

**UNIVERSITI TEKNOLOGI MARA**

**COMPARISON ANALYSIS BETWEEN RADIUS  
AND DIAMETER AAA PROTOCOL IN WIMAX  
MOBILE IP**

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## **ABSTRACT**

The Mobile IP is the main feature of Wimax, by providing mobility based on IP addresses. In Mobile IP, the node can change its location by maintaining the same IP address and keep connected to the internet, which solves the issue of terminating the communication once it moves. In Malaysia, Mobile IP is never been implemented by any service provider until YTL Communication (YES) implemented it to support their Mobile Wimax network. One of the main components in Mobile IP is Authentication, Authorization and Accounting (AAA) protocols.

This thesis studied the differences between RADIUS and DIAMETER Authentication, Authorization and Accounting (AAA) protocols in Mobile IP where live practical examples of AAA mechanism and behaviors were tested in real time situation. The following observation and measurements were made; session control and mobility establishment, network entry success and failed for Radius and Diameter protocol, End to End network entry setup time for both Radius and Diameter and the Total Number of Connected Users vs Throughput. The results are presented both tabular and graphically.

It is showed that the Radius protocol is slightly faster in processing the authentication compared to Diameter servers due to it requires less traffic to authenticate the network entry. Since Diameter is TCP based, it performs better in acknowledging the transaction. Despite the fast processing in Radius, Diameter reacts triple times faster when the primary server is unavailable. Other than that, Diameter great improvement is exchanging information with its peer while mobility. The fact that the Radius does not have this possibility causes a considerable standstill in the Radius protocol authentication.

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Background**

The explosive growth of smart mobile and computer devices have triggered an increased reliance on data resource to access Internet. It creates numerous opportunities for network providers and operators as many of these devices derive their usefulness from their ability to get access to the Internet. At the same time, with the emerging wireless technology, as we begin to store more of our credentials on our wireless gadgets, and as the needs for user authentication continue to expand, many users and network providers are concerned on their access security, confidentiality, availability and integrity for data communication.

Thus, access to the network needs to be controlled. Users and devices need to be authorized for a variety of services and functions and often they must pay for their usage. Due to that, there has been a surge of interest in creating new access protocol to better enable operators to take advantage of these opportunities. The common access protocol to access the Internet is known as AAA – Authentication, Authorization and Accounting protocol. There is no doubt that AAA services are important in today's Internet, given that much of the access control is served by RADIUS servers.