Network Startup Resource Center
Program Overview
for
PacNOG 16, Honiara

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http://nsrc.org/

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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 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.
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

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

KENET 2010
Building international R&E connections...

...in more than 100 countries since 1992

NSF OCI award number 0963081
## Where we’ve been Recently

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<thead>
<tr>
<th>2012</th>
<th>2013</th>
<th>2014 so far…</th>
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<td>Bhutan</td>
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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
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
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