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:

- Telemetry and Analytics, based on this native state-streaming for real-time and historical visibility into network state
- Automated Provisioning and change control workflows for cloud-like network operations
- Orchestration, as a single point for integration with both 3rd party ecosystem partners as well as native APIs for customer extensibility options.

CloudVision: Multi-Function 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 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:

**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.

**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.

**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.

**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. 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.

**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.

**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.

**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 OVSDN-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 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](http://www.arista.com/en/products/eos/eos-cloudvision)

<table>
<thead>
<tr>
<th>Feature</th>
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| **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. 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. |
## 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](http://www.arista.com/en/products/eos/eos-cloudvision)

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| **Base Infrastructure**              | Run in a VM as a virtual appliance  
Single node deployment (Lab use only)  
3-node cluster for high availability                                                                                                             |
| **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                                                                                                   |
| **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**    | Repository for Images and Extensions  
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                                                                                       |
| **Tags**                             | Define and apply custom tags  
View device tags                                                                                                                                 |
| **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  
Flow visibility with sFlow and IPFIX* flow records from devices with trend analysis  
Endpoint Inventory for all connected IP endpoints  
Network-wide search for MAC address and IP address*                                                                                         |
| **Partner Integration**              | Official support for ServiceNow and Ansible 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.

<table>
<thead>
<tr>
<th>CloudVision Virtual Appliance</th>
<th>Description</th>
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<tbody>
<tr>
<td>Hardware Platform Requirements</td>
<td>Please consult the CloudVision Configuration Guide for the latest hardware platform requirements.</td>
</tr>
<tr>
<td>Hypervisor Requirements</td>
<td>VMware ESX, Linux KVM. For supported Hypervisor versions, please refer to the software release versions.</td>
</tr>
<tr>
<td>Protocols</td>
<td>HTTP, HTTPS, SSH, SCP, NTP, gRPC</td>
</tr>
<tr>
<td>Software Version Requirements</td>
<td>CloudVision eXchange and CloudVision Portal are deployed as virtual machines on supported hypervisors. For software recommendations, please refer to the software release notes.</td>
</tr>
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</table>

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<tr>
<th>CloudVision Physical Appliance</th>
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</thead>
</table>
| 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.

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