Evaluasi implementasi RF modernization dari "V3" ke "SDR" BTS : studi kasus Kota Palu = The evaluation of RF modernization implementation from "V3" to "SDR" "BTS" : case study of Palu city / Erfin Budi Sulistyanto

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Abstrak

ABSTRAK
Seiring dengan berjalannya waktu dan teknologin yang makin berkembang, perkembangan bisnis telekomunikasi berkembang sangat pesat. Hal ini menuntut pada operator untuk lebih kompetitif dalam pencarian pangsa pasar serta dalam memberikan layanan yang terbaik kepada pelanggan. Jumlah operator seluler yang banyak semakin meningkatkan persaingan para operator dalam memperebutkan pangsa pasar, baik untuk memperoleh pangsa pasar baru atau untuk mempertahankan pangsa pasar yang telah didapatkan. Operator telekomunikasi harus selalu menjaga kualitas serta performansi jaringan telekomunikasi.

Untuk meningkatkan kapasitas dan menjaga kualitas layanan, serta meningkatkan kemampuan dan kehandalan perangkat telekomunikasi, khususnya pada sisi RF (Radio Frequency), maka operator melakukan upgrade teknologi. Dalam hal ini dilakukan upgrade teknologi pada jaringan akses RF dari yang sebelumnya masih tradisional V3 BTS ke SDR BTS dengan berbagai kelebihan yang dimiliki, sehingga implementasi upgrade BTS tersebut diharapkan dapat meningkatkan fleksibilitas, reliabilitas, kapasitas dan kualitas performansi.
Implementasi teknologi pada jaringan akses Telkomsel tersebut diperlukan karena semakin meningkatnya jumlah pelanggan Telkomsel dan diharapkan bisa menggalakkan revenue dengan tambahan cakupan coverage dan capacity yang dimiliki. Selain itu juga berkaitan dengan persiapan jaringan akses dalam implementasi teknologi 4G LTE ke depan pada jaringan Telkomsel. SDR BTS diharapkan dapat meningkatkan kinerja dan performansi jaringan sehingga dapat mendukung implementasi teknologi broadband.
Parameter OSS KPI yang meningkat performansinya diantaranya Handover Success rate (HOSR), TCH Call Drop Rate (TDR), SDCCH Success Rate (SDSR), TBF Completion Rate (TBF CR), TBF UL/DL Establishment Success Rate (TBF UL/DL Est SR), TCH Traffic, TCH Blocking Rate (excluding handover), EDGE&GPRS Payload dan EDGE&GPRS Troughput.Parameter Drive Test KPI secara event yang meningkat performansinya diantaranya Call

Setup Success Rate (CSSR),Dropped Calls (CDR), Handover Success rate (HOSR), Rx Quality, Speech Quality Index (SQI), Rx Level , Routing Area Update Intra System Success Rate dan Distribusi Trafik Data. Apabila dilihat dari sisi investasi dengan melihat Net Present Value, Internal Rate of Return, dan Payback Period maka implementasi modernisasi RF ini sangat menguntungkan dan memiliki tingkat profitabilitas yang cukup tinggi. Berdasarkan hasil analisis resiko sensitivitas terhadap investasi disimpulkan bahwa nilai NPV berbanding lurus dengan perubahan trafik dan tarif, namun nilai NPV berbanding terbalik dengan discount rate, OPEX dan nilai tukar dolar.
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ABSTRACT
As time goes by and with acquired technology, the development of the telecommunications business is growing very rapidly. This requires the operator to be more competitive in the search market share as well as in providing the best service to customers. Many number of mobile operators was increased competition in gaining market share, both to gain new market share or to maintain market share has been obtained. Telecom operators must always maintain the quality and performance of telecommunication networks. To increase capacity and maintain quality of the service, and to improve the capacity and reliability of telecommunications equipment, particularly in the RF (Radio Frequency), then the operator to upgrade technology.

In this case the
telecommunication operator do upgrading the technology in the access network from the previous RF V3, that still traditional BTS to SDR BTS. With the implementation of the upgrade V3-SDR BTS is expected to increase the flexibility, reliability, capacity and performance quality.
Technology implementation in the Telkomsel access network become necessary because of the growing of Telkomsel subscribers and can be expected to generate revenue to promote coverage and capacity owned. It also relates to the preparation of access networks in 4G LTE technology of Telkomsel network implementation forward. SDR base stations are expected to improve the network performance so that it can support the implementation of broadband technologies.
OSS KPI parameters increasingafter implementation for Handover Success rate (HOSR), TCH Call Drop Rate (TDR), SDCCH Success Rate (SDSR), TBF Completion Rate (CR TBF), TBF UL / DL Establishment Success Rate (TBF UL / DL Est SR), TCH Traffic, TCH Blocking rate (excluding handover), EDGE & GPRS Payload and EDGE & GPRS Troughput.Parameter Test Drive KPI event that increases its performance such as

Call Setup Success Rate (CSSR),

Dropped Calls (CDR), handover Success rate (HOSR) , Rx Quality, Speech Quality Index (SQI), Rx Level, Intra Routing Area Update Distribution System Success Rate and Traffic Data. When viewed from the side of the investment by looking at the Net Present Value, Internal Rate of Return, Payback Period thus the implementation of the modernization is profitable and has a fairly high level of profitability. Based on the results of risk analysis concluded that the sensitivity of the NPV of investment is proportional to the change in traffic and the tariff, but its NPV is inversely related to the discount rate, OPEX and dollar exchange rate.