Business Network Solution Guide

Building Wired and Wireless Network Infrastructure

Table of Contents

About D-Link

D-Link, a global leader in the networking industry, began expanding worldwide under the D-Link brand in 1986 and was officially established as D-Link Corporation in Taiwan in 1987. With 90 operational and sales locations across 43 countries, D-Link provides innovative and reliable networking equipment, AI-powered cloud management services, and complete infrastructure solutions for individuals, homes, businesses, and industries. The company is committed to driving the global transformation toward smarter connectivity.

Built on the brand promise of MIT quality, creative innovation, solution-oriented, one-stop service, and sustainable design, D-Link delivers exceptional products and services that meet the evolving needs of users worldwide. Since joining the Taiwan Steel Group in 2020, the company has further solidified its position as a global leader in intelligent networking solutions. Through continuous innovation and a firm commitment to ESG, innovation, and global excellence, D-Link has earned widespread recognition in corporate governance, ESG performance, and international design awards.

Looking ahead, D-Link will further integrate global resources to strengthen operational synergy, reinforce its leadership in the smart networking industry, and realize its brand vision "One Connection • Infinite Possibilities."

MIT QUALITY
Taiwanese engineering excellence—precision, reliability, and innovation at its core.

CREATIVE INNOVATION
Pioneering next-gen networking through visionary R&D and user-centric design.

SOLUTION ORIENTED
Intelligent, adaptable solutions empowering homes, businesses, and industries.
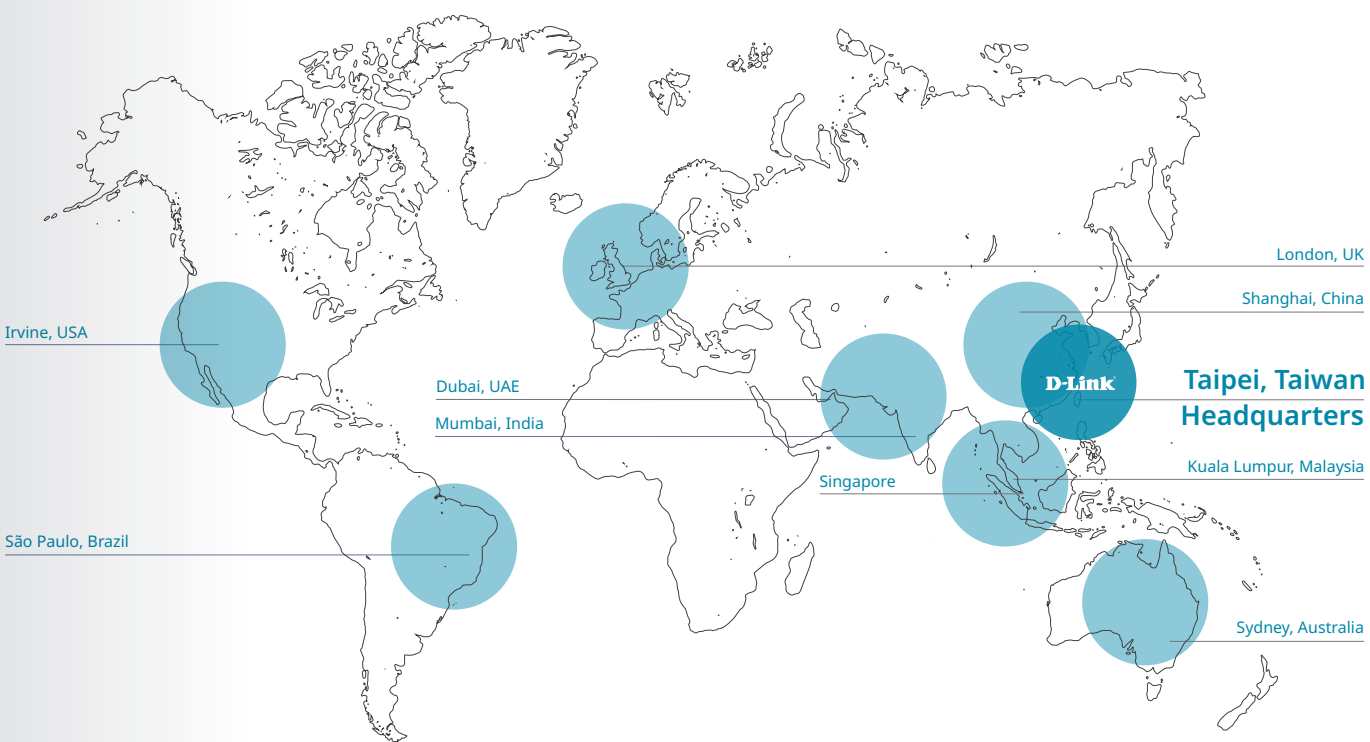
ONE-STOP SERVICE
Comprehensive solutions with seamless support for an effortless experience.

SUSTAINABLE DESIGN
Eco-conscious innovation with energy-efficient tech and green packaging for a sustainable future.

London, UK
Shanghai, China
Irvine, USA
Dubai, UAE
Mumbai, India
Taipei, Taiwan Headquarters
Kuala Lumpur, Malaysia
Singapore
São Paulo, Brazil
Sydney, Australia

35+ Years of networking experience

90 Sales offices in 43 countries

35 RMA centers

1460+ Employees globally

What We Do

In today's fast-paced digital world, businesses require secure, high-performance, and scalable networking solutions to support growth and innovation. Seamless connectivity, reliability, and adaptability are key to staying competitive.

At D-Link, we are committed to delivering intelligent, future-ready networking solutions that meet the evolving needs of modern businesses. Our technology ensures exceptional performance, flexibility, and security across all network environments.

Reliable Quality
Made in Taiwan – trusted performance, crafted with precision.

Scalable Architectures
Scale to your needs, managing up to 2000 switch & AP devices.

Network Visibility
Simplify network monitoring with a powerful centralized management system.

Superior Network Stability
Advanced failover ensures constant connectivity.

High-Speed Connectivity
Providing fast, stable connectivity for high-bandwidth needs.

### Comprehensive Network Security
Secure network from core to edge with unified protection for devices and critical data

Backhaul Network Solutions: From Core to Edge

The core layer operates at speeds up to 100G (including 1G, 10G, 10G SFP+, 25G SFP28, and 100G QSFP28), providing a stable and scalable foundation for large networks. The aggregation layer boosts connectivity by merging links into a high-capacity interface, enhancing connectivity, and ensuring smooth data flow between core and edge layers. The edge layer manages and secures device connections, handles data traffic efficiently, and offers low-latency to access client devices and boosting performance.

For businesses of all sizes ranging from small to medium and large networks, D-Link offers comprehensive solutions, including enterprise Wi-Fi, business IP cameras, SMB gateways, and high-performance switches to ensure a robust and scalable infrastructure for diverse business scenarios.
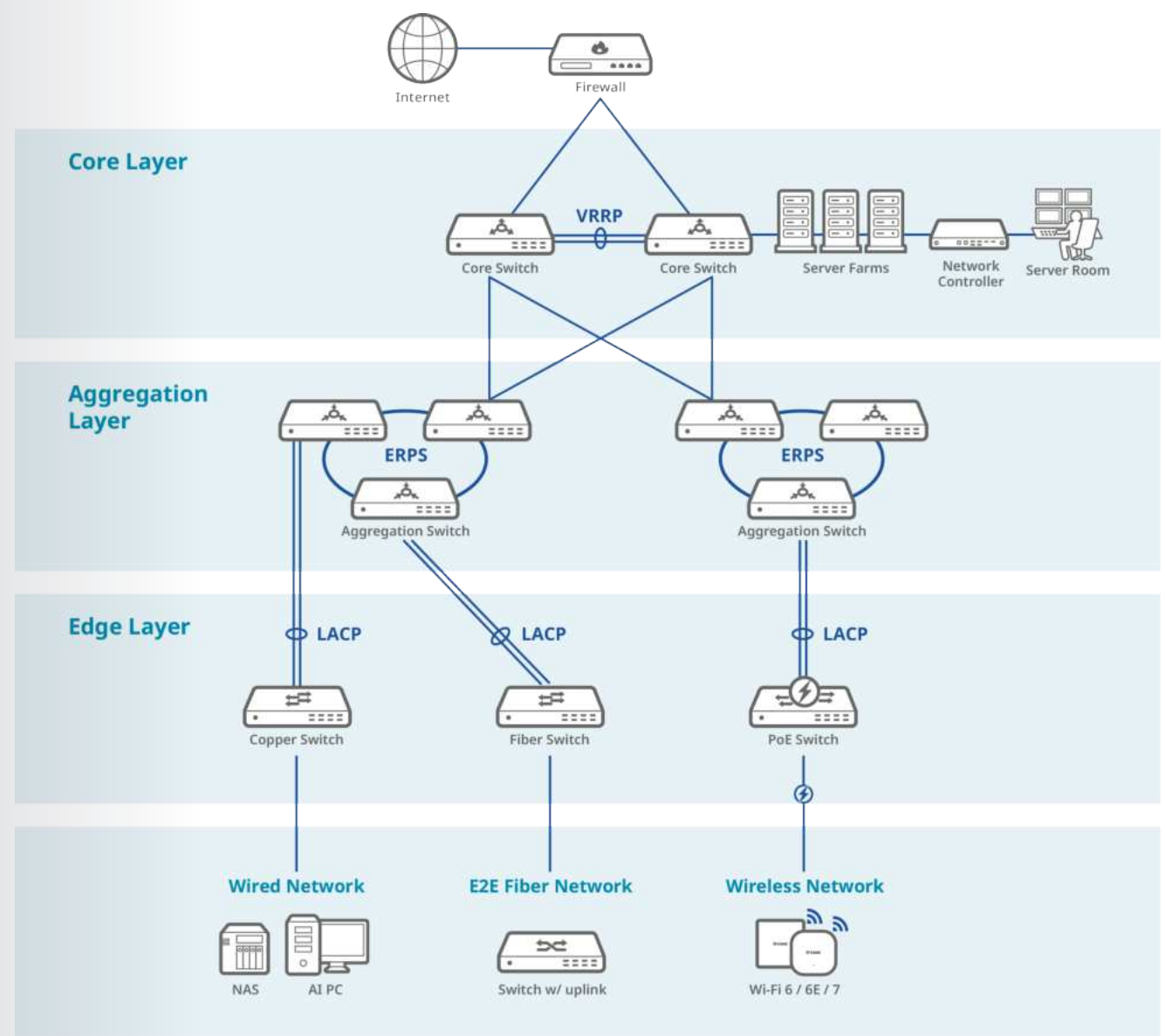
Nuclias Business Network Solution Introduction

As network demands grow, many businesses struggle with complexity, security risks, and limited IT resources. D-Link's Nuclias business network solution featuring Nuclias Connect, Nuclias Hyper offers centralized control, real-time monitoring, and smart automation for networks of any size.

Nuclias is more than a platform; it is a complete ecosystem. With dedicated controllers, compatible switches, and Access Points (APs), businesses can build secure, flexible networks managed through a single interface, improving performance and reducing IT overhead.

Which Solution Fits Your Needs

Find the Right Solution by Scale and Industry

From small offices to large enterprises with up to 5,000 employees, D-Link Nuclias Business Network Solution delivers the right fit for every scale. Tailored for enterprises, educational institutions, and commercial buildings, Nuclias simplifies deployment, streamlines operations, and provides centralized control, real-time monitoring, and seamless integration across wired and wireless networks.

1-Layer — nuclias connect

2-Layer — nuclias connect

3-Layer — nuclias hyper
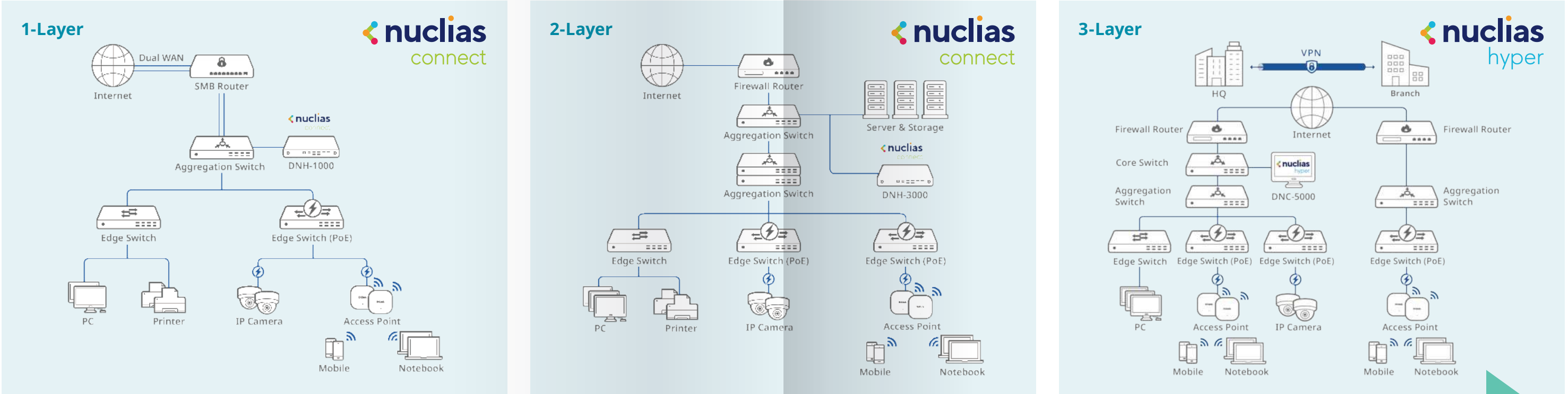
< 500   **< 1000**   **< 5000**   Users

	< 500	< 1000	< 5000
Enterprise	SME	Enterprise	HQ & Branch
Education	K-12 School	College	Transnational University
Business	Wholesale Store	Department Store	Outlet Store
Building	Dormitory	Hotel	High-Rise Community

How Nuclias Solves IT Challenges Across Business Sizes

▶ Challenges

- Lack of Dedicated IT for Network Maintenance
- Business Disruption from Network Outages
- Security Risks from Shared Employee and Guest Wi-Fi
- Limited Visibility of Overall Network and Device Status
- Delayed Troubleshooting When Issues Occur

- Network Downtime and Maintenance
- Wi-Fi Coverage in Complex Environments
- User Access and Security Risks
- Limited Visibility of Network Issues
- Role Management and Administrative Oversight

- Network Scalability and Traffic Bottlenecks
- Wi-Fi Dead Zones and Interference
- Access Control and Security Management
- Delayed Detection of Network Issues
- Complex Multi-Site Administration and Control

< 500 **< 1000** **< 5000** Users

▶ Solutions

‹ nuclias connect

- Centralized Management to Reduce Maintenance Costs
- Local Management for Network Continuity Offline
- SSIDs, VLANs, and Captive Portal for Access Protection
- Dashboard and Device View for Clear Visibility
- Event Logs and Alerts for Accelerated Troubleshooting

D-Link		
Enterprise Access Points	Aggregation / Edge Switches	Hardware Controllers

‹ nuclias connect

- Centralized Control and Alerts to Minimize Downtime
- Auto RF Management Optimizes Wi-Fi in Environments
- Captive Portal Authentication and Access Control
- Real-Time Monitoring for Fault and Bottleneck Detection
- Multi-Tier Admin Roles for Strengthened Access Governance

D-Link		
Enterprise Access Points	Core (Optional) / Aggregation / Edge Switches	Hardware Controllers

‹ nuclias hyper

- Scalable Design with QoS for Heavy Traffic Management
- Auto RF and Roaming Eliminate Dead Zones and Interference
- Unified Security with 802.1X, RADIUS, and Access Control
- Real-Time Monitoring and Alerts for Issue Resolution
- Role Delegation for Centralized Multi-Site Governance

D-Link		nuclias hyper
Enterprise Access Points	Core / Aggregation / Edge Switches	Software Controllers

nuclias connect

Solution Overview

Nuclias Connect optimizes network management for single-site deployments. The DNH-1000 and DNH-3000 hardware controllers support 500 and 1,500 managed devices, enabling centralized control for seamless operations. This intuitive platform streamlines configuration, real-time monitoring, and troubleshooting, ensuring secure and efficient management of D-Link aggregation and edge switches and enterprise-grade access points for enhanced performance.

User Benefits

Batch settings and firmware updates for easy maintenance

Smart automatic RF management, optimizing wireless performance

Advanced traffic control, for stable network service quality

Real-time monitoring and analysis, maintaining full network visibility

High-bandwidth ports (2.5G, 10G, 25G) for heavy traffic needs

25 Gbps

Complete User authentication, enhanced network access security

VLAN segmentation and access control for enhanced security and efficiency

AP segregation ensures SSID isolation for enhanced security

Target Markets

Small-to-Midsize Network < 500 Users	Midsize-to-Large Network < 1000 Users
SME Wholesale Store	College Hotel

---

nuclias hyper

Solution Overview

Nuclias Hyper simplifies the management of large-scale business networks across multiple locations. It supports centralized control of up to 2,000 managed devices, including core, aggregation, and edge switches, as well as EAPs. It delivers real-time monitoring, role-based access, and secure management D-Link core to edge switches and access points for optimal network performance.

User Benefits

Batch settings and firmware updates for easy maintenance

Smart automatic RF management, optimizing wireless performance

Advanced traffic control, for stable network service quality

Real-time monitoring and analysis, maintaining full network visibility

High-bandwidth ports (10G, 25G, 100G), for heavy traffic needs

10 Gbps

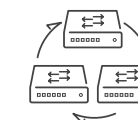Complete User authentication, enhanced network access security

Advanced routing (BGP, MPLS, VRRP, OSPF) for cross-department data

AP segregation ensures SSID isolation for enhanced security

VLAN segmentation and access control for enhanced security and efficiency

Advanced loop protection LBD,STP and ERPS for seamless operations

Target Markets

Large Network < 5000 Users			
HQ & Branch	Transnational University	Outlet Store	High-Rise Community

Nuclias Solution Compatible Products

nuclias connect

nuclias hyper

| Nuclias Network Controller	Nuclias Network Controller
• DNH-1000 • DNH-3000	• DNC-5000
	Core Switches
	• DGS-3630 Series • DXS-3410 Series • DXS-3610 Series
Aggregation Switches	**Aggregation Switches**
• DXS-3130 Series • DMS-3130 Series	• DXS-3130 Series • DMS-3130 Series • DGS-3130 Series
Edge Switches	**Edge Switches**
• DGS-1100 Series • DMS-1250 Series • DGS-1210 Series • DXS-1210 Series • DGS-1250 B1 Series • DXS-1250-28YP	• DGS-1100 Series • DGS-1520 Series • DGS-1210 Series • DGS-1530 Series • DGS-1250 AX Series • DMS-1250 Series • DGS-1250 B1 Series • DXS-1210 Series • DGS-1510 Series • DXS-1250-28YP
Enterprise Access Points	**Enterprise Access Points**
Wi-Fi 7 • DAP-E9560 Wi-Fi 6 • DAP-X3060OU • DAP-X3060W • DAP-X3060 • DAP-X2850 • DAP-X2810 Wi-Fi 5 • DAP-3666 • DAP-2622	Wi-Fi 7 • DAP-E9560 Wi-Fi 6 • DAP-X3060OU • DAP-X3060W • DAP-X3060 • DAP-X2850 • DAP-X2810 Wi-Fi 5 • DAP-3666 • DAP-2622

Nuclias Network Controllers Introduction

The Nuclias Network Controller is D-Link's advanced network management solution, evolving from a basic management tool into a robust and scalable networking platform tailored for diverse environments. Designed to adapt to diverse customer requirements, the platform offers flexible deployment options, including Nuclias hardware controllers—ranging from the DNH-1000 for small to medium networks to the DNH-3000 for medium to large scale environments—and the Nuclias Hyper software controller (DNC-5000) for large-scale infrastructures.

Embodying D-Link's commitment to innovation and user-focused design, the Nuclias Network Controller is an entirely on-premise solution. Unlike cloud-reliant systems, it ensures exceptional data privacy, minimizes dependence on internet connectivity, and provides complete control over network operations.

Single Site

Multi-Site

— 10G Fiber　— 1G Copper
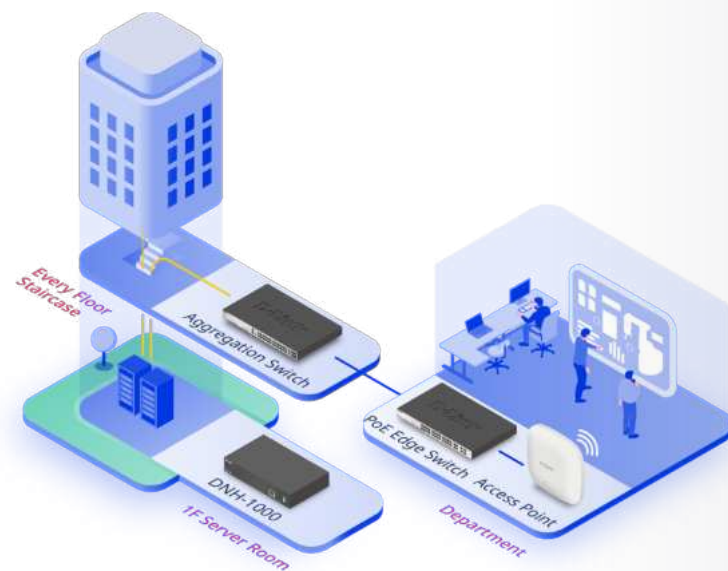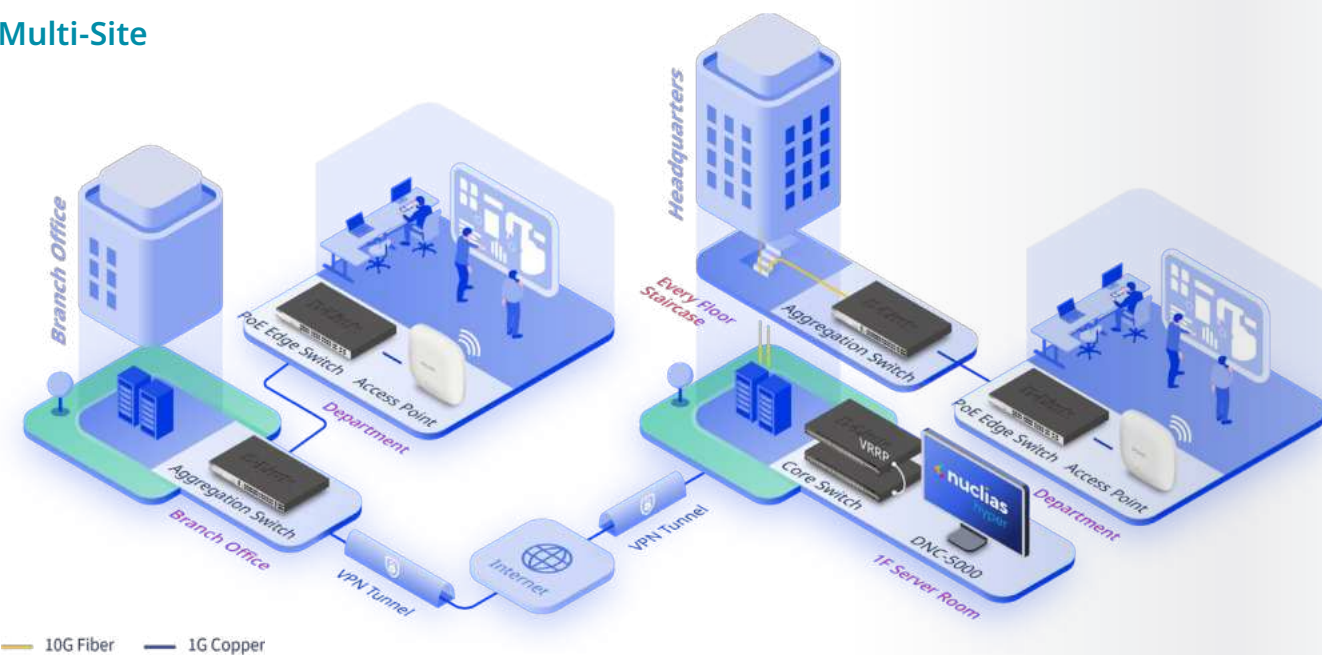
Small-to-Midsize Network

Designed for medium to large networks, the DNH-1000 features built-in Nuclias Connect software and enables management of up to 500 devices (APs / switches).

DNH-1000

- 1 x 2.5GE LAN
- 1 x USB 3.0
- Up to 500 devices
- Nuclias Connect built in
- Manage all APs and aggregation / edge switches
- Hardware Controller

Midsize-to-Large Network

With the Nuclias Connect management platform, the DNH-3000 enables centralized management and monitoring of up to 1,500 devices, streamlining network management tasks and enhancing IT efficiency.

DNH-3000

- 2 x 10G SFP + 4 x 1G
- 1 x USB 3.2
- Up to 1,500 devices
- Nuclias Connect built in
- Manage all APs and aggregation / edge switches
- Hardware Controller

Large Network

Tailored for multi-site network infrastructures, the Nuclias software controller to manage up to 2,000 switches and wireless APs beyond boundary limitations.

DNC-5000

- Linux/Windows Support
- Up to 2,000 devices
- Manage all EAPs and core/aggregation/edge switches
- Software Controller

Centralized, intuitive interface for deployment and configuration

Centralized Device Management

Role-Based Administration

Real-Time Monitoring and Alerts

Traffic Reporting and Analytics

VLAN and Access Control

Auto RF Management and Bandwidth Optimization

Multi-SSID and Captive Portal Authentication

Central Firmware Upgrade

Streamline network management with a centralized, intuitive interface for effortless deployment and configuration. Nuclias solutions scale seamlessly from medium to large deployments, ensuring flexibility and growth. Advanced security features, including VLANs, access control, and role-based administration, provide robust protection and reliable operations. Built-in Auto RF Management and bandwidth optimization maintain consistent Wi-Fi performance. Real-time monitoring and detailed traffic analytics offer valuable insights for proactive network management and informed decision-making.
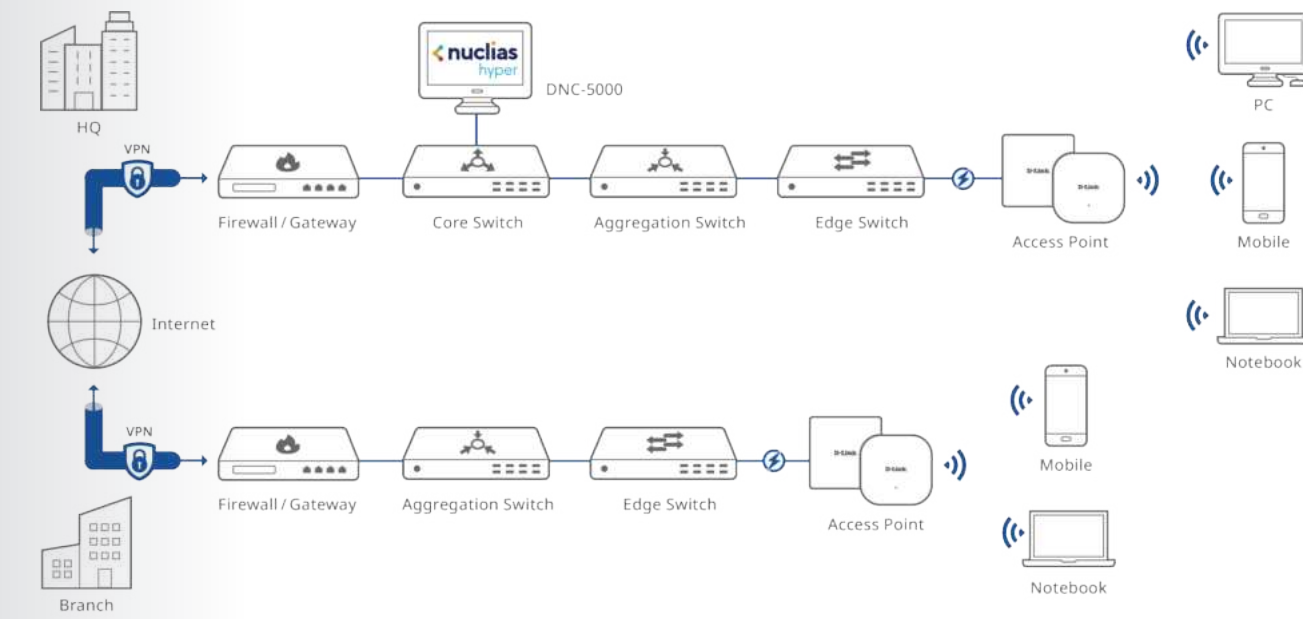
Explore the Possibilities

— Copper   PoE
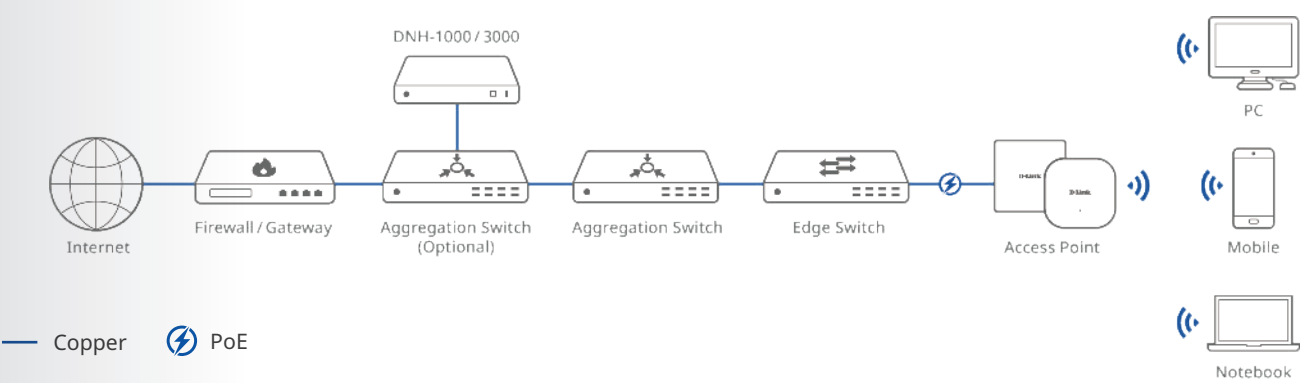
DNH-1000 / DNH-3000

- Built-in Nuclias Connect
- Manage all APs and aggregation/edge switches
- Device management capacity: up to 500 devices (DNH-1000) and up to 1,500 devices (DNH-3000)
- Interface: 1 x 2.5G Ethernet Port + 1 x USB 3.0 Port (DNH-1000) and 2 x 10G SFP Ports + 4 x 1G Ethernet Ports + 1 x USB 3.2 Port (DNH-3000)

Supported Devices		
	Aggregation	Edge
Switch	• DXS-3130 Series • DMS-3130 Series	• DGS-1100 series • DGS-1210 series • DMS-1250 series • DXS-1210 series • DXS-1250 series
	Wi-Fi 7	Wi-Fi 6	Wi-Fi 5
Access Point	• DAP-E9560	• DAP-X3060OU • DAP-X3060 • DAP-X2850 • DAP-X2810	• DAP-3666 • DAP-2662

DNC-5000

- Built-in Nuclias Hyper
- Manage all EAPs and core / aggregation / edge switches
- Device management capacity: up to 2,000 devices
- Linux/Windows Support

Supported Devices			
	Core	Aggregation	Edge
Switch	• DGS-3630 Series • DXS-3410 Series • DXS-3610 Series	• DGS-3130 Serie • DMS-3130 Serie • DXS-3130 Series	• DGS-1100 serie • DGS-1210 series • DGS-1250 series • DGS-1510 series • DGS-1520 series • DGS-1530 series • DMS-1250 series • DXS-1210 series • DXS-1250 series
	Wi-Fi 7	Wi-Fi 6	Wi-Fi 5
Access Point	• DAP-E9560	• DAP-X3060OU • DAP-X3060W • DAP-X3060 • DAP-X2850 • DAP-X2810	• DAP-3666 • DAP-2662

Network Application Scenarios and Solutions

This guide covers 12 network application scenarios, catering to enterprises, educational institutions, commercial environments, and building infrastructure, while providing customized networking solutions tailored to different scales and requirements.

We explore the networking needs and challenges of each scenario, offering precise solutions, deployment strategies, and key advantages. Within each Network Deployment Overview, we will introduce specific network nodes, highlighting corresponding product features and technical benefits, and demonstrating how D-Link's enterprise-grade solutions empower businesses to build efficient, secure, and easily manageable network infrastructures.

Application

Enterprise - Small and Medium Enterprises

Small-to-Midsize Scale <500 Users

Network Requirements

- Convenient and intuitive management interface
- Stable network connection quality for a productive work environment
- Easily expandable network equipment to accommodate company growth
- High bandwidth and low latency to enhance work efficiency
- Seamless wireless connectivity with authentication
- Ensures user identity authenticity and prevents unauthorized access

Network Challenges

- Lack of efficient tools for network management
- Frequent network instability during work hours
- Difficulty and high costs in upgrading basic network infrastructure
- Slow Internet speed and poor connection quality leading to restricted productivity
- Poor wireless network coverage and unstable signals
- Challenges in correctly identifying and authorizing devices during multi-device management

Our Network Solutions

	Cost-Optimized Network Solution		High Performance Network Solution	
	PoE	**Non-PoE**	**PoE**	**Non-PoE**
Network Controller	**DNH-1000** Manage up to 500 devices		**DNH-1000** Manage up to 500 devices	
Edge Switch	**DMS-1250-12TP** 8x2.5GE PoE + 2x10GE + 2x10G SFP+		**DXS-1210-12SC** 10x10G SFP+ / 2x10GE Combo	
Edge Switch	**DGS-1100-18PV2** 16xGE PoE + 2xGE Combo,130W	**DGS-1100-16V2** 16xGE	**DMS-1250-18P** 16x2.5GE PoE + 2x10G SFP+, 370W	**DMS-1250-18** 16x2.5GE + 2x10G SFP+
Access Point	**DAP-X2810** Wi-Fi 6 AX1800		**DAP-X3060** Wi-Fi 6 AX3000	

Solution Benefits

1 Nuclias DNH-1000 provides an intuitive management interface, enabling easy network monitoring, VLAN configuration, QoS setup, and troubleshooting.

2 2.5G / 10G Ethernet ports deliver higher bandwidth capacity to reliably meet growing network traffic demands.

3 2.5G and 10G switches and the latest network technologies like Wi-Fi 6 and Wi-Fi 7, ensuring high-speed connectivity.

4 PoE+ powers Ethernet devices like APs and IP phones, reducing cabling requirements and lowering costs and complexity.

5 Features like 802.1X authentication and ACL access control prevent unauthorized access and network attacks, enhancing security.

6 Wi-Fi 6 and Wi-Fi 7 APs bind different SSIDs to specific network segments, ensuring secure connections for various wireless devices.

*The listed benefits pertain to the high-performance version only.
 For confirmation on feature availability in cost-optimized models, please consult your sales representative.

Network Deployment Overview
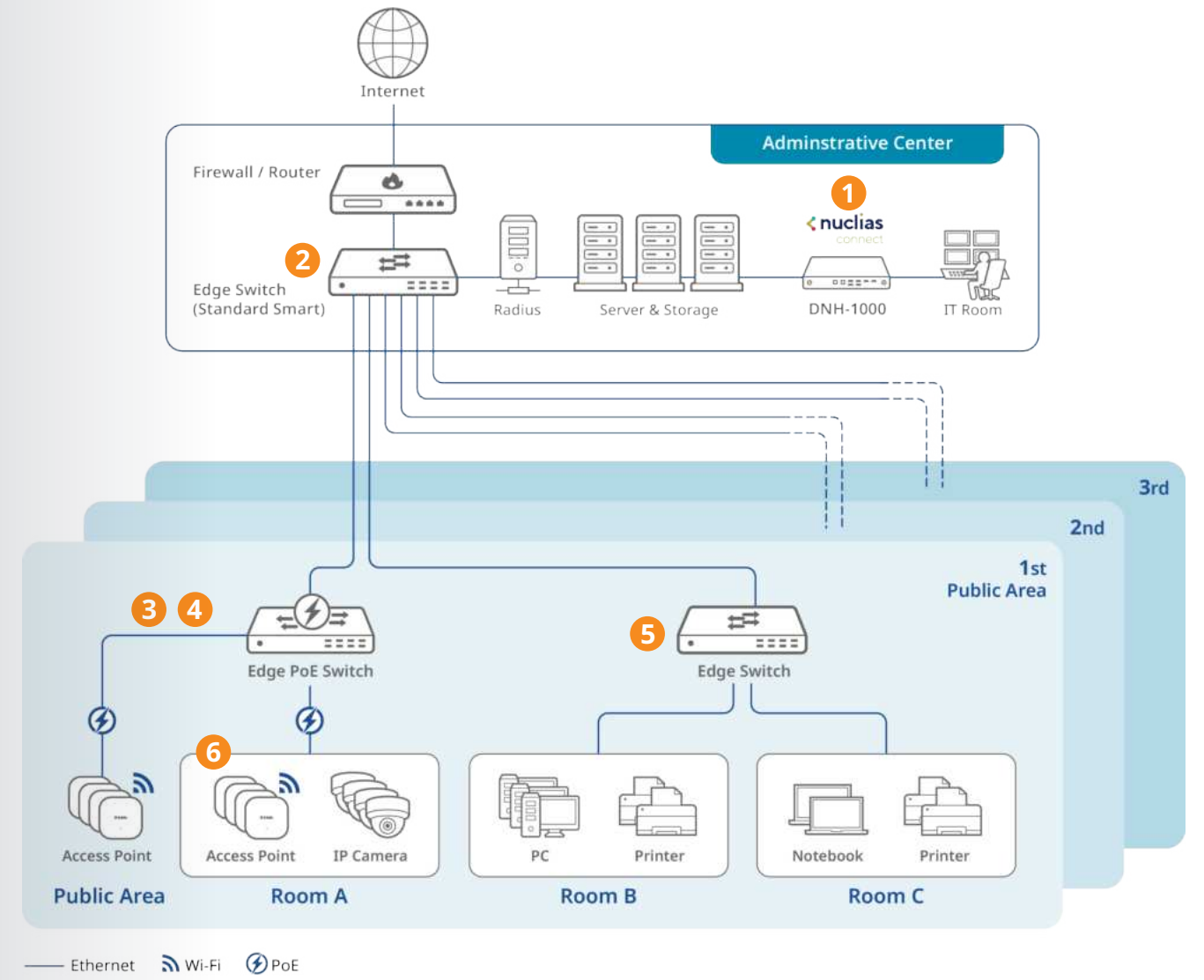
Application

Enterprise - Midsize Enterprise

Midsize-to-Large Scale <1000 Users

Network Requirements

- Centralized management and monitoring capabilities
- High-performance, low-latency core network
- High-density device connectivity (wired/wireless)
- Highly-reliable design with redundancy
- Seamless wireless connectivity with authentication
- Ensures user identity authenticity and prevents unauthorized access

Network Challenges

- Inefficient device management
- Inability to fully utilize network equipment performance
- Bandwidth bottlenecks affecting business operations
- Prolonged maintenance time during network outages
- Unstable wireless network connections
- Challenges in accurately identifying and authorizing devices during multi-device management

Our Network Solutions

	Cost-Optimized Network Solution		High Performance Network Solution	
	PoE	Non-PoE	PoE	Non-PoE
Network Controller	nuclias connect — DNH-3000 Manage up to 1,500 devices		nuclias connect — DNH-3000 Manage up to 1,500 devices	
Aggregation Switch		DXS-3130-32S 28x10G SFP+ + 4x25G SFP28		DXS-3130-32S 28x10G SFP+ + 4x25G SFP28
Aggregation Switch		DMS-3130-30TS 24x2.5GE + 2x10GE + 4x25G SFP28		DMS-3130-30TS 24x2.5GE + 2x10GE + 4x25G SFP28
Edge Switch	DGS-1210-28MP 24xGE PoE + 4xGE Combo, 370W		DXS-1250-28YP 24x10GE PoE + 4x25G SFP28, 470W	DMS-1250-28 24x2.5GE + 4x10G SFP+
Unmanaged Switch		DGS-1016D 16xGE		
Access Point	DAP-X2810 Wi-Fi 6 AX1800		DAP-E9560 Wi-Fi 7 BE9500	

Solution Benefits

1 Nuclias DNH-3000 enables centralized control of up to 1,500 devices, simplifying network tasks and improving IT efficiency. Switches support CLI, GUI, SNMP, and RMON for precise management.

2 Static and dynamic routing protocols such as RIP and OSPF help to offload router workloads and enhance network efficiency.

3 2.5G, 10G, and 25G ports deliver high bandwidth and throughput, meets the growing network traffic demands.

4 ERPS ensures rapid fault recovery, maintaining connections during link or device failures and enhancing network stability and business continuity.

5 Seamless user mobility allows devices to quickly switch to the nearest and strongest AP, ensuring uninterrupted connectivity.

6 Features like 802.1X authentication, ACLs, and IP-MAC-Port Binding prevent unauthorized access and attacks, ensuring robust network security.

*The listed benefits pertain to the high-performance version only.
 For confirmation on feature availability in cost-optimized models, please consult your sales representative.

Network Deployment Overview
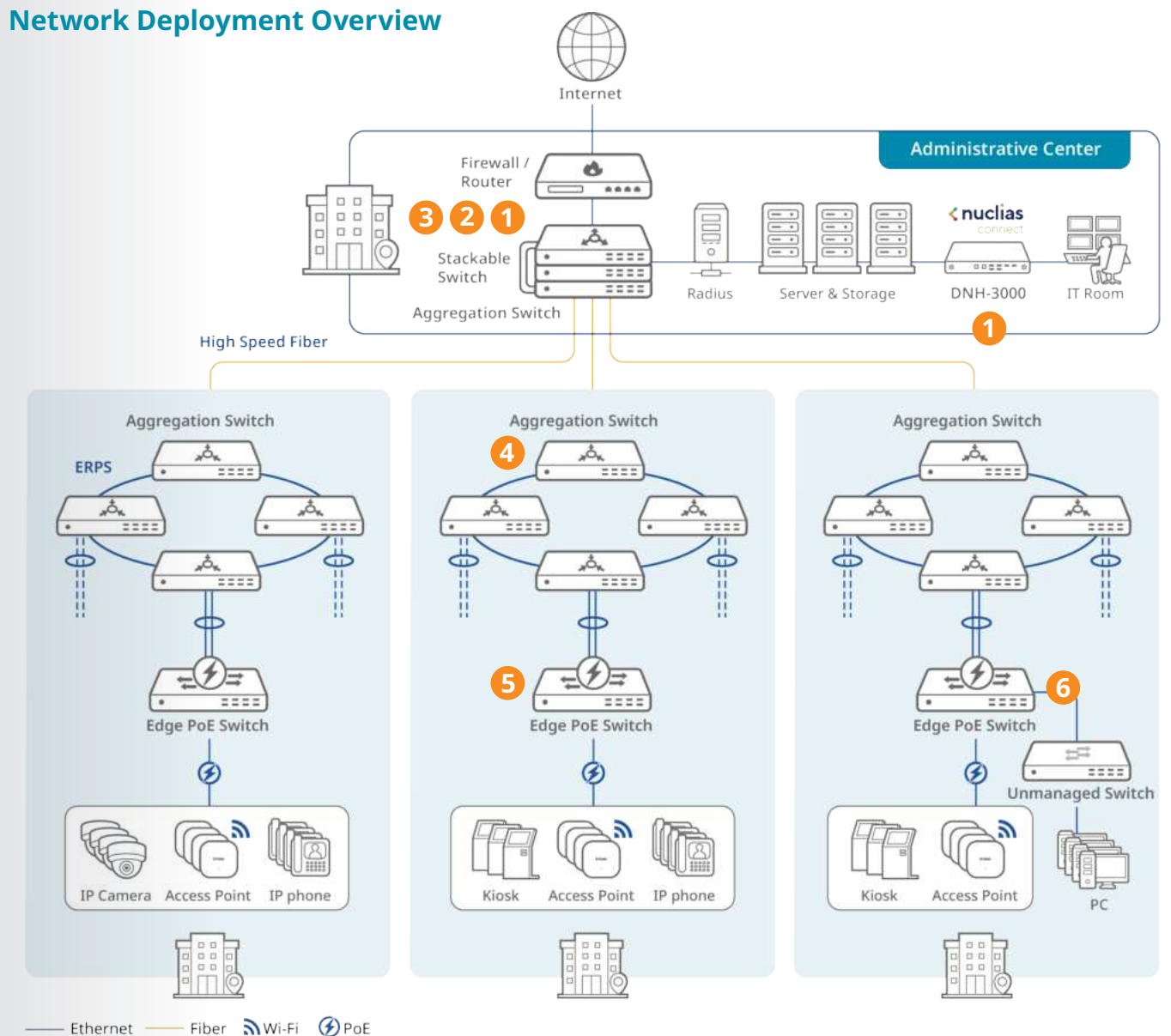
Application

Enterprise - HQ & Branch

Large Scale <5000 Users

Network Requirements

- Centralized management of multi-branch networks
- Ensure stable, high-speed data and communication
- Prevent interruptions, maintain business stability
- Support diverse devices with data and power integration
- Manage access rights for users and devices
- Comprehensive debugging for complex network operations

Network Challenges

- Decentralized management blocks monitoring and integration
- Latency and interruptions reduce application productivity
- Slow recovery disrupts operations and efficiency
- Devices lack PoE and high-speed support
- Personal devices increase cyberattack vulnerability risks
- Misconfigurations may cause network-wide broadcast storms

Our Network Solutions

		Cost-Optimized Network Solution		High Performance Network Solution	
		PoE	Non-PoE	PoE	Non-PoE
Network Controller	HQ	nuclias hyper	DNC-5000 Manage up to 2,000 devices	nuclias hyper	DNC-5000 Manage up to 2,000 devices
	Branch				
Core Switch	HQ		DXS-3610-54S 48x10G SFP+ + 6x100G QSFP28	DQS-3630-56ZS 48x25G SFP28 + 8x100G QSFP28	
	Branch				
Aggregation Switch	HQ		DXS-3130-32S 28x10G SFP+ + 4x25G SFP28		DXS-3410-32SY 28x10G SFP+ + 4x10G SFP+ + 4x25G SFP28
	Branch		DGS-3130-30S 24xGE + 2x10GE + 4x10G SFP+		DXS-3130-32S 28x10G SFP+ + 4x25G SFP28
Edge Switch	HQ	DGS-1530-28P 24xGE PoE + 4x10G SFP+, 370W	DGS-1530-28 24xGE + 4x10G SFP+	DXS-1250-28YP 24x10GE PoE + 4x25G SFP28, 470W	DMS-1250-28 24x2.5GE + 4x10G SFP+
	Branch	DGS-1210-28MP 24xGE PoE + 4xGE Combo, 370W		DXS-1250-28YP 24x10GE PoE + 4x25G SFP28, 470W	DMS-1250-28 24x2.5GE + 4x10G SFP+
Access Point	HQ	DAP-X2810 Wi-Fi 6 AX1800		DAP-E9560 Wi-Fi 7 BE9500	
	Branch				

Solution Benefits

1 Nuclias Hyper (DNC-5000) is a comprehensive solution for managing network switches and wireless APs. It uses VPN tunneling to centrally manage up to 2000 devices across headquarters and branch offices, enabling real-time monitoring and troubleshooting.

2 Supports Layer 3 routing (BGP, MPLS, VRRP, OSPF) for efficient traffic distribution and load balancing across remote sites. Provides 25G and 100G interfaces for high-speed connections between data center servers and databases.

3 Aggregates core and edge network traffic with G.8032 ERPS for millisecond-level failover, ensuring uninterrupted backbone connectivity. Physical stacking simplifies management and enables on-demand scaling.

4 Multiple PoE power outputs and total power budgets with PD-Alive detection to automatically power cycle connected devices (IP cams or APs) to restore normal operation.

5 Various security access technologies, including IMPB, ACLs, 802.1X, RADIUS, TACACS+, Web-Access Control, SSH, and HTTPS, ensuring enterprise information security.

6 Loop protection technologies such as LBD, STP/RSTP/MSTP, BPDU Guard, and Root Guard to prevent network loops, while ERPS ensures fast failover during link or device failures, enhancing network stability.

*The listed benefits pertain to the high-performance version only. For confirmation on feature availability in cost-optimized models, please consult your sales representative.

Network Deployment Overview
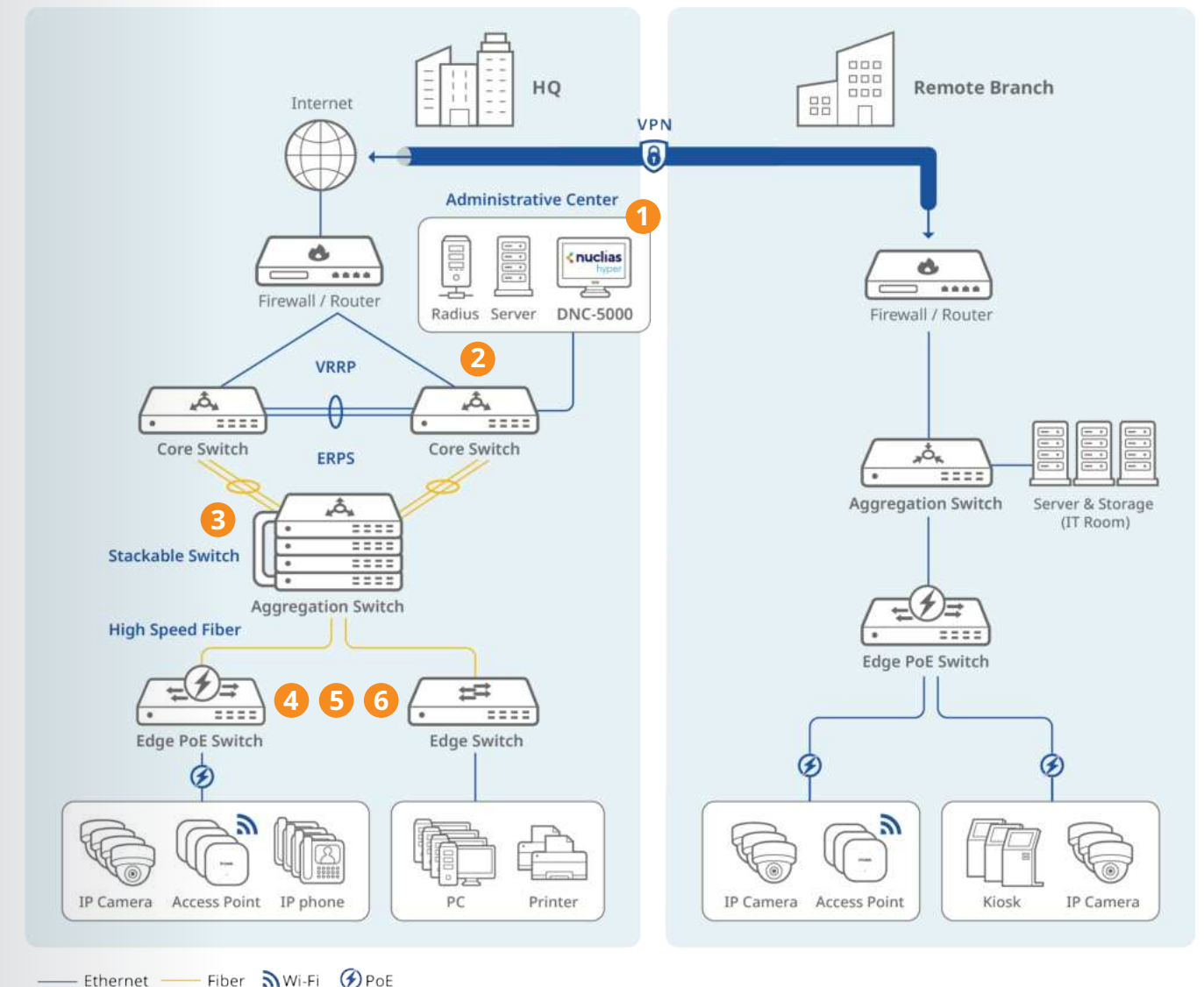
Education - K-12 school

Small-to-Midsize Scale <500 Users

Network Requirements

- Regular firmware updates ensure stable system operations
- Reliable connections support video learning and testing
- Install surveillance cameras for public area safety
- Teachers must centrally manage classroom equipment real-time
- Wireless networks must shut down after school hours
- Centrally manage large number of teaching tablets

Network Challenges

- Individually updating devices is inefficient and time-consuming
- AV broadcasting may trigger storms, overuse bandwidth
- Surveillance network configurations are complex to manage
- Limited classroom cabling requires integrated power, data planning
- Dispersed wireless AP deployment is difficult and slow
- Managing many mobile devices requires significant resources

Our Network Solutions

Solution Benefits

1 The DNH-1000 offers centralized management on a single platform, capable of managing up to 500 devices, allowing teachers to quickly update firmware with ease.

2 The system provides Storm Control to prevent broadcast storms, avoiding network disruptions caused by audio-visual broadcasting. With IGMP, multimedia content can be directly forwarded to classroom smart boards, reducing bandwidth waste.

3 Automated VLAN monitoring and Quality of Service (QoS) for traffic allocation, ensuring surveillance video and educational multimedia transmission are prioritized.

4 PoE switches offer centralized management, rapid installation, and easy scalability to integrate all classroom network devices.

5 Using PoE Scheduling, power to APs can be terminated after school hours to shut them down, achieving energy savings and carbon reduction.

6 Third-party authentication methods (e.g., Passcode, MAC-RADIUS) for managing mobile devices, ensuring only authorized teaching tablets and laptops can access the wireless network.

*The listed benefits pertain to the high-performance version only. For confirmation on feature availability in cost-optimized models, please consult your sales representative.

Network Deployment Overview
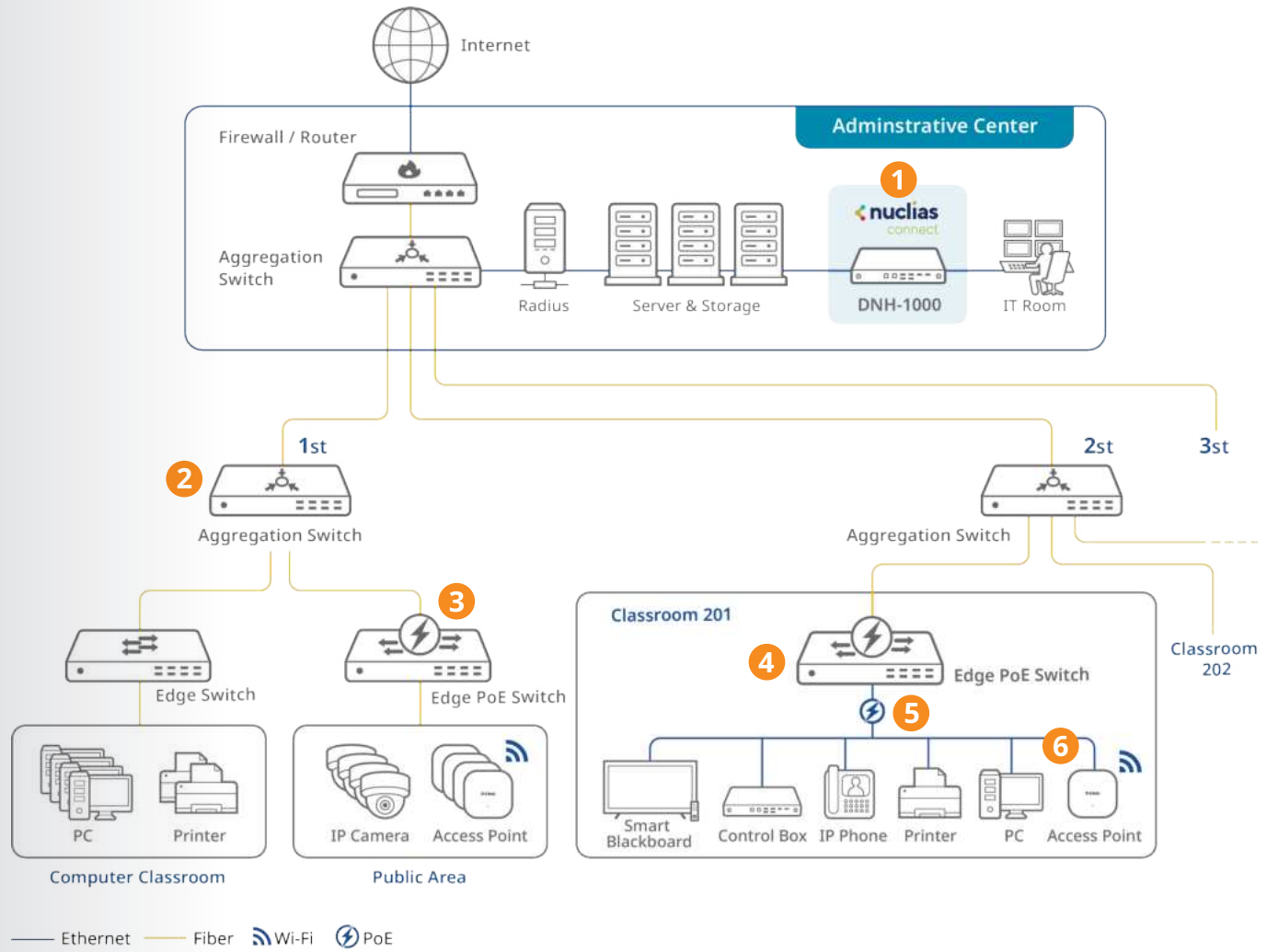
Application

Education - College

Midsize-to-Large Scale <1000 Users

Network Requirements

- Management software must support various device types
- High-performance, scalable infrastructure supports future expansion needs
- Ensure stable and seamless connectivity across classrooms, labs, and public areas
- Quickly resolve network failures to reduce downtime
- Prevent students from disrupting network or hosting
- Ensure full campus wireless with separate guest access

Network Challenges

- Management tools incompatible with diverse connected devices
- Core network switches underperform under heavy load
- Widely spaced departments complicate network infrastructure deployment
- High maintenance labor costs from on-site personnel
- Unauthorized network devices increase security vulnerability risks
- Access permissions are complex and hard to manage
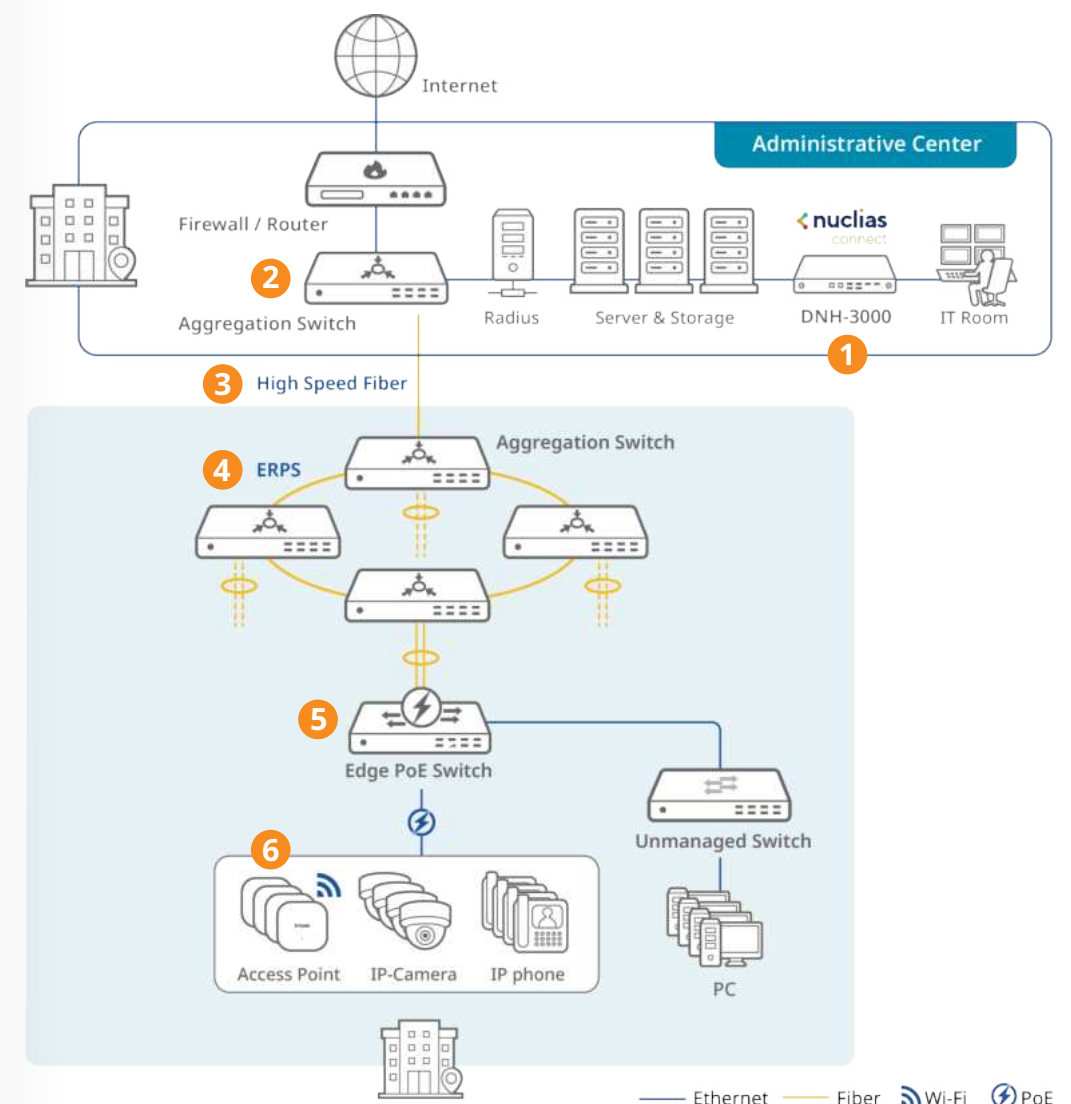
Our Network Solutions

	Cost-Optimized Network Solution		High Performance Network Solution	
	PoE	Non-PoE	PoE	Non-PoE
Network Controller	nuclias connect	DNH-3000 Manage up to 1,500 devices	nuclias connect	DNH-3000 Manage up to 1,500 devices
Aggregation Switch		DXS-3130-32S 28x10G SFP+ + 4x25G SFP28		DXS-3130-32S 28x10G SFP+ + 4x25G SFP28
Edge Switch	DGS-1210-28MP 24xGE PoE + 4xGE Combo, 370W		DXS-1250-28YP 24x10GE PoE + 4x25G SFP28, 470W	
Unmanaged Switch		DGS-1016D 16xGE		DMS-1016 16x2.5GE
Access Point	DAP-X2810 Wi-Fi 6 AX1800		DAP-E9560 Wi-Fi 7 BE9500	

Solution Benefits

1 The DNH-3000 can collect and manage information from up to 1,500 network devices for centralized monitoring by administrators.

2 Provides Layer 3 routing and switching with a large MAC address table to handle high network traffic, such as data forwarding for big data analysis in research labs.

3 The fiber-optic high-speed switch eliminates the traditional 100-meter copper cable transmission limit, enabling fast and secure long-distance transmission across the campus.

4 When a campus network segment fails, Ethernet Ring Protection Switching (ERPS) protocol switches to the backup path within 50 milliseconds to virtually eliminate classroom network disruption.

5 Access Control Lists (ACLs) and link port binding for security features, allowing only whitelisted mobile devices to be used on the campus.

6 By configuring multiple SSIDs and authentication servers, the network can distinguish between the campus network and guest networks, offering different resources based on user identity.

*The listed benefits pertain to the high-performance version only.
For confirmation on feature availability in cost-optimized models, please consult your sales representative.

Network Deployment Overview

Application

Education - Transnational University

Large Scale <5000 Users

Solution Benefits

1 Nuclias Hyper (DNC-5000) enables the main campus to create system configuration files and distribute them in batches to branch campus devices, allowing rapid configuration for up to 2,000 devices.

2 Fiber switches with 10/40/100 Gbps transmission speeds, greatly enhancing network throughput for academic data with the advantages of fiber technology.

3 In the event of primary network failure, VRRP (Virtual Router Redundancy Protocol) and ERPS (Ethernet Ring Protection Switching) automatically switch to backup networks, ensuring uninterrupted operation of critical campus backbone networks.

4 The stacking feature allows multiple switches to be combined into a single configuration, simplifying management while accommodating additional devices as the school network grows.

5 Identifies and blocks rogue DHCP servers, preventing the issuance of incorrect IP addresses. This effectively protects sensitive research data by stopping hackers from locating specific school hosts.

6 Provides multiple SSID authentication and VLAN-based group segmentation, offering differentiated access rights and bandwidth for students, faculty, and staff across the main and branch campuses.

*The listed benefits pertain to the high-performance version only.
 For confirmation on feature availability in cost-optimized models, please consult your sales representative.

Network Requirements

- Centralized configuration avoids misconfigurations across campuses
- Sufficient bandwidth ensures smooth main-branch campus access
- Provide stable connectivity with reliable backup options
- Flexible scalability supports future campus network expansion
- Implement strong security to protect confidential information
- Wireless networks support tiered access permission levels

Network Challenges

- Overseas campuses can't be configured in real time
- System must handle high-volume data with low latency
- Manual failover causes delays during network failures
- Individual device setup increases deployment, maintenance costs
- DHCP spoofing may cause serious data security breaches
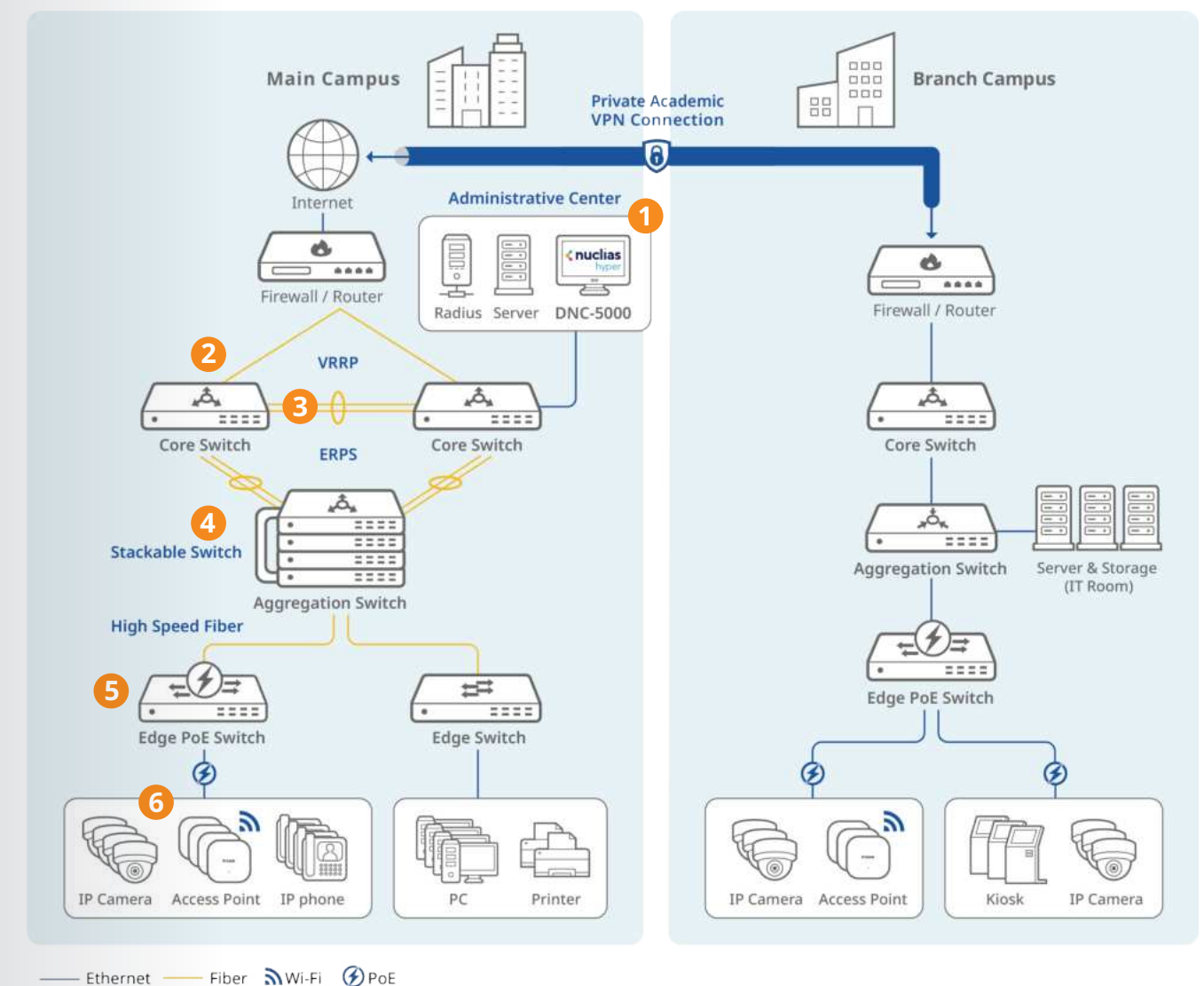- Permission settings differ across main, branch campuses

Network Deployment Overview

Our Network Solutions

	Cost-Optimized Network Solution		High Performance Network Solution	
	PoE	Non-PoE	PoE	Non-PoE
Network Controller	**‹ nuclias** hyper — DNC-5000 Manage up to 2,000 devices		**‹ nuclias** hyper — DNC-5000 Manage up to 2,000 devices	
Core Switch		**DXS-3610-54T** 48x10GE + 6x100G QSFP28		**DQS-3630-56ZS** 48x25G SFP28 + 8x100G QSFP28
Aggregation Switch		**DGS-3130-54TS** 48xGE + 2x10GE + 4x10G SFP+		**DXS-3410-32XY** 24x10GE + 4x10G SFP+ + 4x25G SFP28
Edge Switch	**DGS-1530-28P** 24xGE PoE + 4x10G SFP+, 370W	**DGS-1530-28** 24xGE + 4x10G SFP+	**DXS-1250-28YP** 24x10GE PoE + 4x25G SFP28, 470W	**DMS-1250-28** 24x2.5GE + 4x10G SFP+
Access Point	**DAP-X2810** Wi-Fi 6 AX1800		**DAP-E9560** Wi-Fi 7 BE9500	

Application

Business - Wholesale Store

Small-to-Midsize Scale <500 Users

Network Requirements

- Centralized management of network devices to improve network management efficiency
- Ensure data segregation between sales and inventory management systems to avoid data mix-ups
- transactions and customer service systems. Optimize network bandwidth for store
- Enhance network security to prevent unauthorized devices from accessing the internal network
- High-density device connection capability to avoid network delays
- Power delivery to multiple devices while reducing installation time and wiring complexity

Network Challenges

- Store size and number of devices/services make network deployment, configuration optimization, and centralized network management a daunting task
- Network resources and security segregation for managing different departments are difficult to implement
- During peak store hours with high network traffic, transaction delays and data loss may occur
- Cybersecurity risks of unauthorized device access requires more stringent access control technologies
- Wi-Fi bandwidth bottlenecks affect real-time checkout, inventory updates, and payment transactions
- Blind spots in surveillance leave products vulnerable to theft and compromise personnel safety
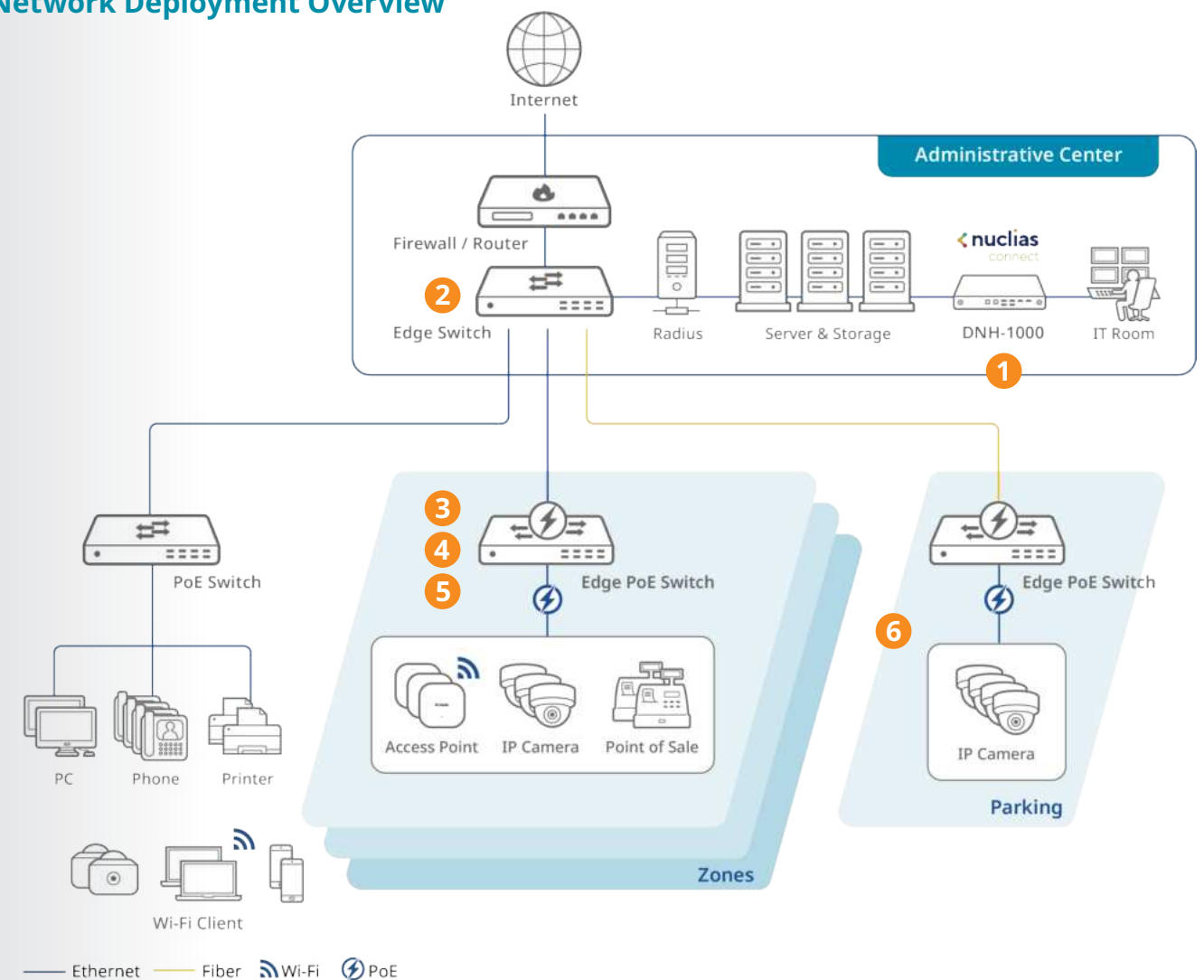
Our Network Solutions

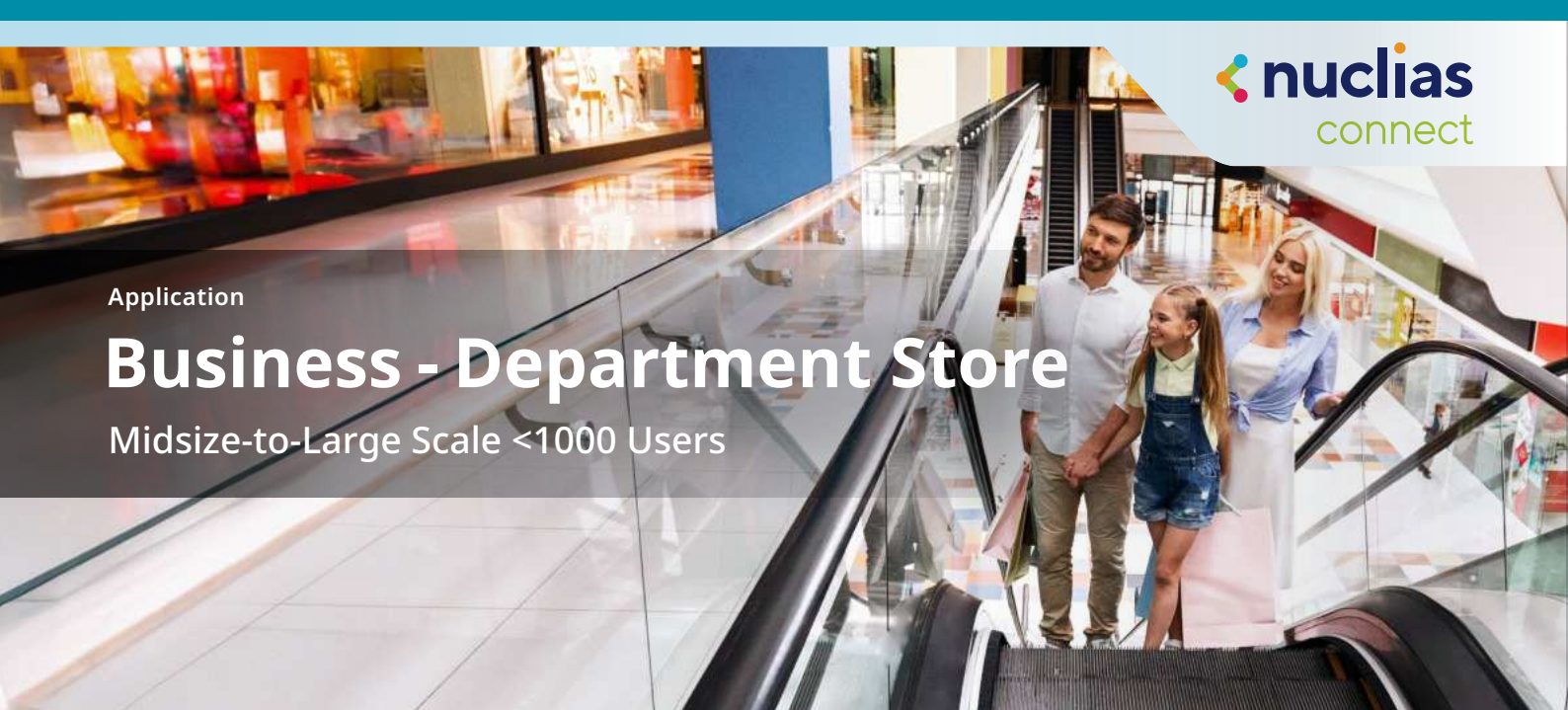| Network Controller	Cost-Optimized Network Solution		High Performance Network Solution	
	PoE	**Non-PoE**	**PoE**	**Non-PoE**
Network Controller	**DNH-1000** Manage up to 500 devices		**DNH-1000** Manage up to 500 devices	
Edge Switch	**DGS-1100-18PV2** 16xGE PoE + 2xGE Combo,130W	**DGS-1210-28** 24xGE + 4xGE Combo	**DMS-1250-18P** 16x2.5GE PoE + 2x10G SFP+, 370W	**DMS-1250-28** 24x2.5GE + 4x10G SFP+
Unmanaged Switch	**DGS-1026P** 24xGE PoE + 2x1G SFP, 240W		**DGS-1026P** 24xGE PoE + 2x1G SFP, 240W	
Access Point	**DAP-X2810** Wi-Fi 6 AX1800		**DAP-X3060** Wi-Fi 6 AX3000	

Solution Benefits

1 The DNH-1000 management platform manages up to 500 devices, making it ideal for centralized management of all network equipment within the store.

2 VLAN management provides effective network segmentation for various departments such as for security surveillance, cashiers, inventory, and accounting, avoiding network congestion and enhancing network security.

3 Features such as 802.1X authentication and ACL (Access Control Lists) help prevent unauthorized access and network attacks, ensuring the security of the network.

4 The PoE switch provides high bandwidth data transmission as well as power supply for endpoint devices.

5 Stable Wi-Fi network transmission ensures real-time updates to inventory systems and guarantees fast and stable transactions during checkout, reducing customer wait time.

6 The PoE switch connects multiple surveillance devices, ensuring stable network and long-distance power delivery (up to 250m) for smooth operation of security systems and store theft prevention.

*The listed benefits pertain to the high-performance version only. For confirmation on feature availability in cost-optimized models, please consult your sales representative.

Network Deployment Overview

Application
Business - Department Store
Midsize-to-Large Scale <1000 Users

Solution Benefits

1 The DNH 3000 provides centralized management and monitoring for up to 1500 devices, enhancing overall operational efficiency and ensuring network stability in multi-floor department stores.

2 Physical switch stacking allows traffic of a failed switch to be rerouted to functioning switches, ensuring uninterrupted business operations.

3 Port security and VLAN isolation enhance network security to protect customer payment information and personal data from external attacks or unauthorized internal access.

4 QoS traffic allocation and protection enable smooth data flow across all areas in the store to ensure seamless store operations.

5 Adequate power budget and multi-port PoE power supply simplify device deployment, providing stable power to surveillance equipment, APs, and other devices while reducing installation time and costs.

6 2.5G/10G high-speed connectivity ensures smooth transmission of real-time applications like POS systems and video surveillance.

*The listed benefits pertain to the high-performance version only.
For confirmation on feature availability in cost-optimized models, please consult your sales representative.

Network Requirements

- Centralized monitoring and management of many devices in different areas on different floors
- Network scalability to meet expansion needs while maintaining system stability
- Data protection mechanisms to enhance security
- Optimized resource allocation to ensure the stable operation of payment systems
- High power delivery to endpoint devices for surveillance systems and wireless access points
- Stable network speeds to enable real-time updates of sales and inventory data

Network Challenges

- Complex environments and many devices complicate network maintenance tasks
- Deployment and configuration of network equipment across different floors is time consuming complex
- To prevent internal data theft, stringent internal data access measures are required
- Ensure smooth and uninterrupted data flow across all areas of the department store
- PoE devices need high power for stable performance
- Network latency issues reduce efficiency and real-time operations

Our Network Solutions

	Cost-Optimized Network Solution		High Performance Network Solution	
	PoE	Non-PoE	PoE	Non-PoE
Network Controller	nuclias connect	DNH-3000 Manage up to 1,500 devices	nuclias connect	DNH-3000 Manage up to 1,500 devices
Aggregation Switch		DMS-3130-30TS 24x2.5GE + 2x10GE + 4x25G SFP28		DXS-3130-32S 28x10G SFP+ / 4x25G SFP28
Edge Switch	DGS-1210-28MP 24xGE PoE + 4xGE Combo, 370W	DGS-1100-16V2 16xGE	DMS-1250-28P 16x2.5GE PoE + 2x10G SFP+, 370W	DMS-1250-28 24x2.5GE + 4x10G SFP+
Access Point	DAP-X2810 Wi-Fi 6 AX1800		DAP-X3060 Wi-Fi 6 AX3000	

Network Deployment Overview

nuclias hyper

Business - Outlet Store

Large Scale <5000 Users

Network Requirements

- Centralized management for a multitude of network devices to enhance operational efficiency
- Long-distance fiber data synchronization and real-time transmission
- Ensure stable network speeds to facilitate smooth operation and payment transactions
- Equip outdoor mall spaces with reliable lightning protection mechanisms
- Network coverage must reach all outdoor outlet mall areas
- Robust data security to prevent unauthorized devices and personnel from accessing the network
- Offer customers free Wi-Fi access while integrating marketing promotions

Network Challenges

- Management tools struggle to support diverse devices, making deployment and maintenance challenging
- The extensive mall area increases wiring complexity
- Advanced protections need expertise, increasing cost and complexity
- Outdoor network equipment exposed to serious threats such as lightning strikes, which can severely impact network availability and damage network equipment
- The threat of unauthorized network access significantly increases in high-traffic outlet environments
- Captive portal optimization and integration require complex configurations to prevent disruptions to normal access and maintain business efficiency
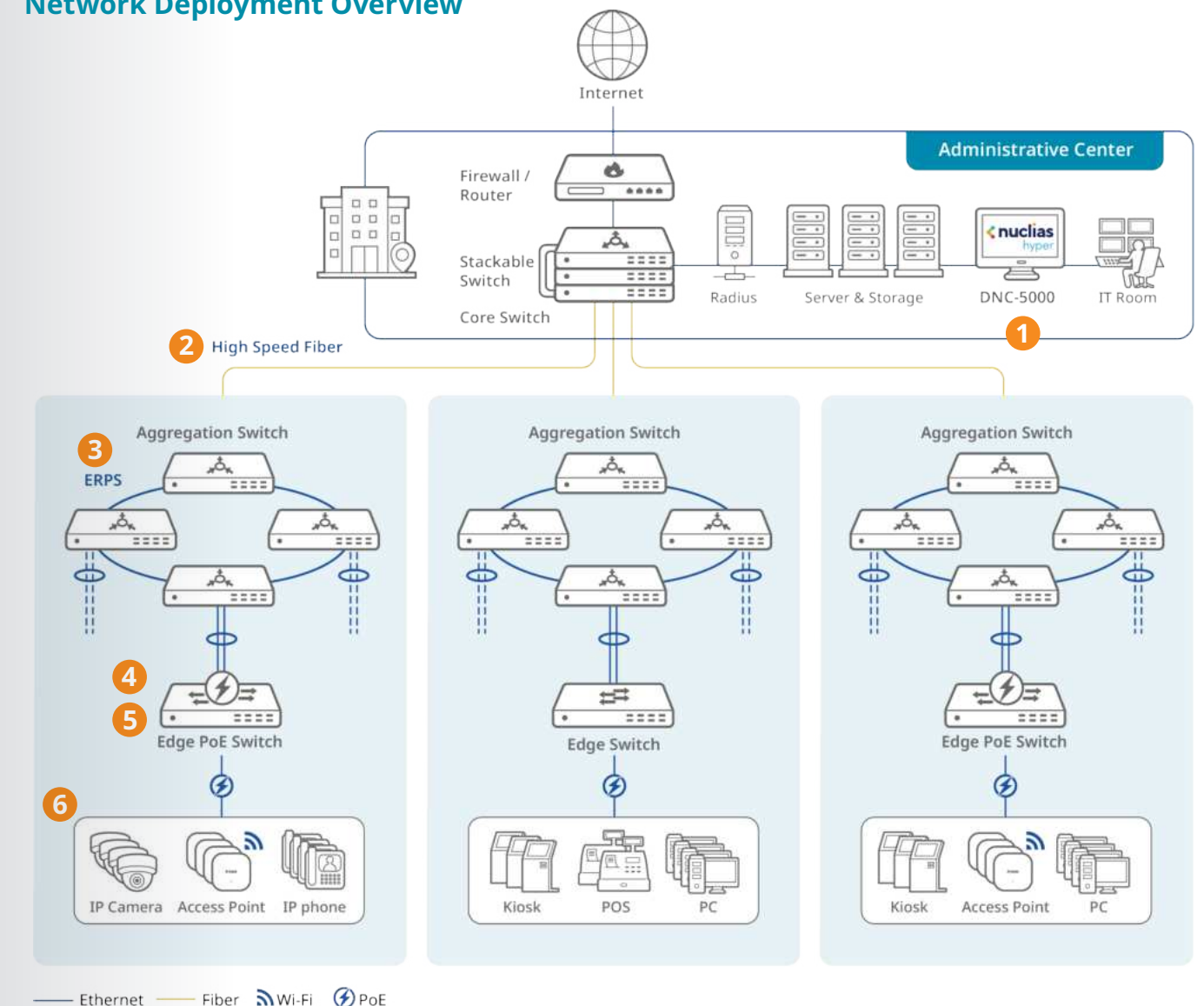
Our Network Solutions

	Cost-Optimized Network Solution		High Performance Network Solution	
	PoE	**Non-PoE**	**PoE**	**Non-PoE**
Network Controller	nuclias hyper — DNC-5000 Manage up to 2,000 devices		nuclias hyper — DNC-5000 Manage up to 2,000 devices	
Core Switch		DXS-3610-54T 48x10GE + 6x 100G SFP28		DQS-3630-56ZS 48x25G SFP28 + 8x100G QSFP28
Aggregation Switch		DGS-3130-54S 48x1G SFP + 2x10GE + 4x10G SFP+		DXS-3410-32SY 24x10GE + 4x10G SFP+ + 4x25G SFP28
Edge Switch	DGS-1530-28P 24xGE PoE + 4x10G SFP+, 370W	DGS-1530-28 24xGE + 4x10G SFP+	DXS-1250-28YP 24x10GE PoE + 4x25G SFP28, 470W	DMS-1250-28 24x2.5GE + 4x10G SFP+
Access Point	DAP-X2810 Wi-Fi 6 AX1800		DAP-E9560 Wi-Fi 7 BE9500	

Solution Benefits

1 Nuclias Hyper (DNC-5000) can manage up to 2,000 devices, helping outlets manage the entire network, including switches and wireless equipment.

2 The fiber optic link offers up to 25G of high-speed bandwidth, enables long-distance data transmission, and high scalability to meet future expansion needs.

3 Ethernet Ring Protection Switching (ERPS) enables connection fault recovery of network devices within 50 milliseconds after failure, minimizing or even eliminating the impact caused by network outages.

4 Equipped with 6kV lightning protection, the switches can effectively prevent high-voltage surges, reducing the risk of equipment damage from lightning strikes.

5 Edge switches offers robust network security features and encryption protocols, including 802.1X authentication and ACLs to prevent unauthorized network access.

6 Captive Portal allows businesses to quickly customize their login pages, enabling the display of relevant ads and promotional activities to nearby shoppers.

*The listed benefits pertain to the high-performance version only. For confirmation on feature availability in cost-optimized models, please consult your sales representative.

Network Deployment Overview

Application

Building - Dormitory

Small-to-Midsize Scale <500 Users

Solution Benefits

1 DNH-1000 provides an intuitive web-based management interface to centrally manage up to 500 devices, including edge switches and access points.

2 The plug-and-play unmanaged switch is designed to be easy to install, set up, and operate without requiring any IT expertise.

3 PoE for power and data transmission over the same network cable, eliminating costs for additional power outlets.

4 EAP enables seamless wireless roaming to ensure stable and uninterrupted signal connectivity across multiple access points.

5 The system provides VLAN configuration and captive portal-based authentication for secure and managed network access.

6 Supports 802.1X RADIUS-based authentication to enhance overall network access security.

*The listed benefits pertain to the high-performance version only.
 For confirmation on feature availability in cost-optimized models, please consult your sales representative.

Network Requirements

- Install network equipment in each area and centralized management of wireless access points
- The equipment offers a stable power supply that is easy to manage
- Wi-Fi coverage extends throughout the rooms and common areas
- Network segments can be isolated to ensure network security and efficient access
- A reliable and secure authentication method is implemented to safeguard access

Network Challenges

- The dormitory has limited personnel to deploy a large number of network equipment on each floor and lack IT knowledge to centrally manage wireless access points
- Network equipment installation points are numerous, but existing power outlets are very limited
- The building's complex structure interferes with wireless network signals
- Managing network access for a variety of users is not easy
- Setting up user identity data for each device is labor-intensive and prone to errors
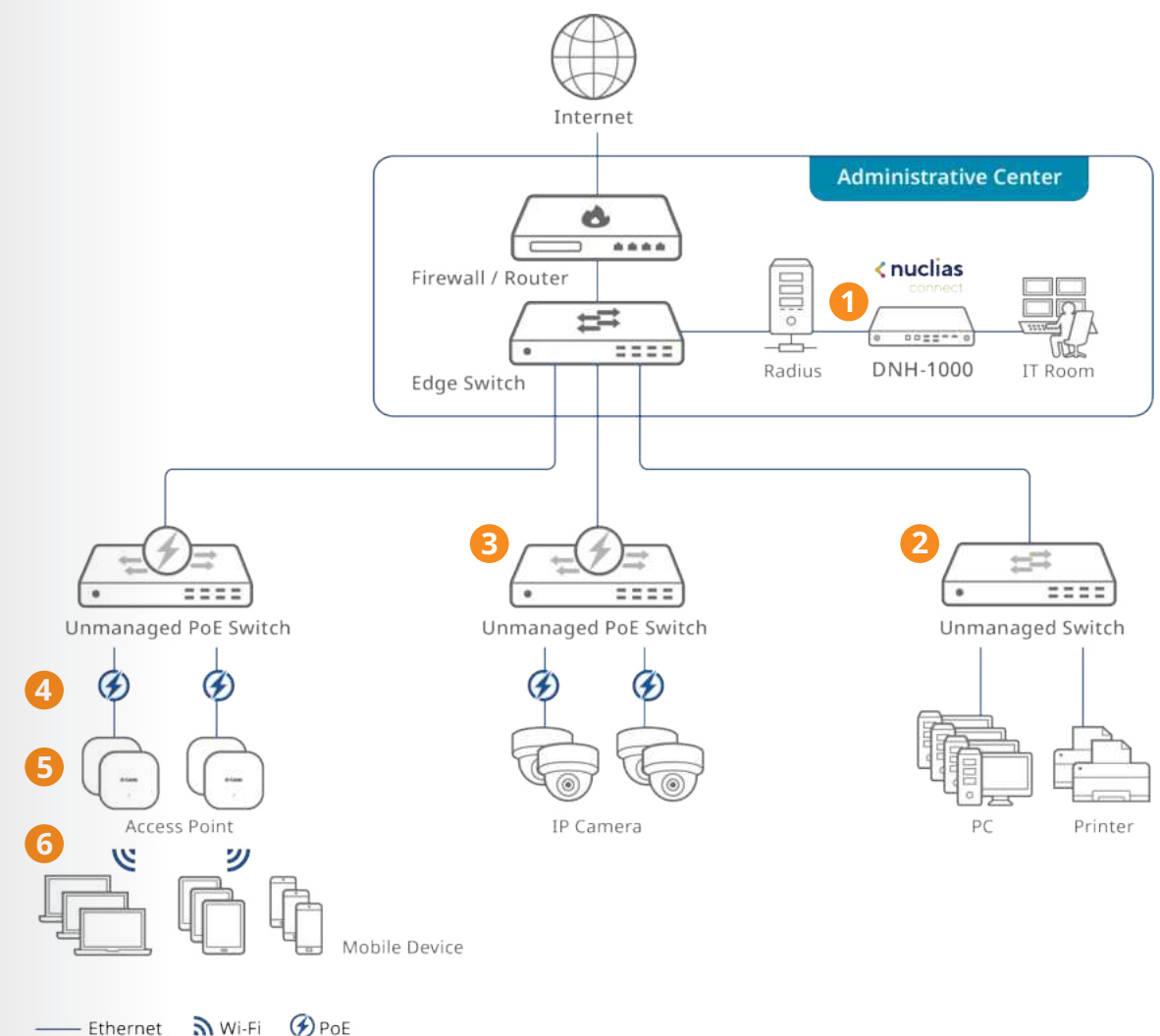
Network Deployment Overview

Our Network Solutions

	Cost-Optimized Network Solution		High Performance Network Solution	
	PoE	Non-PoE	PoE	Non-PoE
Network Controller	nuclias connect — DNH-1000 Manage up to 500 devices		nuclias connect — DNH-1000 Manage up to 500 devices	
Edge Switch		DGS-1100-24V2 24xGE		DMS-1250-28 24x2.5GE + 4x10G SFP+
Unmanaged Switch	DGS-1018P / 26P 16/24xGE PoE + 2xSFP, 240W	DGS-1024D 24xGE	DMS-108P 8x2.5GE PoE, 240W	DMS-1016 / 24 16/24x2.5GE
Access Point	DAP-X2810 Wi-Fi 6 AX1800		DAP-X3060 Wi-Fi 6 AX3000	

Application

Building - Hotel

Midsize Scale <1000 Users

Network Requirements

- Centralized management and monitoring of multiple devices to ensure network performance and security
- Provide uninterrupted network service and rapid network recovery
- Ensure data transmission is segmented to prevent interference or data leaks between guest and staff networks
- High-power PoE for devices requiring substantial power, such as Wi-Fi 6 APs and IP cameras
- Prevent wireless interference between access points
- Eliminate Wi-Fi dead zones and deliver high-speed, stable connections

Network Challenges

- Manage and monitor connection status and actual data usage of a large number of active devices
- Backup networks may require additional hardware or manpower, significantly increasing deployment costs
- Sharing customer and internal networks can lead to data breaches or network attacks
- Traditional power sources are not available in certain areas, significantly increasing power cabling costs
- Configuring wireless access points one at a time is labor-intensive and prone to errors
- The hotel's intricate building structure weakens Wi-Fi signals
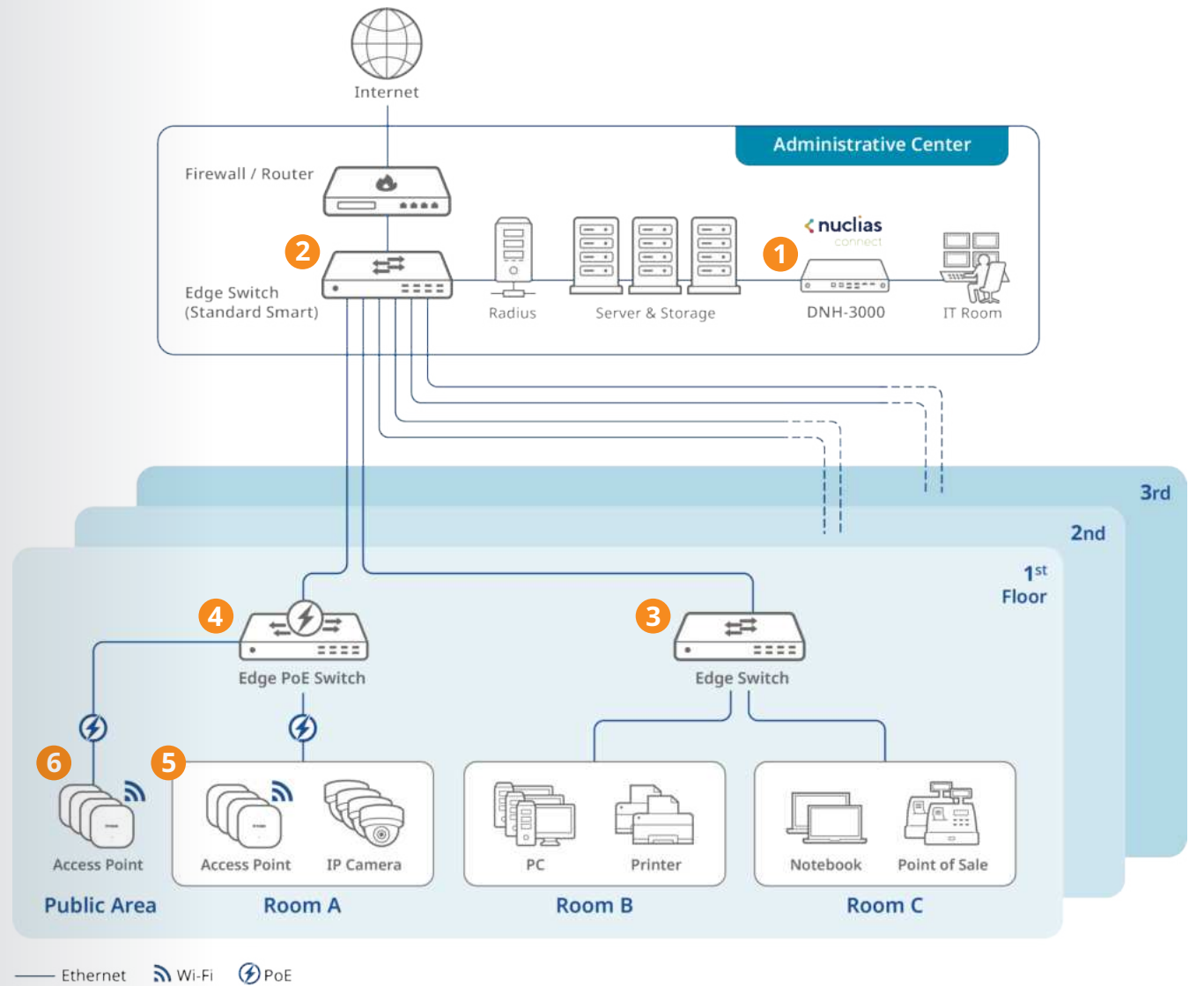
Our Network Solutions

	Cost-Optimized Network Solution		High Performance Network Solution	
	PoE	Non-PoE	PoE	Non-PoE
Network Controller		DNH-3000 Manage up to 1,500 devices		DNH-3000 Manage up to 1,500 devices
Aggregation Switch		DGS-1210-28 24xGE + 4xGE Combo		DXS-1210-12SC 10x10G SFP+ / 2x10GE Combo
Edge Switch	DGS-1100-18PV2 16xGE PoE + 2xGE Combo, 130W	DGS-1100-16V2 16xGE	DMS-1250-18P 16x2.5GE PoE + 2x10G SFP+, 370W	DMS-1250-18 16x2.5GE + 2x10G SFP+
Access Point	DAP-X2810 Wi-Fi 6 AX1800		DAP-X3060 Wi-Fi 6 AX3000	

Solution Benefits

1 The DNH-3000 platform enables centralized management and monitoring for up to 1500 devices.

2 Provides ERPS to prevent network disconnections and quickly restore connectivity, ensuring uninterrupted internet access.

3 VLAN traffic segmentation to provide basic network protection for different network access groups.

4 Delivers up to 90W of power for high-power devices such as Wi-Fi 6 APs and PTZ/infrared IP cameras.

5 APs utilize automatic channel selection mechanisms to effectively avoid potential wireless signal interference.

6 EAP provides wireless roaming functionality for seamless and uninterrupted network connectivity across multiple access points.

*The listed benefits pertain to the high-performance version only.
For confirmation on feature availability in cost-optimized models, please consult your sales representative.

Network Deployment Overview

Building - High-Rise Community

Large Scale <5000 Users
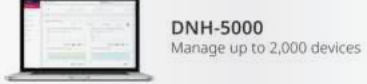
‹nuclias hyper

Solution Benefits

1 Nuclias Hyper (DNC-5000) platform enables centralized management and monitoring for up to 2000 devices.

2 When a device connection is detected, ERPS (Ethernet Ring Protection Switching) can quickly restore network connectivity.

3 LACP (Link Aggregation Control Protocol) is used to enhance network bandwidth and ensure redundancy.

4 The aggregation switches allow physical stacking to ensure that network connectivity is not affected during device failures or maintenance.

5 RADIUS, 802.1X, and a captive portal are adopted to replace traditional network authentication setups.

6 The AP utilizes automatic channel selection technology to effectively avoid wireless channel interference.

*The listed benefits pertain to the high-performance version only.
 For confirmation on feature availability in cost-optimized models, please consult your sales representative.

Network Requirements

- Central management tool to efficiently and manage and monitor a large number of devices
- When network interruption occurs, connectivity must recover quickly to restore network operation
- Network must scale to support future bandwidth growth
- In the event of equipment failure, they should be easily replaceable without affecting network performance
- The user authentication process should be quick and seamless to enhance the user experience
- It's crucial to prevent network speed degradation caused by excessive user traffic on the wireless network

Network Challenges

- Compatibility across a large number of devices needs to be resolved
- Traditional backup solutions are expensive and slow to restore network connectivity
- The budget for redeploying network equipment is very limited
- Maintenance or replacement of switches causes network downtime in the building
- High user turnover makes legacy authentication inefficient and error-prone
- The abundance of wireless devices leads to signal interference, causing network congestion
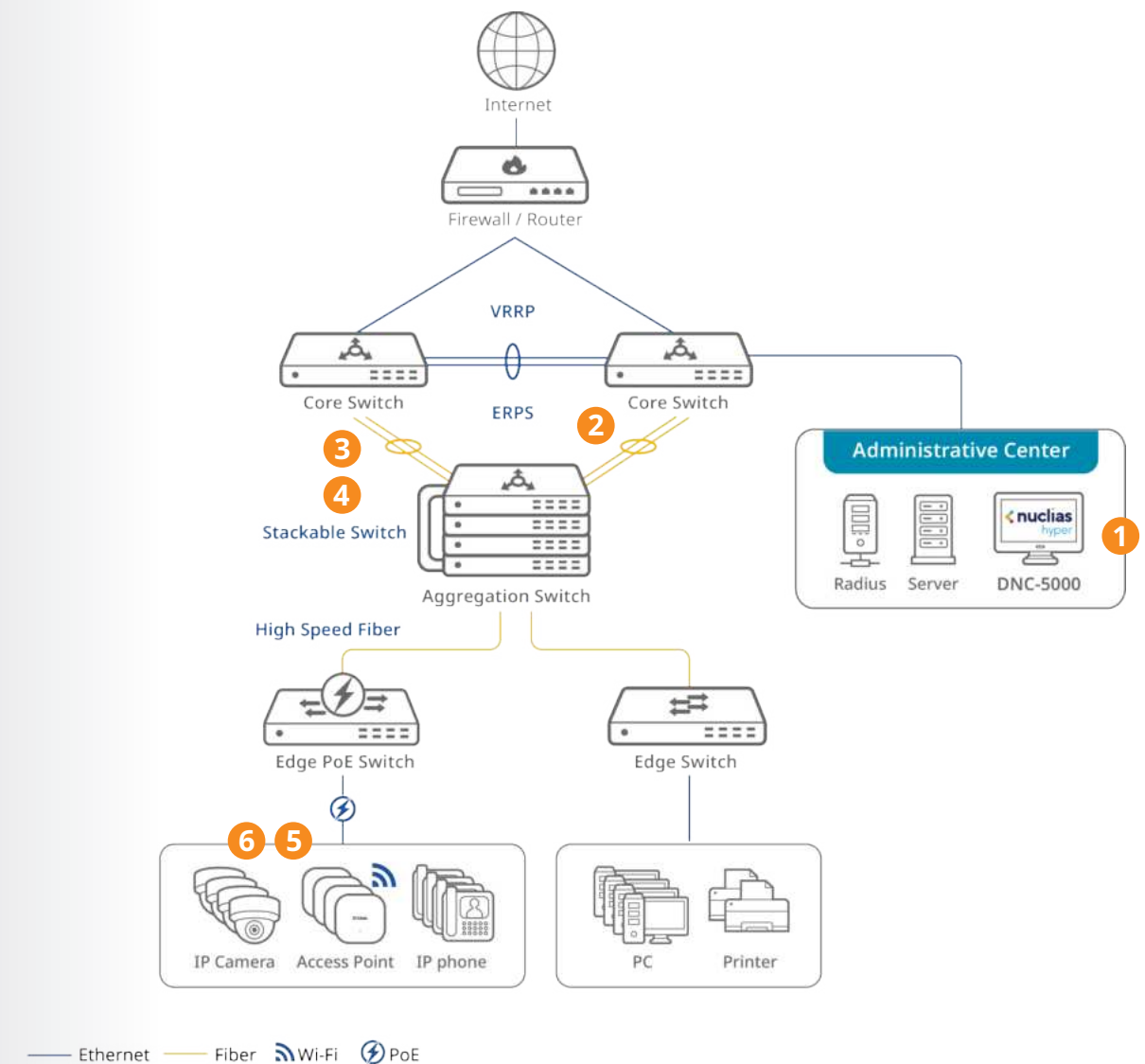
Network Deployment Overview

Our Network Solutions

	Cost-Optimized Network Solution		High Performance Network Solution	
	PoE	Non-PoE	PoE	Non-PoE
Network Controller	‹nuclias hyper — DNH-5000 Manage up to 2,000 devices		‹nuclias hyper — DNH-5000 Manage up to 2,000 devices	
Core Switch		DXS-3410-32SY 24x10GE + 4x10G SFP+ + 4x25G SFP28		DQS-3630-56ZS 48x25G SFP28 + 8x100G QSFP28
Aggregation Switch		DMS-3130-30TS 24x2.5GE + 2x10GE + 4x25G SFP28		DXS-3130-32S 28x10G SFP+ + 4x25G SFP28
Edge Switch	DGS-1210-28MP 24xGE PoE + 4xGE Combo, 370W		DXS-1250-28YP 24x10GE PoE + 4x25G SFP28, 470W	DMS-1250-18P 16x2.5GE PoE + 2x10G SFP+, 370W
Unmanaged Switch		DGS-1016D 16xGE		DMS-1016 16x2.5GE
Access Point	DAP-X2810 Wi-Fi 6 AX1800		DAP-E9560 Wi-Fi 7 BE9500	DAP-X3060OU Wi-Fi 6 AX3000

D-Link®