QoS AND MOBILE TECHNOLOGIES

EDITORS:

AISHA-HASSAN ABDALLA HASHIM

OMER MAHMOUD

RASHEED SAEED

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

IIUM Press

Published by:
IIUM Press
International Islamic University Malaysia

First Edition, 2011

Perpustakaan Negara Malaysia Cataloguing-in-Publication Data

ISBN: 978-967-418-142-0

Member of Majlis Penerbitan Ilmiah Malaysia - MAPIM
(Malaysian Scholarly Publishing Council)

Printed by :
IIUM PRINTING SDN.BHD.
No. 1, Jalan Industri Batu Caves 1/3
Taman Perindustrian Batu Caves
Batu Caves Centre Point
68100 Batu Caves
Selangor Darul Ehsan
Tel: +603-6188 1542 / 44 / 45 Fax: +603-6188 1543
EMAIL: iiumprinting@yahoo.com

TABLE OF CONTENTS

CHAPTER 13

INTRODUCTION TO LOCAL AREA NETWORK (LAN) COMMUNICATION PROTOCOLS

SOHELI FARHANA, DR. OMER MAHMOUD

Dept. of ECE, Faculty of Engineering, IIUM

13.1 INTRODUCTION

Local Area Networks (LANs) have become an important part of most computer installations. Personal computers have been the main driving force behind the LAN proliferation. As personal computers became more widely used in office environments, so it became desirable to interconnect them to achieve two aims: to enable them to exchange information (e.g., e-mail), and to enable them to share scarce and expensive resources (e.g., printers). LANs have been so successful in realizing these aims that their cost is well justified even when there are only a handful of participating computers.

	Low End	Typically	High End
Number of Users	10s of users	20-100 users	1000s of users
Geographic Coverage	100s of meters	100-1000 meters	10s of km's
Data Rates	10s of kbps	1-10 mbps	100s of mbps
Raw Error Rates	1 bit in 100 million	1 bit in 1-10 billion	1 bit in 100 billion

Fig 13.1: Illustrates the main characteristics of LANs.

Current LANs are used for interconnecting almost any type of computing devices imaginable, including mainframes, workstations, personal computers, file servers, and numerous types of peripheral devices. Many LANs are further connected to other LANs or WANs via bridges and gateways, hence increasing the reach of their users [1-4].
In this chapter we will first look at some basic LAN concepts, and then discuss a number of widely-adopted LAN standards. As before, our aim will be to concentrate on general principles and protocols of importance rather than to get involved in the details of vendor-specific products.