6WIND: Solving the Critical Performance Challenges for Software Defined Networks

Cloud Infrastructure

- ▸ Emerging data center architectures require high-performance networking solutions optimized for standard hardware platforms
- ▸ Advanced networking functions are required to support the increasing number of Virtual Machines on each application server blade
- ▸ Commodity, processor-based solutions are key to minimizing CAPEX and OPEX for both physical and virtual network appliances
- ▸ 6WIND delivers proven, high-performance networking software optimized for cloud infrastructure applications

The 6WINDGate Cloud Edition software provides network performance enhancements for virtualized architectures, as well as a rich set of optimized Layer 2 through 7 networking protocols optimized for general-purpose platforms and fully-compatible with standard hypervisors. This solution solves critical data center networking performance bottlenecks and enables advanced networking functions to run at high performance, both on virtual switches instantiated on application servers and on physical/virtual network appliances. 6WINDGate is fully compatible with emerging orchestrators such as OpenStack and management tools such as OpenFlow.

Traditional Architecture → Emerging Approach
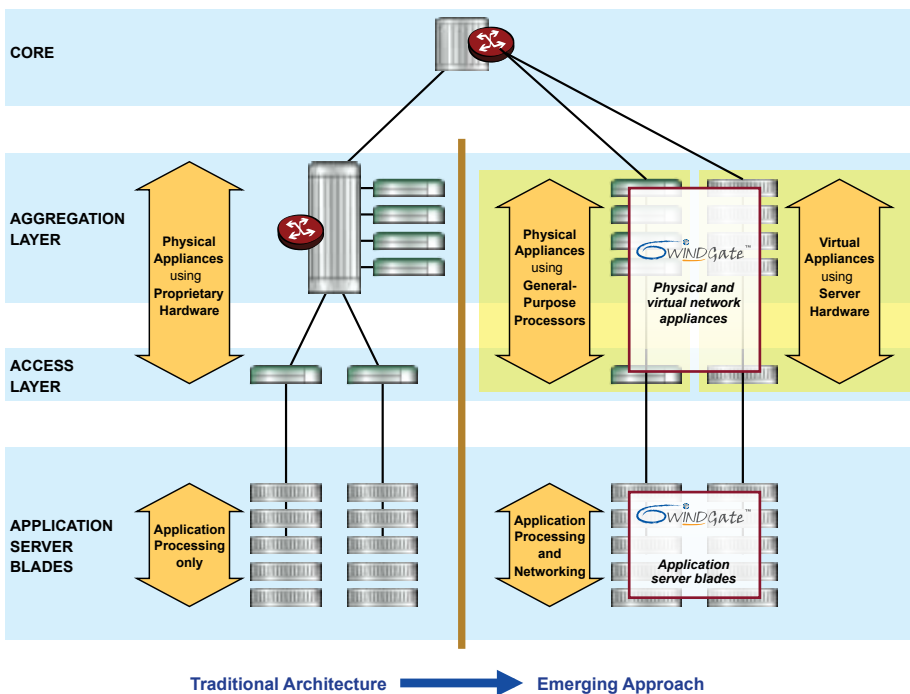
Facing on-going CAPEX and OPEX pressures, **data center operators** are migrating away from physical appliances implemented with proprietary hardware, instead adopting both physical appliances based on general-purpose processors and virtual appliances running on standard servers.

At the same time, the increased number of VMs per application server requires the integration of advanced networking functions in the virtual switch instantiated on the same server.

Network equipment manufacturers must deliver new solutions that provide improved cost/performance for network appliances, while also accelerating their development schedules so as to be early to market in new product categories. Typically, their systems include a wealth of proprietary software, developed over multiple product generations and proven through extensive field experience. This software must be reused as seamlessly as possible, often on a range of hardware platforms based on different processor architectures.

6WINDGate™ Cloud Edition
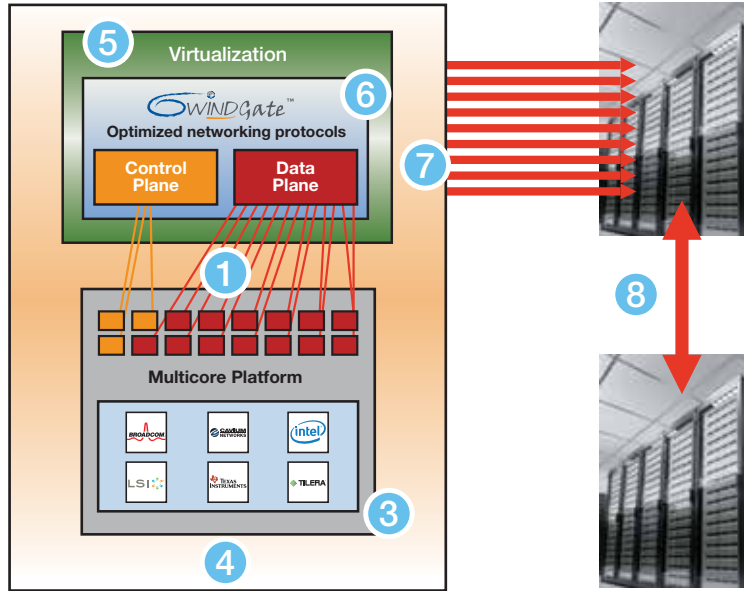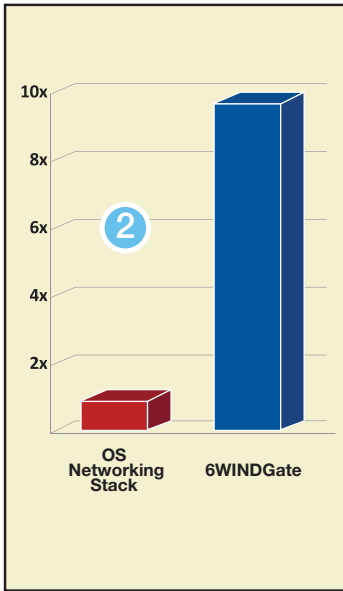
1. Optimized Architecture for Network Appliances

Most packets are processed in a fast path environment, executing outside the OS kernel in a Linux userspace environment. By avoiding typical OS overheads associated with preemptions, threads, timers and locking, this architecture maximizes data plane processing performance.

2. Maximum Performance from Commodity Hardware

6WINDGate leverages the unique features of standard processor platforms from leading suppliers, while exploiting advanced data plane libraries such as the Intel® Data Plane Development Kit. Optimized support is implemented for features such as on-chip security accelerators.

3. Architecture Flexibility

System architects have the flexibility to select whichever processor is best suited for a specific cloud infrastructure product, with the confidence that the use of 6WINDGate will enable them to extract the best possible networking performance from that platform.

4. Full Linux Compatibility

6WINDGate is fully compatible with Linux networking APIs, so standard Linux application software can be deployed on 6WINDGate with no need for changes.

5. Optimized for Virtualization

6WINDGate supports industry-standard hypervisors, using advanced techniques to maximize both I/O bandwidth and VM-to-VM communication. Data center operators can efficiently provision network resources and adjust that provisioning dynamically in line with changing traffic patterns.

6. Comprehensive Networking Protocol Suite

The 6WINDGate packet processing software comprises a comprehensive set of networking protocols optimized for physical and virtual appliances, including routing, security, firewall, VPN, SSL Termination and TCP termination functions.

7. Scalability

6WINDGate is fully scalable across processors, blades and racks. Avoiding the complexity of instantiating multiple Virtual Appliances (VAs) as bandwidth requirements increase, operators can configure a single 6WINDGate-based VA to dynamically scale up across as many cores as necessary.

8. Carrier Grade Reliability

6WINDGate provides full support for High Availability (HA) frameworks, in order to ensure zero-downtime reliability through industry-standard failover modes.

6WINDGate Cloud Edition: Proven Benefits for Cloud Infrastructure

6WINDGate solves today's data center networking problems while providing the scalability to meet on-going capacity challenges. By delivering industry-leading networking performance for virtual switches instantiated on application server blades as well as network appliances running on commodity hardware, 6WINDGate enables both data center operators and network equipment suppliers to maximize their ROI while achieving profitable business growth.