



FlexVNF

PRODUCT DESCRIPTION

Highly flexible Versa FlexVNF software allows customers to deploy a broad spectrum of software-defined solutions from SD-Routing, SD-Security, and Secure SD-WAN. Regardless of where each function is deployed, all network and security functions are provisioned and managed centrally through the Versa Director single-pane-of-management platform.

Versa FlexVNF includes the broadest set of VNFs in the industry – from a full set of networking capabilities, including SD-WAN, to a wide range of basic and advanced security functions – making it possible to seamlessly design rich managed services and enterprise architectures software-defining the enterprise branch with agility.

Versa FlexVNF is purpose-built with many carrier-grade operational capabilities, including a distributed control and data plane fabric with built-in elasticity and capacity on-demand. Powerful service chaining for both Versa and third party services, including appliances, enables providers and enterprises to easily integrate multiple network and security functions into complex managed services and enterprise architectures.

Another key Versa capability for improving operational efficiency and service agility, as well as lowering total costs, is multi-tenancy. Versa FlexVNF has built-in multi-tenancy that enables service for thousands of customers, segments and organizations providing deployment flexibility, security and economy of scale.

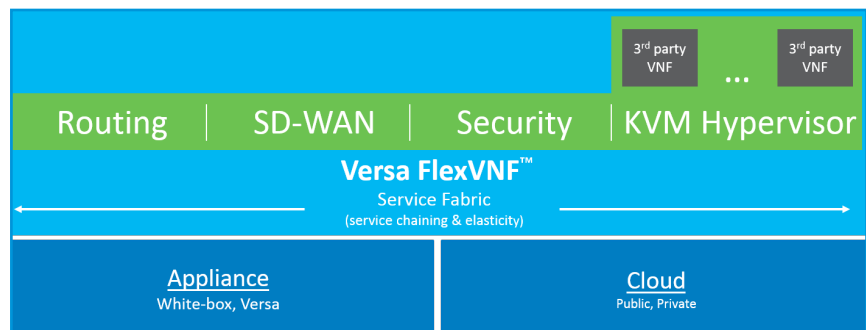
Versa FlexVNF is fundamentally different than proprietary and expensive network equipment. Deployed on low-cost Intel-based servers and appliances utilizing advances in the latest processors

and virtualized infrastructure, Versa FlexVNF radically reduces capital purchases and expensive upgrades/refreshes that are common with legacy network hardware devices.

Versa FlexVNF supports the widest set of deployment options in the industry, and can be deployed in both legacy networks, cloud and new SDN environments. It can run on bare metal servers and white box appliances, hypervisor VMs (VMware ESXi & KVM), IaaS platforms (Amazon and Google) or Linux containers. FlexVNF takes full advantage of multi-socket and multi-core processors and Intel DPDK support for maximum use of the underlying compute resources, resulting in excellent performance and throughput.

Versa FlexVNF is operations-ready and supports standard protocols and log formats, including Syslog, IPFIX, SNMP and Netconf, making it compatible with existing network management, monitoring, and reporting systems.

The result is multi-tenant cloud IP software services platform with integrated networking and security services that can scale out and in on-demand, while maintaining service continuity and delivery of both Versa and third party network and security functions – all with significantly reduced hardware costs and better service agility.





PLATFORM

Form Factor	<ul style="list-style-type: none"> Bare metal (ISO) Virtual Appliance (OVA, QCOW2)
Hypervisor	<ul style="list-style-type: none"> VMware ESXi 5.1 & above KVM
Ethernet	<ul style="list-style-type: none"> Virtual Wire support 802.1Q (VLAN Tagging) 802.3ad Link Aggregation (LACP) – Active or Standby 802.1ag CFM (Connectivity and Fault Management)
Resiliency	<ul style="list-style-type: none"> HA: Active-Standby Multiple controller per FlexVNF CPE fallback using Out-of-Band IPsec Inter-VNF High Availability (Control and Data Plane replication)
Operations and APIs	<ul style="list-style-type: none"> CLI Telnet/SSH Syslog IPFIX, Flow mirroring SNMPv1, SNMPv2, SNMPv3 Netconf/Yang Packet capture utility

NETWORK & SECURITY FUNCTIONS

DHCP IPv4 & IPv6	<ul style="list-style-type: none"> Client, relay and server
Routing IPv4 & IPv6	<ul style="list-style-type: none"> Static routing BFD VRRP VRF/Multi-VRF OSPF BGP MP-BGP ECMP Route redistribution
Policy Based Forwarding (L3-L7)	<p>Match Conditions</p> <ul style="list-style-type: none"> Source Address Source Zone Source Region Destination Address Destination Zone Destination region Application of stream Schedule IP version P-Flags DSCP <p>Actions</p> <ul style="list-style-type: none"> Permit Drop Set Nexthop



NETWORK & SECURITY FUNCTIONS

QoS	<ul style="list-style-type: none"> Whitelist/Blacklist on any L2-L4 field Tenant level policing Control plane protection Traffic Classification & Profiles DSCP/802.1P Marking Rate-Limiting Scheduling Queuing Shaping HQoS PIR & CIR
Stateful Firewall	<ul style="list-style-type: none"> Zone-based Address Objects Address Groups Rules, Policies DDoS (TCP/UDP/ICMP Flood) Syn-Cookies, Port Scans, Host Scans ALG support: SIP, FTP, PPTP, TFTP, ICMP
Application Visibility	<ul style="list-style-type: none"> Identify more than 2000+ applications and protocols Application group support Application filter support Application visibility and log support
Next-Generation Firewall	<ul style="list-style-type: none"> Policy Match Triggers <ul style="list-style-type: none"> Applications, App filters, App Groups, URL Categories, Geo Location Application Identity (AppID) based policy rules Application Groups and Filters Packet capture on AppID IP Blacklisting Whitelisting Customer App-ID signatures SSL Certificate-based protection Expired certificates Untrusted CAs Unsupported cyphers and key lengths
Anti-Virus	<ul style="list-style-type: none"> Network/flow based protection with auto-signature updates HTTP, FTP, SMTP, POP3, IMAP, MAPI support 35+ file types supported (exe, dll, office, pdf & flash file types) Decompression support Storage profile support Auto signature updates
URL Categorization & Filtering	<ul style="list-style-type: none"> URL categories & reputation, including customer-defined Cloud-based lookups Policy trigger based on URL category URL profile (blacklist, whitelist, category reputation) Captive portal response including customer defined Actions include block, inform, ask, justify, and override



NETWORK & SECURITY FUNCTIONS

IDS/IPS	<ul style="list-style-type: none"> • Default & customer defined signatures & profiles • Versa & Snort rule formats, L7 DDoS • Layer 7 Anomaly detection • Support for JavaScript attacks • Security package with incremental updates • Full, incremental (daily) & real-time threat (every hour)
SD-WAN	<ul style="list-style-type: none"> • Secure, zero-touch branch provisioning • Template-based policies with parameterization • Centralized route and policy enforcement • L7 Application SLA enforcement • SLAs with QoS, Intelligent path selection – default & user-defined • Support Active/Active and load balancing of Transport • Overlay encapsulation: MPLS over VXLAN, IPsec over VXLAN • Redundant SD-WAN controller • Integration and support for 3rd party legacy appliances • Flexible topology support – Full-Mesh, Partial-Mesh, Hub-Spoke • Packet Striping for best throughput across bundle of low speed interfaces • Packet Cloning / De-cloning for replicating important flows to ensure best performance and availability • Forward Error Correction to restore traffic in lossy and over-congested links • MOS Based Traffic Steering to measure VoIP flows quality and to steer VoIP flows to achieve best voice session qualities • Cloud Provider DIA Traffic Optimizations; Probe based, as well as Inline Traffic Measurements and more
IPsec VPN	<ul style="list-style-type: none"> • Site-to-site, route/policy-based VPN, IKEv1, IKEv2, DPD, PFS • ESP and ESP-HMAC support • Symmetric Cipher support (IKE/ESP): AES-128 and AES-256 modes: CBC, CNTR, XCBC, GCM • Pre-shared and PKI authentication with RSA certificates • Diffie-Hellman key exchange (Group 1,2,5) • Per-tenant and VRF aware • MD5 and SHA1 based HMAC
Load Balancing	<ul style="list-style-type: none"> • Virtual Server support • Load Balancing algorithms: RR, WRR, Src. IP, Dest. IP, IP Hash, Least connections • Layer 4 load balancing, monitoring, persistence (Src, Dst,Src-Dest, Mac) • Deployment modes: Transparent, Routed and Direct Server Return
SSL Inspection	<ul style="list-style-type: none"> • HTTPS proxy (forward & reverse) • SSL v3 • TLS 1.2 proxy • Captive Portal for HTTPS requests
DNS Proxy	<ul style="list-style-type: none"> • DNS Split Proxy
User & Group Level Authentication	<ul style="list-style-type: none"> • Support for Active Directory, LDAP, Kerberos • Captive Portal Form for LDAP
Service Function Chaining (SFC)	<ul style="list-style-type: none"> • Encapsulation and tagging types: <ul style="list-style-type: none"> • VLAN, VXLAN • MPLS, MPLS over GRE • NSH, SFC