



## Education 2008 Activities:

*"Enabling Internet Growth, Developing Future Leaders"*

*Update: 31 August 2008*

### **OVERVIEW**

ISOC has a proud tradition of providing networking education and technical capacity building in developing countries. This work continues to be essential to ensuring the development and expansion of the Internet in many regions and countries around the world.

Many developing countries suffer from the lack of adequately trained Internet professionals that can deploy and maintain Internet access infrastructure. Further, where basic skills are present, a lack of knowledge about advanced internetworking techniques is holding network providers back from expanding network services, efficiently managing networking resources, and maintaining critical infrastructures. This has a direct impact on the growth and viability of the Internet in developing countries.

ISOC's Enabling Access Initiative focuses on addressing the fundamental impediments to Internet growth and usability, including technical capacity building, policy, regulation and the access environment, and the unique challenges faced by underserved communities. The impact of this initiative is visible through the ongoing deployment of scalable Internet services and critical infrastructure in various countries in the developing world.

This 2008 update provides an overview of ISOC's Education Department 2008 activities and contributions to the Enabling Access Initiative. Education's activities are geared towards spreading technical knowledge and best practices to engineers in developing countries, promoting new technology and infrastructure deployments, and fostering technology leaders and communities that can catalyse local Internet development, spur innovation, create new markets, and champion policy change.

## 2008 EDUCATION ACTIVITIES

### *IPv6 Workshops in the Developing World*

The deployment of IPv6 is key to ensuring the future growth and viability of the Internet. Many developing countries are eager to learn about IPv6 and its implications, but need assistance in spreading information through workshops and training sessions. In 2008, ISOC provided assistance in the following areas:

**EANOG IPv6 Introductory Workshop, Uganda:** In July, ISOC helped facilitate and provided instruction at a networking and IPv6 workshop in Kampala, Uganda. The purpose of the event was to sensitise ICT personnel in Ugandan government agencies to IPv6 and NOC best practices in preparation for the implementation of an E-Government project.

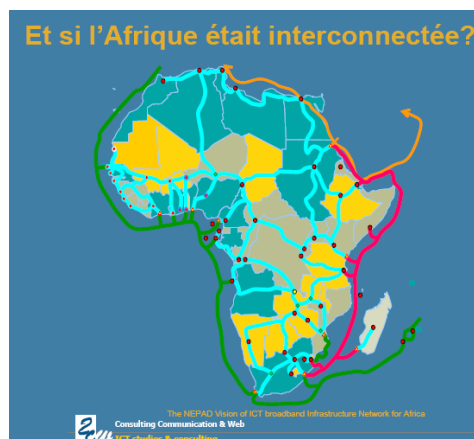
**IPv6 Workshop, Mozambique:** In August, sponsored an IPv6 workshop organised for ISPs and other network operators in Mozambique.

**IPv6 Summit, Philippines:** In May, ISOC contributed to an IPv6 Summit in Manila which was hosted by the Philippines Network Operators Group (PhNOG).

### ***INET Africa, June 2008: "African Interconnection- The Value Proposition"***

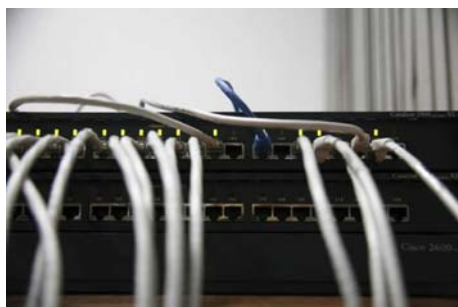
ISOC's INET conferences bring together technologists, policy makers, regulators, and leaders in the Internet technical community to learn about and discuss important international and regional Internet issues.

INET Africa 2008, which was organised by the Education Department, took place on 6 June in Rabat, Morocco in conjunction with the AfriNIC-8 and AfNOG-9 meetings. The theme for the session was "African Interconnection – The Value Proposition" and discussed the challenges, issues and opportunities for increasing network interconnection between African



countries. The panellists included African and international experts and attracted over 120 participants from industry, the African technical community, government, and ISOC Chapters. Topics included current and planned submarine and terrestrial fibre deployments, the role of university research and education networks (RENs) in interconnection, Internet Exchange Point (IXP) deployments, policy and regulatory challenges, peering strategies, and transit costs. Materials from the meeting are available at <http://isoc.org/isoc/conferences/inet/08/>

### ***Promoting IXP Development and Growth***



Internet Exchange Points (IXPs) help lower the cost of access by reducing the need to send local traffic through expensive international links. IXPs can also improve the quality of Internet services in a country, provide resilience in domestic infrastructure, and serve as attractors for the hosting of local content. Many developing

countries, however, lack IXP infrastructures. Building on activities launched in 2007, ISOC has continued to expand its work aimed at promoting IXP development and growth. Activities conducted in 2008 included:

***IXP Informational Documents and Reports:*** ISOC organised an IXP best practices session at the Internet Governance Forum (IGF) meeting in Rio de Janeiro in November 2007. In 2008, ISOC documented the meeting's outcomes and issued a comprehensive report that received world-wide attention and interest. The report, which discusses IXP fundamentals, implementation challenges, policy, governance, and managerial aspects of IXPs, is available on the ISOC website at <http://www.isoc.org/educpillar/resources/igf-ixp-report-2007.shtml>. In addition, ISOC issued a comprehensive IXP informational document for technologists and policy makers: "Promoting the Use of Internet Exchange Points (IXPs): A guide to Policy, Management and Technical Issues." The report is located at <http://www.isoc.org/educpillar/resources/docs/promote-ixp-guide.pdf>. A summary document, highlighting IXP essentials, was also produced and is located at <http://www.isoc.org/educpillar/resources/docs/promote-ixp-summary.pdf>

***IXP Workshop at IGF 2008:*** In collaboration with Packet Clearing House (PCH) and the World Information and Technology Services Alliance (WITSA), ISOC will be organising an IXP workshop at the 2008 meeting of the Internet Governance Forum in Hyderabad, India. The event will

build on the success of the IXP workshop hosted by ISOC at the IGF meeting in Rio de Janeiro in 2007.

**African IXP Study:** ISOC has initiated a study of IXP operations in Africa. A preliminary report was presented at the 2008 INET Africa meeting. Upon completion, the report will help identify areas ripe for collaboration with African ISP and IXP communities in order to improve and expand existing IXP services and develop new IXPs in countries lacking infrastructures.

**IXP Infrastructure Build Out:** ISOC is in discussion with organisations such as AfriNIC on ways to add value to the existing IXPs in the African region through the deployment DNS root-servers instances, network time servers, and looking glasses, among other technologies. The finer details of this project are under development, with an initial goal to have at least 2 DNS root-server instances installed at African IXPs by the end of the year.

### ***Developing Leadership through the ISOC Fellowship to the IETF***

The ISOC Fellowship to the IETF aims at building technical and standards expertise in the developing world. The program sponsors the cost of attending an IETF meeting for technologists from lesser developed countries who would not otherwise not be able to participate in person.

While much of the IETF's work takes place over mailing lists, the in-person experience promotes a stronger understanding of the standardization process, encourages active involvement, and facilitates personal networking with others that have similar technical interests. This program also benefits the IETF by bringing new people and ideas into the technical arena.



The most recent call for applications garnered interest from over 70 individuals from around the world. ISOC sent a total of six fellows from Haiti, Bangladesh, Ethiopia, Kenya, India and Pakistan to IETF 71 in Philadelphia, USA. IETF 72 in Dublin, Ireland, saw six fellows from Ethiopia, India, Chile, Venezuela, Pakistan and Indonesia. IETF 73 in Minneapolis, USA will receive fellows from Pakistan, Fiji, Tuvalu, Congo

and Costa Rica. Each fellow is paired with an experienced IETF mentor in their area of technical interest that helps guide the newcomers through IETF culture and processes.

In addition, ISOC launched its “Returning Fellow Program” in 2008 which helps highly motivated fellowship alumni attend an additional IETF meeting. Three returning fellows, two from Uruguay and one from Mauritius, were selected to attend IETF 72. Three returning fellows from Mongolia, Moldova and Bangladesh will attend IETF 73.

Information on the ISOC Fellowship to the IETF and Returning Fellows program is available at: <http://www.isoc.org/educpillar/fellowship/>

In 2008, the ISOC Fellowship Program was generously sponsored by:



### *Strengthening Network Operators’ Groups*

Regional Network Operators’ Groups (NOGs) bring together network engineers and other interested participants for tutorials, trainings, and workshops on contemporary Internet technical, operational, and policy issues. The NOGs tailor their agendas to meet specific regional needs, drawing on local and international expertise to enrich the knowledge of operators in their region and grow the next generation of Internet technical leadership. ISOC enjoys longstanding, cooperative relationships with the major NOGs in the



developing world, participates on several NOG program and fellowships committees, and frequently speaks at NOG events. In addition, ISOC strengthens these important regional efforts with sponsorship and fellowship support. In 2008, ISOC engaged in the following NOG events, assisting in the education and skills development of some 600 technologists from around the world:

11<sup>th</sup> meeting of the South Asian Network Operators Group (SANOG), January 2008, Bangladesh  
<http://www.sanog.org/sanog11/>

2008 Asia Pacific Regional Internet Conference on Operational Technologies (APRICOT), February 2008, Taipei  
<http://www.apricot.net/apricot2008/>

3<sup>rd</sup> meeting of the Middle East Network Operators Group (MENOG), April 2008, Kuwait  
<http://www.menog.net/meetings/menog3/>

9<sup>th</sup> meeting of the African Network Operators Group (AfNOG), May 2008, Morocco <http://www.afnog.org/>

12<sup>th</sup> meeting of the South Asian Network Operators Group (SANOG), July 2008, Nepal <http://www.sanog.org/sanog12/>

2008 Workshop on Internet Technologies for Latin America and the Caribbean (WALC), December 2008, Venezuela  
<http://www.ula.ve/walc2008>

Further, ISOC supported fellowships to various NOG meetings; helping over 80 financially disadvantaged technologists attend these important events.

### ***Growing African Networking Skills through AfNOG Localisation and AfChix***

***AfNOG Localisation:*** The African Network Operators Groups (AfNOG) is the leading regional network operators' forum in Africa and a key networking education provider. Hundreds of Africans have benefited from its annual trainings and events, placing AfNOG at the forefront of technical capacity building on the continent. However, there still remains a growing demand for trained Internet professionals in the region.

In 2008, ISOC worked with AfNOG and the Network Start-up Resource Centre (NSRC) to develop a program aimed at teaching AfNOG courses at the local level. The AfNOG "Track 0 Localization Program" will complement AfNOG activities by extending entry-level course on Unix System Administration to local communities and increase the training frequency to more than once a year. The program is further expected to feed AfNOG with trained candidates that can move on to advanced courses at the annual AfNOG meetings. In addition, the program will provide new ground for recruitment of future AfNOG instructors. The first local trainings are expected to be held in early 2009.

***AfChix:*** AfChix is a training initiative aimed supporting the development of women Internet engineers in Africa. In collaboration with AfNOG and NSRC, ISOC is sponsoring the 2<sup>nd</sup> AfChix training workshop taking place in October 2008 in Accra, Ghana. The event will train at least 20 women engineers from the West African region and will build on the success of the first AfChix workshop held in 2007 in Nairobi, Kenya.

### ***Country Code Top Level Domain (ccTLD) Workshops***

Country Code Top Level Domains (ccTLDs) are critical Internet infrastructures. In many developing countries, however, local operators need training, policy, and management assistance to ensure smooth ccTLD operations. ISOC works in collaboration with local communities, the Network Start-up Resource Center (NSRC), and the Internet Corporation for Assigned Names and Numbers (ICANN) to organise training workshops for ccTLD operators in the developing world.

In 2008, ISOC will host and conduct two advanced ccTLD training workshops, which build on the basic training curriculum ISOC has fostered over the past four years. New topics in the curriculum include Registry-Registrar operations (EPP), network monitoring tools, general security issues, and DNSSEC.

A workshop aimed at Latin American, African and Eastern European operators will be held in Amsterdam in September. A second workshop aimed at the Asian region will be held in Nepal in December.

ISOC is also collaborating with the regional ccTLD organizations to help promote outreach, leadership, and technical capacity building initiatives. In April 2008 ISOC sponsored the 2<sup>nd</sup> African Top Level Domains Association (AfTLD) meeting in South Africa. The meeting, themed "Strengthening our Internet Institutions," attracted 57 participants from various stakeholder groups in the region. The meeting enjoyed the presence of The Honourable Dr. Ivy Matsepe-Casaburri, the South African Minister of Communications. ISOC also participated in a meeting of the Latin American and Caribbean Top Level Domain Association (LACTLD) in May 2008, and will be supporting a forthcoming LACTLD workshop in September 2008.

### ***Improving ICT Access and Innovation through Cooperative Grants***



In 2008, ISOC was a partner and steering committee member of two regional ICT grant programs, the Information Society Innovation Fund for Asia (ISIF) and the Regional Fund for Digital Innovation in the Latin American and Caribbean (FRIDA). These programs promote innovative solutions to Internet and communications technology challenges in developing regions by providing seed funds to kick-start and sustain ICT research, development, and network implementation projects.

ISIF Asia is a partnership between ISOC, Canada's International Development Research Centre (IDRC), and the Asia Pacific Network Information Centre (APNIC). <http://www.isif.asia>.

FRIDA is a partnership between ISOC, Canada's International Development Research Centre (IDRC), the Latin American and Caribbean Internet Address Registry (LACNIC) and the Global Knowledge Partnership (GKP). <http://www.programafrida.net>



### *Real Time Text and Disabilities Issues*



In 2008, ISOC launched a project aimed at advancing the development of technologies, the business case, and policy environment for the use of the Internet by people with disabilities. As part of this work, ISOC facilitated the development of the Real Time Text

Taskforce (R3TF). The R3TF is an open forum for engineers, experts, motivated individuals, companies and organisations that wish to help test, implement, and advance the wide spread adoption of the Real-Time Text text-over-IP standard. A presentation on Real-Time Text and the R3TF was delivered to the ISOC Advisory Committee at the Dublin IETF meeting in July. The R3TF website is located at <http://www.realtimetext.org>. ISOC also participated in several in policy and outreach meetings on accessibility issues. In addition, ISOC is working to harness and coordinate the many individual efforts by ISOC Chapters on accessibility issues.

## The IETF Journal



Three times per year ISOC publishes the IETF Journal, which provides an overview of what's happening in the world of Internet standards with a particular focus on the activities of IETF Working Groups. Each issue of the IETF Journal highlights the hot issues being discussed in and around IETF meetings and on the IETF mailing lists. The publication is produced by ISOC Education Department staff with input

and articles from IETF contributors. Launched in 2005, the IETF Journal has quickly become a "must-read" for anyone interested in IETF standardisation activities. ISOC is working on a reader's survey for input on how to further enhance the quality of the publication. The IETF Journal is available on-line at: <http://www.isoc.org/tools/blogs/ietfjournal/>