



# WAN Optimization

Expand your businesses potential, Wide Area Networking (WAN) provides your company with a competitive edge by enabling workforce globalization and IT consolidation. However, WANs face three basic bottlenecks which lead to low application performance and slow data transmission:

- Low bandwidth utilization caused by redundant data on WAN
- Network latency caused by low efficiency of TCP transmission protocols on WAN
- Interaction mechanism of application protocols seriously affects the network performance

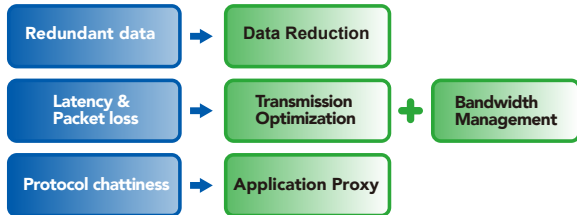
**SANGFOR offers WAN optimization (WANO) technologies specifically developed to fix the problems of wide area network transmission, providing a high efficient and fast WAN transmission infrastructure.**



**SANGFOR**

## SANGFOR WAN Optimization Solution

SANGFOR WAN optimization delivers multi-layer WAN optimization, improving the data transmission efficiency over physical links and significantly improving application responsiveness, particularly in environments of high packet loss and high latency. Improvements are especially noticeable in network environment that is very harsh and with applications that work very inefficiently over the WAN.



WANO makes WAN like LAN!

## Core Acceleration Technologies

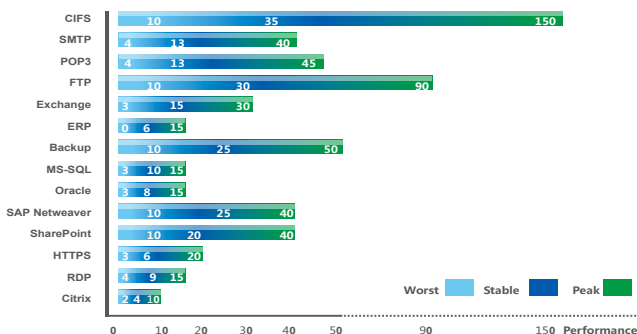
- Prevent data being needlessly transmitted repeatedly over the WAN by identifying and eliminating redundant content to byte level, eliminating up to 95% of WAN traffic;
- Optimize TCP transmission mechanism and reduce negative impact of poor network environment with network latency and packet loss;
- Apply application proxy to accelerate application protocols of MAPI, HTTP/HTTPS, CIFS, Oracle EBS, Citrix, RDP, SMTP, offering boosted performance to a wide range of business applications such as Exchange, SharePoint, ERP, CRM, Lotus Notes, Backup, SAP, Disaster Recovery, FTP and so on.
- Monitor and control bandwidth to prevent bottlenecks, ensuring that all jobs are correctly prioritized and receive the necessary level of resources.

By providing an unified set of technologies, SANGFOR achieves the best possible WAN performance and avoids the need for costly and disruptive upgrades.

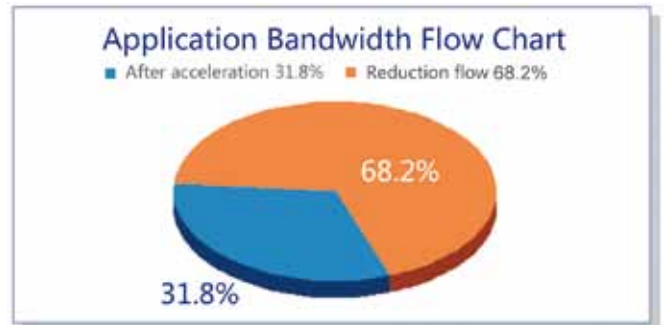
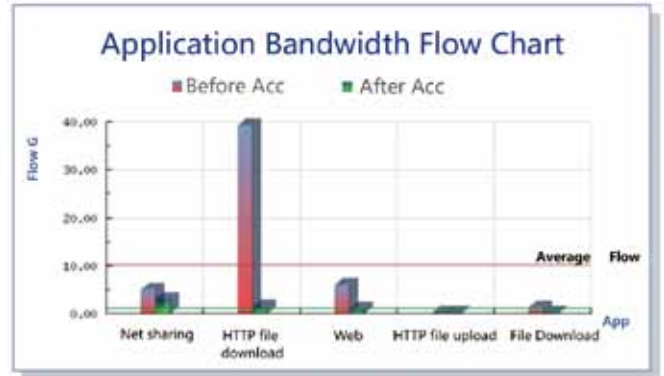
## Acceleration Benefits

With deployment of SANGFOR WAN optimization solutions, enterprise headquarters, branches and partners can experience accelerated network performance of critical applications and data, anywhere in the world. SANGFOR WAN optimization delivers a LAN-like experience over the enterprise WAN.

### Laboratory Test Results



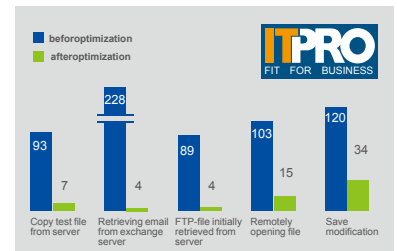
## Real-life WAN Environment Test Results:



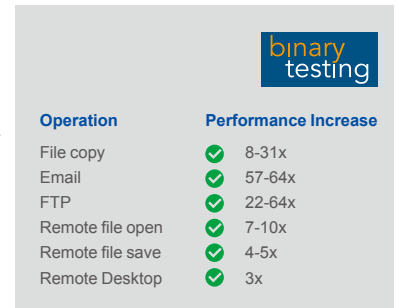
Application: Web Flow Speed

## Highly Favored WAN Acceleration Solution by European Third Parties:

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



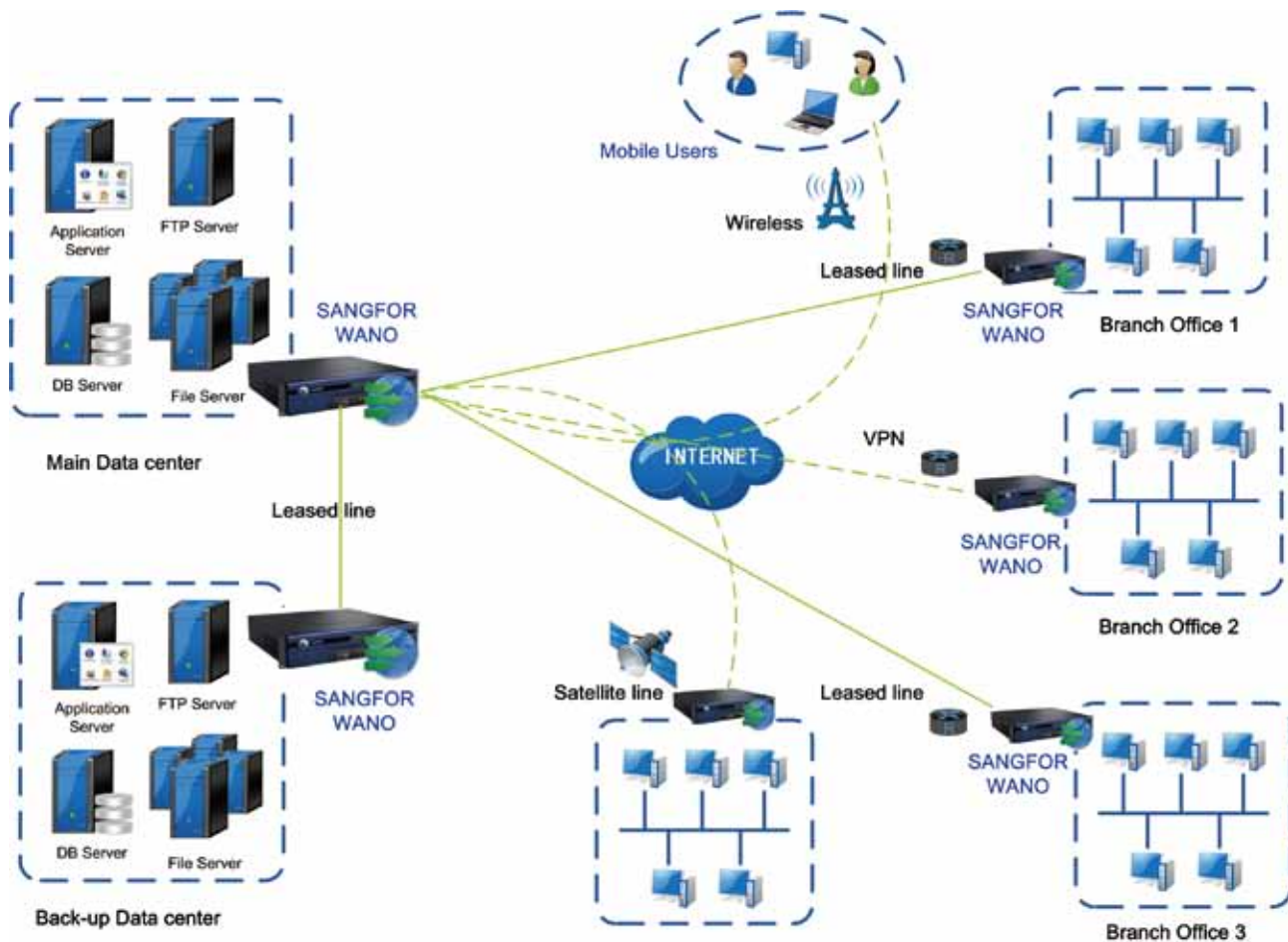
"They come with an extensive range of optimisation technologies as standard, are extremely easy to deploy and capable of delivering impressive boosts to WAN performance across wide range of applications."



"Newcomer Sangfor offers a range of WAN optimisation and acceleration products that look incredibly good value."



## Best-Practice



### VPN Link Optimization

VPN link (IP, IPSec, MPLS, etc.) is a popular way to build a cost effective wide area network. However, there are existing bottlenecks for VPN link that the network condition depends on the Internet status or the carrier's infrastructure largely. Network latency, packet loss or traffic congestion can cause slow data transmission and deferred application response, especially in cross-border or cross-ISP situations.

SANGFOR WANO reduces the negative impact of packet loss and latency by its transmission optimization and improves the application protocol efficiency by application proxy technology. With the strong network repairing capability, SANGFOR has enjoyed its competitive advantage that poor quality environment can benefit the most from SANGFOR WAN optimization.

### Leased Line Optimization

Leased line can offer a much higher quality transmission but in the mean time, cost a lot. Many organizations choose to rent a relatively limited bandwidth for the WAN transmission due to it still has reliability advantage when compared with VPN link. Though sometimes, especially during the peak hour, the transmission with the limited bandwidth can be rather slow. Some organizations may use sufficient

bandwidth while enduring the pressure of high yearly cost and possibilities of continually data increasing as the business expansion.

SANGFOR WANO reduces the redundant data in WAN link. The byte cache, IP compression combined with other data reduction technologies can reduce up to 95% of the network traffic to offer the "visual bandwidth", efficiently release the link pressure while accelerate the data transmission and application response time. The WANO solution helps to greatly reduce bandwidth expense by avoiding or delaying the frequent bandwidth upgrade.

### Satellite Line Optimization

Satellite line can help build the WAN in places where the fixed line is difficult to be deployed. However, the high latency can be a fatal weakness. With up to 1000ms network latency, it is hard to image how can one application perform well in the situation, especially for protocols with frequent interactions between two sites, such as TCP, MAPI, CIFS, etc.

With multi-layered optimization technologies, SANGFOR WANO optimizes the transmission to application layer protocol while reducing the transmitted data, greatly boost the transmission performance for satellite line.

## Fast IPSec VPN & Leased Line Replacement/Back-up Solution

The IPSec VPN was developed to effectively reduce WAN networking cost, however, the transmission speed is still one problem for IT managers. Giving the situation, SANGFOR WANO integrates its IPSec VPN module to help offer a cost-effective as well as high efficient WAN networking solution.

With SANGFOR's built-in IPSec VPN and the excellent WAN optimization technology, SANGFOR WANO becomes a fast IPSec VPN solution. The fast IPSec VPN can connect the branch office to data center, or act as a cost-effective backup line for leased line. Moreover, the fast IPSec VPN can be used to replace the leased line to keep the cost down but with no reduction in performance.

## WAN Optimization for Data Center Disaster Recovery

Disaster Recovery is critical to the stability of an organization's IT infrastructure. However, the large volume of data to be transferred and the existing bottleneck in data center replication can make Disaster Recovery a super high costly solution for the bandwidth and the maintenance expenses. Even worse, due to the large volume of data and insufficient bandwidth, it may take several days to do the data replication. This is unbearable as a fast and effective data recovery is always the primary objective of the Disaster Recovery construction.

SANGFOR WANO optimizes Disaster Recovery process while reducing overall IT costs. With approaches of traffic prioritization, data reduction and protocol optimization, SANGFOR largely decreases the replication time between data centers as well as the bandwidth expense. The optimized Disaster Recovery solution includes environment with but not limited to Veritas, Commvault, CA, RSYNC, Veeam, etc.

## Mobile Office Acceleration

Mobile users increasingly need to process company software, access data stored on the network and transmit to it. To do this, they use a variety of mobile devices, often equipped with 3G cards to handle the transmissions. The 3G cards are also relatively slow devices and generally incur costs based on data sent and received. Reducing the amount of data transmitted by removing previously sent content and compressing what is left will therefore not only improve performance but will also cause a decrease in usage charges.

SANGFOR handles mobile access through the availability of client software installed in each device. This deals with the caching and compression of data so that mobile users, wherever they in the world, can achieve similar levels of efficiency as their office-based colleagues.

SANGFOR WANO optimizes the WAN infrastructure in a variety of ways regarding physical location of branches and business partners. The optimization for cloud infrastructure can also be achieved with SANGFOR virtual WAN optimization appliance.

## Advantages

### Acceleration for a wide range of applications

SANGFOR WAN optimization greatly benefits a wide range of business applications such as Exchange, SharePoint, ERP, CRM, Lotus Notes, Backup, SAP, Disaster Recovery, FTP and so on. The excellent optimization technology and acceleration capabilities have been proved by thousands of customers as well as the independent tests from UK.

### Low quality communication environments get accelerated the most

Poor quality environments benefit the most with SANGFOR WANO. Such environments are typically poor quality physical links, with high packet loss and high latency. They include satellite links, transnational links, and inter-operator connections. Certain applications (such as MS Exchange) will also benefit from WAN optimization greatly, which compensates for the applications' original design to be used in LANs and not WANs.

### High ROI

SANGFOR WAN optimization provides more scalable whole-network acceleration solutions at a reasonable price. In addition to acceleration of existing lines, SANGFOR WAN optimization delivers an accelerated VPN infrastructure to connect remote users and sites with flexible and diversified accelerated connectivity by virtue of its built-in VPN service. For small branch sites, its software client can reduce costs by providing accelerated connectivity via low-cost broadband solutions (instead of expensive leased lines).

## Benefits

SANGFOR WAN optimization enables fast and stable remote accesses, significantly accelerates the access speed of ERP, OA, CRM and other information systems.

- Smoothly accelerate the business systems, promote business efficiency without lengthy transformation of existing applications or networks.
- Shorten the cycle of business expansion (unlike the long-term cycle of private line networking, the deployment cycle of WAN optimization solution is fairly short).
- Upgrade the work efficiency, enhance the competitiveness and gain greater business benefits.
- Promote IT integration, reduce IT operating costs.