



oneroomTM
Demand more out of meetings

What's Wrong With This Picture?

The benefits of visual collaboration have become so well understood and appreciated that virtually every enterprise is looking for new ways to enhance them. From faster decision-making and increased productivity, to significant travel cost reductions, the advantages of workspace sharing in the visual domain are readily quantified. Yet, the market still lacks a coherent collaboration solution that incorporates simplicity, high fidelity, affordability, and a set of advanced collaboration features desired by all business units... until now.

One recent trend in visual collaboration is to incorporate multiple distinct legacy products into one complete solution. Video conferencing codecs, display servers, multi-monitor adapters, and audio conferencing systems are just a few of the pieces integrated in today's offerings. Being that the components are separate products developed in silos, the combined solution is often technically limited and fails to address advanced collaboration requirements.



When coupled with specially designed room furnishings and displays, these common solutions require a significant financial and infrastructure investment. As a result, visual collaboration often remains a luxury for the executive suite, as opposed to a universal tool aimed towards solving the bedrock technical and engineering problems of a complex, physically extended enterprise. Therefore, few garner the maximum benefits and ROI of visual collaboration.

The IPVS Solution

For almost a decade, IP Video Systems has been delivering industry leading ultra high-definition graphics encoding, archiving, and streaming products to a wide array of global customers. Its Video-to-Data Extreme Graphics codec with Scalable Video Coding Technology **V2D^{XG+}_{SVT}** has become the gold standard for 2D and 3D high-end desktop collaboration over Wide Area Networks (WAN).

Until now, IP Video Systems has focused its resources towards developing solutions for the Medical, Simulation & Training, Space & Missile and Oil & Gas markets.

Having obtained a firsthand understanding of the requirements for effective visual collaboration in the global enterprise, IP Video Systems is now using those insights in a broader collaborative domain. By leveraging its unique media compression, routing, archiving, and control technology, IP Video Systems created the **OneRoom™** solution.

What is OneRoom™?

OneRoom™ is built on the core principle of making information available to every participant wherever and whenever it's demanded. Meetings in which you can see, hear and share information from multiple sources in native resolution and uncompromised original quality, are the best approximation to having all parties and devices in a single room. Whether the information is on a computer half way across the globe, or spontaneously created by a distant colleague, **OneRoom™** removes the barriers of time and space and makes sharing, solving, and creating, easy and natural among global teams.

IP Video Systems designed the **OneRoom™** solution to answer today's greatest collaboration needs in singular devices that are affordable and simple to deploy.



Enabling visual collaboration should not imply purchasing server racks, cabinets, projectors, conference tables, chairs, and new carpeting. With **OneRoom™**, visual collaboration implies one box which transforms an ordinary meeting room into an integrated, state-of-the-art collaboration facility. All networked computers, running either VNC, RDP, or IP Video Systems Video-to-Data (V2D) Software Encoder immediately become available for viewing and control. Remote participants in the far reaches of the world can be seen and heard. And using any combination of either the high definition (HD) camera, acoustic echo cancellation (AEC) microphone system, telephone, or **OneRoom™** collaboration interfaces, multi-point communication is established via video, voice, and/or chat.

With IP Video Systems' **OneRoom™**, meetings with remote participants and devices can be emulated as if they were all in one room, and they can be more efficient than ever before by:

Taking keyboard/mouse control of multiple computers and applications

Conducting interactive whiteboarding session with all local and remote participants

Annotating live video to highlight key points unperceived to first-time viewers

Recording/indexing meetings, whiteboard sessions, video annotations, bookmarks & notes

How Does it Work?

All communication occurs by means of an Extensible Messaging and Presence Protocol (XMPP) backbone, served by IP Video Systems Management System (MS). XMPP is an open source, client-server protocol developed specifically for real-time communication, as opposed to signaling or setup. It is used in popular large scale applications such as Google Talk (Google) and iChat (Apple) and hence enjoys broad acceptance by the collaboration community.

IP Video Systems' Management System draws from many of XMPP's inherent features and functions and some custom extensions, developed for multi-user collaboration, to provide an array of advantages to **OneRoom™** users.

- ▶ Real-time presence messages for all parties involved, showing state and health of all sessions and devices
- ▶ Near instant connection setup and switching for immediate access to information
- ▶ User and/or Resource based Policy Management System ensuring only authorized entities receive classified information from the server or collaborating clients
- ▶ Self-healing of connections if a device is brought back online while a collaboration session is still ongoing
- ▶ Multi-User Chat for users to exchange messages in the framework of existing collaboration sessions
- ▶ Lightweight XML API for control of all collaboration sessions and participating entities

One key differentiator not mentioned above, is best explained in the context of the IP Video Systems' Digital Media Station (DMS) - a multifunctional platform for synchronous recording, relaying, streaming, and playback. The DMS enfolds multiple disparate stream types such as RTP, MPEG-TS, and UDP, alongside IP Video Systems Video-to-Data (V2D) into the collaboration environment. And for V2D streams, the DMS behaves as a trans-profiling video router.

The Management System leverages its knowledge of entities and connections in the network to broadcast time synchronized messages to all devices. Specifically for the DMS, this allows separate physical devices to record and playback data streams of any type in a synchronous manner - as a single device.

To a user, recording 100 synchronous data streams during a large scale collaboration session, entails just making a single click. The Management System handles the complexity of synchronizing all Start, Stop, Pause, Play, Rewind, Forward, and Catchup actions across multiple DMS(s) located around the globe. Whether it is a small scale installation or a multi-site, multi-device, global deployment, the **OneRoom™** solution comes ready to handle it all, without the need for additional equipment.

Our Optimized Visual Media Compression

The most important factor in networked visual communication is the performance of the codec given the nature of the visual media and network constraints.

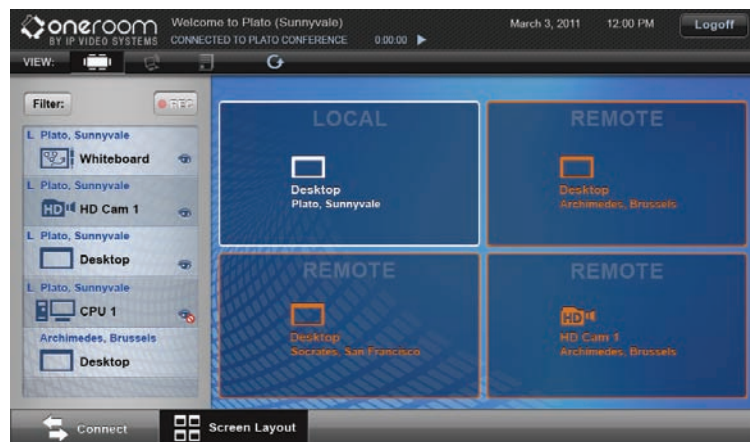
Visual media can be broken down into two main categories: natural video and computer graphics. Natural video is associated with media such as live camera feeds and movies where frame rate and low bandwidth are given precedence over the quality of video on the decoding end. Computer graphics are associated with media such as desktops, heart monitors, and complex 3D models where extremely low latency and high fidelity is required for the streaming of mission critical events. Recognizing the distinct types of visual media used in today's enterprise, IP Video Systems incorporated two unique codecs in **OneRoom™**.

For up to full HD (1080p) natural video, **OneRoom™** utilizes H.264., the industry standard for natural video encoding. H.264 is widely used in Blue-ray disks and popular movie streaming applications such as YouTube (Google) and iTunes (Apple).

In the case of computer graphics that demand the visually lossless transmission of source media over lossy, latent, or limited bandwidth networks, **OneRoom™** exploits the IP Video Systems **V2D^{XG+}_{svc}** codec. **V2D^{XG+}_{svc}** is specifically tuned to stream 2d and 3d graphics, ranging from resolutions of VGA (640x480) up to WQXGA (2560x1600) and beyond. And it provides full frame rate (1920x1080@60) and color representation (4:2:2 or 4:4:4) to all endpoints.

IP Video Systems' lightweight Scalable Video Coding technology encodes a source as a high-quality bitstream composed of multiple temporal and quality subset layers, with negligible overhead. Each bitstream itself can be decoded and rendered. Furthermore, customers do not require proprietary hardware, specialized networks, or routers.

Depending on various factors such as available bandwidth, network packet loss between the endpoints and the previous hop, and user preferences, the **V2D^{XG+}_{svc}** dynamically optimizes frame rate or quality. Consequently, each conference participant receives the highest quality stream he or she is capable of receiving at any point and time.



How Do I Use It?

OneRoom™ provides multiple graphical user interfaces (GUI) for various devices ranging from tablets to desktops. Each tailored for their unique environments, user profiles, and use cases, and loaded with ease-of-use functionality, they empower effortless visual collaboration for all participants.

- ▶ Invite and connect rooms with a single touch
- ▶ Camera, video and desktop sharing to/from any networked PC or laptop
- ▶ Remote management and control of **OneRoom™** devices and conferences
- ▶ Simple and intuitive windowing (automatic grid and strip view)

Imagine Your New Worklife With **OneRoom™**

IP Video Systems' **OneRoom™** solution combines liberating communications and visual collaboration with sophisticated media and bandwidth management technologies. Your business can immediately benefit from new ways of working together without expensive equipment and/or infrastructure upgrades.

Contact an IP Video Systems representative today to start your **OneRoom™** collaboration experience.

For more information, please visit www.ipvideosys.com or call 1.408.400.4200