

## Essentials of Wireless Mesh Networking

Are you involved in implementing wireless mesh networks? As mesh networks move towards large-scale deployment, this highly practical book provides the information and insights you need. The technology is described, potential pitfalls in implementation are identified, clear hints and tips for success are provided, and real-world implementation examples are evaluated. Moreover, an introduction to wireless sensor networks (WSNs) is included. This is an invaluable resource for electrical and communications engineers, software engineers, technology and information strategists in equipment, content and service providers, and spectrum regulators. It is also a useful guide for graduate students in wireless communications and telecommunications.

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## CAMBRIDGE UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom  
 One Liberty Plaza, 20th Floor, New York, NY 10006, USA  
 477 Williamstown Road, Port Melbourne, VIC 3207, Australia  
 314-321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi - 110025, India  
 103 Penang Road, #05-06/07, Visioncrest Commercial, Singapore 238467

Cambridge University Press is part of the University of Cambridge.

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[www.cambridge.org](http://www.cambridge.org)

Information on this title: [www.cambridge.org/9780521876803](http://www.cambridge.org/9780521876803)

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First published 2009

*A catalogue record for this publication is available from the British Library*

*Library of Congress Cataloging in Publication data*

Methley, Steve, 1961–

Mesh networking essentials, version 02 / Steve Methley.

p. cm. – (The Cambridge wireless essentials series)

Includes bibliographical references.

ISBN 978-0-521-87680-3

1. Ad hoc networks (Computer networks) 2. Wireless metropolitan area networks.

3. Wireless LANs. 4. Fault tolerance (Engineering) I. Title II. Series.

TK5105.77.M48 2009

004.6'8–dc22

2009007356

ISBN 978-0-521-87680-3 Hardback

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## Preface

Wireless mesh networking is a hot and growing topic, still in its infancy in some ways, whilst already shown to be capable in others. From a military beginning, mesh networks moved to civilian use and are now being deployed worldwide as both local area networks (LANs) and metropolitan area networks (MANs). However, these deployments are still ‘leading edge’ and it is not yet clear what the most enduring applications of mesh will be – particularly as the market moves from early adopters towards widespread take up.

Some of the claims for what a mesh network may deliver have been very ambitious to say the least. In this book we investigate such claims versus the real qualities of mesh networks and identify the key time scales and drivers for the challenges involved with making meshes. Throughout the book we attempt to keep mathematics to a minimum. Where an equation is shown, it remains practical to follow the flow of the book without needing to understand the maths fully.

The book takes a very pragmatic but balanced approach to the issues. We are particularly interested in meshes with an external access capability, for example to the Internet. We supply a technical assessment of mesh and multi-hop networking, highlight the attractions, identify the pitfalls, provide clear and concise hints and tips for success – summarised inside the back cover – and finally evaluate some real-world examples of good mesh applications. These include wireless cities, community networking and vehicular ad hoc networks (VANETs). Wireless sensor networks (WSNs) are another important application of mesh techniques with their own unique challenges, and these receive their own chapter.

We conclude that, although some of the claims for what a mesh may deliver have been exaggerated, the real qualities of a mesh network when directed to a suitable application can still make mesh the best approach.



## Acknowledgements

The author is very pleased to be able to thank past and present colleagues for many vigorous and entertaining technical discussions. Two former colleagues, Malcolm Crisp and James Newman, deserve special thanks for the many animated brainstorming sessions we had together whilst deliberating the issues in Chapter 4. I was fortunate enough to be able to talk to many experts including Saleem Bhatti who expanded my appreciation of networking issues, especially for sensors. Other experts included Peter Massam who made many useful comments on modulation schemes, Peter Ramsdale who is now sadly missed, Frank Rowsell, Chris Davis, Nee Joo Teh, Stuart Walker, Ahmad Atefi and last but certainly not least William Webb, our book series editor, who provided many very helpful suggestions for the manuscript. Finally, I also belatedly want to thank Peter Cochrane who gave me so much encouragement in my first role all those years ago at BTRL.

Thanks are also due to my wife for her support at all times without exception and to our two sons for having such boundless energy which is a constant source of inspiration.