



Cienne Solutions: Cruise ship automation by Progea.

Movicon 11 ensures well-being and climate comfort all over: including cabins, entertainment areas, food courts, sport and fitness areas.

Cienne Solutions, a well-known Italian System Integrator, has used the Progea software platform to realize new projects to automate and manage HVAC systems for one of the worldwide leading cruise ships builders.

Cienne Solutions, located in Lunata, in the province of Lucca (Italy), are design engineers of industrial and naval automation systems.

In the naval industry this company realizes turn-key automation and supervision systems for all boat and yacht motor and generator devices. Cienne Solutions offers functional and user-friendly graphic interfaces integrated with boat designs when required.

A few years ago, it started specializing in implementing HVAC monitoring and control

systems for cruise ships.

In 2017, they designed projects for 2 big cruise ships and have recently completed another project for the biggest cruise ship in Italy.

It is essential that cruise ships offer passengers comfort and all the facilities typical of a luxury hotel.

Cruise ships consist of various areas such as cabins, entertainment areas, food courts, sports and fitness facilities, therefore it is necessary to have the most appropriate solution that can adapt to any one of these environments.

It is also very important that safety and services are fully functional and ensured 24/7 especially when ships are out at sea.

The architecture and the project solution

Cienne Solutions have chosen a distributed control architecture which permits detailed management of each comfort zone occupied by passengers and personnel and environmental data collection. An alarm management also allows quick and automatic intervention to remedy any anomaly detected with any one of the devices. Systems installed on huge cruise ships of this kind are obviously quite complex considering the diversity of numerous components and machines of makes that have to be monitored and controlled.

In order to manage such complex architecture, it is vital that standardized and independent technologies be deployed to enable detailed and efficient monitoring and control that is needed for performance optimization and security.

The entire HVAC system is managed by 130 configured PLCs, connected to the Movicon 11.5 software in a ring-network architecture with 2 redundant supervisory stations.

Thirty-one PLCs have been installed to manage 2000 cabins networked to two redundant supervisory stations.

Each HVAC station is managed through with a PLC directly connected to Progea's Movicon 11

supervisory system.

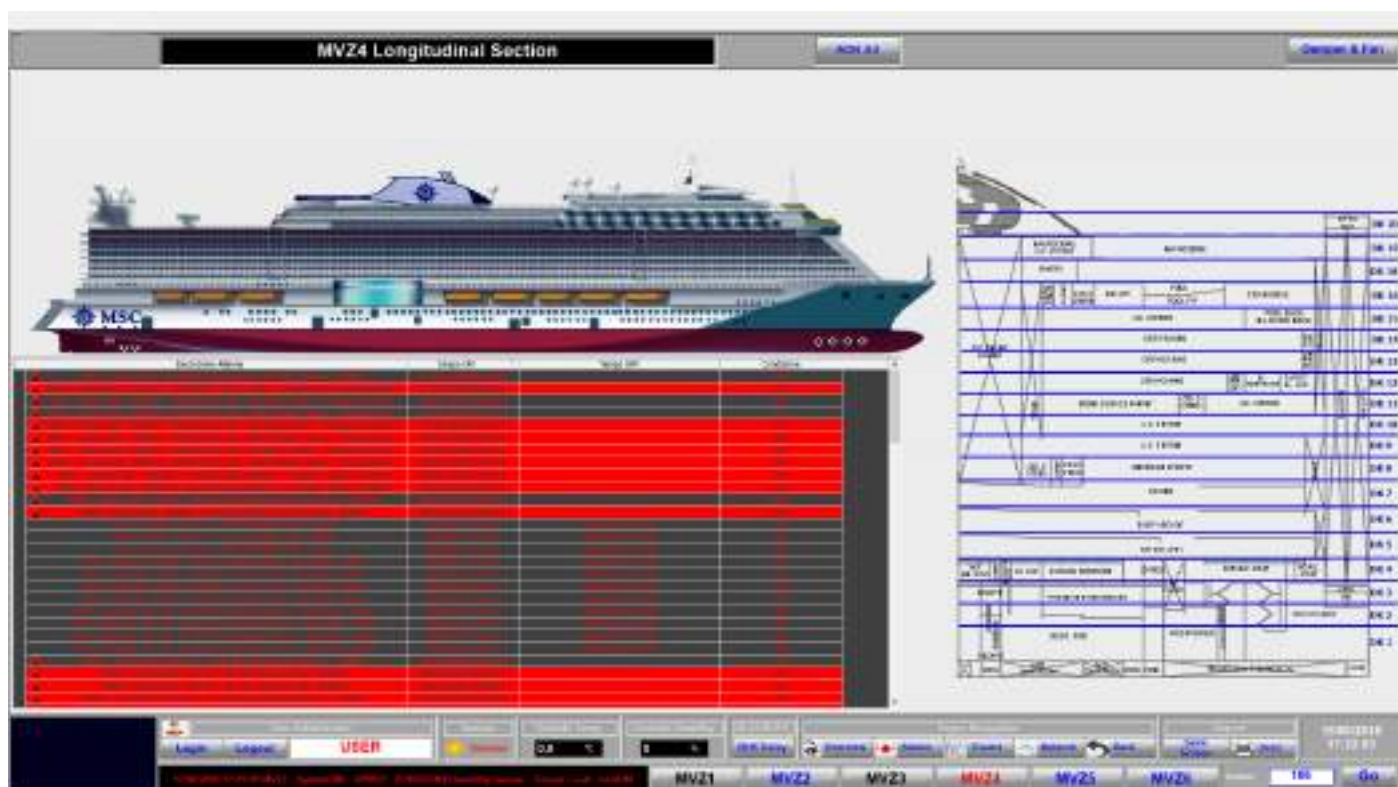
This complex architecture handles big data flows amounting to 9000 inputs/outputs for the HVAC system and around 60,000 for the cabin control system.

Considering the complexity of such architecture, Cienne Solutions chose the Movicon Unlimited licence with redundancy option as the best solution that catered for ring-networking communication redundancy.

Furthermore, this distributed system allows the user to interact on each machine locally in the event of network failure.

The choice to use the Movicon 11.5 SCADA solution has been greatly appreciated due to the success it has already had with efficiently controlling various other infrastructures, such as hotels and shopping malls that have similar cruise ships features.

Movicon is a scalable, modular and futureproof platform open to expansion: the platform is high performing not only for supervision management and "classic" HMI, but also for data acquisition, storage and analysis. As an ideal futureproof solution, Cienne Solutions can easily incorporate new functionalities and services later on to enhance and include predictive maintenance, alarms analysis as well as advanced



IIOT and Cybersecurity oriented connectivity management.

Conclusions

The last objective to manage the cruise ships HVAC system, from the mains to each individual cabin, was achieved with success despite the various environments involved.

Cienne solutions owe their success in completing this application in record time to their Movicon software know-how and non-stop support of the Progea technical support team.



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