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.

EOS as a Network-Wide Service

CloudVision is built on the same open standards-based and fully programmable Arista EOS. With CloudVision, the EOS state database model is expanded to a network-wide view with NetDB. This central database abstracts the physical network to enable simpler network-wide automation and visibility.

Complements the Cloud

CloudVision is Arista's platform for physical network integration with third party services. This includes integration with cloud orchestration platforms such as OpenStack, network overlay controllers such as VMware NSX™ , and network services solutions such as Palo Alto Networks, F5, or ServiceNow. Using open, standards-based APIs such as OVSDB and JSON, CloudVision helps to both simplify and scale this integration through an abstracted network view and a single point of integration.

Workflow Automation

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

Network Telemetry

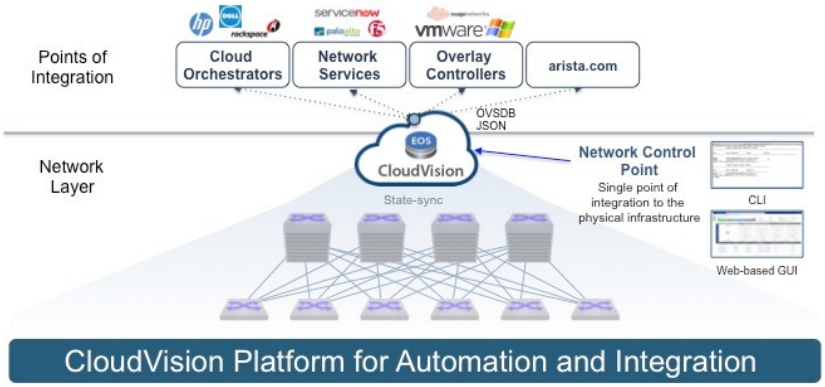
CloudVision brings a modern approach to network telemetry and a replacement for legacy polling mechanisms. CloudVision Analytics engines and CloudVision Telemetry Apps take full advantage of the state streaming infrastructure of EOS and NetDB to give Arista customers an unprecedented level of visibility into their network operations.

Overview

Arista has pioneered the networking industry with its software defined cloud networking approach, built on the programmable interfaces, publish-subscribe state separation, resilient fault containment, and self-healing attributes of Arista EOS®. CloudVision extends the same architectural approach of EOS across the network for state, provisioning, change management, and network telemetry. This enables enterprises to move to cloud-class automation without needing any significant internal development. CloudVision is a network-wide approach for workload orchestration and workflow automation delivering a turnkey solution for cloud networking.

The CloudVision platform is a software suite of services that deliver further operational simplification of the Arista physical infrastructure. The CloudVision services fall into three primary functional areas:

- Extending EOS to a network-wide service, leveraging NetDB to provide a single network-wide database for aggregating and accessing state.
- A single network control point for physical network integration with third party controllers, orchestration solutions, security services, as well as other network services.
- A workflow automation solution designed to help customers adopt network automation via pre-built workflow models for a variety of on-going network provisioning and network telemetry use cases.



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 API's are available to the operator. However, CloudVision enhances the traditional operational model with a central instance of virtual EOS that provides an aggregate view of the physical network. This instance provides both a centralized network database, as well as a web-based portal for network-wide automation and real time visibility with state streaming analytics.

CloudVision provides the following features and benefits:

Centralized 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. This foundation provides operational efficiency gains by moving from a manual box-by-box approach to an automated network-wide operational model.

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 OVSDB-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 the single point of integration helps scale the performance of the controller for network topology changes in a virtual environment.

Topology Abstraction. The details of the physical network topology include platform, configuration, and protocol nuances across the topology. Third party solutions often need additional software integration work to account for these details. And even subtle changes to the topology can affect the controller operation. CloudVision is an abstraction layer that simplifies the integration with controllers and third party tools, allowing them to ignore the nuanced details of the network and then focus on the things they do best.

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. So the controller interoperability and operations remain the same even after the network is upgraded.

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.

Simple and Scalable VXLAN. CloudVision's VXLAN Control Service (VCS) is a plug-and-play approach for aggregating network-wide VXLAN state for efficient control plane learning as well as integration with network overlay controllers.

State Streaming Telemetry. Traditional polling mechanisms such as SNMP do not provide the fine grain visibility required in today's cloud datacenter networks. They are limited in scope and lack the data analytics required to monitor networks at cloud scale. CloudVision Telemetry provides real-time streaming of state from devices for analytics at a network-wide scope. This provides visibility for both live monitoring and historic forensic troubleshooting.

Automated Provisioning. For initial deployments through ongoing configuration changes, CloudVision reduces the time to deploy network changes and the likelihood of human-induced errors. Simple to use 'Configlets' provide config modularity and consistent re-use across devices. A GUI-based ZTP server is included for automated deployments as well as zero touch device replacement and a ConfigletBuilder provides a flexible method for customizing configurations.

Snapshot Views for Change Management. Stop manually comparing network state device-by-device via the CLI. 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.

Smart System Upgrade (SSU) with a Network-Wide Scope. 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. This automation helps to simplify the common and manual operational task of a software upgrade, ultimately reducing the time needed for a maintenance window.

Network Rollback. On occasion, the operator might need to quickly restore the network to a previously known state. A manual, device by device rollback can be time-consuming and error prone. CloudVision addresses this with an automated framework to rollback the network configuration and software versions to a previous point in time.

Compliance Dashboard. To improve operational security, CloudVision provides visibility of device and container level compliance to both configuration and image standards.

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.

News Resources via Arista.com. Security vulnerability alerts, visibility end of sale and end of life notices as well as field notices can be delivered from arista.com through the portal allowing customers a single resource for reviewing Arista notifications.

CloudVision Solution

The CloudVision solution is comprised of two components: the CloudVision eXchange and the CloudVision Portal. These two components work in conjunction to provide the platform for both orchestration and automation 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 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 a VM as a virtual appliance Single node Deployment (Lab use only) Graceful reboot 3-Node cluster for high availability EOS operating environment (CLI, APIs, management features, etc.)
Topology Discovery	Ability to build a physical connectivity map of the network
VXLAN Services	VXLAN Control Services (VCS) for dynamic control plane learning of VXLAN mapping information
API's	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 to support logical routing functionality in VxLAN overlay networks.
OpenStack Services	Integration with OpenStack via ML2 driver plugin for provisioning of network services (VLAN, VXLAN, etc)
Macro-Segmentation Services *	Dynamically instantiate network services policy in the physical network by integrating with the firewall.
Bug Visibility	Ability to alert users on known software defects that affect network devices based on a published set of data. Alerts are updated dynamically based on operational state of the network.
Partner Integration	Official support for VMware NSX, Nuage, 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
Base Infrastructure	Runs in a VM as a virtual appliance Single node deployment (Lab use only) 3-node cluster for high availability
User Security	AAA Local Authentication AAA Role-based Authorization TACACS / RADIUS Authentication TACACS / RADIUS Role-based Authorization RBAC - Custom role definition for authorization
API's	JSON-based REST APIs for the portal functionality
Network Provisioning - Discovery	Device inventory Manual device discovery Automatic device discovery via Zero Touch Provisioning (ZTP) Per device logs of all actions taken by the portal Zero Touch Replacement (ZTR) Device connectivity status (up/down)
Network Provisioning - Images	Image repository Extension repository Assign image bundles for initial provisioning at the device and container level
Network Provisioning - Configuration	Switch configuration management via configlets (device and container level) Static configlet definition Configlet validation View differences of device proposed vs running configuration Change history tracking of configlets Device config compliance checking Container-level compliance checking and Config Auto-reconcile Configlet Builder for config templating and scripting
Labels	Define and apply custom labels View device labels from the network provisioning page Filter network provisioning view based on device labels
Tap Aggregation	Integration of the Tap Aggregation GUI tool
Task Management	Task management pane with all pending and completed tasks Automatic task creation that must be explicitly run by the user View the logs associated with a given task
Change Management	Single-device software upgrades Snapshots Task scheduling Automated ongoing device configuration change management Automated detection and rollback of invalid configuration changes Network-wide Smart System Upgrade (SSU) * Network-wide Rollback
Telemetry	Real-time state streaming from devices Backend state repository and analytics engine Workstream Analytics Viewer*
Partner Integration	Official support for ServiceNow integration. Other technology partner integration details available upon request.

* Indicates features planned for a future release.

CloudVision System Requirements:

The following describes the requirements for the hardware on which CloudVision is installed.

CloudVision Virtual Appliance	Description
Hardware Platform Requirements	The installation of both the CloudVision eXchange and Portal should be on a single system with the following system requirements for each VM: **CloudVision eXchange:** • CPU: 4 cores (base), 8 cores (recommended) • RAM: 4G (base), 8G (recommended) • Disk: 4G **CloudVision Portal:** • CPU: 8 cores (base), 16 cores (recommended) • RAM: 16G (base), 32G (recommended) • Disk: 100G (base), 1TB (recommended) CloudVision Portal Telelmetry & Analytics requires a platform with resources at the recommended level.
Hypervisor Requirements	VMware ESX 5.5 and above RedHat Enterprise Linux 6.5-7.0 and above
Client Requirements	CloudVision Portal is supported with the following web browsers: • Google Chrome (Version 44+) • Mozilla Firefox (version 39+)
Protocols	HTTP, HTTPS, SSH, SCP, NTP
Software Version Requirements	**CloudVision Deployments:** • EOS switches: minimum EOS version 4.15.2F or above • Recommended EOS versions: 4.16.10M, 4.17.3F, 4.18.0F or above • CloudVision eXchange: minimum EOS version 4.15.2F or above. • CloudVision Portal: minimum version 2016.1.2.3 or above. **CloudVision Lite Deployments:** • EOS switches: minimum EOS version 4.15.2F or above • CloudVision eXchange: minimum EOS version 4.15.2F or above.

CloudVision Physical Appliance	Description
Physical Appliance Platform Specifications for DCA-CV-100 	CPUs: Two Intel Xeon 8 Core, 2.4 GHz CPUs DRAM: 32 GB (Eight 4GB RDIMM) Hard Drives: Two 2TB Hot Plug Hard Drives Network Interfaces: Four port 1Gb Ethernet LOM (RJ-45) 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): 1.75"x19"x24" (4.45cm x 48.26cm x 60.96cm) Weight: 46.5 lbs (21.1 kg) Remote management: iDRAC controller (with web UI) and IPMI
Physical Appliance Software Version Requirements	DCA-CV-100 includes CloudVision eXchange Server and CloudVision Portal Server. Minimum Software Versions: • CloudVision eXchange Server 4.15.5M or above • CloudVision Portal Server 2016.1.0 or above

CloudVision Ordering Information

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

- A CloudVision license (SKU's starting with 'SS-CV') which includes all available CloudVision functionality.
- A CloudVision Lite license (SKU starting with 'SS-CV-LT') which includes a subset of CloudVision functionality.

CloudVision Lite	CloudVision
All EOS Virtualization (V-) Licensed Features (V) All EOS Automation (Z-) Licensed Features (Z) Openstack Services VXLAN Control Service (VCS) OVSDB Services Overlay Controller Integration	All EOS Virtualization (V-) Licensed Features All EOS Automation (Z-) Licensed Features Openstack Services VXLAN Control Service (VCS) OVSDB Services Overlay Controller Integration Bug Visibility
	All CloudVision eXchange Features All CloudVision Portal Features

Product Number	
CloudVision Software License SKUs	**Scope**
SS-CV-SWITCH-1M	Per Device (1 unit) per 1 month
SS-CV-S150-1M	Up to 150 switches per 1 month
SS-CV-S500-1M	Up to 500 switches per 1 month
SS-CV-ENT-1M	Enterprise (unlimited # of switches) per 1 month
CloudVision Lite Software License SKUs	**Scope**
SS-CV-LT-SWITCH-1M	Per Device (1 unit) per 1 month (Applicable to Fixed switches only)
CloudVision Physical Appliance SKUs	**Scope**
DCA-CV-100	1 unit CloudVision Physical Appliance, Model 100 (Includes CVX & CVP Server). No CV device licenses.

Service and Support

Arista A-Care service offerings are available to provide you with world-class support when you need it. A-Care service offerings provide coverage for all Arista products including CloudVision. For more details see: http://www.arista.com/en/service

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