

inVTS *components*

Integrating all information for customized solutions



SECURE **in** SIGHT



Integrating all information for customized solutions

Modular architecture

With rising waterborne transport, at sea or on inland waterways, an excellent surveillance, guidance and management of this traffic is indispensable.

Increased requirements for security at blue borders or at critical infrastructure installations such as offshore installations also raise the need for high performance surveillance of water areas.

All software modules of in-innovative navigation GmbH, summarized by the name inVTScomponents, provide extremely powerful and flexible functionality to build up customized VTS and surveillance systems.

A system only work as a whole. Everything is interconnected and the system interfaces are quite complex to manage. VTS and CSS solutions offered by in-innovative navigation GmbH stand out due to their strict modular structure and the use of open interfaces. Therefore, they are perfectly suited to fulfill requirements of complex and cross linked information systems. It is easily possible to seamlessly connect external subsystems to components of in-innovative navigation GmbH. On the other hand, the clear interfaces of our software modules ideally support the integration at components level into comprehensive solutions of system integrators.

High performance processing of radar and AIS data accomplish the challenging technical demands of today's control systems. Fast and reliable integration of track data from different sensor sources into one consistent traffic image is a key competence of in-innovative navigation GmbH.

In addition to processing and control modules, we offer complementary service components, such as recording and replay and system monitoring.

High quality display software of in-innovative navigation GmbH provides comprehensive display technology to efficiently surveil and guide traffic. All information from the various sensors presented in a perfect way to the operator to be conceived at one glance.

Web services can easily be added, data base applications or object management & distribution services (inOMD) can be smoothly integrated and allow instant data access.

The combination of inVTScomponents for AIS and/or radar based surveillance systems fit to customized solutions for every need.

SENSOR DATA PROCESSING

The proven modules cover all necessary tasks from reliable data acquisition, calibration, processing, filtering, multiplexing and excellent tracking performance, through to archiving and image data presentation within characteristic applications.

CENTRAL DATA PROCESSING

Using iNMD with data base and many services allows providing the adequate information to each client. Actions of an operator are processed accordingly and a sophisticated rights and role management ensures perfectly the access to specific data.

DISPLAY

The innovative and very configurable display modules are designed to meet the highest requirements of coastal and traffic surveillance, even as web application. Due to its combination of high performance traffic viewport with a modern graphical user interface, they present any sort of integrated Management & Information System data at a glance.

We provide

- ✓ **Data acquisition**
- ✓ **Interfaces for different radar sensors**
- ✓ **Integration of VHF**
- ✓ **Integration of additional sensors
(e.g. meteorological or hydrological)**
- ✓ **Data processing**
- ✓ **Traffic display**
- ✓ **Simulation**
- ✓ **System analysis**
- ✓ **Customer specific developments**
- ✓ **Complete solutions for specific customer needs**



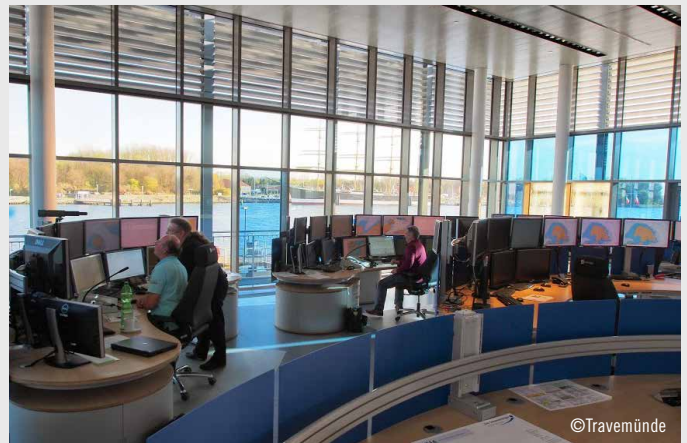
▲ Radar station of CSS East Africa



▲ Traffic entering Port of Hamburg

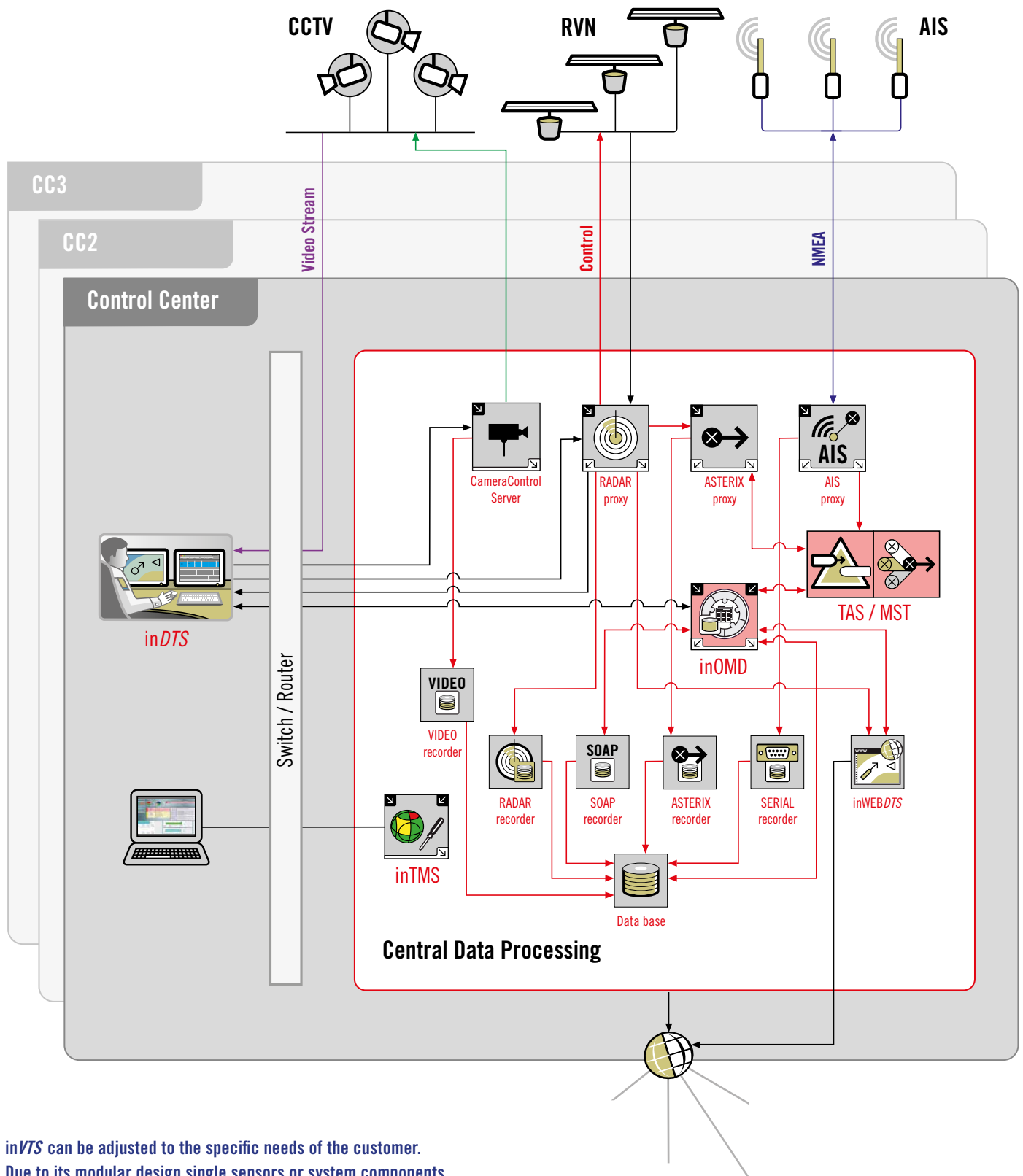


▲ Sensor site of VTCS Portugal



▲ Traffic center at Travemünde, German Coast

System architecture Control Center



inVTS can be adjusted to the specific needs of the customer. Due to its modular design single sensors or system components can easily be replaced or upgraded.

A tailor-made *inVTS* system offers: Simplicity, clarity, scalability, extensibility, redundancy, availability and the integration of standard components.

Radar Processing



RADARserver bridges the distance. It acquires analog or digital radar signals and transmits radar data to any number of radar video clients in real-time.



RADARunit provides remote control of any radar system.



RADARproxy distributes radar data. It multiplexes incoming radar information for all local client applications.



RADARextractor/tracker extracts the essential. It detects contiguous radar echoes, produces tracks and plots and correlates them with the existing track history.



RADARgrabber takes the picture. It stores radar images in PNG format ready for use in web applications.



RADARrecorder preserves the radar information. It stores the original radar data for replay.

AIS Processing



AISproxy provides access to an AIS network for all possible clients, offers filter function.



AISrouter evaluates traffic volume and distributes data. It selects appropriate base stations for transmission of safety related messages.



AISgateway collects and provides NMEA data to client applications (e.g. inOMD) via SOAP server interface.



SERIALproxy combines and evaluates NMEA messages to dispatch them to the according device.



RDFserver converts the bearing information into ASTERIX data and analyses Mute Events.

CCTV



CameraControlServer provides video integration in a VTS system. Enables video display and camera control.



CameraControlAdapter coordinates camera access in case of multiple operator stations.



VIDEOrecorder saves the video stream in the data base.

High Level Data Integration



MultiSensorTracker (MST) fuses the information. MST processes and correlates data provided by multiple sensors and different sensor types and filters them in order to produce ASTERIX data to be processed.



TrafficAnalysisSystem (TAS) monitors and analyses the traffic based on configurable rules and is signaling traffic events (e.g. CPA/TCPA).



inOMD is a software platform that stores and consolidates big data and makes it available to a variety of CLI based as well as web based clients via SOAP or REST.



TRACKgateway provides current track information via ASTERIX receives current track information and delivers them to other clients (e.g. inOMD) for further processing.



SERIALrecorder preserves all serial data and signs them with a time stamp.



ASTERIXrecorder saves ASTERIX data and replays them in ASTERIX format.



SOAPrecorder preserves the data of the inOMD data services and offers them for replay



inVNE simulates the traffic scenario for training purposes and testing a system setup

Display Applications



inDTS visualizes vessel traffic data in a perfect way.



inWEBDTS visualizes all vessel traffic data in a browser window with a customized setup.



RADARpilot720°OS as open sea navigation system can be embedded on a mobile force in a VTS or CSS solution.

System Administration and Tools



inTMS checks continuously all components of the system for proper operation. It is a technical monitoring system adapted to the customized solution.



Inviewer tests and calibrates the radar functionality. It is the tool for site specific configuration of the Radar Video System.



LDAPweb manages thoroughly user rights and roles within a complex system setup as web application.



AISinspector analyses performance of AIS networks and evaluates functionality of base station and transponder in operation.



inRESEARCHweb allows data mining in the inOMD database to find an answer to your question.



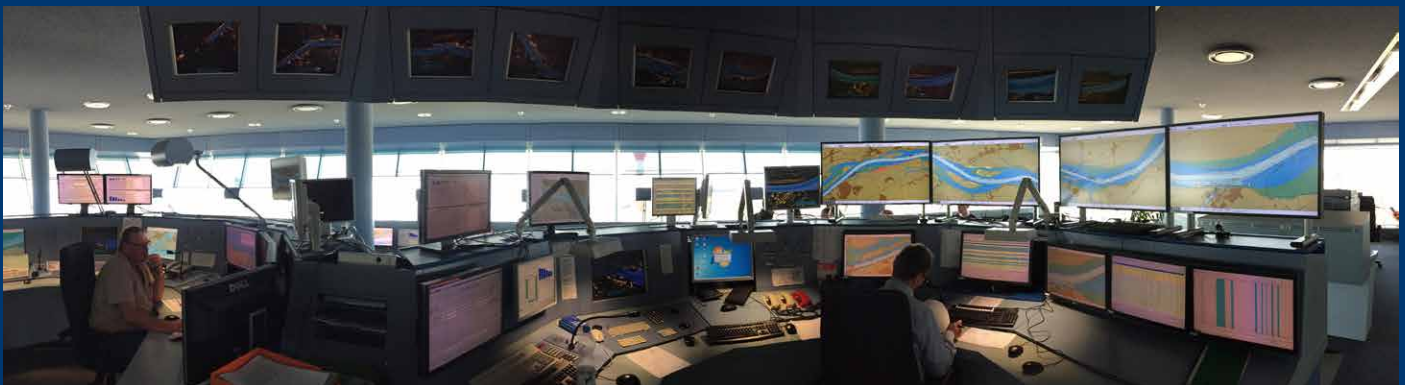
REFERENCES

Regional VTS:

- DoRIS – Donau River Information System
- VTS Oberwesel
- Inland AIS Germany
- VTS at Brussels-Scheldt Canal, Belgium
- VTS Ports of Jersey, Channel Island
- VTS Port of Hamburg
- VTS Port of Switzerland, Basel
- VTS Ports of Sassnitz & Mukran, Germany

Coastal Surveillance and National VTS:

- LUV-VTS NL, Netherlands
- CSR Estonia
- VTCS Portugal
- CSS Bulgaria
- VTS German Coast
- CSS East Africa



Further information about recent developments on:
www.innovative-navigation.de

in-innovative navigation GmbH
Leibnizstraße 11, D-70806 Kornwestheim (Germany)
phone: +49 71 54 807-150
fax: +49 71 54 807-154
email: info@innovative-navigation.de
www.innovative-navigation.de

