Concerns on IPv6 as a Public Policy Issue

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Agenda

- ITU in brief
- IPv6 issues
- ITU mandate
- ITU activities
- conclusions

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ITU in brief

- Leading UN agency for ICTs found in 1865
- Structure:
  - Radiocommunication sector (ITU-R), secretariat: BR
  - Standardization sector (ITU-T), secretariat: TSB
  - Development sector (ITU-D), secretariat: BDT
- Membership:
  - 191 Member States
  - 700+ Sector Members
- Internet-related work:
  - public policy issues
  - technical standards and relevant policies
  - assistance to interested Member States

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ITU is changing

- Free access to standards
- Private-public partnership
- Planning to have:
  - ➢ new membership category for academia/university
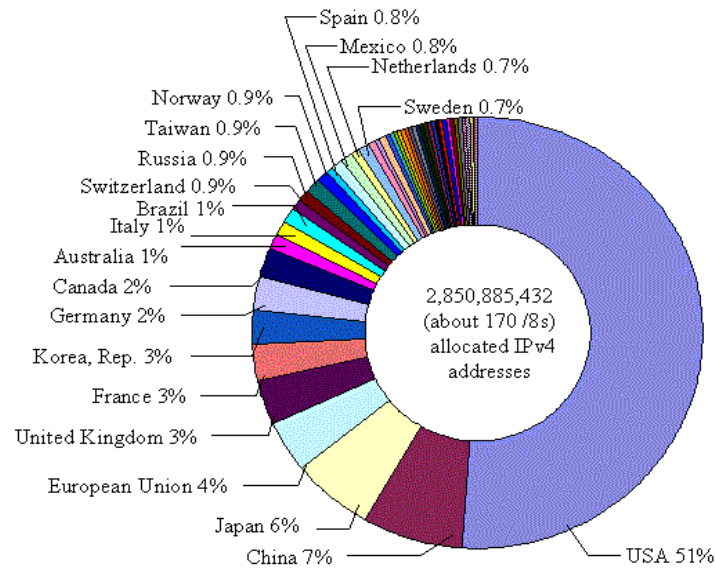 - ➢ Reduced fee for industry members from developing country

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IPv4 Allocation 1/3
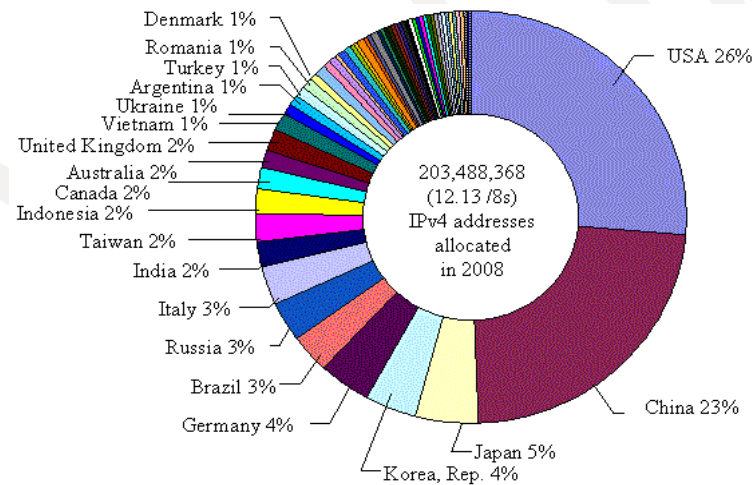
- Imbalances due to historical reasons

IPv4 allocation per economy as of 15 May 2009

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IPv4 Allocation 2/3

- Early adopter's reward

IPv4 addresses allocated during 2008

IPv4 Allocation 3/3

Country	# of IPv4 addresses	# of Internet users	# of IPv4 addresses per user
USA	1,458,625,280	220,000,000	6.63
UK	87,576,152	48,755,000	1.79
France	85,168,064	31,571,000	2.69
Japan	170,107,648	88,110,000	1.93
China	201,264,896	298,000,000	0.67
India	18,577,664	81,000,000	0.23
Egypt	2,771,968	12,568,900	0.22
Africa	23,714,816	65,436,500	0.36

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Developed World Opinion

- Some ITU Members believes:
  - IPv4 address distribution correctly reflects development and current usage of the Internet
  - IPv6 deployment is driven by market forces at the economically optimum rate

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Developing World Opinion 1/3

- Some other ITU Members, mostly developing countries, feel that:

    1. they are the ones paying for IPv4 depletion

        - Have paid higher price for IPv4

        - No extra IPv4 in stock, will be forced to deploy IPv6 when they are not yet ready

        - Might have to pay even higher to get IPv4 for transition

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Developing World Opinion 2/3

2. Fundamental concern: will IPv6 policy evolvement repeat the tighten-up history of IPv4?

- Will IPv6 have scarcity issue in the future?

If yes, "*from a public policy perspective, there is a risk to create, yet again, an early adopter reward and a corresponding late adopter set of barriers and penalties*" - Millet & Huston (2005)

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Developing World Opinion 3/3

3. Difficult to get their concerns heard/understood in IP resource policy making process

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Requests for IPv6

- 'Equitable access' to IPv6 address resource

- Governmental involvement in policy making

- Assistance in awareness raising and capacity building

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ITU related Mandate

WSIS Principles and outcomes

Decisions of ITU Membership

WSIS - World Summit on the Information Society

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WSIS - Equitable access

- Working Group on Internet Governance (WGIG) Report (June 2005) :
  - *"In the light of the transition to IPv6, some countries feel that allocation policies for IP addresses should ensure balanced access to resources on a geographical basis."* (paragraph 22)
  - *"Transition to IPv6 should ensure that allocation policies for IP addresses provide equitable access to resources."* (paragraph 77)

- Background Report of WGIG:
  - *"Others have argued that, ..., a review of the current numbering management is required to ensure equitable distribution of resources and access for all into the future."* (Paragraph 85)
  - *"Some governments have the position that the allocation of IP numbers, or some subset of these numbers, should be under the sovereignty of national governments and should be managed via a national Internet registry (NIR). "* (Paragraph 85)
  - *"[e]nsuring more balanced use of the IPv4 space, correcting the unbalanced distribution of IP numbers and sustainable transformation of the IP addressing system to IPv6."* (paragraph 105)

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WSIS - Governmental involvement

- Background report of WGIG (2005):
  - *"There is a lack of a global mechanism for participation by Governments, especially from developing countries, in addressing multisectoral issues related to global Internet policy development."* (paragraph 19)
  - *[t]here is currently limited involvement of either governments or civil society in the policy making or practical management of IP addresses, although generally RIRs encourage such groups to participate in RIR policy development.* (paragraph 85)
- The Tunis Agenda for the Information Society recognized:
  - *"that all governments should have an equal role and responsibility for international Internet governance"* (paragraph 68).
  - *the need for enhanced cooperation in the future, to enable governments, on an equal footing, to carry out their roles and responsibilities, in international public policy issues pertaining to the Internet* (paragraph 69)

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ITU Resolutions

PP. Resolution 101 (Rev. Antalya 2006)
Internet Protocol-based networks

PP. Resolution 102 (Rev. Antalya 2006)
ITU's role with regard to international public policy issues pertaining to the Internet and the management of Internet resources, including domain names and addresses

PP. Resolution 133 (Rev. Antalya 2006)
Role of administrations of Member States in the management of internationalized (multilingual) domain names

ITU Council 2008 Resolution 1282 (Mod)
ITU's role in implementing the outcomes of the World Summit on the Information society

WTSA Resolutions 64 (Rev. Johannesburg, 2008)
IP address allocation and encouraging the deployment of IPv6

WTSA Resolution 75 (Rev. Johannesburg, 2008)
ITU-T's contribution in implementing the outcomes of the World Summit on the Information Society, and the establishment of a Dedicated Group on Internet related Public Policy Issues as an integral part of the Council Working Group on the World Summit on the Information Society

WTDC Programme 3 (Rev. Doha, 2006)
E-strategies and ICT applications

WTDC Resolution 20 (Rev. Doha, 2006)
Non-discriminatory access to modern telecommunication and information technology facilities and services

WTDC RESOLUTION 30 (Rev. Doha, 2006)
Role of the ITU Telecommunication Development Sector in implementing the outcomes of the World Summit on the Information Society

WTPF Draft Opinion 5 (Lisbon, May 2009)
Capacity Building in support of adoption of IPv6

World Telecommunication Standardization Assembly (WTSA 08)

Resolution 64 'IP address allocation and encouraging the deployment of IPv6'

- **project** to assist developing countries
- **website** on IPv6
- **training** activities
- **study** IPv6 address allocation and registration

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ITU-T Study Group 3 meeting
(19-23 Jan. 2009)

- *Many developing countries had requested that the TSB become an additional registry for IP addresses so that countries could have the option of obtaining IP addresses directly from ITU.*

- *This request should be evaluated and its advantages and disadvantages should be reported in the study that the Director of TSB is instructed to present to Council 2009 (Resolution 64).*

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ITU and International Telecommunication Resource Management 1/2

ITU-T and Telecommunication naming/addressing resources

- a function of ITU since 1872
- international level – ITU, national level – each country
- ITU-T Recommendations:
  - ➢ E.164 and E.164.1 for telephone numbers
  - ➢ Q.708 for International Signalling Point Codes (ISPCs)
  - ➢ E.212 for International Mobile Subscription Identities (IMSIs)
- ENUM interim procedure – an example of ITU-RIR cooperation
  - ➢ RIPE-NCC - ENUM implementation registration
  - ➢ ITU - accreditation role

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ITU and International Telecommunication Resource Management 2/2

ITU-R and Geosynchronous Orbital Position

- Orbital position plan with national allotments to guarantee 'equitable access'
  - ➤ Spectrum set aside for future use by all countries
  - ➤ Predetermined orbital position & frequency spectrum
- "First Come, First Served" + "coordination before actual usage"
- Radio Regulations (RR), a binding international treaty

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Studies as requested by WTSA Res. 64

- **A Study on IPv6 Address Allocation and Distribution Methods**

  by NAv6, USM, Malaysia
  - ➤ Country Internet Registry (CIR)

- **Economic Factors in the Allocation of IP Addresses**

  by Prof. Milton Mueller
  - ➤ Transferable Address Block Lease (TABL): provider-independent blocks (/48~/32) at a fee, no 'need assessment'
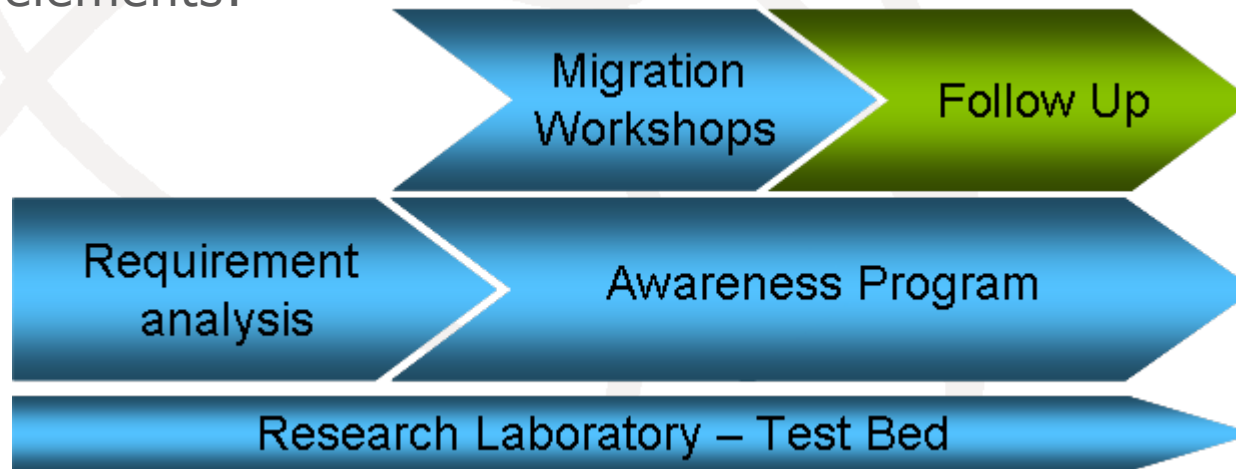
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ITU IPv6 Project

- Objectives
  - ➢ understand the regional needs of developing countries,
  - ➢ raise awareness,
  - ➢ encourage deployment and create joint programs between developing country members with similar agenda
  - ➢ to facilitate the adoption of IPv6 in the world.
- Key elements:

- important strategy: partnership with private/public orgs in national/international levels

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Secretariat Discussions

- ICANN, RIPE-NCC, ITU (mid 2009)
- cooperation to help developing countries:
  - awareness-raising on IPv6 urgency
  - Training on IPv6 policy
  - capacity building
- a global policy proposal suggested
  - Draft by ITU, follow the RIR policy process
  - Reserve an IPv6 block for future needs of developing countries

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ITU Council 09 Decision

- To create an ITU Group on IPv6, to
  - ➤ Draft the global policy proposal
  - ➤ Study
    - ▪ 'equitable access' to IPv6 resource
    - ▪ Should ITU become another Internet Registry? How ITU should manage a reserved IPv6 block?
    - ▪ Should the CIR model be recommended to those countries requesting it?
  - ➤ Assist the implementation of the ITU IPv6 project
- Open to ITU-T and ITU-D membership, including ISPs and industry members
- 1st meeting on **15-16 March 2010**, in ITU, Geneva, Switzerland.
- All five RIRs invited

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Observations

- Willingness from governments to participate and contribute to IPv6 deployment

- Individual-based RIR PDP: open, transparent, bottom-up

- ITU could help to get all 191 countries involved

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Conclusions

- Internet governance needs 'inclusive' vision to address concerns of all stakeholders
- International organizations like ITU, ICANN and RIRs can cooperate and contribute according to their respective role
- ITU IPv6 efforts try to find a meeting-point for governments and Internet community in international Internet public policy discussion
- We look forward to cooperation from RIRs and the whole Internet community

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Useful Links

- **ITU IPv6 portal: http://www.itu.int/ipv6**
- ITU IPv6 Group homepage: http://www.itu.int/ITU-T/othergroups/ipv6/index.html
- World Telecommunication Standard Assembly Resolution 64: http://www.itu.int/publ/T-RES-T.64-2008/en
- World Telecommunication Policy Forum (WTPF 2009) OPINION 5 on Capacity building in support of the adoption of IPv6: http://www.itu.int/md/dologin_md.asp?lang=en&id=S09-WTPF-C-0004!R1!MSW-E
- NAv6 Study on IPv6 Address Allocation and Distribution Methods: http://www.itu.int/dms_pub/itu-t/oth/3B/02/T3B020000020002PDFE.pdf
- Prof. Mueller study on Economic Factors in the Allocation of IP Addresses: http://www.itu.int/dms_pub/itu-t/oth/3B/02/T3B020000020003PDFE.pdf
- Working Group on Internet Governance reports: http://www.wgig.org/WGIG-Report.html
- ICANN/RIR IPv6 factsheet: http://www.itu.int/dms_pub/itu-t/oth/3B/01/T3B010000020001PDFE.pdf
- ISOC A Fine Balance: Internet Number Resource Distribution and De-Centralisation: http://www.itu.int/dms_pub/itu-t/oth/3B/01/T3B010000010001PDFE.pdf

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Question?

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Thank you

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