

Introduction to Regional Internet Registries (RIRs)

Pakistan School on Internet Governance
2015 (PKSIG)

5-8 October 2015

Islamabad, Pakistan

Agenda

- RIR system
- APNIC
- Policy development
- Capacity building
- Coordination

RIR System



3.7 billion

addresses available

"IANA Global Pool"

1983

The Birth of the Internet

THE FIRST WAVE OF ADDRESS ALLOCATION

1983

DEC

DOD HP

GEC DNIC

MIT IBM

FORD XEROX

INTEROP SITA

APPLE ELI LILLY CSS

PRUDENTIAL SECURITIES

CAP DEBIS CCS JTC

DUPONT AT&T BOEING

ARPANET USAISC JAPAN INET UK GOV

STANFORD UNIVERSITY MERIT PSINET

HALLIBURTON UK DEFENCE USPS

BOLT BERANEK AND NEWMAN MERCK

BELL-NORTHERN RESEARCH NORISK IANA

AMATEUR RADIO DIGITAL COMMUNICATIONS

Academic and experimental

**Generous
allocations
made to early
adopters**

Worldwide uptake

IANA

1992

APNIC

35%
IPv4 SPACE
ALLOCATED

1992

65%
IPv4 SPACE
AVAILABLE

Expanding the Internet

THE RIR SYSTEM ESTABLISHED
FOR SUSTAINABLE ADDRESS ALLOCATION

1992  **RIPE
NCC**

1993  **APNIC**

1997  **ARIN**

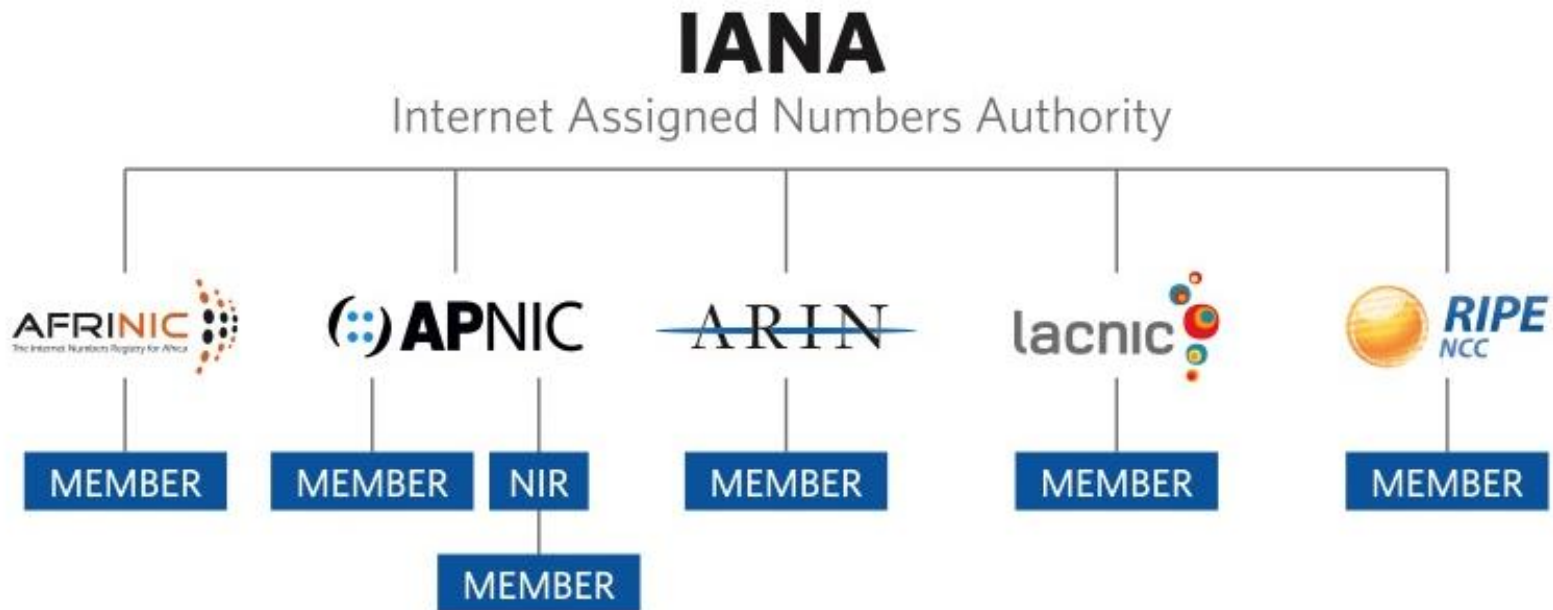
1999  **lacnic**

2005  **AFRINIC**
The Internet Numbers Registry for Africa

THE REGIONAL
INTERNET REGISTRIES

The RIR system allocates addresses according to policies developed in open, transparent, bottom-up, multistakeholder processes

Internet Registry Structure



RIR for the Asia Pacific



- Asia-Pacific Network Information Centre
- One of five Regional Internet Registry (RIRs) charged with ensuring the fair **distribution and responsible management of IP addresses** and related resources
- A membership-based, not-for-profit organization
- Industry self-regulatory body
 - Open
 - Consensus-based
 - Transparent

Where is the APNIC Region?



NCC

~~ARIN~~

 **APNIC**

AFRINIC
The Internet Numbers Registry for Africa

lacnic 

What does APNIC do?

APNIC services

Members

Resource distribution

- IP addresses
- AS numbers

Registration services

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

What does APNIC do?

**APNIC supports
the Asia Pacific
region**

Policy development

Capacity building

- training
- workshops
- conferences
- fellowships
- grants

Infrastructure

- root servers
- IXPs
- engineering assistance

What does APNIC do?

**APNIC collaborates
with the Internet
community**

Original research

Data collection
and measurements

Publications

Local/regional/global events

Government outreach

Intergovernmental & technical
organizations collaboration

Internet security

APNIC – Vision

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

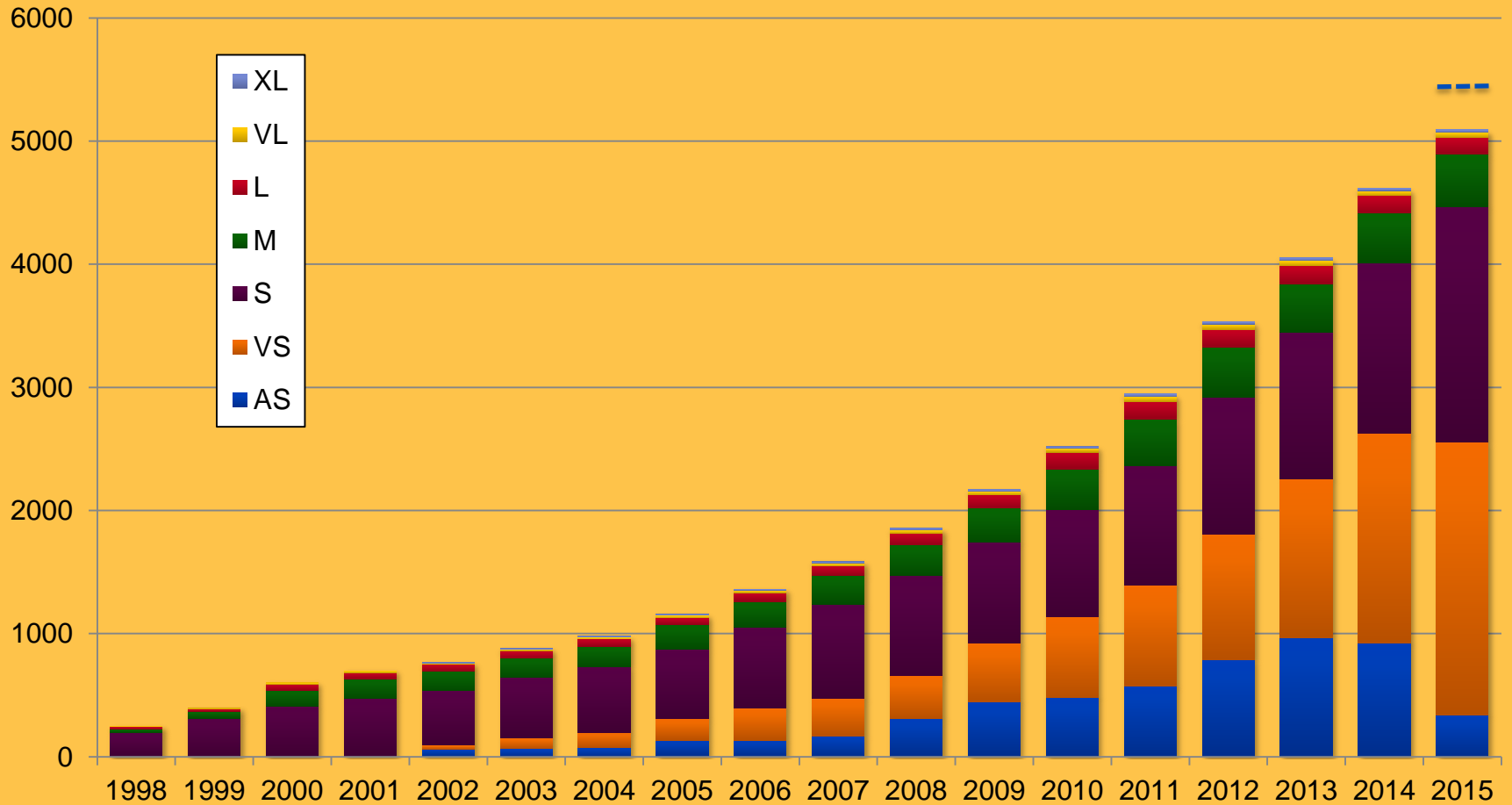
How we achieve this:

- Serving Members
- Supporting the Asia Pacific Region
- Collaborating with the Internet Community

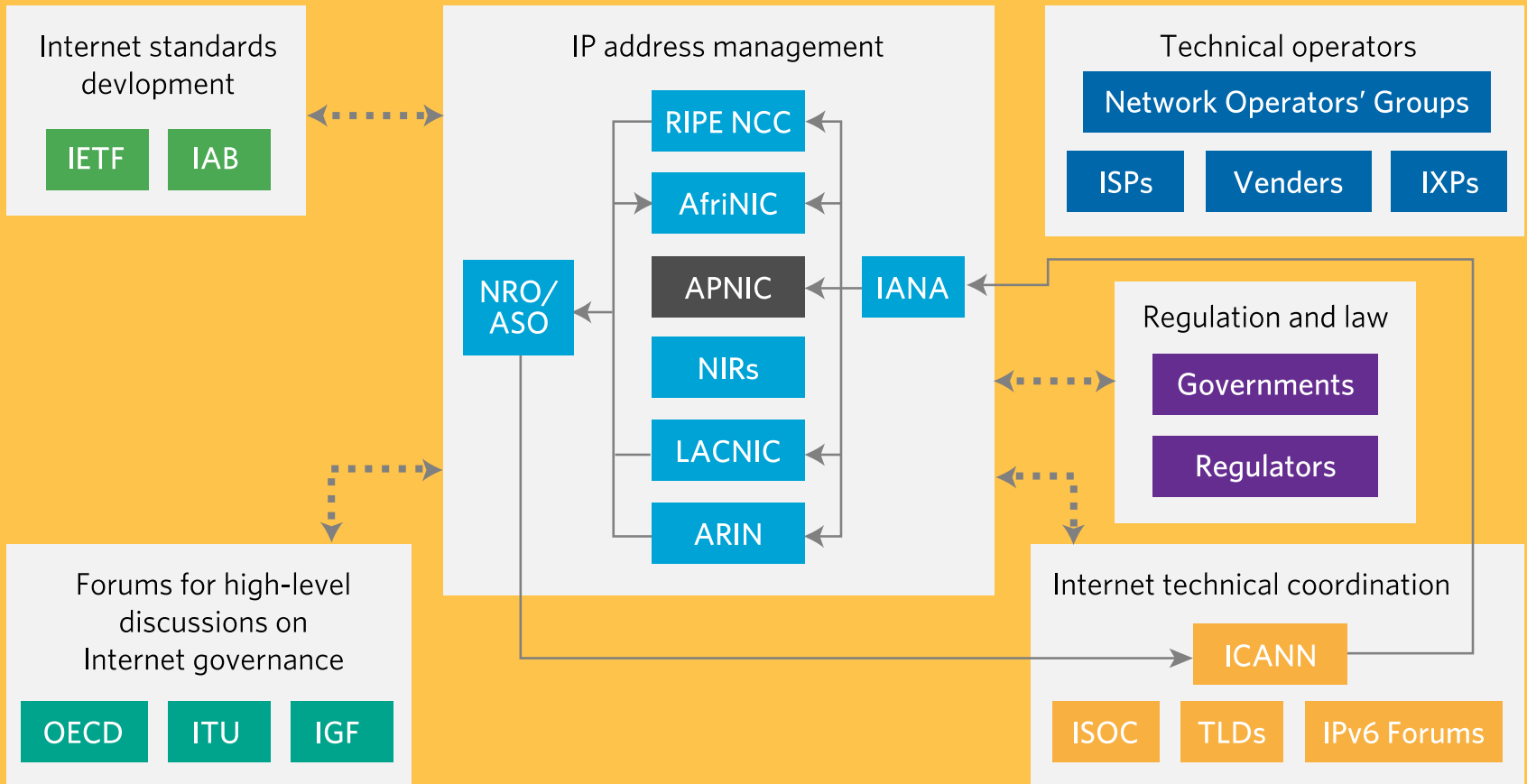
APNIC – Mission

- Function as the Regional Internet Registry for the Asia Pacific, in the service of the community of Members and others
- Provide Internet registry services to the highest possible standards of trust, neutrality, and accuracy
- Provide information, training, and supporting services to assist the community in building and managing the Internet
- Support critical Internet infrastructure to assist in creating and maintaining a robust Internet environment
- Provide leadership and advocacy in support of its vision and the community
- Facilitate regional Internet development as needed throughout the APNIC community

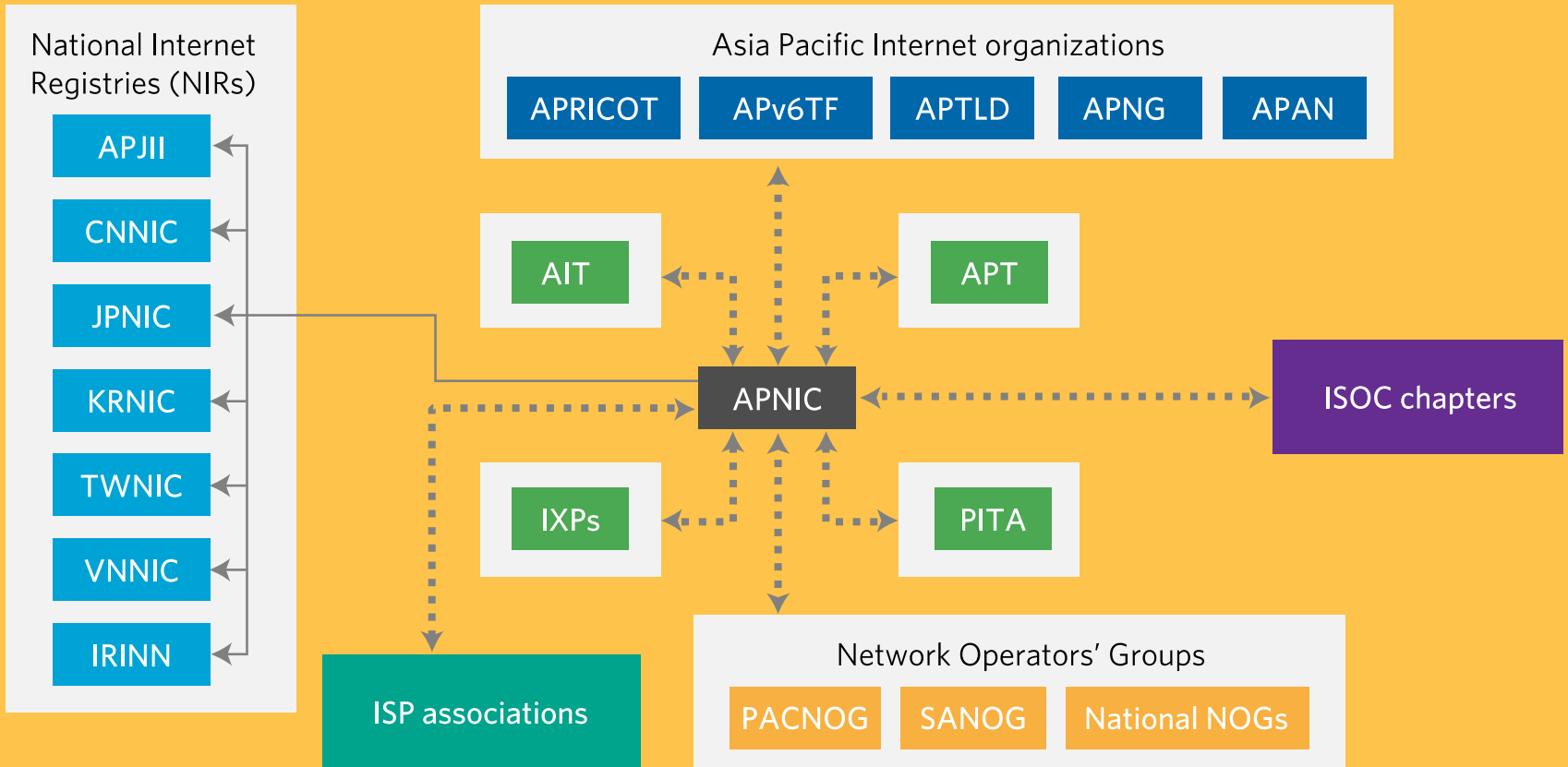
APNIC Membership



APNIC from a Global Perspective



APNIC in the Asia Pacific



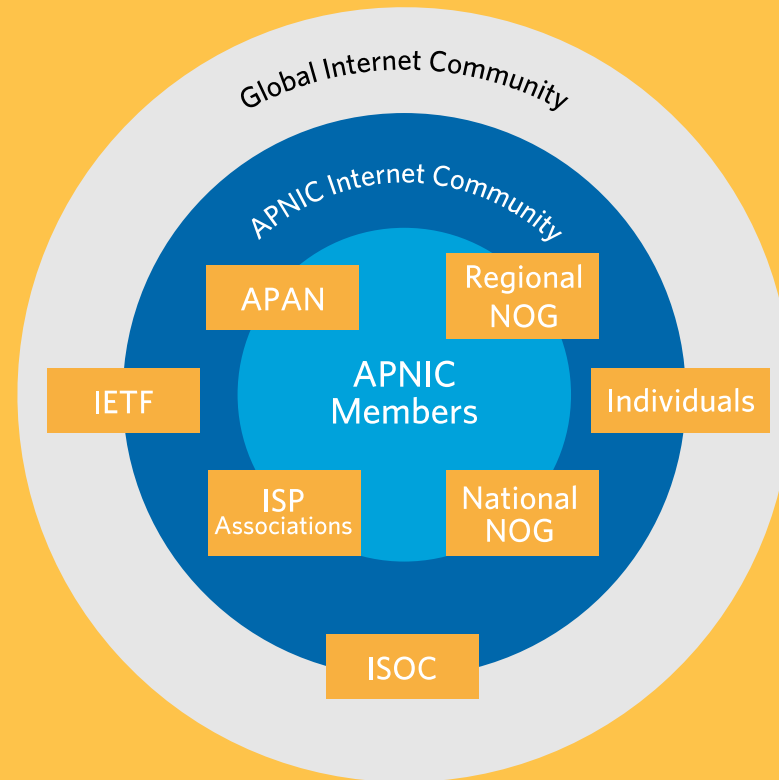
Policy Development

Policy Development

- Creating a policy environment that supports the region's Internet development
- Developed by the membership and broader Internet community

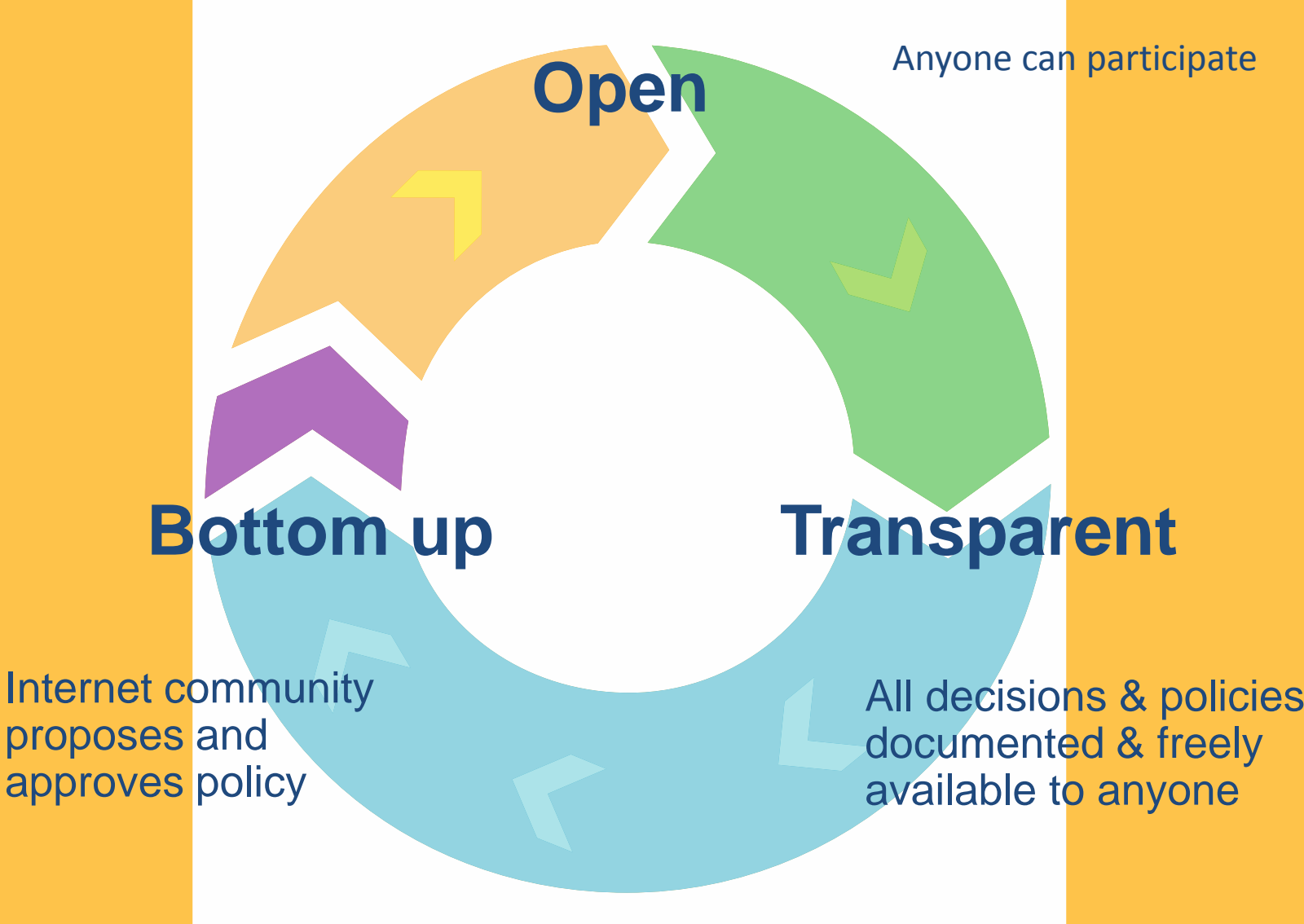
You are part of the APNIC community!

Open forum in the Asia Pacific



A voice in regional Internet operations through participation in APNIC

Policy Development Process



Policy Development Process



Before the meeting

- Submit proposed policy to the APNIC Secretariat
- SIG Chair posts the proposal to mailing list
- Community discusses proposal

Policy Development Process



During the meeting

- Proposed policies are presented at the Open Policy Meeting (OPM)
- Community comments on the proposal
- If it reaches consensus, SIG Chair reports the decision at the APNIC Member Meeting (AMM)

Policy Development Process



After the meeting

- Within a week, proposal is sent back to mailing list
- A comment period between 4-8 weeks is given
- If it reaches consensus, SIG Chair asks the Executive Council (EC) to endorse the proposal
- APNIC EC endorses proposal
- APNIC Secretariat implements the policy (minimum of 3 months)

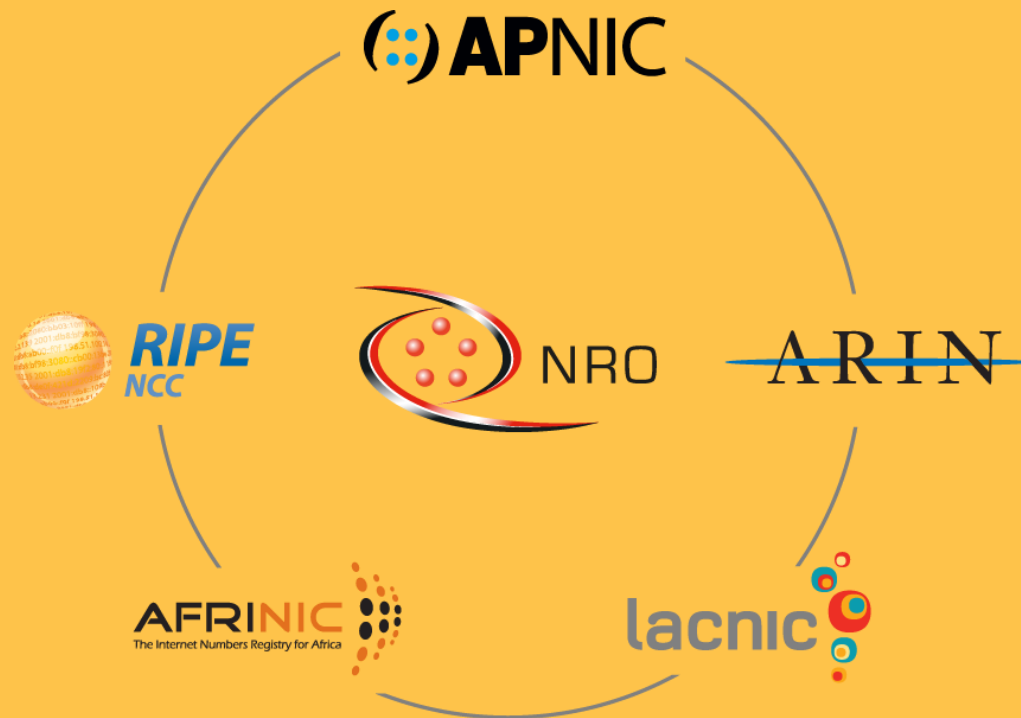
Policy Discussions

- Comment
 - Participants are encouraged to comment on the proposal
- Discuss
 - The Chair encourages discussion about the pros and cons of the proposal
- Show of hands
 - to broadly measure opinion – not a vote
- Consensus
 - declared if there are no objections

How to Participate

- Read the policy proposals currently under discussion
- Check out discussions on the Policy SIG mailing list
- Join the discussion at APNIC conferences
 - webcast (live streaming)
 - live transcripts
 - comment on Jabber chat
- Provide your feedback
 - Training or community outreach events

Global Policy Coordination



The NRO is a coordinating body for the five regional Internet registries (RIRs)

Capacity Building

APNIC Training in 2015

50 face-to-face
courses held in
20 locations

1,356
professionals
trained face-to-
face

483
professionals
trained via 98
eLearning
sessions

Video archives
79 videos
89,276 views



Received training
contribution from nine
organizations including:

- World Bank
- Japan International
Cooperation Agency
(JICA)
- ITU

NOGs in 2015



- Participated in 14 NOG events
JANOG, HKNOG, PHNOG, bdNOG,
LKNOG, MyNOG, SGNOC, IDNOG,
AusNOG, NZNOG, SANOG, PACNOG
- Technical and APNIC updates
 - Hostmaster consultations
 - Training sessions
 - Sponsorship and logistical support

PHNOG 2015



SANOG 2015

MyNOG 4

Community Development



Supported 8 RIPE Anchor deployments; distributed 100+ RIPE Atlas probes

15 fellowships for APRICOT 2015; 24 for APNIC 40 including 5 youth fellowships

Established MoUs to support local and regional development – 46 so far

L-root (ICANN) server in Apia, Samoa

K-root (RIPE) server in Quezon City, Philippines

Working with NSRC in New Caledonia and Samoa on IXP support

Technical Assistance Service

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

www.apnic.net/tas

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



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

IPv6 in 2015



261 trainees
in 7 economies

Presented at 7 IPv6
industry events

IPv6 workshop
with ITU in TH
and TAS in MN

Supporting APIv6TF
Secretariat

APNIC/ITU IPv6
Workshop, Bangkok

www.apnic.net/ipv6

Security Outreach



Promoting security initiatives and best practices in the APNIC community

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

Collaboration with JICA and KISA to deliver regional CERT training

Geoff Huston member of ICANN SSAC

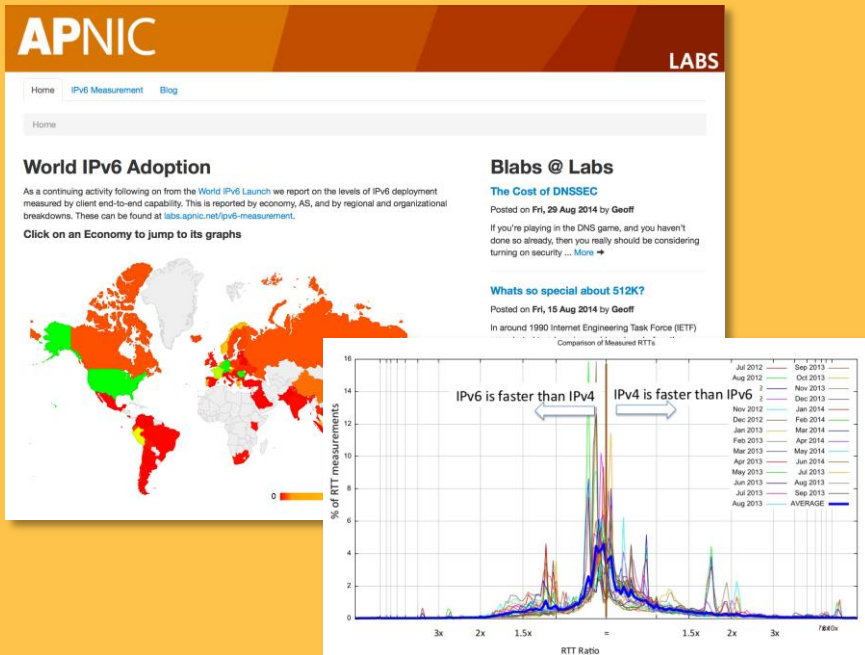
Adli Wahid member of FIRST Board

www.apnic.net/security



labs.apnic.net

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



Over 3 million measurements per day

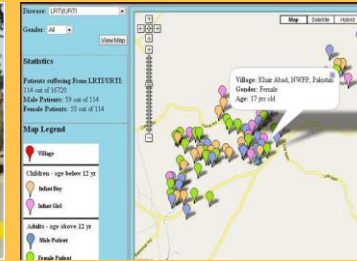
Measuring IPv6, DNSSEC, DNS

Single collection platform for all measurements

HTML5 now allows measurements on mobile devices (replacing Flash)

Measurement for ICANN's Universal Acceptance work (IDNs gTLDs)

50+ research presentations to: IETF, RIRs, ICANN, DNS OARC, NOGs, OECD



<p>Awards 2015</p>	<p>78 nominees from 12 AP economies</p>	<p>India: I Change My City, www.ichangemycity.com Indonesia: Batik Fractal, www.batikfractal.com Pakistan: doctHERs, www.docthers.com Pakistan: Jaroka Tele-Healthcare, www.umtrust.org</p>
<p>Grants 2015</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>Grants 2016 launched</p>	<p>Looking for innovative approaches that use Internet technology</p>	<p>Technical innovation: access provision, electricity supply, devices, IoT, IPv6, security, privacy</p> <p>Community Impact: Women & girls in IT, democracy enhancement, open data, applications for economic empowerment and poverty alleviation</p>

Internet Operational Research Grants

New fund supporting the Internet research community in the Asia Pacific

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

Network measurement and analysis

IPv6 deployment

BGP Routing

Network Security

APNIC Events



12 economies in 2015

PK, BD, LK, MM, KH, TH,
MY, SG, PH, ID, SB, JP

Attendance

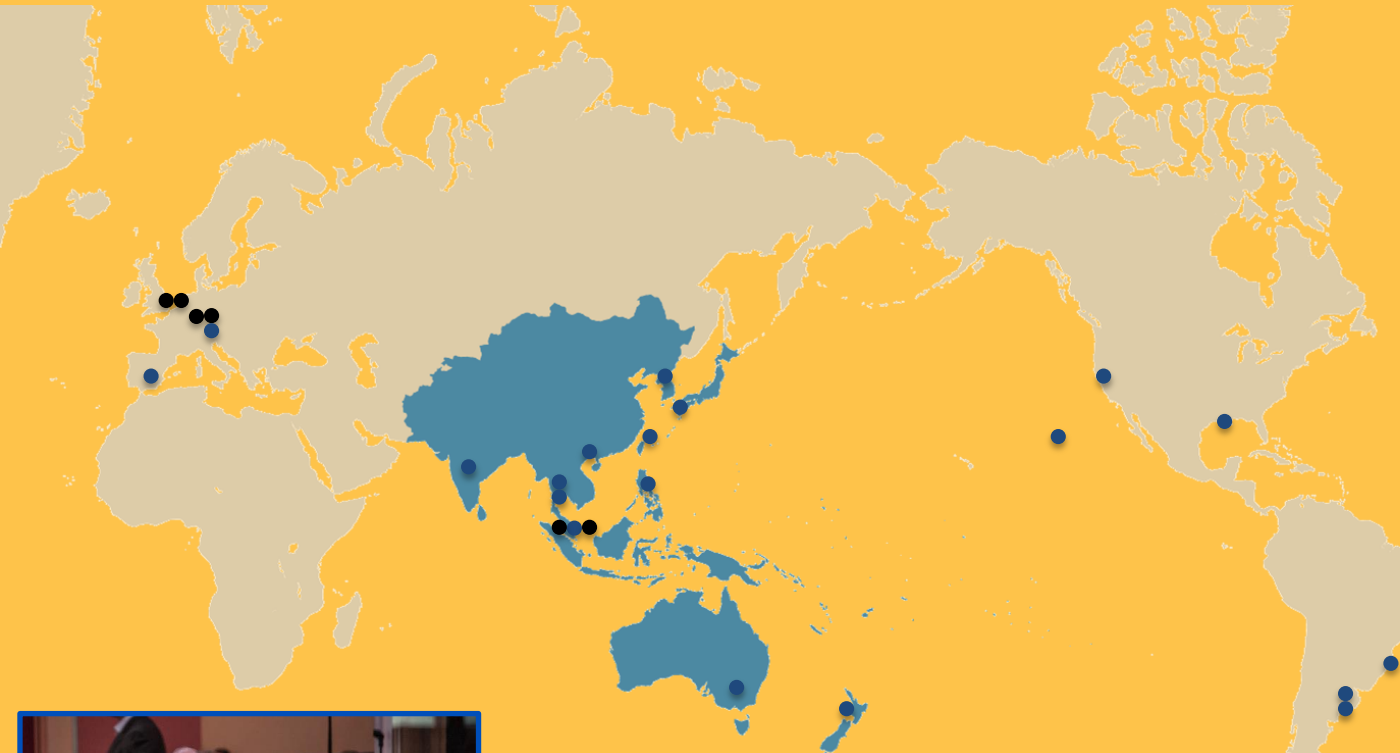
Conferences: 835 + 450

ARMs: 162

Member outreach: 133

Coordination

Global Cooperation



IPv6 advocacy

Coordination with
RIRs and Internet
organizations

Engaging with
government agencies
in training and skills
development

Supporting IANA
Stewardship
Transition

Promoting the RIR
model



IANA Stewardship Transition Progress

IANA Stewardship Transition Proposal
www.ianacg.org

Comments closed 8
Sep 2015

Second draft SLA for Internet Numbers
Community Proposal
www.nro.net

Comments closed 31
Aug 2015

NTIA announced on 17 August that IANA contract
with ICANN extended to 30 Sep 2016

RIR Collaboration



RIR Stability Fund established

RIR Transparency matrix available on
NRO website

APNIC Labs research collaboration
with RIPE NCC and LACNIC

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

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

IANA process mapping project

Connect with APNIC



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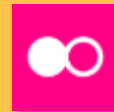
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Questions?

Thank you
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