



# Helping Education deliver better outcomes

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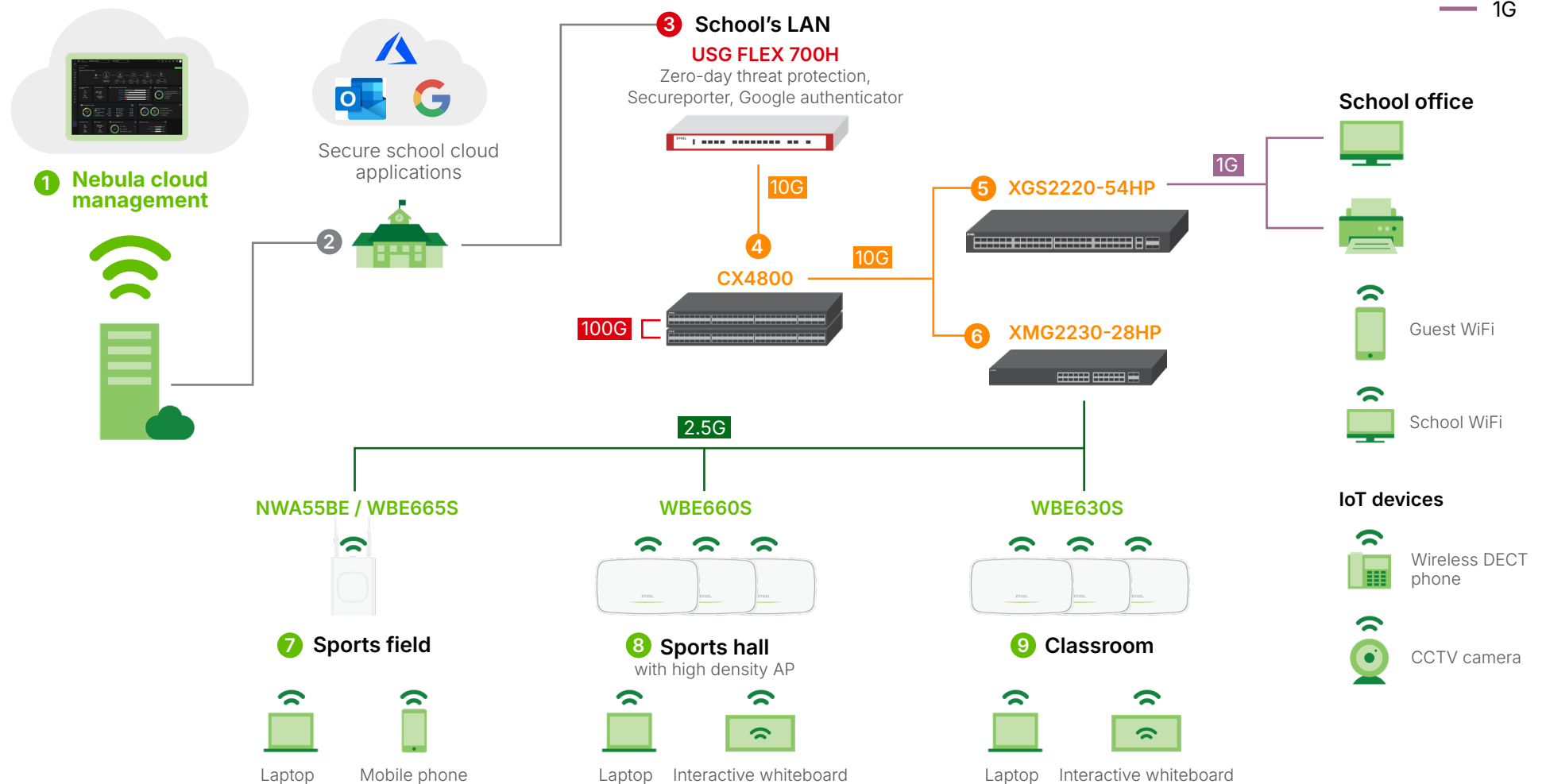
**Nebula cloud networking**  
Solution guide



hello  
nebula.  
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# School network

Nebula cloud management



### 1 Nebula cloud management

Centralized cloud-based management platform that allows IT administrators to configure, monitor and manage the entire school network remotely. Provides visibility, analytics, firmware updates and simplified troubleshooting from a single dashboard.

### 2 Secure school cloud applications

Secure access to cloud services such as Microsoft 365 and Google Workspace. Ensures safe authentication, data protection and controlled access for students, teachers and staff using cloud-based learning tools.

### 3 School's LAN – USG FLEX 700H

Next-generation firewall that protects the school network from cyberthreats. Delivers zero-day threat protection, secure remote access, content filtering, application control and multi-factor authentication to safeguard users and data.

### 4 CX4800 core switch

High-performance core switch that stacks at 100G, connecting and aggregating all network traffic from access switches and access points. Provides fast, reliable backbone connectivity across the entire campus.

### 5 XGS2220-54HP access switch

PoE-enabled access switch designed to power and connect devices such as access points, IP phones, printers and office equipment. Ensures stable wired connectivity in school offices and administrative areas.

### 6 XMG2230-28HP multi-gig switch

Multi-gigabit PoE switch that supports high-bandwidth devices like WiFi 7 access points, CCTV cameras and IoT devices. Ideal for classrooms and high-density environments requiring greater throughput and performance.

### 7 Wireless AP – outdoor (sports field)

Weatherproof outdoor access point designed to provide reliable WiFi coverage in open areas such as sports fields and courtyards. Built to withstand harsh environmental conditions while delivering stable connectivity for mobile devices, events and outdoor learning activities.

### 8 Wireless AP – high density (sports hall)

High-capacity access point optimized for environments with a large number of simultaneous users. Ideal for sports halls, assemblies and events where many students connect at once, ensuring smooth performance, load balancing and minimal interference.

### 9 Wireless AP – classroom

Indoor access point designed to provide consistent, high-speed wireless connectivity for everyday teaching and learning. Supports laptops, tablets and interactive whiteboards, enabling digital lessons, collaboration tools and online assessments without interruption.



# Today's curriculum relies on IT

With limited resources available for IT support in schools, onsite management of networks can be difficult, slow and expensive. Yet today's curriculum is IT-first. Cloud applications drive the curriculum in schools and that means connectivity and access to the internet must be immediate in classrooms to avoid any impact on education time.

With 33% of secondary schools and 26% of primary schools experiencing losing either data, connectivity or even money, it's vital that schools address their network management black holes and create a secure, sustainable network that can be accessed and managed remotely with ease.

# Solve your school's network challenges

Zyxel Networks offers a range of network, security and wireless solutions perfect for schools looking to deliver applications through the cloud. These can all be managed using Nebula, our cloud management platform, that's designed to make school network management productive and easy to execute.





# Connect, protect and manage your network with Nebula

- Our centralized cloud management platform allows access to all your switches, access points and firewalls, even over multiple sites or separate schools in a trust
- Deliver proactive support to your customers from any location and in real-time
- Replicate settings and easily deploy new hardware to new sites as the academy/school grows
- A simple yet powerful approach to monitor network performance, ensuring administrators can pro-actively put improvements in place before education is impacted
- Nebula administrators are given an easy way to map out the network with built in network topology functionality



# WiFi 7 (802.11be)

- **Significantly increased capacity**

Designed to support a much higher number of simultaneous devices, making it ideal for high-density school environments such as classrooms, lecture theatres and sports halls

- **Ultra-high throughput (up to 46Gbps theoretical)**

Supports multi-gigabit wireless speeds, enabling smooth performance for cloud applications, 4K/8K streaming, AR/VR learning and large file transfers

- **Tri-band operation (2.4GHz, 5GHz and 6GHz)**

Provides additional spectrum to reduce congestion and improve overall performance and reliability

- **320MHz channel bandwidth**

Wider channels allow more data to be transmitted at once, significantly increasing wireless speed

- **4096-QAM modulation**

Improves data efficiency, allowing more information to be transmitted within the same signal

- **Multi-Link Operation (MLO)**

Enables devices to transmit and receive data across multiple frequency bands simultaneously, improving speed, stability and reducing latency

- **Enhanced spectrum efficiency**

Advanced resource scheduling and interference management allow better use of available wireless channels

- **Optimised for low latency**

Delivers smoother real-time performance for video conferencing, collaboration tools and interactive learning platforms



faster.  
consistent.  
reliable.

WiFi 7 provides more stable and consistently fast speeds, of particular benefit for users in areas where there is a high density of connections.



# Switches

- Check real-time status intuitively by cloud and PoE LED indicators
- Smart fan and fanless designs offer silent operations across the school
- CX4800 switch can be stacked at 100G, offering 48 ports of 10/25G
- Multi-gigabit (100M/1G/2.5G/5G/10G) switches improve network capacity using existing cabling for a simple upgrade (XGS2230)
- Bonding links increase capacity and resilience giving an always-on approach in the case of cable fault

# Advanced Threat Protection

- Zero-day threat protection – sandboxing prevents newly developed and zero-day threats from impacting the networks
- Detailed and powerful reporting designed to monitor network performance while identifying abnormal behavior and threats
- Microsoft Azure certified
- Supports Google Authenticator 2FA for VPN, Captive Portal and Administration Access



Become a Zyxel Networks Educational partner. Find out more about how we can help at [zyxel.co.uk](https://zyxel.co.uk) or call us on 0118 912 1700.



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