View from the Top: Video telephony

August 10 2005

Most people living today do not remember a time before radio, television, and telephones. High school students cannot recall a time before personal computers, and kids entering first grade this September will not remember a time before mobile phones.

In a few years, people will be hard-pressed to remember the era before "video telephony" -- industry jargon for what most people refer to as video phone calls.

Indeed, we are on the cusp of a radical transformation in how people communicate; a revolution decades in the making, yet poised to sweep the world in the very near future.

Video telephony is the ultimate friends-and-family plan. It connects people face to face, over any distance, to share milestones and precious moments. Imagine grandparents in Florida seeing and talking to their newborn grandchild in California -- in real time, at eye level and with lifelike clarity -- all without leaving their living room.

In this age of e-mail, instant and text messaging, video telephony shares the personal nuances that only come from experiencing face-to-face communications. Inflections, expressions, and other non-verbal cues that are lost in cyberspace are preserved with video telephony, helping reconnect people during life's important moments.

The concept of video telephony has been around for more than 50 years, but only recently has it come to fruition. The basic technology required

to transmit images and sound over the global communications network was feasible, but the infrastructure required to support practical video telephony was inadequate.

Now, a technology trifecta has made video telephony not only possible, but affordable and practical. First, the sweeping availability of broadband digital networks allows people to send massive amounts of information in real time.

Second, computer processing power has doubled every 18 months for the past 40 years, while processing costs fell to near commodity prices, and component size shrunk. Computers that once filled rooms can now fit inside a mobile phone.

A $400 handheld computer sold in 2005 is roughly 1,000 times more powerful than a $5,000 desktop PC sold in 1981. If automobile technology had advanced at the same rate, a new car would cost $10 and deliver 1,000 miles to the gallon.

Last, the ability to compress (make smaller) and decompress (return to original size) video and audio data -- in real time, with perfect synchronization, over present-day broadband networks using low-cost computer chips -- only recently became a reality.

The technology that does the compression and decompression of data is called a "codec," for COmpressor/DECompressor. Highly efficient codecs are a crucial link in the video telephony chain. Without them, real-time video telephony would simply not be feasible.

Yet, with all these technologies in place, video telephony is not without challenges. One of the biggest is the need for greater broadband network bandwidth (that is, speed plus capacity), as people around the globe flock to adopt video phones as their main communications tool.

As more and more people depend on the Internet for sharing documents, photos, videos, software, and multimedia content, the Internet will naturally slow to a crawl unless bandwidth continues to expand.

That is precisely why the major telephone and cable companies are now deploying faster, higher capacity broadband networks. It will be an ongoing, symbiotic process: the need for bandwidth will drive deployment of higher capacity networks, which will enable even more bandwidth-demanding applications, which will catalyze further bandwidth upgrades, and so on.

The move to video phones is inevitable, but it could take a few years for the technology to reach critical mass. The initial adoption hurdle -- a classic chicken-or-egg problem -- must be overcome. Owning a video phone is pointless if nobody else has one.

Early adopters will jump in first, and purchase video phones for a small group of friends, family, or business associates. They will be the Johnny Appleseeds of the video phone era, seeding the market, and pushing it towards the tipping point of mass adoption.

It is a process that occurred with the original telephone in the early part of the 20th century, with the personal computer in the 1980s, and again with the Internet in the 1990s. Next up: video phones.

As dozens, then hundreds, then thousands of people experience the low-cost, high impact pleasure of face-to-face video communications, adoption momentum will expand exponentially. It will be a slow process at first, but incredibly rapid once underway. Communications again will be revolutionized.

I will see you soon -- literally -- on the other end of the line.

Citation: View from the Top: Video telephony (2005, August 10) retrieved 26 April 2024 from https://phys.org/news/2005-08-view-video-telephony.html