

# APNIC Update

Adam Gosling

ARIN 37

Tuesday, 19 April, 2016

# APNIC's Vision

*A global, open, stable and secure  
Internet that serves the entire Asia  
Pacific community*

# APNIC Activities

Serving

Supporting

Cooperating

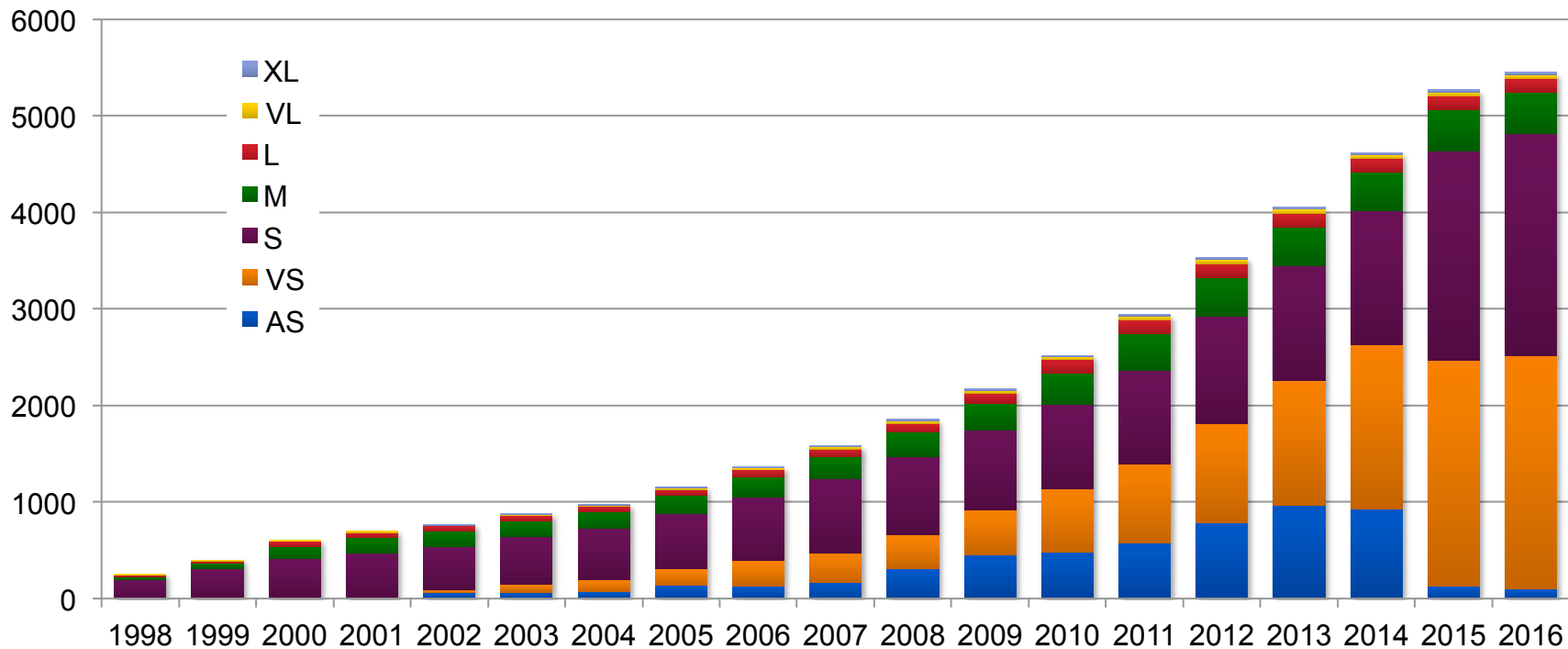
# Serving the Region

Serving

Supporting

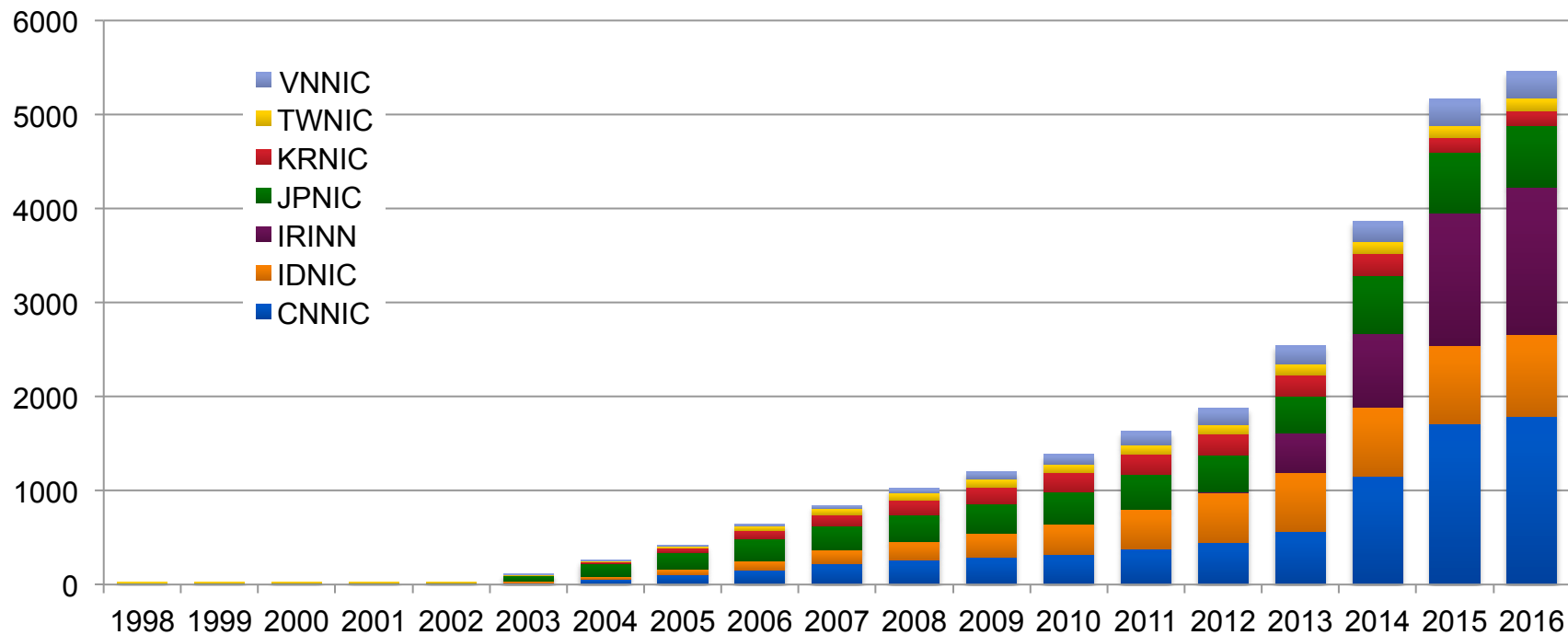
Cooperating

# APNIC Membership



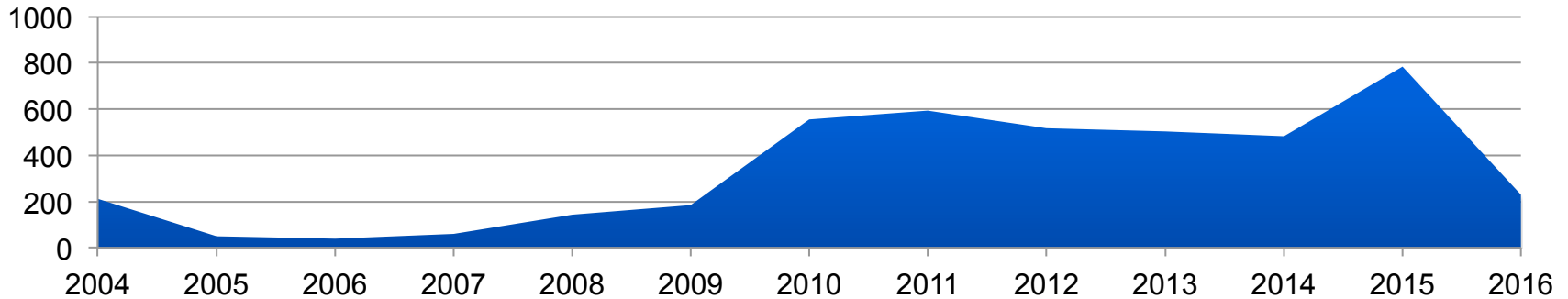
As at 31 Mar

# Total NIR Sub-Accounts



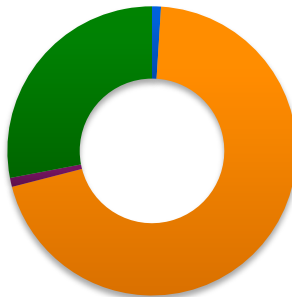
As at 31 Mar

# Annual IPv6 Delegations



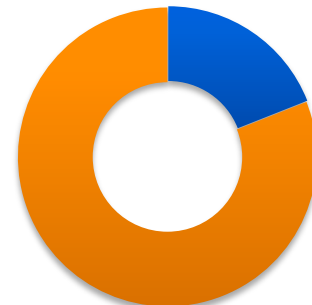
By delegation type

■ Allocation  
■ Assignment



By size

■  $\geq$ /31  
■ /32  
■ /43-47  
■ /48

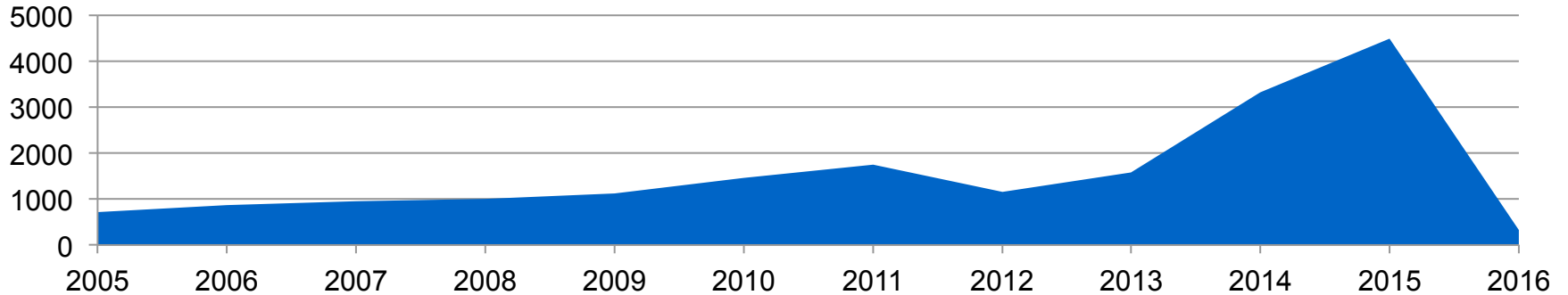


By request type

■ One-click  
■ Normal

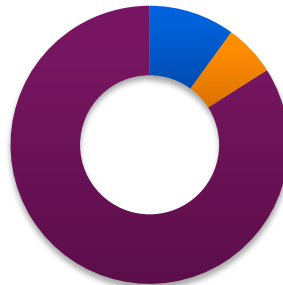
As at 31 Mar

# Annual IPv4 Delegations



- From 103 pool
- From recovered pool

By pool



- /24
- /23
- /22

By size



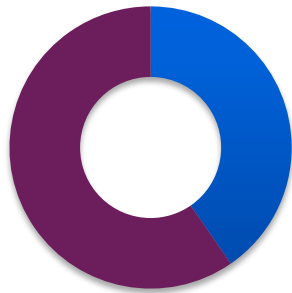
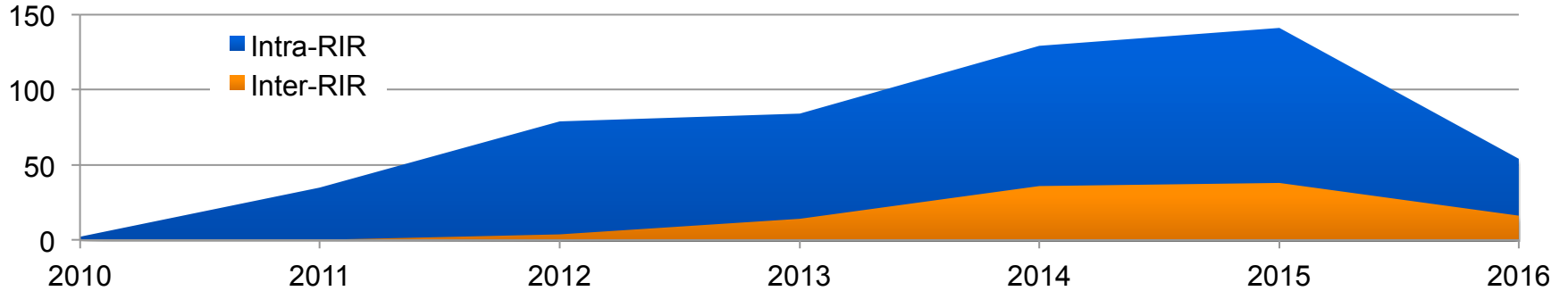
- NIR
- New
- Existing

By Member

As at 31 Mar

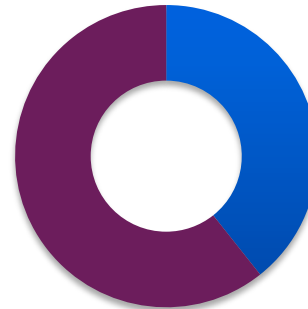


# Annual IPv4 Transfers



■ Used  
■ Did not use

Using listing service

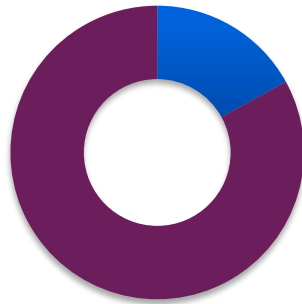
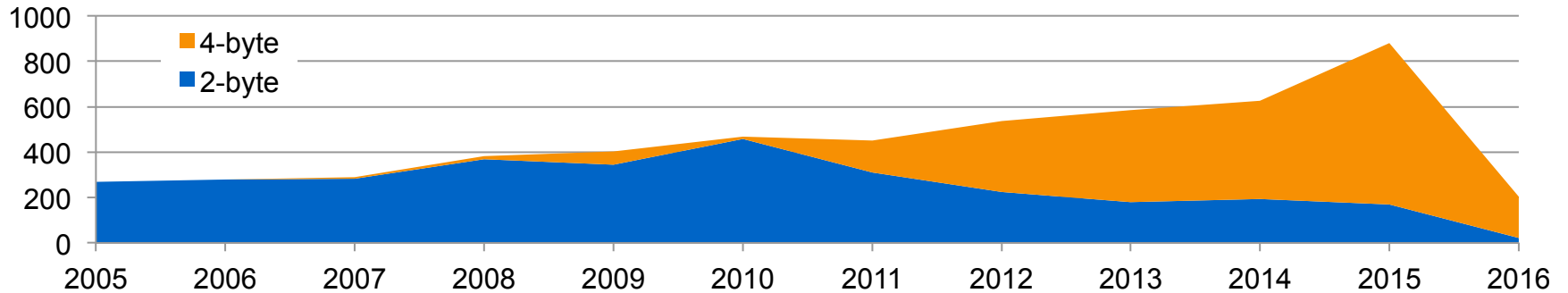


■ Used  
■ Remaining

Pre-approval usage

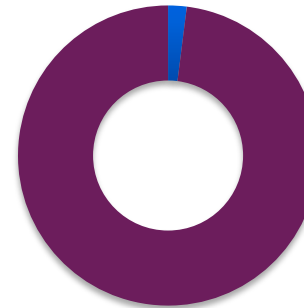
As at 31 Mar

# Annual ASN Assignments



By type

■ 2-byte  
■ 4-byte



4-byte return rate

■ Rejected  
■ Accepted

As at 31 Mar

# Registration Data Access Protocol

RDAP Deployed in  
production 2015

Solves a number of  
limitations to WHOIS  
protocol

[www.apnic.net/rdap](http://www.apnic.net/rdap)

Standardized JSON query/response

RESTful web services over HTTP

Automatic inter-registry redirection

Authorization at attribute level

Internationalization using UTF-8

# RPKI

**READY TO  
ROA**



- 10 face-to-face and eLearning RPKI training courses delivered in 2015
- Offline simulation of production system
- Create and revoke ROAs, observe changes to routing state in lab

RPKI presentations to NOGs and conferences

'Ready to ROA' Campaign – hands-on sessions to help Members create ROAs

Shirts, stickers, web content to promote campaign

Regional RPKI adoption grown rapidly in past 15 months – 0.8% to 3.24% and rising

[www.apnic.net/roa](http://www.apnic.net/roa)

# MyAPNIC Improvements

Home / Resources / Whois Contact Details Update

## Whois Contact Details Update

This page allows you to update the person and role objects associated with a contact.

### Existing contact(s) that you wish to replace

Show 10 entries

Authorized contact management

Route and ROA management

Improving major features of MyAPNIC

Nic Hdl Email

Whois Object

Whois records management

MyAPNIC speed improvement – 24% faster response time

Reverse DNS management

Simplified whois updates

Showing 1 to 10 of 101 entries

### Replace contact(s) with:

Existing Person/Role  New Person  New Role

Next

# Website Improvements

APNIC

CONTACT US WHOIS & WEBSITE Advanced Whois search

Get IP Manage IP Training Events Research Community Blog About

Your IP address: 2001:dc0:a000:4:bccd:a04e:ef5f:9949

GET IP ADDRESSES
 TRANSFER IP ADDRESSES
 GO IPv6
 PARTICIPATE
 WHAT IS APNIC?

APNIC is the Regional Internet Registry administering IP addresses for the Asia Pacific

Community

**NZ Internet Ahead**

NZSeries: Light-bulb moment allows research community to make a difference

By Robbie Mitchell

John Hine takes us back to where the Internet all began in New Zealand - inside its universities.

Community

**NZSeries: Internet helping NZ retain and attract talent**

By Robbie Mitchell

As we count down to APRICOT 2016, we speak to some local Internet champions to learn about the history, challenges and opportunities of the Internet in New Zealand.

Highlight

**APRICOT 2016**  
APNIC 41

Online voting and proxy appointment now open for APNIC EC election

You have until 09:00 (UTC +13), Wednesday, 24 February 2016 to vote online or appoint a proxy for the APNIC 41 EC election. [Click here to see the nominees.](#)

Tech matters

Policy

Community, Events

**YOUR VOTE**

APNIC

CONTACT US WHOIS & WEBSITE Advanced Whois search

Get IP Manage IP Training Events Research Community Blog About

Manage IP

**APNIC Services Roadmap**  
 MyAPNIC APNIC Services Resource certification DNSSEC Registration services Routing Registry Get more IPv6 addresses APNIC Services Roadmap Manage Internet resources Manage historical resources

Complete  In progress  Not started

**Membership and Internet Resource Application Process**  
 Get IP Addresses / ASN APNIC Membership Membership and Internet Resource Application Process Helpdesk FAQs

**1 Application**  
 Average time: 20 minutes to complete the form  
 Before you start, it may be helpful to have the following information:
 

- Company Registration Number
- Certificate of Incorporation or other relevant documentation that verifies the establishment and existence of your organization
- Network abuse email
- Network information such as implementation date, equipment and network topology diagram

 Complete the New Member and Internet Resource Application Form.

**2 Evaluation**  
 Average time: 2 to 5 working days  
 The information you provide in your application will be evaluated. APNIC will contact you regarding approval or if additional information is required.

Navigation and usability improvements to home page and services pages

# Training Needs Assessment

Topics	Key survey responses	APNIC actions
eLearning	Improve topics; alternative video hosting platform	<ul style="list-style-type: none"><li>• Reduced from 4 to 3 sessions</li><li>• Changed time slots to 11:00; 13:00 and 15:00 – increased participation</li><li>• Video-on-demand</li><li>• Reviewing content</li></ul>
Self-paced learning	Support for online learning and certification	<ul style="list-style-type: none"><li>• Looking to partner with RIPE NCC on course development (Internet governance, whois)</li></ul>
Face-to-Face	Strong interests in advanced topics such as network security, IPv6, BGP, DNSSEC and SDN	<ul style="list-style-type: none"><li>• Reviewing and updating existing courses</li><li>• Introduced Juniper-based materials and Juniper training lab</li></ul>
Capacity	Request for more and frequent training	<ul style="list-style-type: none"><li>• Third and fourth trainers started in October/ November 2015 to increase training capacity</li></ul>

# APNIC Training



## 2015

- 77 F2F courses held in 20 locations
- 2,194 F2F trainees
- 726 trainees in 117 eLearning sessions
- Video archives: 80 videos; 138,319 views

## 2016

- 10 F2F courses held in 7 locations
- 291 F2F trainees
- 323 trainees in 39 eLearning sessions
- Video archives: 85 videos; 265,708 views



# Technical Assistance

Support for scalable and resilient networks and best practices in network operations

[www.apnic.net/tas](http://www.apnic.net/tas)

- Distribution and registration of resources
- Supporting reverse DNS delegation
- Managing whois and IRR
- Resource Certification
- IPv6 deployment
- Internet infrastructure security



TAS - Thailand



TAS - Bangladesh

2015 Outreach in Sri Lanka (8 Members),  
Bangladesh (13 Members), Thailand (10 Members)

# Supporting the Region

Serving

Supporting

Cooperating

# 2015 Policy Implementations

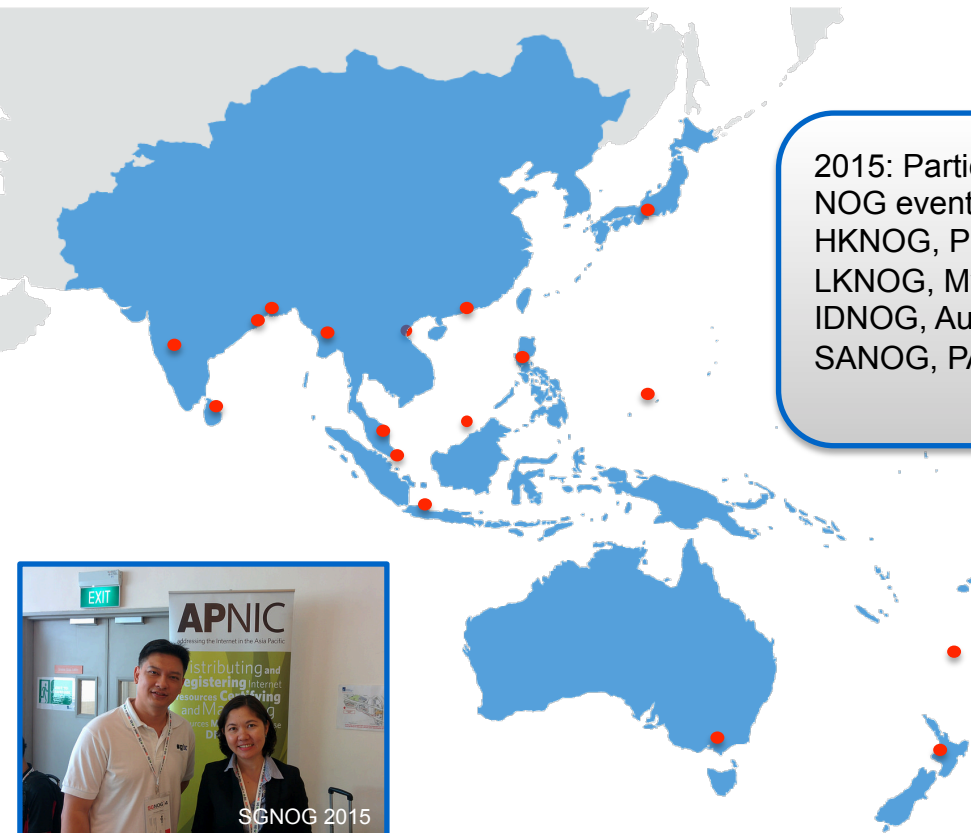
Proposals approved at  
APNIC 40 Policy SIG

prop-113: Modification in  
the IPv4 eligibility criteria

prop-114: Modification in  
the ASN eligibility criteria

[www.apnic.net/policy](http://www.apnic.net/policy)

# NOG outreach



**2016:** JANOG (Jan), PHNOG (Jan), SANOG (Jan), bdNOG 5 (Apr), PACNOG (Jul), IDNOG (Jul), SANOG (Aug), AusNOG (Sep), HKNOG (Sep)

**2015:** Participated in 17 NOG events: JANOG, HKNOG, PHNOG, bdNOG, LKNOG, MyNOG, SGNOC, IDNOG, AusNOG, NZNOG, SANOG, PACNOG, MMNOG

- Technical and APNIC updates
- Hostmaster consultations
- Training sessions
- Sponsorship and logistical support



SGNOG 2015



[www.apnic.net/nog](http://www.apnic.net/nog)

# Community Development



Supported 5 RIPE Anchor deployments; distributed 120 RIPE Atlas probes

24 fellowships for APNIC 40 including 6 youth fellowships; 24 for APRICOT 2016

Supporting new L-root (ICANN) server instance in Apia, Samoa

Working with NSRC in New Caledonia and Samoa on IXP support

# IPv6 Outreach



2015

- 539 trainees in 13 economies
- IPv6 presentations at 14 events
- IPv6 workshop with ITU in TH and TAS in MN
- Supporting APIIPv6TF Secretariat



[www.apnic.net/ipv6](http://www.apnic.net/ipv6)

# Security Outreach



NOGs, CSIRTS and LEA events  
PK, CN, HK, KR, JP, PH, SG,  
MY, ID, AU, LK, MV, TW

Collaboration with JICA and  
KISA to deliver regional  
CERT training

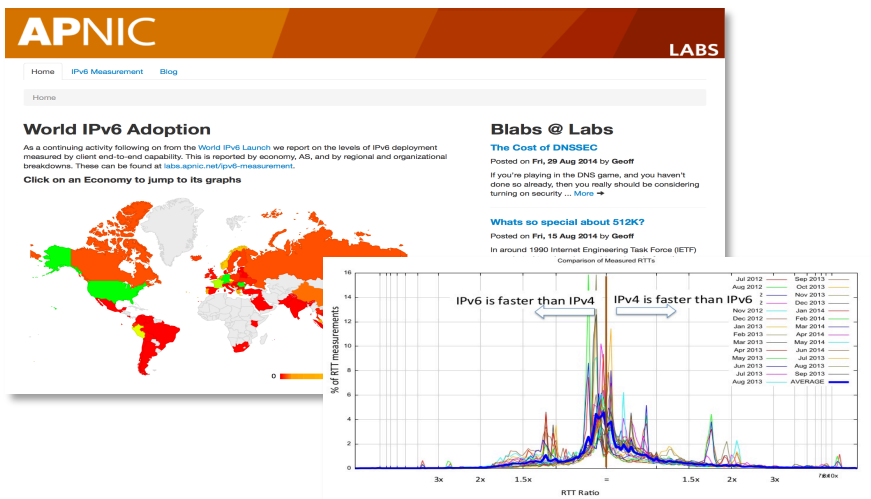
Geoff Huston member of  
ICANN SSAC

Adli Wahid member of FIRST  
Board; invited to join  
INTERPOL Global  
Cybercrime Expert Group

[www.apnic.net/security](http://www.apnic.net/security)

# APNIC Labs

Research statistics and evidence to help the APNIC community make informed technical decisions



Over 3 million measurements per day

Measuring IPv6, DNSSEC, DNS

HTML5 allows measurements on mobile devices (replacing Flash)

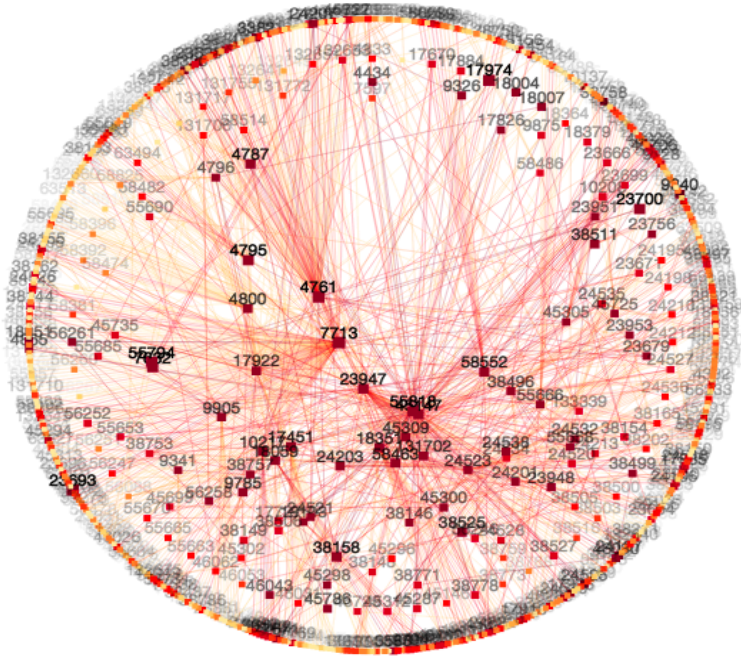
Critical data for DNS Root Zone key roll and ICANN's Universal Acceptance (IDN) program

Research presentations at 18 forums including IETF, RIRs, ICANN, DNS OARC, NOGs, OECD

[labs.apnic.net](http://labs.apnic.net)



# ASN Visual Exploration: vizAS



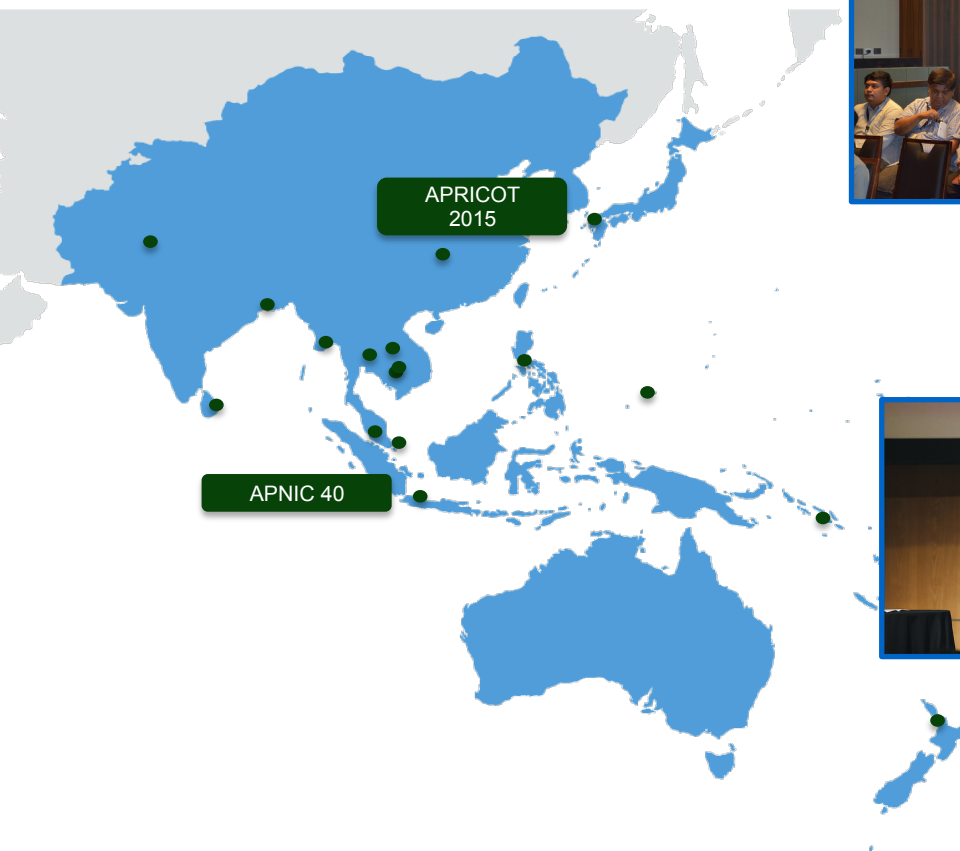
Graphical display of BGP paths within a single economy

Relationships between service and transit ASNs identified

Public tool – Have a go!

[labs.apnic.net/vizas](https://labs.apnic.net/vizas)

# APNIC Events



APRICOT  
2016

## 2015

16 economies: PK, BD, LK, MM, KH, TH, MY, SG, PH, ID, SB, JP, MN, GU, LA, MG

## Attendance

- Conferences: 1,364
- Member outreach events: 614

## 2016 so far

- Conference: 531 (NZ)
- Member outreach events: 186 (NP)

# Improving Communication

APNIC



## Event Wrap: Taiwan Internet Forum

By Robbie Mitchell on 17 Dec 2015

Categories: Community, Events

Tags: Event Wrap, Internet of Things, IPv6, Taiwan, Taiwan Internet Forum, TWNIC

Log in

Blog home



APNIC staff participated in the inaugural Taiwan Internet Forum held in Taipei, Taiwan from 8 to 11 December.

TWNIC launches 2015 Taiwan Internet Forum in Taipei

Hosted by TWNIC, the event included three parallel meetings: the Global IPv6 Summit in Taiwan, the TWNIC IP Open Policy Meeting, and the Taiwan

Google Translate | CONTACT US | SEARCH BLOG

## Get updates

APNIC



## Encouraging more women to consider an ICT career in Fiji

By Shadika Magan on 9 Dec 2015

Categories: Community, Development



Recognized fact that women are not equally represented in the ICT industry, United Nations UNDP figures highlighting an estimated shortfall of more than million skilled female ICT professionals worldwide.

has not escaped the attention of Seneca Narayan, Communications Director at UN Women in Fiji. UN Women is mandated to get more women lead in male-majority roles, such as computer programming and technical

work, who was also an APNIC 38 fellow, has witnessed the lack of women in related roles in Fiji. Along with other interested women, she joined a 'Girls Women in ICT' group to help encourage more women to consider a career in

technology. 'Turning the Tide for Women in the Pacific' forum in Nadi, Fiji, in November

discussed the need for more equal representation of women in industry workplaces and in the

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We're getting excited

Education not requiring key to internet

3 common misconceptions about IPv6 via

Authors

Geoff Huston

Paul Wilson

More

## Categories

Tech matters (300)

Policy (54)

Community (303)

Events (174)

Development (89)

APNIC

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## Championing IPv6 deployment in Malaysia

By Aurora Mat Salim on 1 Dec 2015

Category: Tech matters

Tags: IPv6, Malaysia

Log in

Blog home



Telekom Malaysia Source: CFP/Photo, Wikimedia Commons

In August 2015, Telekom Malaysia became one of the top-10 IPv6 network operators in the world, according to World IPv6 Launch, measuring over 15% IPv6

deployment. These figures are comparable to APNIC Latin results, which also reveal that both IPv6 capabilities and preference have increased by over 50% since the start of

2015. This growth has been a great achievement and reward for over 10 years of development. Most importantly our customers are enjoying the benefits from IPv6, notably more public address space, as well as default IP assignments.

Building a network and awareness from inside-out and top-down



Telekom Malaysia (TM) started deploying IPv6 in 2004 but did not make it available for commercial services until 2011.

Our inside-out approach meant we started by first enabling the core IP network before moving outwards to customer endpoints. We chose this approach because of the challenges associated with Customer Premises Equipment (CPE) compatibility, the cost of providing one-to-one replacement being the biggest challenge.

In 2012, TM started providing compatible CPEs to its customers before launching its dual stack service in 2013. Our migration strategy was to give room to existing users to make their own

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Blog and social media provide day-to-day insight into APNIC and community

Great community content – 60 Guest Posts – thank you

629 blog posts  
125 event wrap reports  
175,489 views

Award winning!



blog.apnic.net

## Internet Operational Research Grants

New fund supporting the Internet research community in the Asia Pacific

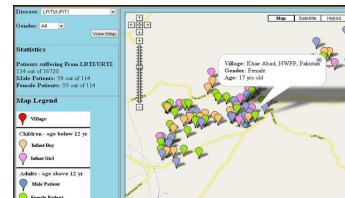
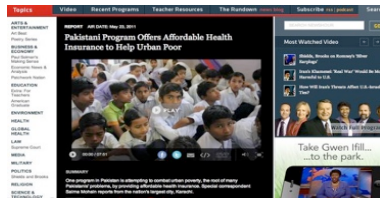
Research to improve availability, reliability, and security of the Internet in the Asia Pacific

Network measurement and analysis

IPv6 deployment

BGP Routing

Network Security



<p><b>Awards 2015</b></p>	<p>78 nominees from 12 AP economies; 5 awarded</p>	<p>India: I Change My City, <a href="http://www.ichangemycity.com">www.ichangemycity.com</a>          Indonesia: Batik Fractal, <a href="http://www.batikfractal.com">www.batikfractal.com</a>          Pakistan: doctHERs, <a href="http://www.docthers.com">www.docthers.com</a>          Pakistan: Jaroka Tele-Healthcare, <a href="http://www.umtrust.org">www.umtrust.org</a></p>
<p><b>Grants 2015</b></p>	<p>4 projects in progress</p>	<p>Pacific Islands: Peer strategy, NSRC/Telco2          Nepal: TV White spaces deployment, NepalWireless          Bangladesh: Mobile and diagnostic devices, UniDhaka          India: Carrier access in rural emergencies, InnovadorsLab</p>
<p><b>Grants 2016 launched until 31 May 2016</b></p>	<p>Largest pool ever of AUD 386,000 available</p>	<p>Opportunity to secure seed or supporting funds for those addressing local and regional issues using Internet technologies innovatively:</p> <ul style="list-style-type: none"> <li>• APNIC Internet Operations Research Grants</li> <li>• Internet Society Cybersecurity Grant</li> <li>• Community Impact Grants</li> <li>• Technical Innovation Grants</li> </ul>

# Collaborating Globally

Serving

Supporting

Cooperating

# Global Cooperation



- IPv6 advocacy
- Coordination with RIRs and Internet organizations
- Engaging with government agencies in training and skills development
- Supporting IANA Transition
- Promoting the RIR model



# IANA Stewardship Transition

## IANA Stewardship Transition Coordination Group (ICG)

IANA Stewardship Transition Proposal and Enhancing ICANN Accountability Recommendations transmitted to NTIA by ICANN Board at ICANN 55 in Marrakech, 10 Mar 2016

## Service Level Agreement (SLA)

Fifth draft SLA open for public comments until 15 April  
Review Committee: 3 members from each region (APNIC appointments confirmed)

## Intellectual Property Rights (IPRs)

IANA IPRs - transfer to IETF Trust, terms under development



# RIR Collaboration



RIR Stability Fund established

RIR Transparency matrix available on  
NRO website

APNIC Labs research collaboration  
with RIPE NCC and LACNIC

Event support for AFRINIC 23

Active NRO Coordination Group  
participation – engineering, registry,  
communications, finance, HR

RIR staff visits to APNIC – LACNIC,  
AFRINIC, RIPE NCC

# Coming next



APNIC 42 (with bdNOG 6),  
Dhaka, Bangladesh  
29 Sep - 6 Oct 2016

[conference.apnic.net/42](http://conference.apnic.net/42)

# Coming later

- APRICOT 2017, Ho Chi Minh City, Vietnam
  - 20 February to 3 March 2017
- APNIC 44, Taichung, Taiwan
  - 7 to 14 September 2017

# Coming soon: APNIC Survey 2016

We want your views on  
APNIC!

Survey open July –  
more details soon

# Stay in touch!



[blog.apnic.net](http://blog.apnic.net)  
[apnic.net/social](http://apnic.net/social)

# THANK YOU