Deurganck terminal – Port of Antwerp - equipped with modern Wi-Fi network

CASE STUDY

PSA HNN arose in 2002 from the merger of two established terminal operators: PSA and Hesse-Noord Natie. After the merger, HNN became part of the PSA group, a major player in port operations with headquarters in Singapore.
PSA is one of the leading port operators worldwide with an extensive global network of 20 port projects spread across 11 countries in China, Europe, India, Korea and South-East Asia and Japan.

Hesse-Noord Natie operates terminals in the ports of Antwerp, Zeebrugge and Rotterdam. HNN is PSA's biggest investment in Europe. Mergers in a port environment are never really easy to implement, if only because of the different methods and IT systems.

Never change a winning horse

A port is a somewhat conservative environment: if something works well, you don't change it without a good reason. In a port situation, techniques from other sectors are often brought together, and something new is distilled from them. For PSA HNN it is important to be able to combine efficiency and accuracy with the speed that is imposed by the hectic pace in the port. After all, ships must to be able to sail. A ship that is being unloaded and loaded is standing idle, and that costs money!

Back on the map

When it was decided to build a new dock (the Deurganck dock) in the port of Antwerp some years ago, PSA HNN opted for the west side of this dock. The Deurganck dock has put the port of Antwerp emphatically back on the world map, and will play a decisive role in the long term because it ensures that the port of Antwerp can grow as an efficient port for international trade and redistribution. The most modern and biggest container ships can moor here and be unloaded and loaded without difficulty.

Sector specialists

In its final phase the Deurganck terminal will have a length of 2,750m. The total surface area will be 2,000,000m^2.
It is a huge site that must be developed fully into an operational terminal in a short time frame.
Jan Callens, IT Project Manager at PSA HNN: "For this crucial project we opted not to join forces with a large engineering consultancy but to establish alliances with partners that each have their own specialisation. After we had set out our needs and requirements clearly on paper, we went looking for these 'specialists'. PSA HNN had been familiar with LXE's expertise for quite some time through wireless implementations at a number of different terminals. LXE has a strong reputation in the port sector, which has specific requirements in terms of the reliability of the wireless network."

Clear assignment

PSA HNN's specifications assumed a clear WiFi plan with the starting point: give us a price for a wireless network and guarantee us that each WiFi participant within the stated zones will always come within the reach of at least two access points and ensure a measurable real transmission speed for each participant within these zones. The foregoing is subject to the given infrastructure of existing lighting masts.
LXE was the first to introduce 2.4GHz technology in the port sector, and did so successfully! PSA in Singapore is also enthusiastic about the subject. "Broadband is not only more modern than narrow band," says Jan Callens, "the performance and results are also better, everything runs smoother and more flexibly, so that we can offer our

"LXE has a strong reputation in the port sector, which has specific requirements in terms of the reliability of the wireless network."

Jan Callens, IT-Project Manager at PSA HNN

customers a better service. This technology gives us the guarantee that future extensions such as the exchange of GPS coordinates with straddle carriers will be possible without further ado and the terminal can be expanded in full while retaining the basic concept. This means integrating the components of the wireless network fully in the new network topology in order to simplify maintenance and diagnosis.

Mission accomplished

Although spread spectrum has the reputation of requiring many access points for large surfaces, LXE can refute this idea thanks to the SPIRE® Solution in combination with Cisco access points. This revolutionary antenna technology means that only a limited number of access points are needed to guarantee optimum coverage. Using this approach LXE was effortlessly able to meet the coverage requirements that PSA HNN had set.
"It is possible to test the 2.4GHz network at the Deurganck terminal by walking around with an ordinary laptop and connecting to the network," Jan Callens explains. "We try to upload or download heavy files at different random locations. Coverage control by at least two Cisco access points and transmission speed are easy to verify. There are no two ways about it – it's mission accomplished."

In & out/up & down

PSA HNN staff are ready with a handheld computer at the in and out gates for trucks and enter the required data for each incoming container. They also check the state of the container. A number of forms that the truck driver needs to get his container picked up by a straddle carrier further on come out of the printer immediately. The driver parks in a lane. Every lane has a unique number. The driver enters this number as well as a number of codes from the forms that he receives into one of the terminals that are set up right beside the lanes. All of the straddle carriers are equipped with a half-screen vehicle mounted computer. This VMC's screen displays which container must be taken from the truck and where this container has to be placed. The straddle carrier operator, who incidentally sits high above the ground, performs the assignment and confirms the location and end of the task with the keyboard so that he can begin a new one. The exact opposite happens when ships are being unloaded. The containers are then checked for correctness using the handheld computer.
,After approval, a straddle carrier gets a message to come to collect the container and to place it in a particular location.

JIT

A port is an extremely tough working area. Whether the weather is good or bad, the ships have to be unloaded and loaded, 7 days a week, around the clock. Moreover, everything has to happen faster due to the JIT (Just-in-Time) system that has been introduced worldwide. This creates extra pressure. Nothing can go wrong, regardless of the work and weather conditions. Moreover, the capacity of ships has increased significantly in recent years. In the past, the standard per ship was 4,800 TEU containers, but now there are ships that transport 10,000 or even 12,000 TEU. TEU stands for Twenty feet Equivalent Unit.

"The 2.4GHz project at the Deurganck terminal was implemented without too many teething troubles," Jan Callens concludes. "The unbelievably short construction period, from wasteland to operating terminal in five months, demanded a JIT approach. Without light masts there were no access points, without power and communication cables there were no light masts and if the cabling was not underground the site could not be surfaced. The wireless network has become so obvious now that we occasionally forget how everything happened in the starting phase. This is a good sign! The project can definitely be viewed as a success."

LXE Inc.
125 Technology Parkway – Norcross - Georgia 30092 – USA
Tel. +1-770-447 4224 – Fax +1-770-447 4405
E-mail info@lxe.com

LXE International
Generaal de Wittelaan 19-14 – 2800 Mechelen – Belgium
Tel. +32-15-29 28 20 – Fax +32-15-20 71 54
E-mail RF4U@lxe.com

LXE Belgium +32-15 29 28 20 – info.be@lxe.com • LXE U.K. +44-1494 46 46 80 – info.uk@lxe.com • LXE Netherlands +31-346 21 70 70 – info.nl@lxe.com • LXE Italy +39-06 91 80 14 82 info.it@lxe.com
LXE France +33-1 41 47 99 99 – info.fr@lxe.com • LXE Germany +49-2461 690 450 – info.de@lxe.com • LXE Sweden +46-8 544 445 50 – info.se@lxe.com • LXE Australia +61-2 9438 4324 – info.au@lxe.com • LXE Middle East +971-4 365 4918 – info.middle-east@lxe.com • LXE Singapore +65-6278 0593 – info.singapore@lxe.com • LXE China +86 21 6124 9688 – info.china@lxe.com