



An Introduction



The APNIC Foundation supports
“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, providing employment, livelihood, health, education and much more. Many take the Internet for granted: it is always available, reliable, and affordable.

But there are still millions of people who remain unconnected; and millions more who have only limited, slow or 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 Asia Pacific, the availability, stability, speed, cost and security of Internet services vary widely from place to place. Users in many developing economies tolerate conditions that are unacceptable in the developed world, and which seriously limit the benefits the Internet can deliver.

This “digital divide”, is not only between the “connected” and the “unconnected”, but between those who enjoy dependable, fast, secure services, and those who do not. **We must remove this digital divide if we are to achieve sustainable social and economic development in the region.**

“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 Challenges

With its growth and increasing importance around the world, the Internet faces a range technical and regulatory challenges. Where these are not met, the Internet's benefits will be greatly limited.

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. Governments are also increasingly concerned with security issues, especially those that affect confidence in the Internet.

Available address resources: The Internet addressing capacity provided by what's known as Internet Protocol version 4 (IPv4) is almost exhausted globally. Internet Protocol version 6 (IPv6) is the only viable option for the Internet's future growth in the Asia Pacific but it is a significant operational challenge to effectively deploy.

Efficiency and cost: One way to ensure efficiency and low cost is 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.

Regulation and governance: The Internet faces new and unique regulatory challenges, often dominated by new and evolving technologies and services that operate across national borders. The resolution of these challenges depends on our ability to nurture the multi-stakeholder processes of global Internet governance.

Research: With the Internet's rapid growth and evolving technologies has come increased complexity and greater technical challenges. Practical, operational research is needed to help us understand where the problems are now; where they will be in the future; and what we need to do to fix them.

If these technical and regulatory challenges are to be overcome, the Internet community of the Asia Pacific must strengthen and develop new and specific skills and expertise. The success of the Internet will depend on our ability to do this.

"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 Human Factor

Today, the Asia Pacific region - and especially its least developed economies - has a crucial shortage of the properly trained and experienced Internet engineers, technicians and managers needed to overcome these challenges. Just as we all need well-trained doctors to help keep us fit and healthy, the Internet needs well-trained professionals to keep it stable, reliable, efficient and most importantly secure.

Despite these challenges, the Internet is booming in the Asia Pacific. Strong growth in traffic, devices and users is predicted to continue 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 economies 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 single biggest factor limiting the positive impact of the Internet - despite this success - is the capacity of service providers to properly design, build and manage their networks. To achieve a secure, reliable and efficient Internet, the managers, engineers, and officers responsible, and their respective communities, must all have the technical skills - the capacity - to run and manage their networks to a recognised global standard of best practice.

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 predicted this shortage would grow to more than 450,000 networking professionals by the end of 2016 and from there, continue to worsen.

The APNIC Foundation is committed to providing a solution to this challenge by providing the technical training needed.

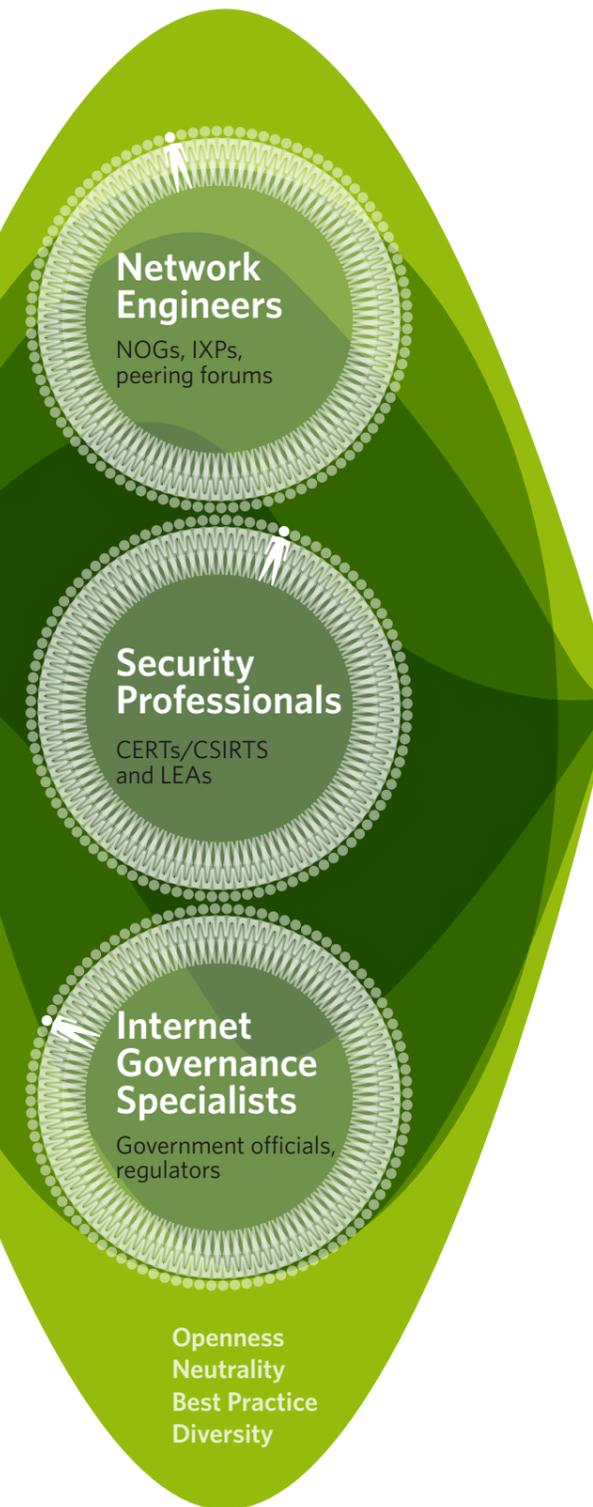


How the Foundation Works

We support these activities

- Training**
Building critical operational skills and knowledge to help engineers grow, manage and secure Internet infrastructure.
- Technical Assistance**
Project-based technical advice to assist Asia Pacific organizations maintain scalable, secure and resilient networks.
- Security Readiness**
Fostering community development of CERTs/CSIRTs to better manage and respond to cybersecurity risks and building cybersecurity awareness among law enforcement agencies.
- Fellowships**
Providing opportunities for individuals from diverse backgrounds to attend Internet events to develop their skills and represent their communities.
- Internet Infrastructure**
Guiding and sponsoring the deployment of critical Internet infrastructure and advocating best practice to maximise its benefits.
- Sponsorships**
Providing funding to community groups such as NOGs and CERTs/CSIRTs to encourage knowledge sharing and training.
- Events**
Staging the Asia Pacific's two largest technical events for the Internet networking industry to share experience and learn from world experts.
- Grants and Awards**
Supporting ISIF Asia, in providing grants and awards to organisations to research, design and implement Internet-based solutions to achieve the SDGs.
- Internet Governance and Cooperation**
Building a better understanding of the multistakeholder Internet governance ecosystem.
- Research**
Supporting world-class research initiatives which help networking professionals to make better decisions and solve Internet operational issues.

To strengthen these communities



To achieve these goals

- GLOBAL**
An Internet which connects directly and freely all corners of the world
- OPEN**
An Internet which is accessible to all, with the lowest possible barriers
- STABLE**
An Internet which is as reliable, available and efficient as possible
- SECURE**
An Internet which can be trusted with our most important information and services

The Community Response

In the Asia Pacific, Internet engineers are building and managing some of the world's largest and most challenging networks, working hard to ensure they are robust, efficient, and secure. To support this challenging work, professional networks and community organizations are increasingly important mechanisms used by engineers for training, knowledge sharing and professional development.

These organizations include 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.

"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

These organizations play a key role in helping to coordinate solutions to the technical and security challenges faced by the networks that make up the Internet in the Asia Pacific. **They also make ideal partners for the delivery of training and capacity building for network engineers and others in the Internet community.**



APNIC training at SANOG25, Kandy (Sri Lanka)



APNIC training at bdNOG56, Bogra (Bangladesh)



IPv6 migration, Druknet (Bhutan)

The APNIC Response

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

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).

Serving 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 supports over 13,000 ISPs and other network operators, who together are building and maintaining the region's Internet infrastructure.

APNIC believes that to provide a "global, open, stable, and secure Internet that serves the entire Asia Pacific community" we must build the region's capacity in these three key areas.

The purpose of the APNIC Foundation is to support APNIC in building human and community capacity for Internet development in our region.



Internet Niue free Wi-Fi access (Niue)



Training at PACNOG15, Apia (Western Samoa)



Network security training, Ulaanbaatar (Mongolia)



APNIC training, Kathmandu (Nepal)



Governance and Support

APNIC and the APNIC Foundation share a common vision of “a global, open, stable, and secure Internet that serves the entire Asia Pacific community”. Under its charter, the Foundation seeks to “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”.

Incorporated in Hong Kong in September 2016, the Foundation was first discussed by the APNIC Executive Council (EC) in 2014, when it set out to explore a mechanism to support and expand the APNIC Development Program. The EC wanted to do this by raising funds, independent from APNIC membership contributions, to support regional Internet development efforts in the future.

Projects and activities funded by the Foundation are designed and managed by APNIC, in

collaboration with funding partners interested in Internet development. These activities are implemented by APNIC and our partners, which include a growing group of community trainers and technical advisors, and other like-minded organizations.

The Foundation is guided by an independent Board of Directors - selected by the APNIC EC - that includes recognised and respected experts from the Asia Pacific Internet community. The Foundation’s staff are based in the APNIC office in Brisbane, Australia.

The Foundation welcomes support from, and collaboration with other foundations, agencies and organisations working to develop the Internet in the Asia Pacific.

For more information about the Foundation, see:

<https://apnic.foundation/>

APNIC – A Respected and Recognized Partner

With more than 13,000 direct and indirect Members in almost every economy of the Asia Pacific, APNIC has spent over 20 years supporting the Internet to serve the region’s 3 billion citizens. Many of its 80-plus staff travel regularly in the region to support 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 builds on and supports these strengths and APNIC’s strong history of success in training and community development.

APNIC development partners have included the Australian Department of Foreign Affairs and Trade (DFAT); 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.



APNIC trainees, Port Vila (Vanuatu)



Get in touch!

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

foundation@apnic.org

<http://apnic.foundation>

<http://www.apnic.net>

Front cover clockwise from top:
Mahabir Pun at Khopra relay station, Nepal Wireless (Nepal)
APNIC training in Yangon (Myanmar)
Internet Niue free Wi-Fi access (Niue)