

ANALYSIS OF QUALITY OF SERVICE RANKING FOR RADIO NETWORK OPTIMIZATION IN SHAH ALAM

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ABSTRACT

Cellular technology is emerging rapidly. Based on the demand of the users, next generation cellular system is being able to provide a variety of applications for user's satisfaction. The Universal Mobile Telecommunication System (UTMS) is a 3rd generation telecommunication system which provides various multimedia applications along with conventional telephony service. The Quality of Service (QoS) is the major concern for real time application such as voice and video telephony. Thus to fulfill the user demand, it is necessary to improve the QoS. The immediate objective of this project is to identify and rank the QoS provided by three ambiguous mobile network operators. Is means real network operator but in order to protect their real identities are replaced by Network Operator A, Network Operator B and Network operator C. This will avoid complication, should you thesis falls in wrong hands. The QoS measured focused on an interactive class of service and based on the end-user perspective. The QoS are measured based on three parameters which are accessibility, retainability and connection or time delay. The data were collected using the Nemo Handy-A installed in a HTC Sensation Z710e smartphone. Drive tests were performed in Shah Alam. The result is analyzed using the average total data for one day. The results indicated that Network Operator C has the best QoS for interactive class of service in Shah Alam followed by Network Operator A and Network Operator B.

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CHAPTER 1

INTRODUCTION

This chapter discusses a brief introduction about the background of an overall research project including background, problem statement, objectives, and scope of works and outline of this thesis.

1.1 BACKGROUND

Telecommunication industry has experienced rapid growth due to the advancements in the semiconductor technology industry. The demands in this industry increase rapidly to meet the needs of human lifestyle and new technology can be seen being launched which indicate the latest technology in this field. In the mobile communication network, the main objective of radio network optimization is to achieve the optimal network design of the best possible grade of services (GoS) and quality of services (QoS) within budgets and constraints of cell configurations. The Gos and QoS are measured by a succession of technology-specific key performance indicators (KPIs)[1] such as coverage and user rejection percentage. The QoS is very important to the mobile provider to provide the best service to the mobile subscriber. The term QoS is used for different strategies and techniques designed to provide end users with a predefined and predictable level of service from the network and other components associated with the network[2].

The 3G network in Malaysia is based on the Universal Mobile Telecommunication System(UMTS) standard which is created and revised by the 3rd Generation Partnership Project(3GPP)[3]. There are four different classes of traffic in UMTS as defined by 3GPP and therefore the QoS of UMTS based 3G network must also be in accordance with these four classes of traffic. This study will focus on the interactive class of QoS. Interactive traffic is one of the classical data communication modes that at an overall level are characterized by the request response pattern of the end-user. At the message destination there is an entity expecting the message (response) within a certain time. Round trip delay time is therefore one of the key