



SANGFOR

**Global
Connectivity**

Cloud Computing

**Remote
Access**

SANGFOR WAN OPTIMIZATION

SANGFOR WANO (Wan Optimization) provides your company with a competitive edge by expanding your business potential. WANO lets you have a seamless connectivity among offices, research facilities and manufacturing plants in different locations, locally or globally.

Connecting your employees directly over the same network environment with the same performance, enhances both your productivity and business continuity.

Wide Area Network



Data Reduction

Application Acceleration

Transmission Optimization

Visibility & Priority



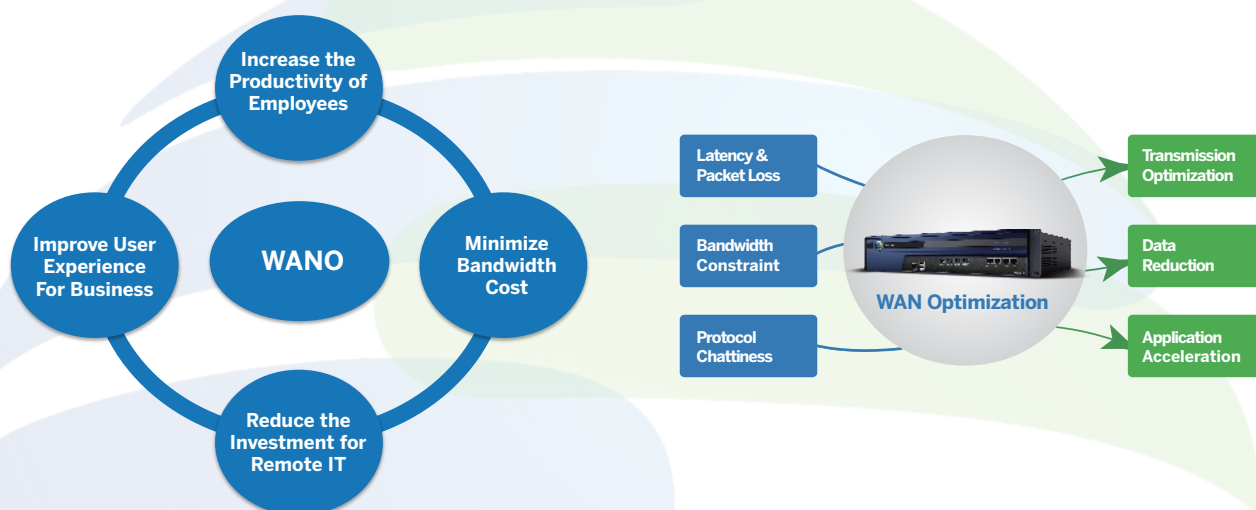
www.sangfor.com
sales@sangfor.com



SANGFOR WAN Optimization

Most business applications perform well on the LAN. However those applications do not operate or transmit efficiently on the WAN due to its protocol structure and dependence on low latency. This problem is often overlooked until the application performance has been degraded by the bandwidth.

With the deployment of SANGFOR WAN Optimization solution, headquarters, office branches and partners can experience an accelerated network performance on critical applications and data exchange anywhere in the world. It delivers a LAN-like experience over the enterprise WAN.



Data Reduction

Reduce redundant data up to 95%

SANGFOR WANO is using a leading Byte Cache Technology that allows deduplication of data across the WAN on subsequent transmissions. Once data has been transmitted from one end to the other, it is cached at byte level.

As we all know, different compression algorithms have different compression efficiency for different data. A single compression algorithm is unable to achieve the maximum compression ratio. Sangfor WANO is built-in with 3 compression algorithms, combined with dynamic compression technology, it can minimize the amount of data transmission.

WANO prevents repeated data transmission over the WAN, eliminating redundant data which occupies up to 95% of WAN traffic. It can deliver cached data at LAN speed !

Application Acceleration

Improve user experience of business applications

SANGFOR Acceleration Technology is not related to the application itself, but is based on the TCP/UDP acceleration technology, which can virtually accelerate any application.

Application acceleration is especially designed to accelerate the most common and popular business applications. It performs proxy to protocols of MAPI, HTTP/HTTPS, CIFS, Oracle EBS, Citrix, RDP and SMTP, boosting the performance of a wide range of applications such as Exchange, SharePoint, ERP, CRM, Lotus Notes, Backup, SAP, Disaster Recovery, FTP and so on.

Transmission Optimization

Improve the quality of link

HTP (High-Speed Transmission Protocol) technology is an optimization technology based on the transmission layer. It can improve link quality and transmission performance of applications and therefore help users get a better user experience.

SANGFOR WANO optimizes the TCP and UDP protocols to reduce the impact of latency and packet loss on long-distance transmission.

HTP-TCP optimizes WAN transmission by selective/fast retransmission of lost packets, improving the efficiency of congestion control mechanism in traditional TCP protocol which significantly boosts the WAN link performance. HTP-UDP can also reduce the packet loss of UDP. In order to reduce the packet loss under different latency environments, HTP-UDP is built-in with 2 algorithms: UDP proxy and FEC technologies, which can effectively improve the transmission performance of UDP based applications such as Video conference.



Local Image



Remote Image



Remote Image with WANO

Priority

Assign priority to the traffic

SANGFOR WANO provides powerful features which can prevent bandwidth congestion through priority and policy control over non-critical applications and recreational traffics.

With its built-in signature database of over 1800+ applications, WANO can do precise flow control of applications in acceleration tunnel and IPsec tunnel.



Better knowledge of your network

Identify the trends of BM for better tuning

WANO report analysis enables IT managers to identify the changing trends of bandwidth utilization for better tuning of their internal policies. WANO's report provides specific details on functions and logs stored internally.

WANO also displays live information on current traffic movement by application proxy and segmented time intervals. Obvious statistic information on usage empowers system administrators to take the right steps on bandwidth management.

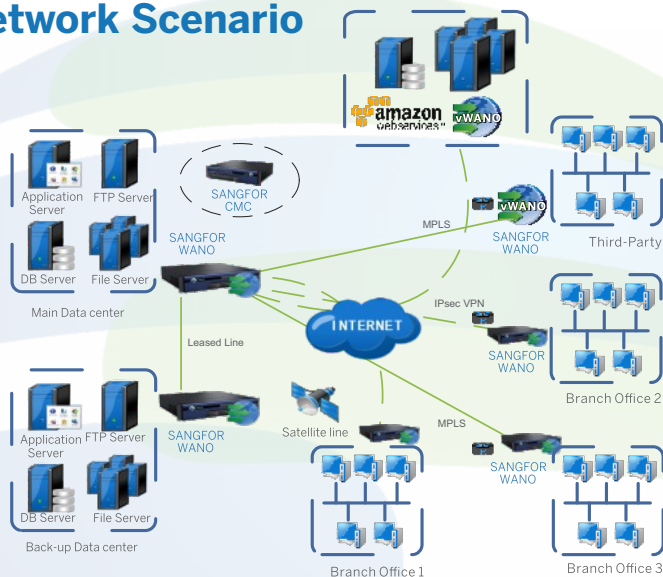


Extras

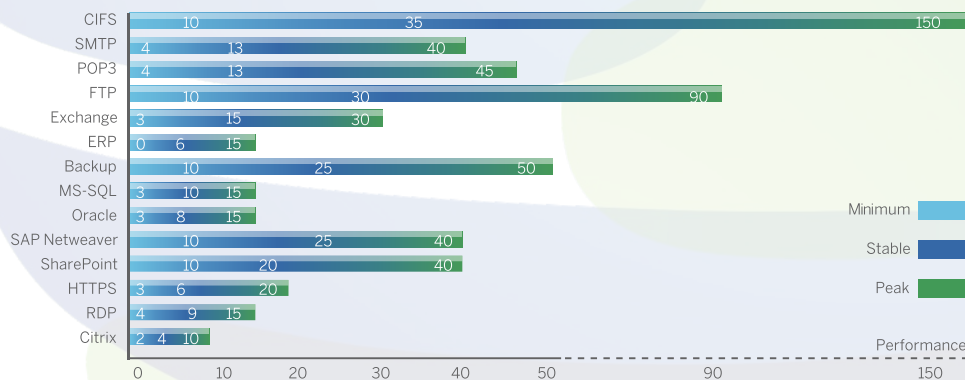
Value-added features

- **CMC:** Multiple WANO can be centrally managed by the CMC (Central Management Console).
- **Portable Accelerator:** Extend WAN optimization benefits to mobile users on Windows platforms.
- **vWANO:** Virtual version of the WAN Optimization product with full suite of WANO features.
- **Built-in Firewall:** Effective protection with stable and deep-packet inspection.
- **IPsec VPN:** Standard IPsec VPN combined with Optimization and Acceleration Technology of WANO.

Best-Practice Network Scenario



Laboratory Test Results



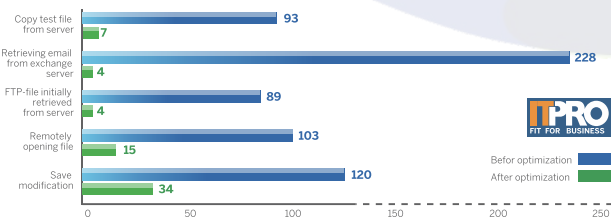
Professional Reviews

"The appliance clearly delivers an impressive WAN acceleration performance for a wide range of applications and is remarkably easy to deploy."

- From IT PRO

"They come with an extensive range of optimization technologies as standard, are extremely easy to deploy and capable of delivering impressive boosts to WAN performance across a wide range of applications."

- From BINARY TESTING



Operation Performance Increase

File copy	✓ 8-31x
Email	✓ 57-64x
FTP	✓ 22-64x

Operation Performance Increase

Remote file open	✓ 7-10x
Remote file save	✓ 4-5x
Remote Desktop	✓ 3x



SANGFOR

WAN Optimization (WANO)



Model	S4000-QE-I	S5000-QE-I	M5000-QE-I	M5100-QE-I	M5400-QE-I	M5500-QE-I	M5600-QE-I	M5800-QE-I	M5900-QE-I
Profile	Desktop	Desktop	1U	1U	1U	2U	2U	2U	2U
RAM	1G	2G	2G	2G	4G	4G	4G	8G	16G
HD Capacity	SSD 32GB	SSD 32GB	SSD 32GB	HDD 500 GB	HDD 500GB	HDD 500GB	SSD 240GB	SSD 240GB * 2	SSD 240GB * 2
Optimized Throughput	3 Mbps	6 Mbps	15 Mbps	30 Mbps	60 Mbps	100 Mbps	200 Mbps	400 Mbps	650 Mbps
Traffic Shaping Bandwidth	10 Mbps	20 Mbps	45 Mbps	60 Mbps	100 Mbps	200 Mbps	400 Mbps	800 Mbps	1.5 Gbps
Optimized TCP Connection	500	1,000	2,000	3,000	6,000	8,000	8,000	20,000	50,000
Optimized Remote Branches & Clients	10	20	32	32	100	300	500	1,000	1,000

Power and Physical Specifications

Dual Power Supplies	N/A	N/A	N/A	N/A	N/A	N/A	√	√	√
Power [Watt] (Typical)	25W	25W	25W	25W	176W	176W	212W	212 W	212 W
Temperature	0°C~40°C	0°C~40°C	0°C~40°C	0°C~40°C	0°C~40°C	0°C~40°C	0°C~40°C	0°C~40°C	0°C~40°C
Relative Humidity	5%-95% non-condensing	5%-95% non-condensing	5%-95% non-condensing	5%-95% non-condensing	5%-95% non-condensing	5%-95% non-condensing	5%-95% non-condensing	5%-95% non-condensing	5%-95% non-condensing
System Dimensions (W×L×H mm³)	275x175x44.5	275x175x44.5	430x300x44.5	430x300x44.5	430 x375x44.5	430x500x89	430x500x89	430x500x89	430x500x89
System Weight	1.5Kg	1.5 Kg	4.0 Kg	4.20 Kg	6.5 Kg	12.5 Kg	12.5 Kg	15.3 Kg	15.3 Kg

Network Interfaces

Bypass (copper)	N/A	1 pair	1 pair	1 pair	3 pairs	3 pairs	3 pairs	3 pairs	3 pairs
10/100/1000 Base -T (WAN)	1	2	2	2	4	4	4	4	4
10/100/1000 Base -T (LAN)	1	1	1	1	1	1	1	1	1
10/100/1000 Base -T (DMZ)	1	1	1	1	1	1	1	1	1
SFP(WAN)	N/A	N/A	N/A	N/A	N/A	2	2	4	4
Serial Port	RJ45×1	RJ45×1	RJ45×1	RJ45×1	RJ45×2	RJ45×1	RJ45×1	RJ45×1	RJ45×1
USB	2	2	2	2	2	2	2	2	2

vWANO®: SANGFOR Virtual WANO Appliance

Models		vWOC-5000	vWOC-5400	vWOC-5600	vWOC-5800
Speed on Optimized WAN Port		10 Mbps	50 Mbps	100 Mbps	200 Mbps
No. of TCP Cons. Accelerated		1500	4000	8000	20000
No. of Sites and PACCs Supported		10	100	300	500
VM Config Requirements	CPU	Recommended	>=4	>=4	>=8
		Range	4-64	4-64	8-64
	Memory (GB)	Recommended	4	7	14
		Range	4 – 256	7 – 256	14 – 256
	Cache Disk Size (GB)		100 – 2000	100 – 2000	250 – 2000
	Performance (IOPS)		>=100	>=200	>500
	I/O Throughput (MB/s)		>=25	>=50	>=125
NIC		3	3	3	3
Supported Platforms		VMware vSphere, Microsoft Hyper-V			

System Requirements for Mobile Client (Portable Accelerator)

WANO Mobile System Requirements	
Operating System	Windows XP, Windows 7 & 8 (32/64 bit), Windows 8 (32/64 bit, no support for tablets)
CPU	Celeron 1.5 GHz
Memory	256MB
Disk Space	2GB
VPN Compatibility	Cisco, Juniper, Nortel, Microsoft, Open VPN



SANGFOR WAN Optimization (WANO)

Product Features

Data Reduction

Byte Cache	<ul style="list-style-type: none"> - Data cache at byte level to ensure the WAN data traffic is deduplicated and previously viewed data are served directly from the local cache to LAN. - Support shared cache among multiple WANOs.
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Dynamic Compression	Built-in with 3 kind of compression algorithms with dynamic mechanism to choose the most proper compression (LZO, GZIP, QuickZO).
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HTTP and FTP file pre-fetching	Pre-fetch the static data from remote HTTP/FTP server to local WANO per configurable timetable.
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Application Optimization

Application Identification	Automatically identify the application with the built-in Application Signature Database.
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Application Proxy	Boost numbers of application performance such as Exchange, SharePoint, ERP, CRM, Lotus Notes, Backup, SAP, Disaster Recovery and FTP with application protocols proxy technology supporting Exchange, HTTP/HTTPS, CIFS, Oracle EBS, Citrix, RDP and SMTP.
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TCP Proxy	Dynamically optimizes transmission control protocol with TCP proxy by intelligently emulating the cumulative acknowledgments.
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HTTPS Optimization	Support certificate import method, identify and accelerate HTTPS protocol based applications.
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Transmission Optimization

High-Speed Transmission Protocol (HTP)	Designed to streamline data packets under high packet loss and latency network environment such as satellite, wireless and cross-border
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HTP-TCP	HTP-TCP improves TCP transmission efficiency by expanding the transmission window, improving the congestion control algorithm and performing selective quick retransmission.
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HTP-UDP	HTP-UDP supports FEC and UDP Proxy technologies and guarantee the stability of UDP based applications such as video conference by reducing packet loss and ensure it runs with the highest priority.
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Priority & Bandwidth Management

Bandwidth Management	Monitor and control bandwidth to prevent bottlenecks so that network resources get correctly prioritized and levelly received.
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BM Policy	<ul style="list-style-type: none"> - Traffic guarantee/limit policy for uplink and downlink based on the bandwidth usage percentage of each pipe, max. bandwidth per user & application priority. - Exclusion policy based on applications, websites, file, users, schedules, destination IPs, etc. - Block designated URLs or applications. - Identity and control applications running in IPsec tunnel
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Visibility

Real-Time Monitor	System status, application connections, flow and network optimization status.
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Reporting	<ul style="list-style-type: none"> - Comprehensive reports include flow and optimization monitoring, allowing effective monitoring of the ever changing network environment. - Provides visibility of a wide range of network information, including logs for alarms, errors and debugging.
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Reporting

- Report of real-time and historical traffic, analysis of accelerated, non-accelerated traffic and sessions.
- Generates/export reports in PDF format, support email subscription.
- Traffic visibility based on users, IPs, applications, etc.

Traffic Visibility

- Visibility of URLs with built-in dataset and customizable resources.
- Intelligent identification of traffics from P2P, IM, SSL, Proxy, etc. for full network visibility and control.
- Support basic direction traffic, port and custom application.

Scalability

vWANO	Virtual software machine with full suite of Sangfor WANO features.
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Portable Accelerator (PACC)	Install software client on PC to improve access speed and increase productivity of remote workers.
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Built-in IPsec VPN	<ul style="list-style-type: none"> - Built-in IPsec VPN for secure, fast and cost-effective deployment of remote office network. - Support connection with third-party VPN gateways that use standards VPN connectivity.
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Built-in Firewall	Packet Inspection Firewall to provide protection from DOS, ARP, etc. which improves gateway security and stability.
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Central Management Console	Unified management for multiple WANO devices via SANGFOR CMC (Central Management Console)
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Network and Deployment

Deployment	Gateway, Bridge, Single Arm, Double Bride, Double Arm.
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Stability	<ul style="list-style-type: none"> - Hardware bypass, A/P. - Support CDP+PBR, WCCP and NQA.
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Web Management Console	Intuitive management console makes management easier and more effective.
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Hierarchical Administration	Functionality of different modules can be assigned to different administrators as needed via a hierarchical management paradigm.
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Auto-Discovery of Applications	Configuration free for targeted optimizing applications.
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Auto-Path Discovery	Configuration free for connection between WANO gateways.
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Configuration Backup	Support restore and backup of WANO configurations.
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Network Diagnosis	<ul style="list-style-type: none"> - Real-time health status detection by monitoring network ports compatibility, disk information, routing settings, Windows domain, IP conflict, etc.
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Integrity	<ul style="list-style-type: none"> - Able to perform WAN diagnosis such as ping, route, show ARP, tracer, gwinf, netstat via WebUI and offload maintenance.
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Please contact us by email if you need more information about our WANO features.

SANGFOR TECHNOLOGIES

SANGFOR is the leading vendor of Application Security, Optimization and Internet Access Management in Asia. Founded in 2000, SANGFOR set a clear goal to build high performance, reliable and secure network devices that increase the business growth of our clients and at the same time decrease their Total Cost of Ownership (TCO).

SANGFOR currently has 55 representative offices located in major cities of mainland China, Hong Kong, Singapore, Malaysia, Indonesia, Thailand, United Kingdom and United States of America, with over 2000 employees, which 40% of them are dedicated to R&D.

In 2014, SANGFOR has got a record-breaking income and has continuously invested 20% of the revenue into R&D each year. So far, SANGFOR has provided solutions to over 28,000 businesses partners in various industries, among which lists a number of Fortune 500 companies, as well as hundreds of local government departments and famous education institutions.

Awards & Achievements

- "Technology Fast 500 Asia Pacific Region" Award for 8 consecutive years from 2005 to 2012 by Deloitte.
- "Best Companies to Work for in China" Award from 2009 to 2011 by the Fortune Magazine.
- "Best Practice Award in Asia-Pacific Region" in 2010 by Frost & Sullivan.
- "Management Action Award" in 2012 by Harvard Business Review.
- "Business Security Contribution" Award in 2010 by Communication World.
- Sangfor SSL VPN no.1 in Network Security market in Mainland China, Hong Kong & Taiwan according to Frost & Sullivan.
- No.1 for Secure Content Management Hardware and VPN Hardware segment in China according to IDC.
- Sangfor IAM listed for 5 consecutive years in the Gartner Magic Quadrant for Secure Web Gateways (2011-2015).
- Sangfor WANO listed for 3 consecutive years in the Gartner Magic Quadrant for WAN Optimization (2013-2015).
- Sangfor NGFW listed in the Enterprise Network Firewalls Magic Quadrant by Gartner (2015).
- Reviewed by NSS Labs with a "Recommended" rating in 2014 for SANGFOR NGFW (WAF test).

Vision

Become the Global Leading Vendor of Advanced Network Solutions.

Mission

Provide Network Innovation, Focus on Network Security, Optimization and Virtualization.

Values

- Continuous Innovation
- Collective Commitment
- Customer & Result Oriented
- Caring for Employees

Our Notable Clients





SANGFOR

www.sangfor.com

SANGFOR HEADQUARTERS

Block A1, Nanshan iPark, No.1001 Xueyuan Road,
Nanshan District, Shenzhen, Guangdong Province,
P. R. China

SANGFOR HONG KONG

Unit 1109, 11/F, Tower A, Mandarin Plaza, 14 Science
Museum Road, Tsim Sha Tsui East, Kowloon, Hong Kong
Tel: (+852) 3427 9160
Fax: (+852) 3427 9910

SANGFOR SINGAPORE

8 Burn Road # 04-09 , Trivex ,
Singapore (369977)
Tel: (+65) 6276 9133

SANGFOR INDONESIA

World Trade Centre, WTC 5, 6th Floor,
Jl.Jend .Sudirman Kav.29
Jakarta 12920,Indonesia.
Tel: (+62) 21 2933 2643
Fax: (+62) 21 2933 2643

SANGFOR MALAYSIA

No. 47-10 , Boulevard Mid Valley City, Lingkaran Syed Putra,
Kuala Lumpur, Malaysia
Tel: (+60) 3 2201 0192
Fax: (+60) 3 2282 1206

SANGFOR THAILAND

29 Vanissa Building 4th Floor, Unit 4G, Soi Chidlom,
Ploenchit Road, Lumpini, Patumwan, Bangkok, Thailand
Tel: (+66) 2 254 5884
Fax: (+66) 2 254 5884

SANGFOR USA

2901 Tasman Drive, Suite 107, Santa Clara, California, USA
Tel: (+1) 408 520 7898
Fax: (+1) 408 520 7898

SANGFOR EMEA

Unit 1, The Antler Complex, 1 Bruntcliffe Way, Morley,
Leeds LS27 0JG, United Kingdom
Tel: (+44) 0845 533 2371
Fax: (+44) 0845 533 2059

AVAILABLE SOLUTIONS

- IAM : Internet Access Management
- WANO : LAN Speed on your WAN
- NGFW : Smart Firewall for Smart Protection
- WLAN : Fast, Secure & Value Added
- SSL VPN: Rapid, Secure & Simple

Sales : sales@sangfor.com | Marketing : marketing@sangfor.com

www.sangfor.com

Global Service Center : +60 12711 7129 (or 7511)