UNIVERSITI TEKNOLOGI MARA

PERFORMANCE ANALYSIS OF GSM HANDOVER IN RAN SHARING TECHNOLOGY

MOHD ARIF BIN MD KURDI

MASTER OF SCIENCE IN TELECOMMUNICATION AND INFORMATION ENGINEERING

JANUARY 2014

ACKNOWLEDGEMENT

First and foremost I would like to highly appreciate the constant motivation and encouragement shown by my supervisor, Prof Madya Dr. Norsuzila Bt Yaacob, who has supported me throughout my thesis with her patience and knowledge. Without her support and guidance, it would not have been possible to complete the research presented in this thesis.

I also like to use this opportunity to express my deep sense of gratitude to my beloved parents, for their prayer, passion and encouragement that has enable me to succeed. My gratitude also goes to my beloved late mother, Badariah Bt Hassan whom I love with all my heart. My parents have been a constant source of inspiration for me. Not to forget to all my beloved siblings Farah Adila, Nurul Adian, Muhammad Anwar and Muhamad Asyraf, they are the persons who made me what I am today.

Last but not least, my sincere thanks to all my friends especially to all my study group, Khairul Rahim Khairudin, Amirah Jaafar Mad Ariff, Nur Hazwani Zaidoon, Nor Azzahra Ibrahim, Nor Amin Mohd and relatives who have directly or indirectly helped me in all aspects regarding the thesis and project. Also not to forget, I am indebted to my precious

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ABSTRACT

Operators today face an inevitable overlap to anticipate and respond to the burgeoning demand for mobile broadband (MBB) subscriber. Thus, to meet the demand, Long Term Evolution (LTE) is develop and emerging faster than expected, while Global System for Mobile Communications (GSM) and Universal Mobile Telecommunications System (UMTS) continue to meet the needs of the vast majority of the world's mobile subscribers. To support two coexisting modes, GSM and UMTS plus LTE in the future, traditional models call for three sets of equipment and three networks, placing major pressure on operators from deployment to operation and maintenance (O&M). Radio Access Network (RAN) sharing or its other term such as SingleRAN, EvoRAN and SDR are said to be the problem solver for the mobile operators. However, as the term indicated, RAN sharing can give impact on the technical part of the network. Handover failure is expected to be one of the main issue when mobile operators deploying RAN sharing in their network. This research discussed on the impact of RAN sharing on the performance analysis of the GSM network at the BTS side in term of handover after the migration from current technology to RAN sharing technology. In this research, Nemo Analyze 6.1 software along with test phone and dongle for Nemo Outdoor software were used to capture parameters during drive test such as RXLevel, RXQuality, drop call and also call attempts. Data from Operation Support System (OSS) also were used in analysing the impact of RAN sharing. It has been proven that RAN sharing does not only gives it fair share in reducing cost for mobile operators but also help in improving their network as well.

CONTENT

CHAPTER 1

INTRODUCTION

1.0 Background

RAN sharing or other term such as SingleRAN, Evo RAN and Software Define Radio (SDR) depending on the vendor brings new changes and advantages into the network. Mobile operators can now have many choices to choose various types of features either from network deployment to maintaining and enhancing their network which ever that their feel suitable with their network and also in line with the market development.

Besides that, from equipment level perspective, RAN sharing is enable to support various type of networks in one single equipment. Network features for GSM, UMTS and LTE can now be fixed into one single equipment without having to buy three set of equipment separately. All features for those three networks can now be combined and shared efficiently within one network and resources including spectrum and