Mobile Infrastructure Security
6WIND Turbo IPsec™ Software Appliances

6WIND Turbo IPsec:
High Performance VPN Software For Commercial Off The Shelf (COTS) Servers

Cost Effective:
Save 50 - 80% CAPEX

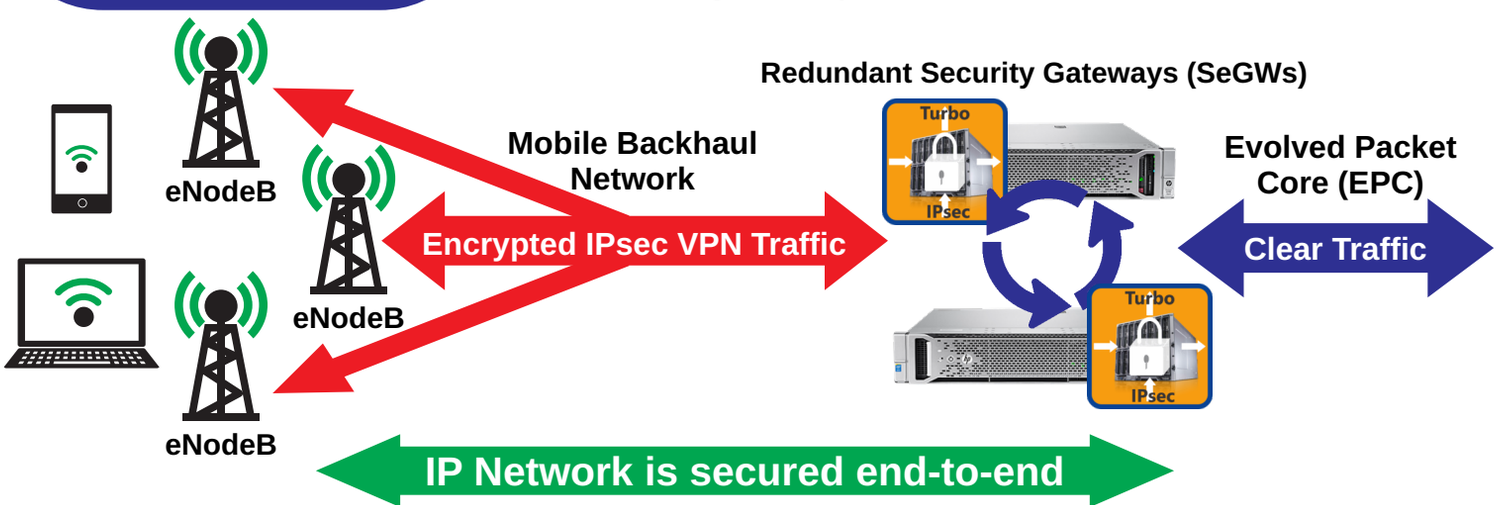
Scalable:
Purpose-fit Performance with Software

Flexible:
Bare Metal or Virtualized

Secure and Scalable 4G/5G Network Infrastructure

Mobile networks today accommodate a broader range of uses than ever before. With bandwidth capacities constantly being pushed to the limits, competitive Mobile Operators are turning to 4G/5G to satisfy these needs. 4G/5G converges data and voice onto a single IP-based network, which brings simplification benefits along with security and performance challenges.

The mobile infrastructure, specifically the mobile backhaul, must protect against threats associated with untrusted IP networks and meet increased performance requirements while controlling costs. Operators are also moving to virtualization to further decrease costs while increasing flexibility.



SeGW Architecture

In the anatomy of the 4G/5G infrastructure, the mobile backhaul network is an IP network that connects eNodeBs to the Evolved Packet Core (EPC) and carries user, control and management data. Securing the mobile backhaul is the task of a high performance IPsec VPN (Virtual Private Network) appliance called the Security Gateway (SeGW). Deployed at the EPC location, SeGWs have the important task of aggregating and terminating the IPsec VPNs carrying traffic from eNodeBs. IPsec further reduces the risk of cyber-attacks by providing confidentiality, privacy and integrity to the mobile backhaul.

Mobile Operators share common requirements for SeGWs as follows:

Security Performance: Support thousands of IPsec VPN tunnels and scale traffic loads across 10, 40 and 100G connectivity.

Virtualization Readiness: Provide incremental software upgrades to virtualize the complete SeGW function including the control plane and data plane.

High Availability: Eliminate single points of failure through local redundancy and geo redundancy techniques.

Management and Monitoring: Integrate into existing Operational Support Systems (OSS).

Previously, specialized hardware-based IPsec VPN equipment was necessary to meet these requirements.

6WIND Solution: High Performance IPsec VPN Software Appliances on Commercial-off-the-Shelf (COTS) Servers

6WIND leads market innovation by developing software networking products that can be deployed on COTS servers as an alternative to expensive, locked hardware solutions. For Mobile Operators, 6WIND Turbo IPsec is a ready-to-use IPsec VPN software appliance that can beat the performance of today's big name system vendors at a surprisingly low cost.

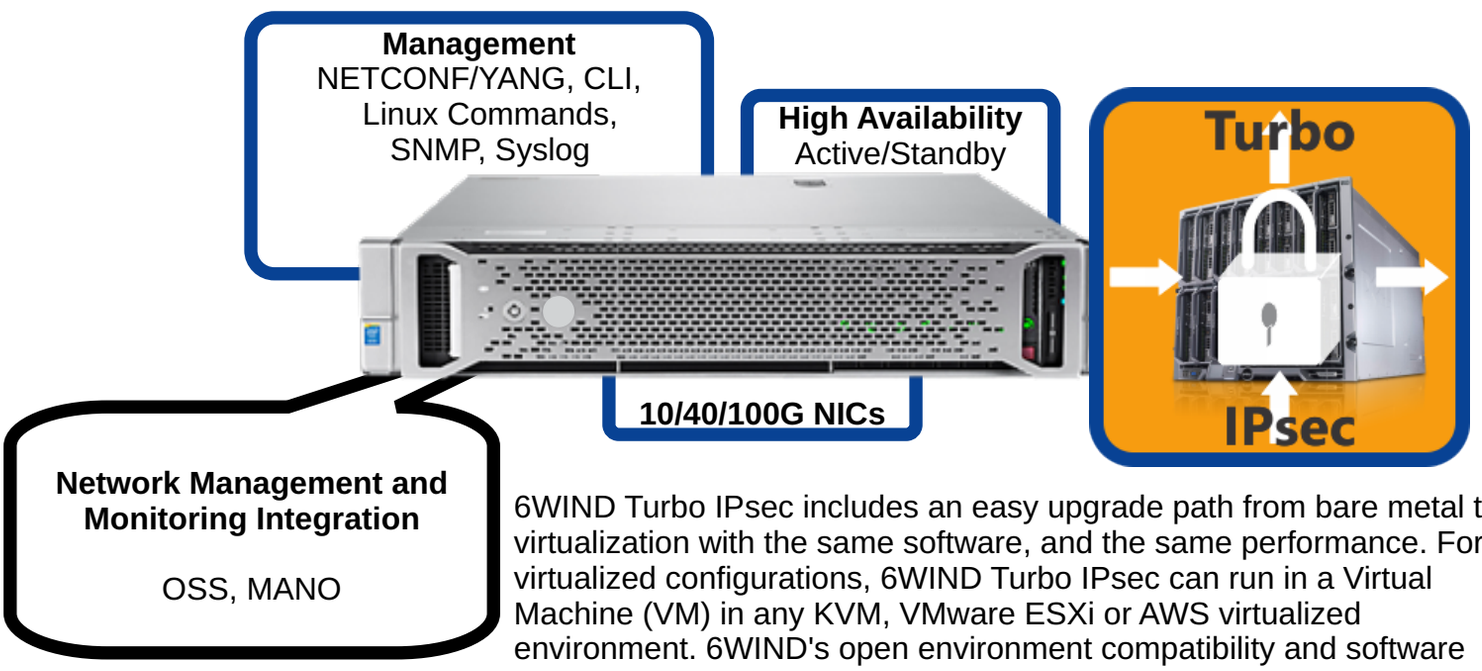
6WIND partners with hardware vendors to support all major multi-core processors and 10/40/100G NICs, allowing customers to create scalable IPsec VPN networking appliances on common hardware platforms. Unlike other solutions, performance scales linearly with each additional CPU core added to data plane processing.

Bare Metal or Virtual Machine for:

KVM

aws

vmware ESXi



6WIND Turbo IPsec includes an easy upgrade path from bare metal to virtualization with the same software, and the same performance. For virtualized configurations, 6WIND Turbo IPsec can run in a Virtual Machine (VM) in any KVM, VMware ESXi or AWS virtualized environment. 6WIND's open environment compatibility and software performance scalability make design goals for complete control plane and data plane virtualization a reality.

Performance

IPsec
- Performance scales linearly
- 18 Gbps per core

IKE
- Up to 50,000 tunnels
- 1,000 tunnels established per second

For High Availability, 6WIND Turbo IPsec is deployed on multiple COTS servers in active/standby configurations to provide local redundancy using standards-based protocols. Automatic failover relies on VRRP, which provides a unique IP address for both active and standby systems. In addition, non-stop forwarding is ensured by continuously synchronizing the IKE and IPsec Security Associations (SAs) states between the active and standby configurations, so that failover can occur at any time with minimal packet loss. Similarly 6WIND Turbo IPsec uses standards-based protocols to provide geo-redundancy in the event a natural disaster or other catastrophe disables an EPC location.

6WIND Turbo IPsec provides management choices with NETCONF/YANG, CLI, Linux commands, SNMP and syslog, to help with Mobile Operators' OSS and MANO (Management and Orchestration) integration for network management and monitoring purposes. All 6WIND software also works with existing Linux automation, configuration and management tools with no changes. 6WIND adds speed when managing constantly changing network requirements as configuration changes are much faster and more efficient in software versus hardware solutions, saving time and management costs.

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