

*Today, virtual panoramas are commonplace, and can even be created on smart phones. In 1996, the technology was not only brand new, it had technical limitations and had to be used carefully to protect a record for appeals. This article detailed the first virtual reality exhibit used in court, and discusses the challenges of creating it, admissibility and the use of the process. Some of the advice is still relevant, and the precedent is important.*

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**Virtual Reality Comes of Age in The Courtroom**

**By Douglas Filter**

**Director, Technical Graphics and Multi-Media, Holland & Hart LLC**

Certain visual aids have become popular in courtrooms across the country. The production to the court of exhibits consisting of photographs, videotapes and computer animations have become common place, and not only in personal injury trials. There are obvious objections to these exhibits - a photograph only portrays a scene at a predetermined point of time, and can be cropped to highlight or add emphasis. A videotape can only be shown so many times before redundancy and boredom set in. A computer graphic, the most dynamic of the three, can be suspect for the decisions made in it's creation.

What if a scene could be photographed and shown somewhere else - inside a room, for example - in it's entirety - a complete 360° panorama that could be inspected in any direction as if a viewer was standing at the scene? What if a viewer could control what everyone in an audience would look at, so that everyone could see and discuss important site elements, leave the view up for hours at a time, select another view at random?

What if that “Virtual View” could be brought into a Courtroom?

**What is a “Virtual View”?**

The popular conception of “Virtual Reality” - that of a viewer able to walk through imaginary worlds by the use of an elaborate headset popularized in movies and arcades makes this application a misnomer. Although artificial worlds which are created only inside a computer can be portrayed with this (such as dangerous views, scenery since altered, views inside mechanisms, etc.), the same as portrayed by computer-generated animations, in general, these scenes will be replicated by photographic techniques and viewed on a computer monitor. Instead, a better description would be “Virtual View”.

To envision how a “Virtual View” is presented, imagine that a large, 360 degree panoramic photograph is curled around into a cylinder - the starting point attached to the matched ending point. The cylinder is wrapped around the audience in invisible “virtual space”, but becomes visible when looking through a “window” into that space in the form of a computer monitor. Instead of turning yourself to look around the scene, you cause the cylinder to rotate through the viewing monitor. (See diagram 1).

Therefore, the QT VR technology allows the viewer to navigate around a photographed panorama at random, pausing on views important at the moment, controlling the angle of vision as well as the zoom in and out capability. This is a true random access, interactive presentation. Unlike a videotape view of a scene, whereby the videographer pans around a scene, then zooms in on what is ascertained to be important in trial. Later, that same sequence will be replayed over and over again in court. Instead, the decisions on what to look at, how long to pause on an aspect of the scene, whether or not to zoom - are all made in the courtroom.

### **Admissibility of “Virtual Views”**

Courtroom application for “virtual views” must meet several tests before being considered for showing to finders of fact. Using the model of admissibility of photographs, several important similarities are present. The exhibit is photographed in a traditional way - using standard film which results in normally processed negatives. These negatives will be able to be examined against the digitized end result to check for manipulation and/or misrepresentation.

As in any demonstrative exhibit, several procedures must take place to assure admissibility. In using “virtual Views for the first time in a civil case in Denver District Court<sup>1</sup> in a first amendment rights case, Holland & Hart attorneys were able to prepare the exhibit in advance of trial in a finished form to show to the other side. The opposing attorneys were educated on the concept, shown the film negatives, the camera and photographic rig, and allowed to make objections. The exhibit was adopted by and prepared under the supervision of one of the testifying experts to assist in presenting his opinion. That expert was able to describe the procedure to the court. The Judge, the Honorable Herbert L. Stern III, was interested in the technology, and open to the concept. Consequently, the exhibit was used by the plaintiff’s counsel in opening, during testimony by several witnesses, and then, interestingly, by other members of the court, including the judge, when references to the scene needed to be clarified.

Some discussion was made about how the record would be preserved, when, during testimony, witnesses would refer to “move left a little” and make other vague references. Plaintiff’s lawyers, when using the exhibit, were careful to make more descriptive narratives when describing the visual aids. It was suggested that, if necessary, a video tape recorder and a microphone could be attached to the monitor to synchronize the view with the record, but that wasn’t necessary unless the exhibit was admitted as other than a demonstrative visual aid.

### **Firm Culture Fosters the Implementation of Presentation Technology**

The Technical Graphics group at Holland & Hart is charged with the task of keeping up-to-date on technology which will assist the firm’s attorneys to communicate with persuasive visual aids.

The premise that attorneys already are able to write well-constructed briefs and other legal arguments, are able to construct powerful oral arguments affords them the skills to communicate in the written and the spoken forums. These skills are taught in Law Schools, and continue to be developed during an attorney’s career. However, the ability to control, edit and make persuasive visual arguments - in the media most of society now receives its information - is only touched on in some evidence classes and continuing legal education seminars.

Holland & Hart has developed a successful visual graphics department which embraces modern technological tools that have been specially developed to fit the style of the litigators.

Eight years ago, an innovative approach to maximizing trial communications was established by hiring Dr. Richard Crawford, a Communications Specialist and Trial Consultant. Dr. Crawford, who had conducted focus groups, mock trials and communication skills training for lawyers, brought a program to the firm which incorporated mock-trial practice in-house, sharpened the presentation skills of the litigators, introduced new concepts for establishing case themes during voir dire, and practiced attorney's arguments in front of peers, mentors, and video cameras.

The next step was to bring the production of Demonstrative Evidence in-house.

The Technical Graphics Group has successfully implemented exhibit presentation strategies in prior complex trials, working with outside service bureaus initially to design laser disk presentations, then hiring programmers to assist in creating multi-media presentations of Video Deposition clips, audio clips and graphics all accessible in random order. Eventually, staff people were hired with multi-media and programming skills to implement strategies and graphic techniques for trial exhibits.

In each instance, Holland & Hart was able to add their unique experience in trial applications to the project, designing technology to fit the attorneys' style, rather than training the attorney for any given new technology.

That technology changes every six months is a startling fact of life today. However, it is the technical Graphics Group's philosophy that a presenting attorney should not be forced to learn new access keys, new control methods or new skills for controlling the "Technology of the week". Better to let the attorney concentrate on his or her facts and present in the manner most comfortable. If a technology method can't be taught in a few minutes, if it isn't intuitive, if it can't correct operator errors instinctively and immediately, if it isn't redundant to avoid equipment failures - then it isn't useful in court.

The premise for developing a "Virtual View" trial exhibit started off innocently enough. The Holland & Hart team had been studying Apple's utilization of its "QuickTime VR" technology since one of the networks, in cooperation with Apple, showed Nicole Simpson's yard to viewers during last year's big event. At that time, the software was in development, but was available for a high price. Eventually, the price came down substantially, and the Graphics Team was able to afford the software and the tools to make their own virtual views.

The implementation purpose was clear - The firm has enjoyed great success showing clients and potential client's the firm's commitment to technology through tours of the Mock Trial room and the Technical Graphics Center. It wanted to make that tour more widely available on the firm's INTERNET home page, but an animated walkthrough of the department created to test working spaces during a recent remodel resulted in a file size too big to put on the home page. The QT VR panorama, in low resolution, was only 150kb, and added more realism, consequently it was produced for that purpose.

In presenting the end product to the Practice Group Managers, The Technical Graphics director explained the purpose, described what was being done with the technology and explained “some time in the near future, virtual reality will be used to replace views in court. We want you to know that we have mastered the technology, and are ready to use the technology when the time comes.”

The time came ten days later, when the attorneys for the First Amendment Rights case against the Colorado Rockies Baseball Club was brought to court.

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### **Sidebar - Definitions**

**Virtual View:** A representation of a scene which exists in the computer’s “Virtual Space”, in essence, inside the computer. The computer monitor allows the viewer to “see” the view selected in the scene by the operator.

**Digital or digitize:** The result or process of converting an image to digital signals so that a computer can process and replicate it in a form which the viewer can see.

**Panorama:** In this case, a view in all directions of a scene, available to the viewer.

**Pan:** Move a “camera” to make the scene change from left to right or vice versa.

**Tilt:** Move a “camera” to make the view look up or down.

**Zoom:** Move a “camera” to look closer at an object, or view it from a farther vantage point.

**Navigate:** To use the computer controls to pan, tilt, zoom - in other words, to look around in a photographed Virtual View.

### **Sidebar - Applications**

The technology to create “Virtual Views” is available over the counter. Photographs may be taken with a 35 mm camera, a digital camera or even as stills from a video tape panorama, although a fine 35mm Single lens reflex camera which will accommodate interchangeable lenses is recommended. The use of a 15mm wide-angle lens (not fisheye), when attached to the camera mounted in the portrait (sideways) configuration, allows the ability to tilt up and down in the later “Virtual View”. the software corrects for any distortion offered by the lenses wider field of vision.

A panoramic mount is used to hold the camera. This mount will feature bubble levels to assure exact horizontal orientation, so that the horizon stays level in the resulting panorama. It has click stops to stop the camera every 30°, so that 12 evenly spaced exposures can be made. A good mount is made by Kaidan of Feasterville, Pennsylvania.

Once the photographic series is taken, normal processing is recommended, although printing to Kodak PhotoCD Process eliminates the need to scan each image later.

The software required to finish the image is made by Apple, and masters on a PowerPC computer. It is available by contacting Apple Computers on the INTERNET at <http://www.apple.com>.

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<sup>1</sup> 95CV2718 (Consolidated with 95CV3556) Robert F. Lewis; The Game Program, a Colorado Limited Liability Company; Bert Matthew's; and the Homestead Flyer, a Colorado Limited Liability Company, plaintiffs, Verses Colorado Rockies Baseball Club, Ltd.