vaddio

THE NEW GROUP MEETING:

HOW THE PC DELIVERS BETTER AUDIO VISUAL SOLUTIONS

INTRODUCTION

It's hard to imagine a world without email. Yet, Elliot Gold, president of TeleSpan Publishing, recalls a time when interoffice mail came in twice a day in a tan envelope. The speed of business then relied on the pace of a cart pushed from office to office. Email revolutionized business correspondence and brought significant gains in productivity. Fast-forward 30 years and there is another fundamental shift occurring in the way we share information. Today, increased bandwidth and affordable cloud-based services give even the smallest businesses and educational facilities the ability to offer on-demand content, real-time collaboration, and streaming media.

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There are many advantages—increased productivity, reduced costs, and new business opportunities, to name a few—to high-quality audio visual (AV) capabilities such as video conferencing, lecture capture, conference calls, and web meetings. Traditionally, each of these AV capabilities is considered a specific application, requiring a separate appliance-based solution. For example, video conferencing requires a video codec, lecture capture requires a recording system, audio conferencing requires a conference phone, and web meetings need a PC with a web camera.

The challenges to appliance-based and often proprietary solutions are many. First, the financial investment to purchase these separate systems puts the full array of AV meeting tools out of reach for most small- to mid-sized businesses and educational facilities. Second, supporting and maintaining disparate, nonintegrated systems is an IT nightmare. Finally, since it isn't practical to outfit a single room with all the equipment required to accommodate every conceivable AV usage scenario, multiple rooms need to be available.

In this white paper, we'll discuss how to provide a simple and affordable solution to these challenges using a device that is already in most meeting rooms—the PC.

DISTANCE EDUCATION: MAKING VIRTUAL FIELD TRIPS A REALITY

Limited budgets make it difficult for many schools to take their students on field trips to national parks, museums, and other places of interest. Fortunately experts like Dr. John Ittelson, professor emeritus in Instructional Technology at CSU Monterey Bay, are helping educators find new ways to provide these experiences to their students.

Dr. Ittelson is currently on the Board of Directors for the Center for Interactive Learning and Collaboration (www.cilc.org), an organization specializing in the access to applications and the utilization of video conferencing for live interactive content and professional development.

He worked with the California State Park Service and the Parks Online Resources for Teachers and Students (PORTS) Project to develop an electronic field trip program. This program gives students across California and the nation the ability to virtually visit state parks and learn from park rangers through video conferencing.

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THE SHIFT TOWARDS PC-BASED SOLUTIONS

The PC is poised to play a significant role in how the AV industry develops and deploys audiovisual solutions. There are three primary factors driving AV to the PC: video soft clients, the cloud, and IT decision makers.

Video Soft Clients

Finding an AV solution to address financial limitations and integration concerns started at the desktop level. Thanks to video soft clients and collaboration tools readily available for low or no cost, end users and IT professionals began to explore personal meeting solutions. One result is an employee or student armed with a web cam and a headset using Skype and other software applications to video chat, share documents, and interact with remote colleagues.

The growth in video soft client users is staggering. According to Gartner Research, the number of soft-client users in organizations is expected to jump from 9.3 million in 2010 to 132.3 million in 2015. Traditional video end points are predicted to remain relatively flat.[i]

While video conferencing is only one type of meeting that relies on AV capabilities, the growth of soft client usage compared to traditional video end points is a clear indication that the PC is taking on a more dominant role for AV in the enterprise.

The Cloud

Cloud-based services are another area experiencing rapid growth. From customer relationship management to content management, more and more organizations are turning to the cloud. The choice between investing in on-premises equipment, which companies must maintain themselves, or subscribing to a cloud-based equivalent with virtually no maintenance, comes down to a financial and security argument—and that's one the cloud is winning.

According to a Frost & Sullivan survey, close to two thirds of IT professionals surveyed believe cloud computing will overtake on-premises computing by 2015.[ii] A preference for cloud computing over on-premises equipment is a strong indicator of an opportunity for PC-based AV solutions that leverage cloud services.

IT Decision Makers

It almost goes without saying that the network is the backbone of all communications systems. The convergence of IT and AV has been discussed at length in nearly every corner of the AV industry. And with the network comes the IT team. Because their jobs are on the line, network administrators are understandably leery of any solution that touches their network. Factor in their level of unfamiliarity with AV systems and it's not surprising the IT team can present a considerable obstacle for AV sales.

What the IT team understands is their network, their management software, their

servers, and their end points. They can support a soft client user on a PC because they understand software and PCs. But, ask them to get a video codec or installed audio system operational again and it's a different story. This gap in skills costs organizations a lot of money. According to an independent research study of IT incidents in large enterprises, meeting rooms account for 447.2 incidents a year or the equivalent of 23 days.[iii]

The trifecta of soft client popularity, growth in cloud services, and IT responsibilities supports a shift towards PC-based AV solutions in the marketplace.

FROM PERSONAL COMPUTING TO GROUP CONFERENCING

The desktop collaboration solution with web cam and headset works well for individual users in one-on-one meetings. The quality is acceptable and the setup is easy to deploy and support. Therefore, when users need access to the same type of tools for group meetings, the first idea may be to connect a web cam and microphone to the computer in the meeting room.

It's the same setup as the desktop solution but the user experience is unacceptable. In a small meeting, there may be four to six participants and, unless they have no sense of personal space, it is not possible for everyone to be captured by the camera and seen in the remote meeting room. The audio is also a problem. With six people seated around a table and a fair amount of background noise, only the participant directly in front of the microphone is heard.

Figure 1. Using a desktop solution forces meeting participants to huddle around the computer.

Another limitation is the inability to include additional audio or video sources in this setup or capture a recording of the meeting. A PC-based collaboration system does not work for a group meeting. The solution needs to be designed for group conferencing and collaboration.

"Video conferencing has really come of age," said Dr. Ittelson. "With the high cost of travel and availability of high bandwidth, many schools use it as a travel replacement or as a way to bring experts into the classroom."

However, Dr. Ittelson noted, end user equipment is a barrier to more widespread usage. Participants may need to find a video conferencing room or figure out how to connect their desktop computer to a video conferencing system. Few educators have the time or technical skill to implement complex solutions. "For video conferencing to be effective, it has to be easy," said Dr. Ittelson, "It has to be supported by the person using the service."

Affordable video conferencing systems, such as a PC-based group conferencing solution, that can be connected and operated by any user will help make virtual field trips a reality for many more students.

A PC-based AV solution allows end users to take advantage of any conferencing or collaboration tool while retaining the ability to integrate with any existing AV end point for meetings in more complex settings.

Components of a Group Conferencing System

A group conferencing system uses a personal computer as the engine but with completely different peripherals. Microphones, loudspeakers, and cameras must be designed for a group dynamic. A group conferencing system ideally includes:

- Multiple microphones with omnidirectional pickup patterns
- Ceiling loudspeakers with adequate room coverage
- An HD-PTZ camera that pans, tilts, and zooms to show all participants in high-definition
- Inputs for additional audio sources
- A control interface that makes it simple to operate all peripherals

The big idea behind this type of a solution is to rely on a computer rather than on proprietary appliances. Thus the AV components are simply driver-less USB peripherals that do not have any specific requirements. Because the AV components do not require the computer to install any drivers, there is no opportunity for interoperability challenges. A group solution like this allows end users to take advantage of any conferencing or collaboration tool while retaining the ability to integrate with any existing AV end point for meetings in more complex settings.

Changing the centerpiece of a meeting room system from the traditional AV end point to a computer is a different way of thinking about AV. Applications become irrelevant because the application is determined by the group's needs for that particular meeting. The AV peripherals support any type of use—just as a mouse functions in the same way regardless of the program being used.

A cobbled together system with web cams, microphones, and white boards that are not integrated and don't operate as a single system is more difficult for IT to support and for end users to operate. A group conferencing solution that integrates these peripherals greatly enhances the user experience and decreases the time and cost of maintenance. The group solution delivers the experience of a more expensive solution in terms of video and audio quality as well as ease of use.

Evaluation Criteria for Group Conferencing Solutions

To ensure a professional-quality AV experience, assess whether the group conferencing solution provides:

- Options for both ceiling and tabletop microphones
- Camera with HD resolution, 19x optical zoom, and PTZ capabilities
- USB plug-and-play connections
- Loudspeaker connectivity
- Control of all compatible peripherals through a single web-based interface
- Option for AV bridge to stream audio and video to the network
- Integration with AV end points and control systems

USE CASES FOR PC-BASED GROUP CONFERENCING

Thinking of AV capabilities as a set of peripherals to a PC allows integrators to design systems that can be used for virtually any type of conferencing and collaboration use. Multi-use systems will always produce a higher ROI than application-specific systems and ROI is critical to IT buying decisions.

The following use cases demonstrate the flexibility of a PC-based group conferencing system. From simple audio conferencing to more complex integration with traditional AV systems, a PC-based group conferencing system can support any application.

Use Case 1: USB (Skype) Audio Conference

A basic, sometimes primary, use case for a PC-based group conferencing system is an audio conference. As noted, many organizations are taking advantage of low cost, internet-based audio conferencing services such as Skype.

To ensure all meeting participants can hear and be heard in the audio conference, there needs to be good loudspeaker and microphone coverage. The applications diagram below illustrates how easy it is to connect multiple microphones and speaker to a PC through a single USB interface.

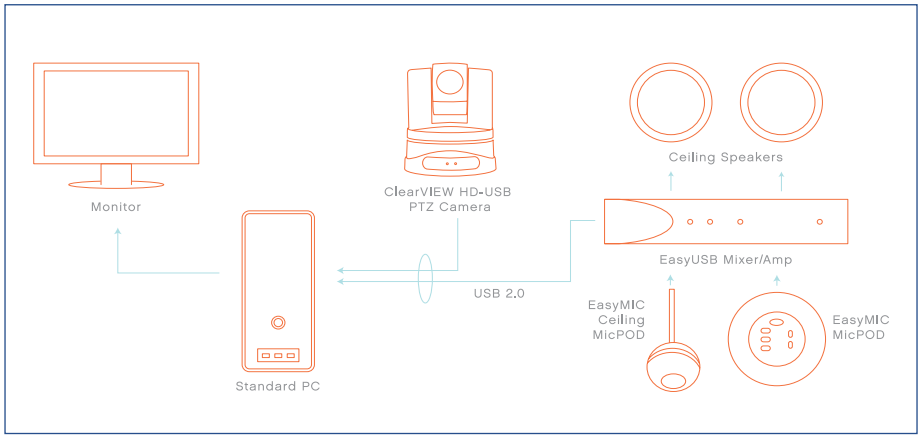

Figure 2. Peripherals for Group Skype Audio Conference

The USB interface for a group conferencing system emulates a USB sound card to the PC with a microphone and loudspeaker channel. A control server provides a web-based interface to the peripherals, making it easy for users to make simple adjustments and use the peripherals as a fully integrated room system.

Use Case 2: USB Conference with Network Streaming

Another common application incorporates media streaming capabilities. There is an increased demand to stream training sessions or record meetings for on-demand viewing. And, it is media streaming that makes virtual field trips and online education possible. For many organizations and educational facilities, video conferencing systems or streaming and recording hardware have been too expensive or required

The number of video soft-client users in organizations is expected to jump from 9.3 million in 2010 to 132.3 million in 2015.[i]

- Gartner Research

technical skills the users did not possess.

Now, with a few peripherals, teachers and trainers can create on-demand content and deliver virtual learning experiences with two-way interactive video.

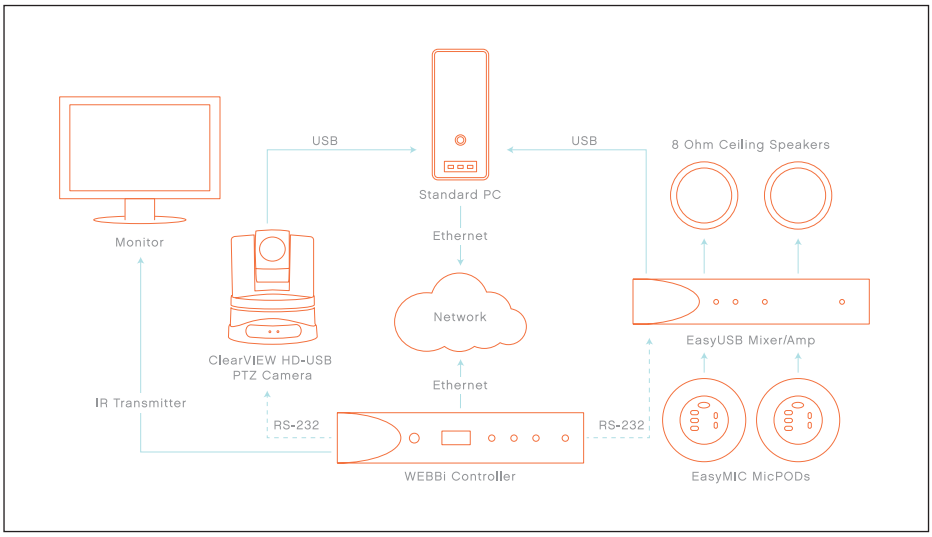

Figure 3. Peripherals for a Network Streaming Application

By adding devices that process video and audio into standards-based USB outputs, users can transform a personal computer into a group conferencing system or a media streaming/ recording solution.

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This USB audio/video signal can then be delivered to a variety of software applications such as video capture, lecture capture or video conference software that can accept a USB signal. Even in these more robust applications, the web-based control interface makes it easy to adjust settings and operate the system.

Use Case 3: Integration with Traditional Video Conferencing Room Systems

Many conference and training rooms contain legacy audio and video hardware for presentations and video conferencing. By adding a device that converts analog audio and video to a synchronized digital USB output is a considerably less investment than upgrading or adding a video codec.

Gaining new functionality is simply a matter of adding connections, not components. This configuration allows users to collaborate in the way that best fits their needs—audio conference, web conference, or video conference—without any changes.

Providing audio, video and streaming capabilities as PC peripherals is an idea that makes sense. The PC is already in the conference room to support the other AV equipment and is an easy model for users and IT support teams to operate and maintain.

This solution also gives AV integrators a tremendous amount of flexibility in how they design and deploy multi-use collaboration and conferencing rooms. More importantly, the peripheral model gives IT decision makers what they've been asking for: audio visual solutions that are easy to use and don't require network integration.

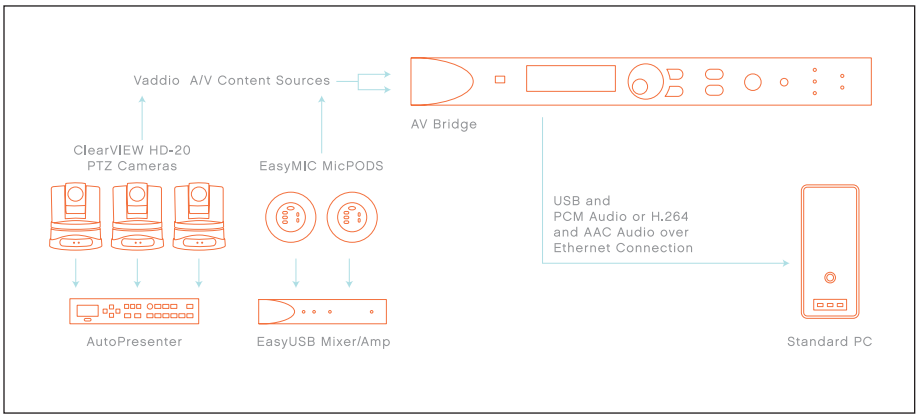

Figure 4. Peripherals for Integration with Existing Video Conferencing Systems

THE VADDIO EASYUSB SOLUTION FOR GROUP MEETINGS

Vaddio is responding to the need in the marketplace for professional quality collaboration peripherals that transform a PC into an effective, affordable group meeting system. The EasyUSB suite of products includes an HD PTZ camera, a variety of microphones and loudspeakers, a room control system and an AV Bridge for capturing and streaming content – all connecting through USB ports. When added to the customer's PC, the combination of products create a complete group AV solution that allows users to engage in any type of capture, collaboration, and conference activity.

ClearVIEW HD-USB

The ClearVIEW HD-USB is the world's first broadcast-quality HD PTZ camera with USB and Ethernet streaming built right into the camera. Now you can directly plug an HD PTZ camera directly into your PC – without the need for a separate capture device. Because the ClearVIEW HD-USB uses standard UVC drivers, no special USB drivers

"What's exciting about what's emerging from Vaddio is that they are taking the plug and play phenomenon to all the various peripherals and component parts that are needed for effective video conference in a group setting."

Dr. John Ittelson
Professor Emeritus
CSU Monterey Bay

need to be installed. As a result they work seamlessly with any software application running on any OS that supports USB 2.0 devices.

The ClearVIEW HD-USB also supports H.264 video streaming with RTSP or HLS streaming protocols.

The camera features a 19x optical zoom lens with a 58.1-degree wide angle of view – wide enough to view everyone at a standard conference table, as well as capture an individual from a long distance at 3.2 degrees in a larger room. The zoom range provides great flexibility for a wide variety of applications.

EasyTALK Audio

Add Vaddio's EasyTALK USB audio products and you now have a complete professional-grade USB audio conferencing solution that includes both microphones and loudspeakers. The plug-and-play tabletop and ceiling mics provide hands-free 360-degree coverage with integrated echo cancellation and three unidirectional condenser microphone elements. The center channel and ceiling loudspeakers offer frequency response from 100 Hz to 20KHZ optimized for voice conferencing applications. Paired with the ClearVIEW HD-USB PTZ camera, EasyTALK USB audio creates a complete PC-based audiovisual group system.

AV Bridge

Vaddio's AV Bridge provides a USB gateway from traditional analog AV components to the PC. The AV Bridge includes switchable video inputs (HDMI, HD, RGB and SD) with a pair of stereo unbalanced or balanced audio channels for encoding high definition video and audio sources. Whether you want to do a Skype video call or set up a lecture capture software application, the AV Bridge provides the USB connection to your AV system. The AV Bridge makes it simple to integrate, record and share content.

WEBBi

All Vaddio EasyUSB components can be controlled through the WEBBi, a single web-based server appliance with a universal browser-based control panel designed to control all of your devices.

The WEBBi Browser Control Panel screen allows the user to adjust the volume and MicPOD output levels; switch video sources; pan, tilt and zoom your PTZ camera and store and recall camera presets. It even powers on and off your television monitor – all through your browser. Because it's controlled through a browser, you can use a PC, tablet, smartphone, wireless mouse, keypad – it doesn't matter. The WEBBi controls are activated via mouse or touchpad – so if you have a browser, you can control it.

ABOUT VADDIO

Vaddio, based in Minnesota, makes robotic camera technology easy to use and even easier to install. Vaddio serves integrators and operators with broadcast-quality PTZ cameras and control systems to deliver the performance needed with the convenience demanded.

To learn more about the EasyUSB solution, please visit:
www.vaddio.com
or call 800.572.2011.

REFERENCES

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