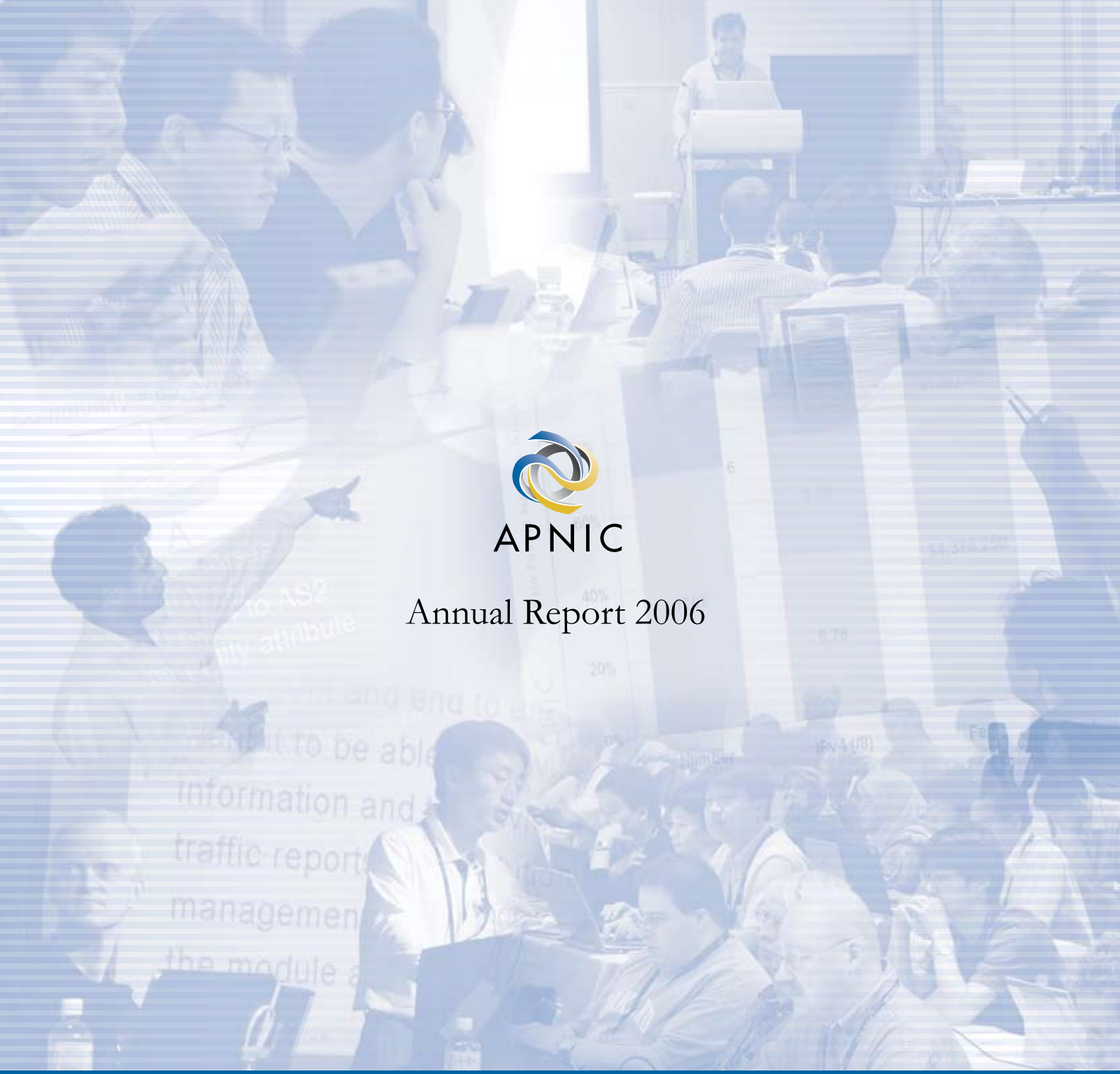


APNIC

Annual Report 2006

Asia Pacific Network Information Centre

"Addressing the challenge of responsible Internet resource distribution in the Asia Pacific Region"

APNIC

Asia Pacific Network Information Centre
PO Box 2131, Milton
Brisbane QLD 4064 Australia

Phone: +61 7 3858 3100
Fax: +61 7 3858 3199
Email: <info@apnic.net>
SIP: <helpdesk@voip.apnic.net>

Table of contents

A message from the Director General

It's hard to believe that this is the ninth APNIC Annual Report I have delivered as Director-General. In our early years, the staff expanded to keep up with rapid membership growth and deliver more services. As we became more efficient, we slowed staff growth. For several years, staffing has grown slowly, even though the membership, resource consumption and our range of services continues to grow.

However, it was clear we had outgrown the flat organisational structure that had previously served us well. So, in the second half of 2006, we restructured the Secretariat for more effective delegation and decision making. I am pleased to report that the staff response has been very positive and I get a sense that people are keen to take on the new challenges offered.

Indeed, 2006 was challenging in many ways. The Internet Governance Forum (IGF) emerged as a major new part of the Internet landscape. It is very important that APNIC continues to work closely with our RIR colleagues through the NRO to make sure that the addressing community is well represented in the IGF.

Resource consumption was also a hot topic in 2006. As the available pool of 2-byte AS numbers approaches its end, APNIC has helped lead the way to launching 4-byte ASNs. This new service has expanded the ASN pool and will bring long-term stability with a smooth transition.

IPv4 consumption will be more challenging. Several researchers have revised their projections for the eventual exhaustion of IPv4 address space. Again, APNIC raised awareness of this issue and has promoted discussion to prepare the community for change, to encourage IPv6 deployment, and to start developing strategies for a new addressing environment.

Our technical staff made great progress during 2006, improving performance and reliability by co-locating more APNIC infrastructure. Their progressive development of internal registry and other systems also means more automation and greater service efficiency.

Towards the end of 2006, we asked Dr John Earls of KPMG to conduct the fourth major member survey. His report will be released in early 2007, but Dr Earls has already noted to me the high level of community support for APNIC, and generally positive views of our services. However, there are many areas where we must continue to improve and the results of the survey will help shape our plans in 2007.

As I write this, the membership is considering reform of the APNIC fee schedule. For the past few years, our budgets have been getting tighter. To some extent this is due to the continuing low rate of the US dollar. The unpredictable nature of NIR per-address fees also plays a part. It is very important that we soon develop a more appropriate fee structure that is fair to all members and allows for the increased service demands.

Finally, I extend my thanks to the members, staff, and the rest of the community, which gave us such strong support in 2006.

About APNIC

What is APNIC?

APNIC was established in 1993 as the Regional Internet Registry (RIR) for the Asia Pacific. It is now one of five RIRs providing allocation and registration services to support Internet operations globally. It is a not-for-profit, open membership organisation, whose members and stakeholders determine its policies through open, consensus-based processes.

APNIC's main role is to ensure that IP addresses (and related number resources) are managed responsibly in the Asia Pacific. This is vital for global Internet stability and continued Internet development in this region. In support of this main role, APNIC also provides training and education, hosts open policy development forums, fosters development of Internet infrastructure, and represents regional community interests on the global stage.

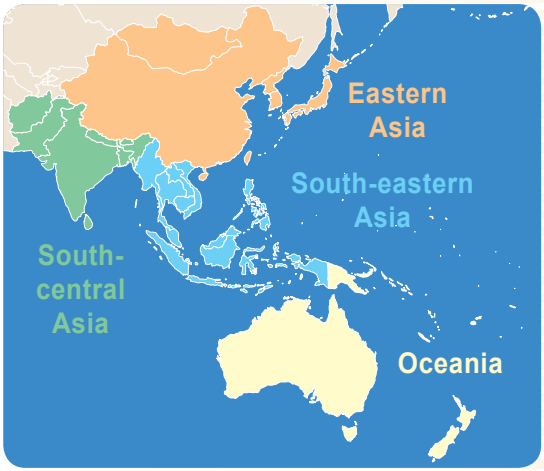
An open community

APNIC is a community based on openness and transparency in all decision making processes. The structures and forums which provide this basis include:

- a broad, open community of all parties interested in Internet addressing issues
- an active membership base (1362 members by the end of 2006) providing guidance and financial support for operations
- Open Policy Meetings, where anyone can participate in knowledge sharing, networking, policy development, and training
- an Executive Council (EC), directly elected by the members to represent them in policy- and decision-making between Member Meetings, and
- the Secretariat, APNIC's staff, which carries out the day-to-day work of the organisation.

The APNIC service region

The APNIC service region covers 56 economies, ranging from New Zealand in the South, to Afghanistan in the West, Pitcairn in the East, and extending as far North as China and Mongolia.



The Executive Council

The APNIC By-Laws establish a seven-member Executive Council (EC), whose members are directly elected by the membership for two-year terms. The EC exists to represent members between Member Meetings and to oversee the operations of the APNIC Secretariat, including review of budgets and financial reports. EC members meet monthly, generally by teleconference, but with face-to-face meetings during APNIC Open Policy Meetings. They are not paid for their services, although APNIC may fund their attendance at important meetings.

In 2006, the EC members were:

▲ The APNIC EC, from left: Ma Yan, Billy Cheon, Che-Hoo Cheng, Vinh Ngo, Akinori Maemura, Kuo-Wei Wu, and Qian Hualin.

- Akinori Maemura (Chair), General Manager of IP Department at JPNIC (serving until 2008)
- Che-Hoo Cheng (Secretary), Head of Asia Pacific IP business for FLAG Telecom (serving until 2008)
- Kuo-Wei Wu (Treasurer), CEO of National Information Infrastructure Enterprise Promotion Association (serving until 2007)
- Moo-Ho Billy Cheon, IP Team Assistant Manager for Korea Network Information Center of National Internet Development Agency of Korea (serving until 2007)
- Qian Hualin, Deputy Director of the Computer Network Information Center for the Chinese Academy of Science (serving until 2007)
- Ma Yan, member of the Executive committee, China Education and Research Network - CERNET (serving until 2007)
- Vinh Ngo, National Manager Network Security for CSC Australia (serving until 2008)

Minutes of EC meetings are published on the APNIC web site at:
http://www.apnic.net/ec

APNIC Secretariat structural review

In APNIC's early years, the Secretariat grew quickly to meet the high service demands of the region. But in recent years, the size of the Secretariat has remained relatively stable, despite constant membership growth, increased service demands, and a broader range of services offered. The increased productivity of the Secretariat staff was to a large extent aided by progressive improvements in internal systems and practices.

By the end of 2006, the Secretariat had 47 staff and several vacant positions. The staff members represent 18 different nationalities and languages of the region.

Over time, the Secretariat's organisational structure has remained quite flat, which worked well with a smaller work force. But, as the staffing level has stabilised at around 50, there has been a growing awareness of the need for structural review to maintain an efficient, focused, and service-oriented staff culture.

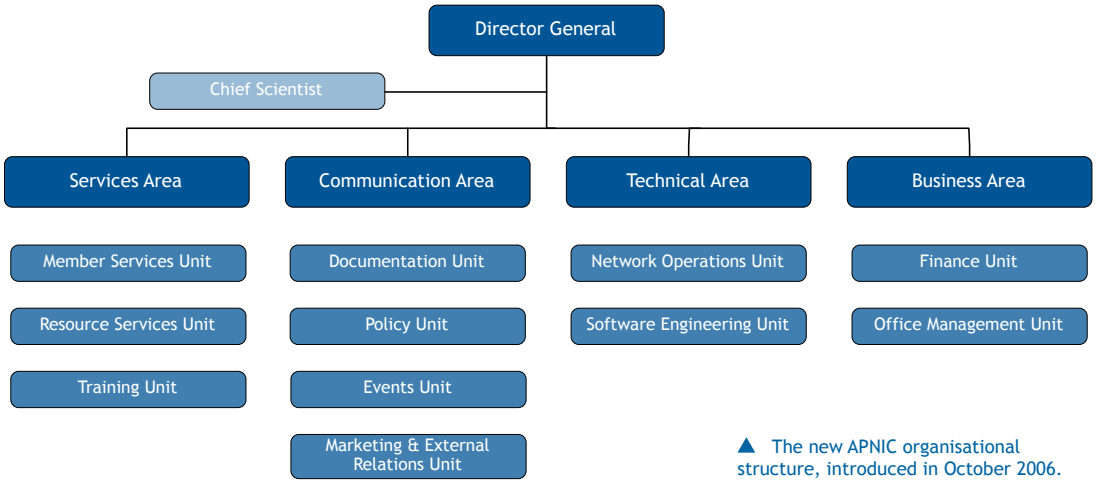
In 2006, working with Human Resources Manager Louise Tromp and the general staff, Paul Wilson proposed and implemented the new APNIC staffing structure, which allows more effective delegation of decision making and clearer areas of responsibility.

The new structure includes four major Areas – Technical, Services, Communications, and Business – each of which manages a number of related functional Units. The Area managers provide direction and coordination, while Units execute and deliver projects and services.

"This structure," said Paul Wilson, "will allow us to further improve the way we serve our members. More defined reporting relationships encourage collaborative work with clear protocols. The new structure also supports more effective operation of the Secretariat if any manager is out of the office."

Several new roles were created, many of which have been filled by existing staff members in an acting capacity. APNIC has several long-term staff, and the new structure has enabled some of them to use their experience to expand into new and challenging roles. Some other positions remain vacant and will be recruited during 2007.

To complement the new structure, the Secretariat also commissioned independent consultants, The Hay Group, to evaluate all roles within APNIC and provide advice that has helped ensure that conditions at APNIC reflect industry standards.



▲ The new APNIC organisational structure, introduced in October 2006.

▲ Sanjaya, APNIC's Technical Area Manager, is now also serving as Services Unit Manager in an acting capacity.

Serving our community

Building services and systems

APNIC's Technical and Services areas underwent significant changes in 2006. As a result of the Secretariat structural review, APNIC Technical Manager Sanjaya took on the extra responsibilities of Services Area Manager in an acting capacity.

In Services, the structural changes were focused on improving front-line services and reducing the complexity of APNIC's processes. Several staff from the Hostmaster and Finance teams have been integrated into the new Member Services Unit to establish a one-stop shop for customer service delivery.

Another strategy for improving services has been technical innovation. In 2006, the Secretariat continued to invest resources in the development of more automated APNIC systems:

- The Secretariat launched the new APNIC Resource Management System for internal registry operations and added new features to MyAPNIC, including online reporting and statistics.
- MyAPNIC version 1.5 was launched in February. This version compresses data transmission, streamlines HTML code, and runs on a dedicated server to provide the best possible response time for users. MyAPNIC also features online voting, which was used for the Executive Council election during APNIC 21 and the NRO Number Council election at APNIC 22.
- A new IPv4 request form was launched on the public web site, with streamlined processes and online help in every section. Late in the year, the form was translated into seven languages and was in testing for release in early 2007.
- The Clients First project, which began in 2005, continued to make headway integrating and refining APNIC systems and processes. It is expected that one public component of Clients First – an integrated resource and membership request form – will be launched in 2007.
- In 2006, the Secretariat started work to deploy a real-time statistical reporting service. The service uses the O3 platform already in use by LACNIC and will be launched in early 2007.

▲ A new version of MyAPNIC, optimised for better performance in low bandwidth environments, was launched in 2006.

More contact options

Live chat, a service launched by the Helpdesk in 2005, gained more popularity with members in 2006. This web-based service, linked from the APNIC home page, provides a simple interface for people to get immediate, interactive help from APNIC hostmasters. Because it provides instant text interaction, this method of communication greatly reduces misunderstandings caused by differing pronunciation and accents.

▲ The live chat help system provides a simple interface for immediate, interactive help.

Another low-cost communication option – voice over IP (VoIP) telephony – became available to APNIC members in 2005 when the Secretariat replaced its existing PABX system with a VoIP solution. "The cost of international phone calls can prevent members phoning for help," says Member Services Unit Manager George Kuo. "But with VoIP, people are able to contact APNIC free of charge from any SIP-compatible phone or software client. We worked hard to improve awareness of VoIP in 2006, but use of the service remains low and we will keep trying to raise awareness in 2007."

Consolidating APNIC's infrastructure

Development of APNIC's technical infrastructure is an ongoing process, necessary for growth and improvement of services. For several years now, APNIC has actively pursued a strategy of co-locating its services to increase network reliability, availability, and performance. "We now have points of presence in Brisbane, Washington, Tokyo, and Hong Kong," explains Terry Manderson, APNIC's Network Operations Unit Manager. "In most cases, we have been able to minimise the costs of co-location by entering cooperative agreements with the host organisations."

▲ Terry Manderson is now APNIC's Network Operations Manager.

System security is a vital component of APNIC infrastructure strategy, necessary for ensuring the integrity of systems and protecting member data. With this in mind, a dedicated Security Officer, Siamak Hadinia, was appointed within the Technical Area. This role is responsible for developing and maintaining security practices for all of APNIC's systems, equipment, and assets.

Seeking feedback

The best way to improve services is to get the opinions of the people who use them. In late 2006, APNIC commissioned Dr John Earls of KPMG to conduct the fourth major survey of members and stakeholders. As in past surveys, this was conducted independently and the results will be made anonymous before they are returned to APNIC. A full report of the survey will be published at APNIC 23 in March 2007.

Addressing community needs

In support of its allocation and registration services, APNIC also promotes Internet development and operations in the region. Some initiatives arise within the Secretariat, in consultation with the community and other RIRs, while others are developed in direct response to community calls to deal with areas of concern.

Reclaiming historical resources

Within the address space managed by APNIC, there is a legacy of 'historical' address space which was allocated before APNIC started operations. This address space is not subject to the same policies as current allocations. In response to concerns about legacy space, APNIC began a project in 2005 to contact historical resource holders and reclaim unused resources. Secretariat staff analyse routing data to identify unused address ranges, then follow a set procedure to try to contact the holders of those ranges and seek their return. This is a long term project – by the end of 2006, APNIC had reclaimed 122 prefixes (6%) out of approximately 2000 unrouted prefixes.

Planning for IPv4 exhaustion

▲ Akinori Maemura of JPNIC and the Chair of the APNIC EC presents at the IPv4 exhaustion panel during APNIC 22.

Around the world, more people are begining to consider the impacts of the eventual exhaustion of IPv4 on the global Internet community. APNIC 22 featured a panel session to publicly explore this important issue and spark debate and ideas about steps to prepare for the end of new IPv4 allocations. Paul Wilson noted at the panel that this discussion will certainly become prominent across the Internet community in the near future, adding "I have no doubt that collectively we will find the most realistic and workable solutions to ensure ongoing stable growth of the Internet."

A detailed report on this panel session is available in Apster *20 at: http://www.apnic.net/docs/apster/issues/apster20-200612.pdf*

Resource certification

In 2006, APNIC continued work on a project aimed at developing an Internet resource certification service. This is an important project that could bring unprecedented security to routing and certainty to resource holders. APNIC is currently working with the other RIRs (through the NRO), the IETF, and security experts, to conduct a resource

certification trial. Also, within the IETF, the Secure Inter-Doman Routing Working Group (SIDR) has been chartered to develop standards relating to securing inter-domain routing protocols. APNIC's Geoff Huston is a co-chair of SIDR, along with Sandra Murphy.

▲ APNIC's Chief Scientist Geoff Huston was appointed co-chair of the Secure Inter-Domain Routing Working Group.

Improving routability of new address blocks

It is a common practice for network operators to filter unallocated address space, but serious problems arise when the so-called 'bogon' filters are not properly maintained. Organisations receiving new address ranges can suffer costly problems if their addresses are not fully visible across the Internet. In 2006, APNIC started to collaborate with the RIPE NCC project to identify ISPs blocking new address blocks and notify them that their filters need to be updated.

Lame DNS cleanup

DNS reverse delegations are considered ineffective, or 'lame', if some or all of the registered DNS nameservers are unreachable or badly configured. Lame DNS reverse delegations can cause a variety of service problems across the Internet. Since 2004, APNIC has been progressively checking and dealing with lame delegations. This work is ongoing.

Supporting innovative research and development

APNIC continues its close association with the Pan Asia ICT R&D grants programme, which provides project funding for research into technical solutions for practical problems in the developing world. However, in 2006 the Pan Asia programme was paused so that the partners could evaluate progress to date and improve it as necessary. A stakeholders forum will be held in early 2007 as part of this review and it is expected that a new round of applications will be opened later in the year.

Root servers across the region

For several years, APNIC has helped to spread root server mirrors throughout the region, to boost performance and resiliency of DNS services in many communities. Alhough there were no new deployments in 2006, APNIC was involved with upgrade and maintenance efforts on root server mirrors in New Zealand and Korea.

▲ Root servers in the Asia Pacific region.

Dialogue and collaboration

APNIC Open Policy Meetings

▲ APNIC 22 was held in Kaohsiung, Taiwan in September 2006.

APNIC Open Policy meetings help bring together the Internet community. They are not only a formal stage in the policy development process, but also a melting pot of ideas, creating personal connections and developing a sense of common purpose. In 2006, the APNIC community came together in Perth, Australia for APNIC 21 (held with APRICOT 2006) and in Kaohsiung, Taiwan for APNIC 22. APNIC 22 featured a new format, incoporating APOPS more formally into the programme and reducing the number of parallel tracks for better access to all content.

Participating from afar

Although both APNIC meetings in 2006 were well attended, the reality is that many members are not able to travel to these events. Continuing to make the meetings accessible over the Internet is one of APNIC's priorities. APNIC has systems in place for people to follow meeting sessions by streaming media (video and audio-only) and live text transcripts. Remote participants do not need to be passive – they can make comments and ask questions through a chat service, use VoIP to present from afar, or submit video presentations in advance. MyAPNIC also supports online voting to improve member representation in elections.

Working with technical communities

▲ Hyun-Joon Kwon and Jai-Min Shim of NIDA with Paul Wilson and Connie Chan of APNIC at the signing of the MoU in Brisbane, March 2006.

Under the leadership of Marketing and External Relations Manager Nurani Nimpuno, four APNIC staff members now have formal liaison duties. "Kapil Chawla is our full time Liaison Officer for South Asia," explains Nurani. "Elly Tawhai (Pacific), Son Tran (South East Asia), and Guangliang Pan (China) combine their liaison work with their main roles." These formal positions help strengthen the established relations between APNIC and other groups in the region.

In 2006, APNIC supported operators groups such as SANOG, PacNOG, and NZNOG and maintained a high profile in their communities. The operator meetings are a great opportunity for APNIC staff to learn more about developments in the region and to provide training, updates, and informal consultation to diverse audiences. Early in the year, APNIC entered into a Memorandum of Understanding with KRNIC of NIDA for cooperative development and outreach activities around the region.

ICONS

ICONS is the Internet Community of Online Networking Specialists, a portal site available for anyone in the community to add content, links, and news on a range of network related topics, or join discussion forums. APNIC's Online Services Officer Sunny Chendi is responsible for developing the site. "We re-launched ICONS in 2006 with a whole new look," says Sunny. "We have had good help with this project, including great support from SANOG. We are also developing new features – such as blogging and social networking functions – to encourage experts to contribute their experience."

You can visit ICONS at: http://icons.apnic.net

▲ ICONS was relaunched with a new look and improved features.

Apster

Apster is APNIC's quarterly newsletter of technical articles, Internet governance news, and Secretariat updates. Communications Area Manager Gerard Ross is the editor of *Apster*. "We covered some big issues in 2006, including the first IGF, discussion of IPv4 exhaustion, and some landmark developments in IPv6," says Gerard. "In 2007 we will look for more ways to encourage community members to submit articles."

Apster is available at: http://www.apnic.net/apster

Multimedia

The *APNIC Interactive* CD was launched at APNIC 21. Featuring a range of multimedia presentations produced by APNIC staff, as well as a host of other training and informational material, *APNIC Interactive* aims to improve access to APNIC resources, especially for members in low bandwidth areas.

APNIC's multimedia library is at: http://www.apnic.net/multimedia
To request a copy of APNIC Interactive, please contact helpdesk@apnic.net

▲ The APNIC Interactive CD features training material, resources, and multimedia.

Representing APNIC in global forums

APNIC staff represented the Asia Pacific Internet community at 40 separate events around the world in 2006, including RIR and NIR meetings; operator forums; global, regional, and local meetings; and many other technical forums.

Policy developments

▲ Son Tran moved from Member Services to Policy in 2006 and also took on the South East Asia Liaison Officer role.

Late in 2006, Son Tran was appointed as APNIC's Policy Area Manager in an acting capacity, taking over from Save Vocea who left APNIC for a position with ICANN. Son is well known to many in the community from his former role as Resource Services Manager. He is now responsible for facilitating APNIC's policy development process, encouraging policy-related dialogue across the community, and coordinating the Secretariat's work in implementing policy decisions.

The policy development process

APNIC's policy development process is:

- Open – Anyone can propose policies; everyone can discuss policy proposals
- Transparent – APNIC publicly documents all policy discussions and decisions
- Bottom-up – The community drives policy development.

Policy changes in 2006

▲ In the policy development process, decisions are made by consensus. At the meetings, this is expressed by a show of hands, rather than a formal vote.

One policy proposal was implemented in 2006:

prop-041: IPv6 assignment size to critical infrastructure

The maximum IPv6 assignment size that can be made to critical infrastructure is now /32 per operator.

The following policy proposals reached consensus and were endorsed by the Executive Council in 2006. These proposals will be implemented in 2007:

prop-032: Four-byte AS number policy proposal

This was a proposal for APNIC to begin the transition to allocating four-byte AS numbers. The policy specifies three important dates:

- 1 January 2007 – 2-byte ASNs assigned by default; 4-byte ASNs assigned on request
- 1 January 2009 – 4-byte ASNs assigned by default; 2-byte ASNs assigned on request
- 1 January 2010 – No distinction made between 2-byte and 4-byte ASNs

prop-033: End site allocation policy for IPv6

This was a proposal to enable LIRs to decide what IPv6 prefix size to assign to their customers. Additionally, the HD ratio will be modified and be calculated on units of /56. This will be implemented with prop-031: "Proposal to amend APNIC IPv6 assignment and utilisation requirement policy".

prop-035: IPv6 portable assignment for multihoming

This was a proposal that allows end-sites that currently multihome, or plan to multihome within three months, to receive a portable IPv6 assignment of a minimum of /48.

prop-038: Amending APNIC's lame DNS reverse delegation policy

The definition of lame DNS has been modified to be consistent with definitions used by other RIRs. Under the revised policy, if a delegated nameserver for a domain fails to return a valid authoritative answer for the domain's SOA, it will be considered to be lame. The process for monitoring and removing lame reverse DNS delegations has also been simplified.

You can track the progress of individual policy proposals at:
http://www.apnic.net/docs/policy/proposals

SIGs and Working Groups

Special Interest Groups (SIGs) and Working Groups are a vital part of the APNIC policy development process. The status of the SIGs remained unchanged from the previous year, but in 2006 two new working groups were created to investigate issues related to the resource management system and the APNIC fee schedule.

Resource management system working group

This working group's purpose is to review APNIC's new resource management system, and provide recommendations to APNIC.

APNIC fees working group

This working group was created to investigate restructuring the APNIC fee schedule. See Financial Reports (p. 24) for more information about fees and finances.

APNIC Special Interest Groups (SIGs) in 2006

Policy SIG

Kenny Huang (Chair)
Eugene Li & Toshiyuki Hosaka (Co-chairs)

Routing SIG

Philip Smith (Chair)
Randy Bush (Co-chair)

IX SIG

Philip Smith (Chair)
Che-Hoo Cheng (Co-chair)

Database SIG

Xing Li (Chair)
Hakikur Rahman (Co-chair)

IPv6 technical SIG

Kazu Yamamoto (Chair)
Tomohiro Fujisaki & Tao Chen (Co-chairs)

NIR SIG

Izumi Okutani (Chair)
David Chen (Co-chair)

DNS operations SIG

Joe Abley (Chair)

Training and education

▲ Focus, expansion, and flexibility were the keywords in 2006 for APNIC's Training Unit Manager, Cecil Goldstein.

The key words for APNIC Training in 2006 were focus, expansion, and flexibility.

As in previous years, the Training Unit sought to respond to members in as many parts of the region as possible and help support best current practices and development.

APNIC further refined its training by working with various external Internet specialists to develop and review material. This work culminated in the launch of APNIC's IPv6 workshops and tutorials.

In addition to in-person training sessions throughout the region, in 2006 the Training unit also took significant steps towards implementing and launching an initial eLearning programme. This will continue to expand in 2007.

To further improve remote access, the Training unit began testing a 'webclass' teaching environment. When the software is selected and implemented, APNIC will incorporate regular online webclasses into its training program.

Work to establish a training and development lab also commenced in 2006. Previously, trainers had to install and configure networks at each venue. When this project is complete in 2007, participants at workshops will be able to to remotely access and use the training lab at APNIC.

▲ APNIC is developing an eLearning program to provide better access to interactive training services.

In 2006, Cecil Goldstein joined APNIC as Training Manager. His previous experience lecturing in interworking subjects at the Queensland University of Technology led him to start collaborative programs with universities and other educational institutions. This collaboration helps ensure courses and materials are relevant, current, and aligned with real world experiences.

"From APNIC's perspective, our core training is Internet Resource Management Essentials (IRME)," says Cecil, "but we also need to maintain an emphasis on new technologies and best current industry practices."

APNIC Training has, and will continue, to "work closely with, and participate in regional NOGs, and other technical and operational forums", he said.

Looking ahead, APNIC Training's major aims for 2007 will be to continue working with educational institutions and further integrate eLearning into the general training environment.

APNIC Training is also currently establishing a programme that will include APNIC Internet Resource Analysts as associate trainers. This programme will further expand training accessibility and build understanding of APNIC's role in the region.

▲ Amante Alvaran (standing), one of APNIC's Training Officers, leads a hands-on technical workshop.

Training delivery in 2006

In 2006, APNIC delivered 38 training sessions in 17 different locations:

Bangkok, TH	Manila, PH
Brisbane, AU	Melbourne, AU
Colombo, LK	Mumbai, IN
Delhi, IN	Perth, AU
Dhaka, BD	Surabaya, ID
Hong Kong, HK	Ulaanbaatar, MN
Hyderabad, IN	Wellington, NZ
Kaohsiung, TW	Zhenzhou, CN
Karachi, PK	

Training schedules and course materials are available at:
http://www.apnic.net/training

NIR staff training

For many years, APNIC has provided important staff training opportunities for NIR staff, allowing them to work with APNIC for short periods, join in-house training sessions, share experiences about operational issues, and work alongside APNIC hostmasters. In 2005, APNIC hosted Chang Min Park from KRNIC of NIDA.

▲ Chang Min Park from KRNIC of NIDA pictured in the APNIC office with Anuttara Tallents and Guangliang Pan.

Internet governance

Number Resource Organization

Through the Number Resource Organization (NRO), the RIRs act collectively to pursue their common interests. The NRO is a focal point for input into the RIR system and coordinates joint efforts, promotes bottom-up policy development processes, and protects the unallocated number resource pool. In 2006, prominent activities for the NRO were Internet governance developments and contract negotiations with ICANN.

The NRO Number Council also performs the role of the Address Supporting Organisation Address Council (AC). In 2006, the APNIC region representatives on the AC were Hyun-Joon Kwon, Kenny Huang, and Mao Wei. In late 2006, the NRO appointed Toshiyuki Hosaka to replace Mao Wei, whose term ends in January 2007.

The NRO web site is at: http://www.nro.net

▲ Athens was the location for the first IGF, drawing stakeholders from government, industry, and civil society to the birthplace of democaracy to discuss Internet governance.

Internet Governance Forum

At the end of 2005, the Unitited Nations' World Summit on the Information Society (WSIS) created the Internet Governance Forum (IGF) to bring together stakeholders from government, industry, and civil society to discuss Internet governance issues.

The NRO was involved in much of the preparation for the first IGF meeting. All of the RIRs, including APNIC, were represented at the meeting in Athens. The significance of the NRO and RIRs was recognised by the UN with the appointment of two NRO members – Adiel Akplogan (AfriNIC) and Raúl Echeberría (LACNIC) – to the IGF Advisory Group. The NRO also conducted two workshops during the IGF.

The IGF has not been given the power to make decisions. Nevertheless, the NRO will remain active in IGF discussions in coming years to ensure that the needs of the address community are properly represented.

▲ The NRO joined ISOC and ICANN to present the Internet Pavilion at ITU Telecom World in Hong Kong.

International Telecommunications Union

The NRO, with ICANN and ISOC, sponsored the Internet Pavilion at the ITU Telecom World event held in Hong Kong in December 2006. The Internet Pavilion featured multimedia presentations on RIR history, the NRO, and IP addressing and routing, as well as printed materials on technical and RIR-specific issues.

ecoAPNIC

Working towards sustainable practices

Many standard business practices, learned over decades, waste precious natural resources, often with little or no economic benefit. In 2006 the APNIC Secretariat launched ecoAPNIC, a staff-driven project aimed at reducing the 'ecological footprint', or environmental impact, of APNIC work practices.

In less than six months, ecoAPNIC initiated the following activities:

- Introduced recycling stations and reduced paper documentation for APNIC meetings
- Introduced individual desk paper recycling bins in the APNIC office
- Made recycled paper and toners standard for office use
- Printed *Apster* and other publications on recycled paper
- Discontinued use of disposable items in kitchen
- Promoted double-sided printing
- Introduced environment-focussed 'lunch and learn' sessions for staff
- Created a staff carpooling map

ecoAPNIC projects planned for 2007 include conducting a waste audit and creating an environmentally friendly practices guideline document for staff.

Director General Paul Wilson said, "I am very pleased with ecoAPNIC's achievements in 2006. The simple steps we have taken have had signficant impacts. In 2007, in addition to embarking on new eco-friendly projects, ecoAPNIC will focus on formally measuring and reporting these results, in terms of both waste reduction and cost savings. I hope that the ecoAPNIC project will set an example for community members in the Asia Pacific region and beyond."

Information and updates about the ecoAPNIC project are available at:
http://www.apnic.net/ecoapnic

ecoAPNIC

▲ This is the symbol of APNIC's project to develop more sustainable practices for all aspects of APNIC's operations.

2006 by the numbers

Membership status

In 2006, the APNIC membership increased by 205 to a total of 1,362 members, with growth in almost all membership tiers. This was the second highest membership gain in APNIC's history and continued the strong growth levels that began in 2005.

The total figure included 298 new members, offset by the closure of 93 memberships.

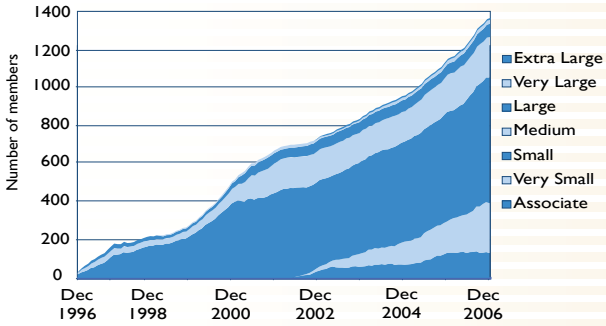
The economies with the highest number of new memberships were Australia, India, Bangladesh, and New Zealand. Interestingly, the surge in new memberships in Bangladesh closely followed the deployment of a new undersea cable link, highlighting the importance of infrastructure development in the region.

Membership breakdown at end of 2006

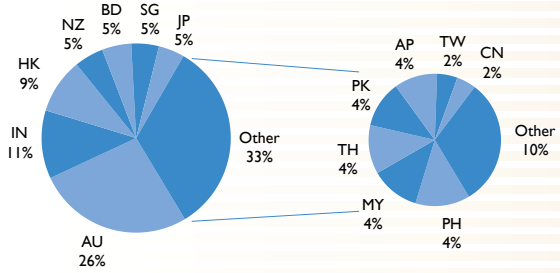
Membership tier	Number of members
Extra large	9
Very large	21
Large	70
Medium	210
Small	658
Very small	261
Associate	133
Total	**1,362**

▲ George Kuo is APNIC's Member Services Unit Manager.

Membership growth (cumulative, by category)



Geographic distribution of members



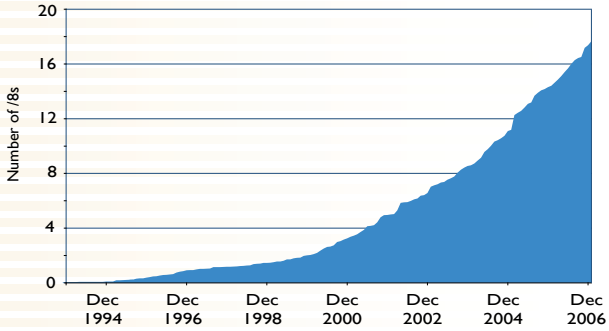
IPv4 address space

Demand for IPv4 address space was slightly lower than in 2005, but still higher than in previous years. APNIC allocated the equivalent of 3.09 /8s (compared to 3.21 in 2005, 2.58 in 2004, and 1.98 in 2003).

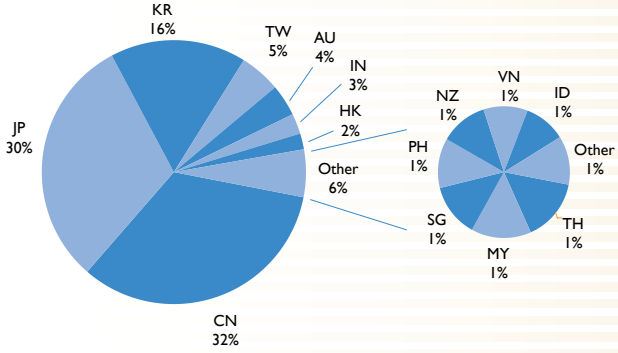
The relative distributions of IPv4 address space throughout the region has remained fairly stable for several years, with Japan, China, and Korea having the largest address holdings.

▲ As Resource Services Unit Manager, Guangliang Pan is responsible for APNIC resource distribution and administration.

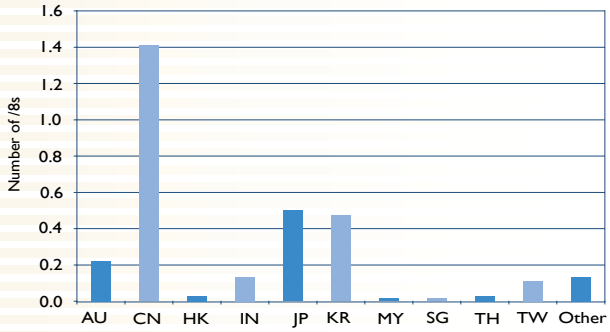
Total IPv4 allocated (cumulative)



Total distribution of IPv4 allocated (by economy)



IPv4 addresses allocated in 2006 (by economy)

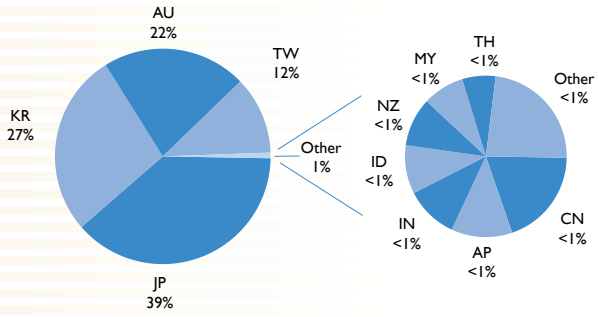


IPv6 address space

2006 was a landmark year for IPv6, with the end of the 6-bone experimental network, the official closure of the KAME project in Japan, and the end of ip6.int reverse DNS services. In late 2006, ICANN announced that it had ratified the global policy developed in the RIR communities to change the details of IANA IPv6 allocations to RIRs.

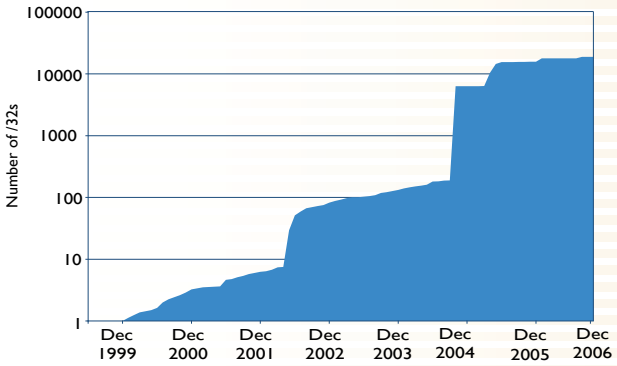
In 2006, APNIC made 41 IPv6 allocations, totalling 3,226 /32s. Japan, Korea, and Australia currently hold the greatest number of IPv6 addresses in this region.

Total distribution of IPv6 allocated (by economy)

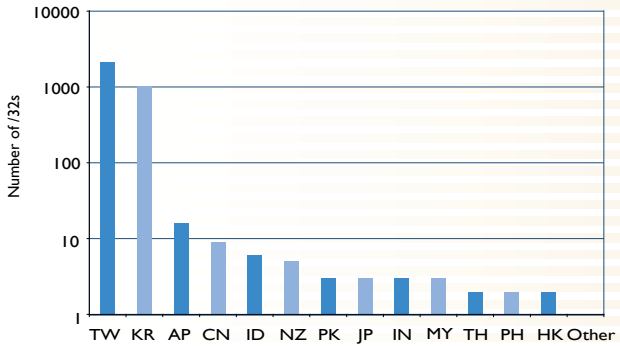


▲ In the past, APNIC has reported IPv6 status in terms of the number of allocations made. Since the 2005 annual report, we now report the actual amount of address space allocated. The minimum IPv6 allocation was changed significantly during 2002, so readers should be careful when interpreting the demand for IPv6 address space before that time.

Total IPv6 allocated (cumulative)



IPv6 addresses allocated in 2006 (by economy)

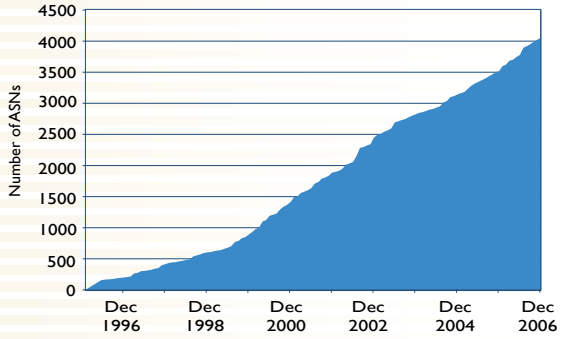


AS numbers

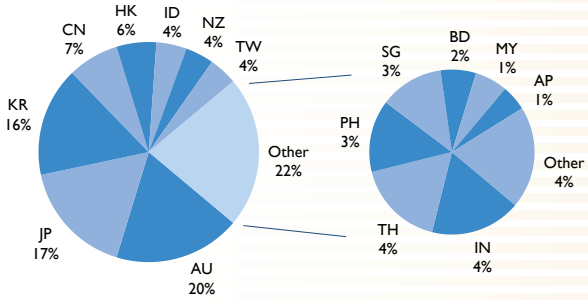
Demand for AS numbers increased again in 2006, with APNIC assigning 533 ASNs for the year. Australia, Japan, Korea, and China hold the most ASNs in this region.

In December 2006, APNIC and the other RIRs started allocating 4-byte ASNs under a new transitional policy. Over the next three years, 4-byte ASN allocations will be phased in to avoid the problem of the exhaustion of the 2-byte ASN pool.

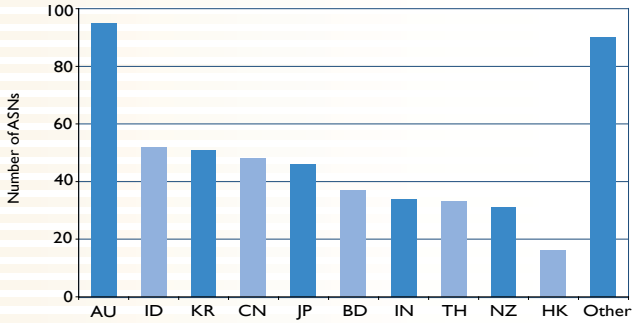
Total ASNs assigned (cumulative)



Total distribution of ASNs (by economy)



ASNs assigned in 2006 (by economy)



Global Internet number resource statistics are available from the NRO at: http://www.nro.org/statistics

Financial reports

▲ Finance Unit Manager, Irene Chan, notes that better-than-expected membership growth, as well as savings in several expense areas contributed to a surplus for 2006.

Two of the most important variables in APNIC's finances are the rate of membership growth and the value of the US dollar. Most of APNIC's income is in US dollars, but most of its expenses are in Australian dollars, so fluctuations in the exchange rate are reflected in the financial statements. However, it should be noted that APNIC's capital reserve is structured to protect the long term financial position from short term instability.

The continued weakness in the US dollar, combined with the unpredictability of revenue from per-address fees associated with NIR membership, have led to a general tightening of APNIC's budget in recent years.

In response to the budgetary constraints, there was an ongoing discussion throughout 2006 about reform of the APNIC fee schedule. As noted in Policy Developments (p. 15) an APNIC Fees Working Group was set up to discuss options. By the end of 2006, the APNIC EC had approved a set of questions dealing with various elements of possible fee reform. The questions will be put to a membership vote in early 2007, with the intention of shaping a formal fee reform proposal.

Links to the APNIC Fee Working Group mailing list are at:
http://www.apnic.net/community/lists

The financial reports presented on the following pages summarise APNIC's finances for 2006. They are presented in US dollars, based on the AU dollar financial report audited by PricewaterhouseCoopers.

Balance sheet

	Year end 2006 (US$)	Year end 2005 (US$)	% change from 2005
Exchange rate (*)	*0.7938*	*0.7363*	*8%*
Current assets			
Cash	4,521,723	3,809,068	19%
Term deposit investment	2,619,540	2,429,790	8%
Receivables	1,328,391	890,592	49%
Advance payment	105,838	86,413	22%
Other	11,857	3,879	206%
Total current assets	**8,587,349**	**7,219,742**	**19%**
Non-current assets			
Other financial assets	911,576	751,599	21%
Property, plant and equipment	1,186,303	971,547	22%
Long term deposit investment	1,587,600	1,472,600	8%
Total non-current assets	**3,685,479**	**3,195,746**	**15%**
Total assets	**12,272,828**	**10,415,488**	**18%**
Liabilities			
Accrued expenses	1,157,664	794,034	46%
Provisions	561,878	391,183	44%
Unearned revenue	3,390,538	2,706,572	25%
Total liabilities	**5,110,080**	**3,891,789**	**31%**
Equity			
Share capital	0.79	0.74	8%
Reserves	114,006	116,459	-2%
Retained earnings	7,048,741	6,407,240	10%
Total equity	**7,162,748**	**6,523,700**	**10%**
Total liabilities & equity	**12,272,828**	**10,415,488**	**18%**

Notes:

The balance sheet, profit and loss, and cash flow statement are the consolidation of APNIC Pty Ltd accounts 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 2006) the balance sheet, profit and loss, and cash flow statement 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 (0.7938), is based on the notes spot rate as at 31 December 2006 as provided by the Australian Taxation Office.

Notes:

The exchange rate used to convert AU$ amounts to US$ in this profit and loss statement (0.7574), is based on the average rate for year ended 2006 as provided by the Australian Taxation Office.

Profit and loss statement

	2006 in US$	2005 in US$	% change from 2005
Exchange rate (*)	*0.7574*	*0.7665*	*-1%*
Revenue			
Interest income	428,214	327,818	31%
IP resource application fees	583,655	532,901	10%
Membership fees	4,159,073	3,733,776	11%
Non-member fees	90,971	73,801	23%
Per allocation fees	795,127	636,720	25%
Reactivation fees	8,630	957	802%
Sundry income	183,638	135,570	35%
Sub-total	**6,249,308**	**5,441,543**	**15%**
Exchange rate gain/(loss)	(94,854)	382,193	-125%
Total revenue	**6,154,454**	**5,823,736**	**6%**
Expenditure			
Communication expenses	94,863	126,136	-25%
Depreciation expense	394,959	358,409	10%
Donation/ sponsorship	63,487	30,674	107%
ICANN contract fees	185,870	228,805	-19%
Meeting and training expenses	90,642	86,766	4%
Membership fees	58,640	110,826	-47%
Other operating expenses	1,028,173	861,889	19%
Professional fees	319,974	388,284	-18%
Rent and outgoings	300,880	283,842	6%
Salaries	2,679,805	2,384,347	12%
Travel expenses	721,577	604,081	19%
Total expenditure	**5,938,870**	**5,464,059**	**9%**
Operating profit/(loss) before income tax expense	**215,584**	**359,677**	**-40%**
Income tax expense	80,917	45,383	78%
Operating profit/(loss) after income tax expense	**134,667**	**314,294**	**-57%**

Cash flow statement

For the year ended 31 December 2006

	2006 (US$)	2005 (US$)
Exchange rate (*)	*0.7938*	*0.7363*
Cash flows from operating activities:		
Receipts from members and customers	6,111,597	5,306,155
Payments to suppliers and employees	(5,552,644)	(4,241,491)
	558,953	**1,064,664**
Interest received	444,621	329,988
Income tax (paid)/received	(35,330)	(2,597)
Net cash inflow from operating activities	968,244	1,392,055
Cash flows from investing activities:		
Payments for property, plant, and equipment	(554,796)	(309,269)
Payments for investments	0.00	(841,398)
Proceeds from sale of property, plant, and equipment	0.00	1,660
Proceeds from sale of available-for-sale financial assets	1,746	96,847
Net cash outflow from investing activities	(553,050)	(1,052,160)
Net increase/(decrease) in cash held:	**415,194**	**339,895**
Cash at the beginning of the financial year	3,809,068	**3,691,561**
Effects of exchange rate changes on cash	297,462	(222,388)
Cash reserve at the end of the financial year	**4,521,724**	**3,809,068**

APNIC expresses its sincere thanks to the following organisations who sponsored its operations, meetings, and training events in 2005:

Meeting sponsors

Asia Pacific Telecom Group

China Network Information Center

Chungwha Telecom

Cisco Taiwan

Hubert Hsu and Associates

Japan Network Information Centre

Kaohsiung City Government

Kaohsiung County Government

National Internet Development Agency of Korea

Neustar

PriceWaterHouseCoopers

Ring Line Corporation

Seednet

Sparq

Taiwan Network Information Centre

Yahoo!Kimo

Operational sponsors

Cisco Systems

Hong Kong Internet Exchange (HKIX)

Reach

Telstra

The WIDE Project

Nominum

Training sponsors and hosts

APJII

APRICOT

ASTI, Philippines

CAT Telecom, Thailand

CNNOG

Datacom, Mongolia

DotAsia

Hong Kong ISP Association (HKISPA)

InteRLab, AIT

ISP Association of India (ISPAI)

Juniper Networks

NZNOG

SANOG

UECOMM, Australia

University of Colombo

University of Moratuwa

University of St. Tomas, Philippines

Vebtel, India

www.apnic.net