QoS AND MOBILE TECHNOLOGIES

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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
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CHAPTER 4

DIFFERENTIATED SERVICES

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4.1 INTRODUCTION

Differentiated Services was developed to reach a scalable QoS for the internet. It divides traffic into groups of predefined forwarding treatment. These groups are called forwarding classes. Each packet contains a Differentiated Services Code Point (DSCP) which states what class it belongs. The differentiated services architecture is based on a simple model where traffic entering a network is classified and possibly conditioned at the boundaries of the network, and its DSCP assigned. Within the core of the network, packets are forwarded according to the Per-Hop Behaviour (PHB) associated with the DSCP.

4.2 DIFFSERV STANDARDS

Resources are allocated to classes rather than specific flows. A flow's QoS requirements are provided by prioritization and provisioning [1]. Edge routers handle the classification of packets and interior routers just follow the corresponding forwarding treatment per hop behaviour (PHB) to a packet's class. Ingress routers ensure that the traffic entering the DS domain conforms to any Traffic Conditioning Agreements (TCA) between it and the other domain to which the ingress node is connected. Egress routers, on the other hand, perform traffic conditioning functions on traffic forwarded to a neighbouring domain, depending on the details of the TCA between the two domains. A boundary router acts as both Ingress and Egress router as shown in Fig. 4.1.

No end-to-end services are defined by DiffServ, rather, forwarding treatments are. DiffServ basically comprises forwarding treatments and admission control. Monitors flow packets rather than reserves required resources. Resources are allocated to forwarding classes and the amount of traffic for each class is monitored. Provisioning and prioritization give different levels of services.

Service Level Agreements (SLA) between ISP and customers are implemented by the boundary nodes connecting customer to ISP. SLAs are contracts with different rates for different service levels.

Different domain service providers could map their definitions through inter-domain agreements. DiffServ can be deployed and expanded in the internet.