

Network Startup Resource Center Program Overview

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Roots of the NSRC

- Started by Randy Bush & John Klensin in late 1980s
- First email systems (FidoNet and/or UUCP) in many countries
- First NSF grant formalized the NSRC in 1992
- Operated from University of Oregon beginning in 1996
- Helped establish first Internet connections for
 - Peru, South Africa, Egypt, Indonesia, Kenya, Liberia, Morocco, Saudi Arabia, Sri Lanka, Tanzania, Togo, and assistance to many others
 - Development of Internet Exchange Points: Panama, Uganda, Democratic Republic of Congo, Swaziland, Ghana, Angola, Kenya, Haiti, Côte d'Ivoire, Tanzania and Thailand



Who is the NSRC

- Six University of Oregon personnel
- Contractors in: Alicante Spain, Banjul Gambia, Bloomington Indiana, Brisbane Australia, Copenhagen Denmark, Dakar Senegal, Halifax Canada, Ibadan Nigeria, Kampala Uganda, Lomé Togo, London England, Quito Ecuador, Raleigh North Carolina, Seattle, Toronto Canada, Vancouver Canada, Wellington New Zealand + dozens of volunteers!
- Instructor-trainees in all regions of the world
- Funding from NSF and Google, Cisco, ICANN, ISOC, O'Reilly Media, DHL and others.

What the NSRC Does

- NSRC's activities are global in scope
- Provides technical information, engineering assistance, training, books and equipment to research and education institutions and ISPs in emerging regions
- Works with numerous orgs worldwide to enhance network operations and affordable Internet access
- Leveraging government, industry, and private investments
- Catalyses and assists networking to and within the least connected regions of the world



Enabling cooperation and communication across borders

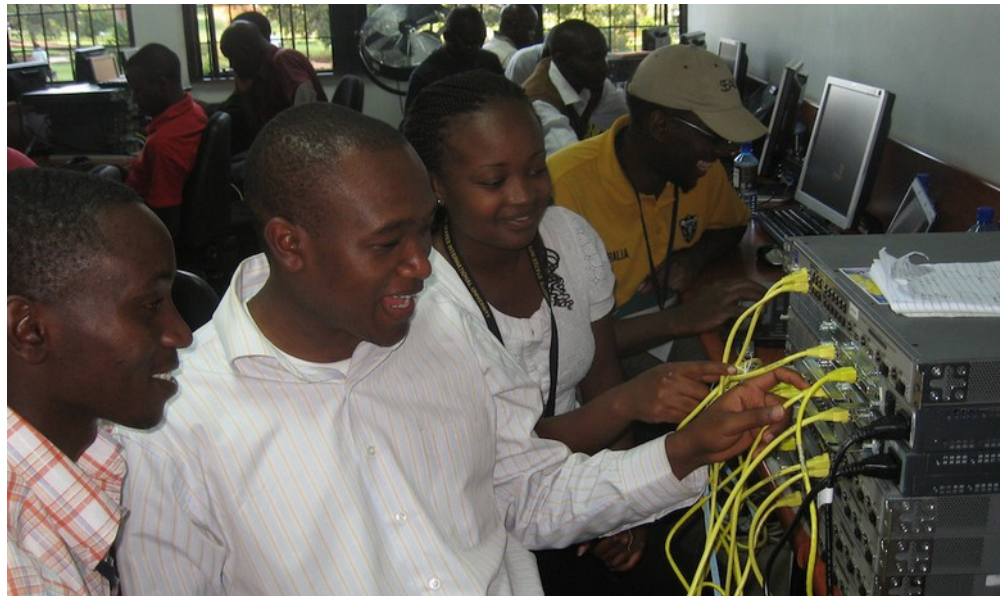


VINAREN / TEIN

Bangladesh
Bhutan
Cambodia
Indonesia
Pakistan
Laos
Myanmar
Sri Lanka
Vietnam



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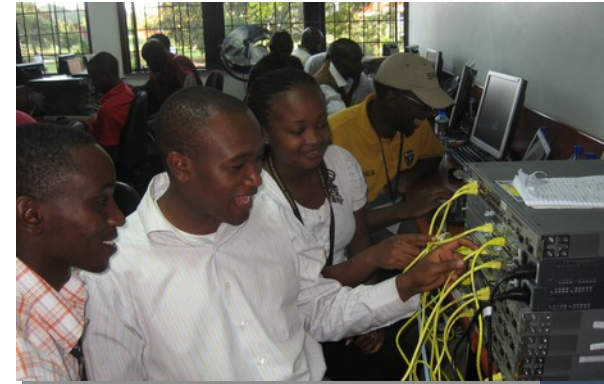
KENET 2010

WALC PANAMA

Bolivia
Chile
Colombia
Cuba
Dominican Republic
Ecuador
Mexico
Panama
Peru
Venezuela



Building international R&E
connections...



...in more than 100 countries
since 1992

Where we've been Recently

2012

Bhutan	New Zealand
Botswana	Niger
Burkina Faso	Nigeria
Canada	Panama
Cambodia	Qatar
Ecuador	Senegal
Fiji	South Africa
Gambia	Tanzania
Ghana	Thailand
Guatemala	Trinidad & Tobago
Hong Kong	Uganda
India	Uruguay
Italy	United Arab Emirates
Jordan	
Kenya	
Laos	
Lebanon	
Morocco	
Myanmar	

2013

Bangladesh	Rwanda
Cameroon	Senegal
Dubai	Singapore
Ecuador	South Africa
Fiji	South Korea
Germany	Tanzania
Ghana	Thailand
Guam	Tonga
Haiti	Trinidad & Tobago
India	Tunisia
Italy	Uganda
Kenya	Vietnam
Lebanon	Zambia
Madagascar	Zimbabwe
Malawi	
Morocco	
Myanmar	
New Zealand	
Nicaragua	

2014 so far...

Bhutan
Costa Rica
Dubai
Djibouti
Indonesia
Italy
Kenya
Malaysia
Mongolia
New Zealand
Philippines
Senegal
Tanzania
Thailand
Togo
Turkey
Vanuatu
& more!



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NSRC in Asia-Pacific in 2013

- Human resource and tech skills development
- 500+ participants in 10 countries
- Presented at multiple policy and stakeholder meetings
- Direct engineering assistance at multiple locations



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New Areas of Focus for NSRC

- TV White Spaces / Dynamic Spectrum
 - Malawi work with ICTP and MACRA
 - Thailand with the National Broadcasting and Telecommunications Commission (NBTC) and Asian Institute of Technology (AIT)
- Wireless Sensor Networks
 - Hydroclimate Project for Lake Victoria Basin, Africa (HYVIC)
- Digital Libraries and Digital Archives
 - Guatemala and Sénégal
- Online network training courses with ISOC

The Human Network



Challenges in the Field

Infrastructure and Regulatory Issues

- Lack of affordable bandwidth and competition for service providers
- Challenges with navigating Internet administrative processes
- Network security issues
- Reliable power and infrastructure issues
- Lack of terrestrial fiber
- High costs of telecommunications and networking equipment, exacerbated by high rates of importation duty, taxes and value-added tax (VAT) assessed to import hardware
- Difficult regulatory environments and regulatory barriers



Challenges in the Field

Human, Financial and Issues of Cooperation

- Lack of critical mass of well-trained network engineers
- Staff retention once engineers are trained
- Viable business models in rural areas
- Excessive dependence on external funding sources
- Lack of sustainable funding models for operational expenses
- Lack of national and/or regional cooperation
- Strong national leadership driving open access Internet policies



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