TOWER OF BABEL?

FILE-BASED CAMERA SYSTEMS BRING EQUAL
PARTS CREATIVITY AND CHAOS, AS GUILD
CAMERA TEAMS DECIPHER HOW TO KEEP THE
MANY DIFFERENT WORKFLOWS ON TRACK

by CHRIS WOLSKI *illustration by* JYM DAVIS

File-based camera systems have been a staple of television production for a number of years now, and thanks to systems like the Genesis, RED, and the ALEXA, feature-film productions are also benefiting from the technological boom.

But as with any evolutionary (some would say revolutionary) change, there have been unintended consequences. Like creating a veritable Tower of Babel of mixed digital codecs in the world of postproductions, not to mention the challenge for Guild cinematographers on the set trying to safeguard the image down through the pipeline.

With each new and unique file-based language have come "secret sauces," developed by post vendors to cope with the plethora of formats. Whatever the technical outcomes may be, the key to working in today's file-based world is flexibility and creativity; cinematographers now have a host of decisions to make when choosing a camera, always knowing in the back of their minds that they may be opening the door to an unfamiliar workflow and new headaches somewhere down the line.

Guild cinematographer James Mathers was an early adopter of RED, and knows all too well the consequences of picking a radically new camera system. While Mathers says he loved the "filmic" results of the first REDs, the results were hardly without tradeoffs.

"Only a few places in town knew what they were doing," Mathers recounts. "RED didn't fit into the same post-production workflow as other cameras, although now a lot more places are up to speed and can handle it."

Other new file-based systems on the scene include ARRI's ALEXA, celebrated for its huge dynamic range and ultra-low light sensitivity. Hitting the market just last June, the camera has been eagerly embraced by Local 600 camera crews. A big reason why was ARRI's commitment to designing a file-based system that "looked and felt like a traditional film camera and imitated a film workflow," describes ARRI president and CEO Glenn Kennel. Likewise for Panavision®, which has been trying (reps say) to ease the chaos of an all-file based set with products like its Digital Transfer Station (DTS), designed to help manage the transition of images to post-production more easily and smoothly. The DTS is a complimentary product to Panavision's Solid State Recorder (SSR) and provides consistency throughout the production workflow. The DTS takes uncompressed content from the SSR and outputs DPX or QuickTime® files while offering production the option to simultaneously generate a backup tape. The system also helps to accelerate the delivery of off-line files for the editorial process, and, because it generates a DPX file, makes handling visual effects much easier.

All the cinematographers polled for this article say that if there is one single lesson to be gleaned from working in a file-based world, it's that there is no one single approach that will work for everyone. Patrick Cady, a Guild shooter who has worked in both features (*Lottery Ticket*, *Girl Fight*) and television (In Treatment, Uncle Nigel) says "planning and patience" were the virtues that got him through a show packed with an array of file formats.

"It is so important when using blended digital formats – like the Canon 7D and 5Ds we alternated with the Sony F35 on my last show – to get post-production involved early and completely," Cady explains. "I was already familiar with mixing the formats and a post chain that took the Canon footage and allowed it to be used in a final DaVinci-based color correct. The 7D and [1080P] GoPro footage was imported off the memory cards into the Clipster and converted into a DPX file. This takes roughly twice as long as the footage's run time. It was then output onto an HDCam SR tape, at real time, so all told it took three hours for an hour of footage on the 7D to get ready for color."

Nancy Schreiber, ASC has worked on plenty of studio and independent productions (*Book of Shadows: Blair Witch 2*, *Fugly*) using a variety of formats and systems, including the Panavision GENESIS, the Sony F35, RED One, the Panasonic 3700, The Sony PVW 800, ALEXA, and the Canon 5D and 7D.

"It is important for me to have a DIT to help ensure that my LUTs or looks are getting translated into post for dailies, as well as onto video village monitors to ensure everyone knows the intention of the show's look," Schreiber says. "On low budget films, having a DIT is a non-existent luxury so I do it myself, but I make sure the data downloader is a qualified technician. The files are, after all, our negatives."

Another digital capture veteran, Dean Semler, ACS, ASC, describes file-based systems as having allowed him to "sleep more soundly" during complex location shoots like *Apocalypto*

Dean Semler, ACS, ASC / photo by Andrew Cooper

or last year's *Secretariat*. Semler has famously embraced Panavision's Genesis system, having used it on his last seven movies and counting. Semler says he relied on Panavision cameras in his celluloid days and that loyalty has paid off with trouble-free shoots in the more challenging file-based landscape.

"The Genesis has been the best of both worlds for me," Semler states. "Ergonomically, it's like a traditional film camera, and delivers images matching the best 35mm film stocks, yet it gives me the many advantages of high-end digital image capture, such as high ISO speeds, long running time and instant dailies."

Semler's smooth workflow results are a testament to his long-standing relationship with one post-house, EFILM. The company has created a workflow - in conjunction with Panavision's DTS - that gives the cinematographer complete trust in his images.

"They didn't just give me high definition, they perfectly emulated 500ASA Kodak film stock," Semler insists. "What this means is that what I'm seeing on the monitor on set is very close to what the finished image will be on the big screen."

While file-based formats can present a myriad of issues on-set – transcoding for post-delivery and archival, playback for dailies and workflow, integration with pre-vis and VFX material – the biggest changes have been wrought downstream, where the relationship between production and post has been forever altered, though not necessarily in a bad way. Benefits include increased flexibility for the director and more open lines of communication. MTI Film is a post house emblematic of the new multi-file environment. According to executive producer Barbara Marshall, the company has a simple approach when dealing with mixed formats. "We're file agnostic," she states flatly – a goal that reverberates throughout the post world.

When Technicolor was approached by the producers of *The Hangover, Part II*, they were told it would be shot using film, the ALEXA, and Canon HDSLRs, a potential technical nightmare to which Sherri Potter, Technicolor's vice president of West Coast post-production, simply said, "Fantastic, bring it on." By working with the production from the beginning, when the show moved to Bangkok [after shooting in Los Angeles], the footage matched perfectly, a testament to the benefits of a close and early collaboration.

At Santa Monica-based Company 3, there is a department dedicated to creating new workflows, often working in concert with the cinematographer to give input on various camera systems and post workflows. Devin Sterling, Company 3's executive producer for features, embraces the early and intimate relationship, noting that, "I've always felt that we are an extension of production."

Hollywood-based Light Iron Digital has taken this involvement one step further by working closely with the cinematographer on the set.

"The way the film industry was created, there were two different camps," observes Light Iron colorist Ian Vertovec [see ICG October 2010 – *The Social Network*] "What we want to do is create one tribe with a singular creative process that is driven by metadata," the information encoded into file-based systems not unlike the physical camera reports assistants delivered to the lab every evening.

And it's not just post professionals who are relishing the expanded relationship.

"File-based production may be blurring the lines, but it can also be a cooperation that is mutually beneficial and interesting," remarks Local 600 D.I.T. Michele deLormier.

"Personally, I really enjoy the interaction and interconnectivity with post."

Which begs the obvious question: Is standardization the key to preventing the file-based landscape from becoming a true Tower of Babel? For the camera manufacturers, the issue is already moot.

"There is a widely-accepted standard," insists Phil Radin, executive vice president worldwide marketing for Panavision.

"It's the DPX file, which was established from film scanning." However, he quickly adds, "there's just no standard way of getting to that universally-used DPX file."

Ted Schilowitz, the public face of RED Digital Cinema, waxes philosophically about a single industry-wide file format, noting that the mere "idea of a standard limits creativity. Ultimately the best standard is the best image," Schilowitz offers.

Technicolor's Potter says the issue boils down to the same challenges that the biblical tower builders faced: "I don't think the community can ever agree," Potter states.

Still, it's deLormier, the DIT on the set who must navigate the slew of files for her cinematographer, who poses the most interesting response. "[The industry] may not want a camera standard," she says. "It is more of a workflow standard that would mitigate a lot of the problems."

Cinematographer Curtis Clark, ASC, says the Academy of Motion Picture Arts and Sciences, in conjunction with the ASC, has been working toward a digital workflow and color standard for the last five years. The Interchange Framework (IIF) and the Academy Color Encoding Specification (ACES) is a workflow architecture that uses an open EXR file format to enable a transparency to the entire post-production workflow.

"You can maintain the dynamic range and color space of your image all the way to output while finessing and managing the look you want without inadvertently limiting the full potential of the F35 (and SRW 9000-PL) S-Log/S-Gamut images," Clark says.

The IIF/ACES framework has been tested by Clark at Encore, Laser Pacific, and Technicolor, with Encore using it as the post-production color management workflow for the second season of FX's *Justified* – the first production to do so. And the results have been impressive, notes Pankaj Bajpai, senior col-

orist at Encore. Bajpai says the IIF/ACES workflow gives him full color latitude with no clipping and a filmic look.

"For instance it brings a certain softness to the skin, like film does," Bajpai adds. "The predictability and consistency of film has been brought back."

Clark says industry giant Sony has offered crucial support to the IIF/ACES framework, by providing IDTs for the F35 and SRW 9000-PL cameras. The Academy is working with the other camera vendors to get their IDTs so they can be plugged into the framework, as well. During a recent visit to Encore, Bajpai put up some nighttime test footage Clark shot with a Sony SRW 9000PL on the Santa Monica pier, the light sources being a polyglot of sodium, neon and incandescent. With a push of a button, Bajpai applied the ACES framework to the flat camera original, and the arcade came to life with no loss of surface detail and high color saturation – in essence a pre-corrected color daily in a mater of seconds.

"[The IIF/ACES framework] eliminates the premise that we have to have problems in post production," Bajpai adds. "It's what we've been looking for."

Is it an effective "magic bullet" when it comes to the Babel-esque chaos a file-based world can create? Perhaps. But no matter the vendor/product/or workflow path, there is one point on which all interested parties agree: as new and old systems continue to advance and change, the industry as a whole will have to be ready to meet the next new challenge in technology's wake.

"What's that age-old curse? 'May you live in interesting times,'" Cady concludes. "Well, we're here, and the times are plenty interesting." ◉