It Was Done By People, Not So Much Organizations

The Networking Channel

https://networkingchannel.eu/
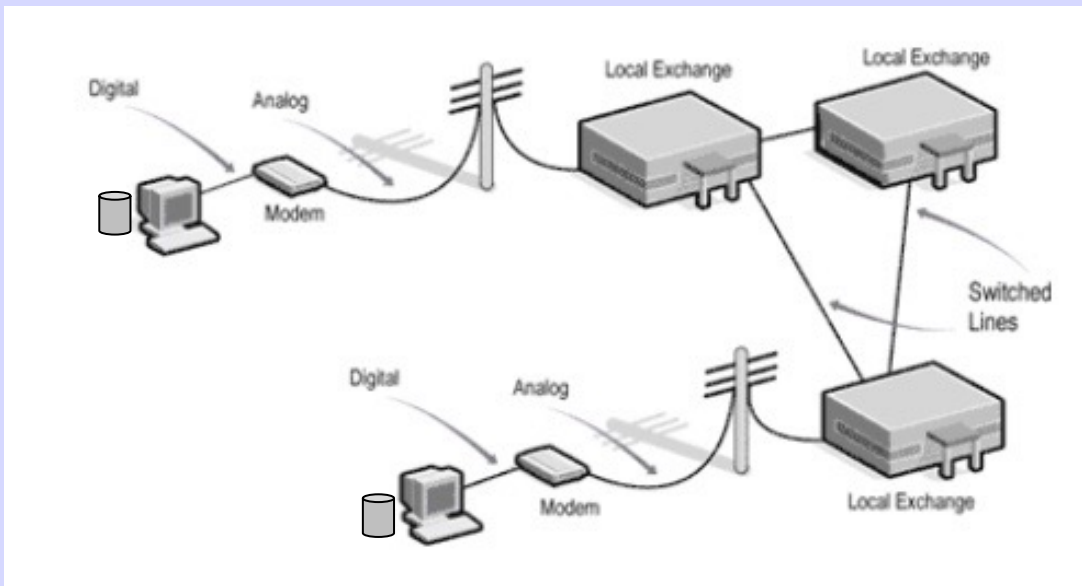
2022.02.16

Randy Bush <randy@psg.com>

Varied Drivers

- Self-started by passionate pioneers

- NGOs and Societal Organizations: GreenNet, PeaceNet, …

- Resources to be connected: initially often physics and astronomy

- International aid: education, health, …

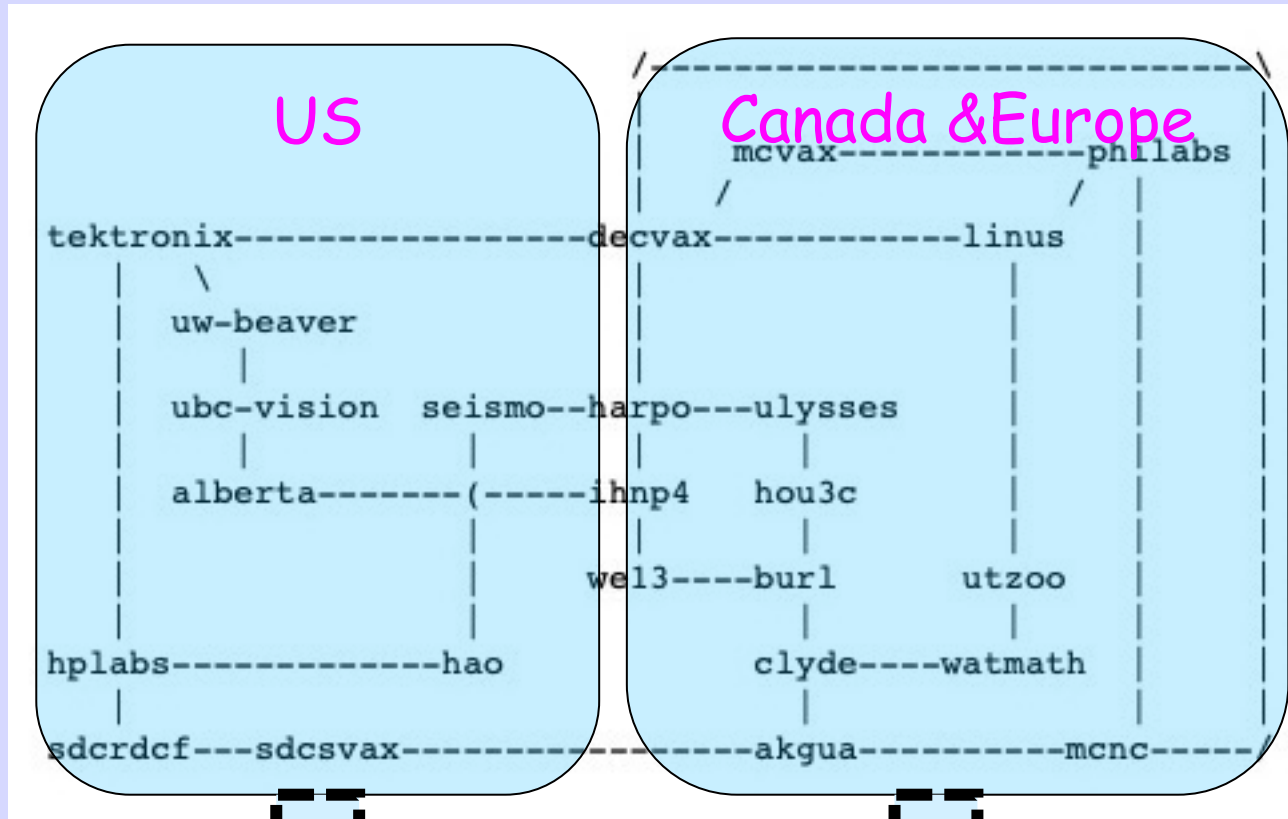# Let's Take a Trip Back to the 1980s

Dial-Up Technology

Modem
Data to/from
PC over Telco
300-20k bps+

PCs Call Each
Other and
Transfer
Batched
Email & Data

Intermittent, so Email is *Store and Forward*

UUCP Topology

US

Canada &Europe

```
                          /-------------------------------\
                          |                               |
                          |   mcvax-------------philabs    |
                          |    /                 /    |    |
tektronix------------------decvax------------linus   |    |
      |   \               |                     |     |    |
      |   uw-beaver       |                     |     |    |
      |    |              |                     |     |    |
      |   ubc-vision  seismo--harpo---ulysses   |     |    |
      |    |           |       |       |        |     |    |
      |   alberta-------(-----ihnp4   hou3c     |     |    |
      |    |            |       |       |        |     |    |
      |    |            |      wel3----burl    utzoo   |    |
      |    |            |       |        |              |    |
hplabs-------------hao  |      clyde----watmath  |    |
      |                 |       |          |      |    |
sdcrdcf---sdcsvax--------------------akgua---------mcnc-----/
```
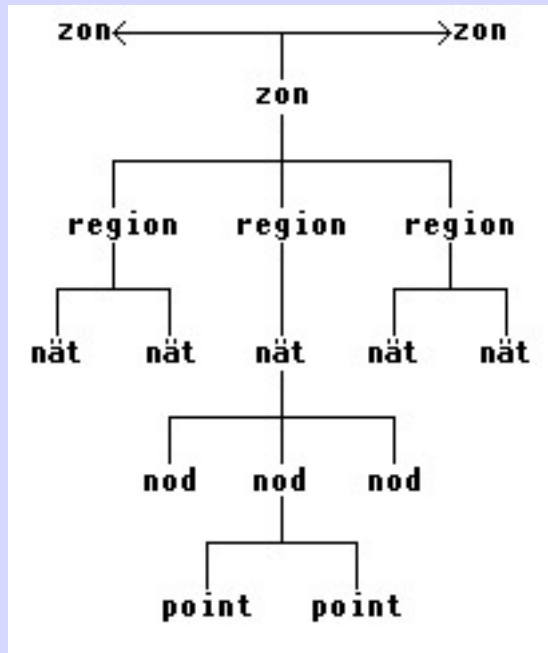
Bang Path
Addressing

…!philabs!mcvax!decvax!tektronix!orsoft!m2xenix!randy
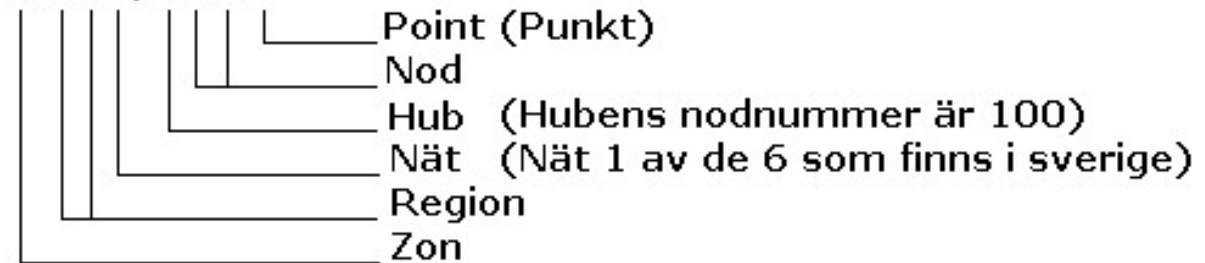
Courtesy Jaap Akkerhuis

FidoNet

- Amateur PC-based Bulletin-Board Network

- 50,000 Nodes Worldwide at Peak

- Similar to UUCP but Hierarchic

Hierarchic Addressing

1:105/6.1 Randy

NGOs, UUCP, FidoNet

Connectivity to Africa

version of 93.4.26

Compiled for NSF biologists doing research in Africa

People's Democratic Republic of Algeria (DZ)

APC FidoNet node (not verified)

Republic of Botswana (BW)

Public FidoNet node, 5:7001/1

Burkina Faso (BF)

Orstom UUCP node in Ouagadougou

Republic of Cameroon (CM)

Orstom UUCP node in Yaounde

Republic of the Congo (CG)

Orstom UUCP node in Brazzaville

Republic of Cote d'Ivoire (CI)

Orstom UUCP node in Abidjan

Arab Republic of Egypt (EG)

Foreign Relations Coordination Unit

Nashwa Abdel Baki

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People's Democratic Republic of Ethiopia (ET)

APC FidoNet node, 5:751/1

Republic of Gambia (GM)

APC FidoNet node

Republic of Ghana (GH)

APC FidoNet node

Republic of Kenya (KE)

Public FidoNet node, 5:731/1

Environment Liaison Centre International

Public FidoNet node, 5:731/4

University of Nairobi, Computer Science

...

A Computer Scientist

- Attended a conference in US in '88 and saw their peers were communicating

- Took a disk back to their South African University where there were engineers

- FidoNet to UUCP to TCP/IP in two years

- Major South African Unis and also small

- Connected neighboring countries

- Birthed first commercial ISPs in Africa

In our case, that of America Latina, in most of the countries the governments were absent, the companies arrived late, and everything depended on the passion and effort of a few.
-- Jose Soriano (translated)

Passionate Pioneer

- Jose Soriano – Perú

- Used the net in late '80s while exiled in France and wanted it for his country

- INET-'91 got small funding from 'Tios' Goldstein (NSF), Hahn (OEA), and Pulliati (UNDP)

- Gathered LAN engineers from five unis

- Two 'Nortes' for local training and then remote support

RCP Life Cycle

- Red Científica Peruana – started as R&E

- But spread to serve across the Society

- Education, Medical, NGO, even Military

- Kiosks in villages in the Andes Mountains

- Years later, the Telco noticed, Telco was colonized by Telefonica/España and consumed RCP

What Gets it Done? (1994)

- A user community, no matter how small

- Local engineering talent

- The thinnest of wires

- Social 'Physics' and time take care of the rest

- Serve users' needs and they multiply faster than you can serve them

- Users whose needs are being satisfied discover ways to get more or better bandwidth

Connecting a Resource

- 1995, International Mathematical Union elected a Kenyan as Chair

- NSF wanted them to get Internet

- Funded upgrading a FidoNet node to TCP/IP, sent equipment and a teacher

- Kenya soon became highly Internet based for gov/edu/… functions

- The major hub in East Africa

Works Well
When Resource is
Science or Education

Education

- World Bank project to foster secondary education for women in Guinée

- Paid (small) for equipment and link to Dept of Education, and a few key schools

- And was happy for any one else to use it

- Chancellor knew net from Cambridge

- First the University, then …

Chile, Argentina, Costa Rica, … Connected for Astronomy or Physics

But Natural Resources?

- Many countries have significant natural resources

- Which giant global corporations exploit

- These Corporations all have connectivity

- And do not give one packet to the people whose resources they are exploiting

- Nigeria (oil) and Guinée (bauxite) being examples

Grand Initiatives

- Naïve Northerners make grand plans to network multiple countries in the South

- E.g. Leland Initiative to give Internet to ten African countries

- Empowered monopoly PTTs, killed nascent local networks, and set them back years

- Beware of well-dressed Northerners in suits bearing initiatives ☺

Local Initiatives

- Internet Exchange Points (IX)

- Drives social and engineering cooperation

- Reduces International Link Costs

- Reduces Intra-Country Latency

- Great Places for Cooperative Networking
  - Caches (Akamai, Fastly, maybe Google)
  - NTP

Courtesy TeleGeography

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The Global Internet is a Result of Local Action