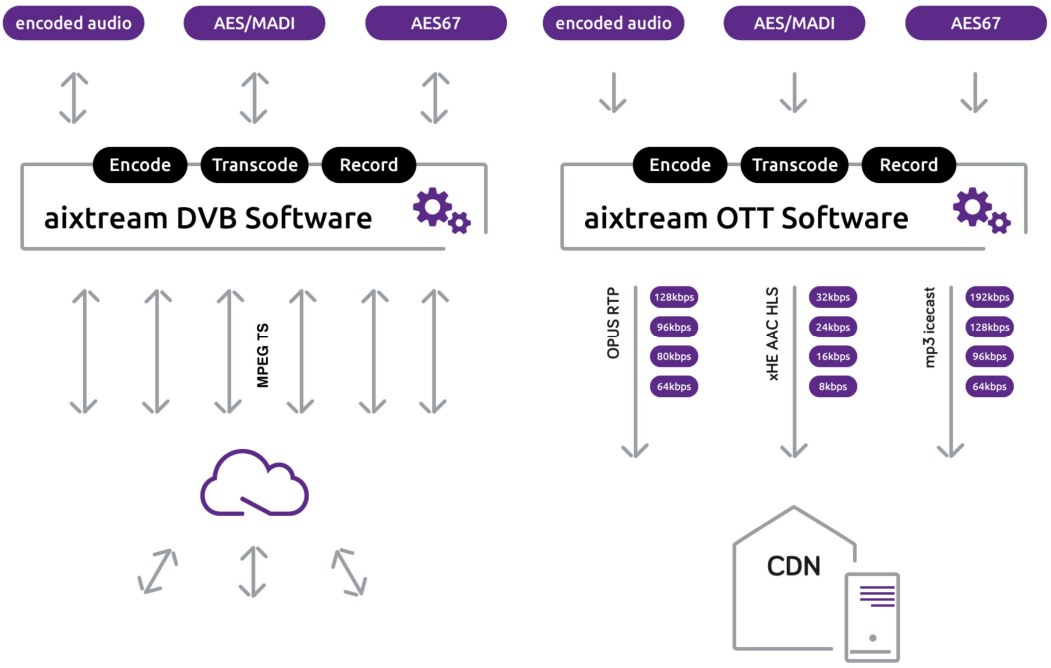
Case Study II - Audio Streaming and DVB Mux at HR

The Situation

The German public broadcaster Hessischer Rundfunk (Frankfurt) is providing a wide-ranging selection of different radio programs in various formats to the German audience. After learning of the success that Deutschlandradio (Berlin and Cologne) had with the then-young **aixtream** solution, HR began its own testing of aixtream's capabilities for encoding and streaming, including metadata insertion, with the intent of using it for delivering online radio to various CDNs.

OTT Streaming: HR began to integrate **aixtream** into their workflows in 2020, starting first with live radio streaming. This entirely restructured and modernized its encoding. 6 radio programs of HR, plus its regional variants and event programs, are now being encoded and handed over to the CDN using **aixtream**.

DVB Multiplexing: Then, in 2021, they were one of the first **aixtream** customers to request an expansion of **aixtream** with additional DVB, MPEG TS and RDS features. Working together with Ferncast they wanted to broaden their use of **aixtream** to include the creation of DVB multiplexes for all their programs. This new development was supposed to be used on the same systems that have already been used for their internet radio streaming.



The Benefits

HR was interested in this expansion for the following reasons:

- The option to perform all their internet streaming (Icecast and HLS) and DVB multiplexing on as few individual systems as possible to reduce costs, complexity of logistics and management as well as enabling an easy transfer of skills for the operating personnel. Especially for DVB most alternatives would require multiple encoder devices.
- The ability to reuse the same signal for as many outputs as possible to simplify the workflow and operation.
- The possibility of a straightforward and secure backup setup, including cold spares with alternative connection methods.
- They preferred collaboration with their trusted partner Ferncast instead of using another product for the update of their DVB muxing.

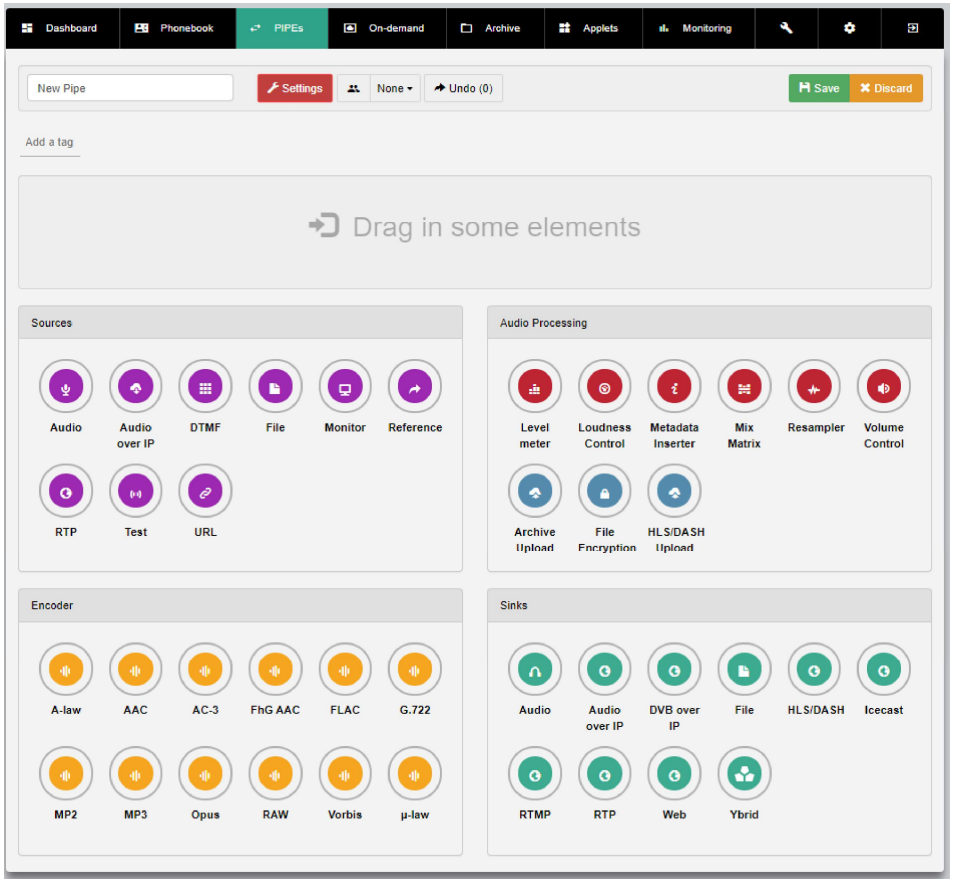
The Solution - aixtream

Ferncast's software solution **aixtream** once again proved to be the answer to all requirements.

Using a setup of 2 main and 2 backup servers with **aixtream** greatly reduced the complexity of their setup. Originally, the DVB multiplexing was configured on the same system as the online radio streaming. After HR expanded both applications, it was decided to spread the load over two sets of systems. Thanks to the ease with which licenses can be moved between **aixtream** systems, this was not a difficult process.

Now there is one main system dedicated to the online radio streaming and one reserved for DVB multiplexing. The two backup systems were set up to be mirrors of the main systems. In total, each main system now handles more than 50 outputs (different destinations, formats, etc.). For emergencies there is another spare fernStation (**aixtream** hardware) with LTE modem available. Should multiple other devices fail, HR can import the configuration from these other machines onto this spare. Thanks to the connected LTE modem it could even be used when conventional internet connections are not possible for whatever reason.

Ferncast proceeded to implement multiple new options for DVB MPEG TS handling (incl. the handling of Ancillary Data, PIDs, UECP/RDS, etc.) according to HR's wishes. All their programs are now available in multiple formats and quality levels, using a TS format fitting HR's exact parameters. Ferncast also used the opportunity to implement an especially flexible and customizable DVB and MPEG TS workflow, which can be configured according to the needs of a large variety of different systems when it comes to the exact makeup of the mux and handling of programs.



aixtream is extremely versatile and customizable - a full input/output matrix

- The **unique PIPE Concept** used in **aixtream**'s GUI made it very simple to configure the connections in such a way that one signal could be used for multiple PIPEs - **one AES67 signal can be used as source for multiple Icecast and HLS streams (e. g. different bitrates) and also a part of a DVB multiplex**
- **Redundancy is kept simple for online streaming and DVB as the backup systems are perfect mirrors of their main systems** and simply perform the same operations. The CDN/client in the case of streaming or the DVB workflow at HR then sort out which output is made available for the end consumer. If the streams and multiplexes from the primary systems fail, the backups are used instead.
- **The ease of handling backups** is considered a great advantage by HR. Not only can the same configuration be reused on various different platforms which have **aixtream** installed, the configuration two systems can be swapped easily and quickly.
- **aixtream's adaptability was required at multiple points**, especially for DVB. The need for specific integrations of AAC and the option to handle RDS data and PIDs in multiple different ways only became clear after the initial testing. Ferncast's development team was able to react quickly thanks to **aixtream**'s flexible architecture.

An example of a PIPE group set up as a DVB multiplex