Enterprise Video Conferencing: Ready for Prime Time

A White Paper From

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Table of Contents:

Introduction

With the potential for significant reductions in travel expenses, as well as conducting more productive meetings leading to more efficient and effective decision making, video conferencing has always held out tremendous promise within the enterprise environment. Expanded collaboration, where video would be integrated with voice and data applications was widely anticipated as commercially feasible, but somehow never really materialized. Large enterprises have implemented video for group conferencing applications, but video conferencing has often remained a niche application running parallel to the core of an enterprise's communications fabric. As expected with a specialized application, it found a useful place for large meetings and presentations. However, challenges around quality and reliability and ease of administration and use have limited its acceptance within many businesses. In addition, collaboration tools such as electronic blackboards, overhead projectors and fax capabilities never worked as a single well-integrated application. As a result, enterprises were never able to realize the many potential benefits of video conferencing.

However, a major development recently has occurred in the communications environment that is likely to break down the limitations that have suppressed the growth of video conferencing. The migration to converged IP networks and the spread of IP Telephony has provided a receptive platform infrastructure that can enable video to become a fully integrated element within the telephony environment. This platform, combined with the technological advancements in video and collaboration tools are ushering in a new era of video telephony. This paper explores why we believe video telephony technology is now ready for prime time within the enterprise communication environment. We will also explore how a new video telephony joint solution developed by two industry leaders in IP Telephony and video conferencing technologies illustrates how many of the hurdles to mainstream video telephony have been overcome.

The Convergence of Video and IP Telephony

Video conferencing is certainly not a new application to enterprise communications users. Room to room video conferencing has grown from its introduction at the World's Fair in 1964 to a widely deployed enterprise application around the globe. Video conferencing as a general business application however, while promising to become mainstream during the last 50 years, has remained a special purpose application and a niche market.

Video conferencing's inherent benefits, such as facilitating more in-depth interaction levels for business meetings and reducing travel expenses have often been offset by a number of technology and operational issues. Expanded bandwidth and special networking requirements have limited its integration with

the enterprise's overall communication network and made it an overlay application that required special attention and administration. Room to room sessions often required reservations and technical support in setting up the conference and utilizing the features of the video conference. Reliability and quality factors often marred the experience among users. These and other factors have tended to limit the growth of video conferencing especially in small and medium size enterprises without the technical resources to support the application.

A number of changes have occurred recently that are stimulating an increased interest in video conferencing as a mainstream business application. The first change has been the growing deployment within businesses of IP Telephony based upon converging voice and data networks into a single integrated and robust network with enough bandwidth to accommodate video applications. By creating a networking layer that can easily incorporate video streams into its transport mechanisms, the move to IP networks has broken down one of the technical barriers to broader deployment of video conferencing.

A second change enabled by IP Telephony is the ability to set up sessions that can carry multiple media streams while using telephony and windows based interfaces to achieve click-to-dial video conferencing setups between parties on the conference. Multi-party conferences can also be set up using video bridge technologies in a similar fashion.

A final factor that is facilitating a leap in the ease of use for video conferencing is the incorporation of SIP enabled presence within soft phone applications. This technology allows users at their desktops trying to set up a video conference to know if the person they are connecting to has the ability to enable a video call from their end. Video conferencing can be easily added to a voice call by simply activating the video application on each end of the existing call.

The migration to IP Telephony along with the incorporation of standards based interfaces to other applications promises to open the door to a rapid expansion of video conferencing. Ironically, video conferencing is being discovered as a "new" IP enabled productivity application.

In addition, the extension of business telephony features to video endpoint devices makes video calling as natural as voice calling, while providing enterprise class call handling capabilities and scalability. For example, users now can have the ability to setup a call coverage path for a video call in the same way and with the same capabilities as a voice call. If somebody calls on a video endpoint and the called party is not at their desk, a coverage path would direct the call to voicemail or a coverage assistant. The system can recognize whether the receiving endpoint (i.e. voicemail system or coverage assistant) has video capabilities and if not, the call would fall back to a voice only call. Easy call set

up and coverage features are taken for granted in voice communications systems but have not been available for video until now.

Wainhouse Research recently projected a five year compound growth rate of over 18% for enterprise video conferencing and a 40% growth rate in the personal video conferencing category that includes the integration of video into enterprise desktop software, based upon 2004 and 2005 results.[1]

The ability to expand video conferencing to any IP Telephony connection has the potential to deliver substantial business and employee productivity value to enterprises. Extending video interaction to employee conferences can make sessions more focused, productive and potentially shorter as clarity and real time decision making are facilitated. It also promises to enhance the development of personal relationships – particularly with colleagues, distribution partners, clients and suppliers. By increasing ease of use including the use of ad hoc sessions and eliminating the requirement to leave one's office to achieve a video connection, video conferencing is likely to become incorporated as integral part of everyday operations facilitating new ways of doing business.

Customer Requirements for a Video Telephony Solution

While the convergence of technology trends has enabled the arrival of mainstream video conferencing application capability, to achieve mass acceptance and deployment, communications applications providers will need to address requirements at three levels. The next generation of video conferencing will have to address overall business drivers, cost and manageability requirements of an enterprise's IT group and finally the usability requirements of employees.

No matter how impressive new technology capabilities might be, they need to justify their acquisition by rationalizing how they serve enterprise business objectives. Mainstream deployment of enterprise video conferencing must be built upon business case justification that includes facilitating global business growth, decreasing or offsetting existing business costs, improving employee productivity and enabling virtual business models with highly mobile workforce groups.

The next threshold that must be addressed is the specific requirements of IT decision makers in adopting widespread application deployment. IT Managers require applications that are easy to install, operate and manage. New applications must also integrate easily with their existing network and applications infrastructure and leverage that infrastructure and thereby increase its value and payback. Open standards are often a critical requirement for new applications because it facilitates integration and prevents vendor 'Lock-in".

Finally, IT managers are concerned about the economic payback for new application deployment that dovetails with enterprise business objectives.

The third set of requirements that video conferencing must address is meeting the needs of the employee user community. New technology acceptance and adoption can sometimes be pushed from power user communities who are driving for greater personal productivity tools. Widespread user adoption of desktop video conferencing will require that the application be simple, easy and convenient to use. It must also markedly improve personal productivity, enhance working relationships, and lead to faster and more efficient decision making among collaborative groups within the enterprise.

Video Conferencing tightly integrated into Telephony has the potential to meet the business, IT, and user requirements that will open it up to an impressive adoption rate over the next few years and move the application from a specialty to a mainstream productivity tool.

Credible Enterprise Video Telephony Applications Are Available Now

The migration to converged enterprise networks and the increased rate of adoption of IP Telephony has provided a fertile ground for the development and implementation of new communications applications such as Video Telephony. This application marries advanced video technology with the ease of operation and management capabilities inherent in the IP telephony domain, enabling productivity enhancing Video Telephony solutions. Solutions are available now, with the Avaya/Polycom offering being of particular interest.

It comes as no surprise that Avaya and Polycom have joined forces to deliver a truly integrated Video Telephony solution to the marketplace. Both Avaya and Polycom have been and continue to be leaders in their respective markets and are in a strong position to provide leading edge IP based videoconferencing capabilities for the enterprise marketplace.

Avaya has pioneered the migration to converged networks and specializes in delivering secure and reliable IP telephony systems and communications software applications and services for the enterprise market. One of their key focus areas has been conferencing and collaboration applications and solutions – where video can play a very significant role.

Similarly, Polycom is a market leader in providing high quality video, voice, data and web conferencing and collaboration solutions. Polycom's video quality has been recognized as the best in the industry in terms of resolution, frame rate and ability to perform well on packet switched networks. Their leadership has been recognized with a number of industry awards including Frost and Sullivan's 2005

Market Leadership Award in the Global Video Conferencing market and the Unified Conferencing Company of the Year in 2004 for the second consecutive year from Video Conferencing Insight.

This new Avaya/Polycom joint solution is an outgrowth of a successful strategic partnership that has spanned more than eight years. Over this time, Avaya has been a strategic reseller of Polycom Video Products with over 10,000 enterprise video implementations in North America.

The Avaya/Polycom video telephony solution delivers on the promise of making video communication as simple as making a phone call. The solution provides both point-to-point and multi-point capabilities and leverages the presence and instant messaging capabilities of Avaya's SIP enabled IP Softphone. The Avaya IP Softphone gives users improved collaboration capability wherever they may be – at their desk, in a conference room, on the road, or at home. Using a single IP network for voice and video applications, the solution allows businesses to reduce costs, simplify network management and leverage video as a significant, high value component of an enterprise's communications environment.

The solution delivers capabilities in three categories:

- Desktop Video – place a call utilizing either Avaya's IP Softphone or a traditional hardphone and add video with the click of a button.
- Conference Room Video – quickly launch a group voice and video call using a Polycom VSX series system (up to 4 users)
- Multi-point Video – launch a voice and video conference between users in multiple locations using a Polycom MGC Multipoint Control Unit (MCU)

By utilizing Avaya's Communication Manager to process the call from an Avaya endpoint (either hard or softphone) and Polycom's MGC to bridge multi-party video calls, the solution makes adding video conferencing between pairs of users, multi-party users and existing video conferencing room facilities very easy to set up and use. Video can be added (or subtracted) with a simple mouse click to an existing audio connecting.

<u>The individual components include:</u>

<u>Avaya Communication Manager</u>: The video enabled Avaya Communication Manager becomes the common IP control layer, delivering IP Telephony and Video Integration in a distributed, scalable, reliable, secure and manageable environment. It supports standards-based (H.323) endpoint registration, allows secure authentication of Polycom VSX series endpoints and Avaya IP phone and softphones and provides GateKeeper capabilities. Utilizing the Avaya

Communication Manager as both the voice and video gatekeeper reduces the enterprise's infrastructure requirements.

Avaya Desktop: The solution leverages the full Avaya Softphone telephony feature set including Presence, Instant Messaging (IM), hold, transfer and coverage. The video controls are integrated into the IP Softphone. The softphone application can be downloaded form the Web and launched from an IP Phone, digital or wireless handset. It allows customer to leverage their current digital desktop or new IP desktop in a seamless transition to IP telephony and video integration. It also provides a robust integration into Microsoft Outlook and Lotus Notes enabling contact list dialing, screen pops, and journal entries. In addition it provides LDAP integration and a click-to-call capability from any web page. The desktop video leverages Polycom's PVX technology and provides support for H261, H263, H.264, video error concealment and a 2Mbps data rate. In addition, any USB web cam is supported.

Avaya Network Management Console and Integrated Management Suite: The solution incorporates a single network management system for voice and video including common signaling, a single, standardized, unified voice and video dial plan, shared directories and common authentication and authorization procedures.

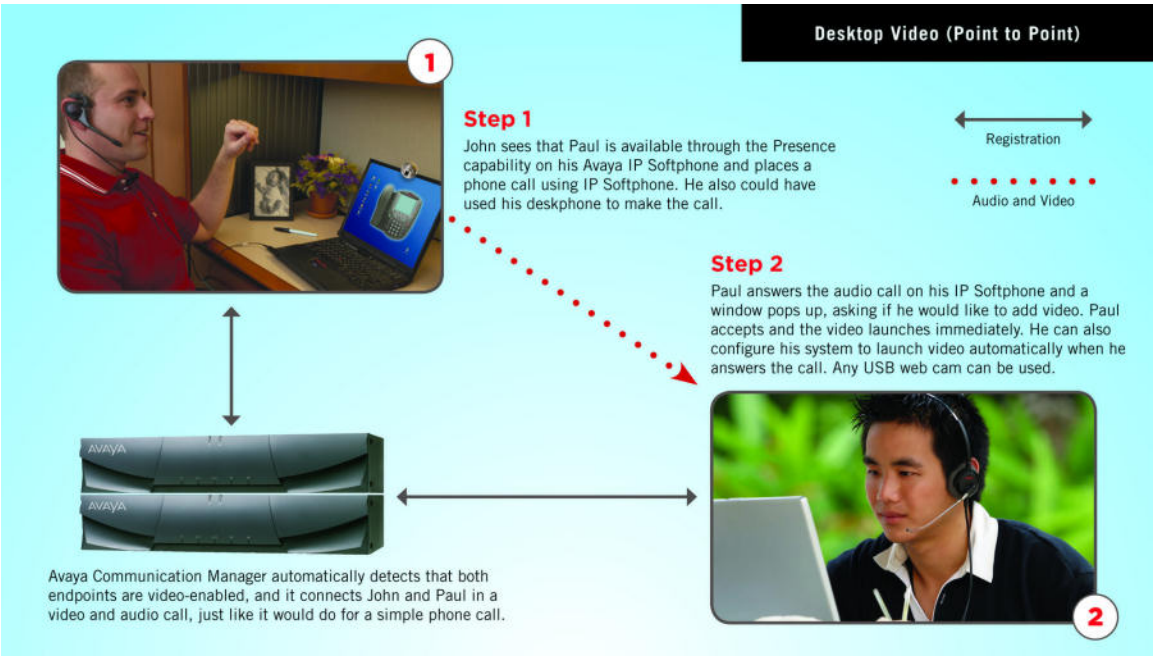
Polycom VSX Conference Room Video Systems: Multipoint-enabled VSXs support up to three video, audio or data calls via and internal MCU (Multipoint Control Unit). Supported protocols include H.261, H.263, H.264, Polycom Siren Wideband Audio and Data Sharing with People+Content via H.239.

Polycom MGC Multipoint Control Unit: Serves as an audio/video bridge for meet-me, ad-hoc and audio-only conferences Supports H.323, H.320 and SIP protocols.

Let's take a look at three examples of how the solution can operate.

In the first illustration two desktop video users make a simple two party video connection:

Desktop Video Point-to-Point

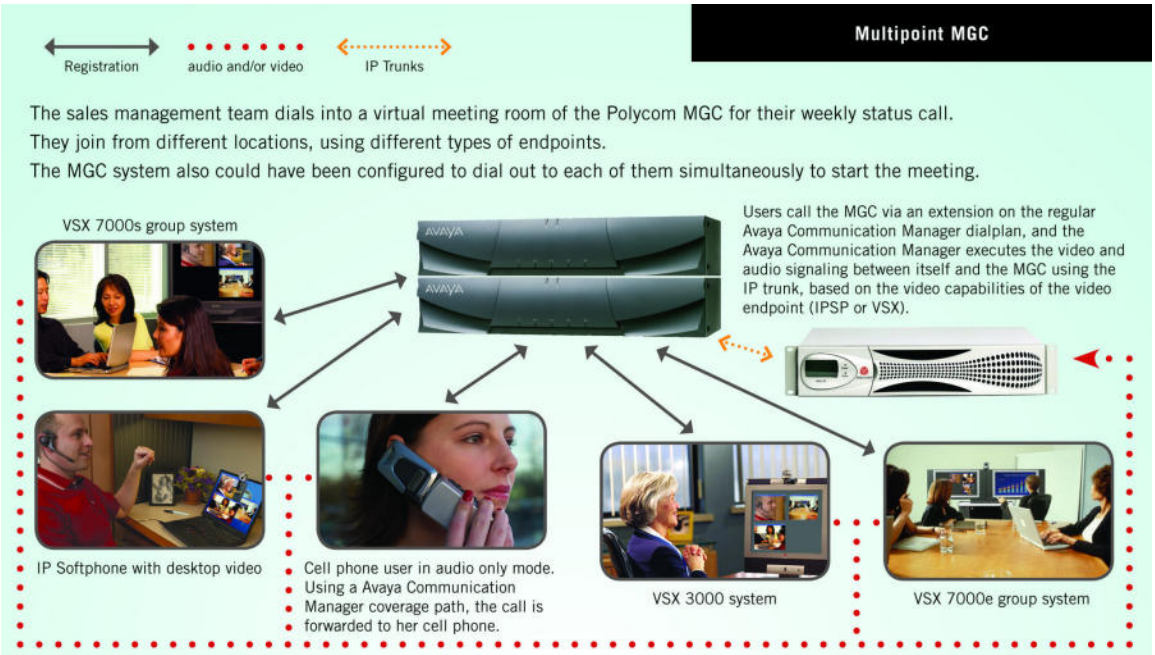


In the next illustration, a multi-party conference is established between different types of user configurations:

Desktop Video to Conference Room System

In the final illustration, different types of users dial into a video bridge to take their scheduled sales meeting conference.

Full Multi-Point Conferencing Using a Video Bridge



These illustrations demonstrate the flexibility of connecting with a range of users with different devices using the call handling capabilities of Communication Manager to establish the IP connections.

From the end-user's perspective, the solution makes it possible to realize the many benefits of video conferencing. It is simple to operate as users can add video to a voice call and initiate a point-to-point video conference with a click of a button by dialing a voice extension, from their office, home office, or remote location when both endpoints are video enabled. It is convenient as users can quickly and easily identify the availability of the party or parties they are trying to reach using Presence and Instant Messaging capabilities and initiate a video conference. Sharing the same address book for all voice and video end-points and utilizing a single unified dial-plan also makes it extremely easy to use. Users can also take advantage of Avaya's mobility capabilities including its EC500 which allows users to answer a call at their desks or on their cell phones when they are out of the office.

The solution also provides a lower total cost of ownership for the IT organization. It is an open, standards based solution that does not require use of proprietary protocols. The solution allows the enterprise to leverage its prior investments by supporting legacy equipment. It can easily plug into an existing Polycom or Avaya environment and does not require customers to swap out their

infrastructure to provide video support. Utilizing a single integrated IP infrastructure and network management system for voice and video makes it easier to manage across a distributed enterprise. For example, costs can be reduced by eliminating the separate management of video and voice dial plans. In addition, as a single source vendor for the solution, Avaya provides the necessary design, implementation, management and support of both the telephony and video elements through Avaya Global Services to provide IT organizations any support they may require.

A Customer Case Study

A large financial institution with major locations in the Western US had been using room-based Polycom video conferencing systems to conduct its business between locations. The company had built its video conferencing network on ISDN BRI connections off its TDM PBX systems.

As the company began to migrate to an Avaya IP Telephony network, it began to explore moving its video conferencing network to its private IP network. The move to IP would allow it to enhance its security. In examining how the company primarily used its video conferencing capabilities, the IT staff uncovered that most of the video calls were actually made with one person in each of the video conferencing rooms. This limited use of the conference rooms and forced utilization of a reservation system for the video conferencing rooms. The IT staff also discovered that traveling financial managers visiting smaller locations without video conferencing rooms often waited to finish key elements of their business until they returned to their home location. Personal interaction with their colleagues, not possible without either face to face meeting or video calls, was required to make critical decisions and decision making would be postponed until that interaction could take place.

When the IT group discussed their findings with their Avaya account team, they discovered that Avaya and Polycom had jointly developed a new video conferencing capability that might allow for a better utilization of their conference rooms as well as extend video conferencing to their mobile financial managers out in the field. Utilizing Avaya's Communication Manager to manage video calls over their IP network, the IT organization connected their video conferencing facilities to the IP network. The IT group also equipped a group of financial managers with specially configured laptops with video cameras and Avaya's IP desktop software. Additionally, they set up the laptops with wireless broadband cards permitting enough bandwidth in the travel destination to conduct a video call.

The reaction of the mobile financial managers was measured at first, as the IT group was encouraging them to change their normal work processes. Yet within a short time, the numbers of mobile video calls began to expand and the

comments of the users were positive about how easy the application was to use. The ultimate test came several months later, when the IT group proposed ending the trial. The financial manager almost uniformly opposed the move saying it had become an important tool in their business process and had speeded up decision making dramatically making them much more productive.

The IT organization was able to cost-effectively expand its video conferencing usage without expanding video conferencing rooms or sacrificing interoperability between the laptop setups and the rooms. This expansion of video usage provided solid productivity gains for mobile managers. With the ease of use and low cost of entry for mobile desktop video conferencing of the Avaya Polycom solution, the IT group has started planning for an expansion of the capabilities to its next target group of senior executives.

Conclusions

The convergence of technology, infrastructure and applications is now making Desktop Video Telephony a reality. An IP Telephony infrastructure is becoming more prevalent in the marketplace as equipment costs have decreased and enterprises have come to recognize its potential as a platform for new applications. At the same time, both desktop and group video systems and applications have become much easier to implement, operate and maintain – enabling enterprises to realize their many benefits.

Those responsible for assessing user needs and deploying new productivity focused applications need to consider the Avaya/Polycom Desktop Video Telephony Solution.

Footnotes

1. Wainhouse Research, “Video Conferencing Returns to Strong Growth”, Business Wire, September 15, 2005.

About GreenSpringPartners and the authors:

GreenSpring Partners is an industry analyst and consulting firm focused on driving profitable growth for its clients. The principals at GreenSpring Partners, Richard Kent and Harold Tepper, are engaged in an ongoing effort to help shape the landscape of infrastructure possibilities – hardware, software, applications and services -- for both enterprises and service providers as they migrate to next generation networks.

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