APNIC is one of three Regional Internet Registries (RIRs) currently providing allocation and registration services to support the operation of the Internet globally

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APNIC

2001 Annual Report

Asia Pacific Network Information Centre

APNIC

"Addressing the challenge of responsible Internet resouce
distribution in the Asia Pacific region."

Highlights of 2001

Founding members recognised

Membership structure expanded

APNIC exceeds RIPE NCC IPv4 allocations

APster and new web site launched

APNIC meeting reports

Policy developments

Second member and stakeholder survey

Contents

APNIC Director General, Paul Wilson

Introduction

Dear APNIC Member

2001 was a busy and successful year for APNIC, as this Annual Report shows. The Secretariat has continued to consolidate and professionalise its activities and services, and the hard-working APNIC staff has achieved a great deal.

Since the industry downturn of 2000, the past year has been slower for APNIC in terms of membership growth. Despite this, allocations of Internet resources have continued to increase. In fact, for the first time last year, APNIC allocated more IPv4 address space than did RIPE NCC. It is clear, therefore, that in spite of industry uncertainty, the growth of Internet infrastructure continues strongly in our region.

Interesting trends are emerging in APNIC's membership growth patterns. The "boom" in new memberships has declined, but in its place, many small APNIC members have been acquired by larger members. Some of these mergers and acquisitions have resulted in membership closures, which we need to watch carefully. In some parts of our region, however, new membership growth continues.

A growth area for APNIC is our collection of online services, primarily the Whois and reverse DNS servers used by the Internet community worldwide. Query rates on these services continue to climb exponentially and APNIC staff have made substantial upgrades to the service infrastructure and architecture. Rather than continuing in a centralised model of service delivery, these services will in future be distributed within the region, to maximise service availability and efficiency.

A major activity of the past year was the second *APNIC Member and Stakeholder Survey*, commissioned by the APNIC Executive Council and carried out by independent management consultancy firm KPMG. This survey received inputs from nearly 200 contributors in over 20 economies, through written forms and face-face consultations (held in 11 cities of the region). The consultants' report, now released publicly, has received a formal response from the APNIC Executive Council and will guide APNIC's planning and operational activities in the coming year and beyond.

One of the highlights of 2001 in my eyes was *APNIC 12*, held in Taipei last August. This was the best-attended APNIC meeting ever and it also produced the strongest outputs in terms of policy development and community participation. Furthermore, the location and venue for this meeting were indeed memorable, which I know contributed to a very positive experience for all who attended.

Financially, APNIC has maintained its strength and we continue to hold in reserve a full year's operating expenses, in line with Executive Council policy. With some uncertainties in future industry growth patterns, I am glad to report that our position is strong for the present and we have capacity to adapt to changing conditions without any risk to core membership or community services.

I would like to express my sincere gratitude to all APNIC members for your ongoing support of our common mission. On behalf of all the staff of APNIC, I look forward to serving you in the coming year.

Paul Wilson

Director General

What is APNIC?

APNIC is one of three Regional Internet Registries (RIRs) currently providing allocation and registration services to support the operation of the Internet globally. It is a not-for-profit membership organisation, whose members and stakeholders determine the policies and direction of the organisation through open and consensus-based participatory processes.

What is APNIC's role?

Within the Asia Pacific region, APNIC is charged with ensuring the fair distribution and responsible management of IP addresses and the related numeric resources which are required for stable and reliable operation of the Internet globally. APNIC provides resource services, training and education, open policy meetings, and representation of regional community interests on the global stage.

APNIC serves the entire Asia Pacific region, comprising the following 62 economies* in Asia and Oceania.

Economies in the AP region

Afghanistan	Kiribati	*Palau*
American Samoa	Korea, Dem. People's Rep.	**Papua New Guinea**
Australia	Korea, Republic of	Philippines
Bangladesh	**Laos People's Dem. Rep.**	Pitcairn
Bhutan	**Macau**	Reunion
British Indian Ocean Territory	Madagascar	**Samoa**
Brunei Darussalam	**Malaysia**	Seychelles
Cambodia	Maldives	Singapore
China	Marshall Islands	**Solomon Islands**
Christmas Island	**Mauritius**	**Sri Lanka**
Cocos (Keeling) Islands	Mayotte	**Taiwan**
Comoros	Micronesia, Fed. States of	**Thailand**
Cook Islands	**Mongolia**	Tokelau
East Timor	**Myanmar**	Tonga
Fiji	Nauru	Tuvalu
French Polynesia	Nepal	*Vanuatu*
French Southern Territories	**New Caledonia**	**Viet Nam**
Guam	**New Zealand**	Wallis and Futuna Islands
Hong Kong	Niue	
India	Norfolk Island	
Indonesia	*Northern Mariana Islands*	**Total economies: 62**
Japan	Pakistan	**Total with APNIC members: 41**

How is APNIC structured?

APNIC's structure provides openness and transparency in all decision making processes. This structure comprises:

· Members, who vote on issues during Member Meetings and provide input through various channels throughout the year.

· APNIC Open Policy Meetings, where all interested parties may participate in knowledge sharing, networking, policy development, and training.

· An Executive Council (EC), elected by the members to represent them in a policy- and decision-making capacity between Member Meetings.

· A General Secretariat, APNIC's staff, which carries out the day to day work of the organisation.

Membership status

Expansion of APNIC membership structure

Since 1996, APNIC has operated under a tiered membership structure, reflecting the diversity within the APNIC membership and providing a fair basis for financial contributions. In 2000, the membership structure was amended to formally link membership tier to address holding and to add an additional tier for Very Large members (extending the existing tiers of Small, Medium, and Large).

In 2001, the membership structure was refined and expanded further. The membership tiers are now: Associate, Very Small, Small, Medium, Large, Very Large, and Extra Large. The changes, which were accepted at *APNIC 12* in Taipei and took effect in December, make APNIC membership more inclusive and accessible, while also responding to industry trends in the Asia Pacific Internet community.

The introduction of the *Associate* tier, along with the abolition of the former account start-up fee, lowers the bar for entry into the APNIC membership, allowing interested, non-resource-holding parties greater access to participation in APNIC activities.

Replacing the start-up fee is a once-only *IP resource application fee* which applies only to the first application a member makes for IP addresses (AS numbers and other services are exempt from this charge). Members who receive address space do not have their tier re-evaluated until the end of each annual membership term, meaning a saving to new members in their first year.

The new *Very Small* tier caters for members with resource holdings smaller than the minimum allocation and is consistent with new policies accepted in 2001 relating to assignments for multihoming organisations and Internet Exchange Points (see "AP policy development", page 14).

Finally, the addition of the *Extra Large* tier responds to the trend for increased mergers and acquisitions in the industry and the consequent accumulation of larger address pools within individual organisations.

With economic indicators pointing to slower growth in the global Internet industry in 2002, the expanded structure is hoped to provide the ongoing basis for an inclusive, fair, and financially stable APNIC membership.

A full description of the new membership structure is available at http://www.apnic.net/docs/corpdocs/member-fee-schedule.html

New Membership Agreement adopted

A new *Standard APNIC Membership Agreement* was approved by membership vote at *APNIC 12* in Taipei. The new agreement was developed over a period of nearly two years, during which time five successive versions were published to the APNIC community and discussed at length.

Important aspects of the new agreement include:

· clear statements of the democratic principles underlying APNIC's activities;

· clarification of the rights and obligations of both APNIC and members, including APNIC's duty of non-disclosure;

· the introduction of a notice and appeal process to help avoid legal disputes; and

· the incorporation of APNIC official documents, in accordance with the document review policy.

The new agreement will replace the previous document as new members join or existing members renew their memberships after 1 December 2001.

The Standard APNIC Membership Agreement *is available at*
http://www.apnic.net/docs/corpdocs

Membership growth summary

APNIC membership growth slowed in 2001 with a net increase in total membership of only 97 members (an average of 8 members per month). This compares with growth in 2000 of 206 members (17 per month).

A significant factor limiting overall membership growth in 2001 has been the rate of membership closures during the year. In 2001, we saw a total of 60 members closed (an average rate of 5 per month), which is higher than at any time in APNIC's past. A further concern is that although many closures were the result of company acquisitions within the region, there has been no overall increase in members at the higher tiers of membership. In fact, while membership in 2001 grew by 16 percent, the total number of votes held by APNIC members increased by only 15 percent (representing a small proportional decrease in members at the higher levels).

APNIC membership growth 2001 (net, by month)
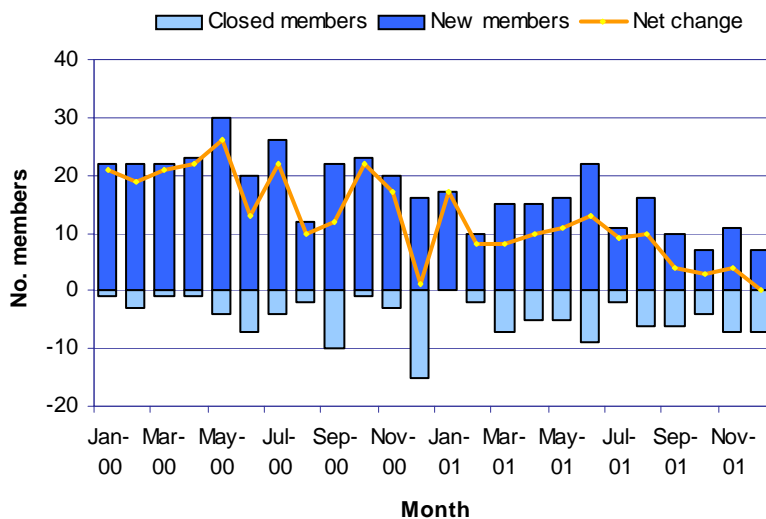
Because membership growth in future will depend on several economic and industry factors, it is not possible to accurately forecast membership numbers for 2002. Therefore, APNIC will adopt a prudent approach to planning for the coming year.

Recognition of founding members

APNIC 12, in Taipei in August 2001, closely followed the fifth anniversary of APNIC's membership structure being introduced. To mark the occasion, Founding Member certificates were prepared for those organisations which had supported APNIC from the start.

More than 25 of the 93 founding members were present at *APNIC 12* to receive their certificates, which acknowledge the contribution that founding members played in helping APNIC establish and grow successfully.

A list of the APNIC Founding Members is available at
http://www.apnic.net/member/founders.html

APNIC has also developed special badges for members and founding members to display on their web sites and in other material. These badges give members an opportunity to receive public recognition of the contribution they make to the regional Internet development.

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APNIC Secretariat status

The APNIC staff

Staffing of the APNIC Secretariat was further consolidated during 2001, with some additional recruitment, particularly in the key service areas of hostmaster, technical, and administrative support. The staff totalled 32 by the end of 2001. Retention rates at APNIC remain high, protecting the organisation's investment in staff training and ensuring consistent service levels.

APNIC's staff continues to reflect the diversity of the Asia Pacific community, with 14 of the region's languages spoken. Multilingual staff provide translation assistance in relation to APNIC training courses and help to make hostmaster consultation sessions at APNIC meetings more accessible. By the end of 2001, plans were well advanced for APNIC members to gain even more benefit from this linguistic resource, with the launch of a multilingual helpdesk early in the new year (see "Major ongoing projects: Member Services Helpdesk", page 18).

APNIC staff preparing for the 12th APNIC Open Policy Meeting in Taipei, August 2001.

AP region languages spoken at APNIC

Bahasa Indonesian
Bangla
Cantonese
French
Hindi
Japanese
Korean
Malay
Mandarin
Filipino (Tagalog)
Taiwanese
Telugu
Thai
Vietnamese

Low to moderate staffing growth is predicted for 2002, primarily to further increase regional representation in hostmaster services and to boost development and delivery of APNIC's training services.

Requests processed, by internal queue 1999-2001 (monthly)
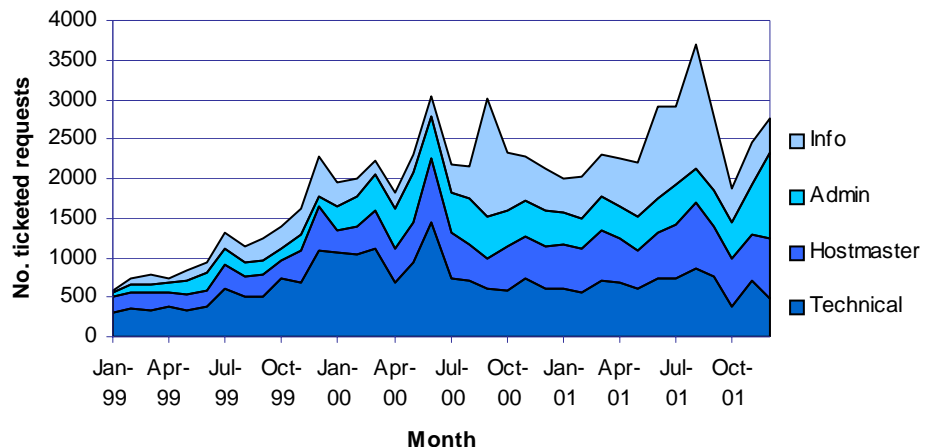
Global Internet coordination

ICANN and ASO activities

APNIC passed the ASO Secretariat functions to RIPE NCC at the end of 2000, but remained closely involved in ASO activities throughout 2001. APNIC staff took part in all ASO Address Council meetings and presented at the ASO General Assembly held in San Francisco during the ARIN VII meeting.

Of particular note, APNIC, ARIN, and RIPE NCC assisted the ASO in the development of the document *Criteria for establishment of new Regional Internet Registries*. This document was accepted by the ICANN Board of Directors in June 2001 as a "statement of essential requirements for the recognition of new Regional Internet Registries (RIRs)". Work continues on the formation of LACNIC and AfriNIC, within the framework described in that document.

In January 2001, Mr Seung-Min Lee (KR) took up his position as an Asia Pacific representative on the Address Council, alongside Mr Takashi Arano (JP) and Professor Wu Jianping (CN). Address Council elections were also held at *APNIC 12* in Taipei, with Dr Kenny Huang (TW) elected to fill the seat vacated by Professor Wu at the end of 2001.

RIR coordination

RIR comparative policy overview

Central to the Regional Internet Registry system is the understanding that regional variations in policy and procedure are often necessary and desirable. Within a framework of globally accepted goals and principles, each region develops specific policies through open, transparent, and participatory processes. In 2001, in an effort to assist the ASO and the global Internet community understand regional variations in address policy, the three existing RIRs developed the *RIR Comparative policy overview*. This document contains a matrix clearly setting out both the differences and the similarities in address policy in the respective regions.

The RIR Comparative policy overview *is available at*
http://www.arin.net/governance/rir_comp_matrix.html

Global IPv6 policy development

In the case of IPv6 addressing, the three regions combined from the start to develop a single global policy under for IPv6 allocation services. The original IPv6 policy has been under intensive review in all three regions throughout 2001. An editorial team has been formed with representatives from each region, to prepare a draft incorporating the input from the various policy forums. In response to a request from the RIPE community, APNIC established the *global-v6* mailing list to assist coordination of global discussions.

Archived discussions from the global-v6 mailing list are available at
http://www.apnic.net/mailing-lists/global-v6

RFC 2050 review

In response to several requests from the Internet community, the combined RIRs also commenced a review of RFC 2050. The intention of this review is to consider the current relevance of RFC 2050 to today's Internet Registry system and, if necessary, to propose a set of updated principles applicable to current needs.

Archived discussions from the RFC 2050 Working Group mailing list are available on the ARIN web site at
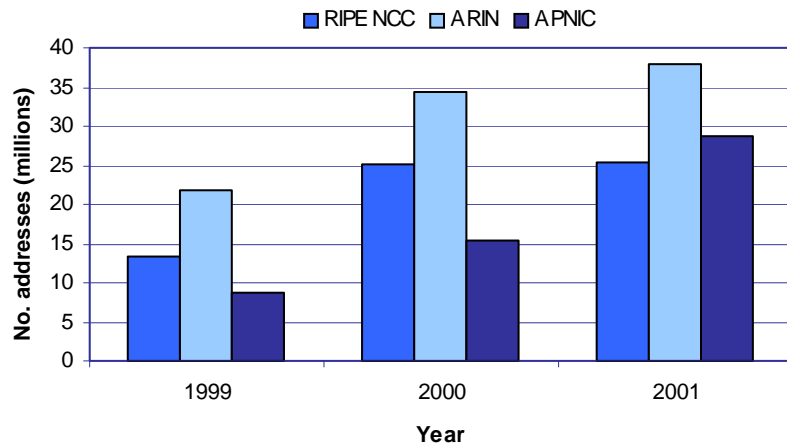*http://www.arin.net/mailinglists/2050-wg*

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RIR statistical reporting

In response to the need for need for reliable, consistent, and accessible historical data, the three RIRs combined in 2001 to produce a common reporting format for allocation statistics.

The monthly reports produced by each of the RIRs provide a historical summary of the resources allocated, assigned, or reserved (including geographical information). Personal registration data, such as contact details, and organisation names, are not included the reports.

A interesting fact revealed by the joint-RIR statistics project is that, in 2001, APNIC for the first time allocated more IPv4 address space than the RIPE NCC.

IPv4 allocations by RIR, comparison 1999-2001

The RIRs draw on these reports for regular presentations of global address resource status. The presentations and the reports are available for free public download.

APNIC's statistical reports are available at
http://ftp.apnic.net/stats/apnic

RIR history article

In 2001, at the request of the *Internet Protocol Journal*, the three RIRs collaborated to produce the article *Development of the Regional Internet Registry system*. In many ways, the development of the RIR system parallels the development of the Internet Protocol itself. This article, which sets out the history of Internet address registration, also provides a useful overview of IP address architecture, the development of CIDR, and the conflict between the goals of aggregation and conservation.

The article Development of the Regional Internet Registry system *is available on the Cisco web site at http://www.cisco.com/warp/public/759/ipj_4-4/ipj_4-4_regional.html*

APNIC's global participation

APNIC represents the interests of its members and the broader Asia Pacific Internet community on the global stage at a variety of technical and policy development meetings. At these events, APNIC staff generally present updates on the service and resource status at APNIC and participate in meetings relevant to addressing policy and related technical developments.

APNIC presentations to external organisations are available at
http://www.apnic.net/net_comm/presentations

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Meetings attended in 2001

AfriNIC	
May	Accra, Ghana

AP* Retreat	
August	Bangkok, Thailand

APRICOT	
March	Kuala Lumpur, Malaysia

ARIN	
April	San Francisco, USA

ASO General Assembly	
April	San Francisco, USA

GSM IREG	
September	Bali, Indonesia

Global IPv6 Summit	
July	Seoul, Korea

ICANN	
March	Melbourne, Australia
June	Stockholm, Sweden

IETF	
March	Minneapolis, USA
August	London, UK
December	Salt Lake City, USA

InfoComms Forum	
June	Singapore

Internet Week & Global IPv6 Summit	
December	Yokohama, Japan

KRNIC Member Meeting	
July	Seoul, Korea

NANOG	
May	Phoenix, USA

RIPE	
January	Amsterdam, Netherlands
April	Bolonga, Italy
October	Prague, Czech Republic

Communication developments

APster launched

During *APNIC 12* in Taipei, APNIC launched *APster*, a newsletter for the Asia Pacific Internet community. *APster* is a vehicle for informing the community about APNIC activities and promoting participation. It includes in each issue a major feature article commissioned from an industry expert, APNIC operational updates, and news from the other RIRs.

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.

APster is available in PDF online at http://www.apnic.net/apster

In addition to *APster*, APNIC continues to contribute a regular column for the APIA newsletter, containing policy developments, operational updates, statistical highlights, and meeting news.

Redesigned APNIC web site

A major development in 2001 was the launch of an entirely new APNIC web site. The new site provides enhanced access to APNIC information and resources. A clearer directory structure, more flexible navigation, a "Quick Links" menu, and improved search functions make finding APNIC information easier than before.

Along with interface developments, a significant amount of the content on the new site has been rewritten 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.

Translations of the primary APNIC IPv4 policy document were also published on the new web site. The collection of translated documents will be expanded over the coming year.

Work is underway on further expansion of the site, including:

· improvement of all web-based forms (following the example of the ISP request form);

· further integration of contextual online help; and

· the *MyAPNIC*, secured members-only area (see "Major ongoing projects: MyAPNIC", page 18).

The APNIC web site is at http://www.apnic.net

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Training services

In both formal surveys and informal contact, APNIC members frequently raise the need for IP address management training. In response, APNIC's training programme has been continually expanded over the past three years.

The current training course, *Effective IP address management: Asia Pacific policies and procedures*, includes a presentation of APNIC's policies, a guide to completing APNIC request forms successfully, and other important topics such as preparing a network plan, database procedures, AS numbers, reverse DNS, and an IPv6 overview.

APNIC hostmasters regularly assist in presenting the courses, which provides opportunities for informal contact between them and APNIC members and allows for individual problems to be discussed.

In 2001, APNIC presented this course 14 times, in 11 cities around the region, to approximately 900 participants.

APNIC Training and outreach programme 2001

Training location	Related outreach activities
February	
Mumbai, India	Seminar APNIC, APTLD, MINC
New Delhi, India	Seminar APNIC, APTLD, MINC
Kuala Lumpur, Malaysia	*APNIC 11* and APRICOT2001
March	
Singapore	
April	
Hong Kong, China	Seminar APNIC, APTLD, HKNIC
	APNIC hostmaster consultations
May	
Shaghai, China (x2)	Seminar APNIC, APTLD, MINC, CNNIC
June	
Makati City, Philippines	
August	
Taipei, Taiwan ROC	*APNIC 12*
September	
Kuala Lumpur, Malaysia	
Jakarta, Indonesia	Seminar APNIC
October	
Brisbane, Australia	Seminar APNIC, PITA
November	
Beijing, China (x2)	
*Auckland, New Zealand	Seminar APNIC, New Zealand ISP Forum
December	
*Yokohama, Japan	Seminar APNIC, Internet Week Japan

* seminar only

An APNIC training course in Hong Kong, April 2001.

Wherever possible, APNIC seeks to add value to training events by combining with other organisations for open seminars on Internet governance and related industry developments. In 2001, this strategy resulted in joint seminars with:

· Asia Pacific Top Level Domain Forum (APTLD);

· Multilingual Internet Names Consortium (MINC);

· China Network Information Center (CNNIC);

· Hong Kong Network Information Centre (HKNIC); and

· Pacific Islands Telecommunications Association (PITA).

In late 2001, APNIC also participated in outreach seminars at Internet Week Japan and the New Zealand ISP Forum.

NIR specific training

The NIR hostmaster training programme continued in 2001, with a TWNIC staff member sent to APNIC for a one-month specialised hostmaster residence. Further NIR trainings are anticipated in 2002.

Future directions for APNIC training

Recruitment commenced in late 2001 for additional training staff to help expand both the number of training events scheduled and the available course content in 2002.

Specifically with the introduction of RPSL to the Whois database (RIPEv3), APNIC is developing an RPSL course module to be introduced in 2002.

APNIC will commence work on introducing online delivery of course content in 2002.

APNIC meetings

APNIC Open Policy Meetings are a regular and major developmental forum within the Asia Pacific Internet community, particularly in the areas of infrastructure management and technical policy. These meetings are open for all interested members of the Internet community and comprise:

- · training;
- · Special Interest Group (SIG) meetings;
- · Birds of Feather (BOF) meetings;
- · hostmaster consultation sessions;
- · social events; and
- · the APNIC Member Meeting.

Once again, APNIC held two Open Policy Meetings in 2001. *APNIC 11* was held in conjunction with APRICOT2001 in Kuala Lumpur from 26 February to 2 March; while *APNIC 12* was a stand-alone event held in Taipei from 28-31 August.

Meeting archives are available at http://www.apnic.net/meetings

Attendance at APNIC Open Policy Meetings is steadily increasing. Nearly 180 people attended *APNIC 11*, while *APNIC 12*, with 234 participants, was by far the best attended meeting in APNIC's history.

APNIC 12 also proved to be the most productive APNIC meeting in terms of policy development and decision making. At this meeting, important decisions were made relating to various aspects of address policy, APNIC legal documents, the membership structure, and document review procedures.

Details of the decisions made at APNIC 12 *are provided in "AP policy development: Summary of policy decisions in 2001" on page 15 and are also available at http://www.apnic.net/meetings/12/results*

Next meeting – APNIC 13

APNIC 13 will be held in conjunction with APRICOT2002 in Bangkok, 3-7 March 2002, with APNIC once again providing a full conference track.

At time of publication, proposals are still being sought for the hosting of APNIC 14, scheduled for August-September 2002.

APNIC Member Services staff with TWNIC hostmaster, Chia-Nan Hsieh (front, centre).

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AP policy development

One of APNIC's primary responsibilities is to provide a open forum where policies can be developed in transparent, consensus-based processes (and APNIC's contribution to global policy development has already been outlined in "Global Internet coordination: RIR coordination", page 9). Regionally, 2001 was a significant year, with several refinements to the policy making processes and valuable contributions from the community.

SIGs and Working Groups

At the heart of the APNIC open policy development process are the Special Interest Groups (SIGs). SIGs are formed with a focus on a particular subject area. At the SIG meetings, policy is created and refined through discussion and consensus-based decision making. The SIGs also provide a forum for operational status reports and information sharing. Each SIG has a mailing list for discussion of issues between meetings.

At each APNIC Member Meeting (AMM), SIG Chairs report the discussions, recommendations, and consensus items that arose in the SIGs during the preceding days. In some cases, the AMM will be asked to endorse by consensus the recommendations put forward by the SIG Chairs, although the AMM is not bound to accept the recommendations.

Issues not finalised at the AMM may be discussed further on the SIG mailing lists (which are archived on the APNIC web site for future reference) and at future meetings.

Much of the success of the SIG programme relies on volunteer effort from speakers and Chairs, and of course the attendees participating in the discussion. The role of the Chairs, in setting agendas, chairing the sessions, promoting discussion on the mailing lists, and reporting to the AMM is vital.

APNIC Special Interest Groups (SIGs) in 2001

SIG	Chair(s)
Address Policy	
	Takashi Arano, Seung-Min Lee
Address Policy (New Technologies)	
	Geoff Huston
DNS SIG	
	Paul Gampe
Routing	
	Philip Smith
Database (DB)	
	Xing Li
IPv6 SIG	
	Jun Murai

Archives of past SIG minutes, discussion papers, and presentations are available at http://www.apnic.net/meetings/archive/sigs

Working Groups may also be formed to assist the work of the SIGs. In 2001, for example, the Broadband Working Group was formed to assist in the development of policies and evaluation guidelines for IPv4 requests relating to cable and DSL networks. The working group conducted discussions in an open mailing list, then convened a meeting (in Tokyo, 1 June 2001), which was also attended by APNIC staff who provided editorial support.

Following this meeting, a detailed proposal was drafted and presented at the Address Policy SIG during *APNIC 12*. Most of recommendations proposed in this draft received strong consensus support from the SIG and, subsequently, the AMM.

Refinement of the SIG process

In 2001, APNIC sought input from SIG Chairs regarding on ways in which the SIG process could be improved. This input helped contribute to the creation of guidelines for both Chairs and presenters on preparing for, conducting, and reporting on the SIGs.

Guidelines for SIG Chairs and presenters are available, respectively, at
http://www.apnic.net/meetings/13/sigs/docs/sig-chair-guide.pdf
and
http://www.apnic.net/meetings/13/sigs/docs/sig-presenter-guide.pdf

Document review process

Another significant step in formalising APNIC policy development was the acceptance of *APNIC Document review policies and procedures*, which provides a structured approach to the creation and review of APNIC documents.

This document sets out a staged review process, with the number of calls for public comment and length of the review period determined by the significance of the issues under review.

APNIC Document review policies and procedures *is available at*
http://www.apnic.net/docs/policy/doc-review-policy.html

Summary of policy decisions in 2001

During *APNIC 12* in August 2001, the community approved several important policy changes, affecting both Internet address policy in the region and the APNIC membership structure.

In particular, the following consensus decisions were made:

· Criteria were established for initial portable allocations of IPv4 address space;

· Guidelines were accepted for the evaluation of cable and xDSL networks address requests;

· Criteria were established for small multihoming IPv4 assignments;

· Criteria were established for assignments to Internet Exchange Points (IXPs) requesting IPv4 or IPv6 address space for their transit LANs;

· The bootstrap period for IPv6 allocation criteria was extended, pending development of a new IPv6 policy;

· A set of IPv6 policy principles was agreed upon, to be presented to the global discussion on IPv6 policy for further consideration (see page 9);

· The APNIC membership structure was expanded (see page 6);

· The document review policy was established; and

· The new *Standard APNIC Membership Agreement* was approved.

A full summary of the policy decisions from APNIC 12 *is available at*
http://www.apnic.net/meetings/12/results

The APNIC Secretariat has now completed the implementation of those policy decisions. The new fee schedule reflecting the revised membership structure is now in place, new membership and resource request forms have been created, and affected documents have been amended.

The policy changes also required that APNIC's primary IPv4 policy document be amended. The new draft *Policies for IPv4 address space management in the Asia Pacific region* was published in December with a call for public comments.

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Member and stakeholder survey

In 1999, APNIC commissioned an independent survey of members to gather views which could guide APNIC in its ongoing operations and planning. The results of that survey formed the basis for APNIC's first formal strategic plan.

In 2001, the Executive Council sought to follow up on the earlier work by again commissioning KPMG Consulting to conduct a survey of APNIC members and stakeholders. The intention of this second survey was to provide input to APNIC to ensure that it continues to serve the needs of the membership in conducting its core service functions and setting future directions.

The consultants' report (published in early 2002) provides a comprehensive summary of the inputs received, according to major issues raised in the survey, geographic areas of concern, and the various types of members and stakeholders who responded. A full description of the survey and the manner in which it was conducted is also provided in the report.

This latest survey represents an important step in the ongoing development of APNIC and covers areas such as:

- the scope, quality, and future development of APNIC services;
- encouragement of member input to APNIC;
- the role of APNIC in conducting dialogue with national and regional governmental agencies;
- APNIC's relationship with NIRs;
- refinement of decision making processes;
- the roles and responsibilities of members as users of Internet resources;
- ISO quality certification;
- the implications of diversity within the region; and
- APNIC's role in supporting development in the region.

Since publication of the report in 2002, the APNIC Executive Council has provided an initial analysis and response to the survey, highlighting priority actions for implementation by the Secretariat. In addition, the report itself will serve as an ongoing guide in APNIC's governance and operational planning.

The consultants' report to APNIC members is available at
http://www.apnic.net/survey/2001

Infrastructure development

Infrastructure development was again a priority in 2001, to ensure that APNIC's systems remain ahead of both external and internal demand.

Service architecture

Query rates on APNIC services continue to grow rapidly. Increases in demand on the Whois database, the reverse DNS server, and the web site require stable, resilient service architecture. At the same time, growth of the Secretariat required enhancements to APNIC's internal network.

Throughout 2001, APNIC technical staff adopted several strategies to achieve significant improvements in service architecture. In particular, APNIC's whois and reverse DNS services enjoy improved stability as a result of being migrated to Linux platforms (from SCO Unix). The Technical Services department also enhanced whois services by deploying a content distribution system to provide transparent access to redundant servers.

APNIC continues its strategy of distributed service delivery. Approximately half of the DNS service load is handled by servers at WIDE/NSPIXP2 in Tokyo. In 2001, that equipment was dual homed to JPIX for increased resilience. Work is in progress on distributing APNIC services more widely by deploying equipment at HKIX, RIPE NCC, and ARIN.

A new, more reliable email system was also deployed. Thanks to liaison with the other RIRs, the new system features mail service redundancy in case of temporary local delivery failures.

By the end of 2001, the migration of the Secretariat network to Linux was 80 percent complete. The Secretariat network has also been renumbered from private to public address space (202.12.29/24) and has been upgraded to a100mbit VLAN architecture.

Security

Security of services and data is of utmost concern for APNIC, with several improvements made in 2001. A new firewall is now in operation to increase the protection of office network while also providing more functionality for the Secretariat.

The 802.11 wireless network in the Secretariat office is fully secured, requiring MAC address identification, WEP keys, and integration with the Virtual Private Network.

All email entering and leaving APNIC is scanned for viruses, with systems in place to ensure up to date virus definitions are used.

Finally, APNIC staff have remote access to network services via standards compliant IPSEC and SSH methods. Remote access via unsecured channels is not possible.

Financial accounting systems upgraded

A major project throughout 2001 was the deployment and customisation of a new financial accounting package. The new system better suits the needs of APNIC and features:

- multiple currency handling;
- enhanced, more flexible reporting;
- direct billing with mail merge facilities;
- links to online banking services;
- enhanced financial accountability tools.

Major ongoing projects

RIPEv3

APNIC has now deployed version three of the RIPE Whois database for operational testing. *RIPEv3* is an RPSL-enabled database, extending the functionality of the previous version. APNIC software developers contributed to the development and porting of this project. Testing on the deployed *RIPEv3* has confirmed its stability, and migration of APNIC's data to the new version is scheduled for 2002.

Asia Pacific Internet Routing Registry (APIRR)

By the end of 2001, APNIC had nearly completed development of the Asia Pacific Internet Routing Registry (*APIRR*). *APIRR* is a public database, incorporating Internet routing information within the full APNIC Whois database and can be used for route object registration and whois queries. It will be integrated with the global distributed IRR, especially through RIPE, ARIN, and RADB. APNIC is coordinating with those organisations, as well as the JPNIC IRR Working Group, to achieve global convergence on a common framework.

The registry is linked to the distributed Internet Routing Registry (IRR) and runs on the *RIPEv3* database server using the RPSL specification. Several TCP-based tools (such as *RAToolSet*) are available for use with this service. *APIRR* can provide Internet operators with the ability to debug routing problems, automatically configure backbone routers, and perform network planning.

The pilot version of *APIRR* is fully deployed and stable and is scheduled to be launched in early 2002 as a service for APNIC members. Initially, *APIRR* will be available to all users at no charge. In future, fees may apply to non-members using the service.

MyAPNIC

MyAPNIC is the name given to an major ongoing project to develop a secure, members only area on the APNIC web site. The management tools in *MyAPNIC* interact with the Whois database and APNIC's *Allocation Manager* software to allow users to manage IP and AS resources, set administrative, billing, and security details, and receive account-related messages.

An early prototype was demonstrated at *APNIC 12*. Since then, *MyAPNIC* has been redeveloped to operate on a Linux platform, based on code designed to integrate with other future APNIC software tools.

Future development of *MyAPNIC* is also expected to incorporate XML interfaces to allow external access by third party software.

Member Services Helpdesk

By late 2001, plans were in place for a Member Services helpdesk. The Helpdesk will provide members with access to telephone support for resource requests and related queries. It will be operated over extended hours to cater for the range of time zones in the Asia Pacific region.

Initially, help will be available in at least six regional languages, with hostmaster recruitment in 2002 targeted to increase this number.

Helpdesk preparation in 2001 included modifications to APNIC's phone system, documentation of procedures, and staff training. The service is scheduled to be launched in April 2002.

Software development

Capacity building within APNIC's Technical Services department in recent years has allowed for the development of specialised software tools for automation of both internal and external operations. APNIC's software development strategy is to maximise integration between tools and to centralise data management.

Online request forms

In early 2001, the new online *ISP Address Request Form* was launched. Although several APNIC request forms were already web-based, this new form combines a multi-stage design, database integration, and a parser/validator tool. As each stage of the form is completed, the software performs error checking, requiring valid, well-formed data to be entered before proceeding. Contextual online help is also built into the form to aid usability and provide examples for each field.

By ensuring that most common errors are eliminated before requests are submitted, the new form can reduce the amount time taken to complete a request and leads to more efficient processing.

The software used for the *ISP Request Form* is modular and can be adapted to other forms. By the end of 2001, work was well advanced on applying the same approach to the membership application process, along with new forms for multihoming and IXP assignment requests. In 2002, all other APNIC forms will be redeveloped along similar lines.

Events management system

Registration for APNIC meetings, training courses, and other events are now handled by software developed in-house. The new events management system provides for consistent template-controlled forms, credit card payments (by secure automatic referral to bank processing), and database-driven management tools (such as attendee lists and name tag creation). An interface for automated events creation is currently under development.

(It should be noted that this system is separate from the APRICOT registrations system.)

Request ticketing and tracking system

Work continued in 2001 on the implementation of version 2 of *RT*, the system used by APNIC to ticket and track email correspondence on service-related mailboxes. *RT* is an open source project, to which APNIC has contributed some development input. *RT2* is scheduled to be deployed in APNIC early in 2002.

Legacy database transfer

Work continued in 2001 for the major task of transfering legacy database records from other registries to APNIC. The most significant transfer of legacy data — pre-RIR allocations currently held in the ARIN database — is yet to occur (although, at the time of publication, ARIN had completed their preparations for transfers).

Although the advantages of maintaining legacy records in the appropriate regional database are clear, so too are the administrative challenges of making the transfers. During 2001, APNIC gained valuable experience in this regard with the successful transfer of a smaller range of legacy address space. By May, all network records within the superseded AUNIC database were moved to APNIC. The APNIC Whois database is now authoritative for IP addresses within the IPv4 range 203.0.0.0 to 203.63.255.255.

The data migration process involved extensive efforts to contact resource holders to advise them of the changes, which included modification of NIC-handles to be consistent with APNIC's database. However, due to out of date contact details, many registered resource holders have not yet been contactable. Work will continue in 2002 to progressively update this legacy data.

APNIC has also developed special procedures and legal documentation to provide additional security in cases where changes to legacy data are requested. This material, with minor amendments, will be suitable for use in the forthcoming ARIN transfers.

Resource status

IPv4

Despite the financial pressures on the Internet industry in 2001, demand for IPv4 addresses in the Asia Pacific region remained high. In October, APNIC received the address range 219/8 from IANA and has commenced making allocations from it. IANA allocated an additional range (220/8) in December.

IPv4 address space, allocated and free

/8 Network	Allocated	Total	% Allocated	% Free
061	14413824	16777216	85.91%	14.09%
202	13813504	16777216	82.33%	17.67%
203	13549824	16777216	80.76%	19.24%
210	15550464	16777216	92.69%	7.31%
211	16351232	16777216	97.46%	2.54%
218	12845056	16777216	76.56%	23.44%
219	4194304	16777216	25.00%	75.00%
220	0	16777216	0.00%	100.00%
Totals	**90718208**	**134217728**	**67.59%**	**32.41%**

Total IPv4 allocations (cumulative, by /8 range)
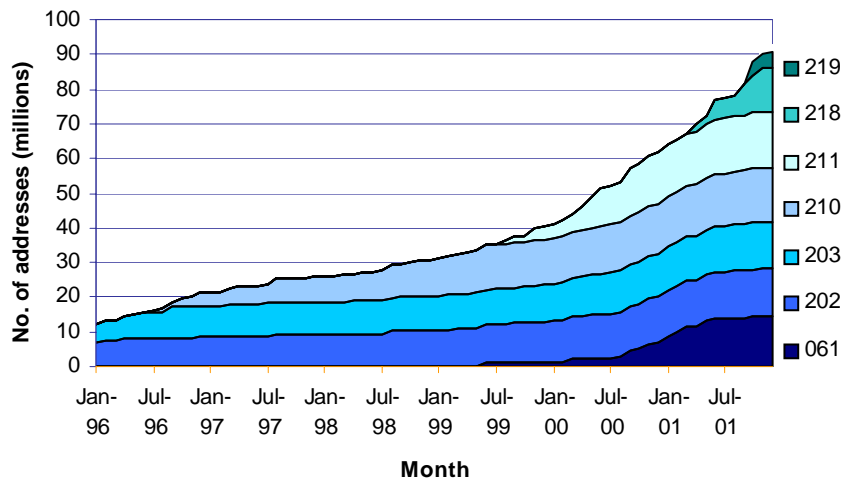
The overall distribution of IPv4 address space throughout the AP region remained stable in 2001, although Japan was re-established as the holder of the highest total IPv4 allocations.

Distribution of IPv4 allocations by economy (total)
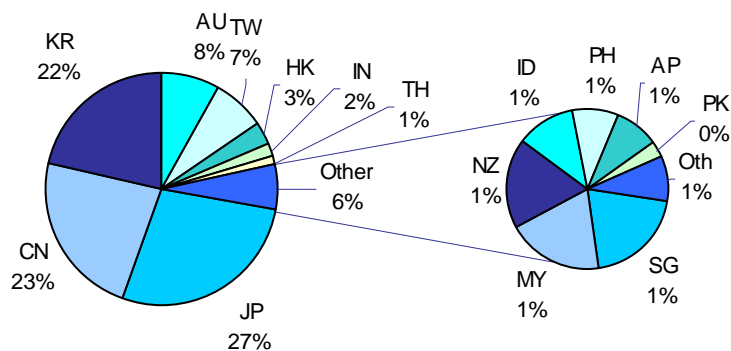
IPv6

Demand for IPv6 address space grew in 2001, with APNIC making 26 allocations (up from 15 in 2000). The "bootstrap" period for initial IPv6 allocation criteria was reached in 2001; however, all RIR communities have resolved to extend this period, pending development of a new global IPv6 policy document (see "AP policy development", page 14).

APNIC has made a total of 48 IPv6 allocations (with RIPE NCC 51 and ARIN 20). Once again, Japan (29) leads the world in IPv6 allocations, while Korea (11) has the third largest IPv6 holding globally (after USA, with 17 allocations).

Distribution of IPv6 allocations by economy (total)
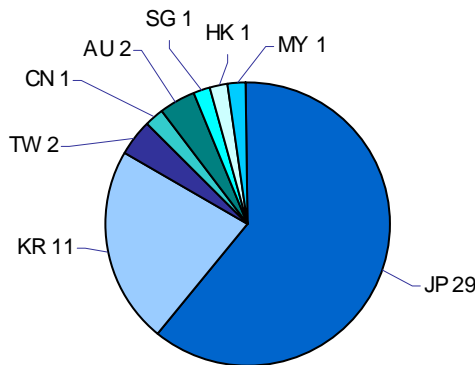
AS numbers

Demand for AS numbers fell slightly in 2001, with 527 assigned in total. Korea, Australia, and Japan remain the most significant consumers of AS numbers in this region. In 2001, IANA allocated to APNIC an additional 1024 AS numbers (in the range 23552 – 24575).

Distribution of ASN assignments by economy (total)
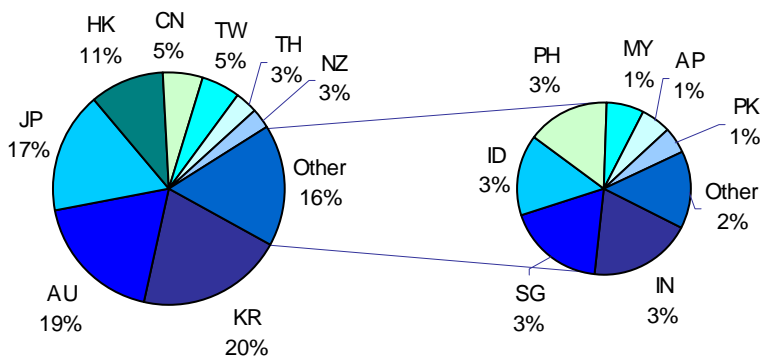
Reverse delegations

APNIC maintains an automatic zone file generation system to support its reverse delegation services. By the end of 2001, the status of this service was as follows:

· 1,633 distinct zones under in-addr.arpa, ip6.arpa, and ip6.int;

· 41,825 registered reverse delegations;

· an average DNS query rate of 1,425 DNS queries per second.

Slightly more than half of the query load on this service is handled by the servers located at WIDE/NSPIXP2 in Tokyo.

Financial reports

Consolidated statement of financial position

	Year end 2001 (US$)	Year end 2000 (US$)	% change from 2000
Exchange Rate (*)	0.5111	0.5479	-6.7%
Current Assets			
Cash	3,648,195	2,820,996	29%
Receivables	305,820	302,662	1%
Advance payment	15,015	14,201	6%
Other	35,283	29,062	21%
Total current assets	4,004,313	3,166,921	26%
Non-Current Assets			
Investment	390,984	416,355	-6%
Property, plant, and equipment	471,817	259,075	82%
Bank Guarantees / Annuities	559,292	0	0%
Total non-current assets	1,422,093	675,431	111%
Total Assets	**5,426,406**	**3,842,352**	**41%**
Current Liabilities			
Accrued expenses	292,840	159,380	84%
GST withholding	6,195	5,532	12%
Provisions	169,918	97,466	74%
Unearned revenue	1,471,041	1,348,211	9%
Total Liabilities	1,939,994	1,610,589	20%
Equity			
Share capital	1.51	1.55	-2%
Retained earnings	3,486,410	2,231,761	56%
Total Equity	3,486,412	2,231,763	56%
Total Liabilities & Equity	**5,426,406**	**3,842,352**	**41%**

Notes:
The consolidated statement of financial position, activities, and cashflows is the consolidation of APNIC Pty Ltd and APNIC Ltd translated into US$.
For a better understanding of APNIC Pty Ltd's financial position and performance, as represented by the results of its operations and its cashflows for the financial year ended 31 December 2001, the consolidated statement of financial position, activities, and cashflows should be read in conjunction with the annual statutory financial report and the audit report contained therein.
The amounts in this APNIC financial report are expressed in US$. The exchange rate used to convert AU$ amounts to US$ in this report (0.5111), is based on the notes spot rate as at 31 December 2001 as provided by the Australian Taxation Office.

Consolidated statement of activities

	2001 in US$	2000 in US$	% change from 2000
Exchange rate (*)	0.5179	0.5479	-5.5%
Revenue			
Membership fees	2,472,532	1,715,473	44%
Per allocation fees	527,567	477,164	11%
Non-member fees	37,037	47,099	-21%
Start-up fees	135,104	238,548	-43%
IP Resource Application fees	17,297	0	0%
Sundry income	92,181	30,277	204%
Interest received	153,764	125,861	22%
Exchange rate gain /(loss)	185,305	98,651	88%
Total Revenue	**3,620,787**	**2,733,073**	**32%**
Expenditure			
APIA	10,465	10,000	0%
APNG	10,465	10,000	0%
APRICOT	20,686	35,033	-41%
Communication expenses	42,594	44,199	-4%
External training	29,656	18,358	62%
ICANN	92,949	64,200	0%
ISOC	52,795	48,990	0%
Meeting expenses	103,391	70,949	46%
Rent	103,418	45,493	127%
Salaries	1,012,736	600,489	69%
Other operating expenses	689,124	449,449	53%
Depreciation	66,334	63,112	5%
Total Expenditure	**2,234,613**	**1,460,272**	**53%**
Operating Surplus/(Loss)	**1,386,174**	**1,272,801**	**9%**

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Notes:

* The exchange rate used to convert AU$ amounts to US$ in this report (0.5179), is based on the December 2001 monthly average rate as provided by the Australian Taxation Office

## Consolidated statement of cashflows

Statement of cash flows
For the year ended 31 December 2001

	2001 (US$)	2000 (US$)
Net operating surplus	1,386,174	1,272,801
Cash flows from operating activities:		
Depreciation expenses	66,334	63,112
Interest received	(153,764)	(125,861)
Increase in Accounts Receivable	(3,158)	(138,161)
Increase in Other Assets	(7,035)	(39,703)
Increase in Accounts Payable & Other Liabilities	206,575	204,233
Increase in Unearned Revenue	122,830	612,797
Net cash inflow from operating activities	231,782	576,417
Cash flows from investing activities:		
Investment, Bank Guarantees/ Annuity Payments for	(533,921)	(416,355)
Equipment/Furniture/Office Improvement	(279,076)	(157,821)
Net cash outflow from investing activities	(812,997)	(574,176)
Net increase in cash held:	804,959	1,275,042
Cash at the beginning of the financial year	2,820,996	1,609,398
Net increase in cash held	804,959	1,275,042
Effects of exchange rate changes on cash	22,240	(63,444)
Cash reserve at the end of the financial year	3,648,195	2,820,996
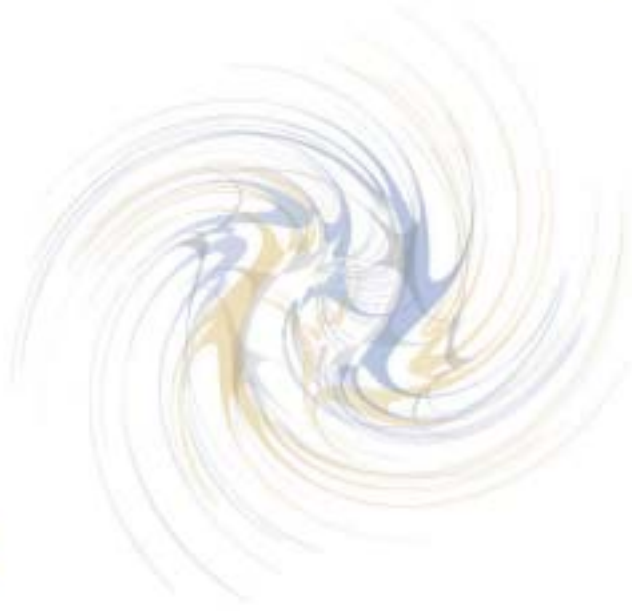
www.apnic.net

APNIC is charged with ensuring the responsible management of IP addresses and the related numeric resources which are required for stable and reliable operation of the Internet globally.

successfully.