

The Network Startup Resource Center

<http://www.nsrc.org>

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History of the NSRC

- Started by Randy Bush and John Klensin in late 1980s and early 1990s
- First NSF Funding 1992
- Moved to University of Oregon in 1996
- Currently staffed by 2 full time employees, several part time contract employees lots of volunteer labor



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Early Efforts

- First email (UUCP or FidoNet) for many developing nations
- First Internet connectivity for
 - Egypt, Indonesia, Kenya, Liberia, Morocco, Peru, Saudi Arabia, South Africa, Sri Lanka, Tanzania, Togo, and others
- Development of Exchange points
 - Panama, Uganda, Democratic Republic of Congo, Swaziland, Ghana, Angola and others



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An Early Ping

From: Randy Bush <randy@psg.com>
Subject: The first ping
To: ccj@quagga.ru.ac.za (F.F. Jacot Guillarmod),
ccd@quagga.ru.ac.za (Dave Wilson),
barrett@daisy.ee.und.ac.za (Alan Barrett),
fsg@ucthpx.uct.ac.za (Fred Goldstein),
nerd@percival.rain.com (Michael Galassi)
Date: Tue, 12 Nov 91 0:57:21 PST
Message-Id: <m0kgtvt-000b0LC@rain.psg.com>

Well, the line keeps going up and down, and the telcos have not completed testing yet. But, for the record book, the first ping from North America to [Sub-Saharan] Africa

```
rain:/home/randy> ping 146.231.64.2  
146.231.64.2 is alive
```

```
rain:/home/randy> date  
Tue Nov 12 00:44:47 PST 1991
```



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More Early Pings

From: sghuter@psg.com (Steven Huter)

To: randy@psg.com, shem@arcc.or.ke

CC: ocl@ic.ac.uk, sghuter@nsrc.org

Date: Tue, 24 Oct 1995 21:23:45 -0800

Congrats, guys. This is great news.....

```
psg.com:/usr/home/sghuter> traceroute arcc.or.ke
```

```
traceroute to arcc.or.ke (199.2.222.254), 30 hops max, 40 byte packets
```

```
1 gw.psg.com (147.28.0.58) 3 ms 3 ms 3 ms
```

```
2 s0.r5.pdx.rain.rg.net (199.2.96.129) 40 ms 57 ms 15 ms
```

```
3 e0.t1.pdx.rain.rg.net (199.2.96.37) 17 ms 15 ms 17 ms
```

```
4 arcc.or.ke (199.2.222.254) 3124 ms 2428 ms 2414 ms
```



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And Another

From: Randy Bush <randy@psg.com>

To: goldstein@nsf.gov

CC: John C Klensin <klensin@infofoods.unu.edu>, Olivier
Crepin-Leblond <o.crepin-leblond@ic.ac.uk>

Date: Tue, 7 Jun 1994 12:18:18 -0700

Indonesia is up on the new 64kb link,

traceroute caddsys.iptek.net

traceroute to caddsys.iptek.net (202.46.1.2), 30 hops max, 40 byte packets

1 e0.r0.psg.rain.rg.net (147.28.0.58) 6 ms 5 ms 5 ms

2 e0.r1.pdx.rain.rg.net (199.2.96.34) 16 ms 15 ms 16 ms

3 e0.r0.pdx.rain.rg.net (199.2.96.33) 20 ms 44 ms 19 ms

4 144.228.201.193 (144.228.201.193) 66 ms 43 ms 56 ms

5 sl-stk-1-F0.sprintlink.net (144.228.8.225) 474 ms 42 ms 87 ms

6 * * *

7 * * *

8 202.46.1.2 (202.46.1.2) 1830 ms 755 ms 759 ms



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Mission

- Catalyzes and assists networking to and within the least connected regions of the world
- Catalyze local technical groups to work together
- Provides technical information, engineering assistance, training, and equipment to R&E institutions and ISPs in developing world
- Works on solving specific communication problems with scientists and engineers on both ends of the connectivity spectrum
- Focus on Grass Roots efforts



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Services

- Focus on supporting grass roots efforts
 - Training, books, equipment, DNS, mail, etc
 - Hosting of technical personnel
 - On the ground support of local personnel
- Forming and supporting NOGs
 - SANOG, PacNOG, WALC, AfNOG, ngNOG
- What we don't do
 - Provide connectivity or NOC services



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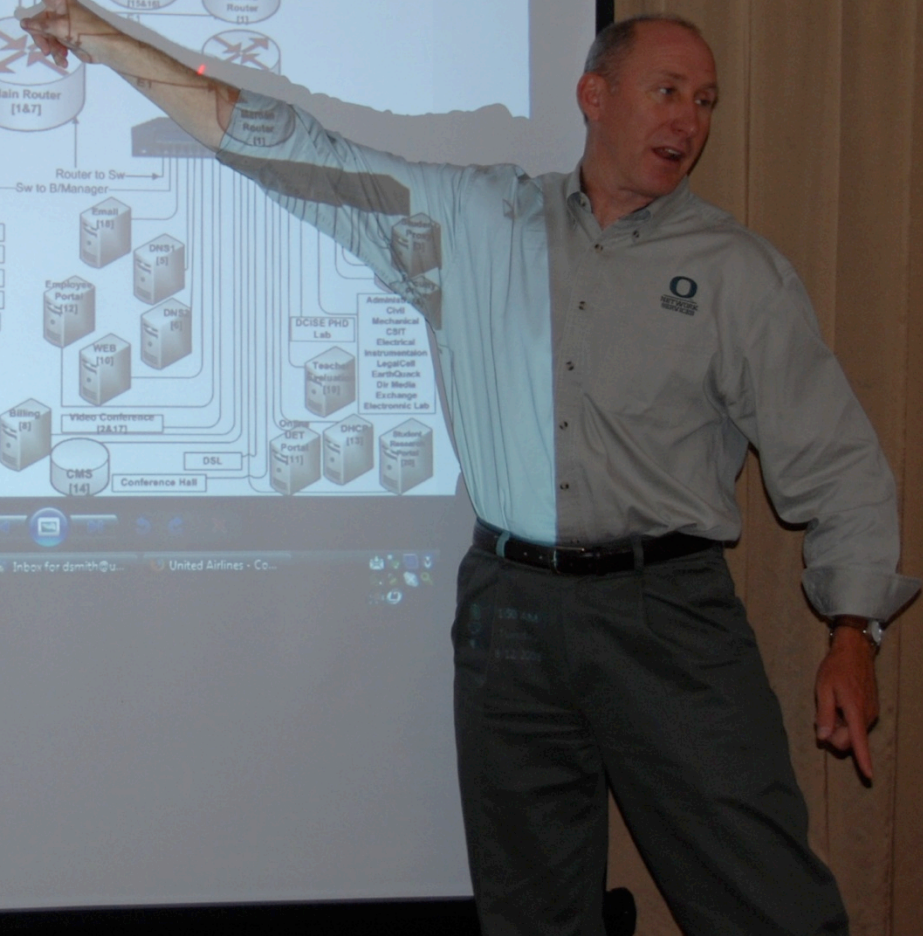
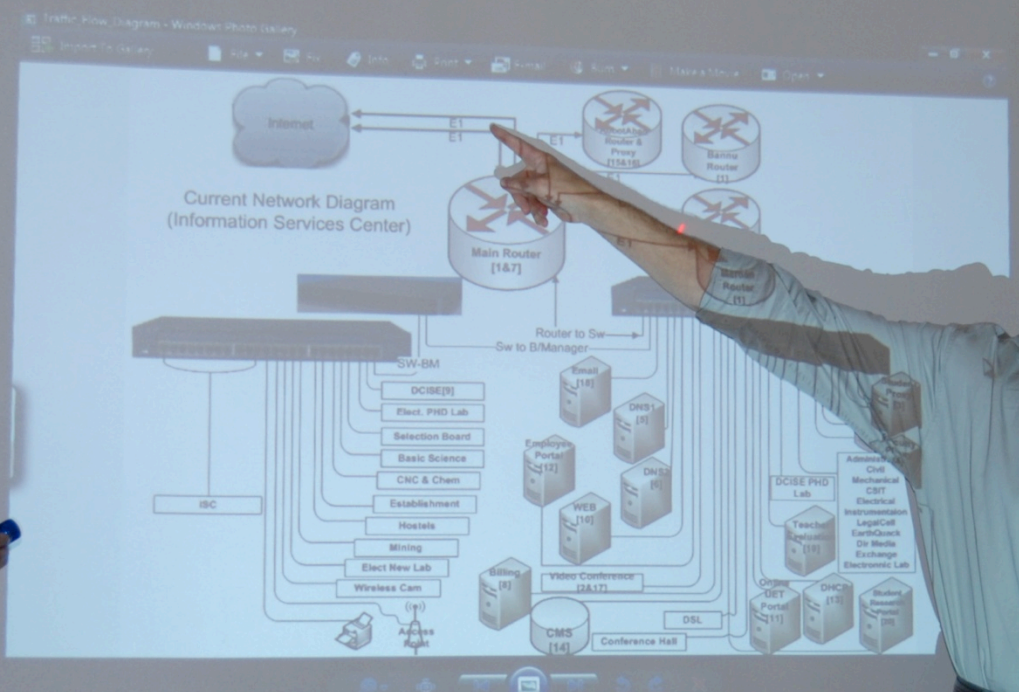


The Complete FreeBSD

Practical Unix & Internet Security

TCP/IP Network Administration

Cisco Cookbook



Windows taskbar showing: Palm Desktop, choicehotels.com R..., Inbox for dsmith@u..., United Airlines - Co..., D:\Diagram Networ..., Traffic_Flow_Diagra...

Funding & Support

- US National Science Foundation
 - Continuous NSF funding since 1992
 - Current award #0726077 for \$850,000
- Specific project funding from many quarters
 - \$250K in last 2 years from IDRC, ISOC, Carnegie and others
- Cash donations from individuals
 - \$175,000 over the last 2 years
- Many other supporters
 - Google, Cisco, O'Reilly, DHL, and others



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Challenges in Developing Nations

- Financial
- Lack of Technical Personnel
- Lack of infrastructure
 - Telecom & Power
- Oppressive telecom and regulatory environment
- NSRC can help with a few of these problems
 - Training for personnel
 - Used equipment for campus networks
 - Books and technical resources



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Current Projects and Focus

- Much of our effort is in Africa and SE Asia
- Supporting NOG activities
 - Teaching workshops
- Focus on Development of National R&E Networks
 - Nepal, Bangladesh, Pakistan, Bhutan, Kenya, Nigeria, Ghana and others
- Assistance for sub-saharan Africa Network across South and East Africa (UbuntuNet)
- Campus networking design and support



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Why Might This Be Relevant

- Are the opportunities for NSRC and CIS Collaborations?
 - CPATHi18n.org internationalization of computer science education
 - NSRC teaches technical courses
 - Possible internship opportunities



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CPATHi18n.org

- CPATHi18n
 - NSRC has focus on developing nations, but still has good contacts and collaborations with folks such as the Asian Institute of Technology in Bangkok
 - NSRC has industry partners interested in internationalization (Google, Cisco)



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NSRC Technical Courses

- WALC 2008, November 10-14. Six concurrent week long (40 hour) tracks:
 - Wireless Networking
 - Networking and Telecommunications project management
 - Content Development/Presentation
 - Network Management
 - IP Telephony
 - Securing Computer Networks



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WALC 2008 Network Management

- Taught by three U of O employees
- Covers theory concepts and practice
- Includes both lecture and lab exercises
- A course that appears to be able to be converted to a 1 quarter upper division CIS course
- Or possibly a summer 1-week course



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Internship Opportunities

- NSRC uses “train the trainer” model for instructor development
- If we got students who understood the material well enough to teach it, there could be possible travel and teaching opportunities
- UC Berkeley has successful program
 - <http://tier.cs.berkeley.edu>



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Thank You



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