APNIC 35 CONFERENCE

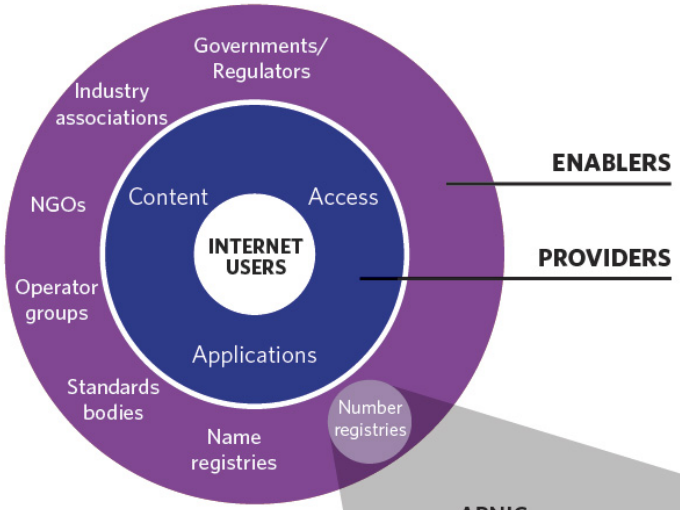
SINGAPORE
25 February - 1 March 2013

APNIC Secretariat Report 2012

Sanjaya, Operations and Services Director

APNIC

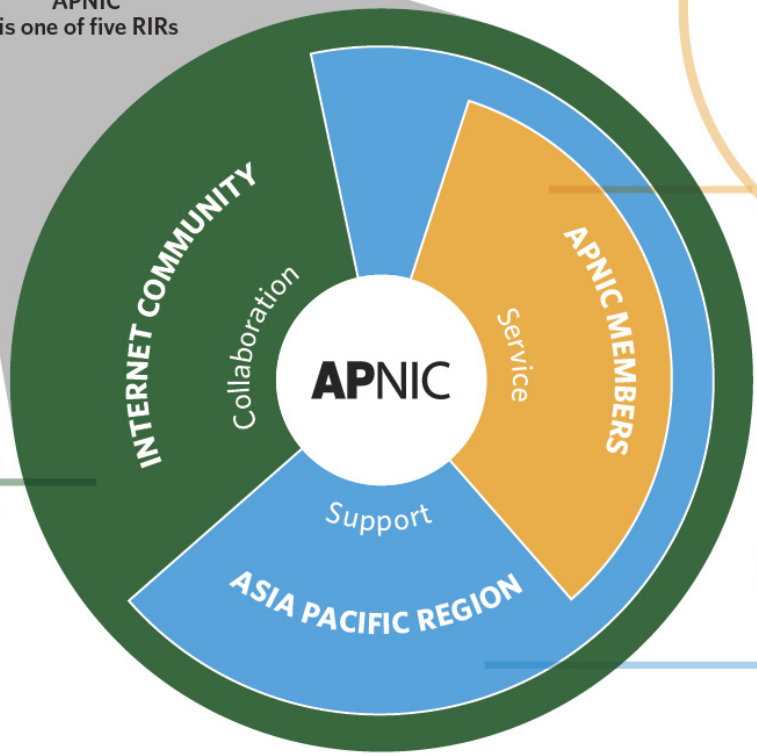
addressing the Internet in the Asia Pacific



ENABLERS

PROVIDERS

APNIC
is one of five RIRs



Resource distribution
- IP addresses
- AS numbers

Registration services
- reverse DNS
- Internet routing registry
- resource certification
- whois registry

Original research

Data collection and measurements

Publications

Local/regional/global events

Internet governance

Internet security

Policy development

Capacity building
- training
- workshops
- conferences
- fellowships
- grants

Infrastructure
- root servers
- IXPs
- engineering assistance

Serving Members

- IPv4
- IPv6
- ASN
- Membership growth
- Alternative Whois protocol
- Resources Public Key Infrastructure
- Service delivery improvements

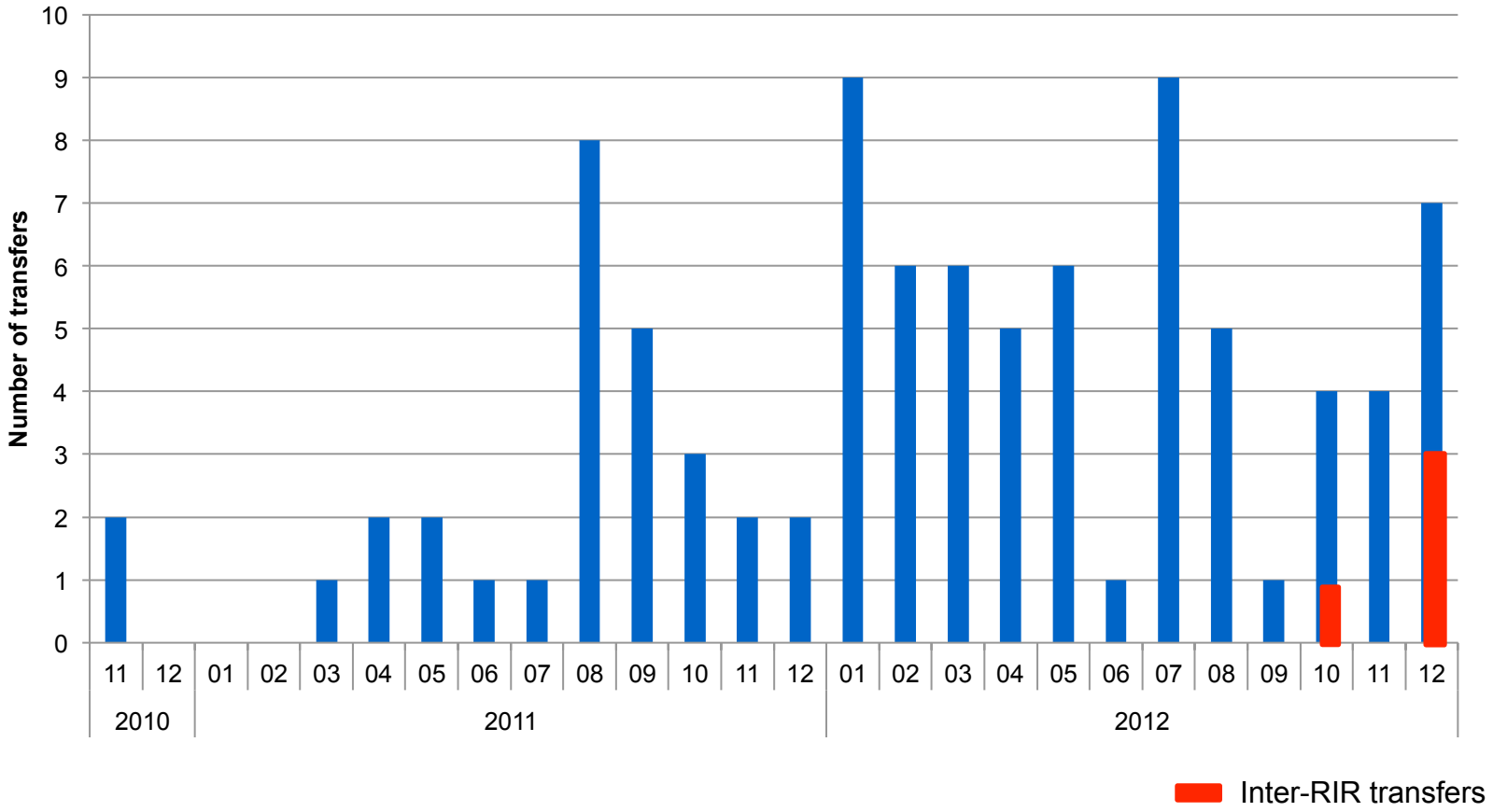
IPv4 address transfer services

- Support for intra and inter-RIR transfers
- Pre-approval service, with opt-in anonymous listing
- Broker listing; four registered so far
- apnic-transfers@apnic.net mailing list
- Public transfer log
- Transfer fees applied
  - 20% of the transferred block's annual fee (other holdings not included in the calculation)
  - Payable by the recipient, or by the source if transferred out of the APNIC region

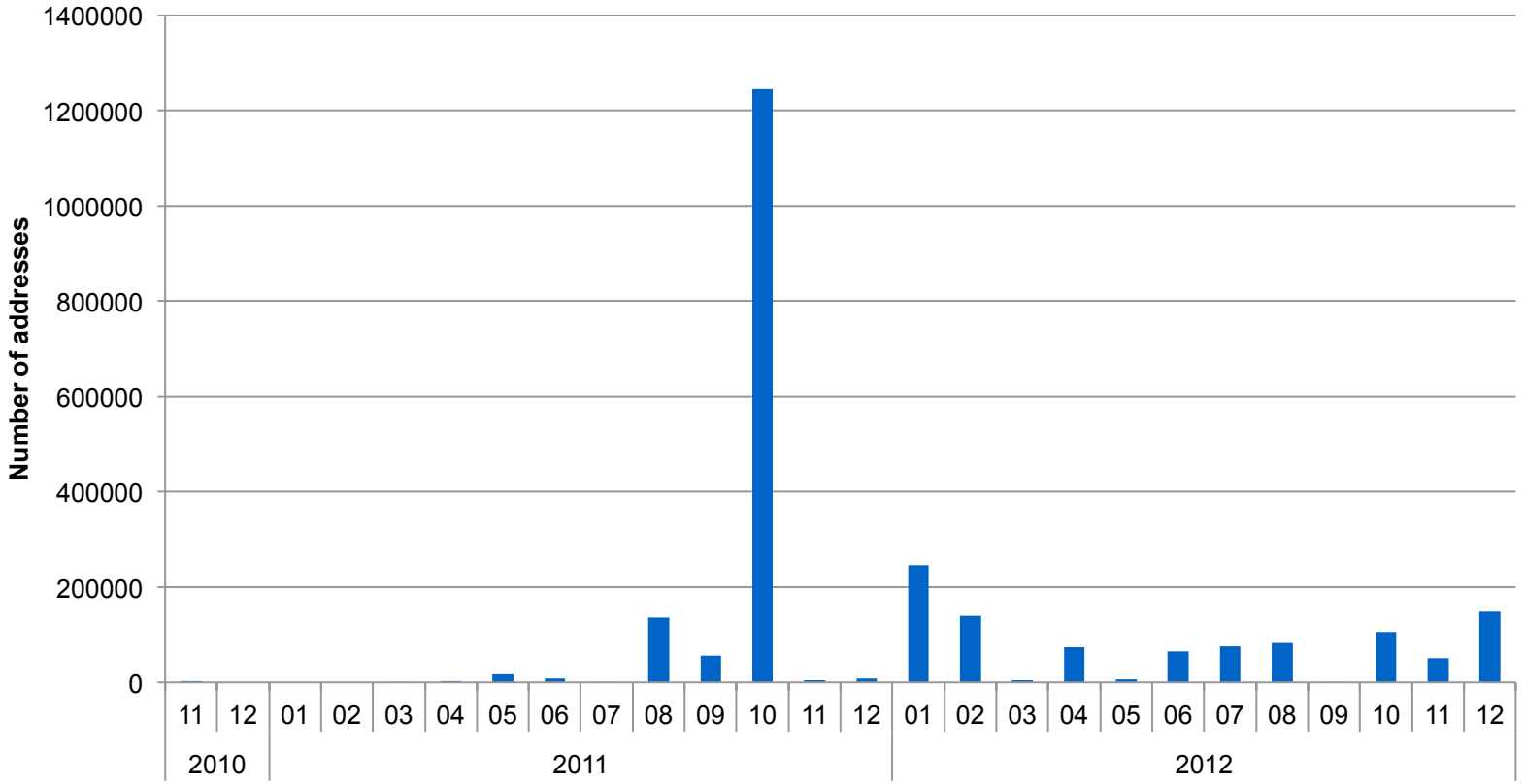
Inter-RIR experience

- Completed transfers: 4 from ARIN to APNIC
- Transfer time (including evaluation): 1 – 2 weeks
- Successfully transferred live network
- ARIN and APNIC stats overlap one day after the transfer due to the time zone difference

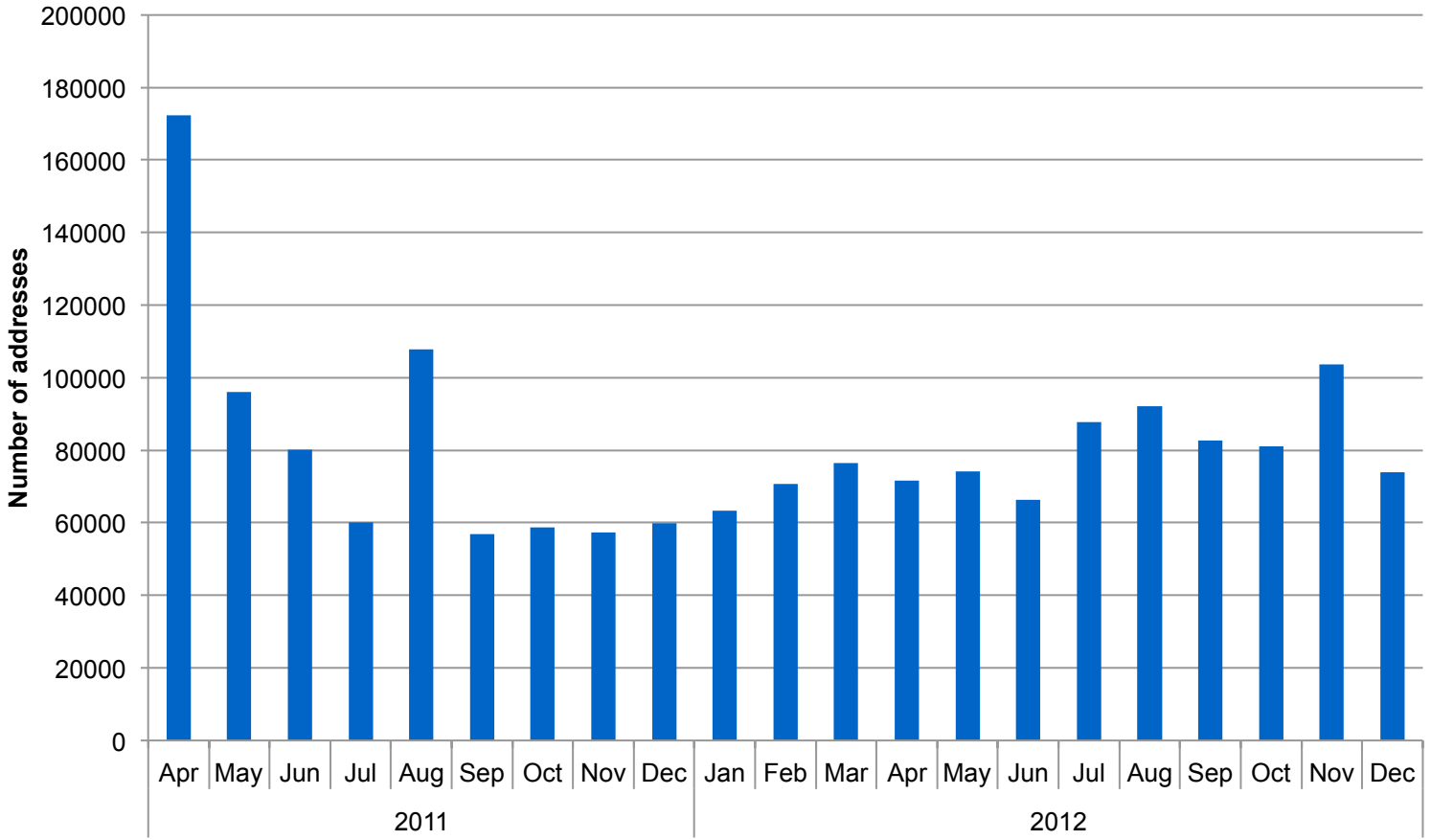
IPv4 market transfer transactions



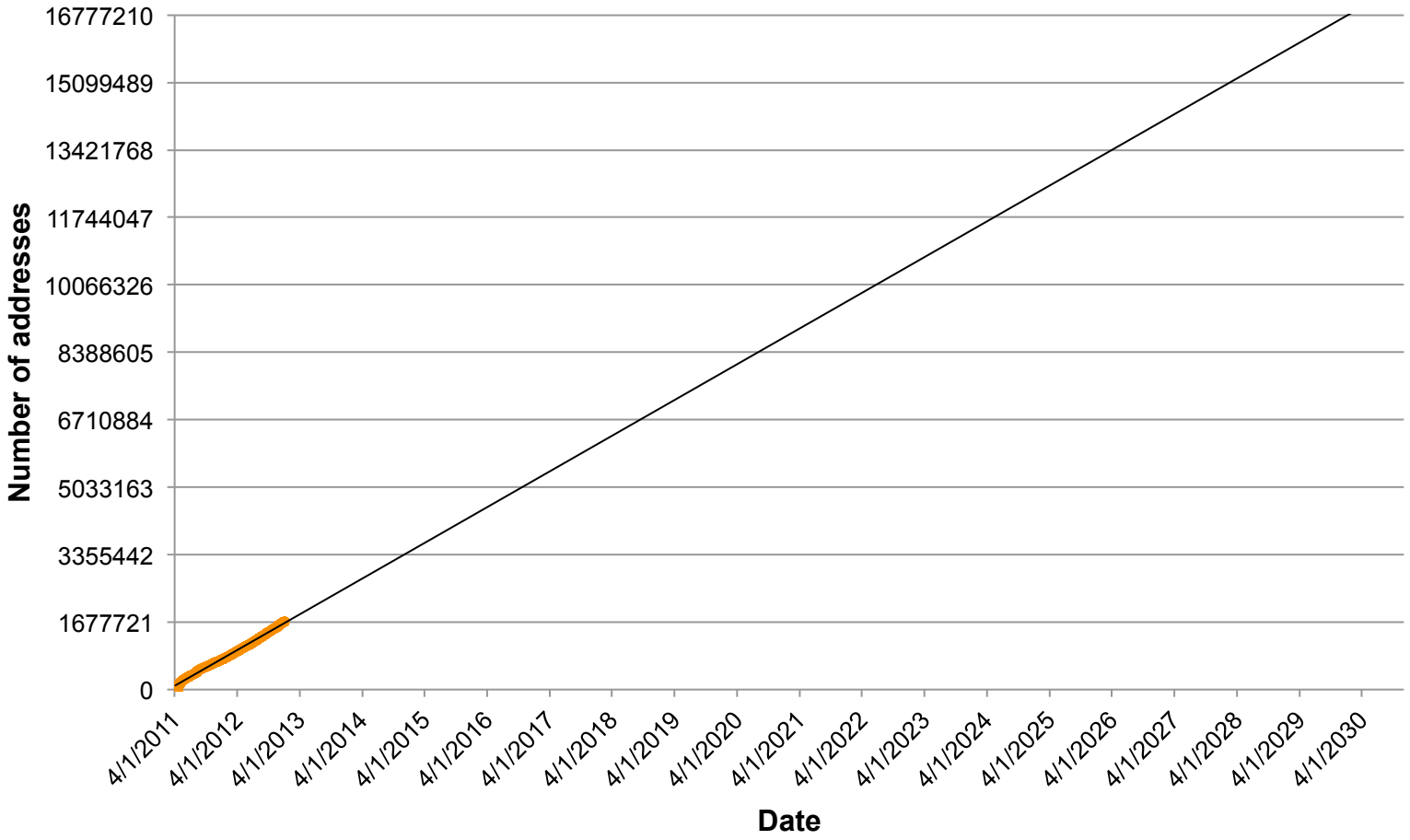
IPv4 market transfer size



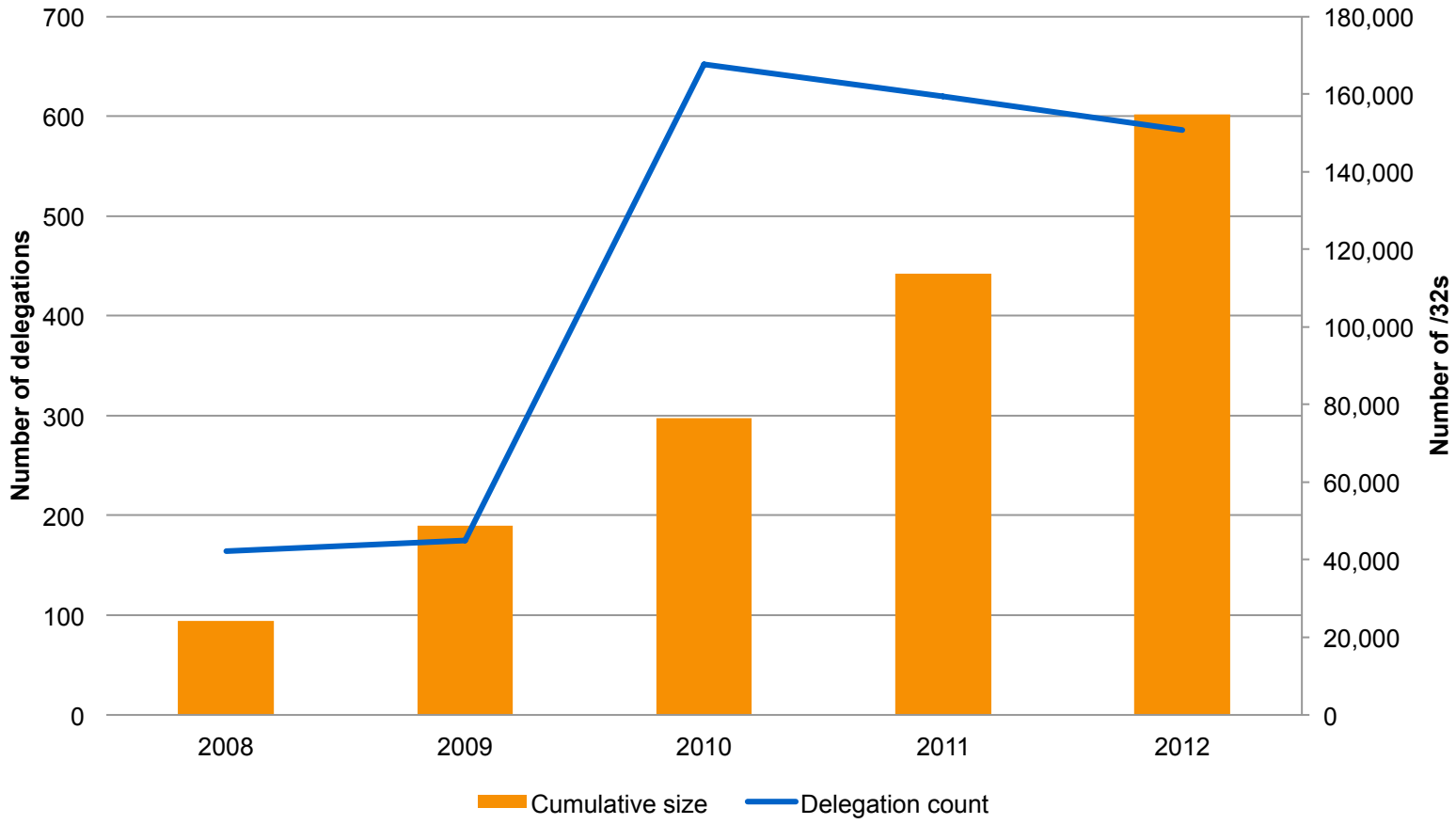
IPv4 last /8 delegations



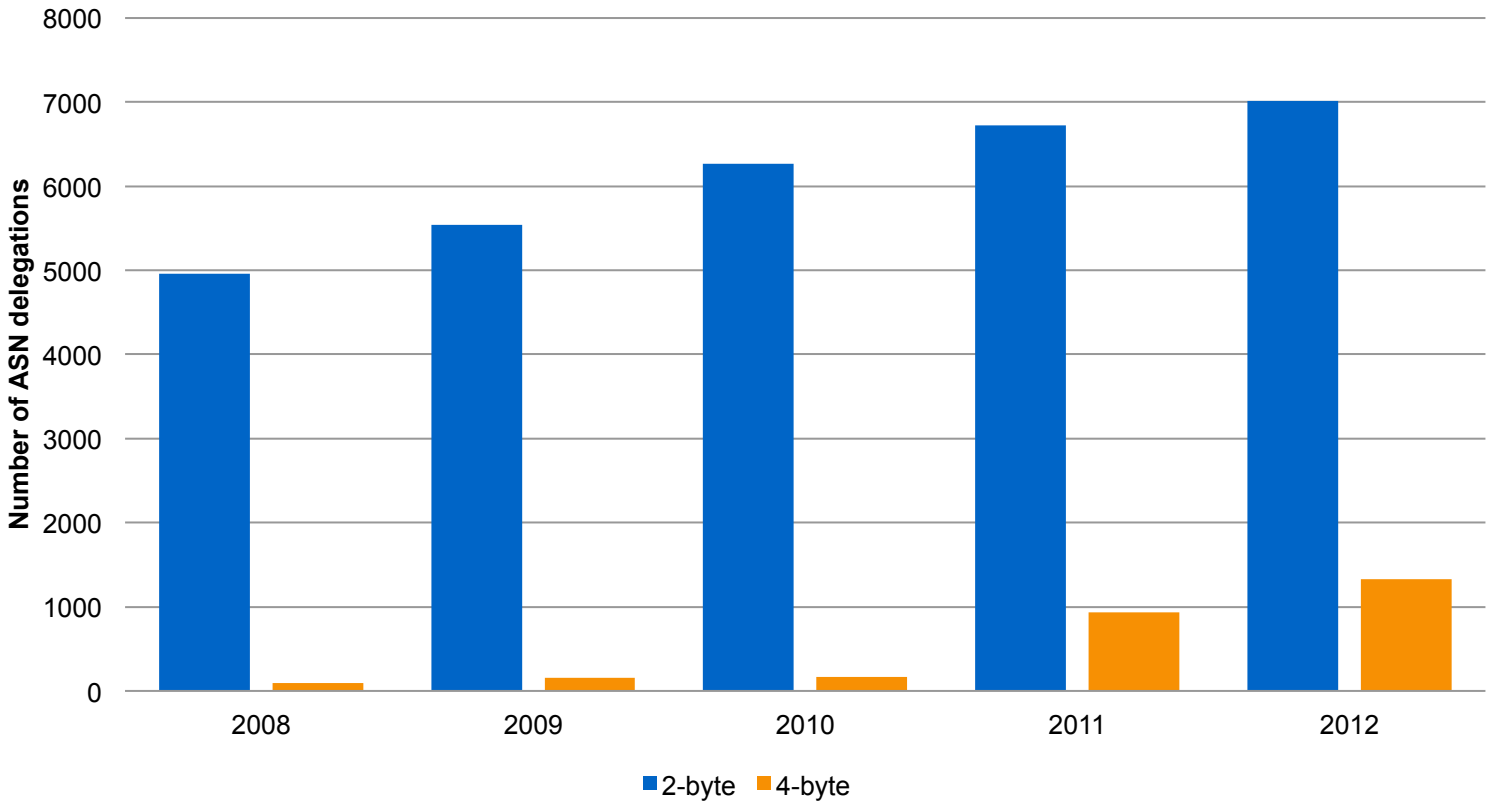
IPv4 last /8 delegation trend



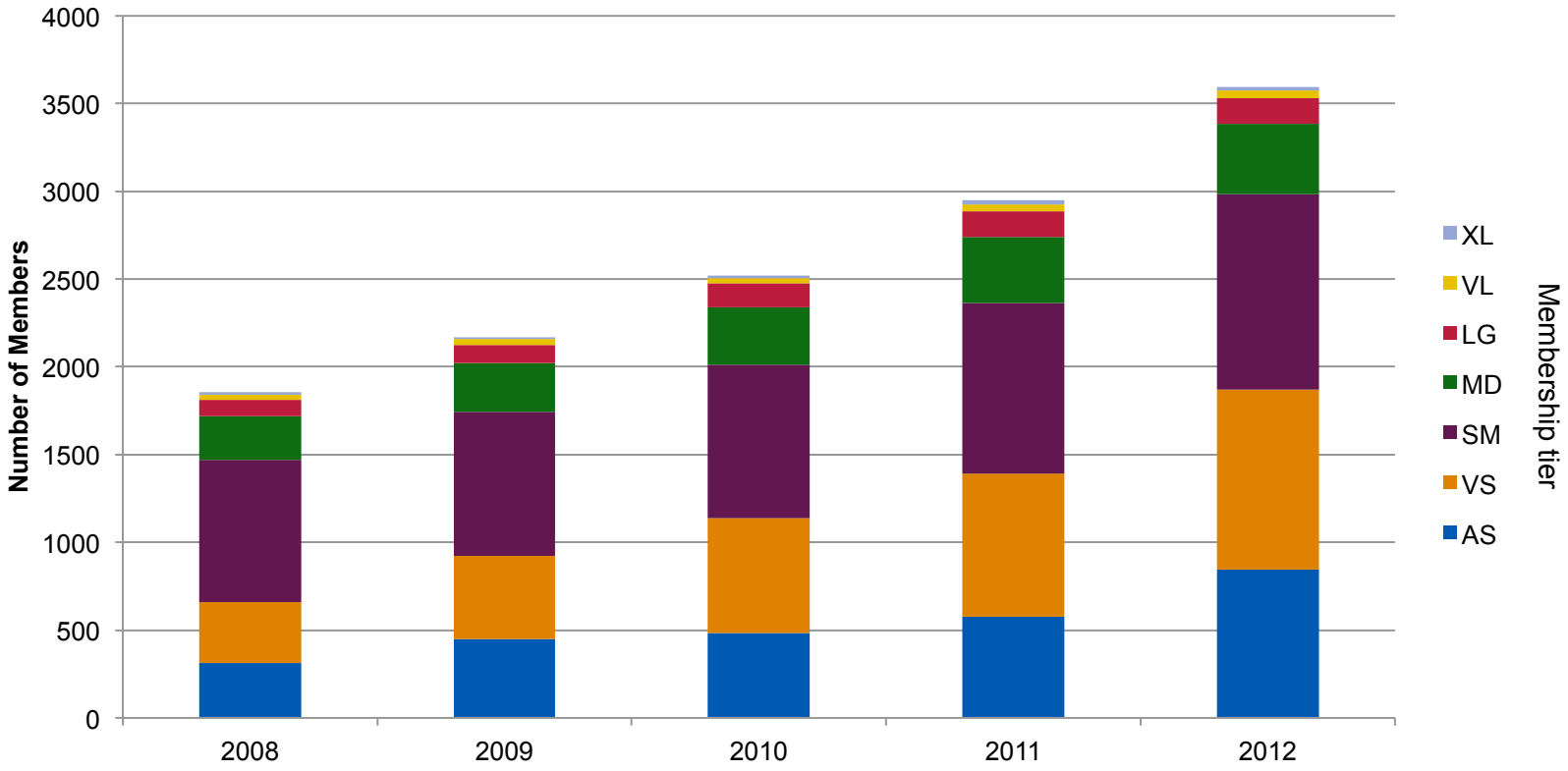
IPv6 delegations



ASN delegations



Membership growth



Alternative WHOIS protocol

- Web Extension Internet Registration Data Service (WEIRDS)
- Alternative protocol for WHOIS to address shortcomings:
  - Lack of internationalization support
  - No specification of queries, output, or error messages
  - No referral mechanism
  - No authentication mechanism
- Prototype available (json output)

  http://weirds-pilot.apnic.net/ip/202.12.29/23
- Easy for web developers to automate sending/receiving data

Resource Public Key Infrastructure

- Published specifications as Internet RFC numbered documents
- Working with ICANN and the other RIRs towards a global system
- Introduced the General Purpose Signer in the RPKI BoF session at APNIC 34
- Ability for the public to run their own RPKI system inter-operating with APNIC by the end of 2012

Service delivery improvements

- APNIC 2012 survey completed
- Business systems streamlined
  - New ERP implemented to improve reporting, automation, workflow and audit trail
- Technical infrastructure improvements
  - Virtual machines implementation to improve reliability and maintainability
  - Data centre relocation to improve redundancy, provide room for expansion, and reduce complexity
- Human resources
  - Implementation of Competency Management Framework
  - Leveraging social media for recruitment

Supporting the Asia Pacific region

- Policy development
- Training
- IPv6 deployment support
- Information Society Innovation Fund (ISIF)
- Conferences
- Root server deployment

APNIC policies in 2012

- Implemented:
  - prop-102: Sparse allocation guidelines for IPv6 resource allocations
  - Implemented 20 August 2012
- Withdrawn by author:
  - prop-099: IPv6 reservation for large networks
- Abandoned:
  - prop-098: Optimizing IPv6 allocation strategies (simplified)
- Reached consensus at APNIC 34:
  - prop-101: Removing multihoming requirement for IPv6 portable assignments
  - prop-104: Clarifying demonstrated needs requirement in IPv4 transfer policy
- Withdrawn by author at APNIC 34:
  - prop-103: A final IP address policy

Training

- Continuing focus on IPv6 deployment
  - Comprehensive face-to-face and eLearning sessions
- eLearning
  - One-hour modules
  - Delivered fortnightly in three time zones
  - New schedule for 2012
- Face-to-Face
  - Extensive hand-on exercises
  - Remote Training Lab to enable participants to build and configure networks
- New website
  - Easier access to training course information, schedule and presentation material

training.apnic.net

Training delivered in 2012

- Face-to-Face
  - 73 courses
  - 33 locations
  - 25 economies
  - 2,347 participants
- IPv6 training
  - 24 courses
  - 23 locations
  - 9 economies
  - 858 participants
- eLearning
  - 93 courses
  - 932 participants

IPv6 in the community

- IPv6@APNIC Conferences
  - Two IPv6 sessions at APNIC 33 in New Delhi, Feb 2012 targeting business decision makers
  - One IPv6 Technical track and two panel discussions (LTE on IPv6 and IPv6 planning on operational networks) in APNIC 34 in Phnom Penh, Cambodia
- Asia Pacific IPv6 Task Force (APIPv6TF)
  - Continued provision of Secretariat services
  - Met at APNIC 33 and 34
  - Visited Beijing in March 2012 to learn about the status of Chinese IPv6 deployment

Information Society Innovation Fund (ISIF)

- Now part of the Seed Alliance for Internet development and digital innovation
  - Joint effort with Lacnic (Frida) and AFRINIC (Fire), with generous support from IDRC and Sida
- New round of funding launched in 2012 with four new categories for both grants and awards:
  - Innovation on access provision
  - Innovation on learning and localization
  - Code for the common good
  - Rights

www.isif.asia

2012 APRICOT/APNIC Conferences

- APNIC 33: New Delhi, India (with APRICOT 2012)
  - Total on-site delegates: 573
  - Total remote participants: 72
  - Remote hubs: Bandar Seri Begawan, Brunei and Hanoi, Vietnam
- APNIC 34: Phnom Penh, Cambodia
  - Total on-site delegates: 237
  - Total remote participants: 378
  - Remote hubs: Medan, Indonesia and Kathmandu, Nepal
- More IPv6 transition content in workshops and full-day plenary sessions as a response to the Member Survey

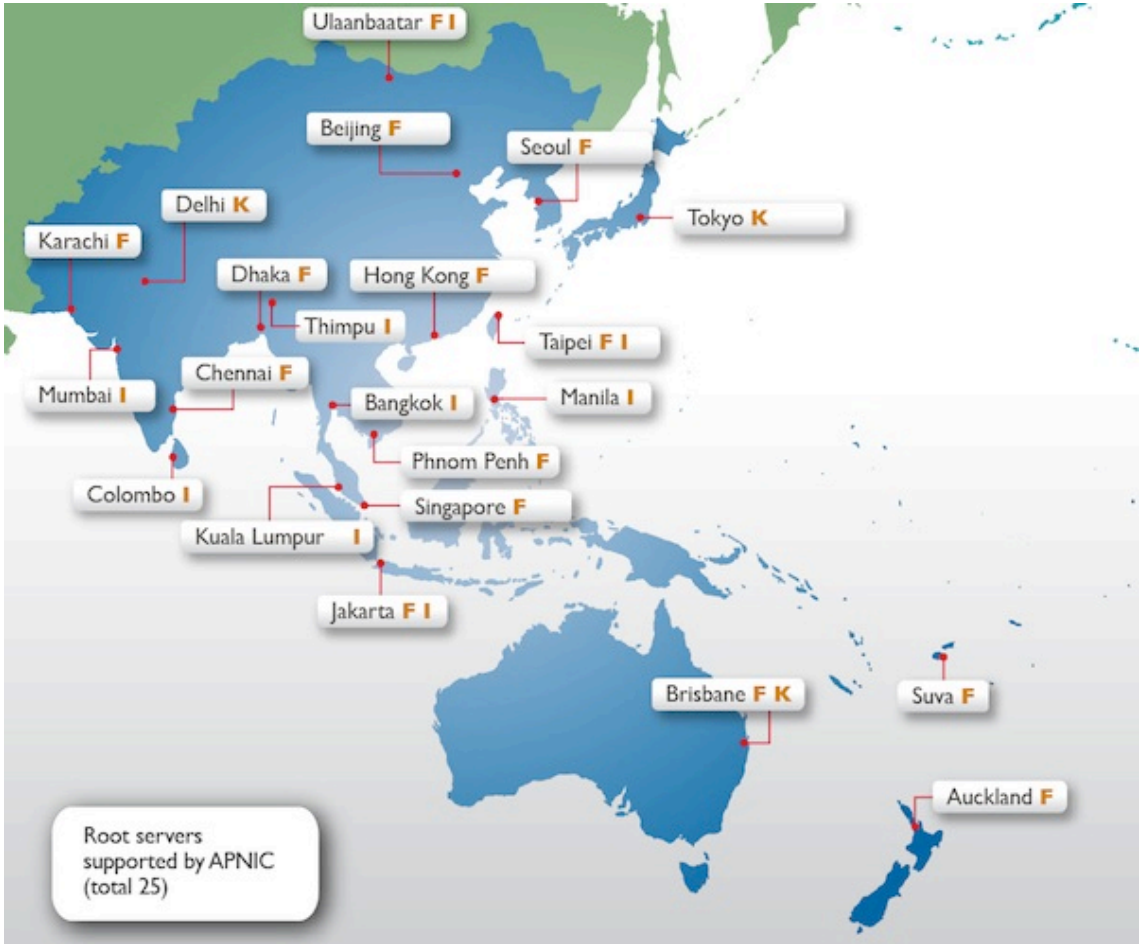
Upcoming Conferences

- APNIC 36, Xi'an, China
  - 20 to 30 August 2013
- APNIC 37, Bangkok, Thailand
  - 18 to 28 February 2014 (with APRICOT 2014)
- APNIC 38, TBD
  - Call for Proposals

    www.apnic.net/events/host-an-event
- APNIC 39, Fukuoka, Japan
  - 24 February to 6 March 2015 (with APRICOT 2015 and APAN 39)

Root server deployment

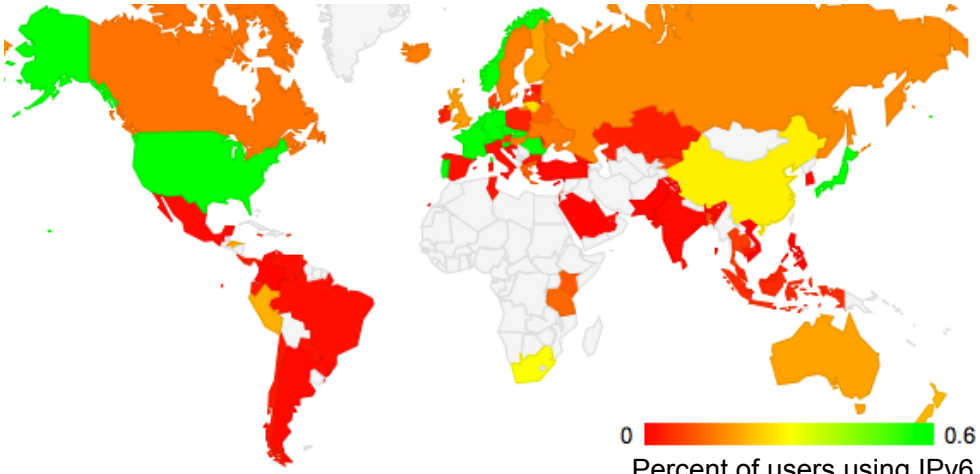
- New I-root in Ulaanbaatar, Mongolia
- F-root upgrades in Chennai, Hong Kong, and Seoul
- Small node trial in Dhaka



Collaborating with the Internet community

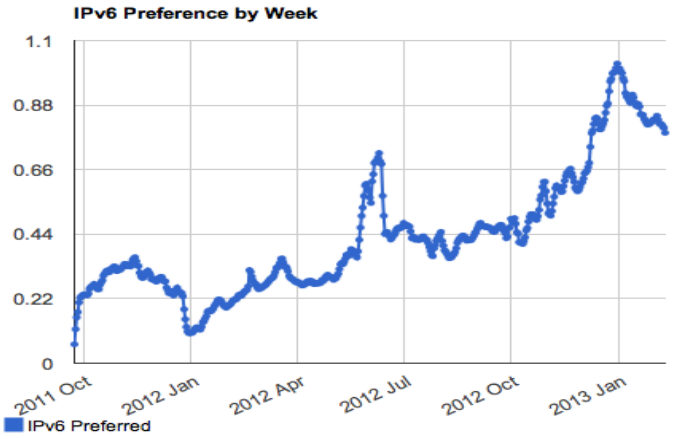
- Research and measurements
- Participation in Internet events
- ITU and WCIT
- IGF
- OECD
- NRO

Measuring IPv6



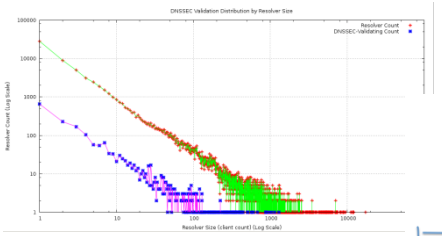
Percent of users using IPv6
http://labs.apnic.net/ipv6

We've been conducting a large scale IPv6 measurement across the Internet to provide baseline data about the rate of deployment of IPv6 across countries and individual networks

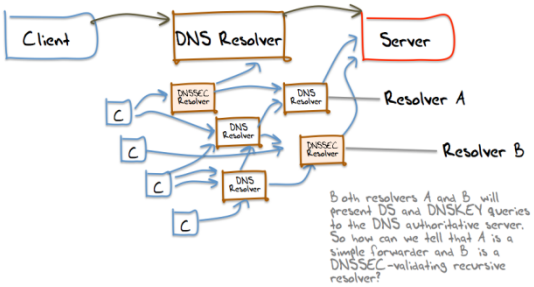


Economy	ASN	AS Name	# samples	v6 capable	v6 preferred
US	AS19782	INDIANAGIGAPOP - Indiana University	1566	100	100
CN	AS37944	CNNIC-CSTNET-AP CHINA SCIENCE AND TECHNOLOGY NETWORK	1354	100	100
CN	AS23910	CNGI-CERNET2-AS-AP China Next Generation Internet CERNET2	7060	100	100
JP	AS9607	BBTOWER BroadBand Tower; Inc.	255	96.0784	96.0784
NZ	AS24226	CATALYST-IT-AS-AP Catalyst IT	830	94.3373	93.9759
JP	AS55394	GREE-NET GREE; Inc.	519	93.6416	71.0983
AU	AS38083	CURTIN-UNI-AS-AP Curtin University	715	89.6503	88.951
US	AS3598	MICROSOFT-CORP-AS - Microsoft Corp	1113	74.9326	72.4169
ID	AS17553	IPBNET-AS-AP Bogor Agricultural University	251	74.9004	60.9562
AU	AS4608	APNIC-AP Asia Pacific Network Information Centre	629	73.6089	70.9062
NZ	AS58666	NASL-AS-AP Network Access Services Limited	206	69.4175	61.165
US	AS5661	USF - UNIVERSITY OF SOUTH FLORIDA	295	69.1525	65.4237
US	AS1312	VA-TECH-AS - Virginia Polytechnic Institute and State Univ.	480	67.7083	62.7083
CZ	AS197451	VUTBR-AS Brno University of Technology	416	64.6635	59.375
GB	AS786	JANET The JNT Association	223135	63.1044	52.4337
US	AS15169	GOOGLE - Google Inc.	12414	60.9312	18.9866
NO	AS57963	LYNET-INTERNETT-AS Lynet Internett AS	326	58.8957	55.2147
US	AS2055	LSU-1 - Louisiana State University	266	58.2707	55.2632
NZ	AS17649	DMZGLOBAL-AP DMZGlobal Ltd	239	58.159	54.3933
US	AS6621	HNS-DIRECPC - Hughes Network Systems	2041	56.8349	56.1979
US	AS6263	NDIN - State of North Dakota; ISD	249	56.6265	54.6185
CN	AS17672	CHINATELECOM-HE-AS-AP asn for Hebei Provincial Net of CT	2706	54.139	51.2565
NZ	AS18119	ACSDATA-NZ ACSData	931	53.4909	52.3093
US	AS1351	UVM-EDU-AS - University of Vermont	242	53.3058	45.8678
CN	AS4538	ERX-CERNET-BKB China Education and Research Network Center	4868	50.4314	47.6787
JP	AS2500	WIDE-BB WIDE Project	208	50	49.0385
HK	AS4528	HKU-AS-HK The University of Hong Kong	635	48.6614	44.5669

DNS and DNSSEC



How can we interpret what we are seeing?



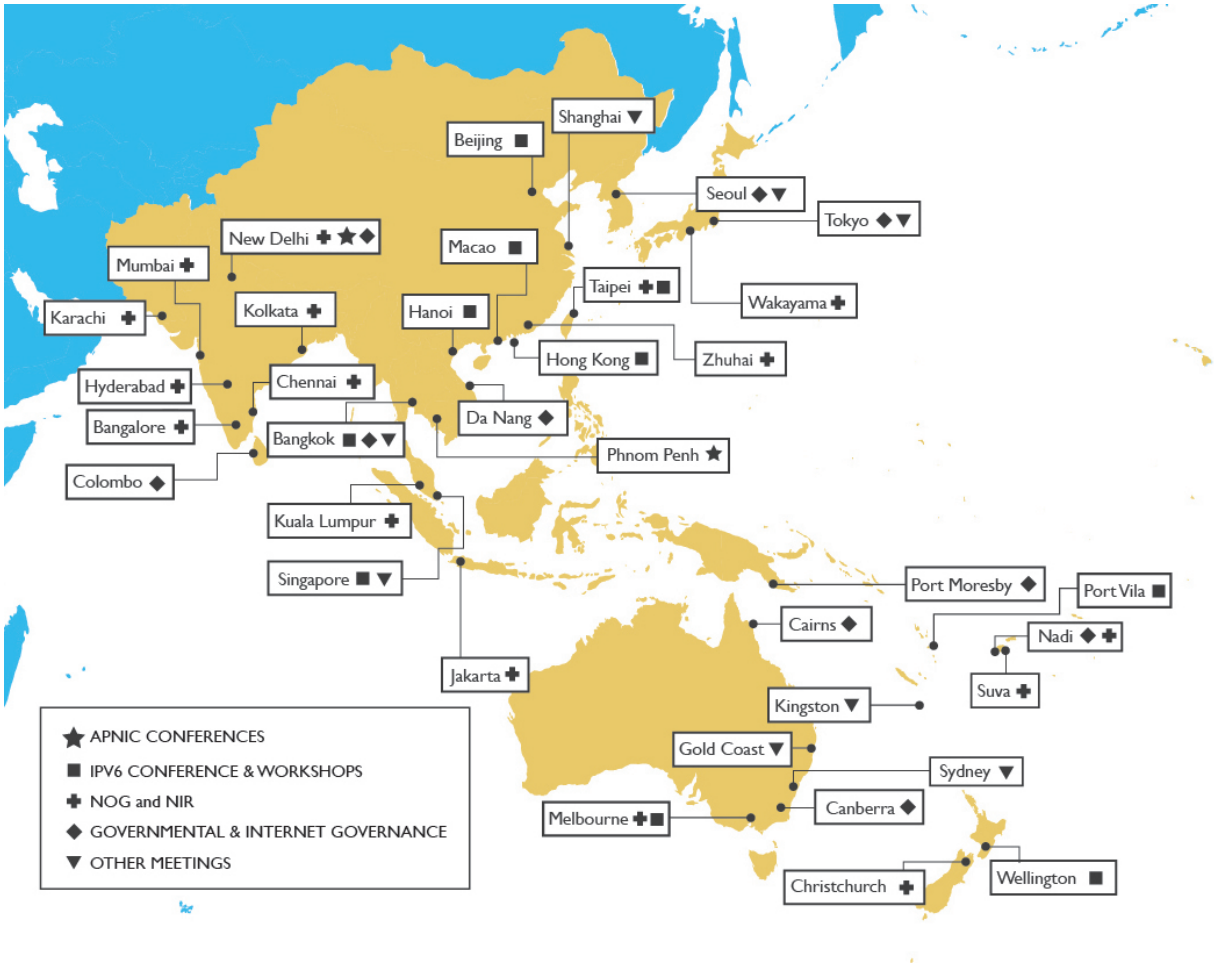
We are measuring the extent of DNSSEC use, and looking at the level of use of DNSSEC validation across resolvers and end clients in the Internet

What are the questions?

1. What proportion of DNS resolvers are DNSSEC-capable?
2. What proportion of users are using DNSSEC-validating DNS resolvers?
3. Where are these users?
4. How long does DNSSEC validation take for a client?

Engagement activities in the region

- 36 cities in 20 economies
  - 10 IPv6 conferences or workshops
  - 18 NOG and OPM meetings
  - 16 governmental, and IGF meetings
  - 11 other meetings (ICT, industry meetings, etc)



APNIC@WCIT

- World Conference on International Communications
  - Considered changes to the International Telecommunication Regulations (ITRs), an international treaty which was last updated in 1988
  - After intense negotiations, the conference in Dubai produced a new treaty, but some governments decided not to sign the treaty
- APNIC observed the WCIT preparatory process, regionally (through APT) and globally (through the CWG-WCIT). Also participated in the World Conference in Dubai.
- Special attention paid to two discussions:
  - Interconnection models supported by the ITRs
  - Number misuse in the ITRs
- APNIC's position - the ITRs worked well for telephony, but are difficult to translate onto the Internet

www.apnic.net/wcit

Internet Governance Forum

- Seventh annual IGF held in Baku, Azerbaijan in November 2012
- Paul Wilson, APNIC DG, is participating this year on the IGF's Multi-stakeholder Advisory Group (MAG)
- APNIC doubled its annual contribution to the IGF (as part of NRO)

APEC – TELMIN9

- APNIC has been a guest of APEC TEL since 2009
- The heads of APNIC and the RIPE NCC participated in the 9th Telecommunications and Information Ministerial Meeting (TELMIN9), in St Petersburg on August 2012.
- Axel Pawlik and Paul Wilson shared opinions about the status of IPv6 deployment in TELMIN 9
- APEC Ministers provided continuous support in deploying IPv6 across the region

OECD

- APNIC's Chief Scientist is supporting the ongoing work of the OECD on the challenges associated with IPv6 adoption
- A document under development will explore the effects of Network Address Translation (NAT) in prolonging the life of IPv4

NRO

- Joint activities with the other four RIRs
  - Resource certification
  - Global statistics and report publication
  - Internet governance
  - Global policy development
    - Global Policy Proposal for Post Exhaustion IPv4 Allocation Mechanisms by IANA
- APNIC served as the NRO Secretariat in 2012
  - ICANN ASO support
    - Two ICANN Board Selection processed conducted in 2012
  - Supporting the NRO in the engagement at:
    - Global IGF
    - Three ICANN Meetings
    - ITU Conferences (WCIT & WTSA)

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Thank you!

Paul Wilson

Director General

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