

# Section Meetings

Rochester—September 2007

The Rochester Section gathered to begin the new season of programs and was privileged to host a meeting featuring Robert Buckley, research fellow at the Xerox Research Center Webster of the Xerox Innovation Group in Webster, NY. Buckley is the Xerox representative on the U.S. JPEG 2000 committee and project editor for Part 6 of the JPEG 2000 standard. He provided a wonderful introduction of the subject to a multidisciplinary group of broadcast, educators, and motion picture professionals in attendance.

The presentation began with an overview of compression that paved the way to a more detailed technical discussion, which was illustrated with tailored examples. At its core, JPEG 2000 is a wavelet-based method for still image compression. Buckley emphasized the benefits of region of interest encoding

and “smart” decoding, as well a scalable architecture in which resolution and other quality attributes can be managed by “demand side” applications with which one can take as much as is needed from the code stream.

Buckley concluded with a discussion on how the use of this standard is growing in a diverse range of application areas and is increasingly being adopted by online image collections and for archiving scanned books and images. JPEG 2000 has also been selected as the compression method for the digital cinema industry, and by the Library of Congress for video preservation.

It was great to have the opportunity to see the interaction of our diverse audience with such a knowledgeable speaker!—*Mark Henry, Past Section Chair*

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Forty members and guests attended the Section meeting on July 18, which included an interactive tour of the San Francisco broadcast center of Current, TV [www.current.tv], an internet-driven cable and satellite broadcaster. Presented by a staff led by Stéphane Savard, chief scientist, the tour included four separate presentations: master control, production control, file-management, and network architecture. Attendees were divided into groups of ten, allowing close interaction with the presenters.

The master-control tour revealed two 24/7 on-air channels for Current TV feeding their U.S. and the U.K. outlets. The U.S. control path is backed up in Los Angeles, while a London facility backs up the U.K. feed. Each location uses Apple local edge servers receiving material from the half-petabyte server farm in San Francisco, controlled using KVM and remote-terminal technologies. One to two hours before airtime, the programming department continuously updates the playlists of the mostly short-form material to make sure programming remains up-to-date.

Current TV's corporate motto is "The TV network created by the people who watch it." Viewers provide 30% to 60% of Current TV's content. In addition to viewer contributions, Current also airs in-house and professionally produced programming. Staffers explained their concept of centralized production across their private, wide-area network. With studios located in San Francisco, Los Angeles, and London, "live-like" productions use elements from any of the three studios, composited on their Ross Video production system and sent directly to the server farm. Once the material has been loaded into the server system, the content can be edited on staff members' Apple Macintosh computers.

Attendees also got an indepth review of the file system for the server farm. Its architecture uses self-repairing server nodes accessible through the Apple operating system. This architecture allows for a highly expandable system with theoretically no size limitation and the ability to maintain all material without an archive system. Current's programming model requires perpetual access to every second of programming ever broadcast or gathered, so there is no archiving. Everything remains on hard drives.

All material is stored as DV-25 video, a format that allows viewers to contribute easily, the DV-25 material shot on their consumer equipment. A viewer or contributor first uploads via the internet, a low-resolution version of the video he or she wants fellow Current TV viewers to review and approve for airing on the network. If the video clip or "pod" clears, a series of "green lights," Current asks the viewer or producer to mail them the physical DV tape for uploading into the system for airing. To maintain network standards, a full-time staff of 200 producer/editors—called "preditors"—reviews uploads and also edits the final contributions before putting the winners into the system. Contributors are paid on a sliding scale.

Current TV's internal network architecture consists of a private, wide-area network, with a minimum bandwidth of an Optical Carrier 3 (OC-3) running at 155.52 Mbits/sec. This bandwidth provides VoIP phone service, intercom, and coordination circuits, UDP streaming audio and video used in content production, and accelerated TCP for file transfers from the server farm to the release edge servers.

Before and after the tour, attendees were treated to refreshments and hors d'oeuvres, courtesy of Ross Video.—*John Hartwell, Section Manager/Meeting Organizer*



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