

Case Study

*Next Generation DTT NMS Integrated Solution with Harmonic Electra X
for ARD German Broadcasters rbb & MDR*

Background



rbb

Rundfunk Berlin-Brandenburg (rbb, Berlin-Brandenburg Broadcasting) is a public broadcaster for the German states of Berlin and Brandenburg, situated in Berlin and Potsdam. Established in 2003, rbb has approximately 1,900 employees and is a member of the Association of PSB's in the Federal Republic of Germany (ARD). For more information, please visit www.rbb-online.de.



MDR

Mitteldeutscher Rundfunk (MDR, Central German Broadcasting) is the public broadcaster for the federal states of Thuringia, Saxony and Saxony-Anhalt. Established in 1991, its headquarters are in Leipzig, with regional studios in Dresden, Erfurt and Magdeburg. MDR is also a member of the ARD consortium of public broadcasters in Germany. For more information, please visit www.mdr.de.



Harmonic

Founded in 1988, California-based Harmonic is a leader in video delivery technology and services, enables media companies and service providers to deliver ultra-high-quality broadcast and OTT video services to consumers globally. For more information, please visit www.harmonicinc.com.

Challenges

- Launch DTT HD broadcasting while lowering the cost to viewers
- Easily distribute individual DTT broadcast services and regional programs
- Enrich programs including multiple services - AAC, HbbTV, EPG, etc.
- Reduce operational expenses (OpEx)
- Automate workflows
- Create centralized 24/7 operations with self-healing processes

Approach

DVB-T2/HEVC (Digital Video Broadcasting - 2nd Generation Terrestrial/ High Efficiency Video Coding) - Dimetis was the driving force behind a new multiplexing system for the generation of DVB-T2 distribution. In partnership with Harmonic, Dimetis has built a complete system for the production of six DVB-T2 transport streams, revolutionizing rbb and MDR's entire multiplexing system. The innovative playout infrastructure comprised of main and back-up systems locally separated in a private cloud deployment significantly strengthening rbb and MDR's position in the market.

This large technical undertaking dramatically expanded the much desired HD broadcasting at a lower cost to millions of customers.



Solution

Dimetis - Harmonic Solution Includes:

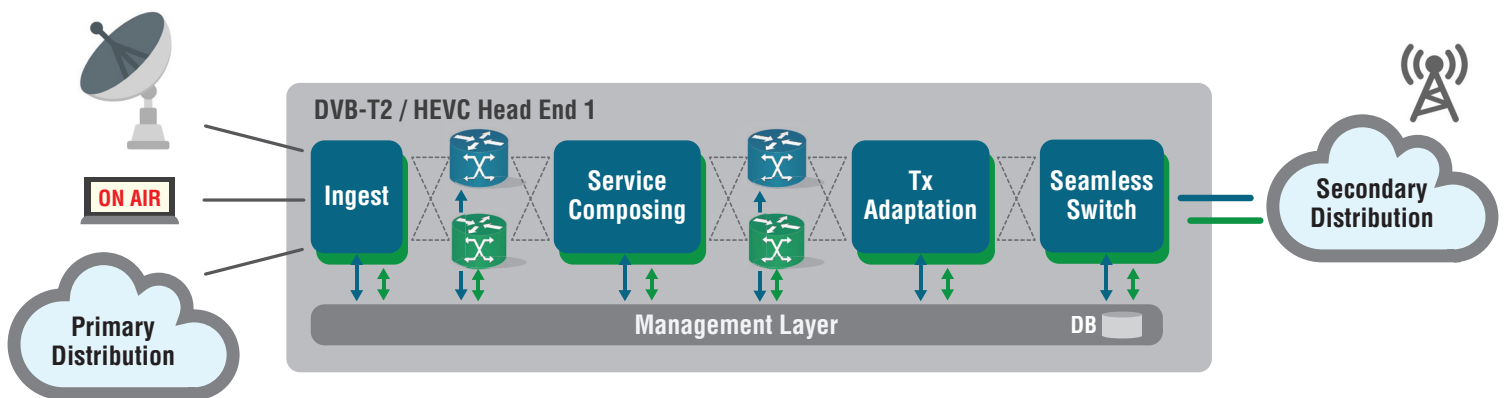
- All services in sync with program – Lip sync, Hybrid broadcast broadband TV (HbbTV), TTXT (SMPTE 2031), etc.
- End-to-end service view – Baseband to reception
- DVB-T2/HEVC reference architecture on air
- Multi-vendor Network Management System (NMS) - Freedom to choose best of breed

The Dimetis and Harmonic solution synchronizes multiple regions to one centralized location including an integration of the new multiplex system to the existing multiplex, positioning rbb and MDR for future requirements and increasing failure safety.

Expansion of existing regionalization processes and monitoring input and output signals were also a large part of this unique solution, enabling rbb and MDR to recognize the following benefits:

- Individual DTT Broadcast services ~ Regional programs, and much more
- Multiple, all high quality programs ~ HD
- Enriched programs including multiple services ~ AAC, HbbTV, EPG, etc.
- Significant cost savings ~ Decreasing OPEX ~ Bandwidth optimization
- Centralized operations ~ 24/7 operations with regionalized services
- Automated workflows inclusive of self healing

End-to-End Device, Service, Control and Management



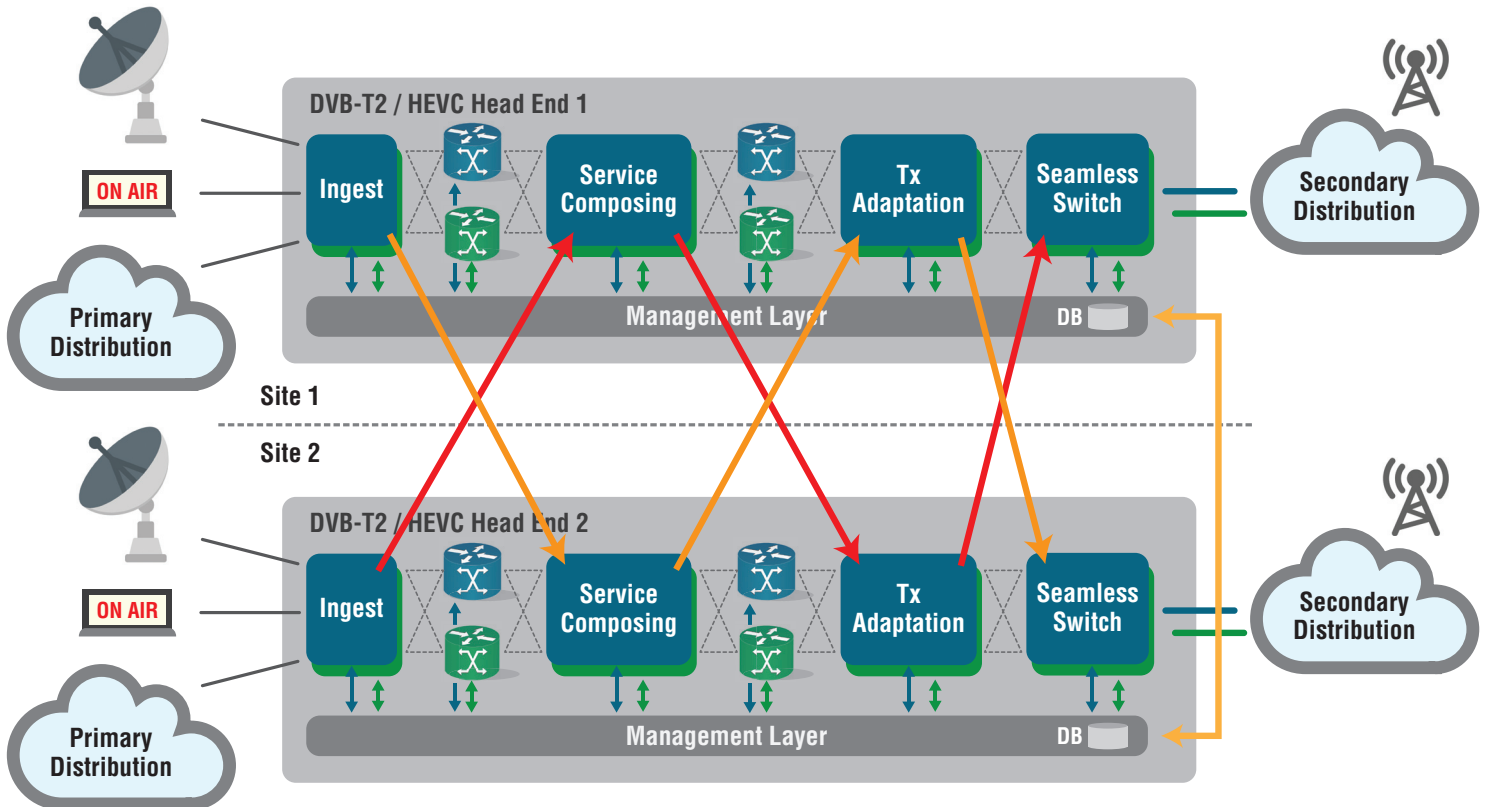
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| • Inventory/Configuration Management | • Correlation Engine |
| • Monitoring | • Event Manager |
| • Activation Engine | • Expression Engine |
| • Fault Management | • Service Level Reporting |

The Benefits of BOSS BROADCAST Manager

BOSS BROADCAST Manager is at the heart of the central control system; monitoring and controlling all devices in the existing DVB-T/S/S2. In addition, BOSS BROADCAST Manager facilitates the integration of all individual devices directly via appropriate interfaces as well as third-party network management systems.

- E2E service view - Ingested to reception
- QoS - Responsibility from silo into **Service View**
- QoS - From monitoring into **Control & Management**
- Transition from operation into **Business Assurance**
- Significant transport **Cost Savings** with bandwidth decrease
- Aiming HD video quality including individual broadcast services with a regional flavor

Site Redundancy



About Dimetis

Streamlining Operations – For over 18 years Dimetis has developed world-class tools for Media Workflow Automation, Video Workflow Orchestration, Post Production Workflow, NFV/SDN Orchestration and much more. Dimetis is a truly agnostic vendor, interfacing and working with all vendors, hardware or software.

The Dimetis global installed base of customers include such broadcasters as ARD and ZDF in Germany, as well as RAS and Rai Way in Italy and network operators AT&T, A1 Telekom Austria GlobeCast France, GTT (USA & Europe), Telstra Australia, and Telenor Norkring Norway.

Dimetis is a member of the SVG (Sport Video Group), Intel Network Builders, TMF, IETF, ETSI NFV, EBU, IABM, FKTG & SMPTE bodies, which are dedicated to defining functional requirements and standards for the next generation networks and emerging architectures.

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