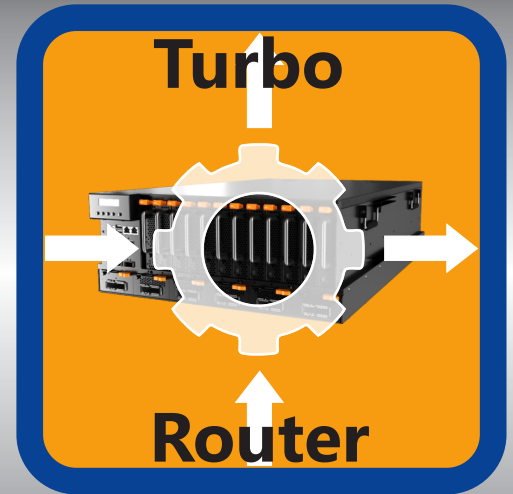


Software Appliance For Networking

Bare Metal Performance For COTS Servers & Virtual Machines



6WIND Turbo Router Solution Brief

vRouter For Private Enterprise Networks

Customer Spotlight: Arbor Networks

As an established DDoS protection services provider, Arbor Networks was looking for a high-performance virtual router solution to replace VyOS without sacrificing usability. 6WIND Turbo Router was able to satisfy Arbor Networks' need for performance and integration in a cost-sensitive manner.

Software-based networking gives organizations of all sizes options to replace expensive hardware with flexible, cost-effective software on commercial-off-the-shelf (COTS) servers. Routing is a leading example with organizations selecting software-based routers, running in bare metal and virtual machine (VM) configurations, as an alternative to Cisco, Juniper and other hardware routers. Sample use cases for virtual routers (vRouters) include:

- Dedicated enterprise networks
- Private networks with on-premise or remote servers
- Networks configured to run specific applications
- Opportunities to reduce costs of Cisco and Juniper hardware by over 50%.

Arbor Networks is a world-leading DDoS protection services provider, helping to secure the largest enterprises and provider networks from attacks. Arbor manages a virtualized internal training network that is used to simulate attacks,

allowing its customers to evaluate and train on its DDoS and Advanced Threat Protection solutions.

Arbor was an innovator to deploy nearly 100 VyOS virtual routers for its training network several years ago, instead of deploying hardware routers. However, feature, performance and support requirements led them to seek a replacement that can handle multiple networking techniques at the same time with sustained performance between 1 and 5 Gbps throughput.

6WIND Turbo Router met Arbor's requirements to replace the VyOS virtual routers directly on its existing servers, running in VMs on top of Linux KVM hypervisors with Proxmox enterprise virtualization. Based on DPDK (Data Plane Development Kit) for performance, 6WIND Turbo Router separates its full featured data plane and control plane for use case flexibility and ease-of-migration.

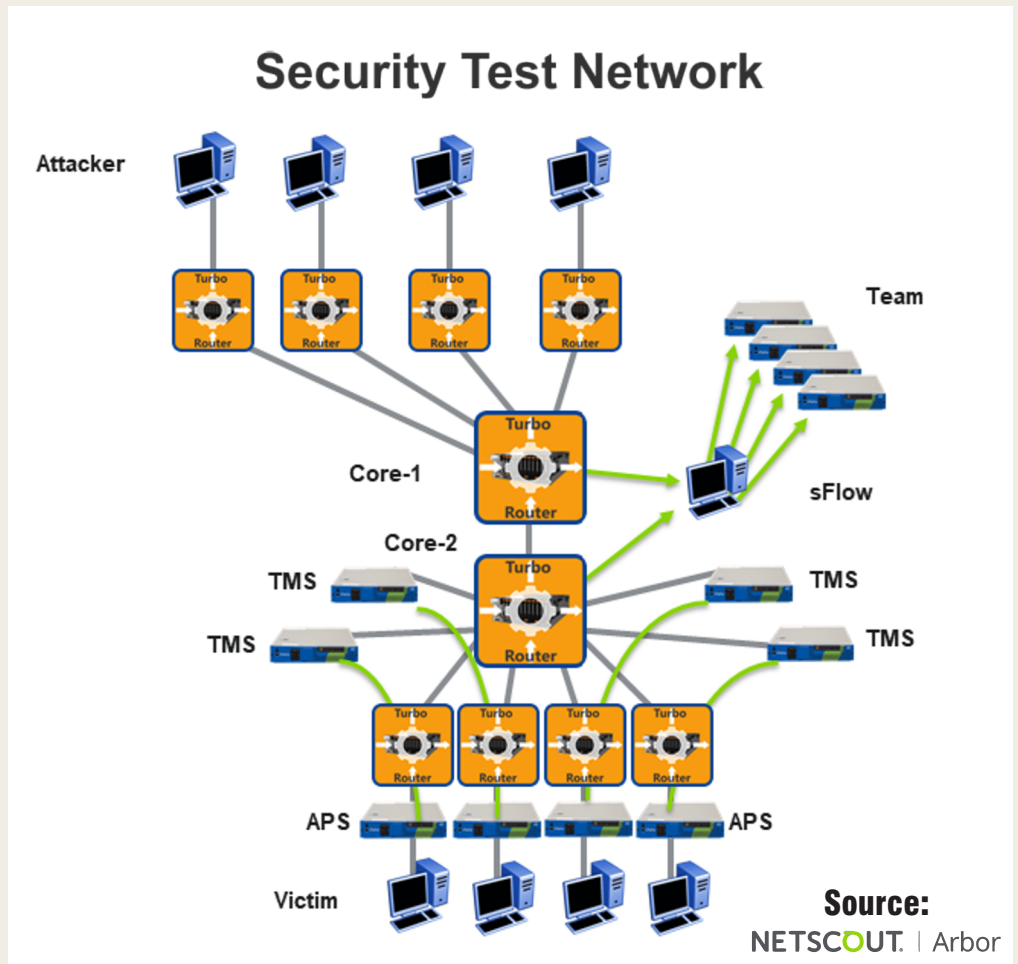
6WIND Turbo Router: High Performance Testing For Arbor Networks Security

6WIND Turbo Router works in conjunction with Arbor's Threat Management System (TMS) devices in the training network to simulate the attacks. Turbo Router operates in three different roles 1.) route traffic from attackers, 2.) serve as core routers, which send traffic to victims and 3.) as the victims' routers, which distribute incoming attacks to the end users' systems. BGP routes are used for diversion as attacks materialize and GRE tunnels are established to Arbor's Advanced Protection System (APS) devices for the re-injection of routes. The core routers leverage sFlow to provide traffic information to Arbor's APS devices. When an attack is detected, BGP routes are reconfigured and divert traffic to Arbor's TMS devices to eliminate the attacks. Operational control and visibility into the network remains functional throughout.

Success

6WIND Turbo Router met the challenge through its responsiveness under the stresses of heavy DDoS attacks. Success was measured according to the following requirements:

- Sustain a high number of 64-byte packets per second over multiple interfaces under normal network conditions



- Support flow monitoring, traffic conditioning, rate limiting and SNMP operations regardless of traffic load
- Protocol stability during performance tests including GRE tunnels and OSPF and BGP protocols
- Linux management tools and CLI for ease of configuration and deployment

receive the following advantages with 6WIND Turbo Router:

- Performance: 12 Mpps per core of IP Forwarding, standard 1/10/40/100GE NIC support and scaling up to 1 million routes on Intel-based servers
- Support: Available today with options for subscription or perpetual licenses from 1G to 100G.

Upon replacement of its previous VyOS vRouters, Arbor Networks