DAB Contibution Solutions

Overview

September 2023

Your audio. Our solution.

2wcom

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Introduction

Digital Audio Broadcasting (DAB) has established itself as a significant technology, offering improved audio quality and an expanded range of channels for listeners to enjoy. However, the process of delivering audio feeds from studios to DAB head-ends requires careful consideration of various factors, including the roles of service providers and network operators, as well as the structure of the transmitter network. At 2wcom, we recognize the importance of understanding your unique requirements and providing tailored and cost-efficient solutions that align with your specific infrastructure setup and multiplexer vendor.

Delivering high-quality audio feeds from radio studios to DAB head-ends can be a complex challenge due to the nature of the DAB infrastructure and the roles of different entities involved.

The challenge lies in establishing a seamless and efficient workflow between the service providers and network operators, where high-quality audio feeds from radio studios can be reliably delivered to the DAB head-ends. Factors such as compatibility, flexibility, and control over the audio parameters need to be taken into consideration when designing the solution.

2wcom offers the complete range of solutions to feed audio from the studios to the DAB head-end. Depending on system setup, already existing infrastructures and customer requirements, different approaches can be recommended and are supported by 2wcom's product range.

2wcom offers comprehensive solutions that cater to various scenarios, ensuring reliable and efficient audio transmission to DAB head-ends. The solutions are based on three primary approaches.

Audio over IP

At 2wcom, we offer a wide range of hardware and software products that serve a diverse range of application scenarios, providing interoperable and reliable solutions. When it comes to delivering audio feeds from studios to DAB head-ends, utilizing Audio over IP (AoIP) Codecs offers numerous advantages. Here's why:

Interoperability: Audio streaming using RTP, ensures wide interoperability across manufacturers. This compatibility allows for seamless integration providing flexibility in your infrastructure setup.

Reliable Performance: With 2wcom's AoIP Codecs, you can count on reliable performance, even under challenging IP network conditions. The buffer handling of the audio streams is independent from the DAB distribution system. Additionally, our solutions support secure transport mechanisms such as SRT (Secure Reliable Transport) and RIST (Reliable Internet Stream Transport), proven in the field to guarantee secure and robust audio delivery over IP networks.

Clear Separation: By using Audio over IP for contribution to the DAB head-end, you achieve a clear separation between the DAB operator and program providers. This separation allows for independent infrastructures without interdependencies, offering greater flexibility and autonomous control over different parts of the distribution chain.

Multi-Purpose: The versatility of AoIP via RTP allows for multiple applications. In addition to using the audio feeds as sources for the DAB encoding and multiplexing system, they can be simultaneously utilized for distribution to FM transmitter networks and other platforms. This multi-purpose functionality enables synergies and cost-effectiveness in your broadcasting operations.

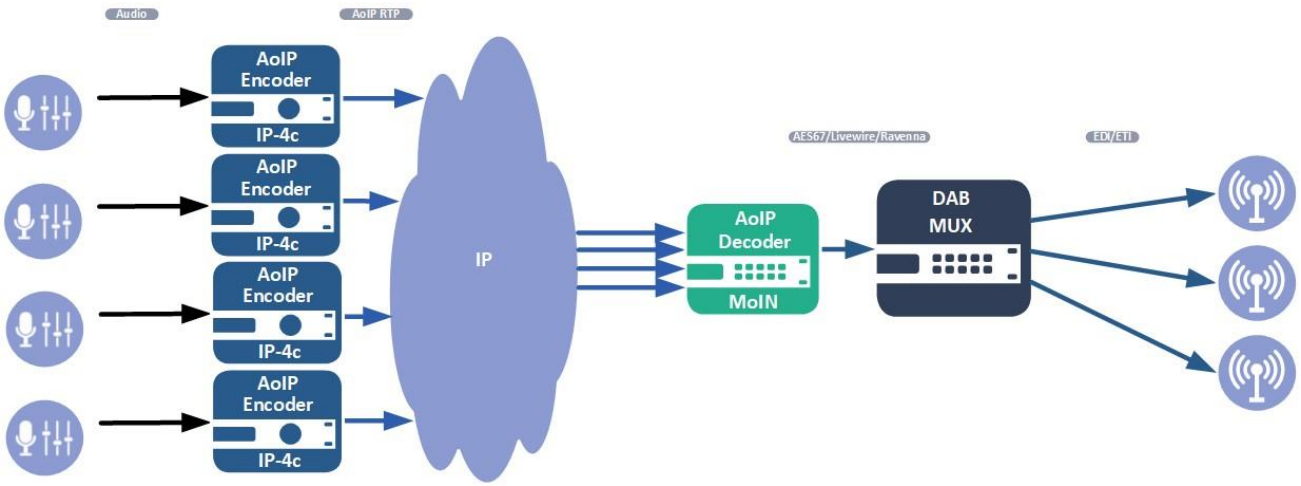

Figure 1: Audio feeds via AoIP provide highest flexibility and reliability, integrate seamlessly into system architectures and ensure a clear separation between contribution and distribution infrastructures.

With 2wcom's reliable and interoperable AoIP solutions, you can ensure seamless integration, optimal performance, and flexibility in delivering high-quality audio feeds from studios to DAB head-ends. Our products are designed to meet the specific requirements of your infrastructure, empowering you to deliver exceptional broadcasting experiences to your audience.

DAB+ Encoders

The DAB+ Encoder, an upgradable software module for our hardware and software products, allows seamless integration of DAB+ Encoding into various system setups, providing broadcasters with the capability to encode audio directly into the native DAB+ format.

Whether you choose our hardware or software-based solutions, our products serve as ideal platforms for handling DAB+ Encoding, offering the flexibility and scalability required to meet your specific broadcasting requirements.

With our reliable and versatile hardware and software products, broadcasters can leverage the upgradable DAB+ Encoder module to deliver high-quality audio feeds from remote studios to DAB head-ends. Whether it's integrating the Encoder at the studio sites or centrally at the head-end, our solutions empower broadcasters with complete control over DAB+ parameters and ensure optimal audio quality throughout the transmission chain.

DAB-specific Optimization: Our DAB+ Encoders are designed specifically for DAB environments, ensuring optimal performance and adherence to DAB+ standards. By leveraging these encoders, you can ensure that your audio is encoded in the native DAB+ format, avoiding tandem coding and maintaining the highest audio quality. Based on the most recent FRAUNHOFER DAB+ Codec library, our DAB+ encoder ensures a state-of-the-art implementation with superior audio quality.

Efficient Encoding: With the DAB+ Encoders located at the studio sites, the encoding process is performed remotely, generating a ready DAB subchannel stream that is directly used for contribution to the DAB head-end. This eliminates the need for additional encoding steps and ensures efficient and high-quality audio delivery to the DAB multiplex.

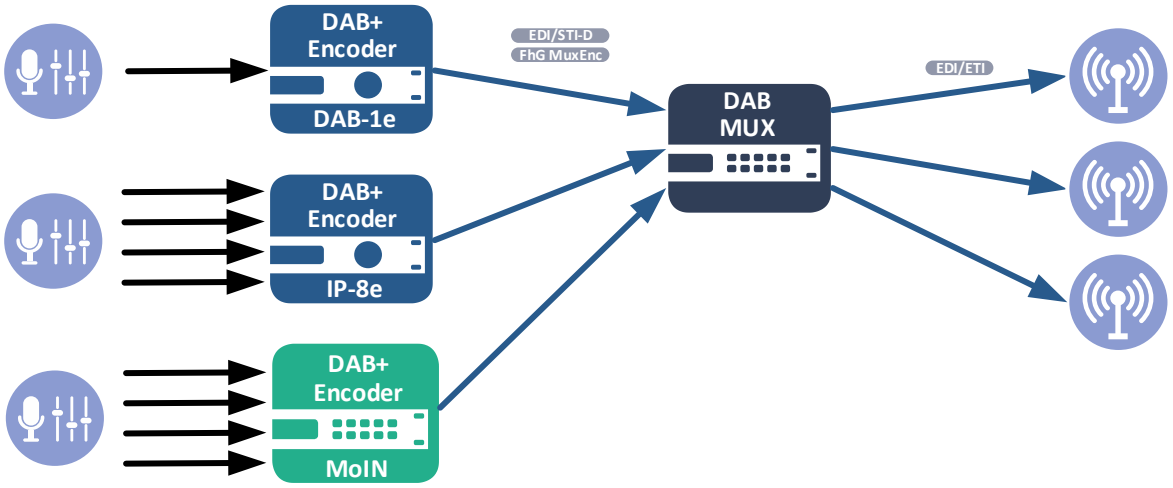

Figure 2: DAB+ Encoders avoid tandem coding, aim for dedicated DAB system archtectures and allow operators to control all DAB+ parameters.

Parameter Control: 2wcom's remote DAB+ Encoders provide network operators with complete control over DAB+ parameters through protocols such as Fraunhofer MuxEnc and independent APIs. This provides the DAB platform operators with full control over encoding parameters including seamless dynamic reconfigurations.

Reliable Performance: Our DAB+ Encoders utilize DCP streaming optimized for DAB, offering mechanisms such as forward error correction and packet spreading to ensure a stable and reliable connection. Additionally, secure transport mechanisms such as SRT (Secure Reliable Transport) and RIST (Reliable Internet Stream Transport) can be considered to enhance the security and robustness of DAB+ contribution streams.

With 2wcom's interoperable and reliable DAB+ Encoder solutions, you can optimize the encoding process for DAB-specific ecosystems, avoid tandem coding, and maintain full control over DAB+ parameters. Whether the encoders are located at the studio sites or centrally at the head-end, our solutions provide the flexibility, efficiency, and audio quality required for seamless DAB contribution.

Audio Interfacing: Converting Linear Audio to AES67

In some cases, linear audio is available at the DAB head-end location, whether operated by a broadcast organization or received from program providers in analog, AES, or AES67 formats. Our reliable audio interfacing solutions seamlessly integrate these diverse audio sources into modern IT-based DAB multiplexer systems. With flexible compatibility and high-quality conversion, we ensure optimal audio fidelity for a seamless broadcasting experience.

DAB Re-distribution and special audio sources

In addition to traditional audio feeds from studios, our hardware and software products offer support for a wide range of alternative sources, expanding the possibilities for audio contribution and rebroadcast applications. Our solutions can accommodate various input sources, including:

Satellite Tuners: Equipped with satellite tuners, our audio codecs enable the reception and decoding of audio feeds directly from satellite sources. This feature is particularly advantageous for broadcasters who rely on satellite transmissions for content acquisition, ensuring seamless integration into the DAB distribution system.

DAB Tuners: With built-in DAB tuners, our audio codecs are capable of receiving and decoding audio feeds from DAB networks. This functionality allows broadcasters to capture and rebroadcast DAB services, making it an ideal solution for expanding coverage or providing localized content within specific regions.

Web Streaming (Icecast or HLS): Our products also support web streaming protocols such as Icecast and HLS (HTTP Live Streaming). This enables broadcasters to receive and process audio feeds from online sources, opening up opportunities for internet-based content contribution and rebroadcasting applications.

In consequence, our products provide broadcasters with enhanced flexibility and versatility in their audio contribution and rebroadcast applications. Whether it's satellite feeds, DAB services, or web streaming via Icecast or HLS, our solutions enable seamless integration, ensuring high-quality audio delivery and expanding broadcasting capabilities.

Hardware and Software Platforms

Our range of hardware and software platforms offers broadcasters versatile solutions for reliable operation and seamless integration. We provide robust hardware products designed specifically for professional broadcasting environments. These products ensure high performance and exceptional audio quality, meeting the demands of critical broadcasting operations.

Our hardware platforms support various audio interfacing requirements, accommodating diverse input sources and delivering dependable transmission. With these hardware solutions, broadcasters can seamlessly integrate into their existing infrastructures, ensuring reliable audio contribution and distribution workflows.

Complementing our hardware offerings is the MoIN system, a scalable software solution for Audio over IP (AoIP) applications. Built on virtualized, IT-based infrastructure, the MoIN system empowers broadcasters with a flexible and scalable platform for managing audio contribution and distribution in IP networks.

By leveraging virtualization, the MoIN system optimizes resources, reduces hardware complexity, and enhances broadcasting efficiency. It seamlessly integrates AoIP codecs, audio routing, and processing functionalities, enabling broadcasters to adapt to evolving industry requirements with ease.

Whether you require hardware products for reliable operation and integration or prefer the scalability and flexibility of our software-based MoIN system, we provide comprehensive platforms to cater to your specific broadcasting needs.

Figure 3: The IP-8e Audio Encoder comprises up to 8 audio channels for high-density installations. The optional DAB+ Encoder upgrade makes it the perfect choice for DAB installations at the studio-site or head-end.

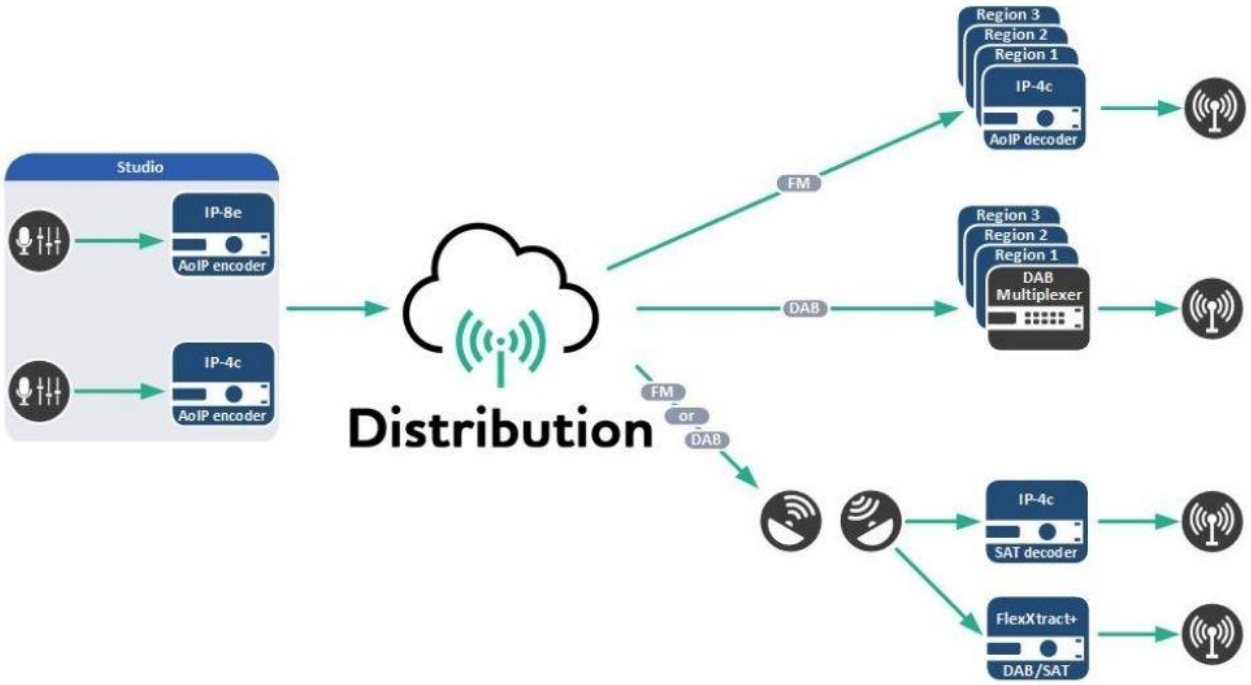

Figure 4: The virtualized MoIN solution implements audio infrastructures in IT data centers and can be flexibily combined to serve various contribution and dristribution scenarios.

Conclusion

In the world of broadcasting, 2wcom offers practical solutions for the task of transmitting audio feeds from radio studios to DAB head-ends. Our hardware and software platforms are designed to seamlessly integrate into your infrastructure, providing versatile and dependable solutions that align with the industry's functional demands.

From Audio over IP (AoIP) for interoperability to remote DAB+ Encoders tailored for DAB-specific ecosystems, as well as efficient linear audio conversion to AES67, our solutions cater to the functional requirements of broadcasting. Our hardware products ensure dependable and integrated performance, further complemented by the MoIN system—a scalable software solution for Audio over IP, enhancing flexibility and agility in audio contribution and distribution within IP networks.

As your trusted partner, 2wcom delivers excellence, reliability, and seamless integration throughout your broadcasting journey. We invite you to explore our solutions and leverage our expertise as you navigate the ever-evolving broadcasting landscape