

# Part I: Introduction to Wireless Local Area Networks (LANs)

## Chapter List

*Chapter 1: Networking Basics*

*Chapter 2: Wireless LANs*

*Chapter 3: The Institute of Electrical and Electronics Engineers (IEEE) 802.11 Standards*

*Chapter 4: Is Wireless LAN Right for You?*

## Part Overview

Wireless local area networks (LANs) are a new breed of LANs that use airwaves instead of a physical medium (wires or cables) to interconnect computers. Though wireless LANs use many of the same fundamental principles that wired LANs do, wireless LANs need a lot more attention when it comes to their deployment. In order to successfully deploy wireless LANs, you must understand the basics of a wired LAN and that of the wireless LANs. You must carefully choose a standard-based wireless LAN technology that would be upwardly compatible with future standards. You should consider the pros and cons of wireless LANs before you deploy them to ensure that wireless LANs are right for you. Part 1 of this book talks about all these issues by walking you through the basics of wired and wireless networks, the prevalent standards, and pros and cons of wireless LANs.

Chapter 1 talks about the history of computer networks, describes different types of computer networks, and discusses the different topologies and networking hardware and the principles behind them. We briefly discuss the International Standards Organization Open Systems Interconnection (ISO/OSI) Reference Model and its significance in network equipment standards development.

Chapter 2 explains the basic design and operation of wireless LANs. We explore the basics of wireless networks and talk about a brief history of wireless networks. We go over what a basic wireless network consists of, then we study wireless LAN architecture in detail and the technologies that make up a wireless LAN.

In Chapter 3, we examine the wireless standards that Institute of Electrical and Electronics Engineers (IEEE) 802 Local Area Network and Metropolitan Area Network Standards Committee (LMSC) committee has approved and those that are up and coming. Our focus will be 802.11, the wireless LAN working group. We will understand the differences between various 802.11 standards, their operation, interoperability, and deployment constraints.

Wireless LANs are relatively new technology. They have some great benefits and few known weaknesses. Chapter 4 helps you decide whether wireless LAN is right for you. We discuss the different aspects of a wireless LAN that directly impact the feasibility for Small Office Home Office (SoHo), Enterprise, and Wireless Internet Service Provider (WISP) deployment scenarios. We talk about the benefits, deployment scenarios, costs associated, deployment issues, bandwidth and network congestion, security, and health concerns of the wireless LANs.