

# APster

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



September 2001, Issue 1 APNIC - Addressing the challenge of responsible internet resource distribution in the Asia Pacific Region

## New APNIC Website Launched

As many readers may have already noticed, APNIC launched a brand new web site in August. The new site has been completely re-designed by APNIC web designers Yun Jeong and Andy Lonsdale to better meet the needs of APNIC members and others in the Internet community.

The new site now provides enhanced access to APNIC information and resources. A clearer directory structure, more flexible navigation, and improved search functions make finding APNIC information easier than ever before.

While new visitors to the site will benefit from the re-designed navigation menus, more frequent visitors are likely to take advantage of the "Quick Links" menu for fast access to their frequently used pages.

The design is based around standard HTML and CSS coding, for more consistent styling and maximum accessibility. However, the redevelopment is not just

on the surface - much new content is now available to provide clearer explanations of APNIC services and its role in the Internet addressing community.

In particular, new "Resource Guides" gather all relevant forms, FAQs, references, and background information for each APNIC resource service.

Planned future developments include:

- Improvement of all web-based forms (following the example of the new ISP Request Form)
- Further integration of contextual online help
- The "MyAPNIC" secured members-only area

Your feedback will be vital to the refinement and development of the new website. So, if you have any comments, complaints, or suggestions, please send them to [webmaster@apnic.net](mailto:webmaster@apnic.net).

www.apnic.net

The screenshot displays the APNIC website layout. On the left is a vertical navigation menu with buttons for: Info & FAQ, Resource services, Training, Meetings, Membership, Documents, Whois & Search, and Internet community. The main content area features a central banner with the APNIC logo and the tagline "Addressing the challenge of responsible Internet resource distribution in the Asia Pacific region." To the right of the banner are several utility boxes: "QUICK Links" with a dropdown menu, "APNIC Search" with a search input and "Go!" button, "Whois Search" with a search input and "Go!" button, and "Web & FTP Site being indexed - searches available soon" with "Advanced search options" and "Sitemap" links. Further right is a "TRAINING News" section with a "Next training course" announcement for August 28 in Taipei, Taiwan, and a link to the "Forthcoming courses and seminars" training schedule. Below that is a "NETWORK Abuse" section with a link for "Help and information" regarding spamming and hacking. At the bottom of the main content area is an "APNIC Calendar" for August 2001, showing a calendar grid with the 21st, 28th, 29th, 30th, and 31st highlighted. Below the calendar is the "Next APNIC meeting" announcement for Taipei, 28-31 Aug. At the bottom right is a "CONTACT Us" section with APNIC office hours: Mon-Fri 9AM - 5PM, and local time: 04:18 PM (UTC +10). On the left side of the screenshot, there is a "WHAT's New" section with three news items: "Senior Systems Administrator position available" (dated 27 July, 2001), "Second APNIC Members and Stakeholders Survey" (dated 28 June, 2001), and "Call for nominations to the Address Council now closed". Below the news items is an "OUR Sponsors" section listing The Wide Project, Cisco Systems, Compaq, SCO, Telstra, and Connect. At the very bottom left of the screenshot is a link: "The new APNIC Homepage".



## Message from the Director General



*“The launch of this newsletter coincides with the 12th APNIC Open Policy Meeting, being held in Taipei during August 2001. In this inaugural introduction I would like to discuss briefly the common goals of the current meeting and of this new publication, APster.”*

Dear Reader

Welcome to the first edition of “APster”, APNIC’s new quarterly newsletter. If you are intrigued by the name, please don’t miss the editorial section!

The launch of this newsletter coincides with the 12th APNIC Open Policy Meeting, being held in Taipei during August 2001. In this inaugural introduction I would like to discuss briefly the common goals of the current meeting and of this new publication, APster.

APNIC Open Policy Meetings serve to support a fundamental aspect of APNIC’s role within the AP region; namely, its function as a self-regulatory industry body representing common interests under a consensus-based governance model. The extended meeting format that was established during 2000 has been able to promote and capture a more diverse range of inputs from a larger community, and the growing support for these meetings has given us confidence of their value to the community.

However, views have been expressed that such meetings can only represent a “hard core” of community interest, and may become less relevant to the wider community of stakeholders. This is both a danger and an inevitable outcome of adopting a single model for participation in APNIC. Therefore this newsletter is an additional vehicle for reaching further into the regional community, both to disseminate information, and (we hope) to promote interest and participation.

While APNIC itself comprises industry participants and represents their interests, the APNIC Secretariat is delegated specific responsibilities in the management (some would say regulation) of IP address usage. This may seem to be a fundamental conflict, but only if we accept a top-down model of “authority”, in which a separate “APNIC” somehow prevails over the interests of its members. On the contrary, APNIC is the sum of its parts, and this community consents to form APNIC and to delegate to its Secretariat a set of functions and responsibilities which are in the common interest.

As Director General, I have strong views and feelings as to the future direction of APNIC. At the same time however, APNIC is a “mutual association” of its membership community, and the APNIC staff and secretariat should act on behalf of that community. We must always balance the need to provide leadership with the need to represent interests and respond to the community. Gathering the inputs of that diverse community is a constant challenge for the APNIC Secretariat, and one that we will continue to actively pursue on multiple fronts.

I hope that APster can serve as a vehicle for debating some of the above issues, for refining and developing the APNIC model, for informing the wider community about APNIC activities, and for prompting participation in APNIC by that community. I have no doubt that the newsletter will change, and I invite all readers to provide feedback to the Editor so that we may develop the publication in response to your needs.

With best regards

Paul Wilson  
Director General.

# Editorial

Welcome to APNIC's first newsletter. APster will be issued quarterly; the next issue is scheduled for a December 2001 release. The newsletter will also be accessible on the APNIC website in PDF format.

APster might at first seem to be an unusual choice of name but it is symbolic the newsletter's role. AP represents the Asia Pacific and 'ster' means "One that is associated with or participates in" so APster is one who is associated with or participates in the Asia Pacific.

APster aims to engage a wide audience not only by educating and informing but also by examining those issues relevant to the evolution of the Internet with a strong emphasis on the Asia Pacific region.

During some brainstorming sessions at APNIC we developed a long list of ideas for the newsletter. Communication with members and the Asia Pacific Internet community rated very highly and of course we're aiming to carry content that meets this objective.

The newsletter's audience includes a wide range of organisations that play a vital role in administering the Internet or in delivering commercial Internet services to users. Naturally, APNIC members are of key importance but there are many other organisations we would like to engage through the newsletter. The AP\* organisations play an integral role in the region while others such as ICANN, IETF and ISOC, to name a few, operate at the global level. APNIC has strong links with these organisations and with the other RIRs (ARIN, RIPE NCC, LACNIC, AFriNIC). The valuable role played by the National Internet registries (NIRs) in the Asia Pacific is recognised too. We hope to reflect information for and from all of these organisations.

I encourage you, as readers of the first issue, to provide feedback to us on content and to make suggestions for future articles. A feedback form and contact details are provided on the back page.

We're aiming to provide in each issue at least one major feature article commissioned from an expert. The first issue includes a history of the development of the RIRs. If you have any ideas for articles or would like to contribute material email me at [robert@apnic.net](mailto:robert@apnic.net).

Our next issue will also carry a Letters section so if you would like to make a comment please send your letters in. Please indicate if you would like your personal details kept confidential and we will withhold them from publication.

At APNIC we receive many queries from members and Internet users. In this issue we've published a few of these. Our website also carries a very comprehensive FAQs section that is well worth a visit.

If you have any questions that you would like answered please submit them and we'll publish them anonymously with answers in the next issue.

So once again, welcome to APster, a newsletter for the Asia Pacific Internet community.

Robert Winkler  
Editor



◀ Vivian Yang, APNIC Event Coordinator (left), with Joanna Tso of TWNIC, host organiser of the 12th APNIC Open Policy Meeting. For meeting information, see Page 4.

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# 12<sup>th</sup> APNIC Open Policy Meeting in Taipei

The 12<sup>th</sup> Open Policy Meeting in Taipei from 28 to 31 August 2001, is the second “stand alone” meeting held by APNIC. Interest in the meeting has been very strong and if pre-registrations are anything to go by, the meeting is destined to be very successful.

## APRICOT 2002

APNIC extends an invitation to all members and friends to attend the next APNIC Open Policy Meeting, which will be held in conjunction with APRICOT 2002 in Bangkok, Thailand, from 5-7 March 2002. Full details will be published on the APNIC meetings website at:

<http://www.apnic.net/meetings>

## 12<sup>th</sup> APNIC Open Policy Meeting *in Taipei*

An impressive range of speakers, many of whom are leading experts in their fields, was assembled for the Open Policy Meeting. The plenary programme included:

- Keynote address on IPv6 Mr Jun Murai
- Wireless LAN, solutions and deployment Mr Tjje Seng
- APCERT Update Mr Suguru Yamaguchi

The meeting continued the multi-day schedule with “Special Interest Group” (SIG) sessions to address the most important topic areas faced by APNIC members today. APNIC Training and Tutorials on IPv6 and RPSL were also included in the programme.

APNIC was supported by the ongoing assistance of Chairs for each of the SIGs, who developed the SIG agendas by calling for and selecting presentations and proposals to be made in their sessions.

### Special Interest Groups

Special Interest Groups (SIGs) provide an opportunity for the Internet community in the Asia Pacific region to discuss topics of interest to APNIC in an open public forum.

IPv6 is a growing priority in the APNIC community and APNIC staff are working to facilitate realistic policies to support the proliferation of IPv6 technologies in the region. For the meeting, the IPv6 SIG was divided into 2 sessions, the first as a joint session with the Address Policy SIG (to discuss IPv6 address policy issues); and the second as a special session on IPv6 technical issues and activities.

### Birds of a Feather (BOFs)

A number of BOF sessions, specifically to address other topics of common interest among the APNIC community were also scheduled for the meeting. These included the APOPS BOF, for Internet operators in the Asia Pacific Region; a Training BOF, for all those who are interested in assisting, developing or hosting APNIC training; a CA BOF, for those who are interested in APNIC’s Certification Authority project; and a new Network Abuse BOF, established in response to the growing number of complaints raised about network hacking and spam which are being received by APNIC today.

### Meeting Host

APNIC acknowledges the valuable contribution that the Taiwan Network Information Center (TWNIC) played as a Special Gold Sponsor and host for APNIC’s 12<sup>th</sup> Open Policy Meeting in Taipei. As the local host, TWNIC contributed extensively to the planning for the meeting, providing support with planning the meeting and with a number of logistical issues. TWNIC hosted a local website providing details for prospective delegates about Taipei and Taiwan.

<http://www.twmic.net.tw/apnic.html>



▼ Special Interest Groups (SIGs), like this one at APRICOT 2001, held in Kuala Lumpur, Malaysia in March 2001, provide an opportunity for the Internet community in the Asia Pacific region to discuss topics of interest to APNIC in an open public forum.

► The magnificent and traditionally styled Grand Hotel, an architectural landmark of Taiwan with legends of secret tunnels, was chosen as the venue for the 12<sup>th</sup> APNIC Open Policy Meeting.



### Meeting Sponsorships

To run Open Policy Meetings at heavily subsidised rates, APNIC depends on support from sponsors. A wide selection of organisations pledged sponsorship for APNIC's 12<sup>th</sup> meeting in Taipei, providing financial and in-kind contributions to help ensure the success of the meeting.

APNIC wishes to thank all those organisations who supported the Open Policy Meeting. Without their valuable contributions it would not be possible to offer a meeting programme of such a high standard.

The following sponsors have very generously supported the Open Policy Meeting.

#### Special Gold Sponsor

Taiwan Network Information Center (TWNIC)	Meeting Host and Social Event Wednesday 29/08/01
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#### Gold Sponsors

Taiwan Fixed Network Co Ltd	Day 4, Friday 31/08/01
Chunghwa Telecom	Internet Connection
Eastern Broadband Telecom	Day 2, Wednesday 29/08/01
Cisco Systems Taiwan	Wireless Network
Reach	Opening Reception
	Tuesday 28/08/01
Sparq - New Century Infocomm Tech	Satchel



#### Silver Sponsors

Chief Telecom Inc	Day 3, Thursday 30/08/01
RealNames Corporation	Day 1, Tuesday 28/08/01
China Internet Network Information Center (CNNIC)	Day 3, Thursday 30/08/01



#### Supporting Sponsors

Teleport Access Services Inc	Miscellaneous
Acer Sertek Inc	Terminal Room
The Grand Hotel	The Grand Ballroom



The following SIGs were scheduled for the meeting:

#### Address Policy

Chair: Takashi Arano, Seung-Min Lee

This SIG is a forum for developing policies and procedures relating to the management and use of Internet address resources by APNIC, NIRs, and ISPs within the Asia Pacific region.

#### Joint Address Policy/IPv6

Chair: Jun Murai, Takashi Arano, Seung-Min Lee

This SIG contains presentations and proposals relating to address policy issues specific to IPv6.

#### IPv6 (Technical);

Chair: Jun Murai

This SIG reviews the status of IPv6 implementations around the region and raises various issues relating to IPv6, including its relevance to today's Asia Pacific Internet environment, hardware and software developments, operational experiences, IPv6 routing and multihoming issues, and deployment plans.

#### Reverse DNS

Chair: Paul Gampe

This SIG examines developments in policies and procedures for reverse DNS operations in the Asia Pacific region. It includes topics such as reverse delegations for IPv6 networks, dynamic updates, secure DNS, and legacy transfers from other databases.

#### Routing

Chair: Philip Smith

This SIG examines important issues of Internet routing and policy in this region and globally, such as Internet routing table growth, de-aggregation of provider blocks, routing stability and flap damping and the Internet Routing Registry.

#### Joint Routing/DB

Chair: Philip Smith, Xing Li

This SIG examines developments in the operation of APNIC's Whois database and discusses related policy issues affecting registration practices and database security. Issues affecting both routing and database are also discussed in this session.

SIG papers and presentations are published on the APNIC website at:

<http://www.apnic.net/meetings/12/programme>

Full details of the SIG discussions will also be posted on the meeting website after the meeting.

# Founding Members Recognised



Founding Member Logo



Member Logo

## Founding Members Recognised

To acknowledge the contribution that founding members played in helping APNIC to form and grow successfully as the Regional Internet Registry (RIR) for the Asia Pacific region, APNIC has formally recognised 93 members with “Founding Member Status”. The names and country codes for Founding Members are listed on the opposite page.

As the year 2001 represents the 5th year of APNIC operations since the establishment of the formal membership structure in 1996, it was an appropriate time to reflect on the valuable contribution made by founding members. Without their involvement, the establishment of a stable RIR in the Asia Pacific region would not have been achieved so rapidly.

A special presentation ceremony is planned for the Open Policy Meeting in Taipei in which a Founding Member Certificate and a small commemorative gift will be awarded. Founding Members not represented at the meeting will receive their Certificates and gifts by courier delivery.

## Member Logos

In addition to recognising Founding Members, APNIC also wanted to give all members an opportunity to receive public recognition of the contribution they make to the development of the Internet through their APNIC membership. All members, regardless of size, play an integral role in the evolution of the Internet, not only through their membership fees that support the APNIC secretariat and the services it provides, but also through active involvement and contribution to policy discussion and formulation.

To allow Founding Members and Members to build greater awareness in their communities of the significant role that they play, APNIC's in house designer, Chiaki Kanno, has developed logos that can be used in print materials or on members' websites. To access the Founding Member and Member logos please send an email to [secretariat@apnic.net](mailto:secretariat@apnic.net) and full details will be provided.

## APNIC Member And Stakeholder Survey



The APNIC Executive Council (EC) recently commissioned a major survey that aims to canvas widely the views of and obtain input from APNIC's community. The results will contribute to APNIC's future planning processes, providing valuable input on the changing needs of members and the Internet community. International management consulting firm, KPMG, is conducting the survey independently.

APNIC, as a membership organisation, relies on community input in planning services, operations, and future developments. Given the fast pace of change in the Asia-Pacific Internet environment, frequent business and strategic planning is needed to fulfil the expectations of APNIC members and of the wider Internet community.



## Founding Members

Organisation Name	Country Code	Organisation Name	Country Code	Organisation Name	Country Code
<b>A</b> Access One Pty Ltd	AU	<b>F</b> Far East Internet Co Ltd	TH	<b>P</b> Pacific Internet Pte Ltd	SG
Asia Pacific Pte Ltd	HK	FIC Network Service Inc	TW	Paradox Digital Pty Ltd	AU
Asia Infonet Inc	TH	Fund for Assistance to		<b>R</b> Reach Networks Hong Kong Ltd	HK
Asia Internet Holding Co Ltd	JP	Private Education	PH	Reach & Range Inc (GCNet)	TW
Asia Online Ltd	HK	<b>G</b> Global Info-Links	AU	<b>S</b> Samart Infonet Co Ltd	TH
Asia Pacific Online Service Inc	TW	Global One	AP	Satyam Infoway (P) Ltd	IN
AT&T EasyLink Services		GlobalNet Telecommunications		Shanghai Internet Information	
Asia Pacific	HK	International	HK	Technology Co Inc	CN
AT&T Global Network		Globe Telecom (GMCR INC)	PH	Siam Global Access Co Ltd	TH
Services Japan	AP	<b>H</b> Hong Kong Air Cargo Terminals Ltd	HK	Singapore Cablevision	SG
AUNET Corporation	AP	Huge Net Ltd	HK	SingNet Pte Ltd	SG
Australian Academic and		<b>I</b> iBasis (Hong Kong) Ltd	HK	Starhub Internet Pte Ltd	SG
Research Network	AU	Idea Net Co Ltd	TH	Swiftcom Sdn Bhd	MY
<b>B</b> BRAC BDMail Network Ltd	BD	Indosat (PT)	ID	<b>T</b> Taiwan Network Information Center	TW
<b>C</b> Cable Wireless Optus	AU	InterdotNet Philippines	PH	Telecom New Zealand Ltd	NZ
Chevalier (Internet) Ltd	HK	Internet Online HK Limited	HK	Telekomunikasi Indonesia (PT)	ID
China Education and		Internet Plus	AU	Telia AB RouterNet/Internet	AP
Research Network (CERNET)	CN	Internet Thailand Company Ltd	TH	Telstra Corporation	AU
China Engineering Technology		IXTech Limited	HK	Telstra Saturn Ltd	NZ
Informations Network	CN	<b>J</b> Japan Network Information Center	JP	The Chinese University of	
China Internet Corporation Limited	HK	Ji Tong Communication Co. Ltd.	CN	Hong Kong	HK
China Internet Network		<b>K</b> KDD Telecomet Hong Kong Ltd	HK	The Communications	
Information Center	CN	Korea Network Information Center	KR	Authority of Thailand	TH
China Network Service (HK) Ltd	HK	Korea Telecom	KR	The State Information	
China Telecom	CN	KSC Commercial Internet Co Ltd	TH	Center of P.R. China	CN
Companhia de Telecomunicacoes		Kuentos Communications Inc	GU	<b>U</b> Uninet Corp	CN
de Macau	MO	<b>L</b> Lanka Communication		United Telecommunications Pty Ltd	AU
ComputerLand Communication		Services (Pvt) Ltd	LK	University of Queensland	AU
System Ltd	NP	Lanka Internet Services Ltd	LK	UUNET Technologies Inc	AP
COMSATS	PK	Linkage Online Ltd	HK	<b>V</b> Videsh Sanchar Nigam Ltd	IN
connect.com.au Pty Ltd	AU	Loxley Information Co Ltd	TH	Vision Network Ltd	HK
CS Communication Co Ltd	TH	<b>M</b> MIMOS Berhad	MY	<b>W</b> Web Link Philippines Inc	PH
<b>D</b> DataCom Co Ltd	MN	<b>N</b> National Informatics Centre	IN	Webcentral.com	AU
Dataline Thai Co Ltd	TH	National University of Singapore	SG	WebScape Philippines	PH
Deutsche Telekom K.K.	AP	Netfront Information Technology Ltd	HK	WOL Communications Limited	HK
Dhiraagu Pvt Ltd	MV	Netspace Online systems Pty Ltd	AU		

The Second APNIC Members and Stakeholders Survey involves questionnaires and a series of direct consultation meetings being held throughout the Asia Pacific region. Dr John Earls of KPMG and Dr Tan Tin Wee of the National University of Singapore are travelling in the Asia Pacific region, undertaking direct consultations with APNIC members and stakeholders.

Another important aspect of this survey is that input will be possible in the Asia-Pacific language of your choosing, whether during the in country meetings, or through written responses.

The survey is well under way and the research team has already approached many members seeking their involvement. Interviews have been held with many members and small group discussion

sessions were also planned for the 12<sup>th</sup> Open Policy Meeting in Taipei. We expect that this survey will be completed in November 2001, with a report from the consultants to the APNIC EC.

APNIC strongly encourages the participation of all interested parties in this important survey. More information is available on the survey website at:

<http://www.apnic.net/survey/2001>

Or, if you would like to participate in the survey and have not already been contacted, email Dr Earls at:

[jeails@kpmg.com.au](mailto:jeails@kpmg.com.au)

# Development of the Regional Internet Registry System

By Paul Wilson and Gerard Ross

- with additional contributions from ARIN and RIPE NCC.

## Introduction

The current system of management of Internet address space involves Regional Internet Registries (RIRs), which together share a global responsibility delegated to them by the Internet Assigned Numbers Authority (IANA). This regime evolved over the past 10 years from a much simpler centralised system, originally managed by a single “authority”, namely the late Jon Postel, founder of the IANA and inventor of some of the most important technical features of the Internet.

In a relatively short time, the Regional Internet Registry system has evolved into a stable environment for Internet address management. It is maintained today through self-regulatory practices which are well established elsewhere in the Internet and other industries, and it maintains its legitimacy and relevance by firmly adhering to open, transparent, participatory decision-making processes.

## Before the RIRs

### IP Address Architecture

The Internet Protocol was first invented to allow separate networks to be interconnected, using an architecture which combined in a single address the addresses of both an individual network host and the specific network to which it was connected. This original Internet addresses comprised 32 bits - 8 bits for the network address and the 24 bits for the host address. The Internet header space had sufficient capacity for 256 networks.

In June 1978, Clark and Cohen observed in IEN46 (“A Proposal for Addressing and Routing in The Internet”) that a very large number of small networks could be expected to arise within the rapidly-growing Internet. As predicted, it was soon necessary to adapt the address architecture to allow more networks to be connected. By the time the Internet Protocol itself was comprehensively specified (in RFC 790, published in 1981 and edited by the late Dr Jon Postel), the IP address could be segmented in a number of ways, to provide 3 classes of network address: A, B, and C). This so-called “classful” architecture served the Internet for the next 12 years.

### Classful Address Assignment

From the first days of the Internet, assigning addresses was a necessary administrative duty, to ensure that no two networks would attempt to use the same network address on the Internet. Jon Postel maintained a list of assigned network addresses voluntarily, using (according to legend) a paper notebook for this task.

As the Internet grew, and particularly as classful addressing was established, the administrative task grew accordingly. The Internet Assigned Numbers Authority (IANA) was established, and within it the so-called Internet Registry (IR). As the IR outgrew Dr Postel's notebook, it was eventually operated by SRI International as DDN-NIC, with ongoing support of the US Government.

During this time, under the crude classful address architecture, networks were allocated liberally to any organisation that fulfilled the simple request requirements. However with the accelerating growth of the Internet during the late 1980's, two problems loomed: the rapid depletion of address space due to the crude classful division of address space; and the uncontrolled growth of the Internet routing table due to unaggregated routing information.

Responding to this problem, the Internet Engineering Task Force (IETF) initiated a redesign of the architecture to allow both a finer subdivision of address space, and control of routing table growth through hierarchical aggregation of routing information. Both goals were achieved with the development of the Classless Inter-Domain Routing (CIDR) architecture, which allowed the boundary between the network and host portions of an Internet address to be located on any bit.

At the same time the Internet was becoming increasingly diverse culturally, posing administrative challenges for the central IR. In October 1992, the IETF published RFC-1366, which set out the basis for an evolution of the registry process, based on a regionally distributed registry model. This document stressed the need for single registry to exist in each geographical region (to be of “continental dimensions”). Registries would be “unbiased and widely recognized by network providers and subscribers” within their region. Each registry would be charged with allocating remaining address space in a manner “compatible with potential address aggregation techniques”, which would subsequently become known as CIDR.

The result of these (and subsequent) recommendations was to lead to a scalable, stable, and accountable Regional Internet Registry (RIR) system. Regional consensus processes soon began in Europe, the Asia-Pacific, and North America. Similar processes are now ongoing in the Latin American and Caribbean region and the African region.

► APNIC maintains close relationships with many other organisations involved in the governance of the Internet and regularly attends meetings and conferences organised by these groups. Here, APNIC's Policy and Liaison Manager, Anne Lord, presents a paper on the status of IPv6 allocations in the Asia Pacific region at the Global IPv6 Forum held in Korea during July 2001.



## Emergence of the RIRs

### Goals of the RIRs

While IANA retained ultimate responsibility for the entire address pool, in 1992 it commenced recognition of RIRs that had gained the consensus of their respective regional Internet communities. Within a year or two, RIPE NCC and APNIC were established to serve the regions of Europe and Asia Pacific respectively, while the InterNIC (now succeeded by ARIN) continued to serve North America. Each body also operated in agreed areas surrounding their core regions, to provide global coverage.

During 1995 and 1996 the three operating RIRs collaborated on the production of RFC-2050, the first comprehensive description of global address management policy and procedures. In this document, the three primary goals of the RIR system are described as:

- a** Conservation - to ensure efficient use of a finite resource and to avoid service instabilities due to market distortions (such as stockpiling or other forms of manipulation);
- b** Aggregation (routability) - to assist in maintenance of Internet routing tables at a manageable size, by supporting CIDR techniques to ensure continued operational stability of the Internet;
- c** Registration - to provide a public registry documenting address space allocations and assignments, necessary to ensure uniqueness and provide information for Internet troubleshooting at all levels.

### The open policy framework

It was always recognised that these goals would often be in conflict with each other and with the interests of individuals and organisations. It was also recognised that legitimate regional interests could justify varying approaches in balancing these conflicts. Therefore, within the global framework, each regional community has been free to develop its own specific policies and procedures.

While the specific approaches may differ across the RIRs, all operate on a basic principle of open, transparent, consensus-based decision-making, following self-regulatory practices which exist elsewhere in the Internet and other industries. Furthermore, the RIRs all maintain not-for-profit cost recovery systems and organisational structures that seek to be inclusive of all interested stakeholders.

The activities and services of each of the RIRs are defined, performed, discussed, and evaluated in open forums, whose participants are ultimately responsible for decision-making. To facilitate broad participation, open policy meetings are hosted by RIRs regularly in each of the regions.

### RIR functions

The primary function of each RIR is to ensure the fair distribution and responsible management of IP addresses and the related numeric resources that are required for the stable and reliable operation of the Internet. In particular, the resources allocated, assigned, and registered by RIRs are Internet address numbers (IPv4 and IPv6) and Autonomous System Numbers. RIRs are also responsible for maintaining the reverse delegation registrations of the parent blocks within their respective ranges.

Complementing their registry function, the RIRs have an important role in educating and informing their communities. The activities carried out by the individual RIRs vary, but include open policy meetings, training courses, seminars, outreach activities, statistical reporting, general publications, and research.

Additionally, a crucial role for the RIRs is to represent the interests of their communities, by participating in global forums and providing support to other organisations involved in Internet addressing issues. (► to Page 10)

## APNIC Training and Seminar Schedule

### 2001

**24-25 September**  
Jakarta, Indonesia

**27-28 September**  
Pakistan

**9 October**  
Brisbane, Australia

**20-21 November**  
Mumbai, India

**22-23 November**  
Hyderabad, India

**6 December**  
Yokohama, Japan

### 2002

**22-25 January**  
Beijing, China

**25 February**  
Bangkok, Thailand

**25 March**  
Singapore

**26 March**  
Kuala Lumpur, Malaysia

**23-24 April**  
Hong Kong

**24-25 April**  
Guangzhou, China

**21-22 May**  
Dhaka, Bangladesh

**23-24 May**  
Kathmandu, Nepal

**25 June**  
Melbourne, Australia

**23-24 July**  
Bangalore, India

**25-26 July**  
Colombo, Sri Lanka

\*The above schedule is provisional and is subject to change.



◀ Takashi Arano, one of the Asia Pacific Address Council representatives.

## Existing RIRs

### APNIC

APNIC (Asia Pacific Network Information Centre) was established in 1993, as a pilot project of the Asia Pacific Networking Group. Originally based in Tokyo, APNIC is now located in Brisbane, Australia. It serves the Asia Pacific region (which includes 62 economies from Central and South Asia to the Islands of Oceania and the Western Pacific). APNIC is a membership-based organisation currently servicing over 650 member organisations, across 40 economies of the region.

### ARIN

ARIN (American Registry for Internet Numbers) began operations in December 1997, assuming the responsibility of Internet numbers registration formerly administered by the InterNIC. It is located in Chantilly, Virginia, United States. The ARIN service region incorporates 70 countries, covering North America, South America, the Caribbean, and African countries located south of the equator. ARIN currently consists of more than 1,500 members.

### RIPE NCC

The RIPE NCC (Réseaux IP Européens Network Coordination Centre) was established in 1992 and has operated as a membership association since 1 January 1998. It was originally formed to perform the essential coordination and administration activities required by the RIPE community. It is located in Amsterdam, Netherlands. The RIPE NCC service region incorporates 109 countries covering Europe, the Middle East, Central Asia and African countries located north of the equator. The RIPE NCC currently consists of more than 2,700 members.

▶ from Page 9)

## Emerging RIRs

The existing RIRs currently serve countries outside their core regions; however new RIRs are expected to emerge, necessitating changes to the existing service regions. Currently, two groups have made significant progress in seeking to establish new RIRs. AfriNIC (for the Africa region) and LACNIC (for Latin America and the Caribbean) have each conducted public meetings, published documentation, and participated in the activities of the existing RIRs. In recognition of the regional support they have so far obtained, each organisation has been granted observer status at ASO meetings. The existing RIRs have also sought to provide as much assistance and support as possible to these emerging organisations.

## RIRs and the global Internet community

### Formation of ICANN and the ASO

The global Internet governance landscape began to undergo radical changes in mid 1998, with the publication of a United States government white paper outlining the formation of a “not-for-profit corporation formed by private sector Internet stakeholders to administer policy for the Internet name and address system”. The Internet Corporation for Assigned Names and Numbers (ICANN) was formed later that year.

At the heart of the ICANN structure are “supporting organisations” which are formed to “assist, review and develop recommendations on Internet policy and structure” within specialised areas. In October 1999, the existing RIRs and ICANN jointly signed a memorandum of understanding to establish the principles for forming and operating the Address Supporting Organization (ASO). It is intended that new RIRs will sign the MoU as they emerge.

### RIR-ASO coordination

Since the formation of the ASO, the RIRs have strongly supported and facilitated its activities. By joint agreement, the RIRs share the ASO secretariat duties, including the hosting of the ASO web site, on a revolving basis. APNIC provided these services in the ASO’s first year of operation (during 2000) and RIPE NCC is currently performing this role.

## The future of RIRs

In Internet time it can be easy to forget that eight years is actually not long. Since it was first proposed in 1992, the RIR system has evolved continuously, enjoyed strong community support, and has been relatively free of the political wrangling that has characterised the registration systems of other Internet resources. Without doubt, this position is largely due to the early determination to provide accessible, open forums for the interested stakeholders in the various regions.

New technologies, such as mobile access, broadband services, and IPv6 may raise operational and policy challenges to the RIRs, yet at the same time they bring opportunities for increased global cooperation, in a context where distinct regional concerns are represented more effectively than ever before.

\* This article is a summary of a more detailed paper that will be published in the Internet Protocol Journal.

## Links

APNIC — <http://www.apnic.net>

ARIN — <http://www.arin.net>

RIPE NCC — <http://www.ripe.net>

AfriNIC — <http://www.afrinic.org>

LACNIC — <http://lacnic.org>



◀ Son Tran, APNIC's  
Member Services Manager

## Operations Update

### Member Services Department

Most APNIC members need to deal closely with the Member Services Department at some stage. Applications for Internet resources, such as IPv4 or IPv6 addresses, Autonomous System numbers (ASNs), and reverse DNS delegation are processed in this department.

#### Staff Expansion

To ensure the highest standards of service are maintained and that address policies are administered fairly and equitably, Hostmasters undergo comprehensive training. The Member Services Department is expanding to keep pace with growth and has recently offered positions to two overseas applicants. By the end of 2001, there will be seven Hostmasters working in the department. Members have a choice of languages to communicate with the Hostmasters, with the following languages being spoken in the team:

- Chinese - Mandarin and Cantonese
- Filipino (Tagalog)
- Sinhalese
- Thai
- Bangla
- Hindi and Vietnamese.

### Training Department

APNIC provides training for members at subsidised rates as a membership benefit. Nominal fees are, necessary to cover the basic costs incurred. The training course, "Effective IP Address Management: Asia-Pacific Policies and Procedures" is an important presentation of current APNIC policies, provides a guide to completing APNIC request forms successfully, and covers important sections such as preparing a network plan, APNIC database procedures, AS procedures, Reverse DNS, and IPv6.

A full training schedule until mid 2002 has now been released (see Page 9). If you would like to attend any of the proposed training sessions scheduled for your area please send an email indicating your interest to [training@apnic.net](mailto:training@apnic.net).

#### Who should attend the APNIC training?

The target audience for APNIC training is technical personnel located in the Asia and Pacific Region, who have responsibility for allocating and/or assigning IP addresses. For example, hostmasters from network information centres or ISPs, network planners, designers and network installation engineers. Topics include:

- How to prepare an addressing plan
- APNIC database procedures
- AS request procedures
- Fees
- APNIC address request procedures
- In-addr.arpa procedures
- IPv6 overview

#### Training Sponsorships

To defray training costs APNIC also offers training sponsorships to local organisations. If you are interested in sponsoring any of the proposed training events, please contact us at [sponsorships@apnic.net](mailto:sponsorships@apnic.net) to register your interest. All sponsorships are granted on a first-come first-served basis.

### Technical Department

#### Legacy Address Migrations

Legacy IP address allocations made prior to the establishment of the Regional Internet Registry (RIR) model were often not administered by the respective RIR. For instance, ARIN is responsible for much of the legacy address space previously allocated in the early years of the Internet but which is not under ARIN's geographic area. Similarly, some countries, such as Australia, had legacy allocations that were administered, not by the RIR, but by a National Registry - in Australia's case, AUNIC. (▶ to Page 12)

## RIR Update

### ARIN

#### New Policy Approved and Process Validated

Community consensus on a virtual web hosting policy was recently reached by utilising ARIN's Internet Resource Policy Evaluation Process. Discussion at two ARIN Public Policy meetings (October 2000 and April 2001) and on public mailing lists culminated in the July 27 ratification by the ARIN Board of Trustees of the following policy:

"When an ISP submits a request for IP address space to be used for IP-based web hosting, they will supply (for informational purposes only) their technical justification for this practice. ARIN will analyze this data continuously, evaluating the need for future policy change."

The policy process can be found on the ARIN website at:

[http://www.arin.net/arin/policy\\_eval\\_process.html](http://www.arin.net/arin/policy_eval_process.html)

While ARIN members and interested parties in the geographic community served by ARIN have always initiated address policy creation and change, documentation and publication of the process in March attests to ARIN's open and transparent mode of operation.

#### Fall Meeting Taking Shape

ARIN's next Public Policy and Members Meeting will be held from 28 to 31 October 2001 in Miami, Florida. Sunday afternoon tutorials will be offered, followed by two days of public policy discussion.

ARIN's representative to the ASO AC will be elected on the first day of the public policy meeting. The October Members meeting is especially important as candidates for open seats on the ARIN Board of Trustees and ARIN Advisory Council are offered an opportunity to present their credentials to the membership at their Wednesday morning meeting. The online election process begins the week following the meeting. The Public Policy portion of the meeting is open to the general public with a minimal registration fee charged to non-members. Further details can be obtained at:

[http://www.arin.net/meetings/ARIN\\_VIII](http://www.arin.net/meetings/ARIN_VIII)

# Calendar

## ICANN Meetings

7-10 September 2001

Montevideo, Uruguay  
<http://www.icann.org/montevideo>

## MINC Meeting

10 September 2001

Montevideo, Uruguay  
<http://www.minc.org>

## RIPE 40 Meeting

1-5 October

Prague Congress Centre, Prague,  
Czech Republic  
[http://www.ripe.net/ripe/meetings/  
current/ripe-40/](http://www.ripe.net/ripe/meetings/current/ripe-40/)

## NANOG

21-23 October 2001

23rd Meeting of the North American  
Network Operators' Group  
Oakland Marriott City Center,  
Oakland, California,  
<http://www.nanog.org/mtg-0110>

## ARIN VIII

28-31 October 2001

Public Policy and Members Meetings  
Miami, Florida, USA  
[http://www.arin.net/meetings/ARIN\\_VIII](http://www.arin.net/meetings/ARIN_VIII)

## ICANN Meeting including third Annual Meeting

12-15 November 2001

Marina del Rey, California, USA  
<http://www.icann.org/meetings>

## MINC Meeting

### MINC-ISOC Joint Workshop

16-17 November 2001 (Tentative)

Los Angeles  
<http://www.minc.org>

## Japan Internet Week

3-7 December 2001

Yokohama, Japan  
<http://internetweek.jp>

## IETF 52

9-14 December 2001

Salt Lake City, Utah, USA  
[http://www.ietf.org/meetings/  
meetings.html](http://www.ietf.org/meetings/meetings.html)

## MINC Meeting

9-14 December 2001

Salt Lake City, Utah, USA  
[http://www.minc.org/events/  
forthcoming.html](http://www.minc.org/events/forthcoming.html)

## RIPE 41

14-18 January 2002

Amsterdam, Netherlands  
March 2002  
<http://www.ripe.net/ripe/meetings>

## IETF 53

17-22 March 2002

Minneapolis, Minnesota, USA

## APRICOT 2002

Bangkok, Thailand

5-7 March 2002  
<http://www.apricot.net>

## ICANN Meetings

March 2002 (tentative)

Sub-Saharan Africa

► from Page 11) As part of the ongoing plans to move the administration of any legacy address space to the respective RIR, APNIC's Technical Department coordinated the transfer of records pertaining to the legacy address space originally allocated by AUNIC. The transfer allowed APNIC to test systems for migrating and translating data. The records were successfully migrated and special procedures put in place to ensure that holders of address space allocated by AUNIC can make authorised changes to objects.

The procedure also allowed APNIC to test these systems in anticipation of the transfer of legacy address space from ARIN that is planned for later in 2001.

## How to contact APNIC

- |                   |   |
|-------------------|---|
| ● Location:       | Level 1, 33 Park Road, Milton, Brisbane<br>Australia    |
| ● Postal Address: | PO Box 2131, Milton 4064 QL D, Australia                |
| ● Phone:          | +61-7-3367-0490   |
| ● Fax:            | +61-7-3367-0482   |
| ● Web site:       | <a href="http://www.apnic.net">http://www.apnic.net</a> |

## Emailing APNIC

To ensure that email requests are tracked and processed efficiently, APNIC operates a range of mailbox accounts.

### Enquiries

- General, including spam and network abuse:
- Membership:
- Account:
- Hostmaster (filtered)\*:
- Web site:
- Technical:
- APNIC database:
- Meetings:
- Sponsorships:
- APster Newsletter:

### E-mail Address

[info@apnic.net](mailto:info@apnic.net)  
[member-apply@apnic.net](mailto:member-apply@apnic.net)  
[billing@apnic.net](mailto:billing@apnic.net)  
[hostmaster@apnic.net](mailto:hostmaster@apnic.net)  
[webmaster@apnic.net](mailto:webmaster@apnic.net)  
[technical@apnic.net](mailto:technical@apnic.net)  
[apnic-dbm@apnic.net](mailto:apnic-dbm@apnic.net)  
[meetings@apnic.net](mailto:meetings@apnic.net)  
[sponsorships@apnic.net](mailto:sponsorships@apnic.net)  
[apster@apnic.net](mailto: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](mailto:billing@apnic.net).

## 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. Please fax (+61-7-3367-0482) or email ([apster@apnic.net](mailto:apster@apnic.net)) these to us.

Name:	<input type="text"/>
Position:	<input type="text"/>
Organisation:	<input type="text"/>
Member Account Name: (if applicable)	<input type="text"/>
Phone:	<input type="text"/>
Fax:	<input type="text"/>
Email:	<input type="text"/>
Comments/Suggestions:	<input type="text"/>

