APNIC IP Address Delegation Practice

Changes during IPv4 exhaustion and IPv6 transition

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Overview

- Background
  - The APNIC 3 Stages of IPv4 address depletion
- IP address delegation measurements 2008 - 2010
  - Delegation count and size
  - Approval time
  - Is there a rush for IPv4 after the IANA depletion?
- Policy changes
- Practice changes
- Conclusion

Background

- In APNIC 30 – Gold Coast, APNIC presented the 3 stages of IPv4 exhaustion:
    - Stage 1: Before IANA depletes its IPv4 inventory
    - Stage 2: After IANA depletion, before APNIC reaches its last /8 inventory
    - Stage 3: After APNIC reaches its last /8 inventory
- IPv4 delegation practices may change during each of these stages

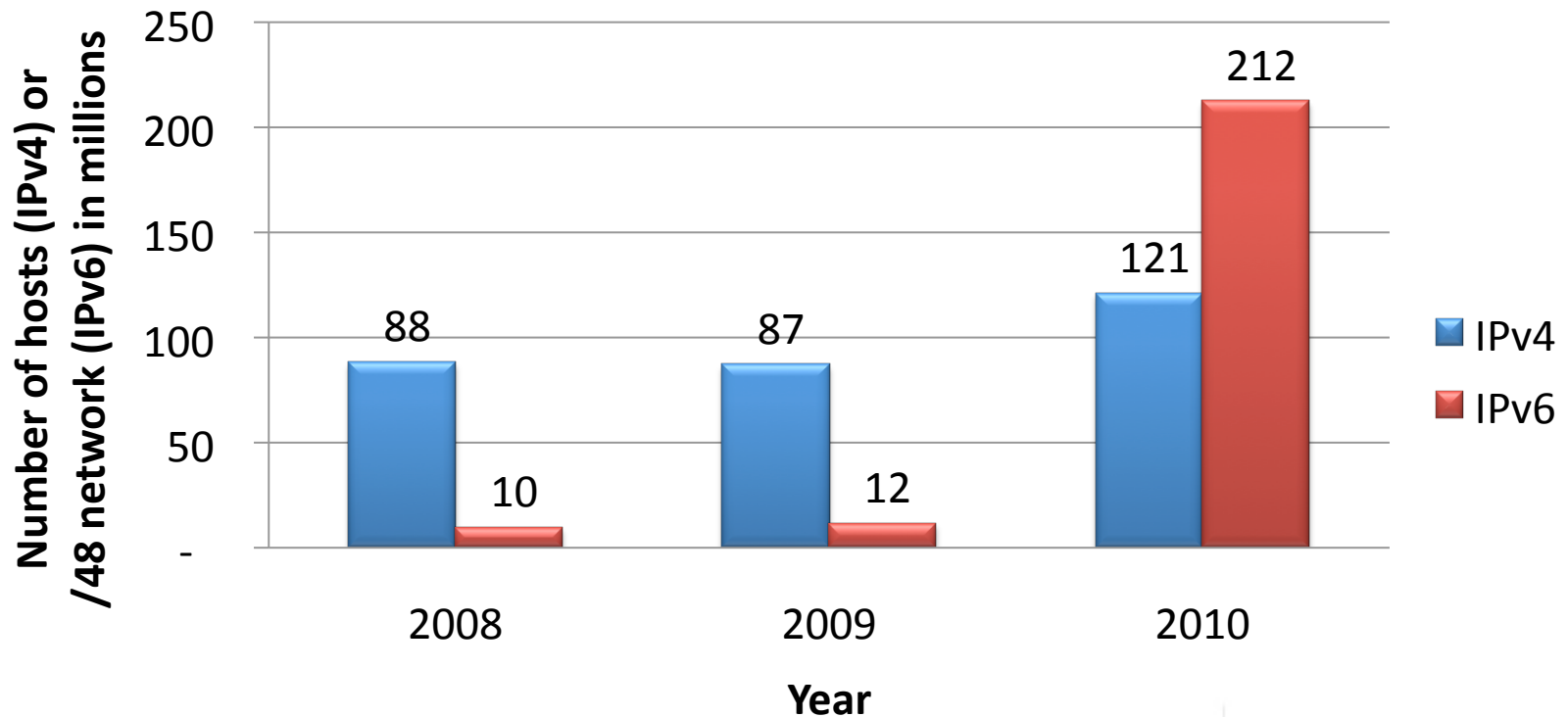Let's review some delegation statistics over the past 3 years which has led to IPv4 exhaustion

IP Address Delegation 2008 - 2010

IP address delegation count
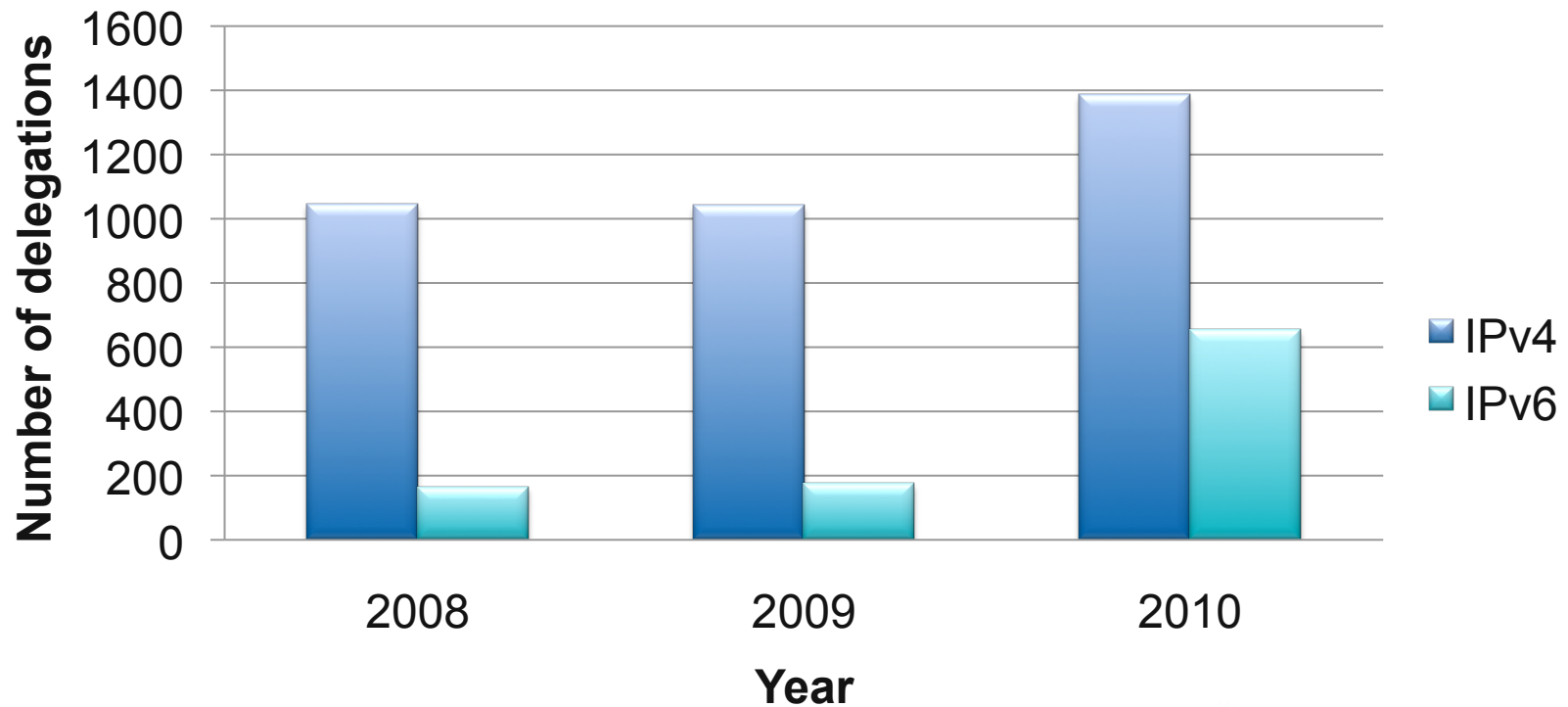
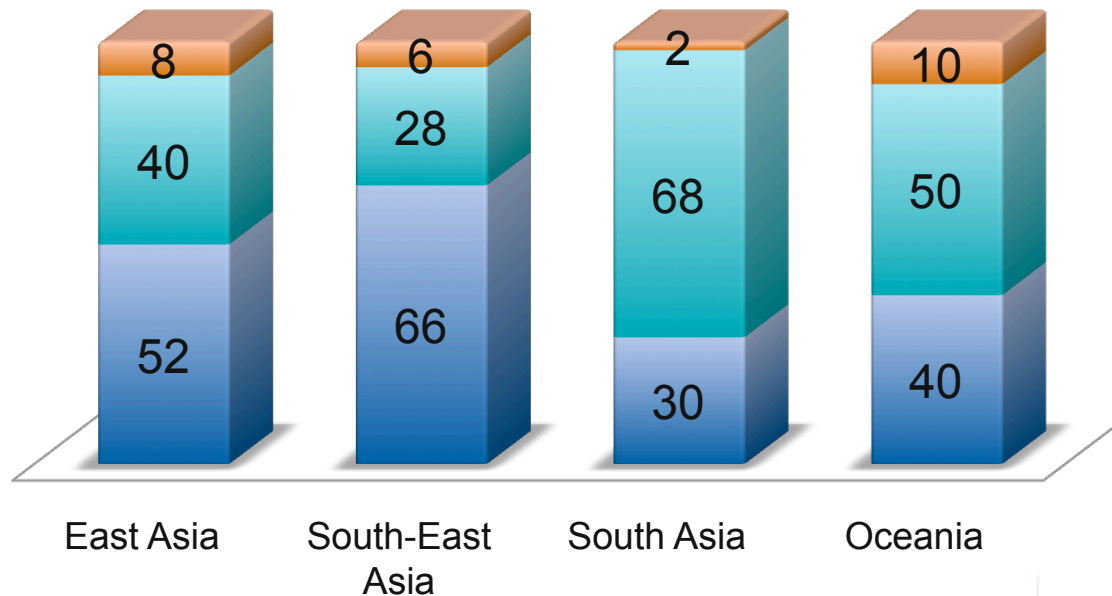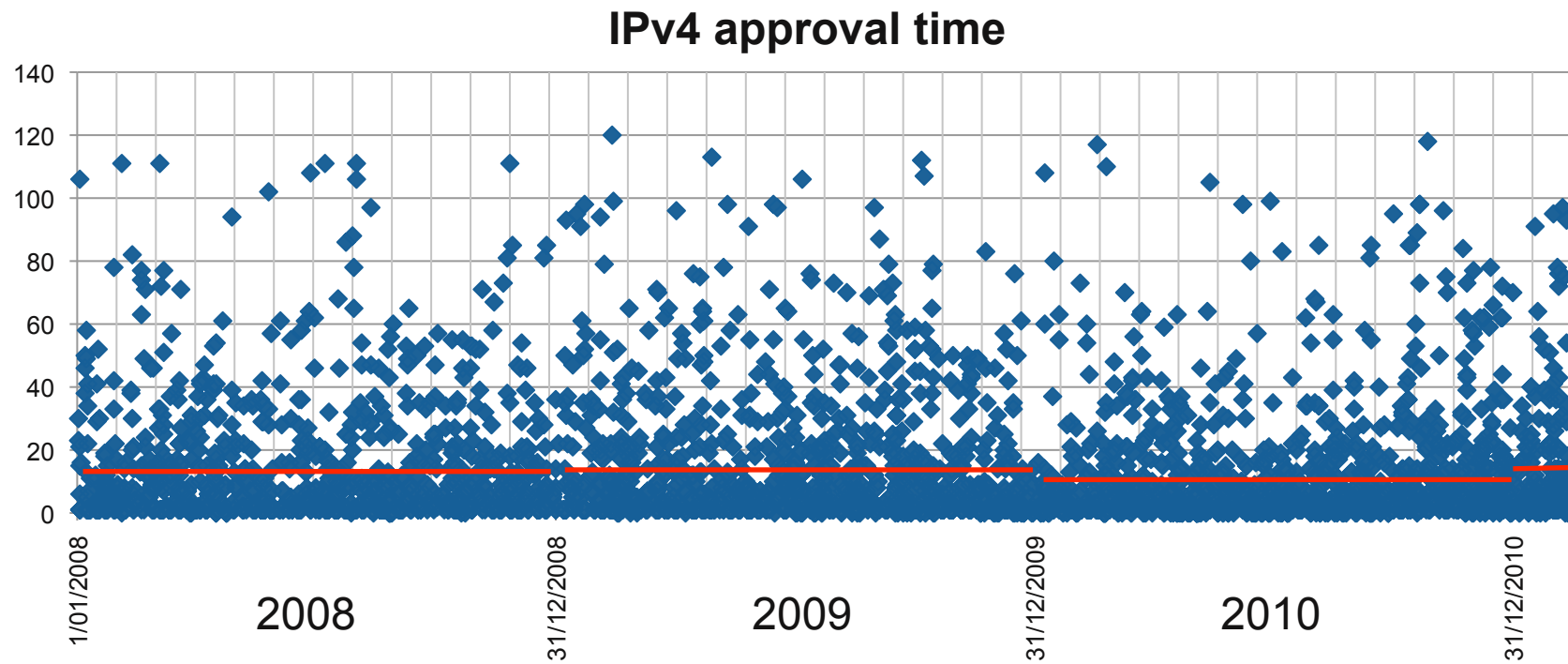# IP Address Delegation 2008 - 2010

IP address delegation size

What Services Do These IP Addresses Go To?

2010 service percentage by sub-region

■ Land line access ■ Wireless access ■ Data center

	East Asia	South-East Asia	South Asia	Oceania
Data center	8	6	2	10
Wireless access	40	28	68	50
Land line access	52	66	30	40

IPv4 Approval Time

IPv4 approval time

IPv4 Approval Time

IPv4 average approval time by type/size

	2008	2009	2010	2011
small assignments	21	19	10	17
small allocations	14	14	11	15
medium allocations	10	14	9	10
large allocations	19	14	15	19
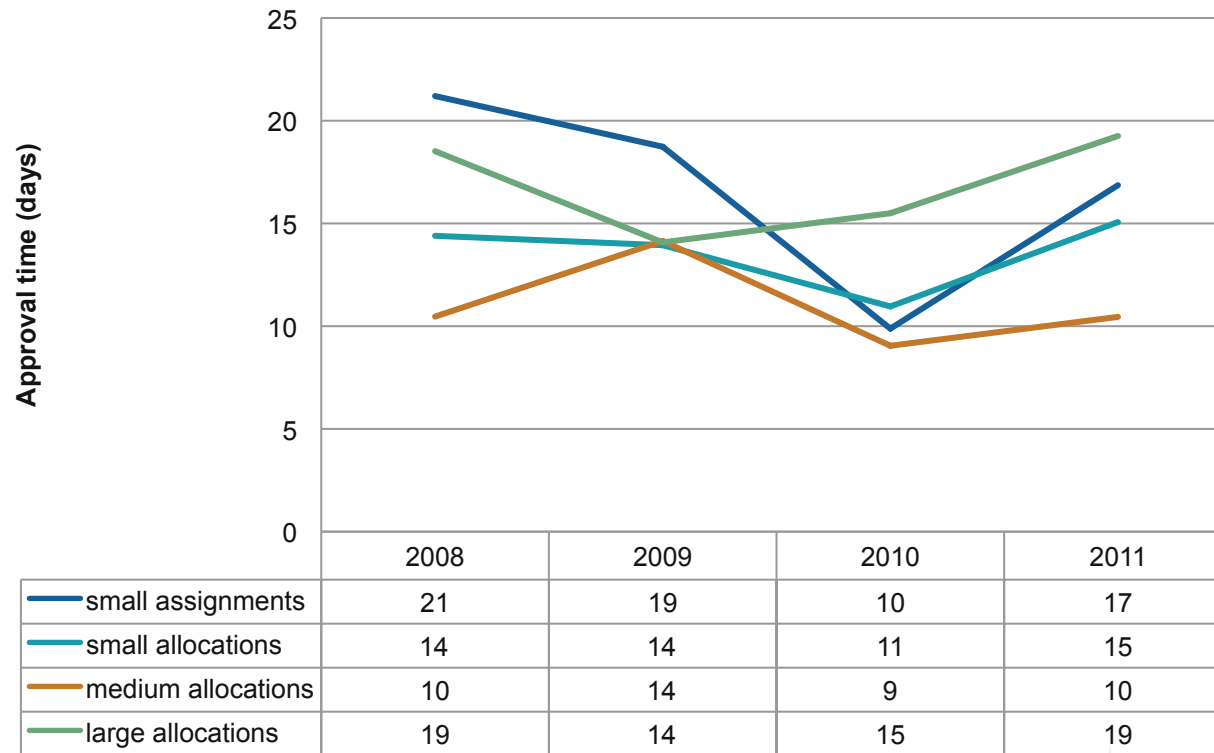
IPv6 Approval Time
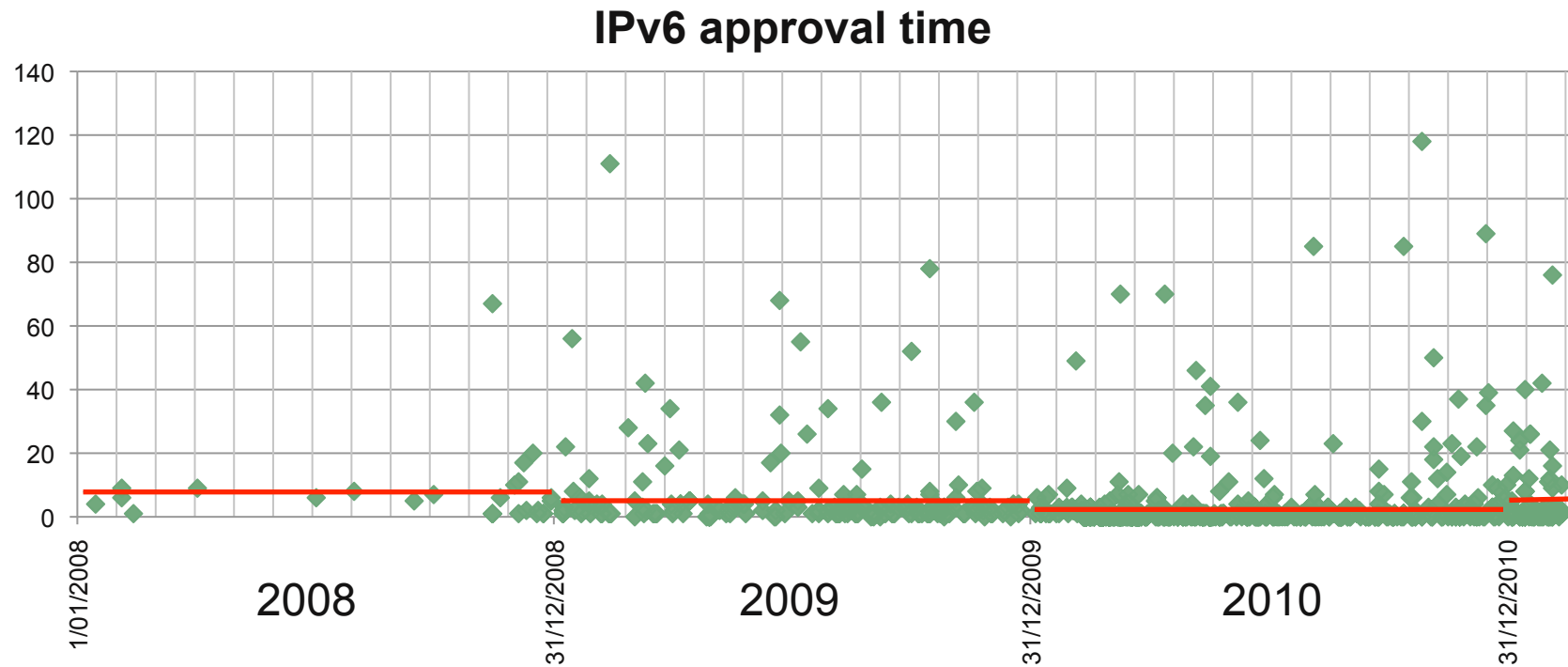
IPv6 approval time

IPv6 Approval Time

IPv6 average approval time by type/size

	2008	2009	2010	2011
small assignments	9	9	4	8
standard allocations	8	6	2	4
large allocations	0	6	12	9
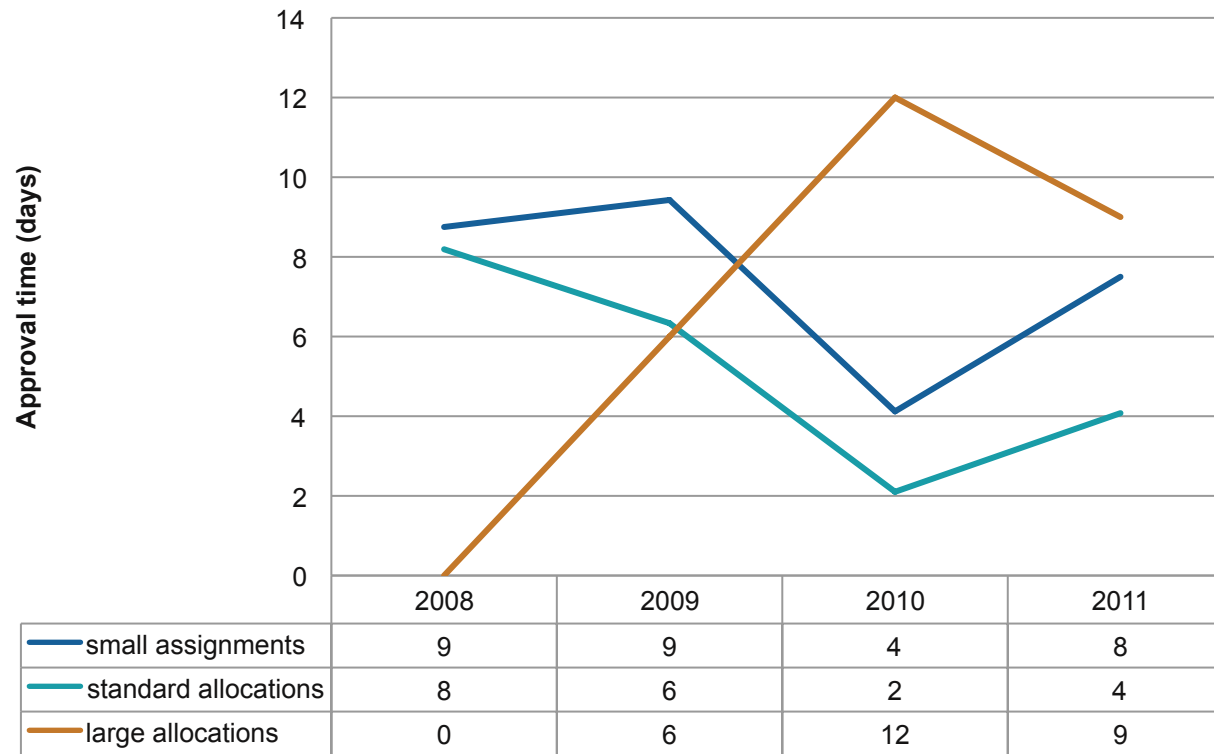
Is there a Rush After IANA IPv4 Depletion?

Number of IPv4 requests 2010 - 2011

There is no evidence of a rush after 3 Feb 2011.
The number of IPv4 requests have been growing steadily in the past years

IANA depletion
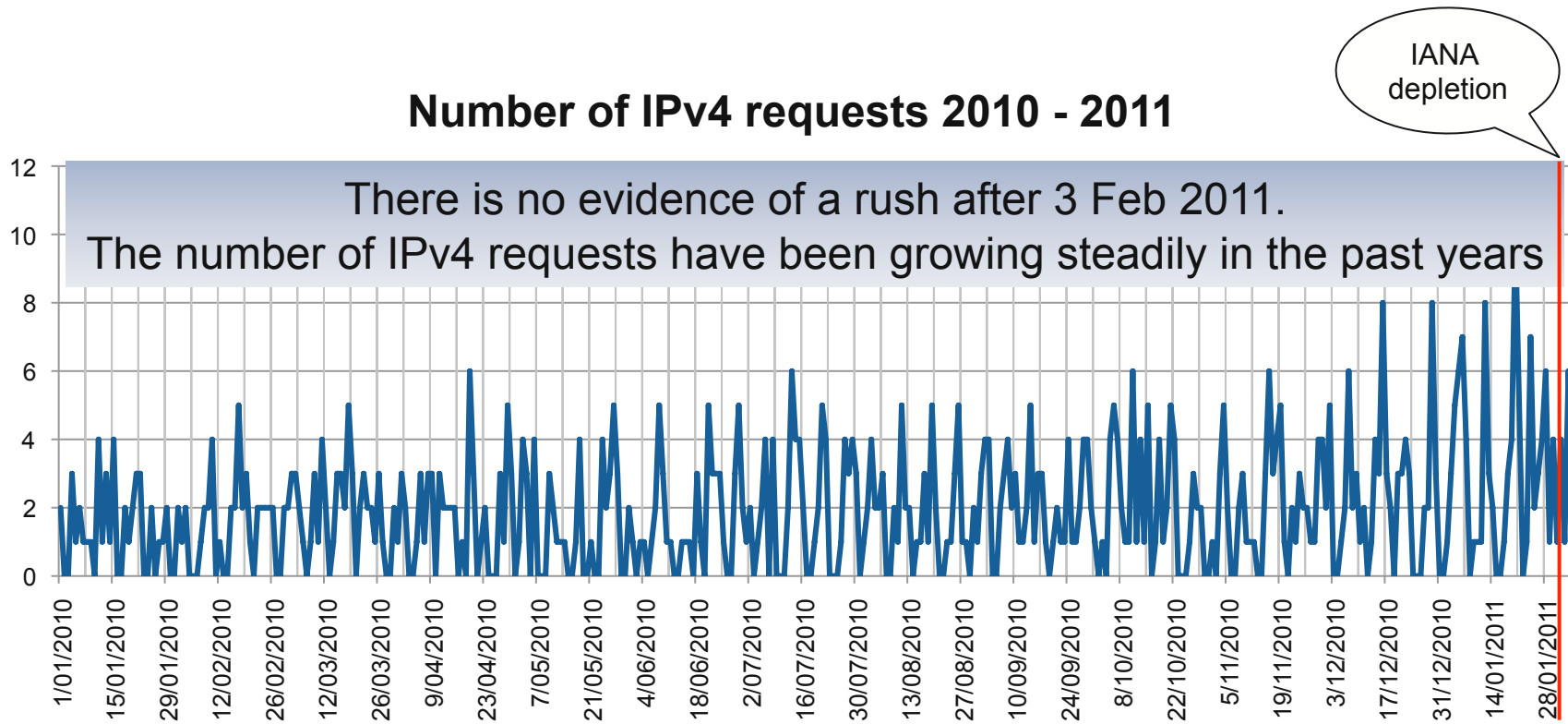
What Do the Stats Say?

- The Internet in the Asia Pacific region is still growing at an accelerated rate, particularly in <u>access networks</u>

- Even without the rush, APNIC IPv4 requests will continue because networks are still growing to meet the <u>population demand</u> while IPv6 is being deployed

- Stage 2 is predicted to end within 3 to 6 months after IANA depletion

Policy Changes

- IPv4 policy during Stages 1 and 2
  - Address policy remains the same until APNIC reaches the final /8
- IPv4 policy during Stage 3
  - To extend the life of APNIC's last /8, each organization can only receive a limited size from it
    - Current policy: limited to a single /22
    - Policy refinement being discussed

IPv4 Delegation Practice Changes

- Response to IPv4 requests and correspondence is now set to exactly five (5) business days.

- IPv4 request processing is serialized

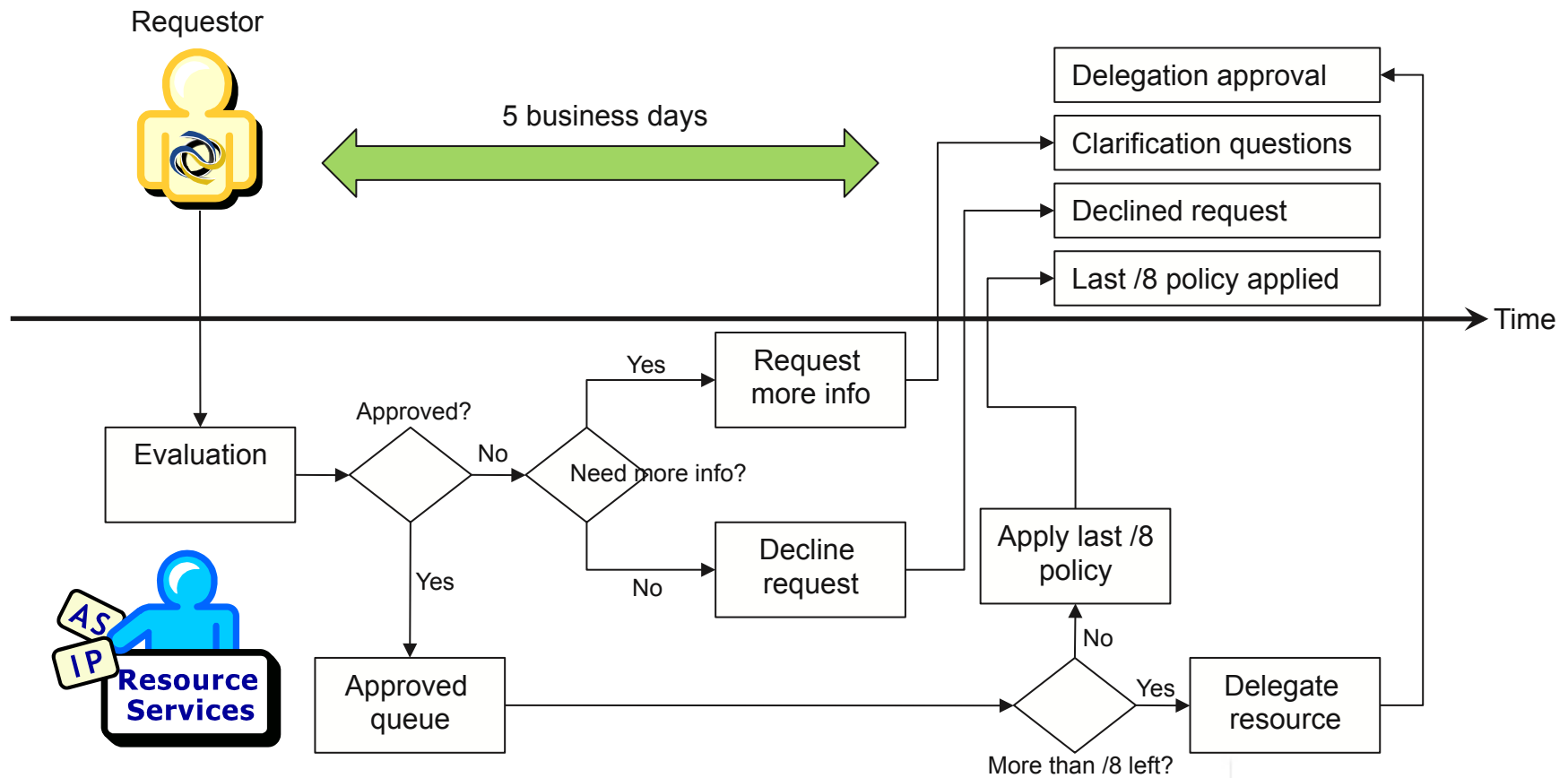- Requests are evaluated by the whole APNIC Hostmaster team

http://www.apnic.net/ipv4-stage2-faq

IPv4 Delegation Practice in Stage 2

Requestor

5 business days

Delegation approval

Clarification questions

Declined request

Last /8 policy applied

Time

Evaluation

Approved?

No

Need more info?

Yes

Request more info

No

Decline request

Yes

Approved queue

More than /8 left?

No

Apply last /8 policy

Yes

Delegate resource

Resource Services

AS

IP

Conclusion

- There is no evidence of a rush for IPv4 after IANA depletion
- The IPv4 delegation practice needs to be adjusted to serialize requests and preserve the processing order
  - The key change is the fixed 5 business day response time to IPv4 requests and correspondence
- Policy changes will happen when APNIC reaches its last /8 (Stage 3). IPv4 delegation practices will also change to adjust to the new policy requirements
- There is no change in IPv6 delegation practices
  - One-click IPv6 request