



Evaluation: Magor TeleCollaboration HDWorkPlace Solution

Part 2 - Collaboration Capabilities

June 2010

Study sponsored by:



Table of Contents

| | |
|--|-----------|
| <i>Executive Summary</i> | 1 |
| <i>Magor TeleCollaboration Systems</i> | 2 |
| <i>Understanding Magor’s Collaboration Solution</i> | 3 |
| Paradigm #1 - System Usage | 3 |
| Paradigm #2 – Data Collaboration Workflow | 4 |
| <i>System Installation / Configuration</i> | 4 |
| <i>Ease of Use / User Interface</i> | 6 |
| User Interface – Navigation, Look, Feel, and Workflow | 6 |
| Using the Wall - Local / PC Display Mode | 6 |
| Using the Wall - Collaboration Mode | 7 |
| <i>Hands-On Testing / User Experience</i> | 8 |
| User Experience – Local / PC Display Mode | 8 |
| User Experience – Sharing Content with Remote Magor Sites | 9 |
| User Experience – Sharing Content with Web-Based Users | 9 |
| <i>Conclusion</i> | 11 |
| <i>About Wainhouse Research</i> | 12 |
| About the Author(s) | 12 |
| About Magor | 12 |

List of Figures

| | |
|--|---|
| Figure 1: Magor - HDWorkPlace Product Line | 2 |
| Figure 2: Traditional / Magor System Usage Paradigms | 3 |
| Figure 3: Traditional / Magor Data Collaboration Paradigms | 4 |
| Figure 4: Magor - Creating a Desktop Resource | 5 |
| Figure 5: Magor - Local / PC Display | 6 |
| Figure 6: Magor - Collaboration Mode | 8 |

Executive Summary

In Q2 2010, Wainhouse Research (WR) was retained by Magor Communications (Magor) to conduct an independent, third-party evaluation of the Magor HDWorkPlace TeleCollaboration solution (a.k.a. the Magor “Wall”). This evaluation was conducted in two parts:

- Part 1 – Focused on the video conferencing / telepresence capabilities of the Magor solution
- Part 2 – Focused on the collaboration capabilities of the Magor solution

This document provides the results of Part 2 of this evaluation project and focuses on the following areas:

- The Magor Collaboration Workflow
- System Configuration
- System Usability
- Overall Performance
- User Experience

WR was impressed by the performance and the flexibility of the Magor collaboration engine.

To facilitate the product evaluations, Magor provided WR with three HDWorkPlace TeleCollaboration systems (two HDDuo dual-screen systems, and one HDSolo single-screen system). To assess the collaboration capabilities of the Magor systems, WR placed dozens of video calls and conducted a variety of data collaboration sessions.

As is the case with all WR evaluations, the solution provider (in this case Magor) was not involved in the actual testing performed by WR and in no way influenced the test results.

Overall, WR was impressed not only with the performance of the Magor collaboration engine, but also with the system’s collaboration workflow, which provides participants with options beyond the typical “see my screen” capabilities supported by most videoconferencing and telepresence solutions.

Please see WR’s [“Evaluation of the Magor TeleCollaboration HDWorkPlace Solution: Part 1 – Videoconferencing Capabilities”](#) for the results of Part 1 of this evaluation project.

Magor TeleCollaboration Systems

Magor's TeleCollaboration product line includes three HDWorkPlace systems:

| Product Name | # of Screens | # of Cameras | List Price (US \$) |
|--------------|--------------|--------------|--------------------|
| HDSolo | 1 | 1 | US \$17,415 |
| HDDuo | 2 | 1 or 2 | US \$31,725 |
| HDTrio | 3 | 2 or 3 | US \$45,125 |

Figure 1: Magor - HDWorkPlace Product Line

All of the HDWorkPlace systems share the following common elements:

- Magor TeleCollaboration system software (based on Linux operating system)
- 1 or 2 enterprise-grade server(s)
- 1, 2, or 3 x 16:9 flat panel video / content display(s)
- 1, 2, or 3 x 1080p 30 fps fixed-position video cameras
- 1 x microphone pod (called the Audio Tabletop Unit or ATU)
- Optional SIP Phone (included in price, but credit available if SIP phone not req'd)
- 1, 2 or 3 x modular cabinet(s)

Depending upon the system configuration (# of displays, customer requirements, etc.), the HDWorkPlace includes either one or two Linux servers. For single-server systems, the server performs all required functions including hosting / running the Magor software application, capturing the camera images via a Gigabit Ethernet interface, encoding and decoding the video streams, driving the system displays, hosting the audio sub-system, etc. For dual-server systems, the camera capture and video encoding functions are offloaded to the 2nd server.

HDWorkPlace platform features include the following:

- Support for both proprietary communication protocols (for Magor to Magor calls) and SIP (for calls to non-Magor systems)
- Support for end-to-end, full motion (30 fps) HD1080p video
- Support for multi-point video sessions using peer-to-peer architecture (without the need for an external video bridge / MCU)
- Support for multi-point data collaboration including Windows, Linux, Mac, and other PC operating systems (e.g. Sun / Solaris)
- Personalized layout control allows each site to customize its experience
- Integrated SIP audio bridge (supports multiple audio-only participants)
- Advanced network / bandwidth management capabilities including dynamic bandwidth allocation and ability to transparently adjust video resolution
- Integrated network resiliency and error concealment functionality enabling use over non-QoS, best-effort networks

IMPORTANT NOTE:

Magor is one of a handful of conferencing vendors that leverage the decentralized, peer-to-peer model for multipoint video and data collaboration calls. This methodology provides a number of key benefits during Magor-only multipoint calls including cost savings, decreased latency / delay, and advanced monitoring and management capabilities since each system has a direct connection to each of the other participating systems.

Detailed information about the installation and configuration of Magor’s TeleCollaboration solution, as well as additional information about Magor’s peer-to-peer multipoint approach, is available in WR’s [“Evaluation of the Magor TeleCollaboration HDWorkPlace Solution: Part 1 – Videoconferencing Capabilities.”](#)

Understanding Magor’s Collaboration Solution

Magor staff visited WR’s Atlanta test lab to install the three HDWorkPlace video systems (with 46” displays) and train WR staff in the proper use of the equipment. During the very first collaboration session, WR observed that with its intended system workflow, Magor has challenged two longstanding videoconferencing paradigms:

Paradigm #1 - System Usage

| Traditional Videoconferencing System | Magor Videoconferencing System |
|--|--|
| Typically used ONLY during videoconferencing / telepresence sessions. For the remainder of the time, the system sits idle waiting for the next call. | The system is designed to be used throughout the workday. When not in a call, the system acts as a large display, with wireless mouse and keyboard, to be used with the user’s PC (or PCs). When in a call, the system becomes a high performance visual collaboration system. |
| Can be used within a shared meeting room or within a user’s office. | Can be used within a shared meeting room or within a user’s office. |
| When used in an office environment, typically installed 8 – 12 feet from the user. | When used in an office environment, typically installed directly across the user’s desk and 4 – 6 feet from the user. This provides a near-life size view of remote participants. |

Figure 2: Traditional / Magor System Usage Paradigms

Paradigm #2 – Data Collaboration Workflow

| Traditional Videoconferencing System in a Data Collaboration Session | Magor Videoconferencing System in a Data Collaboration Session |
|---|---|
| The images on the user's PC screen can be shared with other participants | The user's PC itself – including the on-screen images, applications, and even file access – can be shared with other participants |
| Each location or participant can share a single PC screen with other meeting participants | Each location or participant can share multiple PCs with other meeting participants |
| Each conference supports the sharing of a single user's PC screen with all other meeting participants | Each location or participant can view or access / control multiple PCs sent by multiple users |
| Once a share is active, all participants have access to the shared content | Each location or participant can define which participants have access to (both view and control access) the content they are sharing |
| Each location or participant receives the same video and data collaboration content | Each location or participant can customize his experience by selecting the streams (video and/or data) they wish to view (or control) at any given time |

Figure 3: Traditional / Magor Data Collaboration Paradigms

Summarizing the above ... in a traditional videoconferencing environment, data sharing is somewhat of an add-on. You launch a video session, and then you activate screen sharing. On the other hand, in the Magor environment, data sharing is an integral, equally-important part of the overall collaboration experience.

System Installation / Configuration

The secret sauce behind the Magor collaboration engine is remote desktop. This function, available in some form on Windows, Mac, Linux, Sun, and other PCs, allows authorized Magor HDWorkPlace users to remotely access and manage user PCs. As a result, a VGA / video cable between the user's PC and the Magor Wall is not required.

Out of the box, the Magor solution is ready to support data collaboration sessions, so there is no actual installation required. However, the following steps are required to make a PC accessible to the Magor Wall:

1) Activate Remote Desktop on the PC

Depending upon the PC operating system, this requires either enabling this capability on the PC (for Windows or Mac-based systems) or installing a remote desktop client (e.g. VNC on Linux systems, XDMCP on Sun / Solaris systems). This is likely to require admin access to the PC.

2) Connecting the PC and the Wall to the LAN

The PC to be managed / access / shared by the Magor Wall can be connected directly to the switch included within the Wall or via a wired or wireless connection to any IP network "reachable" by the Wall. Depending upon the network configuration, this may require deactivation or modification of software (or other) firewalls.

3) Add a Desktop Resource on the Wall

This requires the following steps:

- Use the wireless mouse provided with the Magor system to access the system UI (called the Magor HD Controller application)
- Select the Add Desktop Resource option under the Config menu
- Enter a name for the PC to be accessible to the Wall
- Select the proper system type from the drop-down. Options include Public Windows Desktop, Mac Desktop, Private Windows Desktop, Solaris Desktop
- Enter the IP address or Windows log-in name for the PC to be accessible to the Wall
- Select the desired resolution to be used when displaying the PC on the Wall. Users can choose from three pre-defined resolutions (800 x 600, 1024 x 768, and 1280 x 1024) or click the advanced tab for more options or to enter a custom resolution.

Once the above steps are completed, an icon representing the newly added PC resource will be available within the "Available Resources" menu window.

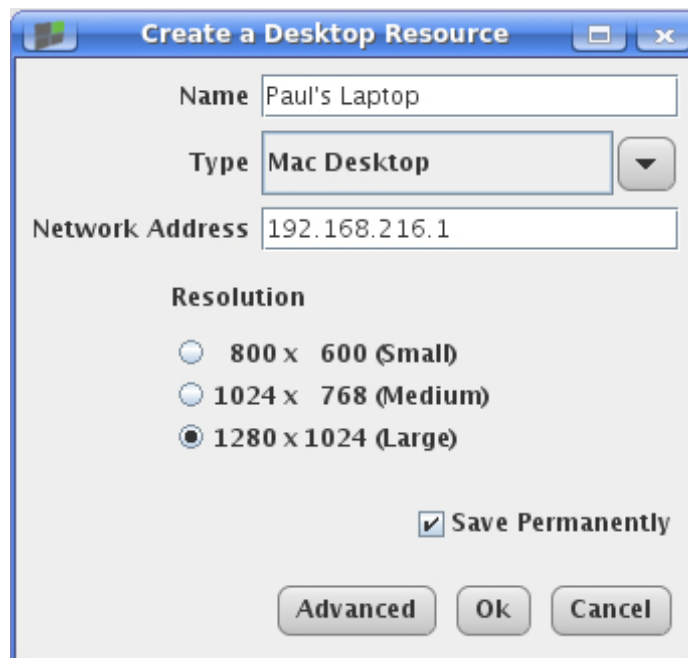


Figure 4: Magor - Creating a Desktop Resource

4) Repeat the above for each PC to be made accessible to each Wall

Once we became familiar with the above process, it took the WR test team less than 5 minutes to make each of our test PCs accessible to the Magor Walls.

Ease of Use / User Interface

User Interface – Navigation, Look, Feel, and Workflow

For detailed information about the user interface of the Magor HDWorkPlace, please review the “Ease of Use / User Interface” section of WR’s [“Evaluation of the Magor TeleCollaboration HDWorkPlace Solution: Part 1 – Videoconferencing Capabilities.”](#)

Using the Wall - Local / PC Display Mode

In local mode, a user can access his PC (or PCs) via the Wall. The intended “start of the day” workflow is as follows:

- Boot the PC (if necessary).

NOTE – When using a PC / notebook with the Wall, the user does not use his PC keyboard and mouse. Instead, the HDWorkPlace wireless mouse and keyboard are used.

- Activate the Magor’s on-screen GUI
- Drag the icon for the PC the user wishes to access / control from the “Available Resources” window to the “Local View” window on the system UI.
- Wait a few seconds to allow the Wall to establish the connection to the PC. Once complete, the PC login screen will be displayed in a window on the Wall.
- Log in to the PC

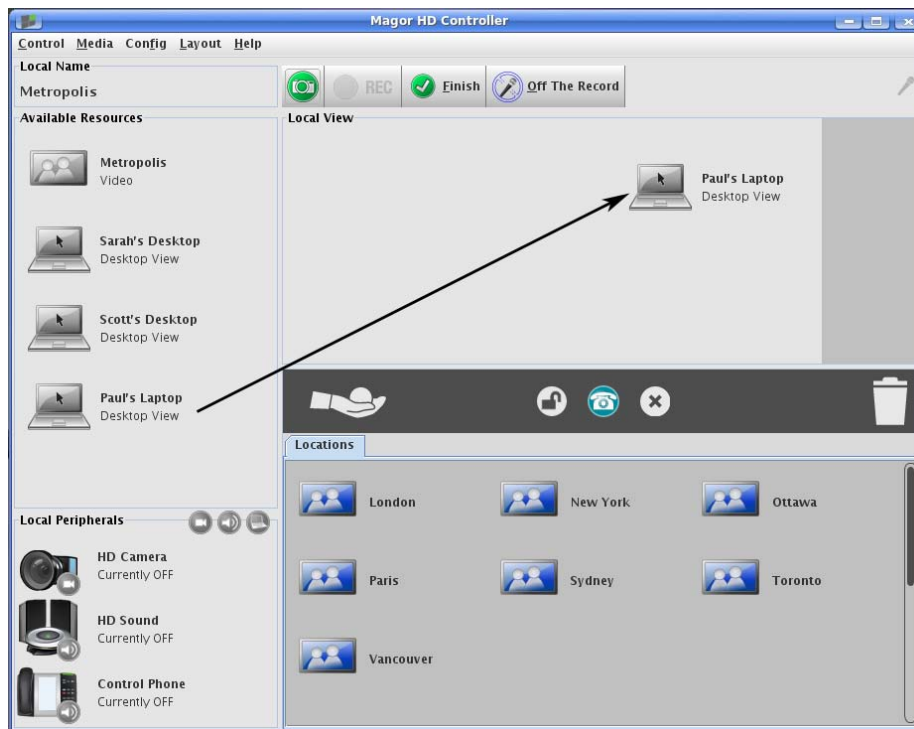


Figure 5: Magor - Local / PC Display

With the above steps completed, the user's PC is now fully accessible and controllable via the Magor Wall and using the Magor wireless mouse and keyboard. The user can access additional "IP reachable" PCs simultaneously by repeating the above steps.

IMPORTANT NOTE – In the above scenario, the Wall is NOT simply displaying copies of the user's PC screen(s). It is providing full remote access to and control of those PCs. As a result, the applications, files, network shares, and other features of the PCs become available to the user via the Wall. This is an important differentiator of the Magor solution.

The obvious question is why would a user want to access his PC (or PCs) via the Magor Wall? The answers include:

- To view PC content on a much larger display as a part of my daily workflow
- To share PC images with others in the same room (in lieu of using a projector)
- To access and control multiple PCs, potentially on different platforms (Windows, MAC, Linux, Sun, etc.), simultaneously and using the same screen, keyboard, and mouse

Using the Wall - Collaboration Mode

While in a video call, all PC resources available to the Wall (meaning pre-configured as described above) can be shared with one or more video meeting participants. To share a local PC with remote users, the following steps are required:

- Launch a video call between the locations (if not already in place)
- Make sure the PC to be shared is accessible to the local Wall
- Log in to the PC (if the PC to be shared is not already active on the Wall)
- Drag the icon for the PC to be shared from the "Available Resources" window to one of the following locations:
 - To the "Local View" window pane - lets the user preview the PC content before sharing with remote users
 - To the "Share with All" icon (looks like a hand with a ball in the palm) – to share the PC content with all connected users / locations (see screenshot below)
 - To the window of a specific participant – allows the user to share the PC content with a specific user / location

To de-activate a share, drag the icon representing the PC being shared to the trash can.

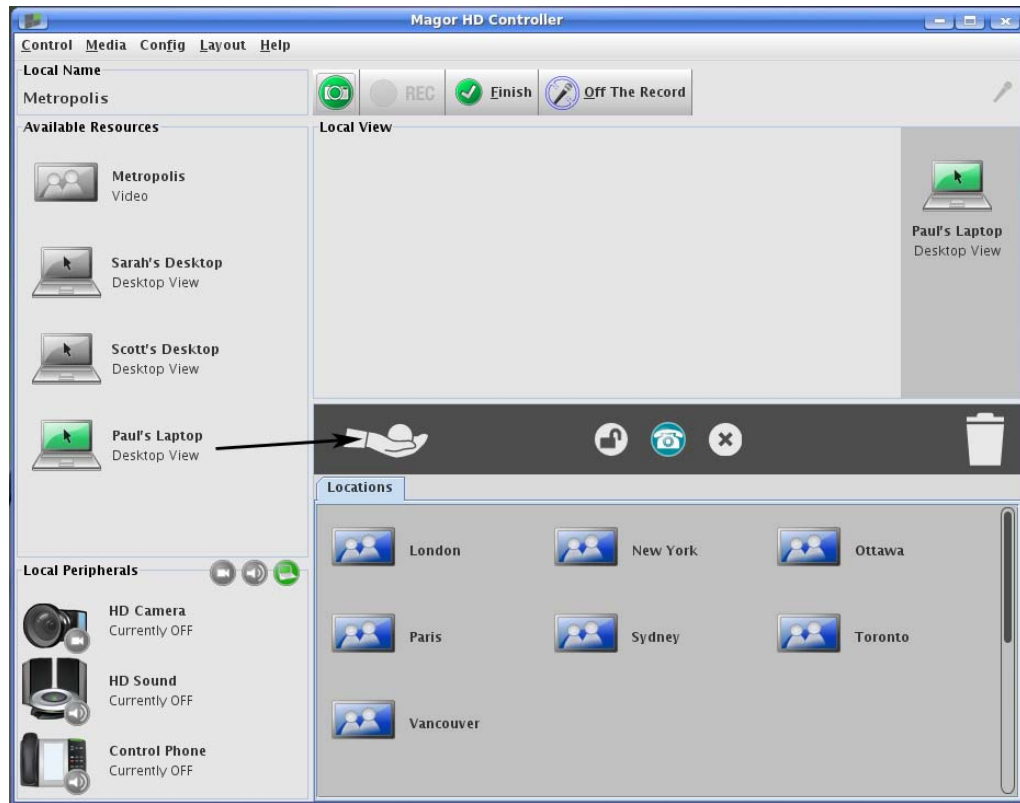


Figure 6: Magor - Collaboration Mode

Hands-On Testing / User Experience

As a part of our testing, WR followed the steps in the prior section to make several WR test PCs (1 x Windows XP desktop, 1 x Windows XP notebook, and 1 x Ubuntu desktop) accessible to the three Magor HDWorkPlace systems installed in three different rooms within our test facility. The test team then conducted a series of test video calls, many including data sharing / collaboration, over a four week period.

After using the loaner systems in our office / test environment for a few weeks, WR understands and appreciates the value of using the Magor HDWorkPlace system throughout the workday.

WR's opinions on the general usability and videoconferencing capabilities of the HDWorkPlace were included within the previously released results document for Part 1 of this evaluation. In terms of the data collaboration capabilities of the system (the focus of this document), WR noted the following:

User Experience – Local / PC Display Mode

The Magor HDWorkPlace's ability to access, view, and manage local PCs works extremely well and provides an exceptional user experience. The keyboard and mouse responsiveness is fine, and the quality of the on-screen images is excellent.

We especially liked the video resolution adjustment function which allowed us to create a very large desktop spanning two 46" displays for each user PC; a function that is possible because the Magor system leverages its internal graphics card when accessing and displaying user PCs. In addition, the fact that this works with multiple PCs and across different platforms is an added benefit – although we are not sure how many users would take advantage of this capability in a real world environment.

During our testing, we noted an interesting, not specifically Magor-related limitation. The connection between the Magor Wall and the user PC is limited by the capabilities of the specific remote desktop software in use on the PC being accessed. For example, when accessing a Windows XP PC through the Wall, the on-screen frame rate will be less than full motion due to limitations in Windows XP Remote Desktop.

User Experience – Sharing Content with Remote Magor Sites

The UI makes it extremely easy to share local content with remote locations. The local user simply drags and drops the appropriate icon representing the local PC resource to be shared into either, a) the “hand” graphic – which shares that resource with all meeting participants, or b) the window pane of the specific site that should receive the share. Once the PC is being shared, the on-screen icon for that PC changes from gray to green.

The image quality provided by the Magor’s collaboration engine is exceptional. In fact, the WR Test Team observed no quality degradation between the locally and remotely displayed content images.

The Magor system also allows remote users to control shared PCs. Once the “remote control” capability is activated by the local user, the on-screen icon for the PC being shared changes from green (showing that it is being shared / viewed by others) to blue. Throughout our testing, the remote control function worked very well and provided a very low latency, highly responsive and crisp user experience. Were it not for the text identifying each PC on screen, our testers would not have known whether they were controlling a local or remote PC.

The flexibility of the Magor solution allows a user to view multiple local and remote, video and content windows simultaneously. Ideally, the local user would be able to adjust the size and location of all on-screen windows (video and content) as he sees fit as he can on his local PC.

User Experience – Sharing Content with Web-Based Users

The Magor solution also allows web-based users to view content shared during HDWorkPlace meetings. To view the content, a user simply browses to the Magor system and enters the appropriate meeting PIN number (available via the user interface of the Magor system that will host the web-based user’s connection) and a user name. Once done, the web user is presented with a list (actually a list of URLs) representing the shared PC content streams he can view (see screenshot below). When the user clicks on a URL, a new browser window opens containing the requested content stream.

WR was pleased with the quality of the Magor web user experience. The image quality was very good, and the latency (delay) was very low. The frame rate provided to the web user, however, was much lower than that provided to other HDWorkPlace systems receiving the same content.

WR also noted the following when testing the Magor web user experience:

- 1) This ability to share content with a web user is available only while in an audio/video conference. As a result, the system cannot currently be used as a screen sharing tool when not in a call.
- 2) Web users can also take control of shared PCs, however in order to do so the video resolution of the web user's PC must be equal to or greater than the video resolution of the shared PC being controlled.
- 3) The system does not allow HDWorkPlace users to share content with ONLY a web user. Instead, in order to share the content with a web user, the content to be shared must be shared with ALL participating sites / users.

Conclusion

Overall, the Magor HDWorkPlace's data collaboration system works well and provides an exceptionally high quality, flexible content sharing experience (barring the few UI and workflow quirks which have been described above).

The Magor solution challenges a variety of videoconferencing, data collaboration, and user workflow paradigms. Most notably, while traditional web and video conferencing systems allow only a single user to share his content at a time, the Magor solution allows multiple users to send and receive content to and from multiple users simultaneously. This is the way audio is shared during audio conferences and video is shared during video conferences. In effect, the Magor solution treats content sharing the same way that other systems treat audio and video.

Although the system's multi-data-sharing capability is extremely powerful and flexible, WR believes that many users will, a) be unable to figure out how to successfully participate in a multi-share session, b) understand how to apply the multi-share paradigm to their work, or c) fail to understand the potential benefits of this capability. This user assimilation gap is likely to take a few years to disappear, and in the interim users are likely to use the Magor system in the traditional way by sharing only one content stream at a time. Fortunately, the system performs extremely well in this capacity.

Another paradigm challenged by the Magor system is that PC sharing during video conferences is typically conducted through a video / VGA cable and involves sharing only a PC's video. Instead, the Magor "share via IP / remote desktop" method gives local and remote users access to the specialized applications and even network shares of the shared PC. This provides some flexibility that users might not think of. For example, the Magor share method would allow session participants to view and control specialized CAD / CAM systems, computers located in operating rooms or clean rooms, or systems located in dangerous or sensitive locations (e.g. within power plants or on oil rigs).

From the "nice to have add-on perspective," WR would welcome the ability to cut and paste text and move files between participating systems. The ability to receive multiple PCs streams simultaneously is a significant benefit. However, being able to move content between the various shared PCs would add a whole new dimension of collaboration possibilities.

In summary, the Magor HDWorkPlace's collaboration engine seamlessly integrates high quality, flexible data collaboration into the videoconferencing experience. The result is an enhanced ability to communicate. Finally, from a business justification perspective, the ability to use the Walls all the time adds to the utility and value of the Magor offering.

In short – the Magor HDWorkPlace takes data collaboration to an entirely new level --- whether the users are ready for it or not.

About Wainhouse Research

Wainhouse Research, LLC (WR) provides analysis and consulting on the market trends, technologies/ products, vendors, applications, and services in the collaboration and conferencing fields. Areas of coverage include hardware, software, and services related to audio, video, and web conferencing, unified communications, and enterprise social networking. The Company publishes market intelligence reports, provides customized strategic and tactical consulting and studies, and produces industry events (conferences). Additionally, the Company operates industry-focused and end user-focused Web sites and publishes a weekly sponsored bulletin for news and analysis. For more information on Wainhouse Research, visit www.wainhouse.com.

About the Author(s)

Ira M. Weinstein is a Senior Analyst and Partner at Wainhouse Research, and a 20-year veteran of the conferencing, collaboration and audio-visual industries. Prior to joining Wainhouse Research, Ira was the VP of Marketing and Business Development at IVCi, managed a technology consulting company, and ran the global conferencing department for a Fortune 50 investment bank. Ira's current focus includes IP video conferencing, network service providers, global management systems, scheduling and automation platforms, ROI and technology justification programs, and audio-visual integration. Mr. Weinstein holds a B.S. in Engineering from Lehigh University and can be reached at iweinstein@wainhouse.com.

David Maldow is a Senior Researcher at Wainhouse Research and a member of the New York and Louisiana Bar Associations. Prior to joining WR, David was a practicing attorney focusing on environmental law. David supports a variety of IP videoconferencing, streaming, and end-user consulting projects. Mr. Maldow holds a B.S. in Psychology from the University of Illinois and a Juris Doctorate from Tulane Law School and can be reached at dmaldow@wainhouse.com.

About Magor

(Copy provided by Magor)

Understanding that today's fast-paced, cost-conscious, competitive business environment requires communications solutions that enable people to enhance decision making, improve productivity and strengthen ties with colleagues, partners and customers, Magor Communications developed the innovative Magor TeleCollaboration HDWorkPlace family of telecollaboration systems. Seamlessly integrating advanced data collaboration capabilities into a peer-to-peer 1080p high definition video conferencing experience, the HDWorkPlace systems dramatically improve the effectiveness of meetings. By extending basic video scaling principles with segmentation and adaptation, the HDWorkPlace family sets the benchmark for *Good Network Citizenship* for enterprise video conferencing solutions, delivering 1080p video and collaboration without overburdening the network or significantly increasing IT costs. Magor works with technology and channel partners and OEMs to bring the power of telecollaboration to businesses of all sizes and to workers at all levels of an organization. For more information, please visit www.magorcorp.com.