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Video for the Internet goes Hollywood

When George Lucas adopts high definition digital video for shooting *Star Wars*, it's a sure bet that others will follow.

by Bob Connolly

I recently gave a lecture at Seybold Seminars in San Francisco entitled "How to Build the Ultimate Broadband Web Site", focused on creating interactive digital video for the Internet. A prerequisite for the course was knowing how to make a video; I would demonstrate how to make video interactive using QuickTime wired sprites. But guess what? Few people in the session had actually made a video!

Most of the attendees had merely taken finished videos and digitized them for the Internet. They had been locked out of the shooting/editing process and wanted to find out if they had the necessary equipment to produce Internet-ready digital video. The audience seemed to be well-versed in creating web sites and many just wanted to find a way to add video.

I demonstrated GoLive 5's QuickTime authoring application which allows you to make the videos interactive, and briefly described what I believe will be in the future for converging media industries such as telephone and TV.

After the conference, many approached me to find out how I made the video. Not the interactive part, just the plain video. What camera did I use? What software did I use to edit the video? How did I compress the video?

When I asked, "Do you have a new Mac?", half of them said yes. The ones that had a Mac got an easy answer.

"If you have a new Mac with a FireWire port you can use Apple's iMovie 2 software to make Internet-ready videos. For around fifty bucks, iMovie will get you going, but you might

want to buy Apple's Final Cut Pro for additional audio and special effect features. You will also want to shoot in DV or DVCAM format to take advantage of FireWire."

Most had heard of FireWire but DVCAM was a new one.

MAC SAVES THE DAY

Upon returning home to Toronto I was informed by my staff that my Avid digital video editing system was not working. After several attempts to get the system running and a service call from an "authorized Avid service dealer", I was told that my Avid digital video capture card was faulty but that it could be repaired for \$7,000!! Not only that, but it would still only have a 90-day warranty! The fact of the matter is that Avid wants to replace all the old capture cards with its new Meridian capture systems.

Well, twist my arm or what? Unfortunately I was about to go into production of a video and I now had no system to accomplish the task...or did I?

I had a review copy of Final Cut Pro but never got around to actually producing a professional video with it. I was used to the Avid system and it worked fine for me. But now I had a deadline and didn't have time to buy or upgrade to a new system.

So I sat down with my editor and re-configured one of our blue and white G3s that was used for graphics. We shot the video with a Sony DCR-VX1000 and a Sony DVCAM, then edited the entire production in an all-nighter session. The system had a few batch digitizing errors, but in every other case the system worked flawlessly and the video looked crystal clear—in fact, better quality than the Avid.

BETTER QUALITY THAN AVID?

In order to justify that statement, you'll need to see the big picture to understand what is right for you. And the biggest difference is digital versus analog video.

DV and DVCAM formats come from the same family of digital video. DV is regarded as consumer quality and DVCAM is professional; to the average person the only difference is that the tape travels faster in DVCAM format, which reduces the chances of dropout (little specks of noise in the video).

When Sony invented the DVCAM format, they worried about losing sales of its high end DVCAM editing systems. At first, there was no way of getting DVCAM into the Mac FireWire port to edit. The community at large cried foul, and finally Sony caved in and started producing DVCAM editing players and recorders with FireWire ports built in.

Up until that time, BetacamSP was the standard format, and editing that format on an Avid system was the norm. BetacamSP

is analog and the tape produces noise in the image after several generations of copying. DV/DVCAM is digital and copy to copy is crystal clear. The Avid capture system is digital, but when you capture Betacam, the analog signal is encoded into "motion-JPEG" and this compression tends to add noise to the picture.

Transferring DV or DVCAM into the Mac via FireWire is different from capturing analog video. In the DV format you are just copying the video onto your hard drive. Using an Avid and Betacam, you are capturing the video and compressing it at the same time, which adds noise to the overall picture quality. That's why the picture quality of my DVCAM/FireWire method looked better than the BetacamSP/Avid solution.

There are, however, drawbacks.

DV/FireWire is really one format using a 4:1 compression ratio. You can't compress DV/FireWire at a really low resolution for offline editing. You basically transfer it into your computer, edit it and transfer it back to your camera or DVCAM recorder.

Using Avid's motionJPEG capture cards, you can digitize at a very low resolution for offline editing and then re-digitize only the final video that you will use at a low compression setting of 2 to 1, or in the latest versions uncompressed video.

But if you are editing long format programs, DV will fill up your drives. My final video was 12 minutes long and the raw material that I loaded into the computer took up 20 gigs. Using motionJPEG I could have loaded hours of video onto the drives, edited the show and then batch digitized the final material at low compression rates to get the final master.

SO WHAT DO I DO NOW?

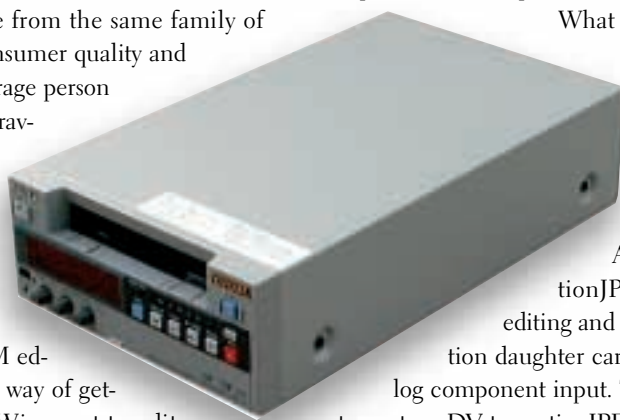
FireWire is great for short length videos but I need to produce one-hour TV specials. I need both motionJPEG for long format and DV for shorts.

I proceeded to spend two weeks searching for a solution.

What I needed was a new capture card that uses software that would give me the features of Avid at an affordable price.

I know that Media 100 has been a second choice for people who could not afford an Avid system. Media 100 uses a motionJPEG card for off-line and on-line editing and has recently brought out a DV option daughter card that provides both DV and analog component input. The DV daughter card allows you to capture DV to motionJPEG. You can now fill up the drives with hours of video, edit in off-line quality, and re-digitize the final edit using original DV FireWire quality.

Media 100 has also just recently added the capability of producing interactive QuickTime digital video using wired sprites. This is the only video editing application on the market right



now that is able to take advantage of QuickTime media layers to produce digital video targeted for Internet delivery. It's sort of an add-on module, like the one used with Adobe GoLive's QuickTime editor.

I located someone who was selling a used Media 100 system, thinking that this solution was a good way for me to go—until he told me why he was selling the system. He needed the money to buy a new digital video capture card made by Pinnacle, called CineWave.

This card is the hot new kid on the block. It can capture and edit uncompressed digital video—even high definition video—and is made especially for Apple's Final Cut Pro software.

The best part of all was that the card cost about \$10,000. This was only a few grand more than the cost of fixing my Avid card!

WELCOME TO HOLLYWOOD

The CineWave card comes bundled with Final Cut Pro, Commotion Pro and Hollywood FX Bronze software. So, all you really need to start editing is a G4 and some drives—in fact, lots of drives. The CineWave card is capable of capturing uncompressed video—even high definition video—so you'll need big fast drives if you want your final product to be released on 35mm film or on one of the new US High Definition TV stations.

For creating special effects, in most cases you'll want to be able to capture any format of video, add effects to it via AfterEffects or Commotion, then either put it back to tape or reconvert it for the Internet using QuickTime or some other Internet-specific codec.

After a closer inspection into the capabilities of this card, it seems to me that Apple is really out to position the Mac as a true professional high end digital video workstation.

At this point, Silicon Graphics is the acknowledged king of special effects computers used by the feature film industry. Typically, 35mm film shot at 24 frames per second is scanned using high-resolution film scanners, then transferred or digitized into high definition digital video for special effect compositing. Movies like *The Matrix* use this technique to combine live action and computer generated sequences. However George Lucas is now taking this procedure to the next level.

STAR WARS SHOOTS HIGH DEFINITION VIDEO INSTEAD OF 35MM FILM

The new Sony High Definition digital video cameras are capable of shooting 24 frames per second using the progressive scan method. In layman's terms, the quality of video now rivals that of film, and George Lucas is pioneering its use in his

next *Stars Wars* feature. Instead of shooting film and transferring to high definition digital video, he is capturing it live and transferring it to the computer in its native state.

This method will literally change Hollywood forever. Imagine what will happen when student film makers rent High Def cameras, edit with Final Cut Pro using the CineWave capture card and then output the final product to 35mm film. And you thought *The Blair Witch Project* changed Hollywood!

WHERE DO YOU BEGIN?

High definition video is probably not your cup of tea but it is important to understand that the tools that are being used to produce video for the Internet and feature films are now the same. And the common denominator is Apple's Final Cut Pro.

If you're going to make digital video, you'll need editing software, and it looks as if Apple is covering the bases. Learn to work the software and you will have the skills to produce almost anything from small 320 x 240 Internet format to high definition feature films.

The road ahead is now becoming clearer when you see exclusive QuickTime *Star Wars* movie trailers. Steve Jobs bought Pixar from Lucas when he left Apple and it appears the two are still buddy-buddy, even now that Steve is back in the driver's seat at Apple.

The writing on the wall is plain to see. Just look at Apple's ads for the PowerBook. It is promoted as a movie studio in a box instead of a presentation or business computer. OS X has a slew of brand new applications never seen before on the Mac. 3D applications such as Maya, a standard for Hollywood special effects, is waiting in the wings for release. Dual processor Macs capable of reaching incredible speeds via OS X are now on the market.



QUICKTIME 5 PUBLIC BETA

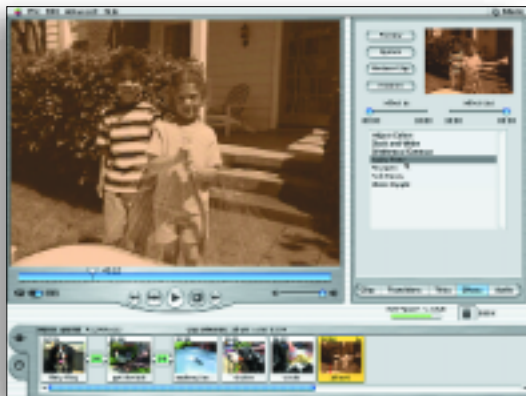
After a long wait with several delays, QuickTime 5 is now available for download from Apple's web site. At first I hesitated, thinking that I didn't want to be a guinea pig and screw up my system.

But temptation got the better of me and I went ahead and installed it on my laptop. Everything still works—and I really didn't notice too much difference except for the look of the interface. The VR works great and it now resembles the video player interface. QuickTime VR can now play "cubic VR" which provides full up and down views.

The biggest difference that I've noticed thusfar in this new version of QuickTime is that the DV codec plays back a lot smoother and renders faster. This is good news for consumers or professionals who want to shoot and edit their own videos on a computer via FireWire.

GET YOUR FEET WET WITH IMOVIE 2

If you are brand new to digital video, don't underestimate the power of Apple's iMovie 2, Final Cut's little brother. It's only \$70—or free if you buy a new Mac equipped with a FireWire



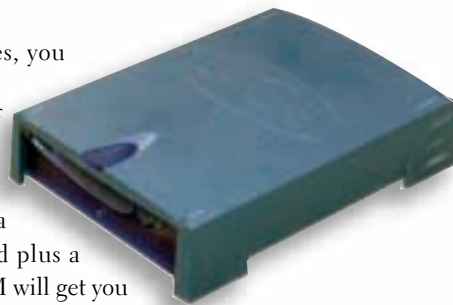
port. It is so simple to use that you don't even need to read the manual, and it can produce professional quality video that looks identical to big budget productions. If you want to dig right in with Final Cut Pro, it might seem overwhelming at the outset. But it's fairly easy to use compared to an Avid, and if you have some experience with Adobe Premiere you'll soon learn your way around the interface. I tested the Final Cut Pro application with someone who had no Macintosh experience and within two days he had produced a professional looking ten-minute video from scratch.

As far as hardware goes, you can start small; an iMac-DV will work just fine. If you want to add a capture card that will do almost everything, Media 100 or a Pinnacle CineWave card plus a G4 tower with lots of RAM will get you going in TV and film. Add drives as needed when your business grows. FireWire drives are okay for DV but if you plan to work in uncompressed video you will need fast drives, striped in arrays, and 60 gigs is a good place to start.

To sum up, QuickTime has now graduated to "Uncompressed High Definition" status. It's clearly state-of-the-art for FireWire and DV editing. It now streams MPEG 1 for Intranet or broadband Internet web sites. Real Networks now streams QuickTime. Its VR capabilities are now the winner with the added 360 degree cubic views.

And here's the best part of all—it works on both Mac and Windows, and it's affordable. ■

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