Since the early 1990s, the Internet Society (ISOC) has supported the development of Internet infrastructure in Africa through promoting Internet technical skills training across the continent. Building on its effort to increase the number of skilled manpower, the Internet Society African Regional Bureau (ARB) plans to train 5,000 engineers per year by 2018.

Africa is home to the youngest population in the world with 200 million aged between 15 – 24 years creating immense opportunities not only for a fast economic growth and innovation but also for an improved Internet access. Today, Internet penetration in Africa is above 28% and growing. However, as Internet has become a critical infrastructure, Africa urgently needs a much greater pool of skilled experts and technical engineers to ensure its operation.

Significant investment is underway in Africa’s submarine and terrestrial fiber from both public and private sectors. As a result, the demand for trained experts in Internet technologies and services to manage, operate and maintain these investments continues to grow.

The Internet Society is uniquely placed to offer vendor-neutral training to people across Africa in order to meet this vital need. The Internet Society is looking for partners in this critical and impactful program. In return, there are significant opportunities for partner engagement in the project; these will be outlined in this document.

Join us in capacity building training in Africa!

Opportunity

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**Background**

In the 1990s, the Internet Society started providing vendor-neutral technical training to network operators from around the world, with its early INET workshops. Following that, for more than 15 years, African Network Operators Group (AfNOG) ([http://afnog.org](http://afnog.org)) has been providing vendor-neutral technical training for network operators in Africa. One of the courses that were provided by AfNOG every year was the Unix Track Zero course - a technical track which focuses on building basic Unix System administration (using FreeBSD Operating System - [http://freebsd.org](http://freebsd.org)) and key Internet services skills (like Email, Web and DNS administration skills). However, since 2008 it was deemed more advantageous to focus on the more advanced courses instead of the basic entry level Track Zero course to take advantage of the highly skilled trainers coming from abroad to teach at the AfNOG workshop. At the same time, the Internet Society began the AfNOG Localization Program to have the Track Zero course facilitated at the country level.

**Impact of localization program**

Since the beginning of the Localization Program, more than 30 trainings and NOG workshops have been conducted either directly by the Internet Society or indirectly (by financially supporting the events) in **more than 15 African countries reaching over 1,800 engineers**. The training materials used were sourced from AfNOG with additional support in the form of books, CDs and DVDs being donated by the Network Startup Resource Center (NSRC – [http://nsrc.org](http://nsrc.org)).

**New African Network Operator Groups**

Additionally, the Internet Society has been supporting the creation of National and Regional NOGs and has supported the creation of three new Network Operation Groups in three different countries (Tanzania, Southern Africa, and Rwanda) since 2012 under this program. We are hoping to see more NOGs on the continent going forward.

**Scaling things up!**

However, 1,800 engineers over 7 years is a small number for the African continent with a population of over a billion, hence a new solution was needed in order to reach more engineers. In a bid to increase the number of people trained in the capacity building program, the Internet Society launched a **moderated online course titled “Introduction to Network Operations: UNIX/Linux, Networking and DNS”**. This course was developed over 9 months with input from several experts from Africa and with the guidance of Internet society’s ARB and the Internet Society’s Internet Leadership (IL). The course was piloted in December 2014 and was officially launched in March 2015. In 2015 alone, **more than 400 men and women engineers from across Africa have gone through the course**. Participants that enrolled included engineers from Uganda, Zimbabwe, Ghana, Lesotho, Botswana, South Africa, Ethiopia, Tanzania, Kenya, Rwanda, Nigeria, and Sudan. The Internet Society is planning to increase considerably the number of trainees as well as the number of courses every year.

**Program Outline**

The Internet Capacity Building Program is divided into several phases:
- **Technical Track**
  - **Online Trainings**
    - **Phase 1**
      - UNIX and DNS Fundamentals
  - **Face to Face Trainings**
    - NOG Support Workshops
    - Direct Trainings
  - **Phase 2**
    - Internet Services
Program Approach

The Internet Society Capacity Building Program has successfully built and deployed “Phase 1” of the online trainings titled “Introduction to Network Operations: UNIX/Linux, Networking and DNS”. This is a moderated foundation course aimed at giving trainees basic skills in UNIX/Linux Server administration, Networking and introducing them to one of the key infrastructures of the Internet – the Domain Name System (DNS). This course has since been translated into French and the French course will be launched by the third quarter of 2016.

The aim is that additional technical modules will be added to the program in the future under Phase 2. The topics under Phase 2 will be built with the involvement of NOGs and National Research and Education Networks (NRENs) on the continent and will likely cover advanced topics like Email, DNS, Web, Network Monitoring and or Proxy services.

Impact of the Phase 1 course

- “Introduction to Network Operations: UNIX/Linux, Networking and DNS”

This new online course was a new frontier for the Internet Society and its partners in the project. The course was and continues to be one of a kind being a fully online, technical course designed by technology experts from the African community for the community. It has been great to see the positive impact the course has had on the continent. Most of the trainees have come from NRENs, Universities and NOGs from different parts of Africa. Here is what some of those who completed the course said about the course:

I would definitely recommend the course to others... it is very useful and easy to understand. I would like to see more courses developed”.
– Jane Ligoi, a participant under the Tanzania NOG (TzNOG)

The Kenya Education Network Trust (KENET), highlighting the innovative use of the course, found it complimentary to its capacity building initiatives.

The ISOC online UNIX course has been very popular with the KENET community of ICT technical staff. It has helped many entry-level network and systems administrators to acquire foundational UNIX skills that are necessary for more advanced courses in network management or Cyber security. KENET now uses the course as a pre-requisite for other courses and we have noticed improvement in learning outcomes and skill levels of the techies in advanced courses that required competence in UNIX”.
– Professor Meoli Kashorda, CEO, KENET

It is encouraging to note that all participants who have attended the online course have repeatedly underlined that they would recommend the course to their colleagues and would also like to see more courses developed.

The course has helped me on how to troubleshoot DNS issues and it has also enabled me improve my skills on working with Linux”
– Isaac Maposa, Zimbabwe

Active NOGs in Africa:

AfNOG | GhNOG (Ghana) | TzNOG (Tanzania) | RwNOG (Rwanda) | BSDCongo (Congo)
NgNOG (Nigeria) | SafNOG (Southern Africa) | EANOG (East African NOG)
A number of other NOGs and Internet technology groups are planning to use the course as a prerequisite for other Capacity Building initiatives in their countries this year.

The online training attracted more registrations due to being free and flexible to take (pace and working schedules). As a TzNOG Convenor I can say that these ISOC online trainings have supplemented the existing efforts of training more Engineers at an affordable price/no cost. I would therefore recommend ISOC to invite other existing local NOGs in Africa to the online training platform and if possible upgrade it to higher levels so as to attract experienced IT Engineers as well.”

- Abibu Ntahigiye, Tanzania NOG Convenor

Learning online for professionals is the best way to enhance much needed lifelong learning and personal development plans of working professionals because one finds time to learn and at a pace that is consistent with their ability to absorb”.

– Bessie Nyirenda, Malawi

There are plans to also incorporate locally hosted online training labs on the continent to further improve the training experience. Once the course is available in French, the language diversity is expected to enable other groups and regions to benefit from this resource and as eloquently put:

Join us for Phase 2!

The future of the African Internet ecosystem rests on having local, skilled experts to maintain its infrastructure. The Internet Society is seeking partners who share our vision of training and educating local engineers to contribute to a better, brighter, more connected future for the African people.

We have formed a program committee comprised of individuals from NOGs and NRENs from across Africa to design the curriculum for the second phase of the online courses. We need your help in supporting the creation of Phase 2 of the online program.

Funds for the program will go towards course development, online training labs and to train more online facilitators from Africa who will moderate the online courses.

Opportunities exist for partner profiling, branding and exposure to the next generation of African IT leaders. Furthermore, supporters of the program will not only have the opportunity to enrol their own staff in the courses, but also have access themselves to the skilled trainees who will have completed the program.

Specific benefits will be defined in conjunction with the partner.

For more info please contact learning@isoc.org

Estimated growth in the number of participants that the program will target over the next four years:

<table>
<thead>
<tr>
<th>Year</th>
<th>In-person Participants (including NOG workshops)</th>
<th>Online Participants</th>
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<tr>
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