

PORTS MUST BE SMARTER TO THRIVE IN THE FUTURE



Chris Mason, Business Development, EMEA at Rajant Corporation

Ports have an influx of vessels importing and exporting vast amounts of cargo, 24 hours a day, every day, year-round. Across the globe, port operators not only have to monitor the constant activity of ships that are arriving, departing and navigating to their next destination but they must also keep track of their staff, vehicles, containers, and cargo across their large, complex sites.

For ports to prosper, they need to be smarter; they need to utilize technologies within the context of the Industrial Internet of Things (IIoT), blockchain solutions and big data to make sure they are not left behind in an ever-increasingly connected age. They must look at mobile communication technologies that allow them to keep up with the demand and continue to thrive in a relentless, and breathless industry.

DON'T GET STUCK IN THE DARK AGES

A port's assets must be well maintained and protected. Port operators need to ensure all areas of their business continue to operate at high efficiency and that their security is fortified to ward off any potential threats.

However, ports can often have out-of-date and aged technologies which cannot keep up with the complexity of a seaport. Seaports are continually evolving with increased mobilization of assets and autonomous operations. These paradigm shifts often outgrow the communications capacity of legacy networks. Replacing the connectivity infrastructure with a more modernized system can be associated with a lengthy installation that delay or disrupt operations, thus potentially damaging the business' overall productivity.

Ageing systems can open up avenues of vulnerability for seaports, due to the lack of network security capabilities, potentially exposing them to risks from competitors

or potentially more sinister threats, such as terrorist groups. These groups may be focused on targeting an active seaport to generate illicit income, or sores to disrupt operations or even destabilize a government. Theft of containers can also be a lucrative enticement for criminals who may be intent on targeting seaports because of their plentiful supply of cargo.

In addition, seaport environments must continue to function regardless of the weather. Ports often operate in harsh climatic conditions. A wired infrastructure can be behind-the-times in terms of its capabilities, while also degraded due to the environment, limiting and even potentially disrupting levels of proficiency.

MAKING USE OF THE LATEST TECH

The onset of new technologies is transforming the seaport industry, and businesses must be willing to incorporate them. For instance, blockchain technology is emerging as a crucial part in saving the supply chain time and expenditure by eliminating manual processes and allowing a secure way of tracking records. The likes of big data analytics are helping provide new algorithms for the data collected and new technology such as this can be fully optimized due to the continued growth of IIoT.

Having constant access to critical information in the form of data, voice and video from systems such as Supervisory Control and Data Acquisition (SCADA), Radio Frequency Identification (RFID) and CCTV coverage is vital for port operators looking to increase efficiency levels, operational productivity and security. Monitoring and tracking not only safeguards business assets, infrastructure, and people, but it also protects an entity by providing the video evidence to prevent or mitigate potentially fraudulent claims.

The correct, modernized technological

infrastructure can afford seaports to operate in an environment that allows them to move cargo and repair vessels seamlessly in a traditional, semi-autonomous, and autonomous fashion. Operators can be predictive rather than reactive to occurrences and maintenance issues. They can communicate easily with their ships and other maritime officials without disruption.

Using IIoT sensors and devices can allow operators to not only collect data on important weather information and improve operational visibility, but their crew will have access to real-time data and instructions from operators to potentially speed up the efficiency of docking and loading vessels. With ports becoming more digitalized, this increased situational awareness can also create a safer environment for crew members.

Ports should proactively seek methods to improve their operational prowess, such as looking to upgrade antiquated systems by adopting and implementing modern mobile communication technologies.

IMPROVE YOUR ROI

A mobile communications system, which improves efficiency across all areas of a seaport, is preferable, but the addition of a solution which offers communications anywhere, at any time is a necessity for businesses eager to stay at the top of their game and consistently grow. Being able to function in even the most challenging conditions is of paramount importance.

Access to real-time video is critical for seaport operators wishing to monitor all their activity throughout the site and to help ensure staff and cargo remain safe. This can help the onsite team's first responders act efficiently as they have immediate access to and visibility of incidents that perhaps an older system may not have provided.



If seaports are to thrive in today's competitive industry, they must rely on a reliable and efficient communication system – one which can rapidly be deployed, requires minimal maintenance and most importantly, can generate additional revenues. Rajant's Kinect Mesh® network can deliver exactly this, providing seaport operators with the means to fully capitalize on the opportunities of the IIoT.

RAJANT'S MOBILITY, SCALABILITY AND FLEXIBILITY

When transporting valuable cargoes with vehicles moving in and out of ports, a highly mobile, secure, and reliable network is critical for a business to operate. Rajant's Kinetic Mesh network is designed to adapt to an operators' communication needs, allowing information to be shared back and forth in a fully mobile, highly resilient web of communications. This is made possible by Rajant's BreadCrumb® wireless nodes which are powered by its InstaMesh® networking software. Mobility, scalability, and flexibility are essential for seaports that demand connectivity across a variety

of terrains, every second of the day.

Integrating Rajant enables seaports to benefit significantly from enhanced network access, allowing them to receive constant updates on important information such as the loading status, the location and the nature of the cargo. Given the connection does not require line of site as each node within the network autonomously works around any obstacle, access to reliable intelligence is continuous. This is a critical connectivity differentiator in the age of autonomy and mobility. Situational awareness is significantly improved so that operators can retrieve vital information promptly and as a result, can function more safely and cost-effectively.

What's more, Rajant's BreadCrumb nodes communicate peer-to-peer via multiple simultaneous connections. By maintaining numerous connections at any one time, network resiliency is increased, which, in turn, reduces downtime and improve efficiency levels. This level of network resiliency also ensures that port operators can expand their business

accordingly as operations grow.

Most importantly, this technology transforms a port's network into a strategic asset by providing the port-wide access, reach, and mobility needed to support next-generation applications. For instance, the nodes can be deployed onto port vehicles to enable operators to keep in direct contact with unmanned air, ground and water vehicles (drones), as well as forklifts and trucks as they navigate the port. This also opens doors to real-time tracking of low power Wi-Fi asset tags, allowing containers, equipment, and people to be located instantaneously, which will ultimately improve port efficiency, security, and safety.

BEING SMARTER IS THE KEY TO SUCCESS

As ports across the world get busier, their operations must become smarter if they are to keep up with global demands. By adopting a communications system which facilitates the utilization of groundbreaking opportunities within the IIoT, big data and blockchain, seaports can propel themselves further into the digital age.