



# SECTION MEETINGS

## New York June 2009

The New York Section met on June 3, for a presentation on the topic, “**Delivering Digital Cinema.**” The meeting, produced by Bruce Follmer and Robin Schanzenbach and hosted by the Iris and B. Gerald Cantor Film Center/NYU, included two presentations. The first addressed theater conversion from film to digital projection, the second focused on Digital Cinema Package (DCP) deliverables in post-production.

Jeff Butkovsky, CTO, Cinedigm Digital Cinema Corp. (formerly Access Integrated Technologies), began by providing an overview of digital cinema system implementation. Cinedigm has installed networked digital cinema systems for over 3,700

screens in the U.S. Butkovsky emphasized three aspects of digital cinema infrastructure: distribution process, software managing the DCP decryption and automation of the local payout system, and the digital in-



L-R: Jeff Butkovsky, CTO, Cinedigm Digital Cinema Corp; Joe Beirne, EVP/Technology, Postworks; Section Meeting Producers Robin Schanzenbach, Education Chapter Liaison, and Bruce Follmer, Editing Program Chair; Douglas I. Sheer, New York Section Chair.

frastructure's enabling of new content such as live 3D events.

Cinedigm's deployment architecture is “simple and highly automated,” consisting of a “Theater Library Manager Server, Theater Command Center, and Media Players.” Workflow includes preparing and verifying quality of the DCP, distribution of master keys, and packing physical media (hard drives) or satellite uplink for theaters. Once the DCP is quality-checked and DCI 1.2 compliance is verified, it goes into the distribution phase. Content is sent days before a theatrical release, and the encryption keys are sent separately. The distribution of the keys has become a challenge in that 10 to 14,000 KDM keys are distributed weekly to enable flexibility in the exhibitor's projection schedule.

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Financing of theater conversion is facilitated through a Digital Cinema Implementation Partners (DCIP) funding agency using a virtual print fee (VPF) arrangement. Part of the software control system provides for tracking of playback and payback on the roughly \$100,000 cost of converting each screen to digital. Thus, the cost of conversion is spread over time and the burden of investment funding is shifted from the exhibitors by the VPF arrangement with distributors. Additionally, once the digital projection system is implemented, 3D is a relatively simple option.

In addition to the benefit of the lower cost of distribution compared to film prints, the satellite infrastructure enables a new form of live 3D programming. The concept of an entertainment center offering sports or

concert style content in 3D has potential for expanding the theatrical market and the role of the local cinema. Butkovsky pointed out a recent 3D screening of a live Bowl Championship Series game, which was sold out on a Thursday night—this is normally a low demand time for the feature film product.

Joe Beirne, executive vice president of technology for Postworks, began the second presentation by praising film. He commented on its inevitable demise as technology and economy drive toward digital distribution. Beirne noted, however, that presently film is delivered as well as digital. He stated that yesterday's dual set of deliverables to the theatrical and home video markets have expanded to three fundamentally different types of media: tradi-

tional film prints, the DCP, and the (presently) DVD for the home market.

Whereas the traditional post path was done in steps, with the answer print leading to the video deliverables, ironically, today's digital processes have a more ambiguous order of task. It may appear logical to aim at the DCP as the "master" for other deliverables, yet in practice this is not always carefully considered. Adding in the human factor, even when all systems appear to be calibrated, the different media present in a way that does not always feel the same. Is this a technical issue? Beirne suggested that this may be a management issue. Creative focus often moves off a straight line.

Pointing to numerous historical precedents in seeking standards amidst tech-



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nological change, Beirne noted that many derive from a physical object. Film has its own natural palette, spectral characteristics, RMS, granularity, and such. There is also a feeling a human associates with its viewing. Oddly, the quest for an alternative for the D32 Sony CRTs de facto standard is similar. It is deeper than 709. A display can be made to comply with 709, but it is humans who experience the images and to many the new displays do not look the same—do not look that good. Is the CRT standard just a human memory of what was a standard in the past?

Putting the philosophical to a physical viewport, Beirne presented an excerpt in simultaneous screening of the DCP and a release print of Greg Motolla's Miramax feature *Adventureland*. Through a butterfly split screen, the audience was able to compare the digital and film presentation. Artifacts of film noise, jitter, digital compression, contrast, grain, and such, were also available for viewing. It was a very interesting experiment and bears repetition, varia-

tion, and discussion. Which is preferred? That's the debate.—Bruce Follmer, Editing Program Chair

### San Francisco July 2009

In the July 28 meeting and videotaping session, Steve Lampen of Belden Wire & Cable gave a presentation titled “**Maximizing HD Cable Performance—Especially 1080p/60,**” in which he returns to the stuff on which everything depends. Cable not matched and optimized for its intended use can reduce technical performance in any high-definition digital video facility, especially one with 1080p/60.

Lampen covered key topics to cable performance and quality, including coaxial cable and return loss; cable damage and periodicity versus impedance; installation solutions for maximum cable performance, and crush resistance; pulling cables, digital connectors, SMPTE distance, and HD's future; connectors and barrels, return loss,



Guest speaker Steve Lampen discusses key topics of cable performance at the July Section Meeting in San Francisco.

and HD testing; and cable testing. He described how cable is designed and manufactured and how its physical installation can affect the performance of digital video. The improper use of fiber wire ties alone can destroy cable performance. He showed how to measure return loss and how to analyze cable “characteristic impedance” and test for maximum performance.

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Meeting and videotaping session in Redwood City are posted online at [www.blip.tv](http://www.blip.tv) and linked from [www.smpte.org](http://www.smpte.org) and [www.smptesf.org](http://www.smptesf.org). *Journal* readers are encouraged to go online and watch the short “podcasts” of Lampen’s six key topics covered in this presentation, produced by Tim Erskin at [www.erskinproductions.com](http://www.erskinproductions.com).—Peter Hammar, Section Chair

## San Francisco August 2009

Answering the question, “**What Makes Television Unwatchable and Drives Away Viewers?**” Bill Reckwerdt, chief technology officer of Video Clarity ([www.videoclarity.com](http://www.videoclarity.com)) says, “bad lip sync and audio and video distortion.” His August 25, introduction to the subject of DTV A/V quality was videotaped in front of a live audience in the studios of KMVT Community TV 15, cable access for Mountain View, Cupertino, and Los Altos ([www.kmvt15.org](http://www.kmvt15.org)).

Compelling content will hold people’s interest for a while, but, consciously or unconsciously, bad audio will drive away viewers, as will bad video, but to a lesser extent. After listening to a few minutes of dialog, mismatched to the picture or distorted audio, often perceived as “too loud,” or after tolerating one of several kinds of video distortion, many viewers will change channels. Some will not even realize why they did so. Audience testing shows people will tolerate a bad picture far longer than distorted or out-of-sync audio. Bottom line: Test, measure, and alarm along the entire chain before and during delivery and broadcast—or risk losing audience share. Reckwerdt described the three deadly factors that cause a user to jump for the remote:

*Bad Lip Sync:* Sound arriving *after* the action is quite normal in human experience (e.g., a mouth in the distance is seen to move before the shout is heard, or a gun is fired, creating a visible puff of smoke, and the sound is heard a fraction of a second later). Sound arriving unnaturally before the image of the action—which is all too common in DTV broadcasts—causes measurable psychological stress and viewer rejection. Reckwerdt showed clips of lip sync

errors during transmission. Some errors may also occur in the viewer’s own TV set, a problem the industry is addressing with new manufacturing and testing standards.

*Audio Distortion:* Unpleasant-sounding audio, whether consciously or unconsciously perceived, drives away viewers—distortion amplified along the production, storage, and transmission chain. Audio distortion horrors that digicasters inflict on their audiences include harmonic, intermodulation, phase, amplitude, frequency response, and clipping, caused in both the digital and analog domains along the entire chain.

*Video Distortion:* Some motion artifacts and distortion can rival audio problems in viewers’ subconscious rejection of an image, driving them to change channels. Reckwerdt described the most common motion artifacts and other video distortion, including noise, geometric inaccuracy, and blocking.

Three “podcast”-length segments, recorded by the KMVT staff and produced by Tim Erskin ([www.erskinproductions.com](http://www.erskinproductions.com)), are available on [www.blip.tv](http://www.blip.tv) and are also linked from [www.smpte.org](http://www.smpte.org) and [www.smptesf.org](http://www.smptesf.org). KMVT will also broadcast the show several times on their cable system.—Peter Hammar, Section Chair



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## Erratum

September 2009, “American Society of Cinematographers Technology Committee Report,” p. 62. The e-mail address for Richard Edlund, ASC, is incorrect. The correct e-mail address is [re@richardedlund.com](mailto:re@richardedlund.com).