



Regional Progress in IPv6 – Where to now?

Asia Pacific IPv6 Task Force
Dr. Ching-Heng Ku

2007/11/21

Australian IPv6 Summit@Canberra, Australia

1



Outline

- Introduction of Asia Pacific IPv6 Task Force
- Fiscal Year 2007 Action Items
- Deployment Status of IPv6 in Asia Pacific region

2



Global IPv6 Forum



IPv6 Forum
(<http://www.ipv6forum.org>)



Latif Ladid, President
of IPv6 Forum



North American IPv6
Task Force (NAv6TF)
(<http://www.nav6tf.org>)



Jim Bound, Chair of
Steering Committee
of NAv6TF



European IPv6 Task Force (EUv6TF)
(<http://www.eu.ipv6.org>)



Asia Pacific IPv6 Task Force (APv6TF)
(<http://www.ap-ipv6tf.org>)

3



Introduction of Asia Pacific IPv6 Task Force

- APv6TF charter was started at 25, Feb., 2004.
- The objectives of APv6TF is to assist in IPv6 production-level deployment and promotion in economies in the Asia Pacific region.

4



Structure

- Membership
- Advisory Board
- Steering Committee
- Working Group
- Secretariat

5



Membership

- Membership is open to any individual or organization willing to contribute to IPv6 promotion and deployment in the Asia Pacific region.
- All membership can received the weekly news through the mailing list.
- ***There are 17 IPv6 Forum in Asia Pacific regions to participate AP IPv6 TF, including Australia, China, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, Nepal, New Zealand, Pacific Island, Pakistan, Philippines, Singapore, Taiwan, Thailand, and Vietnam.***

6



Advisory Board

- *An Advisory Board (AB) comprised of no more than one representative per member economy will overlook the operations and activities of the Task Force. Advisory Board delegates will be recognized, influential leaders in IPv6 deployment and will be appointed by recommendation of Steering Committee members.*
1. **Mr. Dong Liu**, Chairman of China IPv6 Council
 2. **Dr. Jun Murai**, President of IPv6 Promotion Council of Japan, WIDE
 3. **Dr. Hyeong-Ho Lee**, President of IPv6 Forum Korea
 4. **Dr. Mohamed Awang Lah**, CEO of Jaring, Malaysia
 5. **Dr. Feipei Lai**, President of TWNIC, Taiwan

7



Steering Committee (1/2)

- *A Steering Committee (SC) comprised of two to three nominated representatives per member economy will be responsible for execution of the core activities of the Task Force.*
1. **Australia** : Tony Hill
 2. **China** : Mr. Zhenzhou Lei, Mr. Xing Li, Mr. Le Ricky Lu
 3. **Hong Kong** : David Chung
 4. **India** : Mr. Hemanth Dattatreya, Gopi Garge, Ms. Sai Sree
 5. **Indonesia** : Edwin Purwandesi, John Sihar
 6. **Japan** : Takashi Arano, Tomohiro Fujisaki, Kosuke Ito
 7. **Korea** : Mr. YoungWoon Kim, HyoungJun Kim, Dr. YuJung Kim
 8. **Malaysia** : Dr. Sures

8



Steering Committee (2/2)

9. **Nepal** : Pritam
10. **New Zealand** : Keith Davidson, Roger Hicks, Richard Wood,
11. **Pacific Island** : Rajnesh D. Singh
12. **Pakistan** : Yusuf Bhaiji
13. **Philippines** : Denis Villorente, Medel G. GT Ramirez, Amante
14. **Singapore** : Winston Seah, James Seng, Julian Vincent
15. **Taiwan** : Dr. Han-Chieh Chao, Dr. Yao-Ming Yeh, Dr. Ching-Heng Ku
16. **Thailand** : Dr. Sinchai Kamolphiwong
17. **Vietnam** : Tran Minh Tan, Nguyen Tran Hieu, Nguyen Le Thuy, Hoang Minh Cuong

9



Working Groups

- Short-term, problem-solving oriented working groups (WG) will be structured as necessary.
- Currently, there is 2 active WGs
 - Deployment Metrics WG which focuses on **The measurement of IPv6 readiness**, proposed by **Takashi Arano, Japan**.
 - Promotion WG which focuses on **Asia Pacific IPv6 white paper Wiki**, proposed by **Yao-Ming Yeh, Taiwan**.

10



Measure the Degree of IPv6 Deployment

- Goal
 - Measure how much IPv6 has been deployed since early stage in AP region wide
 - Useful for promotion, marketing and operation of IPv6
- Process
 1. Share our measurement tools
 2. Do measurement in each country (ex. in AP region)
 3. Compile and share the result of the measurement
 - make a chart and update web site automatically
 4. (Publish the result)

11



Measurement Tools

The iNetCore, Japan, prepares to license four kinds of tools below with free of charge.

1. Measurement of DNS Deployment each 2nd level domain
2. Analysis of web server log
3. Analysis of CC (Country Code) domain server (a.dns.jp etc.)
 - Now in progress and Releases in 1Q 2008
4. Measurement of IPv6 stability
 - Now in progress and Releases in 1Q 2008

12



Asia Pacific IPv6 White Paper Wiki

- Objectives
 - To invite countries in Asia Pacific which are interested in IPv6 technologies to contribute articles, statistical material and related resource to help the editing work for Asia Pacific IPv6 white paper.
- Main Idea:
 - Information sharing of IPv6 experiences and strategies
 - Encourage IPv6 investment from governments and/or stakeholders
- The URL of the Web site
 - <http://www.ap-ipv6tf.org/apipv6wp>

13



Proposed Asia Pacific IPv6 White Paper Outline

Chapter 1: Current Internet Development Status in Asia Countries

Chapter 2: Current IPv6 Deployment Status in Asia Countries

Chapter 3: IPv6 Services and Applications Developed in Asia Countries

Chapter 4: IPv6 Value chain and industries

Chapter 5: Future Developments and Trends

14



AP IPv6 Whitepaper Wiki

<http://www.ap-ipv6tf.org/apipv6wp>

Main Page - IPv6Wiki - Microsoft Internet Explorer

檔案(E) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)

← 上一頁 → 搜尋 ☆ 我的最愛 → 移至 連結

網址(D) http://140.122.185.23/wiki/index.php/Main_Page Log in / create account

article discussion view source history

Main Page

Welcome to IPv6 Wiki,
2 articles in English

- AP IPv6 Whitepaper
- Current Events
- Recent Changes
- Help
- Recent Changes
- Current Events
- Help

navigation

- Main Page
- AP IPv6 Whitepaper
- Whitepaper Proposal
- Current events
- Recent changes
- Random page
- Help
- Donations
- sandbox

country

- Australia
- China
- India
- Indonesia
- Japan
- Korea
- Malaysia
- New Zealand
- Pacific Island
- Philippines
- Singapore
- Taiwan
- Thailand

search

Go Search

toolbox

- What links here

AP IPv6 Whitepaper

- With the rapid development of Internet technology through the world, it is expected that IPv4 address space is not enough for user's need and will run out in near future. According to some statistical predictions, e.g. "APNIC IPv4 Address Space Report" written by Geoff Huston and "A Pragmatic Report on IPv4 Address Space Consumption" written by Tony Hain, we can presume that IPv4 address will be exhausted during 2012 to 2015. The best solution for this problem is by employing IPv6 technology. IPv6 is short for "Internet Protocol Version 6". It was designed and proposed by the IETF to replace the current version of Internet Protocol, IP Version 4 (IPv4) in 1995. Additionally to the bigger address space, IPv6 also offers a new and well-designed protocol stacks which implement all the features of security (IPSec), Quality of Service (QoS), auto configuration ... etc. This is main reason to drive many countries begin to pay more attention on promoting and adapting IPv6 technology, especially in Asia Pacific region. ...more

Asia Pacific IPv6 White Paper Proposal

- AP IPv6 Whitepaper Proposal
 - Introduction
 - Objectives_of_this_proposal

In the news

IPv6 News

Main News:

- Transition Leader

Other News:

- 6LoWPAN: low-power IP connectivity ...more

Today's featured picture

Activities



Australia Page (1)

IPv6:AP IPv6 Whitepaper/Australia - IPv6Wiki - Microsoft Internet Explorer

檔案(E) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)

← 上一頁 → 搜尋 ☆ 我的最愛 → 移至 連結

網址(D) <http://140.122.185.23/wiki/index.php/Australia> Log in / create account

ipv6 discussion edit history

IPv6:AP IPv6 Whitepaper/Australia

< IPv6:AP IPv6 Whitepaper (Redirected from Australia)

Contents [hide]

- 1 Australia Delegates
- 2 Internet Development Current Status in Australia
- 3 IPv6 Deployment Current Status in Australia
 - 3.1 Australian IPv6 Developments
- 4 IPv6 Services and Applications developed in Australia
 - 4.1 Key IPv6 Activities & Issues for 2007
 - 4.2 New Australian Web Site: www.ipv6.org.au
- 5 IPv6 Value Chain and Industries
 - 5.1 Business Value Points
 - 5.2 Potential for Innovation based on IPv6
 - 5.3 IPv6 Innovation & Opportunity
 - 5.4 IPv6 for e-Business Project
 - 5.5 IPv6 for e-Business Team
 - 5.6 Sponsors, Hosts & Endorsement
 - 5.7 IPv6 for e-Business Project
 - 5.8 IPv6 for e-Business Project-Mapping
 - 5.9 IPv6 for e-Business Project-Mapping Analysis
 - 5.10 IPv6 Readiness - August 2006
 - 5.11 Service Providers for Australia
 - 5.12 IPv6 for e-Business Project-Enabling Tools
 - 5.13 Business Case Scenarios

navigation

- Main Page
- AP IPv6 Whitepaper
- Whitepaper Proposal
- Current events
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country

- Australia
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- India
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- Malaysia
- New Zealand
- Pacific Island
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- Singapore
- Taiwan
- Thailand



Australia Page (2)

IPv6:AP IPv6 Whitepaper/Australia - IPv6Wiki - Microsoft Internet Explorer

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網址(D) http://140.122.185.23/wiki/index.php/Australia 移至 連結 >>

Special pages

- Printable version
- Permanent link

Australia Delegates [\[edit\]](#)

- Tony Hill

Internet Development Current Status in Australia [\[edit\]](#)

IPv6 Deployment Current Status in Australia [\[edit\]](#)

Australian IPv6 Developments [\[edit\]](#)

- Launch of IPv6 Forum Downunder – 2004
- Participation in IPv6 Summits, Washington DC – 2004 & 2005
- Formation of ISOC-AU SIG - 2005
- Australian National ICT Industry Alliance - 2005
 - Endorsement of national discussion of IPv6
- Engagement with Australian Government – 2005
- Keynote speaker at Global IPv6 Summit 2005, Korea
- Australian IPv6 Summit 2005
 - Awareness of international developments
- IPv6 World Congress Meeting Feb 2006
- IPv6 for e-Business Project
 - Funding from Australian Government through their IT Online Program (ITOL)
- IPv6 Summit 2006
 - transition and business planning

IPv6 Services and Applications developed in Australia [\[edit\]](#)

Key IPv6 Activities & Issues for 2007 [\[edit\]](#)



Secretariat

- The IPv6 Promotion Council of Japan supported the management of the basic Task Force framework for the fiscal year 2003 (i.e., until 31 March 2004)
- Korea and China took over this job for FY2004 and FY 2005, respectively.
- TWNIC of Taiwan is currently supporting this job for FY 2006 and FY 2007. (until 31 March 2008)



Fiscal Year 2007 Action Items

- Quarterly TF meetings
 - Main meeting: 2007 AP IPv6 summit on 26 February 2007 - Indonesia (APRICOT 2007)
 - F2F meeting :
 - 2007 1st AP IPv6 Task Force meeting on 27 February 2007, Indonesia
 - 2007 2nd AP IPv6 Task Force meeting on 21 June 2007, Taiwan
 - 2007 3rd AP IPv6 Task Force meeting on 19, November, Australia
- 2008 IPv6 Summit in AP
 - 25-26 February 2008 – Taipei, Taiwan (APRICOT 2008)
- Workshop on 26 February 2008 in Taipei, Taiwan.
 - IPv6 Readiness workshop will release the measurement tools.
 - AP IPv6 white paper workshop will discuss the first version of the white paper.

19



Deployment Status of IPv6 in Asia Pacific region

20



Challenges



□ The End Users

- ✓ The network capability to provide the desired services
- ✓ It's all about the applications, and their services

Don't care about IPv6!!!

□ The Device Manufactures

- **Care ... IPv6 Ready Devices.**



□ The Network Operators

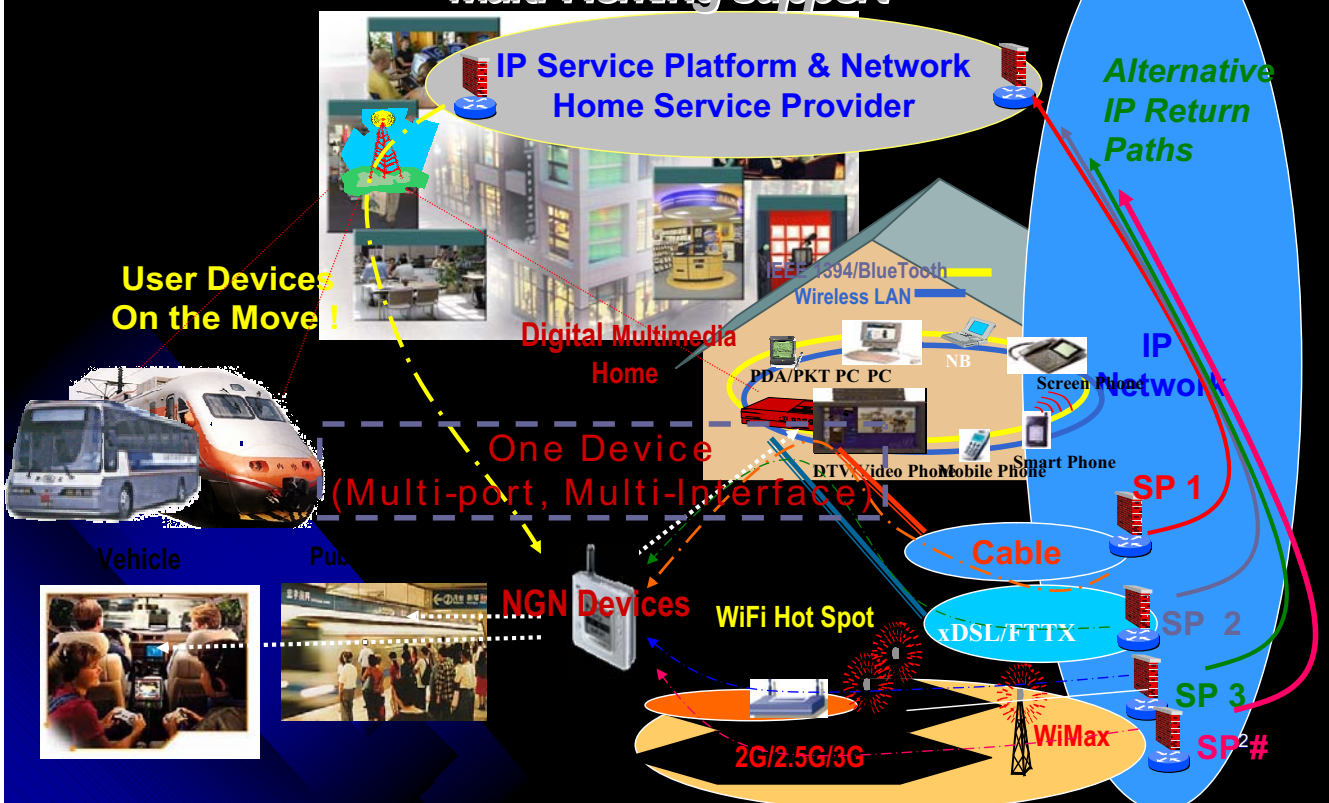
- Trust return Paths & Network operation
- Cost of deployment, operation model

Care more...have to find & learn the feasible business models.



Opportunities : Digital Home

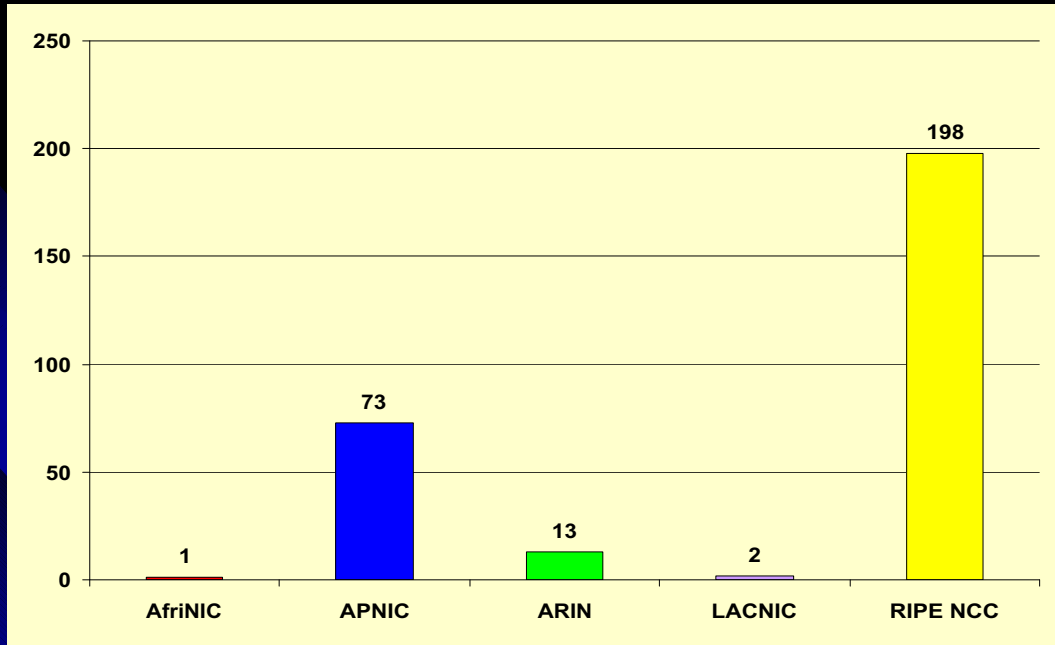
One Device, Multi-port, Multi-Interface, Plug&Play with Mobility, Multi-Homing support





IANA IPv6 Allocations to RIRs

Issued as /23s prior to Oct 06



23



IPv6 address allocation in Asia Pacific

(unit: /32)

(unit: /32)

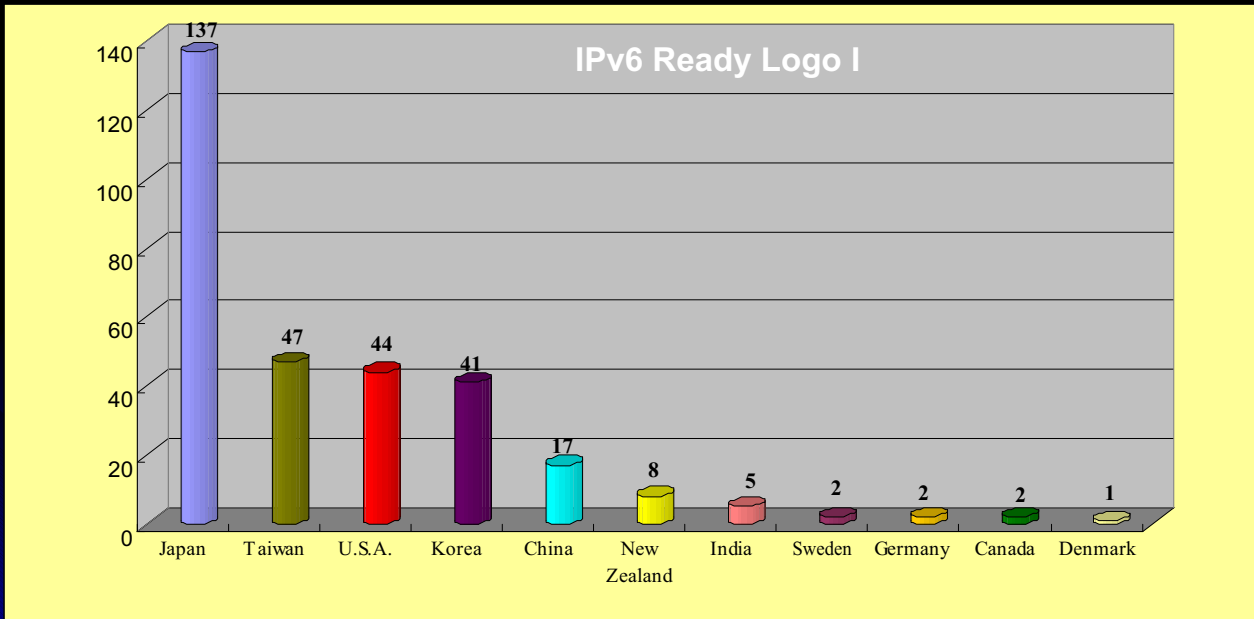
1	AUSTRALIA	8208
2	JAPAN	7278
3	KOREA, REPUBLIC OF	5191
4	TAIWAN	2309
5	CHINA	29
6	NEW ZEALAND	16
7	INDONESIA	15
8	MALAYSIA	14
9	INDIA	14
10	THAILAND	13

11	HONG KONG	9
12	PHILIPPINES	8
13	SINGAPORE	6
14	PAKISTAN	5
15	BANGLADESH	4
16	VIET NAM	3
17	MACAO	2
18	FIJI	1
19	PAPUA NEW GUINEA	1
20	SRI LANKA	1

24



IPv6 Ready Logo I (statistic data)



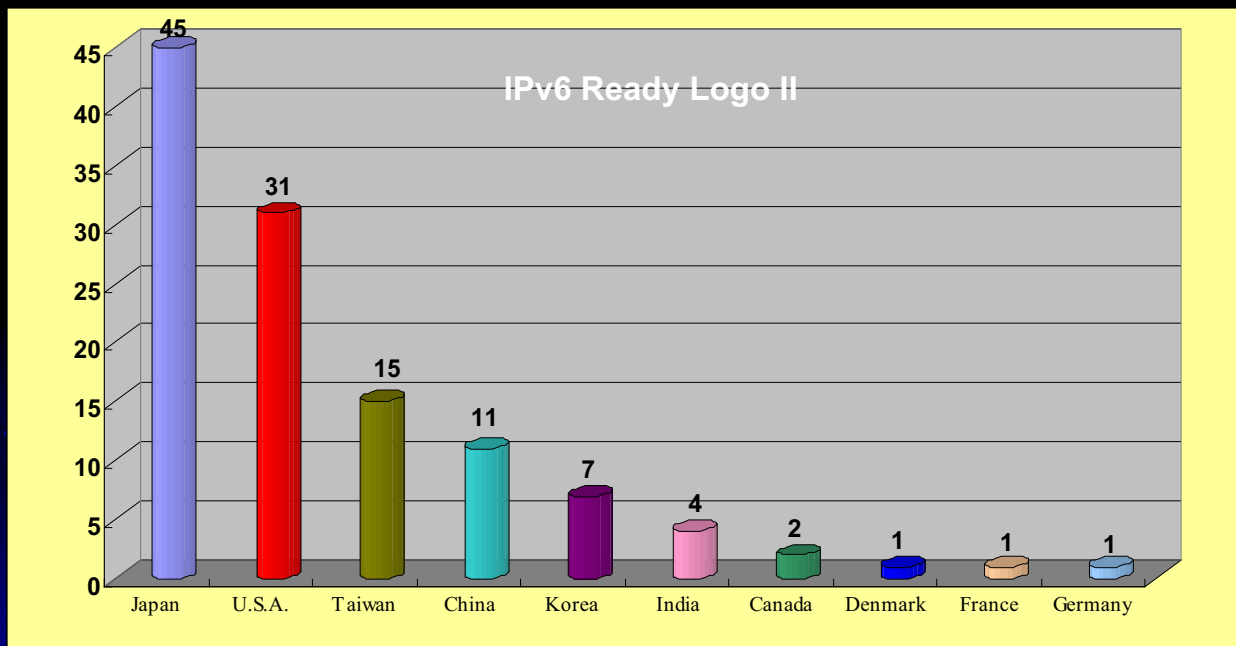
83% in Asia Pacific region

Date: 2007/11/02

25



IPv6 Ready Logo II (statistic data)



69% in Asia Pacific region

Date: 2007/11/02

26



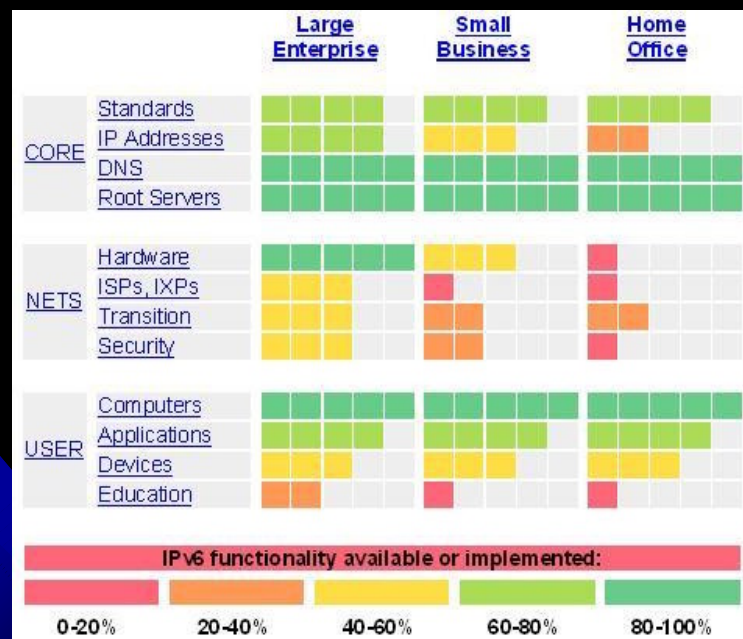
IPv6 for Australia e-Business Project

- Mapping Australian IPv6 Capability
- Enabling - developing business tools
- Raising awareness
- Assessing readiness - Australian IPv6 infrastructure

27



IPv6 Readiness – August 2006



Data source: 2007 ISOC-AU

28



Australia Service Providers with IPv6 addresses

Service providers with IPv6 addresses
advertised in the last 12 months:

- Telstra
- AARNet
- NTT Australia
- IPv6 Data FX
- Pacific Internet
- CityLink (NZ)
- UUNet
- iiNet
- AusRegistry

IPv6 Summit 2006 connectivity provided through AARNet

29



The Transition Guide

- **Assess** business requirements, risks and benefits
- **Survey** existing network infrastructure
- **Educate** technical staff professionally
- **Resource** network and security infrastructure
- **Phase-in** and test IPv6-capable devices
- **Inform** and set policies for general staff
- **Monitor** and maintain procedures and infrastructure

30



Japan NTT

- Telecom Carriers have started IPv6
- NTT West started new Internet Access service in 2005.
- Includes IPv6 service network - Multicast enable and Closed network
- NTT East follows in 2007
- Nearly two millions customers
- **NTT's IPv6 service:** IPTV Service, VoIP Service, etc.

31



Japan OCN

- Some Japan ISPs already have started IPv6 commercial services
- OCN IPv6 tunneling service
 - Extra \$3.00

32



Korea

IPv6 Deployment Topology in Korea

Policy area

- Vision & Policy development
- MIC, NIDA

Technical area

- IPv6 standardization
- Public & Private industry

IPv6 Strategy Council

Promotion area

- IPv6 education & promotion
- NIDA, IPv6 Forum Korea

Commercial area

- IPv6 service in business
- Public & Private sector, ISP

33

Data Source: National Internet Development Agency of Korea (NIDA)



Five Objectives in “IPv6 Promotion Plan II”

Objectives

I. Development of IPv6 services

II. Expansion of IPv6 communication network

III. Legal improvement for IPv6 deployment

IV. Fostering IPv6 friendly environment

V. IPv6 tech. development & standardization

Data Source: National Internet Development Agency of Korea (NIDA)



Indonesia

- a National IPv6 Task Force which is involving many stakeholders and coordination between entities : ISP's, APJII and DG Postel.
- Development of Implementation Model :
 - To set implementation best practice
 - **To establish a first stage Native IPv6 network**
 - IPv6 implementation model documentation

Data Source: Indonesian IPv6 Task Force

35



IPv6 Development Updates

- implementation IPv6 on campus (University of Indonesia)
- implementation IPv6 on service (detik.com, Indonesia News Portal)

The screenshot shows a web browser window with the URL <http://www.u.i.ac.id/indonesiaintran.php?file=artikel&id=2007-05-01%20155936>. The page title is "Penerapan IPv6 Pada UIITA". The main content area features a large image of a group of people in a meeting, with the text "Penerapan IPv6 Pada UIITA" and "1 Mei 2007". Below the image, there is a news article snippet starting with "Sejak bulan April 2006, Jaringan Universitas Indonesia Terpadu (UIITA) di lingkungan Kampus Depok, didukung oleh teknologi IPv6, yang mempunyai kapasitas address space yang sangat besar dan versi sebelumnya...".

The screenshot shows a web browser window with the URL [http://suratbuncit.detik.com/index.php/detik_read?tahun\(2007/bulan\)10\(tgl\)08\(hme\)094049\(dnews\)639163\(ikana\)238](http://suratbuncit.detik.com/index.php/detik_read?tahun(2007/bulan)10(tgl)08(hme)094049(dnews)639163(ikana)238). The page title is "Surat dari Buncit". The main content area features a large image of a Nokia mobile phone displaying an email, with the text "Perkenalkan, IPv6 dari detikcom" and "Reporter: Nurul Hidayati". Below the image, there is a news article snippet starting with "Jakarta - detikcom identik dengan berita-berita hangat ala detik ini juga. Tapi detikcom juga identik dengan aplikasi teknologi internet gres...".



IPv6 Development Updates

- IIX (Indonesia Internet Exchange), is already deliver dual stack service for connected ISP's
- IIX is open connection acting as root network aggregation for APJII(Indonesia Internet Provider) member.

37



IPv6 Development Updates

- implementation IPv6, Internet provider:
 - TELKOMNet is ISP owned by PT TELKOM (Indonesia Telecom Company)
 - Telkom study case (schedule & location Phase II)
 - Phase II implementation : February 2008 – July 2008
 - Peering with other ISP → IM2, CBN, XL
 - OPEN-IXP connectivity
 - Implemented on JARDIKNAS (Indonesian Educational Network)
 - Build tunnel broker for customer education (end-user)
 - Telkom study case (regulation)
 - Hardware contract maintenance regulation
 - Upgrade to IPv6 ready should be standard in the new contract
 - Hardware & application procurement regulation
 - All procurement after November 2007, should include IPv6 capability

38



Vietnam

- **OVERVIEW OF VIETNAM INTERNET**
 - 18 ISPs are issued a licence.
 - 9 ISPs are providing Internet services: **VNTP, VIETTEL, OCI, FPT, SPT, Hanoi Telecom, EVN Telecom, NETNAM, TIE**
- In deploying IPv6 address aspect
 - only two organizations, VNPT and QTSC have has IPv6 addresses.

Data Source: VNNIC

39



IPv6 DEPLOYING ACTIVITIES IN VIET NAM

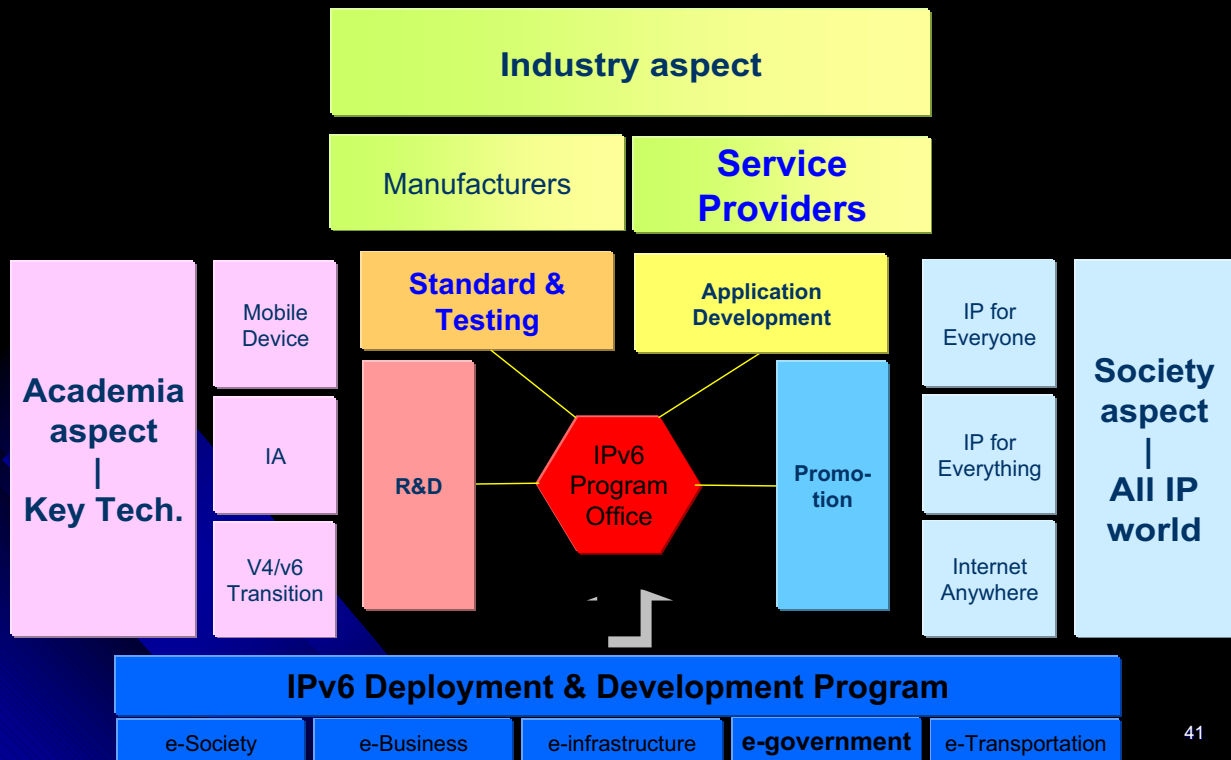
- VNNIC is the first organization that had IPv6 address and have built an IPv6 network in Vietnam.
- Now, VNNIC uses two IPv6 blocks, one (/32) for national DNS ".vn" network, the other (/48) for Hanoi IX point.
- Two IX points at Hanoi and HCM city are ready for connecting IPv6.

Data Source: VNNIC

40
40



Taiwan IPv6 Deployment & Development Program



41



Taiwan ISP IPv6 Access Services

- **Leased Line :**
 - Native IPv6 Service
 - Configured Tunnel Service
- **Fixed IP ADSL**
 - Configured Tunnel Service
- **PPPoE ADSL**
 - Configured Tunnel Service
- **Tunnel Broker Service-1 (trial)**
- **Tunnel Broker Service-2**
- **IPv4/IPv6 Dual Access Service**

42



7 ISPs provide IPv6 access Service by IPv6 Tunnel Broker

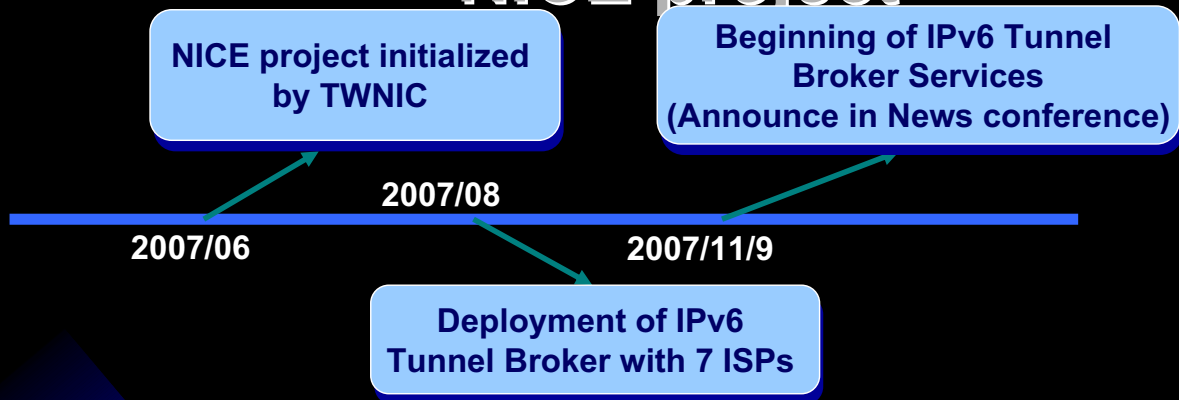
Next-generation Internet Connectivity Environment (NICE)

● IPv6 Tunnel Broker Service

- 7 major ISPs join project
- They provide their users to use free IPv6 tunnel broker service since 9 November, 2007.



Timetable and services of NICE project



ISP	IPv6 Services	IPv6 web
Hinet	Access, Web, DNS, IPv6 MoD	http://www.ipv6.hinet.net
TFN	Access, Web, DNS	http://ipv6.tfn.net.tw
Sparq	Access, Web, DNS	http://www.ipv6.sparqnet.net
APOL	Access, Web, DNS	http://www.apol.com.tw
Seednet	Access, Web, DNS	http://ipv6.seed.net.tw
So-net	Access, Web, DNS	http://www.beyou.com.tw
TTN	Access, Web, DNS, Blog	http://www.mw.net.tw



News Conference



7 major ISPs, **Hinet, TFN, NCIC, APOL, Seednet, So-net, and TTN**, join NICE project.

The announcement of ISP IPv6 Tunnel Broker Services in news conference on November 9, 2007 in Taipei, Taiwan.



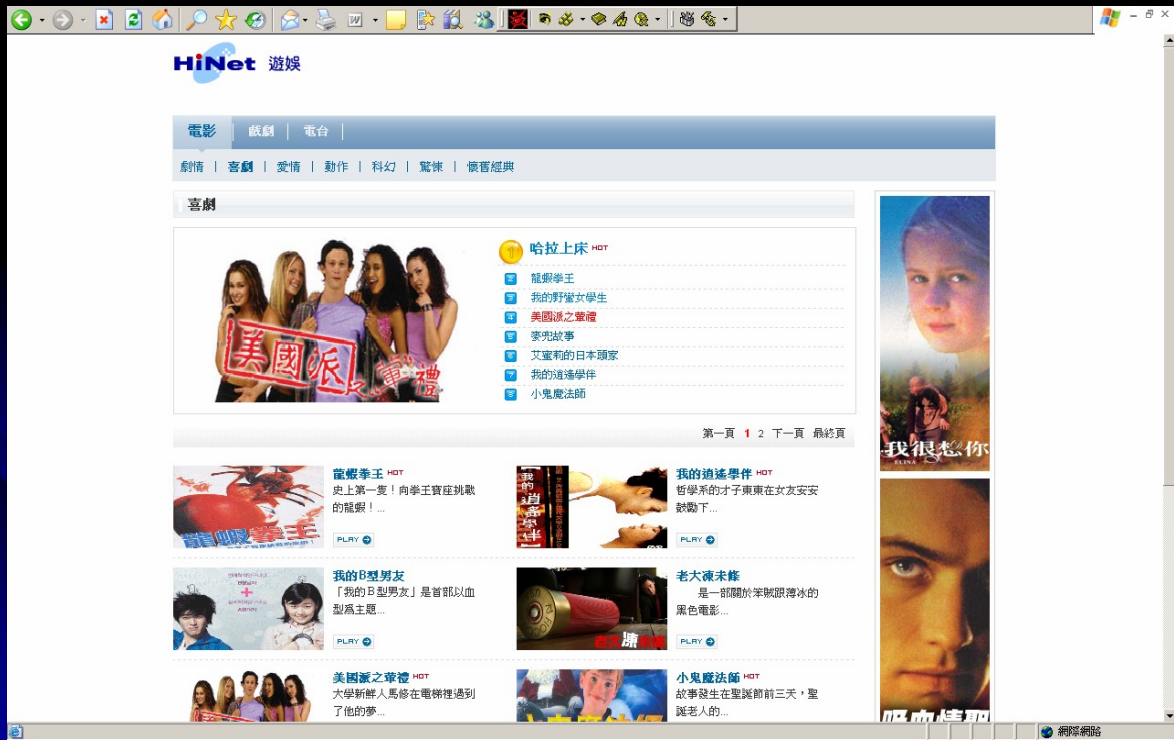
Chunghwa Telecom IPv6 Portal (Dual Stack)

- <http://www.ipv6.hinet.net>



Chunghwa Telecom IPv6 MoD (IPv6 Only)

- <http://ipv6.taco.hinet.net>



Ezpeer+ IPv6 Music Online

- <http://web.ezpeer.com.tw>





TWNIC IPv6 Showroom (Dual Stack)

- <http://showroom.twnic.net.tw>



Thank You