CSX4000 Series

Introduction

Versa CSX4000 series appliances are a family of next-generation software-defined (SD) enterprise LAN edge and access layer appliances combining best in class merchant Ethernet switch chipset with x86 based processor sub-system to deliver cutting edge Secure SD-LAN capabilities from the edge of the LAN.

CSX4000 units run VOS™ (Versa Operating System) to provide comprehensive integrated security such as on-prem ZTNA, next-generation SD-Access, fully secure Software Defined Perimeter, Application Intelligence and Application Policy Based Forwarding capabilities coupled together with line-rate L2/L3 Switching, scalable advanced routing, genuine multitenancy, and big data based analytics.

Versa CSX4000 series appliances with VOS™are ideal for Enterprise branch, and campus LAN edge deployments by providing natively built-in security and connectivity capabilities. Versa CSX4000 series appliances are supported by the Versa management and control software including Versa Director and Versa Analytics.

Versa Secure SD-LAN solutions help migrate from legacy LAN solutions to highly secure Software-Defined Enterprise Branch and Campus solutions, thus achieving superior business agility, seamless connectivity and lower TCO (total cost of ownership) by eliminating need for standalone firewalls and by giving flexibility to run security and policy functions starting from the edge of the LAN. Providing comprehensive security, microsegmentation and software defined access with granular control on the LAN edge gives our customers the option to admit devices and users on right parts of the network, and secure their traffic in N-S and in E-W directions. With comprehensive embedded security functions, Versa CSX appliances enable secure, scalable and reliable enterprise-wide LAN networking solutions.

Product Description

High performance Versa CSX4000 series appliances deliver carrier-grade reliability, line-rate Ethernet switching, together with built-in x86 based compute for enterprise-grade routing, SD-LAN, integrated security, on-prem ZTNA, NG SD-Access and SDP.

Natively integrated comprehensive security functions running within the LAN Edge/ Access switch revolutionizes LAN switch solutions. Such capabilities ensure right level of granular access control, authentication, micro-segmentation and security functions right

at the points of entry to LAN. Applying critical decisions at the entry point to LAN provides best device and user originated traffic management functions from this point on, eliminating need for any other intermediate appliance for such functions.

While Versa Secure SD-LAN solution running on CSX4000 units support traditional L2, L3 forwarding, Versa recommends use of SDN based overlays to be used on uplink ports or connections to realize the full potential of Versa Secure SD-LAN solution. Please see subsequent section on Versa's SDN approach for more details.

Versa CSX4000 series offer LAN edge/access and high speed uplink ports to provide non-blocking, high performance LAN solution. CSX4000 switching 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. Options of single-rate GE and multi-rate GE ports with built-in PoE++ capacities are available. CSX4000 LAN edge Ethernet switches offer 25/10 GE and 100GE ports to provide high-speed connectivity to other network elements in the LAN environment.

Coupled with these interface options, select CSX4000 platforms come with built-in strong compute capacity provided by x86 processor, high capacity memory and storage to allow our customers to run VOS's stateful functions in highly scaleable forms.

Built-in 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 CSX4000 family of products, Versa consolidates best in class LAN edge / access layer switching, compute capacity with ability to host 3rd party software and built-in L4-L7 intelligence and functionality to provide a highly integrated LAN edge platform that is unmatched in the market. CSX4000 simplifies network designs greatly, eliminates separate firewalls or other hardware platforms allowing our customers to consolidate multiple devices and functions into one helping them save money and simplify their network deployments.

Product Details

Versa CSX4000 units come with 48x LAN edge/access interfaces with PoE++ (90W), 4x SFP28 (25/10GE) and 2x QSFP28 (100GE) switched interfaces. An Enterprise campus class, high performance switching ASIC is dedicated to drive all of these interfaces at line rate, while the switching ASIC is also connected with high speed interfaces to high performance x86 complex that runs VOS.

VOS running on CSX4000 platforms have 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 the 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 needs to go through stateful processing for security, application identification, application policies, user/group level traffic management, device fingerprinting, on-prem ZTNA, advanced SD-Access or for other purposes, these flows will be processed by VOS. VOS running in the x86 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 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 CSX4000 series appliances consist of the following standard models:

Versa CSX4300

A powerful, purpose built Ethernet switch to provide Secure SD-LAN functionality on LAN edge/access deployments. CSX4300 comes with:

- 48 ports of 1GE with PoE++ (90W)
- 4x SFP28 (25/10GE)
- 2x QSFP28 (100GE) switched interfaces.

Versa CSX4500

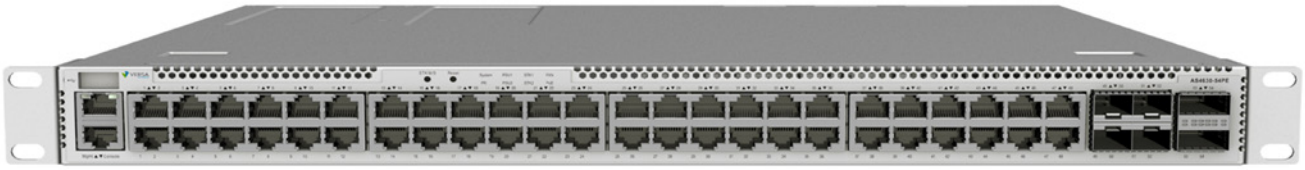
A more powerful version of CSX4300 with:

- 48 multirate ports installed as 12 ports of 10/5/2.5/1GE with PoE++ (90W), 36 ports of 2.5/1GE with PoE++ (90W)
- 4x SFP28 (25/10GE)
- 2x QSFP28 (100GE) switched interfaces.

CSX4500 also provides higher performance processor complex to offer higher performance stateful functions and ability to host 3rd party VMs.

Versa CSX series appliances have a highly differentiated architecture which integrates security, switching, routing, Secure SD-LAN, multi-tenancy and analytics in a single software operating system VOS™. All of these functions are running on CSX4000 natively. CSX4000 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 CSX appliances. Versa Analytics provides device, network, and security analytics for the Versa CSX appliances. The Versa CSX4000 series appliances can be deployed by managed service providers (MSPs) for scalable managed services and by enterprises of all sizes.



CSX4000 series front view with rackmount ears installed

Versa CSX Appliance Advantages

The Versa CSX4000 series appliances are high performance, scalable secure Enterprise branch and campus LAN Edge/access switching appliances.

Versatility and Flexibility

Versa CSX4000 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 CSX4000 series appliances are engineered to deliver high-performance and scalable multi-tenant, cloud-native enterprise-grade networking and security services, on-prem ZTNA, device authentication (802.1X), user authentication, device fingerprintint, application identification based access control along with full blown security built-in.

SDN Approach

Since its inception, Versa Networks has been building Software Defined products and solutions. Versa has delivered market leading SD-WAN, SSE, vCPE solutions and now with CSX family of products, Versa expands its Software Defined portfolio to Enterprise LAN. Versa Secure SD-LAN offers the same disruptive technologies to branch and campus to address switches and WLAN APs to address the needs of our customers.

The same VOS that is used on WAN and on SSE setups on the cloud, is now being used on CSX family of products. This gives our customers tremendous advantage of seamless integration of our Secure SD-WAN, SSE and SD-LAN solutions as the underlying OS is the same (VOS). Furthermore, Director, Controller, Concerto and Analytics applications that are used to manage the network are also the same. This takes the single OS, single pane of glass, single big-data based Analytics solution to the next level that is unmatched in the market, providing unmatches ease of deployment, management and analytical insights to network operators across the whole network.

Versa Secure SD-LAN uses IETF and industry-standard protocol based SDN solution that interoperate with all other vendors. Versa Secure SD-LAN uses MP-BGP-based Control Plane coupled together with VXLAN labels to build overlays across LAN to provide complete topological freedom and full use of underlay interfaces without any concern on L2 loops. Using standards defined MP-BGP based EVPN VXLAN, respective L2 and L3 reachability information is exchanged between SDN edges along with VXLAN labels to form the SDN overlay network automatically, forming a full mesh topology within the LAN environment. Furthermore, Versa's SDN based Secure SD-LAN solution support multiple active paths of forwarding for L2 flows, as well as functions like split-LAG, anycast gateway and more.

A client entering to Versa Secure SD-LAN solution say from the LAN side will be admitted to the network under the administration of policies assigned to it and based on associated connectivity and security privileges. Under the administration of these policies, the client device/user is able to communicate to the destinations on LAN or on WAN across layers of devices using appropriate overlay instance(s) in ways that are completely independent of other segments or slices of the network. If the same device moves to another part of the network, policies will follow the device, applying consistent solutions irrespective of the location where the user and device connect from.

Natively Built-in Security Functions

VOS running natively on CSX platforms provides comprehensive security functions to our customers starting from edge of the LAN. Such security functions include Stateful Firewall, DOS Protection, 802.1X, URL Feeds and Filtering, DNS Proxy, DNS Feeds and Security, Lateral Movement Protection, NG-Firewall (NGFW), IP Feeds and Filtering, Captive Portal, integration with User and device authentication systems via RADIUS or other standard means, Active Directory integration via LDAP and Kerberos, SSO, SAML, IPS, malware protection, Device Posture check, Device ID & Fingerprinting and many more security functions.

Providing such a comprehensive security stack right on the edge of the LAN allows our customers to deploy right security technologies based on the needs of devices connected to CSX4000 platforms. Here, Versa recommends our customers to apply these security functions based on profile of the device, and on-use case, while factoring in stateful performance capabilities of each CSX platform.

Intelligent use of security functions on the edge of the LAN provides our customers means to identity, authenticate, authorize, classify and manage devices, users, application traffic.

Use of the same VOS on CSX platforms provide deployment of the same set of security and application traffic management functions across the network, on LAN Edge, WAN Edge or on the cloud via SSE.

Target Deployments

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

- Secure LAN Edge / Access for Enterprise branch and Campus environments
- Integrated compute for stateful deployments and/or for 3rd party VM based software deployments and service chaining
- High performance uplink connections from LAN Edge to Aggregation and Core layers in LAN

Resiliency and Manageability Advantage:

The Versa CSX4000 series appliances are designed for resiliency and durability to ensure business continuity and services. The CSX4000 appliances come with secure BIOS and securing booting capabilities.

The Versa CSX4000 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 CSX4000 series appliances are setup to meet and exceed requirements of high performance WAN Edge deployments. CSX4000 units come packaged with faceplate rack mount ears in shipping carton, making installation easy on standard 19" wide standard racks without any accessories.

Secure Platform 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.

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

Performance of Stateful Functions

Versa CSX4000 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.

	CSX4300 / CSX4500
Recommended Deployment	Enterprise Edge/Access Switch
Throughput of Processor handled flows	
Stateful Firewall	2,500+ Mbps
Application Identification and App Policy Based Forwarding	1,500+ Mbps
NGFW	1,500 Mbps
NGFW + AV	300 Mbps
NGFW + IPS	200 Mbps
NGFW + UTM	125 Mbps
Target Security Deployments	More targeted use of stateful security functions
Other Functions	
Ability to host 3rd party VMs	No

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

** Refer to the latest Versa CSX4000 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. 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.

Hardware Specifications

	CSX4300	CSX4500
Networking Interfaces		
Ethernet switching interfaces	48x 1GE PoE++ (90W) 4x SFP28 (25/10GE) 2x QSFP28 (100GE)	12x 10G/5G/2.5G/1G PoE++ (90W) 36x 2.5G/1G PoE++ (90W) 4x SFP28 (25/10GE) 2x QSFP28 (100GE)
Management	1x GE Cu (dedicated Mgmt port), 1x RJ45 RS232 console, 1x USB	
Storage	128GB SSD	128GB SSD
Other Interfaces and Modules		
TPM	Yes	
Crypto Acceleration	Built-in hw crypto offload engine	
Physical Characteristics		
Unit Weight	7.67Kg (16.91 lb)	8.5kg (18.74 lb)
Unit Dimensions	(W) 440mm, (D) 442 mm, (H) 44mm	(W) 440mm, (D) 474 mm, (H) 44mm
PSU	Field replaceable, redundant 2x 1000W (115VAC) or 1200W (230VAC) PSU, 1+1 redundancy – front to back airflow	
Unit Power	100 – 240 VAC , 50 – 60Hz	
Cooling	Front to Back Cooling with FRU fans – 2+1 redundancy	
Mounting	Rack mountable unit	
Operational and Compliance		
Operational Temperature	0-45C @ 3,000 m altitude (32F to 113F)	
Storage Temperature	-40 to 70 C	
Humidity	5-90%	
Environmental	ROHS compliant	
Safety	UL/CSA62368-1, IEC60950-1, IEC62368-1 standards	
Regulatory	FCC Part 15, Class A (US), CE (EU), CB (IEC)	

Warranty and Support

Versa CSX4000 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/CSX Appliance Ordering Guide.

Ordering Guide

Versa CSX4000 series appliances are versatile platforms providing a variety of optional capabilities to suit the needs of the enterprise. Ordering information for the CSX4000 series appliances is provided in the Versa CSG/CSX Appliance Ordering Guide. CSX part numbers are structured logically to make the process of ordering flexible and intuitive. For more details on how to order CSX 4000 series appliances, please refer to the ordering guide.

About Versa Networks

Versa Networks the leader in SASE offers fully featured SD-WAN with integrated NGFW/UTP, ZTNA, advanced scalable routing, SD-LAN, genuine multi-tenancy, big-data based analytics and latest AI-ML technologies as part of its single stack software solution. Versa Networks is privately held and funded by Sequoia Capital, Mayfield, Artis Ventures, Verizon Ventures, Comcast Ventures, Liberty Global Ventures, and Blackrock Ventures.

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