

DVB-T CASE STUDY:

DIGITAL TV LAUNCHED IN DENMARK



– More Than Just a Digital TV Solution

Like many European countries, Denmark was looking to upgrade its terrestrial TV and radio distribution from analog to digital. In choosing a state of the art digital

network from Net Insight, Denmark was able provide its broadcasters with a high-quality, reliable distribution and contribution network for digital video and data.

The Company – Broadcast Service Denmark



Broadcast Service Denmark (BSD) is responsible for the analog and digital distribution of TV and radio across the entire 43,094 square km (16,639 square miles) of Denmark. BSD is a wholly owned subsidiary of the two Danish public service broadcasters, DR and TV 2/DANMARK.



The Issue

BSD was looking for a solution that could upgrade Denmark's analog TV network to a digital TV network, providing all households in the country with digital television. The company was also looking to build a data and contribution network to assist the national broadcasters as well as the regional broadcasters in Denmark with production communication and connectivity.

With digital terrestrial television (DTT or DVB-T), digital TV signals are transmitted from high power terrestrial transmitter sites to digital TV receivers in the households. Among the benefits are lower operational costs, a higher picture quality and the

ability to transmit at least four times more TV channels on the same frequency range. BSD was looking for a DVB-T solution that could allow Danish citizens to take advantage of the benefits of digital TV without exorbitant costs.

BSD required a cost effective solution that could transport the DVB-T signals from the production facilities of the broadcasters to all the transmitter sites throughout Denmark. An added challenge was the requirement that signals be multicast/broadcast live, demanding the highest possible reliability and availability.



In order to allow broadcasters and their studio facilities in Denmark to connect via real-time transmissions, BSD also sought to build production and contribution networks. These networks would be used specifically for live broadcasts and the creation/editing of video for these productions. The production and contribution networks needed to be able to transmit high-speed data/IP services and extremely high quality video. Since many of these transmissions are done in real-time, there was no room for compromise on quality of service or reliability of the network.

To meet all of the above requirements, BSD needed an underlying infrastructure that would include (1) a traditional radio link network, (2) a leased line SDH network or (3) a brand new fiber optic network. The best scenario would include any mix of fiber, optical wavelengths, SDH leased lines and radio links. A combination of transport services would in turn give BSD the maximum flexibility and the lowest cost per link.

The Solution

After extensive evaluation, testing and a public procurement process, BSD selected Net Insight's Nimbra™ platform to build the Danish digital TV and production/contribution network.

"After an extensive competitive bidding process, we chose Net Insight's solution because it offered the most efficient technical solution for digital terrestrial distribution and broadcast contribution," said Finn Søndergaard Pedersen, CEO at Broadcast Service Denmark. **"Combined with an attractive price and the most competitive operational costs, the Nimbra platform offered the best option."**

Net Insight's Nimbra platform now transports the TV signals from national and regional broadcasters, via optical fiber and microwave links, to the transmitter sites located across the country. The platform transports any combination of voice, video and data, combining the highest utilization of network capacity with guaranteed 100 percent quality of service. TV signals are multicast in parallel with data and voice services while allowing full broadcast quality and protection.

Net Insight's equipment allows BSD to expand to virtually unlimited capacity. The Nimbra platform contains all necessary broadcast and data interfaces while supporting effective multicast of services. For instance, DVB-T and DAB can be transferred in the same network switch. This is accomplished through Net Insight's unique ability to segment each type of service (video, data, voice, etc.) into specified channels.

The network now supports in-studio quality transmissions over large switched network infrastructures. With low delay and guaranteed quality of service, the regional studios and broadcasters can work as if they were all located in the same building. Net Insight's platform minimizes the number of data hops and is able to utilize 97 percent of all available bandwidth.

The Nimbra platform makes optimal use of the mixed infrastructure, mainly consisting of fiber and optical wavelengths, but also including SDH leased line and radio link hops. Because the platform supports all network topologies, it provides superior leverage of the underlying infrastructure. This also allows for redundancy in case of fiber break or failure, and increases the available capacity between any two points in the network.

Net Insight's solution uses an automatic control plane that significantly lowers the operational expenses. The control plane includes automatic topology and neighbor discovery, end-to-end service provisioning and easy "on demand" service provisioning. The network can also be used for other broadcast, production and distribution transports for the broadcast and media production market.

The Results

BSD has established a scalable, multi service network with low capital investment and low operational costs. It can transport any combination of real-time and best effort services, with the highest utilization and guaranteed quality of service, eliminating the need for complex and costly prioritization tools. Additionally, BSD now provides a cutting edge production and contribution network for Denmark broadcasters.

The network serves more than 30 cities nationwide in Denmark and provides coverage of nearly 5.5 million people with digital TV.

"Net Insight's platforms have provided us with the ability to utilize our network to its full potential. We were very pleased with the excellent execution of this project and with the partnership we have developed with Net Insight – all of our expectations have been exceeded." - Finn Søndergaard Pedersen, CEO, Broadcast Service Denmark.

