



## Success Story

### Zyxel Provides Cool Solution to Food Storage Challenge



SMB

INDUSTRY



HSH  
Coldstores



UK



End-to-end  
network  
solution

## Overview

### Challenges

- Improve efficiency within storage facilities
- Fully automate warehouse operations
- Gather and retain data for auditing purposes
- Provide heightened security through centrally managed network
- Ability to operate in extreme temperatures

### Benefits

- Centralized management of network
- Enhanced security
- Stable for reliable temperature management
- Temperature tolerant
- Extended range for complete wireless coverage
- Remote management of CCTV cameras

### Solutions

- Gigabit PoE Switches
- Smart Antenna Wireless Access Points
- Unified Security Gateway

"We operate in a highly regulated industry, so it's vital we have real-time understanding of the temperature and location of our assets. Small fluctuations in cold store conditions can destroy frozen products, while regulation by UK customs means security must be paramount. Zyxel's end-to-end networking solution was the only one robust and reliable enough to suit our needs."

Anthony Howard  
Managing Director, HSH Coldstores

## Background

HSH Coldstores provides temperature-controlled storage and transport solutions for frozen, chilled, and ambient food products in a full supplier to customer service.

Founded in Grimsby, England by John Howard in 1970, the business has become one of the largest cold store facilities

in the northeast of the country. It is also one of the few bonded cold stores in the country. Its state-of-the-art 50,000-pallet facility is serviced by a fleet of 50 refrigerated vehicles, which collectively travel over two million miles each year.

## Challenges

HSH handles frozen stock worth hundreds of millions of pounds in its three specialised storage facilities. The business operates in a highly regulated industry, and the manual logging and tracking of produce is extremely complex and time-consuming.

HSH wanted to improve efficiency through a fully automated stock control system, and remote management of its vast array of mission-critical temperature sensors. There was

also a need to understand the real-time location of every product within the supply chain to adhere to stringent industry auditing.

With Coldstore's premises having bonded warehouse status, regulated by UK customs, security of sites is paramount. HSH also required a central network to enable remote management of the entire CCTV system.

## Solutions and Benefits

HSH engaged with Zyxel to deploy a robust and secure network to streamline operations across its three cold store warehouses. Zyxel delivered a complete end-to-end network solution, comprising core Gigabit PoE switches, managed wireless, security firewalls and smart antenna wireless access points (APs).

Every aspect of HSH's stock control system is computerised and runs on Zyxel's core network backbone. The managed wireless network provides real-time connectivity for every product as it moves throughout the supply chain from the freight to the customer.

HSH's automated system provides account access, automatic asset reporting and electronic data interchange (EDI), helping reduce errors, streamline stock management and save time and money. In a true internet of things (IoT) deployment, individual products are tracked via unique ID sensors that are managed with bespoke Pin Point management software using military grade laptops.

The always-on wireless network also connects thousands of temperature sensors located across the storage facility, meaning fluctuations in temperature are automatically detected by the cooling system.

The greatest challenge to network deployment in this environment was the extreme temperatures. Each warehouse is kept at -20 to -25 degrees to keep the produce in an optimum state. The chill bay, where frozen food is packaged and loaded onto lorries, is kept at -2 degrees. Water causes various issues for WiFi networks, often resulting in a complete loss of signal when frozen.

Adding to this complexity, the main storage facility is 13 metres high, 50 metres wide and 100 metres in length. The sheer size of the facility is a challenge for wireless, but with the produce sitting on 37 movable aisles, maintaining a consistent wireless connection to each rack is tough.

To overcome this, robust external wireless antennas were deployed inside the cold storage facilities then connected to APs installed outside at normal room temperature. The positioning of the APs was key to overcoming the complications with the moving pallet racks. Zyxel calculated the wireless roaming specifics for offloading users from one AP to another when the racks move. All of this was done by measuring decibel (dB) levels and setting exact signal thresholds on the APs.



The entire CCTV is now managed via the network, connecting over 100 IP cameras, and providing a year's worth of storage for video footage. All software is fed back to the headquarters, so every device and asset is tracked and managed in real-time. Zyxel's smart antenna technology was deployed in the chill bay and yard to enable seamless offloading of produce as it passes from the lorries to the forklift trucks, and vice versa. Smart antenna was chosen because the forklift trucks are constantly moving and it provides a directional beam to track the products. The lorries also provide real-time updates as produce is delivered to customers, which is fed back to headquarters via Zyxel's secure wireless gateway.

HSH wanted one vendor for all aspects of the installation, and Zyxel was the only one that fit the bill. Reliability was vital to the success of the project, with any software outages having disastrous consequences. Fluctuations in temperature could result in stock defrosting, and produce being thrown away.

Moving from a manual to a fully automated stock management system has radically improved operational efficiencies, providing HSH with huge cost savings. With every asset tracked, the IoT network provides HSH with a real-time understanding of the business, giving it an edge in a highly competitive marketplace. The flexibility of the network also enables HSH to constantly enhance and innovate the system to stay one step ahead.

### About Zyxel Communications

Focused on innovation and customer-centricity, Zyxel Communications has been connecting people to the Internet for nearly 30 years. Our ability to adapt and innovate with networking technology places us at the forefront of creating connectivity for telcos and service providers, business and home users. Zyxel is building the networks of tomorrow, unlocking potential, and meeting the needs of the modern workplace — powering people at work, life, and play. Zyxel, Your Networking Ally.

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