Case Study
SIGNALIS GmbH

» When it comes to monitoring maritime traffic, uptime and reliability are of the utmost importance. For us, there was no better choice than the durable PRIMERGY servers and ETERNUS storage systems from Fujitsu «

Marcus Krol, Program Manager for the German coast, SIGNALIS GmbH

THE CUSTOMER

SIGNALIS provides a range of solutions for monitoring maritime traffic within harbors and at sea, as well as official monitoring of territorial waters and exclusive economic zones.
www.signalis.com

CHALLENGE

SIGNALIS was looking for a high-performance and reliable IT environment on behalf of the Wasser- und Schifffahrtsverwaltung des Bundes, the German official maritime monitoring authority. This environment would be used as a basis for SIGNALIS' renovation of the authority's maritime traffic engineering systems that are installed at radar stations along Germany's coasts.

APPROACH

Fujitsu PRIMERGY servers and ETERNUS DX storage systems for the Wasser- und Schifffahrtsverwaltung's 47 radar stations and three data centers, as well as CELSIUS workstations for the navigators in the traffic centers at the local Water and Shipping Authorities.

Complete protection of the North Sea and Baltic Sea coasts

Germany has around 2,300 kilometers (1,430 miles) of coastline along the North and Baltic Seas. The Wasser- und Schifffahrtsverwaltung is a subordinate authority of Germany's Federal Ministry of Transport, and is responsible for regulating maritime traffic. Blanket radar monitoring plays a central role in this, and the data produced is further processed within their IT system. These "situation pictures" are analyzed by the local traffic centers between Emden and Warnemünde, who can then provide the captains of passenger and freight ships with navigational information.

Maritime Traffic Engineering System

Previously, each traffic center had its own IT system, and the process of exchanging data between them was complicated. If a ship was to come into German territorial waters on its way to the Port of Hamburg, for example, it would have to check in and out with multiple traffic centers all along the North Sea coast. The responsibility for the navigation of this ship would therefore be passed from place to place. To optimize these steps, simplify the exchange of data, and provide as much reliability as possible, the Wasser- und Schifffahrtsverwaltung des Bundes contracted SIGNALIS GmbH to completely modernize their "Maritime Traffic Engineering System".

One-stop maritime monitoring

SIGNALIS is a global market leader in providing solutions for maritime monitoring. The company employs 190 specialists worldwide, mainly at sites in Germany and France. *"We provide traffic control systems for shipping, which we call Vessel Traffic Services (VTS),"* explains Marcus Krol, Program Manager for the German coast at SIGNALIS GmbH. *"We provide everything from the sensors, such as radar equipment, to software and hardware, all the way to the navigator's IT workstations where they monitor the maritime traffic."*

Location: North and Baltic Seas

SIGNALIS began to create one of the most up-to-date traffic safety systems in the world. They had to completely modernize the 47 existing radar stations along the German North and Baltic Sea coasts. Some even required new radars. These radar stations are often located in traditional red and white lighthouses, which can be found either on land, on islands or completely offshore at sea. The data they collect feeds into PRIMERGY RX300 servers. *"As the servers have to be relatively close to the radar equipment, it made the installation process rather complicated,"* recalls Marcus Krol.

THE BENEFIT

- Reduced management thanks to homogenization of the IT environment
- Improved performance
- Improved reliability

PRODUCTS AND SERVICES

- Servers: 300 x PRIMERGY RX300 / TX200
- Storage systems: 10 x ETERNUS DX80 S2
- Clients: 100 x CELSIUS M720 Workstations

"The stairs in the lighthouses were not designed for us to transport the rack up to the top floor. The island of Helgoland was an easier job for us as the lighthouse is located on land. Delivering the devices to the offshore locations was a real challenge." If the derrick built into the lighthouse did not reach as high as needed, cranes on ships were brought in to lift server racks and radar equipment. In some cases, SIGNALIS even needed the help of helicopters.

Seaworthy technology

The hardware requirements were very demanding. The racks needed to be *"seaworthy"*. They were developed in cooperation with the company Masterguard. A lot was also expected of the PRIMERGY servers. One particular requirement was that the systems had to withstand the adverse conditions of the sea climate and the *"aggressiveness of the surrounding environment created by high salt levels and other chemical and biological factors."* This was not a problem for the durable Fujitsu servers.

Central, redundant storage

All data from the 47 radar stations passes into the three data stations at the same time. The centers are located in Wilhelmshaven, Brunsbüttel and Lübeck. The radar pictures are transferred via optical fibers, directional radio or under-sea cables. Three Fujitsu ETERNUS DX80 systems operate alongside further PRIMERGY RX300 servers to provide secure storage.

These are fitted with 12 fast 450 gigabyte SAS hard drives, and can therefore be expanded as needed. As well as providing a high level of data security, the system is also highly scalable. Each ETERNUS DX80 system has a total storage capacity of 360 terabytes. *"All three data centers are mirrored internally and amongst themselves,"* continues Marcus Krol. *"This gives us six fold redundancy."* This is more than justified, as the maritime traffic must be monitored around the clock, 365 days per year. The data generated must also remain permanently available.

Higher security at sea

The five traffic centers are still responsible for security, each monitoring the maritime traffic in a particular area of the coastline. Navigators work at the centers in Wilhelmshaven, Bremerhaven, Cuxhaven, Brunsbüttel and Travemünde, making contact with the ships. The software they use to monitor the traffic was created by SIGNALIS, who in turn chose CELSIUS M720 workstations from Fujitsu as their hardware platform. *"Using our system, the user interface could be made consistent for all of the traffic centers along the coast,"* explains Marcus Krol. *"It is also possible to seamlessly integrate external data sources from national and international information organizations, or commercial operators of monitoring facilities such as wind farms, into the system."* This clearly increases the traffic security on Germany's waterways. It is also valuable as it helps to prevent accidents such as sea damage and collisions, protects people's lives and reduces the risk of environmental disasters.

"Thanks to the fast Fujitsu hardware, the new system is clearly more efficient. The homogenization of the server and storage systems, along with the clients, make the IT environment more low-maintenance. The Wasser- und Schifffahrtsverwaltung's data centers are now much more tightly integrated together and can exchange data much faster, which increases security levels at sea. The high availability of the PRIMERGY servers, ETERNUS storage systems and CELSIUS workstations from Fujitsu has created an important base for our system."

About Fujitsu

Fujitsu is the leading Japanese information and communication technology (ICT) company offering a full range of technology products, solutions and services. Approximately 170,000 Fujitsu people support customers in more than 100 countries. We use our experience and the power of ICT to shape the future of society with our customers. For more information, please see www.fujitsu.com.

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