APNIC

Apster

-ster *(suffix)* One that is associated with, participates in, makes, or does. For example: *songster.*
Source: ***www.dictionary.com***

APNIC - Addressing the challenge of responsible Internet resource distribution in the Asia Pacific region

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Internet in the Pacific Islands

Geographic isolation, sparse population distribution, and poor funding have always been a recipe for hardship in the communication field. With the development of the Internet, these problems are particularly acute. For the economies of the Pacific Islands, the challenges posed by new technologies, and the new world created by them, have been daunting. Despite these challenges, the story of Internet development in the Pacific is an inspiring one, characterised by innovative technical and financial solutions, and cooperation between government, business, and the global community. In this article, we look at some of the key moments in Internet development in the region, and at some of projects currently underway which will ensure that this development continues.

History

The nations of the Pacific Islands stretch over an area as large as Africa and are made up of three broad regions: Micronesia, Melanesia, and Polynesia. All together, these three regions are home to a total population of around eight million, split into more than a thousand language groups. Distance and a lack of infrastructure have meant that communication between different islands (even within the same nation) has often been restricted to short-wave radio and satellite phone, both of which are prohibitively expensive and unreliable. Even today, 700 of the 900 villages in Fiji lack basic telephone services.

Limited email services have been available in the Pacific since the early 1990s, but it was not until 1996 that full Internet services were first established in the region when a six-month trial was initiated by Telecom Fiji, connecting to the Internet via the University of Waikato in New Zealand. Upon the conclusion of this trial, however, a different system was required, and through a cost-sharing arrangement between Fiji, the Solomon Islands, Vanuatu, and Tonga, a connection to the Cable & Wireless Internet Exchange (CWIX) in Hong Kong was established.

Nonetheless, Internet penetration has been slow to spread throughout the region; the small nation of Tokelau (population 1,400) only established its first Internet connection in 2002.

Connecting to the Internet

Perhaps the most significant hurdle to Internet usage in Pacific island countries has been the lack of access to high quality Internet connections. This means not only fast connections, but physical infrastructure that is resilient enough to survive in the sometimes violent Pacific weather.

In many ways, the most desirable form of Internet connection is submarine fibre-optic cable, but the expense of such infrastructure has in the past prevented its widespread deployment. The PacRim East and West cables have straddled the Pacific since the mid 1990s, but landings in Australia, New Zealand, and Guam did little to improve the lot of the many islands in the region. The situation improved markedly in 2000 with the launch of the Southern Cross cable, which linked Australia and New Zealand with Hawaii and included a landing in Fiji.

It is only in the last year or so, however, that plans for more extensive cable deployment have been seriously discussed. Two projects are currently in negotiation, the biggest being a US$265 million undertaking known as the Pacific Island Cable System. The project, which is headed up by Cable & Wireless, is planned to be deployed in three stages, culminating in links to New Caledonia, Vanuatu, Fiji, Samoa, Tahiti, Norfolk Island, the Solomon Islands, Tonga, the Cook Islands, Nauru, Tuvalu, and Tokelau, with microwave links to Samoa and American Samoa.

The other proposal is a joint project between telecommunication companies from the Federated States of Micronesia (FSM) and the Marshall Islands. At the more modest cost of US$67 million, the project would entail 3,500 kilometres of undersea cable, linking Guam to landings in Pohnpei (FSM), Kwajalein, and Majuro (both part of the Marshall Islands).

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18th APNIC Open Policy Meeting

31 August - 3 September 2004 Nadi - FIJI

The 18th APNIC Open Policy Meeting (APNIC 18) takes place at Sheraton Fiji Resort, Nadi, Fiji from 31 August to 3 September 2004, and marks the first time that an APNIC meeting has been held in Fiji and the Pacific Islands. APNIC 18 is hosted by Telecom Fiji and Connect Fiji.

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APNIC 18 policy proposals

The following policy proposals will be discussed at APNIC 18.

Proposal description	Proposal reference
Expansion of the initial allocation for existing IPv6 address space holders A proposal to allow existing IPv6 address holders to receive additional allocations based on existing IPv4 infrastructure.	prop-021-v001
HD ratio for IPv4 allocations A proposal to replace the current fixed percentage-based utilisation requirement for IPv4 address space with an HD ratio-based requirement.	prop-020-v001
Preventing the routing of "dark" address space A proposal that "dark" unallocated address space be filtered and that APNIC remove the IP address allocations of those routing such space.	prop-023-v001
IANA IPv6 global allocation policy A proposed policy governing the allocation of IPv6 address space from the IANA to the Regional Internet Registries (RIRs).	prop-005-v002
Proposal on IPv6 IRR service at APNIC A proposal that APNIC launch an IPv6 Internet Routing Registry service.	prop-025-v001
A proposal to abolish redundant charges in IPv6 allocations A proposal to revise the method of calculating IPv6 "per address" fees so that the practice of changing multiple fees for the same address range will be abolished.	prop-022-v001
Changing NIR fee structure A proposal to set an upper limit on the "per address" fee for NIRs.	prop-024-v001

For more information on each of these proposals, see:

www.apnic.net/docs/policy/proposals

During the course of APNIC 18, attendees can find last-minute updates, venue and schedule details, and other meeting information on the Onsite Notice Board, at:

www.apnic.net/meetings/18/onb

Those unable to attend the meeting in person can still take part in proceedings via the APNIC 18 Jabber chat rooms. These facilities are also available as an alternative channel of discussion for attendees in Fiji. More information on Jabber chat is available at:

www.apnic.net/meetings/18/programme/jabber-chat

Recent APNIC policy proposals

Five new policy proposals are being implemented by the APNIC Secretariat in August and September.

Privacy of customer assignment records (prop-007-v001)

Under this policy, organisations that receive an allocation from APNIC will be able to protect customer records from being publicly queried in the APNIC Whois Database. Customer assignments must still be registered in the database, but organisations can choose whether or not their customer assignment registrations should be publicly available.

Hiding customer registrations will provide greater privacy for customer information. However, organisations responsible for the parent address block will then become the only contact visible in the database for private customer assignments. Organisations may therefore need to consider the possible increase in correspondence about activities in customer-assigned blocks.

IMPORTANT: The migration to this system will occur in late 2004, and at that point all existing customer records will be designated private. Tools for making bulk changes to the public/private status of customer records will be available to APNIC account holders through MyAPNIC. APNIC project manager Sanjaya will make an update on this project in the Database SIG at APNIC 18. For more information see:

www.apnic.net/meetings/18/programme/sigs/db

Other policy proposals to be implemented

- **Lame delegation cleanup revised (prop-004-v001)**

  APNIC will begin testing for and disabling lame DNS reverse delegations.

- **A proposal to lower the IPv4 minimum allocation size and initial allocation criteria in the Asia Pacific region (prop-014-v001)**

  The minimum allocation size has now been lowered to a /21.

- **IPv6 allocations to IPv4 networks (prop-016-v002)**

  Use of existing IPv4 infrastructure and customers is now explicitly documented as a consideration in requesting IPv6 allocations.

- **Protecting historical records in the APNIC Whois Database (prop-018-v001)**

  Historical records will be protected by an APNIC maintainer to prevent unauthorised changes to the APNIC Whois Database.

For more information on the implementation of these policies, see:

www.apnic.net/docs/policy/proposals/

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APNIC Member and Stakeholder Survey

The Third APNIC Member and Stakeholder Survey was completed in August 2004, with the delivery to the APNIC EC of a formal survey report. The report was authored by Dr John Earls of KPMG, who designed and conducted the survey.

The report provides a detailed analysis of the survey responses, including the following major points:

- Unlike previous surveys this one was based on a detailed questionnaire format, allowing feedback on APNIC's performance and future activities;
- A total of 245 responses was received, from 27 economies, all within the Asia Pacific region;
- Analysis of responses from different economies shows substantial differences in needs and views across the region;
- The overall result demonstrates generally high regard for current APNIC services, and strong support for service developments including technical information services, training, and infrastructure support.

For more details of the survey, including the complete survey report, please see:

www.apnic.net/survey/2004

The other connection option for many parts of the region is a satellite network, a number of instances of which are already in use. An early implementation was PEACESAT, a network set up in the late 1980s by the University of Hawaii using an old meteorological satellite. In 2000, the University of the South Pacific (USP) established its own satellite network, USPNet, which is used to deliver course material to students across five time zones and more than 33 million square kilometres. This system is currently being expanded through the construction of a US$15 million ICT centre.

Telecom Cook Islands and the French Polynesia Postal and Telecommunications Department are currently investigating the options for a multinational satellite network solution, either by tendering for existing satellite capacity, or through launching a new, dedicated communications satellite.

Innovative technologies

Limited infrastructure and Internet access have meant that many communities in the Pacific Islands have had to find innovative new ways of using the technology available to them. One of the most successful of these projects has been the Solomon Islands' People First Network, or PFnet.

Established in January 2001, PFnet is a project to provide even the most remote residents of the Solomons's 850 islands with access to email, using basic, affordable equipment. The project is based around two components, the first an Internet café in the capital of Honiara, the second a network of remote email stations located throughout the islands. The most innovative aspect of PFnet, however, is the equipment used. By employing short-wave radio, low-end computers, and solar power, the project designers have been able to create a robust, low-cost, and sustainable network which is fully community-owned. At this point there are 16 remote stations scattered throughout the country, with each new station costing a mere US$8,000 (with a monthly fee of US$30-50), and plans for as many as 25 stations in total. PFnet was also a finalist in the UNESCO IPDC Rural Communication Prize 2003.

Other economies in the region have also adopted their own approaches to Internet technologies. In mid-2003, Niue became the first nation in the world to offer universal, free wi-fi access for all residents and visitors. Specific regional planning also meant that the network was able to quickly recover from the devastation of Cyclone Heta, which struck Niue in January of this year.

Regulation and governance

As the Internet develops in the Pacific, so does the regulatory environment surrounding its use. At this point, much of the industry is still under government control, though there is partial privatisation in the Cook Islands, Fiji, Kiribati, Marshall Islands, Samoa, the Solomon Islands, Tonga, and Vanuatu. Some in the industry see greater private investment and competition as an important next step in providing affordable Internet access.

Franck Martin, a veteran of Internet development in the region, and currently Vice-Chair of the Pacific Islands Chapter of the Internet Society, believes that most of the development that has occurred over the past decade "has worked when monopolistic practices were challenged or adapted".

Many projects, such as PFnet, have also placed great importance on the need for community ownership and control of the technology. The global nature of the Internet means that it has the potential to dilute local culture, traditions, and language, particularly in smaller nations. Ensuring the creation of locally-produced web content is a positive way to address this issue, while allowing local users to harness the full potential of ICTs.

"The more local content is provided," explains Martin, "the more the local people can find relevant information, and the less the expensive international Internet link is used."

Collective organisations like the Pacific Islands Telecommunications Association (PITA) have also proved valuable as more Pacific economies come online. Established to represent telecoms operators, regulators, and other ICT-related organisations in the region, PITA's annual meetings and events bring together experts and members from around the region to discuss issues and share ideas. This interaction has helped to strengthen the local industry, an example being regional carriers working together to collectively negotiate competitive pricing from satellite providers in the region.

Some of the issues facing Internet development in the Pacific were discussed at the recent Geneva WSIS meeting, held in December 2003. Attendees, including the Fijian delegate Abel Caine, the Samoan Minister for Communication and Information Technology, and Tongan Prime Minister, Prince Lavaka ata Ulukalala, stressed the importance of ICT projects in the region, while acknowledging the difficulties created by environmental hazards, brain drain (the emigration of experts in the field), and the need for expensive infrastructure.

The support of bodies including the International Telecommunications Union (ITU), the United Nations Development Programme (UNDP), and the International Development Research Centre (IDRC) has been vital in helping local industry to overcome these problems, and will remain an integral part of the Internet solution in the Pacific Islands, as the technology expands into schools, medical centres, public libraries, and government offices. As Martin explains, however, the fundamental question of economic priorities remains a major issue.

"There are a lot of ideas to be fought, like why should the Internet be a high priority when people have no access to water? [But] solving the problem of water needs money and resources, and these resources cannot come from aid money alone or the problem will never be solved." For many economies in the region, Internet connection is a vital element in the transition to financial independence and self-sufficiency, but, says Martin, "for this to happen, a reliable infrastructure must be built using the latest technologies."

In spite of the challenges, however, Martin is optimistic about the future of Internet in the Pacific. "Our motto inside the Pacific Islands Chapter of the Internet Society is 'Internet is for Everyone'," he explains. "That's also similar to the Pacific Islands ICT Policy and Strategic Plan vision – 'Internet for every Pacific Islander'. Any development following these philosophies is good for the Pacific Islands."

– Chris Buckridge and Save Vocea

Major sources

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ENUM

Over the past decade, the Internet has fundamentally changed the way many business and personal communications are conducted. Up until this point, however, there has been a marked separation between the Net and older communications technologies, particularly the conventional telephone network. This divide has limited the effectiveness of both media, but the convergence of these two technologies may soon become a commercial reality, thanks to a protocol known as ENUM.

▲ James Seng, Chair of the Asia Pacific ENUM Engineering Team.

ENUM, or Electronic Numbering, is an emerging protocol for mapping a standard international telephone number to a Uniform Resource Indicator (URI), using the DNS architecture. Originally conceived by Swedish engineer Patrick Falstrom, the protocol has been in development since the late 1990s, overseen by the IETF's Telephone Number Mapping Working Group, of which Falstrom is co-Chair. In September 2000, this Working Group gave approval to the protocols via which ENUM would be implemented.

The consequences of ENUM's implementation will be far-reaching, and have the potential to fundamentally transform the mechanics of electronic communication. The most obvious application is Voice Over IP (VoIP), which allows telephone calls to be transmitted via the Internet rather than the Public Switched Telephone Network (PSTN). The technology for VoIP is already in limited use, but is restricted by the limitations of the Internet itself. By connecting the PSTN to the Internet, VoIP will become a viable alternative to conventional phone connections. Phone, fax, voicemail, email, and instant messaging are all potentially linked together.

Perhaps most significant of all, ENUM facilitates this convergence without affecting the existing standards for telephone numbering. By mapping existing telephone numbers to Internet addresses, the effects of ENUM's implementation on non-users are minimised. Those who wish to take advantage of ENUM applications may have to upgrade their hardware, but can keep their original phone number.

ENUM in the Asia Pacific

Trials and preparations for the full-scale implementation of ENUM have been underway around the Asia Pacific for several years. A number of economies have their own trials underway (including Japan, China, Australia, Korea, Singapore, and Taiwan) and in March of this year the Asia Pacific ENUM Engineering Team (APEET) was established. This is an informal project team whose membership is made up of ccTLD administrators in the region. The initial members are CNNIC, JPRS (Japan Registry Service), KRNIC, SGNIC, and TWNIC. James Seng, current Chair of APEET, sees the group's role partly as liaison between the different national trials.

"We are here to work together on joint ENUM experimentation and trials among Asia Pacific countries," he explains. "We also help to create awareness of the ENUM technology by conducting workshops, seminars, and meetings and promoting the adoption of ENUM."

This trial period is important both for technical and regulatory purposes. Some economies in the region currently have legislation banning the use of VoIP. The technology promises to make international telephone communication far cheaper, but will necessitate some major changes in many regional communications markets.

It is also important to note that the various trials are at very different stages, and that for some economies, the commercial implementation of ENUM is far from certain. Arunas Silinis works with the Australian Communications Authority (ACA), which is responsible for the ENUM trial in Australia, and says that while the public phase of this trial will begin later this year, the Australian industry is reserving judgement on the future of ENUM.

"In Australia, the ACA has not yet made any commitment to a commercial ENUM service. This is something that will be evaluated as results are received from the trial, which will run for a minimum of 12 months with the possibility of a further 12 month extension," said Mr Silinis.

"In the Asia Pacific region, [however] there are several countries such as Korea who are conducting quite advanced ENUM trials. For these countries it is possible that ENUM may be a commercial reality in the near future. In regard to the rest of the world, ENUM is (or is about to become) a commercial reality in Austria, where the trial stage has been completed and they have agreed to implement a commercial service," he said.

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For more information on ENUM see:

- **Asia Pacific ENUM Engineering Team**
  www.apenum.org
- **ENUM: Driving Convergence in the Internet Age**
  www.neustar.com/pressroom/whitepapers/enum_wp.pdf
- **Australian ENUM trials**
  www.aca.gov.au
- **Chinese ENUM trials**
  www.enum.cn
- **Japanese ANUM trials**
  www.nic.ad.jp/en/enum
- **Taiwanese ENUM trials**
  www.enum.org.tw/seft2/english.htm

How ENUM works

So you've just set up your local IP phone systems behind a VoIP gateway that connects to the conventional phone system. But you notice that when other VoIP users want to call you the call is routed through the phone system. And when you want to call them, you end up using the phone system, and not the Internet.

How can your VoIP gateway learn about all the other VoIP phones in the world and use the Internet to route calls to them automatically? ENUM is the technology that is being proposed to solve this very real problem.

ENUM is a mapping system that provides a way for a phone number to be placed into the DNS. Why would you want to do this? The proposed means for a VoIP gateway to discover whether your phone number is reachable by the Internet is for the gateway to look up the DNS using an encoded version of your phone number. If the DNS provides an answer that includes an Internet call, the gateway will attempt to use the Internet, rather than the phone system, to complete the call.

The following is a brief explanation of how Internet call completion can work using ENUM:

1. To use ENUM, you must first use the DNS to associate your telephone number with one or more ENUM services. This is done using a special kind of DNS Resource Record, termed a NAPTR (Naming Authority Pointer) Resource Record. These records include details regarding which services are linked to your number (eg. direct VoIP, online voicemail, etc.). You place records in the DNS using a DNS domain that corresponds to an ENUM-mapped form of your phone number, and the records you place there correspond to the URIs of the Internet service points that will make your phone ring (or make your fax print, or any other related service).
2. When a VoIP user dials your number, the number is passed to their VoIP gateway as part of the call request. This gateway uses ENUM and the DNS to see if the call can be completed using the Internet.
3. The gateway forms a DNS query using the same mapping of the telephone number onto a DNS string that you used to place your information into the DNS. The gateway forms a DNS query for all services associated with your phone number that you have loaded into the DNS.
4. If the DNS returns a response, it will include a service description of how to reach you via an Internet call (usually a sip: URI or an h323: URI, depending on the type of gateway you are using).
5. The caller's gateway undertakes a rendezvous with your service URI and attempts to complete the call using the Internet.
6. If there is no DNS entry, or no matching URIs, the caller's gateway will drop back to using the phone system.

ENUM does not affect the conventional telephone numbering systems, and has been designed to operate effectively alongside the existing system. This should ensure that the technical implementation of the protocol will not disturb existing communication systems.

About the NRO & ASO

The RIRs and ICANN continue to move closer to signing a new Memorandum of Understanding (MoU), which will formally incorporate the Number Resource Organization (NRO) and create a new Address Supporting Organization (ASO). The following FAQs will hopefully answer some common queries regarding the two bodies and their functions.

Frequently Asked Questions about the NRO

1. What is the NRO?

The NRO (Number Resource Organization) is a coalition of all of the RIRs. It exists to carry out joint activities of the RIRs under a formal structure, and to provide a global point of coordination and contact for the RIRs and for IP address management in general.

The NRO was established by a Memorandum of Understanding (MoU), signed on 27 October 2003 by the CEOs of APNIC, ARIN, LACNIC and RIPE NCC. The NRO is not currently incorporated but is likely to be in future.

2. Why is the NRO needed?

The RIRs have cooperated actively for many years on a number projects and activities. In recent times joint activities have increased and so has the need for a formal structure, for legal and organisational reasons.

Among the NRO's tasks are joint services and activities, particularly of a technical nature. The NRO is also intended to enter into an agreement with ICANN to establish a reformed Address Supporting Organization (see ASO FAQ for more information). It may also enter into agreements with other bodies where necessary, for mutual liaison or other cooperative activities.

3. Does the NRO replace ICANN?

The RIRs are committed to the success of ICANN, and the NRO will certainly not replace ICANN while that organisation continues to function.

In the event of any future failure of ICANN, however, the NRO will be available to provide a single global point of contact and coordination regarding IP address distribution and policy development, and a logical point of responsibility for management of the unallocated IP address pool. This "stand-by" role for the NRO was an explicit aim of the RIRs in establishing the structure.

4. Does the NRO replace the ASO?

No. The NRO is a stand alone body that will form the new ASO by agreement (MoU) with ICANN. After the new ASO is established, the NRO will continue to exist.

5. Why do we need another layer of bureaucracy?

The NRO is not another layer of bureaucracy. It fulfills a necessary coordination role among the RIRs, including that required to establish the ASO. However it does not intercede in RIR operational activities, nor will it intercede in ASO policy processes.

6. How was the NRO MoU developed?

The NRO MoU was developed by the RIRs through an open process. The RIR Boards, exercising their policy process and fiduciary responsibilities, drafted documents and made them available in the public domain for comment. The final ASO MoU was established and signed only after public comments were received and considered by the RIR Boards.

7. What is the NRO Executive Council?

The Executive Council (EC) of the NRO is the body responsible for all NRO decisions. As such, it must be representative of all of the RIRs, and it therefore comprises the CEOs of all RIRs. At time of writing, AfriNIC is granted observer status on the NRO EC, as an emerging RIR.

Every meeting of the NRO Executive Council is transparent, with the agenda and minutes of each meeting published on the NRO website.

8. Will the NRO change the relationship between ICANN and the RIRs?

The NRO is intended to improve this relationship, as ICANN will have a single consistent point of contact for matters relating to the RIRs collectively, such as budget and service contracts, IANA performance etc.

9. How long will the NRO last?

The NRO is a permanent structure, intended to operate indefinitely. The NRO is needed in the long-term in order to protect the unallocated number resource pool and the bottom up policy process, thus contributing directly to the security and stability of the Internet for years to come.

It is expected that as the Internet environment changes over time, the NRO may need to be revised, and therefore it is expected that the NRO MoU will be reviewed from time to time.

10. Does the NRO develop policy?

The NRO structure includes provisions for coordination of global policy development, in the form of a defined Policy Development Process and a Numbers Council. However, these provisions have been formally suspended because their functions are performed by the ASO, under agreement with ICANN. They would be activated in future only in case of a failure of the ASO or the overall ICANN structure.

The remaining questions in this section relate to the policy provisions of the NRO, which would only become active in the absence of ICANN or an ASO in future.

For more information on the NRO, see:
www.nro.net

Frequently Asked Questions about the ASO

1. What is the ASO?

The ASO is the Address Supporting Organization of ICANN, the component responsible for coordination of global address policy development within the ICANN structure. The ASO is formed as the result of a Memorandum of Understanding (MoU) between the current Regional Internet Registries (RIRs) and ICANN.

2. How does the ASO function?

The ASO comprises an Address Council (AC) and a defined Policy Development Process (PDP) by which global address policies are developed.

The ASO AC is responsible for the review of proposed global addressing policies, and for passing those policies to the ICANN board for ratification. It is also responsible for the appointment of members to the ICANN Board, and to other ICANN bodies as needed.

The AC is required to operate in an open and transparent manner in all of its activities.

3. How is the Address Council formed?

Currently, the AC comprises three members elected from each RIR region, each for three-year term.

4. How is addressing policy initiated within the ASO?

Global addressing policies may be initiated through any one of the RIR policy processes, or by submission directly to the Address Council. In either case, proposed policies must be approved according to the processes of each RIR before being considered as global policies.

The ASO Policy Development Process provides the detailed sequence of steps by which a global policy is proposed and approved, and is attached as an appendix to the ASO MoU.

5. Can the ICANN Board initiate policy?

The ICANN Board may request that the ASO Address Council initiate a policy development process through the RIRs, but cannot make number resource policy outside of the bottom up policy development process.

6. How does the ASO select ICANN Board members?

The ASO AC is responsible for issuing a public call for nominations, and for selecting from a list of nominees for ASO positions on the ICANN Board.

7. Why is the ASO being reformed?

The current ASO was formed in 1999, as the result of the MoU signed by ICANN and the RIRs. The process of ICANN Evolution and Reform, which was initiated in 2003, required a reform of the ASO to ensure consistency with the new ICANN Bylaws.

The “new” ASO will be formed as a result of a new MoU, to be signed by ICANN and the Number Resource Organization (NRO) representing the RIRs. At the current time, this MoU is still under discussion.

8. How will the AC change under the new structure?

Under the new ASO, one of the three AC members from each region will be appointed directly by the Board of the respective RIR; while the remaining two positions will continue to be filled by regional election processes.

9. How will the current ASO transition to the new structure?

A transition plan is included in Attachment B to the ASO MoU, covering the transition of Address Council members. In order to ensure continuity of the AC, existing members will continue to serve until their terms expire. The first Address Council position to expire in each region will be filled by a member appointed by the respective RIR Board.

Funding available for ICT projects

The second round of Pan Asia ICT R&D funding is now open for innovative technology projects that address development problems in the Asia Pacific region.

If you are part of a team researching practical technological solutions to real problems in developing countries, then grants of up to US$30,000 may be available to help you develop your project.

Researchers and project leaders in the Asia Pacific region are being encouraged to apply for grants to fund information and communication technology (ICT) projects. The Pan Asia Networking Program, which holds two ICT research and development funding rounds each year, has announced that applications for the second round will close in mid-October 2004.

The ICT R&D Grants Programme exists to build institutional research capacity in the developing countries of the Asia-Pacific region, in the area of Internet networking. It is directed at encouraging original and innovative networking solutions to specific development problems.

Dr. Indrajit Banerjee (right), Chair of the grants committee, explains that, "projects are funded to develop 'model solutions' to development problems."

"The recipients are then expected to disseminate these model solutions, largely on their own, to others in the field. Successful dissemination is expected to lead to adoption of these models, which in turn is expected to help make the desired development impact of the programme," says Dr Banerjee.

The programme is jointly run by the International Development Research Centre (IDRC), the Asia-Pacific Development Information Programme (APDIP) of the United Nations Development Programme (UNDP), the Internet Society (ISOC), and APNIC. It is administered by the Asian Media Information and Communication Centre (AMIC).

Applications are accepted for small grants, up to US$9,000 over 12 months, and large grants, up to US$30,000 over 24 months. Grants are made for project funding only and may not be used to cover core or recurrent funding needs.

All applications are considered by the ICT R&D Grants Programme Committee, a diverse group of individuals with experience in development research, regional problems, networking applications, policy and technology, and R&D methodologies.

The official scope of the grants programme is to support:

- Research and development related to innovative ICT applications, with a clear focus on practical and replicable approaches and techniques.
- Research on Internet infrastructure design, performance, management policy, and related topics.
- Development of practical solutions based on the application of proven and readily available Internet technologies with a minimum of basic research.
- Research on the outcomes and social impacts of specific ICT policies and interventions and application of Internet technologies.
- Research on policy matters affecting Internet networking in the Asia Pacific region, especially where linked to areas such as policy impacts, gender equity, social equity, sustainable communities, technology diffusion/transfer, and benefits to rural areas.

To be eligible for funding, applicants must be able to document clear objectives related to specific issues or problems within the scope of the programme. They must demonstrate the need for R&D results of the type proposed and identify who will benefit from the project. Applicants must satisfy the committee that they are capable of conducting and documenting the project effectively within the specified budget and time limits. Finally, applicants should also be able to show that they will be able to attract solid participation by organisations from the developing Asia Pacific region.

The programme committee may also consider:

- the originality of the project,
- its relevance to developing countries in this region,
- the extent to which existing technologies can be used to achieve innovative solutions,
- the replicability of the work,
- the opportunity it presents to build R&D capacities within other organisations in developing countries, and
- the availability of co-funding by other agencies or organisations.

A condition of the grants is that the results must be fully documented. Copyright in the results must remain fully open and Pan Asia will actively disseminate project details to the public.

Application forms and more detailed information are available on the ICT R&D Grants Programme web site at:

web.idrc.ca/en/ev-9609-201-1-DO_TOPIC.html.

Projects funded in the first round of 2004

In the first round of funding in 2004, the ICT R&D Grants Programme funded the following projects:

Policy and Measures to promote ICT Application and Deployment for Business Development in Rural Areas in Vietnam

- US$29,500 over 20 months to investigate factors of mechanisms, policy environment, and major measures and their influences on the acceptance and application of ICT in business activities in rural areas.

Open Source Software Localization Toolkit (Cambodia)

- US$29,732 over 24 months to develop a plain-language Toolkit that will allow Asia Pacific countries that do not have computer systems in their own language to develop localization projects without the need of specialized help.

Development of a Forest Fire Forecasting System for Western Ghats, India using Web-Based Geographical Information System (GIS) and Remote Sensing

- US$30,000 over 24 months to develop an early fire forecasting system to help the Forest department mange and conserve fire prone areas more efficiently.

Editorial - The future of Internet governance

As many readers would know, the second phase of WSIS is starting, and the new Working Group on Internet Governance will begins its work shortly. In this article, Paul Wilson looks at the future of Internet governance, and how attitudes are evolving during the WSIS process.

Dear Reader,

Internet governance has become a complex and confusing issue in recent times. To some of us, the term implies some kind of "government" of the Internet, a single organisation which would decide and control all aspects of the network's operation and development. To others it is a more neutral term, simply a collective name for aspects of the Internet which need any kind of oversight or coordination.

Having closely watched the evolution of "Internet governance" in the WSIS process over the past two years, I find myself in the latter category. As the debates continue, I also find myself increasingly optimistic about the future of Internet governance, about the motivations and qualifications of those who are involved, and about the prospects for a rational outcome from the current debates.

With the commencement of WSIS Phase II, there seems to be more agreement that while there are many issues of "Internet governance", there are also many necessary solutions to the problems that we face. These solutions must work together of course, but in accord with the principle of "subsidiarity", these solutions must also be located at the point closest to the problems they address.

Most participants now agree that many Internet governance issues can and should be "mainstreamed" into existing governance structures wherever they exist. For instance, cyber-crime and illegal content should be taken up comprehensively by the appropriate international policing bodies, e-commerce by the corresponding trade structures, social and economic development by the existing agencies, and a whole range of national and local issues by the relevant governments. Internet standards should stay with IETF, Internet addresses with RIRs, overall Internet administrative coordination with ICANN, and telecoms infrastructure with ITU.

This is not to say that all of these agencies are equipped to perform those tasks properly right now. On the contrary, there is a substantial amount of learning and evolution to be done within many of the existing structures, and some of these necessary changes may be far-reaching. However there is no evidence to show that such change is unrealistic; rather it is simply part of a huge range of modern reforms which have been occurring for decades in these areas, in most parts of the world.

Regarding the existing Internet administrative structures, there is clearly no consensus to replace those structures or reassign their responsibilities, nor in most cases for any fundamental change. However all of those structures are certainly subject to external pressures and needs, and all of them have proven their ability to evolve in response. Witness the growth of the IETF standards processes, the ongoing development of the DNS and IP address administration, the establishment, and subsequent evolution and reform of ICANN, the development of internationalised DNS, and the recent wide distribution of Internet root servers. Not to mention the radical technical advancement of the Internet with the advent of the WWW, the development of IPv6, and the ubiquitous use of Internet-based applications for communications, commerce, entertainment, and service of so many other societal needs.

The Internet has been outstandingly successful, as an infrastructure which has grown exponentially in both scale and functionality, while operating with remarkable stability. It is indeed a unique phenomenon, and one whose future will undoubtedly make the developments of the last decade look small in comparison.

The Internet's success can be attributed to its reliance on a minimal set of necessary centralised controls, while providing maximal freedom to connect, develop, and innovate throughout the structure. Internet governance is the new challenge, and in order to support the achievements of the Internet, it must take the same approach. That is, it must involve a minimal set of centralised controls, and a maximal distribution of independent responsibilities throughout the system.

I feel we have reason to be optimistic that these issues are increasingly well understood by stakeholders in today's discussions of Internet governance, and more than ever before, I believe we can look forward to some very fruitful and positive outcomes.

Paul Wilson

Telemedicine in Nepal: a pilot project

- US$30,000 over 24 months to develop a system using email and digital photography to make radiology, pathology and dermatology more available to people in remote areas.

Scientific Journal Publishing in India: Indexing and Online Management

- US$28,000 over 18 months to improve the accessibility of scientific literature published in Indian journals by introducing an indexing system.

Nabanna (India)

- US$9,016 over 12 months to explore the scope of raising awareness and promoting the use of Web content among the poor women of West Bengal, through k-yan, a novel computing device built in India.

ICT Enabled Life Skill and Sexuality Education for Adolescent Girls (India)

- US$8,911 over 12 months to use computers, Internet, and digital camera to educate, organise, and empower girls and young women in villages.

New root servers mirrors in Jakarta and Bangkok

Two new root server mirrors have now been installed in the Asia Pacific region. The latest installations in Jakarta and Bangkok bring to nine the total number of root server deployments supported by APNIC.

In November 2002, APNIC announced a new project to establish a number of root server sites in the Asia Pacific region. The various sites are funded partially or fully by APNIC as a service to the Internet community, to provide more stable and accessible DNS infrastructure in this region.

All of the servers established under this initiative are operated as 'anycast' mirror copies of existing root servers, which remain the responsibility of the applicable root server operator.

In Jakarta, APNIC worked with the Internet Systems Consortium (ISC) and Asosiasi Penyelenggara Jasa Internet Indonesia (APJII) to install a new mirror of the F-root nameserver, which is hosted at the Indonesia Internet Exchange (IIX).

"This is the seventh mirror of the F-root server which APNIC has supported in the Asia Pacific," said APNIC Director General, Paul Wilson. "We are pleased with our ongoing progress to provide ISPs and the Internet community at large with faster DNS response and additional resilience to DNS services, both of which are critical improvements in the region."

Joao Damas, ISC F-root Programme Manager, added, "ISC is extremely happy to be working with APJII and APNIC in bringing Internet services closer to the Indonesian Internet community, enhancing its resilience and technical independence from external resources and services, and contributing to create a global network."

The installation, which was formally announced on 27 July 2004, has provided immediate benefits.

According to Heru Nugroho, Secretary General of APJII, "Initial measurements indicate a significant improvement of host name lookups felt by more than 100 providers that peer at the Indonesian Internet Exchange."

"The Indonesian Internet community has worked hard with ISC and APNIC to make the first root server installation in Indonesia a reality. We would like to thank all the individuals and organisations that have taken part in this important project," said Mr Nugroho.

In Bangkok, a new mirror of I-root has now been installed. I-root is operated by Swedish company Autonomica and, in this region, is now mirrored in Bangkok and Hong Kong.

The latest installation was facilitated by APNIC in cooperation with the Communications Authority of Thailand (CAT). CAT hosts the new mirror at its Thailand Internet Exchange Service (THIX) facility. The formal agreement to deploy this server was signed at the ICANN meeting in Kuala Lumpur on 19 July 2004.

"Interest in root server developments continues to grow," said Mr Wilson. "It is very pleasing to observe the genuine technical benefits that each deployment brings to the local communities."

APNIC is currently working on negotiations to deploy several more mirrors of the I and K-root (operated by RIPE NCC). Possible sites are under consideration in locations including Malaysia, Indonesian, China, Australia, and Japan.

More details of APNIC's root server work are available at:

www.apnic.net/services/rootserver/

▲ Paul Wilson (APNIC), Aniruth Hiranraks (CAT), Abhisak Chulya (NIPA Technologies), and Suchok Ardhmad (CAT) sign the agreement to deploy the I-root mirror in THIX, Bangkok.

ICANN adds IPv6 to root DNS zone

On 21 July 2004, ICANN announced that, for the first time, IPv6 nameserver addresses had been added to the Internet's root DNS zone.

IPv6 AAAA records for the Japan (.jp) and Korea (.kr) country code Top Level Domain (ccTLD) nameservers became visible in the root zone file on 20 July. At the time of the announcement, ICANN was also working on requests in respect to other ccTLDs.

According to an ICANN official statement, "By taking this significant step forward in the transition to IPv6, ICANN is supporting the innovations through which the Internet evolves to meet the growing needs of a global economy".

IPv6 addresses have been publicly available since July 1999, when APNIC and the other existing RIRs commenced making allocations. Since then, global demand for IPv6 has seen gradual but steady growth.

Secretariat update

New staff member

Policy Liaison Department

Kapil Chawla
Research & Liaison Officer (South Asia)

APNIC welcomed new staff member Kapil Chawla in July. Kapil joins the organisation as a Research and Liaison Officer for South Asia.

Kapil comes to APNIC with eight years experience in networking and systems administration. His most recent assignment was as Technical Co-ordinator responsible for setting up the National Internet Exchange of India. He has also done work for a range of companies including Sahara India TV Channel, DSS Mobilink Calls Centre, and India Is Online.

Kapil served as President of the Delhi Chapter of ISOC and was joint Secretary for ILUG-Delhi (India Linux Users Club). He has a Bachelors Degree in Computer Science and a Post Graduate Diploma with specialisation in Systems Administration.

As Research and Liaison Officer for South Asia, Kapil communicates with the IT&T stakeholders of the South Asia region, gathering information to generate advice, and undertaking liaison work that will help APNIC to achieve its mission in this specific region.

APNIC deploys digital certificate update

APNIC is deploying a new root CA certificate to replace the current root CA certificate, which expires on 13 September 2004. To ensure continuous access to APNIC services requiring a digital certificate, such as MyAPNIC, those people with APNIC digital certificates issued before 5 June 2004 should ensure they are replaced with updated certificates by 7 September 2004.

To obtain your new certificate please go to:

https://www.apnic.net/ca

Users of MyAPNIC can replace their certificate by visiting:

https://my.apnic.net/ca

APNIC Training Sponsors

Lao National Internet Committee

Enterprise of Telecommunications Lao

University of Malaya

Training schedule

2004

August

- **31 - 3 (Sep)** Nadi, Fiji (In conjunction with APNIC 18)

September

- **21** Hanoi, Vietnam (In conjunction with VNNIC OPM)
- **23** Bangkok, Thailand

October

- **25 - 26** Hong Kong

November

- **5** Perth, Australia (In conjunction with APTLD 4th meeting)
- **9 - 10** Taipei, Taiwan In conjunction with TWNIC OPM)

December

- **7 - 10** Singapore

* The APNIC training event scheduled for 3-4 August 2004 in Dhaka, Bangladesh was postponed due to flooding in the region.

The APNIC training schedule is provisional and subject to change. Please check the website for regular updates at:

www.apnic.net/training

If your organisation is interested in sponsoring APNIC training sessions, please contact us at:

training@apnic.net

Visitors to APNIC

RIPE NCC

Laura Cobley
• Hostmaster training

RIPE NCC hostmaster Laura Cobley joined the APNIC team for eight days in August as part of the hostmaster exchange program. Laura spent the time gaining an overview of APNIC policies and procedures with the hosmaster, technical, and finance departments. She will attend APNIC 18 in Fiji before returning home.

To participate in the visiting staff programme please contact your manager and email a request to <dg@apnic.net>, including your contact details, job role, and a short description of your areas of interest.

Calendar

ITU TELECOM ASIA 2004
7-12 September 2004
Busan, Korea
www.itu.int/ASIA2004

RIPE 49
20-24 September 2004
Manchester, United Kingdom
www.ripe.net/meetings/ripe-49

5th IPv6 5th IPv6 Interoperability Event
11-15 October 2004
Sofitel of Cannes-Mandelieu, French Riviera
www.etsi.org/plugtests/IPv6.htm

ARIN XIV/NANOG
17-19 October 2004
Reston, USA
arin.net/membership/meetings

LACNIC VII
26-29 October 2004
San José, Costa Rica
lacnic.net/en/lacnicVII.html

61st IETF
7-12 November 2004
Washington DC, USA
www.ietf.org

ICANN Meetings
1-5 December 2004
Cape Town, South Africa
www.icanncapetown.co.za

SANOG V
11-18 January 2005
Dhaka, Bangladesh
www.sanog.org

NZNOG 3
2-4 February 2005
Hamilton, New Zealand
www.nznog.org

APNIC 19 /APRICOT 2005
16-25 February 2005
Kyoto, Japan
www.2005.apricot.net

62nd IETF
6-11 March 2005
venue TBA
www.ietf.org

ICANN Meeting
4-8 April 2005
Latin America, venue TBA
www.icann.org/meetings

RIPE 50
2-6 May 2005
Stockholm, Sweden
ripe.net/ripe/meetings

ICANN Meeting
11-15 July 2005
Europe, venue TBA
www.icann.org/meetings

SANOG VI
16-23 July 2005
Thimphu, Bhutan
www.sanog.org

63rd IETF
31 July - 15 August 2005
venue TBA
http://www.ietf.org

How to contact APNIC

Street address	Level 1, 33 Park Road, Milton, Brisbane, QLD 4064, Australia
Postal address	PO Box 2131, Milton QLD 4064, Australia
Phone	+61-7-3858-3100
Fax	+61-7-3858-3199
Web site	www.apnic.net
General enquiries	info@apnic.net
Hostmaster (filtered)*	hostmaster@apnic.net
Helpdesk	helpdesk@apnic.net
Training	training@apnic.net
Webmaster	webmaster@apnic.net
Apster	apster@apnic.net

* To improve services to members, the Hostmaster mailbox is filtered. All email to the Hostmaster mailbox must include a valid account name in the subject line. The account name must be enclosed in brackets or parentheses in the subject field - [XXXXX-YY] or (XXXXX-YY), where XXXXX is based on the member name and YY is the country code. If you are unsure of your exact account name, contact <billing@apnic.net>.

▶ The Member Services Helpdesk provides APNIC members and clients with direct access to APNIC Hostmasters.

Helpdesk Hours
9:00 am to 7:00 pm
(UTC + 10 hours)
Monday - Friday

APNIC

Communicate with APNIC via MyAPNIC

APNIC members can use MyAPNIC to:

- view APNIC resources held by their organisation
- monitor the amount of address space assigned to customers
- view current and past membership payments
- view current tickets open in the APNIC email ticketing system
- view staff attendance at APNIC training and meetings

For more information on MyAPNIC's features, see:

www.apnic.net/services/myapnic