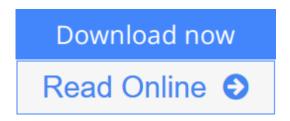


### Implementing Cisco Unified Communications Manager, Part 2 (CIPT2) (Authorized Self-Study Guide)

By Chris Olsen



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Authorized Self-Study Guide

Implementing Cisco Unified Communications Manager
Part 2 (CIPT2)

Foundation learning for CIPT2 exam 642-456

Chris Olsen

Implementing Cisco Unified Communications Manager, Part 2 (CIPT2), is a Cisco®-authorized, self-paced learning tool for CCVP® foundation learning. This book provides you with the knowledge needed to install and configure a Cisco Unified Communications Manager solution in a multisite environment. By reading this book, you will gain a thorough understanding of how to apply a dial plan for a multisite environment, configure survivability for remote sites during WAN failure, implement solutions to reduce bandwidth requirements in the IP WAN, enable Call Admission Control (CAC) and automated alternate routing (AAR), and implement device mobility, extension mobility, Cisco Unified Mobility, and voice security.

This book focuses on Cisco Unified CallManager Release 6.0, the call routing and signaling component for the Cisco Unified Communications solution. It also includes H.323 and Media Gateway Control Protocol (MGCP) gateway implementation, the use of a Cisco Unified Border Element, and configuration of Survivable Remote Site Telephony (SRST), different mobility features, and voice security.

Whether you are preparing for CCVP certification or simply want to gain a better understanding of deploying Cisco Unified Communications Manager in a multisite environment, you will benefit from the foundation information presented in this book.

Implementing Cisco Unified Communications Manager, Part 2 (CIPT2), is part of a recommended learning path from Cisco that includes simulation and hands-on training from authorized Cisco Learning Partners and self-study products from Cisco Press. To find out more about instructor-led training, e-learning, and hands-on instruction offered by authorized Cisco Learning Partners worldwide, please visit www.cisco.com/go/authorizedtraining.

Chris Olsen is the president and founder of System Architects, Inc., a training and consulting firm specializing in Cisco, Microsoft, and Novell networking; IP telephony; and information technologies. Chris has been teaching and consulting in the networking arena for more than 15 years. He currently holds his CCNA®, CCDA®, CCNP®, and CCVP certifications, as well as various Microsoft certifications.

- Identify multisite issues and deployment solutions
- Implement multisite connections
- Apply dial plans for multisite deployments
- Examine remote site redundancy options
- Deploy Cisco Unified Communications Manager Expressin SRST mode
- Implement bandwidth management, call admission control (CAC), and call applications on Cisco IOS® gateways
- Configure device, extension mobility, and Cisco unified mobility
- Understand cryptographic fundamentals and PKI
- Implement security in Cisco Unified Communications Manager

This volume is in the Certification Self-Study Series offered by Cisco Press®. Books in this series provide officially developed self-study solutions to help networking professionals understand technology implementations and prepare for the Cisco Career Certifications examinations.

Category: Cisco Unified Communications Manager 6.0

Covers: CIPT2 Exam 642-456

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# **Authorized Self-Study Guide Implementing Cisco Unified Communications Manager, Part 2 (CIPT2)**

#### Introduction

Professional certifications have been an important part of the computing industry for many years and will continue to become more important. Many reasons exist for these certifications, but the most popularly cited reason is that of credibility. All other considerations held equal, a certified employee/consultant/job candidate is considered more valuable than one who is not.

#### **Goals and Methods**

The most important goal of this book is to provide you with knowledge and skills in Unified Communications, deploying the Cisco Unified Communications Manager product. Another goal of this book is to help you with the Cisco IP Telephony (CIPT) Part 2 exam, which is part of the Cisco Certified Voice Professional (CCVP) certification. The methods used in this book are designed to be helpful in both your job and the CCVP Cisco IP Telephony exam. This book provides questions at the end of each chapter to reinforce the chapter content. Additional test preparation software from companies such as http://www.selftestsoftware.com will give you additional test preparation questions to arm you for exam success.

The organization of this book will help you discover the exam topics that you need to review in more depth, help you fully understand and remember those details, and help you test the knowledge you have retained on those topics. This book does not try to help you pass by memorization, but helps you truly learn and understand the topics. The Cisco IP Telephony Part 2 exam is one of the foundation topics in the CCVP certification. The knowledge contained in this book is vitally important for you to consider yourself a truly skilled Unified Communications (UC) engineer. The book aims to help you pass the Cisco IP Telephony exam by using the following methods:

- Helping you discover which test topics you have not mastered
- Providing explanations and information to fill in your knowledge gaps
- Providing practice exercises on the topics and the testing process via test questions at the end of each chapter

#### Who Should Read This Book?

This book is designed to be both a general Cisco Unified Communications Manager book and a certification preparation book. This book is intended to provide you with the knowledge required to pass the CCVP Cisco IP Telephony exam for CIPT Part 2.

Why should you want to pass the CCVP Cisco IP Telephony exam? The second CIPT test is one of the milestones toward getting the CCVP certification. The CCVP could mean a raise, promotion, new job, challenge, success, or recognition, but ultimately you determine what it means to you. Certifications demonstrate that you are serious about continuing the learning process and professional development. In technology, it is impossible to stay at the same level when the technology all around you is advancing. Engineers must continually retrain themselves, or they find themselves with out-of-date commodity-based skill sets.

#### **Strategies for Exam Preparation**

The strategy you use for exam preparation might be different than strategies used by others. It will be based on skills, knowledge, experience, and finding the recipe that works best for you. If you have attended the CIPT course, you might take a different approach than someone who learned Cisco Unified Communications Manager on the job. Regardless of the strategy you use or your background, this book is designed to help you get to the point where you can pass the exam. Cisco exams are quite thorough, so don't skip any chapters.

#### **How This Book Is Organized**

The book covers the following topics:

- Chapter 1, "Identifying Issues in a Multisite Deployment," sets the stage for this book by identifying all the relevant challenges in multisite deployments requiring Unified Communications solutions.
- Chapter 2, "Identifying Multisite Deployment Solutions," is an overview of the solutions to the challenges identified in Chapter 1 that are described in this book.
- Chapter 3, "Implementing Multisite Connections," provides the steps to configure Media Gateway Control Protocol (MGCP) and H.323 gateways as well as Session Initiation Protocol (SIP) and intercluster trunks to function with Cisco Unified Communications Manager (CUCM).
- Chapter 4, "Implementing a Dial Plan for Multisite Deployments," provides a dial plan solution and addresses toll bypass, tail-end hop-off (TEHO), and digit manipulation techniques in a multisite CUCM deployment.
- Chapter 5, "Examining Remote-Site Redundancy Options," provides the foundation for maintaining redundancy at a remote site in the event of an IP WAN failure by exploring the options for implementing Survivable Remote Site Telephony (SRST) and MGCP fallback.
- Chapter 6, "Implementing Cisco Unified SRST and MGCP Fallback," presents the configurations to implement SRST and MGCP fallback, along with implementing a gateway dial plan and voice features in the SRST router.
- Chapter 7, "Implementing Cisco Unified Communications Manager Express in SRST Mode,"
  discusses the configuration approaches of Cisco Unified Communications Manager Express (CUCME) to
  support SRST fallback.
- Chapter 8, "Implementing Bandwidth Management," shows you how to implement bandwidth management with Call Admission Control (CAC) to ensure a high level of audio quality for voice calls over IP WAN links by preventing oversubscription.
- Chapter 9, "Implementing Call Admission Control," describes the methods of implementing CAC in gatekeepers and CUCM and explores the benefits of Resource Reservation Protocol (RSVP) and Automated Alternate Routing (AAR) in CUCM.
- Chapter 10, "Implementing Call Applications on Cisco IOS Gateways," describes Toolkit Command Language (Tcl) and VoiceXML to implement call applications on gateways.
- Chapter 11, "Implementing Device Mobility," describes challenges for users traveling between sites and provides the solution of mobility.
- Chapter 12, "Implementing Extension Mobility," describes the concept of Extension Mobility and gives the procedure for implementing Extension Mobility for users traveling to different sites.
- Chapter 13, "Implementing Cisco Unified Mobility," gives the procedure for implementing both Mobile Connect and Mobile Voice Application of Unified Mobility in CUCM and a gateway.
- Chapter 14, "Understanding Cryptographic Fundamentals and PKI," describes the required fundamental principles and concepts of cryptography that are relevant to implementing secure voice implementations in a Cisco Unified Communications installation.
- Chapter 15, "Understanding Native CUCM Security Features and CUCM PKI," helps you understand

the security protocols of IPsec, Transport Layer Security (TLS), SRTP, and SIP digest and the methods to implement secure voice in a CUCM installation.

• Chapter 16, "Implementing Security in CUCM," demonstrates how to further implement security in a CUCM installation by securing IP Phones for their configurations, signaling, and secure media for audio and conference calls.

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