MEASUREMENT AND FORECASTING OFTRAFFIC FLOW AT TELEPHONE SWITCHING SYSTEM

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ABSTRACT

For an organisation, forecasting plays an important role in planning. At Telecom Malaysia Berhad (TMB), the forecasting method is used to forecast some requirement such as telephone demand, subscriber demand, cable requirements,traffic flow and so on.

The present technique of forecasting traffic flow within exchanges is the Iterative (also known as Kruithof) method which are characterised by the traffic matrix balancing algorithms.This is done by Perancangan Asas Rangkaian (PAR) division using CAPTAIN and FOREMAN's software. This is for the long-term budgeting purpose.

For maintainance purpose, the Teletraffic and Congestion Management division under Operasi Rangkaian National (ORN) takes the responsibility to make decision to forecast the future requirement of trunk and junction circuit to cater the traffic flow throughout the exchanges. The curent practice uses only the conversion table based on the traffic reading taken from the monthly reports .The three months reading will determine the required number of circuits for the exchange whether the circuit has to be increased or decreased. This will involve the congestions for at least three months. The data for the whole Malaysia are converted by using database sofeware known as NREC .

This project is to forecast the traffic flow with the objective to avoid the congestions and rise up the Telecom revenue to save the budget and to help the planning division for their future plan. The scope is only for the Digital Remote Switch (DRS) or point to point exchanges.

The method used is Intervention method by Box and Jenkin (1970), one of the quantitative technique to forecast the traffic flow for the next three years. Then by using the conversion table, the correct number of junction circuits can be determined.

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1.0 INTRODUCTION

1.1 Introduction

Forecasting is very important in many types of organisations since predictions of future events must be incorporated into the decision-making process. The government of a country must be able to forecast such things as air quality, water quality,unemployment rate, inflation rate and others in order to formulate its policies.A university or high learning institutions must be able to forecast student enrollment in order to make decisions concerning faculty resources and hostel availability. A local authority must be able to forecast the number of populations in order to fulfill the housing requirement. The head of organisation must be able to forecast the weather of the place which they plan to go for trip in order to make proper preparations. So, that is why forecasting is seriously taking part in the management process.

Also for telephone exchange, the traffic flow is needed to be forecasted to know the future amount of traffic flow so that the further effort can de done to increase the junction circuit, to avoid the congestions.

1.1 Project scope

Kuala Selangor group switching center (GSC) was decided to be the case study area. Kuala Selangor has nine Local exchanges and several other GSC connected to it. The network diagram is shown in appendix 1.

Two, out of nine exchanges were selected to be used as a model, that is **Tanjung Karang** and **Sasaran** exchange (see table 1 appendix 2) . They have the highest number of subscribers, so the changes of traffic flow are expected to be faster. The traffic reading of incoming and outgoing calls were taken to forecast the future traffic flow for the next