

CloudVision Highlights

Cloud Automation for Everyone

Arista EOS CloudVision simplifies complex time and resource intensive tasks in a turnkey software solution designed to help customers move to a more automated, cloud-like infrastructure.

A Network-Wide Service

NetDB® is a state-based, cloud-hosted, network-wide database that collects real-time data streamed from wired and wireless devices for cognitive analytics. This time-series data is anonymized and stored in a multi-tenant, cloud-native Kubernetes cluster architecture for real-time and historical services.

Network Telemetry & Analytics

CloudVision brings a modern approach to network telemetry and a replacement for legacy polling mechanisms. CloudVision Analytics engines take full advantage of the state streaming infrastructure of EOS and NetDB to give Arista customers an unprecedented level of visibility with a time-series view of the entire network, across data center, campus, and public clouds.

Workflow Automation

Workflow monitoring and provisioning is controlled centrally with pre-integrated tool sets for provisioning, change management, network-wide upgrades & rollback, and compliance management.

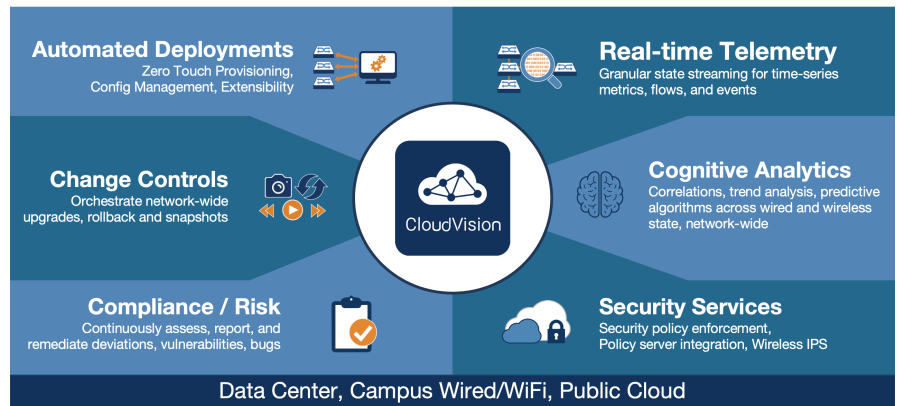
Complements the Cloud

CloudVision is Arista's API gateway for physical network integration with third party services. This includes integration with network overlay controllers such as VMware NSX™, DevOps platforms and network services solutions such as Palo Alto Networks, ServiceNow and others. Using JSON-based REST and gRPC-based streaming APIs, CloudVision helps to both simplify and scale this integration through an abstracted network view and a single point of integration.

Overview

Arista has pioneered the cloud networking movement with its software driven approach, built on cloud principles with consistent, reliable software offering, open standards-based designs, and native programmability. CloudVision® extends the same architectural approach of simplification through software consistency as a multi-domain management plane for automating the entire network, across private, public and hybrid clouds as well as wired and wireless campus. CloudVision enables enterprises to gain the benefits of cloud-class automation and telemetry via a turnkey software package. CloudVision is a network-wide approach for cloud networking, including software suite of capabilities for automated provisioning, compliance, telemetry, analytics and orchestration.

CloudVision: Multi-Function NetOps Platform



With CloudVision, the physical network continues to operate in a familiar model, following the Universal Cloud Network design principles. The well-known control and data plane features continue to be distributed in each physical device. The same command-line (CLI) and APIs are available to the operator.

However, CloudVision enhances the traditional operational model with a centralized network database, NetDB, that leverages real-time state-streaming to collect an aggregate view of the physical network state. NetDB is built on a cloud-native architecture leveraging scale-out technologies such as Kubernetes and Hadoop and serves as a basis for cognitive analytics. With NetDB, CloudVision becomes the point of abstraction of and interface to the physical network enabling enterprise-grade network-wide automation, time-series visibility with state streaming analytics, and 3rd party integrations from a central perspective.

CloudVision can be deployed as a traditional on-premises virtual or physical appliance, or can be consumed as a SaaS-based service, for both wired and wireless. CloudVision as-a-Service is a fully Arista managed software service that runs in the cloud and provides the same functionality as the on-prem offering. The cloud service takes full advantage of CloudVision's cloud-native architecture helping customers achieve faster time-to-value, elastic scaling, and continuous network assurance with a connected support experience in a secure environment.

CloudVision provides the following features and benefits:

State Streaming Telemetry. Traditional polling mechanisms such as SNMP do not provide the fine grain visibility required in today's cloud data center networks. They are limited in scope and lack the data granularity required to monitor networks at cloud scale. CloudVision Telemetry provides real-time streaming of state from network devices for analytics at a network-wide scope. This provides visibility for both live monitoring and historic forensic troubleshooting. In addition, Cloud Tracer™ provides visibility into the reachability of networks and services across private, public, and hybrid cloud environments.

Time Series View of the Network. Just as EOS leverages a central state database on each individual switch, CloudVision provides a network-wide state database for real-time network state in one consolidated location with historical state for forensic troubleshooting. This foundation provides operational efficiency gains by moving from a manual box-by-box approach to an automated network-wide operational model.

Analytics. Get notified about network events with correlated metrics or before a network event with predictive analytics. The analytics engine in CloudVision leverages big data analytics and machine learning to provide root cause analysis with metric correlation and to prevent network outages with anomaly detection and predictive events that can alert users well before the event.

Topology View. Visualize the network topology in a way that aligns with the network design. CloudVision's Topology View provides an intuitive approach to mapping the network topology not just based on LLDP neighbors but also backend analytics and heuristics that automatically calculate device type, neighbor relationships and common layouts. Identify common network hotspots such as congestion, traffic imbalance by visualizing metrics in Topology View. Visualize the network path for traffic flows on your topology diagram with the ability to identify problems in the path with link and device level events.

Network-Wide Search. Search the network wide database for network elements such as MAC address and IP address. The search functionality provides visibility into historical changes for these network elements thereby reducing time to root cause. The search result is enhanced with correlated metrics for associated Layer2 or Layer3 interfaces.

Device Analyzer. Gain visibility into traffic patterns in the network with real-time streaming of flow records visualized in time series graphs and heat maps for improved capacity planning. Inventory of all connected IP endpoints with traffic analytics for security baseline, trend analysis and anomaly detection.

Automated Provisioning. For initial deployments through ongoing configuration changes, CloudVision reduces the time to deploy network changes and the likelihood of human-induced errors. Configuration Studios along with configlets

and configlet builders simplify the deployment of Arista validated network designs with built-in, point and click, guided workflows for configuration and image management. Abstraction of the configuration syntax supports multi-domain operators with varying skillsets to deploy, customize or create advanced workflows with a low-code, template based approach.

Change Control. Automate network maintenance with a coordinated and controlled approach for rolling out changes while maintaining a documented audit trail and ensuring minimal network downtime. Review and approval stages allow peer review of changes or integration with IT operations management systems like ServiceNow and Remedy. Leverage underlying EOS features like SSU maintenance mode and leaf SSU combined into an automated workflow for performing software image upgrades across a group of devices. Let CloudVision visually present a summarized view of the network state differences, giving the operator the ability to quickly assess and diagnose network inconsistencies across change controls

Compliance Dashboard. To improve operational security, CloudVision provides visibility compliance to configuration and image standards. The dashboard also provides a real-time assessment of exposure to known software defects and PSIRT issues that affect the install base, thereby allowing users to make informed decisions on software upgrade across the network.

Controller Integration. A simplified approach for integration with third party overlay controllers is essential in today's combined physical and virtual world. CloudVision supports a variety of overlay and orchestration controllers, including VMware NSX™, OpenStack, and any other OVSD-based controllers and aggregates the network to provide a single point of integration to these controllers. This gives customers the flexibility of choice in their orchestration and overlay approach and helps scale the performance of the controller.

Hardware and Software Abstraction. Does the northbound controller integrate with the new hardware platform? Or new switching feature? Which software version is certified with a northbound controller? A third party controller can be certified to work against CloudVision and not be as dependent on the hardware or software versions running in the actual network.

Macro-Segmentation™ Services (MSS). CloudVision is a central point for services integration to the physical network through the MSS framework. With MSS, network services like security policy can be dynamically instantiated in the network in an open approach and without changing operational or administrative security models.

Open API Integration. RESTful APIs for all CloudVision functionality that can be used for scripting as well as integration with other management platforms and workflow tools.

CloudVision Solution

The CloudVision solution is comprised of three components: CloudVision eXchange, CloudVision Portal and CloudVision Wifi. These components provide the platform for both orchestration and automation for wired and wireless networks as follows:

CloudVision eXchange is a EOS-based network-wide multi-function control point providing a single access point for real-time provisioning, orchestration and integration with third party controllers and services.

CloudVision Portal is a web platform and associated historical database built to automate the workflows for a variety of network provisioning, change management, and monitoring tasks.

CloudVision Wifi is a centralized management plane that simplifies policy management, provisioning and troubleshooting of WiFi networks while delivering richer telemetry to network administrators. For more details, consult the [CloudVision Wifi Datasheet](#).

CloudVision eXchange Features

The following table summarizes the main features of Arista's CloudVision eXchange. For more information about the availability of these features by release please refer to <http://www.arista.com/en/products/eos/eos-cloudvision>

Feature	Description
Base Infrastructure	Runs in an EOS VM as a virtual appliance Single node Deployment (Lab use only) Three node cluster with high availability for production deployments Graceful reboot EOS operating environment (CLI, APIs, management features, etc.)
VXLAN and EVPN Services	VXLAN Control Services (VCS) for dynamic control plane learning of VXLAN mapping information CloudVision eXchange Federation across multiple Data Centers using BGP-EVPN
APIs	EOS command line eAPI for EOS
Open Virtual Switch Database (OVSDB) Services	Layer 2 hardware VTEP integration for synchronizing network topology information, MAC to VXLAN endpoints, and VXLAN ID bindings with overlay controllers. Layer 3 hardware VTEP integration for logical routing functionality in VxLAN overlay networks.
OpenStack Services	Integration with OpenStack via ML2 driver plugin for provisioning of network services (VLAN, VXLAN, etc) for VMs and with OpenStack Ironic to extend network provisioning to bare-metal servers
Macro-Segmentation Services	Dynamically instantiate network services policy in the physical network by integrating with the firewall. Palo Alto and Fortinet, Checkpoint*
Partner Integration	Container Tracer support for Docker and Kubernetes based containerized environments Official support for VMware NSX and OpenStack integration. Other technology partner integration details available upon request.

* Indicates features planned for a future release.

CloudVision Portal Features

The following table summarizes the main features of Arista's CloudVision Portal. For more information about the availability of these features by release please refer to <http://www.arista.com/en/products/eos/eos-cloudvision>

Feature	Description
User Security	AAA Local Authentication and Role-based Authorization TACACS / RADIUS Authentication and Role-based Authorization RBAC - Custom role definition for authorization One-time password/Multi-factor Authentication Single sign on integration with OAUTH Providers (Microsoft, Google, Okta, OneLogin, Custom) and SAML Providers (Launchpad, Okta, OneLogin, Custom)
APIs	JSON-based REST and streaming APIs (gRPC)
Network Provisioning - Discovery	Device inventory Automatic device provisioning via Zero Touch Provisioning (ZTP) for EOS and CloudEOS devices Per device logs of all actions taken by the portal Zero Touch Replacement (ZTR) Cloud-based ZTP as-a-Service**
Network Provisioning - Images	Repository for Images and Extensions Assign image bundles for initial provisioning across device groups
Network Provisioning - Configuration	Switch configuration management via Studios and configlets Built-in guided workflows to provision Arista validated network designs and manage ongoing configuration changes Flexibility to customize built-in workflows or create new and advanced workflows Configlet Builder for config templating and scripting Build, validate and review configuration differences of proposed and running configuration for devices Config reconcile for source of truth management
Compliance	Configuration and Image compliance for managed devices Bug exposure assessment for managed devices based on operational state of devices PSIRT assessment for managed devices for security compliance
Change Control	Automatic task creation that must be explicitly run by the user Automated ongoing device configuration change management Flexible change control workflow for task execution with support for snapshots and user defined actions. Review and approve stage to authorize changes with support for Role based access control Automated software upgrades across groups of devices leveraging BGP Maintenance mode and MLAG health checks for hitless upgrades Change Control Templates to automate repeatable operational run books Network-wide Rollback
Telemetry Views	Real-time state streaming from devices Backend state repository and analytics engine Comparison application for easy comparison of state across devices and historic timeline Real-time analytics for event detection and notification CloudTracer for endpoint reachability monitoring across private, public, and hybrid cloud environments Topology Views, with Metric Layers, visibility for VLAN/VxLAN segments Custom dashboards to monitor metrics network wide with built-in widgets for traffic flows, Top K interface graphs and more Flow visibility with sFlow and IPFIX flow records from devices with trend analysis and path visibility in Topology View Inband Network Telemetry based hop-by-hop latency for flow records (on supported EOS platforms) in Topology View Endpoint Inventory for all connected IP endpoints Network-wide search for MAC address and IP address
Partner Integration	Official support for ServiceNow, Remedy, Forescout and Ansible integration. Other technology partner integration details available upon request.


** Applicable to CloudVision as-a-Service offering only

CloudVision Deployment Models:

The following describes the deployment models for CloudVision Portal:

CloudVision as-a-Service	Description
Connectivity Requirements	IP connectivity to www.arista.io (port 443) / apiserver.arista.io (port 443)
Protocols	Browser over HTTPS. gRPC for device connectivity.
Supported SSO Providers	OAuth (Microsoft, Google, Okta, OneLogin, Custom) SAML (Launchpad, Okta, OneLogin, Custom)

CloudVision Virtual Appliance	Description
Hardware Platform Requirements	Please consult the CloudVision Configuration Guide for the latest hardware platform requirements. A 3-node cluster is recommended for production deployments.
Hypervisor Requirements	VMware ESX Linux KVM For supported Hypervisor versions, please refer to the software release notes.
Protocols	Browser over HTTPS. Admin access over SSH, SCP. NTP for time synchronization between nodes. gRPC for device connectivity.
Software Version Requirements	CloudVision eXchange and CloudVision Portal are deployed as virtual machines on supported hypervisors. For software recommendations, please refer to the software release notes.

CloudVision Physical Appliance	Description
Physical Appliance Platform Specifications for DCA-250-CV 	CPUs: Two Intel Xeon 10 Core, 2.2 GHz CPUs DRAM: 64 GB (Two 32GB RDIMM) Hard Drives: Four 2TB SSD Drives (5TB effective) Network Interfaces: Four port 1Gb Ethernet (RJ-45), Dedicated 1Gb IPMI port Power Supply: Dual, Hot-plug, Redundant Power Supplies (1+1), 550W Power Cord: C13 to C14, PDU Style, 12A, 2 Feet (North America) Dimensions (HxWxD): 1.68"x17"x25.87" (4.26cm x 43.38cm x 65.70cm) Weight: 38.9 lbs (17.64 kg) Remote management: iDRAC9 Enterprise controller
Physical Appliance Software Version Requirements	DCA-250-CV ships with supported software releases for CloudVision eXchange Server, CloudVision Portal Server and CloudVision Wifi with Mobile Wireless Manager. For recommended releases, please refer to the Recommended Releases page .

CloudVision Ordering Information

CloudVision is available as a software subscription via the following feature set offerings:

- A CloudVision license (SKUs starting with 'SS-CV') which includes all available CloudVision functionality.
- A CloudVision Lite license (SKUs starting with 'SS-CV-LT') which includes a subset of CloudVision functionality.
- A CloudVision license (SKUs starting with 'SS-CVS') is for CloudVision as-a-Service, and includes all available functionality.
- A CloudVision Lite license (SKUs starting with 'SS-CVS-LT') is for CloudVision as-a-Service and includes a subset of functionality.

CloudVision Lite	CloudVision
<ul style="list-style-type: none"> • Provisioning: Zero Touch Provisioning(ZTP), Config/Image Management, CloudVision Studios, Change Controls • Inventory: Device Inventory, Endpoint inventory, Base Topology View • General: Base APIs, State Streaming, User Controls, EOS/CloudEOS (basic provisioning) 	<ul style="list-style-type: none"> • All CloudVision Lite Features • Telemetry: Device Views, Metrics, Topology Views, Topology Overlays, Snapshots, Diff Views • Compliance Checking, Dashboard, Bug Visibility • Advanced: Search, Notifications, Partner Integrations, V2 (for 10G+ platforms) and Z licensed features • Analytics: Events, Device Analyzer, Flow/INT • Use-cases: Wired + Wireless, CloudEOS Terraform Provider

Product Number	On-Premises SKU Options
SS-CV-SWITCH-1M	CloudVision SW Subscription License for 1-Month for 1 Switch. 10G+ Platforms. Includes Z, V2 Features.
SS-CV-G-SWITCH-1M	CloudVision SW Subscription License for 1-Month for 1 Switch. 1G Platforms. Includes Z.
SS-CV-MOD-G-SWITCH-1M	CloudVision SW Subscription License for 1-Month for 1 Switch. Arista 5 and 8 slot Modular 1G/mG Ethernet Switches
SS-CV-LT-SWITCH-1M	CloudVision Lite SW Subscription License for 1-Month for 1 Switch. 10G+ Platforms
SS-CV-LT-G-SWITCH-1M	CloudVision Lite SW Subscription License for 1-Month for 1 Switch. 1G Platforms.
SS-CV-LT-MOD-G-SWITCH-1M	CloudVision Lite SW Subscription License for 1-Month for 1 Switch. Arista 5 and 8 slot Modular 1G/mG Ethernet Switches
SS-CV-SWITCH-LAB-1M	Lab Use Only: CloudVision SW Subscription License for 1-month for up to 10 Switches
DCA-250-CV	1 unit CloudVision Physical Appliance, Model 250 (Includes CVX , CVP Server and CV Wifi with MWM). No CV device licenses.
SVC-DCA-250-CV-NBD	1 Month A-Care Software & NBD Hardware Replacement/Same Day Ship for DCA-CV-250 Appliance

Product Number	Cloud Service SKU Options
SS-CVS-SWITCH-1M	CloudVision as-a-Service Subscription Lic for 1-Month for 1 Switch. 10G+ Platforms. Includes Z, V2 Features. Electronic Delivery Only.
SS-CVS-G-SWITCH-1M	CloudVision as-a-Service Subscription Lic for 1-Month for 1 Switch. 1G/mG Platforms. Electronic Delivery Only.
SS-CVS-MOD-G-SWITCH-1M	CloudVision as-a-Service Subscription Lic for 1-Month for 1 Switch. Arista 5 and 8 slot Modular 1G/mG Ethernet Switches. Electronic Delivery Only
SS-CVS-LT-SWITCH-1M	CloudVision as-a-Service Lite Subscription Lic for 1-Month for 1 Switch. 10G+ Platforms. Includes Z, V2 Features. Electronic Delivery Only.
SS-CVS-LT-G-SWITCH-1M	CloudVision as-a-Service Lite Subscription Lic for 1-Month for 1 Switch. 1G/mG Platforms. Electronic Delivery Only.
SS-CVS-LT-MOD-G-SWITCH-1M	CloudVision as-a-Service Lite Subscription Lic for 1-Month for 1 Switch. Arista 5 and 8 slot Modular 1G/mG Ethernet Switches. Electronic Delivery Only
SS-CVS-SWITCH-LAB-1M	Lab Use Only: CloudVision as-a-Service Subscription License for 1-month for up to 10 Switches. Any platform. Electronic Delivery Only

Service and Support

Software support for CloudVision Virtual Appliance is included in the CloudVision software subscription license. Hardware support for the CloudVision Physical Appliance requires a corresponding A-Care service contract. Support for each EOS device managed by CloudVision is covered by standard A-Care offerings for each particular device. For more details on A-Care service offerings across all Arista products, see: <http://www.arista.com/en/service>

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ARISTA

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