MAINTAINING SAFETY AT ONE OF THE WORLD'S BUSIEST AIRPORTS

SCOPE
AN OVARRO TECHNOLOGY

BACKGROUND

Ovarro is proud to have supplied and supported Heathrow Airport with their SCADA system for more than 20 years.

The first system was installed in 1995 and has undergone continued enhancements and support upgrades, the latest being completed in 2017. Impressively, the incredibly robust system has been 100% available, with the exception of planned maintenance, since the original system was installed..

PROJECT OVERVIEW

The SCOPE-based Airport Control System at London Heathrow Airport originally consisted of ten Nexus database servers (five duty standby pairs), a duty standby data archiver and a site wide workstation licence agreement. The system now handles in excess of 100,000 digital signals and 20,000 analogue values sourced from more than 100 RTU and PLC based outstations encompassing the monitoring and operation of numerous engineering systems including but not limited to:

- 33kV and 11kV high voltage electrical network
- Fire main system
- Potable water
- Foul drainage
- Tunnel control systems
- Fixed electrical ground power (FEGP)
- Passenger sensitive equipment (lifts, travellators)
- Boiler house indications
- Airfield indications
- Other ancillary engineering systems

TRANSPORT SCADA SCADA TELEMETRY

OVARRO
CONNECTING TECHNOLOGIES

CONTROL & MONITORING

One of the key outstations on any airport is the fire main system. Ovarro's solution continuously monitors water pressure and flow while sophisticated sequential logic coordinates the control of pressuring pumps, main electric and emergency diesel pumps. The Heathrow system also includes control of such items as tunnel lighting and ventilation, potable water systems and sewerage systems.

Ovarro provided resources to complete the engineering, design, configuration, documentation and testing of the SCADA system. To maintain a lower cost base for SCADA configuration, Ovarro created an inhouse configuration team that provides the system's Prism configuration. This work is supplemented by Heathrow Airport's two framework suppliers, Firstco and Schneider.

> Impressively the SCOPE SCADA system has been 100% available, with the exception of planned maintenance, since the original version was installed over 20 years ago.

RECENT DEVELOPMENTS

The system recently underwent a major upgrade to the latest version of SCOPE that runs on a Capgemini hosted virtualised environment. This upgrade also included any possible deployment scenario; dedicated client, or a thin web based client including HTML5 support.

The upgraded system is fundamental to the Airports Operational Centre (APOC) that went live in 2017. APOC covers all terminals and tunnel control systems and is therefore critical to the airports round-the-clock operation.

RECENT DEVELOPMENTS

The visualisation displays built using Prism Studio allows intuitive graphical and tabular displays to be produced quickly using familiar, common drawing package actions e.g. drag and drop and provides facilities for creation of animated object libraries driven by the telemetry data.
Within the Heathrow system, outstations are based on PLC and RTU technology; plant data is sourced from a variety of outstation devices and transferred back to the SCOPE system

Developments over the years for London Heathrow have included time tagged data collection from Credit And Load Management Units (CALMU) for HV power monitoring and specialist alarm data transfer protocol to interface to the CEM MAID access control system. All protocols in the original system were able to take advantage of the true dual server hardware topology with automatic re-routing of data in the event of equipment failure.

SUPPORT

Ovarros SCADA support team continues to provide enhancements and support to Heathrow and recently completed an upgrade which includes the provision of SCOPE's latest Prism5 web user interface, which provides operators with a crystal clear graphical visualisation of the status of airport-wide automation systems.

Prism5 facilitates the creation of intuitive graphical and tabular displays and animated object libraries driven by telemetry data, thus providing a holistic view to operators.

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