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Leading Spanish Shipping Company Launches Smart Ship Project With New Secure Digital Services Network

With a fleet of 29 ships across six countries and employing over 1,500 staff, Baleària is the leading passenger, vehicle, and goods transport company for the Balearic Islands, and the only one with shipping routes linking all four islands in the archipelago. It also operates in the autonomous cities of Ceuta and Melilla and connects the Canary Islands to the Iberian Peninsula. Further afield, it provides services to North Africa (Morocco and Algeria), and also links the United States with the Bahamas.

With a strong commitment to clean energy and social responsibility, Baleària is a pioneer in the use of natural gas and is working toward a goal of zero emissions through renewable energy and digital innovation.

The Smart Ship Project

In 2019, the Baleària group identified an opportunity to increase both customer satisfaction and operational efficiency by launching a range of new digital services onboard a selection of its passenger ships. The idea was simple: to leverage the power and ubiquity of customers' mobile devices to enhance their end-to-end travel experience.

Even before this initiative, the group had offered limited Wi-Fi access to its customers. But due to a lack of overall visibility and control, it had been impossible to provide the security, performance, and reliability required of modern digital services.

"A key challenge to providing such services out at sea is the high cost and limited bandwidth of satellite communications," explains Francisco Abril Hita, director of IT infrastructure for Baleària. "With a capacity of up to 1,000 passengers on some ships, allowing unrestricted internet access to digital streaming content, such as YouTube, Netflix, or Amazon for example, would very quickly consume all available bandwidth and crash the network."

In order to still offer a competitive range of digital streaming options as well as innovative new customer services, such as digital boarding, QR code-based cabin access, payments by mobile phone, and the "pet visualization system" where passengers can check on the well-being of their pets through live video feeds from the pets holding area, the group realized it would need a whole new network and security architecture.

Broad Visibility and Granular Control Through Convergence of Security, LAN, and WAN

For the first phase of the Smart Ship project, nine passenger ships were selected for digital transformation and a solution sought that would provide each with secure, high-performance access to onboard servers from every point on the vessel.

BALEÀRIA

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– Francisco Abril Hita, Director of IT Infrastructure, Baleària Group

Details

Customer: Baleària

Industry: Shipping

Location: Balearic Islands, Spain

Business Impact

- Improved customer satisfaction and profitability through new digital services

- Improved remote visibility and management of onboard data networks and services

After a thorough evaluation of potential solutions, Baleària chose Fortinet, with secure Wi-Fi access provided by FortiAP wireless access points, high-speed Ethernet connectivity via FortiSwitch, and FortiGate Next-Generation Firewalls (NGFWs) for their combined end-to-end visibility, traffic control, and advanced threat protection.

With its purpose-built security processors, the FortiGate NGFW has the power needed to identify thousands of applications inside network traffic and apply deep inspection and granular policy enforcement without introducing latency.

By segmenting the traffic into separate virtual local area networks (VLANs) based on user and traffic type, the company is now able to ensure appropriate levels of security and quality of service for each application on the network.

High-bandwidth streaming services, such as movies and games, are delivered from onboard content servers via their own VLAN. Similarly, IPTV broadcasts are received via satellite and distributed via multicast.

Internet access is further subdivided by application to provide free external WhatsApp communications for all passengers, while offering broader internet access on a pay-as-you-go basis.

Business Impact (contd.)

- Improved resilience and performance of digital customer services

Solutions

- FortiGate
- FortiSwitch
- FortiAP

Services

- FortiGuard Web Security Service

The solution leverages external threat intelligence provided by FortiGuard Labs, which collates and processes the data from myriad anonymized sensors and over 200 global partners around the world using artificial intelligence (AI) and machine learning (ML) to identify unique features for both known and unknown threats.

Through the FortiOS operating system of the FortiGate NGFW, wired and wireless services are integrated into the security infrastructure, enabling Ethernet switch and WLAN interfaces to be controlled with the same level of enforcement as firewall interfaces. This allows Baleària to converge its security, WAN, and LAN, dramatically increasing protection, visibility, and control.

"Through the FortiGate NGFW and its FortiOS operating system, we can adapt the security policy for every user-service combination on the ship," comments Francisco Abril Hita, "and control and monitor everything from a central land-based office."

In addition to this onboard traffic, the ship's crew also need to connect back to Baleària's central land-based data centers in order to access services such as boarding and reservations management and reporting. This allows them to process boarding cards, check and amend reservations, and assign seating or cabins on the fly from any part of the ship.

Sustainability Through Big Data Control and OT Integration

Following the success of Baleària's Smart Ship project, which is now being extended to more of the fleet, the company is already looking ahead to other ways of enhancing its business through digital transformation.

One such project is the creation of a new control tower to monitor the fleet through the innovative processing of big data, which, in addition to enhancing safety and commercial efficiency, will allow greater control of polluting gas emissions in real time. This follows the installation of onboard sensors and measuring equipment, part of the European Green and Connected Ports project, of which Baleària is a contributing member and key to the company's ongoing efforts to increase sustainability.

These new sensors will be deployed following the same segmentation strategy already in place, with the FortiGate NGFWs isolating and protecting the critical data from these sensors from the risk of cyber threats.

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