Manufacturer Tames RF Environment with CleanAir Technology

North American Höganäs mitigates interference and elevates safety with 802.11n wireless network and CleanAir technology.

EXECUTIVE SUMMARY

Customer Name: North American Höganäs, Inc.

Industry: Manufacturing

Location: Hollsopple, PA

Employees: 350 in the U.S. and 1,700 worldwide

Sites: 4 in the U.S., with 11 Höganäs AB production facilities globally

BUSINESS CHALLENGE

- Mitigate extensive network interference from metal powders, metallic structures, and magnetic objects
- Deliver 24-hour voice and data communications across the plant
- Maintain safe, highly productive manufacturing environment with superior cross-department collaboration and communication

NETWORK SOLUTION

- Unified wireless network delivering reliable, companywide access
- Cisco Aironet 3500 Series Access Points with integrated CleanAir technology
- Cisco 5505 Wireless Controllers

BUSINESS RESULTS

- Delivered enhanced network performance and increased employee productivity
- Elevated communications and collaboration to the level necessary to foster safe manufacturing environment
- Provided complete, centralized visibility into network spanning the 500,000-square-foot facility

Challenge

Höganäs AB, headquartered in Höganäs, Sweden, is the world's leading producer of iron and nonferrous metal powders. The company's approximately 1,700 employees work to improve a wide range of application areas, such as the creation of future automotive components and white goods, and in electromagnetic appliances and emission control. The manufacturer smelts metal scrapand reduces iron ore to different metal powders to be used for production of vehicle components, welding electrodes, and food supplements.

Höganäs has 11 production facilities across four continents in eight countries including the United States, where it staffs 350 employees. To keep pace with market demands while targeting new efficiencies, North American Höganäs decided to deploy an end-to-end wireless network in its Stony Creek plant in Hollsopple, Pennsylvania, its corporate headquarters. "Around-the-clock communications and network connectivity are vital to our staff for not only daily operations but to ensure the safety of our 80 plant employees," says Michael P. Rhoades, IT administrator, North American Höganäs.

The company chose to build on its wireless hotspots, move beyond its unreliable 900-MHz phones, and overcome the challenges of providing pervasive data and communications coverage in a notably harsh environment. In the highly magnetic, metallic environment, a high risk exists of wireless network inference.

The Stony Creeksite needed a wireless network that could mitigate interference and support critical operations such as delivering logistics data to computers mounted in forklift trucks and providing data to employees for troubleshooting process logic controllers. Most importantly, the company needed a reliable, end-to-end wireless network that enabled voice communications across the entire plant to help ensure employee safety in hazardous conditions and allow management to track employees in high-risk areas.

North American Höganäs considered wireless network solutions from Motorola, Nortel, Avaya, and others, choosing the Cisco® Unified Wireless Network. The manufacturer was particularly impressed with the advanced Cisco CleanAir technology, dual-band multiple-input and multiple-output (MIMO) functionality, Cisco Wireless Control System tracking capabilities, and smooth integration with its Cisco physical network and Unified Communications products.

Solution

Cisco Advanced Services engineers with expertise in harsh environments assisted the company in assessing the environment, analyzing RF interference, and developing a strategic plan for providing comprehensive wireless coverage. North American Höganäs worked closely with partner Link Computer Corp. to deploy the Cisco Unified Wireless Network that spans the entire 500,000-square-foot manufacturing facility.

The robust, high-performing 802.11n wireless network features 2.4 GHz and 5 GHz Cisco Aironet 3500 Series access points and integrated Cisco CleanAir technology, Cisco 5500 Series Wireless LAN Controllers, and the Cisco Wireless Control System management platform.

> "We're experiencing a night-and-day difference in wireless connectivity and network performance. Cisco CleanAir technology has transformed our harsh, volatile wireless environment into a manageable entity, where we can deliver the wireless connectivity needed to keep our employees safe and continue as a leader in powder metallurgy."
>
> **— Michael P. Rhoades, IT Administrator, North American Höganäs**

The Cisco Unified Wireless Network is complemented by a high-availability, secure physical network built on Cisco Catalyst® 3750 Series stacked switches, Cisco Catalyst 3560 Series switches, and Cisco 2800 Series Integrated Services Routers. The Cisco Unified Wireless IP Phone 7925G-EX delivers the ruggedness and resiliency needed in the manufacturing environment saturated with metal powders than can easily damage standard wireless IP phones.

"Today, we're experiencing a new level of efficiency across departments and can maintain the degree of safety needed when manufacturing metal powders, thanks to our integrated Cisco environment," says Rhoades. "Greater network connectivity enabled by CleanAir technology is enhancing productivity for other activities too, such as developing in-house prototypes and products, and collaborating with outside researchers in metallurgy and industrial processes and applications."

Communication across teams, especially important to ensure employee safety in the plant, is supported by Cisco Unity® Connection voice messaging and the Cisco Unified Communications Manager enterprise-class IP communications process system. Online collaboration is enabled by the Cisco Unified Presence solution. With a comprehensive Cisco wireless, wired, and voice platform, the company's manufacturing, research and development, marketing, sales, and other teams have 24-hour access to the applications and data that they need to complete the tasks at hand.

Results

Cisco CleanAir technology is helping to alleviate network interference that previously plagued the North American Höganäs IT team and affected manufacturing operations. In an environment where culprits such as a sizzling electric arc furnace that heats charged materials and widespread iron powders can wreak havoc on RF signals, the company's Cisco wireless network stays the course.

The Cisco Unified Wireless Network with advanced CleanAir technology tracks intermittent and past problems, helps troubleshoot performance problems in real-time, provides reporting on usage and interference trends, and has reduced the time required to manage and troubleshoot wireless problems.

PRODUCT LIST

Wireless

- Cisco Aironet 3502e Series Access Points
- Cisco Aironet1242 Series Access Points
- Cisco 5500 Series Wireless LAN Controller
- Cisco Mobility Services EngineServer (For Clean Air)
- Cisco Wireless Control System

Routing and Switching

- Cisco Catalyst 3750 Series Switches
- Cisco Catalyst 3560 Series Switches
- Cisco 2800 Series Integrated Services Routers

Voice

- Cisco Unified Wireless IP Phone 7921
- Cisco Unified Wireless IP Phone 7925G
- Cisco Unified Wireless IP Phone 7925G-EX

Collaboration

- Cisco Unified Presence
- Cisco Unity Connection
- Cisco Unified Communications Manager

"We're experiencing a night-and-day difference in wireless connectivity and network performance," says Rhoades. "Cisco CleanAir technology has transformed our harsh, volatile wireless environment into a manageable entity, where we can deliver the wireless connectivity needed to keep our employees safe and continue as a leader in powder metallurgy."

Now, the IT staff has the technology to automatically detect and mitigate wireless network interference, and the visibility to make strategic decisions when needed to optimize network performance. With the Cisco Wireless Control System, network analysts know precisely when and where problems occur, such as interference from cameras, microwave ovens, and Bluetooth devices. Equally important, Cisco Aironet® 3500 access points with CleanAir technology have the built-in intelligence to avoid the impact of such interference by making automatic adjustments in the RF spectrum, and can even utilize reflection and bounced signals to maintain connectivity.

The Cisco Unified Wireless Network enables the IT staff to reduce the hours spent managing and troubleshooting wireless problems by approximately 5 to 10 hours per week and to instead devote their time to critical projects. In recent years, the staff has decreased from three to two members. "With a small IT staff, it's imperative that we have the best tools and a single view of the entire network, and the Cisco Wireless Control System provides that for us," says Rhoades.

Today, the high-performance Cisco network delivers the day-to-day voice and data communications needed for activities such as enabling crane operators servicing furnaces to alert nearby teams to help ensure their safety. The company is seeing productivity increase and frustrations decrease, for example, when managers can walk the entire shipping floor without dropping the call on their wireless IP phone, which used to be a daily problem for the department.A broader, more reliable wireless network is also helping to improve shipping efficiency by eliminating manual processing previously required.

Overall, North American Höganäs is impressed with the Cisco CleanAir technology that is helping deliver a safer and more productive operational environment, and with the solid support provided by the Cisco team. "Cisco is not only a leader in network innovation," says Rhoades. "The staff works hard to ensure that we're getting the greatest use from our end-to-end Cisco environment, and that everything works according to plan."

For More Information

To find out more about the Cisco Unified Wireless Network and 802.11n technology, visit: http://www.cisco.com/go/nextgen-wireless.

To learn more about North American Höganäs, visit: http://www.hoganas.com/nah.

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