IPv6 in Malaysia

Gopinath Rao Sinniah
Senior Staff Researcher, MIMOS Berhad
Chairman of MTSFB IPv6 WG

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- Outline
  - Brief description of MTSFB and MIMOS Berhad
  - IPv6 Status in Malaysia
  - ISPs' Audit by MCMC and Road to IPv6 Enabled Nation
  - IPv6 Initiatives
  - IPv6 R&D in MIMOS
  - Conclusions

Introduction - MTSFB

- MTSFB was designated by SKMM (MCMC) on 27th October 2004 in honoring the **self-regulation** spirit for the industry

- MTSFB is a company limited by guarantee, responsible for the establishment and maintenance of the **Voluntary Industry Code (VIC)** or **Technical Code** (ie: Technical Standard, Technical Specification or Guideline) for network interoperability and safety
- Objectives
  - To actively **promote a co-operative & conducive environment** to address issues involving technical standards, technical codes and development of operational guidelines
  - To **establish, register and maintain technical standards, technical codes**
  - To **promote the dissemination of relevant information** on the technical codes and standards to the general public.

MIMOS: Vision & Mission

Vision

To be a Premier Applied Research Center in Frontier Technologies

Mission

To pioneer innovative information & communication technologies towards growing globally competitive indigenous industries

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IPV6 STATUS IN MALAYSIA

My IPv6 Default Free Prefixes*

	POSITION	V	A	VP
25 Nov 2008	33	9	19	0.33%
17 Nov 2009	28	13	29	0.32%
19 Feb 2010	24	17	36	0.38%
5 June 2010	24	18	46	0.34%
9th Oct 2012	32	33	82	0.24%

V: *Visible: Number of Visible Prefixes*
A: *Allocated: Number of Allocated Prefixes (excludes returned prefixes)*
VP: *Visible Percentage: Percentage of visible prefixes against global number of allocated prefixes*

* Source http://www.sixxs.net/tools/grh/dfp/

DNS Statistics

Number of Domain Names:
** As of 9 Oct 2012

Month*		.my	.com.my	.net.my	.org.my	.gov.my	.edu.my	.mil.my	.name.my	Total
2012	Oct **	84,998	109,353	2,814	2,804	1,142	2,907	24	139	204,181
	Sep	84,757	108,867	2,816	2,797	1,141	2,799	24	137	203,338
	Aug	84,289	107,887	2,816	2,789	1,137	2,665	22	142	201,747
	Jul	83,406	106,925	2,821	2,788	1,131	2,594	22	142	199,829
	Jun	82,900	105,633	2,800	2,781	1,127	2,424	22	159	197,846
	May	81,474	103,868	2,741	2,726	1,120	2,256	20	160	194,365

Number of Domain Names with IPv6 DNS:
** As of 9 Oct 2012

Month*		.my	.com.my	.net.my	.org.my	.gov.my	.edu.my	.mil.my	.name.my	Total
2012	Oct **	933	1,416	80	79	299	23	1	5	2,836
	Sep	911	1,386	79	78	289	22	1	5	2,771
	Aug	896	1,362	77	78	277	22	1	5	2,718
	Jul	839	1,338	75	75	274	21	1	6	2,629
	Jun	803	1,302	72	73	273	19	1	5	2,548
	May	732	1,254	70	71	265	20	1	5	2,418

Currently about 1.4% of Domain Names with IPv6 DNS

* ***Source*** *http://www.domainregistry.my/statistics.php*

IPv6 Forum WWW and ISP

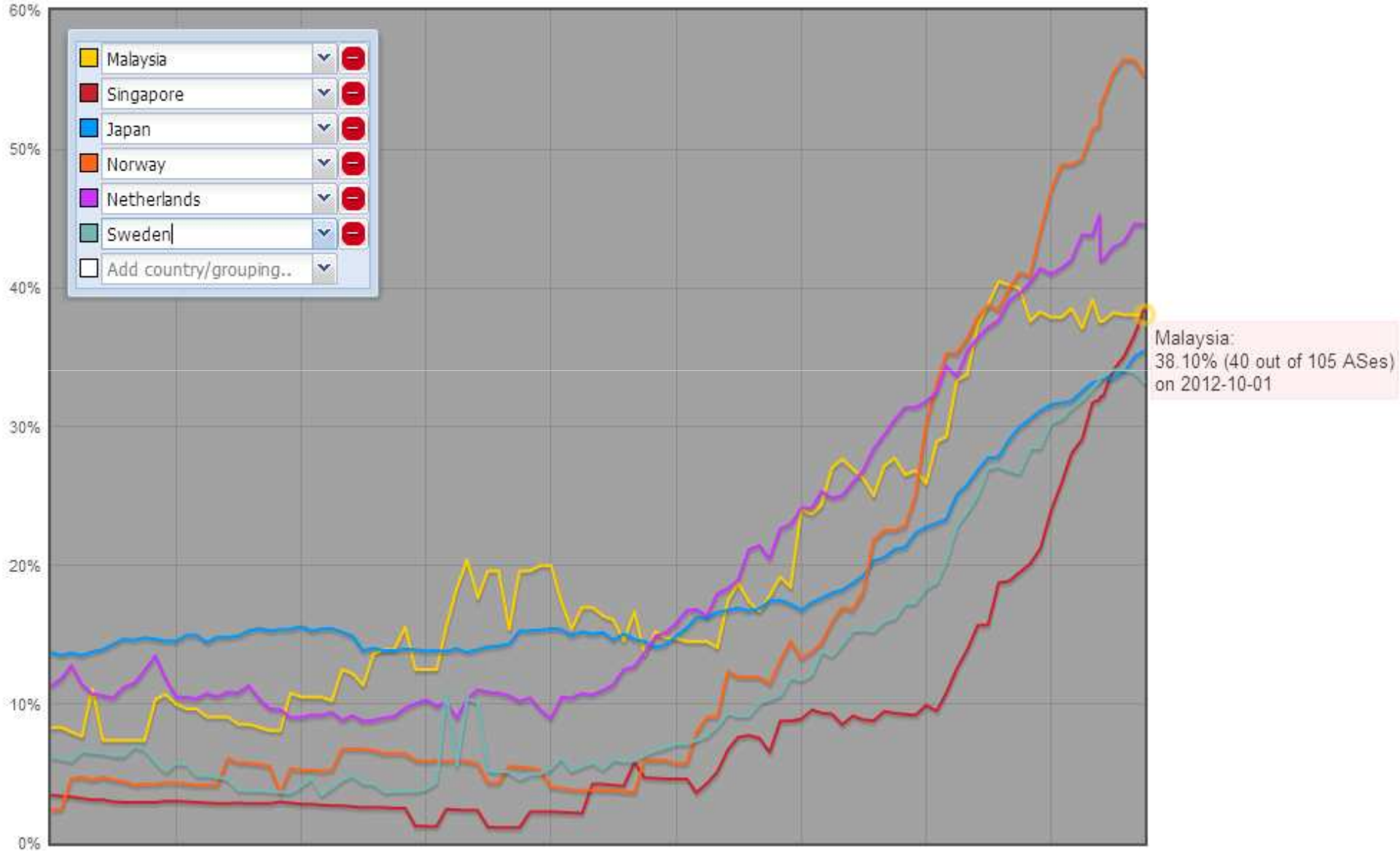
Data as of 10th October 2012

June 2010	October 2012
www enabled websites	
17	38
ISP enabled websites	
11	14

Status(*)	ID	Organization Name	Website	Region/ Country	AS number	IPv6 Block
IPv6 Enabled	I1-MY-00000023	NTT MSC Sdn Bhd	arcnet6.net.my	MY	10204	2001:C18::0/32
IPV6-ACTIVE	I1-MY-00000028	JARING Communications Sdn. Bhd.	www.jaringv6.my	MY	2042	2001:328::/32
IPV6-ACTIVE	I1-MY-00000034	Malaysian Research and Education Network	www.myren.net.my	MY	24514	2404:A8::/32
IPv6 Enabled	I1-MY-00000035	Maxis Communications Bhd	ipv6.maxis.net.my	MY	9534	2001:0D08::/32
IPV6-INACTIVE	I1-MY-00000037	OCESB	www.sentralfon.com.my	MY	24321	2407:6000::/32
IPv6 Enabled	I1-MY-00000040	DiGi Telecommunications Sdn Bhd	www.digi6.com.my	MY	4818	2001:4458::/32
IPV6-ACTIVE	I1-MY-00000055	TM	www6.tm.net.my	MY	4788	2001:E68::/32
IPv6 Enabled	I1-MY-00000057	Global Transit Communications	v6.globaltransit.net	MY	24218	2001:4498::/32
IPv6 Enabled	I1-MY-00000059	Packet One Networks Sdn Bhd	ipv6.p1.net.my	MY	38322	2401:3C00::/32
IPV6-ACTIVE	I1-MY-00000060	Celcom	www.celcom6.com.my	MY	10030	2404:0160::/32
IPV6-ACTIVE	I1-MY-00000063	VADS Berhad	www.vads.com	MY	18206	2404:B8::0/32
IPV6-ACTIVE	I1-MY-00000080	National Advanced IPv6 Centre	www.nav6.org	MY	45907	2400:E800::/32
IPV6-ACTIVE	I1-MY-00000112	GITN Sdn. Bhd.	www6.gitn.net.my	MY	38044	2400:7400::/32
IPV6-ACTIVE	I1-MY-00000259	YTL Communications Sdn Bhd	ipv6.yes.my	MY	45960	2402:B400::/32

** Source http://www.ipv6forum.com/ipv6_enabled/ /*

IPv6 Enabled Network - Malaysia at Number 4



* **Source** http://v6asns.ripe.net/v/6

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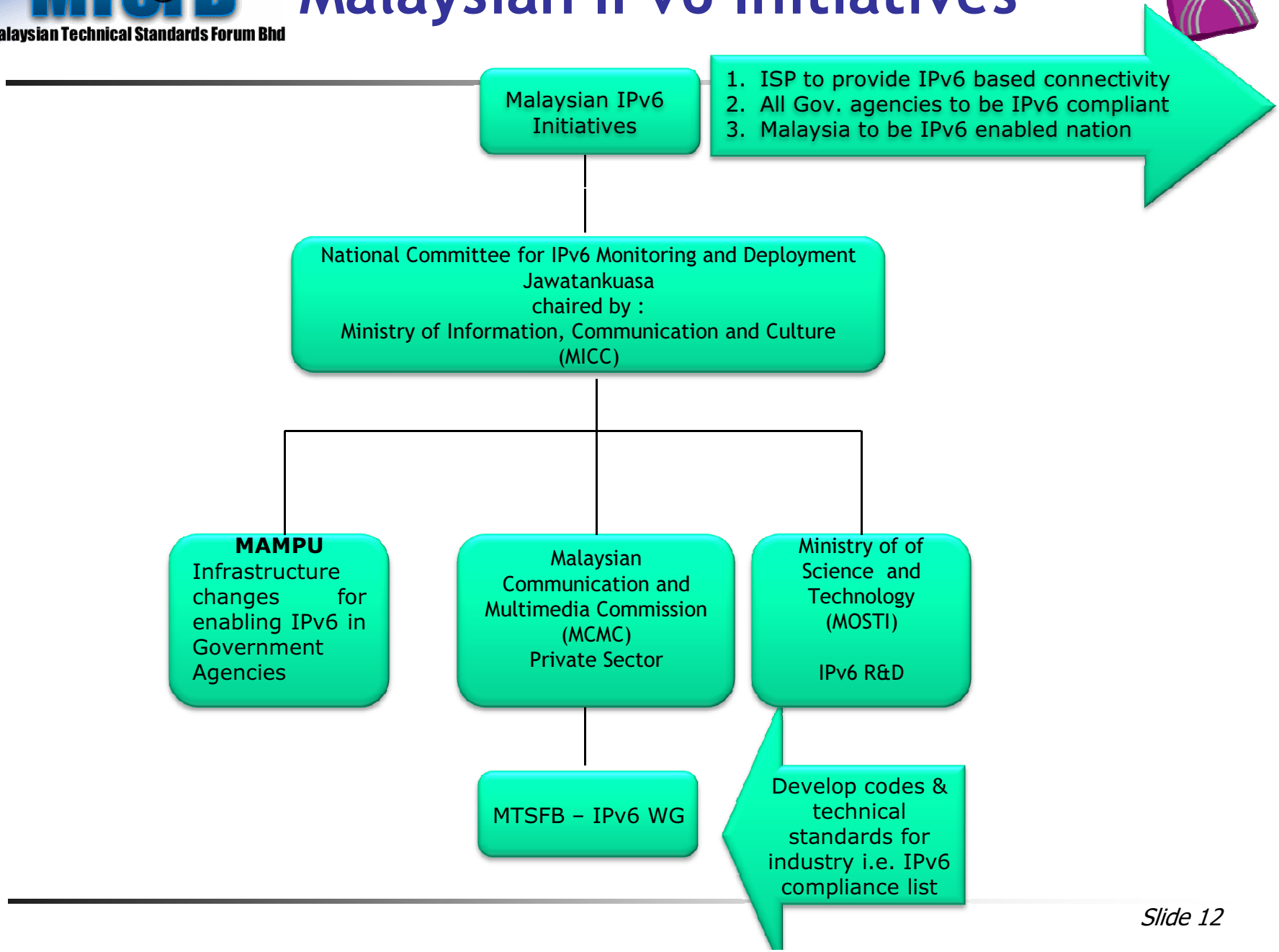
IPV6 INITIATIVES

National Agenda - MyICMS886

- aims to create a catalytic cycle by enhancing the existing investments in ICMS infrastructure that will support future growth of ICMS services

SERVICES	INFRASTRUCTURE	GROWTH AREAS
1. High Speed Broadband 2. 3G & Beyond 3. Mobile TV 4. Digital Multimedia Broadcasting 5. Digital Homes 6. Short Range Communications (e.g. RFID-based) 7. VoIP/Internet Telephony 8. USP – Universal Service Provision	Hard 1. Multiservice Convergence Networks 2. 3G Cellular Networks 3. Satellite Networks Soft 4. Next Generation Internet Protocol (IPv6) 5. Home Internet Adoption 6. Information & Network Security 7. Competence Development 8. Product Design & Manufacturing	1. Content Development (e.g. education, entertainment, games) 2. ICT Education Hub 3. Digital Multimedia Receivers (set top box) 4. Communication Devices (e.g. VoIP phones) 5. Embedded Components & Devices (e.g. RFID) 6. Foreign Ventures

Malaysian IPv6 Initiatives

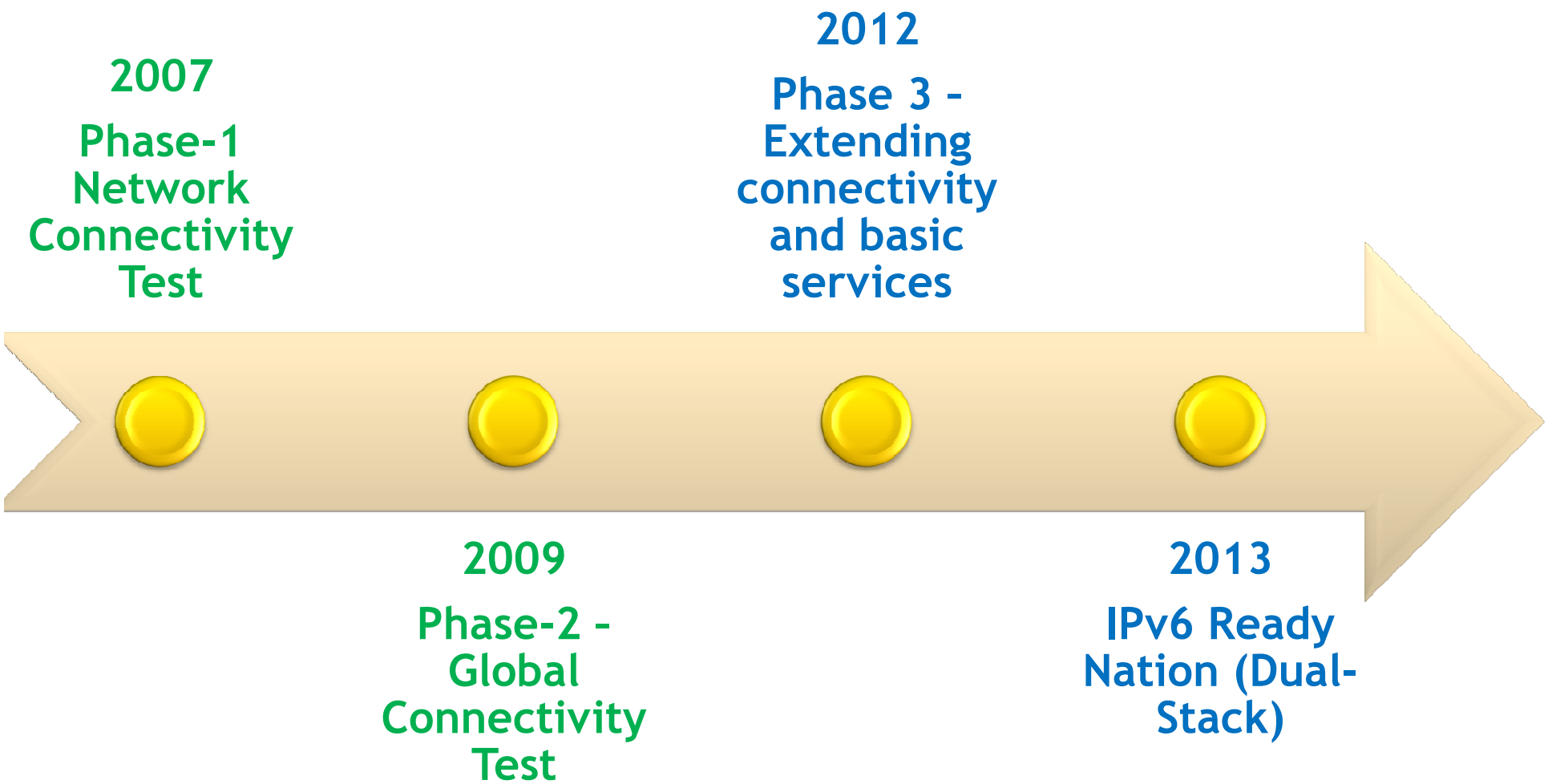


MTSFB IPv6 Working Group

MTSFB - 17 Working Groups with respective deliverables were formed since 2004 :-

- **April 2005, INTERNET PROTOCOL VERSION 6 (IPv6 WG)**
  - Recommend the technical standard for adoption by Malaysia. (*1 technical standard created*)
  - To promote adoption of IPv6 - benefits
  - Recommend migration/deployment plan
  - To derive guidelines or best current practices of IPv6 development in Malaysia
  - To identify suitable contents and applications as the main drivers for fast development of IPv6 in Malaysia
  - To arrange for seminars, exhibition and information releases for professionals and the public to create awareness on the IPv6

ISPs' Audit by MCMC and Road to IPv6 Enabled Nation



MCMC ISPs Compliance Audit

ISP - Phase 1 @ 2007

- IPv6 Basic connectivity
- 7 ISP/telcos completed

ISP - Phase 2 @ 2009 - Global Connectivity Test

- Inter ISP connectivity
- 11 ISP/telcos completed

ISP - Phase 3 @ 2012 - in progress

- End user connectivity
- 14 ISP/telcos

IPv6 Initiatives

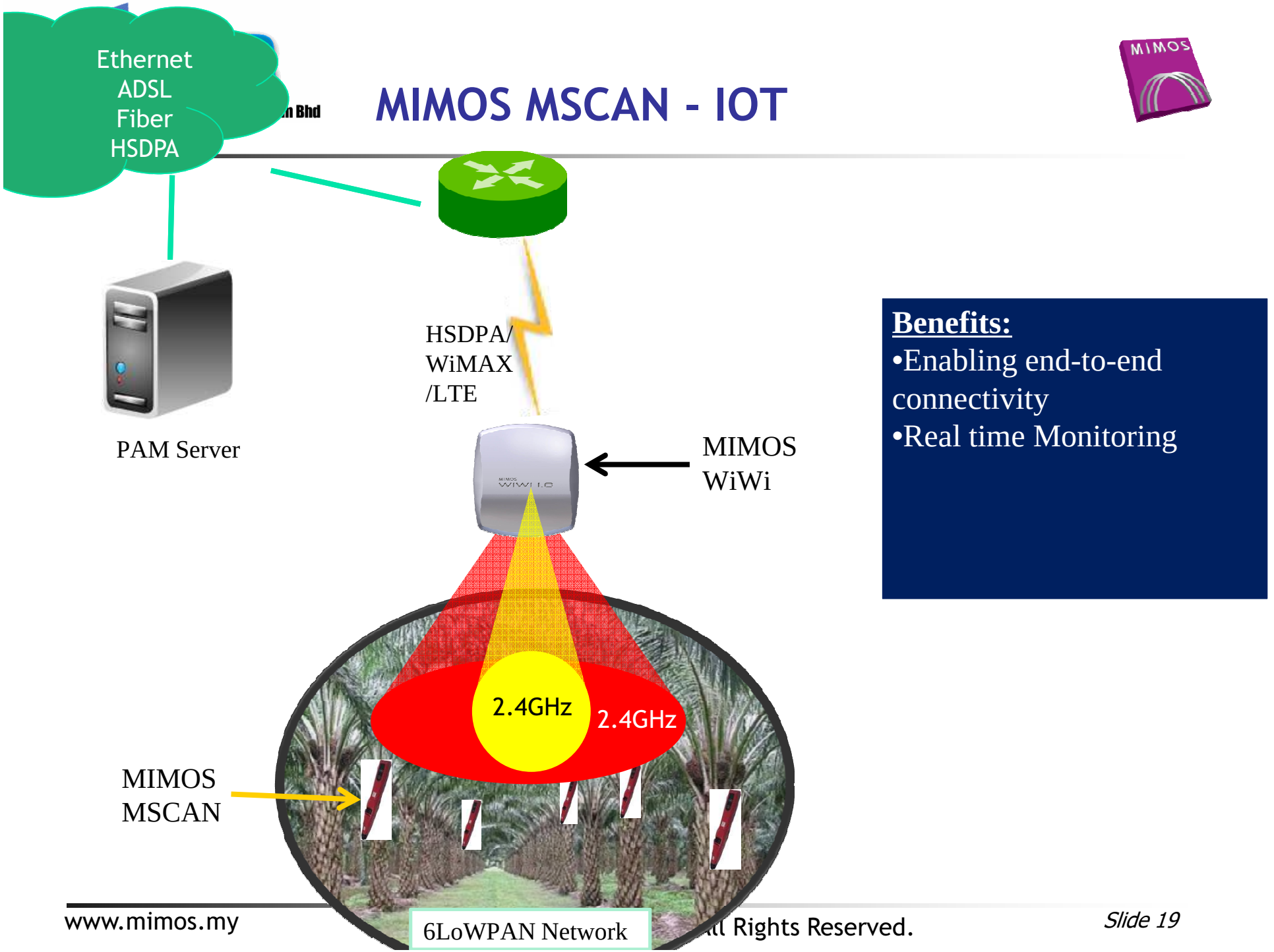
- Malaysia to be IPv6 Enabled country by 2013 (Dual Stack)
- Increase of Domain Names to be registered with IPv6 address at .my domain registry
- Most of Government agencies' infrastructure are IPv6 ready
- Main Government websites to support IPv6
- Monitoring of IPv6 sites and traffic

IPv6 initiatives

- Human Capital Development:
  - Government funded training for 80 participants CNE Level 1 and 2 in early 2012
- Free Tunnel Broker service by MCMC– Available now
- Establishment of Hardware and Software Compliance Test Centre
- Articles in major publications to educate the public
- Application contest to promote the adoption and usage of IPv6

SOME OF MIMOS R&D WORK

MIMOS MSCAN - IOT



Benefits:

- Enabling end-to-end connectivity
- Real time Monitoring

Smart Public Transportation System

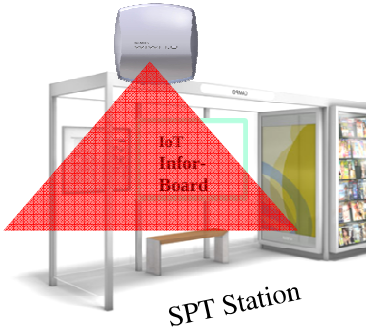
Ethernet
ADSL
Fiber
HSDPA

SPT Server

HSDPA/
WiMAX
/LTE

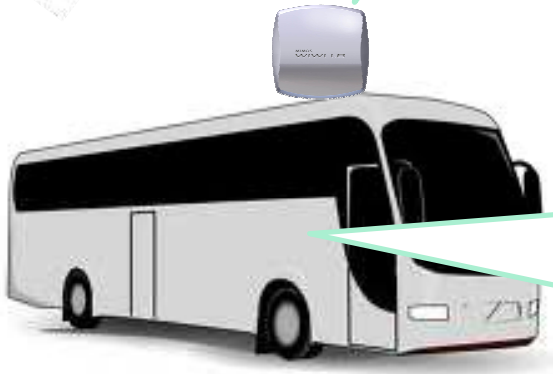
Mobile Device

user



SPT Station

- Backhaul – 4G, WiMAX, GSM, HSDPA
- GPS Module
- 802.15.4 Module
- Environmental Sensors attached
  - Gas Sensors: CO, CO2, NO2
  - Weather Sensors: Temperature, Air Pressure, Humidity
  - 802.15.4 Module



Internal sensors
- Movement detection sensor (for detecting the number of passengers)

Payment System
- NFC device
- Mobile payment

Benefits:
- Enabling IP connectivity
- Real time data access
- Ease for users

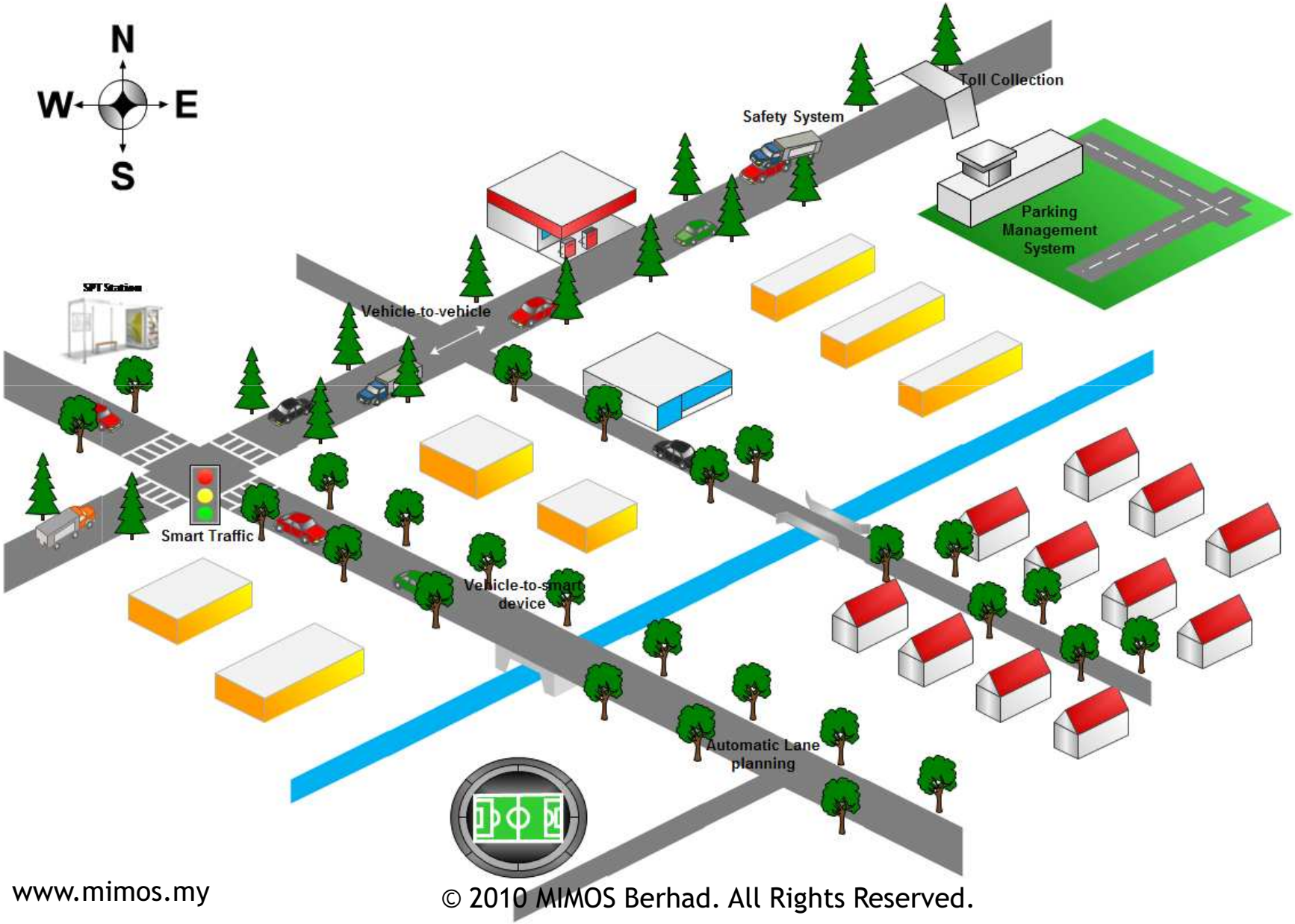
Objectives

- Event and activities monitored besides environmental data – speed, number of stops, duration of each stop
- End User can get real time information on the transport

Projects in Malaysia

- NKEA - Greater KL
- NKRA – Improving Urban Public Transport
- New project lead by MCMC - PoC

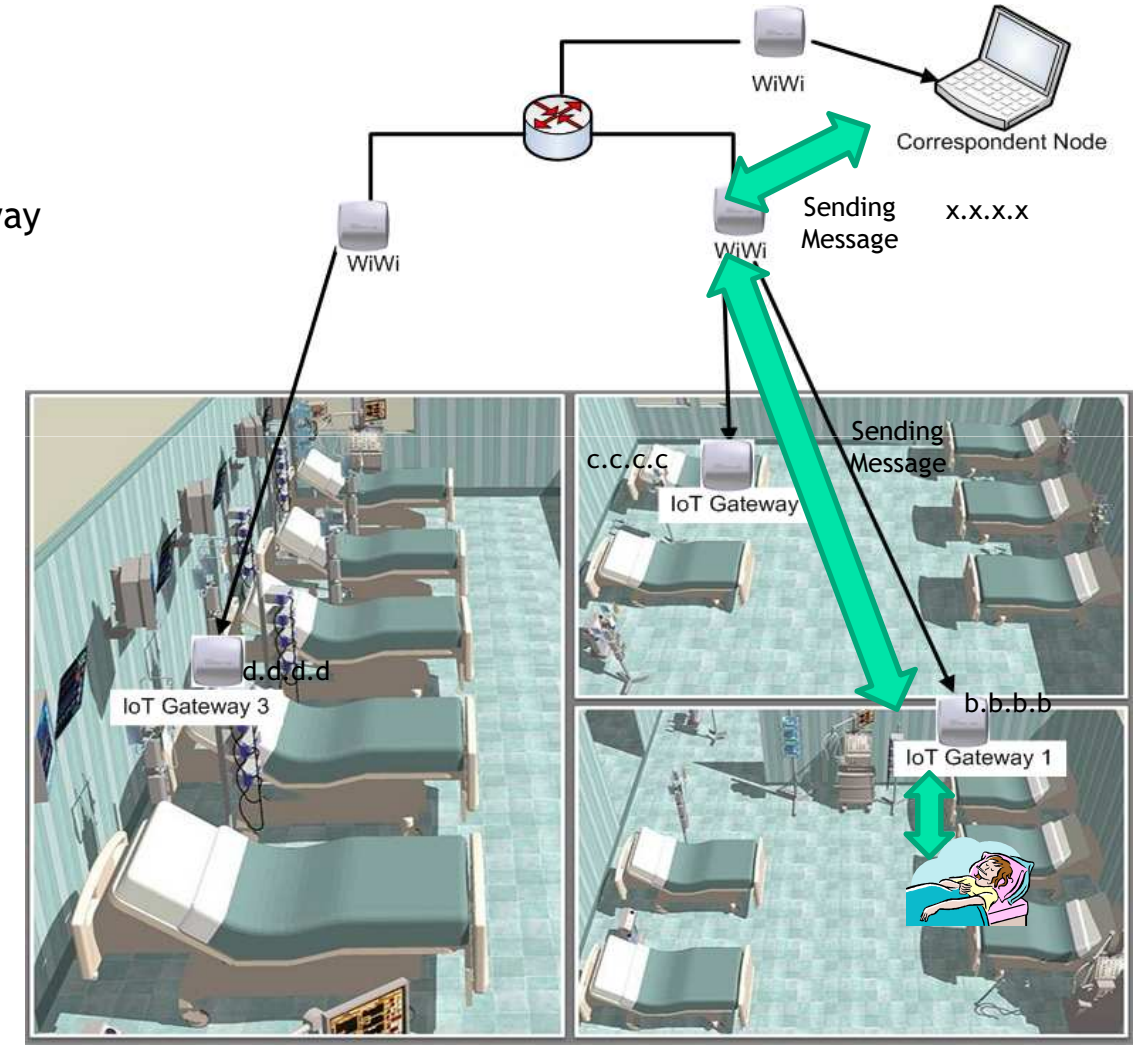
Smart Transportation System



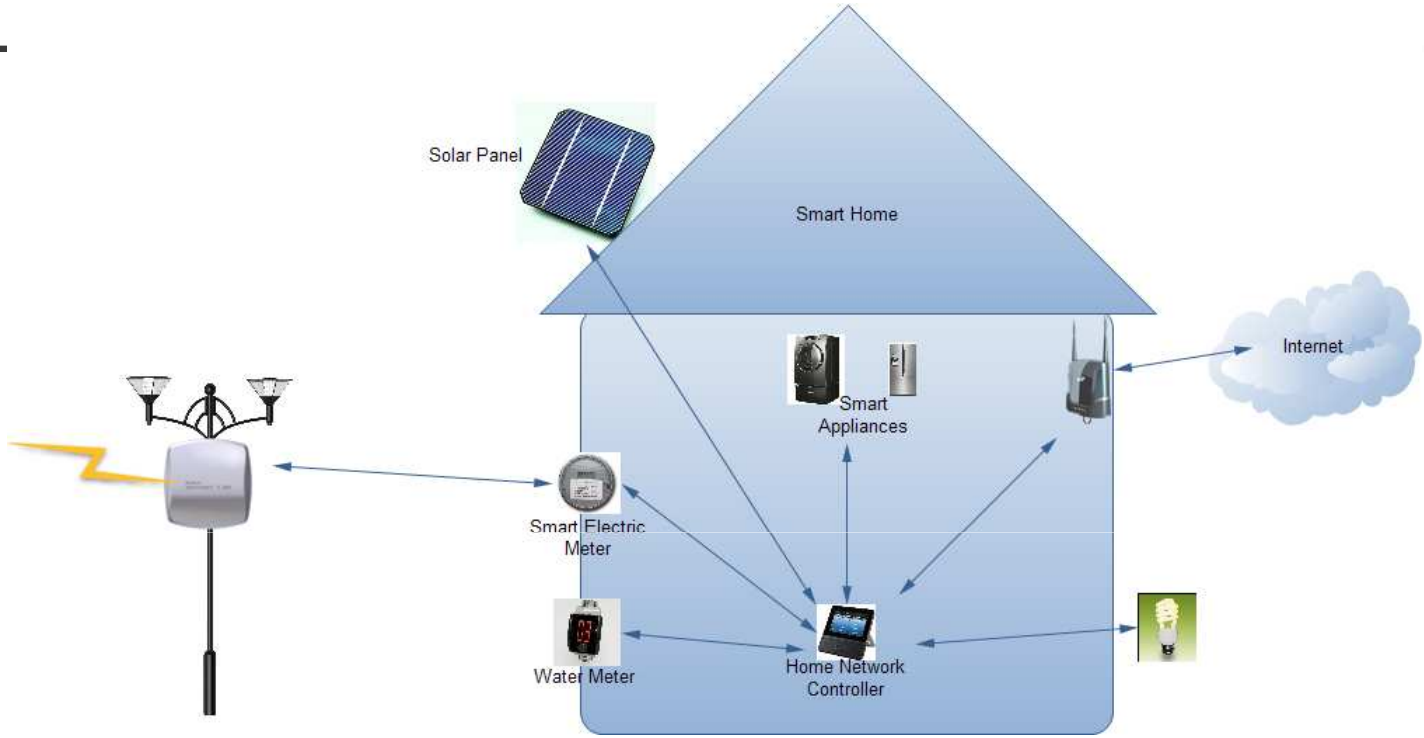
Patient and Equipment Tracking

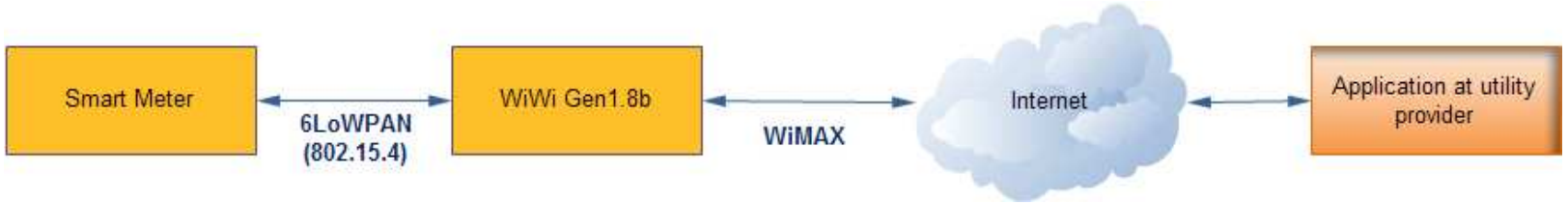
Mobile Node ID	MAC	IoT GW IPv4/ IPv6	HIoT GW IPv4/ IPv6	CR
MN1 x.x.x.x	a:a:a:a:a:a	b.b.b.b	b.b.b.b	

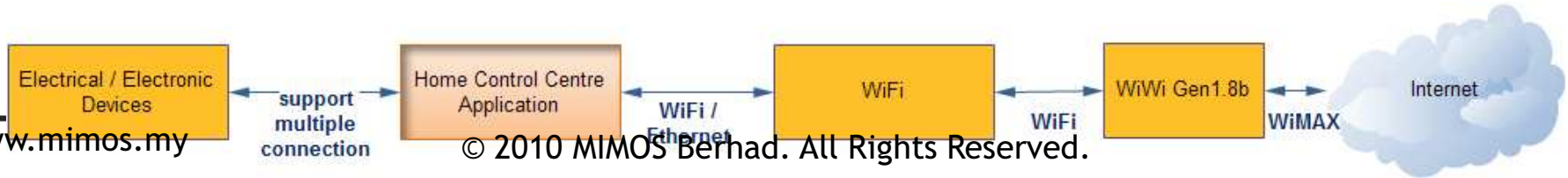
IoT Gateway 1



Smart Home Area Network







Conclusion

- IPv6 is a critical infrastructural requirement to a nation for a wide range of next generation services
- IPv6 opens up opportunity for innovation and is a catalyst for change with increased economical benefits
- ISPs in Malaysia have been very supportive in the transition plan
- Support from the Government is required
- Malaysia has developed national strategies on IPv6 deployment and has acted on it
- R&D work inline with IPv6 –
  - MIMOS WiWi, 6LoWPAN, Internet of Things; NAv6 MCS, Network Monitoring, etc

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Thank You

Gopinath Rao Sinniah
Senior Staff Researcher, MIMOS Berhad
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gopinath.rao@mimos.my

http://www.mimos.my
http://www.mtsfb.org.my