APNIC

Apster

-ster *(suffix)* One that is associated with, participates in, makes, or does: *songster.*
Source: ***www.dictionary.com***

Issue 5 January 2003

APNIC - Addressing the challenge of responsible Internet resource distribution in the Asia Pacific region

www.apnic.net

New policies approved at APNIC 14

A number of major policy decisions were agreed upon at APNIC's Open Policy Meeting held in Kitakyushu, Japan during September 2002. A summary of the major policy changes which have now been implemented by APNIC is provided below.

Management of Autonomous System Numbers (ASNs)

The new policy for managing ASNs not only describes the applicable policies but also seeks to improve the current framework for managing ASNs. The policy makes a distinction between ASNs that are applied for directly by the user of the resource, and those that are applied for on behalf of a customer or organisation. In the case of the former, the ASN can be moved between ISPs when network topology changes. In the case of an assignment to an LIR *on behalf of* another organisation that will use the ASN, the LIR is the custodian of the resource, rather than the end-user. If the end-user leaves the LIR and uses different upstream ISPs, it will not be able to take the ASN with it. This framework ensures a much greater level of accountability and is directed at improving the management of the resource.

The policy document, 'Policies for Autonomous System number management in the Asia Pacific region' is available at:

www.apnic.net/docs/policy/asn-policy.html

Experimental allocations

Of particular interest to researchers and experimenters in Internet related technologies, is the policy decision relating to experimental use of Internet resources. Numbering resources, such as IP addresses (v4 and v6) and AS numbers, are now available to researchers on a time-limited basis for experimentation purposes. Never before has this been formally possible through APNIC.

The fee for obtaining experimental allocations will be determined on a cost-recovery basis, to keep it inexpensive for members. The IP resource allocation fee will also be waived. The policy framework is described in the provisionally active document, 'Experimental allocations policy', which is available at:

www.apnic.net/docs/drafts/apnic-draft-experiment-v001.html

1

P 6

APNIC celebrates 10th anniversary

Ten years ago some progressive thinkers foresaw the need for an Internet Registry to serve the Asia Pacific region. Our earliest written accounts show that Jun Murai and Masaki Hirabaru (WIDE Project/ JNIC - now JPNIC) presented a proposal to investigate how APNIC should be formed and operated at the first official APCCIRN meeting held in Honolulu on 13 January 1993.

No doubt the concept of a Regional Internet Registry (RIR) had been thought about well before this, but the APCCIRN meeting marked a historical milestone in APNIC's creation. The meeting decided that Jun Murai and Masaki Hirabaru at JNIC should carry out an APNIC experiment with the cooperation of other countries including Australia, Korea, and New Zealand.

By September 1993 a pilot APNIC project had commenced. JPNIC provided resources for the pilot and the fledgling RIR was staffed by volunteers.

We're collecting archival material to chronicle the early days of APNIC and have created an historical archive at: www.apnic.net/history

I'm calling for input from anyone with early records or memories of APNIC. Please send your stories, documents or photographs to me. Any original documents will be returned.

Robert Winkler, Editor, *Apster* <apster@apnic.net>

▼ APNIC staff

15th APNIC Open Policy Meeting

24 - 28 February 2003 Taipei - Taiwan

APNIC's 15th Open Policy Meeting will be held in conjunction with APRICOT 2003 in Taipei, Taiwan from 24 to 28 February. APNIC members and friends are invited to attend APNIC 15 to participate in the discussions.

The Taiwan Network Information Center (TWNIC) and the Directorate General of Telecommunications (DGT) will host the conference.

▲ Taipei International Convention Center (TICC)

Programme

As usual, APNIC will provide one of the conference and tutorial "tracks" within the APRICOT 2003 programme. One of the main advantages of the joint event is that APNIC members can access the extensive range of tutorials and conference sessions offered by APRICOT. In addition, for the first time APRICOT also incorporates the Global IPv6 Summit and the Asia Pacific Security Incident Response Coordination (APSIRC) conference, making the programme the most extensive ever offered.

The tutorial and conference registration fee entitles APNIC members to attend the APNIC sessions as well as all of the open APRICOT, IPv6 Summit and APSIRC sessions. APNIC members also receive a substantial discount of 25 per cent on normal registration fees, making attendance at APNIC 15 very good value for money.

Full programme details are available at:

- **APNIC 15** www.apnic.net/meetings
- **APRICOT 2003** www.apricot2003.net
- **APSIRC conference** www.jpcert.or.jp/apsirc2003
- **Global IPv6 Summit** www.ipv6.org.tw/summit

Tutorial highlights

APNIC will offer the following tutorials at APNIC 15.

Effective IP Address Management: Asia Pacific Policies & Procedures
9:00 am – 5:30 pm, Monday 24 February 2003
Champika Wijayatunga, Miwa Fujii, Nurani Nimpuno, APNIC
This training course is aimed at APNIC members who have little or no experience in requesting Internet resources from APNIC. It provides an overview of APNIC and the address policies and describes how to request and manage Internet resources. It also introduces the APNIC Whois Database and gives an overview of reverse DNS delegations. The course is strongly recommended for new APNIC members.

Internet Routing Registry (IRR)
9:00 am – 12:30 pm, Tuesday 25 February 2003
Champika Wijayatunga, APNIC
This tutorial introduces the Internet Routing Registry, provides an overview of the APNIC Routing Registry (RR) and describes the purpose and functionality of the APNIC RR.

RPSL - Practical tools for ISPs
2:00 pm – 5:30 pm, Tuesday 25 February 2003
Andy Linton
This tutorial introduces RPSL concepts, describes automated tools such as RtConfig, used to build router configurations and uses a case study to examine the benefits of converting from manual configuration of BGP peering policy on routers.

Meeting sponsorships

APNIC acknowledges the valuable contributions provided by sponsors of the Open Policy Meeting. It would not be possible to offer a meeting programme of such a high standard without this support. There are still some sponsorship opportunities available but as sponsor rights are granted on a first-come first-served basis, prospective sponsors should send an expression of interest as soon as possible to <meetings@apnic.net>. Details of sponsorship options are available at:

www.apnic.net/meetings/15/sponsors

Sponsors

Gold Sponsors

China Network Information Center (CNNIC)

APNIC 16

APNIC's Executive Council is currently evaluating the proposals received to host APNIC 16, to be held in the Asia Pacific region during September 2003.

An announcement of the location of APNIC 16 and the host organisation will be made at the APNIC Member Meeting in Taipei on 28 February 2003.

APNIC Routing Registry

APNIC launched a new Internet Routing Registry service on 17 December 2002. The APNIC Routing Registry is integrated with the APNIC Whois Database and is linked to the distributed Internet Routing Registry (IRR).

New member service

APNIC members can now store routing information in the APNIC Whois Database, and use tools such as IRRToolSet to generate router configurations. The APNIC Whois Database and the APNIC Routing Registry are mirrored by RIPE, RADB, and other routing registries.

Benefits of using the APNIC Routing Registry

- Easier maintenance

  Use one set of maintainer and person objects to manage both Internet resources and routing information

- Integrated resource and routing management

  Before route objects can be registered in the APNIC Routing Registry, APNIC ensures that the address range and AS number are within APNIC resource ranges. In addition, the mnt-by, mnt-lower, and mnt-routes authentication attributes in aut-num and inetnum objects ensure that the registered resource holder has control over routing objects that specify their resources.

- Reduced costs

  Free usage of the APNIC Routing Registry service by APNIC members

Useful links

- **APNIC Routing Registry resource guide:**

  www.apnic.net/services/apnic-rr-guide.html

- **APNIC Routing Registry facts:**

  www.apnic.net/services/apnic-rr/rr-facts.html

For assistance with using the APNIC Routing Registry, please contact the APNIC Member Services Helpdesk by phone (+61-7-3858-3188) or email to <helpdesk@apnic.net>.

A detailed description of the APNIC Routing Registry appeared in Issue 4 of *Apster*, pages 10 and 11, available at:

www.apnic.net/apster

To learn more about how to use a routing registry, see the article by Philip Smith, Cisco on page 8. P 8

index

▲ Simultaneous interpretation was first introduced in APNIC 14

New policy paves the way for more NIRs

At APNIC 14, the membership decided to reopen membership for National Internet Registries (or NIRs). This comes after a three-year review and overhaul of the NIR structure, carried out by the NIRs themselves, the APNIC Secretariat, and the wider membership. The result is a much firmer foundation of policy and procedures for the effective operation and future growth of these important registries.

▲ APNIC 14 meeting

Background

Since APNIC's establishment, a unique feature of its structure has been the community of National Internet Registry (or NIR) members, including JPNIC, CNNIC, KRNIC, TWNIC and APJII. These registries operate within their own particular economies of the Asia Pacific region, providing address management services to their local Internet communities.

NIRs share the basic service responsibilities with APNIC – they allocate IP addresses and associated resources, and provide whois and reverse DNS services. Since APNIC is responsible for these services across the region, it must specifically delegate its functions to each NIR and work closely with it to assist and support those services.

Like APNIC, NIRs also coordinate certain critical Internet self-regulation processes within their communities. They facilitate industry development of the Internet, through open meetings and other policy processes related to these core responsibilities for resource management. This is, in fact, a key feature, not only of NIRs and APNIC, but also of the "traditional" model of Internet development.

In addition to their core services, NIRs invariably provide extra support to their Internet communities, which is a critical aspect of the structure. Services are provided in the local language and cultural context of the NIR stakeholders, and in a form that reflects the preferences and priorities of that community.

New NIRs suspended

During APNIC's early days, a number of NIR members were in operation. These organisations had formed independently, had developed their own operating policies and procedures, and had joined APNIC under different circumstances. In effect, each NIR operated in a unique way, which certainly served each NIR community well, but did not create a manageable environment for APNIC as a whole.

In 1998, the APNIC Executive Council (EC) realised that creating new NIRs would create substantial problems. The EC therefore suspended the creation of new NIRs, so that the operational and policy framework for existing NIRs could be developed and harmonised. This suspension had no effect upon existing NIRs, but it allowed the APNIC Secretariat and the NIRs to start working together on a much-needed policy and operational framework.

In the period that followed, the APNIC NIR Meeting was established within the Open Policy Meeting, first as a closed working group of NIR members, and then as an open policy development forum. In this forum, it was possible for NIRs to share information with each other and with the APNIC Secretariat, in an entirely new way. Eventually, huge progress was made in developing and agreeing on new modes of operating, which often required substantial commitment and adaptation on the part of individual NIRs. It is fair to say, however, that everyone involved in this process took part in a spirit of mutual support and cooperation which would eventually ensure success.

Time for New NIRs

During the period described above, some time was spent on formulating criteria on which new NIRs could be accepted. Critically, these criteria would need to apply not only to new NIRs, but also to existing NIRs. Again the NIR participants in these discussions contributed very constructively.

In 2002, a set of criteria was finally formulated and agreed, first by the NIRs themselves, by the APNIC EC, and (during APNIC 14) by the APNIC membership. Based on these criteria the APNIC EC has begun accepting applications from new NIRs from 1 December 2002.

Under the new criteria, an organisation applying for recognition as an NIR must:

1. Exist to serve a specific country or economy, identified by an ISO-3166 country code;
2. Be endorsed by the appropriate national authority as the chosen NIR for the country;
3. Have an appropriate structure to act as an NIR (such as a non-profit, membership-based structure, with neutrality in respect to the ISP industry); and
4. Be able to demonstrate its capacity to operate as an NIR, in terms of financial resources, personnel, and technical capacity.

On receipt of a complete application, the APNIC EC will meet with the candidate NIR (normally by teleconference) to discuss the details of the application.

Conclusion

After several years of hard work by existing NIRs and the APNIC Secretariat, it is an historic development that new NIRs may now apply to join APNIC. We at the APNIC Secretariat look forward to working with a growing constituency of NIRs, and supporting them in their important work.

Paul Wilson, Director General, APNIC <dg@apnic.net>

■ NIRs of the Asia Pacific

Name	Asosiasi Penyelenggara Jasa Internet Indonesia (APJII)	China Network Information Centre (CNNIC)	Japan Network Information Center (JPNIC)	Korea Network Information Center (KRNIC)	Taiwan Network Information Center (TWNIC)
Logo	APJII	CNNIC 中国互联网络信息中心	JPNIC	KRNIC	TWNIC
URL	www.apjii.or.id	www.cnnic.net.cn	www.nic.ad.jp	www.nic.or.kr/index.html	www.twnic.net
Email	sekretariat@apjii.or.id	ipas@cnnic.net.cn	ip-apnic@nic.ad.jp	hostmaster@nic.or.kr	service@twnic.net.tw
Establishment date	15 May 1996	3 June 1997	31 March 1997	21 June 1999	29 December 1999
Number of staff	7	60	Total 43 (IP Division 11)	62	31
Members / LIRs served	98	>100	332	81	47
Address resources	IPv4 - 9 * /16 ASNs - 61	IPv4 - 81 * /16 IPv6 - 1 * /32 ASNs - 72	IPv4 - 296 * /16 IPv6 - 42 * /32 ASNs - 452	IPv4 - 319 * /16 IPv6 - 13 * /32 ASNs - 485	IPv4 - 93 * /16 IPv6 - 5 * /32 ASNs - 74
Summary of activities	● IP Address allocation ● Indonesia Internet Exchange services ● Working Groups: Infrastructure WG, SLA (Service Level Agreement) WG, Bylaws of APJII Committee ● Workshop and Training	● Registration services: .CN ccTLD registration, IP addresses and AS Number allocation ● Catalogue database service: national catalogues database, ● Information enquiry service for network consumers, IP addresses, domain names, AS numbers, etc. ● Information services: statistics on Internet development in China ● Training: Internet technology and application training for all levels of society ● Undertakes national scientific research items related to Internet ● Provides technological consulting services on the Internet to society	● Management of IPv4 addresses ● Management of AS numbers ● IPv6 agent service ● Provides Japanese registry database ● LIR trainings ● JPNIC Open Policy Meeting ● DRP (Dispute Resolution Policy) framework for JP domain names ● Conduct research on international domain names as well as network security	● Allocates IP addresses to member ISPs and assigns AS numbers ● Manages KR domain names ● Manages KR name server and WHOIS service ● WINC (Wireless Internet Number for Contents) ● Publishes Internet related statistics ● Research and development of Internet related subjects eg. Internet protocol, Internet address systems for the next generation and multilingual domain name system	● Providing specialised Internet services, including domain name and IP/ASN registration and management, as well as directory and database access; in addition, promoting Internet business in Taiwan in a spirit of non-profit, mutual and impartial sharing of network resources ● Coordinating and facilitating activities and cooperation between national and international Internet-related organisations ● Assisting the industry in the promotion of nationwide Internet use, and coordinating the exchange and integration of Internet information services
Group photo					

New policies approved at APNIC 14

New policies for NIRs

National Internet Registries (NIRs) are an important part of the delegated hierarchy for managing address space in the Asia Pacific. Under the policies accepted at APNIC14, APNIC has reopened membership for new NIRs. Prospective new NIRs must meet the criteria outlined in the policy document 'Criteria for the recognition of new NIRs in the AP region'. Significantly, the criteria that must be met by prospective new NIRs include formal endorsement at the national level by the appropriate Government body, as well as an organisational model that requires neutrality, a not for profit framework, appropriate funding mechanisms, and technical expertise, to mention but a few.

A companion document 'Operational policies for NIRs in the AP region' provides a high level framework for a set of operational policies between the NIRs and APNIC. The NIRs were closely involved in the development of the procedures for obtaining IP addresses, which will improve aggregation of routing information for NIR member ISPs. Details of the new NIR policies are available at:

www.apnic.net/docs/policy/nir-criteria.html

Assignments for critical infrastructure

Are there core elements of networking infrastructure that are essential to the stable operation of the Internet? The Asia Pacific Internet community thinks so. There was a consensus decision at APNIC 14 on the need to protect core Internet infrastructure from the service instability that arises out of renumbering.

6

Normally, renumbering has to be tolerated by end users when they change ISP. This is recognised as vital if the Internet is to grow in a sustainable manner. So that operators of essential infrastructure do not need to renumber they can now receive portable address space from APNIC: a /24 assignment for IPv4, and a /32 assignment for IPv6 essential infrastructure.

Core Internet infrastructure is defined as the networking infrastructure which directly supports the provision of a root domain name system (DNS) server, global top level domain (gTLD) name server, country code TLD (ccTLD) name server, IANA, Regional Internet Registry (RIR), and National Internet Registry (NIR). The list will be subject to periodic review by the Internet community in the Asia Pacific region.

Details of the critical infrastructure policies are available at:

- Section 11.3 Critical infrastructure, Policies for IPv4 address space management in the Asia Pacific region:

www.apnic.net/docs/drafts/apnic-086-v003.html

- Critical infrastructure FAQ

www.apnic.net/info/faq/critical-infrastructure-faq.html

IPv6 address range for documentation purposes

Historically authors of technical networking books have used a range of Internet resources to illustrate networking examples. In global unicast IPv4 address space 192.0.2.0/24 is to be used exclusively for documentation purposes. This means that it will never be used to address any deployed networks.

In IPv6 no equivalent range from global unicast address space was available for this purpose. At APNIC 14 it was agreed that a range, equivalent in size to the current minimum IPv6 allocation size (/32) is to be used exclusively for documentation purposes.

This means that technical authors can now safely use a range of IPv6 address space (2001:0DB8::/32) without any of the associated risks that arise from using undocumented addresses. Details of the IPv6 documentation prefix are available at:

www.apnic.net/info/faq/ipv6-documentation-prefix-faq.html

LIRs can make allocations as well as assignments to their customers

Within the hierarchy of managing address space, LIRs (who are typically ISPs) could previously only assign address space to their customers. An assignment of address space is delegated to an ISP or end-user, for specific use within the Internet infrastructure they operate. Assignments must only be made for specific, documented purposes and may not be sub-assigned.

Allocations of address space differ from assignments. An allocation is defined as address space that is distributed to IRs for the purpose of subsequent distribution by them. The IPv4 address space management policy has been amended so that LIRs can now allocate blocks of address space to their customers. This recognises that LIRs have customers, such as ISPs, who need to receive blocks of address space in order to make assignments to their own customers. Details of the sub-allocation policies are available at:

- Section 10.3 Sub-allocations by LIRs, Policies for IPv4 address space management in the Asia Pacific region

www.apnic.net/docs/policy/add-manage-policy.html

- Sub-allocation guide:

www.apnic.net/services/ipv4/sub-alloc-guide.html

IPv6 assignments to Internet Exchange Points (IXPs)

Each RIR has a policy for assigning IPv6 address space to Internet Exchange Points (IXPs). At APNIC, the amount of address space assigned to an IXP is a /64. In the other regions, a /48 is the assignment size. To align the Asia Pacific region with the other regions, at APNIC 14 it was agreed by consensus that the assignment size for IXPs should be increased from a /64 to a /48. This was made effective immediately for all new applications. Existing holders of /64 assignments may upgrade to a /48 on request to APNIC, but this will require renumbering. Details of IXP address assignment are available at:

www.apnic.net/info/faq/ixp_address_faq.html

Anne Lord, Policy and Liaison Manager, APNIC
<anne@apnic.net>

New root servers in the Asia Pacific region

In November 2002, APNIC announced a new cooperative project initiative, to bring more root server sites into the Asia Pacific region. This article answers a few of the most frequently asked questions that have arisen since that announcement.

How can APNIC deploy new root servers?

Each server will be deployed as a mirror copy of the F-Root server which is currently operated by the ISC (Internet Software Consortium), the non-profit organisation responsible for the "BIND" software. These copies will be announced into the Internet routing system using the BGP anycast technique.

Will new root server "letters" be allocated?

No. Rather than requiring new root server identifiers (such as A,B,C,…M), the BGP anycast technique will allow the existing F-Root to be copied across multiple separate servers located at different points on the Internet.

What is "BGP anycast"?

It is a technique whereby the same address space is used and announced in the normal way, but from multiple locations on the Internet. Within the BGP routing system, multiple routes to the same address space will be seen, and the shortest route preferenced in the normal way.

Will the new servers be fully operational root servers?

Each of the supported sites will provide a fully operational root server.

Will APNIC become a "root server operator"?

No. The ISC will maintain full and exclusive administrative control over all copies of F. APNIC's contribution is to locate suitable sites, and provide the equipment.

Why is APNIC involved?

While APNIC is not involved in domain name registrations, the DNS carries several critical infrastructure services, including the reverse DNS trees, in-addr.arpa and ip6.arpa. We have been asked many times to take some involvement in root server operations, to improve access to these infrastructures for ISPs in the Asia Pacific Region.

Will APNIC continue to support root servers in future?

For APNIC this project is a trial, and we need to gauge carefully the cost and effectiveness of the activity. This will be done over the coming year, while at the same time the benefits of this development will be experienced by many in the region.

Where are root servers being deployed?

Initial sites for new root servers in the region are under negotiation. Additional sites will need to be selected carefully, after an open call for expressions of interest, which can be found on the APNIC website.

Where can I find more information?

Please visit:

www.apnic.net/services/rootserver

Paul Wilson, Director General, APNIC <dg@apnic.net>

Calendar

South Asian Network Operators' Group (SANOG) 1, in conjunction with CAN IT Conference 2003
24-27 January 2003
Kathmandu, Nepal
www.itconference.org.np

RIPE 44
27-31 January 2003
Amsterdam, Netherlands
www.ripe.net/ripe/meetings

NANOG 27
9-11 February 2003
Phoenix, Arizona
www.nanog.org

APRICOT 2003 / APNIC 15
24-28 February 2003
Taipei, Taiwan
www.apricot2003.net
www.apnic.net/meetings

56th IETF
16-21 March 2003
San Francisco, California
www.ietf.org

ICANN Meetings
23-27 March 2003
Rio de Janeiro, Brazil
www.icann.org

ARIN XI
6-9 April 2003
Memphis, Tennessee
www.arin.net

RIPE 45
12-16 May 2003
Barcelona, Spain
www.ripe.net/ripe/meetings

TERENA Networking Conference 2003
19-22 May 2003
Zargreb, Croatia

18th CENTR General Assembly
2-3 June 2003
Budapest, Hungary

ICANN Meetings
22-26 June 2003
Montreal, Canada
www.icann.org/meetings

57th IETF
13-18 July 2003
Vienna, Austria
http://www.ietf.org/meetings/meetings.html

58th IETF
November or December 2003
Location TBD
http://www.ietf.org/meetings/meetings.html

▲ Training in Beijing, China, November 2002

Using a routing registry

A routing registry is a repository containing the announced routes and documented routing policies of individual autonomous systems in a simple format, which can be used to configure Internet backbone routers. The Internet Routing Registry (IRR) is a loose collection of the better known routing registries, such as those run by the RIPE NCC, ARIN, Merit/RADB, Cable & Wireless, and Bell Canada.

Routing registries have many uses, but their most popular application is to document the routing policy of a particular autonomous system. For example, an autonomous system will list its connections to neighbouring autonomous systems, which prefixes it will announce to those neighbours, and to which autonomous systems it will provide transit connectivity. A large variety of tools have been developed to make easier administrative use of any routing registry, the most common being the IRRToolSet (formerly the RAToolset).

Consequently, this routing policy database allows ISPs to use the local routing registry to help with router configuration. If their peer documents precisely which prefixes are being announced and to which neighbour, it becomes very straightforward to construct route filters for the peering so that only the permitted prefixes are announced.

One of the popular uses of a routing registry is at an Internet eXchange Point (IXP). IXPs generally have quite simple policies between autonomous systems, as most participants in an IX simply announce their originated prefixes to their peers. So an as-object (describing an autonomous system's peering policy) is relatively simple to construct and is a good way for ISPs learning about routing registries to get started. A typical object may look something like:

```
aut-num:        AS65535
as-name:        ASN-Demo-Policy
descr:          PFS IXP
import:         from AS65534
                action pref=100;
                accept AS65534 AND NOT {0.0.0.0/0}
export:         to AS65534
                announce AS65535
admin-c:        PFS1-APNIC
tech-c:         PFS1-APNIC
notify:         pfs@cisco.com
mnt-by:         AS65535-MNT
source:         APNIC
```

The import line states that only prefixes originated by AS65534 will be accepted, with a specific statement that the default route will be denied. The export line states that only prefixes originated by AS65535 will be sent to the neighbour and, in the simplest IXP case, this would be repeated for each IXP peer.

Once the simpler policies at IXes have been mastered, moving towards more complex inter-provider policies becomes easier. Setting up a routing registry at an IXP is also quite easy. Obtaining the software from APNIC's ftp site, building it, and installing it on a public system is all relatively straight forward for most competent Unix system administrators. Offering the service to ISP participants in the IX is then possible, and is made much more attractive with the provision of suitable tools such as those offered by the IRRToolSet for router configuration generation.

Philip Smith, Cisco *<pfs@cisco.com>*

Useful links

- **APNIC Whois Database**
  www.apnic.net/apnic-bin/whois.pl
- **ARIN's Routing Registry**
  www.arin.net/registration/route_reg
- **Cable and Wireless Routing Registry**
  infopage.cary.cw.net/Routing_Registry/mainpage.html
- **IRR list of routing registries**
  www.irr.net/docs/list.html
- **RADb routing registry**
  www.radb.net
- **RIPE NCC Whois Database**
  www.ripe.net/ripencc/pub-services/db/whois/whois.html
- **Verio Routing Registry (VRR)**
  info.us.bb.verio.net/vrr.html

RIR routing registries

ARIN Routing Registry

ISPs in the ARIN region use ARIN's routing registration services to supplement their ARIN number registrations. This service assists each registrant in the transition between number registration and deployment of the network devices associated with the particular AS and network. This supplemental service is not limited to ARIN members and is available to anyone free of charge.

To use the ARIN Routing Registry, users first register maintainer information. Many providers also register the policies associated with their aggregate routes, Autonomous System (AS), and customer prefixes. In peering over dual-homed links, their end-sites also provide AS and route policy information. The registration process is automated through the <rr@arin.net> email address.

The rr.arin.net server provides whois access to ARIN's RPSL data and its ten mirrored databases, including both APNIC and the RIPE NCC. The ARIN data mirror is available from:

ftp://ftp.arin.net/pub/rr/arin.db

The requirements, deployment and future development of the ARIN registration services, including the Routing Registry, are guided by the Internet community through ARIN's database working group. At previous meetings and through email discussion, it approved the acceptable use policy and mirroring practices. Future plans have not been clearly defined, but include integration of the Routing Registry into the IP registry database.

Ginny Listman, Director Engineering, ARIN *<ginny@arin.net>*

RIPE NCC Routing Registry

Like APNIC's new routing registry the RIPE NCC Routing Registry is fully integrated with the whois database. Both whois databases employ the new version of the RIPE database software, which uses the Routing Policy Specification Language (RPSL), a successor of the RIPE-181 language, to represent all database objects.

ISPs mainly use the RIPE NCC routing registry to build prefix filters for their customers, document their routing policy, and automate configurations. Many ISPs require their customers to register the routes that they want to announce.

The RIPE NCC Routing Registry also implements the Routing Policy System Security (RPSS) to provide authorisation mechanisms to enable a higher level of security for the registry. The integration of the whois database with the routing registry is essential for proper RPSS implementation. The two authoritative sources for authorisation of route creation are the ASN and address registries maintained by the Regional Internet Registries (RIRs). The RIPE NCC is working on authorisation methods to support high security levels for "foreign" registrations.

The RIPE NCC Routing Registry also mirrors other routing registries. The RIPE NCC maintains the IRRToolSet and has commenced related projects, such as the Routing Registry Consistency Check (RRCC) project, which intends to help identify, correct, and keep the routing data in the RIPE Database up-to-date. An advanced routing course explaining the Routing Registry has also been developed for LIRs.

Andrei Robachevsky, Chief Technical Officer, RIPE NCC *<andrei@ripe.net>*

Training in 2002

APNIC has held nine training sessions since July 2002. Valuable support was provided by sponsors, allowing APNIC to offer training at the lowest possible fee.

July

Suva, Fiji, hosted by: Pacific Islands Telecommunications Association (PITA)

www.pita.org.fj

August

Jakarta, Indonesia, sponsored by: APJII

www.apjii.or.id

Channai, India

Colombo, Sri Lanka, sponsored by: Sri Lanka Telecom

www.slt.lk

September

Kitakyushu, Japan, hosted by: JPNIC

www.nic.ad.jp

Ho Chi Minh City, Vietnam, sponsored by: VNNIC

www.vnnic.net.vn

Manila, Philippines, sponsored by: Meridian Telekom

www.meridiantelekoms.com

October

Singapore

Kuala Lumpur, Malaysia, sponsored by: National Computer Systems

www.ncs.com.sg

November

Beijing - China, sponsored by: CNNIC

www.cnnic.net.cn

December

Wellington, New Zealand, sponsored by: Datacom

www.datacom.co.nz

Interested in Work at APNIC?

All job vacancies at APNIC are announced on the "jobs-announce" mailing list. If you wish to receive these announcements, please join the list by visiting

www.apnic.net/lists

RIR update

Visiting staff programme

TWNIC

Shengwei Kuo

• Hostmaster Training

APNIC regularly hosts visitors from the other Regional Internet registries (RIRs) and the National Internet Registries (NIRs) – APJII, CNNIC, JPNIC, KRNIC and TWNIC. The programme facilitates skills exchange and training, especially for visiting hostmasters.

To participate in the visiting staff programme please contact your manager and email a request to <dg@apnic.net>, including your contact details, job role and a short description of your areas of interest.

ARIN and NANOG succeed with something new

The United States Pacific Northwest, or more specifically Eugene, Oregon, was the site of the first ever back-to-back North American Network Operators' Group (NANOG) and ARIN meetings. This week long gathering of Internet community representatives from over 12 countries and throughout the United States provided a unique opportunity for attendees to learn from technical presentations, network with new faces, and voice opinions on many IP addressing policy proposals under consideration. One common interest amongst the two groups was IPv6 implementation.

The meetings opened with NANOG on Sunday, October 27 through Tuesday, October 29 and concluded with ARIN meetings on Wednesday, October 30 through Friday, November 1.

NANOG attracted over 500 attendees, with close to 100 of the same attendees staying over to participate in the ARIN meetings. ARIN attendance was approximately 150 with 40 first-time attendees in the room. The unique scheduling was undertaken in an effort to bring more network operator input to the public policy discussions on the first two days of the ARIN meeting. In addition, the groups sought to ease the travel burden for those who regularly attend both meetings often held close together each fall.

Talk in the corridors and the synergy felt in the meetings and gathering nooks bore witness to a highly successful experiment. ARIN and Merit Network, Inc., the organizer of NANOG, will likely meet at a later date to discuss the feasibility of a repeat effort in the future.

LACNIC recognised as the fourth RIR

LACNIC (Regional Latin-American and Caribbean IP Address Registry) was formally proclaimed as a Regional Internet Registry at the ICANN Board meeting in Shanghai on 31 October 2002. The President of ICANN, Stuart Lynn, and the Chair of LACNIC, Raul Echeberria, signed the Joinder of LACNIC into RIR-ICANN Memorandum of Understanding.

The approval followed a transitional process, commenced in March 2002, in which ICANN gave provisional approval to the creation of LACNIC. LACNIC satisfied the requirements for the creation of a new RIR under the Address Supporting Organization Memorandum of Understanding (ASO MOU) and the "Criteria for Establishment of New Regional Internet Registries" (ICP-2).

Now one of four Regional Internet Registries, LACNIC is responsible for providing IP address allocation and registration services for the Latin American and Caribbean region.

Useful links

- **IANA Report on Recognition of LACNIC as a Regional Internet Registry**

  www.iana.org/reports/lacnic-report-07nov02.htm

- **Joinder of Regional Latin-American and Caribbean IP Address Registry (LACNIC) into RIR-ICANN Memorandum of Understanding**

  www.icann.org/aso/lacnic-joinder-30oct02.htm

Fighting spam

In Issue 4 of *Apster* we carried a report from the Korea Network Information Center (KRNIC) on the efforts of the Korean Government in combating spam. The article stimulated a great deal of comment about the growing global spam problem that we all experience daily. In this issue the Taiwan Network Information Center (TWNIC) provides an overview of the initiatives to deal with spam in Taiwan.

▲ Taiwan's law makers are taking an increased interest in spam.

Anti-spam initiatives in Taiwan

Unsolicited email or spam impacts Internet operations in many ways. It wastes Internet resources, increases download time and adds load to servers. In order to tackle this problem, ISPs have to renew their hardware and introduce proper software from time to time. System administrators have to spend time and effort dealing with countless spams. This results in lots of additional costs for ISPs and for the Internet as a whole.

To find a better way of stopping or reducing spam originating from Taiwan, TWNIC, along with major ISPs, established a special working group in June 2002, called the Anti-Spam Task Force (ASTF). The ASTF also consists of legislative researchers and representatives from the Net Consumers Association of Taiwan. Consensus was reached in the ASTF that ISPs should play the front line role in reducing spam generated by their customers. Firstly ISPs needs to provide an explicit window for spam reporting and should take an active role filtering out inbound and outbound spam if possible. Once the spammer's IP address has been determined, the ISP should terminate the spammer's connection immediately.

At the moment there are some other anti-spam schemes being discussed intensively in the ASTF. For example, the ASTF is planning to build a local open relay RBL (Real-time black hole list) for ISPs' reference and is constructing a website to be used as a major channel for educational and reporting purposes.

Some more good news is that the "Electronic Advertisement Mail Management Law" has been proposed by a group of law makers in Taiwan. Senders of electronic advertisements may be required to provide clear sender information in the email and to ask permission from receivers before sending.

David Chen, TWNIC <*david@twnic.net.tw*>

Dealing with spam

APNIC provides information on how to deal with spam and other network abuse cases. The APNIC Whois Database, which holds details of IP address registrations within the Asia Pacific region, can be used to track down the source of network abuse and find contact details of the relevant network administrators. Details are available at:

www.apnic.net/info/faq/abuse

www.apnic.net/info/faq/abuse/using_whois.html

If you would to comment on the spam issue or contribute an article to *Apster*, please email me.

Robert Winkler, Editor, *Apster* <*apster@apnic.net*>

Useful links

- **Anti-Spam Task Force (ASTF)**
  anti-spam.twnic.net.tw
- **Net Consumers Association of Taiwan**
  www.nca.org.tw
- **Taiwan Network Information Center (TWNIC)**
  www.twnic.net
- **APNIC Whois Database**
  www.apnic.net/apnic-bin/whois.pl

Training schedule

2003

January

- **23rd** Dhaka, Bangladesh
- **26th** Kathmandu, Nepal
- **28th** New Delhi, India
- **28th** Bangkok, Thailand

February

- **24th** Taipei, Taiwan

March

- **24th** Australia

April

- **17th** Hong Kong
- **29th** Cambodia

May

- **TBA** China
- **TBA** Mongolia

June

- **TBA** To be announced

The APNIC training schedule is provisional and subject to change. Please check the website for regular updates at:

www.apnic.net/training

If your organisation is interested in sponsoring APNIC training sessions, please contact us at:

training@apnic.net

▲ Training in Beijing, China, November 2002

How to contact APNIC

Street address	Level 1, 33 Park Road, Milton, Brisbane, QLD 4064, Australia
Postal address	PO Box 2131, Milton QLD 4064, Australia
Phone	+61-7-3858-3100
Fax	+61-7-3858-3199
Web site	www.apnic.net
General enquiries	info@apnic.net
Hostmaster (filtered)*	hostmaster@apnic.net
Helpdesk	helpdesk@apnic.net
Training	training@apnic.net
Webmaster	webmaster@apnic.net
Apster	apster@apnic.net

* To improve services to members, the Hostmaster mailbox is filtered. All email to the Hostmaster mailbox must include a valid account name in the subject line. The account name must be enclosed in brackets or parentheses in the subject field - [XXXXX-YY] or (XXXXX-YY), where XXXXX is based on the member name and YY is the country code. If you are unsure of your exact account name, contact <billing@apnic.net>.

▶ The Member Services Helpdesk provides APNIC members and clients with direct access to APNIC Hostmasters.

Helpdesk Hours
9:00 am to 7:00 pm
(UTC + 10 hours)
Monday - Friday

Feedback

To ensure that *Apster* meets your needs, please provide us with feedback on the newsletter articles or provide suggestions for articles for future issues.

- **Fax: +61-7-3858-3199**
- **Email: apster@apnic.net**

Name:

Position:

Organisation:

Member Account Name (If applicable)**:**

Phone:

Fax:

Email:

Comments/Suggestions: