

Measuring and Reducing the Digital Divide: a Grand Challenge

Larry Press

Professor, IS

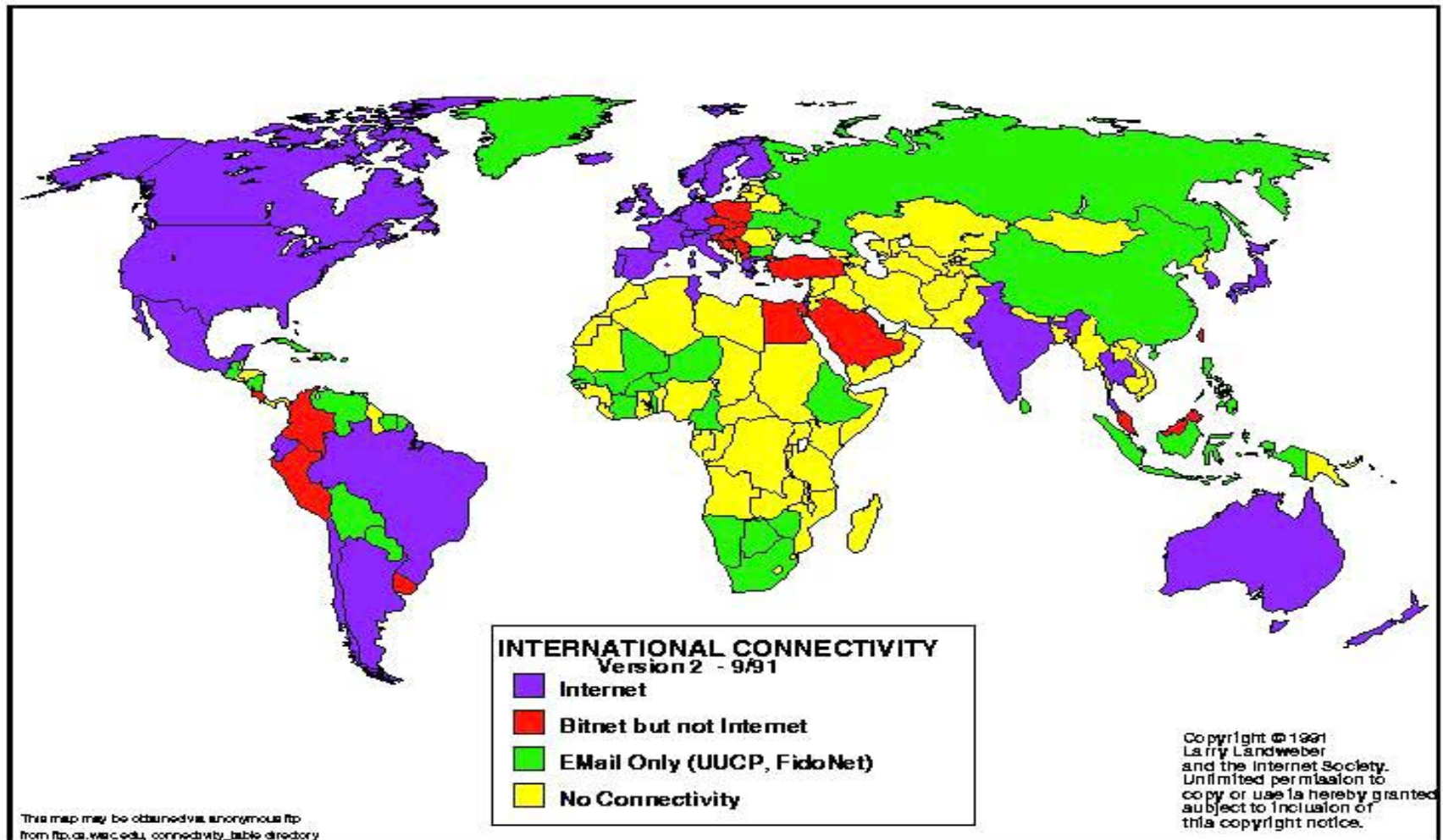
California State University, Dominguez Hills

lpres@csudh.edu

1990s Hypothesis

- Computer networks could improve life in developing nations at a relatively low cost
- Marginal impact could be relatively great due to a lack of alternative ICT
- Raising the quality of rural life will reduce migration pressure

Internet Diffusion, February 1991



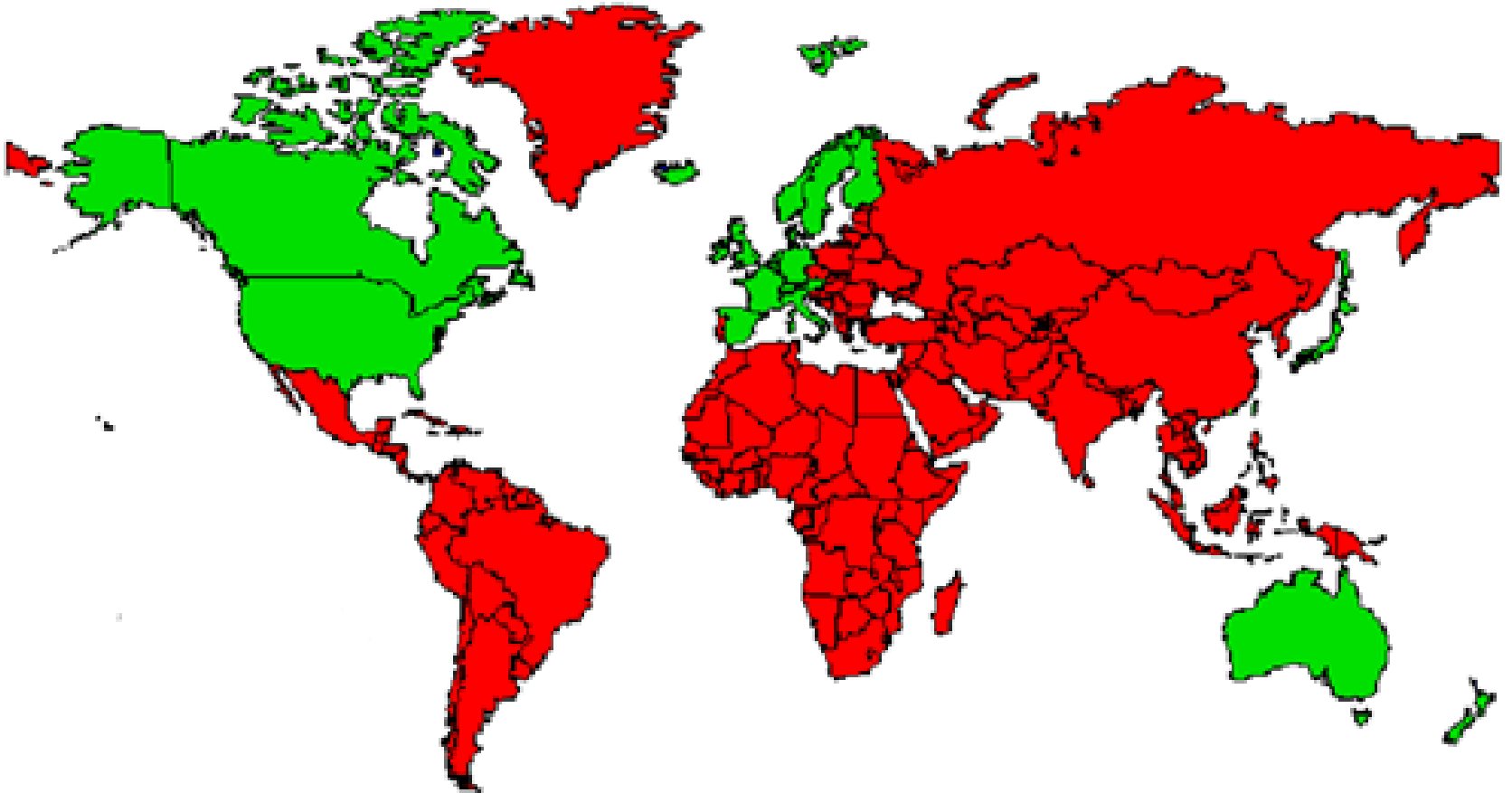
We have done

- Training
- Pilot studies
- ICT readiness assessments
- Conferences and workshops

Successful Applications

- Education
- Health care
- E-commerce
- Democracy and human rights
- E-government
- News and entertainment

Generic Digital Divide



IP Connectivity, 2003

Income	Population	Subscribers	Per 100
Low	2,413	5,424	.22
Lower middle	2,393	69,762	2.92
Upper middle	331	12,150	3.68
High	961	216,069	22.48
World	6,097	303,405	4.98

Where are we?

- Many applications have been demonstrated.
- The Internet is on the “radar screen”
- But the digital divide persists
- Capital is not available

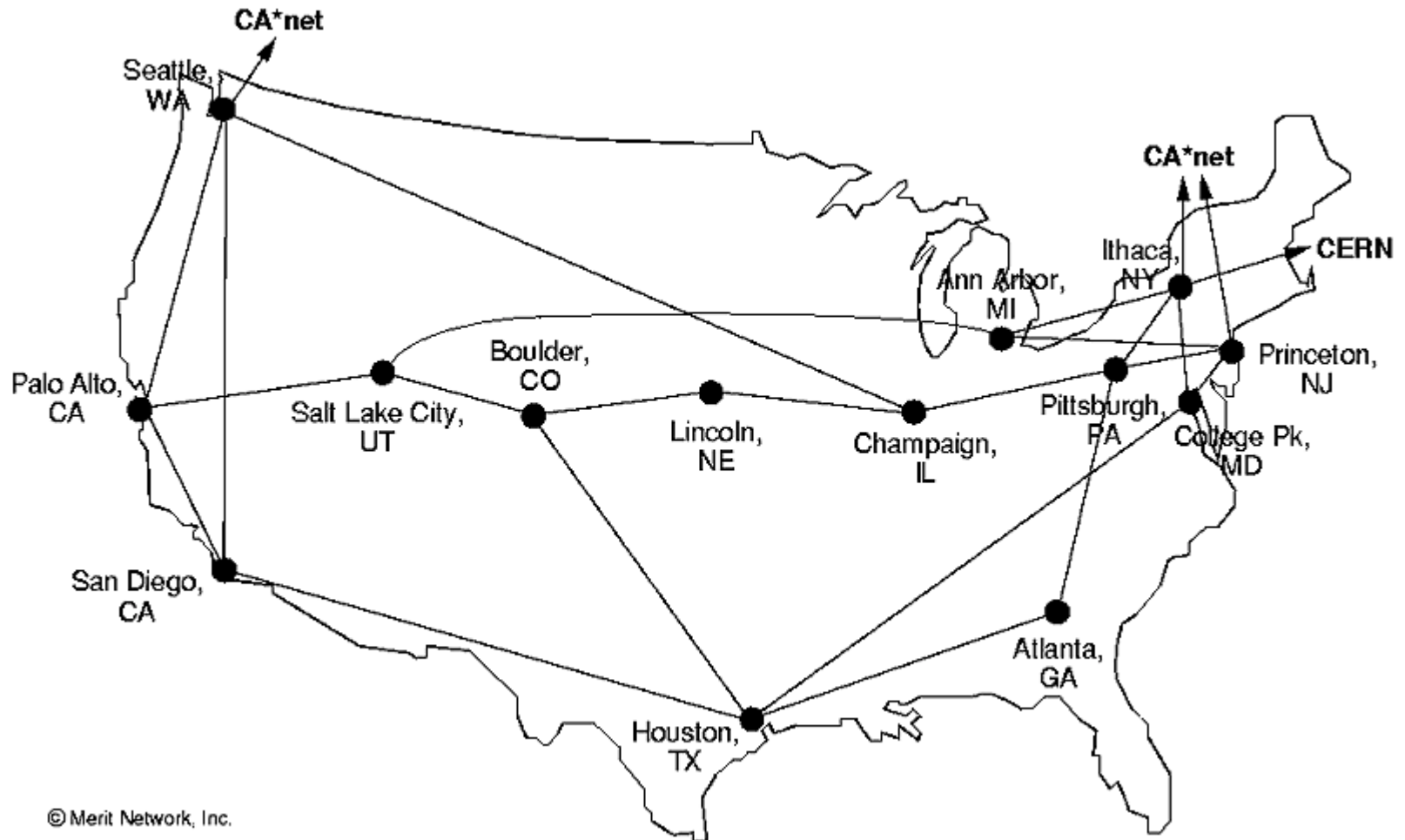
A Grand Challenge

Provide a high-speed Internet link and a point of presence in every village in every low and lower-middle income nation.

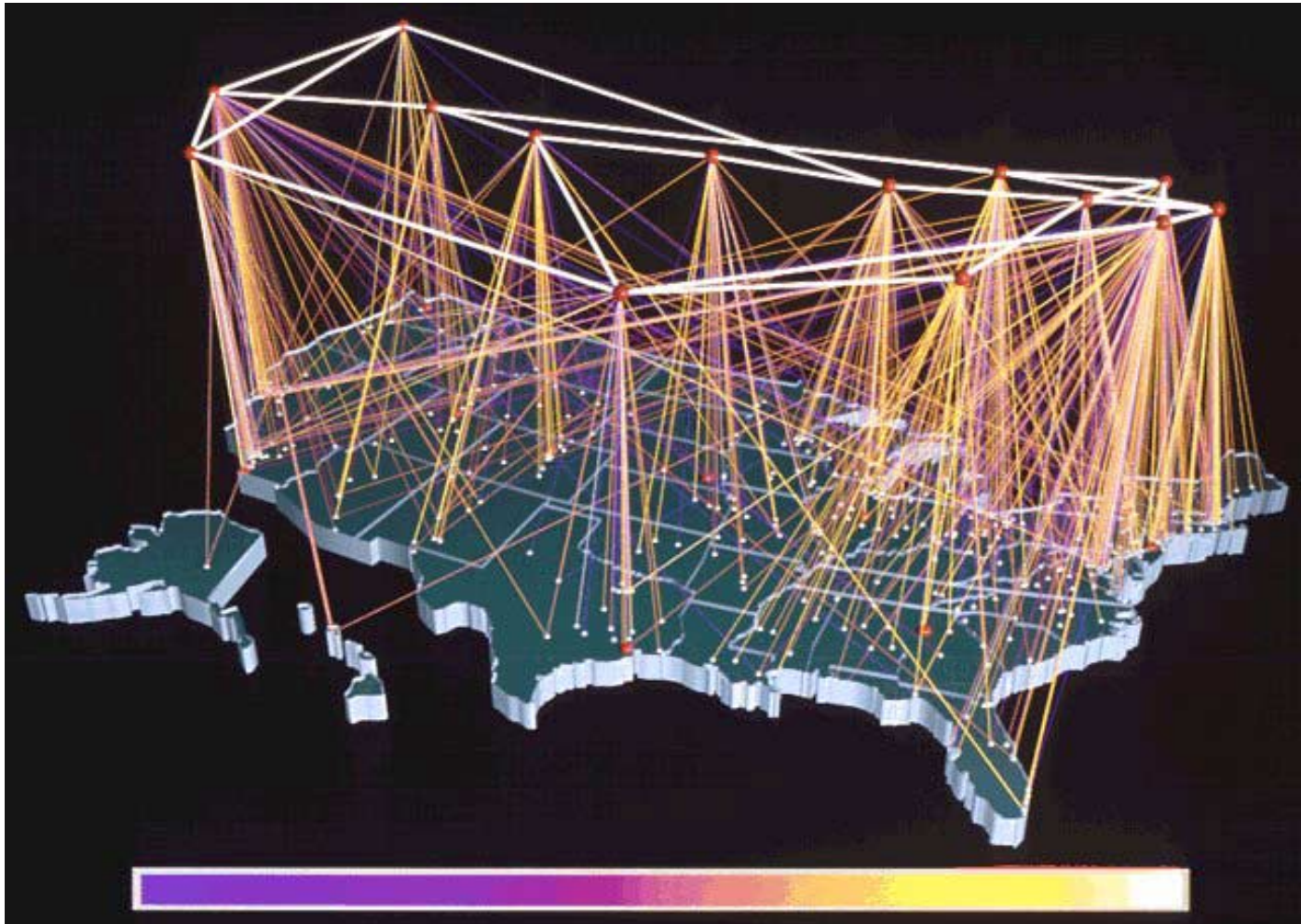
3 billion people

3 million villages

NSFNet T1 Backbone, 1991



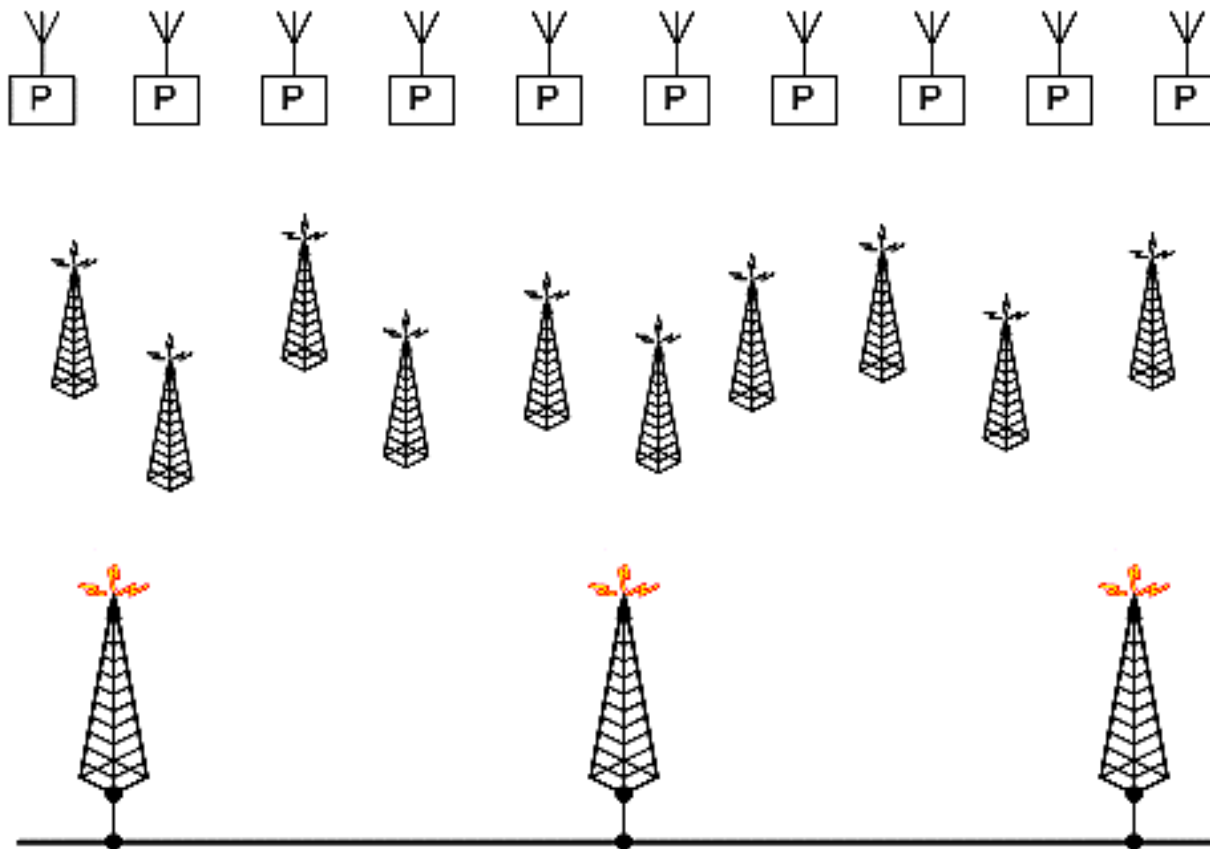
NSFNet with regional links



The NSFNet Strategy

- Build backbone
- Fund connectivity and POP (router and a link)
- Connect
 - US higher education networks
 - International research and education networks
- Highly leveraged -- \$125 million
- Users in control
- Use expert designers

Fiber Backbone, Mesh, POPs



Areas of expertise

Geographic Information Systems

Local Geography

Terrestrial wireless design and practice

Fiber optic design and installation

Network operation center design

Network modeling and optimization

Satellite research and practice

High altitude platform research and practice

Village POP configuration design

Training for POP operation

Design of solar and other power systems

Spectrum politics and policy

Mechanical design for radio towers

Village telecommunication centers and applications

Which pilot nation?

Strong government support of telecommunication

Open, competitive telecommunication market

Open, competitive business practices and laws

High level of poverty

High level of literacy

Dense population

High-speed international fiber links

Strong university programs in EE, CS, and GIS

Varied climate and topography

Let us continue the conversation

lpres@csudh.edu

<http://som.csudh.edu/fac/lpress>