KOLEJ KOMUNITI ARAU PERLIS (KKAP) NETWORK MODELING USING OMNET++

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ABSTRAK

Rangkaian komputer menjadi sangat penting di dalam masyarakat pada masa kini. Majoriti syarikat bergantung sepenuhnya kepada rangkaian komputer untuk menjalankan urusan komunikasi, pentadbiran, automasi, e-perniagaan dan fungsi korporat yang lain. Gangguan kepada rangkaian tersebut, akan menyebabkan kerugian yang besar kepada syarikat. Untuk mengelakkan masalah ini dari berlaku, Pengurus Unit ICT memerlukan suatu perisian simulasi, untuk membantu di dalam merekabentuk dan menguruskan rangkaian komputer. Perisian simulasi membolehkan keputusan dapat dilihat secara maya apabila berlaku penambahan perkakasan rangkaian, perubahan topologi, peningkatan muatan trafik dan penambahan pengguna di dalam rangkaian. Perisian Simulasi OMNeT++ terdapat pelbagai fungsi untuk menghasilkan sebuah simulasi rangkaian. Objektif projek ini adalah untuk membina dan menghasilkan simulasi rangkaian sebenar di Kolej Komuniti Arau Perlis (KKAP) menggunakan perisian simulasi OMNeT++. Simulasi ini menggunakan data dan parameter yang sebenar, diambil daripada sistem rangkaian sedia ada. Jangkaan keputusan projek ini, akan menghasilkan simulasi rangkaian komputer mengikut rangkaian KKAP yang sebenar. Pada masa akan datang, projek ini dijangka akan digunakan untuk membantu KKAP di dalam merangka untuk meningkatkan kapasiti rangkaian tanpa menjejaskan rangkaian yang sedia ada.

ABSTRACT

Computer networks have become extremely important in our present-day society. A majority of companies depend on the proper functioning of their networks for communications, administration, automation, e-business solutions and other corporate functions. Outage of the network can cost a company millions of money. To avoid these problems, system managers need professional tools to help them with the design and maintenance of computer networks. A simulation tool offers a way to predict the impact on the network of a hardware upgrade, a change in topology, an increase in traffic load or the use of a new application. OMNeT++ offers a number of tools specifically designed for these purposes. The objective of this project is to design and simulate existing network in Kolej Komuniti Arau Perlis (KKAP) building using OMNeT++ simulation environment. KKAP may deploy internal mesh network that provide better communication inside the campus, inter-department and levels of the actual KKAP's buildings. From the simulation, data are collected as if a real system were being observed. The results are expected to show that OMNeT++ provides credible simulation results close to a real system. Thus, in future these models are expected to assist KKAP to explore new design options without disrupting the existing systems.

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Mohd Aishamuddin bin Yaakob
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CHAPTER ONE

INTRODUCTION

Networks are collections of computers, software, and hardware that are all connected to help their users work together. A network connects computers by means of cabling systems, specialized software, and devices that manage data traffic. A network enables users to share files and resources, such as printers, as well as send messages electronically (e-mail) to each other.

A. Kolej Komuniti Arau Perlis (KKAP)

Kolej Komuniti Arau Perlis (KKAP) was established on June 12, 2001 to carry out 2 full time courses Certificate of Architectural Draughtsman and Certificate of Electrical Technology (Installation and Service). At the beginning, KKAP is located in Arau Technical School before moved to permanent campus in Tambun Tulang, Arau Perlis.

Located in rural area, it is a strategic area for education hub to conduct learning process effectively without city bustle interference. The five storeys's building consisting of lecture rooms, computer laboratory, learning laboratory, administration office, and also library.

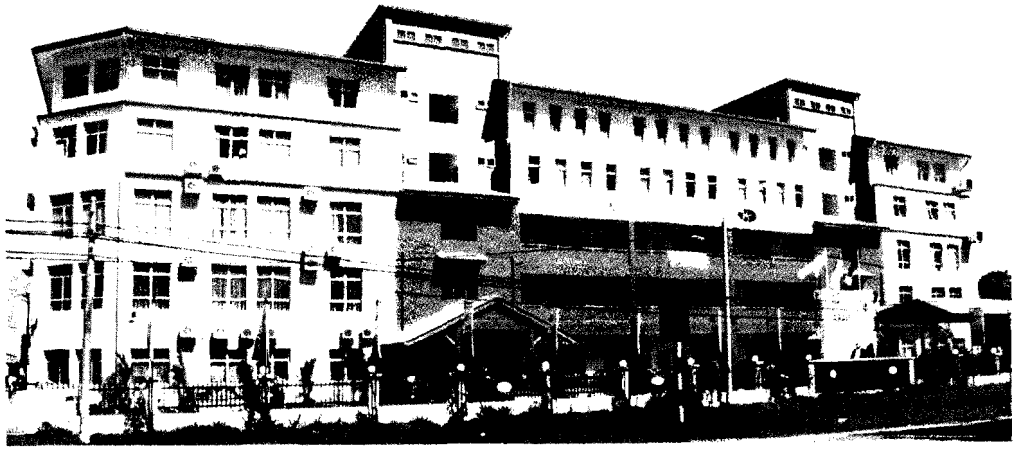

Figure 1.1: Kolej Komuniti Arau, Perlis in Tambun Tulang, Arau Perlis

The contents of the thesis is for internal user only

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