



Apster is the twice-yearly newsletter for the APNIC membership and community.

Successful implementation of the 'Final /8'



As most members of the Asia Pacific Internet community know, APNIC reached its last /8 of available IPv4 address space on 15 April 2011. The Secretariat made preparations using a phased approach, to ensure the last allocations made before the 'Final /8' policy was implemented were made fairly and transparently,

as they were up to that point. On 15 April, APNIC entered the third and final stage of IPv4 management, which means IPv4 address space is currently available in limited quantities to ensure new Members, and Members from developing economies, are not disadvantaged.

Stage 1: Preparing for the 'Final /8'

In February 2009, the Final /8 Policy was drafted as prop-062, an amendment to the existing policy at the time, 'Policies for IPv4 address space management in the Asia Pacific Region'. Shortly after this proposal reached consensus within the community at APNIC 27 in Manila, the Internet Corporation for Assigned Names and Numbers (ICANN) Board ratified the 'Global Policy for the Allocation of the Remaining IPv4 Address Space', which outlined the procedure for the Internet Assigned Numbers authority (IANA) to divide the last five /8 blocks among the five Regional Internet Registries (RIRs). These two policies contributed to the compilation of an IPv4 exhaustion management plan, devised by the APNIC Secretariat. In August 2010 at APNIC 30 in Australia, APNIC's Registration Services Manager, Guangliang Pan, presented this three-phase strategy to the community:

- Stage 1: IPv4 available at IANA for normal distribution
- Stage 2: Began when IANA distributed the last five blocks to the RIRs
- Stage 3: Began when APNIC reached the last /8 of IPv4 in its free pool

Transition to Stage 2

The second stage of the APNIC IPv4 plan was activated when IANA distributed its remaining five /8s of IPv4 addresses to each of the five RIRs. The challenge facing the APNIC Secretariat around this time was trying to predict which region would trigger this event, and when it would occur.

As the Asia Pacific is home to the world's largest and fastest-growing economies, APNIC became eligible to request the last two blocks of IPv4 space from IANA at the end of January 2011, when IANA had only seven blocks left. During the two weeks leading up to the 'final five' distribution, the RIRs worked together with ICANN and IANA to coordinate a ceremony to say goodbye to the global pool of IPv4, which occurred on 3 February 2011.

The APNIC Services Area made some changes to delegation procedures during Stage 2, to ensure all requests were processed on a strict first-come-first-served basis. These new procedures were presented to the community at APNIC 31 in Hong Kong.

These changes to delegation procedures allowed APNIC's Hostmasters to process a significant increase in IPv4 requests. During Stage 2, all IPv4 requests were processed strictly in the order in which they were received with the entire Hostmaster Team evaluating each request together, rather than in separate queues. In addition, the response time for all requests and subsequent correspondence was increased to five days, giving the Hostmasters adequate time to process those requests.

The changes to delegation practice during Stage 2 ensured all delegations were processed sequentially, based on the date and time of the requestor's last correspondence that fulfilled the information requirements to make an allocation decision. The NIR evaluation teams also had to provide the same information, and were held to the same processing times and criteria for IPv4 requests on behalf of their members.

A daily IPv4 stock status report graph and detailed statistics were produced to track the delegated, reserved, and available IPv4 resources at APNIC. This information was provided to the community on www.apnic.net.

15 April 2011: APNIC enters Stage 3

On 15 April 2011, there were 181 remaining requests in the queue when APNIC reached the last /8 of IPv4 addresses. These requests were processed according to a change in allocation policy that stated that each APNIC Member could receive a /22 from the last /8. A further amendment to the IPv4 policy was made, enabling Members to receive more than one delegation, up to a maximum of a /22.

As of 15 August 2011, the APNIC Secretariat has made 572 delegations from the last /8 block to 30 economies in the Asia Pacific region.

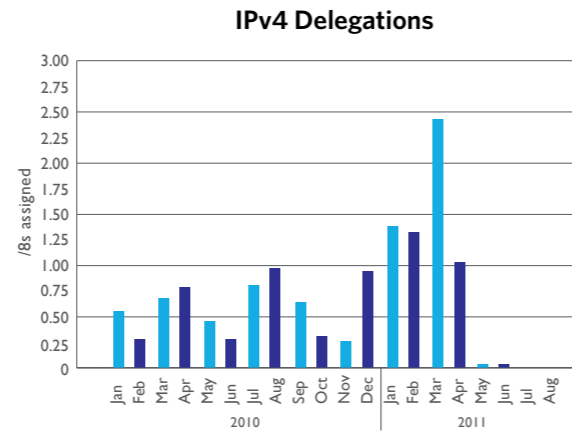
The APNIC Secretariat strongly suggests Members deploy IPv6, which does not have the address space constraints given its huge 128-bit pool, compared to IPv4's 32-bit pool.

Members who have unused IPv4 space may make transfers to other Members who require more than that final /22, under the current Transfer, Merger, and Acquisition policy. An inter-regional transfer

policy, introduced to the APNIC community as prop-095, also allows transfers between RIRs that support that policy. APNIC is currently unable to assist with locating available address space for transfers; so Members may choose to make use of their own channels, ISP operations mailing lists, or the public 'apnic-talk' mailing list. To subscribe to the mailing list, please visit: www.apnic.net/mailling-lists.

- By Sanjaya, APNIC Services Director

<http://www.apnic.net/ipv4-exhaustion>



From the DG

2011 has been a very eventful year for the Internet, and for IPv4 addressing in particular. Since the exhaustion in February of IANA's global IPv4 pool, and with accelerating consumption of IPv4 addresses in this region, APNIC became the first Regional Internet Registry (RIR) to exhaust its operating pool of addresses, just two months later. Of course, we do have remaining addresses to distribute under the "Final /8" policy, but these are available in small, strictly rationed quantities.

We know of course that planning and implementation of IPv6 deployment is now critical, and also that World IPv6 Day, last July, produced some encouraging results. During APNIC 32 we will dedicate one full day to reviewing the lessons learned from that event, including reports of APNIC's own leading R&D activities which provided new and unique insights into the current state of IPv6 deployment globally.

We also know however that in the Asia Pacific region, Internet growth continues at a rapid pace and will require IPv4 addresses for some time, while the global transition gains critical momentum (a process which may take some years). The only possible sources of such addresses, in the required quantities, are IANA, assuming that they do receive returned IPv4 space in future; and the APNIC Transfer policy, assuming that sources can be found.

However in both cases, further policy changes are needed - both at APNIC and at other RIRs - before significant amounts of IPv4 space can become available.

APNIC 32 is the first of the 'second season' of RIR Policy Meetings for 2011. As we enter this cycle of meetings, I do hope that progress can be made on

a suitable set of policy changes to allow access to useful quantities of IPv4 addresses, particularly for the AP region. As we enter this meeting, I am hopeful that compromises are available and certainly achievable, to meet these goals in the short term.

The risk we face is that the Internet of the Asia Pacific suffers an enduring shortage of IPv4 address space, while other regions continue to use IPv4 for local needs. In this event, ISPs in this region have no choice but to increase their use of private IPv4 space, along with NATs and ALGs, at great cost to them and to the interconnectivity of their networks. I am afraid that if this situation were to endure too long, then corresponding technical and business models may become fully entrenched, and difficult or impossible to reverse. While the Internet would operate, we may by this time have missed the chance to benefit from IPv6, or at least to deploy it in a smooth and efficient manner.

As you see, APNIC 32 will be an important Conference for all of us.

I hope that your journey to Busan is rewarding, and I warmly welcome you to APNIC 32.



Paul Wilson
APNIC Director General

IPv6 Transition Plenary @ APNIC 32

Join us on-site or remotely for the full-day IPv6 deployment session at APNIC 32 on Tuesday, 30 August 2011.

Throughout the day, we will explore the world in transition to IPv6, hearing personal IPv6 deployment experiences, and discussing the latest statistics.

Three panel discussions will feature what was learned on World IPv6 Day: content providers, ISPs, and vendors will give the industry perspective, and an in-depth analysis of measurements collected before,

during, and after the worldwide event will show exactly what the Asia Pacific community faces now and the future direction of regional and global transition.

As a community, we have passed the point of talking about preparations - regional IPv6 deployment is happening now, so come along and chart the journey towards IPv6.

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

APNIC Labs: IPv6 client tracking

The first APNIC Labs initiative was an IPv6 client-readiness tracking code that utilizes Google Analytics. We had this developed in time for World IPv6 Day; however, the real beauty of this tool is the ongoing collection of data before, during, and after the worldwide test flight event.

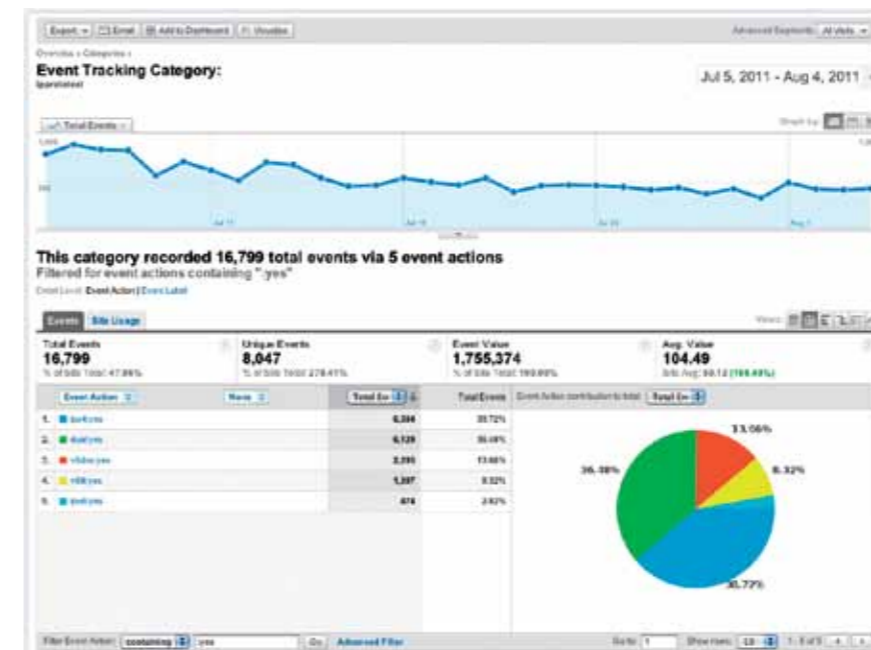
APNIC has implemented this as a long-term experiment, with the aim of continuously exploring global IPv6 trends. Collectively, we are taking millions of measurements per week on an ongoing basis.

The IPv6 'test flight' was more focused on the current capabilities of servers around the world, but our data does

complement the data that was gained from testing on World IPv6 Day.

The tracking code statistics have provided some interesting evidence on the client side view of IPv6 deployment, namely that approximately 20% of the world's host computers are already capable of running IPv6 in native mode.

The code itself is a lightweight javascript, which measures client ability to fetch web content over IPv6. To participate, all anyone needs is a Google Analytics account and to add our script. There is no risk associated with using it; it's simply a measurement tool.



In addition to finding good evidence that clients are able to handle native IPv6, we also see that ad-hoc tunnels are more problematic than beneficial, and need to be deprecated.

APNIC Labs is now exploring flash-ads as a measurement, and expanding the footprint of measurement.

- By Geoff Huston, APNIC Chief Scientist

<http://labs.apnic.net>

From January 2010 to April 2011, the APNIC Resource Quality Assurance (RQA) team conducted a series of quality assurance activities for IPv4 address blocks allocated to APNIC from IANA, addressing community concerns about the routability of address blocks as IPv4 depletion approached. The RQA team conducted a series of tests in collaboration with the RIPE NCC to ensure APNIC Members received usable address space. APNIC tested eleven prefixes, including the last three /8s assigned to APNIC by IANA.

This collaboration between the RIPE NCC and APNIC R&D has produced a series of reports available for download.

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

APNIC 31 BoF

A BoF session was held during APNIC 31 in Hong Kong, where participants shared information about the activities that had been conducted up to that point. Concerns about Internet Resource Management and Quality Assurance of IP addresses were acknowledged with presentations and discussions.

The main focus of the session was the procedure the Secretariat carried out to prepare new blocks for allocation, as well as how to identify and address routability problems.

The next BoF session, which takes place on Monday 29 August at APNIC 32, will focus on Network Abuse. The next major challenge facing routability will be returned address space, and making sure any returned space is fit for reallocation to the community.

- By Frank Salantri, Project & System Services Manager

<http://meetings.apnic.net/32/program>



Prospects for reinvigorating a dialogue between APNIC and the ITU

APNIC is one of the first organizations from the Internet technical community in the Asia Pacific to consistently demonstrate an open and communicative approach with a wider community of governments and intergovernmental organizations, including the International Telecommunications Union (ITU).

APNIC has been an ITU sector member since early 2003, preceding the first phase of the World Summit on the Information Society (WSIS). It has maintained an ongoing dialogue with the ITU on different issues; from the evolution of the Internet governance concept, to the critical topic of common interest: IPv6

deployment. APNIC saw encouraging results at the last ITU Plenipotentiary Conference in 2010.

Member States of the ITU adopted Resolution 180, "Facilitating the transition from IPv4 to IPv6" that resolved: "to collaborate closely with the relevant international recognized partners, including the Internet community (e.g. Regional Internet Registries (RIRs), the Internet Engineering Task Force (IETF) and others), in order to encourage the deployment of IPv6 by raising awareness and through capacity building." This resolution presents a good outlook for future collaboration.

At the last meeting of the ITU IPv6 Group in Geneva, in April 2011, the Telecommunication Development Bureau (BDT) presented a proposal to work intensively on capacity building for IPv6 deployment, mainly focusing on developing economies. APNIC has been actively working with the ITU

on different projects in the Asia Pacific region, in line with that proposal.

Another positive development was establishing contact with the Secretary General of the ITU in June 2011, when Paul Wilson, APNIC's Director General, met with Dr Hamadou Touré, Secretary General of the ITU in Singapore. Also in attendance was Dr Eun-Ju Kim, the Director of the ITU Regional Office for Asia and the Pacific, based in Bangkok. There were encouraging signs of support for regional IPv6 deployment and capacity building on both sides.

APNIC and the ITU share an optimistic view for future collaboration on IPv6, capacity building, and supporting

developing economies, rounding up a decade of ongoing dialogue between the two organizations.

- By Pablo Hinojosa, Public Affairs Director



NIR Update - India



Three weeks of training

A delegation of four individuals from the National Internet Exchange of India (NIXI) completed an in-depth training course at the APNIC Secretariat office in Brisbane. The training, which was delivered over three weeks, was a comprehensive introduction to how a Regional Internet Registry (RIR) operates and provided insights on how an NIR interoperates with a RIR.

The APNIC Executive Team developed some material to introduce our visitors to Policy, Member Services, Training, Communications, and Finance. The Secretariat staff noted that the material was well received, and that the participants were engaged, interested, and understood better how to run an Internet Registry.

High-level meeting

In addition to the three-week visit, NIXI Board Members and high-level government officials; Shri N Ravi, DIT, Dr Gulshan Rai, CERT-IN, Dr Govind, NIXI, and Shri R M Agarwal, DOT, came to Brisbane for two days, to have brief sessions covering similar material, which was also met with positive results and productive discussions.

The APNIC Secretariat has proposed to receive a NIXI Hostmaster for further training before the end of the year, and will hold regular meetings with NIXI via videoconference, to further develop the details of the NIR plan.



APNIC welcomes Philip Smith to the team

Philip Smith joins APNIC as a well-regarded member of the global Internet community, where he has worked as a Consulting Engineer, with Cisco's CTO office for many years, as well as devoting himself to leadership roles that enabled him to provide guidance and advice across a range of Internet issues and forums.

His new role at APNIC is Director of Learning and Development, and he will be responsible for directing all of APNIC's training offerings, investigating opportunities to provide technical consulting services, and overseeing the Information Society Innovation Fund program.



His team will be continuing to develop educational resources for the APNIC community on relevant technological trends, best practices, and industry developments.

APNIC would like to welcome Philip and we look forward to him continuing to share his expertise with the community.

ISIF Award 2011 recognizes innovation in social development

The Information Society Innovation Fund (ISIF) is a grants program aimed at stimulating creative solutions to ICT development needs in the Asia Pacific region. ISIF is a partnership between the Canadian International Development Research Centre (IDRC), the Internet Society (ISOC), and APNIC, with generous support from the DotAsia Organization.

The program has funded 19 projects in 10 Asia Pacific economies since its inception in 2000 with around AUD 640,000 granted to projects that showcase innovation, cooperation, and technical knowledge. These projects have the potential to create social change in their communities and address current issues in both technical and social discussion.

The 2010 grant recipients have submitted their final reports, and they will be available for download by 25 August 2011, along with links to the project results.

During 2011, the ISIF Secretariat launched an award that acknowledged the important contributions ICT innovators

have made with creative solutions to the social and economic development of the Asia Pacific (AP) region. Winners of the award will be announced by 25 August 2011. The award package consists of AUD 7500 plus the opportunity to attend the upcoming IGF meeting in Nairobi, where the awards ceremony will take place.

The ISIF Secretariat has produced a publication that will be distributed to APNIC 32 attendees to provide insight and analysis about the program's operation.

The award and the publication provides a summary of the last three years' cycle before a revised framework for small grants provision is launched in 2012. The new framework will focus on issues pertaining to the future of the Internet in the region.

- By Sylvia Cadena, ISIF Project Officer

<http://isif.asia>



Securing your reverse zones

APNIC has been implementing a three-phase plan for Domain Name Security extensions (DNSSEC) as part of the ongoing effort to provide added security and robustness to APNIC services.

As part of the Phase three implementation, APNIC now provides DNSSEC in MyAPNIC, allowing users to enable DNSSEC protection. This follows the successful submission of the regional DNSSEC DS records to IANA, allowing DNSSEC validation to occur from the root zones down to APNIC's reverse DNS zones.

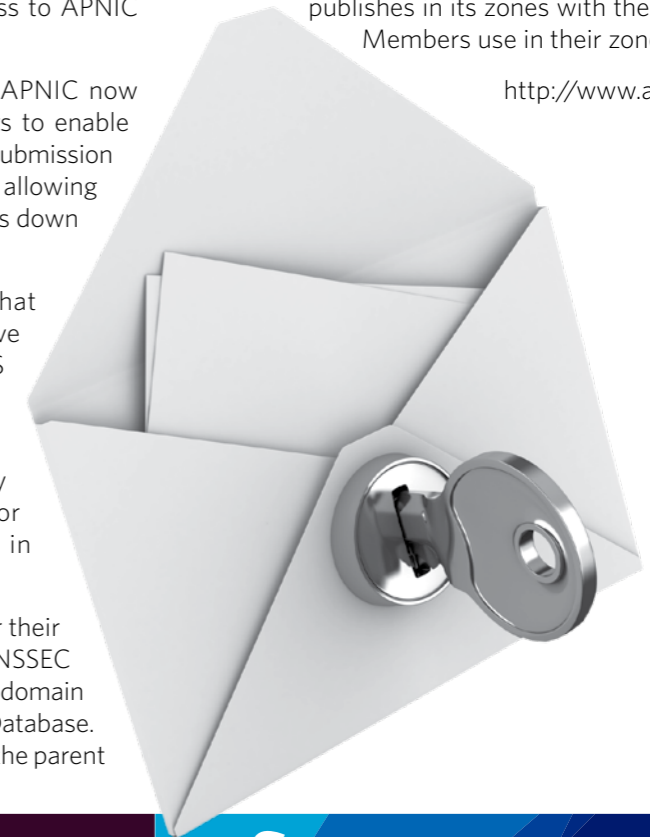
The DNS is a hierarchical naming system that translates domain names into their respective numerical IP addresses. In contrast, reverse DNS translates these unique numbers into names.

DNSSEC extensions help to ensure the Internet remains a trustworthy and useful tool by adding security to the domains by signing or authenticating a series of encryption keys in different zones to create a chain of trust.

Using MyAPNIC, APNIC Members can register their DS (Delegation Signer) records to activate DNSSEC protection to their reverse zones by updating the domain object's ds-rdata attribute in the APNIC Whois Database. If the domain objects are successfully updated, the parent

zone file that is stored in APNIC's name servers will also be updated. Members can then link the name servers APNIC publishes in its zones with the encryption keys Members use in their zones.

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



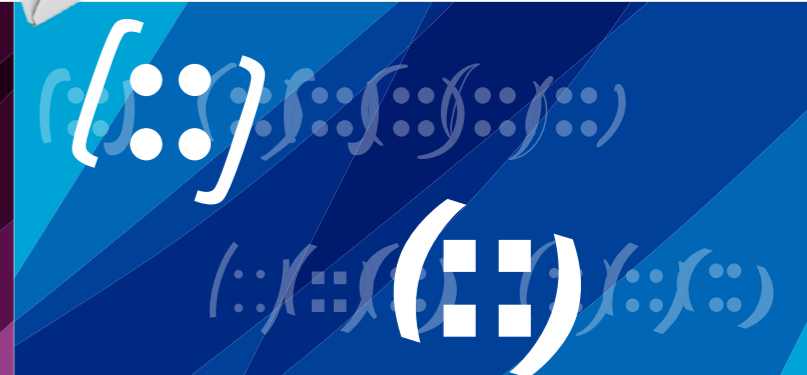
New Corporate Identity



We now live in an IPv6 world, and this is reflected in APNIC's new Corporate Identity. The :: reflects our commitment to encouraging IPv6 deployment across the region while, the () reminds us that we are part of a collaborative community, focused on the unique needs of the Asia Pacific.

Speaking of uniqueness

APNIC depend on the contributions of many stakeholder groups across all of the economies we represent. Our diversity makes us who we are as a community, and this is reflected in our dynamic logo system that changes with every use.



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Social Events



Closing Dinner & Women in ICT Dinner Sponsor

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Training calendar

Course	Start	End	Location
Workshop: IRM + IPv6	24-Aug-11	26-Aug-11	Vientiane, Laos
Training: APNIC 32	28-Aug-11	28-Aug-11	Busan, South Korea
Workshop: IPv6	29-Aug-11	30-Aug-11	Phnom Penh, Cambodia
Training: Policy Tutorial	30-Aug-11	30-Aug-11	Phnom Penh, Cambodia
Remote Participation for APNIC 32	31-Aug-11	31-Aug-11	Phnom Penh, Cambodia
Workshop: DNS/DNSSEC	5-Sep-11 -	7-Sep-11	Ulaanbaatar, Mongolia
Workshop: IPv6	12-Sep-11	13-Sep-11	TBD, China
Training: IRME/IRR	13-Sep-11	13-Sep-11	Pokhara, Nepal
Workshop: IPv6	14-Sep-11	14-Sep-11	Pokhara, Nepal
eLearning: Introduction to Autonomous System Numbers	14-Sep-11	14-Sep-11	TBD, South Asia
Workshop: DNSSEC	17-Oct-11	19-Oct-11	Thimpu, Butan
Workshop: IPv6	31-Oct-11	4-Nov-11	Bangalore, India