ZYXEL
Your Networking Ally

SD-WAN
Stay ahead of your WAN solutions

Stay Ahead of Your WAN Solution

SD-WAN
Solution Brief

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

LAN
10
Gbps.

WAN
9.1
Mbps

80%
New Branches

Fast LAN but slow WAN
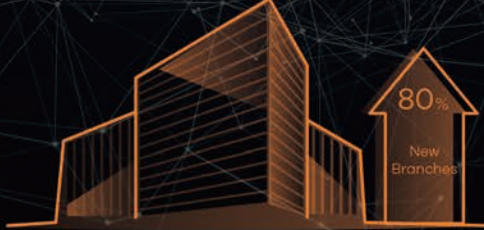
Growing Branches & Cloud Usage

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.

Nebula SD-WAN license & services

Zyxel 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

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

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.

Monitoring & Statistics

Group/Organization monitoring page on Orchestrator delivers a world map to display VPN topology (hub-and-spoke) and tunnel status. IT engineer(s) could easily identify VPN connection status. Site monitoring page display details of client activities, not only display WAN interface traffic statistics and top 3 applications/source/destination statistics, but also provides a drilled-down function, where IT engineer(s) could check detailed traffic status by using different angles, including sources, destinations, and applications.

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.
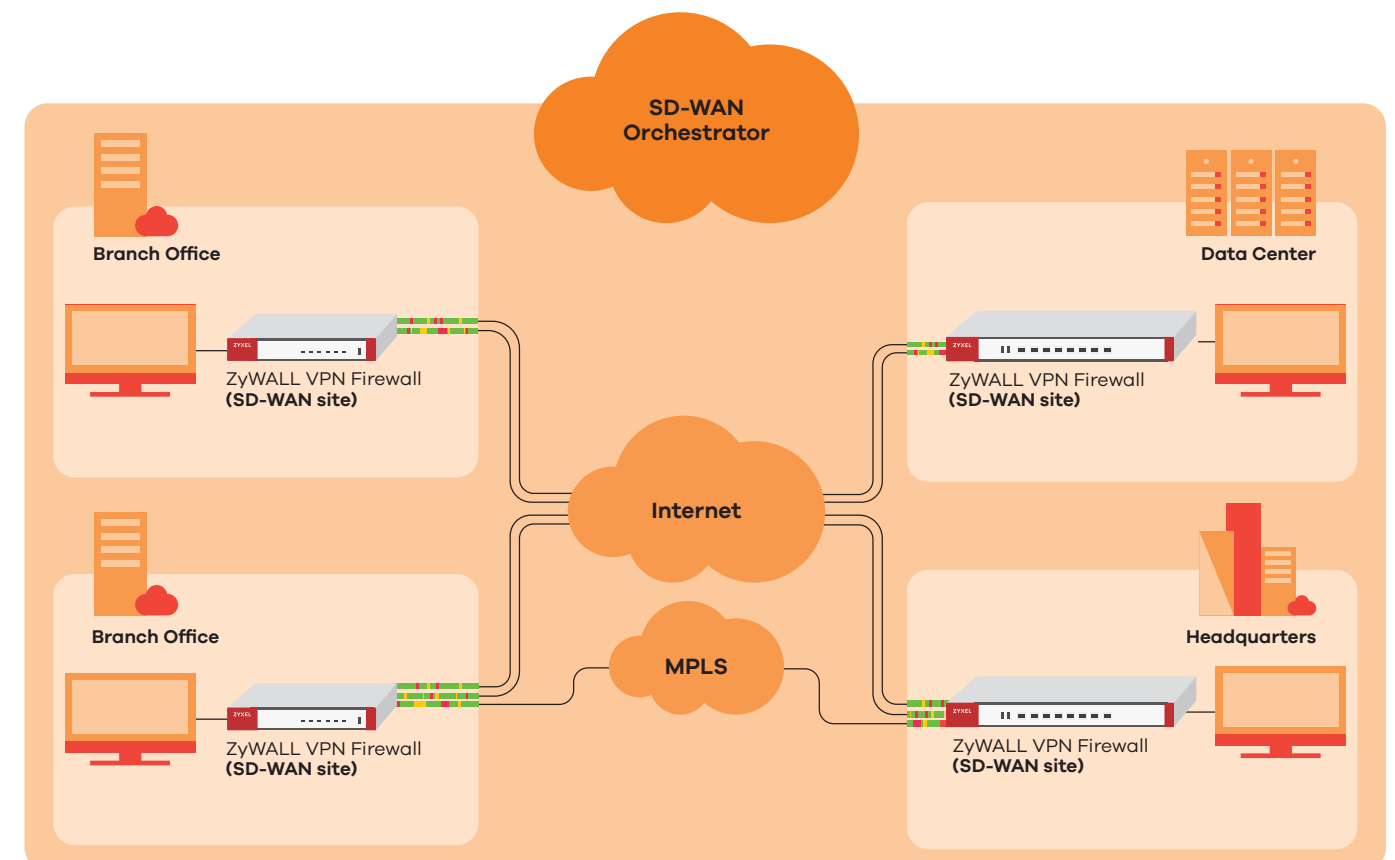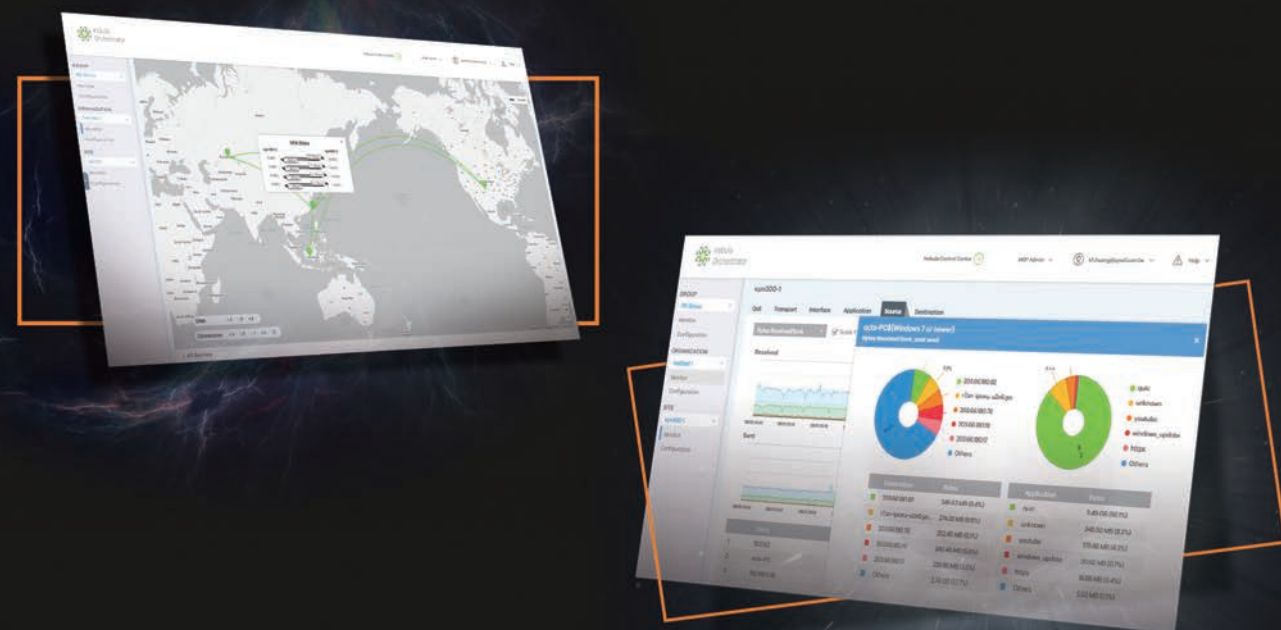
SD-WAN supported hardware

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**
  150 Mbps
- **SPI Firewall Throughput**
  800 Mbps

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

VPN300
Includes 1 Year Nebula Orchestrator SD-WAN & Security Services

- **SD-WAN Interfaces**
  7 x GbE (Configurable)
  1 x SFP
- **SPI Firewall Throughput**
  2,600 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**
  8,000 Mbps
- **VPN Throughput**
  1,500 Mbps

Feature matrix

Model	ZyWALL VPN50 (SBs)		ZyWALL VPN100 (SMBs)		ZyWALL VPN300 (SMBs)		ZyWALL VPN1000 (MBs)	
Operation Mode	Standalone	Nebula SD-WAN	Standalone	Nebula SD-WAN	Standalone	Nebula SD-WAN	Standalone	Nebula SD-WAN
Interfaces	4 x LAN/DMZ (GbE), 1 x WAN (GbE), 1 x SFP	4 x LAN/DMZ (GbE), 1 x WAN (GbE, Configurable), 1 x SFP	4 x LAN/DMZ (GbE), 2 x WAN (GbE), 1 x SFP	4 x LAN/DMZ (GbE), 2 x WAN (GbE), 1 x SFP	7 x GbE (Configurable), 1 x SFP		12 x GbE (Configurable), 2 x SFP	
Hardware Specifications								
USB3.0 ports	1	1	2	2	2	2	2	2
Console port	Yes (RJ-45)	Yes (RJ-45)	Yes (DB9)	Yes (DB9)	Yes (DB9)	Yes (DB9)	Yes (DB9)	Yes (DB9)
Rack-mountable	-	-	Yes	Yes	Yes	Yes	Yes	Yes
System Capacity & Performance*1								
SPI firewall throughput (Mbps)*2	800	800	2,000	2,000	2,600	2,600	8,000	8,000
VPN throughput (Mbps)*3	150	150	500	500	1,000	1,000	1,500	1,500
Max. TCP concurrent sessions*4	400,000	400,000	800,000	800,000	2,000,000	2,000,000	3,000,000	3,000,000
Max. concurrent IPSec VPN tunnels*5	50	50	100	100	300	300	1,000	1,000
Concurrent SSL VPN users (default/max.)*6	10/50	-	30/200	-	50/300	-	250/500	-
VLAN interface	8	64	16	64	64	64	128	128
Concurrent device logins (default/max.)*6*7	64	-	200/300	-	500/800	-	800/4000	-
WLAN Management								
Managed AP number (default/max.)*6	4/36	-	4/68	-	4/132	-	8/1032	-
Key Features								
Firewall	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VPN	IPSec, SSL, L2TP/IPSec	IPSec, L2TP/IPSec	IPSec, SSL, L2TP/IPSec	IPSec, L2TP/IPSec	IPSec, SSL, L2TP/IPSec	IPSec, L2TP/IPSec	IPSec, SSL, L2TP/IPSec	IPSec, L2TP/IPSec
SSL (HTTPS) inspection	-	-	Yes	-	Yes	-	Yes	-
Application Patrol	-	Yes, (bundle 1 year License)	-	Yes, (bundle 1 year License)	-	Yes, (bundle 1 year License)	-	Yes, (bundle 1 year License)
Content Filtering*6*8	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)
Geo Enforcer*6	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)	Yes, (bundle 1 year License)
EZ Mode	Yes	-	-	-	-	-	-	-
Hotspot Management*6	Yes	-	Yes	-	Yes	-	Yes	-
Ticket printer support*9/ Support Q'ty (max.)	Yes, (SP350E)/10	-	Yes, (SP350E)/10	-	Yes, (SP350E)/10	-	Yes, (SP350E)/10	-
Amazon VPC	Yes	-	Yes	-	Yes	-	Yes	-
Facebook WiFi	Yes	-	Yes	-	Yes	-	Yes	-
Device HA Pro*10	-	-	Yes	Yes (SD-OS v10.03 or after)	Yes	Yes (SD-OS v10.03 or after)	Yes	Yes (SD-OS v10.03 or after)
SD-WAN Features*11								
Dynamic Path Selection	-	Yes	-	Yes	-	Yes	-	Yes
WAN Optimization	-	Yes	-	Yes	-	Yes	-	Yes
Zero Touch Provision (ZTP)	-	Yes	-	Yes	-	Yes	-	Yes
Auto VPN Site to Site	-	Yes	-	Yes	-	Yes	-	Yes
Auto VPN Client to Site	-	Yes	-	Yes	-	Yes	-	Yes
App Patrol	-	Yes	-	Yes	-	Yes	-	Yes
Content Filter	-	Yes	-	Yes	-	Yes	-	Yes

Feature matrix

Model	ZyWALL VPN50 (SBs)		ZyWALL VPN100 (SMBs)		ZyWALL VPN300 (SMBs)		ZyWALL VPN1000 (MBs)	
Operation Mode	Standalone	Nebula SD-WAN	Standalone	Nebula SD-WAN	Standalone	Nebula SD-WAN	Standalone	Nebula SD-WAN
SD-WAN Features*11								
Geo Enforcer (GeoIP)	-	Yes	-	Yes	-	Yes	-	Yes
Cloud/Central Management	-	Yes	-	Yes	-	Yes	-	Yes
Monitor/Log Storage	-	Yes	-	Yes	-	Yes	-	Yes
Power Requirements								
Power input	12 V DC, 2.0 A max.		12 V DC, 2.5 A max.		12 V DC, 4.17 A max.		100-240 V AC, 50/60 Hz, 2.5 A max.	
Max. power consumption (watt)	12		13.3		24.1		46.0	
Heat dissipation (BTU/hr)	40.92		45.38		82.23		120.10	
Physical Specifications								
Item — Dimensions (WxDxH)(mm/in.)	216 x 143 x 33/ 8.50 x 5.63 x 1.30		272 x 187 x 36/ 10.7 x 7.36 x 1.42		300 x 188 x 44/ 16.93 x 7.4 x 1.73		400 x 250 x 44/ 16.93 x 9.84 x 1.73	
Item — Weight (kg/lb.)	0.88/1.94		1.4/3.09		1.65/3.64		3.3/7.28	
Packing — Dimensions (WxDxH)(mm/in.)	276 x 185 x 98/ 10.87 x 7.28 x 3.86		427 x 247 x 73/ 16.81 x 9.72 x 2.87		351 x 152 x 245/ 13.82 x 5.98 x 9.65		519 x 392 x 163/ 20.43 x 15.43 x 6.42	
Packing — Weight (kg/lb.)	1.41/3.11		2.23/4.91		2.83/6.24		2.83/6.24	
Included accessories	• Power adapter • RJ-45 - RS-232 cable for console connection		• Power adapter • Rack mounting kit (optional, by regions)		• Power adapter • Power cord • Rack mounting kit		• Power cord • Rack mounting kit	
Environmental Specifications								
Operating environment — Temperature	0°C to 40°C/ 32°F to 104°F		0°C to 40°C/ 32°F to 104°F		0°C to 40°C/ 32°F to 104°F		0°C to 40°C/ 32°F to 104°F	
Operating environment — Humidity	10% to 90% (non-condensing)		10% to 90% (non-condensing)		10% to 90% (non-condensing)		10% to 90% (non-condensing)	
Storage environment — Temperature	-30°C to 70°C/ -22°F to 158°F		-30°C to 70°C/ -22°F to 158°F		-30°C to 70°C/ -22°F to 158°F		-30°C to 70°C/ -22°F to 158°F	
Storage environment — Humidity	10% to 90% (non-condensing)		10% to 90% (non-condensing)		10% to 90% (non-condensing)		10% to 90% (non-condensing)	
MTBF (hr)	44,000		529,688.2		529,688.2		947,736	
Certifications								
EMC	FCC Part 15 (Class B), IC, CE EMC (Class B), RCM, BSMI		FCC Part 15 (Class B), CE EMC (Class B), C-Tick (Class B), BSMI		FCC Part 15 (Class A), CE EMC (Class A), C-Tick (Class A), BSMI		FCC Part 15 (Class A), CE EMC (Class A), C-Tick (Class A), BSMI	
Safety	BSMI, UL		LVD (EN60950-1), BSMI		LVD (EN60950-1), BSMI		LVD (EN60950-1), BSMI	

Note:
*: The matrix was measured with SD-OS v10.02P1 firmware version.
*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: Maximum sessions measured using the industry standard IXIA IxLoad testing tool.
*5: Including Gateway-to-Gateway and Client-to-Gateway.
*6: With Zyxel service license to enable or extend the feature capacity.
*7: This is the recommend maximum number of concurrent logged-in devices.
*8: SafeSearch function in Content Filtering need to first enable SSL inspection and not for small businesses.
*9: With Hotspot Management license support.
*10: ZyWALL VPN100 or above supports Device HA Pro once registered.
*11: After upgrading device firmware to SD-OS v10.02 and was transformed to SD-WAN mode.

Like us, follow us

Facebook
Post your questions to Facebook anytime. Support is available in English.

facebook.com/zyxel

LinkedIn
Post your questions to LinkedIn anytime. Support is available in English.

linkedin.com/company/zyxel

Forum
Post questions to our forum community and Zyxel officials. Submit ideas for future product features or releases!

Businessforum.zyxel.com

YouTube
Watch video tutorials and learn how to setup with Zyxel security products.

youtube.com/zyxelvideo

License Finder
Find out different services and licenses to meet your business needs.

zyxel.com/licensefinder

Zyxel Blog
Read articles and learn how to apply with Zyxel security products.

blog.zyxel.eu

ZYXEL

Your Networking Ally

Corporate Headquarters

Zyxel Communications Corp.
Tel: +886-3-578-3942
Fax: +886-3-578-2439
Email: sales@zyxel.com.tw
http://www.zyxel.com

Europe

Zyxel Belarus
Tel: +375 17 334 6099
Fax: +375 17 334 5899
Email: sales@zyxel.by
http://www.zyxel.by

Zyxel BeNeLux
Tel: +31 23 555 3689
Fax: +31 23 557 8492
Email: sales@zyxel.nl
http://www.zyxel.nl
http://www.zyxel.be

**Zyxel Bulgaria
(Bulgaria, Macedonia,
Albania, Kosovo)**
Tel: +3592 4443343
Email: info@cz.zyxel.com
http://www.zyxel.bg

Zyxel Czech Republic
Tel: +420 241 091 350
Hotline: +420 241 774 665
Fax: +420 241 091 359
Email: sales@cz.zyxel.com
http://www.zyxel.cz

Zyxel Denmark A/S
Tel: +45 39 55 07 00
Fax: +45 39 55 07 07
Email: sales@zyxel.dk
http://www.zyxel.dk

Zyxel Finland
Tel: +358 9 4780 8400
Email: myynti@zyxel.fi
http://www.zyxel.fi

Zyxel France
Tel: +33 (0)4 72 52 97 97
Fax: +33 (0)4 72 52 19 20
Email: info@zyxel.fr
http://www.zyxel.fr

Zyxel Germany GmbH
Tel: +49 (0) 2405-6909 0
Fax: +49 (0) 2405-6909 99
Email: sales@zyxel.de
http://www.zyxel.de

Zyxel Hungary & SEE
Tel: +36 1 848 0690
Email: info@zyxel.hu
http://www.zyxel.hu

Zyxel Iberia
Tel: +34 911 792 100
Email: ventas@zyxel.es
http://www.zyxel.es

Zyxel Italy
Tel: +39 011 2308000
Email: info@zyxel.it
http://www.zyxel.it

Zyxel Norway
Tel: +47 22 80 61 80
Fax: +47 22 80 61 81
Email: salg@zyxel.no
http://www.zyxel.no

Zyxel Poland
Tel: +48 223 338 250
Hotline: +48 226 521 626
Fax: +48 223 338 251
Email: info@pl.zyxel.com
http://www.zyxel.pl

Zyxel Romania
Tel: +40 31 0809 888
Fax: +40 31 0809 890
Email: info@cz.zyxel.com
http://www.zyxel.ro

Zyxel Russia
Tel: +7 (495) 539-9935
Fax: +7 (495) 542-8925
Email: info@zyxel.ru
http://www.zyxel.ru

Zyxel Slovakia
Tel: +421 220 861 847
Hotline: +421 220 861 848
Fax: +421 243 193 990
Email: info@cz.zyxel.com
http://www.zyxel.sk

Zyxel Sweden A/S
Tel: +46 8 55 77 60 60
Fax: +46 8 55 77 60 61
Email: sales@zyxel.se
http://www.zyxel.se

Zyxel Switzerland
Tel: +41 (0)44 806 51 00
Fax: +41 (0)44 806 52 00
Email: info@zyxel.ch
http://www.zyxel.ch

Zyxel Turkey A.S.
Tel: +90 212 314 18 00
Fax: +90 212 220 25 26
Email: bilgi@zyxel.com.tr
http://www.zyxel.com.tr

Zyxel UK Ltd.
Tel: +44 (0) 118 9121 700
Fax: +44 (0) 118 9797 277
Email: sales@zyxel.co.uk
http://www.zyxel.co.uk

Zyxel Ukraine
Tel: +380 (50) 440 88 61
Email: evelichko@zyxel.eu
http://www.zyxel.ua

Asia

**Zyxel China (Shanghai)
China Headquarters**
Tel: +86-021-61199055
Fax: +86-021-52069033
Email: sales@zyxel.cn
http://www.zyxel.cn

Zyxel China (Beijing)
Tel: +86-010-62602249
Email: sales@zyxel.cn
http://www.zyxel.cn

Zyxel China (Tianjin)
Tel: +86-022-87890440
Fax: +86-022-87892304
Email: sales@zyxel.cn
http://www.zyxel.cn

Zyxel India
Tel: +91-11-4760-8800
Fax: +91-11-4052-3393
Email: info@zyxel.in
http://www.zyxel.in

Zyxel Kazakhstan
Tel: +7-727-2590-699
Fax: +7-727-2590-689
Email: info@zyxel.kz
http://www.zyxel.kz

Zyxel Korea Corp.
Tel: +82-2-890-5535
Fax: +82-2-890-5537
Email: sales@zyxel.kr
http://www.zyxel.kr

Zyxel Malaysia
Tel: +603 2282 1111
Fax: +603 2287 2611
Email: sales@zyxel.com.my
http://www.zyxel.com.my

Zyxel Middle East FZE
Tel: +971 4 372 4483
Cell: +971 562146416
Email: sales@zyxel-me.com
http://www.zyxel-me.com

Zyxel Philippine
Email: sales@zyxel.com.ph
http://www.zyxel.com.ph

Zyxel Singapore
Tel: +65 6339 3218
Hotline: +65 6339 1663
Fax: +65 6339 3318
Email: sales@zyxel.com.sg
http://www.zyxel.com.sg

Zyxel Taiwan (Taipei)
Tel: +886-2-2739-9889
Fax: +886-2-2735-3220
Email: sales_tw@zyxel.com.tw
http://www.zyxel.com.tw

Zyxel Thailand
Tel: +66-(0)-2831-5315
Fax: +66-(0)-2831-5395
Email: info@zyxel.co.th
http://www.zyxel.co.th

Zyxel Vietnam
Tel: (+848) 35202910
Fax: (+848) 35202800
Email: sales_vn@zyxel.com.tw
http://www.zyxel.com/vn/vi/

The Americas

**Zyxel USA
North America Headquarters**
Tel: +1-714-632-0882
Fax: +1-714-632-0858
Email: sales@zyxel.com
http://us.zyxel.com

Zyxel Brazil
Tel: +55 (11) 3373-7470
Fax: +55 (11) 3373-7510
Email: comercial@zyxel.com.br
http://www.zyxel.com/br/pt/

For more product information, visit us on the web at www.zyxel.com

08/19