AENA DEPLOYS A MOTOTRBO™ IP SITE CONNECT SYSTEM WITH SCADA SUPERVISION AT VALENCIA AIRPORT

FOR CLEAR COMMUNICATIONS, EFFECTIVE AIR BAND INTEGRATION, EXTENDED COVERAGE AND GREATER CAPACITY

VALENCIA AIRPORT

Valencia Airport handles mainly domestic air travel with almost 50% of its commercial flight traffic destined for Madrid, the country's capital, while the other most important domestic destinations served include Palma de Mallorca, Ibiza, Seville and Barcelona. Valencia Airport also deals with international air travel, which originates mainly in the UK, Germany, France and Italy. The airport currently handles approximately 8.5 million passengers per year and, with the year-on-year growth in flights, this number will continue to grow. Valencia Airport is managed by Aena, a state-owned company, which manages Spain's 46 public airports and 2 heliports.

CHALLENGE

Anfer Radiocomunicaciones, a Motorola Solutions platinum partner, has been collaborating closely with Aena to progressively migrate its constantly expanding Motorola Solutions analogue network to the latest digital technology. Anfer works with many Spanish airports and is responsible for all areas of the communications solution from installation, maintenance and repairs to data gathering and service. Its head office, repair and testing facilities are all based locally in Valencia.

Aena was specifically looking to improve coverage area, to have uniform reception and to increase the number of available channels on its network. It also wanted to have a flexible, distributed system, which will be easy to expand in the future. Anfer therefore recommended a MOTOTRBO™ IP Site Connect system which could utilise the airport's existing high-speed IP network.

CUSTOMER PROFILE

Organisation:
Valencia Airport
Aena

Partner:
Anfer Radiocomunicaciones, S. L.

Industry:
Aviation

Location:
Valencia, Spain

Motorola Solutions Products:

- 6-Site MOTOTRBO™ IP Site Connect system comprising:
- 8 x MOTOTRBO SLR 5500 and 4 MOTOTRBO DR3000 digital repeaters
- 2 x MTR 2000 analogue repeaters
- 95 x MOTOTRBO DP1400 digital portable radios
- 6 x MOTOTRBO SL4000e digital portable two-way radios
- 10 x MOTOTRBO DP4401Ex ATEX digital portable two-way radios with IMPRES™ batteries

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"I have been at Aena for 32 years; I have worked with Motorola Solutions for all that time, and with Anfer Radiocomunicaciones for nearly all that time. Anfer is an exceptional partner, competent, knowledgeable and competitive; and the Motorola Solutions products are simply the best on the market, exceptionally reliable, high performance and easy to use. The coverage offered by our new MOTOTRBO™ IP Site Connect system is fabulous; we have double the channel capacity and significantly improved audio clarity. Moreover, the system has easily integrated with our existing analogue network, which we still use to communicate with the police and fire services. Direct mode air traffic control communications with planes coming in to land or taking off are also replicated on our appropriate digital channels, thanks to gateways which Anfer has developed for us. All in all, the project has been a resounding success."

José Chuliá Pérez, Communications Coordinator, Aena

SOLUTION

The 14 repeaters are positioned in six sites across the airport. Four SLR 5500 repeaters have been installed at the first main site, four DR3000 repeaters at the second, both in Aena's data processing centres, which are located to ensure optimal radio coverage across the whole airport, including runways and car parks, even in the case of one site failure. Four further SLR 5500 repeaters are located around the airport, for example in the galleries, subterranean zones and tunnels and radiating cables help to boost the signal in underground areas.

Aena employees use the network for voice communications only at this stage, and make a mix of private, group and emergency calls across seven talk groups: airport security, maintenance (including contractors), emergency, internal fire service, customer service, management and the chaquetas verdes (multilingual staff who wear green jackets and are responsible for helping passengers as they arrive and leave the airport). The majority of staff operate a MOTOTRBO DP1400, with management and office staff using the SL4000e radios and Aena's internal fire and rescue teams carrying the DP4401Ex ATEX model, which can be used safely in potentially hazardous and explosive environments. Meanwhile, 3 DM4600 mobile radios are installed in the control room and 36 DM1400 radios have been set up in Aena's maintenance and operational vehicles in use in and around the airport.

Aena has maintained two MTR 2000 analogue repeaters for local communication over a private channel with the Spanish national police and fire & rescue services, who both still communicate over an analogue network for local communications at the airport. More importantly, incoming and departing planes and Valencia's Air Traffic Control (ATC) tower communicate with each other in direct simplex mode on designated VHF frequencies between 100 and 125 MHz. Anfer has implemented two gateways for AENA that enable connection between the airport's air band communication network and the MOTOTRBO system. The gateways utilise donor radios to duplicate communications between pilots and Air Traffic Control onto the MOTOTRBO network. These communications are only accessible to the users whose radios are configured to receive this critical information.

Finally, Anfer has installed eight Motorola Solutions ACE3600 Remote Terminal Units (RTU) across the airport; these units collect data from the digital and analogue repeaters, as well as the wider infrastructure including the radiating cables, to be reported and monitored in the SCADA application and should Aena need further details relating to a specific alarm, it can launch the MOTOTRBO RDAC (Repeater Diagnostics and Control) tool. Anfer first installed a SCADA system when the airport was still running a single-site analogue system to remotely monitor the network, as the site was not easily accessible. Convinced of the benefits the SCADA solution had been delivering, in terms of infrastructure efficiency, timely troubleshooting and the reduction in operational downtime, Aena was very happy to upgrade to the latest SCADA technology to keep monitoring its IP Site Connect network.

BENEFIT

This deployment will continue to expand and develop; Valencia Airport is aware of the future potential offered by the MOTOTRBO digital network, such as the options for texting, data transfer or call and event recording via intelligent control rooms apps. In the meantime, Aena employees are enjoying improved audio clarity and coverage throughout the airport site and the option of private, group and emergency calls.

The scalability of the system ensures Aena has invested in a future-proof solution, with channel capacity that should meet its requirements for many years to come; and utilising the airport's existing IP networks has kept infrastructure costs to a minimum. More importantly, the flexibility of the MOTOTRBO system to operate in conjunction with the emergency services analogue channels and the ability to integrate air band communications has been invaluable and contributes enormously to airport safety and efficiency.

Motorola Solutions Products Continued:
- 3 x MOTOTRBO DM4600 digital mobile two-way radios
- 36 x MOTOTRBO DM1400 digital mobile two-way radios
- MOTOTRBO standard and IMPRES, single and multi-slot chargers
- 8 x ACE3600 Remote Terminal Units for SCADA solution
- MOTOTRBO RDAC application

Benefits:
- This is a wide-scale, decentralised, distributed radio network, deployed at a very reasonable cost, utilising the airport's current IP networks
- Aena is benefiting from double the channel capacity of its previous network with the same number of repeaters, and the network is fully scalable
- Aena appreciates the range of private, group and emergency calls that the system can offer, as well as the improved audio clarity that ensures important messages are heard first time
- The ease of integration with the air band and emergency services channels ensures the network meets all Aena's communication needs, both internal and external
- Via SCADA, Aena technicians can gather vital network data remotely for optimal system control and timely troubleshooting
- Best-in-class equipment from Motorola Solutions, combined with the exceptional knowledge, support and service offered by Anfer Radiocomunicaciones, has ensured this deployment is a resounding success

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