

Power Facility Improves Efficiency with Hand-Held HMI System

This peaking power generation facility operates with a limited staff. Adding a hand-held HMI system was critical to provide the operators mobility and increase overall operational efficiency.

Objective

The facility needed to provide operators with flexibility to manage the plant (turbine controls and balance of plant controls) without being tied to the control room. The solution needed to address applicable NERC Cyber Security Standards.

Results

The MAVERICK team provided the customer with a secure hand-held HMI system which allows operators to participate in plant activities outside of the control room while maintaining full access to the critical components of the control and dispatch systems with access to audible alarm and dispatch annunciations.

Solution

The initial evaluation included a requirement to define options for implementing a unified HMI system for the facility which would encompass the hand-held HMI system. Because the facility has been in service for only five years, a financial case for replacement of one or more of the control systems could not be made.

The MAVERICK team included an additional option in the initial evaluation to provide a hand-held HMI system capable of accessing the existing balance of plant (BOP) control system, the turbine control system and the automatic dispatch system without the need for any "rip and replace". This was the option selected by the facility.

The implementation required installation of wireless networking infrastructure at the facility. The customer's local networking support company was selected to do the installation.

The Electronic Security Perimeter was designed to address network security concerns. The wireless local area network (WLAN) is a closed system with no connectivity outside of plant boundaries, no dynamic host configuration protocol (DHCP) and no connection by any device that is not specifically authorized and configured for access by the system administrator.



The hand-held devices selected for use were Apple® iPad Air™ tablets.

iPad access to the plant HMIs is accomplished with individual connections to the HMIs via streaming technology using the IETF-standard (Internet Engineering Task Force) Transport Layer Security (TLS) protocol, ensuring confidentiality, integrity and availability of data.

Connections to the plant HMIs are authenticated and bridged to the streamer by the software's administration services which reside on the system server.

The host HMIs display a connection notification when a hand-held device is connected to it. Connections can be terminated by an operator at the HMI.

The system server also hosts WLAN administration, a secure password generation application and WLAN intrusion detection software.

Operators can now move about the facility to assist with troubleshooting and maintenance activities and still remain in secure control of plant equipment.

The MAVERICK Difference

Combining the experience of MAVERICK professionals from Operational Consulting and Enterprise Integration, the consulting team delivered a secure hand-held HMI solution which fulfilled the customer's requirements and has potential for application in many other industries.



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