The Viability of Large-Scale Personal Video Conferencing Deployments

Achieving Critical Mass in Critical Time to Deliver Critical Benefits

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August 2012

Study sponsored by AVAYA
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**Introduction**

Over the past few years, personal video conferencing has promised to enter the enterprise mainstream, with laptops, tablets, and phones operating on upgraded networks capable of supporting real-time audio and video communications. Many corporations are looking to embrace personal video conferencing as both a stand-alone application and as part of an overall Unified Communications (UC) deployment because rich media communications can speed decision making, help build stronger teams, and ultimately drive top line revenues as part of a sales strategy.

But personal video conferencing is not just group video conferencing made smaller. Personal video conferencing comes with a subtle but important set of assumptions that are different from conference room video. People expect personal communications to work reliably, intuitively, without IT support, and on all the devices they employ for work and personal use. The long touted vision of "video should be just as easy as a phone call" is not just about an easy and intuitive user interface, it is also about being able to conference with anyone from anywhere and about systems that can scale to support large and dispersed enterprises.

Avaya recently undertook a massive personal video initiative that is the background for this white paper. The initiative for the video deployment stemmed from management's extremely positive experience with personal video during the due diligence and integration process around Avaya's acquisition of Radvision. As detailed below, Avaya was able to assemble a project team, identify the goals and challenges involved in a world-wide personal video deployment, and to video-enable 4,000 Avaya employees within a matter of weeks. This white paper will explore the requirements for successfully deploying pervasive personal video and highlight some of the thinking behind the project, lessons learned, and benefits achieved.

**Keys to Personal Conferencing Success**

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<th>Group Video Conferencing</th>
<th>Personal Video Conferencing</th>
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<td><strong>Benefit focus</strong></td>
<td>Travel savings</td>
<td>Enhanced productivity</td>
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<td><strong>Primary meeting type</strong></td>
<td>Scheduled</td>
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<tr>
<td><strong>Media focus</strong></td>
<td>1. Video</td>
<td>1. Data collaboration</td>
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<td>2. Data collaboration</td>
<td>2. Video</td>
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<tr>
<td><strong>Connection focus</strong></td>
<td>Need to call other rooms</td>
<td>Need to call other users as well as rooms</td>
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<td><strong>Primary equipment</strong></td>
<td>Dedicated systems</td>
<td>Tablets, computers, smartphones (BYOD)</td>
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*Figure 1. Overview of group vs. personal video conferencing*

Wainhouse Research has identified several product or technology elements that are key to choosing and deploying a personal video conferencing solution. Keeping these factors in mind will help any enterprise
avoid the failures of the past (wherein personal video conferencing never took hold) and will enhance the customer's probability of reaching desired outcomes.

1. **Ease-of-use and ultra-high reliability:** Everyone from senior staff to knowledge workers like product marketing managers understands that if a solution were not intuitively obvious and highly reliable, it would not be adopted permanently. For sensitive sales situations or for B2B calls, a video conferencing solution simply has to work, and has to work every time. Most enterprise professionals today are familiar with the virtual meeting room paradigm - calling in to a virtual meeting room. Any new video conferencing solution should support this familiar mode.

2. **Freely distributed client that is supported on a wide variety of devices:** In order to support internal calls as well as calls to customers, external partners and suppliers, a video solution should be freely distributed and available on Windows, MacOS, iOS, and Android devices at a minimum. The solution also needs to be able to traverse the firewalls when necessary. Bring your own device (BYOD) is now a fact of life and any considered solution should accommodate this trend.

3. **Anywhere, anytime conferencing:** While a free client makes possible "anyone" conferencing, "anywhere, anytime" is best served by an “always-on” virtual room (meet me bridge) offering. Other important features include NAT and firewall traversal and "click to connect" conferencing supported by automatic client downloads.

4. **Interoperability with industry-standard room video conferencing systems:** Many conference rooms, both inside and outside any enterprise, are video-enabled with H.323/SIP room systems from Cisco, Polycom, and others. It is important that any personal system deployed be able to communicate with these systems for voice, video and data/content-sharing. Interoperability adds value to all who enjoy that status.

5. **High definition (HD) video:** Consumer products have introduced nearly everyone to the benefits of high definition (720p) video. Knowledge workers today want collaboration sessions that do not sacrifice video quality and that enable remote communications to substitute for physical meetings.

6. **Support for both scheduled and ad-hoc conferences:** While room systems are generally used in a scheduled environment, personal systems are increasingly being used to launch ad-hoc or reservation-less calls.

7. **Recording and streaming capabilities:** Not everyone can attend the meeting at the scheduled time. But recording sessions enables archives to be played back at times and locations convenient to individuals.

8. **Superior infrastructure architecture:** To support a worldwide deployment, the conferencing system should be based on an IP architecture that supports distributed deployments, redundancy, and remote management. Interfacing with corporate directories is highly desirable.

9. **Continuous presence multipoint calls:** This is very important for team, staff, and department meetings. With an infrastructure that supports continuous presence calls (often dubbed "Hollywood Squares"), all of the participants generally can have their video displayed at all times. This makes meetings seem more natural than voice-activated-switching where only the
current speaker can be seen. Support for continuous presence is essential for any meeting involving more than two endpoints.

10. **Encryption**: Information workers are often called into meetings at non-regular hours with others who may be many time zones away. Being able to conference from home with encrypted media is an important consideration.

In addition to these “technical” factors, Wainhouse Research believes that deployment scale is also a critical factor. If video-enabled users can call only a small number of their colleagues (or only a limited number of devices), then video will never become a mainstream communications mode, and the full range of benefits will never be achieved. Metcalfe’s Law, wherein the value of the network is dependent on the number of endpoints, is highly applicable in the case of personal video conferencing. Limiting desktop video to small numbers of users relegates visual communications to a silo, prevents usage from becoming pervasive, and is an important factor in limiting success.

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**Avaya Case Study**

Avaya, the sponsor of this white paper, is one of the leading suppliers in the unified communications (UC) and IP telephony space. The company is both a manufacturer of enterprise communications solutions as well as a provider of the services to plan, deploy, operate, monitor, and maintain these solutions. In March 2012, Avaya announced its plan to acquire of Radvision, a leading technology and end-to-end solution provider for unified visual communications.

Avaya has many years of experience with video conferencing as both a vendor and an end user consumer. The company utilized a mix of internally developed, OEM and resale components to provide an end-to-end visual communications solution. Its internally developed video offering prior to the Radvision acquisition included:

- **The Avaya Flare Experience** that gives users on a Windows PC, an Apple iPad, or on Avaya's own Avaya Desktop Video Device (ADVD) a single graphical user interface and one directory to initiate and control audio conferences, web collaboration, and desktop and document sharing.

- **Avaya one-X communicator**, a unified communications client that provides Windows or Macintosh users with anytime, anywhere access to presence and text chat, voice calling, audio conferencing, corporate directories, video conferencing (Windows only), and communication logs.

- **Avaya Aura Conferencing**, a server-based solution that supports drag and drop contacts to start a conference and easy switching between IM, voice, and email in one window in one application.

While Avaya's experiences with video were broad, its internal video deployment did not have much depth. Approximately 40 room video conferencing systems were deployed worldwide in
conference rooms and executive briefing centers, and small numbers of employees were using the company's UC-based personal video solutions on laptops and tablets. However, during the Radvision acquisition process, many senior Avaya managers were exposed to Radvision's Scopia solution and were impressed with the results. Avaya executives quickly learned firsthand how ready access to personal video conferencing, especially when used in combination with traditional room video conferencing, could save time and money while also improving collaboration processes. Video-enabling the integration team saved Avaya tens of thousands of dollars in travel costs, simplified meeting scheduling and calendaring, and shortened the acquisition process.

Avaya's Goals & Objectives

Based on their exposure to the benefits of personal video conferencing, Avaya management realized video could change fundamentally the way the company does business. Specifically they identified four transformational challenges for the company:

1. Improve the quality of recurring senior-level staff meetings in order to shorten decision cycles.

2. Build higher levels of “esprit de corps” and interdisciplinary trust in product development teams scattered around the globe.

3. Speed the integration of Radvision employees - particularly senior management, sales and marketing, and product development - into the Avaya culture and organization. This challenge would focus on both real-time communications and streaming / webcasting of archived HR and sales training materials.

4. Enhance the sales process by giving field sales and marketing people more effective tools to connect with customers more often and on a more intimate level. Furthermore, having salespeople use video tools to sell video solutions would drive home the benefits to customers more effectively.

Solution Spotlight: Scopia

Before the acquisition was completed, Avaya moved full speed ahead to deploy Scopia desktop to its management team as well as to the worldwide field sales and marketing teams. In less than five weeks, more than 4,000 user accounts were launched.

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<th>Scopia Rollout Timeline Summary</th>
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<tr>
<td>March 15, 2012</td>
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<td>April 30, 2012</td>
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<td>May 1, 2012</td>
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The Scopia platform is a combination of hardware and software that supports media processing for advanced room system devices and delivers high scalability and distributed processing for desktops and mobile deployments. The client-server architecture incorporates a video MCU for real-time HD conferencing over any network, protocol, and device – including desktops, laptops, tablets, and room systems. Other infrastructure elements provide NAT-firewall traversal, gatekeeper and gateway functions, remote management, and integration with leading unified communications solutions.

Perhaps the heart of the Scopia solution is the Scopia Elite 5000 Series MCU – an advanced media processing system that supports up to 1080p resolution, multiple SIP, H.323, and video/audio processing protocols including H.264 SVC, and dynamic resource allocation. Because each Scopia call requires an MCU port, sizing the infrastructure appropriately is a key cost factor in any Scopia deployment. Based on Radvision's experience using video conferencing on a worldwide basis, Avaya opted for a 12:1 ratio between users and MCU ports and deployed three MCUs inside the firewall and one in the DMZ.

With this scheme, the Scopia rollout deployed by Avaya has a "street price" of approximately $140 per user. This is a one-time fee for all the hardware and software licenses. It’s important to note here that large-scale deployments can bring down the cost per user by employing large MCUs which have lower cost/port figures than smaller MCUs.

During the short planning phase, the internal Avaya team performed a network assessment and ultimately upgraded bandwidth at the executive briefing centers where many customer demos were anticipated as well as at data centers where the MCUs were to be deployed. Avaya also deployed:

- Radvision's Scopia iView management system for resource management and bandwidth monitoring as well as usage reporting and analytics
- Scopia PathFinder for firewall traversal
- Scopia 100 Gateway for audio gateway services

Lastly, Avaya’s IT team prepared a best practices guideline on camera and microphone recommendations and video conference etiquette for future users.

**Results**

In its first two months, more than 35,000 meetings have been held on the Scopia platform, with over 85,000 attendees participating in over two million point-to-point and multipoint video minutes. Early feedback indicates that the benefits have fallen into four distinct areas:

- The field sales team is using visual communications to connect with customers, prospects, and partners to demonstrate how video can improve communications and understanding. Scopia is used to sell not only Scopia itself, but also other products in the Avaya portfolio.
The Radvision Scopia client allows license-free, instantaneous access to outsider parties. Being able to establish face-to-face relationships at a distance has enabled the Avaya sales team to connect on a more personal basis with their clients. One of the keys behind the acceptance of sales people to use the solution is that it "always works" and is "easy to use – just click-to-connect." Avaya believes that the use of visual communications with customers will help the company grow its top line revenues.

- Senior managers up to the CEO-level at Avaya have taken to using Scopia for their staff meetings. Feedback from several management teams is that visual communications have vastly improved the interactions and overall quality of the meetings when compared to the typical audio conference technology used in the past. As is the case with the sales outreach program, ease-of-use and reliability have been crucial for the solution to gain acceptance. For larger meetings, the ability to instantly see who is speaking has actually sped up communications and shortened overall meeting times. Others report that it is simply great to see their colleagues’ faces, many of whom work in remote offices and are seldom seen in-person.

- Product development and marketing teams report that having everyone video-enabled has made the teams more cohesive and improved overall working relationships. While it is too early to report shortened development cycles or time-to-market statistics, internal teams working on a variety of new Avaya UC solutions expect these benefits to appear. For internal team meetings, the Scopia solution is expected to generate significant travel cost savings.

- Executives and senior managers in supply chain management at Avaya have deployed Scopia for communications up and down the internal global logistics team as well as with outside suppliers. They report that for B2B communications, the combination of click-to-connect, support for iPads / iPhones / PCs, and high quality audio-video are key to developing an understanding with partners. Visual communications is not expected to completely replace travel in dealing with suppliers, but to reduce travel frequency and to make in-person meetings more productive since relationships will be well established beforehand. The logistics team is also using video communications for internal strategy sessions and quarterly business reviews, both of which make heavy use of whiteboarding as well as multipoint video.

Wainhouse Research plans to review this deployment in four to six months to compare results and utilization over a longer deployment period.

**Conclusion**

Many of today's crop of personal video conferencing systems have overcome the limitations of the past – ease of use, video quality, bandwidth management, and reliability. And while many enterprise managers may have the perception that wide-scale deployment of personal video would be possible
only as part of a UC platform rollout, it is actually very achievable and affordable using traditional MCU-based video conferencing. An added benefit to MCU-based video is its extensive feature set and room systems compatibility which contrasts with many UC-based solutions.

Rolling out a personal video conferencing service to managers and information workers has significant benefits beyond travel savings – including improved team building, better integration of resources, and faster decision making while allowing for a richer interaction.

A factor that is often overlooked is the need to deploy to a critical mass of users. Scale is essential to making video calling an everyday experience. Configuring the network to support personal video conferencing and the required bandwidth is an important step, but not one that is particularly onerous with today’s technology and services.

Wainhouse Research has made the following observations on what it takes to drive mass adoption of personal video conferencing:

- “Click-to-connect” conferencing solutions can enable sales people to connect with customers and prospects with a richer, more productive interaction experience. Support for a freely distributed client and a wide variety of devices, including mobile phones and tablets are both essential.
- A key to success is to enable large numbers of video users. Metcalfe's Law is extremely important at low numbers of endpoints. With proper planning and with the proper solution, deploying video to thousands of users over a few weeks is entirely possible, and in fact, desirable.
- Desktop and mobile personal video conferencing systems that integrate to room systems have additional benefits by enabling groups to interact with individual contributors.
- Personal conferencing and collaboration solutions should accommodate ad-hoc and scheduled sessions, multipoint calls, as well as voice-only and video-enabled participants.
- Providing a highly reliable and easy-to-use video conferencing service will drive usage and encourage information workers to find new applications.
- Network readiness is a key enabler for reliable, high-quality video sessions.

**Recommendations**

- Enterprises should evaluate the new generation of personal video conferencing solutions as a vehicle to increase sales, strengthen partnerships, and improve internal team building. The current crop of personal video collaboration solutions are enterprise-ready and overcome the scalability, reliability, and quality issues that plagued desktop video conferencing years ago.
- Avoid creating islands of communication. Integrate room systems with personal and mobile video conferencing solutions, bringing added value to both sets of investments. Integrated deployments should support high quality audio and video and easy connections inside and outside the firewall.
Create a small, end-user driven team of product champions with participation from at least one high level executive. Have IT represented on the team, but do not have only IT department members. Include the network specialists and line-of-business users.

Communicate internally to all involved with information on what will happen and when so that colleagues can monitor the progress of the deployment project. Include training sessions and provide documentation on how to use the new solution effectively.

Communicate after the deployment about how the solution is being used and what benefits workers are seeing. This will encourage others to use video, making the solution more valuable to all.

About Avaya

Avaya is a global leader in business communications and collaboration, providing unified communications, contact centers, data solutions and related services to companies of all sizes around the world. For more information please visit www.avaya.com. Radvision, an Avaya company, is a leading provider of video conferencing and telepresence technologies over IP and wireless networks. Radvision solutions help businesses collaborate more efficiently by supporting video, voice and data communications over any fixed and mobile network.

About Wainhouse Research

Wainhouse Research, www.wainhouse.com, is an independent market research firm that focuses on critical issues in the Unified Communications and rich media conferencing fields, including applications like distance education and e-Learning. 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 variety of reports that cover all aspects of rich media conferencing as well as a free newsletter, The Wainhouse Research Bulletin.