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Grabbing the Holy Grail of Webcasting

By **Stephen Schleicher**
Producer

If you have read the article "[Animation in the Web-Age](#)" on the Digital WebCast sight, you know there are several things that prevent high quality images or video from being sent over the Internet; size, speed and quality, the golden triangle of webcasting. If you want quality, you end up with large file sizes which in turn increases download time. Webcasting professionals have long known of this conundrum, and have instead reduced size and quality to compensate until a happy medium was reached, generally speaking 320x240 (or smaller) at 15 frames per second (or less). With this barrier in place, it seemed it would be a long time before anyone would claim the Holy Grail of Webcasting as their own.

Enter **Eliot Bernstein**, who until 1998 was working in the insurance industry, creating computer based, multimedia-marketing tools for use in the industry. Two years ago, he left that field and pursued a career that would let him combine his passion for photography and video and bring them to the Internet.

"The world up until 1998, when you built a picture, you could scan it in at the highest resolution possible to get the best graphic, but then you had to build the frame for the picture. If you wanted a frame that was 160x120, your picture ended up at 160x120 and that was it. The minute you zoomed in on (the image), you were drawing from just those pixels so blur became instant, because there was not external data to draw from," said Bernstein in a recent interview.

Teaming up with **Brian Utley**, former Vice President and General Manager of IBM



Eliot Bernstein



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Boca Raton, the two formed iViewit.com, with the goal of breaking the file size/quality limit. With a degree in Psychology, Bernstein realized that the human eye could be tricked into seeing what isn't really there.

"When I was approached with this puzzle from engineers, I thought, 'Instead of a 120x160 images size as the end result, why not put a picture the size of the Empire State Building in (the frame) and then see what happens?'

We went about looking for that right sweet spot that would beat the compressor from putting up a garbled image. We found the perfect size that works on multiples of 4, based on what has now been dubbed the "efficiency equation". When we put up a large image (inside of a 120x160 frame) and started to zoom in on it, it was drawing in all this data from outside of the frame and we got these zooms that everyone now calls "2 ½ D".

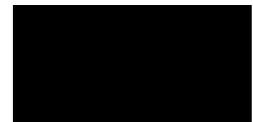
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The end result is, you are able to do a full screen presentation, but you really did all the work in a very small frame which, generates a very small file, which gives you the ability to stream in very low levels."

The implications for such a compression breakthrough in still images and photographs are impressive when one realizes that the Mona Lisa could be scanned and compressed using iViewit's technology, and allow the user to zoom in almost infinitely into the image to see all the detail in the Master's brush strokes. The only thing preventing how far you zoom in is file size.

Bernstein explained, *"The images on the iviewit.com site are around 400kb, which gives you a magnification of about 20 to 30 times. A 1mb file size, will give you a magnification of up to 100 times, 2mb gives you a magnification in the 500-600 range, and it goes up exponentially from there. But you have to realize that the current state of digital cameras prevents us from achieving the same depth quality that you could get from film. So our only true limit we have is film emulsion."*

With this in mind, still cameras in the near future will be able to ask you how far in you want to zoom on your picture and that will determine the file size that is generated.

Photography and Art scholars are not the only ones who can benefit from this technology. The same technology can be used in the medical and manufacturing fields to store huge amounts of data generated from MRI's or 3D CAD walkthroughs.

The next logical step in the iViewit.com story is streaming video. The same efficiency equation can be applied to video (sans zooming capability) to create files 1/16th the size of video encoded by other means. When demonstrated in Hollywood, **Ellen DeGeneres** used iViewit's formula for her Ellen Americana 2000 Tour, in which she streams a daily diary of her travels.

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Compare these two images zoomed in 10x (lower image is compressed using iViewit). While little blurring has occurred (near the speedometer). [Click image for 20x comparison](#)

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With a streaming break through that can benefit Hollywood's major studios, it should come as no surprise that iViewit is looking to expand their facilities from Boca Rotan, Florida to those strategically located elsewhere.

To make one more giant leap in how this equation can be used, iViewit's technology doesn't have to stop with just Internet applications. One of the big uses many Hollywood studios have picked up on, is the ability to encode DVDs.

"Video is where we are at today... it's not just for streaming video, encoding DVDs uses only 1/16th the file size of normal encoding today. We have put our encoding process right next to today's DVD encoding and people can't tell the difference."

iViewit technology is currently being used by Hollywood.com, and is being looked at by others looking to adopt it for various uses.

"Some want to stream, some want to DVD encode and save money, some want to do it all themselves, others want us to do it all for them."

DVDs are not the only medium that can benefit from this new equation. In the near future expect iViewit's technology to show up in interactive games, space simulators, and other file size intensive applications.

With the efficiency equation in place, the Holy Grail of Webcasting may have been grasped as two of the three barriers to true full motion full screen streaming video have fallen. Once two are gone, the third no longer becomes a factor as data transfer rates become faster and faster.



Stephen Schleicher is a producer at Digital Media Net and heads up our Digital Webcast and Video Systems sites. He also hosts the Video Systems and Digital Webcast World Wide User Groups.



Screen grab from the Ellen Americana Tour 2000 compressed with iViewit (note: this scene takes place at night).

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