Aruba Certified Mobility Professional
OFFICIAL CERTIFICATION STUDY GUIDE (EXAM HPE6-A44)

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Aruba Certified Mobility Professional (ACMP) V8
Official Certification Study Guide
(Exam HPE6-A44)

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Introduction

This study guide is based on the Aruba courseware title Scalable WLAN Design and Implementation. It will help you to prepare to take the Aruba Certified Mobility Professional (ACMP) exam. The material in this book will also help you to understand advanced features of an HPE Aruba WLAN solution, and to understand, deploy, and configure scalable HPE Aruba-based WLAN systems.

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Audience

This book is designed for presales solution architects involved in supporting the sale of scalable, enterprise-class HPE Aruba WLAN solutions. It is also designed for engineers that need to learn how to deploy and configure these solutions.

Assumed Knowledge

Typical candidates for this certification are networking IT professionals with a minimum of one to two years' experience in deploying mobility solutions for the enterprise. It is assumed that you have a good understanding of working with WLAN technologies and have an interest in learning about how to deploy the HPE Aruba product portfolio in larger, more complex, and more scalable solutions.

Since this book covers more advanced level topics and information, it is assumed that you have already completed the Implementing Aruba WLAN course or have studied the material within the related Aruba Certified Mobility Associate Study Guide.

Minimum Qualifications

The pre-requisite qualifications for the Aruba Certified Mobility Professional (ACMP) V8 certification are the Aruba Certified Mobility Associate (ACMA) V8 or Aruba Certified Mobility Associate (ACMA) V6.4 certifications.

Relevant Certifications

After you pass these exams, your achievement may be applicable toward more than one certification. To determine which certifications can be credited with this achievement, log in to The Learning Center and view the certifications listed on the exam's More Details tab. You might be on your way to achieving additional certifications.

Preparing for Exam HPE6-A44

This self-study guide does not guarantee that you will have all the knowledge you need to pass the exam. It is expected that you will also draw on real-world experience and would benefit from completing the hands-on lab activities provided in the instructor-led training.

Recommended HPE Training

Recommended training to prepare for each exam is accessible from the exam's page in The Learning Center. See the exam attachment, "Supporting courses," to view and register for the courses.

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1 Introduction and Aruba Architecture

LEARNING OBJECTIVES

- ✓ This module provides a review of the Aruba architecture. You will learn about controller roles, redundancy, and licensing before exploring hierarchy and configuration.
- ✓ Then you will review Mobility Controller (MC) use as an L2 switch or L3 router, along with packet flow, remote access, tunnel node, and IAP.
- ✓ Next, you will learn about Aruba features, roles, policies, and rules. Finally, you will review clustering, redundancy, and the MultiZone feature.

Aruba Architecture review

OS 8.X architecture

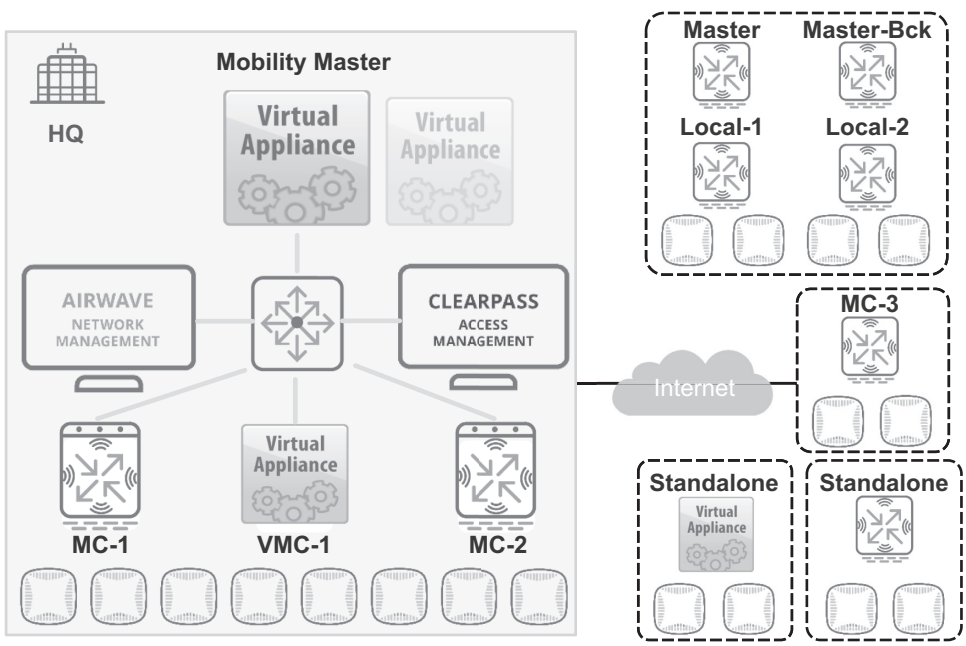

Figure 1-1 OS 8.X architecture

Figure 1-1 shows several possibilities for HPE Aruba architectural design. You choose the design that suits you best, based on scalability needs and perhaps on the pre-existing equipment.

A Mobility Master (MM) architecture can be used for medium and large networks. Figure 1-1 shows a Virtual Machine (VM)-based Virtual Mobility Master (VMM), which can run on VMware or KVM systems. You could also opt for a Hardware Mobility Master (HMM, also known as MM-HW). This is a hardened x86-based appliance, dedicated specifically to act as an ArubaOS 8 MM. For resiliency, a standby MM can be deployed on another hardware or a virtual appliance.

This design supports from 500 to 10,000 devices and up to 100,000 clients. To achieve this scalability, the MM centralizes system management and configuration but does not terminate Access Points (APs). MM is the next generation controller, with significantly more functionality and flexibility. The MM manages Mobility Controllers (MCs) and VM-based MCs (VMCs), which terminate APs. This architecture became available as of ArubaOS 8. You cannot implement this architecture with earlier ArubaOS versions.

An MC can be a part of an MM solution, as described above. An MC can also act as a so-called "standalone" controller as described below.

The MC architecture can be used for the 7000-series MCs. These "standalone" controllers can support up to 64 APs and 24 Ethernet ports. The MC can also terminate various types of VPN connections, as listed below:

- Site-to-site VPN connections from remote MCs
- Remote Access Points (RAPs)
- Instant Access Points (IAPs)
- The HPE Aruba Virtual Intranet Access (VIA) client application

If you have existing 7000-series controllers that meet your scalability requirements, this is a viable option.

Another option for smaller networks is to use a VMC architecture. Although VMCs run ArubaOS 8.x, you can create a standalone architecture, deployed like 7000-series controllers, without an MM. However, you lose some advanced 8.x features. This includes Clustering, AirMatch, and Zones.

Controllers that run ArubaOS 6.X use a Master Controller/Local Controller architecture. You know that the MC is a standalone controller, not managed by an MM. The Local Controller serves under an MC, perhaps deployed locally at another site.

You can use this same architecture with controllers that run v8.0.1 and later. Just remember, you lose higher-end features (Clustering, AirMatch, and Zones). This option can be used as an interim solution—a kind of "stepping-stone" to migrate from 6.X to 8.X. The migration tool used for this purpose makes reference to a Mobility Controller Master (MCM)—again, this is simply a non-MM Mobility Controller Master.

Finally, the Figure 1-1 shows two options that can add compelling value to your deployment, as described below:

- AirWave is an SNMP-based network operations system that can manage wired and wireless infrastructure from Aruba and many third-party systems. You get granular visibility into devices, users, and applications. This increases your situational awareness toward a more proactive approach to network management.
- ClearPass is a policy manager for mobility solutions. It improves upon legacy, AAA-based authorization with context-aware policies. ClearPass can intelligently profile devices, validate endpoint health, enable Bring Your Own Device (BYOD) and Internet of Things (IoT) onboarding, all while facilitating guest access and third-party integration.

Master-Local versus MM-MC

Master-Local

An MC can only be deployed as a physical controller, and it can terminate APs. For Master-Local deployments, the Master pushes only partial configuration to all the locals. This includes AP-Groups, Local DB, Whitelist DB, and similar items. The master will not validate the configuration before pushing to the locals. In other words, issues related to syntax and the range of parameter values will not be detected.

In this model, the master cannot push L2 and L3 configuration. This means that things such as VLAN, interface, and IP routing parameters must be configured separately on each local controller.

Also, features such as the Zero-Touch Provisioning (ZTP) and Disaster Recovery mode are not supported for local controllers.

MM-MC

The MM can be deployed on both physical and virtual (VM) appliances, but they cannot terminate APs. The MM can push full configuration to all of its managed MCs, using ZTP. The MM also validates configurations before pushing them to these MCs.

ZTP automates deployment of managed devices, enabling a more "plug-n-play" type of solution. With ZTP, managed devices acquire information from the network and provision themselves automatically.

During disruptions in MM-to-MC connectivity, you can enable Disaster Recovery mode on the managed MCs. This can help you to restore connectivity.