SPEED SERIES
Virtual Accelerator™

- **Enable NFV And Virtual Networking**

- **Deliver Network Hardware Independence, Performance And Features For Virtual Applications**

- **Transparent To Linux, OpenStack and Hypervisors**

Product Overview

6WIND Virtual Accelerator is a member of the 6WIND Speed Series family that provides packet processing acceleration for virtual network infrastructures used in Network Function Virtualization (NFV), Data Center Virtualization or Network Appliance Virtualization use cases.

6WIND Virtual Accelerator runs inside the hypervisor domain and removes Linux performance bottlenecks by offloading virtual switching from the networking stack. It maximizes the number of Virtual Machines and their networking performance by reducing the hypervisor CPU resources necessary for packet processing.

In addition to virtual switching (using Open vSwitch or the Linux bridge), 6WIND Virtual Accelerator supports a complete set of networking protocols to provide a complete virtual networking infrastructure, including but not limited to: VLAN, VXLAN, Virtual Routing and Forwarding, Filtering, NAT, and IPsec.

6WIND Virtual Accelerator is transparent to Linux and its environment, so that existing Linux applications do not need to be modified to benefit from packet processing acceleration. As a result, standard control plane protocols and orchestration tools such as OpenStack can be used without any modification.

6WIND Virtual Accelerator is available for 1, 2 and 4 socket Intel x86-based servers with DPDK (Data Plane Development Kit), multi-vendor NICs and major Linux distributions.

Key Features

- High performance I/Os leveraging DPDK, with multi-vendor NIC support from Intel, Mellanox and Cisco
- High performance virtual switching (Open vSwitch and Linux bridge) and networking (Overlays, Filtering/NAT, Forwarding, IPsec)
- Supports existing workloads through standard Virtio drivers
- Transparent to management and orchestration tools such as OpenStack
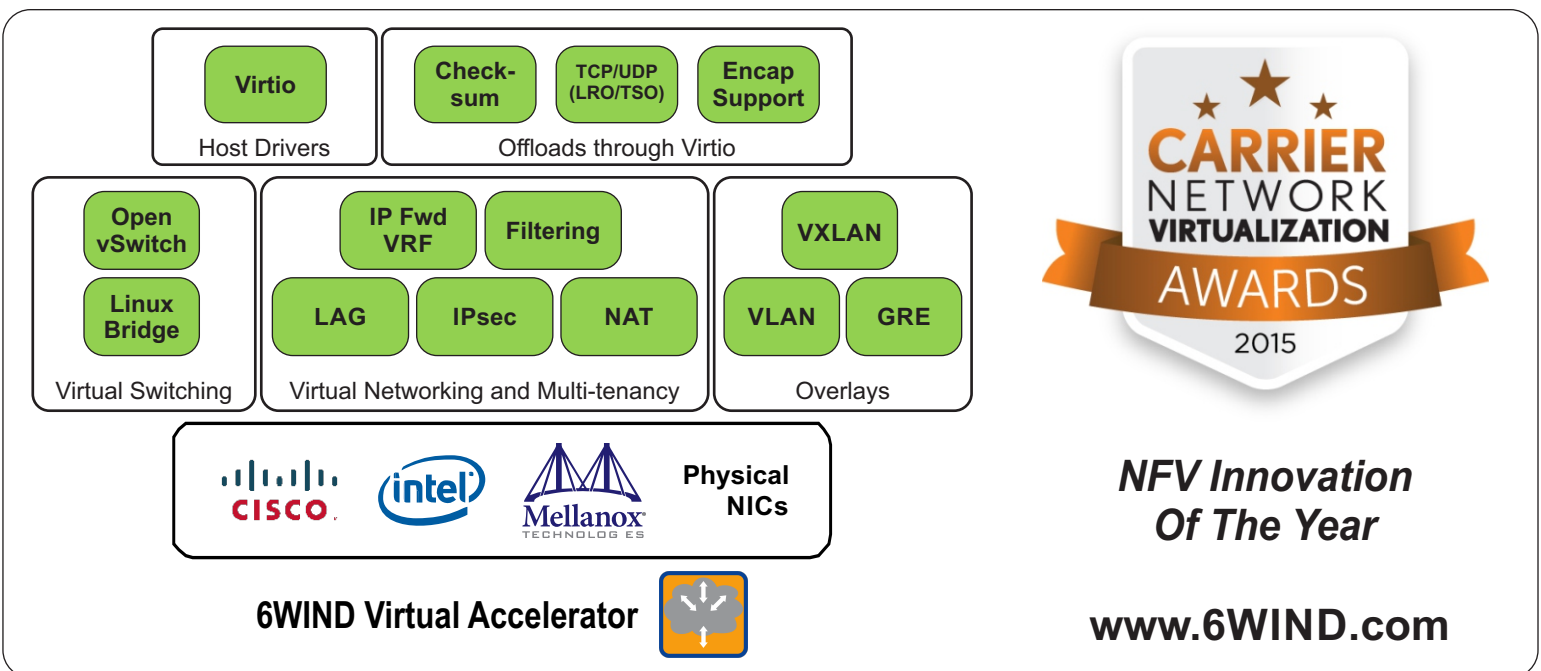
NFV Innovation Of The Year

6WIND Virtual Accelerator

www.6WIND.com

Performance

6WIND Virtual Accelerator performance on Xeon E5-2600 v2 family

For Data Center Virtualization / NFV using OpenStack:
- 20 Gbps per core with VMs (Compute Node)
- 40 Gbps per core without VMs (Network Node)
- 120 Gbps aggregated throughput with 12 cores available to Virtual Appliances

Feature Details

High performance I/Os leveraging DPDK, with multi-vendor NIC support from Intel, Mellanox and Cisco:
- Intel 1G 82575, 82576, 82580, I210, I211, I350, I354
- Intel 10G/40G XL710
- Intel 10G 82598, 82599, X540
- Mellanox 10G/40G ConnectX®-3 EN and ConnectX®-3 Pro EN series
- Mellanox 25G/40G/100G ConnectX®-4 series
- Cisco UCS VIC (ENIC)

High performance virtual switching based on 6WINDGate technology:
- Open vSwitch (OVS) acceleration (support of OVS up to version 2.4)
- Linux Bridge

High performance virtual networking based on 6WINDGate™ technology:
- Forwarding (IPv4 and IPv6) and Virtual Routing and Forwarding
- Filtering (IPv4 and IPv6)
- NAT

- Link Aggregation
- Tunneling (IPinIP)
- VXLAN
- VLAN
- GRE
- IPsec

Transparent to management and orchestration tools such as OpenFlow and OpenStack:
- Supports OpenStack Mitaka, Liberty and Kilo
- Red Hat OSP
- Ubuntu Cloud

Simplified deployment on major OpenStack distributions:
- Mirantis Fuel Plugin
- Canonical Juju Charm

Supports existing workloads through standard Virtio drivers:
- Virtio Host poll mode driver (PMD) allows communication with any workload with Virtio drivers (can be DPDK, Linux or other OS-based)
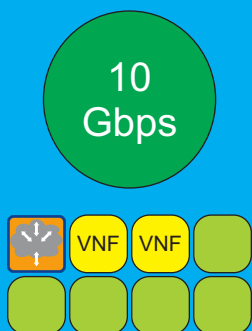
Offloads through Virtio:
- Checksum offload (IP and TCP/UDP)
- LRO (based on GRO)
- TSO (based on GSO)

These offloads work on inner headers within tunnels (VLAN, VXLAN, GRE, IPinIP). Virtual Accelerator leverages hardware offloads when supported by the NICs.
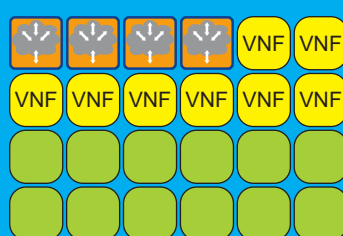
Supported Linux distributions:
- Red Hat Enterprise Linux
- Ubuntu
- CentOS

NFV: Increase Application Throughput and Reduce CPU Resources
Virtual Network Function (VNF) + 6WIND Virtual Accelerator

10 Gbps

8 Core Server
63% Vacancy

40 Gbps

24 Core Server
50% Vacancy

VNF — Virtual Machine

Hypervisor

Traffic Generator

openstack

6WIND