CloudVision-WiFi[®] | Overview

Data Sheet

Key Features

- Centralized configuration and policy management
- Cognitive cloud-based network baselining and troubleshooting with root cause analysis engine
- WiFi analytics for business intelligence
- Wireless Intrusion Prevention (WIPS)
- Application Visibility and Control
- · Visual packet trace and analysis
- Wireless Access Security
- Client location tracking
- Wired-wireless monitoring
- Multifunctional management of 3rd radio for client emulation and intelligent RF
- API Integration
- Cloud and On-Premises options

ML/AI based Platform

Machine learning based self-aware, self-healing network with application performance assurance

API Driven

Machine learning based self-aware, self-healing network with application performance assurance

NetDB

State-based, cloud-hosted, networkwide database that collects realtime data streamed from wired and wireless devices for cognitive analytics.



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.

Harnessing the power of the cloud, big data analytics, machine learning and automation, CloudVision WiFi (CV WiFi) brings the power of intelligence, speed and accuracy to wireless networks. Through root cause analysis and proactive problem resolution options, CloudVision WiFi reduces the mean-time-to resolve problems minimizing network troubleshooting effort while reducing total cost of ownership.

Enterprise ready cloud architecture

CloudVision WiFi is powered by a cognitive management plane which simplifies configuration and troubleshooting while delivering richer telemetry to network administrators. A centralized management plane remarkably simplifies policy management and provisioning of WiFi networks. A flexible data plane allows wireless access points to provide customizable traffic redirection at the network's edge. A distributed control plane enables enterprise WiFi features without the scalability issues of older architectures - and an innovative cognition plane with streaming telemetry automates WiFi network monitoring and troubleshooting to optimize the WiFi user experience and minimize the mean time to resolution (MTTR) for network access and performance issues.



Simplicity Redefined

Centrally managing a WiFi network has many advantages - it is simple to change a network configuration globally, physically locate a WiFi device, view real-time or historical experience of WiFi users or capture and visualize a packet trace from a remote site.

Mission-critical Reliability

Arista's distributed architecture ensures there is no loss of functionality if connectivity to the management plane is lost. The WiFi network continues to support mission-critical applications and secure airspace at all times. Automated disaster recovery and high-availability ensures users do not experience downtime even in the event of a datacenter- or region-wide incidence.

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Federal-grade Security

The Arista Cloud implements multiple tiers of security including strong access controls, two-factor authentication, regular vulnerability scanning and management, encryption of data in transit (TLS) and at rest (EBS and S3), and PII data privacy. The security measures certifications are SSAE SOC 2 Type II and FIPS 140-2.

Seamless Scalability

With virtually unlimited and elastic availability of storage and compute resources, the Arista cloud eliminates artificial boundaries inherent in controller-based WLAN architectures. Naturally, it enables many innovative, previously unforeseen applications in big data analytics, machine learning and cognitive computing in the context of WiFi.

Flexible Data Plane

Decoupling of data, management and control planes results in tremendous flexibility in data traffic forwarding. Traffic from the Arista APs can be locally routed or tunnelled to a central aggregation point, e.g., an Arista switch. APs support VXLAN and EoGRE based tunnelling. This allows enterprises to migrate their existing controller-based WiFi networks to Arista's controllerless cloud architecture without having to change the design of their underlying campus network. Tunneling of data to a central aggregation point may also be required by certain enterprises for regulatory compliance and by service providers for ease of billing. CV WiFi enables the configuration and monitoring of EoGRE and VXLAN endpoints on WiFi APs. Tunnels can be configured in redundant mode with automatic failover.

Distributed Control Plane

Arista's WiFi solution is based on intelligent-edge architecture where each AP is capable of autonomously taking control plane decisions such as channel/power selection, admission control, QoS management, client steering, roaming, etc. To enable this, APs periodically share state information with each other using a highly-efficient and secure protocol over the wired network. The distributed control plane provides unparalleled scalability, without the need for any controller.



Cognitive Management Plane

Arista uses cognitive computing to deliver the best experience possible to WiFi administrators and users.

Location Tracking

CloudVision WIFi supports tracking location of any WiFi APs and clients on a floor. It enables visualization of WiFi associations and includes filtering based on client or user information, or connectivity or performance issues. It can be used for mapping of WiFi client connectivity and performance issues in the context of their physical location.

Wired-wireless Monitoring

CV WiFi provides information about the wired interface on Arista WiFi Access Points. This includes upstream PoE switch details, DHCP options and VLANs seen by the AP. As this information is gathered from LLDP packets, it is available irrespective of the PoE switch vendor, as long as it supports LLDP. Information about AP health, in the form of CPU and memory utilization, is also displayed on the UI.

Client Journey[™]

CloudVision WiFi provides direct and real-time insight into the experience of WiFi clients as they journey on the network. Client Journey tracks when and why clients fail to connect to the network, reporting latencies of network services such as AAA, DHCP, and DNS. Administrators can drill down and access live and historical client connection logs to aid troubleshooting.



CloudVision-WiFi® | Features

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Network Baselining

Using ML algorithms on the data it collects, CV WiFi baselines network behavior and automatically detects and highlights anomalies. Baselining is done for connection failures, RF performance KPIs and application QoE. When necessary it finetunes the WiFi network to optimize the user experience and provides recommendations to resolve network problems.

Root Cause Analysis Engine

CloudVision WiFi employs built-in domain expertise and protocollevel intelligence to help administrators maintain the network. In real time, it automatically detects and classifies WiFi clients' connection failures and pinpoints the root cause—if it is related to WiFi or to a network service such as DHCP or DNS, a client device, or an application. Similarly, it automates root cause analysis of poor performance, such as poor coverage, high retry rate and sticky clients.

Single Client Inferencing

WiFi clients may face poor experience due to various reasons. CV WiFi identifies such clients based on RF and application KPIs and then uses the Single Client Inferencing engine for automated root cause analysis of problems faced by clients.

Roc	t cause analysis of 21 clients with low data	rate						
8	14 out of 21 clients are affected at Corp Office location because:	Mans	facture	r	OS Type	e Pri 6 b)	otocol /g/n 2	G
Slow 902.11big-only clients - an prosent in the network and can adversely impact the 2.4 of the WHS interface (agastry, Dual-band clients operating in 2.4 GHz - instead of 5 GHz. High contention - Too many BSSDs and high channel utilization observed on channels used by these clients.								
		14 Clients				000 7	7 7 2	
				Status	User Name	Name	MAC Address	Locati
		00		-	John Paul	John-iPad	88:63:DF:A4:39:23	*/Ind
Sticky clients access point 15/21 Affected clie	Sticky clients - are not roaming to an	000		sp.	Louis	HP 1CC1 DEE04D0	0 64:20:0C:2E:4E:18	*/Pun
	access point with a better signal strength. 15/21 Affected clients	000		17	Stephan Flar	me IT-HP-HP	FC:F8:AE:DA:E4:C	C */Pun
R	Vendor, OS, Access Point and SSID specific issue. 13/21 Affected clients	000		-	Josef Fernan	do BM-iPhone6+	78:48:87 D9:81:58	*/Ind
		000		43	Mark Anthe	Amazon Fire TV	1C:C1:DE:E0:4D:0F	*/Pun
				63	John Davi	Apple 54 24 04	00.00.05.14.00.00	+ 10

Automatic Packet Capture

CV WiFi proactively captures packet traces to help diagnose problems. The traces are stored alongside related failures or symptoms to simplify troubleshooting later. Packet traces can be downloaded or directly visualized in Arista Packets, the cloud based, visual WiFi packet analyzer.



Client Emulation and Network Profiling

CV WiFi takes advantage of the 3rd multi-function radio, present in most Arista WiFi APs, turning it into a client to run a wide variety of tests and proactively identify problems before users do. This helps validate the network's readiness for supporting business-critical applications.

Intelligent RF Optimizations

Unparalleled visibility in both 2.4 GHz and 5 GHz enables automatic RF optimizations such as band steering, smart steering, auto channel selection or auto transmit power control to maximize WiFi capacity. Real-time application performance is further enhanced with multicast-to-unicast conversion and smart blocking, pruning and optimization of broadcast and multicast traffic.

Remote AP

The Remote Access Point (RAP) solution empowers enterprise customers with the ability to extend Corporate SSID to a remote workplace such as a teleworkers' home office or a small remote branch office. It uses industry-standard protocols to securely connect the AP deployed at a workplace with the Enterprise datacenter (DC) over the public Internet. With an IPSec VPN tunnel from the AP to the DC:

- Wi-Fi traffic mapped to the SSID flows via the tunnel to/ from DC
- VPN setup not required individually on the Wi-Fi end clients
- Split tunnel functionality limits only corporate traffic through the tunnel



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Wireless Intrusion Prevention

With the third radio acting as a dedicated wireless intrusion prevention (WIPS) sensor, wireless threats are detected and blocked almost instantly in your network. CV WiFi works with the APs, which are powered by patented techniques such as Marker PacketsTM, to enable surgical over-the-air intrusion prevention, automatically and accurately creating alerts and classifying wireless threats.

WiFi Analytics

Analytics based on presence and behavior of WiFi devices can provide significant business intelligence, and can inform business functions such as

- marketing research (A/B testing of storefront displays, measure ROI of marketing campaigns, context-based guest engagement)
- operations (staff planning, optimize facility utilization),
- IT (network planning and design based on user density).

The gathered data is based on WiFi device MAC addresses collected from Probe Requests, content analytics and application visibility based on WiFi connections, and engagement analytics based on WiFi users who opt in and choose to share their personal information.

Presence Analytics

Presence analytics provide anonymous, statistical information about the footfall (number of WiFi devices detected), dwell time (duration for which WiFi devices are present) and repeat versus new customers. These trends can be viewed for a site or aggregated across multiple sites, and across different time periods: intra-day, daily, weekly, monthly and year-over-year.



Engagement Analytics

Integration with social networks and third-party loyalty systems can be leveraged to collect demographics and other information from WiFi users who opt in to share their personal details. This in turn can be used to engage with the opt-in WiFi users, e.g., retail business can provide special deals to their loyal customers and convert them into brand ambassadors.

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Zone Analytics

Zone analytics provide insight into the density and flow of WiFi users by visualizing it on a floor map. This allows administrators to monitor how various parts of a facility are populated over a period of time. Zones can be demarcated as a region around WiFi APs on a floor maps.

Content analytics and application visibility

Web analytics and application visibility based on deep packet inspection can provide insight into WiFi usage patterns and allow you to enforce policies in terms of the type of content or applications that can or cannot be accessed based on the type of WiFi network (e.g., Corp vs. Guest) and user privileges (e.g., students vs. teachers) and assign the desired quality of service.

Wireless Access Security and Control

With a suite of features to identify users, devices, and applications and to control the access and privileges they get on the network, Arista provides a comprehensive solution to enforce context-based policies and protect the network from abuse. CV WiFi also enables integration with 3rd party NAC solutions. The latest WiFi security protocols such as Opportunistic Wireless Encryption (OWE) and WPA3 are supported by CV WiFi.

Integration with Google® G Suite

Google G Suite for business or education, can be used to enforce an additional layer of security for WiFi users with Arista's WiFi integration. No additional hardware, software or license is required. Regardless of whether PSK or 802.1X is being used for authentication, network access control for WiFi users and devices can be enforced based on a users' Google account privileges and organization unit (OU) membership.



Role Based Control

Role based controls can be enforced on a per SSID basis. Role profiles can be created to match roles configured in the RADIUS server, Google G Suite or both. Rules of precedence can be used to combine settings defined in a role profile and SSID, and enforce policies in terms of role attributes such as VLAN access, firewall rules, application firewall rules, per user bandwidth control and redirection to a captive portal.

APIs and Third-party Integration

With Single Sign-On, powerful Web APIs, and secure tunneling, integrating the Arista Cloud with third-party systems, in-cloud, or on-premises, is easy. Both push and pull mechanisms are available. Using custom applications, WiFi analytics can be pulled from the Arista Cloud or configuration and policy changes can be pushed to it. WiFi analytics from the Arista Cloud or directly from the Arista APs can also be pushed to third-party Web services.

Social WiFi

Inbuilt integration with Facebook, Google+, Twitter, LinkedIn, Instagram and Foursquare enables guest on-boarding using social login.

Bonjour® Gateway

Arista APs can be configured as a Bonjour Gateway to allow WiFi clients to discover and access Bonjour services across VLANs. This feature can be enabled on a per SSID basis and works for both static and dynamic VLANs.

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Cloud Integration Point

Whether you are using Arista WIPS or transitioning to cloud based WiFi, integrating the Arista cloud WiFi server with your on-premise systems allows you to leverage key advantages of the cloud server while continuing to use your existing infrastructure. It also saves you the time, effort, and cost of installing and maintaining an on-premise Arista WiFi server. A Cloud Integration Point (CIP) is an Arista AP that enables the integration of the Arista WiFi cloud server with existing thirdparty services on-premises.

The data exchanged between Arista Cloud and an onpremise Cloud Integration Point (CIP) is secured with AES-256 encryption. The CIP contains a firewall that only forwards traffic to the specified local destinations on the defined ports. It also isolates the network with NAT so client connections cannot be established through the CIP.

WiFi controller integration for WIPS overlay

Arista Cloud integration with other wireless LAN controllers allow Arista's WIPS solution to fetch information from the controller for WIPS classification and tracking the location of devices.

Enterprise Security Management (ESM)

Integration with Enterprise Security Management servers enables Arista Cloud to send events and audit logs to Syslog and ArcSight servers, allowing customers to use their existing logging infrastructure to manage Arista events and logs.

GDPR Compliance

Arista Networks provides General Data Protection Regulation (GDPR) compliant Arista Cloud WiFi to its partners, resellers, and customers in the European Union. The Arista Cloud acts as a GDPR Processor of personal data.



Data Sheet

CloudVision-WiFi System Requirements

Foaturo/Diatform	CloudVision WiFi	CloudVision WiFi	CloudVision WiFi				
	(Cloud Subscription)	(ESXi on-prem)	(KVM on-prem)				
Supported Browser	Latest version of Chrome / Firefox / Microsoft Edge						
System Requirements	NA	Up to 1000 APs CPU - 4vCPUs@2.933Ghz Reserved RAM – 8GB Reserved Hard Disk - 250GB, Thin Provisioning Up to 5000 APs CPU - 8vCPUs@2.933Ghz Reserved RAM – 32GB Reserved Hard Disk - 500GB, Thin Provisioning	Up to 1000 APs CPU - 4vCPUs@2.933Ghz Reserved RAM – 8GB Reserved Hard Disk - 250GB, Thin Provisioning Up to 5000 APs CPU - 8vCPUs@2.933Ghz Reserved RAM – 32GB Reserved Hard Disk - 500GB, Thin Provisioning				
Client Journey	\checkmark	\checkmark					
Application Visibility and Control	\checkmark	\checkmark					
WIPS	\checkmark	\checkmark					
Baselining	\checkmark	Limited ¹					
RCA Engine	\checkmark	\checkmark					
Auto Packet Capture and Troubleshooting	\checkmark	Limited ²					
Network Profiling	\checkmark	\checkmark					
RF Optimization	\checkmark	\checkmark					
WiFi Analytics	\checkmark	Limited ³					
Guest and Captive Portal Management	\checkmark	Limited⁴					
WiFi ACLs	\checkmark	\checkmark					
RBAC	\checkmark	\checkmark					
Automatic Updates and Upgrades	\checkmark	Customer Managed					

¹Baselining: Based on only 7 days of history and drilldown not available from baseline charts.

²Auto Packet Capture & troubleshooting: Automatic display of packet capture in "Packets" not available.

³WiFi Analytics: No visualization of association and presence analytics data. No guest analytics.

⁴Guest and Captive Portal Management: No "Canvas" to create captive portal and landing pages or campaigns. No social media authentication. No captive portal hosting capabilities.



Data Sheet

SKUs, Service and Support

The CloudVision solution comprises 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.

For more details of CloudVision eXchange and CloudVision portal, consult the CloudVision Datasheet.

Software support for CloudVision-WiFi 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 device. For more details on A-Care service offerings across all Arista products, see: http://www.arista.com/en/service.

SKU	Description
SS-COGWIFI-1M	Cognitive Cloud SW Subscription License for 1-Month for 1 x Wireless Access Point
SS-PREMWIFI-1M	On-premises SW Subscription License for 1-month for 1 x wireless access point. For electron- ic delivery only; not for sale with DCA-200 appliance
SS-PREMWIFI-1M-DCA	On-premises SW Subscription License for 1-month for 1 x wireless access point. For sale only with DCA-200 appliance
SS-PREMWIFI-1M-VM	On-premises SW Subscription License for 1-month for 1 x wireless access point for virtual environment. For electronic delivery only
DCA-200-CV	1 unit CloudVision Physical Appliance, Model 200 (Includes CVX, CVP and Server). No device licenses.



Pulse Supply 909 Ridgebrook Road., Sparks, Maryland 21152, USA TEL: +1-410-583-1701 FAX: +1-410-583-1704 E-mail: sales@pulsesupply.com https://www.pulsesupply.com/datacom-systems

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