



Security Appliance
UTM, IPS, IDS, etc

Application talks to 6WIND's transparent TCP Proxy APIs

6WIND Fast Path Removes Linux Bottleneck

6WIND TCP Boost Performance:

Number of concurrent sessions
8 Million

Connection establishment rate
1 Million Connections per Second (CPS)

Transaction rate
7.1 Transactions per Second (TPS)

Throughput
12 Gbps per Core

Latency
24 μs

6WIND TCP Boost For SSL Inspection

Increase Cyber Threat Protection For High Speed Networks

Modern cyber threats require modern solutions. 6WIND TCP Boost should be an integral part of any network security initiative, providing a necessary performance boost to SSL Inspection and avoiding common bottleneck pitfalls present in today's TCP-based applications.

Network infrastructure protection is critical to safeguard the confidentiality, integrity and availability of communications and applications across enterprises and data centers. With the proliferation of network cyber threats, there is also a growing market of networking devices whose purpose is to inspect and protect traffic. These devices range from broad Unified Threat Management (UTM) appliances that include antivirus/firewalls to point products such as Intrusion Prevention Systems (IPS), Intrusion Detection Systems (IDS) and Intelligence Driven Analysis (IDA) technologies.

In these security solutions, Secure Socket Layer (SSL) Inspection is used to check encrypted Hypertext Transfer Protocol Secure (HTTPS) traffic that may get around a network's security defenses. SSL Inspection is a technique to unlock

encrypted sessions, inspect the encrypted packets, check for threats and then block them. In addition to HTTPS, SSL Inspection can also check encrypted proposals such as SMTPS, POP3S, IMAPS and FTPS.

SSL Inspection is based on Transmission Control Protocol (TCP), which is a client/server protocol used to communicate between applications over an IP network. However, the performance of TCP-based applications is limited by common bottlenecks in the Linux kernel which causes critical security techniques such as SSL Inspection to slow networks to a crawl. To overcome these limitations, a high performance TCP stack is required to preserve high speed network applications with the required security measures.

6WIND TCP Boost Solution: TCP Proxy for SSL Inspection

6WIND developed TCP Boost, which is a high performance TCP stack based on its 6WINDGate™ packet processing software. TCP Boost leverages Data Plane Development Kit (DPDK) in a fast path user space model to eliminate Linux performance bottlenecks. Widely deployed as the industry's highest performance TCP userland stack since 2010, TCP Boost includes an event-driven API with BSD-like callbacks to easily design high performance TCP applications.

To increase cyber threat protection for high speed networks, TCP Boost can be used as a proxy for SSL inspection to offload TCP traffic from the Linux kernel. The security application talks directly to 6WIND's dedicated transparent TCP proxy APIs. 6WIND's TCP Boost also integrates with 6WINDGate's comprehensive Layer 2-3 protocol stacks, which include Linux synchronization so that existing Linux networking infrastructure can be used without changes.

Fast Path TCP/UDP Termination

- TCP/UDP protocols are processed in the fast path
- Full featured TCP/UDP stack using BSD-like socket API
- Timers are re-designed for increased scalability
- Locks are removed
- Memory footprint is reduced

As a result of 6WIND TCP Boost for SSL Inspection, security companies can design and develop new generation SSL Inspection techniques in months versus years. With 6WIND TCP Boost, TCP-based applications can be ported across hardware architectures and seamlessly migrate from bare metal to virtual deployments using the same software without changing existing infrastructure.

TCP Applications

Fast Path Socket Integration Layer

Fast Path TCP/UDP Termination

Fast Path TLS/DTLS

L2-L3 Fast Path

VLAN, Bridge, GRE, IPv4/IPv6 Forwarding, Filtering/NAT, IPsec, VRF



Linux / Fast Path Sync

Linux Kernel



Available on industry-leading processor platforms

Integrated with L2-L3 6WINDGate modules

TCP stack configuration through dedicated CLI

TCP/UDP requires integration with application to benefit from performance improvements