

A CASE STUDY OF

The world-leading DTT network in Norway with maximum utilization and flexibility

The Issue

In 2006 challenged with building one of the largest DTT networks in Europe, Norkring evaluated its needs for a successful DTT platform. This included reviewing network infrastructure requirements, meeting customer expectations and overcoming geographical challenges.

To maintain customer expectations, Norkring was required to offer multi-service transport capabilities to its various customer segments, made up of the national television networks NRK, TV2, TV Norge and local TV stations. Additionally, to offer the highest-level digital television, Norkring's network needed to handle distribution of high-definition (HD) and standard-definition (SD) video along with FM radio channels and digital audio services.

In addition to meeting customer needs, Norkring was faced with the demanding topography of the mountainous country and its widely spread population, which posed a challenge to network planning and construction. Norkring already uses radio links throughout the countryside, making cost-efficiency and quality of service (QoS) highly important factors in choosing network equipment.

Even if the distribution is done in a compressed format, there is a large demand for uncompressed video between the broadcasters and their production sites to avoid quality degradation. However, uncompressed video requires more bandwidth than compressed video. Norkring needed to implement necessary, yet cost-effective solutions to support the large uncompressed digital files being developed by broadcasters with enough bandwidth and QoS guaranteed to ensure the end result necessary.

THE COMPANY

Norkring AS is Norway's largest distribution company for terrestrial network operators, delivering infrastructure and network services to premier broadcasters. Norkring develops, builds and operates DTT and DAB terrestrial broadcasting in Norway and Belgium. The company, fully owned by Telenor ASA, strives to operate the best contribution and distribution network for digital terrestrial television (DTT) and radio broadcast with maximum network utilization and flexibility.

The leading Norwegian broadcasting distributor has nationwide transmission networks for television and radio with an extensive infrastructure consisting of 7,000 transmitter units installed at 47 main stations and 2,700 smaller stations.

As video technology advances, many countries throughout the world are switching to DTT to migrate away from analog television. The Norwegian terrestrial network is claimed to be one of the largest DTT infrastructures ever built in Europe. Norway began the transition process in 2006, and Norkring was chosen by the license holder NTV (Norges Television AS) to build and operate the nationwide DTT network in Norway.



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The Solution

After an extensive search for flexible, reliable network infrastructure products, Norkring chose Net Insight's Nimbra platform as its preferred solution. The Nimbra offered multi-service transport capabilities, a high capacity backbone, plug-in modules for IP video and data, unique Time Transfer capabilities, the highest possible QoS and highest possible level of network utilization at a low cost.

Since Norkring needed to offer its customers the ability to distribute and contribute real-time audio and video, the low latency and jitter offered with the Nimbra was crucial. The unique multicast feature found in Nimbra switches has made it easy to distribute both digital TV and radio. Adding a higher-speed backbone and plug-in modules for uncompressed video and audio services has turned the network into a very powerful media contribution platform. The built-in Gigabit Ethernet interface and Ethernet multicast features make the Nimbra solution very suitable for IPTV distribution or WiFi/Wimax aggregation. The same platform can also be used for mobile TV whether distributed over IP or ASI MPEG.

DTT often requires a single frequency network (SFN) where the transmitter stations must be synchronized to send their signals at exactly the same time. The Nimbra platform has a unique Time Transfer capability that allows highly accurate distribution of real time synchronization codes over the same network that carries the video signals. This eliminates the need for costly and potentially vulnerable GPS synchronization receivers in the network. Throughout the massive equipment rollout and installation phase, Norkring has remained satisfied with Net Insight's technology, expertise and professional project management.

“We have found Net Insight to be very customer-oriented and ‘best in class’ in terms of project management and delivery precision,” says Frank Aarhus, Director Medianet Technology and Services at Norkring. “They have an ability and flexibility to match our tough rollout schedule and we enjoy a uniquely good client/supplier relationship.”

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The Results

Norkring won the award “Best technical solution” at the Digital Switchover Strategies 09 conference in London for the Norwegian DTT network based upon its successful roll-out of one of Europe's largest and most complex digital terrestrial TV networks.

“It is a great honour for us in Norkring to receive international recognition for the results we have achieved with regards to the roll-out of the digital terrestrial television network in Norway”, said Jonas Jacobsson Chief Technologist at Norkring.

“Norkring's expertise and experience has contributed to a roll-out that was achieved on time, within budget and with high quality. This recognition will give us further inspiration to engage in new projects both in Norway and internationally”.

Norkring has until 2013 expanded the network to a total of 750 Nimbra nodes of type 360, 380 and 680. The core links have been changed to IP trunks in the DTT network. Norkring has also built a Nimbra-based DTT network in Belgium with approximately 30 nodes to support their customers there.

Norkring won a tender with Norwegian broadcaster, NRK, to expand the coverage of the DAB public radio network from 90 to 99.5 per cent of the country's population. Norway intends to be the first country to plan a complete switch-off of all analogue FM services. The country will use DAB digital radio technology for all audio transmissions, including being one of several networks used by disaster and emergency services. Norkring have as a result extended the Nimbra network with 150 nodes for new customers and lines such as DAB and backbone for mobile broadband.

