

Cloud Service Gateway

CSG3000 Series Appliance Datasheet

Introduction

Versa CSG3000 series appliances are a family of next-generation enterprise software-defined networking appliances based on high performance x86 architecture and best in class merchant Ethernet switching chipset to deliver Secure SD-WAN and Secure SD-LAN capabilities.

CSG3000 units running VOS provide fully comprehensive integrated security such as NGFW, UTM, ZTNA, Application Intelligence and Application Policy Based Forwarding coupled together with line-rate L2/L3 Switching, scalable advanced routing, genuine multitenancy, and big data based analytics.

Versa CSG3000 series appliances with VOS™ (Versa Operating System) are ideal for Enterprises with high performance branch, campus and data center WAN Edge deployments. Versa CSG3000 series appliances are supported by the Versa management and control software including Versa Director and Versa Analytics.

Versa Secure SD-WAN and SD-LAN solutions help migrate from legacy WAN and LAN solutions to Software-Defined Enterprise Branch and Campus solutions, thus achieving superior business agility, seamless connectivity and lower TCO (total cost of ownership). Versa CSG appliances enable secure, scalable and reliable enterprise-wide networking.

Product Description

High performance Versa CSG3000 series appliances deliver carrier-grade reliability, line-rate switching, and high compute capacity for enterprise-grade routing, SD-WAN, next-generation security and uCPE use-cases.

Versa CSG3000 series come with a diverse set of LAN and WAN ports.

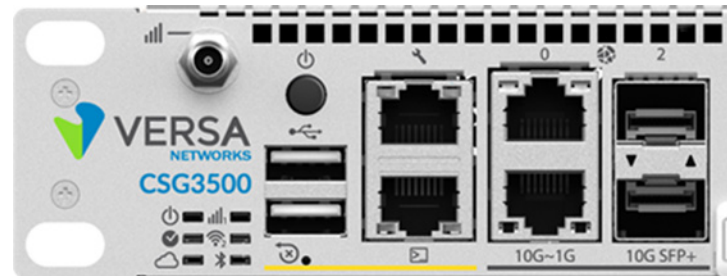
WAN ports can be Ethernet and non-Ethernet (ie: ADSL2+/VDSL2, T1E1, LTE, 5G) ports driven by deep buffers and by the SD-WAN enabled compute complex.

LAN ports are driven by best in class, feature-rich and highly scaleable, market leading campus class Ethernet switch chipset from the leading merchant silicon vendor. Copper LAN ports are multi-rate GE ports with built-in PoE++ capacities. CSG3000 units also provide high speed fiber up/downlinks ports such as 25/10 GE and 100GE to provide fast speed connectivity to other network elements in the LAN environment.

CSG3000 family also provides built-in wireless options such as 4G/LTE/LTE-Advanced-Pro and sub-6 5G options for WAN connectivity and Enterprise class WiFi AP module for wireless LAN connectivity.

Coupled with these interface options, CSG3000 platforms come with built-in high compute capacity that provided by high core count x86 CPU, high capacity memory and storage to allow our customers to run VOS's stateful functions in highly scaleable forms.

Such high compute capacity can also be used to host 3rd party software in VM form, eliminating the need to purchase additional



compute blades or other stand-alone appliances. That is possible thanks to VOS's built-in capabilities to host and seamlessly service chain 3rd party VMs.

With CSG3000 family of products, Versa consolidates best in class LAN switching, WAN interfaces with diversity, wireless connection options for LAN and WAN, high compute capacity with ability to host 3rd party software to provide a highly integrated platform that is unmatched in the market. CSG3000 simplifies network designs greatly, eliminates separate hardware platforms allowing our customers to consolidate many devices into one helping them save money and simplify their network deployments.

Product Details

Versa CSG3000 base units come preloaded with high performance switched interfaces for LAN in the form of 8x 10G/5G/2.5G/1G PoE++ (60W), 16x 2.5G/1G PoE (30W), 4x SFP28 (25/10GE) and 2x QSFP28 (100GE) switch interfaces (100GE interfaces are located at the rear of the chassis). A campus class, high performance switching ASIC is dedicated to drive these interfaces at line rate, while the switching ASIC is also connected with high speed interfaces to high performance x86 complex that runs VOS.

For WAN connectivity, each of two copper multirate 10GE interfaces provide 10/5/2.5/1GE speed options to connect to high speed wired modems such as NG-GPON or to external mmWave 5G, sub-6 5G modems or other high performance WAN links that may require multi-rate GE connectivity. In addition, CSG3000 also provides two SFP+ 10GE/1GE interfaces that can support 10GE or 1GE Fiber or copper modules to provide our customers fiber based connectivity options.

Furthermore, a NIC slot in the appliance provides flexibility to add additional Ethernet ports with PoE++ and non-PoE options, such as T1/E1 and VDSL-ADSL2 to connect to diverse set of WAN networks. Ethernet interfaces provided by the NIC can be used for LAN or WAN purposes, entirely configurable by software.

Note that CSG3000 series platforms carry a mix of interfaces directly served by the compute complex and separate set of interfaces driven by the embedded Ethernet switch fabric while all of them are controlled by VOS.

VOS has built-in intelligence to program embedded switch fabric to drive L2, L3, VXLAN, QoS, ACLs, MPLS, IPv4/v6, unicast/multicast and other functions at line rate across LAN interfaces. All traffic that is received by LAN interfaces will first be processed by Ethernet switch and if the destination is another LAN port where no stateful functions need to be applied to the traffic, the traffic will be forwarded at line rate to destination port(s).

If traffic is destined from LAN to WAN or vice versa or if any flow needs to go through stateful processing for security, application identification, application policies, user/group level traffic management, device fingerprinting or for other purposes, these flows will be processed by VOS. VOS running in the processing complex will pick flows and will process them seamlessly and hand off to LAN or WAN interfaces depending on traffic destinations and intent defined by policies.

All of such stateless and stateful processing and forwarding of flows will be handled intelligently within the platform seamlessly. Such intelligent processing allows our customers to benefit from best of both worlds; high performance line-rate forwarding for LAN traffic combined together with full suite of stateful functions for L4-L7 without any compromise. This intelligence on seamless traffic handling and traffic management that combines performance with state opens doors for many new applications and use-cases.

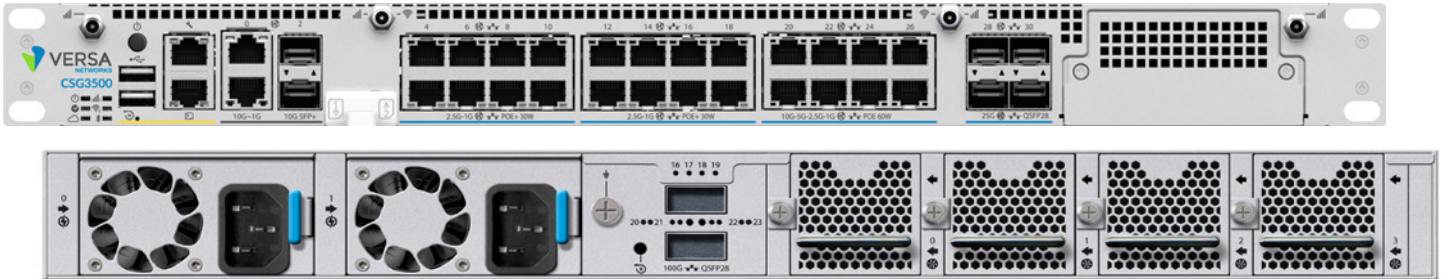
The Versa CSG3000 series appliances consist of the following standard models:

Versa CSG3300 is a powerful appliance for deployment within large Enterprise branch or campus sites for networks that require advanced Switching and Routing, Secure SD-WAN along with comprehensive application and cloud-intelligent SD-WAN services on-premises.

Versa CSG3500 is a higher performance appliance for deployment in large Enterprise branch, campus or data center locations for networks that require advanced Switching and Routing, Secure SD-WAN along with comprehensive advanced application and cloud-intelligent SD-WAN services on-premises.

Versa appliances have a highly differentiated architecture which integrates security, switching, routing, SD-WAN, multi-tenancy and analytics in a single software operating system VOS™. All of these functions are running on CSG3000 natively. CSG3000 provides high performance switching for L2 and L3 (unicast, multicast, IPv4, IPv6) flows across the LAN fabric at line rate, while such high performance can be combined together with full intelligence of L4-L7. All functions are supported by single configuration file and single OS, that is VOS.

Versa Director supports configuration, monitoring, and provisioning of Versa CSG appliances. Versa Analytics provides device, network, and security analytics for the Versa CSG appliances. The Versa CSG3000 series appliances can be deployed by managed service providers (MSPs) for scalable managed services and by enterprises of all sizes.



CSG 3000 series Front View and Back View

The Versa CSG Appliance Advantage

The Versa CSG3000 series appliances are high performance, scalable high-end branch appliances for Secure SD-WAN and LAN switching deployments with integrated switch fabric.

Versatility and Flexibility

Versa CSG3000 series appliances are based on industry leading switching architecture, along with x86 architecture, taking advantage of the latest performance enhancements for packet processing, encryption offload and compression/ decompression offload capabilities as well as line rate forwarding across LAN ports.

The innovative Versa CSG3000 series appliances are engineered to deliver high-performance and scalable multi-tenant, cloud-native enterprise-grade networking and security services, such as routing, SD-WAN, NGFW, CGNAT, 802.1x based access control and more.

Target Deployments

Use-cases and deployments targeted with this consolidated platform include:

- Consolidated WAN Edge and LAN switching, reducing number of platforms deployed and managed
- Integrated high performance compute for high performance stateful deployments and/or for 3rd party VM based software deployments and service chaining
- (WAN Edge) integrated Core or Aggregation layer Ethernet switching that will terminate connections coming from distributed access or edge layer Ethernet switches using its fiber connections running at 25/10GE or 100GE speeds
- High performance WAN Edge, serving large branches, campus sites and small data centers

Resiliency and Manageability Advantage:

The Versa CSG3000 series appliances are designed for resiliency and durability to ensure business continuity and services. The CSG3000 appliances come with secure BIOS and securing booting capabilities.

The Versa CSG3000 series appliances have specially designed LEDs that are unique and intuitive to instantly provide device and interface status for ease of manageability.

Designed with redundant in-field hot replaceable fans and power supply units, with front to back cooling, and high performance envelope, Versa CSG3000 series appliances are setup to meet and exceed requirements of high performance WAN Edge deployments. CSG3000 units come with faceplate integrated rack mount ears making it very easy for them to be installed on standard 19" wide standard racks.

For rack-mounted deployments, the port side of the Versa CSG3000 series appliances is designed to simplify operations and accessibility and to improve visibility of device operational status and health. Status LEDs provide succinct visualization of the operational status of the device and of the Bluetooth, WLAN, and LTE connections.

Security Advantage

The platform hardware has been designed with security use-cases in mind. A TPM chip along with crypto acceleration integrated into the appliance ensures the integrity and security of critical data, such as encryption and authentication keys. Also the appliance is built with Secure Boot capabilities.

4G/LTE-Advanced - 5G Advantage

4G/LTE-Advanced Pro support is ubiquitous across all Versa CSG3000 models and can be used as a primary or backup WAN access link for the branch and remote sites. Enterprise customers can deploy Versa CSG3000 series appliances with up to two built-in and two additional attached LTE links simultaneously, providing unmatched resiliency and flexibility for wireless WAN access from the branch.

Each appliance is orderable with two factory-installed enterprise grade, internal CAT-12 LTE Advanced Pro global modems to provide simultaneous connectivity (Active/Active) to two active LTE access links. Each LTE modem provides performance up to 600 Mbps downstream and up to 100 Mbps upstream connection speeds.

The embedded LTE-Adv Pro modules are firmware controlled, smart modems with built-in eSIM capabilities allowing maximum carrier flexibility and deployment ease. The appliance has two externally accessible SIM card slots, one for each embedded LTE-Adv Pro modem. If the appliance is configured with two modems, each SIM card is used to control one LTE radio each. The appliance also has two external USB slots that can be connected to an LTE dongle if desired. With two internal modems customers can deploy up to four simultaneous LTE WAN connections.

Versa CSG3000 appliances also offer 5G and Sub 6 Ghz compatibility, future proofing for next gen 5G networks and connectivity needs.

For more information on bands supported by LTE Advanced Pro module or by sub-6 5G module, see the 5G Datasheet.

Wi-Fi Advantage:

Each Versa CSG3000 series appliance can be ordered with a factory-installed 802.11ac (Wave2) high-performance dual-radio access point module to deliver enterprise-grade WLAN connectivity to the branch.

The Wi-Fi AP module is an 802.11 a/b/g/n/ac (Wave2) access point that can support up to 8 SSIDs and 255 wireless clients concurrently (total 16 SSIDs). The embedded Wi-Fi AP module supports 2.4-GHz and 5-GHz frequency bands simultaneously (Dual Band, Dual Concurrent Access).

The WiFi module supports 2x2 MU-MIMO with beamforming capabilities and is suitable for small-to-medium-office deployments. The WLAN AP module also supports Mesh Wi-Fi and frequency-band steering capabilities and has the sufficient transmission power and MRC capabilities to process weak wireless signals from distant client devices, thus providing the best possible user experience. For more information, see the Wi-Fi Modem datasheet.

NIC options

While Versa CSG3000 units come with built-in PoE+ ports, an additional 4 port Cu GE PoE+ NIC are orderable to run 12 ports with PoE+ capabilities. Versa CSG3000 units and the optional 4 port PoE+ NIC support 802.3af, and 802.3at standards.

Versa CSG3000 series platforms also support additional NIC options such as ADSL/VDSL NIC and T1/E1 NIC, 8 port GE NIC and 4 port GE SFP NIC. For more details please refer to respective datasheets.

Throughput and Performance for Stateful Functions

Versa CSG3000 series appliance models should be chosen based on the expected throughput and the required features for the target deployment. The table below lists the expected throughput of each appliance model.

	CSG3300	CSG3500
Recommended Deployment	Enterprise Branch	Enterprise Branch High Performance
Throughput of Processor handled flows		
Routing for WAN	10+ Gbps	20+ Gbps
Stateful Firewall	10+ Gbps	20+ Gbps
SD-WAN DIA	10 Gbps	20 Gbps
SD-WAN site to site	5 Gbps	13 Gbps
NGFW with SD-WAN	4 Gbps	10 Gbps
NGFW + AV with SD-WAN	1.2 Gbps	4.5 Gbps
NGFW + IPS with SD-WAN	700 Mbps	3 Gbps
NGFW + UTM with SD-WAN	450 Mbps	2 Gbps

** For a complete list of software features supported by Versa Networks for the WAN edge, see the VOST™ datasheet.

** Refer to the latest Versa CSG3000 appliance release notes and product documentation for the latest information on supported features, interfaces, limitations, performance, and best practices

** The performance numbers are observed with Versa recommended configuration and traffic conditions. The SD-WAN performance is measured using IMIX packet size mix. The UTM traffic performance is measured assumes 1 Mb response for HTTP traffic when 100 percent traffic is inspected for UTM.

Throughput Performance and Scaling of Embedded Switching Complex

Switching Capacity (full-duplex)	960Gbps
PPS (full-duplex)	1428Mpps
Latency	1.2us
Fully shared egress packet Buffer	8 MB
L2MC	4K
LAGs	1K
Members per LAG	2 to 256
Virtual Ports	8K
Virtual Forwarding Instances	4K
VLANs	4K
VRF	4K
VLAN translation	16K ingress 16K egress
MAC based VLANs	16K
ECMP groups	1024 with total of 4K members
ECMP members per group	1024 max

Hardware Specifications

	CSG1300	CSG1500
Networking Interfaces		
Wired Interfaces	WAN: 2x 10G/5G/2.5G/1G/100M/10M Cu (multirate) 10GE ports, plus 2 x SFP+ routed interfaces LAN Ports: 8x 10G/5G/2.5G/1G PoE++ (60W), 16x 2.5G/1G PoE (30W), 4x SFP28 (25/10GE), 2x QSFP28 (100GE) switch interfaces (located at the rear of the chassis), Plus NIC ports that can be configured as LAN or WAN	
Wireless Interfaces	Dual LTE (SIM Cards externally accessible), Sub class 5G modem, WiFi with external antennas, Bluetooth for ZTP, Built-in GPS	
NIC Support	4P GE PoE+, 8P Cu GE, 4P GE SFP, T1/E1, A/VDSL (Annex A, Annex B)	
Management	1x GE Cu (dedicated Mgmt port), 1x RJ45 RS232 console, 2x USB	
	128GB SSD	256GB SSD
Other Interfaces and Modules		
TPM	Yes	
Crypto Acceleration	Intel SoC built-in Quick Assist Module	
USB	2 x USB 2.0	
Physical Characteristics		
Unit Weight	CSG3300 : 9Kg (19.84 lb) CSG3500 : 9.5Kg (20.95 lb)	
Unit Dimensions	(W) 440mm, (D) 470 mm, (H) 44mm	
PSU	Internal 920W 1+1 redundancy - back to front airflow, AC to DC	
Unit Power	100 - 240 VAC , 50 - 60Hz	
Cooling	Front to Back Cooling with FRU fans - 3+1 redundancy	
Mounting	Rack mountable unit	
Operational and Compliance		
Operational Temperature	0-40C @ 3,000 m altitude	
Storage Temperature	-20 to 70 C	
Humidity	15-85%	
Environmental	ROHS compliant	
Safety	UL/CSA62368-1, IEC60950-1, IEC62368-1 standards	
Regulatory	FCC Part 15, Class A (US), CE (EU), CB (IEC)	

Versa CSG3000 NIC Modules

Versa Versa CSG Appliance 1000 series appliances offer field-based configurability using the NIC slot. NIC slots can carry the following NICs and other additional NIC types in the near future, providing the opportunity to further configure platforms based on design requirements.

NIC Type	NIC Options	Notes
Copper GE	4 x Cu GE with 802.3at (POE+)	4-port Cu 802.3at (POE+) ports supporting both Type 1 and Type 2 POE devices. Each port can provide up to 30W of power, with a maximum of 60W for the module, for connecting PoE devices such as cameras, access points, and VoIP handsets
	8 X Cu GE GE	8-port CU GE NIC
GE SFP	4 x GE SFP (Fiber)	4-port Fiber NIC supports GE SFP ports, Fiber Gigabit Ethernet support for 1000Base-SX/LX, IEEE standard/network topology
ADSL / VDSL	1 RJ45 port ADSL / VDSL	Two separate NICs: Single port ADSL, VDSL module supporting Annex A (POTS) Single port ADSL, VDSL module supporting Annex B (ISDN)
T1/E1	4 x RJ45 port T1/E1	Single NIC supporting T1/E1 framing, supports all common formats and PPP, HDLC, Frame relay encapsulations

Warranty and Support

Versa CSG3000 series appliances include a 2-year Return to Factory (RTF) Warranty. Versa Networks offers enhanced warranty and advanced replacement options which can be ordered with the hardware. For more details please refer to the Versa CSG Appliance Ordering Guide.

Ordering Guide

Versa CSG3000 series appliances are versatile platforms providing a variety of optional capabilities to suit the needs of the enterprise. The Versa CSG ordering options provide similar flexibility to add optional hardware capabilities. NIC needs to be ordered separately as an add on option. The ordering information for the CSG 3000 series appliance model with optional add-on modules is provided in the Versa CSG Appliance Ordering Guide. CSG part numbers are structured logically to make the process of ordering flexible and intuitive. The Part Number for CSG 3000 series consists of a base platform code followed by optional Wireless/LTE modules (e.g. -W for Wi-Fi module, -LC for LTE module). For more details on how to order CSG 3000 series appliances, please refer to the ordering guide.

About Versa Networks

Versa Networks, the leader in Secure SD-WAN, combines full-featured SD-WAN, complete integrated security, advanced scalable routing, genuine multi-tenancy, and sophisticated analytics to meet WAN Edge requirements for small to extremely large enterprises and Service Providers. Versa Secure SD-WAN is available on-premises, hosted through Versa-powered Service Providers, cloud-delivered, and via the simplified Versa Titan cloud service designed for Lean IT. The company has transacted hundreds of thousands of software licenses globally through its global Service Providers, partners, and enterprises. Versa Networks is privately held and funded by Sequoia Capital, Mayfield, Artis Ventures, Verizon Ventures, Comcast Ventures, Liberty Global Ventures, Princeville Global Fund and RPS Ventures.

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