The Compelling Case for Video Telephony in Unified Communications

Why Integrating Video with Telephony Call Control Makes Sense

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White Paper

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AVAYA

Executive Summary

Enterprise class video telephony provides the richness of video communications with the ease of making a phone call. To enable video telephony, video endpoints must be able to register with and be controlled by a call control engine, typically an IP PBX or telephony server. Integrating control of the video endpoints into the domain of the telephony server removes the silos between enterprise telephone systems and enterprise video systems and provides a consistent calling model. Video telephony alternatives range from desktop video to executive video systems and on up to group and telepresence solutions. It also facilitates video-enabled contact centers as well as pushes video to mobile handsets.

Video communications are more and more frequently an integral part of the overall communications infrastructure in enterprises and should be considered when crafting a unified communications (UC) strategy. When a video telephony solution is created, video units may be dialed just like any other telephone connected to the IP PBX. With this type of UC framework, employees can take advantage of the benefits of presence and the multimodal communications mechanisms offered by UC. Presence information is often used as the initiation point of an instant message, a phone call, a video call, a Web conference, or any ad hoc combination of these, and ensures that the best choice of communications medium(s) is utilized.

In this white paper we discuss the video solutions available today and provide a snapshot of the current video market. We discuss how video can be integrated with a telephony server such as an IP PBX, why this is a good idea, and the benefits that organizations will get by creating a video telephony solution. We show how video fits into an overall unified communications strategy and framework, and we provide the ROI and customer evidence to illustrate that video telephony is useful to real businesses. We close with compelling use case examples in which video is integrated with telephony as part of an overall collaboration/UC framework.

Solution Overview

Vendor Profile
Avaya, Inc.
Basking Ridge, NJ, USA

Business
Avaya is a leading global provider of business communications software, systems and services. More than 1 million businesses worldwide, including more than 90 percent of the Fortune 500, use Avaya solutions.


Video Solutions in Today's Market

A wide range of video solutions are available today, presenting customers with a broad set of price-performance-features options. At the high end of today's videoconferencing continuum are systems described as "immersive telepresence studios." Systems that support a telepresence experience deliver very high quality audio and video as well as life-size images displayed in the proper position to create the illusion that geographically dispersed participants are in the same room. Most telepresence systems employ multiple cameras, codecs, and displays in order to maintain the proper visual imagery and immersive effect. Between one and two megabits of bandwidth per camera is frequently required to achieve this high degree of immersion.

Telepresence systems generally spare no expense when it comes to electronics or room preparation and are intended to provide a virtual meeting experience that simulates an in-person meeting as closely as possible. Some systems require, or strongly recommend, that calls be supported by a Managed Service offer to assure that all calls proceed on time, with no issues. Others sport a very slimmed down user interface that is tightly integrated into a PBX so that video calling becomes a far less daunting task to the non-technical enterprise user or senior executive. Telepresence systems and room design concepts have proven how good the videoconferencing experience can be when proper attention is paid to lighting and sound details. The success of the telepresence segment also supports the argument that the user experience matters.

One notch below telepresence sits the mainstream of the videoconferencing market – systems designed for conference room use. For the past three years, this market segment has been transitioning to high definition video, larger screen formats, and rich, wideband audio, thereby providing users with a much richer meeting environment. Most conference room systems today are running on high reliability, lower cost broadband IP networks, enabling higher performance videoconferencing.

Figure 1. The videoconferencing continuum of products and experience levels.
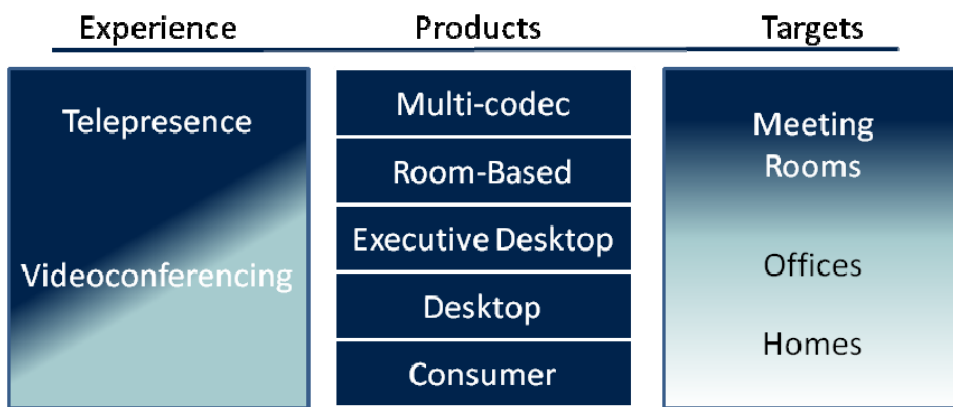
For personal videoconferencing applications, many enterprises have deployed "executive systems," all-in-one desktop solutions that combine the performance of dedicated videoconferencing hardware with packaging designed for individual use rather than for the conference room. Other personal solutions are based on using a video phone or the ubiquitous PC platform for videoconferencing. A webcam and software easily convert a multifunctional PC into a visual communications

platform that can go anywhere and use any wired or wireless network. Advances in PC hardware and video software now enable HD to the desktop while also providing solutions for the mobile worker.

With such a wide variety of videoconferencing solutions and with many enterprises looking to expand their base of users, it is important to consider solutions that are based on industry standards. By adhering to standards-compliant products, conferencing and collaboration managers can be confident that their systems will be able to interoperate, that the desktop worker will be able to call into the conference room and that the mobile executive will be able to connect with the telepresence suite when required.

Figure 2. A high definition executive video system.

Polycom ® HDX 4000

Video Market Trends and Data

The growth rate of the videoconferencing industry has been remarkably robust. In the past few years, the market for enterprise systems, both room and executive systems, has sustained a unit growth rate in excess of 20%.

Figure 3. Group videoconferencing is growing dramatically on a global basis.
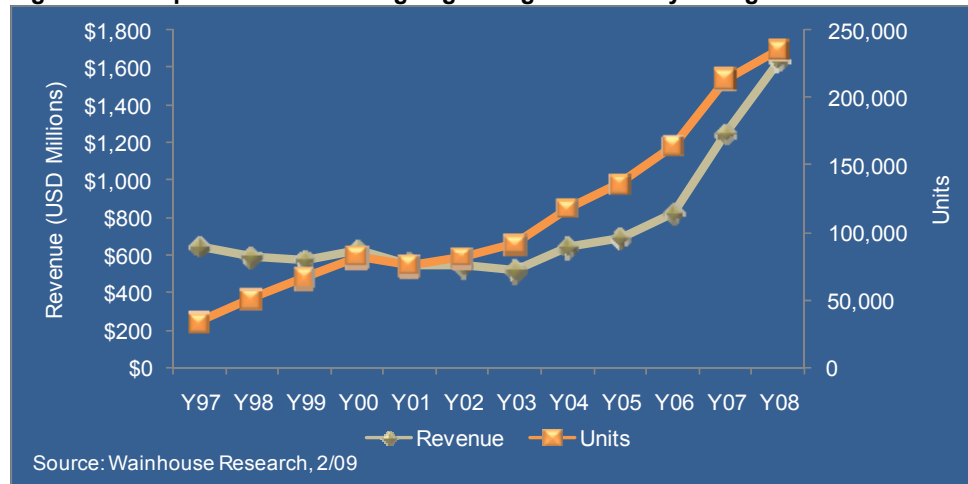

In the past two years, the market growth measured by revenues, has also been robust, fueled not only by unit demand, but also by customers' interest in high definition systems and in telepresence suites. Telepresence, in fact, has come from almost zero annual revenues to the point where it now represents nearly 15%

of the market's revenues. Videoconferencing market growth has continued during both economic upswings and downswings because these solutions are costs savings tools that also boost worker efficiency,

Figure 4. Recent quarterly statistics for enterprise videoconferencing system revenues globally.

## Group Videoconferencing Revenues Q3 2008
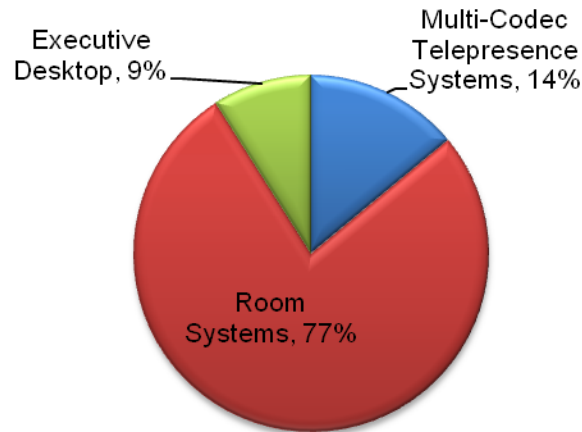
The value of visual communications is proving itself day in and day out in many enterprises. Video helps build trust between colleagues as well as with suppliers, partners, and customers. A video call forces personal engagement and reduces potential confusion while providing important feedback at the same time. Many enterprise managers today are investigating how they can enable video across the enterprise and extend videoconferencing beyond the meeting room. The solution lies largely with low cost, PC-based desktop videoconferencing.

Savvy enterprise managers understand that to reap the full rewards of rich media communications, the communication application should be embedded into the enterprise workflow and supported by the IT infrastructure. This market trend, in which video is integrated with IP telephony and enterprise presence and directory servers, is known as unified communications (UC). Even with today's economic uncertainties, customers are finding a business case can be built for emerging UC solutions based on benefits in three areas:
1. Cost improvements based on travel reduction;
2. Business transformation based on faster decision making, improved communications with customers and supply chain partners, and shortened time-to-market for product developments; and
3. Decreased carbon footprint resulting from electronic communications' replacing local and/or long distance travel.

As video communications moves into the mainstream and becomes mission critical, however, a new crop of concerns appear. Customers need reliable solutions from reliable sources, while the ability to connect desktop systems to conference rooms and telepresence suites demands systems that adhere to industry standards. Video that is as easy as one click to call looks simple on the outside, but requires complex integration on the inside – stressing the need for customers to look for partners that have the breadth and depth of technical knowledge to make deployments successful.

Figure 5. Forecast enterprise video revenue growth.
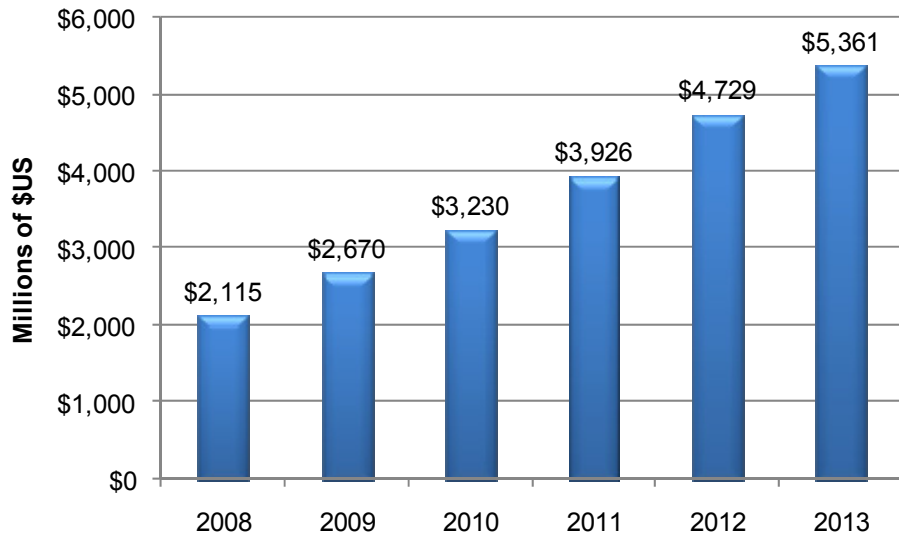
The Compelling Case for Unified Call Control

When we examine most enterprises today, we see that in almost every case there are separate strategies for voice and for video. It is a rare enterprise that, today, combines these two strategies into a common framework. As a result, the way people operate and use the voice system is completely different from how they use the video system. This ranges from how calls are made from within different directory systems to where and how people use the endpoints.

We believe there is a better way.

In the siloed approach just mentioned, both the voice system and the video system have a separate call control mechanisms with different surrounding support structures including directories, management, and maintenance. For the enterprise voice system, call control resides in the telephony server or the IP PBX and one or more individuals emerge as the "voice people" who run and maintain the voice system. Likewise, call control for video is focused in software running on a server, in a gateway or a video bridge somewhere, and the "video people" run and maintain the video system.

In a video telephony solution, all endpoints including phones and video systems register with the enterprise voice and video telephony server. This provides the flexibility to allow existing IP or legacy digital phones to function as voice endpoints, and it allows video units to use mid-call controls and the voice messaging system. Furthermore, the best solutions are smart enough to detect conditions such as when multipoint calls can be handled by the PBX versus when a video bridge is required, or automatically moving calls between infrastructure components required, with no user intervention. This type of solution immediately eliminates alternatives built on siloed voice and video systems. It also makes it easy for desktop video solutions to connect with standard group or high definition systems, and even with telepresence solutions. These solutions can also, easily connect with any voice handset: IP (SIP or H.323), analog, or digital.

There are four key advantages to a video telephony solution:
- The management overhead is reduced because there is only a single system to run and maintain. The same management tools used for voice endpoints can also be used for the video endpoints. In a converged world where telephones and video units are simply devices hanging off of the IP network, this strategy is easily deployed.
- People operate audio phones and video units in the same manner. Dialing is identical, as the same directory is use for either, and it does not matter where the video unit or phone is located – at the desktop, while mobile, or in the conference/telepresence room – they all work the same way. It is true that the dialing interface may be different between a 4x3 touch pad on a telephone versus a group video unit handheld remote, but the simple fact is that to dial, one just presses the proper digits on either interface, and the call is correctly placed and automatically routed by the common telephony server.
- When video is integrated into the enterprise PBX call control mechanism, video endpoints automatically inherit the PBX's quality of service management capabilities, such as bandwidth management and call admission control. Audio calls can be instantly enhanced to include video in those times when a face-to-face discussion is warranted, and video can be throttled back if there is sudden bandwidth deterioration. Furthermore,

> For most companies, a phone on the desk works just like a phone in the conference room; however, in these same companies, video at the desktop is a completely different animal from video in the conference room, and often desktop video does not work with regular room systems or telepresence solutions.
>
> We believe there is a better way…

video endpoints can also be included in a consistent dialing plan and directory versus creating a separate directory and dialing mechanism just for the video units.

- Enterprises that tightly integrate video with the call control mechanism have the ability to blend multiple communications modes into their business applications. This is particularly important as Web 2.0 capabilities are used in which communications features are readily included in line of business applications.

Four key advantages with video telephony:
1. Reduced management overhead.
2. Consistent dialing with phones and video.
3. Video inherits the quality of service capabilities the Avaya Communication Manager offers.
4. It is easier to embed audio and video into line of business applications.

Unified Video Telephony as Part of Your UC Framework

Although enterprises can implement video telephony independently of a unified communications framework, we suggest that organizations at least consider the role voice and video play in a unified communications and collaboration solution and make future proof purchasing decisions so that the unified communications requirements in the future can be met without the need to "rip and replace" existing infrastructure. In the figure below, we illustrate such a solution as designed by Avaya and its video partners.

Figure 6. Avaya's video telephony architecture.
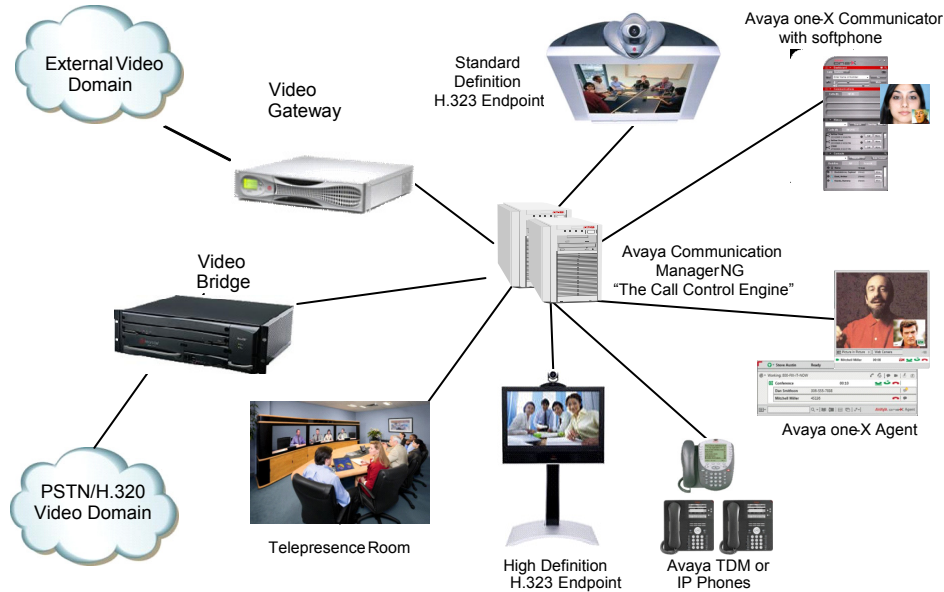
At the heart of this solution is the latest version of Avaya Communication Manager, which provides the voice and video call control. All endpoints, whether they are audio telephones, dedicated executive video displays or group video systems, register with Avaya Communication Manager. Note that the phones can be TDM or IP and that this solution supports either H.323 or SIP video with gateway capability out to the H.320 and wider H.323 worlds.

In such a solution, participants using any of a variety of kinds of endpoints can dial into video meeting. Desktop video also seamlessly integrates and can connect with standard definition, high definition, or standards-based video systems. Each endpoint is given a standard telephone number, and people connect systems together simply by dialing the telephone number associated with the person or unit they wish to call.

Extension of this solution to the contact center is simple because agents can use Avaya's IP Softphone, one-X Communicator, or Avaya's contact center Agent integrated with their other call center software solutions. Furthermore, with this type of solution, a video library can be made available so that consumers using PC's or mobile handsets to call into the contact center can see video not just of the agent, but of products, services, or specific step-by-step fixes to address their issues.

Benefits Delivered by a Video Telephony Solution

Avaya has taken a unique approach toward video communications by integrating industry-standard room and personal videoconferencing systems with the company's unified communications core infrastructure and softphone solutions. The strategy is to provide easy-to-use video solutions integrated into UC systems with a focus on the requirements of the business user.

Customers employing Avaya's video product suite report the following benefits:

- The Avaya solution brings audio, video, and web all under one umbrella, simplifying management and support.
- The ability for users to escalate from text chat to audio to video matches the needs of enterprise workers who want to use the right medium at the right time. It also makes video very "user friendly."
- One click conferencing from Avaya's One-X communicator or IP Softphone for point-to-point or multipoint calls moves video communications away from being a "specialized" conference room application, to becoming available for every person's desktop, democratizing video by making it accessible any time to any worker. Making video an everyday communication vehicle has helped distributed team members develop more trust in each other faster and has fostered better cooperation.
- Integration with Avaya Communication Manager brings telephony features to video and makes professional room videoconferencing systems easier to use for business line managers as well as easier to manage and monitor for the internal IT support staff.
- Integration with Avaya's management software improves overall reliability and ensures that executive video usage is not impaired by desk-to-video deployments.
- The architecture can span multiple sites and support deployments of hundreds or thousands of endpoints ranging from high end room systems to executive systems and laptop-based solutions. Avaya Communication Manager enables greater scalability than stand alone video systems because it has the ability to cascade video bridges together, making it possible to have larger video conferences.
- Laptop-compatible video solutions support the needs of enterprise mobile workers. Integrated with Avaya Communication Manager and supported by Avaya NAT/firewall traversal solutions, Avaya's video telephony can work anywhere.

Benefits of Avaya Video Telephony Solution:
1. One management and support mechanism.
2. Easily escalate chat to audio to video.
3. Moves video to mainstream versus specialized application.
4. Mid-call control are available in video calls (hold, transfer, etc.)
5. Voice call quality is not impacted by video calls.
6. Video becomes very scalable.
7. Mobile worker video is possible from anywhere.

Examples of Deployed Video Telephony

Avaya has helped customers deploy over 25,000 video endpoints, and a number of these have implemented Avaya's video telephony solution, finding real benefits like those mentioned above.

Figure 7. A patient and medical staff member using Avaya's video telephony solution.

Multinational Insurance Company
For example, a large Asian insurance company relies heavily on video, both group and personnel, to do its business. This multinational company has a culture of interpersonal interaction between its managers and its employees. Due to the frequent travel some managers are required to do, planning, decision making, and company execution has been delayed because managers have been unable to meet face-to-face with their teams. This company installed Avaya's video telephony solution which lets managers, securely, over a VPN connection, meet in person with their teams and see their faces and their body language. Managers use the Avaya one-X Communicator on a laptop while the team may be in one or more conference rooms or connected by their own one-X Communicator. Managers simply dial a phone number associated with the conference room, and the video connection is immediately made. For this particular company, video telephony has made it easy for managers to stay in contact with their teams using the personal intimacy video offers.

Harborview Medical Center
Harborview Medical Center in Seattle, Washington uses Avaya's Communication Manager and Polycom® executive video units in examination rooms to provide interpreters for non-English-speaking patients. Harborview is the only public hospital in Seattle, serving a large number of patients for which English is not the primary language. These patients require interpretation for accurate diagnosis and treatment.

Harborview initially maintained a staff of interpreters who physically accompanied patients needing translation to the examination room. These interpreters could serve a maximum of eight patients a day when doing so in person. Video

Interpretation has allowed Harborview Medical Center the ability to interpret for more patients per day as well as increasing their efficiency

To improve efficiency, the hospital tried placing interpreters in a telephone call center. Doctors needing an interpreter would call the call center and request a translator for a particular language. Harborview discovered that having interpreters available over the telephone did not work well because the interpreter could not see the patient's facial expressions or where the patient indicated the ailments were. The patient would say, "I hurt here.", and the interpreter could not see where the patient was pointing.

Harborview solved this dilemma by placing high definition video units on portable carts which allowed interpreters enter the exam room over video. When a doctor needs an interpreter, the video unit is wheeled in, and the doctor is able to select a language from an on screen menu and place a video call to the video call center. The doctor and patient can see the interpreter, giving both confidence and a personal relationship with the interpreter, and the interpreter can see where the doctor is examining or wishes to examine and relate what both doctor and patient are saying to each other. This solution is tied into Avaya's Communication Manager and the Avaya Contact Center solution. Harborview reports that video interpreters can handle three times as many patients in a single day as they could when they accompanied the patient in person.

Figure 8. Doctors select the language and place the HD video call using the Polycom handheld remote. The call goes to the Avaya Expert Agent Contact Center where the next available interpreter with that language skill responds.

Mobile Operator

Another company, a US mobile operator, has also deployed Avaya's video telephony solution. However, in this instance, the company has installed video kiosks in its mobile phone stores that reach back into a video contact center. To keep the video kiosks inexpensive, the company is using either Avaya's one-X Communicator or IP Softphone as the video endpoint in the kiosk. When a customer comes into the store, he or she can be immediately connected to a specialist for a particular type of phone or a specialist that can help them solve a particular type of problem or answer questions. The back end of this solution interfaces to Avaya's Communication Manager and Contact Center software. Customers can see the agent, but more importantly, the agent has a video repository containing useful video clips that can be sent back to the customer which will directly guide the customer, showing them by video how to resolve a

particular issue with their phone or service. This solution is in approximately 150 stores in the U.S, and it is being rolled out to more every month.

3G Video Call Center
Our final example is an extension of the video call center for use by callers located in areas where 3G cellular networks exist that can support live two-way video. Avaya has extended its contact center self-service solutions to support live one-way video from an Interactive Voice and Video Response system to the caller to support self-service applications. It has also extended its contact center agent solutions to support a two-way live video conversation between a mobile caller and a contact center agent. This solution is currently being used in some trial deployments in Europe and the Asia Pacific regions. Video to the mobile handset has relevance in customer service applications, maintenance, and any other activity in which a mobile handset user will benefit from the ability to view an interactive menu, a live agent, or application and recorded content shared by an agent.

Avaya has helped customers deploy over 25,000 endpoints. Many are finding benefit from integrating video with Avaya Communication Manager and its next generation.

Figure 9. Video streamed back to the 3G mobile phone may be menu item selections, pictures, live streams, or any other video content the call center agent chooses.

Conclusion

Video telephony removes the silos between the enterprise voice system and the enterprise video system when video endpoints can register with and be controlled by the enterprise audio and video telephony server. With a video telephony solution, administrators can simplify their maintenance and operations requirements since telephone endpoints and video endpoints use the same call control mechanism and the same management, monitoring, and quality of service tools. Video becomes much easier to use because end users dial video units just like they would a telephone. Furthermore, the system takes care of the routing and setup of multipoint calls when three or more parties are added to a video meeting.

The more robust video telephony solutions allow complete interconnectivity between IP telephones, TDM telephones, desktop video devices, room systems, and telepresence solutions. Thus, enterprises that roll out a video telephony solution can communicate seamlessly using any type of voice or video device connected to the IP PBX, and there is a common, standard way to use any device to call another person or connect to a meeting.

Avaya and its video partners have created a compelling video telephony solution that is part of Avaya's comprehensive unified communications framework that includes presence, voice, video, and conferencing. Furthermore, video is easily extended to the contact center from kiosks and web sites, and contact center agents have the ability to send a variety of stored video content to customers who call in. Avaya's video call center technology also extends video to mobile handsets where users with appropriate cellular network coverage can receive video content from the call center to help resolve a particular issue.

About Avaya

Avaya delivers Intelligent Communications solutions that help companies transform their businesses to achieve marketplace advantage. More than 1 million businesses worldwide, including more than 90 percent of the FORTUNE 500®, use Avaya solutions for IP Telephony, Unified Communications, Contact Centers and Communications-Enabled Business Processes. Avaya Global Services provides comprehensive service and support for companies, small to large. For more information visit the Avaya Web site: http://www.avaya.com.

About Polycom Inc., Platinum DevConnect Member

Polycom, Inc. is the global leader in telepresence, video, and voice solutions and a visionary in communications that empower people to connect and collaborate everywhere. Please visit www.polycom.com for more information.

About Wainhouse Research

Wainhouse Research (www.wainhouse.com) is an independent market research firm that focuses on critical issues in unified communications and collaborative technologies including IM, presence, audio conferencing, web conferencing, mobility, videoconferencing, 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 free newsletter, *The Wainhouse Research Bulletin,* as well as a number of reports detailing current market trends and major vendor strategies.

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