

HPE Aruba Networking Mobility Conductor

Enhanced scale and reliability for HPE Aruba Networking
Mobility Controllers



Key features

- Manage up to 10,000 access points for large campus requirements
- Support for new 802.11ax (Wi-Fi 6), WPA3 and Enhanced Open—and existing standards
- Dynamic Segmentation enforces wired and wireless access policies to simplify and secure the network
- Application awareness for 3,000+ applications without additional hardware
- Built-in AI-powered wireless/RF optimization
- Automate deployment with Zero Touch Provisioning and hierarchical configuration

Extended maintenance windows, network upgrades and unplanned outages can mean hundreds or even thousands of hours of lost productivity yearly. More than ever, network infrastructure is mission-critical, and to meet these demands, the HPE Aruba Networking Mobility Conductor delivers the full capabilities of the HPE Aruba Networking ArubaOS network operating system to scale to today's enterprise needs.

The Mobility Conductor enables high scale and reliability, managing up to 100,000 clients, 10,000 access points (APs) and 1,000 controllers/gateways. It also provides simplified deployment with dynamic license management, configuration hierarchy and a choice of virtual or x86 hardware appliances.

Simple and secure access

The HPE Aruba Networking Mobility Conductor serves a key role in [Dynamic Segmentation](#), providing a single management layer for all controllers acting as policy enforcement agents. Policy enforcement is provided by the HPE Aruba Networking Policy Enforcement Firewall embedded within each controller, and utilizes information on user roles, device type, applications, and network location to simplify and secure wired and wireless network access. This feature can be enabled with the ArubaOS PEF license and eliminates the need to manually configure SSIDs, VLANs or ACLs for each new client on the network.

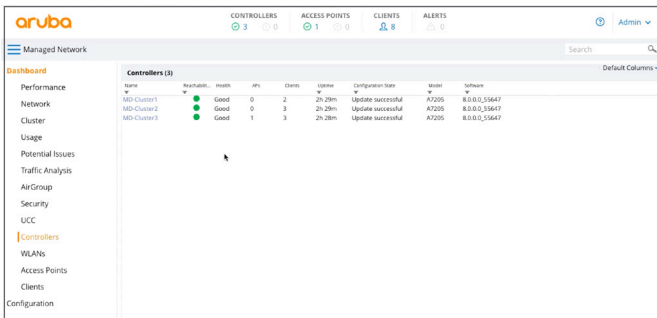


Figure 1. Clients are load balanced between controllers

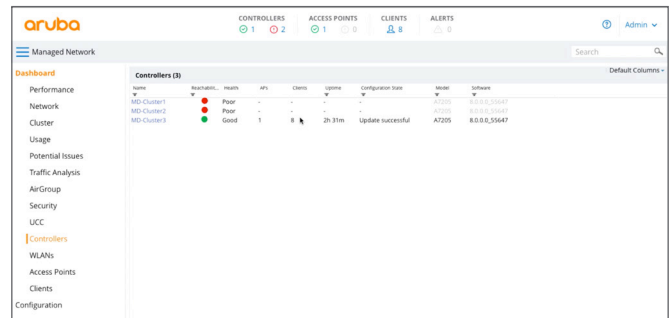


Figure 2. Clients failed over to one controller in the event of a failure

24x7 mission-critical networking

The HPE Aruba Networking Mobility Conductor is deployed as a conductor controller for any combination of HPE Aruba Networking 7000 Series or 7200 Series Mobility Controllers and HPE Aruba Networking Mobility Controller Virtual Appliances. The Mobility Conductor increases scale by joining HPE Aruba Networking controllers to a Controller Cluster, improves reliability using enhanced high availability (HA), adopts configurations seamlessly based on hierarchy, and reduces or eliminates maintenance windows by enabling live upgrades.

ArubaOS provides unique and patented AI-powered machine learning HPE Aruba Networking Adaptive Radio Management features such as AirMatch and ClientMatch (now enhanced with 802.11ax grouping) for automatic RF optimization. These features improve the network’s performance based on changing environmental conditions, noisy or congested RF and resolve sticky client issues during user roaming. HPE Aruba Networking RFProtect (RFP) provides

advanced spectrum analysis and wireless intrusion protection (WIPS/WIDS) to help identify and mitigate Wi-Fi and non-Wi-Fi sources of interference to contain potential security risks. Learn more about the software features on the ArubaOS datasheet.

In Figure 1 we have 8 clients spread out evenly across 3 controllers. In Figure 2, in the event of a failure of the Controllers 1 and 2 all 8 clients move over to controller 3—making sure users are not affected from the controller failure.

Enhanced capabilities

HPE Aruba Networking AirMatch

As an enhancement of HPE Aruba Networking Adaptive Radio Management, AirMatch automates network-wide RF channels, channel width, and transmits power to optimize the highest density environments. By utilizing AI-powered machine learning algorithms, AirMatch proactively learns and acclimates the network based on changing environmental conditions and system capacity.

HPE Aruba Networking AirMatch benefits:

- **Even channel assignment**
Provides even distribution of radios across available channels, interference mitigation and maximized system capacity
- **Dynamic channel width adjustment**
Dynamically adjusts between 20 MHz, 40 MHz and 80 MHz to match the density of your environment
- **Automatic transmit power adjustment**
Examines the entire WLAN coverage and automatically adjusts the transmit power of APs to ensure the best coverage and user experience

Hierarchical configuration and improved visibility

ArubaOS, running on the HPE Aruba Networking Mobility Conductor, uses a centralized, multi-tiered architecture that consolidates all deployment models (e.g. all-conductor, single-conductor/multiple-local, and multiple-conductor/local) with a single approach. Network configurations can be made and distributed from the Mobility Conductor automatically to all HPE Aruba Networking Mobility Controllers to eliminate onsite configuration (See Figure 3).



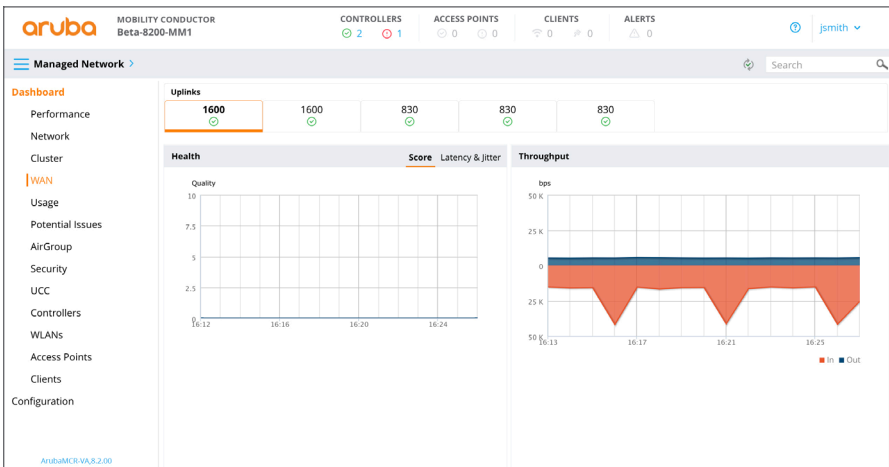
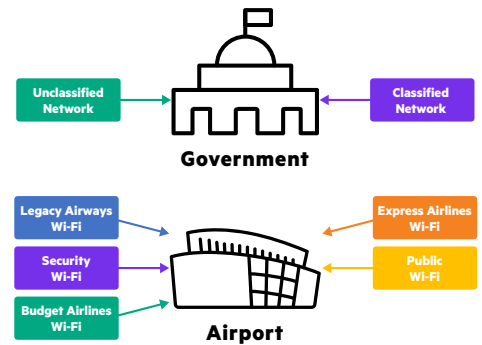


Figure 3. HPE Aruba NetworkingOS dashboard



In an airport where we have multiple tenants (e.g. an airline, airport security, and public network), each has deployed their own HPE Aruba Networking controller while sharing the same APs. Because each AP tunnels traffic to the appropriate controller, HPE Aruba Networking ArubaOS maintains complete separation of data. This level of granularity extends to high security use cases, whereby multiple classified and non-classified networks can also utilize the same APs.

Figure 4. MultiZone use cases

Licensing pools

The Mobility Conductor enables licensing pools to dynamically manage licenses based on site requirements. By default, all managed devices (e.g. controller) share a global pool of licenses; however, ArubaOS also allows individual controllers access to a dedicated pool of licenses.

Live upgrade and multiple version support

With Mobility Conductor, ArubaOS can be upgraded alongside active user sessions—eliminating the need for planned maintenance windows or downtime. Each controller cluster or individual service modules (AppRF, AirGroup, ARM, etc.) can also be selectively upgraded without impacting the rest of the network.

Unified Communications and Collaboration (UCC)

See real-time data and troubleshoot networks based on call quality metrics for latency, jitter, and packet loss are available for a wide variety of applications including Microsoft Skype for Business/Lync, Microsoft Teams, Cisco Skinny Call Control Protocol (SCCP), Spectralink Voice Priority (SVP), SIP, Vocera, and more.

Hitless failover and automated load balancing

Within a controller cluster, user sessions and AP traffic are load balanced to optimize network utilization during peak periods and maximize availability during unplanned outages (Figure 1). This also means that users won't notice any impact to voice calls, video streaming or data transfers in an unlikely event that a controller loses connectivity (Figure 2).

Seamless Layer 2 and Layer 3 roaming

Users can roam between floors, buildings or across the entire network without any re-authentication, change to their IP address, or loss of firewall state.

Application customization

AppRF brings rich application visibility and control with deep packet inspection into over 2,600+ applications. In HPE Aruba NetworkingOS, custom applications and categories can now be defined directly by the network administrator.

Enhanced Wi-Fi security

Support for WPA3 brings stronger encryption and authentication methods, while Enhanced Open brings automatic encryption security to open networks. The WPA2-MPSK feature enables simpler passkey management for WPA2 devices—should the Wi-Fi password on one device need to be changed; no additional key changes are needed for other devices on the network.

Dynamic Segmentation

The Mobility Conductor centrally maintains up-to-date policies from the HPE Aruba Networking NAC policy management system, which are then locally enforced by each controller cluster in the network. Policies are based on role and applied uniformly across WLAN and LAN—eliminating the need to configure per-switch ACLs, VLANs, and subnets.

MultiZone

The same AP infrastructure can now terminate two different SSIDs on two different HPE Aruba Networking controllers while maintaining complete separation and security for all networks, policies, management and visibility. This is ideal for multi-tenancy requirements where multiple companies or groups reside at a single site or for an enterprise that requires multiple secure networks (See Figure 4).

Northbound APIs (NBAPI)

The Mobility Conductor includes a full set of NBAPIs that enable deep visibility into the network. NBAPIs provide RF health metrics, app utilization, device type and user data in an easy-to-integrate format. Third-party applications can receive this information for improved visibility and monitoring.



HPE Aruba Networking Mobility Conductor models and capacities

Mobility Conductor virtual appliance	MCR-VA-50	MCR-VA-500	MCR-VA-1K	MCR-VA-5K	MCR-VA-10K
Number of devices	50	500	1,000	5,000	10,000
Number of clients	500	5,000	10,000	50,000	100,000
Number of controllers	5	50	100	500	1,000
Supported platforms	VMWare ESXi 7.0, Microsoft windows server 2019 Hyper-V, KVM (CentOS 7.9, Ubuntu 20.04/22.04)				

Mobility Conductor hardware appliance*	MCR-HW-1K	MCR-HW-5K	MCR-HW-10K
Number of devices	1,000	5,000	10,000
Number of clients	10,000	50,000	100,000
Number of controllers	100	500	1,000

*Mobility Conductor hardware appliance is a x86-based hardware.

	7200 Series	7000 Series	RAPs
Mobility domain cluster size	12	4	12*

*As of ArubaOS 8.6.0.0

Mobility Conductor hardware appliance technical specifications

Interfaces and indicators

Mobility Conductor hardware appliance	MCR-HW-1K	MCR-HW-5K	MCR-HW-10K
Form factor/footprint		1xRU	
Gigabit ethernet ports (SFP or 10G SFP+)		2	
USB 3.0		Yes (1)	
Console port		Yes (RJ-45)	
Out-of-band management port		Yes	
Management/status LEDs		Yes	
LINK/ACT and status LEDs		Yes	

Dimensions and weight

Mobility Conductor hardware appliance	MCR-HW-1K	MCR-HW-5K	MCR-HW-10K
Dimensions (H x W x D)		4.4 cm (H) x 44.2 cm (W) x 40.1 cm (D) (1.73" x 17.40" x 15.79")	
Weight		7.2 kg (15.87 lbs)	
MTBF (hours, @ 45C)	238,020	235,835	229,445



Environmental

Mobility Conductor hardware appliance	MCR-HW-1K	MCR-HW-5K	MCR-HW-10K
Operating temperature	0°C to 40°C (32°F to 104°F)		
Storage temperature	-40°C to 70°C (-40°F to 158°F)		
Operating humidity	10% to 90% (RH) non-condensing		
Storage humidity	10% to 95% (RH) non-condensing		
Operating altitude	Up to 10,000 feet		
Maximum power consumption	120W*		
Acoustic noise–sound pressure ¹	57 dBA**		
Acoustic noise–sound power ¹	64.4 dBA***		

¹ Sound power per ETSI 300 753; Sound pressure per ISO 7779

*Ubuntu running all cores, memory test, 10G traffic, this may vary by 10% based on software configuration

**Measured at rear center

***Nominal fan speed at room temperature

Power supply specifications²

Mobility Conductor hardware appliance	MCR-HW-1K	MCR-HW-5K	MCR-HW-10K
Input voltage range	100-240V AC		
Output voltage	+12V DC		
Input frequency	50-60 Hz		
AC line input current (steady state)	6.0A max		

² Dual 400-watt load shared redundant configuration

Regulatory and safety compliance

Description	Specification
Certifications	<ul style="list-style-type: none"> FCC Part 15 Class A CE Industry Canada Class A VCCI Class A (Japan) EN 55032 Class A (CISPR 32 Class A), EN 61000-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11, EN 55024, AS/NZS 3548 UL 60950, EN60950 CAN/CSA 22.2 #60950 CE mark, cTUVus, CB, C-tick, Anatel, NOM, MIC
Regulatory SKU information	ARCNMCRHW
Minimum HPE Aruba Networking OS release	MCR-HW-1K, AOS 8.1; MCR-HW-5K, AOS 8.1; MCR-HW-10K, AOS 8.1 WI-FI CERTIFIED WPA3, AOS 8.4; WI-FI CERTIFIED Enhanced Open, AOS 8.4; Wi-Fi 6 (802.11ax), AOS 8.4; WI-FI CERTIFIED 802.11ad, AOS 8.4

Service and warranty information

- Hardware: 1 year parts/labor, can be extended with support contract
- Software: 90 days, can be extended with support contract



Ordering information

Part number	Description
HPE Aruba Networking Mobility Conductor virtual appliance	
JZ106AAE	HPE Aruba Networking MCR-VA-50 Mobility Conductor Virtual Appliance with support for up to 50 devices E-LTU
JY895AAE	HPE Aruba Networking MCR-VA-500 Mobility Conductor Virtual Appliance with support for up to 500 devices E-LTU
JY896AAE	HPE Aruba Networking MCR-VA-1K Mobility Conductor Virtual Appliance with support for up to 1,000 devices E-LTU
JY897AAE	HPE Aruba Networking MCR-VA-5K Mobility Conductor Virtual Appliance with support for up to 5,000 devices E-LTU
JY898AAE	HPE Aruba Networking MCR-VA-10K Mobility Conductor Virtual Appliance with support for up to 10,000 devices E-LTU
JZ395AAE	HPE Aruba Networking MCR-VA-50-F1 Mobility Conductor Virtual Appliance FIPS/TAA with support for 50 devices E-LTU
JZ376AAE	HPE Aruba Networking MCR-VA-500-F1 Mobility Conductor Virtual Appliance FIPS/TAA with support for 500 devices E-LTU
JZ377AAE	HPE Aruba Networking MCR-VA-1K-F1 Mobility Conductor Virtual Appliance FIPS/TAA with support for 1,000 devices E-LTU
JZ378AAE	HPE Aruba Networking MCR-VA-5K-F1 Mobility Conductor Virtual Appliance FIPS/TAA with support for 5,000 devices E-LTU
JZ379AAE	HPE Aruba Networking MCR-VA-10K-F1 Mobility Conductor Virtual Appliance FIPS/TAA with support 10,000 devices E-LTU

HPE Aruba Networking Mobility Conductor hardware appliance and accessories

JY791A	HPE Aruba Networking MCR-HW-1K Mobility Conductor Hardware Appliance with support for up to 1,000 devices
JY792A	HPE Aruba Networking MCR-HW-5K Mobility Conductor Hardware Appliance with support for up to 5,000 devices
JY793A	HPE Aruba Networking MCR-HW-10K Mobility Conductor Hardware Appliance with support for up to 10,000 devices
JZ396A	HPE Aruba Networking MCR-HW-1K-F1 Mobility Conductor Hardware Appliance FIPS/TAA with support for up to 1,000 devices
JZ397A	HPE Aruba Networking MCR-HW-5K-F1 Mobility Conductor Hardware Appliance FIPS/TAA with support for up to 5,000 devices
JZ398A	HPE Aruba Networking MCR-HW-10K-F1 Mobility Conductor Hardware Appliance FIPS/TAA with Support for up to 10,000 devices
JY986A	MCRPSU-400-AC 400W AC Spare Power Supply for Mobility Conductor Hardware Appliance—Order region specific power cord
JZ072A	MCR-FT Spare Fan Tray for Mobility Conductor Hardware Appliance
JW107A	HPE Aruba Networking SPR-RK-MNT Spare Rack Mount

HPE Aruba Networking Mobility Conductor hardware appliance transceivers

JW087A	HPE Aruba Networking 1000BASE-LX LC Connector SFP XCVR	X
JW088A	HPE Aruba Networking 1000BASE-SX LC Connector SFP XCVR	X
JW089A	HPE Aruba Networking 1000BASE-T RJ45 Connector SFP XCVR	X
J4859D	HPE Aruba Networking 1G SFP LC LX 10km SMF Transceiver	X ¹
J4858D	HPE Aruba Networking 1G SFP LC SX 500m OM2 MCRF Transceiver	X ¹
J4860D	HPE Aruba Networking 1G SFP LC LH 70km SMF Transceiver	X ²
J8177D	HPE Aruba Networking 1G SFP RJ45 T 100m Cat5e Transceiver	X ¹
JW092A	HPE Aruba Networking 10GBASE-LR LC Connector SFP+ XCVR	X
JW091A	HPE Aruba Networking 10GBASE-SR LC Connector SFP+ XCVR	X
JW090A	HPE Aruba Networking 10GBASE-LRM LC Connector SFP+ XCVR	X

Note:

X: Supported transceiver

¹ Default minimum ArubaOS software version is 8.1.0.0

² Minimum ArubaOS software version is 8.4.0.0



Data sheet

Part number	Description	MCR-HW-xK
HPE Aruba Networking Mobility Conductor hardware appliance transceivers		
JW100A	SFP+ Direct Attach 0.5M Cable	X
JW101A	SFP+ Direct Attach 1M Cable	X
JW102A	SFP+ Direct Attach 3M Cable	X
JW104A	SFP+ Direct Attach 7M Cable	X
J9150D	HPE Aruba Networking 10G SFP+ LC SR 300m OM3 MCRF Transceiver	X ¹
J9151D	HPE Aruba Networking 10G SFP+ LC LR 10km SMF Transceiver	X ¹
J9152D	HPE Aruba Networking 10G SFP+ LC LRM 220m OM2 MCRF Transceiver	X ¹
J9281D	HPE Aruba Networking 10G SFP+ to SFP+ 1m DAC Cable	X ¹
J9283D	HPE Aruba Networking 10G SFP+ to SFP+ 3m DAC Cable	X ¹
J9285D	HPE Aruba Networking 10G SFP+ to SFP+ 7m DAC Cable	X ¹

Note:

X: Supported transceiver

¹ Default minimum ArubaOS software version is 8.1.0.0

For additional information on HPE Aruba Networking WLAN products, please refer to:

- [HPE Aruba Networking ArubaOS Data Sheet \(and licenses\)](#)
- [Mobility Conductor and Controllers](#)
- [Access Points](#)

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