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Richard Deal is an independent consultant who designs wireless networks and provides network management services for small companies. He has created and developed many networking courses and instructs IT professionals on the best ways to design and implement Aruba’s wired and wireless network solutions. Richard has authored countless books on various networking topics.

Introduction

This book guides you through Aruba wired and wireless network solutions and helps you prepare for the Aruba Certified Design Associate exam (HPE6-A66). You will learn how to gather the information required to create a solution as well as how to evaluate a customer’s needs, identify gaps, and translate the needs into technical requirements. You will learn how to enter this information into IRIS. You will also learn how to estimate the number of APs using VFR. You will be able to describe Aruba product line for wireless, wired, management, analysis, and security. You will learn how to design small wireless and wired network solutions, as well as gaining practical experience with the design process. To help you learn as you go, Knowledge Check questions are included in each chapter. Refer to the Appendix to verify your answers.

Aruba Education Services

Aruba Education Services offers comprehensive training and certification programs from fundamental to advanced levels across the Aruba product line.

To learn more about Aruba certifications and training, please visit:

https://www.arubanetworks.com/support-services/training-services/

Audience

This book is designed for individuals wanting to begin their journey in understanding the various Aruba products and using best practice design guidelines to implement small network solutions. The audience includes network technicians, network engineers, network architects, and network presales individuals.
Assumed Knowledge

This is a foundational guide that introduces you to Aruba’s products and Aruba’s design philosophy for small wireless and wired networks. It is assumed that you have a knowledge of basic switching and wireless technologies.

Minimum Qualifications

Typical candidates for this certification are IT associates who want to learn about the Aruba products and the tools used to help design a network. There are no prerequisites for this. However, it is helpful to have taken the Aruba Mobility Fundamentals and the Aruba Switching Fundamentals courses or read the corresponding Study Guides for these related certifications.

Relevant Certifications

The Aruba Certified Design Associate certification validates that you have the fundamental design knowledge and skills required to plan and design Aruba campus wireless and wired networks.

Preparing for Exam HPE6-A66

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. However, the labs taught in the official course are provided for you here in this book assuming you have the correct hardware and software to perform the labs. This book covers the same material as the actual course. Therefore, to pass the certification exam, you should be intimately familiar with the material presented here. Aruba recommends reading the book and performing the labs three times before attempting the exam. Please note that successful completion of this book, corresponding course, or additional study materials alone does not ensure you will pass the HPE6-A66 exam.

Recommended Training

Recommended training to prepare for each exam is accessible from the ACDA exam page. For more information, please visit:

https://www.arubanetworks.com/support-services/training-services/certified-design-associate/

Obtain Hands-on Experience

You are not required to take the recommended, supported courses, and completion of training does not guarantee that you will pass the exam Aruba strongly recommends a combination of training,
thorough review of courseware and additional study references, and sufficient on-the-job experience prior to taking an exam.

Exam Registration

To register for an exam, please follow the links provided at:

https://www.arubanetworks.com/support-services/training-services/certified-design-associate/
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1 Overview of Aruba Solutions

EXAM OBJECTIVE
✓ Be familiar with the Aruba product line for network design.

Introduction

This chapter will be an introduction of the Aruba portfolio. You will be introduced the Aruba product lines of access points (APs), managed devices (MDs), and the wired switches. You will be introduced to the Aruba network features like the Mobility Controller (MC) firewall capabilities and Airmatch. Review the choices for management and see how activate assigns network devices. Network security is achieved with Clearpass and greatly enhanced with IntroSpect. Network analysis is enhanced with Network Insight. A great feature is location services.

The overview covers the following sections:

- **Product Introduction**: Product line and AP terminology
- **Wired and Wireless Network Devices**: Range of APs, Managed device portfolio, OS and CX switches, SD-Branch
- **Network Features**: Aruba firewall, AirMatch, Client Match, Multizone, and dynamic segmentation
- **Network Management**: AirWave and Central
- **Activate**: Activate functions
- **Network Security**: ClearPass and IntroSpect
- **Network Analysis**: NetInsight, User Insight, and Device Insight
- **Location Services**: Meridian Deployment
- **Lab Activity**
Product Introduction

Figure 1-1 provides an overview of the Aruba products and their specifications:

The 300 series APs support 802.11ac wave 2 which have MU-MIMO (multiple user – multiple input/multiple output) features also BLE (Bluetooth Low Energy) integrated. The 318 is an indoor rugged AP for harsh indoor environments. The 303H is an excellent AP for home and hospitality services. The 203R is an 11ac AP good for small office or home. You can wall jack mount or use a stand for both the 303H and 203R APs.

The 500 series APs support 802.11ax and provide differentiated capabilities which include AI-powered Wi-Fi performance assurance, always-on connectivity, and WPA3-certified security. Green AP mode offers AI-powered energy savings of up to 70%. OFDMA and MU-MIMO efficiently and simultaneously service multiple clients to provide a good experience in high-density environments. It also supports IoT and leverages your Wi-Fi infrastructure to support Zigbee and Bluetooth devices and applications.

The compact, cost-effective remote access point 203R is software configurable to operate in either 1x1 dual radio mode, or 2x2 single radio mode.

Aruba has several options for remote access including SD-Branch, the VIA software client, and RAPs. SD-Branch works well for medium-sized offices that need better bandwidth management capabilities over the internet. VIA is an excellent application for road warriors. For home or small branch offices, the 203R and even the 303H configured as a RAP are good choices. VIA is an application for your laptop or smartphone that provides you secure access back to the network.
Aruba’s outdoor APs are purpose-built to survive in the harshest outdoor/indoor environments. They can withstand exposure to extreme high and low temperatures, persistent moisture and precipitation, and are fully sealed to keep out airborne contaminants. All electrical interfaces include industrial strength surge protection.

All the controllers can execute the same functionality and you can configure, manage, and monitor them in exactly the same way. The difference between the controller models is in the network capacity and scalability. The smallest capacity controller is the 7005 which is capable of supporting 16 APs and 1,000 users. The 7240 controller is the largest capacity controller and can handle 2,048 APs and 32,000 users.

Intelligent edge switches combine a modern, fully programmable OS(AOS-CX) with carrier-grade hardware, leading performance, and incorporate the industry-first Network Analytics Engine (NAE) to monitor and troubleshoot network, system, application, and security-related issues easily.

Office Connect switches are a family of smart web-managed Gigabit switches with 10GbE uplinks for small business customers needing advanced high-performance connections. The series has no higher management services and is very simplistic and should not be used in enterprise networks.

AirWave is a management platform for monitoring and managing the networks. AirWave also has other capabilities such as reporting, Visual RF, and rogue detection and can monitor Aruba networks and other vendors. Aruba Central is a cloud-based management system.

ClearPass provides network control, access security, and advanced features such as captive portal, guest login, self-registration, as well as onboarding employee-owned devices.

The Meridian system gives you location awareness and advertising features. The new asset tracking solution can help you quickly locate business critical devices or inventory.

Aruba IntroSpect is a User and Entity Behavior Analytics (UEBA) solution that uses AI-based machine learning to spot changes in user behavior that often indicate inside attacks that have evaded perimeter defenses. Aruba NetInsight uses network analytics to diagnose issues before they are reported and optimizes performance to assure the best user experience possible.

Aruba SD-WAN provides flexible WAN management options for retail, hospitality, and healthcare organizations that are moving branch traffic off private WAN links in favor of direct Internet access.

**Wired and Wireless Network Devices**

This section introduces the range of APs, managed device portfolio, Aruba OS and CX switches, and SD-Branch.