

RADIO WORLD



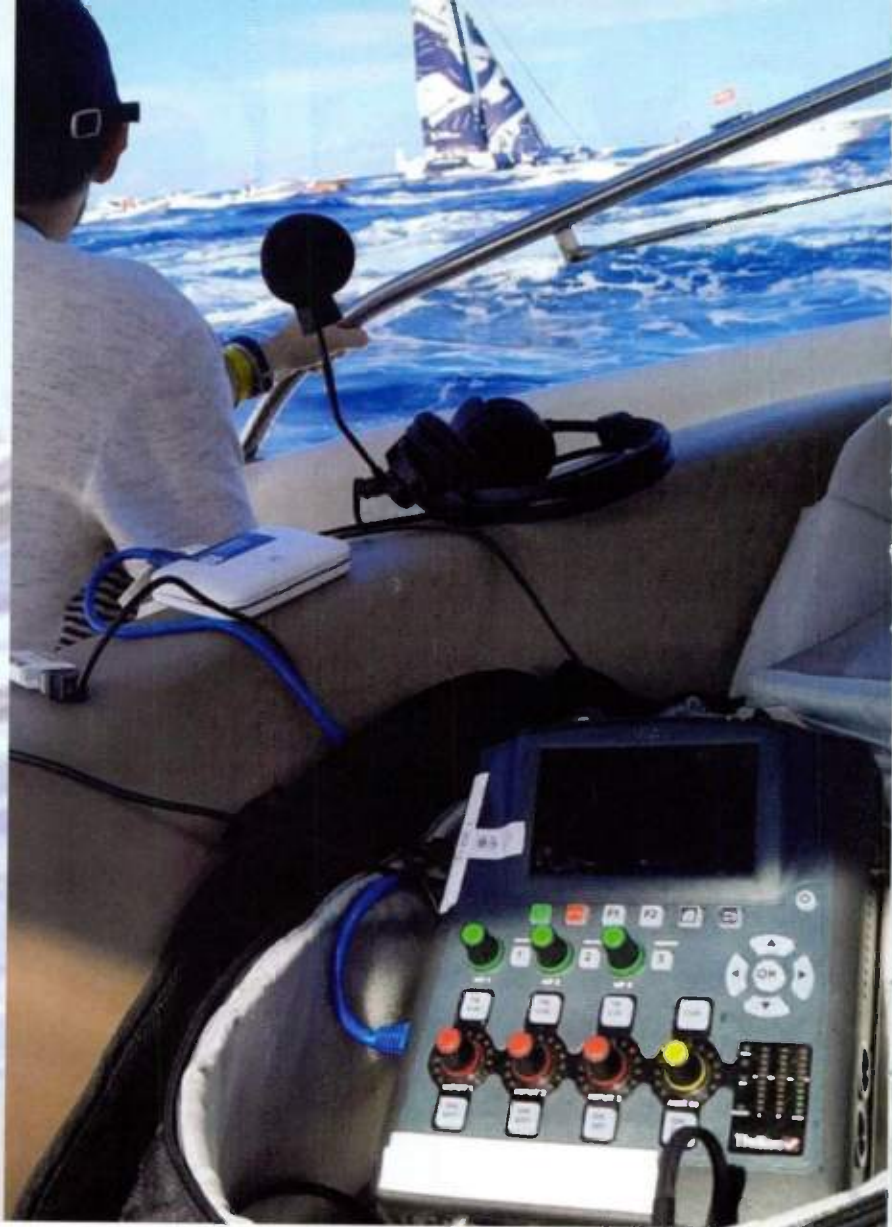
2023 Source Book & Directory

Annual Reference Guide & Supplement to Radio World

IP Remotes from Anywhere

Wherever you need to
broadcast from, the ViA
delivers rock-solid live
audio anywhere,
anytime.

(((ViA)))



The Tieline ViA has you covered for even the most complex and demanding setups.

- Up to 7 IP interface options and full remote control
- Bidirectional mono, dual mono, triple mono, stereo, or stereo plus mono
- Plus recording, playback, FTP, EQ, compression, AGC

Tieline[®] 
The Codec Company

Americas: +1-317-845-8000 | International: +61-8-9413-2000 | tieline.com/contact/



Connect Anywhere, Anytime, Anyhow



Technology solutions for all

Here is your 2023 Source Book & Directory, a technology resource for professionals in the radio broadcasting and digital audio industries.

Our technology business space continues to evolve, with the proliferation of cloud-based tools, hybrid workspaces, virtualization, streaming channels and much more. Meanwhile, professionals in these industries also still need consoles, codecs, transmitters and no end of other specialized gear and solutions.

The companies listed in this directory are those that responded to our solicitations. They are the folks who make or sell the hardware, software and services that help the radio broadcast and audio industries go.

Find them listed alphabetically in the Vendor & Product Directory section starting on page 24. A cross-index helps you find companies by type of product or service, starting on page 18. On pages 4 to 16, sponsors highlight key products in the Profiles in Excellence section. And starting on page 40 are sponsored reprints of stories that appeared in Radio World in recent months.

Thank you for being a Radio World reader. I hope this resource is helpful to you and that you'll do business with these companies, particularly those that advertise in Radio World. They make it possible for us to serve you.

Paul McLane
Editor in Chief

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From the Lincoln Bedroom to Lincoln High School. Connectivity. Solved.

Connectivity. In today's world it's all about connectivity. How much bandwidth, how fast is the connection and how reliable is the connection. Whether it's a broadcast from the White House or Joe's Used Cars, you want reliable connectivity for your wireless remotes. And you get that with MaxxKonnnect Wireless.

MaxxKonnnect routers out class the competition in several ways. First and foremost is connectivity. Not all cellular carriers are equal. Coverage can vary from location to location. MaxxKonnnect has LTE cellular connectivity from all the major carriers so you can pick the carrier that has the better network in your area. And if you can't decide which to use, they have a solution where you can use both in the same router.

MaxxKonnnect has a better class of service than your standard cell phone. With a nationwide true public STATIC IP address, you can set up inbound connectivity to your remote device and router for remote management. This also lets you increase your network security by whitelisting your public static IP in your studio firewall, which keeps you from having wide open ports. MaxxKonnnect has a prioritized, high-speed connection with higher QOS on their carriers and no data throttling. This means that at those big events, your remote will stay on the air when your cell phone is having issues. And all MaxxKonnnect routers have wired LAN ports.



MaxxKonnnect has your back on support as well. Every router ships to you preconfigured and is ready to use – right out of the box! No more fumbling around trying to set it up and figure out the manual that was printed in way too small of a font to be readable. IP addresses, username and the Wi-Fi name are all right on a label on the bottom of the router and on a Customer Information Sheet you can stick in your desk drawer for future reference. They've also got a great new Customer Portal that lets you monitor your usage on every SIM, plus RMS access to your routers – all in one place and at NO additional charge!

Designed by Broadcast Engineers for Broadcasters, MaxxKonnnect has support staff who know specifically what you're doing and can fix it when it doesn't work. Let's face it, nothing works forever and when you need help MaxxKonnnect has someone on the phone that can not only walk you through troubleshooting but if the router can get online, they can attempt to fix your issue remotely. They'll also help you troubleshoot your codec ports and connection too!

Don't just consider MaxxKonnnect for remotes. ISDN is gone or will be soon. Set up a backup STL with a MaxxKonnnect and your favorite codec. You won't regret it.

MaxxKonnnect Wireless is available from The MaxxKonnnect Group at www.maxxkonnnect.com or by calling 205-598-1200.

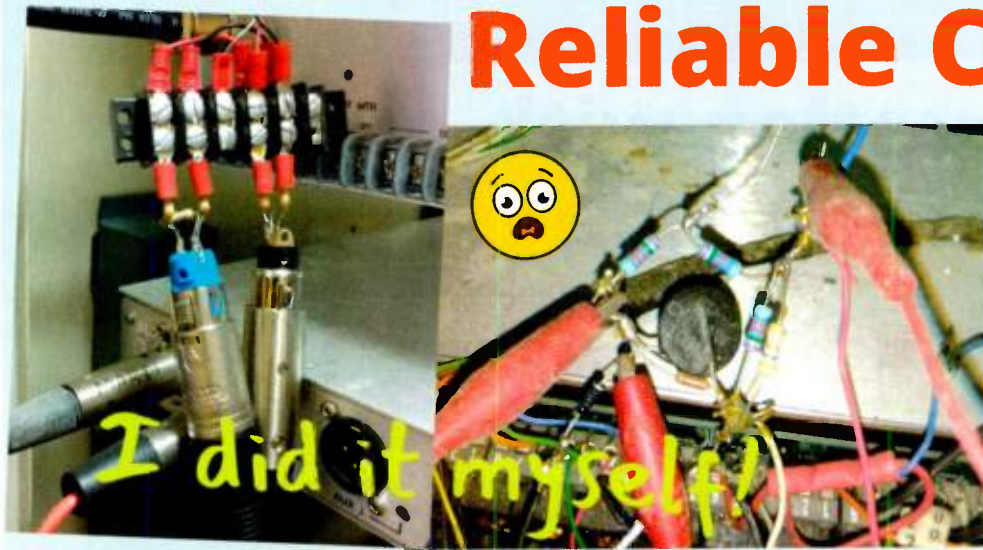


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WIRELESS

www.maxxkonnnect.com

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shouldn't
have to
be D-I-Y!**



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***Your trusted partner for wireless
broadcast connectivity***

Innovation with AoIP Codecs

Comrex has been an industry leader in developing IP audio codecs since 2004, with the release of the original ACCESS - a handheld codec that opened up remote broadcasting possibilities that weren't available before. Since then, Comrex has continued to build IP audio technology and break boundaries in audio transportation.



BRIC-Link Codecs

Designed for point-to-point links, our BRIC-Link codec line provides rock solid connections in any context. From STLs, to home studios, to voice-over links, to plain old IP codec connections between studios, BRIC-Link codecs are known for their reliability. It's the "set-it-and-forget-it box" that's beautifully boring - in the best way possible.

BRIC-Link III, the newest addition to the BRIC-Link line, is a work-horse codec, ready to handle anything. Featuring CrossLock (Comrex's proprietary suite of reliability tools), BRIC-Link III is designed for ultra-reliable IP audio transmission and is capable of being used in 24/7/365 environments. Perfect for point-to-point connections, multicasting, streaming, and more, BRIC-Link III offers incredible versatility in a small package.

ACCESS Codecs

Our flagship AoIP codec line, ACCESS codecs feature a sophisticated suite of features to supply exceptional audio. All ACCESS codecs include CrossLock in addition to HotSwap, a feature that allows users to back up studio-to-transmitter links (STL) or other dedicated links with a wireless modem. The **ACCESS NX Rack** studio codec and **ACCESS MultiRack** multi-channel codec are both AES67-compatible and ready to integrate into a modern studio. But the ACCESS line is defined by its remote codecs.

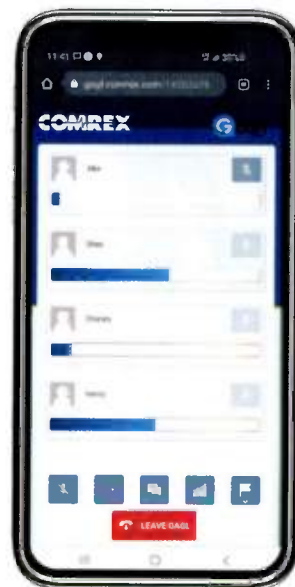
ACCESS NX is an IP audio codec designed to go anywhere. A handheld unit with two mic inputs



and an optional four-channel mixer, **ACCESS NX** can deliver exceptional audio, even over the kind of marginal IP networks one might encounter in the field. Plus with CrossLock, ACCESS NX can connect to multiple IP networks simultaneously, to take advantage of any bandwidth available.

Gagl

While it's not technically a codec, Gagl is a brand-new cloud service that brings Comrex codecs to the next level. Gagl allows up to five users to send and receive audio from computers and smartphones. That audio is "Gag'l'd" together (if more than one user), and delivered to a Comrex hardware codec such as ACCESS or BRIC-Link, usually in a studio. All participants can hear each other (with their own mix-minus) and the codec "send" audio back to them.



Gagl is now available for purchase. Subscriptions are \$35.00 USD per month, or customers can save \$70.00 on an annual subscription with a code from their favorite Comrex dealer or Comrex directly. Free 14-day trial available for all new subscriptions.

For pricing and availability on Comrex equipment, please contact an authorized Comrex dealer.

For more information, visit the Comrex website at www.comrex.com or contact the Comrex Sales team at sales@comrex.com or +1-978-784-1776.



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Turn any Comrex IP audio codec into a hub for up to 5 remote participants. Gagl can run an entire morning show - or be a portal for one guest to connect.

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✓ Bidirectional audio between all guests with minimal delay

✓ Simple for guests - anyone can Gagl

No special equipment, app / software install, or IT degree required.

\$35

Billed Monthly

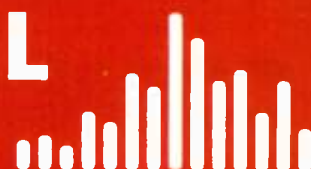
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FM/HD Radio™ Broadcast Processor



NOW WITH REMOTE WEB INTERFACE

- Streamlined 4th generation DSP-based audio processor.
- 5-bands of dynamic range compression & "Graphic EQ".
- 25 Factory presets and 20 customizable presets.
- Multilingual front panel in English, Spanish, & Portugues.



NOVIA 272

FM Audio Processor | Stereo Gen | Dynamic RDS



- A member of the compact 1/2-rack sized, all-digital DSP-based 3 band NOVIA family of processors.
- Models are available for FM, AM, & Dual Mode Stereo.
- 5-bands of dynamic range compression & "Graphic EQ".
- Analog, AES-digital, Streaming IN/OUT. Simple set-up with 10 factory presets and 10 customizable presets.

JUSTIN 808

FM/HD Radio™ Alignment Processor



- Unique single box solution to maintain time alignment between analog FM & HD1, with precise alignment to within 23 microseconds (± 1 sample). 100% automatic.
- Web interface for remote control, metering, etc. SNMP support.
- Extensive data logging with graphic display. SMS/email alarm notifications.



INOMINI 223

Multimode Audio Processor

- An audio processing powerhouse in a small package.
- Versatile DSP-based design is user programmable to serve multiple broadcast applications: NRSC, AM, FM, SCA, & TIS.
- Monoaural.

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WHY INOVONICS?

- Quality Solutions. Competitive Prices.
- Three-year Factory Warranty.
- Quick to install. Easy to Program.
- Quality after sales service.

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BROADCAST

PROFESSIONAL REMOTE MONITORING

FROM ANY LOCATION.
ON ANY DEVICE.

AM | FM | HD | DAB | DAB+

Tap into your broadcasts with Inovonics' expansive offering of remote monitoring equipment.

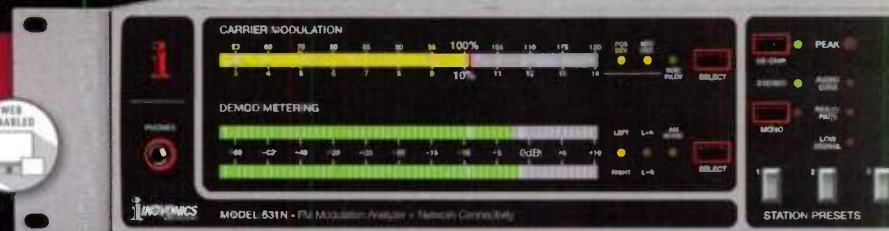
NEW 551 FM/HD Radio® Modulation Monitor

The ultimate choice for advanced FM and HD Radio signal monitoring. Simultaneously monitor in real time the off-air FM modulation along with up to 4 HD Radio Channels.



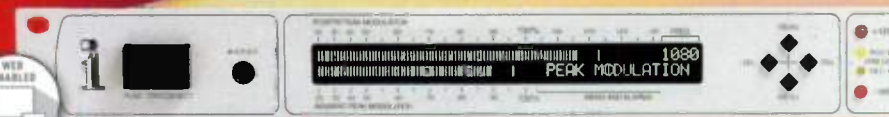
531N FM Modulation Analyzer

Direct and off-air reception. Keep a sharp eye on total RF signal performance.



525N AM Modulation Analyzer

Third generation AM Modulation Monitor designed for accurate AM readings even in the presence of Hybrid Digital (IBOC) transmissions.



SiteStreamers

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Dante AoIP available on all SOFIAS.



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- Quality Solutions. Competitive Prices.
- Three-year Factory Warranty.
- Quick to install. Easy to Program.
- Quality after sales service.



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128 channels. In one RU.



IQOYA SERV/LINK



Flagship! Multichannel IP Audio Codec
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*Up to 64 perfectly reliable stereo audio connections
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Perfect Audio. Perfect Broadcast.

Meet the next generation of End-to-End Codec solution - with full Cloud-based remote control:

- High Quality. Easy-to-use. Affordable.
- Stream up to 128 channels. Bi-directional.
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- Multiple compression formats and transport protocols to match bandwidth/latency requirements.
- Combination of several adaptive correction strategies depending on the network quality.
- Connects to 3rd party CODECs.

**Over 10.000 CODECs in
service worldwide!**



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Fully Portable all-inclusive
REMI-ready CODEC

- WIFI, LAN, 5G, WAN
- 3 x Mic Pre, 4 x Phones
- Connects to 3rd party
- CODECS
- 8h Autonomy



IQOYA GUEST

High-Quality
Software CODEC
Works on smartphones!



IQOYA CONNECT

Complete Remote Control
via cloud service

- Field codec configuration for journalists
- Manage and Monitor codec fleet and communication in real time
- Remote control of audio and configuration settings for all Codecs
- Remote assistance from technician in the studio
- Real time network metrics

1

Connect to the Internet

2

Login talent

3

Studio engineer takes control

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through user-centered design driven by the latest technology.

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Axia Quasar™ AoIP consoles are the ultimate AoIP Broadcast Mixing Consoles, putting the power at your fingertips for next-level content creation. Including XR and SR models—the Quasar family offers broadcast engineers and less seasoned board operators alike boundless production possibilities, modularity, scalability, and workflow flexibility.



Axia Quasar™ XR AoIP Console

Delivering unlimited production possibilities. Quasar XR is our top-of-the-line mixer featuring extensive metering built into the surface right where it needs to be—on every channel display and next to each fader, as well as on the monitor module. These LED meters allow users to live mix rather than merely confidence monitor, giving users active control over their environments for the best possible outcome.



Axia Quasar™ SR AoIP Mixing Console

Powered by simplicity, Quasar SR delivers all the power, ergonomics, industrial design, and star appeal of our flagship Quasar XR console. Quasar SR is not reserved for the most knowledgeable broadcaster but is approachable to any board operator thanks to its streamlined surface design. If the LED meters next to each fader on the Quasar XR console are a bit too much functionality for your surface, then Quasar SR might be the solution for you.



Axia Quasar Soft Remote Mixing Solution

Unlock your XR or SR's remote capabilities with the optional Quasar Soft Software Upgrade. This customizable remote control solution lets you control your Quasar surface from a browser. You can generate up to eight HTML-5 pages and configure them to display any of the 64 input channels, plus a small monitor section, or even the entire master section of the console. Included as part of the Quasar Soft license, Quasar Cast is a remote monitoring solution that lets you listen to any Livewire stream in the network through the same web browser.



Mic / Headphone Control Module

The Mic/Headphone Control Module provides remote control of mic on/off functions where dedicated Mute and Talkback buttons give talent full control of their position. A Volume/Source selection knob allows users to select their headphone monitor source and the display readout confirms their choice.



Axia Console GPIO Accessory Module

The Quasar GPIO Accessory Module is an in-studio accessory for remote control of mic on/off functions including Mute and Talkback buttons. The GPIO Module can be mounted in tabletops or turrets. Requires one free Axia® GPIO port per module and works with legacy Axia Fusion® consoles, the iQ family of consoles, and Quasar XR and SR consoles.



Quasar Engine

The Quasar Engine provides bulletproof mixing console signal processing for Quasar surfaces and is a must-have for the operation of your XR or SR surface. Allowing you to pay only for the number of channels you need, the Quasar Engine is modular, starting at 16 channels and scaling up in blocks of 16 channels.



Mic In / Headphone Out Module

The Quasar Mic in/HP out Module is an optional 1ch-wide module that can be placed anywhere on the surface to add a convenient Talkback Input and headphone Output to your Quasar.



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Tieline Gateway for Streaming Media Conversion

Tieline believes in IP interoperability within the broadcast plant, to expand options and simplify workflows when integrating software and hardware from vendors supporting different protocols.

Customized Solutions

Gateway and Gateway 4 codecs are often 'edge' devices in IP networks, acting as a media converter and bridging between the AoIP broadcast plant, other studios (inter-studio links), production facilities and live events. Interoperability delivers greater flexibility when integrating IP audio streams into the broadcast plant from a range of sources. Gateway and Gateway 4 codecs embrace both proprietary and open standards and protocols across LANs, WANs and the public internet, with simple monitoring and control.

More Standards, More Powerful Solutions

When planning your next AoIP project, remember Tieline delivers native support for AES67, ST2110-30, ST 2022-7, Livewire+,

RAVENNA, NMOS IS-04 and IS-05, Ember+. WheatNet-IP is an option at purchase and a Dante option will be available soon. Gateway codecs support up to 16 mono or 8 stereo channels with AES3 and analog supported. You can multi-unicast, multicast, stream up to 8 channels of phase-aligned audio for surround sound solutions (8.0, 7.1, 6.0, 5.1 and 4.0), plus HTTP streaming is included as well. Tieline also future-proofs your investment with simple and free software updates to deliver new technology as it develops.

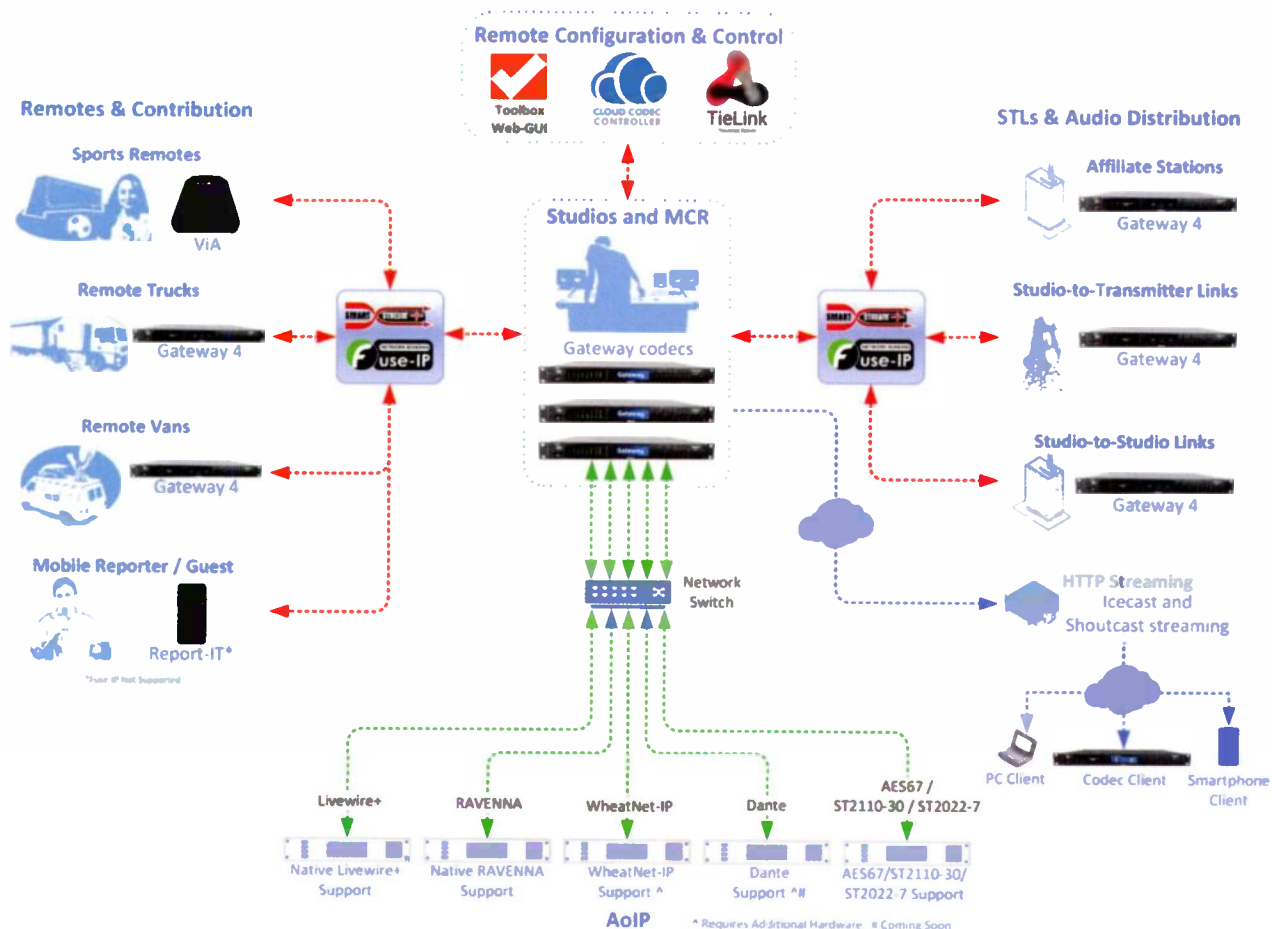
With innovative and wide-ranging standards-based technology, it's no surprise Tieline is at the heart of major global broadcast networks. Contact Tieline today and take your network to the next level.

Tieline 
The Codec Company

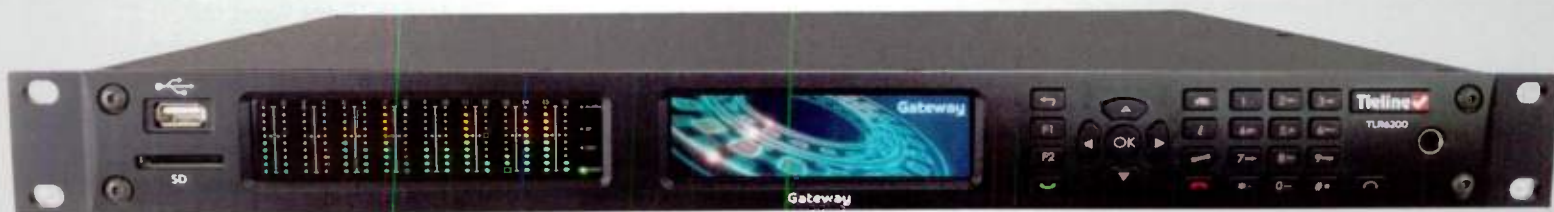
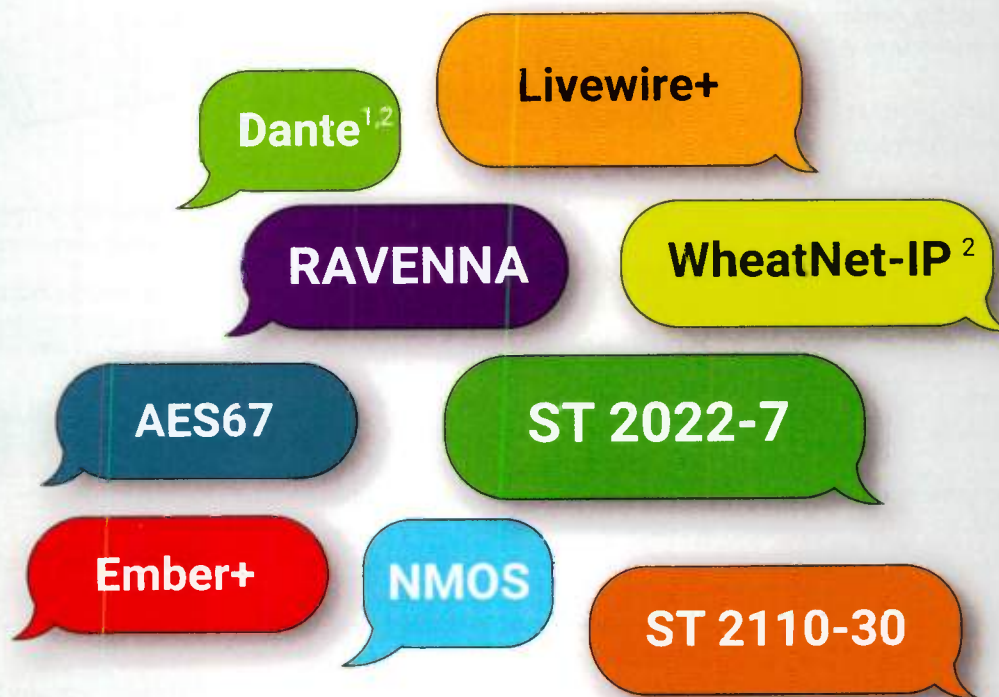
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1 = Coming Soon | 2 Requires an additional internal card

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DRM – Smart Radio for All, Anytime and Anywhere

What Is It?

Digital Radio Mondiale is the global, open, green replacement for analog transmissions in all frequency bands (from AM to VHF).

The international not-for-profit DRM Consortium (www.drm.org) promotes the flexible DRM standard:

DRM for large-area coverage

DRM in all the AM bands below 30 MHz, so broadcasters can provide FM-quality services over large areas (national and international transmissions)



DRM for local/regional services

DRM also in the FM/VHF bands I, II and III. DRM provides flexible localized capacity for up to 3 stereo programs plus multimedia within half the bandwidth required by analog FM



More on DRM: pocket.drm.org

Why Use DRM?

DRM offers an attractive package of benefits in both AM and FM/VHF bands

For listeners

Advanced services, revolutionizing the radio experience:

- DRM offers *better-than-FM audio quality* with optional 5.1 MPEG Surround
- DRM has sound data applications such as DRM Text Messages, Journaline advanced text, image slideshow, TPEG traffic data, in all languages and scripts worldwide
- DRM is the first global digital radio standard using state-of-the-art MPEG audio codec xHE-AAC
- DRM provides emergency alert signaling for immediate mass-notification in case of impending disasters (DRM Emergency Warning Functionality - EWF)



- DRM can offer distance education and "internet without the internet"

For broadcasters

Transmission network efficiency and cost savings:

- DRM transmissions in the VHF/FM band can carry up to 3 radio programs along with multimedia components on a single frequency of 100 kHz bandwidth only (half of an existing analogue FM frequency bandwidth)
- Diversified content increases listener base and revenue potential
- Sharing transmitter infrastructure between independent broadcasters is the latest enhancement of the DRM standard in the FM band. Broadcasting of as many as six individual DRM signals from a single transmitter and antenna means as many as 18 programs in pure DRM mode can be available with up to 90% energy cost reduction
- DRM gives full control to broadcasters over their own broadcast infrastructure (studios, transmitters, antennas). DRM can generally utilize and upgrade the existing infrastructure



And The Receivers?

These are already available from various sources internationally (products.drm.org), either as finished products, or OEM parts,

as Apps on Android phones (with dongles) and more are being developed all the time.



These receivers need your broadcasts, your interest and involvement.

The automotive industry has taken DRM on board



Where Can We Meet?

Here are some of the events, where you can meet us:

BES India, February 16-18, New Delhi, India
ABU DBS, March 6-9, Kuala Lumpur, Malaysia
NAB, April 15-19, Las Vegas, USA
BroadcastAsia, June 7-9, Singapore
IBC, September, Amsterdam, Netherlands

For more information, for updates and further events go to: newsletter.drm.org.

To talk to us, to join the Consortium or get information contact us at:

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- Simple user interface with powerful content management, scheduling and publishing capabilities.
- Fully licensed artwork from TiVo, one of the world's largest music libraries.
- New ways to monetize visual metadata services.
- Includes support for broadcast, streamed and hybrid platforms, including DTS AutoStage.



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This section helps you locate suppliers of types of equipment and services. Find contact information for these companies in the Vendor & Product Directory section starting on page 24. This list is based on information provided by the companies, who are listed only if they checked a given category.

ACOUSTIC & BUILDING MATERIALS

Acoustics First Corp.
Auralux Acoustics Inc.

ANTENNAS (FM/AM), FEEDLINE & WAVEGUIDE

Alan Dick Broadcast Ltd.
Aldena Telecomunicazioni Srl
Bext Corp.
Burk Technology
DB Elettronica Telecomunicazioni
Dielectric
Electronics Research Inc. (ERI)
Hatfield & Dawson
Consulting Engineers
Information Station Specialists
Jampro Antennas Inc.
Kathrein Broadcast GmbH
Kintronic Labs Inc.
meduci LLC
Micronetixx
Myat Inc.
OMB America
ONAIR Medya Communication Ltd.
Progressive Concepts
Propagation Systems Inc. (PSI)
R.V.R Elettronica Srl
SCMS Inc.
Shively Labs
Telsat Srl
Transcom Corp.
Tunwall Radio LLC

APPS & APP DEVELOPMENT

22HBG
Aiir
Auddia
Cirrus Streaming
Micronetixx
RadioFX Inc.
RadioLand App

ASSOCIATIONS, ORGANIZATIONS & ADVOCACY

Audio Engineering Society
IEEE Broadcast Technology Society
National Association of Broadcasters
National Federation of
Community Broadcasters
NATE: The Communications
Infrastructure Contractors
Association
Society of Broadcast Engineers

AUDIO ACCESSORIES & PROBLEM-SOLVERS

AngryAudio LLC
Broadcast Tools Inc.
CEntrance
CircuitWerkes
DHD audio GmbH

Energy Transformation
Systems (ETS)
GlenSound
Henry Engineering
Inovonics Inc.
JK Audio
Paravel Systems LLC
RAM Systems
Sonifex
StudioHub
Titus Technological Laboratories
Yellowtec

AUDIO DELAYS - PROFANITY & DIVERSITY

Eventide Inc.
ONAIR Medya Communication Ltd.
Telos Alliance

AUDIO DISTRIBUTION, BETWEEN LOCATIONS

(See also *Codecs; Satellite & Internet Distribution*)
AETA Audio Systems
Auddia
Audinate
Barix
Comrex
DaySequerra Corp.
DB Elettronica Telecomunicazioni
DEVA Broadcast LLC
Digigram
DoubleRadius Inc.
Elenos Group
GatesAir
International Datacasting/
Novra Group
Mobile Viewpoint
Moseley Associates
NPR Distribution Services (NPRDS)
Tieline

AUDIO DISTRIBUTION & ROUTING WITHIN A FACILITY

AngryAudio LLC
Arrakis Systems
Audinate
AudioScience Inc.
Broadcast Devices Inc.
Broadcast Tools Inc.
Calrec Audio
DaySequerra Corp.
DHD audio GmbH
Digigram
Energy Transformation
Systems (ETS)
ESE
GlenSound
Henry Engineering
Lawo Inc.
Logitek
StudioHub
Telos Alliance

Tieline
Wheatstone Corp.

AUDIO INTERFACES

Energy Transformation
Systems (ETS)
GlenSound
Lynx Studio Technology Inc.
Pro Audio Interface
Sonifex

AUDIO LOGGERS

Broadcast Software International
Burli Software Inc.
Eventide Inc.
Mediaprox
NETIA
ONAIR Medya Communication Ltd.
OPNS
Summit Technology Group
Tracy Johnson Media Group
Win-OMT Software Inc.

AUDIO PROCESSING (ON-AIR & STREAMING)

AngryAudio LLC
Aqua Broadcast Ltd.
Auddia
Audinate
AudioScience Inc.
Axel Technology
Broadcast Electronics Inc.
Broadcast Radio Ltd.
Broadcast Software International
Broadcast Supply Worldwide
Calrec Audio
CEntrance
CGI Deutschland B.V. & Co. KG
DEVA Broadcast LLC
High Sound
Inovonics Inc.
JT Communications LLC
On-Hertz
Orban
Orban Legacy Parts & Service
StreamS/Modulation Index LLC
Syndicate of Sounds
Telos Alliance
Thimeo Audio Technology B.V.
Wheatstone Corp.
Win-OMT Software Inc.

AUDIO PROCESSING, PRODUCTION

Aqua Broadcast Ltd.
Audinate
Broadcast Software International
Calrec Audio
CEntrance
CGI Deutschland B.V. & Co. KG
Innovationszentrum für
Telekommunikationstechnik
GmbH IZT

NETIA
On-Hertz
Orban
PreSonus Audio Electronics Inc.
SoundStack
StreamS/Modulation Index LLC
Syndicate of Sounds
Thimeo Audio Technology B.V.
Win-OMT Software Inc.

AUTOMATION, PLAYOUT, MEDIA ASSET MGT.

AEQ
Arrakis Systems
AudioScience Inc.
Axel Technology
Broadcast Electronics Inc.
Broadcast Pix
Broadcast Radio Ltd.
Broadcast Software International
Burli Software Inc.
CGI Deutschland B.V. & Co. KG
dcsTools.com
DJB Radio Automation Software
Elenos Group
ENCO Systems Inc.
Jutel Radioman
NETIA
NextKast
OmniPlayer
OPNS
Paravel Systems LLC
Progressive Concepts
RCS
Smarts Broadcast
StreamS/Modulation Index LLC
Vizrt
WideOrbit
winMedia
Win-OMT Software Inc.

BUSINESS/ FRONT-OFFICE SERVICES

Futuri Media
Granite Telecommunications LLC
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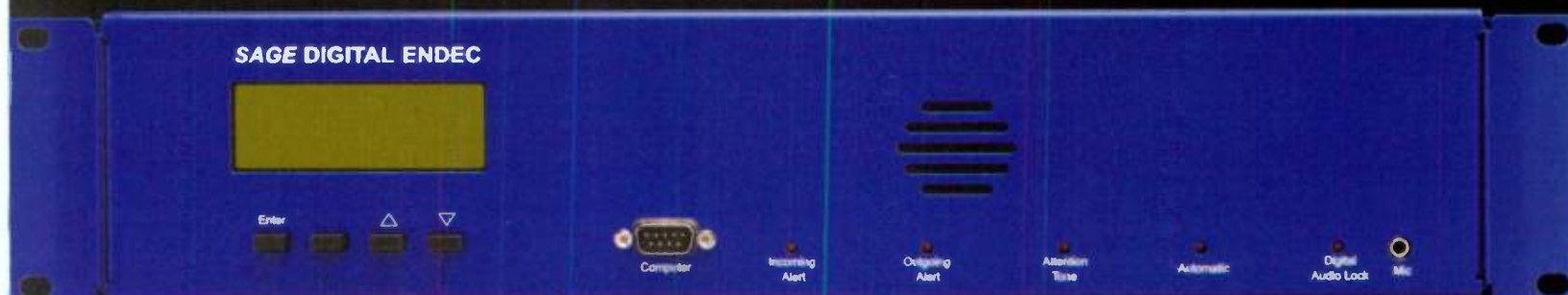
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Tieline The Codec Company

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Products/Services: Tieline is the leading manufacturer of digital audio codecs for live remotes, STLs and audio distribution. Connect over cellular and wired IP, SIP and ISDN. AoIP studio solutions incorporate

AE567, ST2110-30, ST2022-7, Livewire+, Ravenna, WheatNet-IP, NMOS and Ember+. Thousands of broadcasters rely on Tieline solutions every day for rock-solid broadcast solutions over the internet or QoS-enabled IP networks.

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Products/Services: Wheatstone Corp. designs and manufactures professional broadcast equipment under the Wheatstone, Audioarts and VoxPro brand names. Products include digital and analog audio consoles, audio over IP networks, digital audio editing hardware and software, signal processing for broadcast, and customizable graphical user interfaces for real-time control of audio network systems.

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Products/Services: Scalable, full-featured automation solutions through on-prem or web-based products such as winNews, winMam, winSales, winMedia, winCam, winCloud, winSafe, winLogger, winWebb and winApp. They provide the tools a broadcaster needs daily, from ingest all the way to broadcast to the targeted audience, plus logging and repurposing newly created shows. With offices in Europe, North America and Asia and a Professional Partner Network that includes more than 50 distributors covering 80 countries, we can respond as effectively as possible to our customers' needs.

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Products/Services: WorldCast Systems is a global company and leading solution provider for media and broadcast, with 60+ years of RF experience. With established brands APT, Ecreso, Audemat and Kybio, its solutions cover the entire broadcast chain from contribution

to AoIP/MPXoIP distribution, FM transmission, RDS broadcast, signal test and measurement, antenna management and monitoring.

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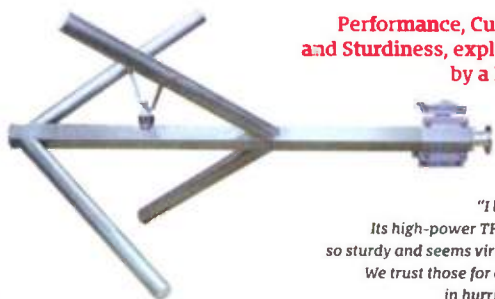
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Writer



Herb Ayer
Assistant
Chief Engineer,
WABI(TV)

Bangor broadcaster relies on Burk

Gray Television station has two ARC Plus Touch systems

We are WABI(TV) in Bangor, Maine, part of Gray Television Group. We run three television transmitters, one full-power and two low-power, all with the same programming.

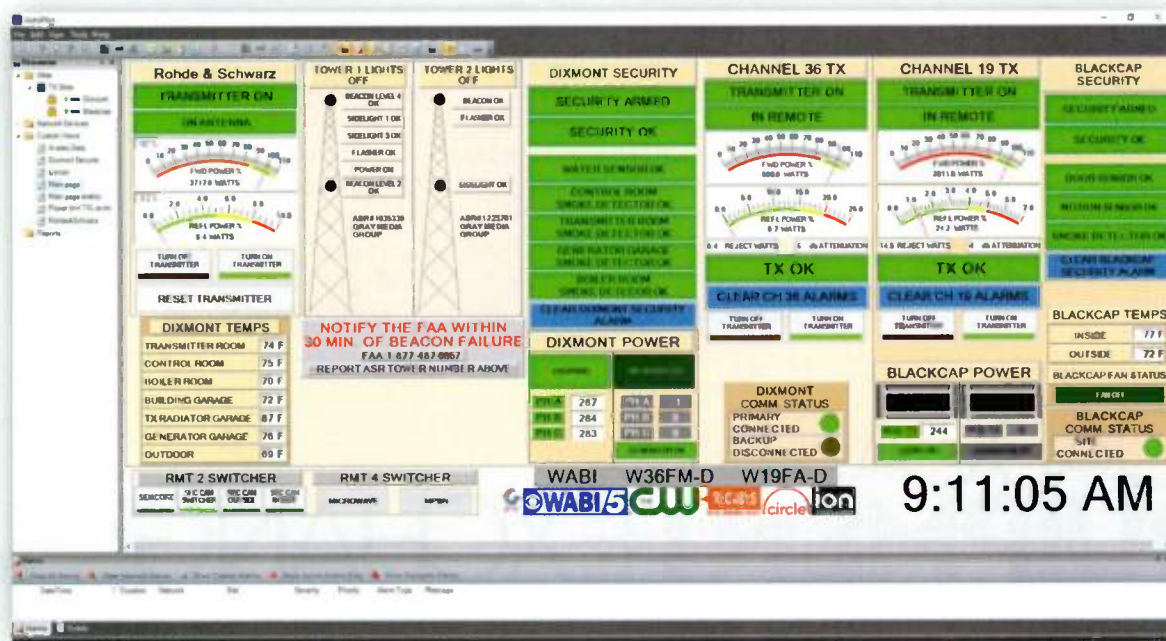
generators), and for security.

I have found the programmability of the system to be flexible, allowing the raw data from the sensors to be used in many ways.

The use of virtual channels and macros gives me the ability to look at multiple sensors to automate complex decisions. The ability to use

forward power and tower light status, but I can go in and ask the system to print data for any inputs/commands/alarms on any day since the system has been online. This is helpful when we have an intermittent problem and want to see if there is a pattern, or if someone changed a value.

AutoPilot is user-friendly and



Right
WABI's
customized
main page.



More Info
Contact Burk
at burk.com
or call +1-978-
486-0086

We have two Burk ARC Plus Touch systems. One includes three Plus-X 600s, one Plus-X EM64 and one Plus-X AC-8. The other has a Plus-X 600, a Plus-X EM32 and a Plus-X AC-8.

We also use phone modems in four-wire mode on our STL/TSL analog audio subcarrier trays as a backup for communication if our network link goes down.

We use them to monitor our transmitters located at two different sites. We also use the systems to monitor ambient temperatures and electrical power (including

SNMP as part of the return data and control is very good. The integration of multiple sites within the same program is useful as well.

Another nice feature is the email/text of any alarm, whether critical or warning level, triggerable for every channel, virtual channel, or through the use of a macro. The logging of all inputs/commands/alarms within the system, even when the local monitoring computer is offline and not running AutoPilot, is a good data protection benefit.

I automatically print daily logs for

straightforward to program. I can design multiple pages that cleanly and clearly display the information I want to convey to our master control operators. The ability to have it on multiple computers without having to buy additional licenses is a big plus. If I have a problem on one computer, I can just fire it up on another computer in order to maintain monitoring of our sites.

As far as customer service, it is very good. They are either immediately available over the phone or will get back to me promptly. 📞

DCL helps Leavens serve jazz fans

ENCO DAD is deployed at WZUM and at PubMusic

Pubcasting industry veteran Chuck Leavens uses multiple ENCO DAD systems to run jazz-formatted WZUM in Pittsburgh and, separately, the nation's largest nationally syndicated 24x7 jazz "white label" music service.

DAD's database architecture along with its DAD Command Language, or DCL, has allowed him to write scripts to automate various aspects of his nationally distributed continuous radio service, building a virtual footprint of contributing hosts from around the country.

The host shares their content files via the internet, which are then curated by Leavens in Pittsburgh and automated out of the NOC at NPR headquarters in Washington. ENCO says coast-to-coast "virtual operations" were part of this user's plan well before the pandemic began.

Leavens says he is impressed by the automation system's reliability; outside of a failed hard drive, he said, only the

local power company has had an adverse impact on his programming.

According to ENCO, "What's amazing about PubMusic's programming is how they enable local stations to brand the music as their own. At precise times, PubMusic inserts proper DAD-generated logic commands to alert location stations downstream when to automatically insert their own promos, underwriting, lead-ins and so forth, all backed by internationally recognized content curated by PubMusic."

Local WZUM in Pittsburgh also is a customer, with its own local-interest stories, program and host voiceovers.

"Another key piece of ENCO's DCL is how it enables Chuck to program DAD to shift time across four time zones by stacking playlists, such that each local station gets the right content, every time," the company says,

Then he built a custom checking routing to ensure branches are reset properly to their timeframes, and to make playlists self-correcting. 🎵



More Info

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A new architecture for FM and HD Radio

"Nautel is fully invested in this disruptive vision"

In 2020 Nautel participated in a demonstration that described a new approach to HD Radio time alignment. We asked Chief Technology Officer Philipp Schmid for an update.

RW **First let's summarize what was demo'd.**
Philipp Schmid: In response to industry demand, Nautel, in cooperation with Telos Alliance, demonstrated a new FM+HD Radio transport architecture based on established standards that allows a broadcast transmitter to simply connect to an IP address for all its audio and data content for both FM and HD Radio including all subchannels and data services.

This approach greatly simplifies today's HD Radio installations consisting of many fixed-purpose boxes (and ensuing rat's nest of cables) at the transmitter site.

Now we can relocate major broadcast functions like audio processing such as the Omnia Enterprise 9s and audio encoding as in Xperi Gen4 into pure software components that can be centrally managed. Software components can also easily be duplicated for maintenance and redundancy purposes.

We demonstrated how we cloned several instances of the HD Radio air chain in Amazon Web Services and distributed them across data centers across the globe. We demonstrated a Nautel VS transmitter switching between the cloned air chains on simulated air chain failure conditions with minimal interruption to the overall broadcast signal.

The final standby air chain was running on our HD MultiCast+ platform running beside the transmitter, demonstrating continued broadcast under complete STL failure conditions.

RW **The implications for how digital radio air chains are constructed include software-based premise server and cloud-based management?**

Schmid: Yes, the ultimate centralized location is the cloud, no matter if it's a corporately managed data center or third-party service provider like AWS, Microsoft Azure or others. Smaller broadcasters can also benefit from shared centralization through simplified management and access to a pool of technical experts.

With the right transmitter, upgrading to HD Radio broadcasting will be so simple and cost-effective that any broadcasters can easily convert to HD Radio, even only for a limited time, should they see an opportunity to lease an HD Radio sub-channel or host a data service on their licensed frequency.

RW **Can you expand on the implications?**

Schmid: The ability to clone a software-based air chain is disruptive.

revert to the last safe restore point.

Fixed-purpose boxes cannot be easily replicated and are no safer. In fact, malicious actors can hide in embedded systems without your knowledge. Our solution is incorporating state-of-the-art encryption and authentication to guarantee an uncompromised encoder to transmitter connection even across the public internet.

RW **What new products does Nautel offer that build on these concepts?**

Schmid: Nautel is fully invested in this disruptive vision. We are aligning our existing transmitter portfolio to this new architecture and will backport it to already shipped Nautel transmitters ready to convert to HD Radio tomorrow. As we head

A graphic of the software-based airchain demonstration described in the article.



Where fixed-purpose boxes require down time for repair or firmware updates, a broadcaster can apply new software updates and features by cloning a new standby air chain, updating, then testing the final on-air product using a spare transmitter, and then switching over before retiring the old air chain.

Fleet upgrades are a breeze. IT security is greatly improved; should your air chain become compromised, fix the attack vector, ditch the compromised air chain,

towards the NAB Show we'll be adding Telos Alliance Omnia software audio processing options to the HD MultiCast+, our current software-based importer/exporter, which is already unique in the industry by way

of its optional hardware-based audio processing. This is a first step towards the larger vision.

To learn more and stay up to date on Nautel's innovative Air Chain development program go to www.nautel.com/radio-air-chain.

More Info

Contact Nautel
at nautel.com
or call 877-662-
8835 (U.S.) or
+1-902-823-3900

RCS says customers want more cloud options

Generali: Radio workflows are evolving away from devices

RW What do you think is the most important trend or change happening in radio automation?

Philippe Generali: The most important overall trend is dematerialization. The same way pictures and music started being made of bits 15 years ago when the first iPhone was released, we see critical functions in radio automations not needing specific hardware anymore.

Sound processing, electronic ratings, console mixing are evolving from devices to pure cloud-based software, the same way our Zetta automation system is evolving into a cloud-based playout with no specific hardware needed on premises. Where and how people work with automation systems for content creation and presentation — the transition to a virtualized environment has really pushed what you can do from afar. The customer demand for these new virtualized environments seems to be scaling up at surprising rates.

There was a time when “remote” broadcasting was primarily only used for the car dealer or local game broadcasts. Now many customers are operating in this “remote model” 24 hours a day, seven days a week.

Zetta was a pioneer in this space over a decade ago and continues to be the leader in remote workflow feature sets.

RW RCS was early to market with the message that automation systems could be run from the cloud, for disaster recovery if not more. Can you update us on how the market is responding to that message?

Generali: Clients are quickly adapting to cloud options and are clamoring for more. Based on this feedback we are customizing cloud-based automation and workflows for our clients.

What was once only a simple emergency playout and backup solution now boosts bidirectional content contributions such as voice tracking. This allows users to break free of the traditional VPN-oriented remote contribution and allow users to simply use a two-factor sign-in to lay in voice tracks into the cloud. This content loaded directly into the cloud can now be migrated back to



a traditional system for insertion and playout. This multi-point solution allows the ultimate in flexibility and control over where and how you want to remotely work.

RW What else should we know about what's going on at RCS or in the automation space?

Generali: Software is evolving quickly with workflow architecture changes in the broadcasting space.

It is quick and relatively simple to place a virtual machine on a cloud service, run legacy software and call it a “cloud solution.” While by definition it may be a cloud solution, that approach does not scale well because it relies on an infrastructure that was designed and intended for traditional hardware platforms and really isn’t “cloud-based.”

A true cloud-based design and platform should not revolve around the constraints of an OS environment, rather it should be based on a containerized architecture that can scale up and down dynamically based on need and loading conditions. Users would be best served to understand and compare the foundations of the solutions.

RCS is committed to a fully featured platform in the cloud and will always build upon a base of cloud design and architecture for best-in-class performance. **23**

Above
Zetta2GO running
on an iPad.



Above
Philippe Generali



More Info

Contact RCS at
www.rcsworks.com
or call
+1-914-428-4600

Pattison Media installs Gateway

"Morning shows from anywhere was the hope"

Barry Mandziak is responsible for six stations in his role as technical supervisor for Pattison Media's operations on

North Vancouver Island in British Columbia, Canada.

"During the pandemic our office buildings and studios in Nanaimo, Courtenay and Port Alberni emptied out, and we had to ramp up our remote broadcast capabilities immediately to support announcers and producers working from home in remote studios," he said.

"We had only four Tieline Bridge-IT units and were running six shows. We purchased a Tieline Gateway eight-channel IP codec that would be wired into our Nanaimo studio location. This would service all four of our morning shows and all the remote cut-ins. Morning shows from anywhere was the hope."

The Gateway 8 provided the option to phase out copper ISDN



Top
Morning host Bill Dean has the Tieline software interface open on-screen.



Bottom
The Tieline Gateway in the rack

lines completely and rely on the Gateway 8 connected over fiber to Bridge-IT codecs.

"We also use the Report-IT Enterprise app extensively over cellular connections for both shows and remote cut-ins."

The Gateway 8 services two Parksville stations, CHPQ(FM) and CIBH(FM), as well as CHWF(FM) and CKWV(FM), both out of Nanaimo. It is connected 24/7 on two stations.

"We've never had any dropouts or audio issues,"

Mandziak said. "We now do morning shows remotely from announcers' homes and other locations that often change daily. We also connect to the Gateway for remotes and voice tracking. If anyone gets sick, they can easily do their show from home using the Report-IT app as a codec and transport."

The upgrade has allowed the stations to get rid of all their copper ISDN links and increased their capability and flexibility. Mandziak said the savings from dropping the ISDN and broadcast loops was appreciable. 🍷



More Info

Contact Tieline at tieline.com or call 888-211-6989 (U.S.) or +61(0)8 9413 2000 (Australia)

MP-532, the little processor that rocked

Chris Verdi on Great Eastern Radio's new Wheatstone MP-532

A station acquisition often calls for an audio processor "refresh," doubly so if you're acquiring two stations and there's a format change involved.

Such was the case when Great Eastern Radio acquired WXMS 97.9 and WWFK 107.1 in Burlington, Vt.

Chris Verdi, CBNT, CBNE, is chief technology officer for Great Eastern. "The two additions, which brought our total to 19 stations covering greater New England, came with dated processors that just could not make the cutover to a classic rock and hot AC format, respectively," he said.

Their prior recent processor purchase was a Streamblade, a WheatNet-IP audio appliance for provisioning multiple streams that includes processing designed for nuances of streaming.


"We had heard about the MP-532, an AM/FM/HD multiprocessor that is also made by Wheatstone. We had heard field reports about how it could produce 'airy and silky highs,' mids that are 'warm and mud-free' and 'deep, powerful lows.'" He also liked the price and that it includes features like an RDS encoder as standard.

"We started with Classic Rock 107.1 Frank-FM. I installed the MP-532 using the quickstart default preset. I was expecting to have to fiddle to get it close to what we wanted and was surprised what came out instead."

Everything sounded "cleaner, brighter and louder than anything I've heard in a long time."

The little tweaks they did for the classic rock station worked so well that they decided to run a similar setting on the AC station.

"We have a country station there running a top-of-the-line Wheatstone X3 FM/HD audio processor, and this little MP-532 really holds its own next to the X3 and any other processor in the market. It doesn't look as pretty in the rack, but it sounds almost as good, if not better in some ways."

It was a bonus that the MP-532 is a multipurpose processor. He recommends it for a cluster that might need an all-around backup that can stand in as an AM or an FM, or as a streaming processor. 



More Info
Contact
Wheatstone at
wheatstone.com
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“

This little MP-532 really holds its own next to the X3 and any other processor in the market.

”

A single-frequency network for Radio Coromandel

Broadcaster uses APT codecs, Ecreso transmitters to solve severe coverage difficulties

The Coromandel Peninsula on the North Island of New Zealand extends 53 miles north from the western end and is 25 miles wide at its broadest point. A majority of its population lives on the narrow coastal strips fronting the Hauraki Gulf and the Bay of Plenty.

In clear weather the peninsula is visible from Auckland, the country's biggest city, 34 miles to the west.

The peninsula is steep and hilly and largely covered in bush. The Coromandel Range forms the spine for most of the peninsula, with the highest point at nearly 3,000 feet. It has a permanent population of around 30,000 and approximately 60,000 reside in the station's broadcast coverage area.

On securing a single FM license in one of the towns on the peninsula, the challenge for the station owners was how to maximize their investment by extending coverage into other towns across such a rugged area. The main competitor used no fewer than 12 frequencies to provide coverage in a similar area.

Radio Coromandel partnered with Auckland-based consultants Southern Broadcast, who developed a plan to deploy synchronous transmitters along the eastern coast. The NZ regulator later referred to this plan as an "efficient use of radio spectrum."

The station has four synchronous sites broadcasting on the same frequency. In order to carry IP traffic from the first transmission site to the four other linked sites the station established its own microwave radio network.

The system uses Ecreso Digital

SFN-enabled FM transmitters and APT Digital MPX IP codecs with SynchroStream technology. The accuracy of SFN timing allows almost total elimination of "mush zones."

"The synchronous transmission works well and has become a very popular feature," said station

owner John Grant. "Many listeners commented on how easy it is to stay tuned to our station that has seamless coverage down one entire coast and across hills on a single frequency. We could not have achieved this without WorldCast APT codecs and Ecreso transmitters." 📻



Left
An Ecreso transmitter is seen in the middle of the left rack bay.



More Info

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