

KEEPING SHIPS MOVING THROUGH THE NASSAU CONTAINER PORT



Zebra's powerful outdoor WLAN solution eliminated dead spots at the port so that workers can safely and efficiently manage port terminal traffic.

SITUATION

The legacy WLAN serving the new Nassau Container Port in The Bahamas was unreliable, offered poor coverage and prevented port workers from quickly and safely turning around ships.

As workers moved from the coverage area of one access point to the next anywhere throughout the port, their connections dropped. That cost them valuable time in an industry that must efficiently orchestrate the arrival and departure of a constant stream of ships, each delivering hundreds of containers. Plus, the network couldn't keep up with the constantly changing RF topology of a port. As stacks of steel shipping containers moved in and out daily, new coverage gaps would open up.

SOLUTION

ZEBRA surveyed the site and designed a new network that provides uninterrupted, reliable coverage throughout the port.

Zebra installed AP 7161 outdoor access points to ensure coverage no matter where steel shipping containers

are stacked. Zebra's AirDefense software lets on-site administrators monitor the network for trouble spots and secure it. Plus, port workers will be using Zebra's Omni XT15 rugged handheld devices featuring high visibility screens for outdoor use, in order to wirelessly check-in ships from the dockside.

RESULT

With the new equipment in place, the Nassau Container Port has been able to carry out its mission of fast, safe turnaround of ships.

Administrators have received no complaints from port workers who depend on the WLAN in the field. Because it now has a reliable network, the Port of Nassau is developing new uses for the network, including plans to offer access to incoming ships and invite customs officials to start using it as well.

CUSTOMER PROFILE



Company

APD Limited

Nassau Container Port and
Gladstone Freight Terminal

Applications

High speed wireless communications network for the 56-acre container port and 15-acre warehousing and deconsolidation complex

Zebra's solution

- Zebra WLAN infrastructure AP 7161 outdoor access points with WiNG 5 operating system
- Zebra AirDefense software for wireless intrusion detection and prevention as well as network health and reliability
- Zebra Omni XT15 rugged handheld devices

Solution Features

- Reliable, high-speed wireless access throughout the port
- Unified management of complete network
- Automatic intrusion and rogue protection
- Centralized, easy-to-use remote troubleshooting to resolve connectivity challenges

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OVERVIEW

Opened in 2012, The Bahamas' Port of Nassau's 56-acre facility was moved two miles from its former location downtown. Already it has been named the most productive port in the Caribbean by the Florida Shipowners Group, an organization representing the bulk of shipping companies operating in the region. Handling more than 95 percent of consumer goods imported to The Bahamas, the new facility has reduced the amount of time it takes to unload ships by three to four hours per ship compared to the old port. And APD Limited, the company that built and runs the Nassau Container Port (NCP) facility along with the Gladstone Freight Terminal (GFT), is just getting started.

A SORE SPOT

Moving the Port of Nassau was an ambitious, \$95 million project aimed at revitalizing Nassau by opening up new tourism development opportunities downtown. Not long after the port began operating in its new location, APD did a detailed gap analysis, looking for ways to improve efficiencies. "One area that we recognized as very challenging was our Wi-Fi network," said Dion Bethell, CFO of APD. "It impacted so many other things." APD realized that without a fix for the Wi-Fi network, its operations would continue to come up short.

Part of the problem was that the original WLAN network was a "patchwork," said Charles Pinder, IT manager at APD. The access points weren't connecting to each other. That meant that workers, including clerks on the dock who use handheld devices to log ship cargo, would lose connectivity as they moved from the coverage area of one access point to the next.

It wasn't just a couple of seconds that users were disconnected, he said. "You'd have to close out the previous app and start a new session," he said. "That translates into significant time loss." Ports like the one in Nassau must be able to unload ships as fast as possible to make room for new arrivals, so slowdowns related to the network just weren't acceptable.

The original network actually worked well – for a day or so. But it didn't take into account that the layout of the port changes daily. "The configuration of the yard entirely depends on where the containers are placed and that changes from day to day," Pinder said. "What we put in place from a wireless infrastructure standpoint one day didn't work the next day."

GUARANTEED RELIABILITY

To fix the problem, APD asked Navis, whose software manages 230 port facilities around the world including the Port of Nassau, for advice. Navis recommended Zebra.

APD hired Zebra to supply the hardware as well as to perform site and RF planning for the network, which meant that the company guaranteed that the WLAN would work. "One of our highest priority items when we identified a partner was to find one who could introduce a more stable Wi-Fi infrastructure and guarantee it would work," remarked Bethell.

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NASSAU CONTAINER PORT

WEATHERING THE STORM

Selecting Zebra's AP 7161 outdoor access points ensured that the network would be reliable in the challenging environment of a port. The rugged equipment is designed to withstand the harsh weather that hits a port like Nassau's.

Plus, the tri-radio design combined with the WiNG 5 operating system enables uninterrupted coverage. Ports present a daunting setting for wireless communications networks because they include constantly shifting stacks of 20 ft. long steel containers plus mobile semi-trailer trucks, cranes and forklifts. The Port of Nassau's WLAN system was optimized to work around and with these many obstacles.

The port also uses AirDefense, Zebra's WLAN management and security software. When the new network was first built, AirDefense helped administrators discover access points located outside their network that were interfering with the new equipment. "We were able to mute those," Pinder said.

In addition, AirDefense protects the network from possible intrusions, an important feature for a facility like a port that must protect against possible malicious activities. Administrators now see when someone is attempting unauthorized access to the network or to attack it. "This capability was one that made us really fall in love with AirDefense because we have the ability to see what is going on in the network," he said.

ON THE MOVE

Dockside, workers will be using Omni XT15 handhelds to help process shipments. "They needed to be as ruggedized as possible to withstand the elements that exist out there," Pinder said. The handhelds are part of a broader initiative at the port to remove as much paperwork as possible from its processes, migrating to a primarily digital operation.

The network runs at the 2.4 GHz frequency and currently supports the port's new Navis 4 terminal operating system implementation as well as email. A new fiber network provides the backbone for the WLAN. "The fiber will hopefully take us well beyond a few years from now in terms of bandwidth needs," Bethell said.



"... customs officers won't be limited to the confines of their desks but they could be out in the field, if they wanted to track a particular container..."

– Dion Bethell, CFO of APD

NEXT STEPS

APD is working on rolling out other key applications that will rely on the WLAN. For instance, the Zebra WiNG 5 operating system will allow them to offer secure access to the network for incoming ships. That means crews on the ships will be able to use apps like email while at the dock and captains will be able to check weather and other important information about their next port of call.

APD also plans to extend access to the network to customs officials. "That means customs officers won't be limited to the confines of their desks but they could be out in the field, if they wanted to track a particular container, for instance," Bethell said.

The new Zebra WLAN has helped improve efficiencies at the port, reducing the time it takes to turnaround ships. But it actually does even more than that. "At the end of the day it makes it easier for you to sleep at night when you recognize that you have a stable system in place," Bethell said.

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