

Industrial Grade WiFi Infrastructure Helps Digitally Transform Singapore Oil Refinery

Results

- Mobile and wireless view of production and process data anywhere in the refinery eliminates the need to collect critical performance data using cumbersome, time-consuming paper-based methods
- Improves productivity by enabling a lean workforce to assess equipment health in real time, respond quickly to problematic situations, and continue to provide a high degree of safety
- Enables customer to significantly reduce costs and increase operational efficiencies while building a foundation that supports future IoT innovation use cases



Application

- **WirelessHART® Applications:** Vibration monitoring for pumps, corrosion monitoring of the pipes, pressure transmitters for berth loading and unloading
- **WiFi Applications:** Mobility for the workforce with tablets and smart phones with secured connectivity to the plant network
- **Network Connectivity Applications:** Centralized, secured and authorized personnel access to the network; connectivity of field data to the historian

“Emerson and Cisco helped us digitally transform in phases, in short agile sprints, for holistic transformation across multiple operational departments.”

Plant Manager
Refinery at Jurong Island, Singapore

Customer

A large Refinery at Jurong Island, Singapore

Challenge

The government of Singapore encourages digitalization as part of its Smart Nation Initiative. In response, a refinery capable of processing over 250,000 barrels of crude oil per day at Jurong Island has implemented a well-thought-out Industry 4.0 digitalization plan. To make digital transformation a reality, the customer considered Emerson and Cisco for enterprise networking and OT solutions that promote the safety and cybersecurity for process industries. In its quest to become a “digital refinery” the customer needed to:

- Increase productivity and operational integrity while reducing waste and focus on high-value tasks
- Provide wireless connectivity to support real-time data collection and collaboration
- Address challenges created by production downtime
- As an additional benefit, the digital solution will help the customer adhere to government COVID-19 guidelines, which mandate social distancing and encourage a remote work arrangement



The Emerson and Cisco Wireless Access Point brings together OT and IT, helping digitally transform industrial environments.



Solution

Given these challenges, wireless remote technology became a key enabler. The customer decided to deploy *WirelessHART* and WiFi infrastructure interfacing to the plant network which is a secure and resilient mesh network—connecting mobile devices, access points, and sensors in the plants.

The Emerson and Cisco joint solution offers a compact, scalable, and flexible design that brings all elements together in a single platform. The Emerson and Cisco Wireless Access Point delivers *WirelessHART* and WiFi coverage. This technology also simultaneously provides mobile connectivity to refinery employees who access information from ruggedized tablets.

As a result, the customer has achieved the platform and infrastructure to transform pump condition monitoring, corrosion monitoring, and other tasks with *WirelessHART* and analytics apps. Phases one and two of the implementation have already seen the installation of Emerson and Cisco hardware. In phase three, Emerson Plantweb™ Insight analytics may be added to collect data from sensors and mobile devices to deliver actionable, real-time insights that improve operational performance and worker safety in potentially hazardous surroundings.

Resources

Emerson Automation Solutions Industries

[Emerson.com/Refining](https://emerson.com/Refining)

Emerson and Cisco Wireless Access Point

[Emerson.com/WirelessAccessPoint](https://emerson.com/WirelessAccessPoint)

Emerson and Cisco Global Partners

[Cisco.com/go/Emerson](https://cisco.com/go/Emerson)



Emerson and Cisco Wireless Access Point.



Emerson Wireless 1410S Gateway with 781S Smart Antenna.

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