Stay Ahead of Your WAN Solution
Improve your WAN quality while lowering networking costs

Zyxel Nebula SD-WAN solution

Today there are increasing amount of enterprises with branch offices that are consuming more WAN bandwidth as they are collaborating online applications such as: Skype, WebEx, and many more! As more Internet communication and cloud-based application are adopted, it becomes a critical challenge for how to efficiently optimize WAN bandwidth, manage Internet application usage, and secure the connection between Branches, HQ, and Clients. Here at Zyxel, we believe that this type of technology should be for everyone. We have taken this enterprise approach to develop and tailor a solution to fit the SMB market as well as cater toward Enterprise clients. This approach will vastly improve reliability and performance over traditional VPN (Site to Site) networks. Combining the flexibility of cloud-based technology and its high-speed deployment benefit, Zyxel SD-WAN solution helps IT administrators simplify branch network deployment. Designed to optimize internet connectivity and applications, the Zyxel SD-WAN also enables ZyWALL VPN Series to support online application growth, efficiency WAN bandwidth usage and increase network agility.

Challenges for SMBS

• Greater reliability on Cloud including private cloud
• Reliable Internet with low-latency
• Faster connectivity and WAN performance improvement
• Increased security with greater scalability and reduced costs (installation and ongoing connectivity)

Challenges for VARs & MSPs

• Maximise on what connectivity is available
• Get easier control over deployment and management
• Reduce complexity, especially routing
• Remove bottlenecks from clients’ networks
• Simplify network diversity (LTE/VDSL/Leased Line)
• Gain control over traffic shaping of bandwidth and applications

Fast LAN but slow WAN
Growing Branches & Cloud Usage
Lower Cost Higher Throughput
What Nebula SD-WAN can do?

**Nebula Orchestrator Management**

Easily switch between standalone gateway mode and our SD-WAN cloud management platform with Nebula Orchestrator, obtain the benefit from a centralized management for site to site connectivity. Nebula Orchestrator will continually measure and monitor all connections to establish the best quality connection. If the best path is better on another connection, it will seamlessly move the connection to give clients the best experience. Remote control and monitoring function from Nebula Orchestrator gives you more flexibility and lowers operation costs. Multi-tier management structure consisting of three level topologies includes Group, Organization and Site, allow configuration functions at each level to automate and simply management.

**Cost Effective**

SD-WAN improves the performance without extra bandwidth investments along with rock solid reliability of WAN Internet connections so that costly frame relay or MPLS lines are not required.

**Greater Agility**

SD-WAN is quick to deploy whilst MPLS may take months to install. This means that SD-WAN is lowering the complexity of running a network while simultaneously improving agility and efficiency.

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Nebula SD-WAN license & services

Zyxo VPN50/VPN100/VPN300/VPN1000 will be bundled with a free 1 year SD-WAN license. Full features of SD-WAN license include Dynamic Path Selection, WAN Optimization, Zero Touch Provision, Auto-VPN, Monitoring (Statistics) and Log. Customers who have already purchased can also receive a free one year SD-WAN license by downloading the new firmware update. Businesses can renew the SD-WAN Pack after the bundled license expires, its adaptation has been answer for most Enterprise deployments to not only improve site to site connectivity but also reduce overheads often associated with traditional methods like MPLS and T1 ISP services. Alternatively, those seeking orchestrated management without advanced SD-WAN can revert to the Management Pack License. This pack uses Nebula Orchestrator to deliver zero-touch provisioning, VPN, firewall, and more. This excludes some SD-WAN functionality and other features, such as Application Patrol and Content Filtering.

**License Packs**

<table>
<thead>
<tr>
<th>License Service</th>
<th>Nebula Orchestrator Basic (Free)</th>
<th>Nebula Orchestrator Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nebula Orchestrator</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Dynamic Path Selection (DPS)</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>WAN Optimization</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>Content Filtering</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>Geo Enforcer</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>Zero Touch Provisioning (ZTP)</td>
<td>Email/APP</td>
<td>Email/APP/SMS</td>
</tr>
<tr>
<td>Auto VPN (Dynamic Mesh VPN)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Other (VPN/Firewall function)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Monitoring Page Update Frequency</td>
<td>Every 10 min</td>
<td>Every 3 min (3 sec Live Mode)</td>
</tr>
<tr>
<td>Storage of Configuration Log</td>
<td>7 days</td>
<td>13 months</td>
</tr>
<tr>
<td>Monitoring Data</td>
<td>1 day</td>
<td>30 days</td>
</tr>
</tbody>
</table>
Key features of SD-WAN

**Zero Touch Provisioning (ZTP)**
Deploy new branch gateway in minutes, reducing operational time and expense. Take the hassle out of remotely deploying gateways that often need more settings than other devices in their initial configuration. Setup the first network rule within Nebula Orchestrator and then distribute the network settings via our Zero Touch Provisioning (email, SMS or USB) to all subsidiaries/sites through the cloud.

**WAN Optimization**
WAN Optimization technology increases data transfer efficiencies across WAN, giving reliable WAN quality, optimizing WAN traffic to improve WAN performance between branch offices and corporate headquarters. Each Site to Site connection is optimized by utilising Zyxel's WAN Optimization and combines it with Application Intelligence engine, which identifies more than 3000 protocols and applications, prioritize application by behaviour and user expectation.

**Dynamic Path Selection**
Dynamic Path Selection real-time monitors path quality and automatically route mission critical applications to best-quality transmission path, which based on detected network latency, jitter, and packet drop status.

**Virtual Private Network (VPN)**
VPN technology is widely used in corporate environments, but deploying and maintaining VPN network can be a headache for IT administrators. Zyxel SD-WAN solution provide several easy setting methods for configuring a VPN:

- **Dynamic Mesh VPN**
  Allow gateways to establish dynamic/direct VPN tunnels when traffic flow requests are the bottlenecks in the network.

- **Auto-VPN**
  Effortlessly create site-site and client-site VPns with our Auto VPN (site-to-site, client-to-site) function. Simplify the deployment of client devices with our simple three step process to get remote users connected hassle free.

- **Client AutoVPN**
  Auto VPN utilizes the native clients on Windows, Mac OS, and iOS devices. Get effortless software-free installation process for client to site connectivity.

**Gain Control over Security**
Manage security for all sites via organization profiles to simplify security across all your sites, including: Firewall Rules, Geo Enforcer, Content Filtering and Application Patrol.

- **Geo Enforcer**
  Geo Enforcer is an up-to-date mapping, which identifies the incoming traffic of geographical regions by examining its IP address. Enabling you the ability to filter traffic to and from specific locations.

- **Content Filtering**
  We protect your business from undesirable access to malicious, hacked or inappropriate websites with technologies such as URL filtering, HTTPS domain filter, safe search and Geo IP blocking.

- **Application Patrol**
  Block external threats and manage traffic by applications. Prioritize, throttle and block applications to boost productivity and prevent bandwidth abuse.

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*Solution Brief SD-WAN*
## SD-WAN supported hardware

### VPN50
- **Includes 1 Year**
- Nebula Orchestrator SD-WAN & Security Services
- **SD-WAN Interfaces**
  - 4 x LAN/DMZ, 1 x SFP
  - 1 x WAN (Configurable)
- **VPN Throughput**
  - 1,500 Mbps
- **SPI Firewall Throughput**
  - 8,000 Mbps
- **VPN Throughput**
  - 200/300
- **500/800**
- **8,000/4000**
- **8 Solution Brief SD-WAN**

### VPN100
- **Includes 1 Year**
- Nebula Orchestrator SD-WAN & Security Services
- **SD-WAN Interfaces**
  - 4 x LAN/DMZ, 1 x SFP
  - 2 x WAN (Configurable)
- **SPI Firewall Throughput**
  - 2,000 Mbps
- **VPN Throughput**
  - 500 Mbps
- **VPN Throughput**
  - 800/300

### VPN300
- **Includes 1 Year**
- Nebula Orchestrator SD-WAN & Security Services
- **SD-WAN Interfaces**
  - 7 x GbE (Configurable)
  - 1 x SFP
- **SPI Firewall Throughput**
  - 1,000 Mbps
- **VPN Throughput**
  - 1,000 Mbps

### VPN1000
- **Includes 1 Year**
- Nebula Orchestrator SD-WAN & Security Services
- **SD-WAN Interfaces**
  - 12 x GbE (Configurable)
  - 2 x SFP
- **SPI Firewall Throughput**
  - 4,000 Mbps
- **VPN Throughput**
  - 1,500 Mbps

## Feature matrix

<table>
<thead>
<tr>
<th>Model</th>
<th>ZyWALL VPN50 (SB)</th>
<th>ZyWALL VPN100 (SMB)</th>
<th>ZyWALL VPN300 (SMB)</th>
<th>ZyWALL VPN1000 (MB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation Mode</td>
<td>Standalone</td>
<td>Nebula SD-WAN</td>
<td>Nebula SD-WAN</td>
<td>Nebula SD-WAN</td>
</tr>
<tr>
<td>Interfaces</td>
<td>4 x LAN/DMZ (GbE), 1 x WAN (GbE), 1 x SFP</td>
<td>4 x LAN/DMZ (GbE), 2 x WAN (GbE), 1 x SFP</td>
<td>4 x LAN/DMZ (GbE), 2 x WAN (GbE), Configurable, 1 x SFP</td>
<td>7 x GbE (Configurable), 1 x SFP</td>
</tr>
<tr>
<td>Hardware Specifications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPI Firewall Throughput (Mbps)**</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
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<tr>
<td>Max. TCP concurrent sessions#</td>
<td>400,000</td>
<td>400,000</td>
<td>2,000,000</td>
<td>3,000,000</td>
</tr>
<tr>
<td>Max. concurrent IPSec VPN tunnels**</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Concurrent SSL VPN users (default/max.)*#</td>
<td>10/50</td>
<td>10/50</td>
<td>10/50</td>
<td>10/50</td>
</tr>
<tr>
<td>VLAN interface ports</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Concurrent device logins (default/max.)*#</td>
<td>64</td>
<td>64</td>
<td>64</td>
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<tr>
<td>Key Features</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firewall</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>VPN</td>
<td>IPSec, SSL, L2TP/IPSec</td>
<td>IPSec, SSL, L2TP/IPSec</td>
<td>IPSec, SSL, L2TP/IPSec</td>
<td>IPSec, SSL, L2TP/IPSec</td>
</tr>
<tr>
<td>Application Patrol</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Content Filtering**</td>
<td>Yes, (bundle 1 year License)</td>
<td>Yes, (bundle 1 year License)</td>
<td>Yes, (bundle 1 year License)</td>
<td>Yes, (bundle 1 year License)</td>
</tr>
<tr>
<td>Geo Enforcer**</td>
<td>Yes, (bundle 1 year License)</td>
<td>Yes, (bundle 1 year License)</td>
<td>Yes, (bundle 1 year License)</td>
<td>Yes, (bundle 1 year License)</td>
</tr>
<tr>
<td>EZ Mode</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Hotspot Management**</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Ticket printer support**</td>
<td>Yes, (SP350E)/10</td>
<td>Yes, (SP350E)/10</td>
<td>Yes, (SP350E)/10</td>
<td>Yes, (SP350E)/10</td>
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<tr>
<td>Support Qty (max.)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Amazon VPC</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Facebook WiFi</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Device ISA Pro**</td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>SD-WAN Features**</td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

** Model: ZyWALL VPN50 (SB), ZyWALL VPN100 (SMB), ZyWALL VPN300 (SMB), ZyWALL VPN1000 (MB)

# Standalone Nebula

## Additional Features

### System Capacity & Performance**
- YES, (bundle 1 year License)
- YES, (bundle 1 year License)
- YES, (bundle 1 year License)

### SD-WAN Features**
- YES, (bundle 1 year License)
- YES, (bundle 1 year License)
- YES, (bundle 1 year License)
- YES, (bundle 1 year License)

### Hardware Specifications
- 12 x GbE (Configurable)
- 2 x SFP

### Features
- YES, (bundle 1 year License)
- YES, (bundle 1 year License)
- YES, (bundle 1 year License)
- YES, (bundle 1 year License)
# Feature matrix

<table>
<thead>
<tr>
<th>Model</th>
<th>ZyWALL VPN50 (Sb)</th>
<th>ZyWALL VPN100 (SMBs)</th>
<th>ZyWALL VPN300 (SMBs)</th>
<th>ZyWALL VPN1000 (MBs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operation Mode</strong></td>
<td>Standalone</td>
<td>Nebula</td>
<td>Standalone</td>
<td>Standalone</td>
</tr>
</tbody>
</table>

## Power Specifications

<table>
<thead>
<tr>
<th>Power Input</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. power consumption (watt)</td>
<td>12</td>
<td>13.3</td>
<td>24.1</td>
<td>46.0</td>
</tr>
<tr>
<td>Heat dissipation (BTU/hr)</td>
<td>40.92</td>
<td>45.38</td>
<td>82.23</td>
<td>120.10</td>
</tr>
</tbody>
</table>

### Packing Dimensions

<table>
<thead>
<tr>
<th>Item</th>
<th>Dimensions</th>
<th>Weight (kg/lb.)</th>
<th>Included accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>216 x 143 x 33/8</td>
<td>0.88/1.94</td>
<td>Power adapter, Rack mounting kit</td>
</tr>
<tr>
<td>Weight (kg/lb.)</td>
<td>1.4/3.11</td>
<td>2.23/4.91</td>
<td>Power adapter, Rack mounting kit</td>
</tr>
</tbody>
</table>

### Environmental Specifications

<table>
<thead>
<tr>
<th>Operating environment</th>
<th>Temperature</th>
<th>Humidity</th>
<th>Storage environment</th>
<th>Temperature</th>
<th>Humidity</th>
<th>MTBF (hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-22°F to 158°F</td>
<td>0°C to 40°C</td>
<td>10% to 90%</td>
<td>-30°C to 70°C</td>
<td>5°C to 40°C</td>
<td>10% to 90%</td>
<td>44,000</td>
</tr>
<tr>
<td>(non-condensing)</td>
<td>32°F to 104°F</td>
<td>(non-condensing)</td>
<td>(non-condensing)</td>
<td>32°F to 104°F</td>
<td>(non-condensing)</td>
<td>529,688.2</td>
</tr>
<tr>
<td>(non-condensing)</td>
<td>0°C to 10°F</td>
<td>(non-condensing)</td>
<td>-30°C to 70°C</td>
<td>5°C to 40°C</td>
<td>10% to 90%</td>
<td>44,000</td>
</tr>
<tr>
<td>(non-condensing)</td>
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<td>(non-condensing)</td>
<td>32°F to 104°F</td>
<td>(non-condensing)</td>
<td>529,688.2</td>
</tr>
</tbody>
</table>

### Other Features

- **SD-WAN Features***
  - Geo Enforcer (GeoIP) - Yes - Yes - Yes - Yes
- **Cloud/Control Management** - Yes - Yes - Yes - Yes
- **Monitor/Log Storage** - Yes - Yes - Yes - Yes

### Technical Specifications

- **Security**
  - 802.11ac Wi-Fi 5
  - IPv6 support

- **Protocol Support**
  - SSL/TLS
  - IPSec
  - PPTP

- **Application Layer**
  - SD-WAN
  - SD-FAST

- **Firewall**
  - Stateful
  - Dynamic Addressing

### Certification

- **FCC Part 15 (Class B), IC, C-Tick (Class B), CE EMC (Class A), BSMI**

### Note

* The matrix was measured with SD-OS v10.02 firmware version.
* Actual performance may vary depending on network conditions and activated applications.
* Maximum throughput based on RFC 2544 (1,424-byte UDP packets).
* Maximum throughput measured based on RFC 2544 (1,518-byte UDP packets).
* Maximum sessions measured using the industry standard Ixia Load testing tool.
* Including Gateway-to-Gateway and Client-to-Gateway.
* With Zyxel’s license, please contact your Zyxel sales representative for pricing information.
* In the default configuration, the maximum number of concurrent logged-in devices is 10.
* SafeSearch function in Content Filtering need to first enable SSL inspection and not for small businesses.
* SD-WAN features in ZyWALL 1000 or above support Device HA Pro once registered.
* After upgrading device firmware to SD-OS v10.02 and was transformed to SD-WAN mode.