Managing your "Old" address space

APNIC 21

Perth, Australia

February 27, 2006

Today's schedule

9 am - 10.30 am	**Internet development:** Technical infrastructure, education, policy & APNIC
11 am - 12.30 pm	Creating policies that work for you
2 pm - 3.30 pm	Efficient address space management tools
4 pm - 5.30 pm	Managing your "old" address space

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Presenters

- Elly Tawhai
  - Internet Resource Analyst

Maximise address space potential by

- Defining what historical addresses are
- Where they come from
- Understanding recent changes and their impact on historical address space

Overview

- Definition of historical (old) space

- Background

- Issues

- Secure data maintenance

- Motivation behind policy

- Policy developments

- Case studies

Definition of historical (old) space

- Pre-RIR allocations/assignments
  - Resources distributed without formal agreement
  - Former AUNIC blocks
    - 203.0.0.0/10
  - Resource distributed by InterNIC
  - Part of address from
    - 202/8 and 203/8
  - Former NZNIC
    - 202.27/16, 202.37/16, 202.36/16, 202.49/16, 202.50/16

Background - Pre-APNIC

- IPv4 addresses allocated by InterNIC (US)
  - APNIC took over this role in 1998
- No formal agreement between registry and organisation
- No policies
- No proper registration
- No fees
  - (cost born by University of California)

Issues & problems (1)

- # Registrations inaccurate, outdated, unprotected

    - DB transfer, example: AUNIC to APNIC

  - Difficult to establish custodianship

  - Unauthorised usage of address space

    - Hijacking by spammers and hackers
    - "Stealing" unprotected records

- # Address fragmentation

  - Allocations made on classful boundaries

    - Not possible to aggregate announcements

Issues & problems (2)

- "Old addresses" outside the RIR policy framework
  - Low utilisation
  - Lack of registration and reverse delegations
- Cost and fairness
  - Expectation on APNIC of maintenance and service
    - In-addr.arpa
    - Whois
  - Cost carried by APNIC members

Policy developments - overview

Policy	Issues	Motivation
Deprecation of mail-from auth	Mail-from un-secure auth method	Improve security and data accuracy in whois
Removal of lame delegations	Inaccurate DNS data	Improve quality of DNS
Historical prefix exchange policy	Many discontiguous prefixes announced	Reduce routing table size
Protecting historical records	Expectation of maintence & service Hijacking of address space	Prevent unauthorised use Secure maintenance Establishing custodianship
Transfer of historical resources	Old contact information Unused address space	Resource transferred to correct custodian "Old" space brought into policy framework
Recovery of unused historical space	Unused address space Potential use for spamming and hacking	Recover unused address space

Policy developments
- data maintenance

- Secure data maintenance
  - MyAPNIC and Certificates
    - Highly secure maintenance tool
  - Customer privacy
    - Removal of incorrect customer data
  - Better Whois database security
    - Depreciation of mail-from
    - Removal of maint-null

Policy developments
- routing table

- Historical prefix exchange policy
  - Reduce routing table size
  - Swap 3 or more discontiguous prefixes for single prefix, no charge
    - http://www.apnic.net/docs/policy/historical-resource-policies.html#7
  - Form for returning addresses
    - http://ftp.apnic.net/apnic/docs/address-return-request

Policy developments - whois

- **Protecting historical resource records in the APNIC Whois Database**
  - Protect historical resource objects in APNIC Whois Database
    - Prevent unauthorised use of resources
      - mnt-by: APNIC-HM
    - http://www.apnic.net/docs/policy/historical-resource-policies.html#4
  - Existing custodians wish to update records establish formal agreement with APNIC and pay service fee
    - US$100 per account

Policy developments - DNS

- # Removing lame delegations
  - – Repair or remove persistently lame DNS delegations
  - – DNS delegations are lame if:
    - Some or all of the registered DNS nameservers are unreachable or badly configured
    - http://www.apnic.net/services/rev-del/lame-del/index.html

Policy developments
- Internet resources

- Transfer of historical Internet resources
  - Bring historical resource registrations into the current policy framework
    - http://www.apnic.net/docs/policy/historical-resource-policies.html#6
    - Allows transfers from 'historical' to 'current' status
    - Allow transfers of historical resources to APNIC members
      - the recipient of the transfer must be an APNIC members
      - no technical review or approval
      - custodianship must be verified
      - resources will then be considered "current"
  - Address space subject to current policy framework

Policy developments - Internet resources

- Recovery of unused historical address space
  - Recover unused historical IPv4 addresses in the AP region
    - http://www.apnic.net/docs/policy/historical-recovery-guide.html
    - Unused and un-contactable
    - Potential target for hijacking
      - Maybe used for hacking, spamming, etc.
  - Administrative steps proposed
    - Notification and updating registry information

Case studies

Case 1 - HAPPY-AU

- Historical prefix exchange
  - An APNIC member has acquired many smaller companies with historical IPv4 address space and wish to exchange for contiguous block

Historical prefix exchange

203.17.194.0/24
203.17.249.0/24
203.19.149.0/24
203.19.156.0/24
203.22.222.0/24
203.23.112.0/24
203.23.187.0/24
203.25.187.0/24
203.27.117.0/24
203.29.2.0/24
203.29.26.0/24
203.29.27.0/24
203.29.28.0/24
203.30.220.0/24
203.30.235.0/24
203.32.62.0/24
203.55.196.0/24
203.56.176.0/24
203.56.231.0/24
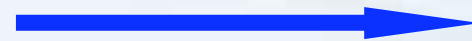
19 x /24

203.56.62.0/23
203.24.50.0/23
203.21.74.0/23

3 x /23

203.13.168.0/22

1 x /22

one contiguous /19

Case 2 - SUNSHINE-NON-AU

- Protecting historical records
  - A company has historical address space registered with invalid contact and out of date information. They would like to update registration details in whois db.

Protecting historical records

APNIC

Creating an account

Request for update

SUNSHINE-NON-AU

Update the resource

inetnum
203.4.163.0 /24

inetnum
203.4.163.0 /24

old mnt-lower

old admin-c, tech-c

new mnt-lower

new Admin-c & tech-c

mntner

person

person

mntner
MAINT-AU-SMORGONSTEEL

person
JP666-AP

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Protecting historical records

APNIC

Transferring under the account

Request for update

SUNSHINE-NON-AU

Update the resource

domain
163.4.203.in-addr.arpa

domain
163.4.203.in-addr.arpa

OLD
admin-c
tech-c
zone-c

new mnt-by

NEW
admin-c
tech-c
zone-c

mntner
MAINT-AU-SMORGONSTEEL

person

person

person
JP666-AP

Lame nameservers

new nameservers

Asia Pacific Network Information Centre

APNIC
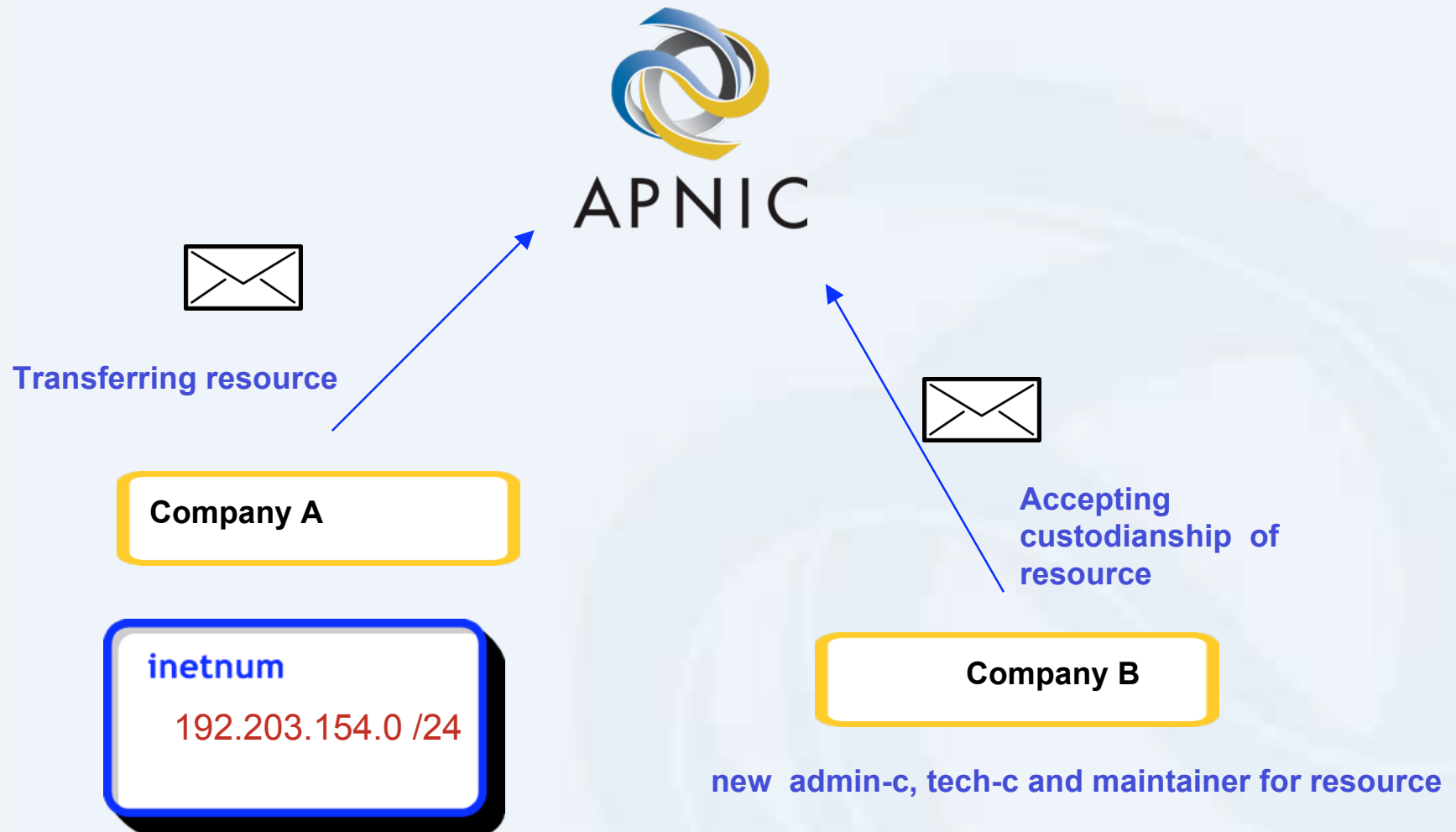
Case 3 - FUNNY-AU

- Transfer of historical internet resources
  - Company A acquired by company B. Company B wish to update records to their organisation.

Historical transfer

Transferring resource

Company A

inetnum

192.203.154.0 /24

Accepting custodianship of resource

Company B

new admin-c, tech-c and maintainer for resource

Case 4

- Recovery of unused address space

  - A /22 has not been globally routed since 1 January 1998 based on data from Oregon University. Therefore the following process takes place to contact with registered admin-c and tech-c.

Recovery of unused address space
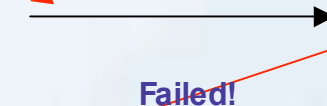
inetnum
xxx.yyy.zzz.www

Historical address range

person

Email to: Contact

email:

Failed!

Phone to: Contact

Phone:

Failed!

Fax to: Contact

fax:

Failed!

Reclaim for one year

No contact received → **Return to free pool for future distribution**

Other cases not covered?

- ## What is your experience?
  - – Do you have issues or questions not covered in this session?

Summary

Maximising address space potential by…

- By understanding what is historical (old) address space
- Policies involved, motivation and effects they have

Thank you for listening

Questions?

What we've talked about today

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Did we meet the objectives?

- Gaining understanding of APNIC in a global Internet context
- Learning how to formulate and participate in policy making
- Understanding how to manage your resources more effectively
- Explaining issues to us so we can learn from you!

Questions / discussion

- Questions from this morning & lunch answered?
  - Additional questions?
- Talk to us here
  - We'll be here all week
- Specific issues / cases?
  - Make an appointment with the HMC
    - Discuss your particular situation with the APNIC hostmasters
- Policy issues?
  - Come to the Policy-SIG on Thursday
    - Speak your mind! :-)
  - Put forward a proposal

Thank you for listening