



Building a Smart Office Network for a Leading Korean Architectural Firm

Overview

To build a modern smart office, the Seoul-based architectural firm with around 350 employees sought a high-performance and reliable WiFi infrastructure for its six-story office. Its workflow relies heavily on collaboration, with the company's employees frequently sharing large CAD and BIM files and conducting real-time video conferences across departments. As network demands continued to grow, the firm required a stable wireless environment capable of handling high-density traffic and large-scale data transfers while maintaining strong security protection for critical project data.

By deploying Nebula, a secure cloud networking solution, the firm established a secure and high-performance wireless environment with real-time visibility, simplified management, and reliable connectivity throughout the office effortlessly.

Challenges

The architectural firm required a reliable and secure network infrastructure capable of supporting approximately 350 employees handling bandwidth-intensive CAD and BIM files simultaneously without latency or performance degradation. In this environment, the corporate wireless network is not just for internet access but a key factor directly impacting work efficiency. With a high reliance on office WiFi, a stable network supporting simultaneous users and smooth large-file transfers was essential. Key challenges also included strengthening network security to prevent the leakage of sensitive design drawings and project data, as well as ensuring reliable operations with quick issue response.

Solutions

At the core of the deployment, the USG FLEX 500H firewall was installed at the top level of the corporate network to provide integrated threat protection and traffic management. As external threats such as malware, ransomware, hacking attempts,

Customer

Seoul Architectural Firm

Industry

Architecture and Construction

Location

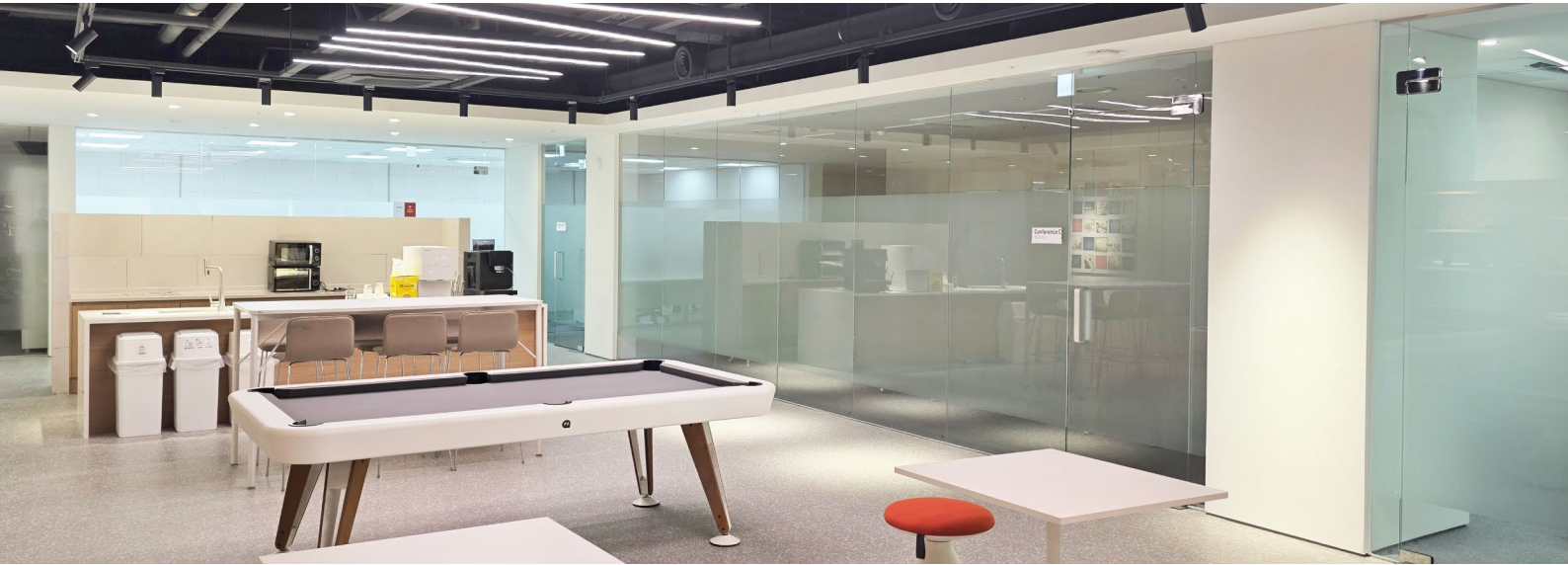
Seoul, South Korea

Partner

UNA Engineering

Customer Background

The Seoul-based architectural firm specializes in architectural design and Construction Management (CM). It oversees the entire life cycle of construction projects, including planning, design, construction, and post-construction management.



and exploit attacks continue to grow more sophisticated, traditional cybersecurity methods based only on port-based filtering or NAT are no longer sufficient.

Leveraging Deep Packet Inspection (DPI), the USG FLEX 500H performs in-depth traffic analysis, including encrypted traffic, to accurately detect and block threats in real time. Integrated security features such as IPS, anti-malware, web filtering, and application control help restrict non-work-related streaming or P2P services while blocking malicious sites and high-risk traffic. Powered by Zyxel Networks' AI-driven security cloud intelligence, the solution strengthens multi-layered protection for critical business assets such as architectural drawings and contract data while maintaining stable network performance.

In addition, detected threats and network security status can be centrally monitored through SecuReporter, with automated daily and weekly reports enabling continuous security management and visibility.

To support high-density wireless connectivity across the office, WAX610D WiFi 6 access points were deployed throughout the facility to deliver stable and high-speed performance for bandwidth-intensive design environments. The architectural firm routinely handles large CAD drawings, 3D modeling data, and design files ranging from hundreds of MB to several GB, requiring reliable wireless connectivity for smooth collaboration and efficient file transfers.

Moreover, the WAX610D utilizes 4x4 MU-MIMO and OFDMA technologies to efficiently distribute wireless resources, reduce congestion, and minimize latency even when many users are connected simultaneously. Smart Steering and load balancing further optimize network performance by automatically distributing users across the most suitable

access points and frequency bands, preventing traffic concentration on specific access points.

To maintain network efficiency, QoS policies apply per-user upload and download bandwidth controls while prioritizing business-critical traffic over non-work-related applications such as streaming or social media. Besides, the WAX610D supports 2.5Gbps uplinks, enabling high-speed wireless traffic to pass to the wired network without bottlenecks while providing scalability for future office expansion and increased traffic demand.

Employees involved in all stages of architectural projects frequently hold meetings with clients, contractors, and subcontractors throughout the office. The unified SSID was deployed across the entire workplace, allowing users to connect once while devices automatically switch to the nearest access point as users move between meeting rooms, collaboration spaces, and break areas. This function eliminates the need to reconnect to different networks in each area to ensure uninterrupted collaboration. Because roaming is controlled by client devices, connections may stay on weaker access points after users move. To address this, Nebula's Smart Steering function monitors signal strength and connection status continuously, automatically directing devices to the optimal nearby access point when signal levels fall below a defined threshold. This enables stable and seamless wireless connectivity throughout the office, even while users are moving.

To ensure business continuity, the network was designed with a triple-line internet architecture in an Active-Active configuration. Using load balancing based on traffic volume and policy-based routing for specific network traffic types, the system optimizes traffic distribution and selects the most suitable path based on network conditions dynamically.



The network system's continuous health checks redirect traffic to healthy internet lines if one connection has issues or failure, while policy routing is automatically restored once the line recovers without administrator intervention. This redundancy design minimizes downtime and ensures uninterrupted access to cloud services, communication platforms, and collaborative workflows essential to daily operations.

All network devices are centrally managed through the Nebula cloud platform, enabling remote monitoring and streamlined administration without requiring extensive on-site IT resources. Administrators can monitor network status, client activity, and security events in real time through a unified dashboard. Nebula also simplifies firmware upgrade scheduling, troubleshooting, and ongoing maintenance, allowing the firm to maintain efficient and reliable network operations while reducing management overhead.

Results

The firm has modernized its digital workspace, enhancing productivity, security, and operational resilience. Employees benefit from reliable and secure connectivity that supports collaboration and ensures data security across the office without worrying about network interruptions or operational downtime. The centralized cloud management reduces IT overhead and enables efficient remote troubleshooting, ensuring secure and continuous business operations.

- High-speed connectivity supporting concurrent users and large-scale file processing
- Seamless roaming for uninterrupted collaboration across office environments
- Real-time threat protection against cyber risks and unauthorized access
- High Availability (HA) design ensuring continuous network uptime
- Centralized cloud control enables efficient network operations and rapid issue response, even without dedicated IT personnel

Product List



- WAX610D WiFi 6 Access Point



- GS1920-8HPv2/24HPv2 Smart Managed PoE Switch



- USG FLEX 500H Firewall



- Nebula Plus Pack License

