Making Shipping Fast

In the marine transport, logistics and supply chain management industries, the ability to move massive amounts of cargo over vast distances quickly, efficiently and accurately is fundamental to success. Small increments of time often form the thin line between profit and loss. Applying technology to meet operational challenges is nothing new for businesses. From schooner rigging to the computer, the transportation industry has been applying technology to business challenges for centuries, with a history of great success and advancement. As with any business decision, the ultimate test of success for a technology is how much it improves a previous process or task and how it affects the bottom line.

Powering the Progress

Ports, like most other industries are currently facing an increasingly competitive marketplace and must differentiate themselves by offering cutting edge services, while at the same time increasing efficiency and productivity. A port's network is a key factor in successfully accomplishing these very different, and sometimes competing objectives. Motorola's MOTOMESH™ networks are in place in ports around the world, overcoming the challenge of providing the necessary bandwidth and coverage to meet these objectives in extremely harsh RF environments.

Recently, a port in the United States decided to implement modern RFID technology to track containers throughout the facility increasing efficiency, transparency and providing better operational controls. However, the port relied on a slow and bandwidth-limited network operating at 450 MHz. The existing network was reliable and covered an extensive amount of territory but was capable of transmitting data at only 19.2 kilobits per second. While RFID was the catalyst for implementing a new wireless broadband network, the port also wanted to support other state-of-the-art applications and attract new customers. The new network had to provide the appropriate bandwidth to support modern applications, while also delivering coverage for the entire site where containers were being processed. The wireless network had to be robust and reliable, while overcoming multi-path and extensive RF interference. The port deployed Motorola's MOTOMESH Quattro network, which provided the necessary bandwidth, coverage and reliability needed to successfully power all the required and planned applications.

Enabling New Applications

The new RFID technology enabled the port to identify the container, determine when it was off-loaded from the ship and pinpoint its location within the facility. The Quattro network's client routing architecture extended the network coverage throughout the facility, enabling each client device to be a 'hop-through' point for all other devices. In addition, Motorola's proprietary Mobility Enabled Access (MEA) waveform worked through interference and multi-path errors to provide consistent connectivity for the critical production messaging.

In addition, the port will monitor the health of the machines and vehicles lifting the containers off of the ships and stacking them throughout the site. The multi-million dollar quay cranes and rubber tired gantries (RTGs) are critical to day-to-day operations and a breakdown can slow the unloading process, losing money for the port. Now ports can monitor equipment diagnostic data in real-time ensuring this equipment remains in peak operating condition. The MOTOMESH network also enables the port to offer WiFi service to users while on site. This same MOTOMESH network supports the Oracle DB manifest system, which tracks railroad cars coming in and out of ports, further increasing inventory control and transparency. The MOTOMESH Quattro solution offers connectivity via 2.4 GHz and 4.9 GHz – ideal bands for this port. Homeland Security allowed the facility to communicate using the 4.9 GHz band, which normally is reserved for public safety users.

Staying Competitive

According to the U.S. Army more than 2.5 billion tons of cargo pass through U.S. ports each year. With such a tremendous amount of goods moving through our ports – more than 71 million tons a day – port operators require networks capable of tracking and monitoring these goods to remain competitive.

Variety of Services

In addition to meeting their logistics requirements, modern ports – like all businesses – are continually searching for new ways to increase efficiency and cut costs, while offering new and innovative services for their customers. Deploying a wireless broadband network enables port operators to offer new services to customers, while increasing control and monitoring of facility equipment.

Positive Impact on ROI

Ports deploying Motorola's MOTOMESH Quattro and Duo networks are experiencing a positive impact on their bottom lines. Whether for tracking containers, monitoring rail shipments, providing connectivity for port employees and visiting ships, monitoring facility equipment or seamlessly extending business applications, a wireless broadband network helps ports gain a competitive advantage in a competitive marketplace.

Making Shipping Ship Shape

The port deployed Motorola's MOTOMESH Quattro network, providing the communications backbone to support the various applications. The system infrastructure consists of Intelligent Access Points and Mesh Wireless Routers to provide primary RF coverage, while approximately 300 Vehicle Mounted Modem client devices extend the network throughout the facility, even into the 'RF canyons' created by the stacks of shipping containers.

The underlying technology powering MOTOMESH solutions enables users in virtually any environment – from ship, to dock, to warehouse – to wirelessly access broadband applications seamlessly, any time and anywhere. Motorola's mesh networks delivers real-time data to employees as well as customers. Meshing technology also significantly reduces the backhaul costs of wide-scale networks and can support the millions of WiFi enabled devices already deployed globally.

MOTOMESH Quattro
Four Radio Meshed Wi-Fi Network Solution with Mobility Enabled Access (MEA)

Results

The MOTOMESH system supporting the numerous applications is proving to be a winner for the shipping industry – providing a high return-on-investment. By using Motorola's wireless broadband networking technology in conjunction with RFID, GPS and other applications, ports are able to automate container tracking, eliminate vast amounts of time spent manually inspecting goods and effectively monitor the health of critical equipment. The network improved the accuracy of location information and saved hundreds of labor hours. It allowed the port to offer clients efficient service resulting in a significant impact on the bottom line. The port offers a number of applications to multiple customers, differentiating itself from competing port facilities.

About Motorola Wireless Broadband

Motorola's industry leading portfolio of reliable and cost-effective wireless broadband solutions provide and extend coverage both indoors and outdoors. The Motorola Wireless Broadband portfolio offers high-speed connectivity systems that support voice, video and data solutions enabling a broad range of applications for both fixed and mobile public and private networks. With Motorola's One Point Wireless Suite of innovative software solutions, customers can now design, deploy and manage their broadband networks at lower installation costs that maximize up-time and reliability.

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