

VeloCloud SD-WAN™, by Arista a fundamental component of SASE, offers converged cloud networking and security services to achieve flexibility, agility, and scale for enterprises of all sizes. VeloCloud SD-WAN is built on software-defined networking principles to address end-to-end automation, application continuity, branch transformation, and security from the edge to the data center and the cloud.

VeloCloud SD-WAN provides availability and quality-of-service for modern applications, while delivering security and ubiquity of access for the distributed workforce. Our SD-WAN and Best-of-Breed SASE integrations, built on the VeloRAIN (Robust AI Networking) architecture are ideal for today's distributed enterprises embracing cloud, GenAI, and application transformation.

VeloCloud SD-WAN addresses the distinct needs of AI and non-AI based applications as it relates to performance, security, and scalability. As a cloud-delivered solution, VeloCloud SD-WAN ensures resilient WAN connectivity and allows users to have flexible WAN choices, such as broadband, MPLS, LTE, and satellite. VeloCloud SD-WAN offers high application performance and availability while lowering networking costs. It can detect the slightest degradations and dynamically remediate over one or multiple WAN links, resulting in a highly satisfied user experience. While most enterprises deploy SD-WAN hardware appliances at their branch locations, a software-based remote client is also available as an extension of VeloCloud SD-WAN. Moreover, Enhanced Firewall Service is built into VeloCloud SD-WAN Edges, providing comprehensive security and eliminating the need for legacy firewalls at branch locations.

VeloCloud SD-WAN components

The VeloCloud SD-WAN solution consists of three components

VeloCloud SD-WAN Edge

VeloCloud SD-WAN Edge is an enterprise-class appliance providing secure and optimized connectivity to applications anywhere, on and off the cloud. It is zero-touch provisioned for secure and optimized connectivity to applications. Edge is available in various form factors: hardware, software (VMs), downloadable from cloud marketplaces, or Virtual Network Functions (VNF), with hardware appliances most widely deployed at customer branch sites.

Edge automatically aggregates multiple links and steers traffic over the optimal links based on Dynamic Multipath Optimization™ (DMPO) and deep application recognition (DAR). VeloCloud SD-WAN Edge supports high availability (HA) deployment models and can easily integrate into an existing network.

Edge also offers an Enhanced Firewall Service, which includes functions such as IDS/IPS, URL filtering, and malicious IP filtering. This additional layer of security serves as a barrier between a private network and the public Internet, and is crucial for protecting branch sites from unauthorized access and threats.

VeloCloud SD-WAN Gateways

Gateways optimize data paths to all applications, branches, and data centers, along with the ability to deliver network services to and from the cloud. VeloCloud's distributed, global network of gateways, hosted by VeloCloud/service providers or deployed on-premises, provides scalability, redundancy, and on-demand flexibility.

Gateways implement DMPO, cloud VPN, and VeloCloud SD-WAN Multisource Inbound Quality of Service between global cloud services (SaaS or IaaS) and each VeloCloud SD-WAN Edge, enabling broadband and private leased lines to appear as a single, high-performance WAN connection.

VeloCloud Orchestrator

Orchestrator is a cloud-hosted (or on-premises) central management tool for VeloCloud SD-WAN, by Arista. Its web-based user interface (UI) provides simplified configuration, provisioning, monitoring, fault management, logging, and reporting functions. Orchestrator enables flexible implementation of business-based policies for application delivery and traffic management.

Software Features

Category	Features
AAA	RADIUS, local authentication and authorization, multitenant 3 Tier RBAC architecture, auditing, roles and privileges
Availability	High availability* for VeloCloud SD-WAN Edge, disaster recovery for VeloCloud Orchestrator, multilink for high availability of WAN Edge clustering
Configuration and monitoring	REST API, SDK (Java and Python), Syslog, SNMP, NetFlow, 4,000+ applications/categories, ANPM, application usage, device identification, live mode, zero IT touch activation, per-flow visibility
Deployment flexibility	Eliminate pre-stage, no CLI, group policies, consolidated ICOM and end customer dashboard, VNF form-factor, multitenant stateless headend, transport group for business policy abstraction, application-aware service insertion on premises or in cloud, RMA workflow, customized application maps
Dynamic Multipath Optimization	Application and network condition aware sub-second steering, jitter/loss correction, fast intelligent routing, intelligent gateway selection, link aggregation, TCP flow optimization, unidirectional link measurements, bandwidth detection
Multitenancy	VeloCloud SD-WAN Controller, VeloCloud SD-WAN Gateway, VeloCloud Orchestrator
Network services	IPv4, IPv6, DNS, DHCP client, DHCP server, DHCP relay, NAT
QoS	Shaping, policing, per-flow queueing, tunnel shaper, multi-source inbound QoS, rate-limiter, COS aware, outer/inner DSCP tagging, smart defaults, MPLS COS
Remote troubleshooting	Live mode, alerts, events, remote diagnostics (examples: DNS test, ping test, flush active flows, list active flows, paths, VPN tests, packet capture, etc.), PKI infrastructure with certificate management workflows, diagnostic bundles
Routing	OSPF, BGP, static, connected, ICMP probes/responders, overlay flow control, per-packet application aware steering, route filter, route redistribution
SaaS/IaaS	Improved performance for cloud apps, supports well-known IaaS (e.g., AWS, Azure, GCP), Security Service Edge (e.g., Check Point, Zscaler, Palo Alto Networks, Netskope, Menlo Security, Forcepoint, OpenDNS)
Cloud providers	AWS, Azure, GCP, Alibaba, VMware Cloud on AWS, Azure VMware Solution. Performance data available upon request
Security	AES 256/128, SHA1/SHA2, IKEv2, VPNC compliant IPsec, PKI, segmentation, TLS1.2, SCEP, firewall L2-7, 1:1 NAT, port forwarding, dynamic branch to branch, MAC filtering Protects users and infrastructure accessing SaaS and Internet apps from threats, at the same time providing visibility and control with VeloCloud Enhanced Firewall Service and Best-of-Breed SASE
Enhanced Firewall Service	Advanced firewall features including Intrusion Detection and Prevention (IDS/IPS), URL Filtering, Malicious IP Filtering, and security monitoring
Hosted firewall logging	A hosted logging infrastructure on the cloud is provided to customers to capture and store firewall logs received from Edges

Software Features

Category	Features
Security monitoring dashboard	The "Security Overview" screen (VeloCloud Orchestrator UI > Monitor > Security Overview) displays real-time security related statistics including threats detected/prevented and edge impacted/protected.
Port security	Wi-Fi 802.1x – WPA-Enterprise (EAP-MD5, EAP-TLS), WPA-Personal 802.1x- Enterprise (EAP-MD5, EAP-TLS) - MAC address-based access (local) 802.1x is supported on both switched and routed ports MAC Address Bypass (MAB): For LAN devices that do not support 802.1x authentication, their MAC addresses can be checked against a RADIUS server
VLAN tagging	802.1Q, 802.1ad, QinQ (0x8100), QinQ (0x9100), native
WAN overlay support	Public/private/hybrid transport, cloud and on-premises

Software subscriptions editions

VeloCloud SD-WAN software is based on different subscription editions with different features designed for a wide variety of use cases. They are listed below.

Features	Standard Edition	Enterprise Edition	Premium Edition
VeloCloud Orchestrator	✓	✓	✓
Dynamic Multipath Optimization (DMPO)	✓	✓	✓
Number of Edges Supported	Unlimited	Unlimited	Unlimited
Maximum Number of Data Segments	4	128	128
Maximum Number of Profiles	4	Unlimited	Unlimited
Partner Gateway Support (SP Only; SaaS access only in Premium)	✓	✓	✓
Virtual Services Orchestration for NGFW Deployment on Edges	✓	✓	✓
Routing Support	BGP, OSPF	BGP, OSPF, Multicast	BGP, OSPF, Multicast
Cloud Gateway to SaaS and Cloud Security Service (without tunneling)	✗	✗	✓
Cloud Gateway to Legacy DCs, IaaS, or Cloud Security Service via Tunnels (non-SD-WAN destinations)	add-on	add-on	✓
Enhanced Firewall Service (including IDS/IPS, URL Filtering, Malicious IP Filtering)	add-on	add-on	✓ *
Hosted Firewall Logging	✓	✓	✓
Security Monitoring Dashboard	✓	✓	✓

Features	Standard Edition	Enterprise Edition	Premium Edition
Direct Edge to Internet/Cloud Security Service (BGP over IPsec)	✓	✓	✓
Automated Tunnel Setup via API to IaaS or Third-Party Cloud Security Service	✗	from Edge	from Edge or Gateway
PCI Certified Service	add-on	add-on	add-on
Upgradeable to a Higher Edition	✓	✓	N/A
Hub Clustering	✓	✓	✓
Gateways as Cloud VPN Hub	✗	✗	✓
Auto VPN Setup	Hub to spoke	Hub to spoke plus dynamic B2B	Hub to spoke plus dynamic B2B
Customizable Business & Security Policy	✓	✓	✓
Path Visibility	Last-mile	Last-mile plus site-to-site	Last-mile plus site-to-site
VeloBrain and AI-Analytics	✗	✓	✓
PKI Certificate Management	Embedded certificate of authority (CA)	Embedded CA plus intermediate and external CA	Embedded CA plus intermediate and external CA
Mixed Editions	✓	✓	✓
Note: * EFS is included for Premium V2 SKUs only			

VeloCloud SD-WAN Bandwidth Tiers

VeloCloud SD-WAN is licensed by bandwidth tier as shown in the table below:

Edge / BW	1G	2G	10G	40G	100G
Edge 4100	✓	✓	✓	✓	✗
Edge 5100	✗	✗	✓	✓	✓

For a complete list of end-of-sale Edge models, please refer to the [Product Lifecycle Updates](#).

Hardware replacement services

- Hardware edges include 1-year warranty, shipped via Return-to-base.
- A-Care Hardware and Software support SKUs available for purchase and run concurrently to the 1 year warranty.

Hardware RMA Support Plans

2-Hour Replacement	A replacement unit is delivered within 2 hours of RMA approval
4-Hour Replacement	A replacement unit is delivered within four hours of RMA approval.
Next Business Day (NBD)	Rapid hardware replacement is delivered by the next business day.
Onsite Services (Add-On)	Available with Next Business Day and 4-Hours service levels

Physical Edge models

VeloCloud SD-WAN Edge appliance models available for sale include the 7x0, 3xx0, 4100, and 5100 series. Flexible deployment options are available, including models with or without integrated Wi-Fi and models certified for sale in China.

- VeloCloud SD-WAN Edges (with integrated Wi-Fi): Please refer to the Physical Edge Specifications table below.
- VeloCloud SD-WAN Edges (without integrated Wi-Fi): These Edges have identical specifications to the integrated Wi-Fi models except they do not have Wi-Fi built in. Please refer to the Physical Edge Specifications table below. These models are denoted by the N suffix in the model's name.
- VeloCloud SD-WAN Edges with China certifications: These Edges have identical specifications to their "non-China" counterparts but include China-specific regulatory certifications and the China version of the TPM module. These are denoted by the C suffix in the model's name.

Physical Edge specifications (performance and scale)

Please note: Software release 6.1 offers optimized performance and improved efficiency. Edges must be on software code R6.1+ to achieve similar performance below.

Features	4100	5100
Max Throughput per Edge with Routed-Mode Ports (1300B) ¹	30 Gb/s	100 Gb/s
Max Throughput per Edge with Routed-Mode Ports (IMIX) ²	12 Gb/s	40 Gb/s
Max Throughput per Edge with Enhanced Firewall Services (App Mix) ³	9.6 Gb/s	
Max Tunnel Scale	12,000	20,000
Flow per Second	50,000	180,000
Max Concurrent Flows	3.8 million	7.5 million
Max Concurrent Flows with Enhanced Firewall Services Enabled		
Max Number of BGP Routes	100,000	100,000
Max Segments	128	128
Maximum NAT Entries	1.9 million	1.9 million

1. Maximum performance of the Edge based on large packet (1300B) payload with AES-128 encryption and DPI turned on

2. Internet traffic (IMIX) performance based on average packet size of 417B payload with AES-128 encryption and DPI turned on. IMIX performance using AES-256 encryption

Note: VeloCloud SD-WAN Edges also support clustering deployments for multi-gigabit performance.

3. Performance numbers with Enhanced Firewall Services measured using TREX setup based on enterprise application mix of TCP and UDP traffic profiles.

Connectivity

Edge	4100	5100
LAN / WAN 1G RJ-45	10	2
LAN / WAN 2.5G RJ-45	No	No
LAN / WAN 1G SFP	No	No
LAN / WAN 1G/10G SFP+	8	8
LAN / WAN 25G SFP28	No	4
LAN / WAN 40G QSFP	No	2
Integrated Wi-Fi	No	No
Integrated 5G/LTE	No	No
USB ports	2 ²	2 ²

1. Support SFP+ 1/10GE modules

2. USB 3.0 ports

Memory and Storage

Edge	4100	5100
System Memory (RAM)	64 GB	128 GB
System Flash	-	32 GB
System Storage	960 GB (SSD)	960 GB (SSD)

Dimension, power, environment, and reliability

Edge	4100	5100
Cooling	Fan	
Mounting	1U rack mount	
Size (W x D x H)	438 mm x 420 mm x 44 mm	438 mm x 43.7 mm x 600 mm
Unit Weight	17 lb	26 lb
Gross Weight	28 lb	37.5 lb
Power supply	Internal: AC	
Redundant power supply	Yes (1+1)	
AC input	Voltage: 100V to 240V auto-ranging, Frequency: 50 Hz to 60 Hz	

Dimension, power, environment, and reliability

Edge	4100	5100
Power load (Typical / Max)	195W/270W	300W/500W
Operating temperature	0°C to 40°C	
Operating humidity	5% to 85%	
Operating altitude	5000m	
Non-operating conditions	-40°C to 70°C	
Non-operating humidity	5% to 95%	
Non-operating altitude	5000m	
MTBF ¹	17.7 years	12.5 years

1. MTBF based on Telcordia SR-332 methodology; excludes system fans in the calculation (25 °C ambient temperature)

Hardware Accessories**Mounting brackets and rails**

Edge Model	Included	Additional Options	Part Number
4100	4-post rail kit	-	-
5100	4-post rail kit	-	-

Power adapters, cables, and guides

Edge	Power Adapter ¹ + Cable	Ethernet Cable	Quick Start Guide
4100	Hot swappable 1+1 integrated power adaptor and 2 cables	-	•
5100	Hot swappable 1+1 integrated power adaptor and 2 cables	-	•

¹ Every Edge comes with a PSU, separate or integrated.

Edge platform and software release matrix

Edge / Software Version	6.1	6.2
4100	•	•
5100	-	•

Edge 4100, 5100 Supported SFP Lists

Supplier	Orderable SKU	Applicable Edges	Speed	Interface Type	Description	Considerations
VarData	VMware-1G-T	4100, 5100	1G	Copper	I. VMware SFP Transceiver II. 1000 Base-T 100m copper RJ45	I. Supports Rx LOS (Loss of Signal), which is required when SFP's are deployed in a pair of Edges using a High Availability topology. II. TAA by request. https://vardata.com/vmware-1g-t
VarData	VMware-1G-SX	4100, 5100	1G	SX	I. VMware SFP Transceiver II. 1000 Base-SX 550m 850nm LC MMF	I. TAA by request. https://vardata.com/vmware-1g-sx
VarData	VMware-1G-LX	4100, 5100	1G	LX	I. VMware SFP Transceiver II. 1000 Base-LX 10km 1310nm LC SM	I. TAA by request. https://vardata.com/vmware-1g-lx
VarData	VMware-10G-SR	4100, 5100	10G	SR	I. VMware SFP+ Transceiver II. 10GBase-SR 300m 850nm LC MMF	I. TAA by request. https://vardata.com/vmware-10g-sr
VarData	VMware-10G-SR-D-TAA	4100, 5100	1G/10G	SR	I. VMware SFP+ Transceiver II. 10GBase-SR 300m 850nm MMF Dual 1G/10G	I. TAA by request. https://vardata.com/vmware-10g-sr-d-taa/
VarData	VMware-10G-LR	4100, 5100	10G	LR	I. VMware SFP+ Transceiver II. 10 Base-LR 10km 1310nm LC SM 10G rate only	I. TAA by request. https://vardata.com/vmware-10g-lr/
VarData	VMware-10G-LR-D-TAA	4100, 5100	1G/10G	LR	I. VMware SFP+ Transceiver II. 10GBase-LR 10km Dual 1G/10G rate	I. TAA Compliant. https://vardata.com/vmware-10g-lr-d-taa/
VarData	VMware-25G-SR	5100	25G	SR	I. VMware SFP28 Transceiver II. 25GBase-SR 400m, 850nm, 25G rate	https://vardata.com/vmware-25g-sr
VarData	VMware-25G-SR-D	5100	10G/25G	SR	I. VMware SFP28 Transceiver II. 25GBase-SR 400m, 850nm, Dual 10G/25G rate	https://vardata.com/vmware-25g-sr-d/
VarData	VMware-25G-LR	5100	25G	LR	I. VMware SFP28 Transceiver II. 25GBase-LR 10km, 1310nm, 25G rate	https://vardata.com/vmware-25g-lr
VarData	VMware-25G-LR-D	5100	10G/25G	LR	I. VMware SFP28 Transceiver II. 25GBase-LR 10km, 1310nm, Dual 10G/25G rate	https://vardata.com/vmware-25g-lr-d/
VarData	VMware-40G-SR4	5100	40G	SR	I. VMware QSFP+ Transceiver II. 40GBase-SR4 150m, 850nm, 40G rate	https://vardata.com/vmware-40g-sr4/
VarData	VMware-40G-LR4	5100	40G	LR	I. VMware QSFP+ Transceiver II. 40GBase-LR4 10km, 1310nm, 40G rate	https://vardata.com/vmware-40g-lr4/

Regulatory and compliance certifications

Software Licenses	Product Description
EMC	FCC (US) CE (Europe) R-Mark (Japan) SRRC (China) KCC (Korea) NCC (Taiwan) ICES-003 EN 55022 CISPR 22 AS/NZS 3548 VCCI CNS 13438 EN 300-386 EN 61000 (Immunity) EN 55024 CISPR 24 EN 50082-1 CISPR 35 (Edge 510/510-LTE/6x0/3x00 Only) EN 55035 (Edge 510/510-LTE/6x0/3x00 Only)
Safety	UL 60950-1 UL 62368-1 CAN/CSA C22.2 EN 60950-1 EN 62368-1 AS/NZS 60950-1 AS/NZS-62368-1 IEC 60950-1 IEC 62368-1 GB-4943 (CCC)
RoHS	Compliant

Warranty

The Arista VeloCloud SD-WAN Edges 4100, 5100 come with a one-year limited hardware warranty, which covers parts, repair, or replacement with a 10 business day turn-around after the unit is received.

Service and Support

Support services including next business day and 4-hour advance hardware replacement are available. For service depot locations, please see: <http://www.arista.com/en/service>

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