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 35

MPLS ARCHITECTURES

OMER MAHMOUD , AISHA HASSAN ABDALLA HASHIM, OTHMAN KHALIFA

Electrical and Computer Engineering Department Faculty of Engineering

International Islamic University Malaysia

35.1 INTRODUCTION

Multiprotocol label switch Protocol MPLS is QoS architecture that proposed by ITEF [1]. MPLS work between layer three and layer two of the IOS model. MPLS provide connection oriented approach to the IP network which is inherently connectionless and in doing so it provides all the advantage of the connection oriented networks while maintaining the dynamism of IP networks. The chapter provides an introduction to MPLS architecture.

35.2 MPLS BASICS

In conventional IP [1,2] routing each router make independent decision on how to forward the incoming packet. The router will base its decision on routing table as a result two packets that belong to same traffic flow could arrive to destination using deferent route. Therefore it same time refer to as connectionless IP routing. Connectionless approach work well and it has its advantages especially on the network is not heavily loaded. However under loaded network the approach has it is own limitation that may result in degrading the QoS for the flows.
MPLS adapt deferent approach by classifying back by it "Forwarding Equivalence Classes (FECs). When the packet enter the MPLS domain he ingress router classify the packet to belong ot specific FECs then attach as affixed length label where each label has predetermined destination or path. Therefore intermediate router does not need to refer the IP header for forwarding instead uses the label. The forwarding of incoming packet id done as fellows when IP packet enters the MPLS domain the edge router examines the IP packet header and places a label on it and forward it to next intermediate router . the intermediate router will examine the label , where each label as specific predetermined next hop destination decided by the label switching path LSP[3]. , before forwarding the packet the intermediate router replace the old label with a new one. the MPLS label is removed at egress MPLS router.