



PT. Warga Kusuma Jaya
Surabaya



Challenge

- To provide a complete and reliable, fully integrated VTS that supports database access, CCTV real time monitoring and Radar tracking and display.

Solution

- Infi AN 2x2 Point-to-Multi-Point base stations;
- InfiLINK 2x2 Point-to-Point wireless units, providing reliable coverage of approximately 37 kilometres between Surabaya Port and the Sembilang and Karang Jauang remote location;
- A solution with a 30-40% spare capacity for future network expansions.

InfiNetWireless Improve Vessel Traffic System for The Busiest Shipping Port in Indonesia

The Distrik Navigasi Kelasi I Port in Surabaya is the second busiest shipping port and city in the East Java island of Indonesia and is operated by the Ministry of Transport. The city is home to some 6 million citizens, making it the third largest city in the country after the Greater Jakarta and Greater Bandung areas. The main commodities exported from this port to all parts of the world are tobacco, sugar and coffee.



Before InfiNetWireless was consulted, the port already had a Vessel Traffic System (VTS) implemented but it unfortunately did not support the current recommendation by the International Association of Lighthouse Authorities (IALA) for operational and technical performance. One of the biggest problems the local port management company experienced was that their existing platform did not have ENC map integration and used Google maps instead. While Google maps can be indeed used, they are not as accurate as other map systems, meaning that shipping companies could run into legal difficulties when claiming for compensation in the event of an accident. Another driving factor for the upgrade undertaken by the port authority was due to the fact that their platform was based on old microwave links, with very limited bandwidth in order to transmit significant amounts of data including communication with ships, radar locations and CCTV footage.

PT. Warga Kusuma Jaya, InfiNet's partner in Indonesia, is a company with a track record of more than 6-year in VTS integration and maintenance contracts of more than 20 locations around the country. They were approached by the port authority to conduct an audit of the existing infrastructure and to identify suitable solutions which would handle high-speed data transmission. A minimum bandwidth speed of 20 Mbps was required for the VTS to fully function.

One of the greatest challenges faced by this project was the distances that needed to be covered, and for the operators being able to adequately transmit over a 60% Line of Sight (LOS) due to a difficult ground topology and transmission across water bodies.

A solution based on InfiNet's products was proposed in order to provide the port operators with a stable platform, enabling multiple high capacity connections to be seamlessly established with all remote locations and capable of transmitting very large volumes of real-time data over short and long distances. The main applications that needed to be migrated onto the new InfiNet platform included CCTV monitoring, vessel radar tracking, two-way voice communication as well as the main VTS database itself.

Benefits

- The overall platform deployed now provides a robust and always-on high speed solution that has significantly improved all aspects of the port operation, e.g. data and voice communication, remote video monitoring and information display systems of the Surabaya Port.

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The first trial undertaken by the port authority consisted of a single link to connect in a Point-to-Point topology the Port of Surabaya with the remote lighthouse located in Sembilangan, swapping out the previous microwave links that were deployed previously. To further complement this link, a third location fitted with an InfiNet AN 2x2 base station was installed in Karang Jamuang. This

small network alone covered a total area of 20 nautical miles, which corresponds to approximately 37 kilometres, and far exceeded the required minimum of 20 Mbps. By using InfiNet's wireless solution, the port authority was able to deploy the selected solution in record time.

The port now enjoys much greater efficiency and productivity thanks to the flexibility offered by InfiNet's fully integrated solution, allowing to seamlessly transmit the data from three different radars, a number of cameras in the port itself and all along its perimeter fence, a remote location weather station as well as two Automatic Identification Systems (AIS) located in a distant site.

With this new solution in place and the higher performance it offers, the port authority is now able to transmit not only the existing CCTV footage, but also CCTV footage in unmanned areas, with a 30% to 40% spare capacity to cater for any future data transmission requirements.

"This project was a challenge due to the location and distance of the area we wanted to cover, but we are very happy with the InfiNet solution deployed. Not only did we manage to provide Surabaya Port with the required bandwidth capability it needed for the VTS systems to run correctly, but we have also future-proofed the whole wireless infrastructure network for further expansion", - Imran Akram, Project Manager, PT. Warga Kusuma Jaya.