

NEXT GENERATION ALTEON VIRTUAL APPLIANCE FOR NFV ENVIRONMENTS

Radware's Alteon Virtual Appliance (Alteon VA) for Network Function Virtualization (NFV) environments decouples ADC functions from dedicated underlying hardware and enables next-generation ADC services to run on x86 commercially off the shelf (COTS) hardware. Alteon VA for NFV is a scalable and high-capacity solution, with up to 160bps per instance and multi Tbps per cluster. It reduces total cost of ownership (TCO), simplifies network services deployment, enables capacity elasticity and automates lifecycle management.

Carrier Challenges and the NFV Working Group

Today, all network services and functions that wireless and wireline carriers need to provide require purchasing, deployment and configuration of several physical network components from multiple equipment vendors. Carriers and operators need a solution that simplifies network operation, increases agility, reduces implementation time of new and advanced network functions, and most importantly reduces TCO.

Many carriers and operators are trying to reduce CAPEX and OPEX by standardizing virtualization of network functions, enabling them to run on x86 COTS servers, combined with automation services. As a result carriers, operators and leading network equipment vendors have launched a new initiative —NFV— to standardize virtualization of network functions and build (through ETSI) a working group to support it.

Alteon VA for NFV

As an active contributor in both NFV and Software Define Network (SDN) working groups, Radware has developed a holistic strategy to enable carriers, large enterprises, and e-commerce networks to become smarter, more programmable, flexible and cost-effective through SDN transformation and NFV compliance.

An essential aspect of this strategy is Alteon VA for NFV environments — the first NFV compliant software-based ADC on the market. Alteon VA for NFV is designed from the ground up for high performance and scalability, offering capacities up to 160Gbps per single instance running on x86 COTS servers. This delivers breakthrough price performance ratios for ADCs from 10Gbps to 160Gbps.

Furthermore, by leveraging Radware's Elastic Scale SDN application, carriers can dynamically support multi terabit per second scale-out through clustering of multiple Alteon VA for NFV instances.

As part of the NFV ecosystem, Alteon VA for NFV features complete integration with NFV-based infrastructure virtualization and orchestration frameworks (KVM, OpenStack).

Alteon VA for NFV provides the most efficient resource utilization on commercially available hypervisors, by redesigning the virtualization approach of Alteon VA, and incorporating some new technologies that accelerate its overall performance. Here are a few examples:

- Alteon NFV bypasses the hypervisor's virtual switch, providing direct and faster access to the physical NICs of the server
- Alteon NFV uses a fast packet processing algorithm for x86 servers based on Intel's DPDK code

Integration with Cloud Orchestration Systems

To ensure carriers can fully leverage the benefits of Alteon VA in an NFV environment, Radware enables automation of its entire life-cycle through integration with NFV based infrastructure virtualization and orchestration frameworks such as OpenStack. The life-cycle management automation includes all operations such as provisioning of a new Alteon VA instance, configuration and maintenance of the ADC service, scaling capacity when needed and decommissioning the instance. The lifecycle management operations are available out of the box in the various OpenStack orchestration distributions and interoperate with Radware's Alteon VA for NFV.

Leveraging SDN Application Benefits in NFV Environments

Alteon VA for NFV is an essential part of Radware's SDN application framework that enables smarter deployments of various network services. These include traffic steering solutions with greater scalability and programmability throughout the network, breaking existing network barriers and overcoming capacity limited areas in the network.

The combination of Alteon VA for NFV with Radware's SDN applications significantly simplifies implementation of advanced and complex network services, allowing improved operational efficiency of network management and application changes. This means that not every new network service rollout needs to become a networking project. While SDN streamlines network operations, Radware's SDN applications and Alteon VA for NFV streamline network services provisioning and operations.

Advanced Carrier Functionality

By leveraging a multi-proxy architecture, Alteon VA for NFV unleashes a set of unique application delivery services tailored and adjusted for carrier networks and service infrastructure needs, streamlining mobile service delivery. It provides state of the art transparent traffic steering based on mobile payload, headers, AAA and other policy enforcement interfaces, including header modification capabilities to support various mobile use cases. In addition, it load balances both the control and data plane protocols.

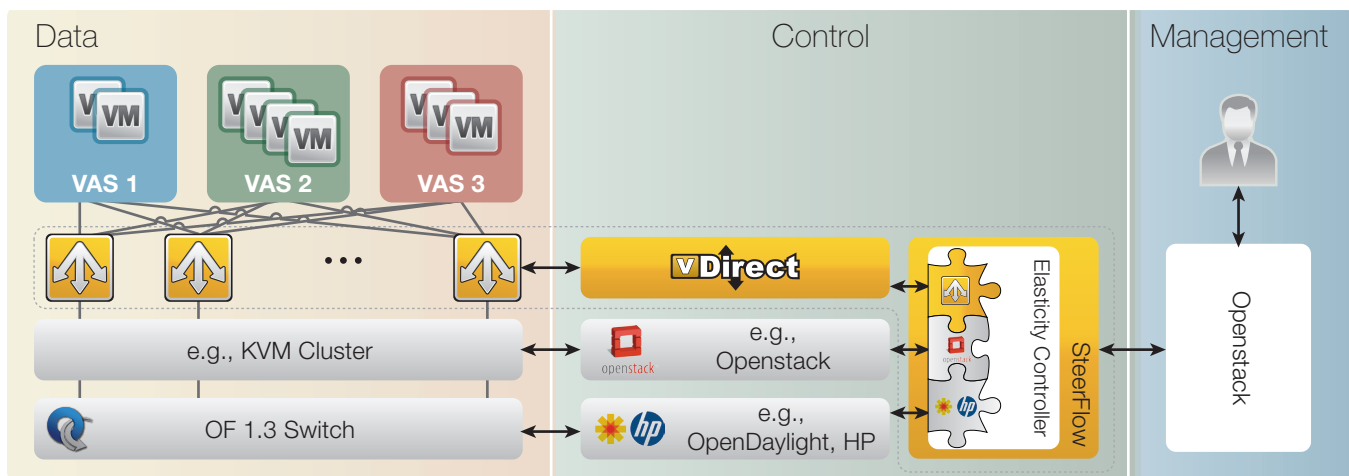
Seamless Control Plane Interoperability

Alteon VA for NFV features a protocol and API agnostic control-plane plugin component that allows the solution to seamlessly interoperate with virtually any policy enforced eco-system (such as HSS, PCRFs, RADIUS and Diameter based APIs, etc). This enables operators to automate user aware and network aware traffic steering functionality.

By providing instant conversion of different APIs and normalization of the same protocols implemented by various vendors, Radware's control-plane plug-in eliminates long and costly R&D cycles needed to align different protocols that are implemented. It enables a fast and simple roll-out of new network applications and provides automated user aware and/or network aware real-time policy enforcement.

Business & Technical Benefits

Alteon VA for NFV enables operators and carriers to realize NFV benefits by migrating implementation of ADC services from a dedicated hardware appliance deployment model to Radware's NFV-based deployment model.



Greater Cost Reduction

- The ADC function runs on a standardized hardware and doesn't require a specialized hardware purchase or implementation — even for very high capacity applications.
- The same x86 COTS servers can be purchased for several network functions — in higher quantities, ultimately reducing cost of its network server hardware.
- Cost saving is also achieved by maintaining a reduced devices' RMA stock for all type of network functions.
- By decoupling the network function software from the underlying hardware, carriers avoid HW vendor lock.

Reduced Operational Complexity

- Significantly faster rollout of complex applications and reduced operational complexity by using SDN applications together with vDirect for service provisioning automation and NFV based network functions
- Full life-cycle processes automation through integration with NFV oriented orchestration solutions, such as OpenStack

Dynamic Scalability

- Operators can seamlessly scale/add more instances for increased service capacity, using standard COTS servers together with Elastic Scale SDN applications
- This eliminates forklift upgrades and dynamically uses/releases the resources only when needed

Delivering Advanced Carrier Functions

- High capacity steering functions efficiently route traffic to different value added services (VAS) or monetization engines
- Equipped with flexible service customization due to AppShape++ policy scripting
- Automated user aware and/ or network aware real-time policy enforcement solution with Alteon VA for NFV, through out-of-the-box interoperability with the carrier's policy enforcement/AAA eco system

Models and Specifications

Functionality\Type	Alteon VA for NFV
Throughput licenses [Gbps]	80, 160
Memory requirements	2-128 GB RAM
CPU requirements	2-16 vCPUs
Physical network interfaces	8 data interfaces
Management interface	1 management interface
Supported platforms	KVM hypervisor, VMware

Discover the Power of Alteon VA for NFV Today

Radware offers a thirty day free trial version of Alteon VA for NFV that offers all the features and capabilities of the full version. To download the trial version please visit: <http://www.radware.com/Products/Alteon-VA/>

About Radware

Radware (NASDAQ: RDWR), is a global leader of application delivery and application security solutions for virtual and cloud data centers. Its award-winning solutions portfolio delivers full resilience for business-critical applications, maximum IT efficiency, and complete business agility. Radware's solutions empower more than 10,000 enterprise and carrier customers worldwide to adapt to market challenges quickly, maintain business continuity and achieve maximum productivity while keeping costs down. For more information, please visit www.radware.com.

Radware encourages you to join our community and follow us on [LinkedIn](#), [Radware Blog](#), [Twitter](#), [YouTube](#), [SlideShare](#) and the [Radware Connect app for iPhone®](#).

Certainty Support

Radware offers technical support for all of its products through the Certainty Support Program. Each level of the Certainty Support Program consists of four elements: phone support, software updates, hardware maintenance, and on-site support. Radware also has dedicated engineering staff that can assist customers on a professional services basis for advanced project deployments.

Learn More

To learn more about how Radware's integrated application delivery & security solutions can enable you to get the most of your business and IT investments, email us at info@radware.com or go to www.radware.com.