
CLOUD COMPUTING IN HIGHER INSTITUTION: A TOOL TO CALCULATE
TOTAL COST OF OWNERSHIP COMPARISON BETWEEN TRADITIONAL
COMPUTING AND CLOUD COMPUTING

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A TOOL TO CALCULATE TOTAL COST OF OWNERSHIP COMPARISON
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ABSTRACT

The aim of this study is to do the comparison of Total Cost of Ownership (TCO) between Traditional Computing and Cloud Computing in higher institution. The higher institution that are chosen is University Malaysia Perlis (UniMAP). The problem addressed by this study is currently UniMAP Data Center use the Traditional Computing which are difficult to maintain, requires more data center space, large storage and server. This study help to compare and determine which computing technology is more cost effective. This study proposes solution using Cloud Computing as a lower cost option. There are five steps for creating a Total Cost of Ownership analysis which are project initiation, cost modelling, cost collection, evaluating and final report and ongoing refinement of the TCO Model. To calculate the TCO comparison, a tool to calculate the total cost of ownership (TCO) for both Traditional Computing and Cloud Computing will be done by using Microsoft Excel. This study compares the Traditional Computing and Cloud Computing over a period of 5 years.

ABSTRAK

Tujuan kajian ini adalah untuk membuat perbandingan Kos Jumlah Pemilikan (TCO) antara Pengkomputeran Tradisional dan Pengkomputeran Awan di institusi tinggi. Institusi yang dipilih adalah Universiti Malaysia Perlis (UniMAP). Masalah yang ditangani oleh kajian ini adalah pada masa ini ialah Pusat Data UniMAP menggunakan teknologi Pengkomputeran Tradisional yang sukar untuk diselenggara, memerlukan lebih banyak ruang di pusat data, storan besar dan lebih banyak pelayan. Kajian ini membantu untuk membandingkan dan menentukan teknologi pengkomputeran yang lebih kos efektif. Kajian ini mencadangkan penyelesaian menggunakan Pengkomputeran Awan sebagai pilihan kos rendah. Terdapat lima langkah untuk mewujudkan Total Kos analisis Pemilikan, iaitu permulaan projek, pemodelan kos, pengumpulan kos, menilai dan laporan muktamad dan perbaikan berterusan bagi model Total Kos analisis Pemilikan (TCO). Untuk mengira perbandingan TCO, alat untuk mengira jumlah kos pemilikan (TCO) bagi kedua-dua Pengkomputeran Tradisional dan Pengkomputeran Awan akan dilakukan dengan menggunakan Microsoft Excel. Kajian ini membandingkan Pengkomputeran Tradisional dan Pengkomputeran Awan sepanjang tempoh 5 tahun.

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LIST OF ABBREVIATIONS

| | |
|--------|--|
| TCO | Total Cost of Ownership |
| ICT | Information and Communication Technology |
| UniMAP | Univerisiti Malaysia Perlis |
| SaaS | Software as a Service |
| PaaS | Platform as a Service |
| IaaS | Infrastructure as a Service |
| HaaS | Hardware as a Service |
| OS | Operating System |
| kW | Kilo Watt |
| UPS | Uninterruptible Power Supply |
| GB | Gigabyte |
| MB | Megabyte |
| KB | Kilobyte |

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Cloud Computing is the fifth generation of Computing after Mainframe, Personal Computer, Client-Server Computing and web. The term Cloud itself is refers as the internet and the term Cloud Computing refers as the computation which are done through the internet. Cloud Computing can be describe as an Internet-Based computing in which users can access all shared resource, software and information through the Internet from anywhere.

Nowadays most of the organization, business application and as well as higher institution are moving to the Cloud Computing because of the cost savings that its offered. For this study the higher institution which is University Malaysia Perlis (UniMAP) is selected. UniMAP data center house all ICT services that currently running on Traditional Computing. With the development of the campus, the increasing number of staffs and students, ICT services are on demand. The increasing number of system applications lead to the difficulties of maintaining IT infrastructures or application software individually.

The Traditional Computing which are currently running at UniMAP Data Center are become complicated and expensive. The increasing number of system application requires more space in the data center, higher network bandwidth, server

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