UNIVERSITI TEKNOLOGI MARA

PRIVATE CONTENT DELIVERY NETWORK (CDN) IMPLEMENTATION: A CASE STUDY OF MARA NETWORK INFRASTRUCTURE

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Dissertation submitted in partial fulfillment of the requirements for the degree of

Master of Science (Computer Networking)

Faculty of Computer and Mathematical Sciences

January 2013

Abstract

Recently, majority of organization was fully equipped with the ICT infrastructures physically and aided with systems application based on web content to ease information sharing. The advancement of web content manipulation either in static or dynamic, the size of content increasingly large expands and it causes to burden the content accessing on the internet. Therefore, one of the solutions for the content adaptations and accelerate the content browsing through the Content Delivery Network (CDN) technology. Usually based on several literature reviews, CDN technology was eminently practical and effective to accelerate widely delivery content around the globe which involves various ISP networks. However these techniques also have several drawbacks whether in commercial CDN, P2P CDN or hybrid CDN, it does not guarantee to data integrity, data ownership and security of the content because it involving third party resources and it difficult to takes it under fully control. Meanwhile, based on the problem statement it leads to the case study in MARA organisation. MARA has several branches around Malaysia that equipped with ICT infrastructures and also has the various web content system that were published to be accessed by majority of end users located around Malaysia. Furthermore, the preliminary investigation and supported previous research clearly indicates that current situation lead to the following objectives: (I) to design and develop DNS Geo-location Malaysia Regional Aware, (II) to validate the design of MARA Private CDN by region overall, (III) to evaluate the effectiveness of PCDN. In order to achieve the stated objectives this research applied a methodology which consists of five phases: (i) problem specification (ii) solution design (iii) implementation (iv) evaluation and (v) conclusion. As a result, this research found that PCDN can accelerate the local content in Malaysian region and afford to overcome the load access consistently in peak period by distributing burden between CDN nodes. In a nutshell, the PCDN give a lot of advantages to the organization which have many branches in accelerating access by using the current resources. Also it could save from data integrity, ownership and content security because it does not use sourced from third party. Finally, implementing PCDN means that an organization's security certificates are retained within the walls of the corporation, not given out to a vendor.

Acknowledgement

Praise to **Allah.**

Big THANK YOU goes to :-

Prof. Dr. Saadiah Yahya (for having faith in me),
TATiUC (for the study leave),

Lovely wife Nurulnadwan (for your 'DOA')
Dearly Son Raaiq Raqilli, (for your patience),
Cheezy Boy Raif Zaffran (for your happy)
my big family - Mak, Ayah, parent in law & sibling (for your support)
Helpful brother Suhaime (for your condo)
Brilliant friend Khairul Izwan (for your skills)
my helpful, inspirational and kind **F.R.I.E.N.D.S.,**
&
The creator of the Internet.

THANK YOU

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CHAPTER 1

INTRODUCTION

1.1 Overview

The main focus of this study is to design, develop and investigate the effectiveness of a private content delivery network (PCDN) in accelerating content access performance. This chapter presents some background to the statement of the problem, which then leads to the specification of the problem statement, preliminary studies, and formulation objective of the study. It also presents a brief description of the theoretical framework that guides the designed framework of PCDN architecture within region in Malaysia. Finally, it describes the research questions, significance of the study and both implementation as well as operational definitions.

1.2 Research Motivation

In Malaysia, there are many organizations that have many branches around Malaysian region or state. Recently, these organizations have fulfilled their headquarters and branches with the ICT infrastructure. Usually, all their branches are connected to each other and are provided with the internet access line. MARA is one of the organizations that have many branches and has been providing them with the ICT infrastructure. They also have many web applications that can be accessed locally. With the ICT resources they have, it motivates the researcher to optimize the speed of their web application by using their current resources. The concept of CDN technologies is being used to implement new architecture in term of accelerating their web application within Malaysian region.