

# ZYXEL



## NAP303

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

The Zyxel Nebula NAP303 802.11ac Dual-Radio Smart Antenna 3x3 Nebula Cloud Managed Access Point is a high-performance 3x3 802.11ac Wi-Fi AP capable of delivering combined data rates of up to 1.75 Gbps. Featuring Smart Antenna technology, the NAP303 perfectly solves coverage problems by adjusting antenna patterns adaptively to fit different wireless environments. The NAP303's industry-leading RF output power and sensitivity jointly offer greater coverage and better performance to networks. The ultra-fast capabilities makes NAP303 perfect for interference-laden environments, such as conference rooms, airports, educational facilities and other high-density venues.

Every Nebula AP has been engineered for cloud management. Based on the NETCONF standard, all data traffics between the cloud and APs are exchanged using secure transports to ensure transaction-safe configuration on all Nebula devices. Furthermore, with the intuitive management interface, administrators are able to control all the APs quickly even without training.

## Benefits

### Zero-touch deployments

The Zyxel Nebula APs auto-configure themselves after installation, and then automatically connect to the Nebula cloud to join the network; so auto-configuration, provision, monitoring and diagnostics can be performed anytime, anywhere. This simplifies network setup and enables deployment of Nebula APs to a remotely located network even by non-IT professionals.



Cloud-managed, dual-radio 3x3 MIMO 802.11ac AP



Supports combined data rates of up to 1.75 Gbps



Smart antenna provides breakthrough performance



Self-configuration and zero-touch deployment



Enterprise-class security and RF optimization



Dynamic Channel Selection, Load Balancing and Smart Client Steering



Industry-leading receive sensitivity at as low as -102 dBm



Tool-less bracket design simplifies installation



nebula

Smart antenna technology

Featuring more than 700 optimized antenna patterns, the Smart Antenna can continuously calculate the ideal physical-layer path for each individual client. This feature not only offers the best possible signals by shaping to various patterns, but also mitigates interference from other wireless clients. With the advance technology, the Zyxel NAP303 can handle a variety of tough deployments such as high-capacity, high-performance and interference-laden environments.

Best-in-class coverage and performance

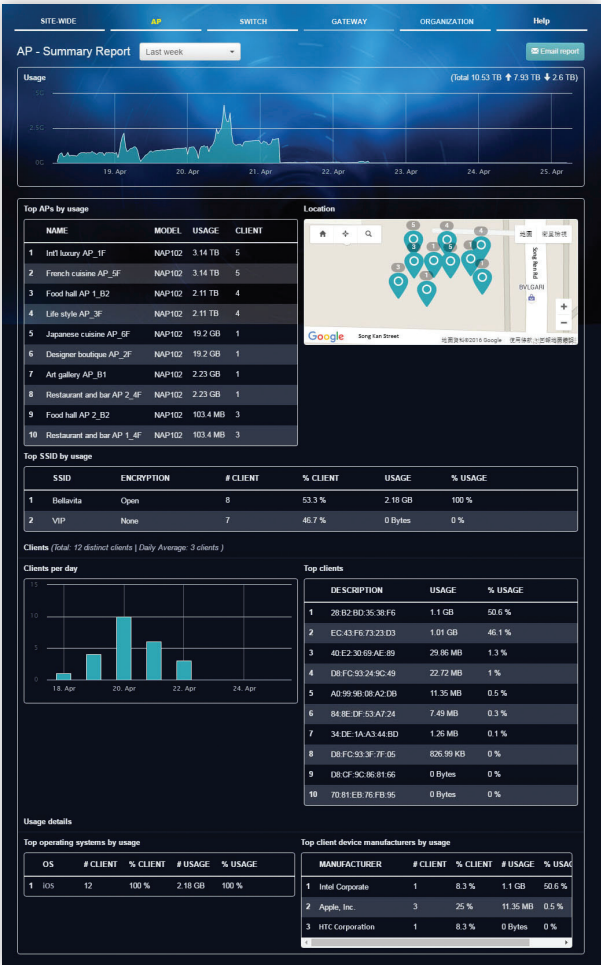
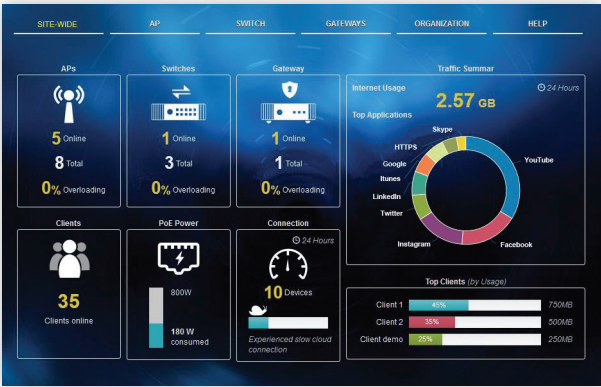
Different from other 802.11ac APs, the Zyxel NAP303 stands out with its best-in-class coverage and performance thanks to its unique RF design. The AP’s three-stream hardware configuration provides power of up to 30 dBm and unparalleled receive sensitivity of as low as -102 dBm. The Smart Antenna technology doubles the NAP303’s performance over conventional internal antennas, and it performs three times (3x) better than legacy 802.11n APs as well.

Optimized wireless experience

The Zyxel Nebula NAP303 delivers optimized wireless experience for users with comprehensive wireless features such as Dynamic Channel Selection (DCS), Load Balancing, and Smart Client Steering, etc. DCS avoids interference from co-channeling and overlapping channels continuously, while Load Balancing and Smart Client Steering which features Band Select and Balance for more spectrum to provide more stable, reliable wireless connections.

Enterprise-class security

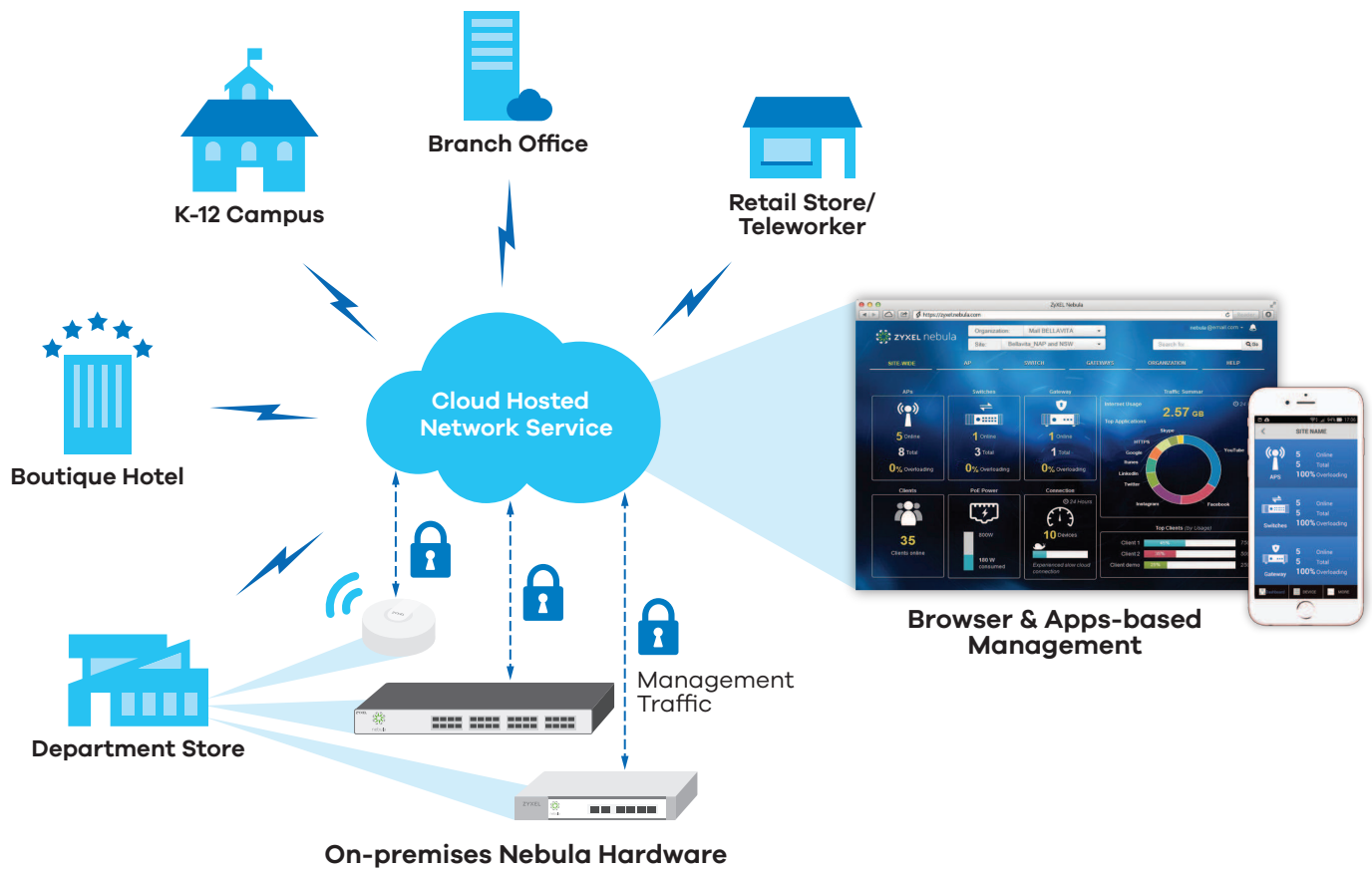
The Zyxel Nebula NAP303 Access Point inherits the NETCONF protocol for secure configuration changes. In terms of authentication and data encryption, it supports WPA2 enterprise protection and a wide range of Extensible Authentication Protocol (EAP) types, including EAP SIM for smartphones. Besides, the NAP303 also features access control and Layer-2 isolation for privacy protection. The comprehensive security features ensure NAP303 to deliver enterprise-grade protection to the entire network.



Monitor AP usage and client report by different time intervals and view historical status record via the intuitive management interface

# Applications Diagram

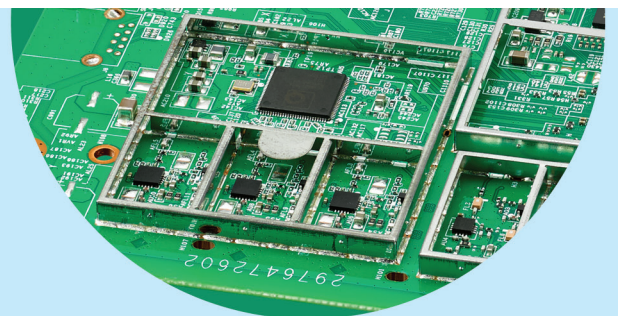
## Nebula cloud management architecture



## Robust Hardware

### Robust, reliable hardware

Ordered shielding frames prevent electromagnetic interference, while covers manage heat through thermal pads to mitigate overheating.



### ZyXel Smart Antenna

- Over 700 optimized antenna patterns create the best path for clients at a range of angles.
- NAP303 delivers true ultra-fast wireless performance by eliminating the need for beam-forming through individual wireless client support.

## Specifications

|                                                      |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Model</b>                                         |                       | <b>NAP303</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Product name</b>                                  |                       | 802.11ac Dual-Radio Smart Antenna 3x3 Nebula Cloud Managed Access Point                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                      |                       |                                                                                                                                                                                                                                                                                                                                                                                |
| <b>RF Specifications</b>                             |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Frequency band</b>                                |                       | 2.4 GHz (IEEE 802.11 b/g/n) <ul style="list-style-type: none"> <li>• USA (FCC): 2.412 to 2.462 GHz</li> <li>• Europe (ETSI): 2.412 to 2.472 GHz</li> <li>• Taiwan (TW): 2.412 to 2.462 GHz</li> </ul> 5 GHz (IEEE 802.11 a/n) <ul style="list-style-type: none"> <li>• USA (FCC): 5.15 to 5.35 GHz; 5.725 to 5.850 GHz</li> <li>• European (ETSI): 5.15 to 5.35 GHz; 5.470 to 5.725 GHz</li> <li>• Taiwan (TW): 5.15 to 5.35 GHz; 5.725 to 5.850 GHz</li> </ul> |
| <b>802.11n/ac premium features</b>                   |                       | <ul style="list-style-type: none"> <li>• 3x3 Multiple-Input Multiple-Output (MIMO) with three spatial streams</li> <li>• Maximal Ratio Combining (MRC)</li> <li>• 20-, 40- and 80-MHz channels</li> <li>• Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx)</li> <li>• Cyclic Delay Diversity (CSD) support</li> <li>• Maximum Likelihood Demodulation (MLD) support</li> <li>• Low Density Parity Check (LDPC) support</li> </ul>                             |
| <b>Conducted typical transmit output power (dBm)</b> | <b>FCC 11b/g</b>      | 29                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                      | <b>FCC 11g/n</b>      | 29                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                      | <b>FCC 11a</b>        | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                      | <b>FCC 11n/a (ac)</b> | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                      | <b>EU 11b/g</b>       | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                      | <b>EU 11g/n</b>       | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                      | <b>EU 11a</b>         | 23                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                      | <b>EU 11n/a (ac)</b>  | 23                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Antenna system</b>                                |                       | 6 embedded smart antenna                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Antenna gain</b>                                  |                       | 2.4 GHz 4 dBi; 5 GHz 6 dBi                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Support data rate</b>                             |                       | <ul style="list-style-type: none"> <li>• 802.11a/g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps</li> <li>• 802.11n: up to 450 Mbps in MCS23 (40 MHz)</li> <li>• 802.11ac: up to 1300 Mbps in MCS9 (80 MHz)</li> </ul>                                                                                                                                                                                                                                  |
| <b>Receive sensitivity</b>                           |                       | Min. Rx sensitivity up to to -102 dBm                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Interfaces</b>                                    |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Number of 10/100/1000M LAN</b>                    |                       | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Console port</b>                                  |                       | RJ-45 serial                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>PoE</b>                                           |                       | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>PoE power draw</b>                                |                       | 17.04 W                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>WLAN Features</b>                                 |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>WLAN maximum throughput</b>                       |                       | Up to 900 Mbps                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Wireless Security</b>                             |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>WEP</b>                                           |                       | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>WPA/WPA2-PSK</b>                                  |                       | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>WPA/WPA2-Enterprise</b>                           |                       | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>WLAN access control list</b>                      |                       | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>EAP types</b>                                     |                       | EAP-TLS, EAP-TTLS, EAP-PEAP, EAP-FAST, EAP-AKA and EAP-SIM                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>IEEE 802.1X</b>                                   |                       | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Number of SSID</b>                                |                       | 8 (per radio)                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Wireless Security            |                                                                                                                                                                                                                                                                                                                                                |                                      |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| MAC filtering                | Yes                                                                                                                                                                                                                                                                                                                                            |                                      |
| Layer-2 isolation            | Yes                                                                                                                                                                                                                                                                                                                                            |                                      |
| RADIUS authentication        | Yes                                                                                                                                                                                                                                                                                                                                            |                                      |
| Captive portal               | Yes                                                                                                                                                                                                                                                                                                                                            |                                      |
| Network                      |                                                                                                                                                                                                                                                                                                                                                |                                      |
| VLANs                        | Yes                                                                                                                                                                                                                                                                                                                                            |                                      |
| DHCP client                  | Yes                                                                                                                                                                                                                                                                                                                                            |                                      |
| QoS (PG)                     |                                                                                                                                                                                                                                                                                                                                                |                                      |
| WMM                          | Yes                                                                                                                                                                                                                                                                                                                                            |                                      |
| WMM power save               | Yes                                                                                                                                                                                                                                                                                                                                            |                                      |
| DiffServ marking             | Yes                                                                                                                                                                                                                                                                                                                                            |                                      |
| Management                   |                                                                                                                                                                                                                                                                                                                                                |                                      |
| Cloud managed                | Yes                                                                                                                                                                                                                                                                                                                                            |                                      |
| ZON utility                  | Support                                                                                                                                                                                                                                                                                                                                        |                                      |
| Smart connect                | Neighbor device discovery                                                                                                                                                                                                                                                                                                                      |                                      |
| Others                       |                                                                                                                                                                                                                                                                                                                                                |                                      |
| Plenum rating                | Yes                                                                                                                                                                                                                                                                                                                                            |                                      |
| Kensington lock support      | Yes                                                                                                                                                                                                                                                                                                                                            |                                      |
| Input power                  | DC input: 12 VDC 2 A; PoE: 802.3at compliant<br>(Power adapter is sold separately)                                                                                                                                                                                                                                                             |                                      |
| MTBF (hr)                    | 1,202,489                                                                                                                                                                                                                                                                                                                                      |                                      |
| Standard Compliance          |                                                                                                                                                                                                                                                                                                                                                |                                      |
| Ethernet                     | IEEE 802.3, IEEE 802.3u, IEEE 802.11ab<br>IEEE 802.3au, IEEE 802.3az, IEEE 802.3at                                                                                                                                                                                                                                                             |                                      |
| PoE                          | IEEE 802.3at*                                                                                                                                                                                                                                                                                                                                  |                                      |
| WLAN                         | <div><div><ul style="list-style-type: none"><li>• 802.11b: DBPSK, DQPSK, CCK</li><li>• 802.11g: BPSK, QPSK, 16-QAM, 64-QAM</li><li>• 802.11a: BPSK, QPSK, 16-QAM, 64-QAM</li></ul></div><div><ul style="list-style-type: none"><li>• 802.11n: BPSK, QPSK, 16-QAM, 64-QAM</li><li>• 802.11ac: BPSK, QPSK, 64-QAM, 256-QAM</li></ul></div></div> |                                      |
| Certifications               |                                                                                                                                                                                                                                                                                                                                                |                                      |
| Radio                        | FCC Part 15C, FCC Part 15E, ETSI EN 300 328, EN 301 893, LP0002                                                                                                                                                                                                                                                                                |                                      |
| EMC                          | FCC Part 15B, EN 301 489-1, EN 301 489-17, EN55022, EN55024, EN61000-3-2/-3, EN60601-1-2, BSMI CNS13438                                                                                                                                                                                                                                        |                                      |
| Safety                       | EN 60950-1, IEC 60950-1, BSMI CNS14336-1                                                                                                                                                                                                                                                                                                       |                                      |
| Physical Specifications      |                                                                                                                                                                                                                                                                                                                                                |                                      |
| Item                         | Dimensions (WxDxH)(mm/in.)                                                                                                                                                                                                                                                                                                                     | 236 x 227 x 62/9.28 x 8.95 x 2.43    |
|                              | Weight (g/lb.)                                                                                                                                                                                                                                                                                                                                 | 982/2.17                             |
| Packing                      | Dimensions (WxDxH)(mm/in.)                                                                                                                                                                                                                                                                                                                     | 308 x 323 x 127/12.13 x 12.72 x 5.00 |
|                              | Weight (g/lb.)                                                                                                                                                                                                                                                                                                                                 | 1,743/3.85                           |
| Included accessories         | Ceiling mount plate; Mounting screws                                                                                                                                                                                                                                                                                                           |                                      |
| Environmental Specifications |                                                                                                                                                                                                                                                                                                                                                |                                      |
| Operating                    | Temperature                                                                                                                                                                                                                                                                                                                                    | 0°C to 50°C/32°F to 122°F            |
|                              | Humidity                                                                                                                                                                                                                                                                                                                                       | 10% to 90% (non-condensing)          |
| Storage                      | Temperature                                                                                                                                                                                                                                                                                                                                    | -40°C to 70°C/-40°F to 158°F         |
|                              | Humidity                                                                                                                                                                                                                                                                                                                                       | 10% to 90% (non-condensing)          |

\* Compatible with 802.3af mode with restricted function: 1x3 MIMO with 1 spatial stream.

Power Module

| Part Number       | Description                        |
|-------------------|------------------------------------|
| ACCESSORY-ZZ0101F | Universal power adapter (12 V/2 A) |

For more product information, visit us on the web at [www.zyxel.com](http://www.zyxel.com)

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Datasheet [NAP303](#)



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