

WBA Broadcasters Clinic

October 10-12, 2023

Join Us!

Madison Marriott West
Madison, Wisconsin



WBA Room Rates
good through 9-18-23

For more information:
wi-broadcaster.org/clinic



Exhibitors Welcome!

Tuesday, October 10, 2023

8:30 a.m. – Real Radio Hosts Working Virtually: How Real Humans Work with Containerized Broadcast Systems



Kirk Harnack, Telos Alliance

Radio broadcasters have been anticipating their eventual deployment of virtualized broadcast software as part or most of their studio and backend infrastructure. A few radio stations and radio networks have already moved to a largely virtualized infrastructure while others are in the process now. The virtues of virtualization have been the topic of several dozen professional presentations ranging from manufacturers' revelations to scholarly presentations.

With some systems on-air now, it's time to ask, "What is working differently or the same – for broadcast engineers and for on-air talent?" This presentation asks that question and presents answers from actual broadcast engineers, broadcast IT professionals, and on-air talent. Let's see and hear what they have to say in their own words.

9:15 a.m. – Virtualization – Are YOU there yet? A Practical Implementation Approach



Alex Hartman, Optimized Media Group

Shane Toven, Educational Media Foundation

The IT infrastructure has gone towards "cloud" and "containers" which are all forms of virtualization. Radio manufacturers have also started moving products into this space and telling everyone how great it is... but forgot to tell you how to prepare for this new virtualized world in your local facilities. We hope to highlight how and where to start and show you where you can end up in this virtual landscape. The gotchas and pitfalls but also the advantages and flexibility it offers.

10 a.m. – Captioned Radio, Generative AI, Synthetic Voices, and Oh My!



Bill Bennett, ENCO

In the past, ENCO has presented the disruptive concept of captioning radio and the audience growth that it can enable. Now, we will establish how stations and their audiences can benefit from all that automated captioning and transcription brings, and where ChatGPT fits in all this.

In this presentation, ENCO will briefly review what captioning for radio is and remind the audience how radio is not inherently accessible to those who are deaf or hard of hearing. The presenter will then show examples of what a captioned radio experience might look like, using real-world examples and concepts ready to deploy. These examples will include a live look into a station captioning today, and transcript examples.

We will then look at what happens when you link transcripts to audio recordings or interview transcripts to speed up production workflow. Then we'll look at what AI generative text platforms can do with these transcripts with ENCO GPT, exploring greater content creation options, while making a station's content more available to individuals with and without hearing.

We will also dive into the technical aspects of captioning radio content for those unfamiliar with AI-based automatic speech recognition technology.

Radio can grow a wider audience in-part thanks to being more accessible to those who otherwise can't "hear" what's on, by captioning and transcribing their spoken-word content, and potentially leveraging AI-based GPT large language models. After this session, the audience will be better equipped to consider many options ahead.

10:45 a.m. – Break

11 a.m. – A Look at Several Last Mile Solutions



Mike Pappas, Orban Labs

This session builds on the first session with a deeper dive into advanced system configuration using everything from 5G LTE to Starlink to fiber to fully redundant systems to feed transmitter sites. Using a block diagram and real-world test results, it will examine what needs to be done and ensure no critical aspects of the transmission system (EAS, RDS, PPM, and local insertion) are missed.

11:45 a.m. – More About Metadata, What a Radio Facility Needs To Do



David Layer, NAB

Getting the word out to radio broadcasters on the importance of using good metadata is an important ongoing effort at NAB. One reason for this is that in many markets, the majority of radio stations have metadata offerings that are lacking. In this presentation, Mr. Layer will provide up-to-date information on the hybrid radio rollout by automakers and how broadcasters can best take advantage of this new technology. He will also highlight new radio technologies that have been the subject of recent work within the National Radio Systems Committee and the NAB Radio Technology Committee, including advanced digital FM modes of operation and the virtualization of the broadcast infrastructure.

12:30 p.m. – Lunch

1:30 p.m. – AM Radio – Still Sexy After 100 Years



Jeff Welton, Nautel

In spite of recent doom and gloom, with various automakers planning to pull AM radio from vehicles, there have been several advances in the technology. MA3 and MDCL are two of the biggest, but unprecedented transmitter efficiency is a close runner-up. In this session, we'll discuss the changes that have happened to the venerable AM transmitter over the past century, talk about the breakthroughs in technology and have a conversation about how best to optimize coverage and sound quality regardless of what system you're broadcasting from, because we all know that, although the pundits are proclaiming AM's death, it still makes up a significant portion of listening time, so let's make it as amazing as we possibly can!

2:15 p.m. – MPX Over IP Compression

Tony Peterle, WorldCast Systems



Use of IP networks to transport composite (MPX) signals for FM broadcast is growing in popularity. Broadcasters like the ability to deliver consistent MPX content across multiple sites via terrestrial, satellite, even cellular IP bandwidth. In some cases, though, that bandwidth can be limited or expensive, and a digitized linear MPX signal can consume multiple megabytes per second.

In order to reduce this demand, multiple approaches have been designed and deployed. A small reduction can be achieved by eliminating the higher-frequency components of the MPX feed, like RDS. Other solutions use data compression algorithms to reduce bandwidth. Some of these compress the MPX signal as a single entity, others employ a deconstruction of the composite audio/stereo/RDS information into smaller components, each of which can be compressed, transported, and reassembled at each of the destination sites.

The objective of this paper is to present data on the effectiveness of several different forms of MPX over IP data compression at various bit rates, both in terms of bandwidth reduction and quality analysis of the resulting MPX at the transmitter end.

3 p.m. – Break

3:15 p.m. – Utilizing RDS In Small Markets



Mark Wittkoski, Ameko Group

RDS in Small Markets can be a very useful tool to enhance branding, promote station events, and increase revenue. Often these smaller market stations don't have the budget of the bigger market to purchase a RDS Encoder that is feature enriched, but with the correct management software it's possible to utilize an inexpensive RDS encoder to accomplish this. As part of my Master's Degree in 2009, I wrote a basic RDS management program to accomplish these goals and over the years it has evolved into what it is today with the feedback from friends.

4 p.m. – Exclusive Exhibit Time

7 p.m. – Nuts and Bolts – IP Security: How to Protect Yourself and What to do When Attacked



Moderator ~ Pat Berger

David Oxenford, Wilkinson, Barker, Knauer

Jay Mielke, Wisconsin DOJ

Dave Schroeder, UW-Madison

Cyber security refers to every aspect of protecting an organization and its employees and assets against cyber threats. As cyberattacks become more common and sophisticated and media networks grow more complex, a variety of cyber security solutions are required to mitigate media network cyber risk.



Many media organizations approach or should approach cybersecurity like it's an arms race: a new threat means a new specialized tool. But you're not fighting against armies; you're fighting with threat actors using guerilla warfare. The more training and tools you have, the more complexity you have, and complexity creates opportunities for threat actors to exploit.

We have assembled a round table of experienced fellow media engineers and IP specialists to discuss what has happened to their organization when a situation has arisen, how they combatted it and how it can be prevented with training and knowledge.

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Wednesday, October 11, 2023

8 a.m. – Washington Issues for the Broadcast Engineer



David Oxenford, Wilkinson, Barker, Knauer

Washington sets the rules by which all broadcast stations operate, so engineers need to stay on top of all the latest requirements. Rules are constantly changing, providing both threats and opportunities. ATSC 3.0 is bringing changes to TV. Radio also has new technologies that have been approved or are under consideration, and challenges to its existing operations – particularly for AM. What opportunities, threats, and compliance issues at the FCC should the broadcast engineer be watching? Experienced Washington DC attorney David Oxenford will give you an update on the Washington DC policy and regulatory issues to which you should be paying attention.

8:45 a.m. – The Future of AM Radio – Panel Discussion



David Oxenford, Wilkinson, Barker, Knauer

David Layer, NAB

Chris Tarr, Magnum Media, Wisconsin EAS

This panel discussion will focus on the recent developments regarding the future of AM radio in automobile dashboards.

9:30 a.m. – EAS and You – A Love Story?



Chris Tarr, Magnum Media, Wisconsin EAS

Chris Tarr, Broadcast Chair of the Wisconsin State Emergency Communications Committee talks about the latest updates in EAS rules and regulations and offers a refresher on some of the best practices when it comes to deploying and maintaining EAS systems. He'll also answer questions from the audience about EAS usage.

10:15 a.m. – Exclusive Exhibit Time, Lunch

1:30 p.m. – Reflected Power Control in Contemporary Broadcast Transmission Systems



Karl Lahm, Broadcast Transmission Services

Broadcast transmitters have included output reflected power (VSWR) control in their feature sets for 70 years. Over that time, both the transmitters and these protection systems have grown in complexity and capability, while the fault and failure modes for antenna, transmission line, and filter systems remain as hazardous as ever. The massively paralleled nature of modern transmitters has significantly lessened the susceptibility of RF power amplifiers to damage from high reflected energy. Yet the possibility of significant damage to downstream components (e.g., filters, transmission lines, and antennas) from uncontrolled reflected power remains the same. Proactive testing and calibration of transmitting system reflected power control features is necessary to maximize reliability and uptime. This non-commercial, product-independent presentation will explore contemporary transmission system architectures, points of reflected power sensing, limitation schemes, and procedures for ensuring effective ongoing systemic protection, from the perspective of the broadcast end-user.

2:15 p.m. – Broadcast Tower Maintenance and Condition Assessment, Standards, and Best Practices for Tower Contractor Selection



Bill Harland, Electronics Research, Inc.

Changes to broadcast regulation and standards in the past 20 years have affected many aspects of terrestrial radio and television broadcasting today. The migration from analog to digital audio and video recording and playout, the adoption of satellite-delivered programming, and the new opportunities presented by cloud storage have significantly impacted local broadcast stations' economics and day-to-day operations. This presentation will focus on the significant changes to the standards and requirements for the broadcast towers' design, maintenance, analysis, and modification. It will also discuss changes to the required training and qualifications of those who work on those structures.

3 p.m. – Break

3:15 p.m. – The Future, For You and Your Successor



Charles Kelly,
Broadcast Marketing Consultant
Amy Phillips, Wisconsin Department of Workforce Development
Bill Hubbard, WBA Duke Wright Media Technology Institute

This series of short presentations will focus on the future for today's broadcast engineers and the many efforts to encourage the next generation of broadcast engineers.

4 p.m. – Snowflakes, Tear Gas and Kool-Aid: Lessons Learned from Public Media, Dark Edit Suites, and SaaS Cubicles



Chris Fournelle, Signiant
From the edit suites of the PBS documentary series, Frontline, to the post-coup d'état streets of Egypt, to moving out of TV to a media and entertainment technology supplier, Chris Fournelle reflects on his experiences, lessons learned, how those experiences influenced his view of M&E.

Thursday, October 12, 2023

8:30 a.m. – An Open Approach to Media in the Cloud



Chris Lennon, Ross Video
Interoperability is at the heart of everything we do. When it works well, we don't even notice it. But watch out when it doesn't!

With today's hybrid environments, stitching together cloud and on-prem, monoliths and microservices, and everything in between, interoperability is not a given. Also, setting up and maintaining operations in such an environment is no longer practical to be done manually. Automation in the area of onboarding and orchestrating new products and services is no longer a luxury. It's absolutely necessary.

Catena is an open-standards approach to making all of these disparate pieces work seamlessly together, despite their existence on different platforms. It's designed for today's multi-vendor reality. It provides a simple way to orchestrate all of this, and keep it running, even when things change constantly. We'll look at what Catena is, how it's being developed within the Open Services Alliance (OSA) and SMPTE, its embrace of open source for its SDK, and the excitement in the industry for a standardized solution to the ubiquitous challenge of interoperability among media systems.

9:15 a.m. – LTN: Bringing Order to the Chaos of IP Video Delivery



Rick Young, LTN Global Communications
The transition from the traditional transport methods of satellite and fiber to IP has accelerated on a global scale. Innovations like the LTN Network and open protocols like SRT make the ability to leverage the internet for real-time video delivery a reality. However, with any advancement comes challenges and opportunities.

The race to tame a complex, multi-platform world while consistently delivering on broadcast-quality, multicast delivery is the next-gen frontier. During this Tech Chat, LTN Global's Rick Young discusses how to bring reliability, flexibility and structure when seamlessly connecting — and managing — public cloud and on-premise networks.

10 a.m. – BREAK

10:15 p.m. – Newest Developments in Test and Measurement Tools for the Broadcaster Including NEXTGEN TV



Eddy Vanderkerken, Sourcerer
It covers the latest in test and measurement tools for RF, TV, video and radio applications, with more focus on equipment that includes measurement capabilities for ATSC 3.0.

11 a.m. – UHF Broadband Pylon Antenna Technology



Nicole Starrett, Dielectric
Slotted coaxial antennas have many advantages over traditional broadband panel antennas including much smaller size and wind load, higher reliability, and a greater degree of azimuth and elevation pattern flexibility. The one disadvantage of slotted coaxial antennas has been their inherently narrow bandwidth. In most

applications their usage is only considered for single channel operation, approximately one percent bandwidth for UHF. In the past decade, techniques have been applied to increase the bandwidth, but have been limited to side mounted antenna configurations. This presentation will go into detail on how new technology has allowed broadband pylon antennas to be designed in a free standing, top mount configuration without sacrificing azimuth patterns circularly from the presence of external feedlines.

11:45 a.m. – Lunch

4:45 p.m. – Radio AI Technology and You



Moderator ~ Paul McLane, Radio World
Fred Jacobs, Jacobs Media
David Oxenford, Wilkinson, Barker, Knauer
Craig Bowman, Futuri



Generative artificial intelligence swept into general awareness like a mighty wind just months ago. Now it is on the cusp of changing radio programming and technology management profoundly. Learn which broadcasters are putting it to use, what questions it raises for managers, and how the technology will affect radio workflows. Also hear about a real-world on-air exploration of RadioGPT at the University of Florida.

6 p.m. – SBE Meeting – Quality and Consistency of LED Fixtures for Cameras



Jim Uphoff, ETC
With so many options, how do you decide which LED fixtures to use on set? After all, quality lighting makes a world of difference when working in a broadcast setting. You want your lighting fixtures to create natural warmth in skin tones, have options to change the mood of the setting, and provide ultimate brightness without sacrificing color. In addition to all that, you need consistent, reliable output. In this session, ETC Entertainment Fixture Product Manager, Jim Uphoff will discuss the science behind additive LED color mixing, and the importance of factory-calibrated fixtures. By the end you'll know how to critically compare and select fixtures for each project and understand the core concepts of light and color manipulation for cameras.

12:45 p.m. – How to Deliver NEXTGEN TV with Minimal Costs, Equipment, and Power Usage



Ralph Bachofen, Triveni Digital
NEXTGEN TV is a game changer for broadcasters, enabling them to offer more interactive TV experiences. As ATSC 3.0 deployments accelerate across the United States, it is also critical for broadcasters to be able to rapidly and cost-effectively launch NEXTGEN TV services.

This presentation from Triveni Digital will discuss innovative technologies that can significantly reduce the cost of ATSC 3.0 service delivery. Triveni Digital experts will highlight how broadcasters can efficiently repeat or translate their existing ATSC 3.0 signal to other areas without the need for an entire broadcast chain, thereby minimizing costs, equipment, and power usage. The innovation discussed is ideal for attendees that work in both public state-wide networks and private cloud-based environments.

As a leader in ATSC 3.0 and a frontrunner in NEXTGEN TV deployments across the United States, experts from Triveni Digital will bring a wealth of knowledge and real-world experience to this session.

1:30 p.m. – Convergence of 5G and ATSC 3.0



Hewlett Packard Enterprise

Speaker to be named from HPE
Use cases, benefits, and the work ahead for a future "Network of Networks."

2:15 p.m. – New ATSC Encoding Features Provide New Opportunities, and New Workflows



Dennis Klas, Heartland Video Systems
An encoder is not just an encoder anymore! Our ATSC 1 and ATSC 3 broadcasts have become more complex, as have our encoding systems. New features allow many functions to be performed by the encoder that used to require external gear. This function collapse provides cost savings as well as the benefits of a simplified air chain. New system designs also provide redundancy, where previous designs had single points of failure in some areas.