

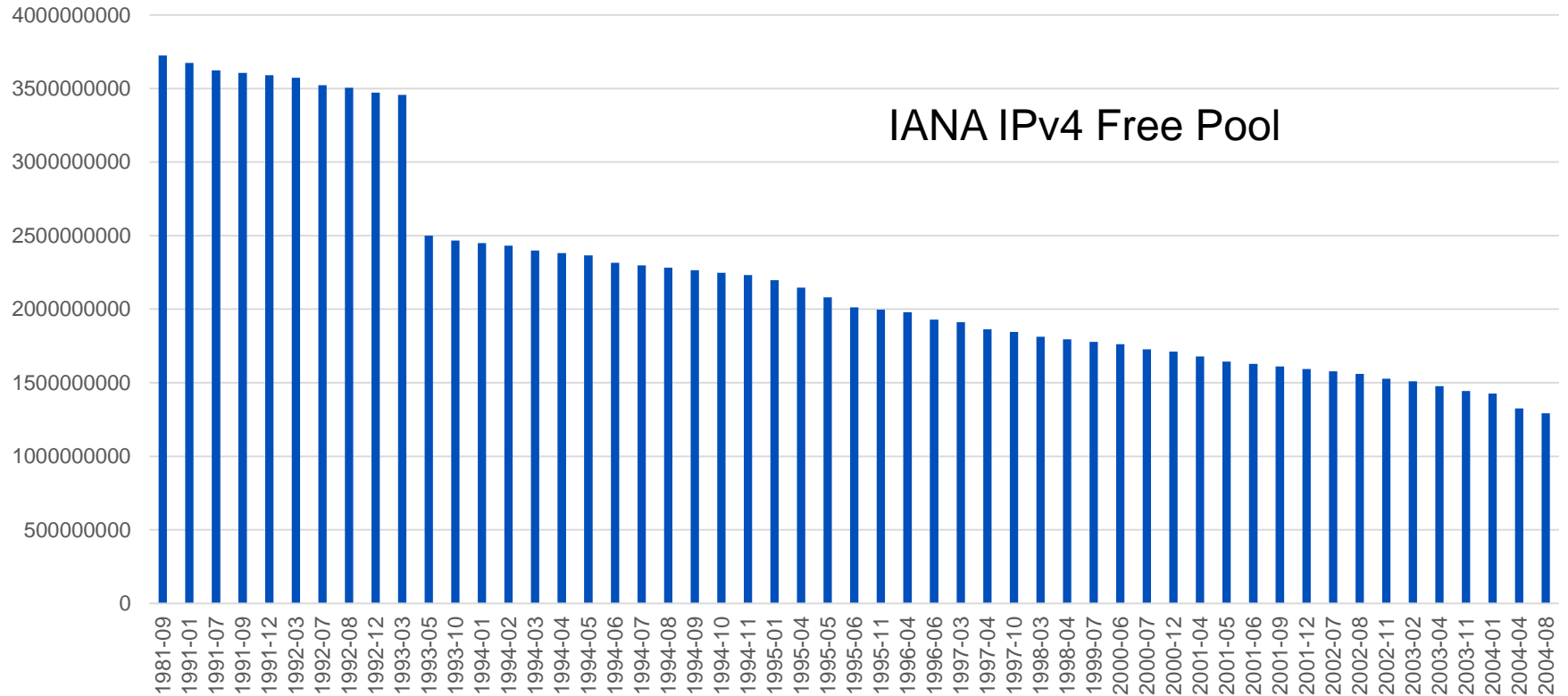
# Technical Identifiers Policies that Changed the Internet

Sunny Chendi

25 June 2018

PacNOG 22

# Step back to the mid-2000s



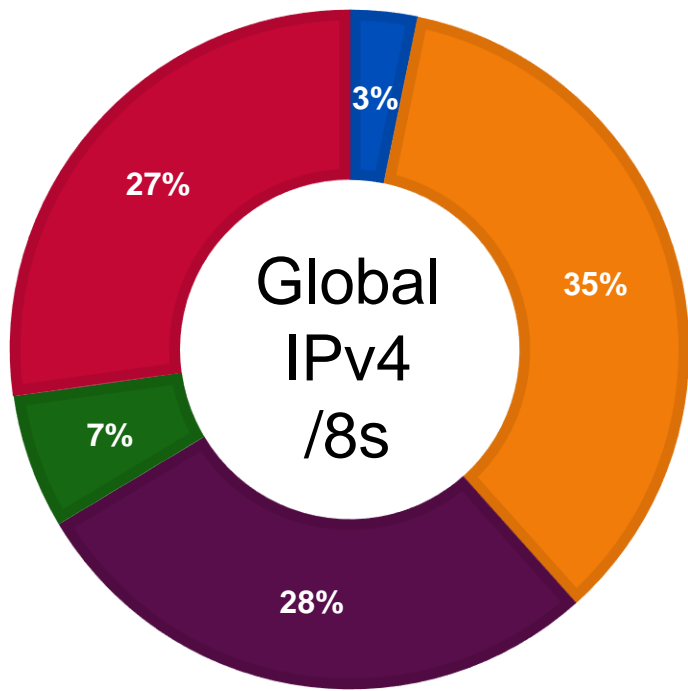
“ The community had become **complacent** about exhaustion.

It had been a case of the ‘boy who cried wolf’ where people had **stopped paying attention** to stories about IPv4 exhaustion... they had **not given much thought** to the eventual day when there would be **no more addresses left** for IANA to allocate.

”

Izumi Okutani  
Former JPNIC Policy Liaison

# First come, first served



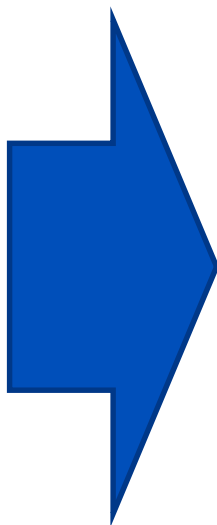
■ AFRINIC ■ APNIC ■ ARIN ■ LACNIC ■ RIPE NCC

- First come, first served was the norm
- If that continued, APNIC region would probably eaten most remaining space
- What about Africa?
- Was this fair?

# A final /8 each



Internet Assigned Numbers Authority



102/8



103/8



104/8



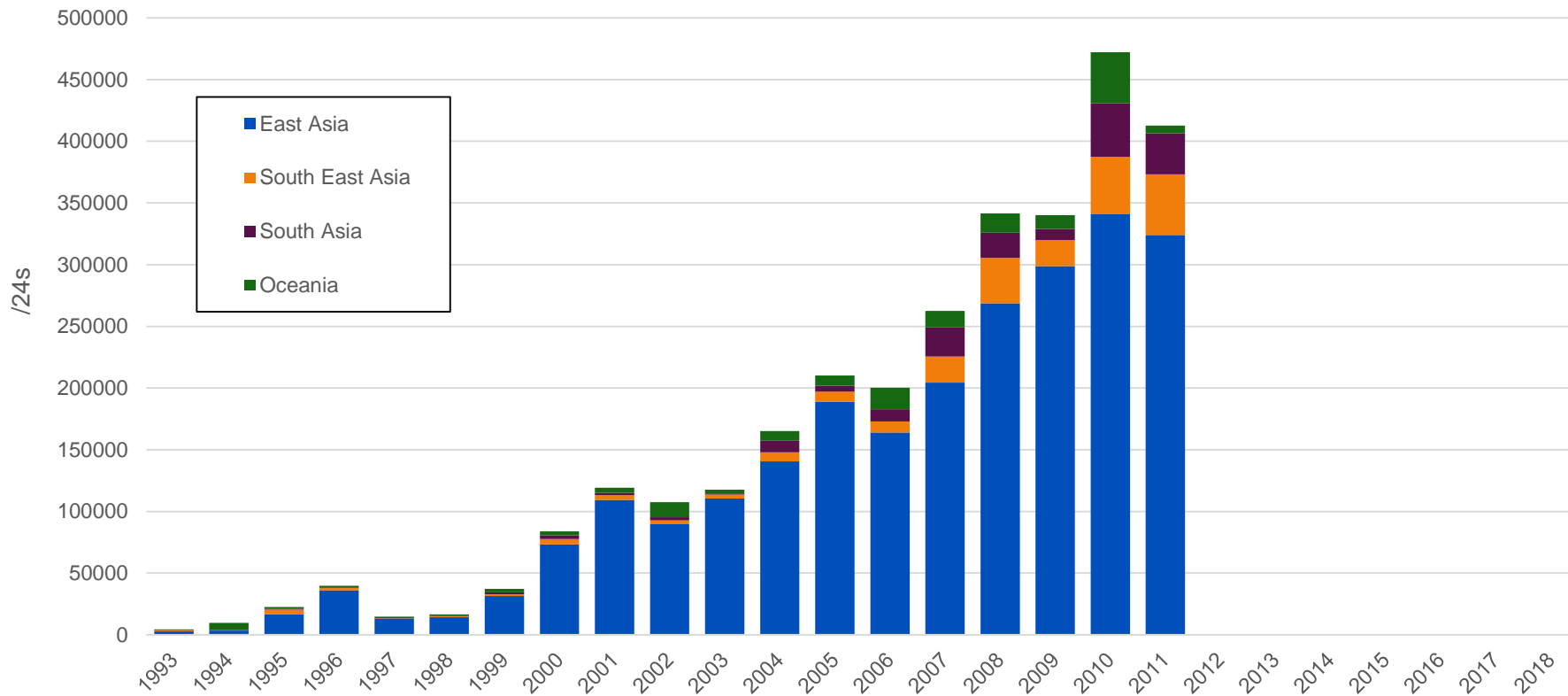
179/8



185/8



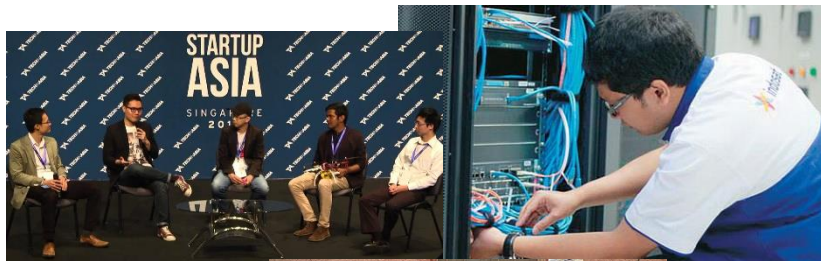
# Heading to 103/8



# A soft landing: /22 from the last /8

13,000+ delegations from 103/8 –  
without this policy, addresses would  
have exhausted long ago

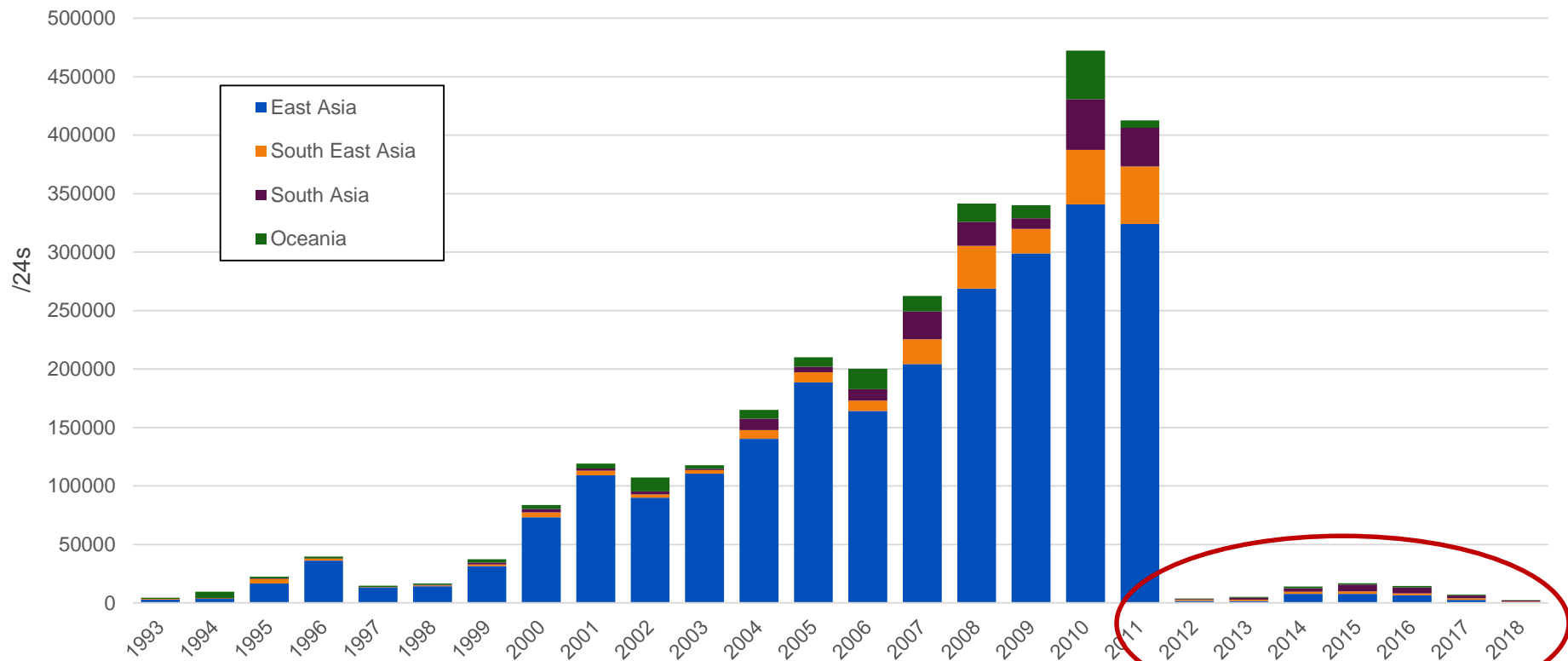
Innovation has continued in APAC:  
1000s of new ISPs, data centres  
and start-ups since 2011



Emerging economies have benefitted

- BD: 68 members → 473 members
- PK: 51 Members → 146 Members
- KH: 25 Members → 74 Members
- MM: 2 Members → 53 Members
- PH 93 Members → 222 Members

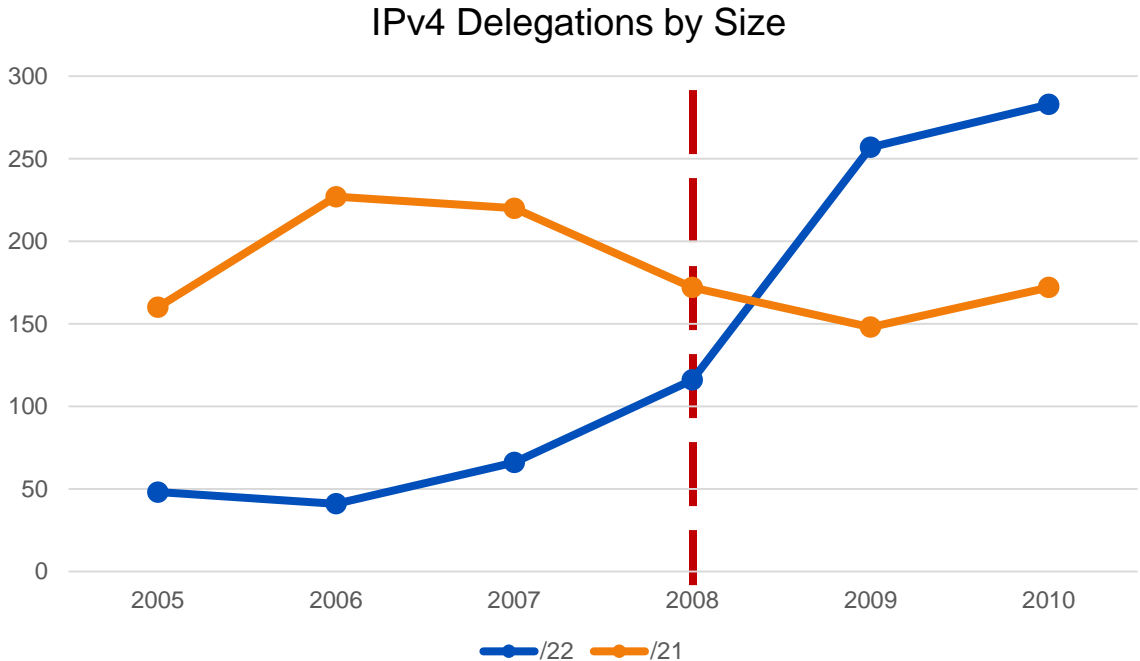
# Making it last: 103/8





# A brief aside: How'd we get to /22?

- Minimum requirement set at /21, had to show use of /23
- Hard for start-up ISPs in emerging economies to do – stifling growth
- Policy changed the requirements and min allocation to /22
- Great example of community adjusting policy to its needs




# Scarcity bites

 **APNIC**  
103/8

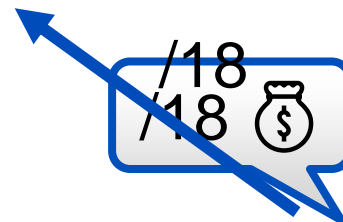
... /22



/18  
/18 



/20 



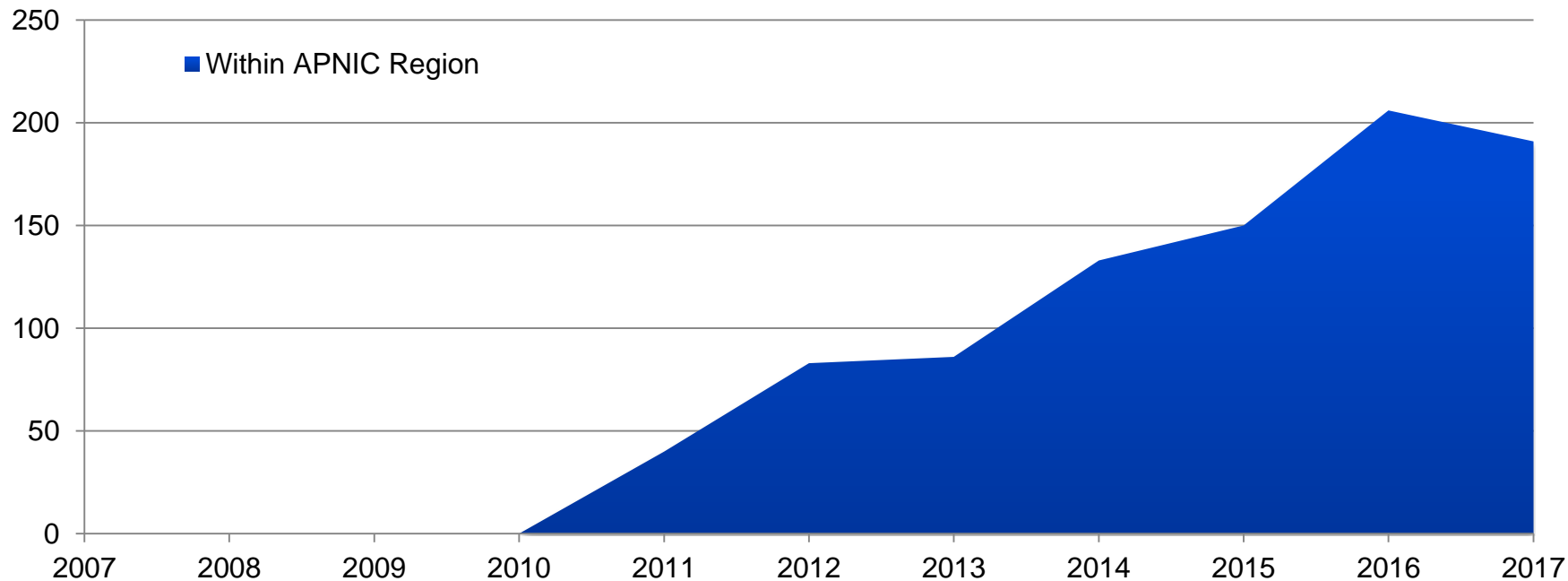
“ The policy was **deeply divisive** because it recognized that addresses were being transferred between parties for financial gain.

But the movement of addresses **wasn't going to stop**. If we didn't have this policy, the accuracy of the registry – which the community relies on – could be severely impacted.

”

Geoff Huston  
APNIC Chief Scientist

# IPv4 transfers take off



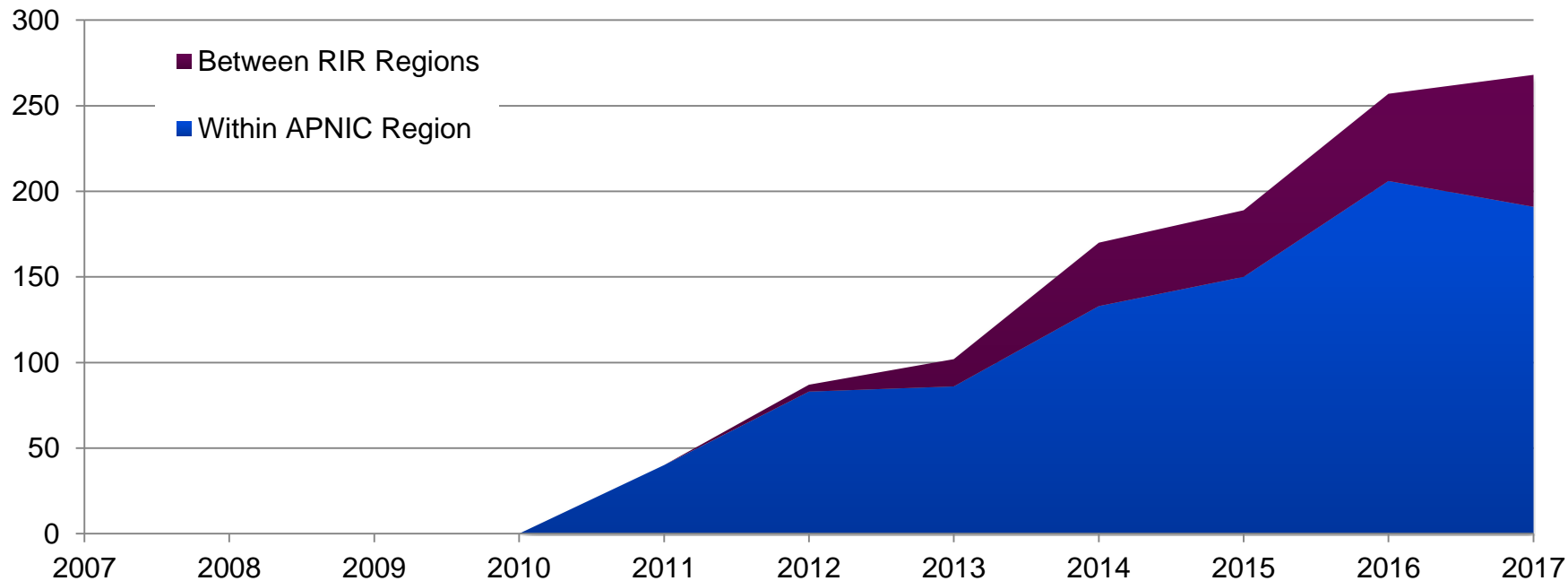
# Accessing IPv4 in other regions

- 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 NORSK IANA
- AMATEUR RADIO DIGITAL COMMUNICATIONS

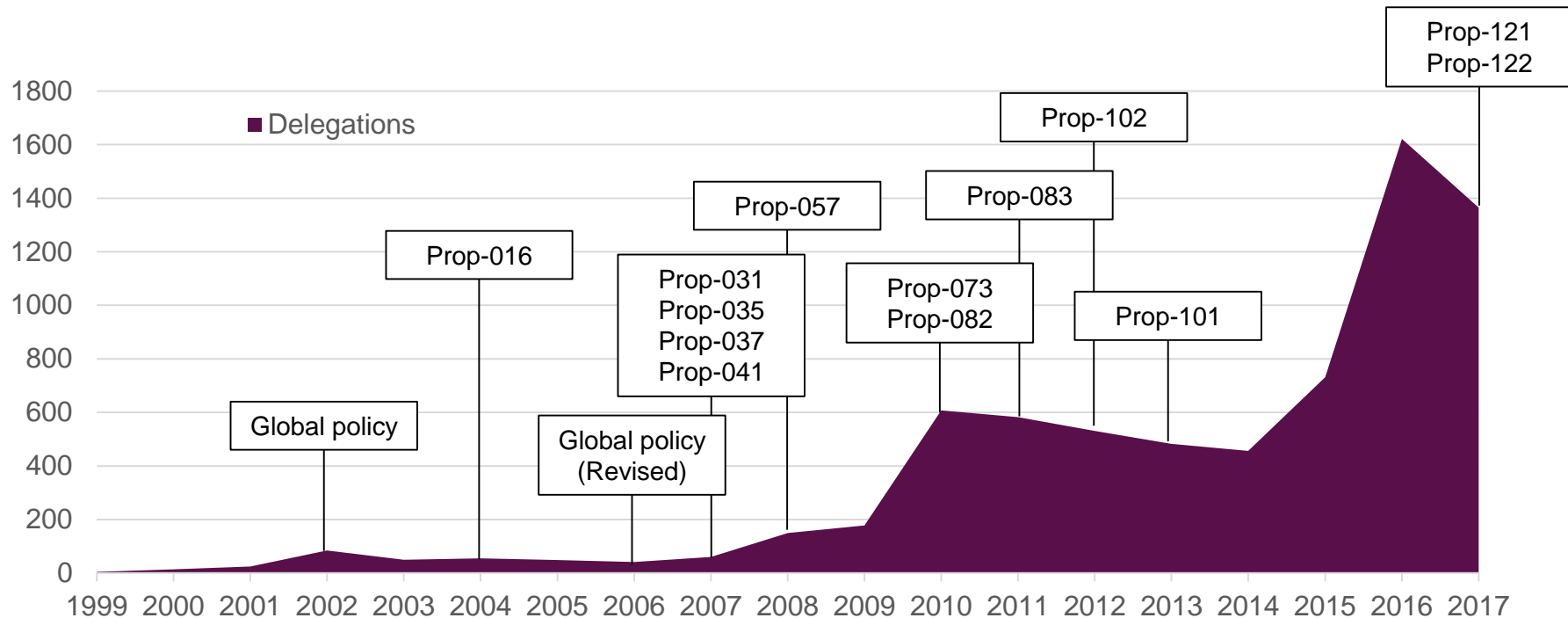
Legacy holders



# IPv4 transfers take off



# What about IPv6?



# What's the common thread?



All these policies were created  
by people just like you!





# GET INVOLVED!

# What is a Policy?

In the APNIC region, a policy refers to the rules and requirements or criteria that one must meet to be eligible to receive IP and ASN resources.

A policy **proposal** is a formal, written submission that outlines an idea for a new policy. If a policy proposal is successful it will become a policy.

# Why do we need resource policy?

IP address and AS numbers are public shared resources. APNIC policies ensure that these **resources are managed** properly and distributed with the goal of fairness and consistency in mind.

The common aim of a policy is to **ensure proper usage of Internet number resources according to the technical and operational needs of the network**. This is vital for the continued stable growth of the Internet.

# Policy change

Policies change constantly.

They evolve as the needs of the technical community change

Good policy relies on a range of opinions

APNIC policies are developed by Members and the Internet community in a bottom-up process of consultation and consensus.

# What's APNIC's role?

- The APNIC Secretariat is the organization that manages resources, implements policy and provides a range of services to the community
- APNIC staff
  - Provide information and support to people who want to be involved in the policy development process
  - Provide support to the Policy SIG
  - Help authors to draft proposal wording
  - Manage the implementation of policy changes
  - Inform the policy changes to the community

# Who can Participate?

Policies are developed **by and for** the Asia Pacific Internet community, which includes the APNIC membership.

**Anyone** can participate in the policy development process for managing and distributing IP addresses.

- Whether you are a seasoned network engineer, a decision maker, a student in the IT field, or a user of the Internet, you can join the discussion.

You are invited to be part of this development process.

# Why participate?

- It is an opportunity to learn and share experiences and best practices in the Internet
- Policies affect your organization's operating environment and are constantly changing
- Ensure your organization's needs are represented
- It's a great way to build your profile and contribute to the Internet
- You can directly impact the way APNIC manages Internet number resources
- Make these policies work for your networks and future growth

# Participate in APNIC Policy



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



## **Policy Special Interest Group (SIG) Charter**

*Develop policies and procedures which relate to the management and use of Internet address resources by APNIC, NIRs, ISPs and other organizations within the Asia Pacific region.*

# What is a SIG?

A SIG, or Special Interest Group, is an open forum for the community to discuss topics of interest. There are no entry requirements to participate in the activity of the APNIC Policy SIG.

You don't "join" a Special Interest Group, you participate in it. The first step to participation is usually to subscribe to the SIG mailing list.

Special Interest Group Guidelines  
<https://www.apnic.net/community/participate/sigs/>

# APNIC Policy SIG

## Policy SIG Chair

Sumon Ahmed Sabir

## Co-Chairs

Bertrand Cherrier

Ching-Heng Ku



## Secretariat Support

Sunny Chendi

George Odagi

Elected by the Asia Pacific Internet Community

# Policy Development Process

APNIC policies are developed by the community in a bottom-up approach. This approach is part of the Policy Development Process or commonly referred to as the 'PDP'.

PDP describes the process through which policy proposals are submitted, considered, and adopted by APNIC.



# Policy Process

What are the key characteristics of the PDP?

**Open**

Anyone in the community - Member or not - can propose a policy. This can be a proposed change to an existing policy or a new one altogether. Anyone can participate from the beginning, during the discussion as well as in the decision-making process.

**Transparent**

APNIC publicly documents all policy discussions and decisions to provide complete transparency of the policy development process. These documents, the associated discussion in the mailing list, and decisions are freely available for viewing at any time.

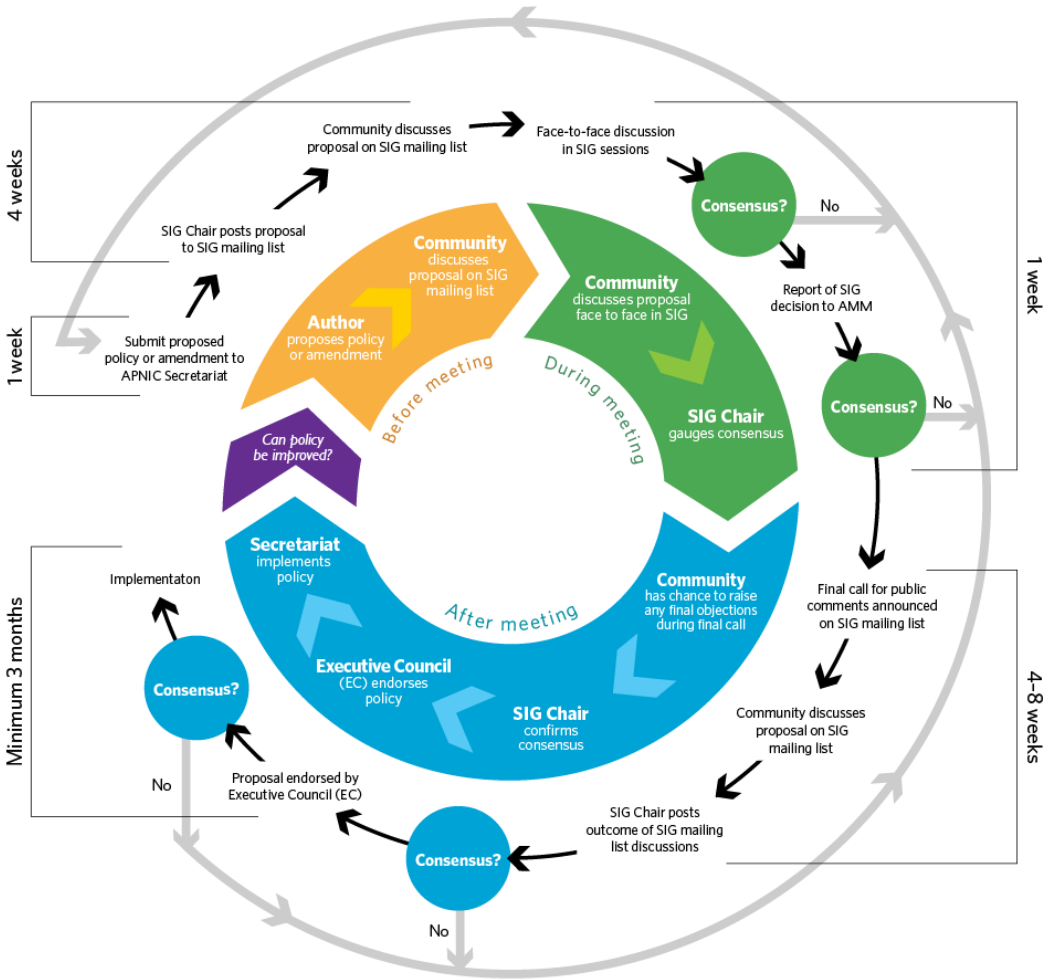
**Bottom-up**

The Policy Development Process is driven by the Internet community - by those who need and use these resources. It is catered to address the needs and requirements of the Asia-Pacific Internet community. APNIC stays neutral in the process.

# Policy Development Process



# PDP Timelines



# It all starts with a Proposal

- Who can propose a policy idea?
- Why would you do it?
- What is required?
- Where do you start?

Complete the online form

<https://www.apnic.net/community/policy/proposals/submit-a-policy-proposal/>



# Policy SIG Mailing list

- Some people think it's a great idea
- Others disagree
- The author tries to convince or compromise
- The Chairs monitor the discussions and participate as appropriate

Join the mailing list

<https://mailman.apnic.net/mailman/listinfo/sig-policy>

# Policy SIG meeting

- Author presents
- People line up at the microphone
  - Ask questions
  - Express support
  - Explain their concerns
  - Argue and praise
- Remote participation is available so those not at the meeting in-person can still fully participate

Check the conference agenda

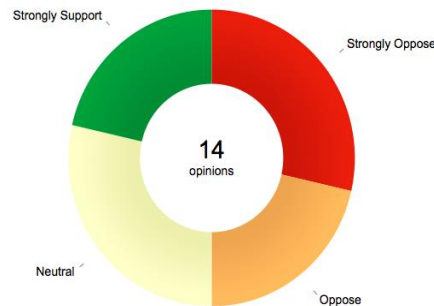
<https://conference.apnic.net/46/program>

# Consensus Decision Making

- Consensus =
  - “general agreement” taking into consideration comments on the mailing list and at the meeting.
- Objections
  - Minor Objections:
    - some problems may occur for some members of the community
  - Major Objections:
    - major problems will occur for members of the community
- Participants should “work together” to resolve objections

# Chairs consider many sources

- Mailing list discussions
- Discussions at the SIG meeting
  - Incl. remote participants
- Show of hands
  - Not a vote, a way of “broadly gauging opinion”
  - CONFER assists remote participation
    - Require one-off registration
  - The Chair will ask for both



Please select/unselect a button at the bottom to indicate your response.

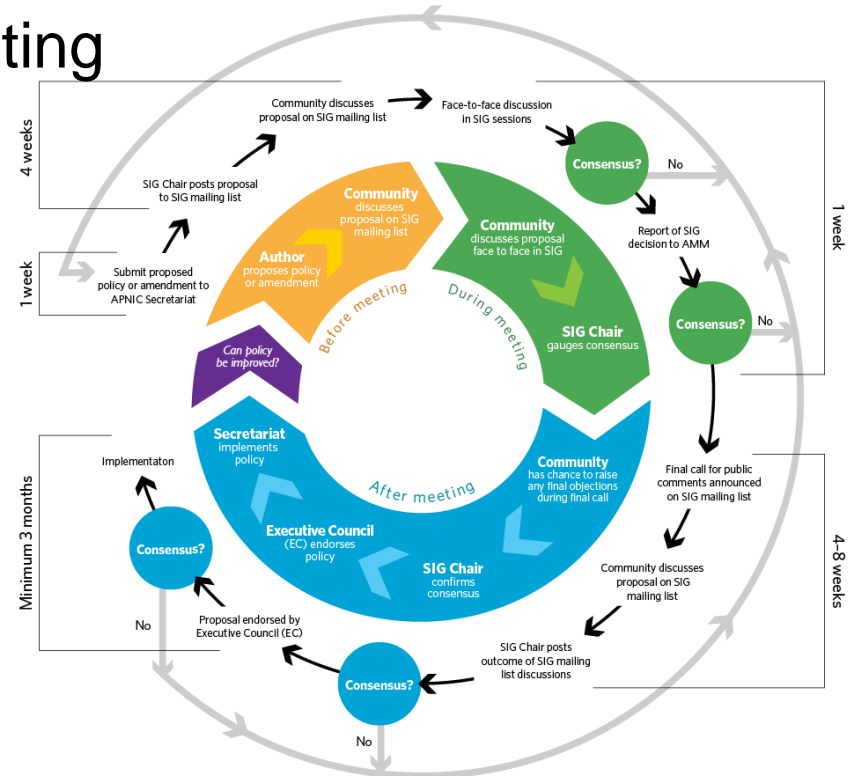
Strongly Oppose  Oppose  Neutral  Support  Strongly Support

Have your say remotely

<https://confer.apnic.net/>

# After the Open Policy Meeting (OPM)

- Consensus at the Member Meeting
- Mailing List Comment Period
- EC Endorsement
- Editorial Comment Period
- Implementation



# What's next?

- Subscribe to the mailing list
  - sig-policy@apnic.net
- Review the proposals
  - <https://www.apnic.net/community/policy/proj>
- Discuss with others
  - Morning and afternoon tea, lunch, dinner
- Participate in Policy SIG Meeting
  - Check conference program



# PROPOSALS UNDER DISCUSSION

# prop-118: No need policy in APNIC region

- **Proposal**

- Remove the requirement to demonstrate need when transferring IPv4 addresses into or within the APNIC region.
  - Exception where resources are from an RIR region requiring needs-based policies, where recipients must provide a plan use of at least 50% of the resources within 5 years.
- Would not apply to AS number transfers.

- **Status**

- Initially discussed at APNIC 44
- No progress at APNIC 45
- May be resubmitted for APNIC 46



# prop-119: Temporary transfers

- **Proposal**

- To allow temporary transfers of IPv4 space.
- Essentially the same as a normal transfer, but with an end-date after which the registration will revert to the original holder.

- **Status**

- Initially discussed at APNIC 44
- No progress at APNIC 45
- May be resubmitted for APNIC 46

# prop-120: Final /8 pool exhaustion plan

- **Proposal**

- Provides refinement guidance for 103/8 pool exhaustion:
  - Once a request cannot be fulfilled from the Final 103/8 pool, a waiting list will be established.
- APNIC to manage two waiting list pools, the recovered pool and the 103/8 pool.

- **Status**

- Initially discussed at APNIC 44
- Revised version discussed at APNIC 45
- Did not reach consensus. Returned to mailing list for further discussion by the community.

# prop-123: Modify 103/8 IPv4 transfer policy

- **Proposal**

- Allow the transfer of 103/8 addresses without the five year restriction for delegations made before 14 September 2017.

- **Status**

- Discussed at APNIC 45
- Did not reach consensus. Returned to author for further consideration and submission of a revised version.

# prop-124: - Clarification on IPv6 Sub-Assignments

- **Proposal**

- Clarifies the definition of assigned address space for IPv6 delegations under section 2.2.3 of [APNIC Internet Number Resource Policies](#) document.
- Allowing temporary sub-assignments from within existing IPv6 assignment

- **Status**

- To be discussed at APNIC 46
- Posted to Policy SIG mailing list for community discussion

# APNIC Fellowships

- APNIC Standalone conference in September
- Encourages gender and economic diversity
- Professionals, Youth, and Returning Fellows
- Package Includes:
  - An economy class return flight ticket
  - Twin shared hotel accommodation with breakfast and Wi-Fi
  - A fixed cash allowance of AUD 100 for any incidentals
  - Complimentary registration to workshop, conference and social events
- Selection Committee - volunteers from the community

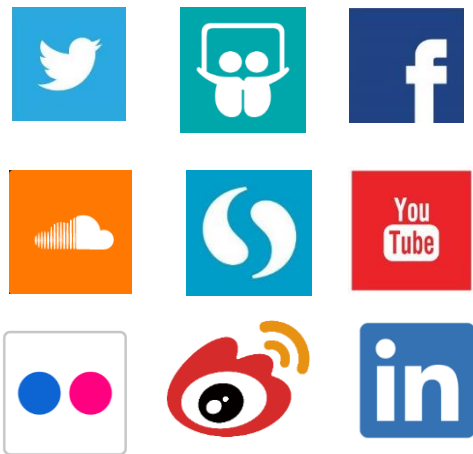
# Next Conference



Register now

<https://conference.apnic.net/46/register/register>

# Thanks!



[blog.apnic.net](https://blog.apnic.net)

[apnic.net/social](https://apnic.net/social)