Delivering the Moment

Harris Broadcast

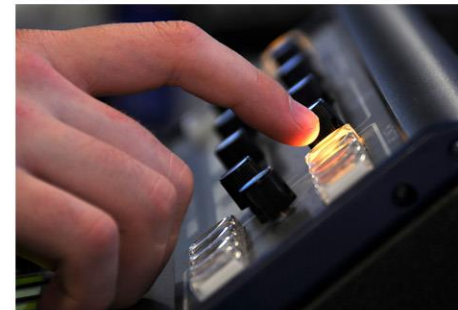## EXPERIENCES WITH EDI

WorldDMB General Assembly, Nov 6, 2013

ABOUT THE SPEAKER

Roland SCHALLER

Regional Sales Manager

- Roland Schaller is working since 3 years at Harris Broadcast in charge of selling Transmitters.
- Previously he worked in the Mobile TV, Satellite and IP Networking industry, holding various technical positions in Product Management, Presales, Training and Support
- Mister Schaller holds a degree in Electrical Engineering from Aachen Technical University (Germany) and a Master in Management from SKEMA business school (France)

ABSTRACT

Experiences with DAB distribution over IP using EDI

- The EDI protocol (ETSI TS 102 693) has been standardized for 4 years now. It has been well studied from a theoritical aspect and there are now many products available on the market supporting EDI.

- However despite its obvious advantages, many operators are still reluctant to implement EDI because of its apparent complexity and perceived lack of maturity.

- Hear from a real-life EDI implementation in The Netherlands with a full EDI distribution 34 transmit sites with advantages of using EDI versus ETI, encountered issues and some overview about how this was achieved.

EDI DISTRIBUTION IN NETHERLANDS

Project Overview

- 34 transmitters national DAB+ MUX
- Covering all Netherlands
- For the Commercial Radio Stations
- Transmitter Powers 40W to 1.3kW
- Running in Single Frequency Network
- Signal distribution via EDI
- Deployed in less than 3 Months
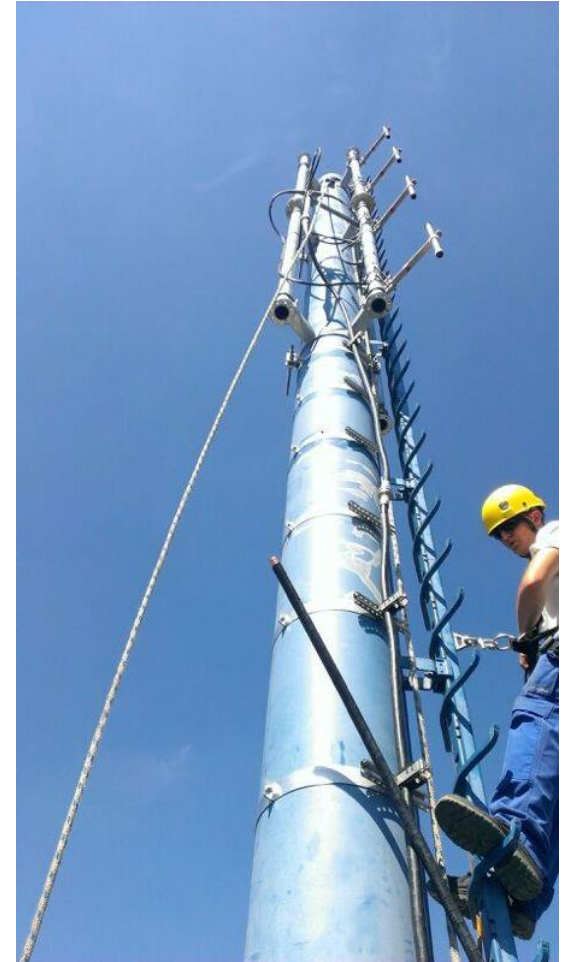
EDI DISTRIBUTION IN NETHERLANDS

Benefits of using EDI compared to ETI distribution

- Cost is the main driver for moving to EDI
- At comparable cost, it is possible get 30 to 100Mbit/s IP line for cost of E1
- IP network infrastructure is off-the-shelf, cheap and reliable
- IP as a basis transport gives some flexibility in the network design
- Ability to use the IP network for multiple EDI streams for Multiple DAB and other transmitters
- Ability to use the IP network for monitoring in parallel with EDI
- Ability to use IP network for other purposes (remote surveillance, Audio over IP, future applications)
- Form factor much reduced: from rack to 1U server or cloud

EDI DISTRIBUTION IN NETHERLANDS

Technical Learning's during implementation

▢ The network uses IP Multicast throughout the entire network. It saves bandwidth and is easy to manage

▢ CoS (Class of Service) and QoS (Quality of Service) IP packet marking should be used to prioritize important IP streams

▢ In order to mitigate IP packet loss a certain level of FEC should be used:

- This network uses FEC5, but is not really necessary
- Due to the fact multicast is used, it is only a waste of +/-0,8 Mbit/s
- FEC1 would work nice too

▢ Packet Spreading should be used for reliable transport of the stream, this is equally as important as FEC

EDI DISTRIBUTION IN NETHERLANDS

Partnership between Broadcast Partners and Harris Broadcast

- The complete national covering network using 100% IP distribution was designed and built in a few months
- The network is based on closed user group IP links and some Microwave links
- Broadcast Partners and Harris worked closely together to improve the EDI card and software functionalities
- Harris has currently the only EDI converter that works with a user settable buffer size which determines the usable spreading
- The built-in EDI card allows usage of all FEC1 to FEC8 modes
- For this network, the Fraunhofer IIS Content Server was selected by Broadcast Partners

EDI DISTRIBUTION IN NETHERLANDS

## Benefits of Harris Broadcast Transmitters with integrated EDI

❑ Uses the market leading Maxiva VAX Transmitter DAB transmitter:

- Reduces service costs due to highest reliability
- Minimizes service downtime thanks to hot-swapping of critical parts

❑ Benefits of fully integrated EDI solution for DAB input card:

- Cost-effective: Built-in solution is more cost-effective than external adapter
- Preserves investment: EDI card can be factory ordered or retrofitted later
- Simplifies management: EDI interface management fully integrated in transmitter user interface and management.

❑ Tested with most of the DAB head-end vendors on the market

CONCLUSION

An IPv6 address   (in hexadecimal)

2001:0DB8:AC10:FE01:0000:0000:0000:0000

2001:0DB8:AC10:FE01::   Zeroes can be omitted

1000000000000001:0000110110111000:1010110000010000:1111111000000001
0000000000000000:0000000000000000:0000000000000000:00000000000

IP is the way forward

☐ IP distribution nowadays is:
- Reliable: Closed User Groups, commited Quality of Service
- Universal delivery: xDSL, Fiber Optic, Microwave, Managed Service, …
- Cost-competitive: standardized equipment in IP Core and Edge
- Future-proof: IPv6, LAN up 100Gb/s, WAN DWDM 1Tb/s per Fiber

☐ IP now allows for all past and future applications:
- Signal: From analog audio over IP to ASI over IP, including EDI
- Equipment monitoring and management
- Remote surveillance: CCTV, building management, power sockets, …
- Allows for all these applications at the same time on same media

☐ → EDI is the future of DAB(+) distribution
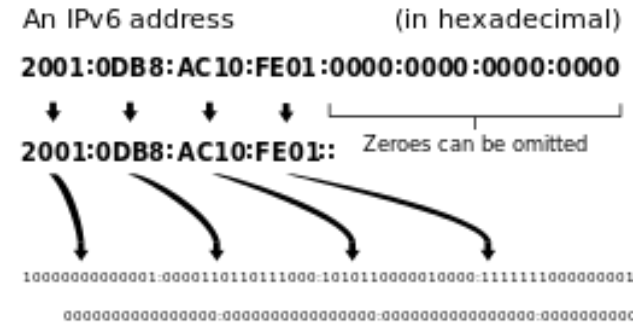
THANK YOU FOR YOUR ATTENTION

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