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Videoconferencing

New Technologies Hold Promise to Revolutionise e-Health

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The convergence of voice and images has long been a Holy Grail of the IT and telecoms industry. So far, a swathe of initiatives have led to a hotchpotch of mixed results. True-blue, real-time videoconferencing, to many critics, remained as elusive a goal as the paperless office. There was a chasm between the 'virtual', plastic-like feel of available videoconferencing technologies, and the face-to-face encounters of the real world.

Beauty, for Shakespeare, may have been in the eyes of the beholder, but for business, the best indicator of someone's real thoughts lie in the eyes, the raised eyebrows, the forehead furrows and sweat of the 'beheld'. Indeed, some studies suggest that as much as 60% of interpersonal communications in business is non-verbal.

Drivers of Change

For a variety of reasons, videoconferencing technologies may now be turning a corner. The motors driving such a process on this current lap are varied.

They range from the longstanding imperatives of efficiency (less waste of time and costs in travel) through environment politics (reduced travel = lower CO2 load and risks of global warming) to the personal (work-life balance). Meanwhile, the relentless march of technology, of course, underscores the difference in new videoconferencing offerings, as compared to their predecessors.

The impact of today's state-of-the-art in videoconferencing technologies will be sweeping – from business negotiations and boardroom meetings, to job inteviews, sales pitches, briefings for shareholders and analysts, and more, much more. They will also couple directly into – and reinforce - parallel processes of technosocietal evolution in areas such as electronic payments, online catalogues and consumer choice, and eventually, with direct democracy. Indeed, from the US to Australia, experiments are under way to enable citizens vote via the Internet on day-to-day issues of concern.

Healthcare: Poor Quality Videoconferencing Limits e-Health

Needless to say, the implications in the area of healthcare will be equally profound. Poor-quality videoconferencing has long been the bane of the key telemedicine component of e-Health. After all, one of the central planks in the latter consist of a reduction in costs (including opportunity costs) of travel by patients and physicians to one another, along with an assault on the overhead in coordinating interdisciplinary meetings between medical specialists – even within the premises of the same hospital.

From Incremental Refinements to Paradigm Shifts

Fundamentally, there are two processes which are revolutionising videoconferencing. The first is incremental, and involves refinements to existing desktop videoconferencing capabilities. One instance of this is EyeCatcher 3.5, a new desktop videophone from Anglo-Dutch GreenEyes which is held up as a highly cost-effective system to achieve real-time 'eye-toeye' communication. The company has targeted the disjunction (referred to above as the 'virtual, plastic feel') of available videoconferencing systems, by which a viewer is not always looking at the camera, but at the image of his or her interlocutor– at the other end. A direct parallel here, in the opinion of this author, would be the echo plus time intervals in long distance telephone communications in the 1980s. The solution offered by GreenEyes is simple but ingenuous. It reflects the image of the called party on to a mirror screen, behind which the lens of the camera is positioned at eye-height. The second revolution is more profound and structural, and promises to bring about a paradigm shift in the entire landscape of videoconferencing applications. New generation systems like Cisco's Telepresence are built on state-of-the-art H.264 video codecs (also known as MPEG-4 Part 10), which offer high quality and low bit rates, near imperceptibly low-latency architecture and bandwidth utilisation, AAC-LD (advanced audio coding with low delay), and multi-channel spatial audio with echo cancellation and directional filters, as well as filters to eliminate feedback from mobile devices. Alongside, highly optimised, proprietary voice and audio conditioning provides a sophisticated user experience.

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Telepresence: Conferencing Sans Frontieres

Cisco System's Telepresence was launched in autumn 2006 and provides ultra high-definition video (1080p, or 1,920 x

1,080 progressive scanning pixels) plus spatial audio. The configuration links physically separated facilities to resemble a single conference room – even if they are located in different continents. Cisco Telepresence offerings range from the single unit 1000 (priced at about $80,000) to the flagship three-screen 3000 system (price tag $300,000).Telepresence requires 5-10 Mb/sec per screen for 1080p, but can step down to 1Mb/sec for 720p per screen, a resolution on par with lower-quality videoconferencing.

The Telepresence suite is bundled with IP telephony and industry-standard groupware for scheduling, management, reporting, billing, and metrics applications. Cisco also provides real-time support services. According to industry sources, about 150 Telepresence installations were live at the end of 2007, with a significant chunk of this accounted for by Regus, the offices-for-hire major. Cisco, on its part, plans to put its money where its mouth is by deploying Telepresence for its global operations and save at least 20 percent in travel costs; (in October 2007, Cisco's Chief Executive announced a tripling in its Indian staff to 10,000 by 2010).

According to an IDG News report in mid-2007, Cisco seeks to take TelePresence from the boardroom to consumer living rooms within two or three years for about $1,000.

Hullo, Halo

Cisco's closest rival is HP. HP's Halo system was launched in 2004, before Cisco's Telepresence and received widespread attention for improving the quality and real-world feel of videoconferencing.

Halo was, in fact, developed by an HP partner, the film and animation company DreamWorks – partly because existing

videoconferencing techniques were incapable of handling the details required by 3D animation. HP later took control to adapt and develop Halo for the corporate market. One key difference vis-à-vis Cisco is that HP Halo runs over a proprietary overlay network.

Others in the Running, Too

Other videoconferencing players, too, are in the running. These include older hands in the videoconferencing game, such as the British-American firm Teliris, whose offerings shot dramatically into the spotlight after the September 11, 2001, terror attacks, when scores of global corporations used videoconferencing to avoid air travel. It offerings, previously known as GlobalTable have been rebaptised as VirtuaLive, and delivers 60 frames per second – twice that of

its competitors. Teliris services are offered through its own proprietary network, InfiNet, or via a customer WAN. Teleris' VirtuaLive has also been a pathbreaker in being the first to permit point-to-multipoint meetings.

Like Teliris, another old hand in videoconferencing, Polycom, is also in the fray. The company has augmented its high-end desktop offerings with a Telepresence- like solution known as RealPresence Experience (RPX) – with 720p resolution and 30 frames per second broadcast capability. RPX was developed by a company called Destiny Conferencing, which Polycom acquired in January 2007, for about $50 million.

While large players such as Cisco and HP hope to eventually use the Metcalfe Law (an exponential increase in the value of an expanding network) to attain a mass market presence, Polycom' s strategy is to push its strength as offering the most complete portfolio in videoconferencing infrastructure - from desktops through small bridges up to RPX.

Peek into the Future

The current crop of emerging videoconferencing technologies are expected to eventually pace the way to 3-D holographic displays – an imaging technique which deploys laser beams to replicate images on glass plates.

On exposure to light, what is created is a 3-D image in air. One can only imagine the possibilities this will open up – in healthcare and beyond.

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