresence technology is brought to (e.g., telehealth) in the next three to five years to be primary revenue drivers for telepresence providers. Application/vertical-specific solutions will have more tangible applicability.

FUTURE OUTLOOK

Moving Beyond Distinction

For end users (or IT enablers) of video and telepresence for conferencing, communication, and collaboration needs, moving beyond this distinction is critical because the need to apply Metcalfe's law (which states that the value of a telecommunications network is proportional to the square of the number of connected users of the system) to video dramatically increases the value of these systems. Therefore, while drawing the line is important from an educational standpoint, blurring the line is the key to driving adoption and ROI. When telepresence systems can talk to non-telepresence dedicated videoconferencing systems, desktops and laptops, video-enabled IP phones and mobile devices, as well as non-video-equipped devices for audio-only participation, videoconferencing and telepresence investments become infinitely more valuable. When telepresence is fluidly integrated with unified communications and collaboration environments as well as with end-to-end video endpoints from Webcam to high-end telepresence rooms, collaboration is truly enabled and not disabled by the limitations of time and distance.

Another point to consider is the perception of telepresence in the market today, which is typically the boardroom, roundtable environment that allows for multipoint (more than two locations) meetings to be held. This perception will fade over time — it is only a matter of how fast. While IDC expects the conference room to continue to be the primary application setting for telepresence over the next five years, applications such as virtual kiosks, interactive help desks, and virtual doctor-patient visits will gradually become mainstream and expectations will broaden. Because telepresence is not defined by an application or a setting, distinguishing it from videoconferencing will become clearer when it is brought to these applications.

The underlying point to all of this is that while we can and do distinguish telepresence from videoconferencing, all visual communications and collaboration tools will rapidly improve over the next decade and will increasingly become an integral piece of personal and business technology environments. While HD videoconferencing at the desktop, for example, has some of the same benefits as telepresence, it also has unique benefits that telepresence cannot offer (e.g., ad hoc video collaboration on your laptop, netbook, or Apple iPad over a wireless network connection in Central Park, New York). Given the rapidly evolving world of work in terms of the places we work, the time of day we work, and the people we need to work with to do our jobs best, video collaboration across different devices, platforms, and networks has to become more seamless in the ways telephony has. While this will take time, different device types and settings have advantages over others (e.g., the mobile phone while in transit versus an echo cancellation-enabled speakerphone for a large conference room), which in turn make each device type more valuable when true any-to-any video collaboration is enabled.

CHALLENGES/OPPORTUNITIES

Challenge: Enterprise Network, Access Network, and Client Capabilities

One of the most significant impediments to videoconferencing and telepresence adoption is bandwidth. Poor user experiences due to a number of network- and client-driven variables have plagued the perception of videoconferencing for decades. Interviews with a major IT systems integrator/consultancy indicated that on average, every \$1 spent on videoconferencing requires roughly \$3 on network upgrades. In comparison, every \$1 spent on IP telephony requires \$0.80 on network upgrades, a much cheaper option.

Challenge: Video Lacks Telephony-Like Standards

The telecommunications network of videoconferencing and telepresence endpoints and services lacks the telephony-like standards that guarantee interoperability in multivendor and cross-network instances. If you were to buy a RIM BlackBerry device that runs over AT&T's wireless network and could only call/SMS/email users with BlackBerrys running over AT&T's network, how valuable would that device actually be? More importantly, how much value would be lost?

Opportunity: Rich Data Collaboration via Video/Telepresence Endpoints

While telepresence room deployments can and in many cases do have dedicated screens for applications and file sharing, the opportunities for dynamic content sharing and manipulation are vast when you combine multitouch and voice activated functionality with hooks into enterprise databases. Communications — visual, audio, or messaging driven — and data collaboration must become indistinguishable. Furthermore, the immersive nature of telepresence and high-resolution imaging will stimulate more engaging and thought-provoking meetings — be they with internal employees, partners, customers, or the general public.

Opportunity: Expanding the Scope and Application of Telepresence Beyond Conferencing

Cisco not only has been a leader and primary catalyst of the telepresence marketplace since going to market in 2006 but also has led the charge of bringing telepresence technology to new settings and applications. In 2010 Cisco rolled out applications that include Classroom of the Future, Remote Demonstration Center, and Active Collaboration Room.

However, this is only the tip of the iceberg, and we will gradually see people brought to numerous locations simultaneously via telepresence scaling businesses and human capital. For example, unique niche experts can be brought virtually via telepresence to serve unique customer needs at a remote customer site or at the customer's home over HD television. New business models will be created because of telepresence alone, and customer service will be brought to levels never imagined. The opportunity is identifying and bringing telepresence to those applications and working with customers to identify unique opportunities enabled via telepresence.

CONCLUSION

Enterprise videoconferencing has been through a number of hype cycles over the past few decades and has failed to become culturally integrated into the fabric of business processes and communications. IDC believes the slow adoption is due to the fact that only recently have the technologies delivered to end users' expectations — that is, experiences worthy of initiating a videoconference over a phone call or conducting business across locations that in the past required travel.

The current generation of videoconferencing is epitomized by telepresence, and this technology has fundamentally changed the ways businesses view the communication and collaboration tool. While still in their infancy, the networks and audio and visual components required to deliver such experiences have finally arrived. The integration of telepresence with legacy and current videoconferencing systems is crucial, as only then can video become the secret sauce that unifies an entire distributed organization.

Copyright Notice

External Publication of IDC Information and Data — Any IDC information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate IDC Vice President or Country Manager. A draft of the proposed document should accompany any such request. IDC reserves the right to deny approval of external usage for any reason.

Copyright 2010 IDC. Reproduction without written permission is completely forbidden.