6WIND / High Performance & Secure Networking Solutions

6WINDGate - TCP Boost

High performance TCP stacks are essential to the test and measurement market. 6WIND TCP Boost is the industry's highest performance TCP userland stack, and can ensure your applications won't fall victim to common Linux bottlenecks.

6WIND TCP Boost For Test And Measurement

Improve Quality Of Experience For High Speed Networks

A large number of Internet applications such HTTP/HTTPS (Hypertext Transfer Protocol/Secure), Email and FTP (File Transfer Protocol) are based on TCP (Transmission Control Protocol), which is a client/server protocol used to communicate between applications over an IP network. TCP performance, throughput, and transfer time have a major impact on Quality of Experience (QoE) for Internet applications, affecting business operations and revenue streams When TCP-based Internet applications are not performing properly, customers and revenues can be lost.

A major challenge affecting TCPbased application performance is common bottlenecks in the Linux kernel, which can cause Internet applications to slow to a crawl. To help overcome these limitations, high performance solutions are required to test and measure the performance of TCP networks and troubleshoot these bottlenecks before the applications are deployed into live production.

Therefore, test and measurement solutions, including the growing market of Traffic Generators, require high performance TCP stacks as their networking foundation to help validate and improve Internet applications. In particular, Traffic Generator speeds need to exceed the performance of Internet applications in order to push TCP-based networks to their limits and check response times.

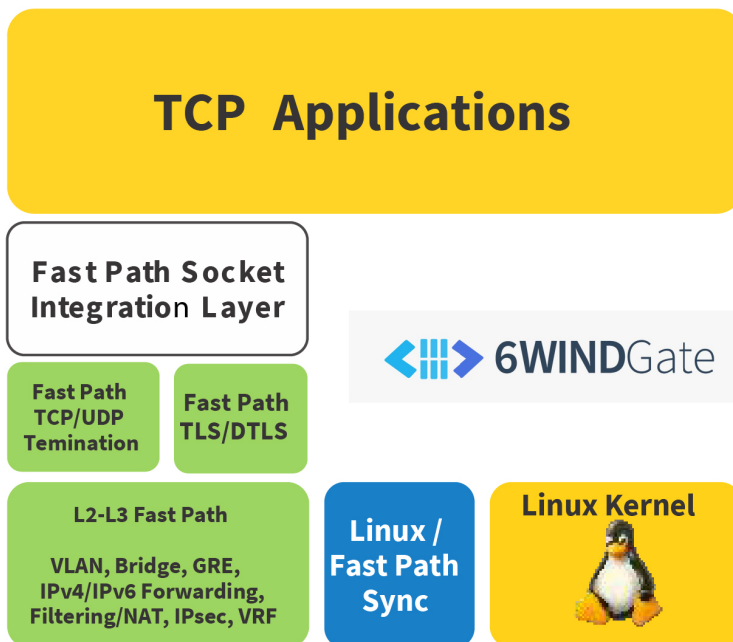### 6WIND TCP Boost Solution: TCP Stack For Test And Measurement

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 test the QoE for high speed networks, TCP Boost can be used as a TCP stack to serve as the foundation upon which test and measurement applications, such as Traffic Generators, are built. The Traffic Generator's applications talk directly to 6WIND's extensible TCP stack APIs, which also collect statistics. 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, test and measurement companies can design and develop new generation techniques to help improve the QoE for high speed networks 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 Temination

Fast Path TLS/DTLS

◁▮▮▷ 6WINDGate

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