

AEROHIVE[®]



Security and Control for all Devices on the Access Network



AEROHIVE[®]
NETWORKS

Aerohive A³[™]

Aerohive A³ is an innovative solution for securing, managing and controlling all devices on your Access Network – from standard wireless and wired clients to IoT and BYOD.

A³ provides a complete set of functionalities for device onboarding, guest management, automated device provisioning, device profiling and network access control. With its streamlined workflows and intuitive user interface, A³ greatly reduces the operational complexity and cost typically associated with incumbent offerings. It can be deployed on all major vendors' access networks.

Key Features & Benefits

Supports all devices and users on the access network

A³ secures standard wireless and wired corporate clients, BYOD, IoT and guest devices alike. It also supports the creation and administration of granular network access rights (e.g., by access to applications, time of day, location on the network) depending on the user's role.

Complete onboarding for guest and corporate devices

A³ includes a highly customizable captive web portal (*CWPP*) that supports self-service onboarding for visitor devices, while a comprehensive management interface and automated device provisioning of 802.1X certificates enables onboarding of corporate devices.

Comprehensive authentication toolset

For authentication of corporate devices, A³ supports 802.1X certificates with its built-in RADIUS server. Where certificates are not practical, A³ provides alternative authentication methods like Private Shared Keys (*PSK*) or Social Login (e.g., for Guest authentication).

Network Access Control (*NAC*)

A³ provides complete functionality for Network Access Control that ensures authorized devices stay secure over time. Features include device scanning for security compliance, quarantining of non-compliant devices to prevent network access, and guided self-remediation to reduce IT helpdesk calls.

Security for the Internet of Things (*IoT*)

Connected devices like thermostats and lighting systems in the IoT context present a unique set of challenges for IT security. A³ is equipped to onboard, secure and control "Things", with the ability to automatically identify IoT, and then onboard them with appropriately defined network access rights.

Seamless integration with existing IT security infrastructure

Customers can directly integrate A³ with the market leading firewalls, MDM and endpoint security systems, Intrusion Detec-

tion Systems (*IDS*) and Posture Assessment solutions they already have installed and continue to leverage their existing security investment.

Unparalleled deployment flexibility

A³ supports on-premises deployments, based on a Virtual Appliance (*VA*), with a choice of standard or clustered High-Availability configurations. A³ can be managed locally on-premises, or centrally from the cloud. The cloud management option for A³ leverages Aerohive's 3rd generation cloud platform that provides customers high performance and scalability for their A³ deployments.

Device fingerprinting and profiling

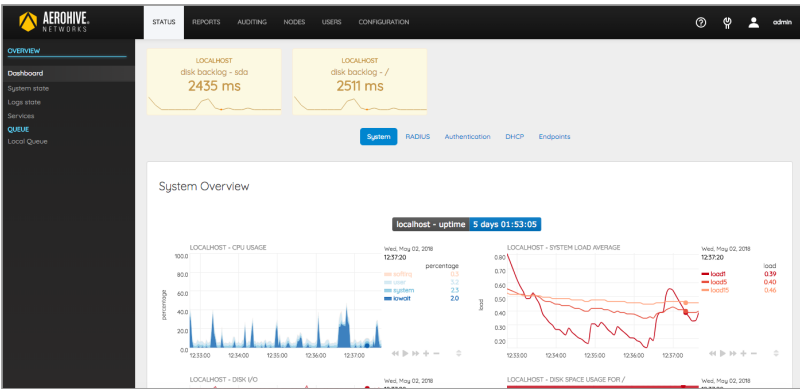
A³ includes the largest available device fingerprint database, that is constantly updated. Device fingerprinting is the most comprehensive method for identifying a device type (e.g. laptop vs. smartphone vs. HVAC sensor) automatically when a device requests network access. A³ then leverages this information to grant appropriate network access rights to each device based on its category. This includes IoT, which are otherwise very hard to identify and secure effectively, much less in an automated fashion.

Supports access networks from all leading vendors

Access networks typically include wired and wireless infrastructure components from multiple vendors. A³ supports WLAN equipment and switches from Aerohive and other leading vendors, which provides customers added deployment functionality.

Simplified workflows that reduce complexity

A³ was developed as one integrated product from the ground up. An intuitive UI guides users through the configuration process, which results in a much more intuitive and simplified workflows compared to traditional solutions. The platform setup (new Virtual Appliances and clusters) is entirely UI based and takes only 5-8 minutes once basic configuration information is entered. It completely removes the need for tedious, error-prone CLI configuration.



◀ **Intuitive graphical dashboard**

Services overview and administration ▶

The 'Services on: A3' page lists various system services with their status and control buttons. The services and their statuses are:

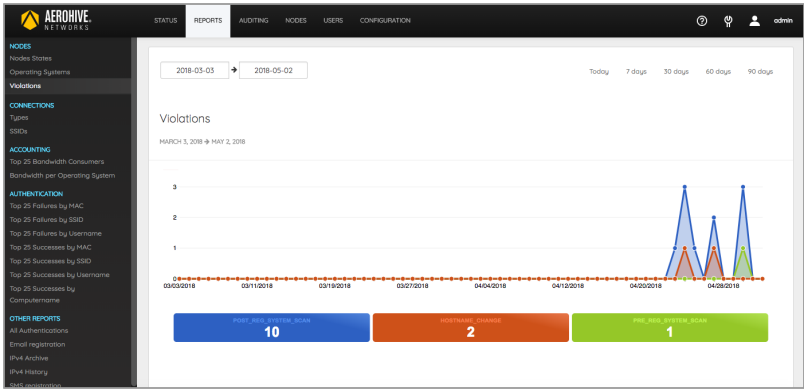
Service Name	Status	Control Buttons
Daemon		STOP ALL, START ALL, RESTART ALL
api-frontend	Started	STOP, RESTART
etcd	Started	STOP, RESTART
fingerbank-collector	Started	STOP, RESTART
haproxy-db	Stopped	START
haproxy-portal	Stopped	STOP, RESTART
httpd-ops	Started	STOP, RESTART
httpd-admin	Started	STOP, RESTART
httpd-collector	Stopped	STOP, RESTART, START
httpd-dispatcher	Started	STOP, RESTART

The 'External Sources' configuration page shows a list of authentication sources with columns for Name, Description, and Type. A dropdown menu is open, showing options like 'Internal', 'External', 'Exchange', and 'Billing'. The 'External' option is selected.

Name	Description	Type	Actions
ema	Email	SMS	CLONE, DELETE
email	Facebook	Email	CLONE, DELETE
sponsor	Google	SponsorEmail	CLONE, DELETE
kickbox	Instagram	Null	CLONE, DELETE
kickbox	LinkedIn	Null	CLONE, DELETE
kickbox	OpenID	Google	CLONE, DELETE
kickbox	Pinterest	SMS	CLONE, DELETE
kickbox	SponsorEmail	Twitter	CLONE, DELETE
kickbox	Twitter	AuthorizeNet	CLONE, DELETE
kickbox	WindowsLive		

◀ **Configuration of external authentication sources**

Extensive reporting capabilities ▶



Management Features

- **Role-based Access Control (RBAC)**
 - Per User
 - Per Switch
 - Per VLAN
 - Per Client
 - Per Client Category
 - Per Device Type
 - Per Time
 - Per Location

- **Object based configuration management**
 - Define roles, domains, authentication sources, switches and WLANs, and connection profiles easily

- **Automated checkup and fix permissions tasks**

- **Accounting based on several criteria**
 - Node, switch groups, user, role, OS, source, realm, SSID, profile and domain
 - Violations, failures, successes, registration type and state

Guest, BYOD and IoT Management

- **Customizable Captive Web Portal (CWP)**

- **Wireless ISP Roaming (WISPR), Eduroam and Hotspot 2.0**

- **Supports billable hotspots**
 - Billing and service tiers
 - Payment processing through Paypal, Mirapay, Authorize.net, Stripe

- **Guest Access Self Registration**
 - With or without credentials
 - Self- registration with Social login

- **User device registration**

- **Employee sponsorship**

- **Email Validation**

- **SMS Validation**

- **Password-of-the-day**

- **“Device profile” or “device fingerprint” based onboarding**

- **Aerohive Private Pre-Shared Key (2019)**

Authentication

- **EAP Protocols**
 - EAP-FAST, PEAP, EAP-TTLS, EAP-TLS, PAP, CHAP, MSCHAPv1 and 2, EAP-MD5

- **802.1X Support**
 - RADIUS to AD/LDAP server support for 802.1X authentication
 - 802.1X (PEAP) or Certificate (TLS) BYOD automated onboarding
 - User Authentication Portal (AD/LDAP)
 - PKI with EAP EAP-TLS, EAP-TTLS, EAP-LEAP, EAP-PEAPv0, EAP-PEAPv1, EAP-MSCHAPv2

- **Authentication Types**
 - **LDAP**
 - *Microsoft Active Directory*
 - *Novell eDirectory*
 - *OpenLDAP*
 - *Any LDAP-compliant servers*
 - **RADIUS**
 - *Cisco ACS*
 - *RADIUS (FreeRADIUS, Radiator, etc.)*
 - *Microsoft NPS*
 - *Any RADIUS-compliant servers*
 - **Local user file (Apache htpasswd format)**
 - **OAuth2**
 - *Facebook*
 - *Google*
 - *GitHub*
 - *LinkedIn*
 - *Microsoft Live*
 - *Twitter*
 - **SAML**
 - **Additional built-in SQL DB for User store for deployments without LDAP**
 - **Aerohive Private Pre-Shared Key (2019)**

Secure Provisioning

- **Provisioning agents**
 - Android
 - Windows
 - API for all Apple devices

Network Access Control

- **Realtime security policy assessment (posture assessment) & notification for multiple OS**

- **Gradual Deployment**

- Pre-registration
- Per location/switch/port deployments

- **Automated Device Registration**

- By network device
- By device fingerprinting
- By MAC address vendor
- Integrates with 3rd party solutions to extend device registration capabilities
 - *Short, Nessus, OpenVAS, Browser User-Agent and more*
- VLAN isolation and quarantining (*See supported switches below*)

- **Netflow / IPFIX**

- **Bandwidth accounting**

- **Floating device support**

- Switches and APs

Profiling

- **Functionality**

- Profiling of devices/ IoT device recognition
- Group based policies for network devices
- Device visibility and identification

- **Device Fingerprinting**

- World's largest device fingerprinting database
- DHCP v4 & v6
- User Agent
- MAC address Patterns
- OUI
- TCP fingerprints
- Behavioral analysis

Integration Capability with Complementary Security Infrastructure

A³ supports direct integration with these 3rd party IT security solutions:

- **Intrusion Detection (IDS):**

- OPSWAT Meta defender
- Snort
- Suricata
- Fortigate
- TrendMicro

- **Vulnerability / Posture Assessment**

- Nessus
- OpenVAS
- Windows Management Interface
- TNC Statement of Health protocol

- **Endpoint Security**

- OPSWAT Meta defender Agent
- Symantec SEPM
- Sentinel One

- **Mobile Device Management (MDM)**

- Mobile Iron
- JAMF
- AirWatch (*Q1 2019*)
- IBM MAAS 360 (*Q1 2019*)
- Microsoft inTune (*Q1 2019*)

- **Firewalls**

- Barracuda
- Checkpoint
- Cisco
- Fortinet
- Fortigate
- iBoss
- Juniper (*Q1 2019*)
- PaloAlto Networks
- Watchguard
- Sonicwall (*Q1 2019*)

- **Microsoft PKI**

- Simple Certificate Exchange Protocol (*SCEP*)
- Network Device Enrollment Service (*NDES*)

Deployment Flexibility

- **Simplified Deployment**

- Out of band deployment
- Hybrid out of band

- **High Availability**

- Active/Active Clustering
- Supports deployments of millions of devices

- **Supported deployment models:**

- Virtual Appliance (VA)
- Cloud-based management (*monitoring Q3 2018, configuration Q1 2019*)

- **Supports WLAN Infrastructure from the following vendors:**

Aerohive, Aruba Networks, AnyFi, Avaya, BelAir, Brocade, Cisco, D-Link, Dell, Extreme Networks, Enterasys, Extracom, Hewlett-Packard, Huawei, Juniper, Meraki, Meru Networks, MicroTik, Mojo Networks, Motorola/Zebra, Ruckus Wireless, and Xirrus Networks

- **Supports network switches from all leading vendors:**

Aerohive, Alcatel-Lucent, Avaya, Brocade, Cisco, Dell, D-Link, HP, Huawei, Juniper, Linksys, Ubiquiti, and more

- **VoIP support, also in heterogenous environments, for multiple switch vendors**

Avaya, Cisco, HP and more

Hardware Requirements

- **Virtual Appliance Support**

- Deployed as VA
- VMWare ESXi 4.0 and above

- **Minimum System requirements**

- Intel or AMD CPU 3 GHz or better
- 16 GB of RAM or more
- 100 GB of disk space (RAID-1 recommended)
- 1 network card (2 recommended)

- **High Performance Active Clustering**

- Minimum recommended cluster is 3 hosts for HA, load balancing and failover
- Significantly increases capacity and throughput
- Enables sharing of device licenses across different customer sites.

- **Contact your Aerohive partner or representative for configuration assistance**

Professional Services

- Optional professional services are available through A³ Authorized Aerohive partners.

AEROHIVE A³ - SKUs

SKU	DESCRIPTION
AH-A3-VA	Software license for A3 Virtual Appliance (VA). Required with A ³ subscription.
AH-A3-HA	High Availability software license for 2 additional VA for cluster configuration; optional for all deployments.
AH-A3-1K-SL-1Y/3Y/5Y	1/3/5 Year subscription for up to 1,000 concurrent clients/endpoints. Includes support.
AH-A3-5K-SL-1Y/3Y/5Y	1/3/5 Year subscription for up to 5,000 concurrent clients/endpoints. Includes support.
AH-A3-10K-SL-1Y/3Y/5Y	1/3/5 Year subscription for up to 10,000 concurrent clients/endpoints. Includes support.
AH-A3-25K-SL-1Y/3Y/5Y	1/3/5 Year subscription for up to 25,000 concurrent clients/endpoints. Includes support.
AH-A3-50K-SL-1Y/3Y/5Y	1/3/5 Year subscription for up to 50,000 concurrent clients/endpoints. Includes support.
AH-A3-75K-SL-1Y/3Y/5Y	1/3/5 Year subscription for up to 75,000 concurrent clients/endpoints. Includes support.
AH-A3-100K-SL-1Y/3Y/5Y	1/3/5 Year subscription for 100,000 (and more) concurrent clients/endpoints. Includes support.

