

UNIVERSITI TEKNOLOGI MARA

**VIDEO TRAFFIC ANALYSIS ON UNIFI
BROADBAND NETWORK**

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ABSTRACT

This research presents Video Traffic Analysis and modeling traffic on UNIFI Broadband Network traffic data. Today's problem identified that network traffic used is increased rapidly especially on the use of streaming videos in multimedia applications. Performance of network in controlling video traffic is essential in promising Quality of Services (QoS) in a network and reliability of bandwidth used. First, the objective of this research is to analyze videos traffic characteristics and its model based on 10 Mbps UNIFI internet home networks. Secondly, to identify three types of video traffic parameters such as YouTube video, live video on Facebook and online streaming video. These videos are captured based on busy hour time and non-busy hour with differences of wired and wireless for six user's connections. Thirdly, to identify best traffic model based on fitted model in developing network traffic bandwidth control algorithms. MatLab Dfittool program is used to analyze and identify the best traffic model. Results presents four top traffic protocols are identified which are Transmission Control Protocol (TCP), User Datagram Protocol (UDP) and Quick UDP Internet Connection (QUIC) protocol when streaming the videos in UNIFI network. Traffic characteristics such as byte flow, maximum and minimum traffic speed bits are presented. One the best fitted traffic models are identified as best models which are Pareto model on difference video type. Hence, with the identified traffic models and its parameters can be used in designing a controller to monitor the committed bandwidth of UNIFI network. This research significant in optimizing the network used for customers and get their QOS in terms of cost and committed access rate.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

In Malaysia, Telekom Malaysia (TM) Berhad is the one of the leading telecommunication service provider. TM Berhad build a latest technology for improve their service that called as UNiFi. UNiFi comes out with triple play services which offer three types of services such as High Speed of Internet (HIS), HyppTV (IPTV) and Voice over Protocol (VOIP). But this research only focuses on High Speed of Internet (HIS). Unifi is identified as the latest internet services technology in Malaysia. Recently, Unifi packages offer high speed lines to home network, but still users experience with slow internet access. Thus, it is important to monitor the speed of line internet activities in real time broadband network and analyze in network traffic to get a better performance of Quality of services (QoS). QoS is a set of requirement that guarantee certain performance in packet transfer. The best performance of QoS is to reduce the number of discard packet and can minimizes packet delays[1].

Traffic analysis is one of technique to understand the requirement and capabilities of a network. A main part in network traffic analysis is a video traffic modeling. The good traffic modeling is based on understanding the features of the models and how to identify the best traffic model[2]. There are three top of traffic model that already identify after capture the real time data which is Exponential Distribution, Normal Distribution and Pareto Distribution. MatLab software is one of