

# IXPs and IPv6 in the Asia Pacific: An Update

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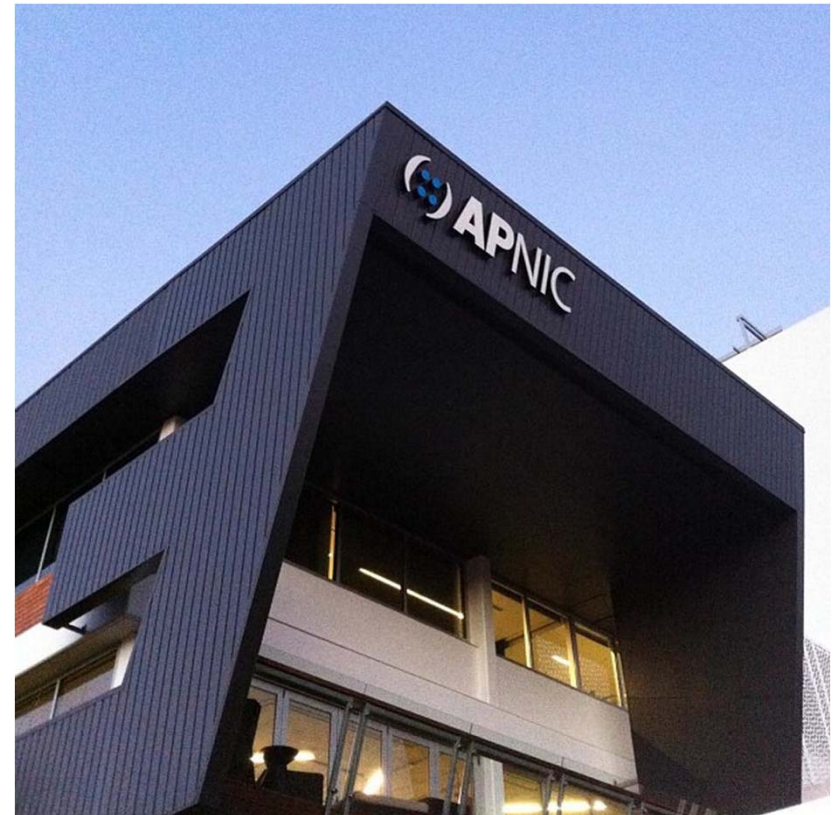
First session of the Asia-Pacific Information Superhighway (AP-IS) Steering Committee

Dhaka, Bangladesh  
1-2 November 2017



# What is APNIC?

- The Regional Internet address Registry for the Asia Pacific
- Manages Internet number resources
  - IPv4, IPv6 and ASN resources
- Supports training, education and internet development
- A neutral, independent, not-for-profit, membership-based organization (1993)



# APNIC's Vision

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

# Activities



Serving APNIC Members



Supporting Regional Internet  
Development

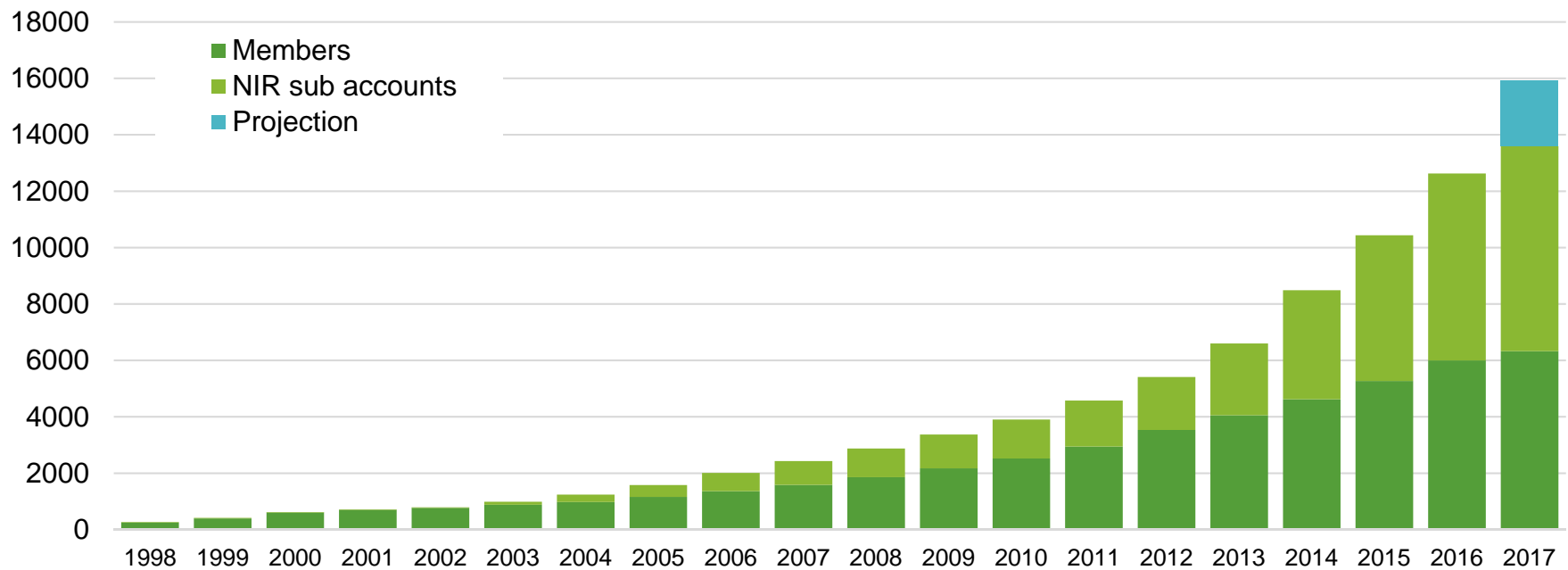


Cooperating with the Global  
Internet Community





# Membership





# Training and TA (IXPs and IPv6)



Training, Laos

	2017
Face-to-face training	41
Locations	29
Trainees	1,330
Community Trainers	12
Courses	14
Locations	6
eLearning sessions	88
Trainees	450
Training YouTube videos	113
Views	506,411
Technical Assistance	8

# IXP support

- **Papua New Guinea in January:** Internet Resource Management, IPv4/IPv6 Routing and IXP
- **Maldives in February:** Internet Resource Management, IPv4/IPv6 Routing and IXP workshop
- **India (Kolkata) in March:** IXP workshop
- **Malaysia in April:** IPv4/IPv6 Routing and IXP Operation workshop

# IXP support

## Planning in:

- SE Asia (Myanmar)
- Pacific (Fiji)
- Several on-going discussions

## Asia Pacific Internet Exchange Association (APIX)

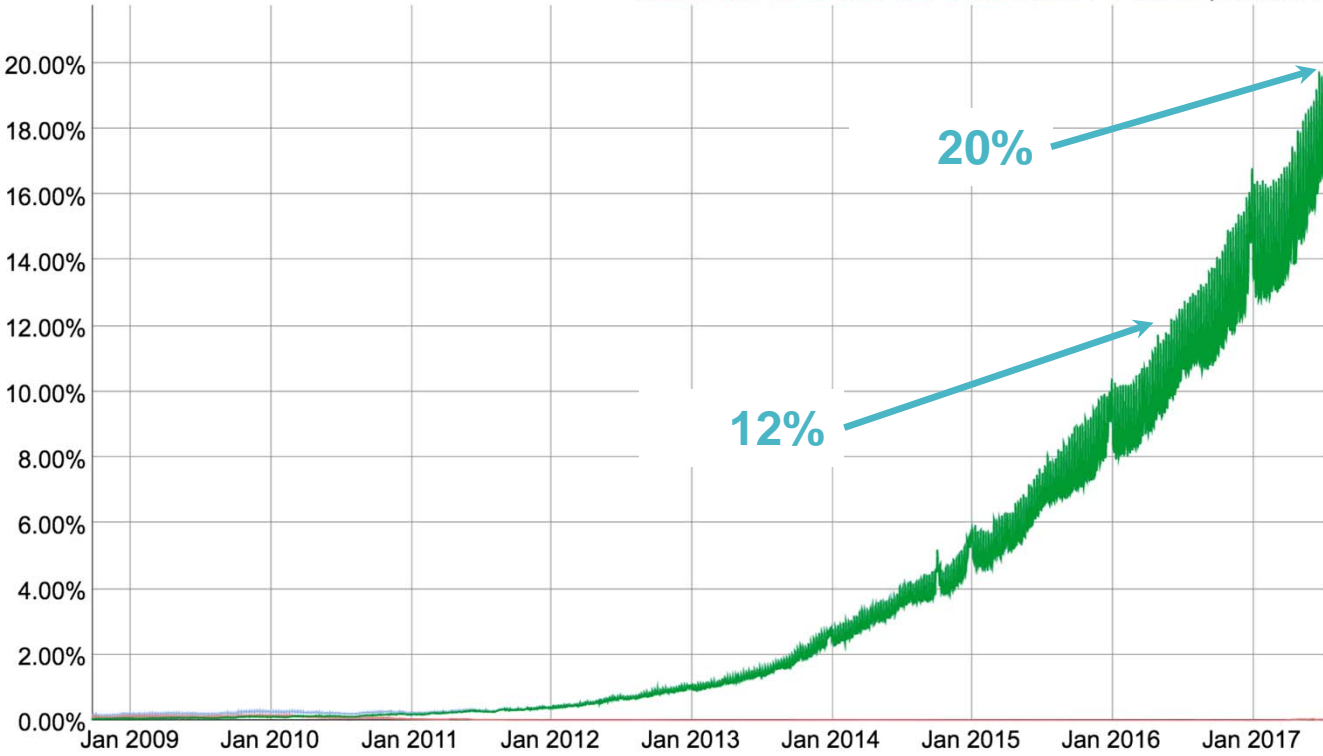
- A forum for IXPs to exchange experiences.
- 25 IXPs from 17 economies





# IPv6 at Google

Native: 19.74% 6to4/Teredo: 0.04% Total IPv6: 19.78% | Jul 8, 2017





# World IPv6 Launch

Show 10 entries Search:

Rank	Participating Network	ASN(s)	IPv6 deployment
1	<a href="#">Comcast</a>	7015, 7016, 7725, 7922, 11025, 13367, 13385, 20214, 21508, 22258, 22909, 33287, 33489, 33490, 33491, 33650, 33651, 33652, 33653, 33654, 33655, 33656, 33657, 33659, 33660, 33661, 33662, 33664, 33665, 33666, 33667, 33668, 36732, 36733	52.54%
2	<a href="#">ATT</a>	6389, 7018, 7132	63.67%
3	<a href="#">KDDI</a>	2516	26.39%
4	<a href="#">RELIANCE JIO INFOCOMM LTD</a>	55836, 64049	82.96%
5	<a href="#">SoftBank</a>	17676	18.59%
6	<a href="#">Charter Communications</a>	7843, 10796, 11351, 11426, 11427, 12271, 20001, 20115, 33363	24.21%
7	<a href="#">Verizon Wireless</a>	6167, 22394	85.78%
8	<a href="#">T-Mobile USA</a>	21928	84.81%
9	<a href="#">Deutsche Telekom AG</a>	3320	43.59%
10	<a href="#">British Sky Broadcasting</a>	5607	79.50%

Showing 1 to 10 of 250 entries

First Previous 1 2 3 4 5 Next Last

KDDI

Reliance

Softbank

<http://www.worldipv6launch.org/measurements>



# IPv6 global top 20

CC	Country	IPv6 Capable	IPv6 Preferred	Samples
<a href="#">BE</a>	Belgium, Western Europe, Europe	55.42%	54.00%	542,128
<a href="#">IN</a>	<b>India, Southern Asia, Asia</b>	<b>42.40%</b>	<b>41.06%</b>	<b>23,187,642</b>
<a href="#">DE</a>	Germany, Western Europe, Europe	42.40%	40.90%	1,920,230
<a href="#">CH</a>	Switzerland, Western Europe, Europe	40.15%	36.96%	249,463
<a href="#">US</a>	United States of America, Northern America, Americas	37.37%	34.84%	59,802,639
<a href="#">LU</a>	Luxembourg, Western Europe, Europe	36.43%	34.86%	62,170
<a href="#">GR</a>	Greece, Southern Europe, Europe	35.02%	34.19%	699,313
<a href="#">IE</a>	Ireland, Northern Europe, Europe	26.42%	26.10%	1,013,674
<a href="#">EE</a>	Estonia, Northern Europe, Europe	25.93%	25.62%	99,893
<a href="#">PT</a>	Portugal, Southern Europe, Europe	25.57%	24.92%	1,109,529
<a href="#">GB</a>	United Kingdom, Northern Europe, Europe	23.63%	22.47%	1,422,211
<a href="#">JP</a>	<b>Japan, Eastern Asia, Asia</b>	<b>23.46%</b>	<b>21.18%</b>	<b>1,588,878</b>
<a href="#">FR</a>	France, Western Europe, Europe	21.75%	21.33%	4,900,256
<a href="#">TT</a>	Trinidad and Tobago, Caribbean, Americas	21.15%	20.60%	296,625
<a href="#">MY</a>	<b>Malaysia, South-Eastern Asia, Asia</b>	<b>18.47%</b>	<b>16.04%</b>	<b>3,059,871</b>
<a href="#">CA</a>	Canada, Northern America, Americas	18.05%	16.30%	1,905,638
<a href="#">EC</a>	Ecuador, South America, Americas	17.50%	16.60%	535,360
<a href="#">BR</a>	Brazil, South America, Americas	17.47%	16.85%	1,108,215
<a href="#">PE</a>	Peru, South America, Americas	16.82%	15.72%	995,760



# Why deploy now?

- Offload traffic from CGN/NAT
  - Avoid wasted capital expense
  - Avoid 1Gbyte/user/month data retention
- Improve performance
  - Avoid double NAT in wireless “last mile”
- Simplify network management
  - Simpler network security, diagnosis, management
- Technology is proven and available
  - No longer experimental



# Time to move!

- IPv6 is the “new normal” in many economies
- In AP: India, Vietnam, Japan, Australia, Singapore and New Zealand are now “dual stack” economies
- Immediate benefits can now be seen from deploying IPv6 (for content and consumers)
- Within 5 years, 75% of users may be IPv6 capable
- IoT and Smart Cities

# IPv6 support

- **Pakistan in January:** IPv4/IPv6 BGP Routing workshop
- **Hong Kong in February:** IPv4/IPv6 Advanced Routing workshop
- **Philippines in March:** IPv6 Deployment workshop and TA
- **Macau in April:** Internet Resource Management and IPv6 Deployment workshop

## IPv6 support cont. 2

- **Thailand in May:** Internet and IPv6 Infrastructure Security workshop
- **Nepal in June:** IPv4/IPv6 Routing workshop
- **Fiji in July:** IPv4/IPv6 Routing workshop
- **India in July:** IPv4/IPv6 Routing workshop
- **Indonesia in August:** IPv6 Deployment workshop

## IPv6 support cont. 3

- **Kiribati in August:** Internet Resource Management, IPv6, and Network Security workshop
- **Taiwan in September:** IPv4/IPv6 Advance Routing workshop
- **Tonga in December:** Internet and IPv6 Infrastructure Security workshop



# ITU IPv6 collaboration

- **In May:** ITU Asia Pacific Centre of Excellence training on “Internet and IPv6 Infrastructure Security”, organized by MDES (Thailand), ITU and APNIC with support from IEEE Comsoc and TOT Academy
- Direct country assistance



# See you there...



APRICOT 2018 / APNIC 45  
Kathmandu, Nepal  
19 February to 1 March 2018  
<https://2018.apricot.net>



APNIC 46  
Noumea, New Caledonia  
6 to 13 September 2018



# Stay in Touch!



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

**Thanks!**

