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, or ServiceNow. Using JSON based REST and streaming APIs, 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 with a state-based view of the entire network, across private, public and hybrid clouds.

Overview

Arista has pioneered the networking industry with its software driven 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 across the network with a state-based view of the entire network, across private, public and hybrid clouds as well as wired and wireless campus. 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.
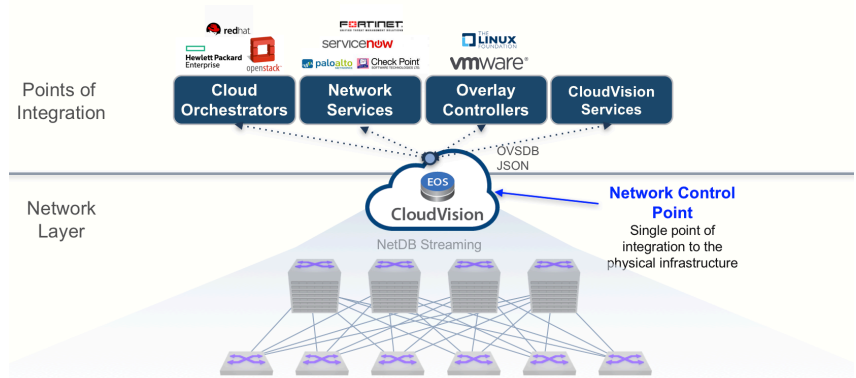
Arista CloudVision

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 that provides an aggregate view of the physical network. This network wide database is leveraged for integrations as well as 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 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. The ability to map metrics on network topology allows users to monitor and identify problems at a network wide level and drill down to a device level for further troubleshooting.

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.

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 network devices for analytics at a network-wide scope. This provides visibility for both live monitoring and historic forensic troubleshooting. In addition, CloudTracer™ provides visibility into the availability of network interconnects and services across private, public, and hybrid cloud environments

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 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.

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 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.)
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.
Bug Visibility	Ability to alert users on known software defects that affect network devices based on operational state of network. Also available in CloudVision Portal.
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.

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 One-time password/Multi-factor Authentication
APIs	JSON-based REST and streaming APIs
Network Provisioning - Discovery	Device inventory Manual device discovery Automatic device provisioning via Zero Touch Provisioning (ZTP) for EOS and vEOS devices Per device logs of all actions taken by the portal Zero Touch Replacement (ZTR)
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 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	Tap Aggregation multi-switch GUI for managing Tap Aggregation fabrics
Compliance Dashboard	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 Management	Automatic task creation that must be explicitly run by the user Automated software upgrades across groups of devices Continuous Snapshots Task Management and Task scheduling Automated ongoing device configuration change management Network-wide Smart System Upgrade (SSU) * Network-wide Rollback
Telemetry	Real-time state streaming from devices Backend state repository and analytics engine 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
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	Please consult the CloudVision Configuration Guide for the latest hardware platform requirements.
Hypervisor Requirements	VMware ESX Linux KVM
Protocols	HTTP, HTTPS, SSH, SCP, NTP, gRPC
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-200-CV	CPUs:	Two Intel Xeon 10 Core, 2.2 GHz CPUs
	DRAM:	64 GB (Two 32GB RDIMM)
	Hard Drives:	Four 2TB SATA Hard Drives
	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-200-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 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
• Provisioning: Zero Touch Provisioning(ZTP), Config/Image Management, Change Controls • Inventory: Device Inventory, Endpoint inventory, Base Topology View • General: Base APIs, State Streaming, User Controls, EOS/vEOS/cEOS	• 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 and Z licensed features • Analytics: Events, Device Analyzer, Flow/INT • Use-cases: Wired + Wireless, TapAgg Multi-switch

Product Number	Scope
SS-CV-SWITCH-1M	CloudVision SW Subscription License for 1-Month for 1 Switch. 10G+ Platforms. Includes Z, V2.
SS-CV-T1-1M	CloudVision SW Subscription License for 1-Month for 150 to 499 device count. 10G+ Platforms
SS-CV-T2-1M	CloudVision SW Subscription License for 1-Month for 500 to 1000 device count. 10G+ Platforms
SS-CV-EN-1M	CloudVision SW Subscription Enterprise License for 1-Month (Unlimited device count). 10G+ Platforms
SS-CV-LT-SWITCH-1M	CloudVision Lite SW Subscription License for 1-Month for 1 Switch. 10G+ Platforms
SS-CV-LT-T1-1M	CloudVision Lite SW Subscription License for 1-Month for 150 to 499 device count. 10G+ Platforms
SS-CV-LT-T2-1M	CloudVision Lite SW Subscription License for 1-Month for 500 to 1000 device count. 10G+ Platforms
SS-CV-LT-EN-1M	CloudVision Lite SW Subscription Enterprise License for 1-Month (Unlimited device count). 10G+ Platforms
SS-CV-G-SWITCH-1M	CloudVision SW Subscription License for 1-Month for 1 Switch. 1G Platforms. Includes Z
SS-CV-G-T1-1M	CloudVision SW Subscription License for 1-Month for 150 to 499 device count. 1G Platforms
SS-CV-G-T2-1M	CloudVision SW Subscription License for 1-Month for 500 to 1000 device count. 1G Platforms
SS-CV-G-EN-1M	CloudVision SW Subscription Enterprise License for 1-Month (Unlimited device count). 1G Platforms
SS-CV-LT-G-SWITCH-1M	CloudVision Lite SW Subscription License for 1-Month for 1 Switch. 1G Platforms
SS-CV-LT-G-T1-1M	CloudVision Lite SW Subscription License for 1-Month for 150 to 499 device count. 1G Platforms
SS-CV-LT-G-T2-1M	CloudVision Lite SW Subscription License for 1-Month for 500 to 1000 device count. 1G Platforms
SS-CV-LT-G-EN-1M	CloudVision Lite SW Subscription Enterprise License for 1-Month (Unlimited device count). 1G Platforms
SS-CV-SWITCH-LAB-1M	Lab Use Only: SW Subscription License for 1-month for up to 10 switches
DCA-200-CV	1 unit CloudVision Physical Appliance, Model 200 (Includes CVX , CVP Server and CV Wifi with MWM). No CV device licenses.
SVC-DCA-200-CV-NBD	1 Month A-Care Software & NBD Hardware Replacement/Same Day Ship for DCA-CV Appliance

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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