Success Story

Zyxel Networks Dishes Up High-performance Data and Surveillance Network for Singaporean Foodservice Company

INDUSTRY
Foodservice & Hospitality

CUSTOMER
Foodxervices

COUNTRY
Singapore

SOLUTION
Zyxel Nebula Solution

Overview

Challenges

- Provide high-speed WiFi across entire building, even at temperature of -30°C in the cold room
- Ensure stable roaming over large areas with potential co-channel interference
- Provide internet access to guests and tenants in the high-density environment with mixed of IoT devices, smart devices, mobile devices, and laptops
- Monitor and control data and surveillance networks centrally with ease

Solution

- Zyxel Nebula Solution

Results

- Easy-to-manage wireless and surveillance networks deployed for the whole XPACE building
- Centralized system provides simplified configuration, easy management, and real-time monitoring
- Consistent high-speed wireless signal delivered across interference-prone warehouse seamlessly
- Robust network infrastructure supports uninterrupted data transfer and video feeds

"Zyxel's equipment was very easy to set up and maintain, reducing the IT department's burden. The stable network connectivity and high-performance switches allow us to ensure high-quality WiFi services throughout the building and efficient surveillance network monitoring. We're satisfied with the new infrastructure and hope to work with Zyxel Networks, Datamux Technologies and Go Nimbus in the future."

Neo Kwok Siang
IT Manager, Foodxervices

Background

Founded in 2007, Foodxervices Inc. is one of Singapore's leading foodservice distributors, offering more than 4,000 products to over 2,000 clients from top hotels and restaurants to culinary schools and institutions. The company's multi-functional XPACE building features commercial kitchens and production space for like-minded professionals to work and collaborate on innovations in food and drink.

The building has six floors with an HQ corporate office, accommodating ambient warehouses, cold storage as well as coworking offices. The three stories of coworking offices provide shared facilities such as meeting rooms, telephone booths, refreshment points, and breakout areas for small group discussions, plus a demo kitchen and shared printers and copiers.

Foodxervices promises utilities, high-speed WiFi, distribution services, and pallet storage to their tenants, and houses a restaurant, too. To ensure the security and comfort of its working spaces, the company installed surveillance cameras on each floor and planned to deploy high-performance network infrastructure capable of providing efficient network management of data communication and surveillance systems.

Challenges

The building accommodates a large area for warehousing as well as loading and unloading bays. The new WiFi system would need to support high-speed WiFi roaming services over wide areas, ensuring smooth communication for everyone everywhere in the building – whether talking with customers in the office or checking stocks in the warehouse.

One major problem that would need to be addressed was the potential co-channel interference from different wireless APs and devices. In addition, with now-ubiquitous wireless connectivity driving the adoption of IoT, mobile devices, and laptops, the new network infrastructure would need to be able to support a large number of devices, each with high-speed, uninterrupted connections. And then the chilled storage area called for wireless equipment that could work stably at temperatures as low as -30°C.

The company also planned to install surveillance cameras on each floor of the building, so it required a reliable, robust system to support uninterrupted video streaming without bandwidth bottlenecks even if a camera is 200 meters away.

And the final piece of the puzzle was perhaps the most critical: an easy-to-manage system for central monitoring and control of all network equipment and devices.

Solutions and Benefits

With this extensive wish list in tow, Foodxervices reached out to its system integrator to find a suitable solution from a reliable vendor. After an extensive screening process, they nailed down Zyxel and its Nebula solution, which provide intelligent and flexible central management, high-performance WiFi devices, and surveillance switches supporting extended range – perfect for the expansive XPACE building and its CCTV systems. A key factor in the decision was that Nebula is an intelligent cloud networking management solution, meaning that it can be used to easily deploy and manage wireless and surveillance networks within a tight budget.

The network infrastructure itself consists of data and surveillance networks. To ensure a reliable, high-speed data network, a total of 77 wireless access points were deployed, mainly using **NAP353 Outdoor Weather-proof Access Points** and **WAC6303D-S 802.11ac Wave 2 Smart Antenna Access Points with futureproof BLE beacon-enabled**. These APs were selected because they can provide clients with an optimized wireless experience, delivering wider

service coverage to more clients and with better connection quality. The APs feature 3x3 802.11ac wave 2 MU-MIMO (Multi-User MIMO) and support 3G/4G interference immunity capabilities. They also have smart antenna technology that effectively minimizes co-channel interference and adaptively adjusts antenna patterns for high-density application.

Furthermore, the optimized radio frequency design allows simultaneous high-speed data connections with multiple portable devices like IoT devices, mobile devices, and laptops.

In the cold room, IP66-rated NAP353 access points coupled with **ANT2105 Dual-Band 5 dBi Omni-Directional Outdoor Antennas** were installed. This ensures high transmission efficiency and minimal impact from different facility sizes, building materials, and interior divisions. Thanks to its embedded heater, the NAP353 AP can be operated from -40°C to 60°C (-40°F to 140°F), delivering excellent performance in even the harshest environments. The technology thus ensures staff can work smoothly with handheld stock-taking devices without worrying about warehouse dead spots or dropouts.

The APs were connected to **XGS1930-28/52/52HP 24/48-port GbE Smart Managed Switches with 4 SFP+ Uplink**. With these PoE-capable smart managed switches, Foodxervices delivers both data and power to its APs, ensuring constant connectivity for all wireless devices. The XGS1930 switch also enables cloud manageability with Zyxel NebulaFlex technology, allowing the administrator to configure multiple switches simultaneously with a single click and to perform site-level monitoring of all ports.

Zyxel's Nebula solution further empowers IT staff by enabling them to centrally monitor and manage multiple wireless devices, such as access points and switches, through the cloud with ease. Nebula's cloud interface provides site-wide visibility and control that gives administrators the ability to manage event logs, traffic statistics, bandwidth consumption, networked clients, and application usage without access to the individual devices. With its intuitive interface, administrators can quickly perform network control on any devices via a single panel.

The wireless health monitoring, organization-wide configuration, and WiFi integration provided by the Nebula Professional Pack were also key practical features that sold Foodxervices on the Zyxel solution. First, the wireless health

monitoring constantly observes and optimizes connection quality, providing IT administrators with an overview of APs' and clients' health. Moreover, the analytic system offers automatic optimization actions to improve network performance. Second, through its integration with site-wide and organization-wide management tools, Nebula provides rapid and remote access for administrators to ensure the network is up and performing efficiently. Finally, WiFi integration enables the company to easily manage IoT devices via API integration.

With its new robust WiFi network and cloud management platform, Foodxervices' staff, visitors, and tenants are now reaping the comfort and benefits of smooth and seamless connectivity in every square meter of XPACE, from the cold storage to coworking spaces.

And they are working with peace of mind, too. For its surveillance network, the company has installed two **XGS4600-32F 28-Port Gigabit L3 Managed Switches with 4 SFP+ Uplinks** as the core switches, connected to three **GS1350-26HP Smart Managed Switches for Surveillance** and 19 **XGS1930-52HP 48-port GbE Smart Managed Switches with 4 SFP+ Uplink**. The intelligent PoE design of the switches maximizes the power budget utilization, thereby supporting more surveillance cameras and enabling stable power supply and data transfer over existing LAN cabling.

The smart managed PoE switch GS1350-26HP, designed for mission-critical IP surveillance applications, features gigabit connectivity, delivering more than enough speed to transfer security cameras' bandwidth-hungry video feeds. Keeping the cameras operational and ensuring switch stability are essential. The switch features Continuous PoE that can deliver nonstop power to IP cameras, even during maintenance for firmware or configuration updates. Additionally, the switch supports Auto Camera Recovery that can automatically restart and recover the camera after detecting an IP camera failure. As many security camera deployments are in the great outdoors, Zyxel Networks incorporates patented ESD and surge protection designs into this surveillance switch to ensure effective lightning protection. Furthermore, security cameras often need to be installed in remote locations. The switch features extended range mode, allowing long operation distance up to 250 meters.

The high-performance XGS4600-32F managed switch, used as a core switch, comes with gigabit connectivity and 10Gbps uplink. This leaves the company in safe hands, not needing to worry about increasing bandwidth demands, and facilitates fast and secure data transmission. The switches also support L2 and L3 stacking capability and redundant power supply units that fit large network deployment needs – adding yet another layer of security and stability to Foodxervices' network.

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Products Used

Nebula Control Center (NCC)

- Responsive web design and intuitive user interface
- Multi-tenant, multi-site view
- First time setup wizard
- Role-based administration privileges
- Real-time and historical monitoring/reporting
- Rich site-wide management tools
- Powerful organization-wide management tools
- Configuration changing alerts
- Misconfigure protection against disconnecting NCC
- Configure login auditing

NAP353 • 802.11ac Dual-Radio External Antenna 3x3 Nebula Cloud Managed Access Point

NAP353 • 802.11ac Dual-Radio External Antenna 3x3 Nebula Cloud Managed Access Point
- 3x3 802.11ac AP supports combined data rates of up to 1.75Gbps
- IP66-rated weather protection for harsh outdoor environments
- Self-configuring, zero-touch deployments
- Enterprise security and RF optimization
- DCS, load balancing and smart client steering

ANT2105 Dual-Band 5 dBi Omni-Directional Outdoor Antenna
- Compatible with Zyxel WLAN devices to get optimal signal quality
- Matching colors and exterior looks
- Multiple options to meet your current network environments

WAC6303D-S • 802.11ac Wave 2 Dual-Radio Unified Pro Access Point

- NebulaFlex Pro allows users to switch among standalone, on-premises controller managed or intuitive Nebula cloud managed modes as needed
- Excellent wireless coverage and performance with the latest 3x3 Wave 2 802.11ac technology
- Unparalleled high-density performance boosted by Smart antenna, next generation beamforming and MU-MIMO technologies
- Solid state capacitors and advanced heat dissipation ensure high reliability and long life — even in the toughest environments
- Advanced Cellular Coexistence minimizes interference from 3G/4G cellular networks

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Products Used

NAP203 • 802.11ac Dual-Radio, Dual-Optimized Antenna 3x3 Nebula Cloud Managed Access Point

- Cloud-managed dual-radio 3x3 MIMO 802.11ac AP
- Supports combined data rates of up to 1.75 Gbps
- Dual-optimized antenna allows pattern optimization adapting to wall- or ceiling-mount installations
- Self-configuration and zero-touch deployment
- Enterprise-class security and RF optimization
- Dynamic channel selection, load balancing, and smart client steering
- Ultra-slim, 32-mm-thick ID design blends into any modern decor

XGS4600-32F • 28-Port Gigabit L3 Managed Switch with 4 SFP+ Uplinks

- Four built-in 10G SFP+ uplinks enable congestion-free, smooth data delivery for high-bandwidth applications
- Dynamic routing protocols such as RIP and OSPF
- Provides high-bandwidth with true physical stacking of up to 4 units
- L2 and L3 stacking capability to fulfill larger network deployment needs
- High resiliency with redundant power supply units

GS1350-26HP • Smart Managed Switch for Surveillance

- NebulaFlex Pro allows users to switch between standalone management and intuitive Nebula cloud managed mode with 1-Year Pro Pack bundled
- Dedicated surveillance mode
- Auto camera recovery
- Large power budget
- Up to 250 meters transmission
- Intuitive PoE usage LED
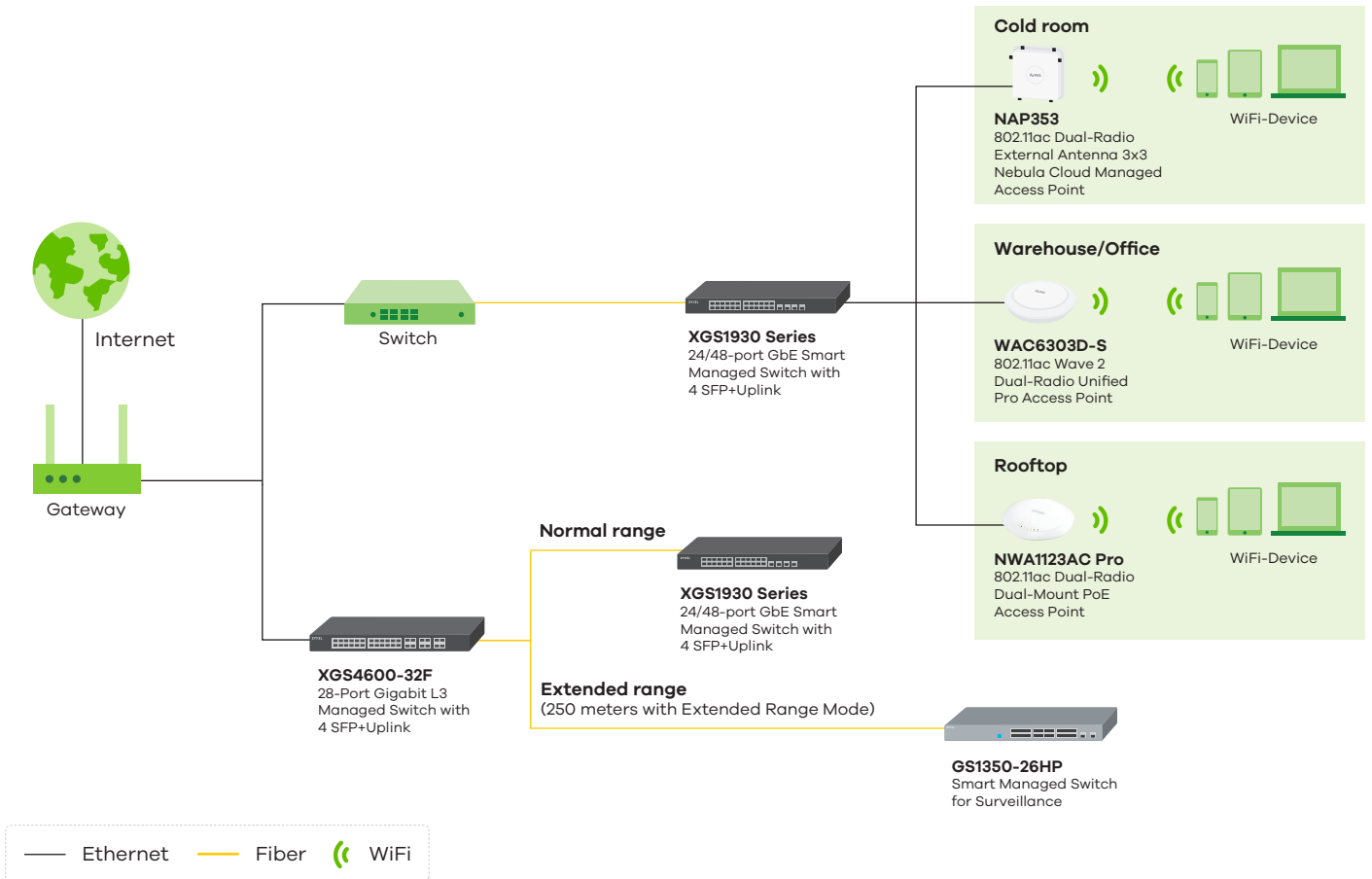- Enhanced surge & ESD protection

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Products Used

XGS1930-28HP/52/52HP • 24/48-port GbE Smart Managed Switch with 4 SFP+Uplink

- Four high-speed 10G fiber slots
- Up and running in minutes — supports NebulaFlex™ Technology to shift between standalone and License Free Nebula cloud flexibly
- Standalone: Easy management and setup with web-based GUI
- Nebula Cloud: Nebula allows simple deployment with agile network management
- User-friendly wizard support
- Smart fan design offers silent operations in your office
- PoE models comply with IEEE 802.3at PoE Plus with high power budget

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Diagram

Cold room

NAP353
802.11ac Dual-Radio
External Antenna 3x3
Nebula Cloud Managed
Access Point

WiFi-Device

Warehouse/Office

WAC6303D-S
802.11ac Wave 2
Dual-Radio Unified
Pro Access Point

WiFi-Device

Rooftop

NWA1123AC Pro
802.11ac Dual-Radio
Dual-Mount PoE
Access Point

WiFi-Device

Internet

Switch

XGS1930 Series
24/48-port GbE Smart
Managed Switch with
4 SFP+Uplink

Gateway

Normal range

XGS1930 Series
24/48-port GbE Smart
Managed Switch with
4 SFP+Uplink

XGS4600-32F
28-Port Gigabit L3
Managed Switch with
4 SFP+Uplink

Extended range
(250 meters with Extended Range Mode)

GS1350-26HP
Smart Managed Switch
for Surveillance

—— Ethernet —— Fiber ((WiFi

About Zyxel Networks

Focused on innovation and customer-centricity, Zyxel has been connecting people to the Internet for over 30 years. Our ability to adapt and innovate with networking technology places us at the forefront of creating connectivity for business and home users.
We're 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.