

Preface

The idea for this book, and the book itself, grew out of our research on mesh networks at North Carolina State University, over the period 2010–2012, during which the first author was doing doctoral research under the guidance of the second. Our research addressed various design topics in wireless multihop networking, especially the mesh paradigm. Much of the research focused on the impact of power control on mesh design, and using power control as a design tool. While we were focusing on performance issues, in keeping with contemporary research, the question slowly formed in our minds as to whether these issues were indeed the most pressing ones.

Conversations with colleagues in both academia and industry led us to believe that understanding and improving the issues of predictability of performance, and tolerance of (and robustness under) wireless disruptions and other faults, are appropriate issues for mesh design research to address at this time. Indeed, they are perhaps among the most critical, in that they point the path to providing continuity characteristics of services delivered using mesh networks—of practical importance in affecting the real-world deployment and adoption of such networks. The latter part of our research collaboration focused on these issues, some of which is represented in this book in summary.

However, it also became clear that this research area is not as well explored as it could be, and as we expect it to be in the near future. We had achieved a certain understanding of the background and issues involved in such research; while we plan to continue research in this area, it seemed appropriate to contribute our understanding to the community, in the shape of this book. We hope it will provide input to some researchers working in this area, and perhaps help, in a small way, inform their research. Although we believe we have done a reasonably comprehensive job, we consider this book to be far from the last word; we are grateful if it makes no more than an effective beginning for some researchers, in pursuing this newly emerging area.

Despite our best efforts, some factual errors may have escaped us, or we may have inadvertently misinterpreted or misrepresented some literature; we sincerely apologize for any such, and would not only welcome but value corrections from definitive sources. Obviously, such errors are our own, and not those of the sources we cite.

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