

The APNIC logo, featuring a stylized face icon with two dots for eyes and a curved line for a smile, followed by the text "APNIC" in a bold, sans-serif font.

(: :) APNIC



The APNIC Development Program

Introducing  **APNIC**
FOUNDATION

A photograph showing a man in a green shirt pointing at a laptop screen. A young child in a dark blue and yellow sports jersey with 'COMMONWEALTH GAMES NIUE' on it is looking at the screen. In the background, other children in white shirts are standing in a line under a covered area.

“A global, open, stable, and secure Internet that serves the entire Asia Pacific community”¹

The Internet in the Asia Pacific

For more than a billion people across the Asia Pacific, the Internet is an essential fact of life, supporting employment, business, health, education and much more. This includes millions of people who can take the Internet for granted: it is available when needed, it is dependable, and it is affordable.

But there are millions of others who are still unconnected; and millions more who have only limited, slow and unreliable access to the Internet. If these millions are to be better educated, healthier, and more productive members of society, it is essential they can access Internet services of a quality and standard that is taken for granted by so many others.

Across the region, we know the availability, stability, speed, and security of Internet services vary widely from place to place. Users in many developing economies in the Asia Pacific tolerate conditions that are unacceptable in the developed world, and which seriously limit the benefits the Internet can deliver.

This represents a “digital divide”, not only between the “haves” and the “have-nots”, but between those who enjoy dependable, secure services, and those who do not. As our dependency on the Internet increases, **it is essential to reduce these gaps if we are to achieve sustainable social and economic development.**

“74.89 per cent of total fixed broadband subscriptions in Asia and the Pacific are concentrated in East and North-East Asia, followed by South and South-West Asia (9.77 per cent), North and Central Asia (7.68 per cent), South-East Asia (5.74 per cent) and the Pacific (1.93 per cent).”

“State of ICT in Asia and the Pacific 2016: Uncovering the Widening Broadband Divide”
2016 report by ESCAP

(1) APNIC’s Vision Statement, <http://www.apnic.net/about>

The Solution

The Internet industry in most developed economies has matured, with rapidly developing services, technologies, applications, and regulation. In these environments, Internet businesses can offer high-quality services to their customers at competitive prices, but only if they have the technical skills and capacities to properly plan and implement and maintain these network services.

However, **the Asia Pacific region, and its least developed economies has a crucial shortage of the properly trained and experienced Internet engineers, technicians and managers** needed to deliver such services. Just as we all need well-trained doctors to help keep us fit and healthy, the Internet will need well-trained professionals to keep it stable, secure, reliable and efficient.

At the same time, the Internet boom in the Asia Pacific will continue – with strong growth in traffic, devices and users – for many years to come. By 2019, the region will have the most Internet traffic from mobile devices in the world.¹ Another report² on Pacific Island nations shows how recent submarine cable installations have resulted in an explosion of capacity. Across the Pacific, international Internet bandwidth jumped more than 1,500% between 2007 and 2014.

The Human Factor

The single biggest factor affecting the Internet's success is the capacity of service providers to properly build and manage their networks. For a secure, reliable and efficient Internet infrastructure, the businesses, managers and engineers responsible must all have the skills – the human capacity – to run and manage their networks to a recognised global standard.

While providing reliable services, which are “always on”, businesses must plan and manage rapid growth, deal with growing security challenges, and adapt to new technologies such as IPv6 – while often operating in a competitive environment.

A report³ from technology analysts, IDC, warns of a shortage of such technical skills saying: “The Asia Pacific trends show an increasing need for people with network skills in emerging technologies and for well-trained teams that focus on higher value-added activities”.

The IDC report estimated that at the end of 2012 there was a shortage of over 250,000 professionals with networking skills in the region (excluding Greater China and Japan). It predicts this shortage will grow to more than 450,000 networking professionals by the end of 2016 and from there, continue to worsen.



The Technical Challenge

At the same time, the region is facing a growing list of technical and regulatory challenges which together represent a huge barrier to the growth of a stable, secure and efficient Internet. These include:

1. Security and stability: From Denial of Service (DoS) attacks to hacking, malware and data breaches; security remains the top priority of network engineers and managers around the region. Likewise, governments are increasingly concerned with Internet security issues, which critically affect social and business confidence in the Internet.

2. The transition to IPv6: The Internet addressing capacity which is currently provided by IPv4 is all but exhausted globally, and IPv6 is the only viable option for the Internet's future growth in the Asia Pacific. This is a significant operational challenge for everyone involved in providing Internet products and services.

3. Efficiency and cost: The efficient operation of Internet services directly impacts the competitiveness of Internet services, and costs to the end users. For a community to enjoy the benefits of the Internet which are experienced globally, it must be able to access services at a comparable cost.

4. Localization: Networks need to localize traffic and content wherever possible. Internet Exchange Points (IXPs) and data centres allow local traffic and content to stay local, lowering network costs, and increasing speed and efficiency.

5. Managing growth: Internet service providers are under constant growth pressure, having to plan and implement almost continuous service expansion and improvement, while at the same time dealing with the many other technical challenges listed here.

6. Regulation and governance: The Internet has produced new and

unique regulatory challenges, often dominated by new technologies and technical factors. The resolution of these challenges is dependent on the unique multistakeholder processes of global Internet governance.

7. Information: With the Internet's rapid growth and improving technologies, we need more targeted research that will help us understand where the problems are; where they will be in the future; and what we need to do to fix them.

Across the Internet, and in every society, dependent upon it, if these technical and regulatory challenges are to be overcome it will require new and specific skills and expertise. The success of our region in meeting these challenges will depend on our building the human capacities to do so.

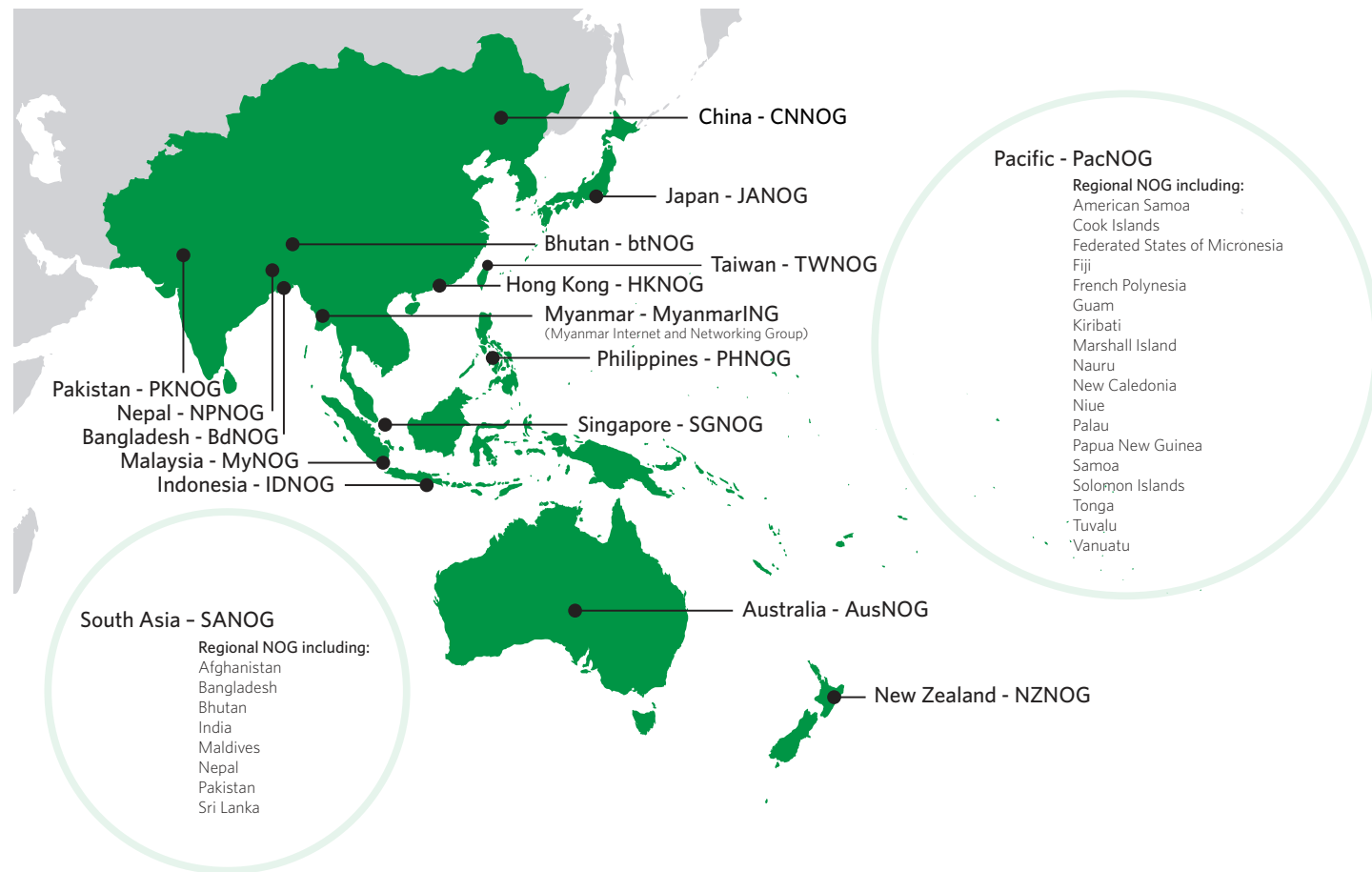
“The difference between a network which is stable, secure, reliable and efficient, and a network which is none of these things, can be solely a question of the expertise of those people who are building and operating those services”.

*Paul Wilson
Director General, APNIC*

¹ “Global Internet Report 2015: Mobile Evolution and Development of the Internet” ISOC July 2015

² “Economic and Social Impact of ICT in the Pacific” Pacific Region Infrastructure Facility 2015

³ “The Evolution of the Networking Skills Gap in the Asia/Pacific”. William Lee PhD. June, 2013



The Community Response

In the Asia Pacific, Internet engineers are doing their best to profitably build and manage networks that are robust, resilient, and efficient. In many countries, professional networks and community organizations are increasingly important mechanisms used by engineers for knowledge sharing and professional development.

These include so-called Network Operator Groups (NOGs) for technical and operational development; Computer Security Incident Response Teams (CSIRTs or CERTs) for security issues; and

associations of Internet Service Providers (ISPs) for industry coordination.

These groups play a vital role in the development and maintenance of the networks that make up the Internet.

They also make ideal development partners, for the delivery of training and capacity building directly to local communities.



The APNIC Response

As the Regional Internet address Registry (RIR) for the Asia Pacific, APNIC has been dedicated for over 20 years to the healthy development of the Internet in our region.

A non-government, not-for-profit, membership-based organization, it is one of five RIRs worldwide charged with the responsible management of the critical number and addressing resources that are essential to the operation of the Internet (IPv4 and IPv6).

APNIC serves 56 economies in the Asia Pacific that together account for more than half of the world's population, and where most of global Internet development activity will occur in the years ahead.

APNIC support over 12,000 ISPs and other network operators, who together are building and maintaining the region's Internet infrastructure.

APNIC's activities can all be regarded, in one way or another, as "capacity building" whether it be human, infrastructure or

community capacity. APNIC believes that to keep up with, to master, and to fully exploit the Internet, we need to build regional capacities in certain critical ways. To support this belief, APNIC has spent many years building a respected and successful Development Program that provides the range of services overleaf.





Training

The aim of APNIC's technical training is to improve the knowledge and expertise of Internet professionals, ensuring they adopt and use best current practices. This helps them make full and efficient use of their Internet resources and effectively apply new technologies and techniques to their networks.

To support this important work, APNIC has established a Community Trainer program. Community Trainers are subject matter experts who work closely with the APNIC in-house training team to contribute awareness of local operational issues and facilitate interactive discussion among participants during trainings and workshops.

Technical Assistance

APNIC's Technical Assistance supports the region's Internet community in the deployment and maintenance of scalable and resilient networks using internationally-recognized, best current practices.

APNIC works with recognized Internet specialists to provide

customized technical mentoring on core APNIC competencies and services; improve the technical understanding of Internet technologies in practical ways; and provide technical support for the deployment of root servers and IXPs.

Security

Internet security is a fundamental concern for all businesses, governments and Internet users. It is also an increasing burden on Internet companies and network engineers. The key challenge is one of expertise: to recognise that cybersecurity starts with the engineers who are building and operating the Internet's infrastructure.

A critical component of the security of the Internet ecosystem is Computer Emergency Response Teams (CERTs). APNIC supports CERT development and training in the region, and specific CERT projects in certain countries.

Infrastructure

APNIC supports and sponsors the deployment of important infrastructure such as Internet Exchange Points (IXPs), DNS

root servers, and devices used to monitor and measure the Internet and its traffic. Starting in 2000, APNIC installed the first new DNS root server installations in the Asia Pacific.

To ensure the efficient operation of this vital infrastructure, APNIC also provides technical training and assistance in the installation and management of IXPs with a particular focus on communities in developing nations.

Fellowships

Every year, APNIC provides fellowships to members of the Asia Pacific Internet community to attend technical training and conferences, to engage and learn from recognized international experts. The APNIC fellowship program places special emphasis on supporting diversity in the community, ensuring the participation of women, young people and those from less developed economies.

APNIC and the Asia Pacific Internet Association co-organise the annual Asia Pacific Regional Internet Conference on Operational Technologies (APRICOT). Along with a second annual APNIC conference, these are the region's two most important Internet engineering events, both run on a neutral non-profit basis.

Community Development

APNIC also actively supports the Asia Pacific's growing community of Network Operator Groups (NOGs), Peering Forums and professional technical organisations and events. Many of these are voluntary groups that play a key role in the operation of the Internet, by facilitating training and information exchange among local technical communities.

In addition to sponsoring these events, APNIC provides technical presentations and training to ensure they become established as important, recognised activities at the national and sub-regional levels.

Internet governance

The multi-stakeholder community that helps manage and govern the Internet globally is a fundamental part of its success. APNIC works with, and supports, partners around the region to provide training in Internet governance to ensure the careful coordination of its addressing resources and domain names. APNIC support efforts by the Internet community to maintain a close dialogue with government agencies and regulators, and for them to participate actively in the development of the community's policies.

"82% of respondents report a shortage of cybersecurity skills. 71% of respondents report the shortage in cybersecurity skills does direct and measurable damage"

"Hacking the Skills Shortage: A study of the international shortage in cybersecurity skills" Center for Strategic and International Studies 2016

Grants and Awards

APNIC manages a successful grants and awards program called the Information Society Innovation Fund (ISIF Asia) that supports national and regional projects that use the Internet to achieve social and economic development in the region.

An established and respected program that has supported numerous important initiatives, ISIF Asia has invested in Internet infrastructure and services that are affordable and efficient, innovative Internet applications that are successful and sustainable models for the provision of Internet services.

Research

APNIC undertakes world-class, research and development initiatives looking at routing, security, DNS, IPv6, policy and IP addressing issues. This research is designed to inform APNIC's operational and policy activities and to assist community members to better understand the operation of the global Internet.

It also helps the APNIC community to better understand and identify technical problems and suggest possible solutions and strategies.



"Our most important cybersecurity professionals are those engineers who are building and running our networks. Without high-quality training, these people cannot be expected to produce high-quality Internet services".

*Paul Wilson
Director General, APNIC*



In September 2016, The APNIC Foundation was formally incorporated in Hong Kong. Under its charter, the Foundation will “advance education, on a non-profit making basis, in technical, operational and policy matters relating to Internet infrastructure, through undertaking or funding activities in Hong Kong and elsewhere in the Asia and the Pacific region”.

The incorporation followed an important decision in 2014 by the APNIC Executive Council (EC) to explore a Foundation mechanism to support and expand the APNIC Development Program by raising funds, independently from APNIC membership contributions, to build our regional Internet development efforts into the future.

Projects and activities funded by the Foundation will be designed and managed by APNIC, in collaboration with funding partners interested in Internet development. Activities will be implemented by APNIC and our partners, which include a growing group of community trainers and technical advisors, and other like-minded organizations. A priority will be to support and build the capacity of these partners, and to spend Foundation funds in the region.

The primary focus of the APNIC Foundation will be human capacity building; to advance professional development among APNIC’s core community, the network operators who are building and running the Internet in our region. Along with training and education, the Foundation will also support direct technical assistance which is required in many specific circumstances.

Priority topics for this work will include: security of Internet and DNS infrastructure, promotion and deployment of IPv6, development of exchange points and related infrastructure, and promotion of best operational practices.

The APNIC Foundation seeks support from development agencies and those organisations and industries most dependent upon the Internet to enhance its technical development and maximize the benefits of the Internet for the Asia Pacific.

For more information about the Foundation, see:

<http://apnic.foundation>

APNIC – A Respected and Recognized Partner

With more than 5,000 Members in almost every nation of the Asia Pacific, APNIC has spent 20 years supporting the Internet to serve the region’s 3 billion citizens. Many of its 70-plus staff travel regularly to events and activities around the region to support the needs of Members, provide training and technical assistance, or share expertise and information. APNIC also partners with many organizations through MoUs, sponsorships and informally to support the continuing development of the Internet.

APNIC’s success in partnering and seeking financial support for its activities is founded on five important assets:

- 1) A strong technical focus and regional recognition as a source of best practice and expertise**
- 2) Neutrality and independence from any particular vendors, services, or technologies**
- 3) A non-profit organisation with financial strength and transparency**
- 4) Robust regional networks and relationships**
- 5) Long track record of successful management and implementation**

The APNIC Foundation will build on these strengths and APNIC’s strong history of success in training and community development.

Existing development partners include Canada’s International Development Research Centre (IDRC); the Swedish International Development Cooperation Agency (Sida); the Japan International Cooperation Agency (JICA); the World Bank; and the United Nations’ International Telecommunications Union (ITU), ICANN, DotAsia and ISOC





Get in touch!

APNIC welcomes support for its Development Program and the APNIC Foundation, especially for its work in less developed economies. If you are interested in learning more about APNIC's activities or would like to provide support, please contact:

foundation@apnic.org

<http://apnic.foundation>

www.apnic.net