



CHAPTER TWENTY NEWS

society of broadcast engineers
pittsburgh chapter

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Next Meeting – John Humphrey

Ken Tinkel, from Linear Acoustics, will present to us on July 25th (7PM, location to be announced), on the topic of "Audio Rules and Realities".

Ken is a field applications engineer and regional sales person for Linear Acoustic. He brings a wealth of both hands-on and management experience to Linear Acoustic users, integrators and dealers. Most recently Ken was with NBC O&O WCAU- TV and also doing design and integration projects as owner of Future Media Design, LLC. Past positions include GM of Dalet Digital Media Systems USA, Manager of Engineering Support US for Pro-bell and East Coast Director of Technical Operations, CBS Radio Division. Ken is a member of SBE and the AES and holds SBE CPBE certification.



Ken's presentation looks at digital audio for television and what delivering quality audio to viewers means. What can broadcasters and program producers do to provide viewers with a good viewing experience? How will the CALM Act effect broadcast audio? What does CALM compliance mean to

broadcasters? If these questions are interesting to you please come and join the discussion.

Chairman's Corner – John Luff



We face a significant challenge to be able to continue SBE20 as we all would like it to be. Over the last several years the number of members active

in chapter management and planning for programs has dwindled until we reached the point where most of the work, including this newsletter, is being done by just two people. Both John Humphrey, Vice Chair, and I have indicated that we would like to step down to allow other members to take active responsibility for planning and executing the business of the Chapter. So far we have not had any success in getting an effective slate of officers nominated so we can vote (on line or in person). This is not a sign of a healthy chapter.

At the next meeting (see announcement on this page) we will both report on the work of a core group who is working to put new ideas on the table which we hope can get more enthusiasm from more members. We will also try to hold an election for officers, of course depending mostly on who steps up to the plate to take a swing at the ball.

My fervent hope is that we can turn the current lack of energy into a vibrant and effective Chapter. The Chapter needs your help. Now is the time to speak up! Each of you needs to take active part in our work if what we have appreciated for so many years is to continue in an effective way.

Gary Stewart Retiring! – Bill Bennett



Since long before TV's had IP addresses and streaming meant more than "going fishing", SBE 20 Chapter Members have been grateful recipients of a newsletter crafted by one of its own, filled with pertinent and useful information

(Gary Stewart Continued)

aimed at the broadcast engineer, and their ever-changing landscape of technology, content, regulation and business. Some topics share the impact of engineers throughout the US, while others were important only to us here in Pittsburgh.

For all of those wide-ranging stories across 19 volumes (most years averaging 10 issues), we all have two people to consistently thank: Gary and Jean Stewart.

"Oh boy, I'm going to fix TV's", was Gary's thoughts when he joined the Army in 1966 as a TV Equipment Repairman, which went along nicely with his interest in electronics. After six months learning TV Broadcasting, he was sent to Armed Forces Radio and Television Service (AFRTS) station, AFKN, in Korea. After serving his country and leaving the Army in 1969, he started in broadcasting and joined the PBS station in Morgantown, WV before coming to Pittsburgh and WPCB in 1979.

A new Chief Engineer at WPCB, Jerry Foreman, brought several station engineers to the SBE meetings starting in the early 1980's, and Gary joined SBE in October of 1982. In 1993 Greg Able became the Vice Chairman, Gary took the joined seats of Secretary and Treasurer. It was at that point that SBE 20 changed the monthly meeting announcements into a newsletter format. Starting in February 1993, Greg would typeset it and fax it to Gary for reproduction and mailing. After Greg left the Vice Chair post in 1995, the secretary and treasurer roles were separated into two positions, as required by the SBE constitution, and Gary took on the entire responsibility for the newsletter. It was a team effort in the Stewart household as Gary did the editing and article solicitation while his wife, Jean, did the typesetting. More recently, the Chairman and Vice Chairman have taken responsibility for article solicitation, with the typesetting still being done by the Stewarts, and now of course that's all being done by John Luff.

At one point Gary became Vice Chair of SBE 20, then elected Chairman in 1997 & 1998. At the 2000 annual election meeting, Gary was faced with the possibility of having to dissolve the chapter due to a lack of involvement and new officers. Then suddenly a new wind blew in and reinvigorated the Chapter with Tom Bills taking the Chairman's seat. On the topic of

continued change in Broadcasting, says Gary, "Now three or four engineers can take care of everything at a small TV station, and in radio... one engineer taking care of several stations". Change is indeed the one constant.

For many years, as the SBE and its members continue to change with the times, Gary has been in the thick of it with fellow SBE Members in keeping SBE an important supporting tool for Broadcasters in Pittsburgh -- and he and Jean have been the steady voice-makers in crafting a newsletter to educate and inform the Membership for almost two decades.

Now, as they spend more time focusing on retirement and enjoying a life without deliverables and deadlines, all of us at SBE graciously thank them for their unwavering support and wish them well, in a retirement free of jitter, noise, hum and framing errors. Have fun, Gary & Jean!



FCC ADOPTS CHANNEL SHARING RULES FOR TV LICENSEES IN THE SPECTRUM AUCTION - Paul Byers

The FCC has adopted rules that will allow two or more television licensees to agree to share a single six MHz channel in conjunction

with the reverse spectrum auction authorized by Congress in the *Middle Class Tax Relief and Job Creation Act of 2012*. As the FCC has not yet proposed rules for the reverse auction, no channel-sharing agreements can be submitted at this time.

Each station sharing a channel will be licensed and operated separately, each with its own call sign. Each station will be separately subject to all Commission obligations, rules and policies, including main studio and Emergency Alert System requirements. Each station must provide at minimum a standard definition program stream at all times, and no licensee will be held responsible for the programming content or rules compliance of any other licensee sharing its channel. The six MHz channels will not be segmented for sharing. Instead, the entire capacity of a channel will be shared from a licensing perspective, and the licensees will

(Paul Byers Continued)

determine the manner in which that capacity will be divided among them.

Only full-power and Class A low-power television stations may participate in channel sharing. Noncommercial and commercial licensees may enter into channel sharing agreements, although a noncommercial licensee that elects to share a commercial channel must continue to follow noncommercial rules in order to keep its license. A commercial licensee sharing a reserved channel will not be subject to the noncommercial rules.

The FCC rejected proposals to allow Low Power Television Stations (other than Class A LPTVs) and TV Translator stations to share channels, since they have secondary rights that will not contribute to the creation of a pool of spectrum which can be auctioned.

Consistent with the law that authorizes the reverse spectrum auction, stations will retain the must-carry rights on cable systems and on the DISH and DirecTV systems that they had on November 30, 2010. Only the "primary channel" will be subject to carriage obligations for shared channel licensees, same as under existing law. For public stations, the FCC acknowledges concerns that relocation of a transmitter in order to effectuate sharing might change channel rights, which are for them based on distance factors rather than DMAs. The FCC also acknowledges that public stations have negotiated for and received carriage of multicast channels on cable systems. Therefore the FCC expects any public television licensee to consider whether its carriage rights might change in the event the licensee elects sharing, since the basic carriage law and rules remain unchanged. For commercial stations, with carriage rights determined by DMA, the FCC will conduct a later rulemaking proceeding regarding the possible shift of a station from one DMA to another and the effect of such a move on carriage rights.

The FCC made no decision about whether it will permit licensees to propose sharing arrangements that result in loss of current service area and population. It will address the issue in the future.

The FCC did not adopt its proposal to establish fixed and

mobile allocations in the television bands. It will consider this issue in the rulemaking to implement the reverse auction.

In addition, the FCC did not adopt rules to improve TV service on VHF channels, which some licensees have found to be lacking. It is not clear that it will revisit this issue any time soon, as the FCC stated that "comments submitted [do] not provide us a clear direction with respect to significantly increasing the utility of the VHF bands for the operation of television services."

In other future proceedings, the FCC will spell out the details of just how this shared channel licensing will be implemented and how channel sharing might be applied outside of the incentive auction context.

The FCC believes by adopting the channel sharing rules prior to the adoption of reverse auction rules, it has provided "a necessary foundation for licensees to begin to assess whether to enter into a channel sharing arrangement." With the few details provided so far and major related issues yet to be decided, it seems unlikely that many licensees will be able to meaningfully do so at this time.

Karl Paulsen - Sizing up your Store



Storing files on video servers was a lot less complicated in the mid-1990s. Remember the days when twelve hours of storage was a lot? How a 4 GB disk drive was a modest size? How SCSI ribbon cables had to be properly terminated? And using a non-vendor provided "unqualified" disk drive was verboten!

Times have changed and they just aren't going to get any simpler when it comes to understanding, selecting and procuring high performance storage systems for file based workflows. The old adage of making an 'apples-to-apples' comparison doesn't work anymore, there are just too many new variables.

When picking a storage solution, there are some primary elements that need to be considered which include: storage capacity – the usable number of bytes available after formatting the drives after accounting for protection

(Karl Paulsen Continued)

and overhead. The next is system bandwidth – the amount of bits read or written to or from the drives. Bandwidth is expressed in terms of hundreds of megabytes per second, with 200-300 MBps being

modest. Read rates will be different than write rates, the latter usually less than the former, but for editing they can be dead even. This is termed “load balancing” which ensures that the network and the storage channels are

sized appropriately for the specific activities of the system.

Another factor in storage sizing is the number of IOPS (input/output per second) of the system. This calculation is derived from the types of usage expected in the system; i.e., the number of editing activities, browse activities, transfers in or out of devices, the kind and amount of streaming required and the number of encode/decode and transcode functions that all happen at a given time. Sizing is a lot like figuring out traffic on a network switch or LAN.

However, here’s where the straight forward parts of the sizing exercise end. A good storage system, using enterprise class 10K or 15K RPM SAS drives, will use dozens to hundreds of spindles to meet bandwidth, IOPS and capacity requirements. These systems will also require a metadata server to track all the data activities; and is not the same metadata used to identify clip names or house numbers. Metadata servers now use flash SSD drives to keep up with throughput and to provide error management should drives mis-write or mis-read data during the IOPS cycles.

Storage architectures also employ new drive mapping methods, whereby data blocks are no longer mapped to slot or drive position locations. In HPC (high performance computing) systems or cloud storage, data is now mapped to a physical drive and is not slot dependent. This aids in reducing rebuild time when (not if) a drive fails, and allows a system to continue without performance degradation.

By comparison, the proverbial C: drive model or a simple RAID 3 system is about as archaic as a standalone AND-gate; making it impractical to build these systems from raw components. Homebrew storage systems for advanced file based workflows are now things of the past.

FROM THE SBE NATIONAL OFFICE

SBE Leadership Development Course - save your spot today!

This intensive three-course challenges attendees to become better leaders through exercises with fellow broadcast engineers.

Here is an example of one of many exercises -

You would be surprised to learn what's really important to employees.

Date: July 31-August 2

Location: Atlanta, Georgia

Cost: SBE members - \$590; non-members - \$640

More Information and Registration available on the SBE Web Site

Did you know?

The Society of Broadcast Engineers has published handbooks for radio and television operators for more than 15 years and now they are available in digital format. The SBE Television Operators Certification Handbook and the SBE Certification Handbook for Radio Operators can now be purchased through Amazon.com and BarnesAndNoble.com.

Webinar from SBE in July

IPv6 for Broadcasters

July 11 - 2-3:30 p.m. ET

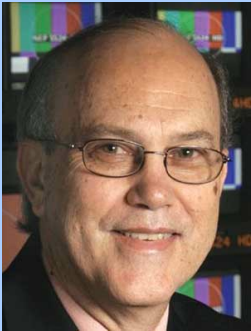
with Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNT
SBE members - \$49 ; non-members - \$69

More and more content consumers are turning to the Internet in their consumption of broadcaster content. Much of the expansion of the Internet is occurring in an IPv6 only environment due to the shortage of conventional IPv4 address space. This webinar will introduce broadcast engineers to IPv6 and help equip them to make informed decisions about implementing IPv6 in their organizations.

More detail on the SBE National Website.

On Production – George Hoover

Report from the SMPTE Conference on Emerging Media Technologies in Geneva - The Changing Media Delivery Ecosystem



In May, I had the good fortune to attend the SMPTE / EBU conference on emerging media technologies, looking out over the next fifteen or so years. A variety of topics were covered, and I'll attempt to report on them in coming issues.

Media delivery to the home viewer has been a constantly changing ecosystem, from the original over the air transmission, to cable, then home media storage on VCRs and discs, followed by broadband delivery. The conference categorized the delivery technologies into into three stages:

Stage 1- In the earliest days of broadcast television, three or four networks delivered general programming including entertainment, news and sports in a linear fashion. Viewers had limited choices, with huge audience shares being delivered to the networks.

Stage 2- With the advent of cable and satellite deliver a new crop of themed linear networks emerged focusing on all manners of themed content- sports, news, food, history, films- one genre full time per channel. (During this period we saw the rise of independent facilities companies such as NEP.) New and old networks no longer wanted the financial and operational burden of their own facilities- outsourcing exploded. While there was more programming, shares and ratings declined- the viewer pie slice was getting smaller and smaller; therefore, advertising revenues declined. Increasing subscription fees from the cable and satellite operators offset the diminishing ad revenues, so production budgets remained high.

Stage 3- The media delivery ecosystem is rapidly shifting to what the European's refer to generically as "Video on Demand", content that the viewer elects to watch when they want to, where they want to on whatever they choose. Content may arrive via DVD, Blu-Ray, Internet, Cable, satellite, Smart Phone, from a variety of aggregators like You Tube Netflix, Hulu, Roku, Apple TV or even USB stick- for use when ever you want to see it

What we do know today is that live programming drives audiences to linear networks, be it sports, entertainment competition shows like The Voice, American Idol, or Dancing with the Starts, awards shows, or breaking news.

There is was an undercurrent of speculation at the SMPTE Conference regarding the mid-market liner themed networks migration to all VOD, leaving a handful of general interest linear networks, and a few news and sports outlets. This is a scenario that may provide audience upside to the general interest networks.

A lot has been said regarding the so called second screen experience- audience research has shown the use of tablets and smart phones is often not associated with the program being viewed on the large screen. Checking e-mail, reading a book, or playing a game while watching television is very common. Thinking back, it's the second screen being electronic that's new- the tablets and I-phones replaced the crossword puzzle, paperback, newspaper and knitting needle, all things people did back then while watching TV.

The consumer industry is all a buzz regarding Smart TVs and Apple's entry into the television marketplace. I predict the traditional television will actually become dumber, just a display device

Tablets will become the new smart app based home media control center that allows the viewer to locate content from anywhere with simple user-friendly search tools, and then push that content to the dumb display. Take your tablet from room to room, the program will follow you from display to display, no big display in the kitchen, the tablet takes over the display duties.

The take away- media organizations must be nimble and agile to adapt to the ever changing and not always predictable changes in technologies and consumer demand

STAGE 1	STAGE 2	STAGE 3
Broadcasters are in control	Broadcasters, content owners, and multichannel providers are in control	Consumers are in control
In 1964, the Beatles drew 73 million viewers to the Ed Sullivan Show	Heavy VoD users far more satisfied with their service provider	19% of consumers are interested in a TV Everywhere offering, where they can watch TV programming on a smartphone or computer



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