

QoS AND MOBILE TECHNOLOGIES

EDITORS:

AISHA-HASSAN ABDALLA HASHIM

OMER MAHMOUD

RASHEED SAEED

**DEPARTMENT OF ELECTRICAL AND COMPUTER
ENGINEERING
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA**



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EMAIL: iiumprinting@yahoo.com

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CHAPTER 17

Wi-Fi MESH NETWORK

R.A. SAEED, M. HASAN, AISHA HASSAN ABDALLA HASHIM, OTHMAN O.
KHALIFA, OMER MAHMUD, SHAYLA ISLAM

*ECE Dept. Fac. of Eng., International Islamic Univ. Malaysia (IIUM). Jalan Gombak, 53100
Kuala Lumpur, Malaysia.*

hasankamrul@msn.com

17.1 INTRODUCTION

A wireless infrastructure is creating a means to rapidly deploy low-cost wireless broadband in metro, campus and enterprise environments. Based on mesh routing technology wireless mesh networking is competing with traditional macro cellular technology in performance in the wireless broadband market offering local- and metropolitan area network connectivity. Mesh networking addresses two issues that are critical in rendering metropolitan-area Wi-Fi deployments practical: covering a large area (relative to conventional Wi-Fi) with each access point and providing cost-effective backhaul using the wireless meshing technique. For outdoor hot zone implementations, mesh networking extends typical Wi-Fi networks by using multiple low-cost 802.11 radios as routing nodes that pass data among themselves and require far fewer backhaul connections. In mesh network architecture, Wi-Fi access points themselves act as transmission nodes to provide short-haul connectivity back to centralized transmission connection points within the vicinity of the Wi-Fi nodes. In order to providing radio access to subscriber devices, each access point has radio equipment to enable it to provide a transmission circuit to a nearby node. This nearby node also offers access to subscriber devices in its vicinity and provides transmission capabilities for its own traffic and those for which it is acting as a transmission node. Typically in a reasonably loaded network, it is necessary to offload the meshed transmission to dedicated transmission connections within its vicinity. The access points either use the same radio frequencies (typically 2.4 GHz) for access and transmission or separate unlicensed radio frequencies, most commonly 2.4 GHz for access and 5.8 GHz for transmission(see Fig 17.1).

The rest of the chapter is organized as follows. Section 2 presents mesh network architecture with WiFi, Section 3 analysis of related works, in section 4 summarizes the chapter.