

Television

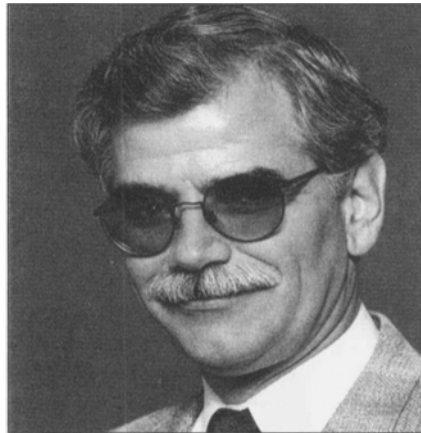
1995 was an exciting year as new technologies became commercially available. The year started with the launch of not one but two new television networks, United Paramount Network (UPN), and The Warner Brothers Network (The WB). Station affiliations became a commodity as six networks vied for market share.

Two of the major television networks changed owners. CapCities/ABC merged with The Walt Disney Co. and CBS was acquired by Westinghouse. Meanwhile, NBC started project GENESIS, a complete replacement of its current network origination facilities and an upgrade of its network distribution facilities. The technical facility will encompass approximately 32,000 sq. ft. and be built on a component digital platform.

Serial component digital technology has finally become cost-effective, deliverable, and system-friendly. The impending doom of the VTR seemed to diminish as digital Betacam started to dominate the market of main stream television production and post-production.

D-5 and DVCPRO, introduced by Matsushita Electric Industrial Co. and marketed through Panasonic, were the new tape formats for 1995. The D-5 format is a 1/2-in. full-bit component digital VTR conforming to SMPTE 259M. It has a 10-bit, 13.5-MHz sampling frequency, a data rate of 300 Mb/Sec, and is compatible with both the D-3 format and EDTV-II. The DVCPRO format uses a 1/4-in. tape and records a component digital signal compressed at a ratio of 1.5:1. The system includes a camcorder, studio VTR, and field recorder.

Video server technology matured to deliverable product. Stations across the country installed BTS, Dynatech, Hewlett-Packard, or Tektronix servers for recording and playback of material to air. Server technology was no longer a story of video storage but rather of data storage. IBM, Ampex, and Panasonic marketed data recorders for use with library systems as well as standalone devices. Ikegami demonstrated a 4:2:2 dockable disk recorder featuring 13.5-MHz, 8-bit sampling, and 15 to 20-



Robert B. Kisor

min recording time. These devices create a migration path for an all-serial component digital distribution system.

High-end graphic systems increased in speed and capability, but they were displaced in many applications by PC or Apple-based products at one-tenth the cost. These "low-end" graphics machines are now being used to create high-end opening titles and special effects. Products such as Kai Power Tools and KPT Vector Effects from MetaTools, Inc., provide powerful editing and special effects capabilities to desktop machines that seem to be capable of faster processing speeds and of becoming less expensive every month.

In the 1980s and early 1990s, the only decision involved in building an on-line edit room was whether you preferred CMX or Grass Valley. Now you need to decide if you want to be linear, nonlinear, or both. Nonlinear on-line editing became viable with several productions using Avid and D-Vision equipment to on-line edit segments of their shows. Systems from Matrox and ImMIX are available with compression levels that allow for on-line quality. The Grass Valley Group delivered its new Sabre editing system, a picture or time-code-based system running on a Silicon Graphics platform. Accom expanded the capability of their Axial 2020 system by interfacing it to their Brontostore video server. The Quantel EditBox brought high-speed, high-quality graphics to a server-based on-line edit system. This product, coupled with new versions of

PaintBox, HAL, and Henry, improved processing times tenfold and created a powerful family of high-end, real-time graphics and editing.

Compression technology continued to develop at a fast pace. No sooner did MPEG-1 devices start arriving in the market than we were shown MPEG-2 and studio profile MPEG-2 demonstrations, each promising full editing capability. Tests were finally started to evaluate not only the effects of multiple generations of compression but multiple generations of dissimilar compression. Developers were paying attention to the need for preserving the vertical blanking interval to accommodate the all-important rating information as well as closed captioning and other data services. The digital videodisk (DVD) appeared headed for a format war, but by year's end a single format was agreed on by all parties.

Worldwide distribution blossomed as major production and distribution centers were constructed in Hong Kong, Korea, Singapore, and South America. All were built as state-of-the-art component digital facilities capable of high-end production and multichannel satellite distribution.

Europe continued development and implementation of the PALplus system to generate an interest and transition path to a 16:9 aspect ratio and HDTV. In 1995, 19 broadcasters in nine European countries broadcast approximately 10,000 hours of PALplus programming. The European community made significant progress on the development of a digital video broadcast standard via satellite, cable, and terrestrial networks. A major demonstration of their progress with MPEG-2 digital TV and HDTV was presented at the Montreux '95 Television Symposium.

Meanwhile, in the U.S., the Grand Alliance completed its task of generating a technical recommendation for advanced television transmission and submitted a final report to the FCC. The FCC in turn has asked for public comment before acting on the recommendation. While the technical community was completing its task, Congress was trying to balance the

federal budget by proposing auctions for all radio spectrum, including the broadcast television spectrum.

Many new technologies were shown in 1995, and 1996 should see the

emergence of mainstream products from those new technologies. Further development of compression technologies, expansion of server products, and Advanced Television standards will

create an environment for a continuing evolution into the digital world.

*Robert B. Kisor
1995 Editorial Director
Television*

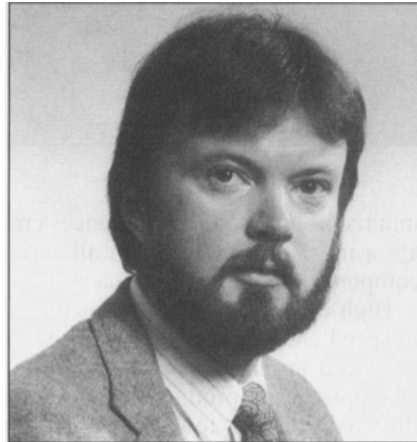
Education

The 29th SMPTE Advanced Television and Electronic Imaging Conference

The San Francisco Section once again hosted a very successful conference in February 1995; the topic was "New Foundations for New Technology." Designed to interest the merging fields of video, telecommunications, and computers, the two-day conference drew approximately 400 people from all over the world.

Program Co-Chairs Charles Poynton and Peter Symes gathered over 20 papers, including "The SMPTE D-6 Digital Recording Format," "Designing and Evaluating a User Interface," "Digital-to-Analog Conversion — Data and Filter Requirements," "A Scalable Parallel Video Processing Architecture Applied to High-Definition Format Conversions," "Video: For Here or to Go?" "A Proposal for Open-Architecture Digital Communications Systems Based on Standard Media Publishing Apertures," "Are RAID's Redundant?" "Lillehammer '94 in High Definition," "Wide Color Gamut System," "ISDB and Its Transmission System," "New Foundations for Video Technology: Which Ones Do We Build On and Why?" "Noncompressed NTSC Digital Video Disk Recorder," "The Art and Science of Video Compression," "Technical Training as a Foundation of Technology," "Digital Acquisition Without Compromise — The Missing Link," "Switching Facilities in MPEG-2: Necessary But Not Sufficient," and "1280 x 720 Progressive: A Reevaluation."

During the conference, a technical demonstration entitled "One Size Does Not Fit All: Scalability, Compression, and Other Choices in Digital Imaging for the Information Age" was available



John Carlson

to all registrants. This demonstration illustrated the possibilities and trade-offs among various approaches to the spatial aspect ratios, resolution, temporal frame rates, formats, conversions, and windowing aspects of television and electronic imaging systems. It also maintained an objective stance towards these issues and proved to be a very provocative and popular forum.

All-Day Tutorial

Preceding the conference, this tutorial on Thursday, February 9, 1995, was an overview of storage and networking technologies. Included in the day's talks were "Video on ATM," by Meyer Schwartz, Tektronix; "Video Server Architecture," by Al Kovalik, Hewlett-Packard Co.; and "TCP/IP Technology," by Dan Hoffman, Sun Microsystems. The tutorials offered during the Winter Conferences continue to be very popular.

A Friday evening reception, sponsored by Pacific Bell, featured a demonstration of "Cinema of the Future: Transmission of High-Definition Television Over ATM/SONET Telephone Networks."

The 137th SMPTE Technical Conference and World Media Expo

Technical Program

The technical program, under the theme "Moving Images — Meeting the Challenges," covered many aspects of the television and film community and was structured to address the theoretical and practical implementation of technology. The papers presentations were extremely well attended.

Sessions that attracted a wide audience included "Capturing the Images," chaired by Tom Bentsen, NASA; "Authoring for Digital TV," chaired by Craig Birkmaier, Professional Products and Promotions; "Putting the Images in Order," chaired by Linda Young and Timothy Spitzer, Du Art Film and Video; "Transporting the Images," chaired by Ronald E. Uhlig, Eastman Kodak Co.; "Image Storage," chaired by Edward Hobson, formerly of Graham-Patten Systems; "Manipulating Pixels: Film and Video Production and Post-Production (Part I)," chaired by Neil Feldman, Video Post and Transfer; "Delivering the Images," chaired by Tom Gurley, Advanced Television Test Center; "Converting the Pixels: Film and Video Production and Post-Production (Part II)," chaired by Rene Villeneuve, National Film Board of Canada; and "Displaying Pixels," chaired by Joe Kane, Joe Kane Productions.

Professional Seminars

On Saturday, four half-day seminars were filled to capacity. In the morning, "Using the Internet," chaired by Charles Poynton, explained how to gain access to the Internet and the operations of its various protocols. "Video Compression and Concatenation," chaired by James Wilkinson,