New Maritime Rescue Coordination Centre (MRCC) for Ostend

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In June 2006, a new Maritime Rescue Coordination Centre (MRCC) in Ostend was commissioned by the Shipping Assistance Division of the Flemish Government. The MRCC Ostend is offering a state-of-the-art and integrated platform for Vessel Traffic Monitoring, Incident Management and Search and Rescue functionalities to ensure safety and to coordinate rescue actions at sea. This article provides a practical insight into the advanced Traffic Monitoring functionalities and technologies of the MRCC. It also shows how the MRCC system will be ready to cope with the challenges of the future.

The MRCC in Ostend is the central check point for incidents at sea, including persons and vessels in need, accidents and oil pollution.

In view of the ever increasing traffic on the North Sea and the increasingly strict European and international regulations, the Flemish Government saw the need for a modern and sophisticated MRCC. The new centre in Ostend, equipped with the latest monitoring and communication technology, will play a very important role in maintaining the safety and environmental friendliness of our coastal waters and in providing the best possible response and accommodation in case of an incident.

The MRCC needs to cooperate with several international, federal, regional and local authorities and organisations. The centre is therefore linked to several (external and internal) databases and is equipped with an Incident Management System for the follow up, coordination and reporting of calamities. The actual traffic image at sea and all other relevant information is available for all partners within the coast guard organisation.

External communication is an important aspect of the MRCC's responsibility, e.g. for notifying the press in case of any calamities. To that purpose, both a control room and a meeting room have been equipped with all necessary communication tools in order to be able to follow up, control or report on possible rescue operations. Along with its role as maritime coordination centre, the new MRCC's meeting room will also be used as incident room and press information centre.

Approach of the project

Introduction: a partnership approach

The construction of the new MRCC was carried out by a multidisciplinary consortium of three companies, viz. Barco, Fabricom GTI and Tein Telecom. The consortium carried out the entire 4.2 million Euro project, including programme management, design, implementation, installation, training, support and maintenance.

The consortium was led by Barco, which delivered the integrated operational applications as well as the visualisation part, including a display wall. Fabricom GTI was responsible for the installation works of the Vessel Traffic System as well as for the hydro-meteo system and the automated signalisation for the port management control. Tein Telecom installed the voice communication platform, which allows the operators to communicate with the vessels at sea. Furthermore, Tein Telecom took the responsibility for the network infrastructure of the new MRCC.
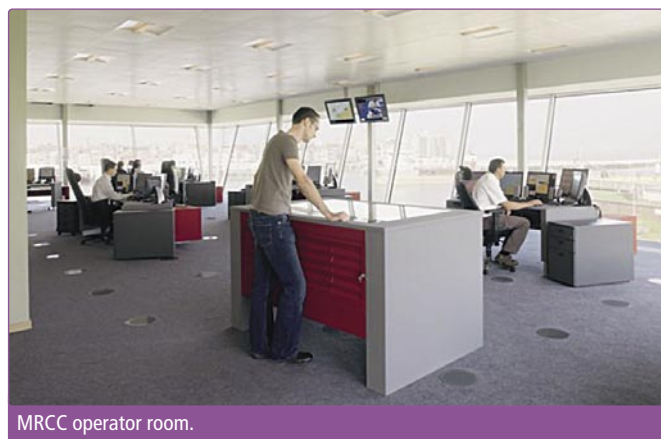
MRCC operator room.

The MRCC project started in February 2005 and was fully operational in June 2006.

Technical description

The MRCC solution

The MRCC was designed to meet the specific requirements of the Flemish Shipping Assistance Division. It is replacing the previous monitoring system to become an integrated, state-of-the-art rescue and coordination centre.

Within the scope of the project, a wide variety of deliverables, efforts and materials have been supplied to the end customer. This includes general equipment, seven consoles, a complete IT network and redundant server park, VHF antennas, a wireless link, high-end display hardware and software, specific traffic monitoring software, rescue & incident management applications and related services and consultancy.

Integrated Vessel Traffic Management

An integrated monitoring system was installed combining an advanced VTS system with an Incident Management System and a Search & Rescue module. The combined and integrated functionalities of these tools create a unique benefit to the operator and facilitate smooth and fast decision making in the rescue and coordination centre.

With the new VTS system, operators are able to display synthetic traffic data coming from different external sensor sites such as the Scheldt radar network and its AIS network. In addition, the system is directly coupled to the local radar at the port of Ostend and is able to display the raw analogue radar signal as a separate layer on the traffic display, thus enhancing the tracking abilities of the system. The VTS system is connected to a central ship database and the hydro-meteo sensors along the Belgian coast and provides the information to the operator via a quick and user-friendly interface.

Integration of best-of-breed applications

The Incident Management System VISION presents operators with guidelines for dealing with incidents and provides the communication tools to quickly distribute the necessary

Screenshots from Ostend.

Typical maritime application Display Wall system for full 24/7 crisis operation.

information via telephone, fax, SMS or email. The software has been configured to comply with the applicable Operation Plans as well as the National and International guidelines.

In case missing persons or drifting objects need to be found, the Search and Rescue planner SARIS simulates the estimated drift (based upon real-time wind data and a current database) and defines the search area and search plan adapted to the available search and rescue units.

The integration of the Traffic Display System, SARIS, and the Incident Management System, VISION, greatly enhances operator efficiency and thus reduces the valuable reaction time during a search and rescue action. The data exchange implemented between the three components enables the information available in one the systems to immediately be used in the other, either automatically or with limited operator action. The solution also includes combined radar video, track, voice recording & replay and allows for browser-based access to an integrated traffic image.

As part of the integrated monitoring system, Barco's 40' Solaris and 42' LC42 are used as head-up displays, enabling visualisation of vessel traffic and hydro-meteo information.

The electronic sea maps are presented as background in the traffic image. These electronic maps are loaded onto central map databases and are made available immediately for all applications used at the MRCC. These applications are the Traffic Display System, the Search and Rescue Information System (SARIS), and the Incident Management System (Vision IMS). This ensures that all electronic maps in the MRCC always contain the most recent elements and information, and that these are presented in the same way by all software systems. Newer versions or adaptations to the mapping information are forwarded on a regular basis by the Flemish Hydrography division. This way, they can be easily updated in the central database of the MRCC. With the upgrading of the MRCC in Ostend, the North Sea became a bit safer.
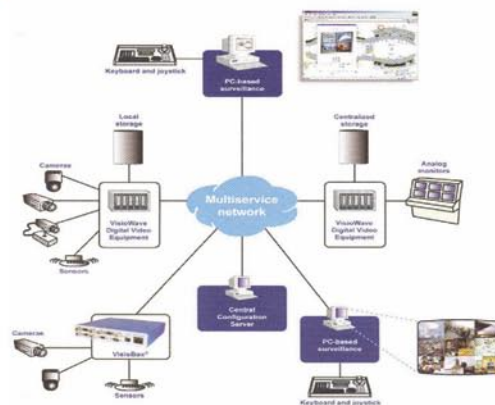
MRCC connectivity

Managing incidents and deploying search and rescue activities is a team effort. Therefore, reliable communication exchange between all partner organisations is of crucial importance. Within this context, the MRCC acts as an information and communication hub, collecting information from different input sources (such as radar and AIS tracks or hydro-meteo information) and dispatches this information to various clients.

In answer to these requirements, the necessary software was developed to connect the MRCC to the European SafeSeaNet and the Flemish Central Broker System in order to exchange the necessary safety- and voyage-related messages from the ships entering the Belgian ports.

Decision makers or Search & Rescue actors that are not on site at the MRCC at the time of an incident will be able to assess the status of the incident by logging on to the internet. They will be able to look at the live traffic situation via the VTS Web traffic display and the web interface to VISION. Authorities requiring a more detailed, performing and permanent remote view on the traffic situation, can easily be equipped with a fully functional Traffic Display Station at their premises and benefit from the detailed live traffic images from the MRCC.

The MRCC as incident room and press information centre

Along with its role as maritime coordination centre, the new MRCC is also used as incident room and press information centre. For this purpose, a large-area high-resolution overview display system was installed with multiple inputs and adjustable screen layout functionalities.

The communication platform

The very specific needs for voice communication within the MRCC and Port Control project in Ostend required a specific approach. The classic integration concept and the provision of equipments from different vendors acting as one system was not an option. Instead, a very advanced voice integration using a switching platform specifically developed for this type of application was necessary.

Network infrastructure

Information and communication is critical for the MRCC project. The continuous availability of information and operator communication is only possible through a powerful IT infrastructure.

One of the key elements of this infrastructure is the redundant network acting as a backbone for the various systems of the MRCC project. Connections with the external world and with

The new MRCC, Ostend.

existing networks like the Scheldt Radar Network are available and secured through firewalls. Built upon multiple servers, the IT infrastructure is acting as a platform for the various operational applications and central databases used by the operators.

For ergonomic reasons, the hardware is decentralised and is running in a separate computer room. This guarantees optimal comfort and minimal noise operation at the operator side. The total infrastructure is installed, managed and maintained by Tein Telecom, which is providing the MRCC with a unified management of all 'IT type' services.

Hydro-meteo system

The hydro-meteo system provides the MRCC authorities with accurate data about actual and expected water level and wave climate. The information of the measure networks is centralised in an Oracle database.

Signalisation

The renewal of the maritime traffic signalisation is an important part of the MRCC project. Command and control of the signalisation is done by means of a PC and is visualised on PC displays and a video wall. The command of the signalisation can be executed in a manual or predefined status mode. Alarm monitoring and security against unauthorised use is also part of the system.

Finally, for communication with surrounding sites, a telecom mast (shown above) has been erected on top of the new MRCC building.

ABOUT THE ORGANISATION

Shipping Assistance is a division of the Agency of Maritime Services and Coast of Department Mobility and Public Works of the Flemish Government. The increase of maritime movements, the safety of the population and the environment in the estuary of the Scheldt and the Belgian part of the North Sea have resulted in the necessity of assistance of shipping. The task of the Division consists in procuring that the shipping movements pass off smoothly and safely and in sharing the obtained information with its customers. The most appropriate means for this purpose is the organising and providing of Vessel Traffic Services by the Scheldt radar chain, which is operated by the Flemish and Dutch Governments.

At the Maritime Rescue and Co-ordination Centre the Shipping Assistance Division serves as a unique mailbox and the first contact point for different divisions. 130 people work at the Shipping Assistance Division, in Ostend, Zeebrugge, Zelzate, Zandvliet, Kallo and Flushing.

ENQUIRIES

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