

Coastal, Inland and Port Solutions

Shore-based AIS Solution

Need:

Every waterway presents unique safety challenges. Coastal areas and ports can be subject to many threats. Smuggling, fishery protection, drug trafficking, illegal immigration, ecological disasters (such as oil spills), and maritime accidents are just a few of the challenges that arise to create the need for maritime surveillance. Increased vessel traffic can complicate traffic management of waterways as well.

Additionally, ships in distress need to be quickly found and assisted. There is a strong need in the maritime world for solutions that help manage vessel traffic and monitor the waterway environment.

Solution:

A comprehensive monitoring and surveillance solution can be built and scaled based on each individual site and coverage area. Using AIS technology and data, the managing authority can identify specific vessels, their cargo and route, and communicate efficiently using the VHF data link. An increase in safety and collision avoidance is achieved as a more complete picture of the current situation is provided.

These monitoring and surveillance activities are made possible by the AIS hardware and software components working in concert. AIS data is received and transmitted via the VDL 6000/FASS base station. The data is routed amongst the various nodes by DataSwitch, with Maestro serving as the top layer control for all AIS network elements.

CNS Systems' Horizon product, vessel traffic monitoring software, displays the situational picture and can be utilized for data exchange between AIS targets. Search and rescue operations can be directed and monitored on-shore using Horizon, which includes SAR pattern generation.

Notification of and data collection relating to vessel movement into and out of user defined zones is also provided. This can assist with vessel traffic management and analysis, as well as, triggering alarms when unauthorized vessels enter pre-set zones.

AtoNs can be monitored for quick notification of non-functioning features and to ensure proper location. They can also be configured remotely, for ease of functionality changes such as light flash sequence changes. Virtual and synthetic AtoNs may also be created.



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Components:

VDL 6000/FASS Base stations:

Typically, AIS data needs to be received and communicated from one or more shore based location. A VDL 6000/FASS Base station, is deployed to receive and transmit AIS data to and from all AIS sources in the coverage area.

Base, Advanced or PSS units are available with the following capabilities:

- Configured as AIS Base Station, Limited AIS Base Station, Repeater Station, or AtoN
- Single or redundant configuration
- Remote functionalities available – base station configuration, software updates, virtual AtoN, power management
- Local logging of AIS messages, Target filtering, Replay AIS data and AIS data catch-up-

Horizon:

Shore-based vessel management software that provides a complete AIS interface designed for vessel tracking and monitoring centers.

- View, track and display all vessel information, send and receive safety related and text messages
- Fully user configurable display, Set entry and exit alarms and Configure Target groups
- Configure guard zones for area that are dangerous, restricted, or need to be monitored

Maestro:

AIS Service Management (ASM) system providing a top layer of control for all of the various elements that comprise the AIS Network.

- User account management, Display of all AIS device connections and Create and edit customized monitoring zones
- Alarm Management – separate alarm displays for alarms created and triggered
- Virtual MMSI's and graphical network analysis can be created.
- Administration and configuration tools for AIS base stations, DataStore and DataSwitch
- Create and manage virtual and synthetic AtoNs

DataSwitch:

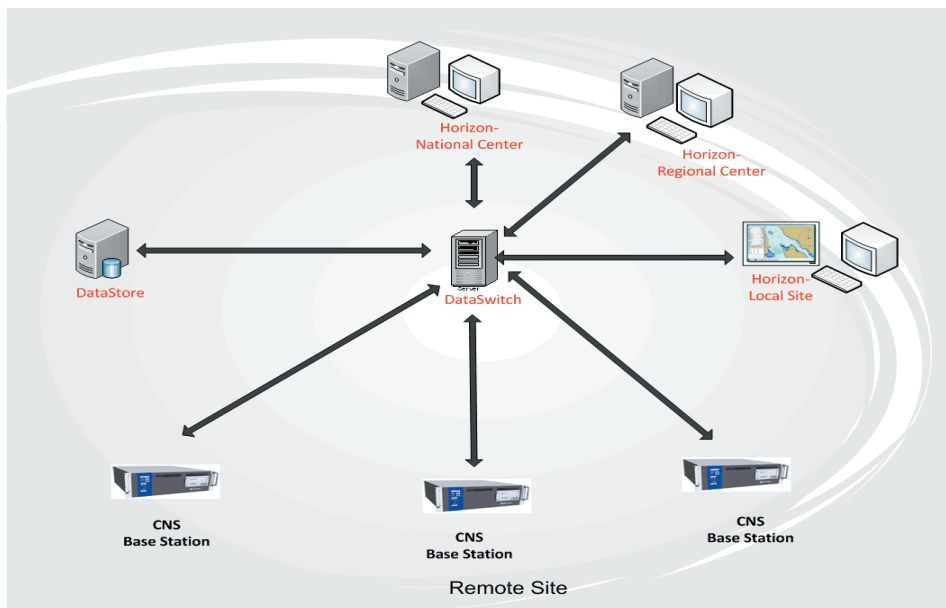
DataSwitch is implemented for AIS data routing and management. DataSwitch connects nodes (hardware sensors, users, and/or networks) and chooses the optimal way to send each information packet based on its current understanding of each node.

- Allows multiple sources of standard and proprietary data to be collected, filtered, sorted, and redistributed
- Advanced connection protocols can be added
- Convert incoming data to a particular data format
- Filtering – based on connections, NMEA message types, and more

DataStore:

DataStore provides a backend database and front-end user application for logging, playback and filtering of NMEA/NMEA-formatted data.

- Stores and timestamps all NMEA data
- Time based filtering for playback, user defined playback capabilities
- Synchronization with other base station databases and DataStore instances with redundancy
- Filters for AIS message type, geographical area, data source, MMSI and target vessel
- Filters for function/message type, international message support, floating and fixed AtoNs, position status, and proprietary messages.



DataSwitch collects, filters and routes data to/from AIS network sensors and client applications.

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