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No. Fail : F0342
Tarikh : 2 Disember 2011

Puan Rosnah Idrus
Pusat Pengajian Sains Komputer
Universiti Sains Malaysia

Puan,

LAPORAN AKHIR SKIM GERAN PENYELIDIKAN FUNDAMENTAL (FRGS)
Tajuk Projek : Knowledge - Based Network Monitoring and Troubleshooting Infostructure: Leveraging a Confluence of Intelligent Techniques in Network Intrusion Detection and Protection
No. Akaun : 203/PKOMP/671183

Dengan hormatnya perkara di atas dirujuk.

2. Terlebih dahulu saya ucapkan ribuan terima kasih di atas satu salinan laporan akhir untuk projek penyelidikan seperti tajuk di atas.

3. Adalah dimaklumkan walaupun projek ini telah selesai, kerjasama Jabatan Bendahari dipohon untuk menguruskan penutupan akaun projek pada selewat-lewatnya **31 Disember 2011**. Tempoh ini bertujuan untuk menyelesaikan semua urusan tuntutan dan bayaran yang telah dibelanjakan di dalam tempoh projek. Walau bagaimanapun, puan dinasihatkan supaya tidak mengeluarkan borang-borang pesanan baru di dalam tempoh ini.

4. Selanjutnya sila ambil perhatian terhadap perkara-perkara berikut sekiranya berkaitan:

(i) Semua penerbitan harus merakamkan penghargaan kepada **Skim Geran Penyelidikan Fundamental (FRGS)** dan puan dipohon mengemukakan satu salinan ke Pejabat ini.

(ii) Bahagian Penyelidikan & Inovasi boleh/akan mengagihkan semula peralatan yang telah dibeli menggunakan peruntukan geran ini seandainya terdapat penyelidik lain yang memerlukan peralatan tersebut.

5. Akhir sekali, tahniah di atas usaha dan kejayaan pihak puan dapat menyelesaikan projek ini dengan jayanya.

Sekian, terima kasih.

"BERKHIDMAT UNTUK NEGARA"
'Memastikan Kelestarian Hari Esok'

Yang menjalankan tugas,

(AMRA OTHMAN)
Penolong Pendaftar
Unit Pengurusan Geran & Kontrak

HAH, HAR, SM

LAPORAN AKHIR SKIM GERAN PENYELIDIKAN FUNDAMENTAL (FRGS)

Tajuk Projek : Knowledge - Based Network Monitoring and Troubleshooting Infostructure: Leveraging a Confluence of Intelligent Techniques in Network Intrusion Detection and Protection

No. Akaun : 203/PKOMP/671183

s.k. Dekan Penyelidikan
Pelantar Sains Fundamental
Pejabat Pelantar Penyelidikan
Universiti Sains Malaysia

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Pusat Pengajian Sains Komputer
Universiti Sains Malaysia

Timbalan Dekan
(Pengajian Siswazah & Penyelidikan)
Pusat Pengajian Sains Komputer
Universiti Sains Malaysia

Ketua Pustakawan
Perpustakaan Hamzah Sendut
Universiti Sains Malaysia

} Disampaikan satu salinan laporan akhir projek untuk simpanan Perpustakaan

Penolong Bendahari Kanan
Unit Kumpulan Wang Penyelidikan
Jabatan Bendahari
Universiti Sains Malaysia

} Mohon kerjasama pihak puan untuk menguruskan penutupan akaun projek selewat-lewatnya pada **31 Disember 2011** dan mohon kemukakan satu salinan penyata kewangan terakhir ke Pejabat ini untuk tujuan rekod

Pegawai Sains
Pelantar Sains Fundamental
Pejabat Pelantar Penyelidikan
Universiti Sains Malaysia

F0342

Kod Projek :	FRGS/FASA1-2009/(BIDANG)/(NAMA IPT)/(NO.RUJ. KPT)

BORANG FRGS – P3(R)

FINAL REPORT
FUNDAMENTAL RESEARCH GRANT SCHEME (FRGS)

Laporan Akhir Skim Geran Penyelidikan Asas (FRGS) IPT
Pindaan 1/2009

A RESEARCH TITLE : Knowledge – Based Network Monitoring and Troubleshooting Infostructure: Leveraging a Confluence of Intelligent Techniques in Network Intrusion Detection and Protection
Tajuk Penyelidikan

PROJECT LEADER : Rosnah Idrus
Ketua Projek

PROJECT MEMBERS (including GRA) : 1. Selvakumar Manickam
Ahli Projek

PROJECT ACHIEVEMENT *(Prestasi Projek)*

B

ACHIEVEMENT PERCENTAGE			
Project progress according to milestones achieved up to this period	**0 - 50%**	**51 - 75%**	**76 - 100%**
Percentage			80

RESEARCH FINDINGS		
Number of articles/ manuscripts/ books	Indexed Journal	*Non-Indexed Journal*
	0	1
Paper presentations	**International**	***National***
	2	0
Others (Please specify)		

HUMAN CAPITAL DEVELOPMENT			
Human Capital	Number		Others (Please specify):
	On-going	Graduated	
PhD Student			
Masters Student	1		
Undergraduate Students	1		
Temporary Research Officer			
Temporary Research Assistant			
Total	2		

EXPENDITURE *(Perbelanjaan)*

C

Budget Approved *(Peruntukan diluluskan)* : **RM 68,000.00**
Amount Spent *(Jumlah Perbelanjaan)* : **RM 67,840.04**

Balance *(Baki)* : **RM 159.96**
Percentage of Amount Spent *(Peratusan Belanja)* : 99.76 %

ADDITIONAL RESEARCH ACTIVITIES THAT CONTRIBUTE TOWARDS DEVELOPING SOFT AND HARD SKILLS
(Aktiviti Penyelidikan Sampingan yang menyumbang kepada pembangunan kemahiran insaniah)

D

International		
Activity	Date (Month, Year)	Organizer
(e.g : Course/ Seminar/ Symposium/ Conference/ Workshop/ Site Visit)		
National		
Activity	Date (Month, Year)	Organizer
(e.g : Course/ Seminar/ Symposium/ Conference/ Workshop/ Site Visit)		

PROBLEMS / CONSTRAINTS IF ANY *(Masalah/ Kekangan sekiranya ada)*

E

- Accumulation of information and the time that it takes for the knowledge base to mature depends on the complexity of the environment the prototype application is deployed in. This is usually a time consuming process thus it takes a while for us to see its effectiveness.
- Integration of several components that make up the prototype required additional time and effort due to the different network behaviours that each of these modules are responsible for.
- Also due to time constraint, the prototype could not be implemented and tested with different machine learning and data mining techniques such as Time Based Inductive Machine, Instance Based Learning and Audit Data Analysis and Mining which we believe would have showed different patterns and results.

RECOMMENDATION (*Cadangan Penambahbaikan*)

F

- The need for accurate data to build the knowledge is paramount to ensure result is rendered correctly.
- The whole platform should be implemented as a cloud architecture to ensure scalability and retrieval efficiency is ensured.
- The framework can be applied to any domain as long the data is made available to the engine in the required format.

RESEARCH ABSTRACT – Not More Than 200 Words *(Abstrak Penyelidikan – Tidak Melebihi 200 patah perkataan)*

Network administrators need to understand the data that is actually being sent over networks. Network monitoring is critical in network optimization and security. How much data was sent? When? What was sent? Who sent it? What is causing the network to crawl? And the list goes on. Current tools base their analysis primarily on the IP and TCP headers, which can be misleading or intentionally falsified. This leaves administrators manually sifting through raw network packet dumps, piecing fragments of information together to understand problem in hand. This is tremendously time-consuming and – since networks deal with one packet at a time, while humans ask applications to perform tasks that might open a dozen simultaneous connections – ultimately not very useful to someone needing a big picture view of an employee's suspected network abuse, or all the details of an intrusion attempt.

Even if the tool is able to capture and dissect the network traffic/content, it will be a collossal task for the administrator since he/she still has to manually go through the data and may take days before the problem is even detected. Furthermore, human error and miscalculation are some of the major problems faced within network monitoring domain.

To address the contemporary vicissitudes and volatility of networked systems coupled with the limitation of human capacity and capabilities, we believe the solution lies within the domain of artificial intelligence. We put forward a high level architecture that combines machine learning methodologies that is able to monitor and troubleshoot with minimal human intervention. It complements a network administrator in combating potential network downtimes caused by external and internal attacks by employing robust intelligent techniques that surely adds a cybernetic 'big brother' to the networking environment.

Date : *Tarikh* 23/8/2010

Project Leader's Signature:
Tandatangan Ketua Projek

PUAN ROSNAH IDRUS
Senior Lecturer
School Of Computer Sciences
Universiti Sains Malaysia
11800 USM, Pulau Pinang

COMMENTS, IF ANY/ ENDORSEMENT BY RESEARCH MANAGEMENT CENTER (RMC)
(Komen, sekiranya ada/ Pengesahan oleh Pusat Pengurusan Penyelidikan)

H

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Name:
Nama:

DR. AHMED M.MANASRAH
Deputy Director
(Research & Innovation)
National Advanced IPv6 Centre (NAv6)
6th Floor, School of Computer and Mathematical Sciences Building
Universiti Sains Malaysia
11800 Penang, Malaysia

Signature:
Tandatangan:

Date:

Tarikh: 20/08/2010

Project Leader: Pn Rosnah Idrus

Project Title: *Knowledge-Based Network Monitoring and Troubleshooting Infostructure : Leveraging a Confluence of Intelligent Techniques in Network Intrusion Detection and Protection*

LIST OF PUBLICATIONS

1. Siti Shafrah Shahawai, Rosnah Idruss, Pre-Considered Factors Affecting ERP System Adoption in Malaysian SMEs using Technology-Organisation-Environment Framework, 4th International Symposium on Information Technology, Kuala Lumpur, Malaysia, 15-17 June 2010

2. Muhammad Azmi Al-Madi, Rosnah Idrus, Azlan Osman, Rahmat Budiarto, 2008, Performance Evaluation of the PBR and QoS Control Routing for Multi-Channel Adaptive Streaming (PQMAS) Mode, International Journal of Computer Science and Network Security (IJCSNS), Vol. 8, No.4, April 2008,pp. 85-93

3. Bahareh Pahlevanzadeh, Awinder Kaur, Seyed Amin Hosseini Seno, Rosnah Idrus, Rahmat Budiarto, IPv6 and e-Government Integration – A Way towards Next-Generation Networks, Proceedings of the 3rd International Conference on "E-Commerce with focus on Developing Countries (ECDC 08)", Isfahan, Iran, 22 -23 October 2008, pp. 43-49

Proceedings 2010

4th International Symposium on Information Technology

Kuala Lumpur Convention Centre, Kuala Lumpur, Malaysia
15th - 17th June 2010

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Computer & Information Sciences Department,
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VOLUME 3

KNOWLEDGE SOCIETY AND SYSTEM DEVELOPMENT AND APPLICATION

Sustainable Informatics and Engineering :
Harmonizing Human and Natural Ecosystem

Volume Editors

Ahmad Kamil Mahmood
Universiti Teknologi PETRONAS
kamilmh@petronas.com.my

Halimah Badioze Zaman
Universiti Kebangsaan Malaysia
hbz@ftsm.ukm.my

Peter Robinson
University of Cambridge, United Kingdom
pr@cl.cam.ac.uk

Steve Elliot
University of Sydney, Australia
s.elliot@econ.usyd.edu.au

Peter Haddawy
Asian Institute of Technology, Thailand
haddawy@ait.ac.th

Stephan Olariu
Old Dominion University, USA
olariu@cs.odu.edu

Zaiki Awang
Chairman, IEEE Malaysia Section
zaiki.awang@gmail.com

IEEE Catalog Number: CFP1033E-PRT
ISBN: 978-1-4244-6716-7

Pre-Considered Factors Affecting ERP System Adoption in Malaysian SMEs using a Technology-Organization-Environment Framework

Siti Shafrah Shahawai
School of Computer Science
Universiti Sains Malaysia
Penang, Malaysia
shafrah@gmail.com

Rosnah Idrus
School of Computer Science
National Advanced IPv6 Centre (NAv6)
Centre for Marine & Coastal Research (CeMAC)
Universiti Sains Malaysia
Penang, Malaysia
rosnah@cs.usm.my

Abstract— The adoption of Enterprise Resource Planning (ERP) system among large organizations around the world has gradually increased due to the number of its implementation successes. An integration of a primary technology that effectively utilizes an ICT system in the organization such as ERP system could have a huge positive long-term result on any large, medium and small enterprises. However, most Small Medium Enterprises (SMEs) in Malaysia are still lagging behind. This paper aims to discuss the proposed pre-considered factors affecting ERP system adoption in Malaysian SMEs by using a technology-organization-environment (TOE) framework. Based on this framework, each factor will be looked at and discussed further in this paper on how the elements in the framework affect the adoption of ERP system in SMEs. This paper also explains how the factors will be tested in a survey to be conducted later. The findings will help outline the strategies that should be considered to increase the understanding on the successful adoption of ERP among Malaysian SMEs.

Keywords; ERP system adoption; Malaysian SMEs; measurement factors; technology-organisation-environment (TOE) framework

I. INTRODUCTION

In Malaysia, SMEs acceptance towards ERP is still low compared to large organizations due to high expenses and technical complexity of the system [1, 2]. The decision to acquire a commercially available ERP system for any organization may require a concrete long-term commitment as the risk of failure is too high to be disregarded. Despite of this possibility of failure, an investment which typically accompanied with a lot of money, time and effort for ERP system is still strong for the Information, Communication and Technology (ICT) market value [3,4] especially to large organizations.

ERP system is known as an integrated software package that includes a multiple sets of applicable function into one integrated process [5]. As one of the support system for Information Technology (IT) software tools, it can produce an efficient, dynamic and profitable order management in organizing a company's resources such as reducing the cost for redundancy job activities, improve productivity and decision making process [1].

The recent tendency for Malaysia ERP vendor's in handling the SME market is still a big shady area. SMEs find it hard and inflexible to afford the risk of investing time, money and effort for a system that could eventually fall short. SAP Malaysia, as one of the top ERP software vendor, has not rallied the mark with the majority of SMEs in Malaysia that it was targeting even though an ERP solution for less than RM200000 for SMEs has been introduced as a strategy to make a knock into the global market share [6, 7]. This further elaborates the dissimilarity factors among SMEs that affect the ERP system adoption in Malaysia. This gap will be filled by answering this research questions:

1) What theoretical framework can be used in studying SMEs adoption of ERP system, especially in Malaysia? [8]
2) What are the identified factors withholding SMEs from adopting an ERP system?

Based on those research questions, the objective of this paper is to discuss and identify the significant factors which affect the adoption of ERP system in Malaysian SMEs by using a TOE framework [9]. This paper reviews the theoretical background on the concept of TOE framework in brief in the next section. Then, the delineation of a TOE framework of the pre-considered factors, detailing the factors that will determine the questions to be asked during the research and corresponding survey questionnaire, and each factor will be looked at with further detail to emphasize its significance to the research. It will then be followed by a methodology of the research and steps that can be taken henceforth, to articulate and to inference the issues that need attention. The conclusion will then summarize this research work in the final section of this paper.

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Publication — (2)

Performance Evaluation of the PBR and QoS Control Routing for Multi-Channel Adaptive Streaming (PQMAS) Model

Mohammad Azmi Al-Madi, Rosnah Idrus, Azlan Osman and Rahmat Budiarto

NAv6 Centre, Universiti Sains Malaysia, Pulau Pinang, Malaysia

Summary

In this paper, we experimentally present our simulation analysis and results as a complement to our previous method which is the PBR and QoS Control Routing for Multi-Channel Adaptive Streaming (PQMAS) approach model. The evaluation results of this approach model are based into two major attributes which are; the Throughput and the Time Computation Performance. More specifically, the Time Computation Performance attribute will be classified into three calculation categories which are; the Prime-Time performance, the Non-Prime-Time performance and the Average-Time performance. These categories are defined to show the usage and exploitation of the customers for the bandwidths at the range of the categories time as will be discussed in this paper. As a result, the throughput indicated to be high in the bandwidth routing operation which is 98.027% which means that scalability and fairness of the simulation was improved. The time performance indicated to an increase since the number of nodes are increasing, but, not drastically.

Key words:

IPv4, IPv6, Quality of Service (QoS), nodes (subscribers), Policy-Based Routing (PBR), Internet Protocol Television (IPTV), Broadcasters.

1. Introduction

As known, the IPv6 is the improvement of the IPv4 [1], [2]. This improvement was in terms of a number of significant features upgraded by the Internet Engineering Task Force (IETF). For example, Mobility, Quality of Service (QoS), the increase in the address (from 32 bits to 128 bits) and many other features. In [1], we have focused in such certain feature of the IPv6 features which is the QoS that was considered to be highly related to our domain scope (PBR domain in the IPTV).

In the recent technology, the internet provider, companies, subscribers and the researchers will be benefited by depending on the multimedia applications [3]. The Internet Protocol (IP) is considered to be as a best effort, but still it is not alone by itself guaranteed for continuous use of serving and covering the customer's needs. So, in the future, the TV broadcasters will use the IP network. In other words, there will be a convergence of the broadcast network with the IP to form the Internet Protocol Television (IPTV) under the recent technology. Since, the IPTV lacks of the fairness of supporting the packets bandwidth regulation distribution, there must be such policy routing management when sending packets (channels) to the nodes (subscribers). For example, a broadcaster can afford full QoS bandwidths from the network manager, but, still the network manager must achieve fairness in distributing packets to other remaining broadcasters, therefore, there will be such policies regulations in sending limited number of bandwidth equivalently. All this forms a strong need that motivated us to perform this research. One more important thing that also interested us to perform this research is that IPv6 not only overcomes the shortcoming problems in the IPv4, but also overcomes and benefits the Quality of service (QoS) in the IPv6. More specifically, the main reason of using the IPv6 in this research is that it supports the Quality of Service (QoS) which is considered to be as a main scope IPv6 feature our research.

Previously, the TV system can view just one channel at a time for the viewer, where, at the same time the Internet Protocol (IP) was considered to be as a best effort, but, today's development, when the Internet Protocol (IP) was combined with the broadcast network to form the Internet Protocol (IPTV), the viewers can have more freedom in their TV viewing experience. For example, the viewer can watch multiple channels at the same time instead of just one channel. In other words, they can broadcast multi-channels based on the internet tool. More clearly, the broadcaster may request and pay for more QoS of packets bandwidth from the network management, but, still there is no fairness of providing other broadcasters with an equivalent amount of these packets bandwidths. According to this, [4] have addressed their problem on the weakness of performing bandwidth management among channels, since the IPTV allows one viewer to receive multiple channels; therefore, they have proposed an approach model called the Multi-Channel Adaptive Streaming (MCAS) approach model. Our problem in [1] has addressed the same problem of [4] which is the weakness of bandwidth management among channels (packets), in other words, the weakness of the QoS

Manuscript received April 5, 2008
Manuscript revised April 20, 2008

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Title	Performance Evaluation of the PBR and QoS Control Routing for Multi-Channel Adaptive Streaming (PQMAS) Model
Author	Mohammad Azmi Al-Madi, Rosnah Idrus, Azlan Osman, Rahmat Budiarto
Citation	Vol. 8 No. 4 pp. 85-93
Abstract	In this paper, we experimentally present our simulation analysis and results as a complement to our previous method which is the PBR and QoS Control Routing for Multi-Channel Adaptive Streaming (PQMAS) approach model. The evaluation results of this approach model are based into two major attributes which are: the Throughput and the Time Computation Performance. More specifically, the Time Computation Performance attribute will be classified into three calculation categories which are: the Prime-Time performance, the Non-Prime-Time performance and the Average-Time performance. These categories are defined to show the usage and exploitation of the customers for the bandwidths at the range of the categories time as will be discussed in this paper. As a result, the throughput indicated to be high in the bandwidth routing operation which is 98.027% which means that scalability and fairness of the simulation was improved. The time performance indicated to an increase since the number of nodes are increasing, but, not drastically.
Keywords	IPv4, IPv6, Quality of Service (QoS), nodes (subscribers), Policy-Based Routing (PBR), Internet Protocol Television (IPTV), Broadcasters
URL	http://paper.ijcsns.org/07_book/200804/20080413.pdf

IPv6 Migration towards Developing E-Government

B. Pahlevanzadeh, Awinder Kaur, S. A. Hosseini Seno, I. Rosnah. R. Budiarto, A.R. Shirazinejad
(bahareh@nav6.org, awina@nav6.org)
School of Computer Sciences, School of Industrial Technology
Universiti Sains Malaysia, 11800 Penang, Malaysia

***Abstract*— Countries around the world including Malaysia are improving their government agencies delivery to citizens and businesses through e-Government, defined as electronic government. To provide services between government agencies and citizens (G2C), businesses (G2B), employees (G2E) and other non-governmental agencies, most governments globally are using tools and systems made possible by Information and Communication Technologies (ICTs).**

Malaysia is not left behind in the global government ICT initiative as Malaysian government welcomes the advent of ICT with its opportunities and promises of a new world order and globalization towards its vision 2020.

Malaysian e-Government project's main objective is to serve the citizens and businesses with efficient, high-quality administrative online services. However, increasing demands for the online services might be affected by (Internet protocol version 4) IPv4 limitations. The need for a more advanced protocol will be more apparent especially to support government mobility, cost and security such as integrity, authorization and authentication.

IPv6 is seen as a solution to solve IPv4 limitations and a strong contributor towards providing efficient online services by government agencies through e-Government. IPv6 deployment in Malaysia is supported by the IPv6 timeline mandating IPv6 adoption by agencies under e-Government by year end 2008. In this paper, we introduce e-Government, IPv6, Migration to IPv6 as well as IPv6 migration issues and challenges, especially in Malaysia. This paper shows the importance of e-Government and IPv6 migration in Malaysia. This paper also outlines the need for IPv6 in developing e-Government as a need to move towards the next-generation ICT world, especially in developing countries.

***Keywords*—** Information and Communication Technologies (ICTs), Internet Protocol Version 6 (IPv6) Migration, Malaysian e-Government, Next-Generation Networks, Cost Efficiency

I. INTRODUCTION

E-Government is an abbreviation of the phrase electronic government which refers to the use of government agencies with information technologies such as Wide Area Networks, the Internet, and mobile computing. Similar to e-commerce, which allows businesses to transact with each other more efficiently (B2B) and brings customers closer to businesses (B2C), e-government aims to allow the interaction between government and citizens (G2C), government and business enterprises (G2B), and inter-agency relationships (G2G) more friendly, convenient, transparent, and inexpensive. The resulting benefits that can be derived from e-Government are less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions [1].

The primary objectives of e-Government are to offer efficient, high quality of administrative on-line services to citizens and businesses with low cost and high productivity. However it makes the government more responsive to the needs of its citizens [2]

The first part of this paper discusses about the implementation of e-Government in Malaysia, covering the status of the implementation, and the potential for growth in providing better services to the public. The next section is about the fundamental and conceptual issues of IPv6, it outlines the IPv6 roll-out around the world, status of IPv6 in Malaysia and the role of the National Advanced IPv6 centre of excellence in Malaysia for IPv6 Migration, as well as the challenges faced by the IPv4 to IPv6 migration. The dual objectives of e-Government are to reinvent the government of Malaysia in terms of service delivery through the use of ICT and to catalyze the successful development of the Multimedia Super Corridor (MSC) with ICT as one of the leading sectors of the economy. This paper provides the various initiatives taken by the government in implementing e-Government projects as well as the issues, challenges and benefits derived.

II. E-GOVERNMENT IN MALAYSIA

The transformation of government into e-Government turns out to be a global phenomenon [3][4][5][6][7]. The success of Malaysian e-Government implementation is an important factor to determine the Malaysia's progress towards achieving vision 2020 [8]. To introduce some form of e-Government to benefit citizens and business, Malaysian government has specified various policies, visions, objectives, plans and strategies like many other countries [7]. As such, implementation of electronic government started with the initiation of Multimedia Super Corridor (MSC) in 1996 [8][9][10]. MSC is a government initiative, designed to jump start Malaysia into the information and knowledge age. E-Government is one of the seven flagship applications introduced in MSC. The objectives of these flagship applications are to accelerate the growth of MSC as well as enhance national competitiveness [9]. In fact, it is to create high value job and export growth to help reduce digital divide. Figure 1 shows the MSC Malaysia Vision from 1996 to 2020.

IPv6 Migration towards Developing E-Government

B. Pahlevanzadeh, Awinder Kaur, S. A. Hosseini Seno, I. Rosnah, R. Budiarto, A.R. Shirazinejad
School of Computer Sciences, School of Industrial Technology
Universiti Sains Malaysia, 11800 Penang, Malaysia
bahareh@nav6.org, awina@nav6.org

Abstract:
Countries around the world including Malaysia are improving their government agencies delivery to citizens and businesses through e-Government, defined as electronic government. To provide services between government agencies and citizens (G2C), businesses (G2B), employees (G2E) and other non-governmental agencies, most governments globally are using tools and systems made possible by Information and Communication Technologies (ICTs).
Malaysia is not left behind in the global government ICT initiative as Malaysian government welcomes the advent of ICT with its opportunities and promises of a new world order and globalization towards its vision 2020.
Malaysian e-Government project's main objective is to serve the citizens and businesses with efficient, high-quality administrative online services. However, increasing demands for the online services might be affected by (Internet protocol version 4) IPv4 limitations. The need for a more advanced protocol will be more apparent especially to support government mobility, cost and security such as integrity, authorization and authentication.
IPv6 is seen as a solution to solve IPv4 limitations and a strong contributor towards providing efficient online services by government agencies through e-Government. IPv6 deployment in Malaysia is supported by the IPv6 timeline mandating IPv6 adoption by agencies under e-Government by year end 2008. In this paper, we introduce e-Government, IPv6, Migration to IPv6 as well as IPv6 migration issues and challenges, especially in Malaysia. This paper shows the importance of e-Government and IPv6 migration in Malaysia.
This paper also outlines the need for IPv6 in developing e-Government as a need to move towards the next-generation ICT world, especially in developing countries.
Keywords: Information and Communication Technologies (ICTs), Internet Protocol Version 6 (IPv6) Migration, Malaysian e-Government, Next-Generation Networks, Cost Efficiency

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JABATAN PENDAHARI

KUMPULAN WANG FRGS (203)

PENYATA PERBELANJAAN PADA 31 MAC 2010

FRGS - Pn. Rosnah

NAMA PROJEK :

KNOWLEDGE-BASED NETWORK MONITORING AND TROUBLESHOOTING INFOSTRUCTURE: LEVERAGING A CONFLUENCE OF INTELLIGENT TECHNIQUES IN NETWORK INTRUSION DETE

TEMPOH : 3 TAHUN

KETUA PROJEK : DR ROSNAH IDRUS

P.P.SAINS KOMPUTER

AKAUN	PTJ	PROJEK	DONOR	PERUNTUKAN PROJEK	PERBELANJAAN TERKUMPUL SEHINGGA THN LALU	PERUNTUKAN SEMASA	TANGUNGAN SEMASA	BAYARAN SEMASA	BELANJA SEMASA	BAKI PROJEK
111	PKOMP	671183		36,000.00	33,637.41	2,362.59	0.00	0.00	0.00	2,362.59
221	PKOMP	671183		12,000.00	5,479.30	6,520.70	0.00	0.00	0.00	6,520.70
223	PKOMP	671183		600.00	239.13	360.87	0.00	0.00	0.00	360.87
225	PKOMP	671183		0.00	100.90	-100.90	0.00	0.00	0.00	-100.90
226	PKOMP	671183		500.00	0.00	500.00	0.00	0.00	0.00	500.00
227	PKOMP	671183		1,100.00	14,537.75	-13,437.75	0.00	0.00	0.00	-13,437.75
228	PKOMP	671183		500.00	1,000.00	-500.00	0.00	0.00	0.00	-500.00
229	PKOMP	671183		6,800.00	5,395.55	604.45	0.00	0.00	0.00	604.45
335	PKOMP	671183		11,300.00	7,450.00	3,850.00	0.00	0.00	0.00	3,850.00
				68,000.00	67,840.04	159.96	0.00	0.00	0.00	159.96

SENARAI JUMLAH-JUMLAH KECIL :

110	EMOLUMEN	36,000.00	33,637.41	2,362.59	0.00	0.00	0.00	2,362.59
220	PERKHIDMATAN DAN BEKALAI	20,700.00	26,752.63	-6,052.63	0.00	0.00	0.00	-6,052.63
330	ASET	11,300.00	7,450.00	3,850.00	0.00	0.00	0.00	3,850.00
		68,000.00	67,840.04	159.96	0.00	0.00	0.00	159.96