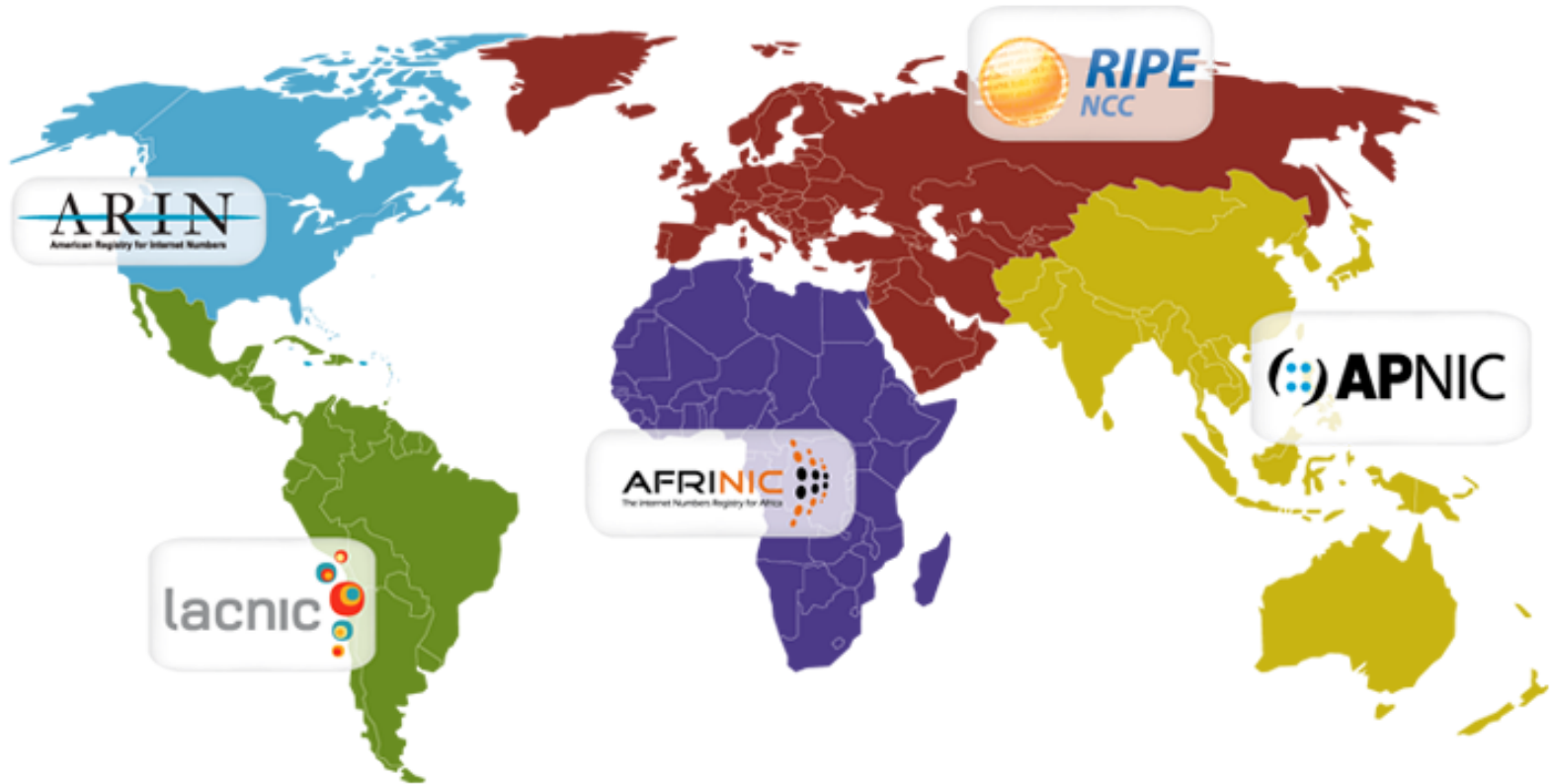# APNIC Update

Pubudu Jayasinghe
20 October 2017
LKNOG-1

Asia **P**acific **N**etwork **I**nformation **C**entre

A global, open, stable and secure Internet that serves the entire Asia Pacific community
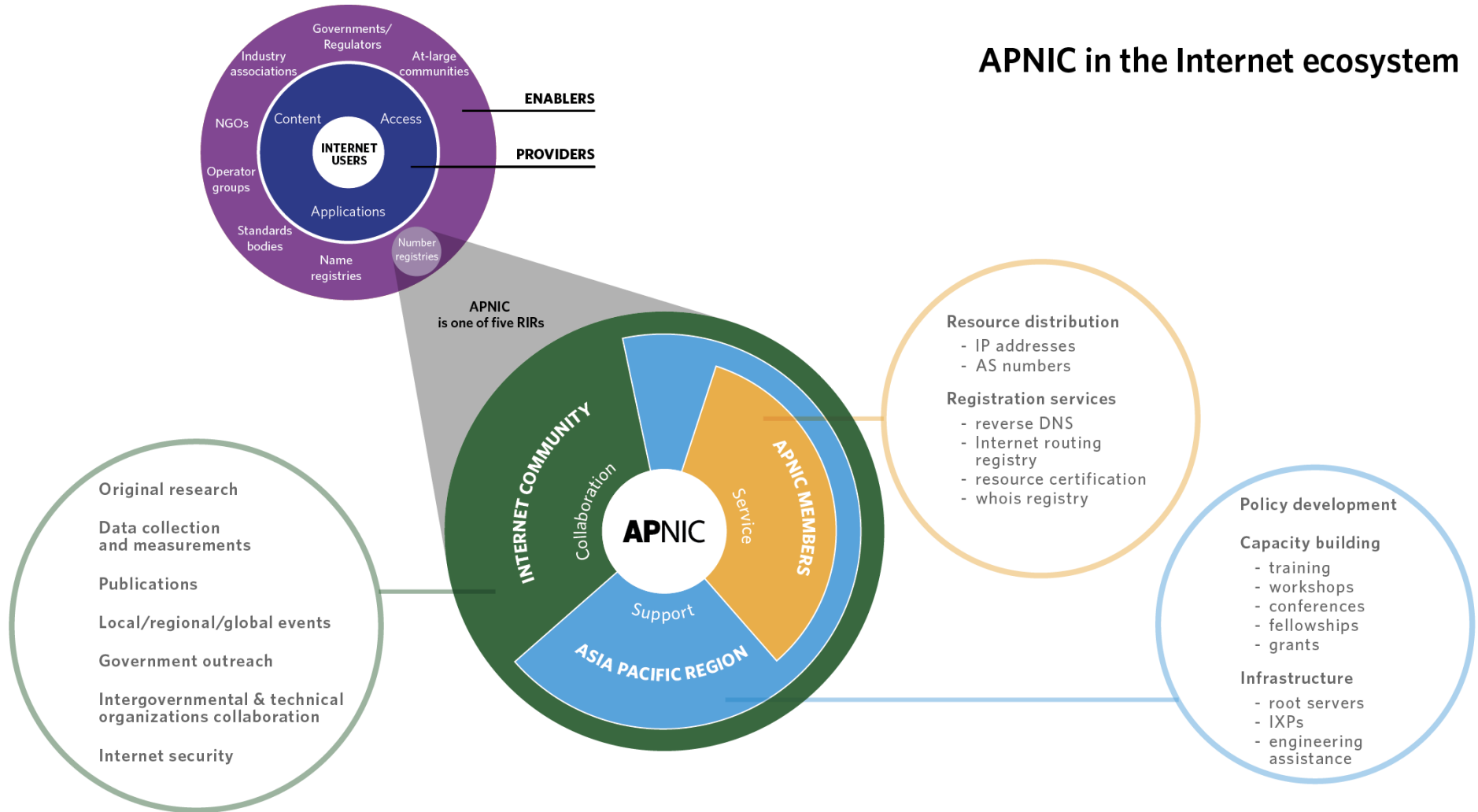
APNIC and the other RIRs

APNIC region

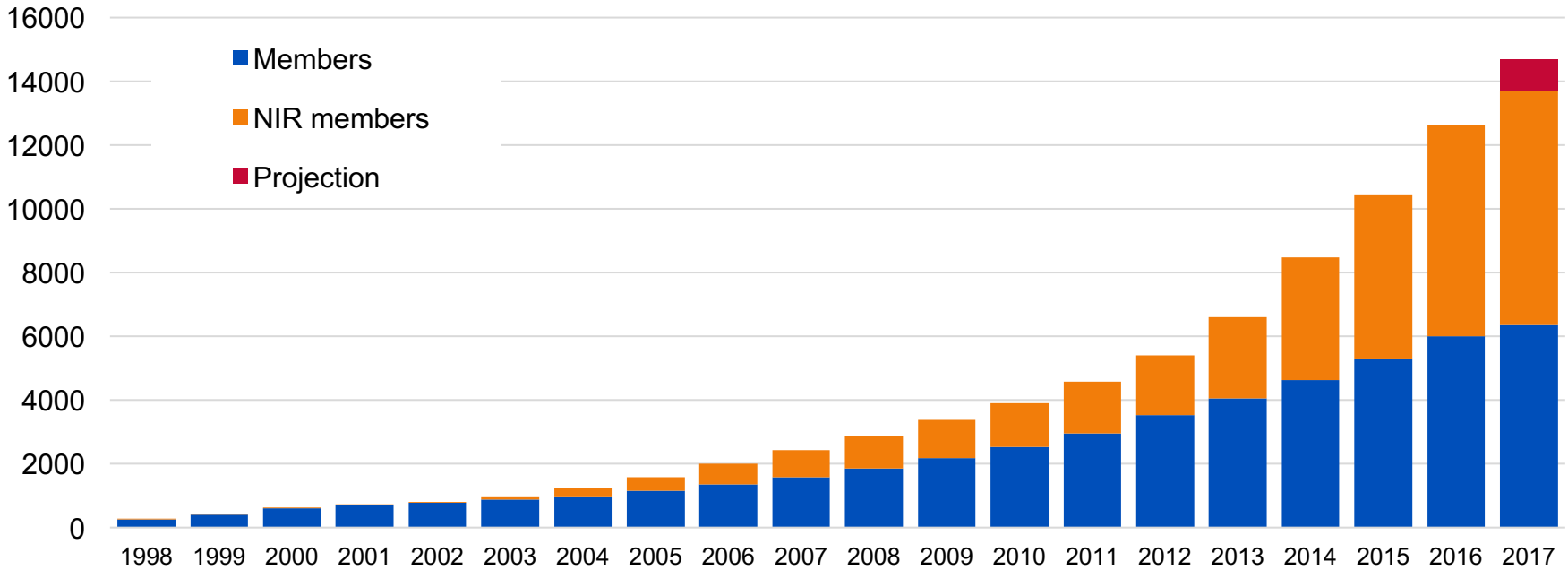We serve 56 economies and 6,300+ Members (as of Sept 2017)

South Asia
- Afghanistan
- Bangladesh
- Bhutan
- British Indian Ocean Territory
- India
- Maldives
- Nepal
- Pakistan
- Sri Lanka

Eastern Asia
- China
- Dem. People's Rep. of Korea
- Hong Kong SAR
- Japan
- Macau
- Mongolia
- Republic of Korea
- Taiwan

Polynesia
- American Samoa
- Cook Islands
- French Polynesia
- Niue
- Pitcairn
- Samoa
- Tokelau
- Tonga
- Tuvalu
- Wallis and Futuna Islands

South-eastern Asia
- Brunei Darussalam
- Cambodia
- Christmas Island
- Cocos (Keeling) Islands
- Indonesia
- Lao People's Dem. Republic
- Malaysia
- Myanmar
- Philippines
- Singapore
- Thailand
- Timor-Leste
- Vietnam

Micronesia
- Fed. States of Micronesia
- Guam
- Kiribati
- Marshall Islands
- Nauru
- Northern Mariana Islands
- Palau

Melanesia
- Fiji
- New Caledonia
- Papua New Guinea
- Solomon Islands
- Vanuatu

Australia & New Zealand
- Australia
- New Zealand
- Norfolk Island

Antarctic
- French Southern Territories

APNIC in the Internet ecosystem

ENABLERS

PROVIDERS

Governments/Regulators
At-large communities
Industry associations
NGOs
Content
Access
INTERNET USERS
Operator groups
Applications
Standards bodies
Name registries
Number registries

APNIC is one of five RIRs

INTERNET COMMUNITY
Collaboration
Service
Support
APNIC MEMBERS
ASIA PACIFIC REGION
APNIC

Original research

Data collection and measurements

Publications

Local/regional/global events

Government outreach

Intergovernmental & technical organizations collaboration

Internet security

Resource distribution
- IP addresses
- AS numbers

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

Policy development

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

Infrastructure
- root servers
- IXPs
- engineering assistance

Where do IP addresses come from?

IETF

Standards

iana
Internet Assigned Numbers Authority

Delegate

ARIN
RIPE NCC
APNIC
LACNIC
AFRINIC

Delegate

LIR

Delegate

End user

Membership

APNIC

Who are our Members?

Industry Type	Number of Member
Academic/Educational/Research	418
Banking/Financial	446
Domain name registry/Registrar	46
Enterprise/Manufacturing/Retail	552
Government/Regulator/Municipality	291
Hardware vendor	56
Hosting/Data centre	1602
Industrial (construction, mining, oil)	127
Infrastructure (transport/hospital)	121
Internet exchange point (IXP)	56
Internet service provider (ISP)	1627
Media/Entertainment	210
Non-profit/NGO/Internet community	63
NREN/Research network	8
Software vendor	322
Telecommunications/Mobile operator	947
Other	49

Resource delegations
and state of resources

IPv4 delegations
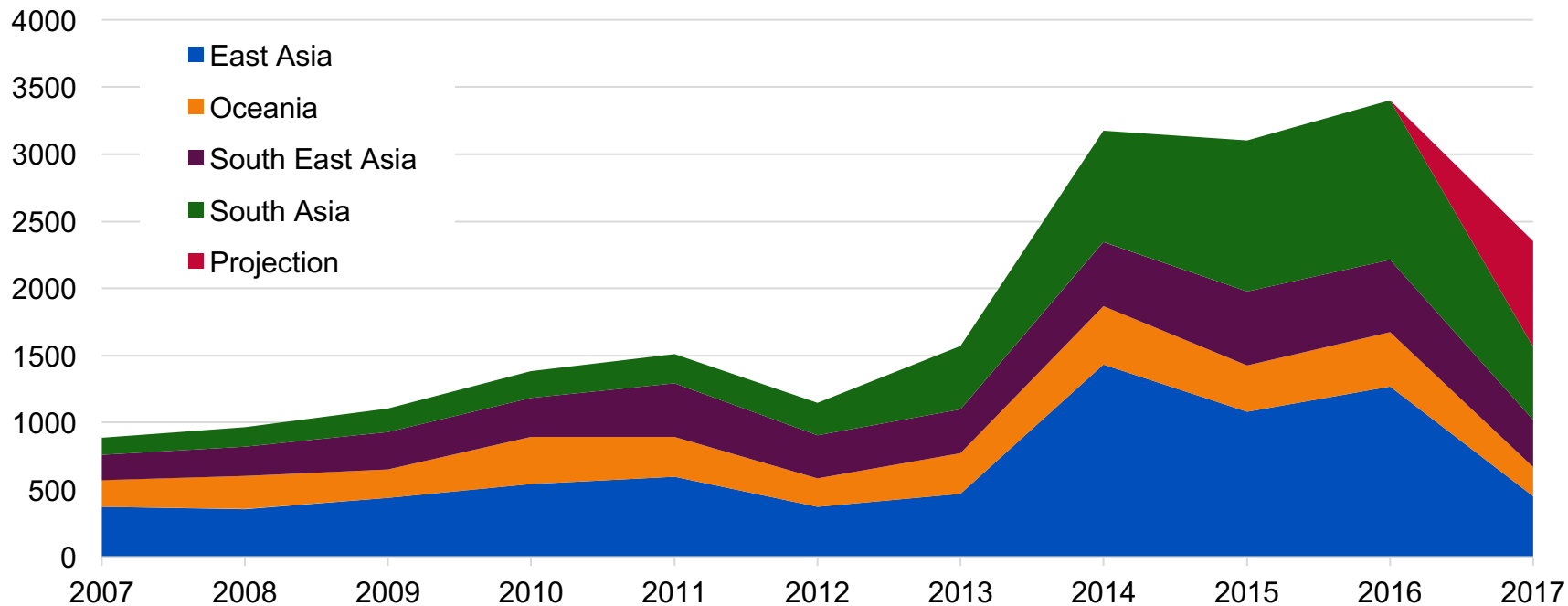
APNIC

Available IPv4 /8s in each RIR
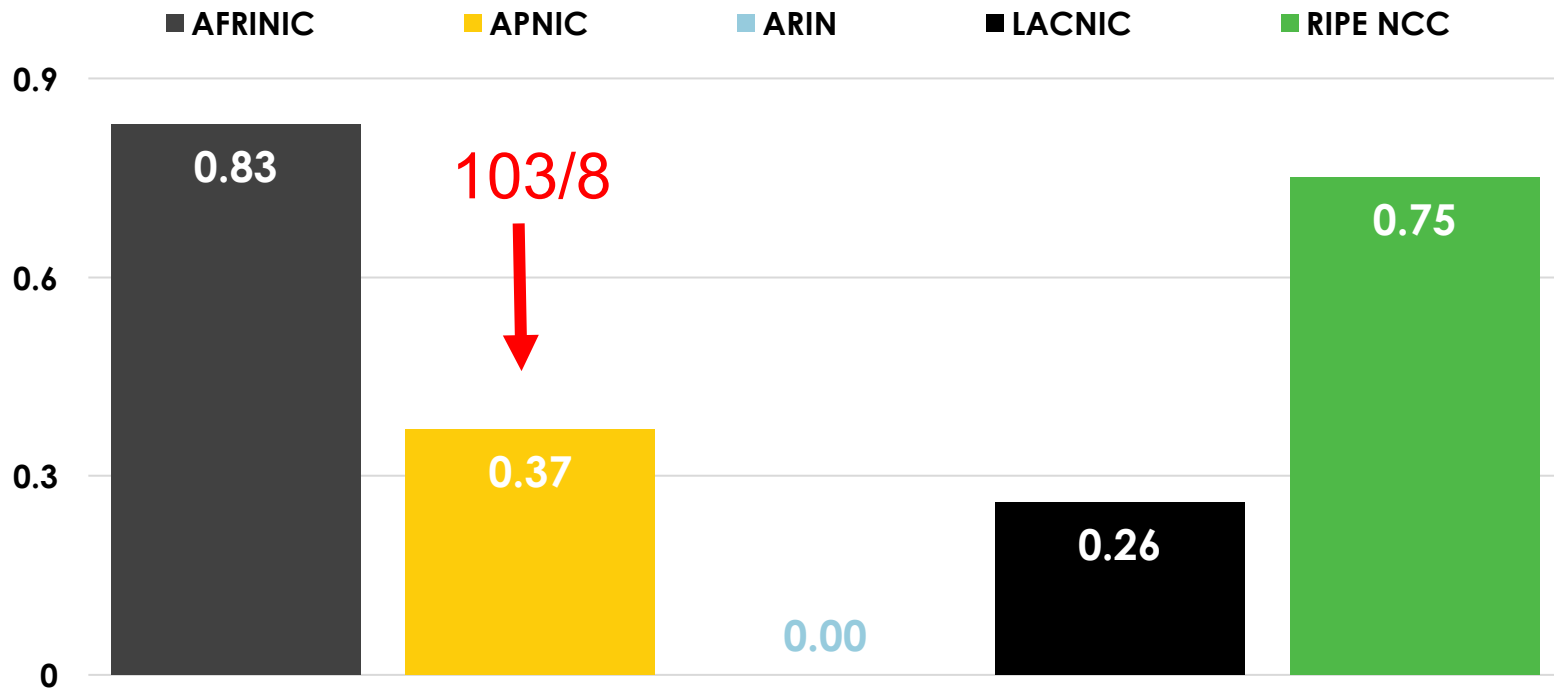
Source: NRO

IPv4 exhaustion

0.37 of final 103/8 left
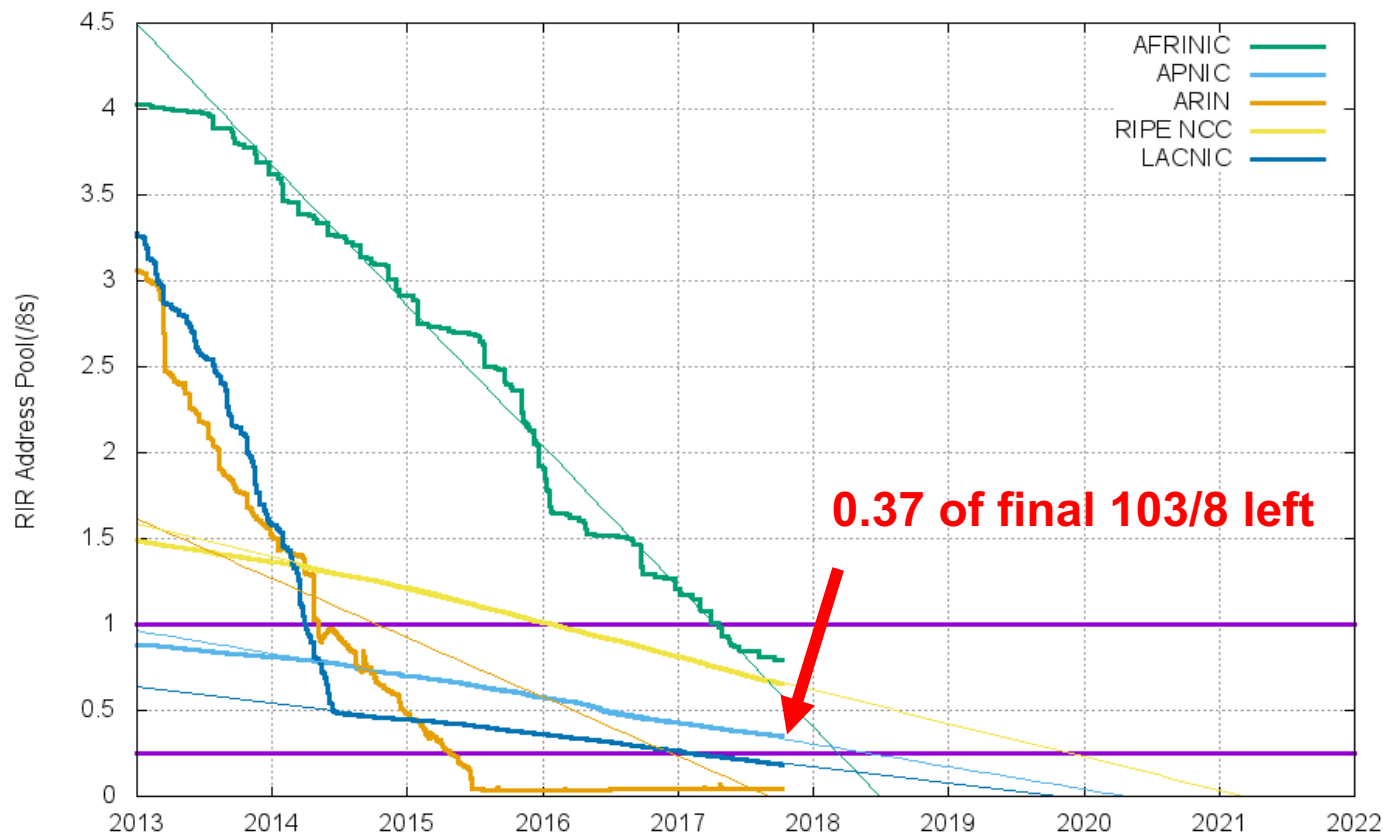
Total IPv4 transferred
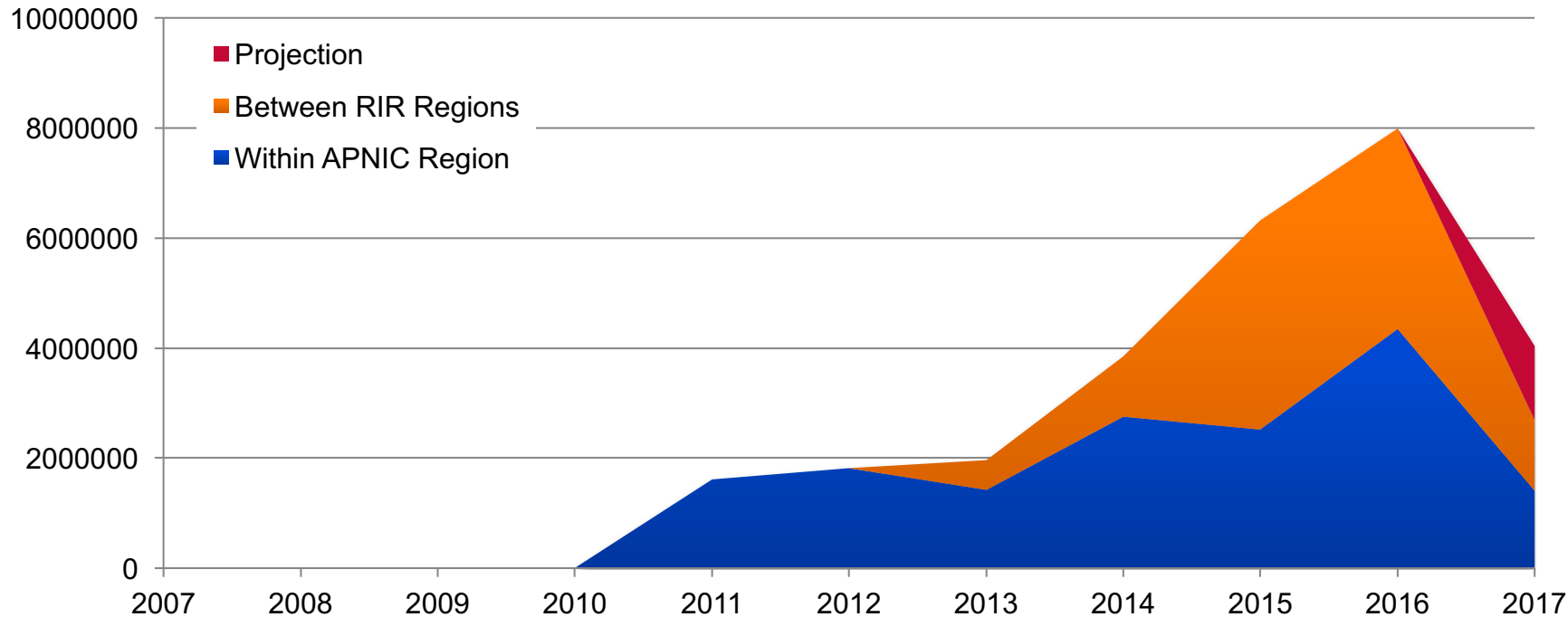
As at 1 Sep

APNIC 44 policy update

Reached consensus :

- prop-116: - **Prohibit to transfer IPv4 addresses in the final /8 block for 5 years**

- prop-121: - Updating "Initial IPv6 allocation" policy

- prop-122: - Updating "Subsequent IPv6 allocation" policy

Did not reach consensus :

- prop-118: - No need policy in APNIC region

- prop-119: - Temporary transfers

- prop-120: - Final /8 pool exhaustion plan

https://conference.apnic.net/44/policy

IPv6 delegations
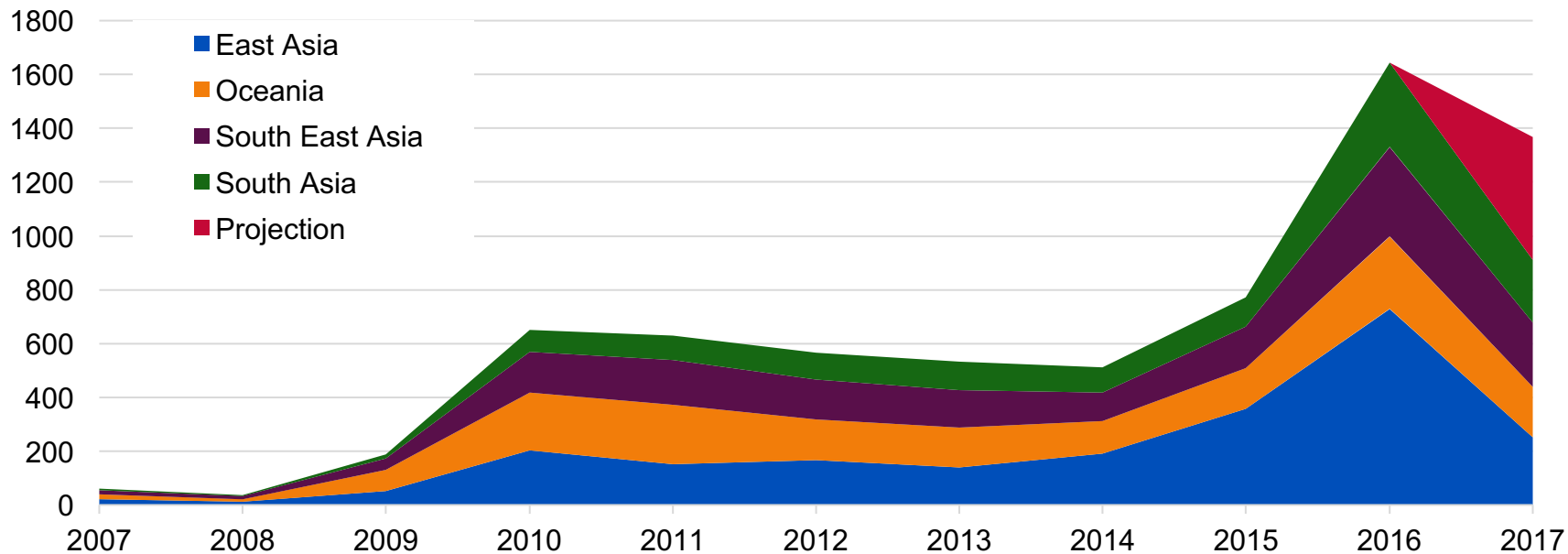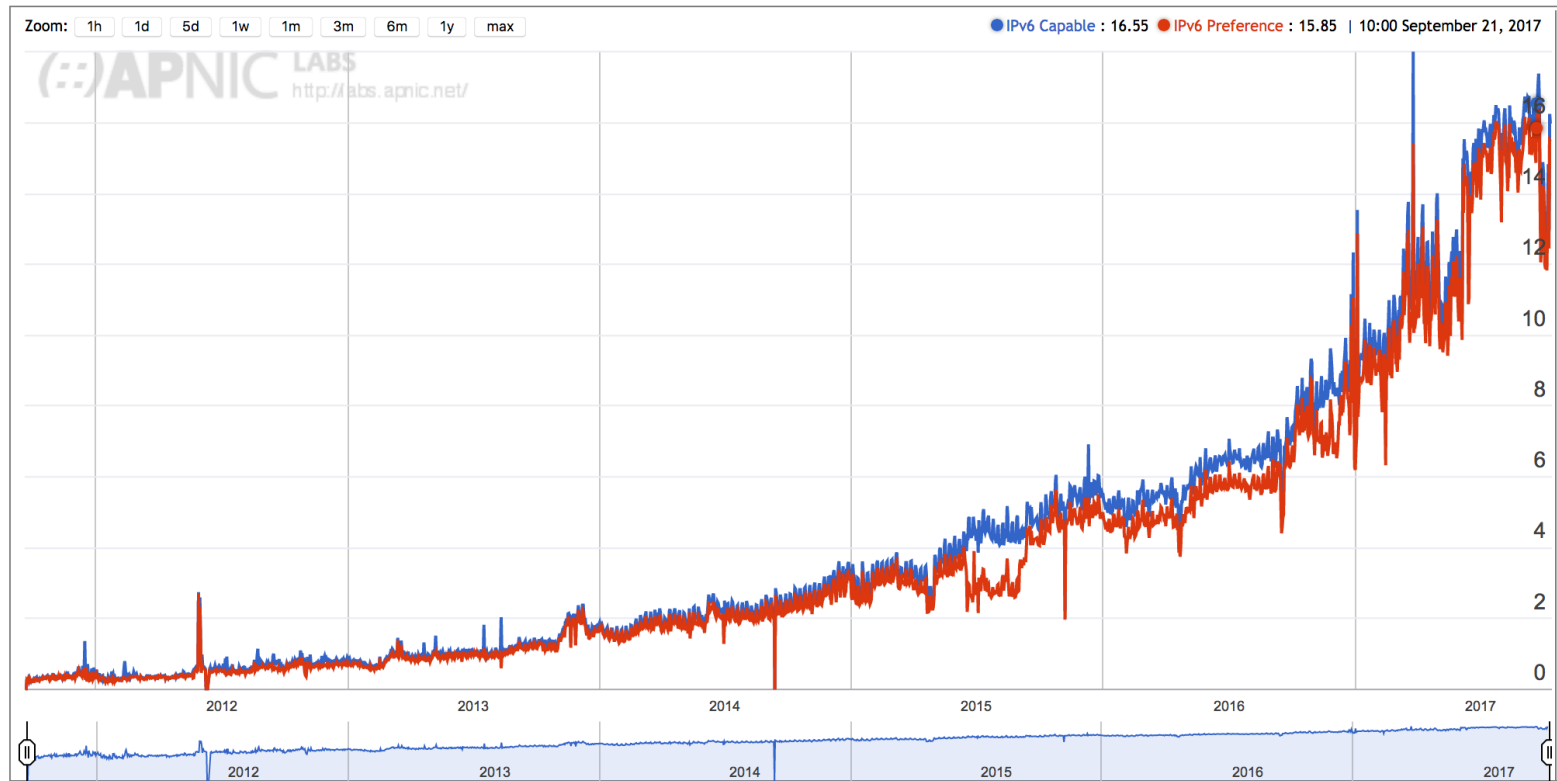
IPv6 capability

IPv6 capability by economy – South Asia
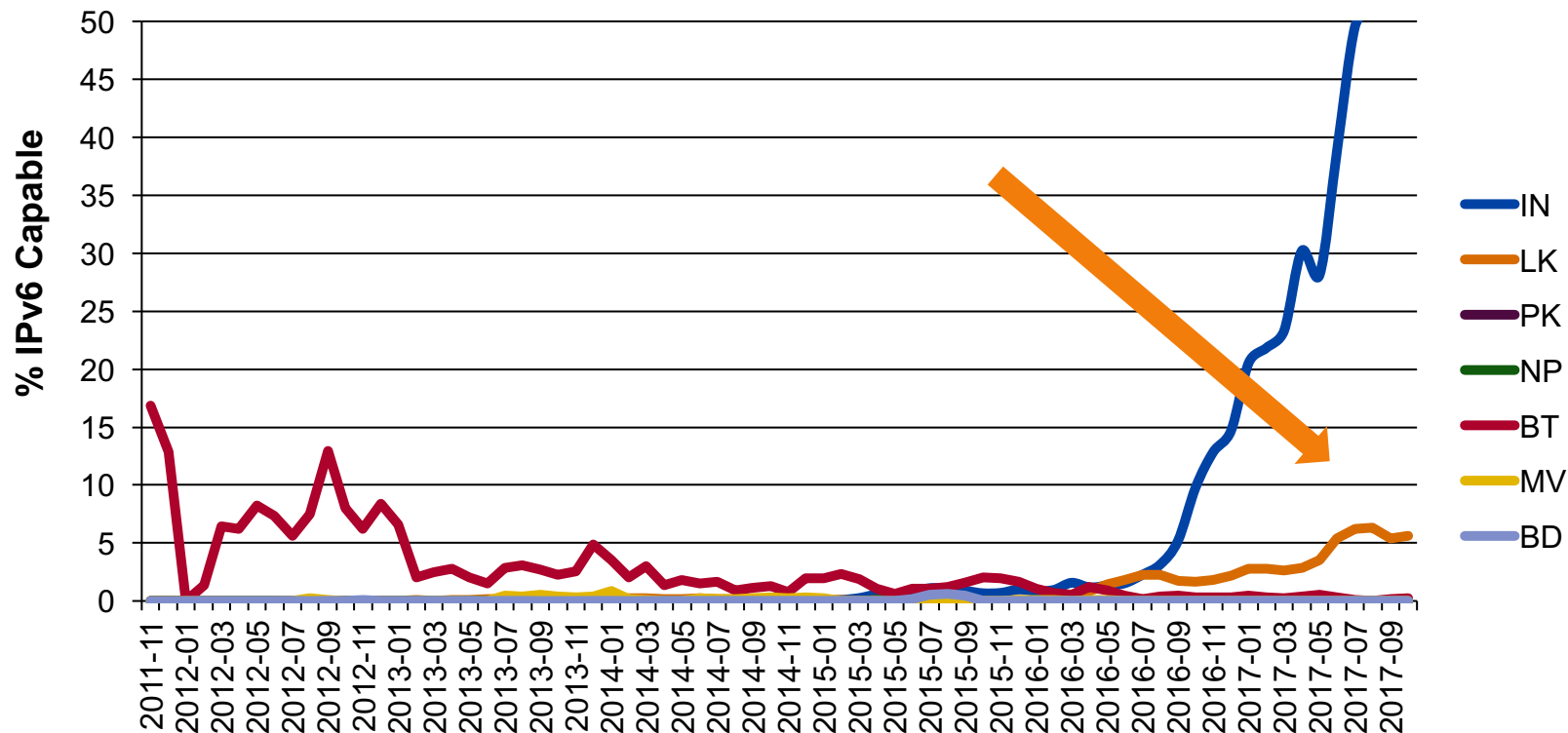
Sri Lanka - resource statistics

APNIC Member accounts	17
Accounts with IPv4 from final /8 (103/8)	13
Accounts with 'recovered pool' IPv4 space	7
Accounts with IPv6	**15**
Accounts with ROAs (RPKI active)	10

Top 10 IPv6 capable

ASN	AS name	IPv6 capable	IPv6 preferred	# Samples
AS38229	LEARN-LK Lanka Education Research Network, NREN	21.62%	12.42%	40949
AS18001	DIALOG-AS Dialog Axiata PLC.	14.53%	14.21%	881867
AS132124	ICTA-LK Information and Communication Technology Agency of Sri Lanka	0.48%	0.38%	1050
AS5087	LANKA-COM Lanka Communication Services	0.09%	0.06%	19082
AS9329	SLTINT-AS-AP Sri Lanka Telecom Internet	0.05%	0.03%	808253
AS45356	MOBITEL-LK IS Group, No108, W A D Ramanayake Mawatha	0.04%	0.01%	181614
AS17470	ETISALATLK-AS Etisalat Lanka (Pvt) Ltd.	0.02%	0.00%	48816
AS45224	BELLNET-AS-AP Lanka Bell Limited	0.02%	0.02%	54381
AS132045	AIRTEL-AS-ISP Bharti Airtel Lanka Pvt. Limited	0.01%	0.00%	106459
AS132447	HUTCHISON-LK 234, Galle Road, Colombo 4	0.00%	0.00%	54861

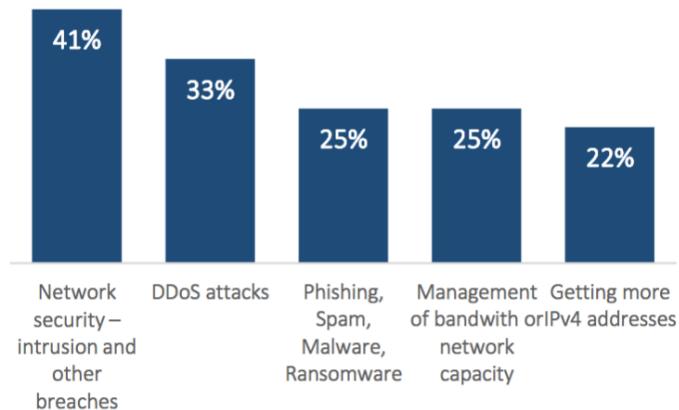# ASN delegations
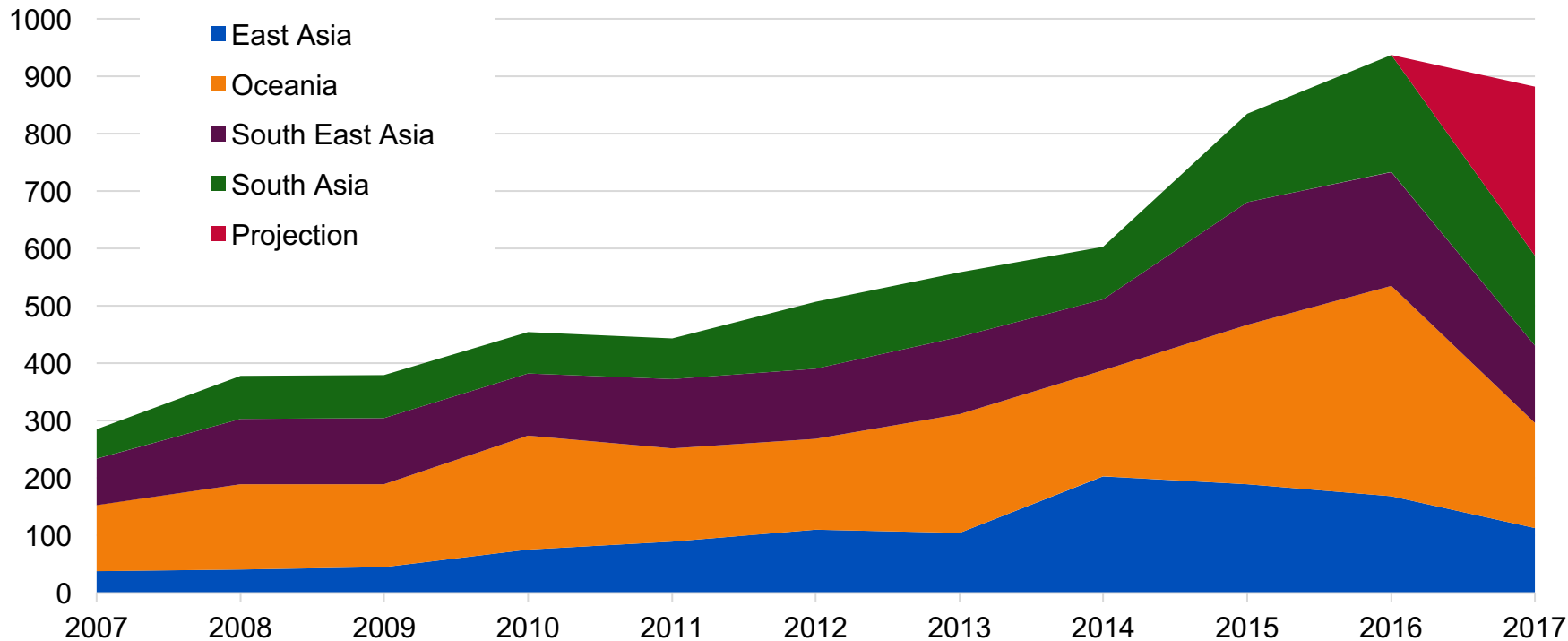
As at 1 Sep

APNIC

APNIC Survey 2016

- Sri Lanka was one of the 12 economies included in the focus group interviews

- Security related concerns were in the top three challenges for operators

survey.apnic.net

% of respondents who ranked statement within the top three challenges
(Presented to APNIC Members only)

Aggregated % by Issue	Rank1	Rank2	Rank3
Security Issues	41%	41%	36%
IPv6 Related Issues	30%	34%	33%
IPv4 Related Issues	13%	12%	10%
Other Issues	15%	13%	19%
Total	**99%**	**100%**	**98%**

Security

Adli Wahid

- 20 NOG and CERT events
- APSIG 2017, APrIGF 2017, ASEAN, KISA, CNCERT, INTERPOL SG
- Tonga CERT.to: Support and training
- CERT support in the Pacific
- FIRST
  - MoU signed
  - workshops at APRICOT 2017 and APNIC 44
  - Adli Wahid re-elected to Board
- 34 blog posts
- New team member: **Jamie Gillespie**

apnic.net/security

RPKI (ROA) adoption

Chart: Percentage of IPv4 address space covered

Country	Percentage
Afganistan	1.07
Bangladesh	33.94
Bhutan	85.05
India	0.71
Nepal	40.36
Pakistan	5.46
Sri Lanka	89.15

■ Percentage of IPv4 address space covered
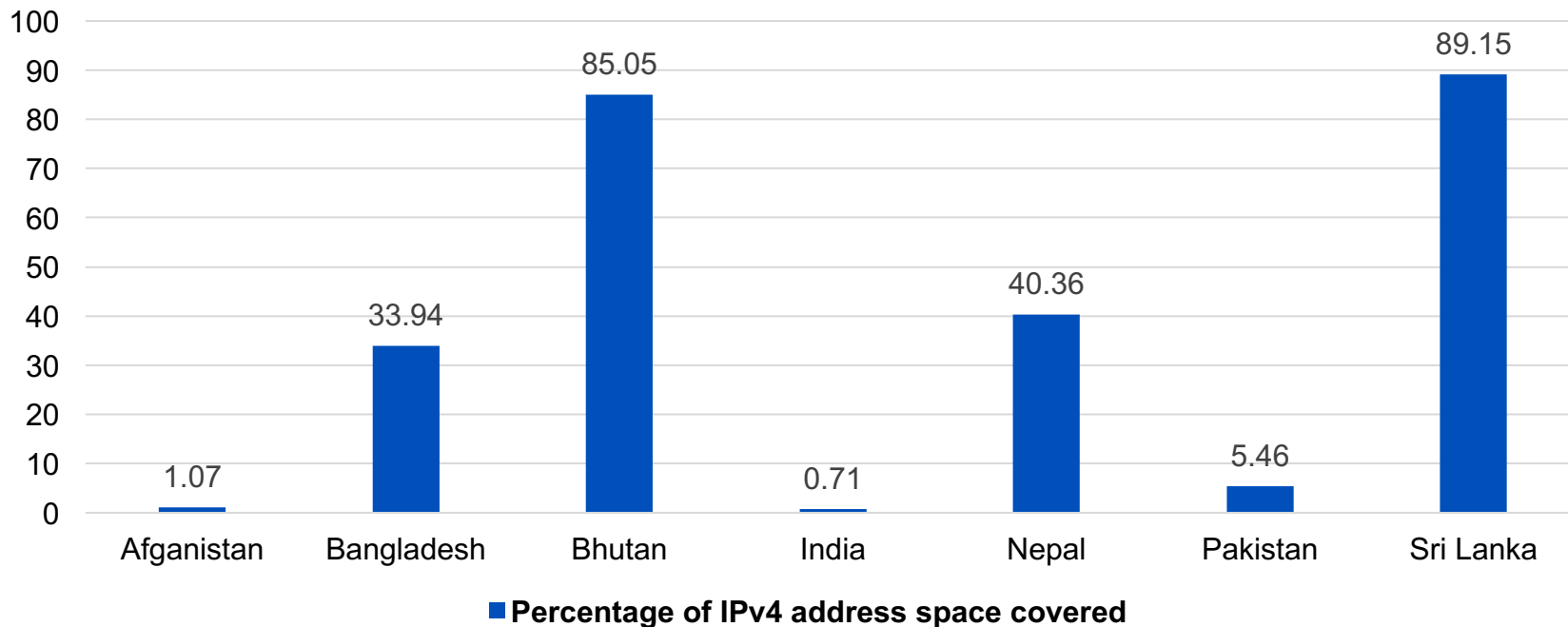
APNIC

Activities

[Supporting regional Internet development]

training.apnic.net

SANOG 28, Member Gathering

- Online training courses

- Face-to face workshops and tutorials

- Technical outreach

apnic.academy

Internet Resource Management — Course

IPv4/IPv6 Routing (COMING SOON) — Course

Introduction to CyberSecurity — Course
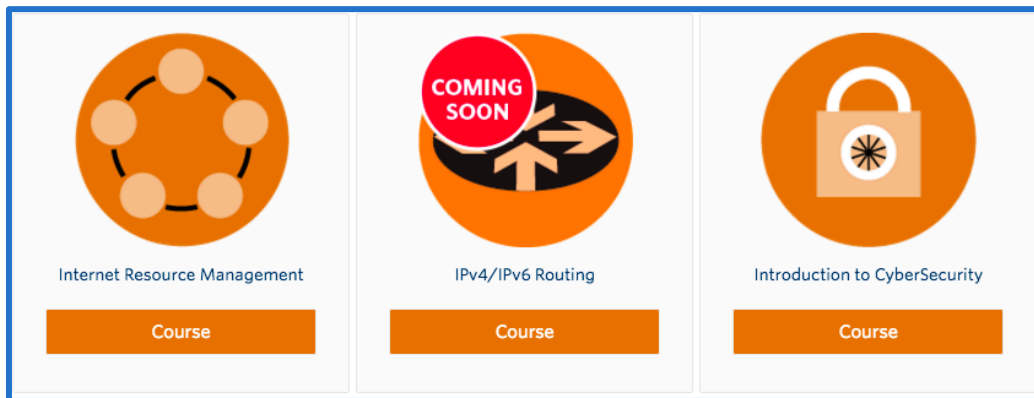
- Launched April 2017 (Moodle)
  - Free public access
- 'Introduction to CyberSecurity' 'Internet Resource Management'
  - Registered: 1,306
  - Enrolled: 1,302
  - Certified: 350
- Coming:
  - IPv4/IPv6 Routing
  - More Security/CERTs

apnic.foundation

"…advance education, on a non-profit making basis, in technical, operational and policy matters relating to Internet infrastructure, through undertaking or funding activities in Hong Kong and elsewhere in the Asia and the Pacific region"

blog.apnic.net

Views
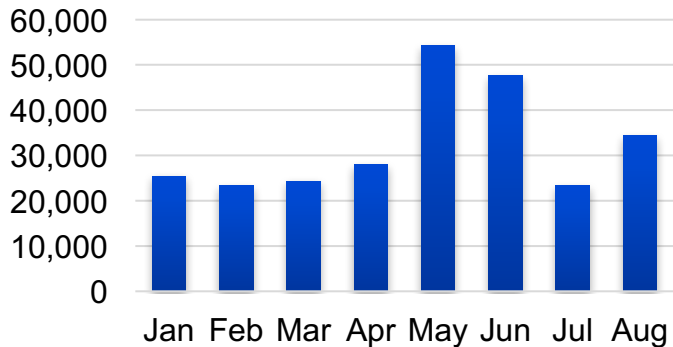
Average: 33k per month

Guest Bloggers

92

Total: 199 authors to date

Economies

Economies covered: 32

Topics

Top 5: IPv6, Security, Training, NOGs, IXP

As at 1 Sep

labs.apnic.net

IPv6 Capability
In Asia Pacific

Code	Region	IPv6 Capable	IPv6 Preferred	Samples	Weight	Weighted Samples
XA	World	15.49%	14.89%	491,624,223	1	491,624,223
XD	Asia	14.73%	14.16%	266,280,254	1	266,270,561

Code	SubRegion	IPv6 Capable	IPv6 Preferred	Samples	Weight	Weighted Samples
XT	Southern Asia, Asia	39.06%	38.23%	83,607,295	1	83,656,252

Next Conference

https://2018.apricot.net/register

APRICOT 2018 fellowships

- Applications close on Monday, 30 October 2017 at 17:00 (UTC +8)

- **Apply now!**

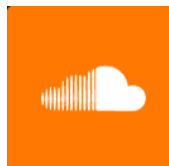https://2018.apricot.net/fellowship/overview
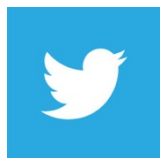
Later…

APNIC 46
Noumea, New Caledonia
6 to 13 September 2018

APRICOT 2019
Daejeon, Republic of Korea
18 to 28 February 2019

Stay in Touch!

[
blog.apnic.net

apnic.net/social
]

Thanks!

Questions?

pubudu@apnic.net