Foreword

This book has been written by an enthusiastic team of researchers to help those who are interested in using ad-hoc networks and their applications to organize nodes on the fly. The ideas and methods discussed are “state of the art” and well respected internationally. Ad-hoc networks promise to allow us to evolve toward communications systems that are properly compatible with the natural behavior of humans.

Billing aside, on the way to the “Global Village,” there are perhaps only two serious challenges. One is power, for mobility on a wire cannot be truly nomadic. Ad-hoc helps us here for it concludes to portable, inter-vehicular and maximal life wireless sensing, all of which are tending to low power.

The second serious challenge is how to make a set of nodes self organizing, and this is the domain of ad-hoc networks. This is the work of the authors in this volume. It can be argued that in the absence of the infrastructure provided by the cellular air interface or wired, only self organizing networks using ad-hoc techniques offer the robustness and converged routing necessary to deal with mobile nodes.

For the most part, wireless communications is still very much an extension to fixed networks and most devices simply map a fixed infrastructure distorted by a little mobility. Nevertheless, the three great drivers of multimedia, global positioning and license free short range radio have the industry well motivated toward people centric applications. Ad-hoc is highly likely to enable the next “killer-app” and is therefore very popular in the research of broadband use.

Wireless sensing is also covered in this book. A swarm of bees, a flock of birds and a shoal of fish are all examples of natural ad-hoc networks with low bandwidth and all of these provide clues to the use of such protocols in the “intelligent dust” theme for wireless sensor networks.

For over twenty years I have seen communications evolving towards humans. In fact, Cellular Mobile is now so pervasive that many people are rarely more than a few centimeters away from the technology. Ad-hoc networks offer fresh possibilities on top of this most useful of our endeavors.

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