Symphony of the Seas and Harmony of the Seas
## cruising safely with Draco tera KVM system

The Customer

Royal Caribbean Cruise Line operates 25 cruise ships that are capable of hosting and entertaining over 75,000 passengers on premium Celebrity Cruises. Two new ships; Harmony of the Seas and Symphony of the Seas are the latest in the fleet of Oasis class vessels. They are the world's largest cruise ships, each capable of carrying 6,750 passengers, along with 2,100 crew members. Harmony first sailed in 2016, whilst Symphony entered the water in 2018.

The Challenge

It is essential for crew members to be able to access information quickly and easily. Critical decisions need to be taken in a timely manner to ensure the utmost comfort and safety of those on board. With eighteen decks and an overall length of 360 metres, moving to a dedicated location somewhere in the ship to use a particular computer system would take time and reduce the efficiency of the crew and their ability to provide the best possible level of service and safety to customers. A solution was required that minimised this delay.

The Solution

For these superlative cruise ships, maritime integrator TechnoSolutions and GENTEC, the IHSE distributor in France, RCCL Crew together with the Chantiers de l'Atlantique shipyard designed a redundant KVM solution capable of switching all computers and monitors in the Engine Control Room (ECR), Wheelhouse and Safety Command Center (SCC). Four 48 port Draco tera compact
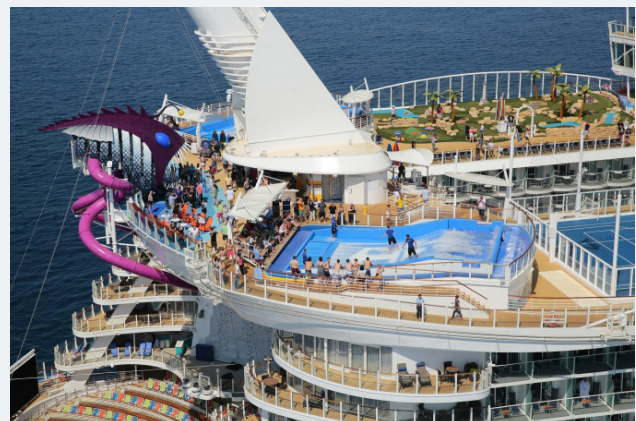
matrix switches are installed on decks 2 and 12 on each ship: two in the ECR and two in the wheelhouse/SCC.

The system provides navigational data and control information to crew members in the safety command center and the wheelhouse. It also delivers information on engine status and other vital operational parameters to engineers

responsible for the onboard power. All with no latency or need for networks tools to provide remote access.

Cat X cabling connects the switches to user workstations spread over 15 of the 18 decks, providing video and USB access to computers running any operating system (Linux or Windows), installed far from end users. Fiber optic connectors link the matrices together to achieve duplication of systems for use in the event of emergencies. All with no latency or need for networks tools to provide remote access. Sufficient spare ports are available on the switches to accommodate future growth or changes to the infrastructure, without requiring changes to the wiring of the vessel.

All the Draco elements are tested and maritime approved by Nemko thus setting a high quality standard to the system. Sufficient spare ports are available on the switches to accommodate future growth or changes to the infrastructure, without requiring changes to the wiring of the vessel.

The Benefit

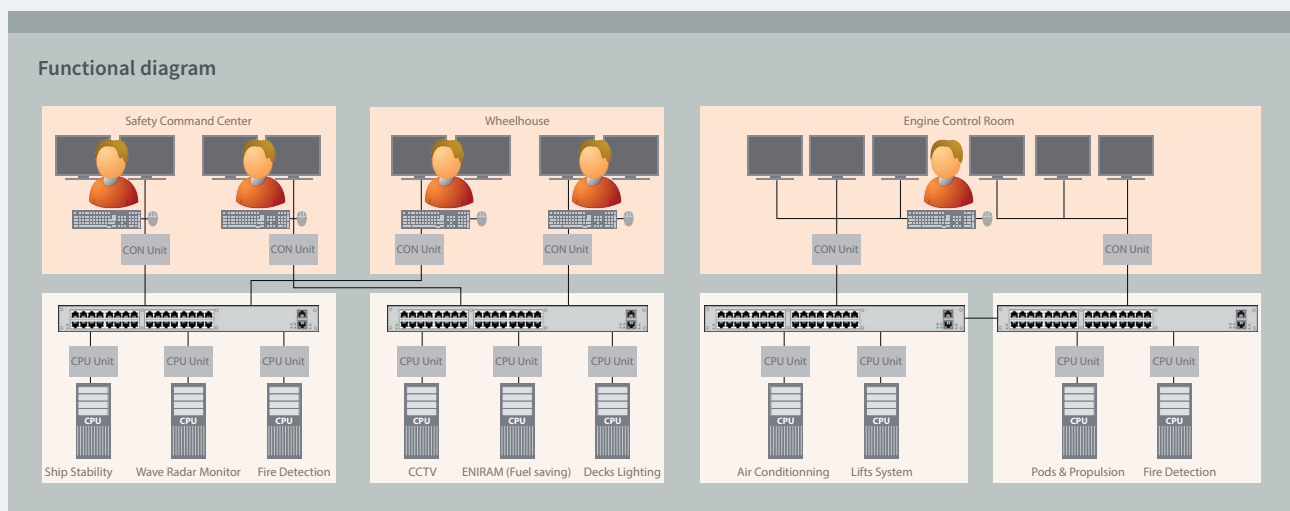This solution brings a high level of flexibility and greatly improves crew efficiency. Computer systems essential to the safe passage and operation of the ship are instantly accesseable by crew members from their own workstations, without having to move location or share computer terminals.

This not only saves time, but ensures that all relevant information is instantly available to the crew, ensuring that they do not miss crucial data and endanger the ship.

> " *Computer systems are located at a long distance from the operators. The KVM switch enables the crew to access data from their own workstations and select and instantly change the computer they are using. They work more efficiently and effectively and the ship operates safely at sea.*
>
> *Even on the world's biggest cruise ships, saving space is crucial. The IHSE KVM solution is of great help to address this target, especially in high technical venues like the Engine Control Room or Safety Command Centre.*

Gérard R. Michel
Senior Project Manager, TechnoSolutions

Functional diagram

Safety Command Center — CON Unit / CON Unit — CPU Unit / CPU Unit / CPU Unit — CPU / CPU / CPU — Ship Stability / Wave Radar Monitor / Fire Detection

Wheelhouse — CON Unit / CON Unit — CPU Unit / CPU Unit / CPU Unit — CPU / CPU / CPU — CCTV / ENIRAM (Fuel saving) / Decks Lighting

Engine Control Room — CON Unit / CON Unit — CPU Unit / CPU Unit / CPU Unit / CPU Unit — CPU / CPU / CPU / CPU — Air Conditionning / Lifts System / Pods & Propulsion / Fire Detection

KVM products in use

> Draco tera compact matrix switches
> Draco vario extenders

Installation

> Customer: Royal Carribean
> Project planning and integration: TechnoSolutions, STX
> KVM supply: GENTEC

IHSE GmbH
Maybachstr. 11
88094 Oberteuringen
Germany

📞 +49 (7546) 9248-0
🖨 +49 (7546) 9248-48

info@ihse.de
www.ihse.de