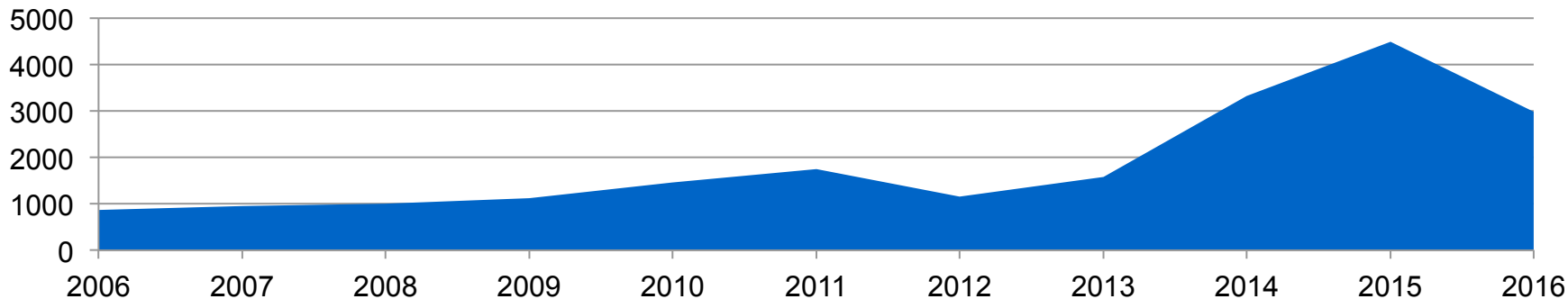# IPv4 Waiting list

Elly Tawhai

AusNOG 2016 02-09-2016

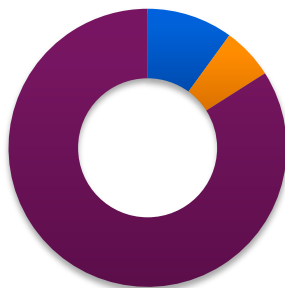# Outline

- Current IPv4 delegations trends

- Introduction of IPv4 waiting list

- Odd cases
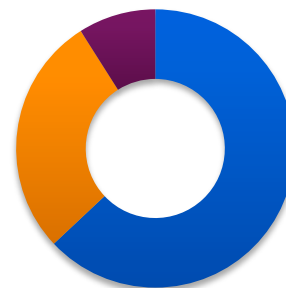
- Why IPv6

Annual IPv4 Delegations

By pool

By size

By Member

Current IPv4 Delegation Policy and Practice

- APNIC: Maximum /22 from final /8 (103/8). Requests for /22 from recovered pool put onto waiting list

- RIPE NCC: Maximum /22 from the final /8 pool for each member

- ARIN: All requests put onto the waiting list

- LACNIC: Maximum /22 for each Member every 6 months

- AFRINIC: Expect to hit final /8 early next year

Waiting list – What waiting list?

- 9 June 2016 first approved request from recovered pool couldn't be processed

- Triggered activation of IPv4 Recovered Pool waiting list

How the Waiting List works?

- Any approved request from recovered pool put onto the waiting list

- Based on request timestamp (oldest to newest)

- Option to remove request from waiting list anytime

- After 12 months request removed from waiting list unless member reconfirms need justification

Waiting List

## Current Waiting List for Unmet IPv4 Requests

Position	Size	Date / Time (UTC +10)
1	/22	2016-08-17 11:31:54
2	/22	2016-08-17 17:32:28
3	/22	2016-08-17 17:33:38
4	/22	2016-08-18 14:42:04
5	/23	2016-08-18 17:51:03
6	/22	2016-08-18 19:31:01
7	/22	2016-08-18 20:06:02
8	/22	2016-08-19 11:31:24
9	/22	2016-08-19 15:39:02
10	/22	2016-08-22 17:30:01

https://www.apnic.net/ipv4-waiting-list
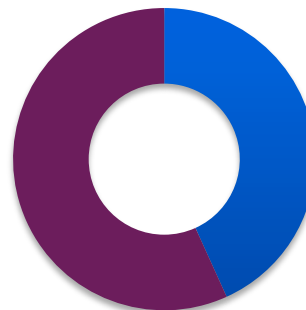
Affects and odd requests

- Payment fraud

- NIR member applying for additional space

- No ISP license

- Not able to demonstrate utilization of requested resources within APNIC region

- Not able to provide supporting equipment justification

Annual IPv4 Transfers
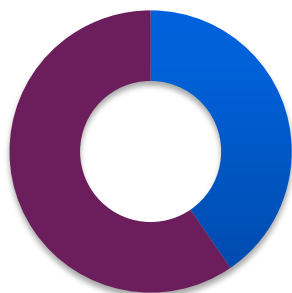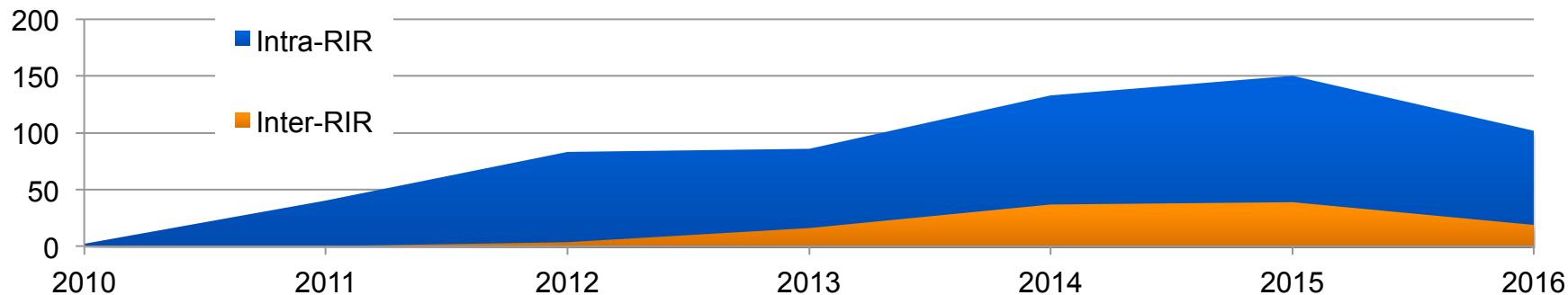
Using listing service

Pre-approval usage

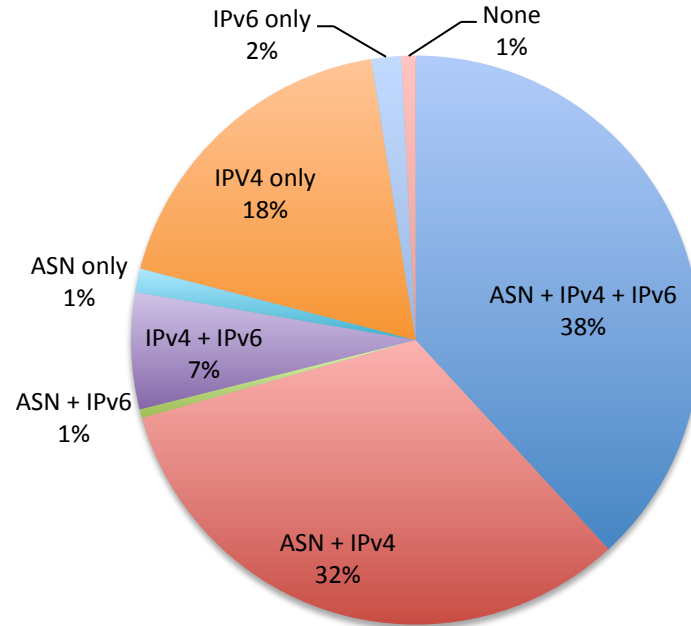# Which RIR allows IPv4 inter-RIR Transfers?

- APNIC, ARIN and RIPE NCC implemented inter RIR IPv4 transfer policy

- LACNIC and AFRINIC have no inter-RIR transfer policy
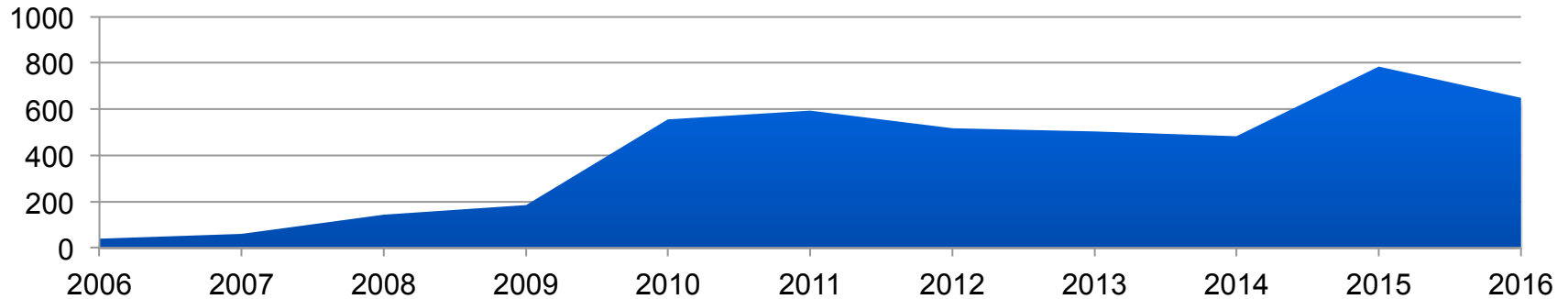
Why IPv6?

- IPv4 address supply is exhausted
  - New networks require addresses
  - Stop-gap measures are damaging (NAT)

- The Internet is growing fast
  - Broadband: mobile and wifi
  - "Internet of Things"

- IPv6 is the only viable option we have now
  - Much larger address space than IPv4

APNIC Members resource type holding

As at 30 August

- IPv6 only 2%
- None 1%
- IPV4 only 18%
- ASN only 1%
- IPv4 + IPv6 7%
- ASN + IPv6 1%
- ASN + IPv4 + IPv6 38%
- ASN + IPv4 32%

Annual IPv6 Delegations

By delegation type

By size

By request type

Legend (By delegation type): Allocation, Assignment
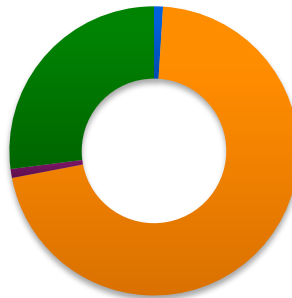
Legend (By size): >=/31, /32, /43-/47, /48
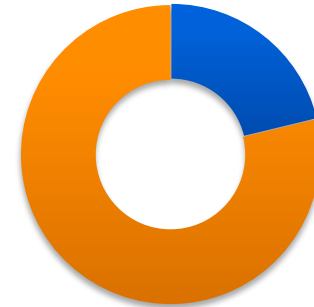
Legend (By request type): One-click, Normal

As at 30 June

All About Australia in INR

24,362,139	people
21,170,698	users
87%	penetration
2,048	ASes
$1.62T	GDP
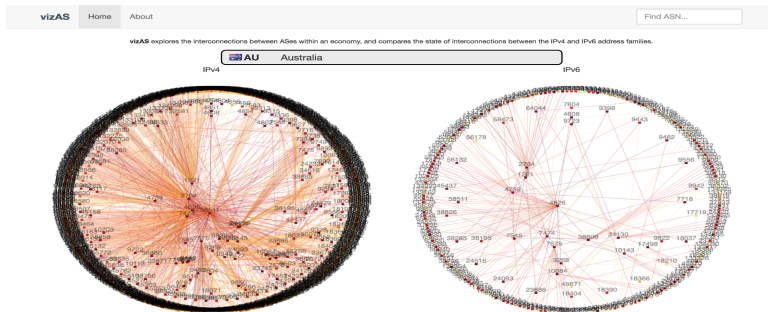
IPv4	1257 in BGP
48,617,728	addresses
2.00	per head
87%	visible

IPv6	262 in BGP
37,916,029	M addresses
1,556,350	per head
47%	visible
8%	capability

Significant IPv6 Capable ASNs
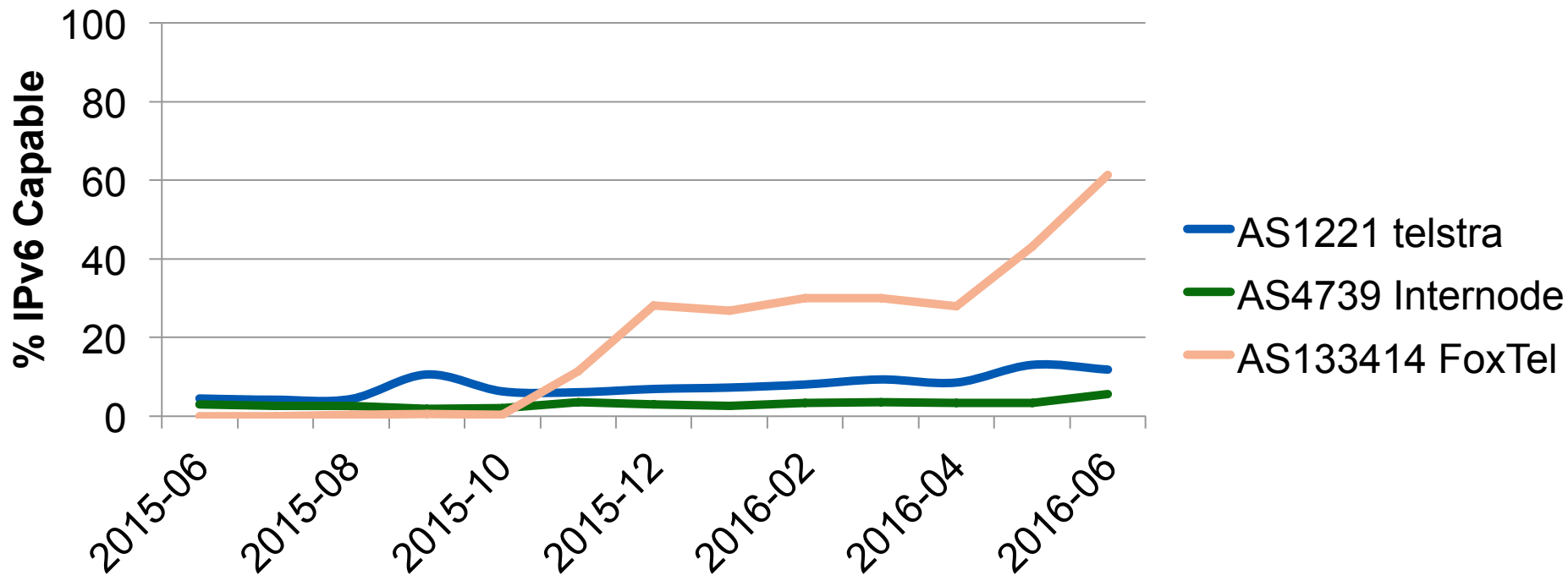
Top Australian ASN by IPv6 Capability

ASN	AS Name	IPv6 Capable	IPv6 Preferred	# Samples
AS58683	Rackspace.com Sydney	98.69%	97.82%	459
AS6262	CSIRO	92.80%	89.39%	264
AS15169	GOOGLE - Google Inc.	92.56%	89.43%	511
AS58686	Swinburne University of Technology	88.48%	83.25%	191
AS133414	Foxtel Management Pty Ltd	70.56%	67.43%	15715
AS56132	Monash University	25.27%	25.27%	1369
AS7477	SkyMesh Pty Ltd	20.32%	15.93%	2618
AS1221	ASN-TELSTRA Telstra Pty Ltd	15.31%	14.24%	1143259
AS20473	AS-CHOOPA - Choopa, LLC	15.09%	9.40%	1458

Top Australian ASN by Samplecount

ASN	AS Name	IPv6 Capable	IPv6 Preferred	# Samples
AS1221	ASN-TELSTRA Telstra Pty Ltd	15.31%	14.24%	1143259
AS4804	MPX-AS Microplex PTY LTD	0.01%	0.00%	453849
AS7545	TPG Telecom Limited	0.00%	0.00%	385515
AS4739	INTERNODE-AS Internode Pty Ltd	3.00%	2.74%	257034
AS38285	M2 Telecommunications Group Ltd	0.00%	0.00%	107860
AS133612	Vodafone Australia Pty Ltd	0.01%	0.00%	86567
AS9443	Primus Telecommunications	0.04%	0.03%	52577
AS10143	EXETEL-AS-AP Exetel Pty Ltd	0.03%	0.03%	18175
AS2764	AAPT AAPT Limited	0.01%	0.01%	16747

Your all invited!

Colombo, Sri Lanka
Workshop: 28 Sep to 2 Oct
Conference: 3 to 5 Oct

conference.apnic.net/42

Questions ?