

# Video Telephony: Opportunities and Offerings in the New Video Age



## Executive Summary

A new model for video usage is emerging that is mainstream, user-oriented, ad hoc, on demand, desktop-based, and integrated into the daily workflow. Video telephony provides desktop video devices the same call control functionality usually found in voice telephony solutions, including call transfer, call hold, call forward, mute, and conference. Because video telephony integrates into the voice telephony infrastructure and network, placing a call with video becomes as easy and reliable as making a phone call.

Video telephony is very different from group videoconferencing, and we explain these distinctions. We describe the technology and market forces that are combining to drive wide scale video telephony adoption by enterprises and consumers. We describe how video telephony is deployed using telephony platforms like that from BroadSoft, and we provide a glimpse into new products and services offerings that video telephony makes possible.

## Introduction

*People will change their habits quickly when they have a strong reason to do so, and people have an innate urge to connect with other people... And when you give people a new way to connect with other people, they will punch through any technical barrier, they will learn new languages...people are wired to want to connect with other people and they find it objectionable not to be able to.*

*Thomas L. Freedman, "The World is Flat"<sup>1</sup>*

To satisfy the innate need people have to connect with other people, a new kind of communications paradigm is emerging based around the concept of unified communications. A unified communications system typically consists of a telephony system along with presence and instant messaging, unified messaging, voice conferencing, web collaboration, and video capability, all available from within a common, congruent interface or as an embedded functionality within some type of workflow application.

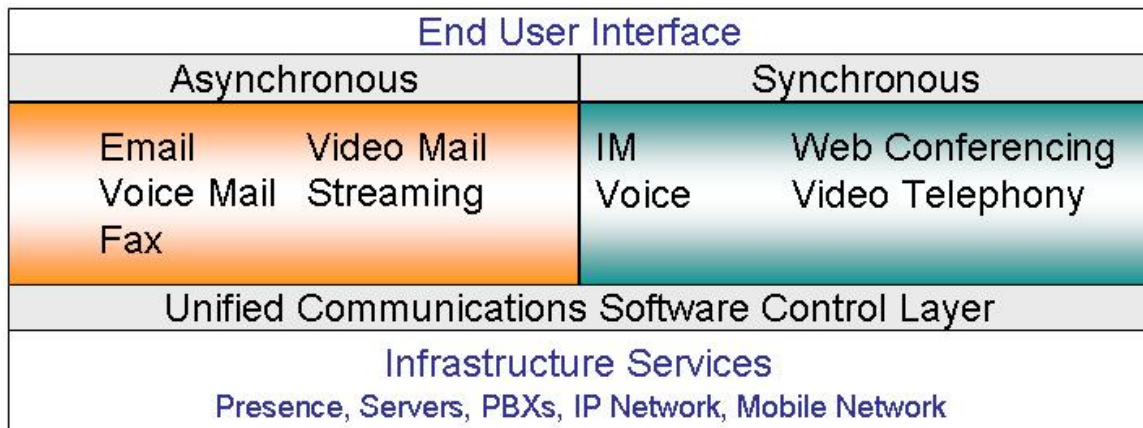


Figure 1: A typical Unified Communications architecture.

Within a unified communications system, video is the richest modality for communicating. Video provides better "connectedness" and understanding between people because it allows individuals and groups to naturally convey information, ideas, actions, and decisions using body language and visual cues. Until recently, video has often been a specialty conferencing offering used primarily by executives and high-level teams; however, telephony product and service providers

<sup>1</sup> Friedman, Thomas L., *The World is Flat: A Brief History of the Twenty-First Century*, Farrar, Straus and Giroux, 2005, P. 63.

are changing the way people use video by integrating video calling into the telephony infrastructure fabric. This paradigm shift toward a video telephony model, where video calls are made just like phone calls, will enable more extensive adoption of the richest dispersed communication modality possible: face-to-face.

## **Video Telephony as Opposed to Videoconferencing**

The deployment and usage model for video telephony as compared to traditional videoconferencing is significantly different.

### **The Group Videoconferencing Usage Model**

When using group or room videoconferencing, participants go to a specially equipped video conference room at a time scheduled well in advance. Because of the expense required to build a quality group videoconferencing environment, where the microphone and speaker placement, lighting, and camera locations are important, many conference rooms are not outfitted with videoconferencing capability.

In many organizations, group videoconferencing often requires special technicians to start and end the videoconference. For example, the World Bank uses videoconferencing regularly in its meetings with finance ministers and other governmental officials in many countries throughout the world; to make sure these video meetings work, the World Bank always sends out technicians to every location involved in the videoconference. We are also aware of a number of companies that have hired special video technicians to support videoconferencing, and often these same companies staff a video help desk, which is charged with troubleshooting group videoconferencing meetings. The service these technicians provide, while useful, can make videoconferencing expensive.

Although many group videoconferences are now done using IP, a majority of these conferences still use ISDN, particularly when people from different companies meet using video. ISDN is usage-based, meaning that the more an organization uses ISDN videoconferencing, the more it costs because ISDN is usually billed on a per minute basis. Broad and frequent usage of ISDN videoconferencing is fiscally and psychologically discouraged because ISDN lines are only run to a few conference rooms in a given location and because of the linearly increasing time-dependent cost of holding a meeting.

Although dialing may seem a trivial issue, in reality, many participants in a group videoconference do not know how to dial other group videoconferencing units or how to dial into a multiparty video meeting. Group videoconferencing units are given a telephone number by the local phone company; consequently, a list of the numbers for other group videoconferencing units must be kept handy. This list may simply be a sheet of paper in the conference room, or it may be stored in an address book accessible through the video unit. Often this address book is independent of any corporate directory the company may have for all of its other telephone numbers. Dialing is also done in a group video setting using a handheld remote; while the design of these remotes has improved in recent years, they are still intimidating to people who do not use them regularly.

Group videoconferencing is an excellent and effective communications medium in a group setting; but we believe group videoconferencing will remain a high-end niche video application. It will never reach the low-end consumer market, and it almost entirely misses the large SOHO and SMB market. To reach these markets, another video paradigm is required: video telephony.

## The Video Telephony Model

In contrast to the highly scheduled, high-cost manner in which group videoconferencing has typically been deployed, video telephony is ad hoc, on demand, and generally inexpensive. Users receive the benefits video can bring with the ease and reliability of placing a phone call.

In a video telephony system, video devices are tied to the hosted PBX<sup>2</sup> just as a telephone handset is. Moreover, like audio telephony, video telephony typically revolves around a person's individual workspace with video being displayed on a user's PC screen, on a dedicated desktop video appliance, or on a video-enabled mobile phone or PDA.



Figure 2: PC video client with wired or wireless videophones.

Video telephony is self service: there are no technicians helping people place video calls. In most implementations, video telephony users simply dial an extension, much like they would when dialing any office telephone. The SIP servers in the network cloud do the translation from the digits dialed to an IP address and make sure the audio and video are properly routed to the called party's video device.

Because the video devices are connected to the hosted PBX, video telephony users have access to use all of the call control features they are familiar with for audio calls including video hold, video transfer, video mute, and multiparty conference. Some video telephony systems are being

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<sup>2</sup> In the IP telephony world, the telephony infrastructure need not be on the customer premise. The PBX functions can be anywhere in the IP network cloud. An IP PBX is software running on a server, which can be owned by an enterprise or a service provider and hosted by either. For the remainder of this paper, we will simply use the term "hosted PBX" to indicate telephony functionality regardless of where it is hosted or who owns it.

built so that when the called party does not answer, the person calling can leave a video message, much like they would when leaving a telephone voicemail message.

In many video telephony systems, call control can be done from a computer soft client. When using a soft client, video calls are made simply by clicking on a name in a buddy list or in an online corporate directory. These soft clients are often presence enabled so that the caller can see if the person to be called is available. Depending upon how the soft client and the hosted PBX are configured, the audio may be handled separately from the video with the audio routed either to the desktop handset or to a headset on the PC. All of the normal call control features (hold, mute, transfer, etc.) are available through the soft client's intuitive user interface.



Figure 3: BroadSoft's Communicator soft client provides all video call control features.

## Why It's Different for Video Telephony This Time

Desktop videoconferencing has been around for at least a decade, and statistics indicate that the adoption rate is still very low. In fact, total market revenue for group videoconferencing systems costing \$5,000 each is more than 15 times that of the inexpensive desktop videoconferencing units. One may legitimately ask why video telephony will take off and why it will be any different from desktop videoconferencing.

In most cases, desktop videoconferencing has been implemented just like group videoconferencing but within a computer workstation. It has many of the same challenges group video conferencing systems have. Video telephony, on the other hand, has a very different usage paradigm – ad hoc, on demand, integrated, universal availability, and tight coupling with the hosted PBX offering. In addition, a number of technological developments and events are coming

together now that are propelling IP video telephony into a much more visible and attractive proposition for users worldwide.

## **Inexpensive Broadband**

The Internet bubble of the late 90's and into the early years of the 21<sup>st</sup> century sparked huge overinvestment in fiber optic on a global basis. Although this overinvestment was a boondoggle to the network carriers and the shareholders who invested in them, it has become a boon to enterprises and consumers worldwide. It has caused the cost of global telecommunications to drop by an order of magnitude.

As an example, within the USA DSL service has recently become available for less than the cost of a dial-up connection with SBC's one-year promotion to offer DSL service for \$14.95. Inexpensive broadband is helping fuel the rapid growth of IP telephony, and by extension, demand for IP video telephony, among enterprises and consumers.

## **SIP and Open Standards**

Session Initiation Protocol (SIP) has had a profound impact on the voice world, and it is beginning to influence the video world as well. SIP provides signaling and call control means that are especially designed for the delivery of 'advanced' features such as IM, multimedia sessions (voice, video, IM, web conference...), and presence. The premise behind SIP is that because it is an open standard, devices from any vendor supporting SIP voice or video will be able to interoperate with SIP-based devices from any other vendor. SIP interoperability promises to reduce the cost of telecommunication products and services as these devices and services promulgate from the realm of the vendors into products and services used by enterprises and consumers.

## **Integrated User Interfaces**

Desktop video has traditionally been run on a PC by launching a separate application designed for video only. In a video telephony environment, video is one of several communications modalities users can take advantage of from a common, well-designed user interface. Furthermore, many soft client manufacturers are providing APIs that will allow video, voice, and the other communications mechanisms to be integrated into everyday workflow applications like Outlook, Microsoft Office Suite, CRM applications, ERP applications, etc. Video telephony is really less about making a video call and more about improving the ability to communicate at a distance in whatever workflow environment a user may be in.

## **Inexpensive Powerful New PCs**

Video-enabled soft clients running on a PC are required to perform significant processing in order to compress video images into data streams that can be effectively transmitted over the network. New, powerful PCs are now available at a reasonable price that can take advantage of the latest video compression algorithms.

The most common standards for video compression are H.263 and H.264. While both require significant processing power, H.264 is able to provide an image equivalent to H.263 but at roughly half the bandwidth. To achieve this level of compression, H.264 requires more processing power than does H.263. PCs are now available that can perform the processing needed to compress H.264 video streams.

## Low-priced PC Video Components

Between 1998 and 2004, Logitech sold over 44 million PC cameras. The worldwide market for webcams in 2005 is estimated to be approximately 25.9 million units<sup>3</sup>. At this volume, the average price/unit will come in at just under \$50 US. The hardware components required to enable video have become very affordable.

Furthermore, as of December 2004, MSN Messenger had more than 27 million unique webcam viewers with an average of 7 million sessions per day and a single day record of over 10 million webcam sessions. It is clear that the desire for personal IP video is significant. We believe that with the availability of inexpensive USB cameras, PCs that can compress video data, and broadband access, a pent up market has developed for video communication. The key will be developing a compelling and reliable service offering that is affordable to enterprises and consumers alike.

## Dedicated SIP Videophones

Some users will prefer the better image quality and device reliability that comes from a desktop videophone. A number of manufacturers are responding to this market demand by producing self-contained personal video devices. Pricing ranges from under a hundred dollars to over \$3,500 US.

A few examples of the many personal videophones available include the following:

1. DLink has produced a very inexpensive personal video unit that has no display, but which plugs into a user's television. It uses a TV remote control for setup and to place a call. The price is right on this unit at \$188 US. We believe DLink will be introducing a new model of the i2eye product later this year that is based on the new TI video chip.
2. InnoMedia has released the MTA 5531 that includes a built-in NAT router for PC Internet access during a video telephony session, sharing the same broadband link. Users can access the MTA 5531's features using its icon-based menu system. This phone also features 3G compatibility; InnoMedia videophone users can place video calls at home to mobile 3G video-enabled phones. The MTA 5531 is equipped with PCMCIA wireless LAN capability and PSTN connectivity, which lets users make or receive regular voice phone calls from the PSTN network using the same broadband IP videophone. Pricing is estimated at approximately \$400 - \$670 list. (InnoMedia also has a lower end model with a smaller screen, which costs even less than the MTA 5531.)
3. Motorola is in the personal video appliance market with its Ojo Personal Videophone. This device runs SIP and plays video at approximately 128 kbps. It also has a connector for the PSTN, allowing this phone to serve as both an IP videophone and a regular desktop telephone. Part of the base detaches as a wireless handset. Pricing is approximately \$700 US.
4. Polycom has produced an executive videophone branded the VSX 3000 that sports its own built in high-resolution 17" LCD monitor that doubles as the PC display. This product supports the feature set of Polycom's larger videoconferencing group units but is designed for a personal desktop. Pricing is approximately \$3,750 US. We believe Polycom will bring out a lower-priced desktop videophone that looks more like its current SIP telephones but with a plasma display for displaying video.

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<sup>3</sup> Estimated from public IDC data on the size of the webcam market.



Figure 4: Examples of dedicated videophones.

These videophones can all be integrated into a unified communications environment with a hosted PBX service, and calls can be initiated and controlled from a PC client. Other videophone manufacturers include Leadtek, MediaPower Technology, Kanrich Electronic Corp., Yealink Network Technology, TANDBERG, Taiwan Telecommunication Industry Co., ProVu Communications, Motion Media, and Viseon.

### Leveraging Existing Infrastructure and Support Mechanisms

With the worldwide migration to IP communications, many organizations will transition their voice systems to IP telephony in the coming years. Video telephony will ride over the same infrastructure, use the same hosted PBX services, and rely on the same monitoring, control, and support mechanisms that the IP telephony system uses.

If the organization uses soft video clients for video telephony, the only additional support burden is a webcam on the PC since almost all IP telephony systems now support soft clients for telephony call control. Furthermore, if the organization deploys videophones, these devices will act much like a regular IP phone and will have similar support requirements. While the soft client has economic advantages, some users prefer to use a dedicated videophone for IP video telephony versus a soft client because the videophone is always on, it can be used independently of the PC, and it typically offers better and more reliable audio and video quality due to its dedicated processor.

Additional costs that may be incurred to support video telephony include the additional bandwidth video requires (which will typically be more of an issue over the WAN), the purchase and installation of webcams, and a mechanism for enabling multipoint video calls if multipoint video calling is to be supported (which can be significant based on the multipoint video device selected).

### Market Momentum

The video telephony market is seeing momentum on every hand by a large number of market makers and shakers. All of the major PBX vendors and many of the hosted IP application server providers have video telephony products, and they are pushing them vigorously as part of an overall IP communications strategy; these vendors include Cisco, Nortel, Avaya, Siemens, 3Com, Alcatel, Mitel, Inter-Tel, BroadSoft and many others. While these vendors are not reporting high



attach rates for video telephony when an IP telephony system is sold, they are reporting significant interest and that a number of companies are putting money for unified communications, including video telephony, in their 2006 budgets.

Microsoft is promoting video telephony through its new Live Communications Server and Communicator client. Although the video through LCS is point-to-point, Microsoft has developed a number of partnerships with companies like Polycom, RADVISION, and TANDBERG to enable full multipoint video telephony. These systems allow individual end users to join video meetings which include the larger group systems.

Web conferencing companies are also promoting video usage in their web conferencing platforms. Although this usage is not video telephony today, well known companies like WebEx, Microsoft (Live Meeting through partner Arel), and Genesys Conferencing are all promoting video with web conferencing.

Finally, the largest public instant messaging clients, AOL and MSN/Yahoo!, as well as Skype support consumer IP video. Thus we see there is huge momentum in the market toward broadening the use of video and making it accessible to enterprises and consumers. We believe that with all of these companies spending so much money in development and promotion, and with the significant technological advancements, the market for video telephony will see significant growth in the years ahead.

## **Video Telephony Deployment Options**

A video telephony solution rides on top of the voice telephony infrastructure, and a hosted PBX is a required infrastructure component. Given the distributed nature of IP communications, the hosted PBX can reside either on the customer premises or somewhere in the WAN network cloud. The hosted PBX can be located entirely within the enterprise firewall, or a service provider can host it. What is important is that the call signaling passes through the hosted PBX (the actual voice and video media streams flow directly between the devices involved in the call). Directing the call control signaling flow through the server allows video telephony systems to provide standard call control functions like hold, transfer, mute, and invited third-party conference calling.

One example of an excellent way to deploy IP video telephony is through the use of BroadSoft's BroadWorks platform. BroadWorks is a SIP-based application platform sold to carriers and service providers that provides a comprehensive range of applications including hosted PBX, IP Centrex, residential broadband voice, enhanced networking, conferencing, mobile PBX, and video telephony. Using BroadSoft's standards-based BroadWorks software, the service provider offers hosted PBX functionality in the carrier cloud. Enterprise or consumer users rely on the service provider's network for connecting to the BroadWorks platform as illustrated in the figure below.

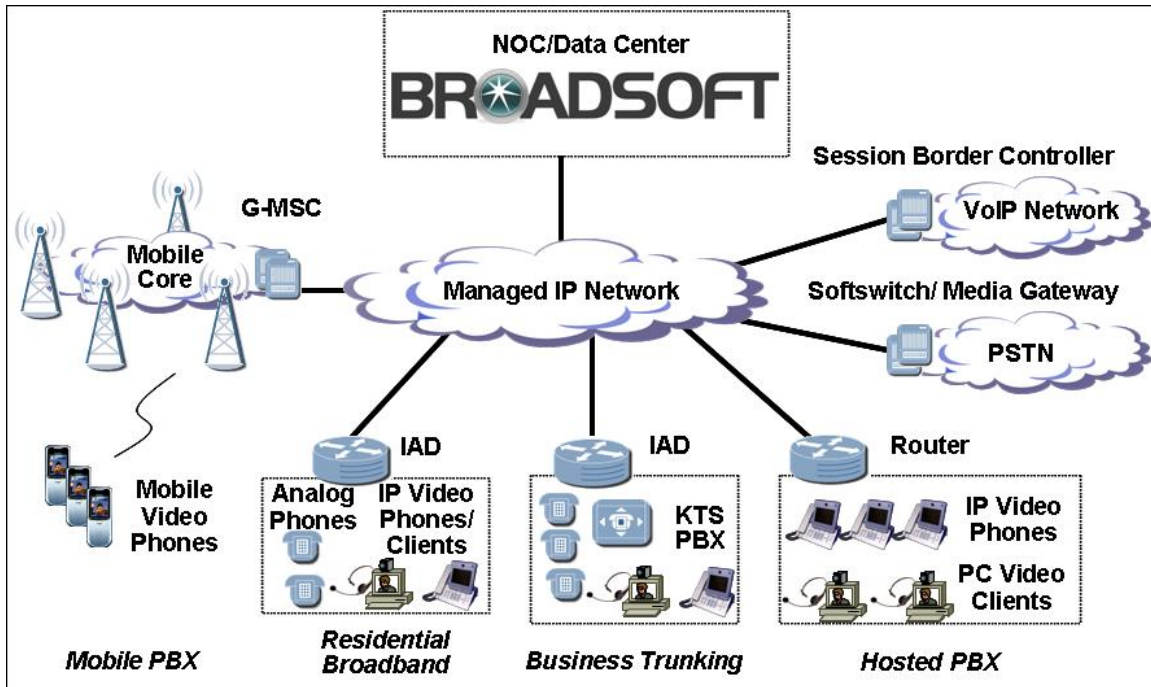


Figure 5: BroadSoft's BroadWorks telephony and video telephony platform.

As one considers a video telephony implementation using a hosted model like BroadSoft's, several key points should be kept in mind:

1. The end customer has very little upfront capital cost. Depending upon the particular offering, many service providers will provision, manage, and monitor all of the infrastructure components down to the premises. All the customer needs to buy are the IP telephones or the videophones, possibly an ATA<sup>4</sup>, and the webcams. The carrier will provide a video-enabled soft client to each authorized end user.
2. Migration to a full IP implementation can be as fast or as slow as the customer wishes and as each customer's unique economics direct. As illustrated above, customers can have any combination of analog phones, local key systems or local PBXs, IP phones, video-enabled soft clients, and videophones at any location. Even if a location has not updated the phones to IP, they may still take advantage of the benefits IP video telephony has to offer using BroadSoft's hosted model.
3. This solution allows service providers to offer 3G video services so that the customer can enjoy video not just with other 3G video-enabled phones, but also with other users on the network that have desktop videophones or video-enabled soft clients.
4. A videophone or video-enabled soft client can call any other video-enabled device on the network; it can also call any IP, analog, or digital phone in the system. Translation between these different types of devices and their unique signaling is handled by the network infrastructure supplied by the service provider.
5. BroadWorks handles audio and video streams independently, allowing advanced calling options like *video add-in*. With video add-in, calls are initialized on a regular (and inexpensive) IP phone and video can be added later using the BroadWorks Communicator soft client. The audio stays on the phone and the video stays on the PC.
6. BroadWorks can interoperate with existing group videoconferencing units.

<sup>4</sup> ATA is an abbreviation for analog terminal adapter, which is a device that allows a residential PSTN phone to work over a broadband connection.

Carriers using the BroadWorks platform benefit because they can easily offer video telephony services and possibly additional bandwidth to users, both enterprise and consumer, who seem to have a pent-up demand for employing video. In like manner, video users will be able to have a reliable, “works every time”, video experience when contracting with a hosted video telephony provider.

## Video Telephony Caveats for Service Providers

In working extensively with video products and services, we have found a few issues that a video telephony provider, either CPE-based or hosted, must consider.

**Multipoint** – Once people see a good point-to-point video call and know how much it costs, they will invariably ask how more than two people can be connected together. Some video telephony systems come “out of the box” with a four or six port video bridge. Others do not (i.e. Microsoft LCS). Those providing video telephony services should consider whether to provide a solution for multiparty video calls.

Some design effort must be put into placement of the video multipoint unit(s). Depending on the anticipated usage model, a multipoint video unit located at the provider’s central location may saturate the WAN links if multiple people from the same location are all calling in.

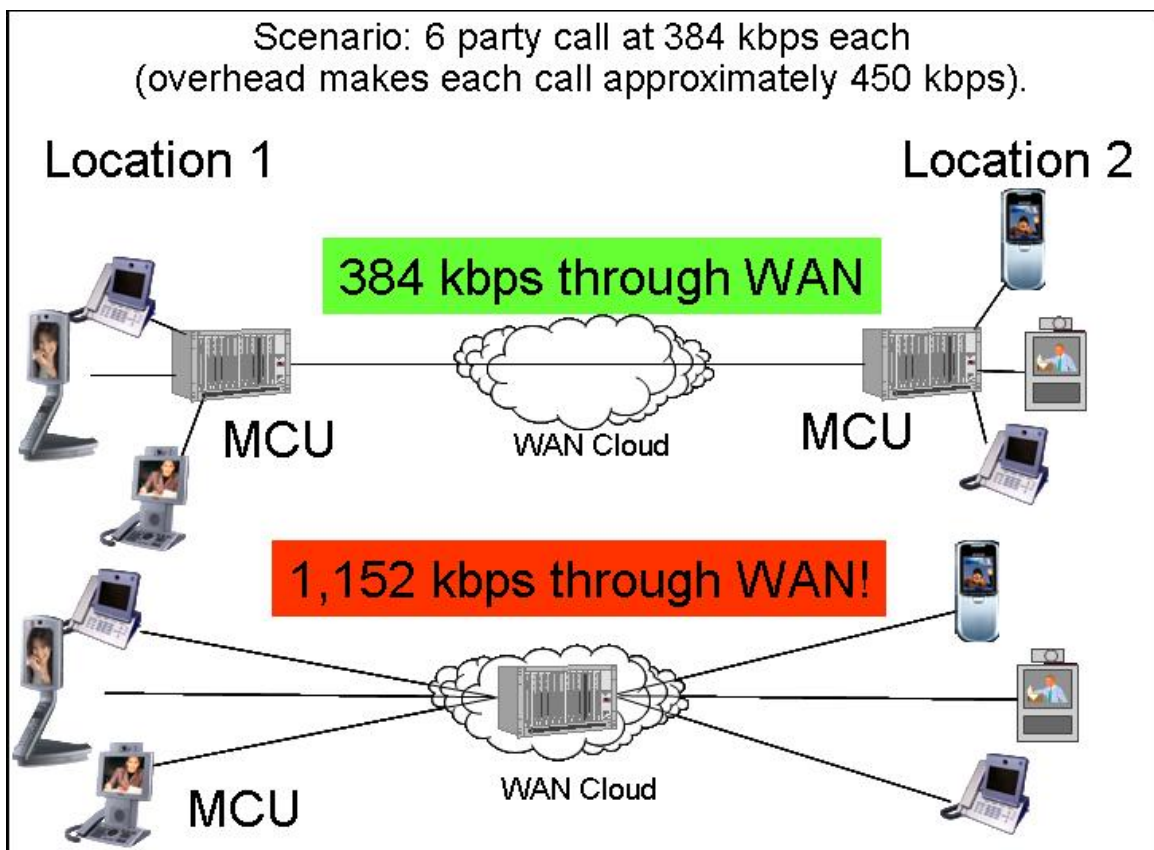


Figure 6: Multipoint video bridge placement for bandwidth considerations.

Care must be taken if multipoint capability is enabled across the WAN link to ensure that the WAN pipe is not over saturated with video.

**Interaction with Group Video Systems** – Almost invariably, organizations that have video telephony systems will want to provide a way for the personal desktop video units to connect with

room videoconferencing systems. To reliably connect these different types of video units together, a multipoint unit supporting multiple protocols SIP, H.323, and H.320, will be required. In one large video telephony deployment we are aware of, individuals were located in the USA, Japan, and France; the company found that people from any of these areas needed to have the capability to join into meetings with groups of people from these other locations. Consequently, the provider implemented multipoint capabilities that allowed connection and transcoding between the various video standards used in the company.

**NAT/Firewall** – Individual video users are likely to want to call other video users who are off the local network. Unfortunately, firewalls block SIP audio and video, and network address translation devices may hide the videophone's IP address by changing the information in the packet headers<sup>5</sup>. Video telephony service providers will need to decide if they want to allow off-net IP video calls. For audio, it is easy because there is likely a gateway to the PSTN available that off-net callers can use. Video is not as fortunate; to call another video unit that is off the enterprise network will likely require a gateway to ISDN or a session border controller to help the off-net connection to IP video work. Fortunately, BroadWorks supports connection with Session Border Controllers to allow off-net IP calls.

**PC Issues** – We have found that desktop video telephony users may encounter a few problems with the PC they may have available. One issue is the processing power the video codecs require. When installing a video-enabled soft client, make sure that the PC is significantly more powerful than the minimum specified by the soft client manufacturer. PCs are involved in a number of tasks simultaneously, and it takes significant processing power to compress video streams. Many manufacturers' minimum requirements are generated from an unloaded processor, while in everyday use the processor will be loaded executing workflow applications. Also, note that H.264 requires more computing processor power than does H.263.

Two other issues we have encountered are

1. Some video telephony systems do not support all of the operating system versions running on computers in a user's location. We are aware of some locations that still use Windows 98 because the cost to upgrade is very high (not the money, but the productivity loss).
2. Some computer chipsets are occasionally incompatible with how a particular vendor may have implemented the video camera hardware. This is not as great a problem as it was five years ago, but it could still rear its ugly head. Troubleshooting this kind of a problem is nearly impossible for the end user (and for the service provider as well).

**USB Camera Quality** - The old adage, "Garbage In – Garbage Out" is true with video cameras. Some of the less expensive USB cameras have very poor optical properties. If the initial video signal is poor, it will be even worse after compression. Soft client video telephony users would do well to purchase a webcam with good optics. Higher end Logitech USB cameras typically sell from between \$75 - \$100 US.

**Competing With Free** – Free services exist for point-to-point video including those offered by MSN, Yahoo!, AOL, and Dialcom<sup>6</sup> for Skype. Generally, satisfaction with these products is low; however, there is huge demand for them. Service providers must develop a service offering that is inexpensive, works every time, provides quality of service, includes value-added services, and is easy to use to overcome the "video is free" mentality.

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<sup>5</sup> For more information on network address translation and firewall traversal, see the author's white paper titled *Traversing NATs and Firewalls with Voice and Video Over IP* at <http://www.wainhouse.com/files/papers/WR-trans-firewalls-nats.pdf>.

<sup>6</sup> See [www.video4im.com](http://www.video4im.com).

## **Video Telephony Service Offerings**

Video telephony services are a nascent market; many of these video service offerings have not yet been deployed or even invented. However, we believe there are some video telephony service offerings emerging today that will be compelling in the right environments.

### **3G Mobile Video with Wired Desktop Videophones**

SingTel recently announced that it has implemented a new service capability designed to allow its wireless 3G videophone users to communicate with its wired VoIP customers that have desktop videophones. Based on technology from partners BroadSoft and InnoMedia, the service lets users make video calls between 3G mobile and IP phones as seamlessly as voice calls are made between mobile and fixed-line phones. Mobile video devices seamlessly working with wired videophones can be a compelling offering and differentiating capability that will drive future video demand.

### **High-Touch Financial Services**

We are seeing video telephony beginning to emerge in certain financial sectors. Financial services are one of the market verticals adopting IP telephony the fastest. Hence, it would be no surprise that this sector would also be a leader in adopting video telephony. Some investment firms use video telephony to communicate important messages among themselves, and these companies are also linking up with some of their largest investors using video to provide high touch, personal financial advice and information.

### **Distributed Work Groups**

Geographically dispersed work groups will begin embracing video telephony in the near future. Many of these groups already use video conferencing; however, the increased momentum of video telephony communications can add to the productivity of these groups and will increase the velocity of their business. We believe the use of video will be increasing important as outsourcing and offshoring increases the multicultural nature of many businesses. When teams located in different cultures need to communicate, video can have tremendous value.

The ad hoc nature of video telephony will also make spontaneous video meetings not only possible, but also very productive. A *Meetings in America* survey published by MCI stated, "Two other factors that were correlated with productive meetings are worth mentioning. More one-time meetings were judged as extremely or very productive than recurring meetings. This is not unexpected since ad hoc meetings may be more likely to address new material that may be more interesting to the participants whereas recurring meetings (such as staff meetings) may be tedious."<sup>7</sup>

### **High-Touch Hospitality Services**

We are aware of several implementations of video telephony in the hospitality industry. Rather than speaking with a faceless concierge, health club receptionist, room service waiter, or front desk associate, certain hotel properties are installing videophones to provide a more intimate, face-to-face experience for their customers. The purpose of video is to offer these customers a richer, more personal experience while at the hotel in an effort to secure future business and references.

### **Call Centers and Video Customer Service**

Another fertile area for IP telephony is the call center. There are a number of compelling reasons for migrating a call center to IP. Besides the reduced costs of IP for many call centers, the obvious tight integration of IP voice with data opens the door for a number of new customer service applications. Large companies that have migrated their call centers to IP include AOL and Delta Airlines.

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<sup>7</sup> Meetings in America, MCI, <http://e-meetings.mci.com/meetingsinamerica/uswhitepaper.php>.

One of these future call center applications will likely be the inclusion of video, particularly for some high touch retailers. Many companies are trying to reduce costs by pushing sales and support off to a web site. Caring companies are putting in links to provide customers with the capability to instant message with a support person, and some companies even ask customers to enter their phone numbers and the system will immediately call them over the phone . It is not far off when companies will provide a video link wherein a customer service representative's image and voice will appear over the IP connection.

### **HR Applications**

Interviewing candidates can be an expensive and time-consuming proposition, particularly if a candidate is in another city or state. Some recruiters and HR departments are using video as a way to decrease significantly the cost of interviewing while increasing the potential recruiting geography. Today video interviews happen either by videoconference or by having the candidate go to a special videoconferencing rental room. Some companies even send video units to potential recruits. With the advent of video telephony, however, companies can simply have a candidate go to a local branch office and connect to the recruiter, wherever the recruiter happens to be physically located, over the corporate network.

### **Custom Ringback**

Following the increasing popular mobile phone ringback trend, BroadSoft is offering video ringback capabilities through its BroadWorks platform. Instead of callers hearing a ringing sound when placing a call, organizations and individual users are able to customize what the caller will see and hear when a video call is made. This can be information about the organization, a custom message to the caller based on the caller ID, or any number of other marketing and customer experience improving touches.

### **Future Offerings**

Video is destined for usage in a number of novel ways, some of which we cannot even imagine at the present. However, a few additional future service offerings we can imagine include a video auto attendant, video customer service kiosks<sup>8</sup>, and video on hold. Auto attendant and video on hold may be very interesting ways to leverage existing branding, reinforce a celebrity spokesperson's influence toward company products or messaging, and show commercials that strengthen customer attachment to brands or products. All of these applications are available today in BroadSoft's BroadWorks hosted application platform, and it will only be a matter of time before they find widespread deployment.

## **Conclusion**

Telecommunications are shrinking and flattening our world, allowing billions of new participants to enter the world's markets as consumers, suppliers, and providers. Although video telephony is a nascent market today, it is poised to be broadly adopted to provide distributed enterprises and consumers a richer communications experience.

Video telephony is very different from videoconferencing, and it must be planned for and implemented differently as well. Video telephony is ad hoc, on demand, and individual as opposed to videoconferencing, which is typically a scheduled group event. Video telephony calls will require at least three to five times as much bandwidth as IP telephone calls – and possibly as much as 20 to 25 times as much bandwidth – making video usage a next generation bandwidth consumer.

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<sup>8</sup> Video banking kiosks have been around for a long time. They were not used as extensively as originally anticipated when rolled out. We anticipate that with great familiarity to Internet banking and self service banking, many ATMs will ultimately become video enabled for certain customer service applications. This will be much easier using video telephony than standalone video conferencing because the video will be handled by a video enabled call center.

Broadband network capability, open SIP standards, integrated offerings, and the tremendous market momentum toward IP telephony and multimedia communications will assure that video usage increases in the near and long term future. Unique applications using video telephony are already beginning to appear like BroadSoft's capability to offer video ringback, video attendant, and video on hold. Many other video applications will emerge in time as service providers and end users both provide and try new, differentiated video telephony offerings.

In the end, the user will dictate which communications mechanisms are successful in the market by opening the wallet. The key is to provide them a rich video telephony enabled communications experience that is priced right, is feature rich, is as reliable as the telephone, and is as easy to use as making a phone call.

## **About BroadSoft**

BroadSoft's VoIP application software is revolutionizing the delivery of hosted IP telephony and multimedia services. Its flagship BroadWorks® technology empowers wireless and wireline carriers to deliver next-generation voice and multimedia applications and advanced features that increase revenue, enhance competitive differentiation and elevate customer satisfaction. BroadSoft's family of carrier-class software products delivers the scale, open architecture, and reliability that the world's leading telecommunications companies demand to serve mission-critical enterprise and residential broadband customers. As of October 2005, BroadSoft's customer base of 135 network operators, including BellSouth, MCI, SingTel, Telefonica, Telstra, Verizon and XO Communications leads the industry with more than 1,500,000 lines deployed. Additional information is available at [www.broadsoft.com](http://www.broadsoft.com).

## **About Wainhouse Research**

Wainhouse Research (<http://www.wainhouse.com>) is an independent market research firm that focuses on critical issues in rich media communications, videoconferencing, teleconferencing, and streaming media. The company conducts multi-client and custom research studies, consults with end users on key implementation issues, publishes white papers and market statistics, and delivers public and private seminars as well as speaker presentations at industry group meetings. Wainhouse Research publishes a number of reports detailing the current market trends and major vendor strategies in the multimedia networking infrastructure, endpoints, and services markets, as well as the segment reports *Microsoft's Real-Time Presence-Enabled Communications Strategy* and *Comparing IP Video Network Service Providers*, and the free newsletter, *The Wainhouse Research Bulletin*.

## **About the Author**

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