

ZYXEL

Your Networking Ally



Nebula Cloud Networking Solution

Grow with your Business



https://nebula.zyxel.com/ Zyxel Nebula

SITE-WIDE AP SWITCH GATEWAYS ORGANIZATION HELP

APs

5 Online
8 Total
0% Overloading

Switches

1 Online
3 Total
0% Overloading

Gateway

1 Online
1 Total
0% Overloading

Traffic Summary

Internet Usage: 2.57 GB (24 Hours)

Top Applications

Web File Transfer
Appledaily
LinkedIn
Skype
Amazon
iTunes
Facebook
YouTube

Clients

35
Clients online

PoE Power

800W
180 W consumed

Connection

10 Devices (24 Hours)

Experienced slow cloud connection

Top Clients (by Usage)

Client 1	65%	750MB
Client 2	35%	500MB
Client demo	20%	250MB

Cloud Networking & Management

- Nebula Control Centers
- Nebula Cloud Managed Access Points
- Nebula Cloud Managed Switches
- Nebula Cloud Managed Security Gateway

Zyxel Nebula cloud networking and management solutions

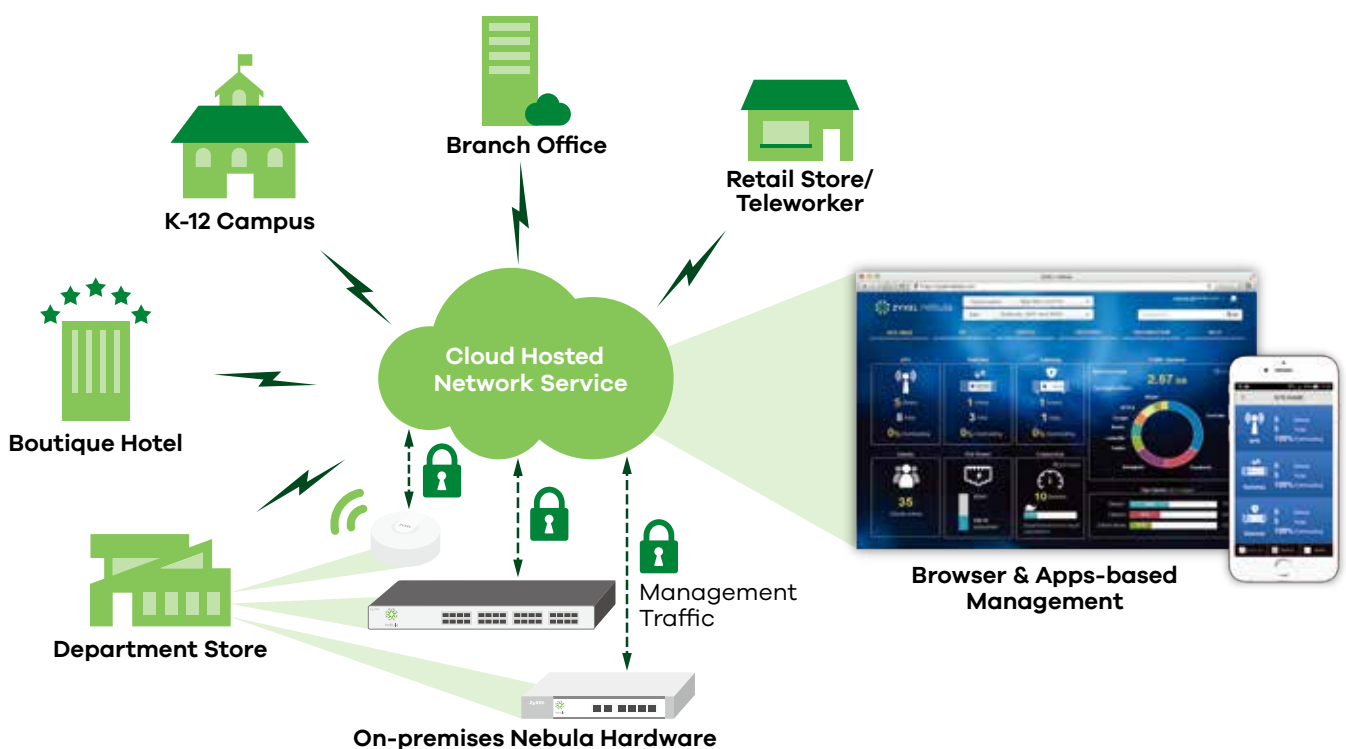
Unlock networking possibilities with the cloud

The Nebula cloud networking and management solution provides centralized control and visibility over all Nebula wired and wireless networking 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

- Zero-touch provisioning, built-in multisite network management tools accelerate deployment of large networks
- Intuitive, automated network management interface as well as continuous feature updates that eliminate training and labor for network maintenance and support
- Centralized, unified and on-demand control as well as visibility that reduce capital expense for hardware and software
- A comprehensive networking product portfolio from a single vendor ensures better product compatibility
- Credit and on-demand licensing model provides high flexibility based on business dynamics
- Standard-based, affordable solution to fit even the tightest budget and to maximize ROI



Nebula Control Center

Nebula Control Center (NCC)



- 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
- Misconfigure protection against disconnecting NCC
- Rich site-wide management tools
- Configure login auditing

Nebula Mobile APP

Nebula mobile app

- 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

License Information

First year license points (Nebula Points) bundled with devices

Model name	Number of Nebula Points for 1 Yr NCC service
NAP102	
NAP203	30
NAP303	
NSW100-28P	
NSW200-28P	35
NSG100	50

NAP303

802.11ac Dual-radio Smart Antenna 3x3 Nebula Cloud Managed Access Point



NAP303
802.11ac Dual-radio Smart Antenna 3x3 Nebula Cloud Managed Access Point

- Cloud-managed, dual-radio 3x3 MIMO 802.11ac access point supports combined data rates of up to 1.75 Gbps
- Smart Antenna provides breakthrough performance anywhere
- Self-configuration and zero-touch deployment
- Enterprise-class security and RF optimization
- Dynamic Channel Selection, Load Balancing and Smart Client Steering

Specifications

Network interface	2 x 10/100/1000BASE-T full duplex RJ-45
Data transfer/ data throughput	1.75 Gbps combined rates
WLAN functions	Up to 8 SSID (per radio)

Security	WEP 64/128 bit, WPA PSK/WPA2 PSK, WLAN access control
PoE power draw	17.04 W
Power supply	DC input: 12 V DC 2 A; PoE: 802.3at compliant

NAP203

802.11ac Dual-Radio, Dual-Optimized Antenna 3x3 Nebula Cloud Managed Access Point



NAP203
802.11ac Dual-Radio, Dual-Optimized Antenna
3x3 Nebula Cloud Managed Access Point

- Cloud-managed, dual-radio 3x3 MIMO 802.11ac access point supports combined data rates of up to 1.75 Gbps
- Dual-optimized antenna allows pattern optimization adapting to wall- or ceiling-mount installations
- Self-configuration and zero-touch deployment
- Enterprise-class security and RF optimization
- Dynamic Channel Selection, Load Balancing and Smart Client Steering

Specifications

Network interface	2 x 10/100/1000BASE-T full duplex RJ-45
Data transfer/ data throughput	1.75 Gbps combined rates
WLAN functions	Up to 8 SSID (per radio)

Security	WEP 64/128 bit, WPA/WPA2-PSK, WPA/WPA2-enterprise, WLAN access control
PoE power draw	12.48 W
Power supply	PoE: 802.3at compliant

NAP102

802.11ac Dual-Radio Nebula Cloud Managed Access Point



NAP102
802.11ac Dual-Radio Nebula Cloud Managed
Access Point

- Cloud-managed, dual-radio 2x2 MIMO 802.11ac access point
- Supports combined data rates of up to 1.2 Gbps
- Self-configuration and zero-touch deployment
- Enterprise-class security and RF optimization
- Dynamic Channel Selection, Load Balancing and Smart Client Steering

Specifications

Network interface	1 x 10/100/1000 Mbit BASE-T, auto-sensing LAN port
Data transfer/ data throughput	1.2 Gbps combined rates
WLAN functions	Up to 8 SSID (per radio)

Security	WEP 64/128 bit, WPA PSK/WPA2 PSK, WLAN access control
PoE power draw	9 W
Power supply	12 VDC, 1 A

NAP353

802.11ac Dual-Radio External Antenna 3x3 Outdoor Nebula Cloud Managed Access Point



NAP353
802.11ac Dual-Radio External Antenna 3x3 Outdoor Nebula Cloud Managed Access Point

Specifications

Network interface	2 x 10/100/1000BASE-T full duplex RJ-45
Data transfer/ data throughput	1.75 Gbps combined rates
WLAN functions	Up to 8 SSID (per radio)

- Cloud-managed, dual-radio 3x3 MIMO 802.11ac access point supports combined data rates of up to 1.75 Gbps
- IP66-rated weather protection for harsh outdoor environments
- Self-configuration and zero-touch deployment
- Enterprise-class security and RF optimization
- Dynamic Channel Selection, Load Balancing and Smart Client Steering

Security	WEP 64/128 bit, WPA PSK/WPA2 PSK, WLAN access control
PoE power draw	25 W
Power supply	PoE: 802.3at compliant

NSW200-28P

24-port GbE Nebula Cloud Managed PoE Switch with 10GbE Uplink



NSW200-28P
Gigabit Ethernet cloud managed L2 switch with 10G uplink, 48 ports RJ-45, 4 x 10GbE SFP+ ports, 19" rackmount

Specifications

Backplane	128 Gbps, non-blocking
MAC addresses	16,000
VLAN support	1,000 static
Data transfer and prioritization	802.1p (8 priority queues per port), L2 multicast, IGMP snooping, 802.1Q VLAN tagging, bandwidth management

- Essential L2 features with user-friendly ACL and VLAN configuration
- Support 10GE uplinks to servers for high bandwidth network
- Optimized for quality voice and video traffic with high 375-watt power budget PoE technology
- Support Port Mirroring for network traffic monitoring
- Support DHCP white list and IGMP snooping
- RADIUS, static MAC forwarding and 802.1X authentication

Security	802.1x RADIUS authentication, SSL, MAC/forwarding
Power over Ethernet	All PoE ports with 802.3at, power budget 375 watts

NSW100-28P

24-port GbE Nebula Cloud Managed PoE Switch



NSW100-28P

Gigabit Ethernet cloud managed switch, 24 ports RJ-45 with PoE, 4 x GbE combo ports, 19" rackmount

Specifications

Backplane	56 Gbps, non-blocking
MAC addresses	16,000
VLAN support	1,000 static

- Essential L2 features with user-friendly ACL and VLAN configuration
- Optimized for quality voice and video traffic with high 375-watt power budget PoE technology
- Support Port Mirroring for network traffic monitoring
- Support DHCP white list and IGMP snooping
- RADIUS, static MAC forwarding and 802.1X authentication

Data transfer and prioritization	802.1p (8 priority queues per port), L2 multicast, IGMP snooping, 802.1Q VLAN tagging, bandwidth management
Security	802.1x RADIUS authentication, SSL, MAC/forwarding
Power over Ethernet	All PoE ports with 802.3at, power budget 375 watts

NSG100

Nebula Cloud Managed Security Gateway



NSG100

6 Giga ports, 2 USB

Specifications

Firewall	Stateful packet inspection, user-aware policy enforcement, VLAN, PPPoE, static routing, firewall, Intrusion Detection and Prevention (IDP), application intelligence
IPSec VPN	Topology: Site-to-site, hubs-and-spoke, encryption: AES (256-bit), 3DES and DES, authentication: SHA-2 (512-bit), SHA-1 and MD5, perfect forward secrecy (DH groups) support 1, 2, 5, 14, IPSec NAT traversal, dead peer detection and relay detection, VPN auto-reconnection, L2TP over IPSec

- Complete networking, security and application control over the cloud
- Zero-touch site-to-site VPN
- Secure networks with Next-Gen Firewall, IDP and Application Intelligence*
- Built-in DHCP, NAT, QoS and VLAN management
- Identity-based security policies and application management

* Every NSG100 is pre-bundled with one year IDP and Application Intelligence service.

Streamlined policy management	Unified policy management interface, supported exclusive security features: IDP, application intelligence, firewall (ACL), policy criteria: source and destination IP address, destination port, time
Networking	Routing mode, Ethernet and PPPoE, NAT, VLAN tagging (802.1Q), DHCP client/server/relay, dynamic DNS support, maximum bandwidth, bandwidth limit per client IP

Note: IDP and Application Intelligence service needs to be purchased on top of NCC service license, and it will not be co-terminated along with NCC service license.

Model	Nebula Cloud Managed Access Points			
	NAP303	NAP203	NAP102	NAP353
Product description	802.11ac Dual-Radio Smart Antenna 3x3 Nebula Cloud Managed Access Point	802.11ac Dual-Radio, Dual-Optimized Antenna 3x3 Nebula Cloud Managed Access Point	802.11ac Dual-Radio Nebula Cloud Managed Access Point	802.11ac Dual-Radio External Antenna 3x3 Outdoor Nebula Cloud Managed Access Point
Basic Design				
Wireless frequency	2.4 and 5 GHz	2.4 and 5 GHz	2.4 and 5 GHz	2.4 and 5 GHz
Radio	2	2	2	2
RF Specifications				
Number of antenna	6 embedded smart antenna	6 internal dual-optimized antenna	4 embedded	6 N-type connectors*
Antenna gain	4 dBi @ 2.4 GHz 6 dBi @ 5 GHz	Ceiling: 2.4 GHz 3 dBi; 5 GHz 4 dBi Wall: 2.4 GHz 4 dBi; 5 GHz 5 dBi	3 dBi @ 2.4 GHz 4 dBi @ 5 GHz	-
LAN				
Number of 10/100/1000M LAN	2	2	1	1
PoE	Yes	Yes	Yes	Yes
PoE Power draw (watt)	17.04	12.48	9	25
WLAN Features				
WLAN Maximum net throughput	Up to 900 Mbps	Up to 900 Mbps	Up to 450 Mbps	Up to 900 Mbps
Wireless Security				
WEP	Yes	Yes	Yes	Yes
WPA/WPA2-PSK	Yes	Yes	Yes	Yes
WPA/WPA2-Enterprise	Yes	Yes	Yes	Yes
EAP types	EAP-TLS, EAP-TTLS, EAP-PEAP, EAP-FAST, EAP-AKA and EAP-SIM	EAP-TLS, EAP-TTLS, EAP-PEAP, EAP-FAST, EAP-AKA and EAP-SIM	TLS, TTLS, PEAP, FAST, AKA and SIM	EAP-TLS, EAP-TTLS, EAP-PEAP, EAP-FAST, EAP-AKA and EAP-SIM
IEEE 802.1X	Yes	Yes	Yes	Yes
Number of SSID	8 (per radio)	8 (per radio)	8 (per radio)	8 (per radio)
MAC filtering	Yes	Yes	Yes	Yes
Layer-2 isolation	Yes	Yes	Yes	Yes
RADIUS authentication	Yes	Yes	Yes	Yes
Captive portal	Yes	Yes	Yes	Yes
Network				
VLANs	Yes	Yes	Yes	Yes
DHCP client	Yes	Yes	Yes	Yes
QoS (PG)				
WMM	Yes	Yes	Yes	Yes
WMM power save	Yes	Yes	Yes	Yes
DiffServ marking	Yes	Yes	Yes	Yes
Management				
Cloud managed	Yes	Yes	Yes	Yes
ZON utility	Support	Support	Support	Support
Smart connect	Neighbor device discovery	Neighbor device discovery	Neighbor device discovery	Neighbor device discovery
Others				
Plenum rating	Yes	Yes	Yes	Yes
Power supply	DC input: 12 VDC 2 A; PoE: 802.3at compliant	802.3at PoE only	Input: AC 100 - 240 V -50/60Hz 0.3 A; Output: DC +12 V 1 A	PoE: 802.3at compliant
MTBF	1,727,246	1,727,245	1,727,244	562,413
Physical Specifications				
Item dimensions (WxDxH) (mm/in.)	236 x 227 x 62/ 9.28 x 8.95 x 2.43	203.9 x 191.7 x 34.7/ 8.03 x 7.55 x 1.37	130 x 130 x 54.7/ 5.12 x 5.12 x 2.17	255 x 256 x 62/ 10.04 x 10.08 x 2.44
Item weight (g/lb.)	982/2.17	445/0.98	300/0.67	1,708/3.77
Included accessories	<ul style="list-style-type: none"> Ceiling mount plate Mounting screws 	<ul style="list-style-type: none"> Wall/Ceiling-mount plate 	<ul style="list-style-type: none"> Power adapter Wall/Ceiling-mount plate 	<ul style="list-style-type: none"> Pole/wall mounting kits PoE injector Power cord
Environmental Specifications				
Wether protection	-	-	-	IP66 (Embedded heater for harsh weather)
Operating environment	Temperature	0°C to 50°C/ 32°F to 122°F	0°C to 50°C/ 32°F to 122°F	0°C to 50°C/ 32°F to 122°F
	Humidify	10% to 90% (non-condensing)	10% to 90% (non-condensing)	10% to 90% (non-condensing)
Storage environment	Temperature	-40°C to 70°C/ -40°F to 158°F	-40°C to 70°C/ -40°F to 158°F	-30°C to 70°C/ -22°F to 158°F
	Humidify	10% to 90% (non-condensing)	10% to 90% (non-condensing)	10% to 90% (non-condensing)

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

Model	Nebula Cloud Managed Switches		
	NSW200-28P	NSW100-28P	
Switch class	Layer 2	Layer 2	
Hardware			
Total port count	28	28	
1 Gigabit RJ45 PoE ports	24	24	
Gigabit combo ports (RJ-45/SFP)	-	4	
10 Gigabit SFP+ slots	4	-	
Backplane bandwidth (Gbps)	128	56	
Forwarding rate (Mpps)	95.2	41.7	
MAC addresses table	16 K	16 K	
Routing/Redundancy			
Spanning tree (STP/MSTP/RSTP)	Yes	Yes	
Quality of Service			
Priority queues	8	8	
Data prioritization (WRR)	Yes	Yes	
Guest VLAN	Yes	Yes	
IGMP snooping (v1/v2/v3)	Yes	Yes	
Jumbo frame forwarding	Yes	Yes	
802.1p class of service	Yes	Yes	
Security			
802.1X authentication	Yes	Yes	
ACL security filter L3/L4	Yes	Yes	
CPU protection	Yes	Yes	
Others			
MTBF (hr)	560,726	949,326	
Heat dissipation (BTU/hr)	1,483.40	1625.55	
Physical Specifications			
Item dimensions (WxDxH)(mm/in.)	440 x 330 x 44.5/17.32 x 12.99 x 1.75	440 x 330 x 44.5/17.32 x 12.99 x 1.75	
Item weight (kg/lb.)	5.06/11.16	4.79/10.56	
Included accessories	<ul style="list-style-type: none"> • Power cord • Rack-mount kits 	<ul style="list-style-type: none"> • Power cord • Rack-mount kits 	
Environmental Specifications			
Operating environment	Temperature	0°C to 50°C/32°F to 122°F	0°C to 50°C/32°F to 122°F
	Humidify	10% to 95% (non-condensing)	10% to 90% (non-condensing)
Storage environment	Temperature	-40°C to 70°C/-40°F to 158°F	-40°C to 70°C/-40°F to 158°F
	Humidify	10% to 90% (non-condensing)	10% to 90% (non-condensing)

Model		Nebula Cloud Managed Security Gateway
		NSG100
Hardware Specifications		
10/100/1000 Mbps RJ-45 ports	4 x LAN/DMZ, 2 x WAN	
USB ports	2	
Console port	Yes (DB9)	
Rack-mountable	Yes	
Fanless	Yes	
System Capacity & Performance¹		
SPI firewall throughput (Mbps)²	650	
VPN throughput (Mbps)³	140	
IDP throughput (Mbps)⁴	180	
Unlimited user licenses	Yes	
Max. TCP concurrent sessions⁵	40,000	
Max. concurrent IPsec VPN tunnels⁶	40	
Customizable zones	Yes	
VLAN interface	8	
Key Software Features		
Firewall	Yes	
Virtual Private Network (VPN)	Yes (IPSec, L2TP over IPSec)	
Application intelligence	Yes	
Intrusion Detection and Prevention (IDP)	Yes	
Bandwidth management	Yes	
Power Requirements		
Power input	12 V DC, 3.0 A max.	
Max. power consumption (watt)	19.0	
Heat dissipation (BTU/hr)	64.83	
Physical Specifications		
Item dimensions (WxDxH)(mm/in.)	242 x 175 x 36/9.53 x 6.89 x 1.42	
Item weight (kg/lb.)	1.25/2.76	
Included accessories	<ul style="list-style-type: none"> • Power adapter • Rack mounting kit 	
Environmental Specifications		
Operating environment	Temperature	0°C to 40°C/32°F to 104°F
	Humidity	10% to 90% (non-condensing)
Storage environment	Temperature	-30°C to 70°C/-22°F to 158°F
	Humidity	10% to 90% (non-condensing)
Certifications		
EMC	FCC Part 15 (Class B), CE EMC (Class B), C-Tick (Class B), BSMI	
Safety	LVD (EN60950-1), BSMI	

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

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

*3: VPN throughput measured based on RFC 2544 (1,424-byte UDP packets).

*4: IDP throughput measured using the industry-standard HTTP performance test (1,460-byte HTTP packets). Tests were 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.

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