Network Startup Resource Center Program Overview for PacNOG 16, Honiara

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http://nsrc.org/

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NSRC
Network Startup Resource Center

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

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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 Equador, 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.

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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

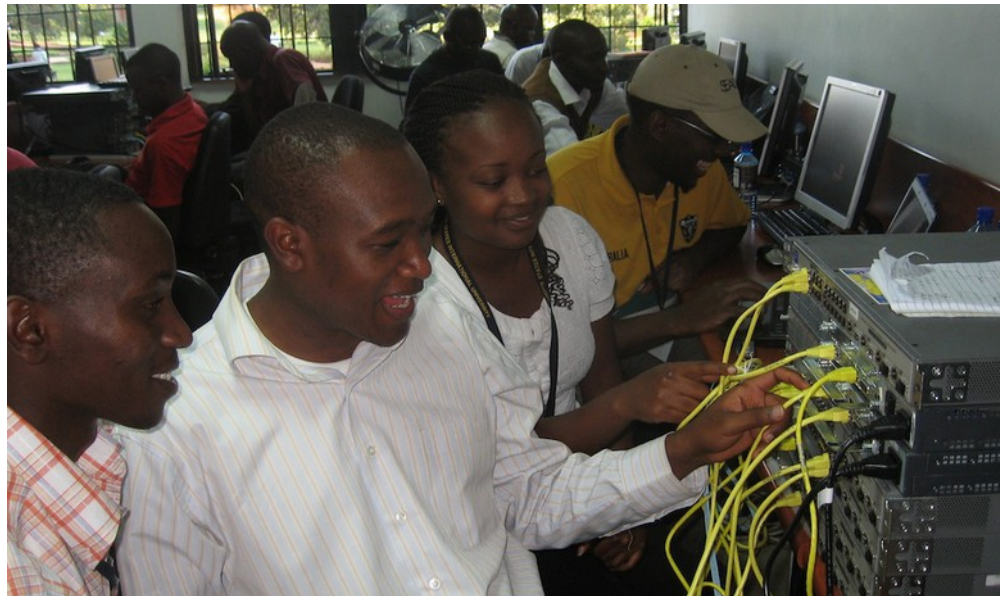# *Enabling cooperation and communication across borders*

VINAREN / TEIN
Bangladesh
Bhutan
Cambodia
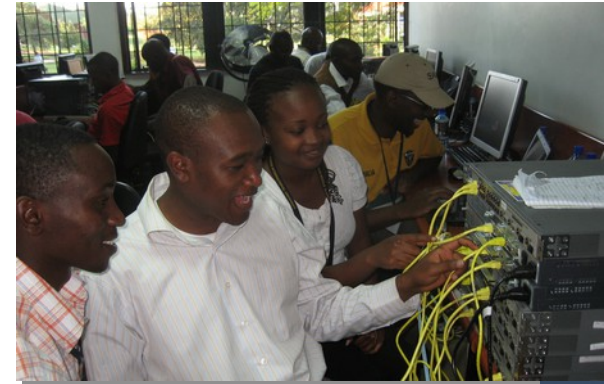*Indonesia*
Pakistan
Laos
Myanmar
Sri Lanka
Vietnam

O | UNIVERSITY

WALC PANAMA
Bolivia
Chile
Colombia
Cuba
Dominican Republic
Ecuador
Mexico
Panama
Peru
Venezuela

KENET 2010

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Building international R&E
connections...

...in more than 100 countries
since 1992

NSF

NSF OCI award number 0963081

Where we've been Recently

2012

Bhutan

Botswana

Burkina Faso

Canada

Cambodia

Ecuador

Fiji

Gambia

Ghana

Guatemala

Hong Kong

India

Italy

Jordan

Kenya

Laos

Lebanon

Morocco

Myanmar

New Zealand

Niger

Nigeria

Panama

Qatar

Senegal

South Africa

Tanzania

Thailand

Trinidad & Tobago

Uganda

Uruguay

United Arab Emirates

2013

Bangladesh

Cameroon

Dubai

Ecuador

Fiji

Germany

Ghana

Guam

Haiti

India

Italy

Kenya

Lebanon

Madagascar

Malawi

Morocco

Myanmar

New Zealand

Nicaragua

Rwanda

Senegal

Singapore

South Africa

South Korea

Tanzania

Thailand

Tonga

Trinidad & Tobago

Tunisia

Uganda

Vietnam

Zambia

Zimbabwe

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 Work in The Pacific

Pre-APNIC 18 Workshop, August 2004, Nadi

2005

First PacNOG Meeting

Nadi, Fiji

NSRC PacNOG Participation

- PacNOG 2: June 2006, Apia

- PacNOG 3: June 2007, Rarotonga

- PacNOG 4: June 2008, Port Vila

- PacNOG 5: June 2009, Papeete

- PacNOG 6: November 2009, Nadi

- PacNOG 7: June 2010, PagoPago

- PacNOG 8: November 2010, Pohnpei

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NSRC PacNOG Participation

- PacNOG 9: June 2011, Suva

- PacNOG 10: November 2011, Nouméa

- PacNOG 11: July 2012, Nadi

- PacNOG 12: Dec 2012, Port Moresby

- PacNOG 13: July 2013, Nuku'alofa

- PacNOG 14: December 2013, Suva

- PacNOG 15: July 2014, Port Vila

PacNOG 13, Nuku'alofa, Tonga

PacNOG 14, Suva, Fiji

PacNOG 15, Port Vila, Vanuatu

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

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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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networking is
boring

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