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Pacific Northwest Section
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Spring 1996 Newsletter

May 7 Meeting

Tour of Microsoft's Digital Backlot

Microsoft host Steve Boyce leads AES members through Digital Backlot. Rick Smargiassi photo.

Microsoft's Digital Backlot is the division that produces audio and visual content for Microsoft products such as CD-ROMs and the Microsoft Network (MSN). Steve Boyce, Audio Production Manager for Microsoft's Interactive Media Division was host to over 40 AES attendees. Backlot producers Reek Havok and Becky Allen helped herd parts of the group through the new, dimly lit high-tech maze.

In the Digital Backlot, all rooms are named after dead musicians. Microsoft producer Dan Black greeted us in the Jimi Hendrix conference room (also known as the bondage room, probably for the webbed designer chairs) for a demonstration of Music Central, a CD-ROM/website. Various video suites with Avid Media Composer set-ups were in evidence, and editor Nelson Hallgren demonstrated the digital video editing and effects capabilities with a game promo for Monster Truck Madness.

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April 24 Meeting

Audio on the Internet

A panel forum, with:
David Scheirman, Concert Sound Consultants; AES Governor - moderator
Rick Chinn - Mackie Designs
Aurika Hays - Progressive Networks
Steve Mack - Progressive Networks
Bob Moses - Cedar R & D Labs; Rane
Cal Perkins - Mackie Designs

Some 50 attendees came to the PNW Section's panel forum on Audio on the Internet, held at the University of Washington's Communications Building. PNW Chair Rick Smargiassi introduced the panel members - David Scheirman, of Concert Sound Consultants and an AES Governor, moderator; Rick Chinn, Mackie Designs; Aurika Hays and Steve Mack, Progressive Networks; Bob Moses, Cedar R & D Labs and Rane; and Cal Perkins, Mackie Designs.

David Scheirman began with a handout outlining issues that affect audio quality on the Internet and a reprint of comments from Investor's Monthly about the outlook for Internet broadcasting.

Steve Mack and Aurika Hays from Progressive Networks gave an overview of the RealAudio Internet audio broadcasting system. Armed with a laptop, a pair of Genelec monitor speakers, a projection LCD screen and Ethernet T1-style Internet connection, they described and demonstrated RealAudio. How can you stream digital audio over a 14.4 modem? As expected, it basically involves doing mono only, a 4kHz bandwidth, and heavy-duty codec compression algorithms. A non-standard transmission protocol is used that does not worry about retrying lost packets.

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Inside This Issue:

Chair's Message

In this 95- 96 year our goal was to have six presentation meetings on topics of interest to members of the Northwest Section of the Audio Engineering Society. We succeeded in having seven meetings, two clustered in November and five clustered in March, April, and May. The clustering happens when board members and meeting presenters get busy at their jobs. I encourage you to support next year s 96- 97 Northwest Section board by assisting to plan meetings, offering meeting space, or offering to present a topic.

I thank all of this year s AES board members for their work in providing opportunities for us to learn about new audio related technologies and who is developing these new technologies in our area. -Rick!

Digital Backlot
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Further on was the 3-D laser scanner, and a demonstration by John Pella and Tin Chung on 3-D modeling and animating. Tin created a 3-D soda can image for us on his SGI workstation. Past the 2-D graphics and animation areas and the "Newsroom", where employees can get their personal office work done, lay the main audio production facilities. Various edit suites with ProTools 3 were shown, and several recording rooms and a voiceover booth.

Attendees then paused for free soda refreshments (just like a Microsoft employee!), and moved on through the West Campus to the lodge-like cafeteria for AES business and final Q & A. Steve estimated that the Backlot might be working on about 40 projects at any one time. In response to questions, comments were made about data storage problems, archiving, and predictions on the DVD.

Microsoft audio editor Jim Wilson interrupted at work. Rick Smargiassi photo.

November 1 Meeting

5th Ave Theater Tour

There is always something a little self-indulgent about being nearly alone in a place designed for thousands of people. About 30 people gathered in an otherwise empty 5th Avenue Theater in Seattle for a tour of the facility's sound system.

Chris Tapping of the 5th Ave Theater. Rick Smargiassi photo.

Chris Tapping and Bess Sullivan of the theater's sound department hosted the PNW section for their November 1 meeting.

Section Chair Rick Smargiassi opened the meeting with some section business and introductions. Chris then spoke at length about the theater and its sound system. The theater, originally built in 1926, served as a grand venue for shows with its elaborate chinese motif. It served as a decaying movie house until 1979, when the owners decided not to allow the once grand 2100 seat theater to be made into a multiplex. Instead, a complete restoration was done, with a return to use as a legitimate theater venue.

Chris led the group into the orchestra level seating area, and explained the general house system. The current system is the third one to be installed since the restoration. It consists of several Meyer Sound Labs boxes in configurations that flank the stage area and hang in a central cluster. Additional

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Audio on the Internet *(continued from page 1)*

Panelists include, L to R, Rick Chinn, Aurika Hays, Steve Mack, David Scheirman, Bob Moses and Cal Perkins. Rick Smargiassi photo.

The coder is sensitive to input levels, so inputs must be heavily compressed, and also equalized. Voice tends to be better than music. The sophistication of the codec is improved for version 2, and is meant for 28.8 modems. Users download the RealAudio playback software for free, and can also use a personal RealAudio soundfile encoder/server for free. Commercial content providers must purchase software to encode and serve the streams to provide on-demand audio material for multiple end users.

Steve spoke of upcoming “splitter technology” to improve distribution efficiency, where data is distributed to ISPs, who then distribute RealAudio to end users.

Aurika mentioned that variable bit-rate encoding is being examined, but is found wanting to date. In response to general questions about the sound quality, Aurika said, “We’re at the point now where the dog doesn’t play chess well, but the dog does play chess.”

Many sound examples were played live over the Internet - classical music, Johnny Cash, Internet Radio Hawaii.

The problems of preparing audio material for encoding was discussed. Generally, compression and midrange EQ boost is used, but always tuned by ear depending on the material.

When are you going to do video?? Not soon, but a demo of synchronized multimedia was shown. The RealAudio activated links to graphics, like a synched slide show.

Audio engineering problems include soundcard quality and poor handling of sound by PCs, and bad loudspeakers.

Cal Perkins described his introduction to soundcards, buying one for his son. He found that the audio engineering left much to be desired. He also tested 40 cards for a magazine review, and found that most were not very good and poorly designed from an audio systems standpoint. The PC hardware market seems to be driving audio quality down.

In response to a question about IEEE 1394 (FireWire), Bob Moses described a feasibility project he completed for Microsoft - 100Mbit and up speeds for data transmission.

David Scheirman asked, Who fills the gap between the low quality PC audio hardware market and the high quality pro audio industry? Large corporations are getting involved in the Internet, and money will be made.

Steve Mack related that their live events get an audience of about 150 people, whearas 50K people might make it pay, or get one needs advertisers.

Some copyright problems of Internet transmission were discussed

David Scheirman asked audience member and sound mixer Dave Stevens if a musical act like Sonic Youth would like to be broadcast over the Internet. Steve Mack commented about the quality of the live sound mix for encoding.

David asked the audience for a show of hands: Who didn’t have a PC? Who didn’t have an ISP? Who hadn’t listened to Internet audio of some sort? Who wasn’t satisfied with the sound quality?

Many questions were asked about RealAudio. - How well did test tones survive the codec? (well, it depends...) - What machines served their audio (Gateway P90’s running Linux); What delay occurs for receivers of the audio? Several seconds, increasing by a few seconds for additional listeners.

After 2 and a quarter hours, David Scheirman noted how alien our dialog would have sounded two years ago!

Aurika Hays and Steve Mack of Seattle's Progressive Networks. Rick Smargiassi photo.

April 15 Meeting

KeyArena Sound Tour

Whats the score? Welcome, Audio Engineering Society!

50 people got a 17,000 seat NBA basketball arena all to themselves for a night, when the PNW Section got a review of the new Seattle Center KeyArena sound system. PNW Chair Rick Smarigassi, head of the Seattle Center Sound Department, gave introductions and an overview, then acoustical consultant Michael Yantis of Michael Yantis and Associates, and systems contractor engineer Ron Simonson of CCI Systems described the acoustical considerations of such a space, and the trials and tribulations of designing such a sound system.

KeyArena is the result of a complete rebuilding of the Seattle Center Coliseum. Originally built for the 1962 World's Fair as an exhibit space, it was turned into a multipurpose arena for basketball, rock concerts and ice shows. Problems with the roof and a lack of seats lead to the decision to completely gut the structure, dig down further, and build a new, larger arena inside the shell of the old one.

Michael Yantis, project acoustician, described the reverb time with a chart. He wanted to keep the mid and high frequency performance, while improving the low frequency performance. Part of this improvement came at a cost savings - by recycling the old perforated metal acoustical panels in the ceiling. They were not his first choice of ceiling treatment, but by spacing them further from the roof, they proved acceptable. He felt that the acoustic effect of the concourses was not as good as it could be, but cited the old bugaboos of time and money. No formal acoustic tests had yet been conducted with a full house. The EAW system eventually provided by CCI Systems was probably not his first choice - but he let Ron Simonson explain how it proved acceptable.

Ron Simonson holds the chart of reverb time while Michael Yantis speaks. Rick Smargiassi photo.

Looks like we could've had 16,950 more attendees. Rick Smargiassi photo.

Ron's company had experience doing the sound systems for other NBA arenas: America West Arena in Phoenix, and Gund Arena in Cleveland. He described in great detail the entire story of the sound system's gestation, from Request for Proposal (with a spec of 120 dB peak SPLs) to design, construction and rigging. EAW provided the speakers, JBL CADPII was used for coverage and SPL mapping. ATM Flyware provided rigging design, and amplification was Crown, run with the Crown IQ system. A Soundcraft Vienna is the FOH console, making it one of the best consoles (and in one of the best seating areas) in an arena of this sort. The speakers are an exploded cluster design, with four clusters above each side of the basketball court. Amps are built onto the clusters. The budget was $700,000.

The sound system was used for the guest speakers, and the graphics were shown on the scoreboard videowalls! Attendees were free to examine the FOH Soundcraft Vienna, the video booth, and audition the system's capabilities with prerecorded music as they walked throughout the arena.

5th Ave Theater

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systems can be placed front-center stage, and typical small systems are under the balcony. An infrared headphone system covers the whole theater. Going onto the stage area, the intricacies of dealing with wireless mics in a stage show was explained in detail. A tour of the followspot booth, with the audio amps and original mix position was next.

After some light refreshments, the group went over the Yamaha PM4000 board placed at the back of the orchestra level (main floor), under the balcony. While not as cool as a CADAC, it was also much cheaper. Afterwards, what luxury it was to exit a big theater - and not have crowds!

March 20 Meeting

A Unique Outdoor Sound System for Opera and Symphony

Some 27 people from the Acoustical Society and the AES gathered for dinner at Seattle's Beso del Sol restaurant on March 20, 1996 to hear David Schierman speak about New York's unusual portable concert venue, the Carlos Mosely Music Pavillion. David is owner of Concert Sound Consultants and a Governor of the AES. After introductions from Charles Schmid, Executive Director of the ASA, and Rick Smargiassi, chair of the PNW Section of the AES, David used slides, overhead transparencies and handouts to describe a project that was initially a disappointment until he was hired to fix the operation.

The pavillion consists mainly of a large stage area and acoustic shell, cleverly made portable by using a huge tripod of trusses supporting a flexible membrane shell, a large portable stage with acoustic walls, and up to 24 speaker towers placed throughout the audience area. The towers are precisely located in the audience area and provide correctly delayed reinforcement sound to the audience's faces, as well as attenuated/delayed simulation of reflected sound behind the audience. The effect simulates a decent room, instead of the typical outdoor PA sound. The towers are all battery operated and wireless. The pavillion is erected in public parks and fields in the summer, and concerts of symphony and opera are performed for crowds of 5,000 to 150,000.

David described how the pavillion was not meeting expectations due to a variety of human factors and poor logistical planning. He made plans to coordinate the groups involved and streamline set-up logistics. It was found that the placement of the speaker towers was not being done accurately, so surveying equipment was purchased to ensure +/- 1 inch accuracy. He eliminated excess miking and electronic foldback. And the results? Even the New York Times music critic seemed happy!

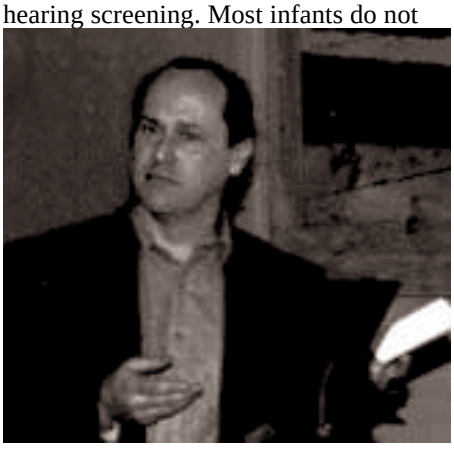
November 7, 1995 Meeting

Assisted Hearing and the Audio Professional

The PNW section met November 7 in the Communications Building at the University of Washington to hear Kelley Mascher talk about Assisted Listening Devices and the Audio Professional.

Using slides and overhead transparencies, Kelly, a research associate at the Audiology Department of Children's Hospital and Medical Center, began with the classic slide of the human ear cross section. He reviewed the hearing mechanism and causes of hearing loss. A high frequency loss is typical, and age+noise exposure and ototoxic drugs such as aspirin are a cause. Audiograms of many people were shown, and a short lesson on reading them. Examples of a sloping loss, a low frequency loss and a notch loss were shown. Losses of 30-50 dB are typically helped successfully with aids. Profound loss of 60-90 dB can be helped with aids, but there will still be loss. The problems of recruitment loss and the resultant reduction in dynamic range was discussed. Assisted listening devices such as induction loop receivers, infrared receivers and in-the-ear stage monitors were covered. The dangers of in-the-ear monitors, namely keeping the level safe, was mentioned.

After a break for chips and sodas, Kelley continued with information about his current focus - newborn infant hearing screening. Most infants do not get tested to see if they hear normally - possibly to the detriment of their development if they have impairment. The techniques to stimulate and measure the hearing of the infants was shown, and some discussion of otoacoustic emissions finished off the evening.



Kelly Mascher

Many questions from the audience were fielded all evening, such as whether single event hearing loss was permanent (strangely, sometimes it is and sometimes it isn't), and what "listener fatigue" was (temporary threshold shift in your hearing).

March 28 Meeting

"Phantom" Sound Tour

What better thing to do on a sunny Seattle afternoon than to skip work and explore a theater?! Some 40 people showed up at 4PM on a Thursday to see the sound system design of the national tour of Phantom of the Opera at the remodeled Paramount Theater.

Hosts Mark Anderson, the Paramount Theater house sound engineer, and Tim Pritchard, the Phantom sound engineer, each took half the group on tours of the mixing area, stage and speaker areas, and amplifier farm, radio receiver and effects area.

The Phantom tour has been on the road for about 7 years, and sound design was by Martin Levan. Masque Sound in New York provides the hardware. The show typically sits in a venue for 2 months. Tim considered this tour a "Rolls Royce" of touring shows - they have many luxuries such as extra rehearsals, but expectations are also high.

The custom Cadac mixing console and outboard gear was described in detail, and the stage set-up for wireless reception. Particularly interesting was the use of cabinetless Tannoy speakers in the decorative "legs" flanking the stage. It was claimed that careful design yielded better results than typical boxed reinforcement systems - which are available for backup. Some audio was demonstrated, and many questions about the show were fielded. Even the famous "falling" chandelier was topic for discussion.

PNW SECTION NEWSLETTER

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Ballot Inside for Next Year's Officers

1995-96 AES - PNW Section Officers

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