APNIC

2012

Annual Report

addressing the Internet in the Asia Pacific

1993 20 2013

Contents

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In line with ecoAPNIC initiatives, this report is designed for screen reading to save paper

Executive Council

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Ma Yan, Secretary
Executive Committee Member, China Education and Research Network (CERNET)

James Spenceley, Treasurer
CEO, Vocus Group Ltd

Kenny Huang
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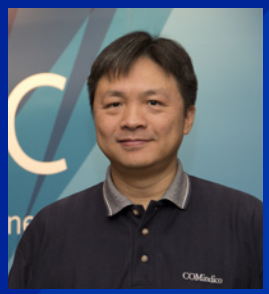
Network Architect, Limelight Networks (LLNW)



Che-Hoo Cheng
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Paul Wilson, Ex-officio
Director General, APNIC

Introduction from the Director General

APNIC has evolved both as an organization and as a community during the past 2 decades. Now, in our 20th year, we still need to adapt and change, and I see no end to that.

Our first decade was spent establishing a set of reliable services for the region, in distributing Internet number resources, and in training and education about our core activities and responsibilities. Those services continue, and remain at the core of APNIC activities.

Our second decade was spent in enhancing and extending those services, on technically strengthening and "hardening" all aspects of our infrastructure, and extending education and outreach into new areas, most notably to Governments.

While undertaking this continual development we have had 2 decades of exponential growth in membership numbers and resource allocations, as this report again shows. It is not surprising that APNIC as an organization has grown in response - but we can be very proud of our management of that growth, shown by its linear nature.

In this past year, 2012, we have achieved substantial service developments, improving accessibility in various ways of almost all core services. We have continued our IPv6 outreach activities, both urging and assisting stakeholders to establish their deployment plans. We have advanced our training activities, and established a new approach to customized training and consulting engineering assistance - which is provided on a cost-recovery basis.

In 2012 we worked directly with more governmental stakeholders, both directly and via regional and global intergovernmental processes. Our engagements on the topic of "internet governance" are necessarily increasing with the growing importance of the Internet, and this process will continue. We have recognized that these activities can no longer be seen as "overheads" outside of core responsibilities. APNIC is an independent and well resourced organization: we have a unique and critical role in the Internet ecosystem, and cannot expect to be represented or protected by others.

During the next year, APNIC will support and encourage participation in "internet governance" discussions by all participants in the Asia Pacific Internet community. Importantly, the next IGF - Internet Governance Forum - will be held in Indonesia during October 2013; and gives a key opportunity and an imperative for this important message across our community.

In this 20th year, I do hope that you feel part of APNIC's community and our story, whether you are a new-comer or an old-timer. Whatever your role or your stake in our community, I do value your past, present, and future contributions; which can only serve to strengthen the capacity and collective voice of the Asia Pacific.

Paul Wilson
Director General

Message from the EC Chair

It is my great honour, as Chair of the Executive Council, to speak on APNIC's achievements.

The APNIC Secretariat continued stable operations in 2012, thanks to both continued strong membership growth and the great effort by the staff, led by our Director General and Executive Leadership Team, of which the Executive Council is very proud.

APNIC is committed to ensuring that the many facets of the Internet and its use are considered in international forums. One of our major activities last year was the effort leading up to WCIT – the International Telecommunication Union's (ITU) World Conference on International Telecommunication, where the International Telecommunications Regulations (ITRs) treaty was revised. Our priority was to ensure the new regulations would not damage the ecosystem of the Internet, and APNIC devoted considerable time and effort to inform preliminary discussions and assist national delegations in their understanding of the relationship between Internet operations and proposed regulatory measures. I found APNIC's efforts in supporting the Asia Pacific's participation at WCIT impressive. Even though there was not a clear common position among the delegations, it felt to me that the Internet community was capably represented at the meeting in December, with thanks in no small part to APNIC's engagement.

A quarter of a century after the ITRs were first adopted, the ecosystem of international telecommunications has changed entirely. Of course the Internet has also changed a lot in various aspects including the size, bandwidth, coverage, number of users, access and transmission technologies, applications running on it, the purpose to use it, businesses on it, what can be achieved on it, and then the stakeholders who are relevant to it, the Internet. The result of the recent WCIT seems to represent that the essence of the evolved Internet is still very difficult for various people to understand.

APNIC is turning twenty-years-old in 2013. Twenty years of activities and events, which have collectively made a huge change to bring APNIC to what it is now, will be compiled through the "APNIC History Project". We will be able to look back over our last twenty years of progress. I wonder what will the next twenty years be like?

The Secretariat and the Executive Council have been considering the meaning of all this and will share it as our "Vision and Mission" soon. We will be more than happy to have any thoughts from you, the APNIC membership and broader community, in this regard. This Annual Report will show you APNIC's current capability, and provides you with a good starting point in thinking about what APNIC should be towards the next era. We are looking forward to hearing what you have to say in every occasion we will meet.

Maemura Akinori
EC Chair

APNIC Vision and Mission

Vision

A global, open, stable and secure Internet that serves the entire Asia Pacific community.

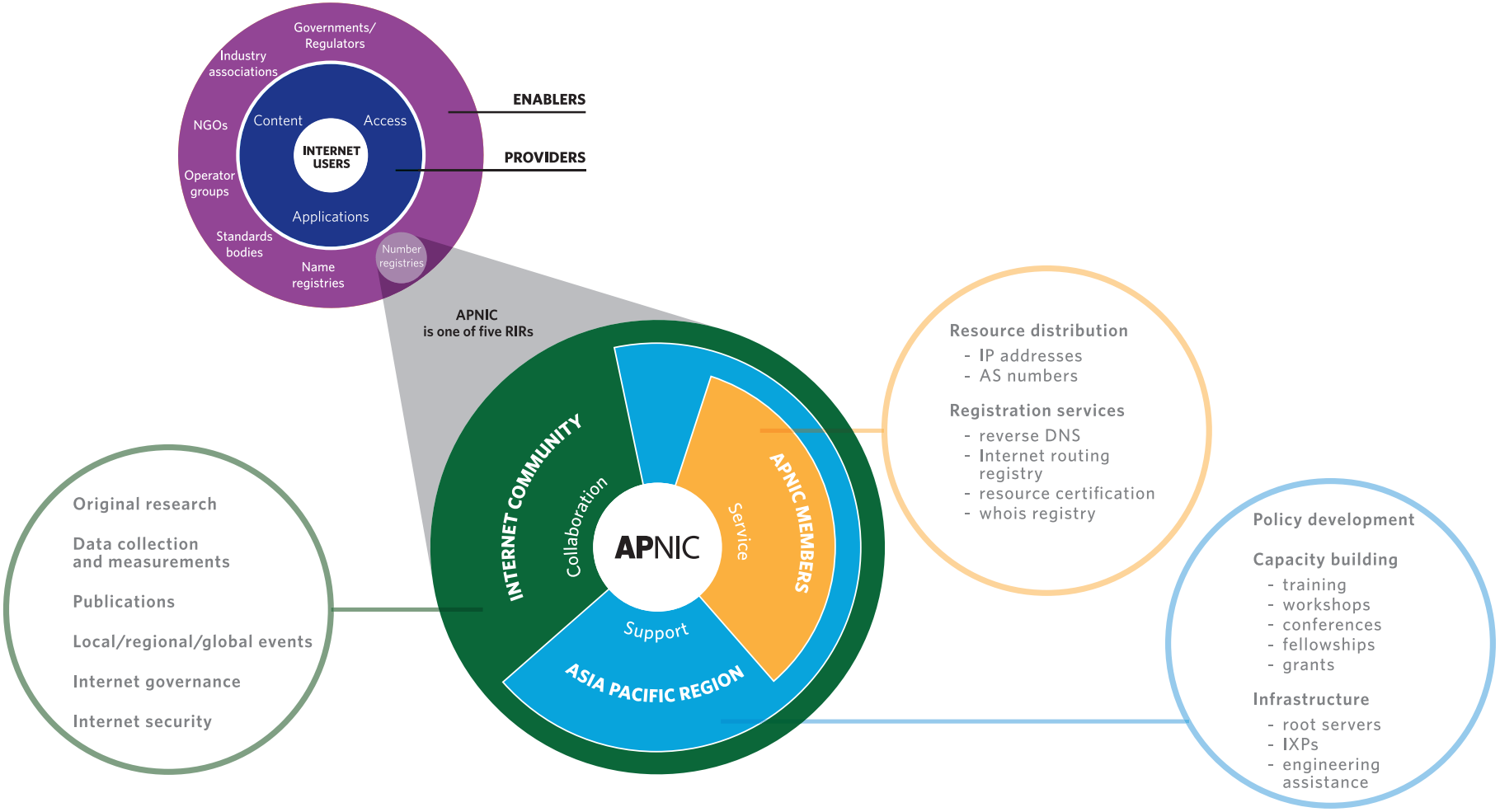
Mission

APNIC...

- **Functions** as the Regional Internet Registry for the Asia Pacific, in the service of the community of Members and others
- **Provides** Internet registry services to the highest possible standards of trust, neutrality and accuracy
- **Provides** information, training and supporting services to assist the community in building and managing the Internet
- **Supports** critical Internet infrastructure to assist in creating and maintaining a robust Internet environment
- **Provides** leadership and advocacy in support of its vision and the community
- **Facilitates** regional Internet development as needed throughout the APNIC community

APNIC

addressing the Internet in the Asia Pacific



1993 20 2013

1995 993 IPv4 allocations First APNIC Meeting in Bangkok, 2 days, 82 attendees

2012 Objectives

Guided by feedback from our Members and stakeholders, APNIC engaged in several key activities in support of our 2012 objectives.

Support IPv6 deployment in the Asia Pacific region

APNIC works to support IPv6 deployment by making the most current and useful information accessible to the community. This year APNIC implemented simpler resource distribution procedures, making IPv6 more accessible as a first step to any transition plan. The APNIC IPv6 Program increased outreach and participation at regional and global events, and included more useful content at APNIC Conferences.

APNIC Training increased the offering of hands-on IPv6 related courses, and APNIC Labs built upon the ongoing IPv6 measurements to help organizations deploy IPv6.

Facilitate resource transfers

New processes for IPv4 transfers in 2012 enable APNIC Members to put unused resources back into circulation, for those organizations that need them. APNIC Members can also receive IPv4 addresses from members of other Regional Internet Registries. This contributed to a 40% increase in IPv4 transfers since 2011, excluding mergers and acquisitions.

Expand scope and accessibility of APNIC Training

In response to high demand for hands-on, practical training courses and materials, APNIC worked with other organizations to provide more high-quality education services to the Asia Pacific Internet community. This helped APNIC Training reach 30% more networking engineers in the region with hands-on, face-to-face training courses, and 22% more web classes than in 2011.

2012 Objectives

Support Internet governance as a multi-stakeholder process within and beyond the region

This year APNIC strengthened its relationships with governments in the Asia Pacific and intergovernmental forums during the WCIT preparatory process. APNIC brought the voice of the Asia Pacific Internet community to the proceedings and helped governments build their case for the multi-stakeholder model of Internet governance discussion.

Provide authoritative statistical information through Research and Development

APNIC Research and Development, now APNIC Labs, delivered authoritative resource distribution data and commentary to the community. This work includes ongoing IPv6 uptake measurements that can be referenced by high-level bodies such as APEC TEL, as well as any organizations building a plan for IPv6 transition.

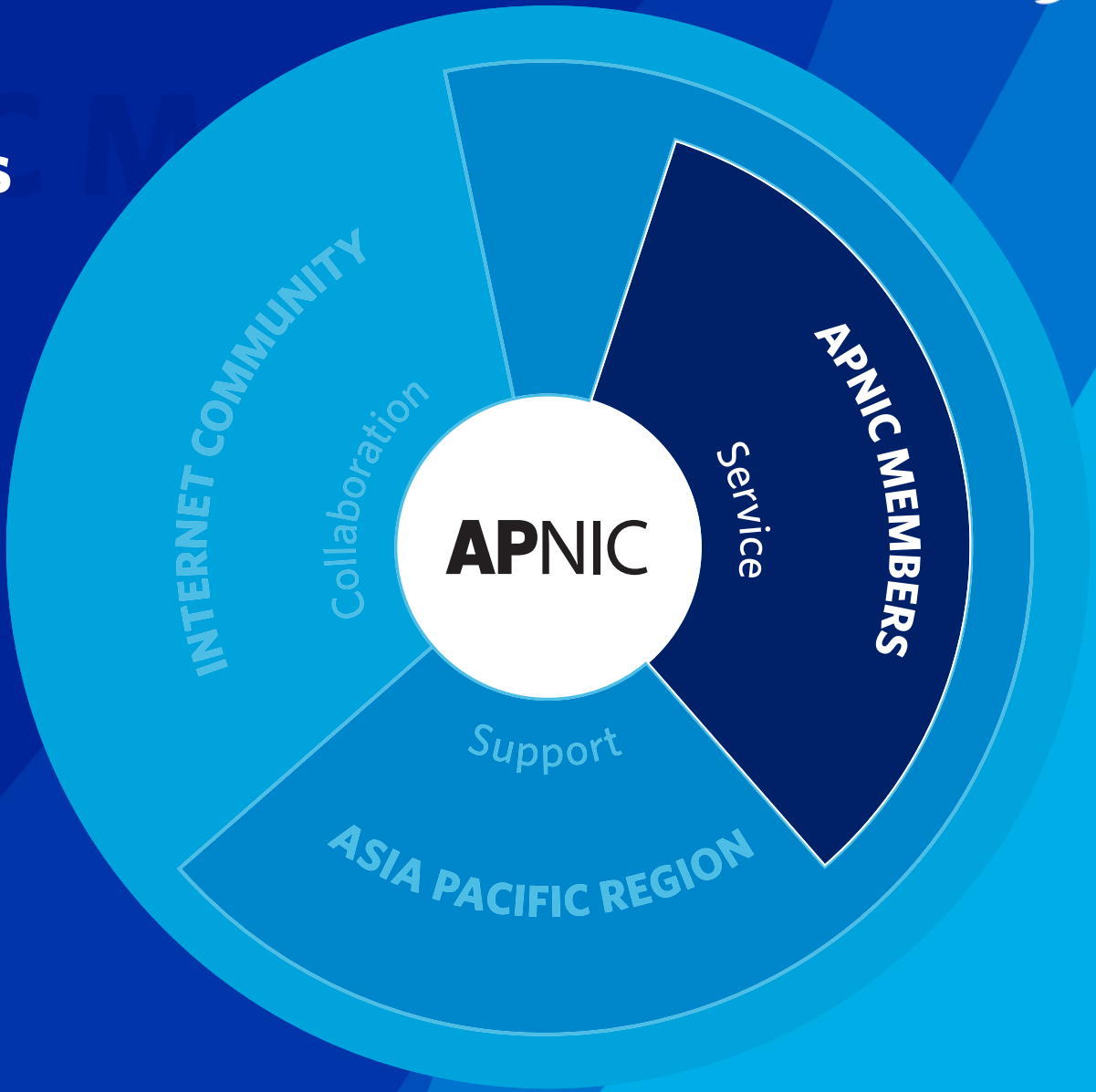
Focus on the needs of developing economies

As part of the Seed Alliance, the ISIF Asia Grants and Awards program, which is administered by APNIC, secured AUD 1.5 million in support over the next three years from the Swedish International Development Cooperation Agency (Sida). This generous contribution will help fund projects in the Asia Pacific, Africa, and Latin America regions.

Serving APNIC Members

APNIC's core activities include distributing Internet number resources, namely IPv4 and IPv6 addresses and Autonomous System Numbers (AS Numbers), maintaining a database of registration details for the organizations using those resources, and providing reverse DNS services.

As APNIC has evolved to meet the needs of its community, it has broadened its mission to incorporate other pursuits on behalf of the Asia Pacific community; however, the registry function remains vital. During 2012 APNIC made improvements to Member services, making them more accessible for both new and prospective APNIC Members.



APNIC Survey 2012

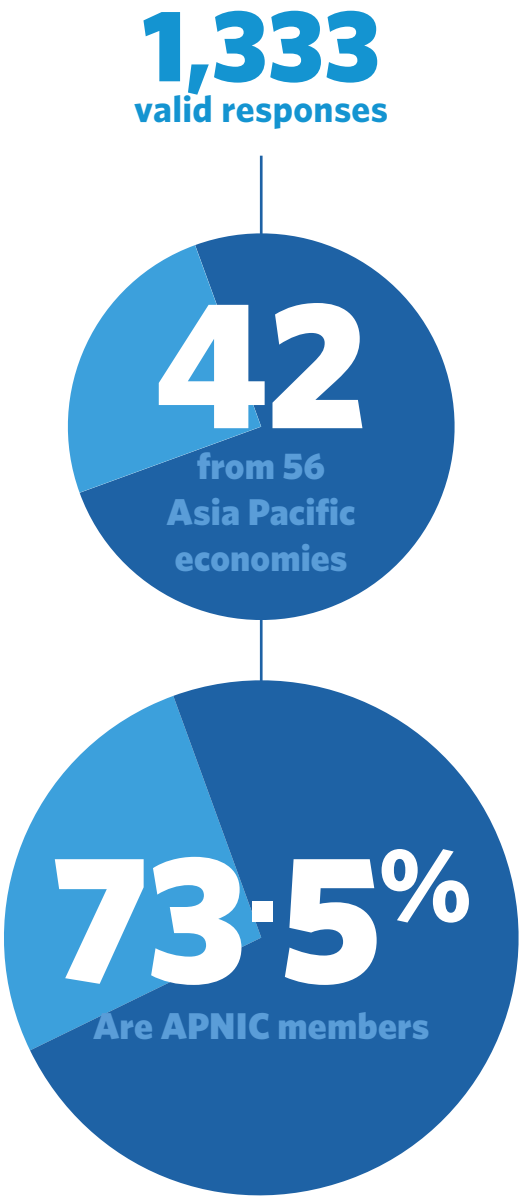
As an open membership-based service organization, APNIC takes its guidance from both Members and the broader community. Every 24 months, the APNIC EC commissions a survey of the Membership and other stakeholders to seek the community's views on APNIC's services and performance. The EC uses the findings to direct APNIC's future activities.

APNIC launched the 2012 APNIC Survey in March 2012, following focus group discussions used as the initial process to identify key concerns.

Satisfaction increased: The 2012 Survey findings reveal higher satisfaction ratings from respondents in Least Developed Economies.

The 2012 APNIC Survey was conducted from 7 May to 8 June and produced 1,333 valid responses, an increase of 67.9% over the 794 valid responses of the previous Survey. Of those valid responses, 73.5% were from account holders and 26.5% were from stakeholders. Of that 26.5%, the majority of those stakeholders were from within the Asia Pacific region with only a small portion of respondents located outside of the Asia Pacific.

www.apnic.net/survey



Member services improvements

The APNIC Member Services Team is the first point of contact between the Secretariat and the community. The Helpdesk is available from 09:00 to 21:00 (UTC +10), to accommodate Members across all regional timezones and offers services in several languages. The results of the 2012 APNIC Survey indicated APNIC Members are highly satisfied with APNIC registration and administration services.
www.apnic.net/helpdesk

IPv6 one-click

APNIC is committed to streamlining requests for Internet number resources, so that current and new Members can obtain the resources as quickly and readily as possible.

During 2012, the one-click IPv6 request process was extended to National Internet Registries (NIRs), resulting in faster IPv6 delegations to NIR members.

Previously, NIR Secretariats made all resource requests on their members' behalf. NIR Hostmasters can now make allocations to their members via MyAPNIC. This has significantly reduced the amount of time it takes to process an IPv6 request for NIR Members, from a full business day to a few minutes in most cases.

Continued support for IRINN

In March 2012, several years of collaboration among APNIC, the National Internet Exchange of India (NIXI), and the Government of India culminated in the recognition of a new NIR for India, the Indian Registry for Internet Names and Numbers (IRINN).

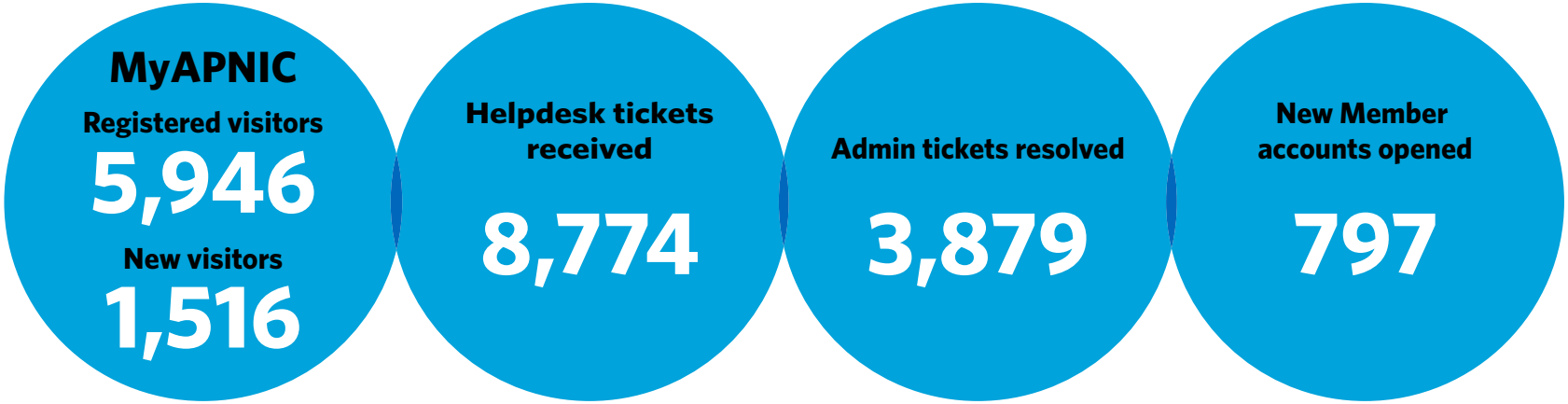
APNIC is strongly supportive of the effort to establish IRINN within the Indian networking community. In late 2012, APNIC staff accompanied IRINN staff to several major cities in India to present IRINN to prospective members and increase awareness of IRINN's services to the Indian Internet community.

Member services improvements

New Member forms

The application process for APNIC Membership was updated in 2012, and text-based forms were replaced with easy-to-use online forms. These web forms are easier to process, shortening the time between application and confirmation.

Member services statistics



IPv4 transfers

According to the 2012 Survey feedback, APNIC's role in IP resource transfers should be to monitor and report transfer activity and develop procedural guidelines for completing resource transfers. As IPv4 address space becomes scarce around the world, APNIC has worked to build procedures and processes to facilitate IPv4 transfers. While IPv4 resources are still in demand, it is important they are used where needed to ease the burden of IPv6 transition on individual operators.

In 2012, the Asia Pacific Internet community created a policy that would be compatible with other inter-regional transfer policies. APNIC Members can now send or receive IPv4 resources to and from regions with compatible policies as needed. In October 2012, the first inter-regional transfer was processed from the ARIN (North America) region to an APNIC Member.

Additional facilities were put in place during 2012 to make transferring resources simple and easy:

IP broker registration

On the APNIC website, there is now a list of brokers who have agreed to abide by all APNIC policies in facilitating transfers for APNIC address holders. APNIC does not endorse any individual broker, but the list is provided so Members can identify those brokers that have entered an undertaking with APNIC and expedite their transfer processes.

Pre-approval requests

Any APNIC Member wishing to receive an IPv4 transfer can now apply in advance for the resources before locating a source. There is now an option for Members who have demonstrated their need for more resources to be publicly listed, so potential sources of additional IPv4 addresses can easily locate APNIC Members who have been approved to receive them. Pre-approval requests must demonstrate need for the resources under normal IPv4 allocation policies.

Transfer mailing list

A public mailing list, apnic-transfers, was established in 2012 to create a forum for any discussions about IPv4 transfers.

Global procedure

The Resource Service Managers at all five RIRs collaborated to create a procedure for inter-regional transfers to align the operations required to make IPv4 transfers. Inter-regional transfers may eventually be available in all five RIR regions.

www.apnic.net/transfer

Resource Certification

APNIC was the first RIR to integrate a production RPKI subsystem into its online service portal in 2009. APNIC is now working to harmonize the user interface for the RPKI production facilities in APNIC and the RIPE NCC online service portals. This will simplify processes for organizations with holdings in both regions. This work is part of ongoing cooperation with the RIPE NCC, where the two RIRs are open to sharing training and informational material about the use of RPKI.

The new user interface component within MyAPNIC offers APNIC Members a simpler, more consistent way to manage Resource Certification with automatic updates and "real routing" notifications.

www.apnic.net/rpki

Securing the Domain Name System

The same technology developed to improve IPv6 measurements can be leveraged in other research areas. This year, these capabilities were used to begin mapping the use of DNS Security (DNSSEC) worldwide.

www.apnic.net/dnssec

Alternative Whois service protocol

APNIC is contributing to the Internet Engineering Task Force's (IETF) efforts to design a new protocol for the Whois Database service, called the Registration Data Access Protocol (RDAP). This new protocol will address a number of shortcomings in the current WHOIS protocol. A working group was formed this year and several drafts are in progress, with APNIC's Technical Director as one of the key authors.

RDAP will improve the global Whois service in the following ways:

- Standardize query and response
- Standardize various access classes
- Provide international language support
- Make provision for different types of registries

APNIC hosts a pilot service on rdap.apnic.net and will deliver a production RDAP service during the second half of 2013.

www.apnic.net/rdap

Statistics

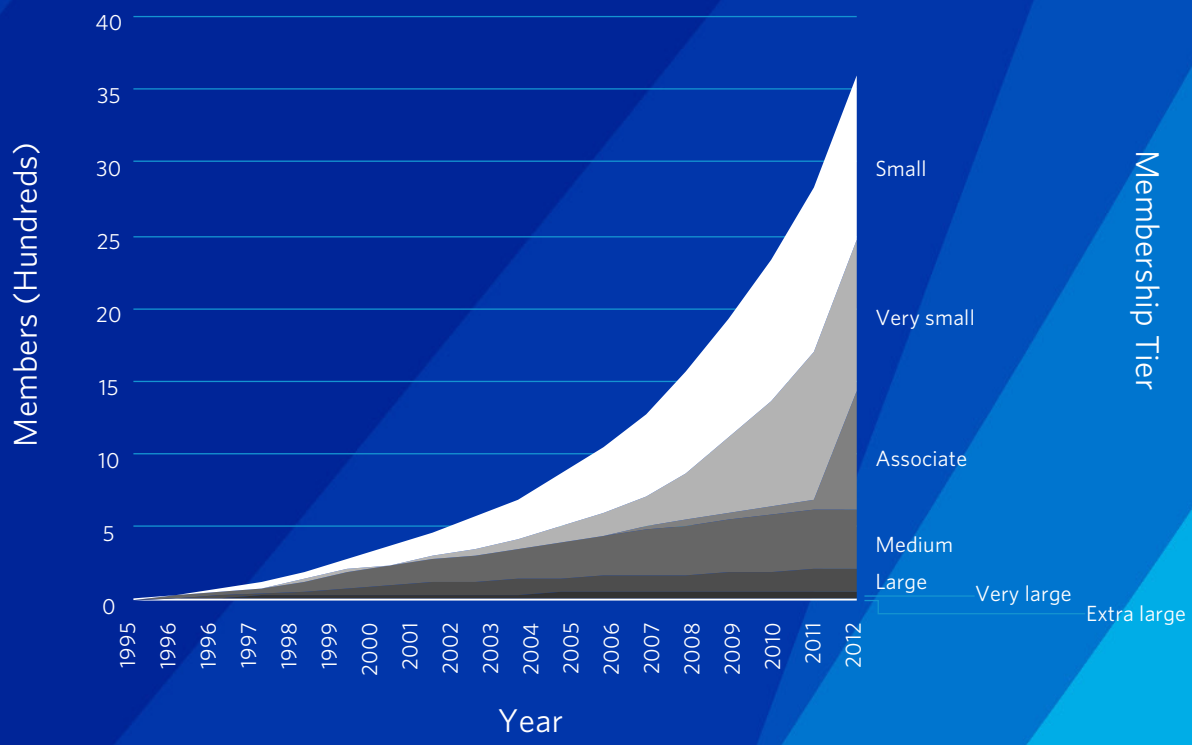
An important part of the registry function is to provide regional statistics on resource distribution. Regional and global data is available on www.apnic.net.

These graphs represent APNIC Membership growth in 2012, as well as the year in resource distribution for IPv4, IPv6, and AS Numbers throughout the Asia Pacific region.

www.apnic.net/stats

Membership tier	2011	2012
Extra Large	21	14
Very Large	41	46
Large	145	146
Medium	378	400
Small	970	1,134
Very Small	817	1,061
Associate	575	710
TOTAL	**2,947**	**3,511**
Non-member accounts	741	736

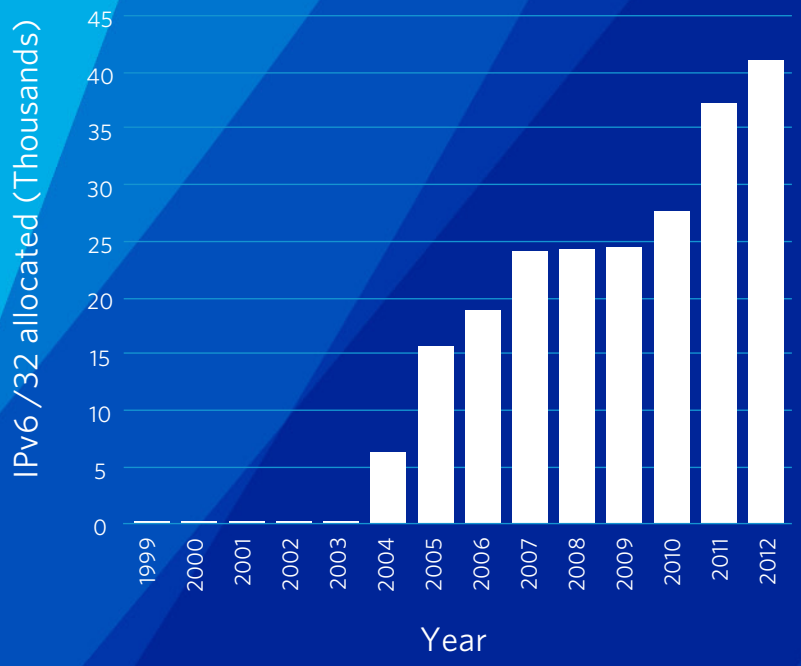
Membership by year



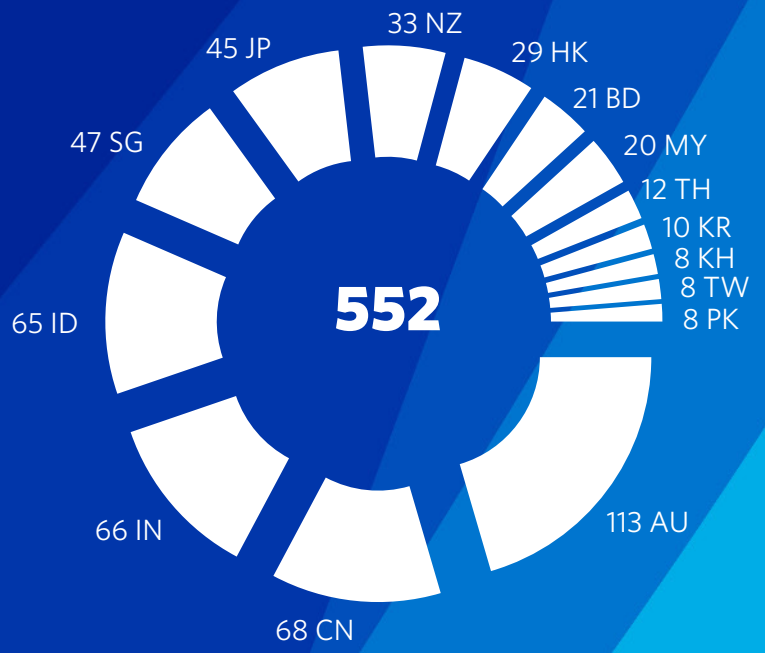
Membership has grown steadily over the past five years, with 21.92% growth between 2011 and 2012.

Statistics

IPv6 /32 cumulative by year

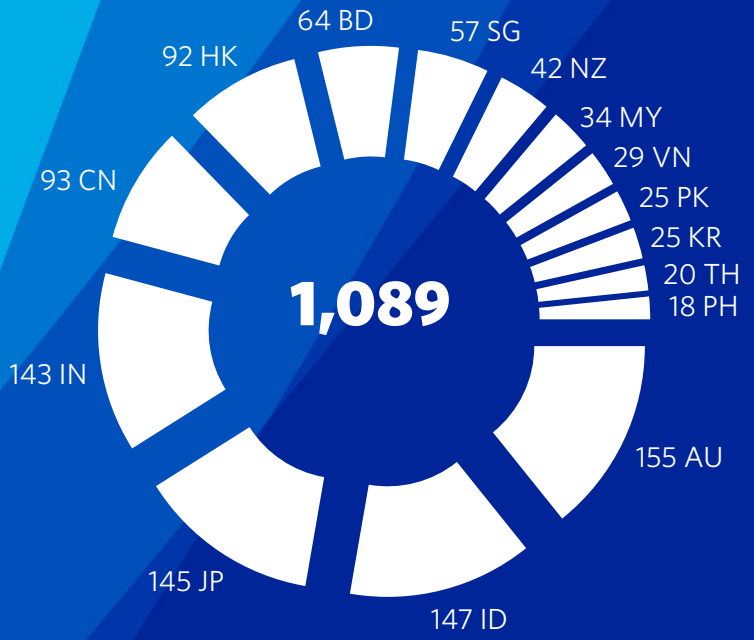


IPv6 delegations by economy

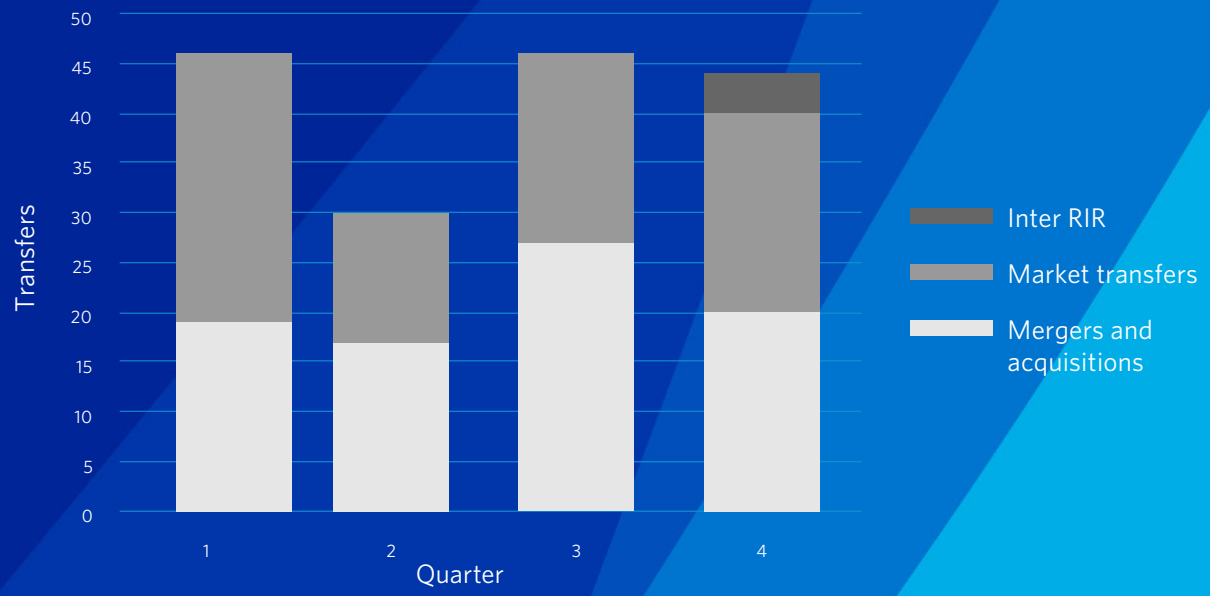


IPv6 delegations show a steady increase in 2012 with just over 42 /32 allocations made. IPv6 uptake is increasing in many economies, with Australia, China, India and Indonesia dominating, highlighting the acceptance and awareness of IPv6 as the best option for future Internet growth. View IPv6 end-user readiness at labs.apnic.net

IPv4 delegations by economy



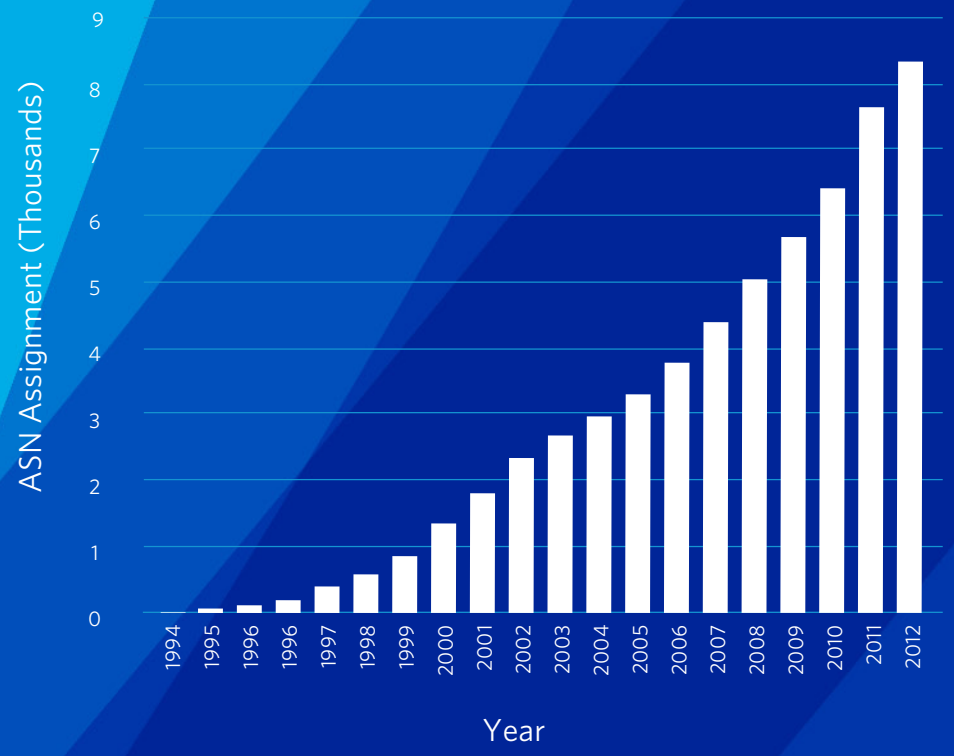
IPv4 transfers by quarter



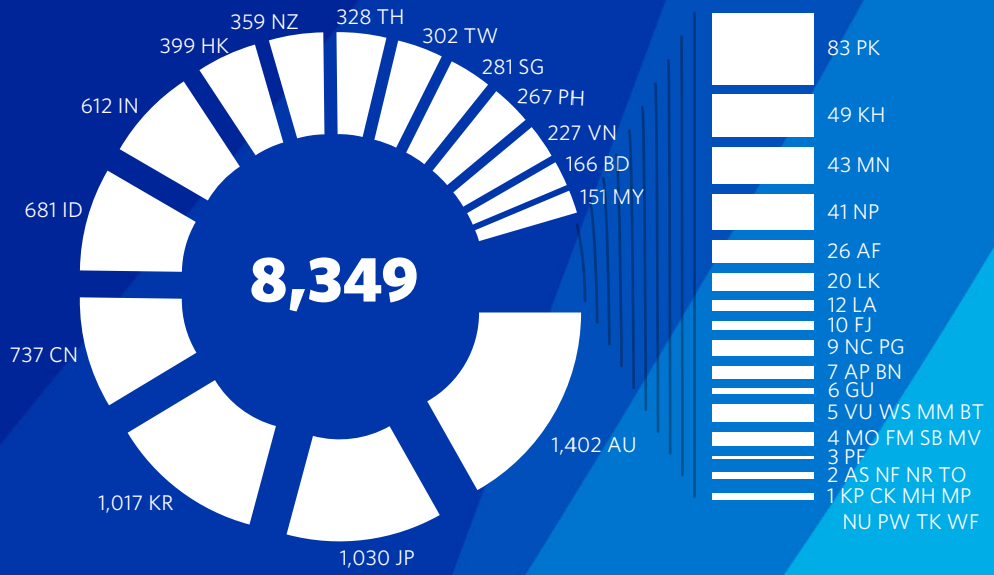
In 2012 Australia, Indonesia, Japan, and India dominated IPv4 delegations by economy. In terms of IPv4 transfers, there does not seems to be a discernible pattern in transfer size, although Australia has been the most active in transferring resources. Since October 2012, there have been four inter-RIR transfers.

Statistics

AS Numbers cumulative by year



AS Numbers by economy



Autonomous System (AS) number growth has remained steady during the past year, with APNIC assigning 8,349 in 2012. Global assignments of AS numbers also remain steady, at around 5,000 per year.

Service delivery improvements

As a membership-funded organization, APNIC works to ensure it operates efficiently and professionally with full accountability to its Members and stakeholders. The 2012 Survey feedback indicated that Members are satisfied with APNIC's level of service, rating them at 5.71 out of 7. APNIC worked to improve many aspects of our service delivery during the past two years, and the increase in Member satisfaction is welcome feedback for these efforts.

Business systems streamlined

APNIC implemented a comprehensive Enterprise Resource Planning system in 2012 to increase productivity across the organization and allow Member-funded resources to be more efficiently utilized. Some of the key features of the implemented solution are:

- Real time reporting
- Automated workflow and approval process
- All finance functionality in a single integrated application
- Full integration with APNIC's travel expenses management application
- Full audit trail of all transactions and users

Service delivery improvements

Operations infrastructure improvements

Virtual machines

In 2012 the Infrastructure Services Unit (IS) moved nearly all production machines to a virtual platform to manage those resources more efficiently, with no down time for external services. The virtualization system runs on machines that enable the IS team to improve the reliability of the whole system.

Services can now be moved easily across the APNIC data centres. This enhances APNIC's capability in performing backups, disaster recovery, new deployments, and basic system administration tasks.

Co-lo relocation

APNIC Infrastructure Services moved the primary servers to a new location in 2012 to provide better hosting and network infrastructure facilities. The relocation of 92 servers was completed in two months with no related service interruptions. The new facility, powered by Next DC in Brisbane, features improved reliability, room for expansion, and reduced complexity, allowing us to offer improved services for APNIC Members and stakeholders.

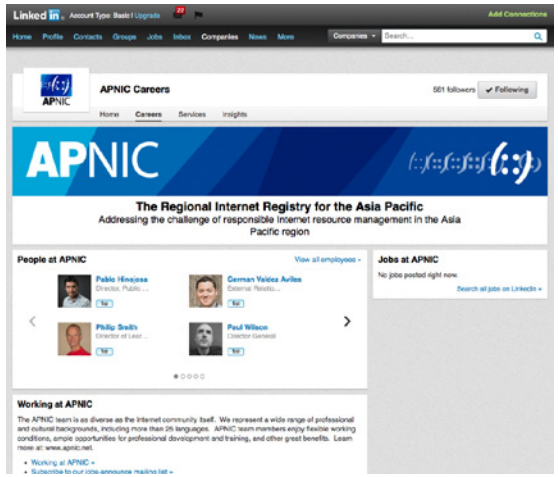
Human Resources

Staff development

To improve recruitment, training, and development practices, APNIC introduced a Competency Management Framework in 2012. The initial exercise involved consulting with staff about the competencies required for performance in all roles and revising role descriptions. This will help APNIC Human Resources in future recruitment, training, and career development, and to attract and retain the best staff for the APNIC Secretariat.

Social media for recruitment

APNIC's social media presence has been extended to LinkedIn and Seek for recruitment purposes. This improves our reach across the region to attract the best candidates with relevant language skills to better serve our Members. For more information, see au.linkedin.com/company/apnic



Supporting the Asia Pacific region

Equipping network engineers with the technical skills required to build and maintain network infrastructure is a crucial factor in supporting effective Internet growth. To promote and support Internet growth across the Asia Pacific, APNIC places emphasis on meeting the needs of developing economies in the region by seeking strategic partnerships with relevant organizations. APNIC values human potential and capacity, as well as the proven power of the Internet for social and economic development in the Asia Pacific region and worldwide.

APNIC Training expansion

In 2012 APNIC focused on increasing IPv6 deployment in the Asia Pacific region by providing training and educational services. Currently, about 30% of all APNIC training courses are related to IPv6, and IPv6 eLearning courses have almost doubled from 2011 – an indication that IPv6 is gaining significant traction in the industry.

Improvements

- The number of face-to-face training sessions increased by about 9%, and the number of participants increased by 30%, from 1813 to 2347 total participants.
- There was also a 9% increase in the locations where training courses were held.
- The number of eLearning sessions increased by about 22%, and the number of participants rose by 19%.

More web-based classes

Due to the popularity of web-based classes, APNIC Training increased the frequency and range of courses offered to reach more participants. eLearning is a flexible and cost-effective choice for APNIC trainees, with three one-hour courses delivered to three time zones fortnightly. The courses are timed to cater to the South Asia, Southeast Asia, and Pacific/Oceania subregions.

APNIC Training expansion

Virtual training environment

This year the APNIC Training Lab was moved to a virtual environment on a MacMini server, which simulates 20 router instances and all connectivity requirements. The trainers have three small portable devices so they can build the Lab in about 10 minutes on any local network. This enables the training team to hold three parallel sessions on the APNIC Training Lab, without disruptions due to poor connectivity.

The virtual labs are so effective that we are able to share that capability as part of the MoU agreements with Dhaka University and the China Internet Service Provider Association (CNISP).

training.apnic.net

The increase in training courses and materials offered has led to the recent launch of training.apnic.net, which consolidates APNIC training materials to one easy-to-navigate portal. The new website aims to increase accessibility to APNIC Training and education services in response to Member and stakeholder feedback.

training.apnic.net

Regional collaboration

This year's training expansion was partly due to increased collaboration with new and continuing partners, hosts, and sponsoring organizations throughout the region. APNIC trainers and trainers from the Internet Systems Consortium (ISC) and Team Cymru conducted joint technical workshops during regional events, and APNIC signed four Memorandums of Understanding (MoU) in 2012:

- China Internet Service Provider Association (CNISP)
- Internet Society Bangladesh Chapter (ISOC-BD)
- Dhaka University (DU)
- International Training Institute PNG Centre for Advancement of Internet Technology (ICIT)

Training services are expanded to over 25 economies

Case study: Mongolia IPv6

ICT implementation faces unique challenges in Mongolia, with its sparse population and landlocked position. Despite these challenges, Mongolia is one of the fastest growing Asia Pacific economies and is quickly becoming an influential Internet stakeholder. APNIC has worked in collaboration with local Internet community experts to improve Internet growth, with emphasis on IPv6 deployment. The benefits of this approach expose issues of current regional and global importance facing local Internet communities, and provide them with access to world-class training.

The Mongolia IPv6 workshop, which was held in October 2012 in Ulaanbaatar, attracted full participation with 40 local engineers in attendance. It was a great success thanks to the involvement of local hosts who conducted an opening and closing ceremony and provided training certificates. The local media covered the opening ceremony and the CEO of Mobicom, Mongolia's largest mobile phone operator, was present.

The workshop provided participants with an understanding of and hands-on exposure to IPv6, its structure, operation and technical features. The intensive nature of this course allowed IPv6 addressing and architectures to be discussed in detail, and the issues related to deployment, transition, and co-existence with IPv4 were examined. Participants expressed that the hands-on IPv6 network building lab exercises provided vital experience for real-life IPv6 implementation.

training.apnic.net

"I must commend your concentration spans and how you continued to elaborate on each slide, point by point, accurately... What kept me tuned with the training was the fact that whether it is a complicated topic or fairly easier one, your persistence discussing the topic and elaborating and sharing examples would always broaden what I already know".

Seorn Thomas

PBX Systems Engineer (Network Services)

APNIC Conferences

APNIC holds two Conferences each year: the first is held in conjunction with APRICOT (Asia Pacific Regional Conference on Operational Technologies), and the second, as a standalone event. The main purpose for both APNIC Conferences is to provide a forum for the community to hold regional addressing policy discussions that are open to anyone. Most APNIC Conference sessions are available by live webcast, so anyone can participate in live discussions remotely.

Over the years APNIC has added other features to the Conference, including training sessions, and panels of Internet networking experts on topics of interest to the regional Internet community. APNIC Conferences are hosted by various local organizations across the region. The location for each event is chosen in consideration of the benefit to the local Internet community.

For the first time in 2012, APNIC's second Conference (APNIC 34 in Cambodia) featured an additional workshop week. This was very well received, and will be continued in future.

APNIC 33: New Delhi, India (with APRICOT 2012)

Total on-site delegates: 573
Total remote participants: 72
Remote hubs: Bandar Seri Begawan, Brunei and Hanoi, Vietnam

APNIC 34: Phnom Penh, Cambodia

Total on-site delegates: 237
Total remote participants: 378
Remote Hubs: Medan, Indonesia and Kathmandu, Nepal

In response to Member Survey feedback, APNIC Conferences in 2012 featured more IPv6 transition content in workshops and full-day plenary sessions. These 'IPv6 Days' were the most popular features of both 2012 Conferences, each featuring panels of several internationally respected networking professionals and their personal IPv6 deployment experiences.

APNIC 34 IPv6 Plenary Day

Session 1: IPv6 Address Planning for an Operational Network

During this session, panellists answered common practical questions often received by APNIC, such as what prefix size is appropriate to assign to a network. Speakers shared best practices based on their own hands-on experiences.

Session 2: IPv6 LTE – is it happening?

Speakers and participants in this session explored IPv6 implementation on Long Term Evolution (LTE) networks, which is a high interest topic among network operators and engineers involved with building new and upgrading existing mobile networks.

Implementation of LTE networks is increasingly providing inclusive IP-based services for voice, video, messaging, and data. Network operators left this session with practical knowledge handed down from experienced operators in dynamic and challenging environments.

Workshop week added to program

In 2012 APNIC Learning and Development trialled a workshop week before APNIC 34 in Phnom Penh, in response to requests from the membership for more hands-on training. The workshop week was held at capacity, and immersed participants in one of the following topics:

- IPv4/IPv6 BGP Routing
- Network Infrastructure Security
- Campus Network Design and Management – led by NSRC

APNIC will continue to conduct the workshop week at standalone Conferences, and in conjunction with APRICOT workshops during combined Conferences.

conference.apnic.net

2012 Policy Outcomes

Internet number resource distribution policies are decided by community consensus, to be implemented by the APNIC Secretariat. Anyone may submit a proposal, and it is not necessary to be present on site at the APNIC Conference for the proposal to be considered.

Three proposals to amend regional Internet addressing policies were discussed and reached consensus during the Policy Special Interest Group (SIG) sessions at APNIC 33 and APNIC 34 in 2012 :

prop-104: Clarifying demonstrated needs requirement in IPv4 transfer policy

This proposal increases the demonstrated need evaluation period for IPv4 transfer recipients from 12 months to 24 months.

prop-101: Removing multihoming requirement for IPv6 portable assignments

This is a proposal to change the "IPv6 address allocation and assignment policy" to allow portable (that is, provider independent or PI) assignments of IPv6 address blocks to be made by APNIC to any organization with due justification. Therefore multihoming is no longer an absolute requirement.

prop-102: Sparse allocation guidelines for IPv6 resource allocations

This proposal requires that the details of any sparse allocation algorithm used for the allocation by APNIC of IPv6 resources must be published on the website, and any revisions should be handled in line with the procedures contained within APNIC-112.

www.apnic.net/policy

ISIF Asia expands

APNIC administers the Information Society Innovation Fund (ISIF Asia), a program that stimulates creative solutions to ICT challenges in developing Asia Pacific economies. ISIF Asia Grants and Awards play a crucial part in facilitating Internet growth in the region by aiding projects that bring about social change through improved infrastructure. Investment in development in the form of small grants and awards can represent a highly effective means of stimulating innovation and technology adoption at a local level.

Any public or private sector organization may apply for project funding, including APNIC Member organizations. This year, thanks to additional funding from generous sponsors, there will be 10 grants available.

New Community Choice award

The 2012 ISIF Awards were presented at the 7th IGF in Baku, Azerbaijan in November. Winners from all three regional programs attended and the Community Choice award winners were given a chance to showcase and promote their projects to an audience of key Internet stakeholders. Due to the success of the Community Choice award in 2012, the Seed Alliance will continue to fund this award in the future.

www.isif.asia

ISIF Asia expands

ISIF joins the Seed Alliance

In 2012 ISIF Asia joined forces with small grants and awards programs FIRE, managed by AFRINIC, and FRIDA, managed by Lacnic, to form the Seed Alliance, to promote innovation and social development solutions on a wider scale. In addition to a generous donation of AUD 1.3 million from the International Development Research Centre (IDRC) of Canada, the three RIR partners (Lacnic, AFRINIC, and APNIC) will also contribute funds and share administration systems.

The Seed Alliance's main focus is to facilitate regional Internet development in developing economies. The new platform will offer a space for RIR program partners, as well as their sponsors, to identify and build communities of practice, scale up existing relevant initiatives, and promote networking and mentoring among project groups.

Sida funding

The Seed Alliance was formed to facilitate collaboration among similar regional initiatives, to share resources and attract more significant funding to benefit all three regions. In November 2012 the Seed Alliance received a grant of AUD 1.5 million from the Swedish International Development Cooperation Agency (Sida). The grant will be used over three years to further support Internet innovation projects in developing economies in the Asia Pacific, African, and Latin American regions.

ISIF Asia case study: Development of Emergency Networks Training and Tools Kit

Internet Education and Research Laboratory (intERLab), Asian Institute of Technology (AIT), Thailand
Total grant received: AUD 29,776.07

Project summary

Every year, millions of people face disaster and its terrifying consequences. Disaster situations often result in the loss of traditional communication systems such as fixed telephone and mobile communications, and local Internet access may be rendered unusable.

The aim of this project is to develop an easily manageable emergency communication system.

DUMBO (Digital Ubiquitous Broadband OLSR) is an emergency communication system that turns ordinary laptops/ PDAs into network devices without relying on any fixed infrastructure and gives a platform for effective rescue and recovery operations.

Objectives

1. Address infrastructure and technology-related connectivity problems
2. Educate the community to make this platform accessible as open source
3. Create a website to disseminate information on how to build and deploy a DUMBO system
4. Develop an out-of-box tools package (software), reference guide/manuals, training materials, and case study
5. Identify and manage relationships with local technical personnel

Preliminary findings

- Wireless equipment performance is highly affected by the surrounding environment
- Basic technical knowledge about IP network and wireless equipment was lacking from some participants and as a result, there were issues when it came to installation and system-use training
- The terminal nodes need to be recharged at regular intervals; there must be a power supply
- Different wireless chipsets or different operating systems (Linux/ windows) cannot form a MANET (mobile ad hoc network)

Best practices achieved

- Additional wireless technologies were found and adopted as alternative solutions. These are required as redundancy for emergency communications support.
- DUMBO training delivery to the community on technical knowledge and educational material distribution during training sessions.
- Networking with related research and development institutions and funding organizations for sustainability and growth.

Continued success

Since 2011, DUMBO has been used in new ways. For example, using mobile routers in daily life scenarios, in addition to post-disaster recovery.

The team at intERLab, AIT have also provided numerous DUMBO training sessions to promote the application to younger generations, and to show them how to build an emergency network. This training helps to promote independence among individuals and groups to be able to coordinate their own efforts and increase the impact of an emergency response.

Phase Three of the DUMBO Project is about creating simplified configurations and router deployment, accommodating smartphones and tablets to connect to DUMBO routers, connecting social networking services, and improving network disruptions. The greater aim here is to bridge the digital divide and present a relevant solution to disaster preparation in rural communities.

The project has gained attention from sponsors and partner organizations. More importantly, DUMBO has been deployed in real-life disaster situations with great results.

For more information on DUMBO, visit dumbo-isif.interlab.ait.asia

Root server upgrades

This year APNIC installed an I-Root instance in Ulaanbaatar, Mongolia and launched a project with ISC to perform critical upgrades to the F-Root mirrors in Chennai, Hong Kong, and Seoul. These sites account for around 50% of traffic through the F-Root in the APNIC region.

The upgrades ensure continued robust infrastructure and reliability, which is especially important in the region's emerging economies with increasing traffic.

APNIC also successfully trialled a small form factor site in Dhaka that runs on one router and one server. In the future, these smaller sites can be deployed in low traffic areas for cost effectiveness. These sites are about one-third the cost of a traditional node, making it a great option for small island and developing economies.

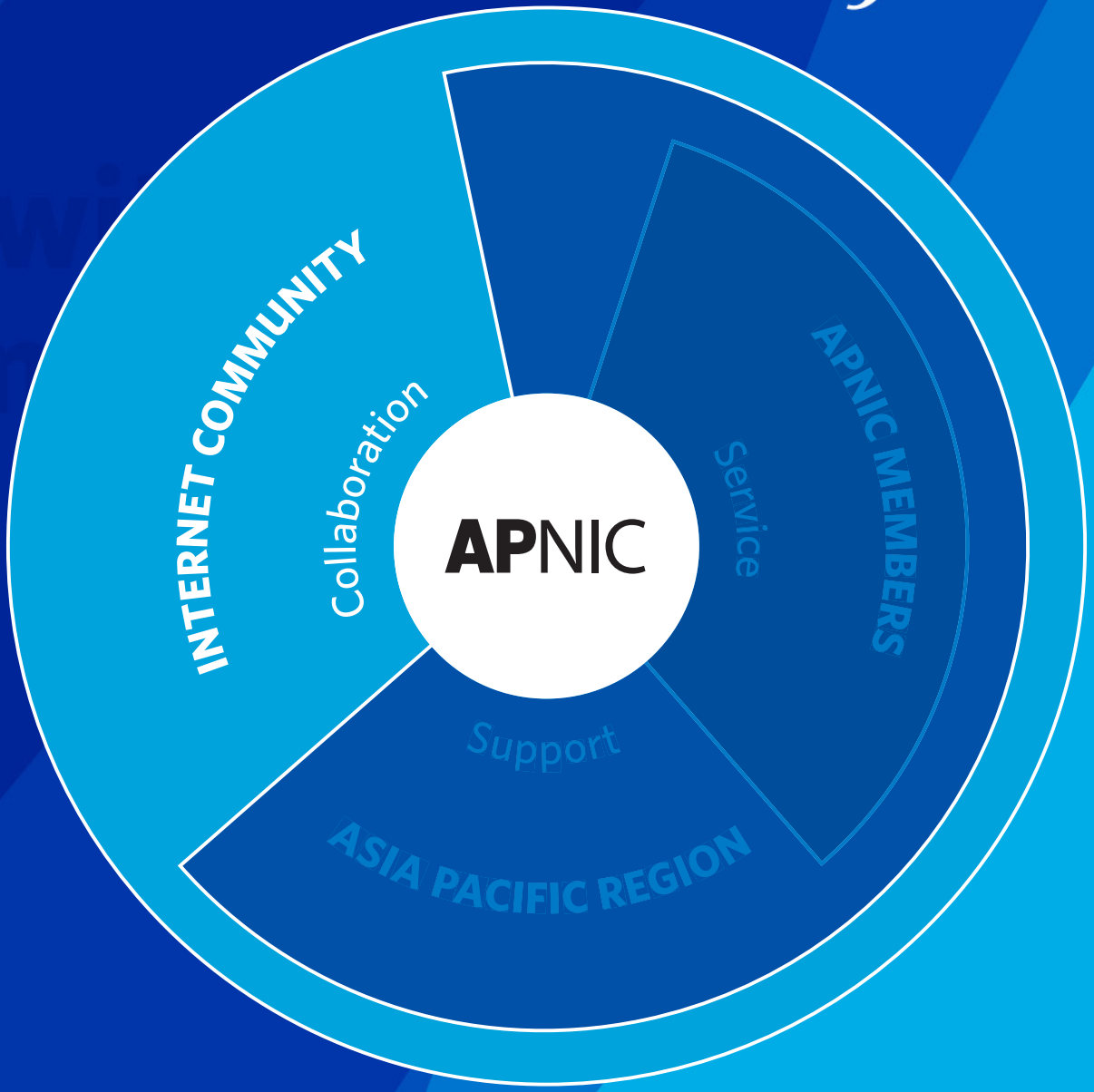
www.apnic.net/rootserver

The APNIC root server project has assisted the installation and maintenance of root server instances across the region, in partnership with other organizations, since 2002.

Root server deployment supported by APNIC

2012	**June:** I-Root installed in Ulaanbaatar, Mongolia
2011	**September:** F-Root installed in Ulaanbaatar, Mongolia **April:** I-Root installed in Thimpu, Bhutan
2010	**August:** F-Root installed in Phnom Penh, Cambodia
2009	**May:** I-Root installed in Taipei, Taiwan
2008	**July:** I-Root installed in Colombo, Sri Lanka
2007	**May:** F-Root installed in Suva, Fiji, I-Root installed in Manila, Philippines
2005	**December:** F-Root installed in Karachi, Pakistan and Dhaka, Bangladesh
	August: F-Root installed in Chennai, India, I-Root installed in Mumbai, India, K-Root installed in Delhi, India
	June: K-Root installed in Brisbane, Australia
	April: K-Root installed in Tokyo, Japan
	March: I-Root installed in Jakarta, Indonesia
2004	**September:** I-Root installed in Bangkok, Thailand
	August: I-Root installed in Kuala Lumpur, Malaysia
	July: F-Root installed in Jakarta, Indonesia
	February: F-Root installed in Brisbane, Australia
2003	**December:** F-Root installed in Singapore, F-Root installed in Taipei, Taiwan
	November: F-Root installed in Hong Kong
	October: F-Root installed in Beijing, People's Republic of China
	August: F-Root installed in Seoul, Korea
	January: APNIC calls for Expressions of Interest for support of APNIC PoPs
2002	**November:** APNIC announces project to bring new root server sites into the Asia Pacific region

Collaborating with the Internet Community



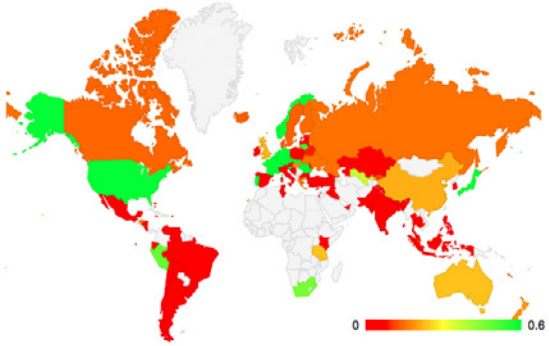
Measuring IPv6 uptake

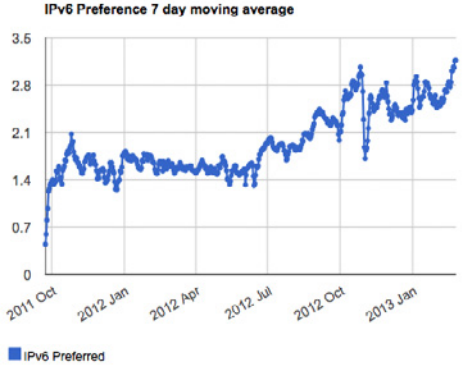
In 2012 APNIC Labs continued and expanded initiatives to measure end-user IPv6 readiness. These capabilities have been augmented through collaboration with the RIPE NCC, with financial and in-kind sponsorship from Google, ISC, and the Internet Society (ISOC). Data is collected through paid advertising, website placement, and in-browser testing.

This measurement program provides an independent and authoritative voice on the extent of access to IPv6 from the Internet's user population. It provides a window into the progress of IPv6 deployment, allowing anyone to extract these measurements on a global, regional, and economy-based granularity, in addition to per-network measurements.

The APNIC measurements are now considered authoritative. This body of data is significant for address management and long-term strategic planning. Updated statistics and analysis are presented regularly to international forums such as the OECD, APEC TEL, and national and regional IPv6 summits.

labs.apnic.net/measureipv6





As part of the World IPv6 Launch program we report on the levels of IPv6 deployment measured by client end-to-end capability. This is reported by economy, AS, and by regional and organizational breakdowns.

2011 1475 IPv4 allocations 620 IPv6 allocations

RIPE NCC Memorandum of Understanding

This year APNIC and the RIPE NCC formalized a longstanding and close working relationship with a Memorandum of Understanding (MoU) to support continued collaboration.

While all five RIRs and their respective communities coordinate certain activities and work to create global policies, the RIPE NCC and APNIC have shared resources on key infrastructure and Research and Development projects. The MoU represents a formal agreement to continue operational coordination on activities that will benefit both communities, as well as the global Internet community, such as:

- Resource Certification (RPKI)
- Research and Development
- Training
- K-root server deployment
- Future database architecture
- Membership surveys
- Human resources issues
- Legal issues
- Business practices
- Joint regional meetings
- Business Continuity Planning

The Asia Pacific Community and the Internet Ecosystem

APNIC is an active participant in various regional and global forums and engages with Members and stakeholders to disseminate key messages about:

- The Internet as a single, open, stable, neutral, and non-discriminatory network
- The multi-stakeholder model as the most conducive for the future development of the Internet and its governance
- The relevance of APNIC's specific functions and its role within the wider Internet ecosystem
- The importance of IPv6 adoption as the only viable option for future Internet growth

In response to Member feedback, APNIC increased engagement in regional forums and events in 2012. To cope with an increased level of representation, a new External Relations program was introduced in 2012 to better manage our preparation for, participation in, and evaluation of every engagement. These new internal procedures concentrated on giving APNIC a consistent voice on topics such as Internet governance, IPv4 exhaustion, IPv6 deployment, IPv4 transfers, and regional policy developments.

Approximately one-third of APNIC staff had representation responsibilities at such events. The External Relations program improves coordination and information sharing among staff. These improvements allow APNIC to communicate better when engaging abroad.

In 2012 APNIC participated in 93 events in 59 cities in 40 economies.

Kuala Lumpur
Wakayama, Japan
Christchurch
San Diego
Bangkok
Geneva
New Delhi
New Delhi
Beijing
San Jose, Costa Rica
Cairns
Paris
Da Nang, Vietnam
Beijing
Ljubljana, Slovenia
Kingston, Norfolk Islands
Vancouver, BC, CA
Dubai, UAE
Quito, Equador
Serrekunda, Gambia
Gold Coast
Geneva
Geneva
Hanoi
Zhuhai, China
Hong Kong

Taipei, Taiwan
Tokyo
Singapore
Shanghai
Prague
Seoul
Seoul
Nadi
Jakarta
Karachi
Auckland
Tokyo
Nadi
Bangkok
Melbourne
Vancouver
Singapore
St Petersburg, Russia
London
Melbourne
Vanuatu
Amsterdam
Bogota, Colombia
Macao, China
Amman, Jordan
Colombo, Sri Lanka

New Delhi
Canberra
Tokyo
Canberra
Port Louis, Mauritius
Toronto
Canberra
Melbourne
Dallas, TX, USA
Montevideo, Uruguay
Atlanta
Sydney
Baku, Azerbaijan
Bangkok
Chennai, Hyderabad,
Bangalore, Mumbai, Kolkata,
Delhi
Suva, Fiji
Taipei, Taiwan
Dubai, UAE
Khartoum, Sudan
Port Moresby
New Delhi
Phnom Penh

World Conference on International Telecommunications – the "WCIT" process

During 2012 APNIC dedicated significant efforts to further engage with governments in the Asia Pacific region and strengthened those relationships. APNIC participated as an observer in the Asia Pacific WCIT regional preparatory process, led by the Asia Pacific Telecommunity (APT), over five meetings. APNIC's contribution to this process was not limited to the regional preparations for the conference, but also assisted governments from the region that attended WCIT-12 in Dubai to support the multi-stakeholder Internet governance model.

APNIC contributed publications, including a series of articles on the difficulties in reconciling the differences between the Internet and telephony. We also issued articles on numbering and interconnection, two subjects associated with APNIC's mission that were discussed during the conference in the process of updating the International Telecommunications Regulations (ITRs).

Internet Governance Forum – the "IGF" events

This year APNIC continued its commitment to support the Internet Governance Forum (IGF), at the regional and the global levels. The IGF is the only multistakeholder platform that exists under the umbrella of the United Nations and is one of the successful outcomes of the World Summit on the Information Society (WSIS).

APNIC participated in IGF related initiatives at the domestic, subregional, and regional levels. In July 2012 APNIC participated in the third Asia Pacific regional IGF (APrIGF) in Tokyo, Japan as part of its Program Committee, and also represented the voice of the addressing community in several panels.

APNIC contributed to an increased financial contribution to the sustainability of the IGF process, together with the NRO.

Asia Pacific Economic Cooperation Forum – the "APEC" example

For the past three years, APNIC has been invited to participate as a guest of the APEC Telecommunications and Information Working Group (APEC TEL). The main objective has been to promote government support for IPv6 adoption. On a bi-annual basis, APEC TEL processes feedback from the Telecommunication Ministers of the APEC region, which comprises 21 economies across Asia and the Pacific. This year, the Ministers of Telecommunications met in St Petersburg, Russia, and agreed that APEC TEL should continue its efforts to promote IPv6 adoption in collaboration with relevant stakeholders. APNIC was invited to this Ministerial meeting, called "TELMIN", and participated in collaboration with the RIPE NCC.

Organisation for Economic Cooperation and Development – the "OECD" Report

APNIC's Chief Scientist has been supporting ongoing work by the OECD Working Party on Communication Infrastructures and Services Policy to develop a document to examine, in depth, the challenges associated with IPv6 adoption. This document will inform OECD member states about IPv6 and the future of the Internet economy. Specifically, the document under development will explore the effects of Network Address Translation (NAT) in prolonging the life of IPv4.

2012 NRO Secretariat

APNIC works closely with the other four RIRs through the Number Resource Organization (NRO) on joint activities including Resource Certification, global statistics reports, Internet governance activities, and global policy coordination.

In 2012 APNIC served as the NRO Secretariat, supporting coordination with other RIRs and facilitating their representation in activities such as the global IGF, the WCIT-12 process, and also the ICANN meetings. As the Secretariat, APNIC authored joint NRO correspondence to the ITU and ICANN, and information materials for the IGF.

The Secretariat activities also included assisting the ICANN Address Supporting Organization (ASO) with their election processes, logistical support, and communications.

Financials

Statement of Financial Position

Notes: The statement of financial position, statement of income, and cash flow statement are the consolidation of APNIC Pty Ltd accounts being recorded in AUD.

For a better understanding of APNIC Pty Ltd's financial position and performance, as represented by the results of its operations for the financial year ended 31 December 2012, the statement of financial position, and statement of income, should be read in conjunction with the annual statutory financial report and the audit report contained therein.

	2012 (AUD)	2011 (AUD)	% change from 2011
Assets			
Current assets			
Cash	614,385	677,044	-9%
Short-term deposits	12,978,745	8,371,223	55%
Restricted cash	903,650	0	0%
Receivables	933,777	1,077,330	-13%
Others	585,159	717,744	-18%
Total current assets	16,015,716	10,843,341	48%
Non-current assets			
Other financial assets	1,150,123	986,920	17%
Property, plant and equipment	8,012,422	8,436,968	-5%
Deferred tax assets	128,071	103,878	23%
Total non-current assets	9,290,616	9,527,766	-2%
Total assets	**25,306,332**	**20,371,107**	**24%**
Liabilities			
Current liabilities			
Payables	1,685,736	445,678	278%
Provisions	1,012,621	1,088,410	-7%
Unearned revenue	7,567,408	7,171,080	6%
Total current liabilities	10,265,765	8,705,168	18%
Non-current liabilities			
Deferred tax liabilities	49,579	42,892	16%
Provisions	182,231	215,149	-15%
Total non-current liabilities	231,810	258,041	-10%
Total liabilities	**10,497,575**	**8,963,209**	**17%**
Net Assets	**14,808,757**	**11,407,898**	**30%**
Equity			
Share capital	1	1	0%
Reserves	107,535	(43,085)	350%
Retained earnings	14,701,221	11,450,982	28%
Total equity	**14,808,757**	**11,407,898**	**30%**

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Financials

Statement of Income

	2012 (AUD)	2011 (AUD)	% change from 2011
Revenue			
IP resource application fees	2,232,250	1,530,500	46%
Interest income	583,052	395,591	47%
Membership fees	14,361,213	12,968,291	11%
Non-member fees	227,966	198,425	15%
Reactivation fees	43,200	25,200	71%
Sundry income	210,680	298,657	-29%
Total revenue	**17,658,361**	**15,416,664**	**15%**
Expenses			
Communication expenses	440,762	385,819	14%
Computer expenses	551,362	397,535	39%
Depreciation expense	816,998	875,273	-7%
ICANN contract fees	321,655	284,889	13%
Meeting and training expenses	191,561	398,014	-52%
Office operating expenses	249,930	275,653	-9%
Professional fees	939,882	605,124	55%
Salaries and personnel expenses	8,145,433	7,203,720	13%
Sponsorship/ publicity expenses	270,696	293,035	-8%
Travel expenses	1,822,239	1,576,246	16%
Other operating expenses	675,110	631,940	7%
Total expenses	**14,425,628**	**12,927,248**	**12%**
Operating surplus			
Operating surplus before income tax	**3,232,733**	**2,489,416**	**30%**
Income tax benefit	17,506	74,074	-76%
Operating surplus after income tax	**3,250,239**	**2,563,490**	**27%**

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Cash flow statement

For the year ended 31 December

	2012 (AUD)	2011 (AUD)	% change from 2011
Cash flows from operating activities			
Receipts from members and customers	19,366,814	16,282,229	19%
Payments to suppliers and employees	(15,051,949)	(12,738,321)	18%
Interest received	560,701	324,020	73%
Income tax received (paid)	64,006	213,744	-70%
Net cash inflow from operating activities	**4,939,572**	**4,081,672**	**21%**
Cash flows from investing activities			
Placements of short-term deposits	(4,607,522)	(3,332,341)	38%
Payments for property, plant and equipment	(398,143)	(921,439)	-57%
Proceeds from sale of property, plant and equipment	2,434	940	159%
Net cash outflow from investing activities	**(5,003,231)**	**(4,252,840)**	**18%**
Net decrease in cash held:	(63,659)	(171,168)	-63%
Cash at the beginning of year	677,044	848,076	-20%
Effects of exchange rate changes on cash	1,000	136	635%
Cash at the end of year	**614,385**	**677,044**	**-9%**

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APNIC Supporters

APNIC expresses its sincere thanks to the following organizations that have supported its operations and training activities in 2012.

Training supporters

(In alphabetical order)

The Authority for Info-communications Technology Industry of Brunei Darussalam (AITI)

The Indonesian Internet Service Providers Association (APJII)

The Advanced Science and Technology Institute (DOST-ASTI)

Bhutan Telecom Ltd.

BlueSky Communications

Brunei International Gateway (BIG)

CAT Telecom Public Co., Ltd.

China Internet Network Information Center (CNNIC)

Computer Services Limited (CSL)

Electronic Government Agency (EGA)

Info-communications Development Authority of Singapore

Internet Education and Research Laboratory (intERLab)

Internet Society Bangladesh Dhaka Chapter

Internet Society Bangalore Chapter

Internet Society Sri Lanka Chapter

Internet Society India Kolkata Chapter

Malaysian Research and Education Network (MYREN)

Ministry of Information & Communication, Tonga Government

MobiCom Corporation

Mobinet LLC

National Internet Exchange of India (NIXI)

National University of Laos (NUOL)

Nepal Internet Exchange (NPIX)

Nepal Research and Education Network (NREN)

Pakistan Telecommunication Authority (PTA)

Pacific Islands Telecommunications Association (PITA)

Republic Polytechnic (RP)

Taiwan Network Information Center (TWNIC)

Telikom PNG

Tonga Communications Corporation

Vietnam Internet Network Information Center (VNNIC)

Vietnam Research and Education Network (VinaREN)

Conference supporters

(In alphabetical order)

Asosiasi Penyelenggara Jasa Internet Indonesia (APJII)

Authority for Info-communications Technology Industry (AITI)

Brunei International Gateway (BIG)

China Internet Network Information Center (CNNIC)

Google

Hurricane Electric Internet Services (HE)

Japan Network Information Centre (JPNIC)

Korean Internet Security Agency (KISA)

MekongNet

National ICT Development Authority, Government of Cambodia (NiDA)

National Internet Exchange of India (NIXI)

Nepal Internet Exchange (NPIX)

Nepal Research And Education Network (NREN),

PHCOLO

Sabay

Taiwan Network Information Center (TWNIC)

Vietnam Internet Network information Centre (VNNIC)

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