ZYXEL
Your Networking Ally

Unlock Networking Possibilities with Cloud

Nebula Cloud Networking

Technical Overview

nebula

Introduction to Nebula cloud managed networks

Nebula introduces an affordable, effortless approach for network deployments with high security and scalability to provide complete control over Nebula devices and users.

When organisations start to expand to larger sites and bigger networks, cloud-based self-provisioning will enable easy, quick, plug-n-play deployment to multiple locations without IT professionals.

Firmware and security signature updates are delivered seamlessly through Nebula cloud services; whilst secure VPN tunnels can be established automatically between different branches over the Web with just a few clicks.

Nebula is designed with fault-tolerant properties that enable local networks to keep operating properly in WAN downtimes.

Nebula cloud managed networking architecture

Nebula provides a networking paradigm for building and managing networks over the Internet in the Software as a Service model (SAAS). This is 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 providing instant control to the entire network without wireless controllers and overlay network management appliances.

All Nebula devices are built 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 minimal bandwidth.

Over the cloud, thousands of Nebula devices can be configured, controlled, monitored and managed under a single pane of glass, locally or globally. 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

Nebula uses the infrastructure and services built upon the Amazon Web Service (AWS), so all Nebula security details can be referred to AWS Cloud Security. Zyxel is committed to data protection, privacy and security as well as compliance with applicable regulatory frameworks around the globe. The Nebula 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.

Nebula's out-of-band control plane, network and management traffic is split into two different data paths.

1. Management data (eg; configuration, statistics, monitoring etc) is exchanged with Nebula's cloud from devices through an encrypted protocol (NETCONF)

2. User data (eg; web browsing and internal applications, etc) flow directly to the destination on the LAN or across the WAN without passing through the cloud

Nebula cloud enables

* End user data not to traverse through the cloud

* Unlimited throughput, no centralised controller bottlenecks when new devices are added

* Networks to continue to function even if the connection to the cloud is interrupted

3. Nebula's cloud management platform is backed by a 99.99% uptime service level agreement
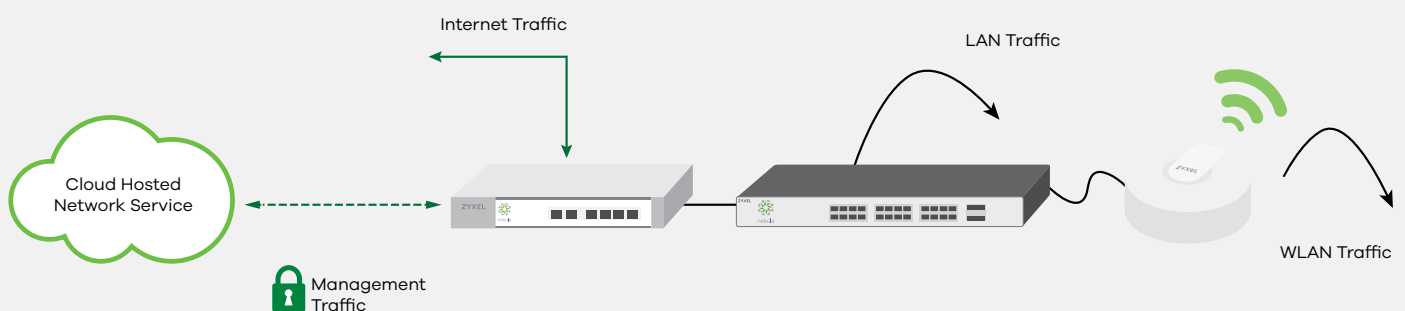
Nebula Control Center (NCC)

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

Engineered with a number of security tools that provide optimal protection to networks, devices users, delivering the required information to enforce security and enhancing control over the entire Nebula network.

Highlights

- ✓ Responsive Web design and intuitive user interface

- ✓ Multi-tenant, multi-site view

- ✓ Role-based administration privileges

- ✓ Real-time and historical monitoring/ reporting

- ✓ Site-based auto and smart configuring tools

- ✓ Rich site-wide management tools

- ✓ Configuration changing alerts

- ✓ Misconfigure protection against disconnecting NCC

- ✓ Configure login auditing

- ✓ SSL certificates and idle timeout

- ✓ Multi-lingual management interface (English, Traditional Chinese and more to come)

Role-based Administration

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

Role-based Administration

Site-wide Management Tools

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

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 organisation.

Site-wide Management Tools

Configuration Changing Alerts

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.

Idle Timeout

Under Nebula's cloud architecture, a connection can only stay active in a

specific length of time if no traffic is sent through the connection. A notification will be sent before the system logs the user out; once the session expires, users are asked to login again to resume the services.

Configure Login Auditing

The Nebula cloud control center automatically records the time and IP address of every logged in administrators. The login 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.

SSL Certificates

Nebula establishes an encrypted connection between its cloud services and administrators' browsers that allows sensitive and private data to be transmitted securely and confidentially.

Misconfiguration Protection

Nebula Mobile App

The Nebula Mobile App offers a quick approach to network management, with which administrators can use the QR code scanner to register a large number of devices on Nebula Control Center all at once. Additionally, it provides an instant view of different sites for the IT staff to monitor the real-time network status.

✓ Built-in QR code scanner for adding hundreds of devices quickly

✓ Photo capturing for uploading and recording locations where devices are mounted

✓ Overview monitoring of APs, switches and gateways

✓ Quick selection to view different sites

Note: Nebula Mobile App supports both iOS and Android systems.

Product solutions

Nebula Cloud Managed Access Points (APs)

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 Wi-Fi experience.

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

- ✓ 2x2 802.11ac AP supports up to 1.2 Gbps (NAP102)
- ✓ 3x3 802.11ac AP supports up to 1.75 Gbps (NAP203, NAP303, NAP353)
- ✓ Dual-optimised antenna (NAP203)
- ✓ Smart antenna design (NAP303)
- ✓ IP66-rated weather protection (NAP353)
- ✓ Self-configuring, zero-touch deployments
- ✓ Enterprise security and RF optimisation
- ✓ DCS, load balancing and smart client steering
- ✓ Support social login with Facebook accounts

Product Options

Model	NAP102	NAP203	NAP303	NAP353
Product name	802.11ac Dual-Radio Nebula Cloud Managed Access Point	802.11ac Dual-Radio, Dual-Optimised 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	Entry level wireless establishments	Medium to high density deployments	High density and interference-laden indoor environments	Harsh outdoor environments
Radio specification	• 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	• 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	• 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	• 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, 1 A PoE: 802.3at compliant	802.3at PoE only (No DC jack)	DC input: 12 VDC, 2 A PoE: 802.3at compliant	PoE: 802.3at compliant
Antenna	Embedded antenna	Dual-optimised internal antenna	6 embedded Smart Antenna	6 N-type connectors*
Dimensions (WxDxH)(mm/in.)	130 x 130 x 54.7/ 5.12 x 5.12 x 2.17	203.9 x 191.7 x 34.7/ 8.03 x 7.55 x 1.37	236 x 227 x 62/ 9.28 x 8.95 x 2.43	255 x 256 x 62/ 10.04 x 10.08 x 2.44
Weight (g/lb.)	300/0.67	445/0.98	982/2.17	1708/3.77

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

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Nebula Cloud Managed Switches

The Zyxel Nebula cloud managed layer-2 switches are ideal for deployment to branch locations. Designed to be managed 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 8/24-port PoE and non-PoE models

✓ Support 10GE uplinks to servers for high bandwidth network (NSW200-28P)

✓ User-friendly ACL and VLAN configuration

✓ Support DHCP Server Guard and IGMP snooping

✓ Optimised for quality voice and video traffic with high 375-watt (NSW200-28P, NSW100-28P) / 180-watt (NSW100-10P) power budget PoE technology

✓ Port Mirroring for network traffic monitoring

✓ Intelligent PoE technology and network topology

✓ RADIUS, static MAC forwarding and 802.1X authentication

Product Options

Model	NSW100-10	NSW100-10P	NSW100-28	NSW100-28P	NSW200-28P
Product name	8-port GbE Nebula Cloud Managed Switch	8-port GbE Nebula Cloud Managed PoE Switch	24-port GbE Nebula Cloud Managed Switch	24-port GbE Nebula Cloud Managed PoE Switch	24-port GbE Nebula Cloud Managed PoE Switch with 10GbE Uplink
Switch class	Layer 2	Layer 2	Layer 2	Layer 2	Layer 2
Total port count	10	10	28	28	28
100/1000 Mbps	8	-	24	-	-
100/1000 Mbps PoE	-	8	-	24	24
10 Gigabit SFP+	-	-	-	-	4
Gigabit combo (SFP/RJ-45)	2	2	4	4	-
Switching capacity (Gbps)	20	20	56	56	128
Total PoE power budget (watts)	-	180	-	375	375

Nebula Cloud Managed 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 with IDP and Application Patrol technology, Nebula security gateways provide deep, extensive protection to meet everything that small- to mid-size businesses would need.

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.

Highlights

✓ Complete networking, security and application control over the cloud

✓ Zero-touch site-to-site VPN

✓ Secure networks with Next-Gen Firewall, IDP and Application Patrol*

✓ Built-in DHCP, NAT, QoS and VLAN management

✓ Static route and dynamic DNS support

✓ Identity-based security policies and application management

✓ Support Nebula cloud authentication

✓ Every NSG100 is pre-bundled with one year IDP and Application Patrol service

Product Options

Model	NSG50	NSG100
Product name	Nebula Cloud Managed Security Gateway	Nebula Cloud Managed Security Gateway
Firewall throughput	300 Mbps	650 Mbps
VPN throughput	70 Mbps	140 Mbps
IDP throughput (IDP)	120 Mbps	180 Mbps
Max. TCP concurrent sessions	20,000	40,000
Multi-WAN	Yes	Yes

Nebula offers a comprehensive licencing model providing flexible options that match your requirements, whether it's a lifetime subscription or a hardware based license option.

To help reduce upfront operating costs, a one year Nebula Control Center (NCC) service license is bundled with each device. Nebula offers license points which vary by product and these can be shared among different types of devices regardless of adding or renewing device licenses.

With Co-termination the (NCC) will automatically adjust the expiration date of all licenses so they expire on the same date. So when you purchase additional licenses we make it easy for your business and re-calcuate the remaining time to terminate so you'll end up with only one single renewal date.

There are three different license packs available to fit all needs. See next page for comparison table.

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.

Options for your business

Nebula offers flexible options that match your requirements, whether you are looking for a license free option giving you the peace of mind of no extra costs, a lifetime subscription to the professional pack or a hardware based license option you can start with a single device and scale up to even the largest of deployments.

Not sure which option is best for you? A one year Nebula Control Center (NCC) service license is bundled free with each device.

	LICENSE FREE	PROFESSIONAL PACK	PROFESSIONAL PACK (LIFE TIME)
	NO PAYMENT REQUIRED	ANNUAL PAYMENT PER DEVICE	ONE TIME PAYMENT PER DEVICE
ZERO TOUCH AUTO-DEPLOYMENT (HARDWARE)	●	●	●
QUICK DEPLOY APP FOR ANDROID AND IOS	●	●	●
AUTOMATIC UPDATES (FIRMWARE & FEATURES)	●	●	●
ANYTIME, ANYWHERE CLOUD DEVICE CONFIGURATION	●	●	●
ANYTIME, ANYWHERE CLOUD DASHBOARD	●	●	●
ANYTIME, ANYWHERE CLOUD DEVICE MONITORING (LIVE/HISTORY)	7 DAYS (ROLLING)	365 DAYS (ROLLING)	365 DAYS(ROLLING)
ANYTIME, ANYWHERE CLOUD CLIENT MONITORING (LIVE/HISTORY)	7 DAYS (ROLLING)	365 DAYS (ROLLING)	365 DAYS(ROLLING)
ANYTIME, ANYWHERE CLOUD EVENT LOGS ACCESS	7 DAYS (ROLLING)	365 DAYS (ROLLING)	365 DAYS(ROLLING)
ANYTIME, ANYWHERE CLOUD VISUAL LOCATION MAP & FLOOR PLAN	●	●	●
ANYTIME, ANYWHERE CLOUD REPORTS	●	●	●
ANYTIME, ANYWHERE CLOUD REPORTS (EMAIL OUTPUT)			
USER AUTHORITIES E.G. BUILT IN / EXTERNAL RADIUS FOR 802.1X & MAC	●	●	●
USER AUTHORITIES E.G. FACEBOOK LOGIN FOR CAPTIVE PORTAL	●	●	●
USER AUTHORITES BUILT IN USER AUTHENTICATION ENTRIES	100	NO LIMIT	NO LIMIT
MAXIMUM ASSIGNED ADMIN ACCOUNTS	5	NO LIMIT	NO LIMIT
SNMP / SYSLOG OUTPUT	●	●	●
WI-FI MAXIMUM SSID	8 SSID	8 SSID	8 SSID
WI-FI DCS (SCHEDULED AND MANUAL)	●	●	●
ORGANISATIONAL USER AUDIT / CHANGE LOGS		●	●
USER NOTIFICATIONS & ALERTS		●	●
AUTOMATIC VISUAL TOPOLOGY		●	●
ORGANISATIONAL & SITE CONFIG CLONE		●	●
ORGANISATIONAL TABLE DATA EXPORT		●	●
ORGANISATIONAL-WIDE CONFIGURATION*		●	●
CONFIGURATION BACKUP/RESTORE*		●	●
SWITCH IPTV & DHCP SERVER FEATURE SETS (E.G. MULTICAST)*		●	●
GATEWAY ADVANCED VPN FEATURE SET*		●	●
WIFI ANALYTICS INTEGRATION (SOCIAL MEDIA / 3RD PARTY AAA)*		●	●
MANAGED SERVICE PROVIDER FEATURE SET*		●	●
HARDWARE DEVICE LIMIT FOR MANAGEMENT	NO LIMIT	NO LIMIT	NO LIMIT
TECHNICAL PHONE / EMAIL / FORUM SUPPORT	●	●	●
HARDWARE WARRANTY (NAP/NSW/NSG)	LIFETIME** + NBDS	LIFETIME** + NBDS	LIFETIME** + NBDS

* Available in 2018 **Limited Lifetime see Zyxel.com for more information) "ANYTIME, ANYWHERE" refers to the ability to access the devices via the nebula web service (NCC) over the internet, NBDS refers to Next Business Day Shipment see Zyxel website for more information.

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