Case Study

Enterprise WLAN

Enhance Network Performance with Wi-Fi 7 Solution for AI-driven Code Acceleration

FS's advanced Wi-Fi 7 network solution addresses the high-bandwidth, low-latency needs of a leading AI-driven coding company, supporting its real-time analytics and high-speed data processing requirements with future-proof scalability and enhanced security.

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Country

United States

Industry

Technology

Network Type

Midsize Campus Wireless Network

Solutions

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Highlights

- ZTP technology realizes automatic configuration, greatly reducing deployment complexity and human errors.
- AmpCon-Campus management platform can provide a visual network view, making it easy to check the health status and maintain the network.
- Real-time collection of key data enables accurate fault warning and efficient network maintenance.
- High-density Wi-Fi 7 deployment brings a smooth roaming experience, ensuring network security and business continuity.
- L3 PoE++ switches can simplify the deployment of wireless networks, eliminating the need to wire each AP individually, thereby reducing installation costs.

Key Stats

- The 100G backbone network has high-speed transmission and flexible expansion capabilities to meet enterprise-level bandwidth requirements.
- The 10G port supports numerous devices for Wi-Fi access and future-ready network expansion.
- Advanced Wi-Fi 7 supports 320MHz channel width, and fully utilizes the 6GHz frequency band, achieving faster data transmission speeds and lower latency.
- The 48-port access switch supports the PoE++ standard with up to 90W per port and a total budget of 1600W.

Overview

A leading modern coding super-engine company focused on AI-driven code acceleration toolkits, sought a solution to enhance its network for rapid data processing and real-time analytics.

With the increasing demand for advanced applications, such as 8K video streaming and AI-driven data analytics, the existing network struggled to meet the requirements of the company's AI technologies. The network requires not only higher throughput, but also lower latency and increased network capacity to handle the growing number of connected devices. Additionally, the company aimed to future-proof its network by adopting the latest Wi-Fi 7 standard, which offers significant improvements in speed, reliability, and efficiency.

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Challenges

The search engine company needs advanced Wi-Fi for business stability, supporting stable and efficient connections for many concurrent devices. The network manager recognizes that with most offices having open seating and few fixed desks, wired connections are scarce, making the WLAN consistently stable, reliable, and perform well.

The company faces security risks like data leakage and identity spoofing. The company must implement multiple authentication mechanisms, such as 802.1X, RADIUS, TACACS+, and local authentication, to ensure strict device validation. Additionally, DHCP security measures are needed to prevent malicious attacks and ensure safe IP allocation.

In addition, the company hopes to collect network data and automatically build network topology. Technicians can fully understand their network layout, traffic flows, and device configurations, thereby simplifying deployment and reducing errors.

The network manager must develop a comprehensive plan to expand the network, simplify operations, and reduce costs for future growth. This plan is designed to meet 100G high-speed transmission and enhance wireless networks while maintaining their flexible expansion.

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Solutions

To ensure wide network coverage, FS designed a scalable architecture and selected appropriate devices at each level. With good scalability, the network can be flexibly expanded to meet the needs of business growth.

The AmpCon-Campus platform centrally managed FS PicOS® switches and provided selectable network topologies to help technicians quickly understand the network layout and device connections. Through centralized monitoring and alert systems, it enabled real-time network performance, traffic, and security monitoring, ensuring prompt issue resolution and stable network operation.

FS deployed S5890-32C PicOS® L3 switches at the core layer and N8550-48B8C PicOS® switches at the aggregation layer to provide high bandwidth for large-scale data traffic. As the access layer needed to be equipped with APs for terminals, FS communicated with clients and deeply explored their specific needs before selecting S5860-48XMG-U PicOS® switches. The S5860-48XMG-U L3 PoE++ switch enabled large-scale device access and Wi-Fi 7 via 10G ports, and connected to uplink devices through 25G/40G ports. This switch is designed to satisfy the demands of supporting numerous devices and delivering efficient data aggregation. With a 1600W PoE budget and 90W per-port support via the IEEE 802.3bt standard, it met power needs and simplified cabling.

The latest Wi-Fi 7 APs at the terminal layer support 2.4 GHz, 5 GHz, and 6 GHz bands, offering speeds up to 24.436 Gbps. 10G Ethernet ports with PoE++ ensure full bandwidth connectivity. Seamless roaming technology allows devices to quickly switch network nodes when moving, effectively reducing lag and disconnections, which provides clients with a smooth network experience.

Results

By implementing the FS Wi-Fi 7 network solution, the modern coding super-engine company has successfully enhanced its network infrastructure to support high-speed data processing and real-time AI analytics. The deployment of advanced Wi-Fi 7 technology, combined with a robust network architecture and advanced security measures, ensures the company can efficiently handle the demands of its AI-driven code acceleration toolkits.

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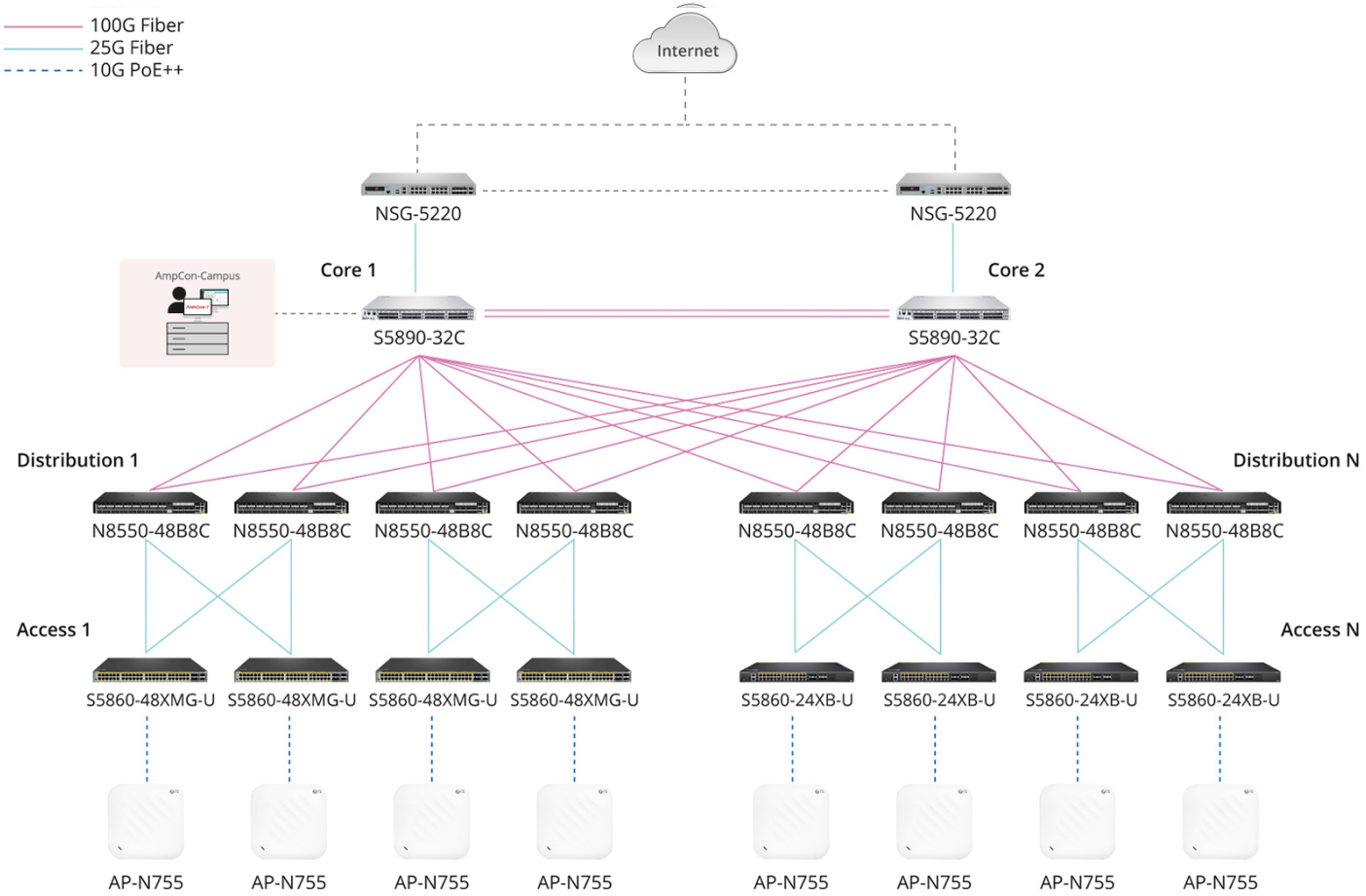

United States

Address: 380 Centerpoint Blvd, New Castle, DE 19720, United States

Tel: +1(888) 468 9910

Email: US@fs.com

For more information, welcome to visit www.fs.com