



Unlock Networking Possibilities with Cloud

Nebula Secure Cloud Networking Solution
Solution Guide



nebula

We help you make everything easier



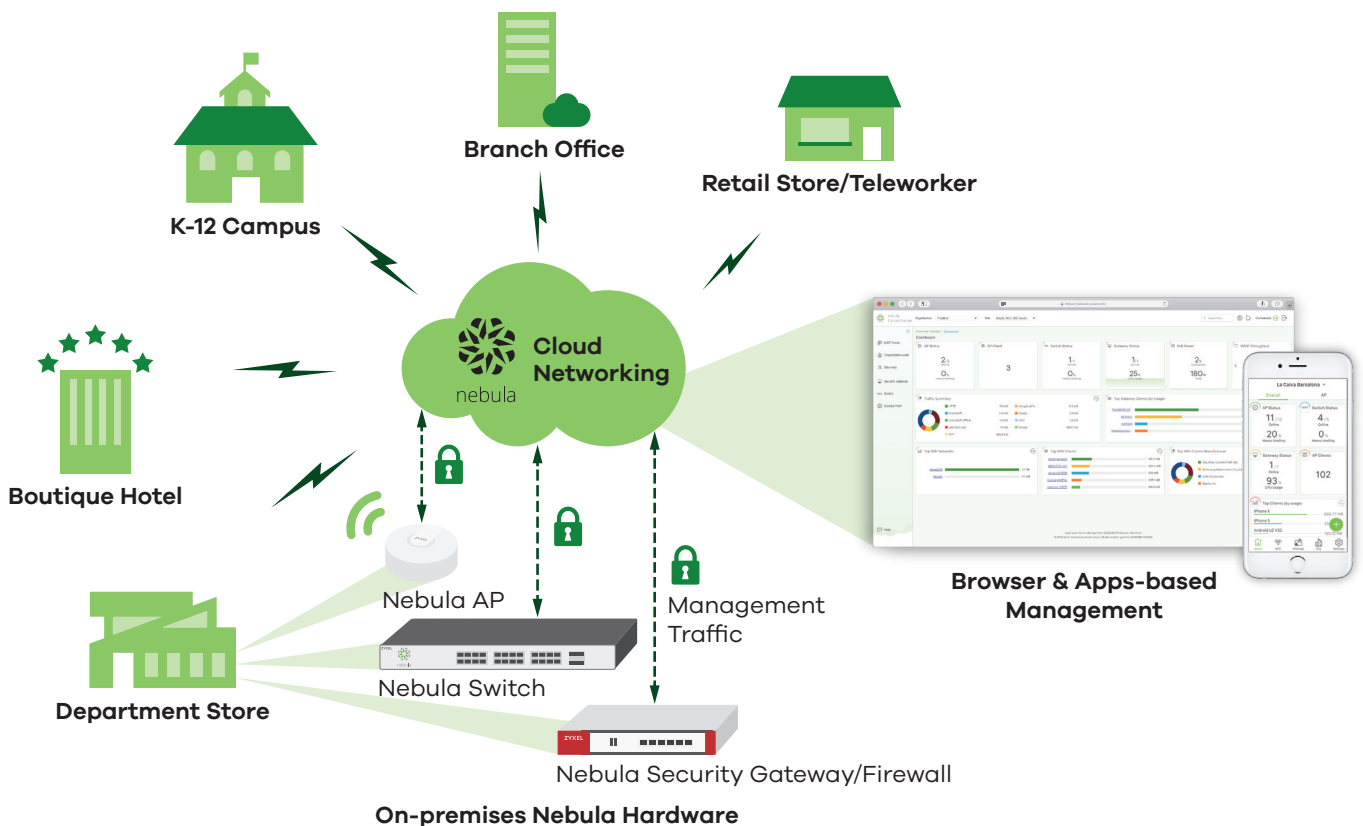
Overview

Nebula secure cloud networking solution provides cloud-based, centralized control and visibility over all Nebula wired, wireless and security hardware — all without the cost and complexity of on-site control

equipment or overlay management systems. With comprehensive product portfolio that can be centrally managed from the cloud, Nebula offers simple, intuitive and scalable management for all networks.

Highlights

- Intuitive, automated network management interface as well as continuous feature updates that eliminate training and labor for network implementation, maintenance and support
- Zero-touch provisioning, built-in multi-tenant, multisite network management tools accelerate deployment of large networks
- Centralized, unified and on-demand control as well as visibility that reduce capital expense for hardware and software
- Free cloud management for the life of the product without the need for ongoing costs
- NAP, NSW, NSG series and APs and switches with NebulaFlex Pro, along with USG FLEX firewalls (0102F bundled SKUs) are sold with bundled Professional Pack license for you to experience advanced cloud management features
- A comprehensive networking and security product portfolio from a single vendor ensures better product compatibility
- Per-device licensing model with flexible subscriptions provides rich diversity and high flexibility for customers of all sizes



Introduction to Nebula secure cloud networking solution

Nebula's networking and security products, including access points, switches, security gateways and firewalls, are purpose-built for cloud management. They break the traditions and come up with easy management, centralized control, auto-configuration, real-time Web-based diagnostics, remote monitoring and more.

The Nebula cloud managed networking introduces an affordable, effortless approach for network deployments with high security and scalability to provide completely control over Nebula devices and users. When an organization grows from small sites to massive,

distributed networks, the Nebula hardware with cloud-based self-provisioning enables easy, quick and plug-n-play deployment to multiple locations without IT professionals.

Through Nebula cloud services, firmware and security signature updates are delivered seamlessly, while secure VPN tunnels can be established automatically between different branches over the Web with just a few clicks. Based on a secure infrastructure, Nebula is designed with fault-tolerant properties that enable local networks to keep operating properly in WAN downtimes.



Nebula secure cloud networking solution architecture

The Nebula Cloud provides a networking paradigm for building and managing networks over the Internet in the Software as a Service model. Software as a Service (SaaS) is defined as a way of delivering software for users to access via the Internet rather than local installation. In the Nebula architecture, network functions and management services are pushed to the cloud and delivered as a service that provides instant control to the entire network without wireless controllers and overlay network management appliances.

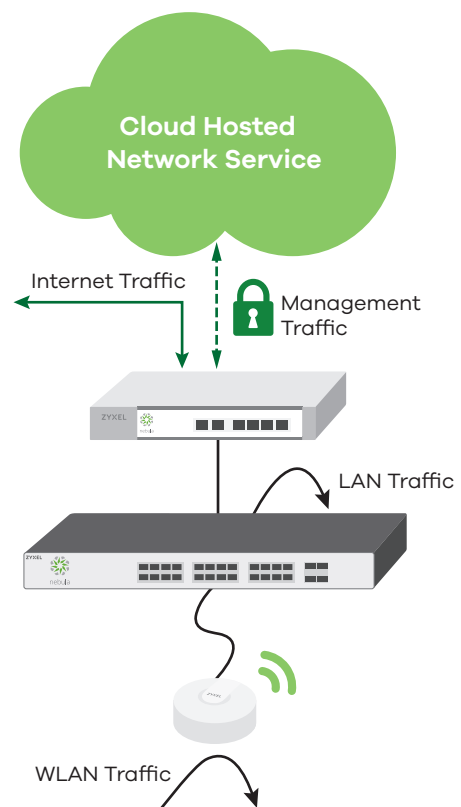
All Nebula devices are built from the ground up for cloud management with the capability to communicate with Nebula's cloud control center through the Internet. This TLS-secured connectivity between hardware and the cloud provides network-wide visibility and control for network management using the minimal bandwidth.

Over the cloud, thousands of Nebula devices around the world can be configured, controlled, monitored and managed under a single pane of glass. With multi-site network management tools, businesses are allowed to deploy new branches of any size, while administrators are able to make policy changes any time from a central control platform.

Data Privacy and Out-of-band Control Plane

The Nebula service uses the infrastructure and services built upon the Amazon Web Service (AWS), so all Nebula security details can be referred to AWS Cloud Security. Nebula is committed to data protection, privacy and security as well as compliance with applicable regulatory frameworks in the world. Nebula's technical architecture along with its internal administrative and procedural safeguards can assist customers with design and deployment of cloud-based networking solutions that comply with EU data privacy regulations.

In Nebula's out-of-band control plane, network and management traffics are split into two different data paths. Management data (e.g. configuration, statistics, monitoring, etc.) turn towards Nebula's cloud from devices through an encrypted Internet connection of the NETCONF protocol, while user data (e.g. Web browsing and internal applications, etc.) flows directly to the destination on the LAN or across the WAN without passing through the cloud.



Features of the Nebula Architecture:

- End user data does not traverse through the cloud.
- Unlimited throughput, no centralized controller bottlenecks when new devices are added.
- Network functions even if connection to cloud is interrupted.
- Nebula's cloud management is backed by a 99.99% uptime SLA.

NETCONF Standard

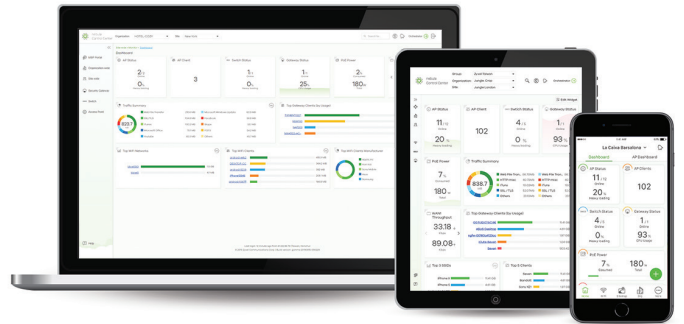
Nebula is an industry-first solution that implements NETCONF protocol for safety of configuration changes in cloud management as all NETCONF messages are protected by TLS and exchanged using secure transports. Prior to NETCONF, CLI scripting and SNMP were two common approaches; but they have several limitations such as lacking of transaction management or useful standard security and commit mechanisms. The NETCONF protocol has been designed to address the shortcomings of the existing practices and protocols.

With the support of TCP and Callhome to overcome the NAT barrier, NETCONF is considered more reliable and elegant. It is also thinner than CWMP (TR-069) SOAP, which saves Internet bandwidth. With these features, the NETCONF protocol is regarded as more suitable for cloud networking.

Nebula Control Center (NCC)

Nebula Control Center offers a powerful insight into distributed networks. Its intuitive and web-based interface illustrates an instant view and analysis of network performance, connectivity and status automatically and continuously. Integrated with organization-wide and site-wide management tools, Nebula provides a quick and remote access for administrators to ensure the network is up and performing efficiently.

Nebula Control Center is also engineered with a number of security tools that provide optimal protection to networks, devices and users; and they also deliver the needed information to enforce security and enhance control over the entire Nebula network.



Highlights

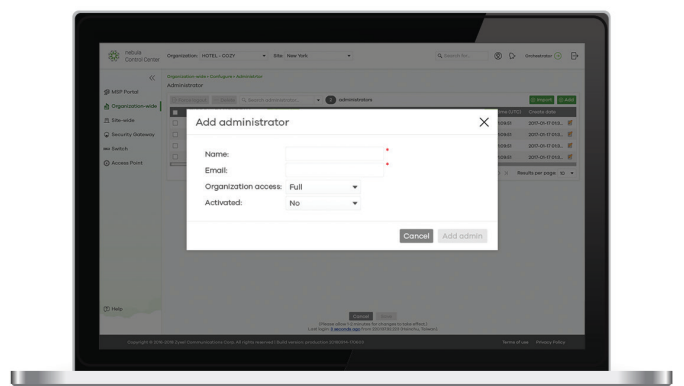
- Responsive web design and intuitive user interface with light & dark modes
- Multi-lingual management interface (English, Traditional Chinese, Japanese, German, French, Russian and more to come)
- Multi-tenant, multi-site manageability
- Role-based administration privileges
- First time setup wizard
- Powerful organization-wide management tools shooting tools
- Rich site-wide management tools
- Site-based auto and smart configuration tools
- Misconfigure protection against disconnecting NCC
- Configuration changing alerts
- Login & Configure auditing
- Real-time and historical monitoring/reporting
- Granular device based information and trouble shooting tools
- Flexible firmware management

First Time Setup Wizard

Nebula first time setup wizard helps create your organization/site and setup an integrated network with only a few simple clicks, making your devices up and running in minutes.

Role-based Administration

Supervisors are allowed to appoint different privileges for multiple administrators to manage network and guess access. Specify management authority in the network access control function to maximize security and to avoid accidental misconfiguration.



Role-based Administration

Organization-wide Management Tools

Powerful organization-wide features such as organizational overview, configuration backup and restore, configuration template and configuration clone are supported to allow MSP and IT admins to manage their org/sites much easier.

Site-wide Management Tools

Integrated with the feature-rich dashboards, maps, floor plans, automatic visual and actionable network topology and site-based auto and smart configuring tools, the Nebula Control Center delivers instant network analysis and automatically performs AP authentication, configuration parity check, switch ports link aggregation and site-to-site VPN.

Misconfiguration Protection

To prevent any connectivity interruption caused by incorrect or inappropriate configuration, the Nebula devices can intelligently identify if the order or setting from NCC is correct to ensure the connection is always up with the Nebula cloud.

Configuration Changing Alerts

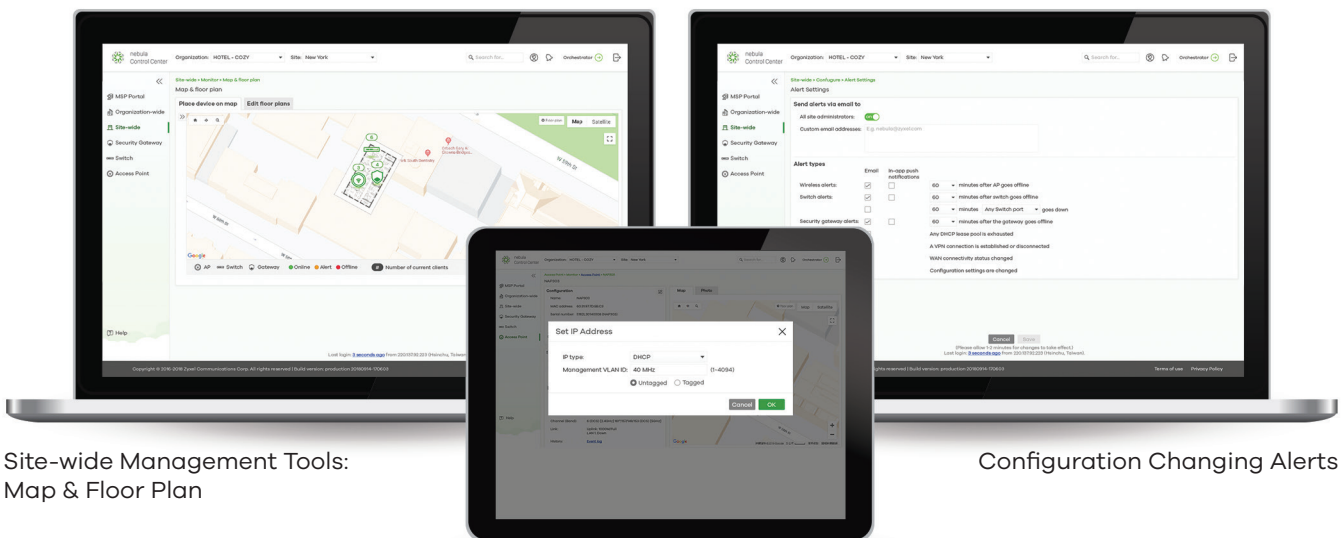
Configuration changing alerts help administrators to manage thousands of networking devices more efficiently, especially in larger or distributed sites. These real-time alerts are automatically sent from the Nebula Cloud system when configuration changes are made to keep new policies always up-to-date in the entire IT organization.

Login & Configure Auditing

The Nebula cloud control center automatically records the time and IP address of every logged in administrators. The configure audit log lets administrators track Web-based login actions on their Nebula networks to see what configuration changes were made and who made the changes.

Real-time & Historical Monitoring

Nebula Control center provides 24x7 monitoring over the entire network, giving administrators real-time and historical activity views with unlimited status records that can be backdated to the installation time.



Site-wide Management Tools:
Map & Floor Plan

Configuration Changing Alerts

Misconfiguration Protection:
Set IP Address

Nebula Mobile App

The Nebula mobile app offers a fast approach to network management, providing an instant view of multiple sites for you to monitor network status in real time. With it, you can perform WiFi network configuration, break down usage by device and client, troubleshoot with live tools,

check the status of connected Nebula devices and clients at a glance, and scan device QR codes to register large numbers of devices to the Nebula Control Center all at once. The app's features and functions include:

Highlights

- Sign up Nebula account
- Installation walk through wizard for creating org & site, adding devices (QR code or manually), setting up WiFi networks
- Captive portal customization
- Configure WPA3 supported
- Bandwidth usage limits for WiFi networks
- Switch ports settings & Create PoE schedule
- Configure clients policies
- MSP portal with org/site status
- View dashboard with traffic summary & AP dashboard
- Site-wide map view
- Check map and photo of device location
- Monitor No. of connected clients per device type
- View VPN connection topology
- Live trouble shooting tools: reboot, LED, switch port power cycle, cable diagnostics, connection test
- Create firmware upgrade schedule
- Push notifications - VPN & device down/up (free from V.2.2)
- Notification center up to 7 days alert history
- Scan license QR code
- Tech support and case management



Product families

Nebula Access Points

Nebula's high-performance cloud managed APs are designed for deployments in offices, schools, hospitals, hotels, and retail stores. Featuring the latest 802.11ac technology including MIMO, dual-concurrent, dual-band operation and advanced technologies such as Smart Antenna, DCS, Load Balancing and Smart Client Steering, Nebula APs can deliver high throughput and reliable coverage for superb WiFi experience.




Since every Nebula AP is engineered for cloud management, all data traffics between the cloud and APs are exchanged using secure transports. With the intuitive cloud interface, administrators are able to control all the distributed access points quickly even without training. Automatic configuration, provision, monitoring and diagnostics can be performed anytime, anywhere.

Highlights

- 3x3 802.11ac AP supports up to 1.75 Gbps (NAP203, NAP303, NAP353)
- Dual-optimized antenna (NAP203)
- Smart antenna design (NAP303)
- IP66-rated weather protection (NAP353)
- Self-configuring, zero-touch deployments



Product Options

Model	NAP203	NAP303	NAP353
Product name	802.11ac Dual-Radio, Dual-Optimized Antenna 3x3 Nebula Cloud Managed Access Point	802.11ac Dual-Radio Smart Antenna 3x3 Nebula Cloud Managed Access Point	802.11ac Dual-Radio External Antenna 3x3 Nebula Cloud Managed Outdoor Access Point
			
Typical deployment	Medium to high density deployments	High density and interference-laden indoor environments	Harsh outdoor environments
Radio specification	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.75 Gbps max rate • 3x3 MIMO with 3 streams 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.75 Gbps max rate • 3x3 MIMO with 3 streams 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.75 Gbps max rate • 3x3 MIMO with 3 streams
Power	802.3at PoE only (No DC jack)	DC input: 12 VDC, 2 A PoE: 802.3at compliant	PoE: 802.3at compliant
Antenna	Dual-optimized internal antenna	6 embedded Smart Antenna	6 N-type connectors*

* The antenna is not embedded and external antennas are separately sold.

** 3-year Professional Pack license is bundled in every Nebula AP.



Nebula Switches

The Zyxel Nebula cloud managed layer-2 switches are ideal for deployment to branch locations. Designed to be managed completely from the Nebula Control Center, the cloud interface of Nebula switches provides site-wide configuration and monitoring of all ports that allow multiple switches to be configured at the same time with a single click.

The Nebula switches introduce many cloud benefits, such as simplified configuration, easy management, site-wide visibility and real-time control for speedy branch network deployments to networks. Advanced settings such as user friendly ACL, VLAN-based QoS and PoE scheduling significantly improve the efficiency of network management.

Highlights

- Layer-2 Gigabit access switching with 24-port PoE model
- Support 10GE uplinks to servers for high bandwidth network (NSW200-28P)
- Optimized for quality voice and video traffic with high 375-watt (NSW200-28P) power budget PoE technology
- Enjoy cloud features like zero-touch deployment, real-time configurations with Nebula
- Port Mirroring for network traffic monitoring



Product Options

Model	NSW200-28P
Product name	24-port GbE Nebula Cloud Managed PoE Switch with 10GbE Uplink



Switch class	Layer 2
Total port count	28
100/1000 Mbps	-
100/1000 Mbps PoE	24
10 Gigabit SFP+	4
Gigabit combo (SFP/RJ-45)	-
Switching capacity (Gbps)	128
Total PoE power budget (watts)	375

* 1-year Professional Pack license is bundled in every Nebula switch.



Nebula Security Gateways

The Nebula Cloud Managed Security Gateways are built with remote management and ironclad security for organizations with growing numbers of distributed sites. With the comprehensive Next-Gen Firewall features and security services like IDP and Application Patrol, Content Filtering as well as Anti-virus, Nebula security gateways provide deep, extensive protection to meet everything that small- to mid-size businesses would need.





Highlights

- Complete networking, security and application control over the cloud
- Zero-touch site-to-site smart VPN with connection topology and monitoring
- Secure networks with Next-Gen Firewall, IDP and Application Patrol, Content Filtering and Anti-virus
- Built-in DHCP, NAT, QoS and VLAN management
- Static route, policy route and dynamic DNS support
- Streamlined network and application security policy management
- Captive Portal support Nebula Cloud Authentication Server accounts
- Powerful Nebula Security Service analysis report, includes IDP, Application Patrol, Content Filtering and Anti-virus

As the Zyxel Nebula Security Gateway has been completely designed for cloud management, it can automatically pull configuration settings from the cloud, self-configure site-to-site VPN, receive seamless firmware and security signature updates over the Web. Through Nebula's cloud interface, administrators are able to create site-wide policies and monitor all the branch sites effortlessly.



Product Options

Model	NSG50	NSG100	NSG200	NSG300
Product name	Nebula Cloud Managed Security Gateway	Nebula Cloud Managed Security Gateway	Nebula Cloud Managed Security Gateway	Nebula Cloud Managed Security Gateway
				
Firewall throughput	300 Mbps	450 Mbps	1,250 Mbps	4,000 Mbps
VPN throughput	100 Mbps	150 Mbps	500 Mbps	750 Mbps
IDP throughput	110 Mbps	160 Mbps	500 Mbps	950 Mbps
AV throughput	50 Mbps	90 Mbps	300 Mbps	450 Mbps
Max. TCP concurrent sessions	20,000	40,000	80,000	500,000
Multi-WAN	•	•	•	•

* 1-year Professional Pack license and 1-year Nebula Security Service Pack license are bundled in every Nebula security gateway.





Access Points with NebulaFlex/ NebulaFlex Pro

Zyxel NebulaFlex solution allows the access points to be used in two modes; it's easy to switch between standalone mode and License Free Nebula Cloud management, anytime, with a few simple clicks. NebulaFlex provides true flexibility to adapt the access point to different needs in an ever-changing environment.

When used with Nebula you are able to centrally manage, access real-time network information and gain effortless control over your devices, all under a single intuitive platform without the need to install any software or add additional equipment like a controller. NebulaFlex Pro further supports triple mode functionality (standalone, hardware controller and Nebula) to give business clients true flexibility whatever their project may need.

Access Points with NebulaFlex Product Options




Model	NWA110AX	NWA210AX
Product name	802.11ax (WiFi 6) Dual-Radio PoE Access Point	802.11ax (WiFi 6) Dual-Radio PoE Access Point
		
Typical deployment	Entry-level wireless establishments	Medium to high density deployments
Radio specification	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n/ax radio • 1 x 802.11 a/n/ac/ax radio • 1.775 Gbps max rate • 2x2:2 + 2x2:2 MU-MIMO 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n/ax radio • 1 x 802.11 a/n/ac/ax radio • 2.975 Gbps max rate • 4x4:4 + 2x2:2 MU-MIMO
Power	DC input: 12 VDC 1.5 A PoE (802.3at): power draw 17 W	DC input: 12 VDC 2 A PoE (802.3at): power draw 19 W
Antenna	Embedded antenna	Embedded antenna

* Bundled licenses are not applicable to NebulaFlex AP.

Highlights




- Enjoy cloud features like zero-touch deployment, real-time configurations with Nebula
- Easy setup on SSID/SSID schedule/VLAN/Rate limiting
- DPPSK (Dynamic Personal Pre-Shared Key) and standard-based WPA Personal support
- Enterprise wireless security and RF optimization
- DCS, smart load balancing and client roaming/steering
- Rich Captive Portal support Nebula Cloud Authentication Server accounts, social login with Facebook accounts, Facebook WiFi, and Voucher
- Support smart mesh and wireless bridge
- Wireless health monitoring and report

Access Points with NebulaFlex Product Options




Model	NWA1123ACv3	NWA1123-AC PRO	NWA1123-AC HD
Product name	802.11ac Wave 2 Dual-Radio Ceiling Mount PoE Access Point	802.11ac Dual-Radio Dual-Mount Access Point	802.11ac Wave 2 Dual-Radio Access Point
			
Typical deployment	Entry-level wireless establishments	Medium to high density deployments	High density and interference-laden indoor environments
Radio specification	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.2 Gbps max rate • 2x2 MU-MIMO 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.75 Gbps max rate • 3x3 MIMO with 3 streams 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.6 Gbps max rate • 3x3 MIMO with 3 streams (MU-MIMO)
Power	DC input: 12 VDC, 1 A PoE (802.3af): power draw 11 W	802.3at PoE only (No DC jack)	DC input: 12 VDC, 2 A PoE: 802.3at compliant
Antenna	Embedded antenna	Dual-optimized internal antenna	Embedded antenna

* Bundled licenses are not applicable to NebulaFlex AP.

Access Points with NebulaFlex Pro Product Options




Model	WAX510D	WAX610D	WAX650S
Product name	802.11ax (WiFi 6) Dual-Radio Unified Access Point	802.11ax (WiFi 6) Dual-Radio Unified Pro Access Point	802.11ax (WiFi 6) Dual-Radio Unified Pro Access Point
			
Typical deployment	Entry-level wireless establishments	Medium to high density deployments	High density and interference-laden indoor environments
Radio specification	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n/ax radio • 1 x 802.11 a/n/ac/ax radio • 1.775 Gbps max rate • 2x2:2 + 2x2:2 MU-MIMO 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n/ax radio • 1 x 802.11 a/n/ac/ax radio • 2.975 Gbps max rate • 4x4:4 + 2x2:2 MU-MIMO 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n/ax radio • 1 x 802.11 a/n/ac/ax radio • 1 x monitoring radio • 3.55 Gbps max rate • 4x4:4 + 4x4:4 MU-MIMO
Power	DC input: 12 VDC 1.5 A PoE (802.3)at: power draw 17 W	DC input: 12 VDC 2 A PoE (802.3)at: power draw 19 W	DC input: 12 VDC 2.5 A PoE (802.3)bt: power draw 31 W
Antenna	Dual-optimized internal antenna	Dual-optimized antenna	Embedded smart antenna





* 1-year Professional pack license is bundled in NebulaFlex Pro AP

Model	NWA5123-AC HD	WAC5302D-Sv2	WAC500
Product name	802.11ac Wave 2 Dual-Radio Unified Access Point	802.11ac Dual-Radio Unified Access Point	802.11ac Wave 2 Dual-Radio Unified Access Point
			
Typical deployment	Medium to high density deployments	Per-room deployments	Entry-level wireless establishments
Radio specification	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.6 Gbps max rate • 3x3 MIMO with 3 streams (MU-MIMO) 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.6 Gbps max rate • 2x2 MU-MIMO 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.2 Gbps max rate • 2x2 MU-MIMO
Power	DC input: 12 VDC, 2 A PoE: 802.3at compliant/802.3af (Restrict 2.4G & 5G radio to one transmit stream only.)	PoE (802.3at): power draw 20 W (includes 7 W for PoE PSE) PoE (802.3af): power draw 12 W (PoE PSE disabled)	DC input: 12 VDC, 1 A PoE (802.3af): power draw 11 W
Antenna	Embedded antenna	Smart antenna	Embedded antenna

* 1-year Professional pack license is bundled in NebulaFlex Pro AP

Access Points with NebulaFlex Pro Product Options

Model	WAC500H	WAC6103D-I	WAC6303D-S
Product name	802.11ac Wave 2 Wall-Plate Unified Access Point	802.11ac Dual-Radio Dual-optimized Antenna 3x3 Access Point	802.11ac Wave 2 Dual-Radio Unified Pro Access Point
			
Typical deployment	Per-room deployments	Medium to high density deployments	High density and interference-laden indoor environments
Radio specification	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.2 Gbps max rate • 2x2 MU-MIMO 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.75 Gbps max rate • 3x3 MIMO with 3 streams 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.6 Gbps max rate • 3x3 MIMO with 3 streams (MU-MIMO)
Power	DC input: 12 VDC, 1 A PoE (802.3at/af): power draw 18 W	802.3at PoE only	DC input: 12 VDC, 2 A PoE: 802.3at compliant/802.3af (Restrict 2.4G & 5G radio to one transmit stream only.)
Antenna	Embedded antenna	Dual optimized antenna	Embedded smart antenna






Model	WAC6502D-S	WAC6503D-S	WAC6552D-S	WAC6553D-E
Product name	802.11ac Dual-Radio Smart Antenna 2x2 Access Point	802.11ac Dual-Radio Smart Antenna 3x3 Access Point	802.11ac Dual-Radio Unified Pro Outdoor Access Point	802.11ac Dual-Radio External Antenna 3x3 Outdoor Access Point
				
Typical deployment	High density and interference-laden indoor environments	High density and interference-laden indoor environments	Outdoor	Outdoor
Radio specification	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.2 Gbps max rate • 2x2 MIMO with 2 streams 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.75 Gbps max rate • 3x3 MIMO with 3 streams 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.2 Gbps max rate • 2x2 MIMO with 2 streams 	<ul style="list-style-type: none"> • 1 x 802.11 b/g/n radio • 1 x 802.11 a/n/ac radio • 1.75 Gbps max rate • 3x3 MIMO with 3 streams
Power	DC input: 12 VDC 2 A PoE: 802.3at compliant	DC input: 12 VDC 2 A PoE: 802.3at compliant	802.3at PoE only	802.3at PoE only
Antenna	Embedded smart antenna	Embedded smart antenna	Embedded smart antenna	External antenna

Switches with NebulaFlex/ NebulaFlex Pro

Zyxel switches with **NebulaFlex** allow you to easily switch between standalone and our license-free Nebula cloud management platform anytime with just a few simple clicks. **NebulaFlex Pro** switches include XS3800-28, GS2220 Series, and GS1350 Series, which are further bundled with a 1-year Professional Pack license. XS3800-28 and GS2220 Series switches come with NebulaFlex Pro, allowing you to use the advanced features including the advanced IGMP technology, the comprehensive IPTV report that provides insights to

channel usage information, the network analytics alert to optimize network performance, and more upcoming new features on NCC. Meanwhile, GS1350 Series further focus on surveillance applications, giving you the flexibility to monitor and manage your surveillance network via the cloud. Both **NebulaFlex/NebulaFlex Pro** switches protect your investment on wired technology by offering the flexibility to transition to the cloud in your own time, without worrying about additional ongoing licensing costs.

Switches with NebulaFlex Product Options



Model	GS1920-8HPv2	GS1920-24v2	GS1920-24HPv2	GS1920-48v2	GS1920-48HPv2
Product name	8-port GbE Smart Managed PoE Switch	24-port GbE Smart Managed Switch	24-port GbE Smart Managed PoE Switch	48-port GbE Smart Managed Switch	48-port GbE Smart Managed PoE Switch
					
Switch class	Smart Managed	Smart Managed	Smart Managed	Smart Managed	Smart Managed
Total port count	10	28	28	50	50
100/1000 Mbps	8	24	24	44	44
100/1000 Mbps PoE	8	-	24	-	48
Gigabit SFP	-	-	-	2	2
Gigabit combo (SFP/RJ-45)	2	4	4	4	4
Switching capacity (Gbps)	20	56	56	100	100
Total PoE power budget (watts)	130	-	375	-	375

* Bundled licenses are not applicable to NebulaFlex switches.





Highlights

- Smart fan and fanless designs offer silent operations in the office
- Check real-time status intuitively by cloud and PoE LED indicators
- Handles the increasing high-bandwidth applications in your office affordably with four built-in 10G SFP+ uplinks (XGS1930 Series)
- The Multi-Gigabit (100M/1G/2.5G/5G/10G) switches that can step up the network bandwidth via the cloud
- GS1350 Series Surveillance switches are designed with specialized PoE features for IP cameras and surveillance report that can be monitor and manage the surveillance networks via the Cloud
- Flexible to switch between standalone and Nebula Cloud management without additional costs
- Enjoy cloud features like zero-touch deployment, real-time configurations with Nebula
- Efficient network provisioning with multiple ports configuration all at once
- User-friendly ACL and PoE schedule configuration
- Intelligent PoE technology and network topology
- RADIUS, static MAC forwarding and 802.1X authentication
- Advanced Switch Control (Port Bandwidth Control, Vendor Based VLAN, IP Interfacing & Static Routing)
- Advanced IGMP multicast functionality and IPTV report
- Auto PD Recovery to detect and recover failed powered devices automatically





Switches with NebulaFlex Product Options

Model	XS1930-10	XS1930-12HP
Product name	8-port Multi-Gigabit Smart Managed Switch with 2 SFP+ Uplink	8-port Multi-Gigabit Smart Managed PoE Switch with 2 10GbE and 2 SFP+ Uplink
		
Switch class	Smart Managed	Smart Managed
Total port count	10	12
100M/1G/2.5G/5G/10G Ethernet (RJ-45)	8	2
100M/1G/2.5G/5G/10G Ethernet PoE++ (RJ-45)	-	8
10 Gigabit SFP+	2	2
Switching capacity (Gbps)	200	240
Total PoE power budget (watts)	-	375





Switches with NebulaFlex Product Options

Model	XGS1930-28	XGS1930-28HP	XGS1930-52	XGS1930-52HP
Product name	24-port GbE Smart Managed Switch with 4 SFP+ Uplink	24-port GbE Smart Managed PoE Switch with 4 SFP+ Uplink	48-port GbE Smart Managed Switch with 4 SFP+ Uplink	48-port GbE Smart Managed PoE Switch with 4 SFP+ Uplink
				
Switch class	Smart Managed	Smart Managed	Smart Managed	Smart Managed
Total port count	28	28	52	52
100/1000 Mbps	24	24	48	48
100/1000 Mbps PoE	-	24	-	48
10 Gigabit SFP+	4	4	4	4
Switching capacity (Gbps)	128	128	176	176
Total PoE power budget (watts)	-	375	-	375




Switches with NebulaFlex Pro Product Options

Model	GS1350-6HP	GS1350-12HP	GS1350-18HP	GS1350-26HP
Product name	5-port GbE Smart Managed PoE Switch with GbE Uplink	8-port GbE Smart Managed PoE Switch with GbE Uplink	16-port GbE Smart Managed PoE Switch with GbE Uplink	24-port GbE Smart Managed PoE Switch with GbE Uplink
				
Switch class	Smart Managed	Smart Managed	Smart Managed	Smart Managed
Total port count	6	12	18	26
100/1000 Mbps	-	2	-	-
100/1000 Mbps PoE+	5 (port 1-2 PoE++)	8	16	24
Gigabit SFP	1	2	-	-
Gigabit combo (SFP/RJ-45)	-	-	2	2
Switching capacity (Gbps)	12	24	36	52
Total PoE power budget (watts)	60	130	250	375

Switches with NebulaFlex Pro Product Options

Model	GS2220-10	GS2220-10HP	GS2220-28	GS2220-28HP
Product name	8-port GbE L2 Switch with GbE Uplink	8-port GbE L2 PoE Switch with GbE Uplink	24-port GbE L2 Switch with GbE Uplink	24-port GbE L2 PoE Switch with GbE Uplink
				
Switch class	Layer 2	Layer 2	Layer 2	Layer 2
Total port count	10	10	28	28
100/1000 Mbps	8	8	-	-
100/1000 Mbps PoE+	-	8	-	24
Gigabit SFP	-	-	-	-
Gigabit combo (SFP/RJ-45)	2	2	4	4
Switching capacity (Gbps)	20	20	56	56
Total PoE power budget (watts)	-	180	-	375

Switches with NebulaFlex Pro Product Options

Model	GS2220-50	GS2220-50HP	Model	XS3800-28
Product name	48-port GbE L2 Switch with GbE Uplink	48-port GbE L2 PoE Switch with GbE Uplink	Product name	28-port 10GbE L2+ Managed Switch*
				
Switch class	Layer 2	Layer 2	Switch class	Layer 2 Plus
Total port count	50	50	Total port count	28
100/1000 Mbps	44	44	100M/1G/2.5G/5G/10G Ethernet (RJ-45)	4
100/1000 Mbps PoE+	-	48	Multi-Gigabit combo (100M/1G/2.5G/5G/10G RJ-45/SFP+)	8
Gigabit SFP	2	2	10 Gigabit SFP+	16
Gigabit combo (SFP/RJ-45)	4	4	Switching capacity (Gbps)	560
Switching capacity (Gbps)	100	100		
Total PoE power budget (watts)	-	375		

* Routing & IP interfaces are only available in stand-alone mode for now.

USG FLEX Firewall

With the newest addition to the Nebula cloud management family, USG FLEX firewalls further optimizes Nebula with holistic security and protection for SMB business networks. USG FLEX firewalls are capable to authenticate individuals and devices for all scenarios, which greatly improves the security level of the corporate networks, especially for work-from-home application. Also, USG FLEX security network provides up-to-the minute protection with detailed reporting on

investigations, threat preventions, active monitoring, and high visibility of network activities in today's ever-changing, ever-more-complex network environments.


If the firewalls detect a threat on any of the connected devices, the integrated cloud threat intelligence will automatically stop the threat at the network edge by blocking or quarantining, preventing damage to the network.

Highlights

- Higher precision of detection and assurance of multi-layered protection uncover threats
- Collaborating policy enforcement devices and eliminating repetitive logins with Collaborative Detection & Response
- Best practices for remote access with Secure WiFi and VPN management consolidates and ensures the same network control and security across multiple sites
- Level up security with two-factor authentication (2FA) network access let you quickly and easily verify users' identities with users accessing their networks through the edge devices
- Fully featured United Threat Management (UTM) platform, with advanced controls over users, applications and advanced content filtering (DNS/URL)
- Comprehensive summary reports for security events and network traffic through SecuReporter service
- Flexible to switch between on-premise and Nebula Cloud management without additional costs
- Enjoy cloud features like Zero Touch Provisioning (ZTP), real-time configurations with Nebula



Product Options

Model	USG FLEX 100	USG FLEX 100W	USG FLEX 200	USG FLEX 500	USG FLEX 700
Product name	ZyWALL USG FLEX 100 Firewall	ZyWALL USG FLEX 100W Firewall	ZyWALL USG FLEX 200 Firewall	ZyWALL USG FLEX 500 Firewall	ZyWALL USG FLEX 700 Firewall
					
System Capacity & Performance^{*1}					
SPI throughput (Mbps)^{*2}	900	900	1,800	2,300	5,400
VPN throughput (Mbps)	270	270	450	810	1,100
VPN IMIX throughput (Mbps)^{*3}	100	100	160	240	550
IPS throughput (Mbps)^{*4}	540	540	1,100	1,500	2,000
Anti-malware throughput (Mbps)^{*4}	360	360	570	800	1,450
UTM throughput (Anti-malware & IPS, Mbps)^{*4}	360	360	550	800	1,350
Max. TCP concurrent sessions^{*5}	300,000	300,000	600,000	1,000,000	1,600,000
Max. concurrent IPSec VPN tunnels^{*6}	40	40	100	300	500
Recommended gateway-to-gateway IPSec VPN tunnels	20	20	50	150	250
Concurrent SSL VPN users	30	30	60	150	150
VLAN interface	8	8	16	64	128
Concurrent devices upgrade (default/max.)^{*7*8}	64	64	200	200/300	500/800
Security Features					
Anti-malware^{*7}	•	•	•	•	•
IPS^{*7}	•	•	•	•	•
Application Patrol^{*7}	•	•	•	•	•
Email Security	•	•	•	•	•
Web Filtering^{*7}	•	•	•	•	•
SecuReporter Premium^{*7}	•	•	•	•	•
Collaborative Detection & Response^{*7}	•	•	•	•	•
SSL (HTTPS) inspection	•	•	•	•	•
2-Factor Authentication	•	•	•	•	•

Note:

*: This matrix with firmware ZLD5.00 or later.

*1: Actual performance may vary depending on system configuration, network conditions, and activated applications.

*2: Maximum throughput based on RFC 2544 (1,518-byte UDP packets).

*3: VPN throughput measurement are based on RFC 2544 (1,424-byte UDP packets); IMIX: UDP throughput based on a combination of 64 byte, 512 byte, and 1,424 byte packet sizes.

*4: Anti-malware (with Express Mode) and IPS throughput measured using the industry standard HTTP performance test (1,460-byte HTTP packets). Testing done with multiple flows.

*5: Maximum sessions measured using the industry standard IXIA IxLoad testing tool.






*6: Including Gateway-to-gateway and Client-to-gateway.

*7: With Zyxel service license to enable or extend the feature capacity.

*8: This is the recommend maximum number of concurrent logged-in devices.

*9: With Hotspot Management license support.

Product Options

Model	USG FLEX 100	USG FLEX 100W	USG FLEX 200	USG FLEX 500	USG FLEX 700
Product name	ZyWALL USG FLEX 100 Firewall	ZyWALL USG FLEX 100W Firewall	ZyWALL USG FLEX 200 Firewall	ZyWALL USG FLEX 500 Firewall	ZyWALL USG FLEX 700 Firewall
					
VPN Features					
VPN	IKEv2, IPSec, SSL, L2TP/IPSec	IKEv2, IPSec, SSL, L2TP/IPSec	IKEv2, IPSec, SSL, L2TP/IPSec	IKEv2, IPSec, SSL, L2TP/IPSec	IKEv2, IPSec, SSL, L2TP/IPSec
Microsoft Azure	•	•	•	•	•
Amazon VPC	•	•	•	•	•
WLAN Management					
Default no. of managed AP	8	8	8	8	8
Recommend max. AP in 1 AP group	10	10	20	60	200
Secure WiFi service^{*7}	•	•	•	•	•
Maximum no. of tunnel-mode AP	6	6	10	18	66
Maximum no. of managed AP	24	24	40	72	264
Connectivity Management					
Cloud-managed (Nebula) mode	•	•	•	•	•
Hotspot management^{*7}	-	-	•	•	•
Ticket printer support^{*9}/ Support qty (max.)	-	-	SP350E/10	SP350E/10	SP350E/10
Device HA Pro	-	-	-	•	•

Note:

*: This matrix with firmware ZLD5.00 or later.

*1: Actual performance may vary depending on system configuration, network conditions, and activated applications.

*2: Maximum throughput based on RFC 2544 (1,518-byte UDP packets).

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*9: With Hotspot Management license support.

License information

Per-device License Model

Nebula's per-device licensing allows IT teams to maintain various expiration dates across devices, sites or organizations. Each Organization can have a single

shared expiration, which will be manageable through our new Circle license management platform for channel partners (supporting Nebula in second half of 2021).

Flexible Management License Subscription

Nebula Control Center (NCC) offers multiple subscription options to meet customers' needs. Whether you are looking for a complimentary option giving you some peace of mind at no extra cost, more control over your network updates and visibility, or even the most advanced management of cloud networking, Nebula is here to help you.

However, the devices must maintain the same NCC management License Pack Type across the organization.

Nebula MSP Pack further provides cross-organization management functionality, helping MSP streamline multi-tenant, multi-site, multi-level network deployment and management, and deliver superior service to their customers



MSP Pack

Per-admin account license that include cross-org. management features and can be used in conjunction with existing Packs (Base/Plus/Pro)



Base Pack

License-free feature set/service with a rich set of management features



Plus Pack

A new feature set/service that includes the most frequently requested advanced features



Pro Pack

A full feature set/service with all advanced functionality and management features

Flexible Security License Subscription

With the newest addition of USG FLEX Series firewall to the Nebula cloud management family, Nebula security

solution further expands its offerings with holistic security and protection for SMB business networks.



NSS Security Pack

Security service & analysis reporting for IDP, Application Patrol, Content Filtering and Anti-virus of NSG Series



UTM Security Pack

All-in-one UTM security service license add-on(s) to USG FLEX Series Firewall

- Web Filtering
- IPS
- Application Patrol
- Anti-Malware
- SecuReporter
- Collaborative Detection & Response
- Security Profile Sync



Secure WiFi

USG FLEX license to manage remote access points (RAP) with the support of secured tunnel to extend corporate network to remote workplace

Nebula Trial License

To provide users the experience of using the full range of advanced features and services in both Nebula Pro Pack and NSS Security Pack, Nebula provides 30-day trial license to users when they create a new organization in NCC*. Registered device-bundled license and separately purchased license keys will only be activated and consumed after the trial license period expires.

*: All USG FLEX models will have a 30-day free trial license of UTM Security Pack. If a customer adds an USG FLEX bundled SKU (0102F) with an UTM bundled license to an organization, NCC will automatically grant & activate a Pro Pack license aligning to that device's UTM license terms as part of the bundled license service.

M	G	S	W	Feature Name	Base Pack	Plus Pack	Pro Pack
●				Unlimited Registration & Central Management (Configuration, Monitoring, Dashboard, Location Map & Floor Plan Visual) of Nebula Devices	●	●	●
●				Zero Touch Auto-Deployment of Hardware/Configuration from Cloud	●	●	●
●				Over-the-air Firmware Management	●	●	●
●				IOS and Android APP (Deployment, Management and Push Notifications)	●	●	●
●				Central Device and Client Monitoring (Log and Stat Information) and Reporting	24HR (Rolling)	7D (Rolling)	1YR (Rolling)
●				Admin Accounts per Organisation (Full Access for Administration Rights)	5	8	NO LIMIT
●				User Authentication Entries (via built-in Nebula Cloud Authentication Server)	50	100	NO LIMIT
	●	●	●	Network Function Scheduling (SSID/PoE/Firewall Rules)	●	●	●
		●	●	MAC-Based and 802.1X Authentication	●	●	●
	●	●		Captive Portal Authentication	●	●	●
●				Cloud Saving Mode	●		
●				Advanced Firmware Scheduling (Org/Site/Device)		●	●
●				Advanced Reporting Features (including Export/Email Reports/Scheduled Reports – Custom Logo)		●	●
●				Automatic Network Topology (Visual and Actionable)		●	●
●				Email Users and Alert Notifications		●	●
●		●		WiFi Vouchers (Auto-Gen Vouchers for Access/Authentication with user defined time limits)		●	●
●				Organizational User Audit/Change Logs			●
●				Organisational-wide Configuration Sync, Clone and Template			●
●				Configuration Backup/Restore			●
●				Priority Nebula Support Request (Direct NCC incl. Web Chat)			●
●		●		Advanced WiFi AAA Security (Dynamic Personal PSK, Facebook WiFi, Dynamic VLAN Assignment via NCAS, 3rd Party AAA Integration)			●
		●		Advanced WiFi Control & Management (RSSI Threshold Setting per AP, Export NAT AP Traffic Log, Programmable SSID & PSK)			●
		●		WiFi Health Monitoring and Report (AI/Machine Learning for Wireless)			●
		●		Advanced Switch Control (Port Bandwidth Control, Vendor Based VLAN, IP Interfacing & Static Routing)			●
		●		Switch IPTV Feature Set (Advanced IGMP, IPTV Report w. AI/ML Alert)			●
		●		Switch Surveillance Feature Set (Monitoring, Extended Range, Auto PD Recovery)			●
	●			Gateway Advanced VPN Feature Set (VPN Topology, VPN Traffic Usage, L2TP VPN Client Script Provisioning)			●
	●			Packet Capture (USG FLEX only)			●
	●	●		Collaborative Detection & Response (CDR) with automatically respond action (USG FLEX only)			●

M = Management Feature (NCC); G = Gateway Feature; S= Switch Feature; W = Wireless Feature

Service related information

Nebula Forum

The Nebula forum is a great place where users can come together to share tips and ideas, get problems solved and learn from fellow users around the world. Join the conversations to know more about everything the Nebula products can do. Visit Nebula forum to explore more.

URL: <https://forum.nebula.zyxel.com/>

Support Request

The Support Request channel allows users to submit request tickets directly on NCC. It is a tool that provides an easy way for users to send and track an inquiry for help on a problem, request or service, to find answers to their questions quickly. The request will go directly to the Nebula support team, and will be reviewed and followed by a dedicated group until the proper resolutions are found.

* Available for Professional Pack users.



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