



*Annual Report 2005*

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

## APNIC

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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>

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## A message from the Director General

This is the eighth Annual Report I have delivered as Director General of APNIC and, I have to say, 2005 seems like one of the biggest and busiest years yet.

Talk of Internet governance seemed to be everywhere. The first World Summit on the Information Society (WSIS I) in 2003 may have escaped the attention of many people, but by the start of 2005, the momentum was gathering for WSIS II to become a major activity of the year.

As WSIS came to end, with the announcement of the Tunis Agenda, APNIC and the other RIRs, through the NRO, were pleased to see our roles recognised and our processes commended. Yet many other questions about Internet governance remain to be answered and already preparations are underway for the new Internet Governance Forum (IGF), which will meet in Athens in 2006.

The outcomes of WSIS and the IGF are very important for the future of our industry, but for the average network operator, Internet governance seems a very abstract concept. So while the negotiations go on, business must continue as usual. Networks still need numbers and, at APNIC, our priority continues to be service to our community.

I am very excited about the developments of 2005. We launched live chat services on the Helpdesk, extended Helpdesk hours and made significant improvements to a lot of internal systems. We launched even more root servers in strategic locations around the region. We continued to improve remote access to our Open Policy Meetings and we made great gains in the quality of other external communications.

There were also some important behind-the-scenes developments in 2005 that will lead to new services in 2006, such as the VoIP deployment, already launched in 2006, and more work on resource certification. I'm looking forward to how this next year will develop.

Finally, I'd like to again thank the Secretariat staff, the members, and everyone else in the community who continue to give such strong support to APNIC.

Kind regards

# About APNIC

## *APNIC essentials*

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APNIC was established in 1993 to serve 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 and direction 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 service 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*

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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 (1,157 members by the end of 2005) 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*

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With the full recognition of AfriNIC in April 2005, the APNIC service region adjusted. The six territories of Comoros, Madagascar, Mauritius, Mayotte, Reunion, and Seychelles were transferred to AfriNIC, leaving the APNIC service region with 56 economies.





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

### 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 2005, the EC members were:

- Akinori Maemura (Chair), of France Telecom Research and Development Tokyo and a Trustee and Director of the JPNIC IP Department (serving until 2006)
- Moo-Ho Billy Cheon (Secretary), IP Team Assistant Manager, Korea Network Information Center of National Internet Development Agency of Korea (serving until 2007)
- Kuo-Wei Wu (Treasurer), CEO of National Information Infrastructure Enterprise Promotion Association (serving until 2007)
- Che-Hoo Cheng, Head of IP business Asia Pacific, FLAG Telecom (serving until 2007)
- Qian Hualin, Deputy Director of Computer Network Information Center, Chinese Academy of Science (serving until 2007)
- Vinh Ngo, Firewall Security Manager, CSC Australia (serving until 2006)
- Ma Yan, executive committee member of China Education and Research Network (CERNET) (serving until 2007).

*Minutes of EC meetings are published on the APNIC web site at:*

*<http://www.apnic.net/ec>*

### The APNIC Secretariat

By the end of 2005, the APNIC Secretariat had a staff of 47. Progressive improvements in internal systems and practices have controlled staff growth in recent years, despite continuing rises in membership numbers. The diverse APNIC staff is drawn from 20 different nationalities and represents 19 languages of the region.

# Internet governance

## *From WSIS to IGF*

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2005 will be remembered by many as the year that Internet governance discussions took centre stage, culminating in the second World Summit on the Information Society (WSIS II), hosted by Tunisia in November. The first phase of WSIS was held in Geneva in December 2003, resulting in a Declaration of Principles and a Plan of Action. Since then, the level of interest in WSIS has continued to grow in both the Internet community and the media.

From the start, APNIC has closely followed the progress of WSIS, both in its own right and in cooperation with the other RIRs as members of the Number Resource Organization (NRO). The commitment of time and resources to WSIS was significant, reflecting the importance of the process to the future of the Internet and the potential impacts on the addressing system. In a forum of diverse stakeholders, misconceptions and myths about the Internet addressing system can spread quickly and flourish. Therefore, the RIRs and the NRO worked hard in 2005 to ensure that communications were focussed and timely.

During WSIS II, the NRO joined with ISOC, ICANN, the IETF, and several other organisations to form the ‘Internet Pavilion’ at the Summit’s ‘ICT4all’ exhibition. The pavilion helped spread understanding of the current system to government, civil society, and industry delegates, as well as the international media.

In the period between Summits, the Working Group on Internet Governance (WGIG) had been formed to develop a working definition of Internet governance; identify relevant public policy issues; and develop a common understanding of the roles and responsibilities of governments, international organisations, and other forums. The addressing community was represented on WGIG by Raúl Echeberría, Executive Director of LACNIC.

WGIG reported the results of its work in June 2005, defining Internet governance broadly as “the development and application by governments, the private sector, and civil society, in their respective roles of shared principles, norms, rules, decision-making procedures, and programmes that shape the evolution and use of the Internet”.

The final outcome of WSIS was the report known as the *Tunis Agenda*, which adopts the WGIG’s working definition but still leaves many open questions about the future of Internet governance. Nevertheless, The *Tunis Agenda* recognises that “the existing



▲ The NRO collaborated with other Internet organisations to form the Internet Pavilion in the ICT4all exhibition at WSIS II.



▲ NRO Chair Axel Pawlik gives a media interview on behalf of the NRO. Axel noted that the NRO is pleased that “the policy development processes of the RIRs have been recognised and reinforced by the Tunis Agenda”.

arrangements for Internet governance have worked effectively to make the Internet the highly robust, dynamic and geographically diverse medium that it is today”.

The document also calls for “an enhanced cooperation model” and “the reinforcement of specialised regional Internet resource management institutions to guarantee the national interest and rights of countries ... to manage their own Internet resources, while maintaining global coordination in this area”.

The NRO welcomed the *Tunis Agenda* as a clear decision for governments not to become involved in the daily operational and technical matters of the Internet. This result, while recognising the importance of involving all stakeholders, allows for the continued stable operation of the Internet and is a successful outcome for the Internet community as a whole.

Axel Pawlik, Chair of the NRO in 2005, expressed the NRO’s pleasure that “the policy development processes of the RIRs have been recognised and reinforced by the *Tunis Agenda*. Over the coming months and beyond, we will continue our ongoing efforts to reach out to governments, as well as to other stakeholders, in order to exchange views on the Tunis outcomes and to develop priorities for the future”.

The most detailed recommendation in the *Tunis Agenda* is to form the Internet Governance Forum (IGF) by mid-2006. The IGF is to discuss public policy issues related to Internet governance and facilitate discussion of issues that have not yet found a home elsewhere.

While the detail remains to be seen, the IGF could be a productive way for governments, civil society, the private sector, and international organisations to make progress on Internet issues that cut across stakeholder boundaries. The *Tunis Agenda* is careful to state that existing structures and processes of Internet governance will be reinforced by the IGF, not replaced. It also explains that the IGF is to be an advisory body only, with no power to enforce any recommendations it makes.

APNIC has indicated it will continue to strengthen relationships with governments in the Asia Pacific region and to encourage more dialogue on the technical issues associated with IP addressing policy. Likewise, throughout 2006 and beyond, the NRO will remain alert and responsive to discussions in and around the IGF, to properly represent the position of the established addressing structures and institutions.

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

### Asia Pacific iGov research

Separate from its role within the NRO, APNIC also worked closely with regional organisations on governance issues. For instance, in the lead-up to WSIS II, APNIC provided staff resources to the UNDP-APDIP Survey on Internet Governance Priorities for the Asia-Pacific and the Open Regional Dialogue on Internet Governance (ORDIG) project.

*The UNDP-APDIP projects have generated a considerable body of resource material, which can be accessed through APDIP's Asia Pacific Internet Governance Portal:  
<http://igov.apdip.net>*

### APNIC officially recognised by UN

In early February, APNIC received notice that the United Nations Economic and Social Council (ECOSOC) had approved its application for 'special consultative status'. This means that APNIC is now an official, UN recognised non-government organisation (NGO) and may designate official representatives to attend UN meetings and conferences.

APNIC Director General Paul Wilson acknowledged the importance of this latest development. "With the WSIS, the United Nations has become a central forum for discussions on Internet governance, and this role is likely to continue. Our status as an accredited NGO shows that APNIC's contribution has been recognised, and will help to ensure that the views of APNIC's members and stakeholders are heard."



▲ APNIC provided the services of staff members Kapil Chawla and Samantha Dickinson to UNDP-APDIP to help with the survey on Internet governance priorities and the ORDIG project.



▲ At the APNIC 19 meeting in Kyoto, UNDP-APDIP held a panel discussion on Internet governance titled "The wrong answers to the wrong questions? Policy priorities for the maturing Internet".



▲ Son Tran, Resource Services Manager explains that “whenever possible, we try to keep the Helpdesk open to give people the best opportunities to get help when they need it”.



▲ The live chat help system launched in 2005 provides a simple interface for people to get immediate, interactive help from an APNIC hostmaster.

## Putting clients first

### *The Clients First project*

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The APNIC Secretariat is always interested in the feedback it receives from channels such as surveys, meetings, training events, and daily helpdesk enquiries. A consistent theme that emerges in the feedback is that many people find APNIC’s policies and procedures to be complex. In response, the Secretariat has established a set of projects called ‘Clients First’, which aims to continuously improve all APNIC services and simplify procedures.

The initial stage of the Clients First project involved analysing the systems and work flows within the organisation and identifying the areas in most need of improvement. Some of the work now underway includes: rebuilding all existing web forms and developing a more user-focused forms engine; simplifying the procedures for requesting and granting digital certificates; improving the web site navigation and revising web content; and developing simple online tools for people to figure out if they are eligible for resources and what fees will apply.

To date, much of this work has been taking place behind the scenes and the efforts made in many of these areas will begin to be seen in 2006. However, other related efforts are already providing improved services and easier access to customers.

In August 2005, the APNIC Helpdesk operations were extended by introducing a live chat system. This web-based service, linked from the home page, provides a simple interface for people to get immediate, interactive help from an APNIC hostmaster. The hostmaster can paste in links to help step people through the relevant parts of the web site, or simply give advice about the issue at hand. The user can also choose to have a transcript of the session automatically emailed to them for future reference.

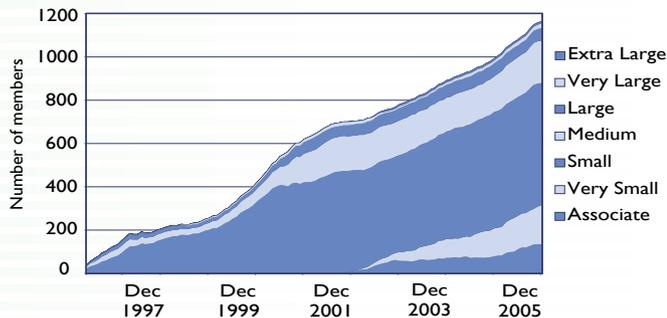
Also in 2005, the Secretariat extended access to the Helpdesk by providing service on many public holidays. “Public holidays vary across the region,” says Son Tran, Resource Services Manager. “People in China or Fiji or India can’t be expected to be aware of local holidays in Australia. So whenever possible, we try to keep the Helpdesk open to give people the best opportunities to get help when they need it.”

“We also started work in 2005 on something we hope will make a big difference to our members across the region,” explained Son. To date, for many people, telephone contact to the Helpdesk has been restricted by cost issues. But in 2005, the APNIC Secretariat installed VoIP telephone infrastructure. “We will start providing VoIP services in 2006 to allow easy, free phone calls to the Helpdesk, which will really give a lot of people more flexibility in how they contact APNIC.”

### Membership status

2005 was a good year for membership growth at APNIC. The annual net gain of 179 members was APNIC’s biggest gain since 2000 and the second best year of membership growth in APNIC’s history. The gain included 253 new members, but 74 closures, bringing the year-end total to 1,157 members.

**Membership growth (cumulative, by category)**

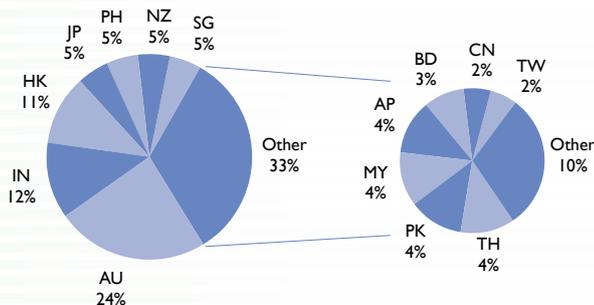


As in recent years, the majority of the new memberships have come from India and Australia, but several other economies, such as Thailand, New Zealand, the Philippines, and Hong Kong also continue to grow strongly.

### Membership breakdown at end of 2005

Membership tier	Number of members
Extra large	8
Very large	20
Large	56
Medium	196
Small	568
Very small	174
Associate	135
<b>total</b>	<b>1157</b>

**Geographic distribution of members**





▲ “Organising large meetings for such a diverse audience is a very big challenge,” says Acting Events Manager, Miwa Fujii.



▲ A Special Interest Group session at APNIC 19 in Kyoto, Japan.



▲ Social activities at APNIC meetings often feature local cultural performances.

## Networking the community

### APNIC Open Policy Meetings

APNIC Open Policy meetings are a public expression of the Internet ‘community’ in this region. In a formal sense, they are one important stage in the process of policy development and direction setting for the organisation. But less formally, as a melting pot of ideas, they create personal connections that cross geographical and organisational boundaries.

APNIC and the other RIRs exist because network operators have a shared interest in a stable addressing system. Open Policy Meetings provide some of the best opportunities to translate that shared interest into a sense of common purpose. Dialogue and knowledge sharing lead to progress. This happens in the formal sessions, in the hallways, over lunch, and at the social events.

For the APNIC Secretariat, the Open Policy Meeting is an important way of publicly demonstrating transparency and accountability. It is very much about reporting activities and listening to needs, concerns, and ideas. The channels of communication with APNIC staff are always open, but the valuable ‘human bandwidth’ and the focus on issues help make Open Policy Meetings a major driver of development for the region.

It’s important to share these opportunities around the region, to open up chances for as many community members as possible to participate. In 2005, Kyoto, Japan and Hanoi, Vietnam hosted the meetings, each city bringing a unique flavour to the events. Organisation for the Hanoi meeting was coordinated by Miwa Fujii (acting in the position of Vivian Yang who is currently on maternity leave).

“Organising large meetings for such a diverse audience is a very big challenge,” says Miwa. “But with each meeting our processes improve. For example, the new meeting registration system developed by the APNIC software department has made a big difference to the way we plan the meetings and the onsite logistics.”

The new meeting registration system is now also used by APRICOT, reflecting the continued high level of collaboration between APNIC and other Internet organisations.

### Making meetings accessible

While APNIC works hard to make the meetings affordable, the unfortunate reality is that travel costs rule out attendance for many members. APNIC has strategies in place

to deal with this problem. A fellowship programme has operated for several years now, drawing on sponsorship support to fund attendance at the meeting for a limited number of applicants from developing parts of the region. For APNIC 20, six applicants – from Bangladesh, Laos, Nepal, and Sri Lanka – received financial assistance (APRICOT also administers fellowships for attendance at the joint APRICOT/APNIC meetings).

The other major strategy for making the meetings more accessible is to provide ways for people to participate from afar. Everyone can now follow the discussions in APNIC Open Policy Meetings by streaming video and live session transcripts (via web browser or Jabber client). They can also get involved in the discussions, making comments and asking questions through Jabber. The MyAPNIC secured web site also supports online voting, which was used officially for the first time in 2005, for the ASO Address Council election. In coming meetings, APNIC will expand the remote participation options by adding live audio streams and podcasting audio downloads.

“We have a range of remote participation options well established,” explains Anne Lord, APNIC Communications Director. “Our challenge now is to spread the word about these possibilities, to really encourage those who can’t make it in person to still get involved online. These tools mean that no matter where you are, you can still feel like you are part of the dialogue. Everyone has always been able to participate in the discussions on the mailing list, but now everyone, no matter where they are, can also have their voice raised on the floor of the meeting.”

*A short video about the Open Policy Meetings, produced entirely by APNIC staff, is available at: <http://www.apnic.net/multimedia>*

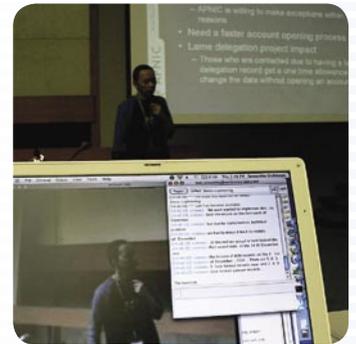
### Working with technical communities

Other important forums for regional Internet development take place within the various operator communities. In 2005, APNIC was proud to increase its presence at meetings such as SANOG, PacNOG, and NZNOG. These meetings bring together close communities with shared common interests and are a great opportunity for APNIC to learn more about developments in the region and to provide training, updates, and informal consultation to diverse audiences. In some of the more remote parts of the region, it’s not very often that the ISP community can access real hands-on technical training and knowledge sharing. The operator community meetings provide this chance.

In 2005, APNIC also entered into Memoranda of Understanding (MoUs) with several South Asian ISP associations, with the intention of increasing training opportunities and



▲ Communications Director, Anne Lord explains that the remote participation tools allow those who can’t physically attend the meetings to “still feel like you are a part of the dialogue”.



▲ Technologies such as streaming video and live text transcripts allow people to follow APNIC meetings in real time from anywhere in the world.



▲ A short documentary about APNIC meetings is available online.



▲ PACNOG 1 brought together the Pacific Internet operational community. (Photo © Philip Smith 2005)

cooperation at local events. APNIC also continues to provide web hosting and mailing list support for several organisations, such as PacNOG, APRICOT, and APOPS to help these bodies communicate effectively and build relationships within the community.

### *Coordination with RIRs and the NRO*

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The RIRs (AfriNIC, APNIC, ARIN, LACNIC, and RIPE NCC) have always enjoyed close, cooperative relationships. This cooperation includes reciprocal staff visits, representation at each others' Open Policy Meetings, knowledge sharing, and engineering coordination. One of the most significant developments in the RIR community in 2005 was the final emergence of AfriNIC as a fully operational RIR. For APNIC, this involved transferring responsibility for resource distribution in Comoros, Madagascar, Mauritius, Mayotte, Reunion, and Seychelles. APNIC also joined with ARIN, LACNIC, and RIPE NCC to contribute US\$100,000 to help AfriNIC establish their operations. In November 2005, APNIC hosted a visit by Frank Nnebe, AfriNIC's Senior Software Engineer, who came to learn more about APNIC's technical operations, such as MyAPNIC and the resource management system.

Many aspects of the relationship between the RIRs have been formalised under the banner of the Number Resource Organization, which was established in late 2003 to protect the unallocated Internet number resource pool, to promote and protect the bottom-up policy development process, and to act as a focal point for Internet community input into the RIR system. In 2005, a great deal of the work of the NRO involved participating in Internet governance forums, especially WSIS II in Tunis. In 2005, the NRO also presented regular statistical reports, coordinated a considerable amount of engineering work in 2005 (including projects dealing with 6-to-4 reverse DNS services and common registry protocols), and facilitated globally-coordinated policy developments through the various regional communities.

### *Representing APNIC in global forums*

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APNIC staff represented the region at more than 35 events around the world in 2005, including RIR and NIR meetings; operator forums; global, regional, and local meetings; and many other technical forums.

# Policy developments

## *The policy development process*

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APNIC policies are developed by the APNIC membership and the broader Internet community in an open process of discussion and consensus. Policy proposals are posted to the SIG mailing lists at least one month before APNIC meetings. After discussion and endorsement at APNIC meetings, proposals go back to the mailing list for an eight-week comment period. After the comment period, the APNIC EC endorses policy proposals that have achieved community consensus. This extended timeline is designed to allow all members of the Internet community, not just those who attend APNIC meetings, to actively participate in policy development.

In 2005, Save Vocea became APNIC's Policy Development Manager, moving from his previous role as Research and Liaison Officer for the Pacific. He notes that one of the biggest challenges in this new position is encouraging the "Asia Pacific community to actively participate at all stages in the policy development process".

"One way we are tackling this," he explains, "is to streamline the way we track policy discussions and we're also continuing to try to raise awareness of how the process works".

"Increased use of remote participation tools at APNIC meetings was a feature of 2005, allowing those who cannot attend in person to tune in by reading live meeting transcripts or watch live video streams," says Save. "They can then communicate back to Secretariat staff at the meeting via live chat if they want to join the dialogue. We are looking forward to improving these tools and making them even easier to use in 2006."

## *Policy changes and related updates in 2005*

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The following policy proposals reached consensus and were endorsed by the Executive Council in 2005:

### *[prop-005-v005] IANA policy for allocation of IPv6 blocks to Regional Internet Registries (global policy)*

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This was a proposal to specify the conditions for and sizes of IPv6 allocations from IANA to the RIRs. As a global policy, the final version must be approved by all five RIRs before it can be implemented.



▲ Former Research and Liaison Officer for the Pacific, Save Vocea, is now APNIC's Policy Development Manager.

### APNIC Special Interest Groups (SIGs) in 2005

#### Policy SIG

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

#### Routing SIG

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

#### IX SIG

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

#### Database SIG

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

#### IPv6 technical SIG

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

#### NIR SIG

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

#### DNS operations SIG

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Joe Abley (Chair)

#### [\[prop-026-v001\] APNIC to publish address assignment statistics](#)

This was a proposal for APNIC to publish address assignment statistics.

#### [\[prop-027-v001\] The second phase of large space IPv4 trial usage program for future IPv6 deployment](#)

This was a proposal to allow an extension of the existing large scale IPv4 trial usage program, subject to certain additional conditions. This program is an initiative of the IPv6 Promotion Council of Japan designed to research and encourage IPv6 deployment by using large allocations of historically allocated IPv4 space.

#### [\[prop-030-v002\] Deprecation of ip6.int reverse DNS service in APNIC](#)

This was a proposal to proceed with the full deprecation of ip6.int reverse DNS services. Acceptance of this proposal also placed actions on the Secretariat to gather statistics of the breakdown of ip6.int lookups and the extent of undelegated domains and report back to the DNS operations SIG at APNIC 21.

#### [\[prop-031-v002\] Proposal to amend APNIC IPv6 assignment and utilisation requirement policy](#)

During the policy development process, this proposal was separated into two parts. Part 1 proposed that evaluation for subsequent IPv6 allocations should be based on an HD-ratio value of 0.94. This reached consensus and was endorsed by the EC. Part 2 proposed adding a /56 end-site allocation point (in addition to /64 and /48) and making that the default allocation size for SOHO end sites. This did not reach consensus.

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

## Training and education

### *Combining new content with new ways of learning*

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APNIC's Training department entered 2005 with the strategic goal of adopting a businesslike approach in delivering training to the region. In practice, this meant developing a more formalised fee structure, refining sponsorship benefits, improving communications, and developing additional course material.

The new material included an additional technical course, the three-day Routing Essentials Workshop, which was developed in direct response to feedback received in previous years, and two new half-day tutorials on spam and security.

Developing and extending the training services can only be done effectively if the needs of the community are properly understood. To this end, in 2005, the APNIC trainers increased their efforts to gather feedback and suggestions.

“We really focused on reviewing and redesigning the training feedback and evaluation forms,” explains Senior Training Specialist Champika Wijayatunga. “This has helped us to gather more information to better analyse member needs. As a result, we now have much better information on participant demographics, the relevance and effectiveness of our existing courses, and suggestions to improve our training delivery.”

One of APNIC's strategic goals for the training program is to build a strong eLearning environment to better cater for member needs, especially those in remote locations where instructor-led training is less practical. In pursuit of this goal, Sall'ee Ryman joined APNIC in 2005 as eLearning Development / Training Officer. Sall'ee brings a great deal of teaching and media production experience to the role and has previously been awarded for excellence in teaching in eLearning projects.

Looking ahead, the Training department's main focus for 2006 will include continuing the new Routing Essentials workshop, launching an IPv6 Services workshop, and developing an initial eLearning package.



▲ Sall'ee Ryman has joined APNIC as eLearning Development / Training Officer. Sall'ee is developing an eLearning programme that will start in 2006.



▲ Senior Training Specialist Champika Wijayatunga helps trainees during a hands-on workshop.



▲ Training Officer, Amante Alvaran, presents a training session during APNIC 20 in Hanoi.

### Training delivery in 2005

In 2005, APNIC delivered 34 training sessions in 22 different locations:

Bangkok, TH

Delhi, IN

Dhaka, BD

Guangzhou, CN

Hamilton, NZ

Hangzhou, CN

Hanoi, VN

Hong Kong, HK

Jakarta, ID

Karachi, PK

Kuala Lumpur, MY

Kyoto, JP

Langzhou, CN

Makati, PH

Nadi, FJ

Port Moresby, PG

Singapore, SG

Sydney, AU

Taipei, TW

Thimphu, BT

Ulaan Baatar, MN

Vientiane, LA

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

### NIR staff training

As a long-standing extension of its training services, APNIC also hosts NIR staff for short periods, where they can join in-house training sessions, share experience about operational issues, and work alongside APNIC hostmasters. In 2005, APNIC hosted Dong Yan and Shen Zhi from CNNIC.

Those wishing to discuss possible future staff training should contact <helpdesk@apnic.net>.

## Strengthening APNIC's infrastructure

### Strengthening infrastructure and integrating services

Development of APNIC's technical infrastructure is an ongoing process. It is necessary for the continuous improvement of services and is also vital for achieving one of APNIC's main goals, ensuring the integrity of the registry.

A major project in 2005 was the transfer of APNIC's critical services to a remote co-location facility. The result is improved availability and reliability of APNIC's services.

Explaining APNIC's strategic directions, Technical Services Manager, Sanjaya, draws attention to "our increasing use of technology to deliver better services to APNIC stakeholders".

A good example of this is the new VoIP infrastructure installed in 2005. The VoIP system has been deployed internally to replace the existing PABX phone system. Already the system is delivering cost benefits, allowing travelling staff members to call back to the office at no charge. But the benefits will soon spread beyond the office.

"VoIP will become a member service," explains Sanjaya. "We have been deploying this system with the intention of integrating it with the Helpdesk in 2006. The infrastructure we have been developing will allow members to set up VoIP accounts, meaning that they will soon be able to call the Helpdesk from anywhere in the world, free of charge."

### MyAPNIC development continues

A great deal of the work performed by the Technical team is not directly seen outside the Secretariat. The major task of continuing to integrate all of APNIC's registry and membership administration systems continued throughout 2005. This project ensures more consistent and reliable data and makes public services more efficient by allowing better system automation. But while much of this work is on back-end systems, some of it does have a public face, with the MyAPNIC secured web site being the most prominent example.

In 2005, MyAPNIC was used for APNIC's first online election (for the vacant ASO Address Council position). Online voting will be used again in early 2006 to fill the three expiring EC positions.



▲ Technical Services Manager, Sanjaya, explains that the VoIP infrastructure his team developed in 2005 will translate into important member services in 2006.



▲ A new version of MyAPNIC, optimised for better performance in low bandwidth environments, was developed in 2005, to be launched in 2006.

“Online voting is a really important way of letting members who can’t get to the meetings still have their vote counted,” says Sanjaya. “Although we have always had proxy voting, online voting is much easier to manage and is likely to be used by members far more than the proxy system.”

Other MyAPNIC development continued throughout 2005, especially work on developing a new version of the application, optimised for faster performance, particularly in low bandwidth environments. The new version will be released in 2006.

### *Certifying resources*

At the heart of MyAPNIC is digital certificate technology. APNIC has now been operating a certificate authority for several years in support of MyAPNIC. In 2005, the Technical department started work on a very significant extension of the use of X.509 certificates. Following the model provided by RFC 3779, APNIC has begun a trial to certify Internet number resources. This has important implications for the security of resource holdings in this region and globally. If the trial progresses successfully, resource certification is expected to be available as a full service in 2006.

### *Successful spam fighting*

Spam has long been considered one of the very worst aspects of the Internet. In 2005, the Technical department implemented a grey listing system, which uses temporary SMTP error messages to block incoming mail on the first attempt. While legitimate mail servers are configured to try again (normally with only a very short delay) the nature of spam servers is such that they will treat the message as a permanent failure.

“The result of this,” explains Senior Systems Administrator, Terry Manderson, “is that the APNIC Secretariat saw an immediate and sustainable 90 percent drop in spam. This has obvious benefits for the efficiency of APNIC’s services”.

*Links to information about greylisting techniques are available from the ‘Spam’ section of the ICONS web site at: <http://icons.apnic.net>*

## Spreading the message

### *A focus on communication*

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One of the most important issues identified in APNIC's strategic plan is the need to continuously improve all aspects of its communication. At the end of 2004, restructuring within the Secretariat brought Anne Lord into the position of Communications Director, responsible for external communications and for coordinating the communications of several departments within the Secretariat.

In 2005, APNIC's ability to communicate effectively was strengthened further by the appointment of Holly Qi as Marketing Communication Officer, who joins Outreach Coordinator Nurani Nimpuno and South Asia Liaison Officer Kapil Chawla. Together, this team worked through 2005 to identify the most important messages in this current environment and to find the most effective ways of getting those messages out to the community.

"With the current global discussions on Internet governance," explains Anne Lord, "clear communication with our community has never been more important. In 2005, iGov issues were more prominent than ever before and there is a lot at stake. So, for example, by providing support to the UNDP-APDIP iGov projects, we were able to ensure that the addressing community was properly represented and understood".

ISP associations have a close relationship with operators in local areas. By entering into MoUs with various associations, APNIC improved its ability to listen and respond to the needs of ISPs in areas which, to date, have had limited involvement in the APNIC community.

"In 2005 we put a lot of effort into getting involved in sub-regional forums like SANOG, PacNOG, and NZNOG. We also worked closely with other bodies such as PITA, NSRC, and ISP groups in the region," says Anne. "By doing this, we help to link those bodies into the broader Internet community. But just as importantly, we learn more about the needs, interests, and concerns within our region, and channel them back into the global forums."

### *Openness needs accessibility*

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It is not sufficient for a communication forum to merely be 'open'. For it to succeed, it must attract participants and give them simple options for getting involved. Although the tools for remote participation in APNIC meetings have been available for several meetings now, the number of people using the tools remains fairly low.

"We knew we needed to spread the awareness of our remote participation tools," says Anne, "but we also needed to know more about how people would use these tools and what barriers might prevent them from taking up the opportunities".

So, in 2005, the Secretariat conducted a survey to judge awareness of the options available for people who can't get to the meetings, but still want to be involved. The survey also asked people to describe their experience using the tools made available so far. The results of this feedback will be channelled into improving services throughout 2006, including providing audio-



▲ APNIC staff have now produced several multimedia guides, which are all available online.

only streaming for lower bandwidth environments, and simplifying the interfaces to the various services.

Another way of making APNIC's communication channels more accessible is to use a range of more interesting media. In 2005, the Secretariat drew on the skills of its staff members to produce a range of new multimedia offerings, such as a series of Flash animations (including two important presentations made for the NRO to use at WSIS II), an increased range of fact sheets and brochures (some translated into various languages of the region), and a video documentary of the APNIC Open Policy Meeting.

*APNIC's multimedia library is at: <http://www.apnic.net/multimedia>*

*Apster*, APNIC's quarterly newsletter also continues to provide quality technical articles and community news. In 2005, *Apster*, covered the Internet governance developments in depth, but also carried articles on large IPv4 network addressing schemes, consumption of 2-byte ASNs, proposals for 4-byte ASNs, root server news, resource certification, and much more.

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



### **ICONS**

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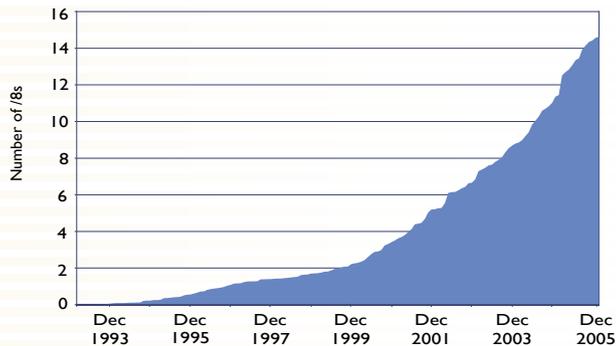
There is no shortage of networking information available on the Internet, but the problem is finding the good information and avoiding the bad. In 2005, APNIC launched the ICONS web site. ICONS stands for the Internet Community of Online Networking Specialists. The Secretariat seeded the site with some initial documents and links, but the intention is for the community to take up the challenge. Anyone in the community can log in to the site to add content, links, and news on a range of network related topics, or join discussion forums. Experts in networking and addressing fields are encouraged to share their experiences with the broader community.

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

# 2005 by the numbers

## IPv4 address space

**Total IPv4 allocated (cumulative)**

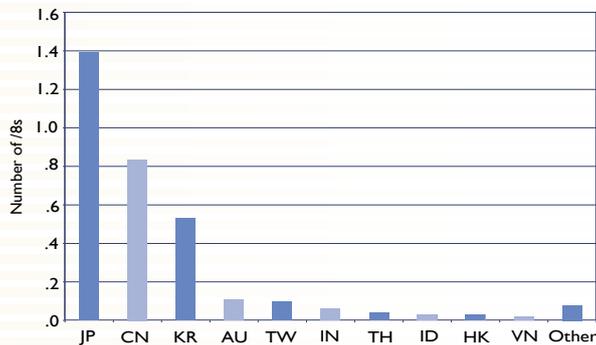


Demand for IPv4 address space continued to rise again in 2005. APNIC allocated the equivalent of 3.21 /8 (compared to 2.58 in 2004, 1.98 in 2003, and 1.25 in 2002).

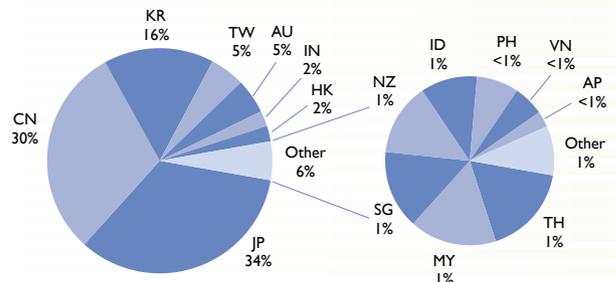
The relative distributions of IPv4 address space throughout the region has remained fairly stable for several years, with Japan, China, and Korea having the largest address holdings.

The Secretariat has also been working on a project to recover unused IPv4 address space. This process is quite time consuming as it involves identifying apparently unused ranges then seeking to contact the registered holders to confirm details and encourage the return of the addresses. This project remains ongoing, but to date, the equivalent of 638 /24s have been willingly returned to APNIC.

**IPv4 addresses allocated in 2005 (by economy)**

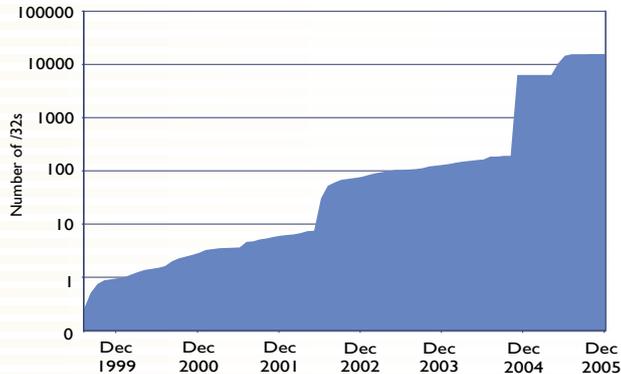


**Total distribution of IPv4 allocated (by economy)**



IPv6 address space

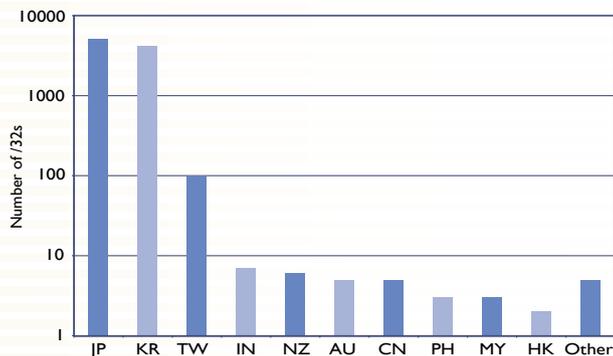
**Total IPv6 allocated (cumulative)**



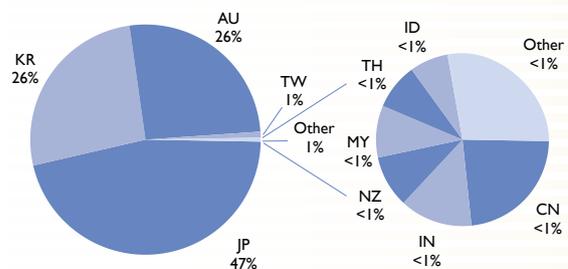
In the past, APNIC has reported IPv6 in terms of the number of allocations made. From this report onwards, we shall report the actual amount of address space allocated. Because the minimum IPv6 allocation was changed significantly during 2002, readers should be careful when interpreting the demand for IPv6 address space before that time.

In 2005, APNIC made 48 IPv6 allocations, totalling 9,376 /32s. By comparison, in the previous year, APNIC made 56 allocations, but these represented only 6,210 /32s. Japan, Korea, and Australia clearly hold the greatest number of IPv6 addresses in this region.

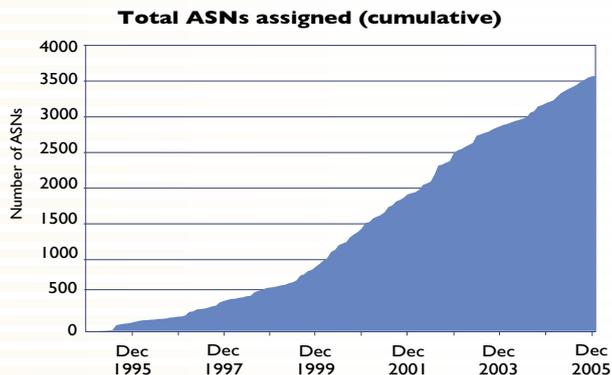
**IPv6 addresses allocated in 2005 (by economy)**



**Total distribution of IPv6 allocated (by economy)**

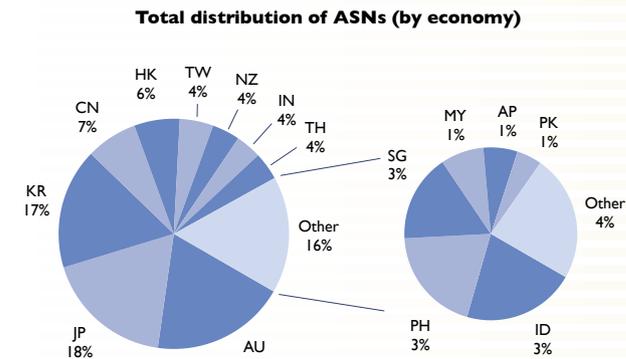
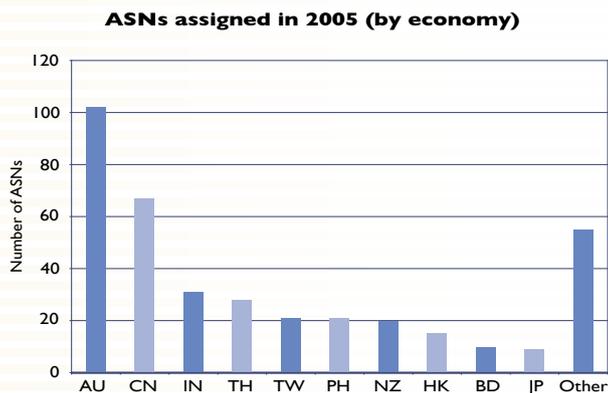


AS numbers



While demand for AS numbers declined in previous years, there was a slight increase in demand again in 2005. APNIC assigned 381 ASNs in 2005, up from 329 in 2004. Australia, Japan, Korea, and China hold the most ASNs in this region.

In 2005, Geoff Huston, Internet Research Scientist at APNIC, analysed ASN consumption and concluded that the global pool of 2-byte AS numbers could face possible exhaustion by 2010. Fortunately, a solution has been proposed through the IETF's RFC process, involving a transition to 4-byte ASNs. The transition is not expected to be disruptive, but it will take time. Articles on this topic are available in *Apster* issues 15 and 16. Discussions of the technical and policy issues surrounding 4-byte ASNs will feature prominently in APNIC forums in 2006.



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



▲ The official launch of three new root servers in India in August marked the start of an important stage in South Asian Internet development.

## Supporting Internet development

### Root servers across the region

APNIC's charter goes beyond the registry function and includes a duty to promote Internet development in the region. In recent years, one of APNIC's most significant contributions has been to promote the spread of root server mirrors around the region. Although the number of actual root servers is limited to 13, anycast technology means that there is no limit on the number of mirror copies that can be used.

Making root server mirrors available in a local area has an immediate impact on the speed of DNS services and each new deployment provides greater stability and resilience to the Internet. Since 2004, APNIC has been working with the operators of root servers F (ISC), I (Autonomica), and K (RIPE NCC) to deploy mirrors around the region.

In 2005, APNIC helped to deploy the following eight new mirrors:

<b>F-root</b>	Chennai, IN (August)	Karachi, PK and Dhaka, BD (December)	
<b>I-root</b>	Jakarta, ID (March)	Mumbai, IN (August)	
<b>K-root</b>	Tokyo, JP (April)	Brisbane, AU (June)	Delhi, IN (August)



▲ For the latest developments of the root server project, see: <http://www.apnic.net/services/rootserver>

Development means more than just building infrastructure - it's also about fostering relationships and bringing together people who can get things done. Speaking at the launch of the three new mirrors in India in August, APNIC Director General Paul Wilson noted that “the deployment of these three root name servers is a positive example of Internet community coordination. The installation has involved the private sector, not-for-profit organisations, and government bodies working together to improve DNS stability and Internet response times for developing countries in South Asia”.

There are now 32 root servers in the Asia Pacific region, 18 of which have been made possible by APNIC's support. Because the spread of root servers is probably now sufficient for this region, major expenditure on this project is no longer required. However, APNIC will respond to any future needs that arise.

### Lame DNS cleanup

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Reverse DNS services are used to resolve a known IP address to its associated hostname. Unfortunately, the reverse DNS system contains many 'lame' reverse delegations, where some or all of the registered DNS nameservers are unreachable or badly configured. This causes many problems, including delays in service binding, refusal of service due to DNS processing failures, and increased traffic between caching DNS nameservers and the listed authorities down from the root.

For these reasons, the Secretariat has been conducting a project to sweep the APNIC Whois Database of lame reverse DNS delegations. This process involves conducting tests to identify all lame reverse delegations, contacting the organisations responsible, and finally, after a 45-day notification period, removing delegations that prove consistently lame.

This project removed more than 1,000 lame delegations in its initial sweep, but the nature of the problem means that the work will be ongoing.

*For more information on APNIC's response to lame reverse DNS delegations, see:  
<http://www.apnic.net/services/rev-del/lame-del>*

### Supporting innovative research and development

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APNIC continues its close association with the Pan Asia ICT R&D grants programme, which helps researchers and communities in the developing world find solutions to practical problems. The Pan Asia ICT R&D grants programme is now one of the most significant funders of ICT research and development in the region.

“In 2005, we funded 17 projects for up to US\$30,000 each,” says Gerard Ross, APNIC Documentation Manager, who is a member of the committee which reviews and selects the applications.

“It's great to see how word of the grants programme is spreading,” says Gerard. “We receive such a diverse range of projects, including health initiatives, alternative networking techniques, crop monitoring projects, disaster avoidance systems, and a variety of open source software developments.”

APNIC is particularly interested in encouraging grant applications that deal with Internet infrastructure, technical and administrative policy impacts on developing nations, and research into addressing or routing issues.

*Full details of this grant programme are at: [http://web.idrc.ca/en/ev-9609-201-1-DO\\_TOPIC.html](http://web.idrc.ca/en/ev-9609-201-1-DO_TOPIC.html)*

*A booklet describing the grants programme, including case studies of some of the funded projects is available at:  
<http://www.apdip.net/projects/ictrnd/Review2.pdf>*



▲ Finance and Accounting Manager, Irene Chan, notes that APNIC's financial position in 2005 was aided by a return to very good membership growth.

## Financial reports

APNIC's accounting, billing, and membership administration, are the responsibility of APNIC's Finance and Accounting Manager, Irene Chan and her team.

"APNIC budgets on an annual basis," explains Irene. "But we constantly track our progress against the budget, producing monthly financial reports, which are also presented to the Executive Council at each of their meetings."

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 comes in US dollars, but most of its expenses are in Australian dollars, so fluctuations in the exchange rate will show up in the financial statements (although APNIC's capital reserve is structured to protect the long term financial position from short term instability).

"In 2005, we had a return to very good membership growth," explains Irene. "The US dollar also performed slightly better than expected. The EC directs the Secretariat to always maintain a total reserve worth one year's operating expenses and we have continued to meet that target."

The financial reports presented here summarise APNIC's finances for 2005. They are presented in US dollars, based on the AU dollar financial report audited by PricewaterhouseCoopers.

**Statement of financial position**

	Year end 2005	Year end 2004	% change
	(US\$)	(US\$)	from 2004
Exchange rate (*)	0.7363	0.7835	-6%
<b>Current assets</b>			
Cash	3,809,068	3,691,561	3%
Term deposit investment	2,429,790	2,585,550	-6%
Receivables	890,592	510,816	74%
Advance payment	86,413	128,152	-33%
Other	3,879	13,520	-71%
Total current assets	7,219,742	6,929,599	4%
<b>Non-current assets</b>			
Other financial assets	751,599	663,273	13%
Property, plant, and equipment	971,547	1,074,177	-10%
Long term deposit investment	1,472,600	783,500	88%
Total non-current assets	3,195,746	2,520,950	27%
<b>Total assets</b>	<b>10,415,488</b>	<b>9,450,549</b>	<b>10%</b>
<b>Liabilities</b>			
Accrued expenses	794,033	517,170	54%
Provisions	391,183	300,228	30%
Unearned revenue	2,706,572	2,061,047	31%
Total liabilities	3,891,788	2,878,445	35%
<b>Equity</b>			
Share capital	0.74	0.78	-6%
Reserves	116,459	0	0%
Retained earnings	6,407,240	6,572,103	-3%
Total equity	6,523,700	6,572,104	-1%
<b>Total liabilities &amp; equity</b>	<b>10,415,488</b>	<b>9,450,549</b>	<b>10%</b>

**Notes:**

The statement of financial position, activities, and cashflows represents APNIC Pty 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 2005, the 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 (0.7363), is based on the notes spot rate as at 31 December 2005, as provided by the Australian Taxation Office.

Notes:

The exchange rate used to convert AU\$ amounts to US\$ in this report (0.7665), is based on the average monthly rate for year 2005 as provided by the Australian Taxation Office.

**Statement of activities**

	2005	2004	% change
	in US\$	in US\$	from 2004
Exchange rate (*)	0.7665	0.7380	4%
<b>Revenue</b>			
Interest income	327,818	282,928	16%
IP resource application fees	532,901	351,188	52%
Membership fees	3,733,776	3,510,392	6%
Non-member fees	73,801	27,686	167%
Per allocation fees	636,720	635,180	0%
Reactivation fees	957	2,876	-67%
Sundry income	135,570	78,007	74%
Sub-total	5,441,543	4,888,257	11%
Exchange rate gain/(loss)	382,193	83,843	356%
<b>Total revenue</b>	<b>5,823,736</b>	<b>4,972,100</b>	<b>17%</b>
<b>Expenditure</b>			
Communication expenses	126,136	105,933	19%
Depreciation expense	358,409	300,454	19%
Donation, contribution, and sponsorship	30,674	65,562	-53%
ICANN contract fees	228,805	172,016	33%
Meeting and training expenses	86,766	68,576	27%
Membership fees	110,826	93,569	18%
Other operating expenses	898,916	796,144	13%
Professional fees	388,285	413,019	-6%
Rent	246,814	219,749	12%
Salaries	2,384,347	2,108,829	13%
Travel expenses	604,081	523,161	15%
<b>Total expenditure</b>	<b>5,464,059</b>	<b>4,867,012</b>	<b>12%</b>
<b>Operating surplus/(loss) before income tax expense</b>	<b>359,677</b>	<b>105,088</b>	<b>242%</b>
<b>Income tax expense</b>	<b>45,383</b>	<b>84,711</b>	<b>-46%</b>
<b>Operating surplus/(loss) after income tax expense</b>	<b>314,294</b>	<b>20,377</b>	<b>1442%</b>

**Statement of cashflows**

<b>For the year ended 31 December 2005</b>	<b>2005</b>	<b>2004</b>
	(US\$)	(US\$)
Exchange rate (*)	0.7363	0.7835
<b>Cash flows from operating activities:</b>		
Receipts from members and customers	5,306,155	4,615,524
Payments to suppliers and employees	(4,241,491)	(4,465,702)
	1,064,664	149,822
Interest received	329,988	275,239
Income tax (paid) / received	(2,597)	(26,138)
Net cash inflow from operating activities	1,392,055	398,923
<b>Cash flows from investing activities:</b>		
Payments for property, plant, and equipment	(309,269)	(343,638)
Payments for investments	(841,398)	(235,050)
Proceeds from sale of property, plant, and equipment	1,660	0
Proceeds from sale of available-for-sale financial assets	96,847	0
Net cash outflow from investing activities	(1,052,160)	(578,688)
<b>Net increase/ (decrease) in cash held:</b>	<b>339,895</b>	<b>(179,765)</b>
<b>Cash at the beginning of the financial year</b>	<b>3,691,561</b>	<b>3,716,177</b>
<b>Effects of exchange rate changes on cash</b>	<b>(222,388)</b>	<b>155,149</b>
<b>Cash reserve at the end of the financial year</b>	<b>3,809,068</b>	<b>3,691,561</b>

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

**Meeting sponsors**

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Cisco Systems Vietnam

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(VNPT)

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Internet Service Providers Association of India (ISPAI)

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