

vSD-WAN powered by Versa

FlexVNF

Secure SD-WAN

- Flexible VNF, multiple software-defined solutions
- Many Carrier Grade operational capabilities
- Multi-tenancy, supporting thousands of customers
- Operation-ready, compatible with existing network management tools
- Multiple deployment options

Highly flexible 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 Director single-pane-of-management platform.

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.

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. FlexVNF has built-in multi-tenancy that enables service for

thousands of customers, segments, and organizations providing deployment flexibility, security, and economy of scale.

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

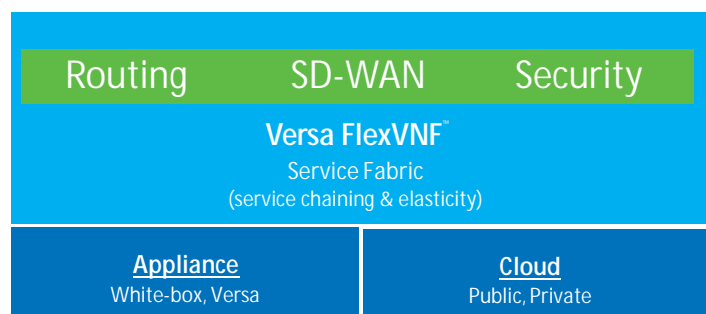
FlexVNF supports the widest set of deployment options in the industry, and can be deployed in both legacy networks, cloud, and new SDN environments. It can run on bare metal servers and white box appliances, hypervisor VMs (VMware ESXi & KVM), IaaS platforms (Amazon and Google) or Linux containers.



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.

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 Versa network and security functions – all with significantly reduced hardware costs and better service agility.



Your Network's Edge®

PLATFORM

Form Factor

- Bare metal (ISO)
- Virtual Appliance (OVA QCOW2)

Hypervisor

- VMware ESXi 5.1 & above
- KVM

Ethernet

- Virtual Wire support
- 802.1Q (VLAN Tagging)
- 802.3ad Link Aggregation (LACP) – Active or Standby
- 802.1ag CFM (Connectivity and Fault Management)

Resiliency

- 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

- CLI
- Telnet/SSH
- Syslog
- IPFIX
- Flow mirroring
- SNMPv1
- SNMPv2
- SNMPv3
- Netconf/Yang
- Packet capture utility

NETWORK & SECURITY FUNCTIONS

DHCP IPv4 & IPv6

- Client
- Relay
- Server

Routing IPv4 & IPv6

- Static routing
- BFD, VRRP

- VRF/Multi-VRF
- OSPF, BGP
- MP-BGP
- ECMP
- Route redistribution

Policy Based Forwarding (L3-L7) – Match Conditions

- Source address, zone, region
- Destination address, zone, region
- Application of stream
- Schedule
- IP version
- IP-Flags
- DSCP
- IEEE 802.1P

Policy Based Forwarding (L3-L7) – Actions

- Permit
- Drop
- Set Nexthop

QoS

- 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

CG-NAT

- Static NAT
- Dynamic NAT
- NAPT
- Destination NAT
- Static NAT with port translation
- Inter-tenant NAT
- ALG support

- FTP
- TFTP
- PPTP
- SIP
- ICMP
- IKE
- Endpoint Independent Mapping (EIM) support
- Endpoint Independent Filtering (EIF) support
- Port parity
- Port Block Allocation (PBA) support
- Random Port Allocation (RPA) support
- Syslog and IPIX logging

Stateful Firewall

- Zone-based
- Address objects
- Address groups
- Rules
- Policies
- DDoS (TCP/UDP/ICMP Flood)
- Syn-cookies
- Port-scans
- ALG support
- SIP
- FTP
- PPTP
- TFTP
- ICMP

Application Visibility

- Identify more than 2000+ applications and protocols
- Application group support
- Application filter support
- Application visibility and log support

Next Generation Firewall

- Policy Match Triggers: 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

- 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

- 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

IDS/IPS

- 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

- 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 and 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

Advanced SD-WAN Features

- 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 flow 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

- 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

- 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

- HTTPS proxy (forward & reverse)
- SSL v3, TLS 1.2 proxy
- Captive Portal for HTTPS requests

DNS Proxy

- DNS Split Proxy

User & Group Level Authentication

- Support for Active Directory, LDAP, Kerberos
- Captive Portal Form for LDAP

FlexVNF

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System Requirements

HYPERVISOR SUPPORTED

- VMware vSphere 5.5 & 6.0, KVM - RHEL/CentOS 6.4, Ubuntu 12.04, 14.04
- KVM - RHEL/CentOS 6.4, Ubuntu 12.04, 14.04

VMWARE VCLLOUD DIRECTOR SUPPORT

- vCloud Director 5.5 & 6.0

OPENSTACK VERSION SUPPORT

- Havana
- Icehouse
- Juno
- Kilo

OPENSTACK DISTRO SUPPORT

- Red Hat
- Canonical Ubuntu
- Piston CloudOS

CLOUD PLATFORM IMAGES

- Amazon Machine Image (AMI)
- Google Compute Engine (GCE)

VIRTUAL MACHINE DEPLOYMENT
MINIMUM REQUIREMENTS

- CPU: 2 cores (Intel Atom Rangeley or Intel Xeon)
- Memory: 4 GB
- Disk: 20GB

Note: Please refer to the latest FlexVNF release and product documentation for the latest information on product supported features, limitations, performance, and best practices.

Ordering

RECOMMENDED CONFIGURATIONS

\$= Bundle bandwidth: 25 Mbps, 50 Mbps, 100 Mbps, 200 Mbps, 500 Mbps, 1 Gbps, 5 Gbps, 10 Gbps, 20 Gbps.

BL-AR-\$

Versa Advanced Routing Bundle - Annual License - \$

BL-SSDW-\$

Versa Advanced Routing Bundle - Annual License - \$

BL-AR-\$

Versa Advanced Routing Bundle - Annual License - \$

BL-SSDW-\$

Versa Standard SD-WAN Bundle - Annual License - \$

BL-ADSW-\$

Versa Advanced SD-WAN Bundle - Annual License - \$

BL-ADSW-U-\$

Versa Advanced Secure SD-WAN Bundle - Annual License - \$

BL-NGFW-\$

Versa NG Firewall Bundle - Annual License - \$

BL-UTM-\$

Versa UTM Bundle - Annual License - \$

BL-HA-AR-\$

Versa Advanced Routing Bundle - HA - Annual License - \$

BL-HA-SSDW-\$

Versa Standard SD-WAN Bundle - HA - Annual License - \$

BL-HA-ADSW-\$

Versa Advanced SD-WAN Bundle - HA - Annual License - \$

BL-HA-ADSW-U-\$

Versa Advanced Secure SD-WAN Bundle - HA - Annual License - \$

BL-HA-NGFW-\$

Versa NG Firewall Bundle - HA - Annual License - \$

BL-HA-UTM-\$

Versa UTM Bundle - HA - Annual License - \$

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