

UNIVERSITI TEKNOLOGI MARA

**FLOW BASED NETWORK MEDIATION AND
QoS MEASUREMENT**

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Candidate's Declaration

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This topic has not been submitted to any other academic institution of non-academic institution for any degree of qualification.

In the event that my thesis be found to violate the candidates mentioned above, I voluntarily waive the right of conferment of my degree and agree be subjected to the disciplinary rules and regulation of Universiti Teknologi MARA.

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Abstract

Flow based network monitoring is the new telecommunications network monitoring technique that is used nowadays. With this technique, each TCP/IP flow between sender and receiver will be captured using capturing tool and will be analyzed using specific applications. There are a few issues arised among researchers in the area of flow based network monitoring. This includes the reliability of using flow based traffic repository system. Another issue that arise is the separation between the typical networks monitoring with Quality of service (QoS) monitoring. This research intends to design a simple prototype of flow-based network monitoring for mediation and QoS monitoring. This research also aims to do a detailed inspection of every step of flow based network monitoring. This involves step-by-step experiments from packet capture to flow central collector. The experiments produced the best architecture of flow based system, as well as exposing the advantages and disadvantages of each different option. We are developing the network test bed to test and prove the hypotheses. We also used real traffic capture from a live network as the source of our solution. Both of these techniques (test bed and real traffic capture) were used to produce optimum experiment results. We also used generated traffic from a traffic generator D-ITG to be used into our system. The experiments were done in order to get a variety of results. This research made several new discoveries in the network mediation system and usage of flow based network for QoS measurement.

TABLE OF CONTENT

	PAGE
CANDIDATE DECLARATION	ii
ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENT	v
LIST OF TABLES	vii
LIST OF FIGURES	ix
LIST OF ABBREVIATIONS	xv
 CHAPTER 1 : RESEARCH INTRODUCTION	
1.1 TCP/IP Based Telecommunications	1
1.2 TCP/IP Network Monitoring	3
1.3 Network Monitoring Problems	8
1.4 Objectives of the Research	10
1.5 Scope and Constrain of the Research	11
1.6 Thesis Organizations	12
1.8 Conclusion	14
 CHAPTER 2 : LITERATURE REVIEW	
2.1 Overview	15
2.2 Network Flow Definitions	17
2.3 Flow Based QoS Measurement	21
2.4 Mediation System Study	27
2.5 Flow Based System Implementations	29
2.6 Conclusion	31

CHAPTER 1

RESEARCH INTRODUCTION

1.1 TCP/IP Based Telecommunications

TCP/IP is the engine of our telecommunication today. TCP/IP is used as the logical layer for any type of physical layer technologies. TCP/IP packet flows from source to destination address. Figure 1.1 until 1.5 show the TCP/IP structure defined by IETF.

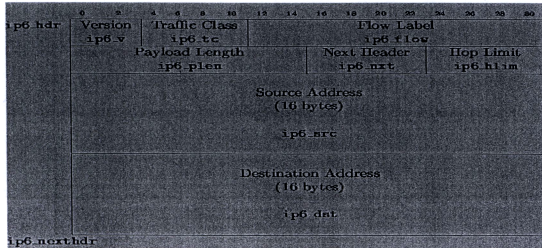


Figure 1.1 : IPv6 Header