

# Multimedia Encryption, Transmission and Authentication

Edited by

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# Chapter 29

## MOBILITY MANAGEMENT IN MULTICAST ENVIRONMENT

M. L. Sanni, A. A. Hashim, A. W. Naji and G. S. M. Ahmed

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### 29.1. Introduction

The communication in traditional network is unicast enabled by IP unicast protocol, on the contrary, group communication is the norm in human setting [1] and numerous applications abound like Mobile TV, Multimedia and General Content Distribution and other collaborative applications [2]. However, point-to-point communication in such use cases of lecture delivery will waste bandwidth, and broadcast is not even a good option as recipients should only be registered students and not all students. The only possible alternative is to employ multicasting.

Multicasting is a necessity in situations which are typified by transmission of identical multimedia information to multiple recipients who are in close collaboration. It enables such applications to be deployed at a reduced communication costs by minimising bandwidth usage, processing overhead at the sender and the router, unnecessary network traffic and delivery delay [3-4] [2]. [5] defined solutions to multicast routing problem as involving a derivation of a multicast tree which spans from multicast source(s) to every member of the multicast group.

It is noteworthy to mention that it is the routing protocols that offer the multicasting service [3] [6]. This implies that a change in the nature of the access network will necessarily call for a change in the routing protocol that will also offer multicasting in such environment. Therefore, approaches to multicasting in wired and mobile ad hoc networks are definitely going to be different from that of Wireless Mesh Networks (WMNs), because of the differing network models.

The Internet Engineering Task Force (IETF) started the IP mobility support research with the Mobile IP working group coming up with mobile IPv6 standard [7]. MIPv6 has since