

FIBER TO THE HOME WITH NETWORK DESIGN BY XANTARO:  
INTERNET, TELEPHONY AND TV BY OPTICAL FIBRE FOR UP TO 70,000 HOUSEHOLDS

# STADTWERKE NEUMÜNSTER'S CONTINUED BROADBAND EXPANSION IN SCHLESWIG-HOLSTEIN

## PROJECT OVERVIEW

### BACKGROUND & CHALLENGES

- broadband expansion in rural areas in Schleswig-Holstein; connection of over 170 municipalities
- concept and implementation of a network for the realisation of TriplePlay services over long distances
- investment protection and scalability



In Schleswig-Holstein, ambitious broadband expansion plans have been made. Today, more than 30 percent of households already have the option of getting a high-performance fibre optic connection for internet, telephony and TV. Meanwhile, the fibre supply nationwide is only about seven percent of connectable households.

Back in 2016, SWN Stadtwerke Neumünster GmbH was awarded the contract for the optical fibre expansion by the broadband associations "Breitband-Zweckverband Dithmarschen" (BZVD), covering 110 municipalities and "Breitband-Zweckverband Steinburg" (ZVBS), consisting of more than 60 municipalities.

At this point, it already had many years of experience as a network operator and TriplePlay provider in Neumünster and its environments. Development of large counties like Dithmarschen and Steinburg, however, presented SWN with a new challenge.

In order to transport their internet services across the greater distances between rural homes and Neumünster, a powerful backbone network is required. This was a challenge that Stadtwerke Neumünster wanted to solve with a professional partner.

### Xantaro's expertise convinced

"In summer 2016, we searched for professional support for this project and looked at three service providers," recalls Sven Butenschön, Team Leader Planning at SWN. The race ended with service integrator Xantaro headquartered in Hamburg.

"We liked the network concept that Xantaro outlined for our project", continues Butenschön. "In addition, we were convinced by Xantaro's great expertise and experience, as well as their ability to act flexibly and to find the right solutions in a timely manner." Xantaro remained by SWN's side throughout the lifecycle of the project, from conception through installation up to commissioning and handover.

### DWDM for an efficient data highway

The optical fibre development in the rural region of Dithmarschen began with the official Ribbon-cutting ceremony in March 2016. It has been progressing for several years due to various complex political and construction hurdles across many municipalities. The long routes across Schleswig-Holstein to Hamburg were to be bridged and offer effective redundancy.

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SWN wanted to build a powerful network that would not only master today's data rates, but also meet the increasing bandwidth needs of the next 15 years. Thus, SWN selected the most powerful fibre optic technology in the market today for its backbone network: Dense Wavelength Division Multiplexing (DWDM).

DWDM uses the different wavelengths of light as channels for data transmission, so that extremely high transmission capacities are reached and the network is appropriately prepared for future requirements. Currently, the SWN backbone network operates on 9 channels with a data transfer rate of 100 gigabits per second (Gbps).

The network design allows future extensions of up to 80 x 100 Gbit / s. For Stadtwerke Neumünster, the efficiency, reliability, and freedom from errors in the backbone network, as well as the simplicity of a central management location in Neumünster were all important features.

## PROJECT OVERVIEW

### CONCEPT & IMPLEMENTATION

- conception of a meshed backbone network with a dual fibre optic ring and seven PoPs based on Infinera DWDM technology and central management via the DNA-M-Multi-layer Service and Network Management Tool
- installation and test of all connections
- commissioning of the backbone, training of SWN employees
- support and maintenance services by XTAC

### The network concept

Xantaro's network concept provided a dual fibre optic ring for the region's fibre coverage, ensuring high availability and connecting a total of seven sites that act as nodes / points of presence (PoP) in the network. These included the control centre in Neumünster, the PoPs in Fitzbek and Horst in the district of Steinburg, the PoPs in Buchholz and Brunsbüttel in the district of Dithmarschen as well as two Internet Exchange Points in Hamburg.

The design provides a meshed network that allows a direct, end-to-end connection between all sites, increasing the flexibility, performance, and redundancy of the entire network.

By 2018, all PoPs are to be connected to the SWN backbone network, which make a total of about 450 km of optical fibre links and a total capacity of 8 Tbit / s. The fibre optic ring's efficient infrastructure establishes the interconnection points for internet, telephony and TV in Hamburg and Frankfurt and the municipalities who want to bring the fibre directly into more than 70,000 households in the course of the project.

### Automated provisioning ensures easy administration

To minimise its own administrative effort to operate the network, SWN also utilises Infinera's networking technology, which allows automated provisioning. As soon as new components are installed at the final points, the wavelengths are automatically interconnected – individually and according to the routing and its characteristics.

The entire backbone is managed centrally from Neumünster by using the DNA-M-Multilayer Service and Network Management Tool, which continuously monitors the network. To enable employees of Stadtwerke Neumünster to take over the network management themselves, Xantaro carried out appropriate training after commissioning.

Today, the service integrator accompanies the operation with a number of services and is available for maintenance services in accordance with agreed service level agreements (SLAs).

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## Competent partner in a demanding project

“The expansion of the fibre-optic network in a rural region requires cooperation with many municipalities and construction measures that are not only dependent on political, but also geographical and meteorological variables,” explains Sven Butenschön.

“It needs a clear concept and professional planning as well as flexibility and a lot of practical know-how. Xantaro provided us with the all-inclusive package for this project! The cooperation is characterised by trust. The know-how transfer is good and the technical agreements work great. We are absolutely satisfied!”

### PROJECT OVERVIEW

#### RESULT

- data transfer rate of 100 Gbit / s; scalable to up to 80 x 100 Gbps
- redundancy and high availability
- central network management and monitoring as well as automated provisioning of new components

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