APNIC Services Update

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Issue Date: [31 March 2014] Revision: [1]



Overview

- Statistics
 - Members growth, Internet number delegations and IPv4 transfers
- Policy implementation update
- Services improvement
- Resource certification

APNIC's Vision "A global, open, stable, and secure Internet that serves the entire Asia Pacific Internet community"



Statistics





Membership Growth



Date





Members in Hong Kong







IPv6 Delegations by Year



Year





Cumulative IPv6 Delegations (/32s)



Year





IPv6 Delegations by Year (/32s) to HK



Number of delegations





Cumulative ASN Delegations







IPv4 Last /8 Delegations

APNIC



Date

As at 31 March 2014



IPv4 Market Transfers

APNIC



Date





What's new on policy **implementation**?





Policy Cycle







Policy Recently Implemented

 prop-108: Suggested changes to the APNIC Policy Development Process

- What are the changes?
 - "Comment period" changed from "8 weeks" to "not be shorter than four weeks but no longer than eight weeks"
 - It is the Policy SIG Chair's sole discretion to extend the comment period to be more than four weeks, including the duration of the extension.





Pending Policy Implementation

• prop-107: AS Number transfer policy proposal

- Adding AS number in the current APNIC policy
- To be implemented by 16 Apr 2014
- What does this mean?
 - ASNs to be transferred outside of Merger and Acquisition
 - Still need to justify the use based on the ASN policy
 - Transfer form available via MyAPNIC





Pending Policy Implementation

 prop-105: Distribution of returned IPv4 address (Modification of prop-088)

- To be implemented when the first RIR has less than a total of a /9 in its inventory of IPv4 address space
- What does this mean?
 - Current policy allows only maximum of a /22 delegation to APNIC members
 - The maximum will increase to a /21





Proposals discussed at APNIC 37

 prop-111: Request-based expansion of IPv6 default allocation size

- This proposal modifies the eligibility for an organization to receive an initial IPv6 allocation up to a /29 by request basis
- Did not reach consensus, returned to author for further development





Proposals discussed at APNIC 37

 prop-109: Allocate 1.0.0.0/24 and 1.1.1.0/24 to APNIC Labs as Research Prefixes

- The objective of this proposal is to allocate 1.0.0.0/24 and 1.1.1.0/24 to APNIC Labs, to be used as research prefixes
- This proposal reached consensus and now in comment period on the Policy SIG mailing-list
 - Discussion transcript





Proposals discussed at APNIC 37

 prop-110: Designate 1.2.3.0/24 as Anycast to support DNS Infrastructure

- The objective of this proposal is to permit the use 1.2.3.0/24 as anycast addresses to be used in context of scoped routing to support the deployment of DNS resolvers
- The proposal reached consensus at the Policy SIG, but failed to reach consensus at the AMM. Returned to mailing list for further consideration





Services Improvement





Whois Service

- Geolocation information
 - Associate your IP registrations with geolocatoin
- Whowas information
 - Previous registrations available if the IP addresses are still currently registered





MyAPNIC Service

- Improved "My profile" page layout
- Simplified digital certificate management page
- All whois object templates are available via whois updates section
- Improved "Incident response team" (IRT) contact update feature
 - bulk update form
 - All your registered IRT are readily available from a drop-down menu





Streamlined Resource Request Process

Use MyAPNIC to



 If you intend to continue to act on this customer's behalf after the account is open, you can register for access to the account via <u>My</u> <u>Profile</u> in MyAPNIC.





IRT Bulk Update Feature

| | Home Resources | Administrat | ion Events | Tools | | | |
|---|--|------------------------------|---------------------------|---|-------------------|----------------|--------------|
| | IPv4 IPv6 ASN | Whois updates | Certification | Maintainers | IRTs | Correspondence | Sub-accounts |
| | Home / Resource manage | ment / Bulk upda | te | | | | |
| | Whois bulk upd | ate | | | | | |
| | Bulk update requests | | | | | | |
| | All objects (text | file upload) | | | | | |
| | - Single attribute | update | | | | | |
| Г | You can do a bull using the form be Whois type | k update of yo elow: P | ur inetnum, in ublic 🗘 | et6num, and aut | t-num ob | jects | |
| | Object type | ir | etnum 🗘 | | | | |
| | Object attribute | n | nt-irt 🗘 🛙 IR | T-MYAPNIC-TES | T-AP | ÷ | |
| L | Resource range | | IR IR IR | -MYAPNIC-TEST -TEST-1 -SUPER-TEST | T-AP | | |
| _ | | _ | IR | -MYAPNIC-TEST | T-JUSTIN T-AP1 | | |
| | | S | ubmit IR IR | -SCOUT-WA-AU | J | | |
| | Domain objects | zone file uplo | ad) | | | | |





My Profile

| | Home | Resources | Administr | ation | Events | Tools | | | |
|-------------------|------------|------------|------------|--------|-------------|----------|-----------|---------|-----------|
| Home / My Profile | | | | | | | | | |
| | | | | | | | | | |
| My Profile | | | | | | | | | |
| Membershins Pass | word reset | Account | permission | c D | igital cert | ificates | | | |
| Memberships Pass | word reset | Account | permission | 5 0 | igital cert | incates | | | |
| Active | | | | | | | | | |
| Account | Ema | il address | | Ро | sition | c | Corporate | Billing | Technical |
| APNICRANDNET-AU | george@ap | onic.net | | | | | × | | |
| APNICTRAINING-AU | george@ap | onic.net | | | | | | 1 | 1 |
| | | | | | | | | | |
| MYAPNIC-TEST-AP | george@ap | onic.net | | | | | * | | × |
| | | | Save c | hanges | | | | | |
| Add another accou | int | | | | | | | | |
| Add another accor | | | | | | | | | |





Member & Community Support





IPv6

| Outreach | ASEAN ICT SMEs Conference, Hanoi IPv6 Event by ISOC HK, Hong Kong ICANN 49, IPv6 Roundtable, Singapore Global IPv6 and Next Generation Summit 2014, Beijing APEC TEL 49 |
|-----------------------------|---|
| APIPv6TF | Asia Pacific IPv6 Task Force APNIC continues to provide Secretariat services Met at APNIC 36 and APRICOT 2014/APNIC 37 |
| IPv6 for decision makers | White paper published www.apnic.net/ipv6-decision-makers |

www.apnic.net/ipv6





Training







ISIF and Seed Alliance







APNIC Labs

- Measurement activities
 - IPv6 readiness by economy and ISP; IPv6 performance
 - Repurposed IPv6 measurement for DNSSEC validation by economy and ISP
 - Tracking growth of routing table in IPv4 and IPv6
 - RPKI use across the Internet
- Long-term investigation exercise into evolving nature of dark traffic in both IPv4 and IPv6
- Internet number resource reporting and analysis

labs.apnic.net

blabs.apnic.net









APNIC Resource Certification Service





Internet Routing Security

- Routing security is essential to integrity of Internet
 Need to Improve security of inter-domain routing
- Who has the authority to advertise what information into the routing system ?
- The majority of network relationships are based on system of mutual trust
 - Each party trusts that routes used to transmit information are safe
- The trust model is increasingly open to potential abuse and attack





About RPKI

- An architecture to support improved security of Internet routing using PKI infrastructure
- A robust security framework for verifying the association between resource holders and their Internet resources
 - "cryptographically verifiable attestations" for IP address delegation and their use
- This architecture is called Resource Public Key Infrastructure (RPKI)





Resource Delegation Hierarchy







About RPKI

- "Trustable authority" mirrors the administrative resource allocation hierarchy with certificates that match current resource delegations
- A resource holder operating a sub-delegation registry (e.g. an LIR) may use an RPKI system to generate certificates that correspond to these delegations
 - grant a unique "right-of-use" for the associated set of IP resources





About RPKI

- These certificates are called resource certificates and they conform to X.509 PKIX standards
- RPKI is not used to validate attestations of an individual's identity or that individual's role, but as a means to validate that person's authority to use IP address resources
- An RPKI resource certificate is required to enable a resource holder to issue "Route Origination Authorizations" (ROAs)





What is a ROA ?

- It is a digital object that contains a list of address prefixes and one AS number
- It is an authority created by a prefix holder to authorizes an AS number to originate one or more specific route advertisements
- It does not contain any routing policy information, nor does it convey whether or not the AS holder has even consented to actually announce the prefix(es) into the routing system





APNIC's RPKI Service

- Enhancement to the RIR Registry
 - Offers verifiable proof of resources holdings
- Resource certification is an opt-in service
 - Resource holders choose to request a certificate and provide their public key to be certified
- APNIC has integrated RPKI management service into MyAPNIC for APNIC Member use





What You Need To Know

- You are encouraged to experiment, test, play and develop
 Eg, you can create your ROAs
- RPKI standards are still being developed, and the operating environment for RPKI use is still fragile
- It's ready for testing and prototyping. It's probably not ready for production use just yet
- Please tell us what you find but don't rely on it in your network yet





MyAPNIC - Resource Certification Service





| MyAPNIC (Highting APNIC |
|---|
| Login Register |
| MyAPNIC |
| MyAPNIC |
| Please enter your username and password below to access your membership information online. |
| Login |
| Username: * |
| Password: * |
| Sign In |
| Forgot your login information? click here |
| Don't yet have access to MyAPNIC? |
| Click here to register. |
| |
| © Tuesday, 08-Apr-2014 15:16:15 EST APNIC Feedback About MyAPNIC Need help? |





| Myapnic Image Contacts George Account: Myapnic-TEST-AP | Ay Profile Log ou t |
|--|-----------------------|
| Home Resources Administration Events Tools | |
| IPv4 IPv6 ASN Whois updates Certification Maintainers IRTs Correspondent | ondence Sub-accounts |
| Home / Resource management | |
| Resource management | Heefel links |
| W | Userul links |
| Internet resources | Resource management |
| View and manage resources | Assignment window |
| Whois database updates | FAQ |
| Add/Update/Delete Whois objects | |
| Resource request forms | |
| IPv4 addressesIPv6 addressesAS numbers | |
| Resource transfer/return | |
| Transfer resources into another account Receive resources into my account Transfer pre-approval Return resources to APNIC | |
| Resource certification Manage certification | |





Home / Resources / RPKI

RPKI

Enable Resource Certification

Currently, you have not enabled resource certification for your registry.

I want to operate in the MyAPNIC RPKI portal.

I want to host my own certification authority and run an RPKI engine myself.

Next





Home / Resources / RPKI

RPKI

Enable Hosted Resource Certification

Currently, you have not enabled resource certification for your registry.

Terms and Conditions of APNIC Certification Authority

Introduction

APNIC publishes all Certificates, Certificate Revocation Lists (CRLs), and RPKI-signed objects in the Certification Repository ("**Repository**"). The Repository is available to anyone under these Terms and Conditions.

Article 1 - Definitions

In the Terms and Conditions, unless the context requires otherwise, the following terms have the meanings assigned to them below:

I accept. Create my Certification Authority





Home / Resources / RPKI

RPKI

Activating engine, please wait...







| ome / Resources / RPKI | | |
|----------------------------|--------------------------------------|-------------------|
| ξΡΚΙ | | |
| COA Configuration | | |
| Origin ASN AS12345 | Prefix 61.45.248. Max Length 24 Add | Add & clone Clear |
| | 61.45.248. 0/23 | |
| All Changes | Items per page 10 Search by AS or IP | Certified |
| Origin AS | Prefix Max Length | Resources |
| No data available in table | | 61 45 249 0/22 |
| Commit | Showing 0 to 0 of 0 entries | 61.45.251.0/24 |
| Commit | | 61.45.252.0/22 |





More RPKI Information

- Securing BGP
 - The Internet Protocol Journal, Volume 14, No. 2
- An Infrastructure to Support Secure Internet Routing – RFC6480
- A Reappraisal of Validation in the RPKI
 - labs.apnic.net/blabs
- An Introduction to Routing Security (and RPKI tools)
 labs.apnic.net/presentations/store/2013-05-13-rpki.pdf
- MyAPNIC Resource Certification Guide
 - www.apnic.net/myapnic





Questions or Comments?

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You're Invited!

• APNIC 38: Brisbane, Australia, 9-19 September 2014



- APRICOT 2015: Fukuoka, Japan
 - 24 February to 6 March 2015
 - With APNIC 39 and APAN 39

conference.apnic.net





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