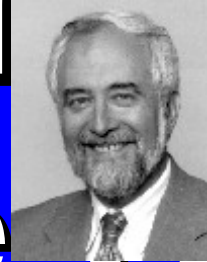


# The Present and the Future of

# the Internet

Network+Interop  
94 Tokyo  
Keynote Address  
29 July 1994



Anthony M.  
Rutkowski  
Executive Director  
Internet Society

Copyright 1994 A.M.  
Rutkowski

# An Introductory Odyssey



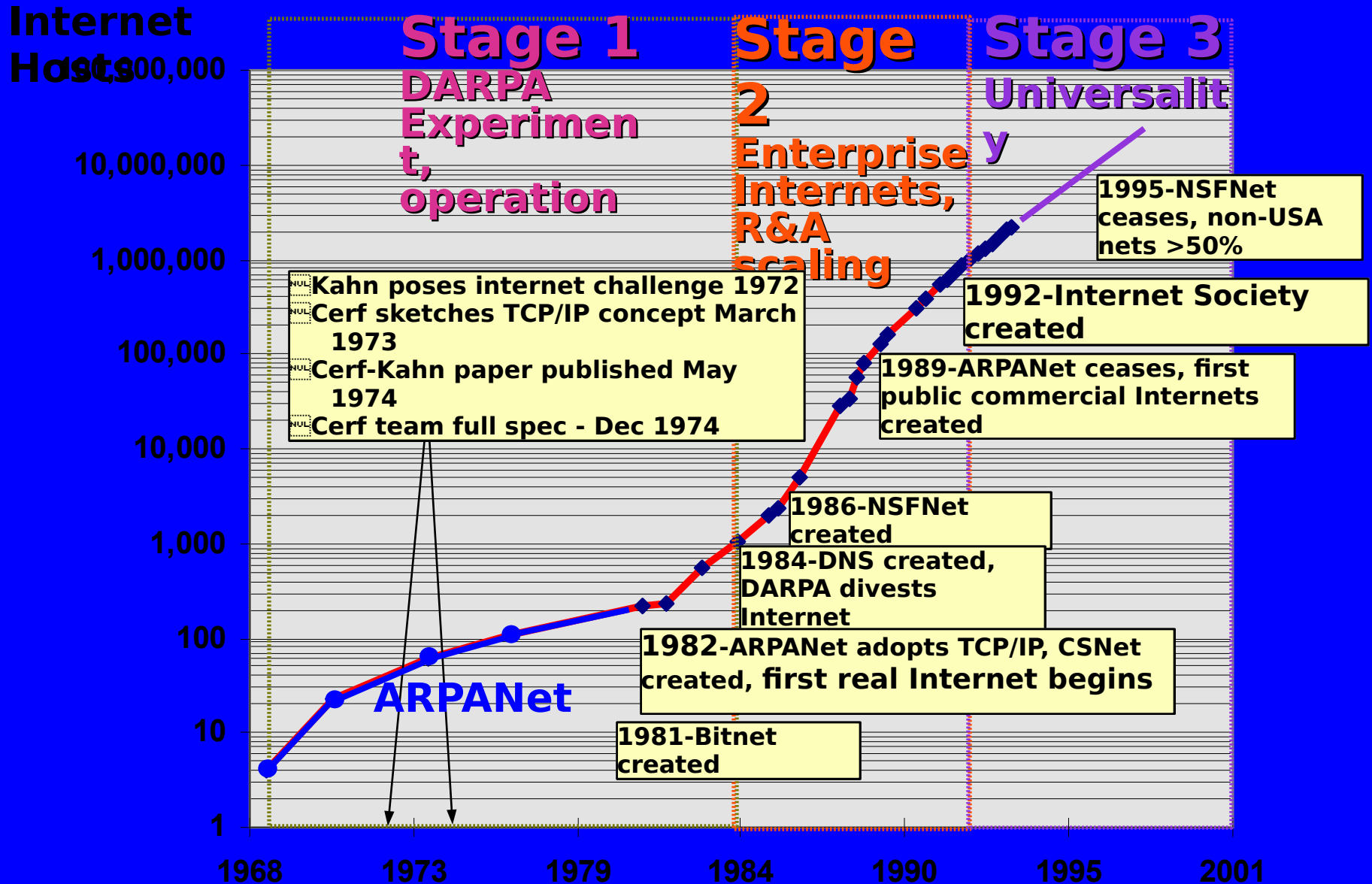
# Five Faces of Internet

- u Bottom up information infrastructure
- u Robust global computer mesh
- u Open collaboration and development
- u Enables transformations
- u Global market sector

# Bottom-up Infrastructure

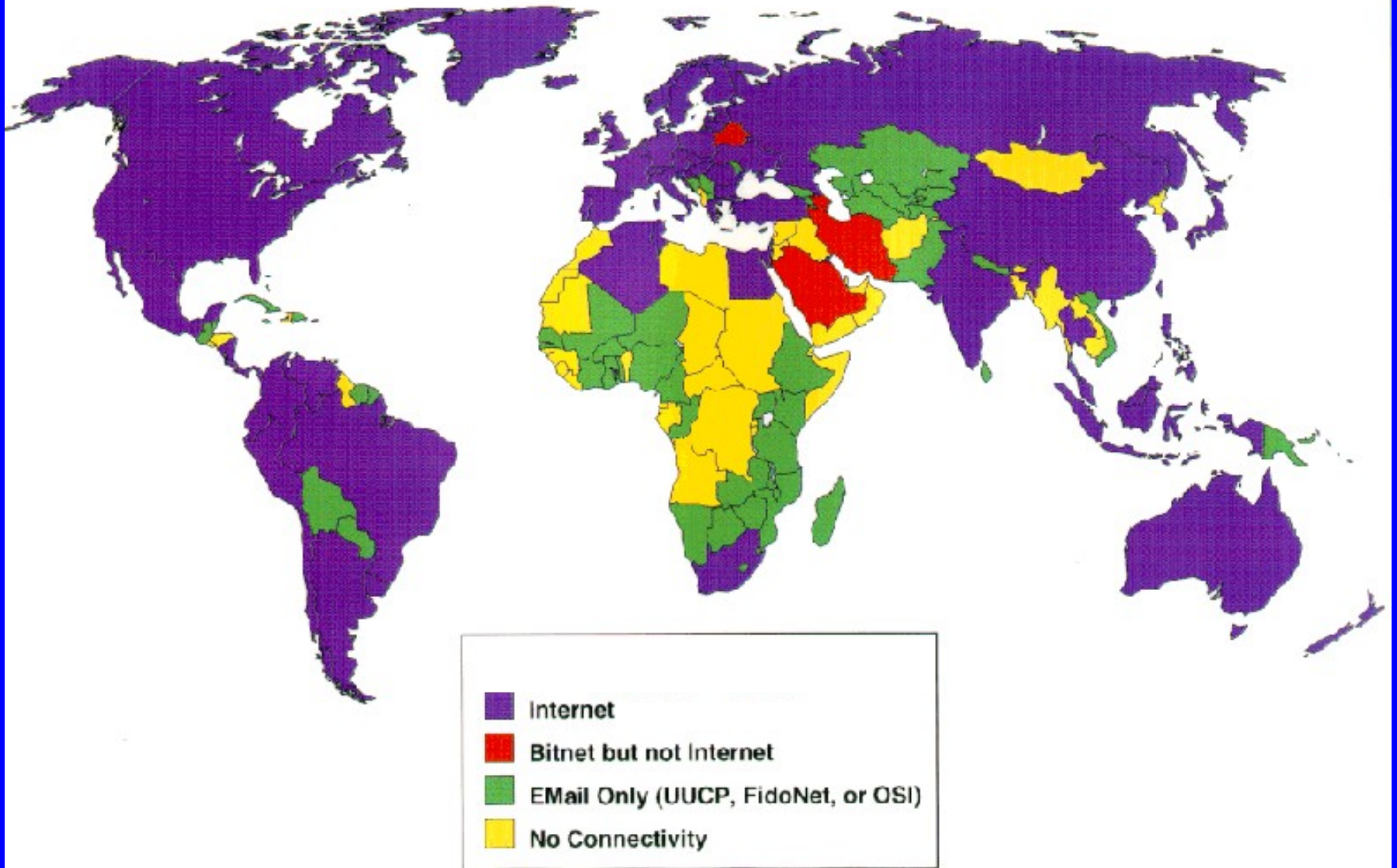
- u Last decade a collective learning experience**
- u VLSI + PCs + workstations + LANs, routers + software + individual initiative + restructured workplace = bottom up information infrastructure**
- u Massive markets and new paradigms created**
- u Internet technologies and applications were “there”**

# Internet Evolution



# Global Internet Connectivity

Version 11 - 11 July 1994



# Current Internet

## Dynamics

### Internet

- u 35,326 (NSFNet 19 July 94) plus 10 % ? connected IP internets seen at other backbones
- u 83 (74 verified) connected IP countries (1 July 94)
- u '93 ave network growth 160 % (183 % non-USA)
- u 2.217 million computer hosts; 30,000 domains (Dec 93)
- u E-mail and other gateways to 154 countries (Jun 94)

Government  
7 %

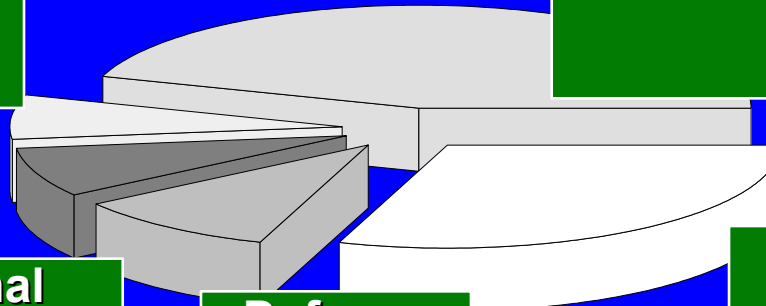
Research (including  
commercial)  
44 %

Internet  
Networks\*  
(2 July 93)

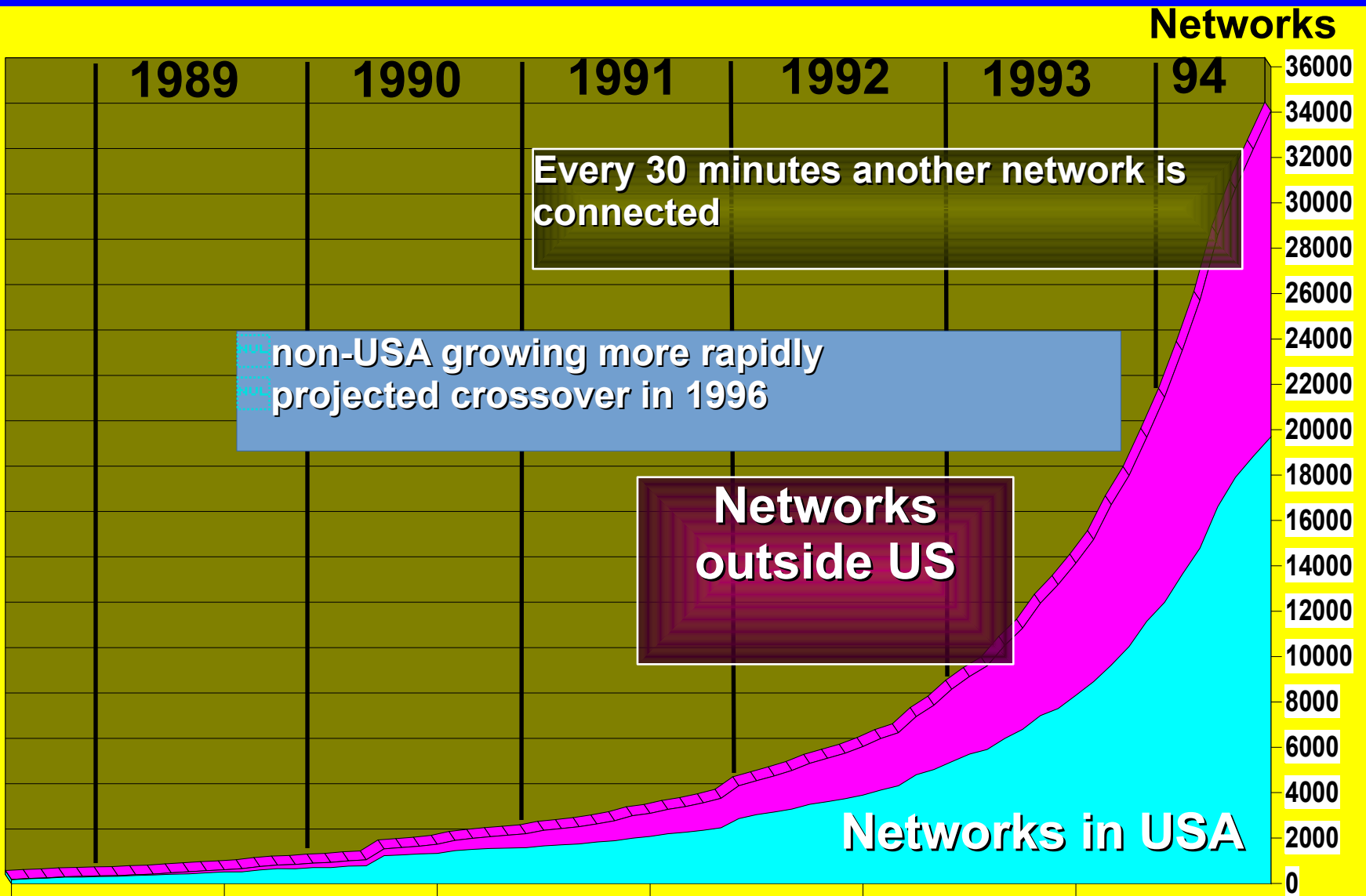
Educational  
8 %

Defense  
10 %

Commercial  
31 %



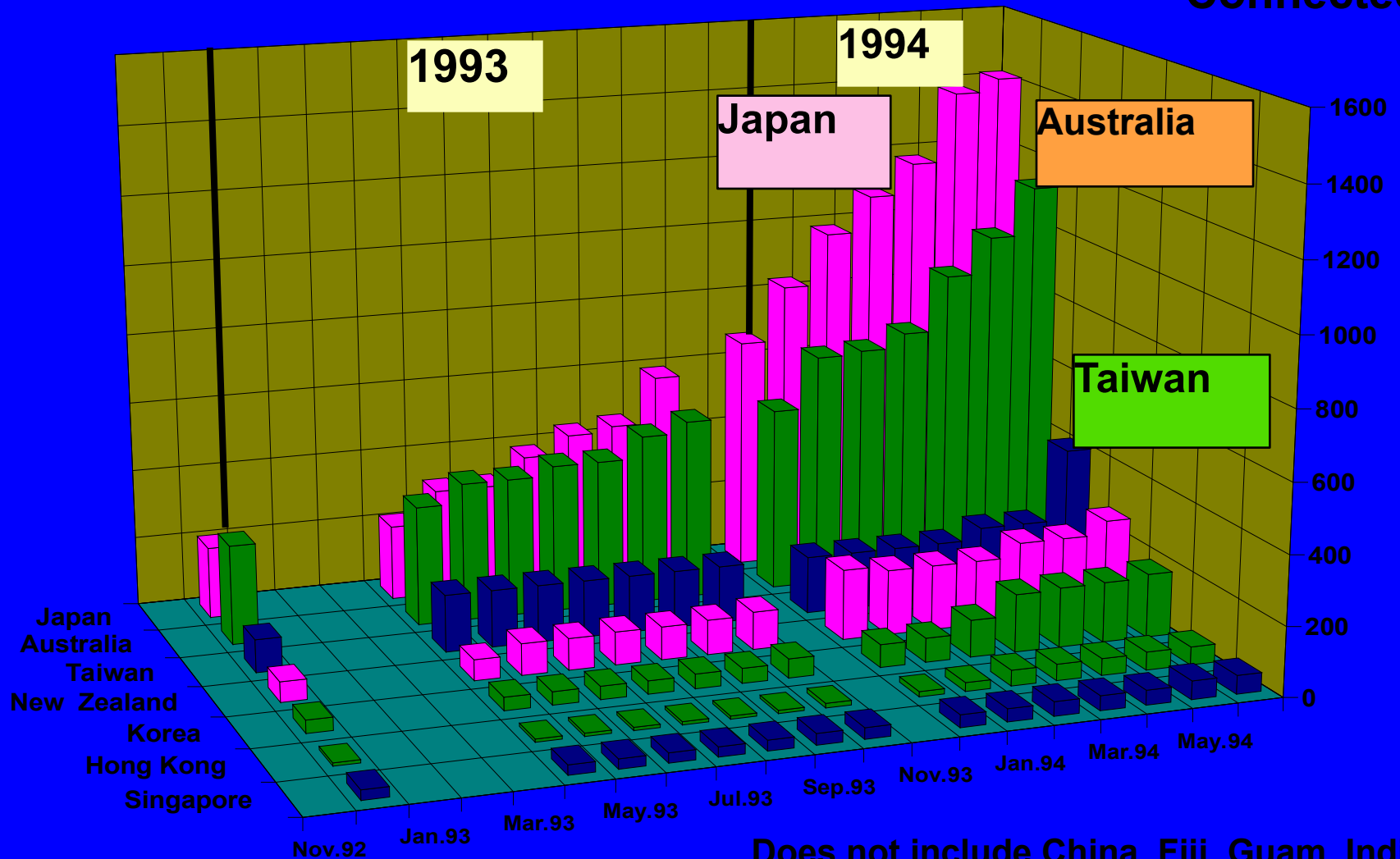
# Growth of The Internet





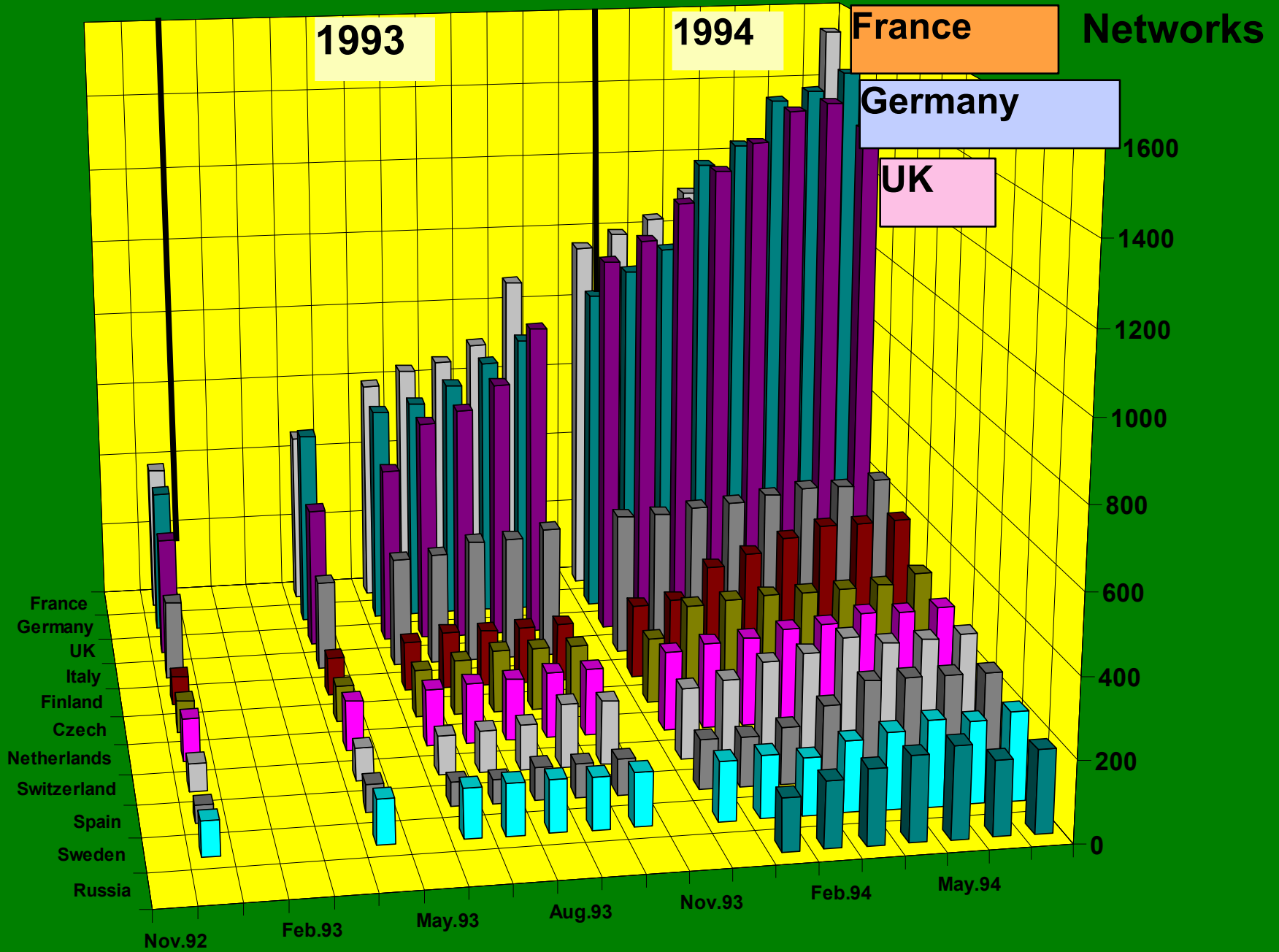
# Internet in Asia-Pacific Today

Networks Connected



Does not include China, Fiji, Guam, India, Indonesia, Kazakhstan, Macau, Malaysia, Philippines, Sri Lanka, or Thailand

# Internet in Europe Today -

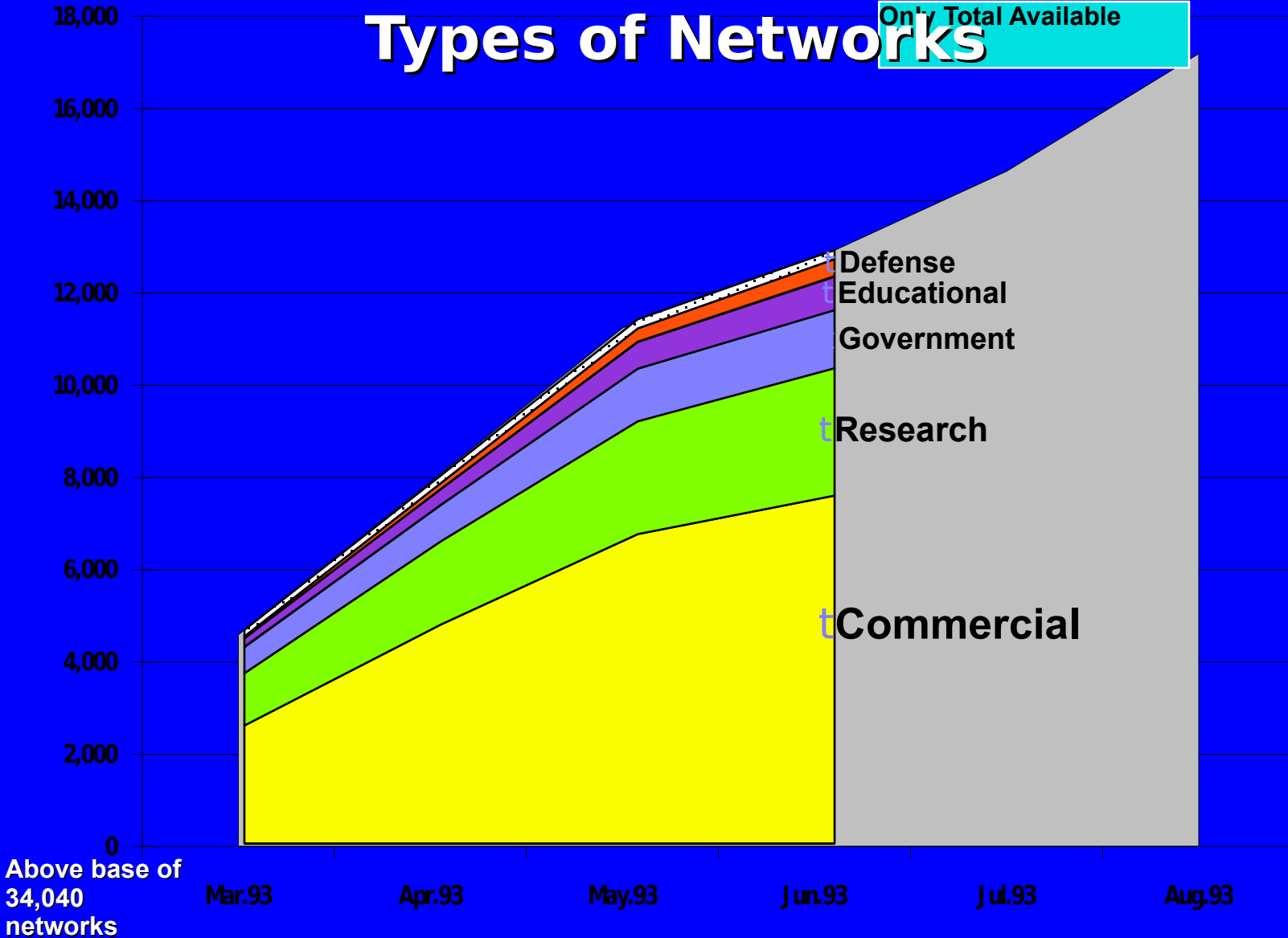


# Growth in New IP Networks 2Q93-3Q93

Number of New Registered Networks

## Types of Networks

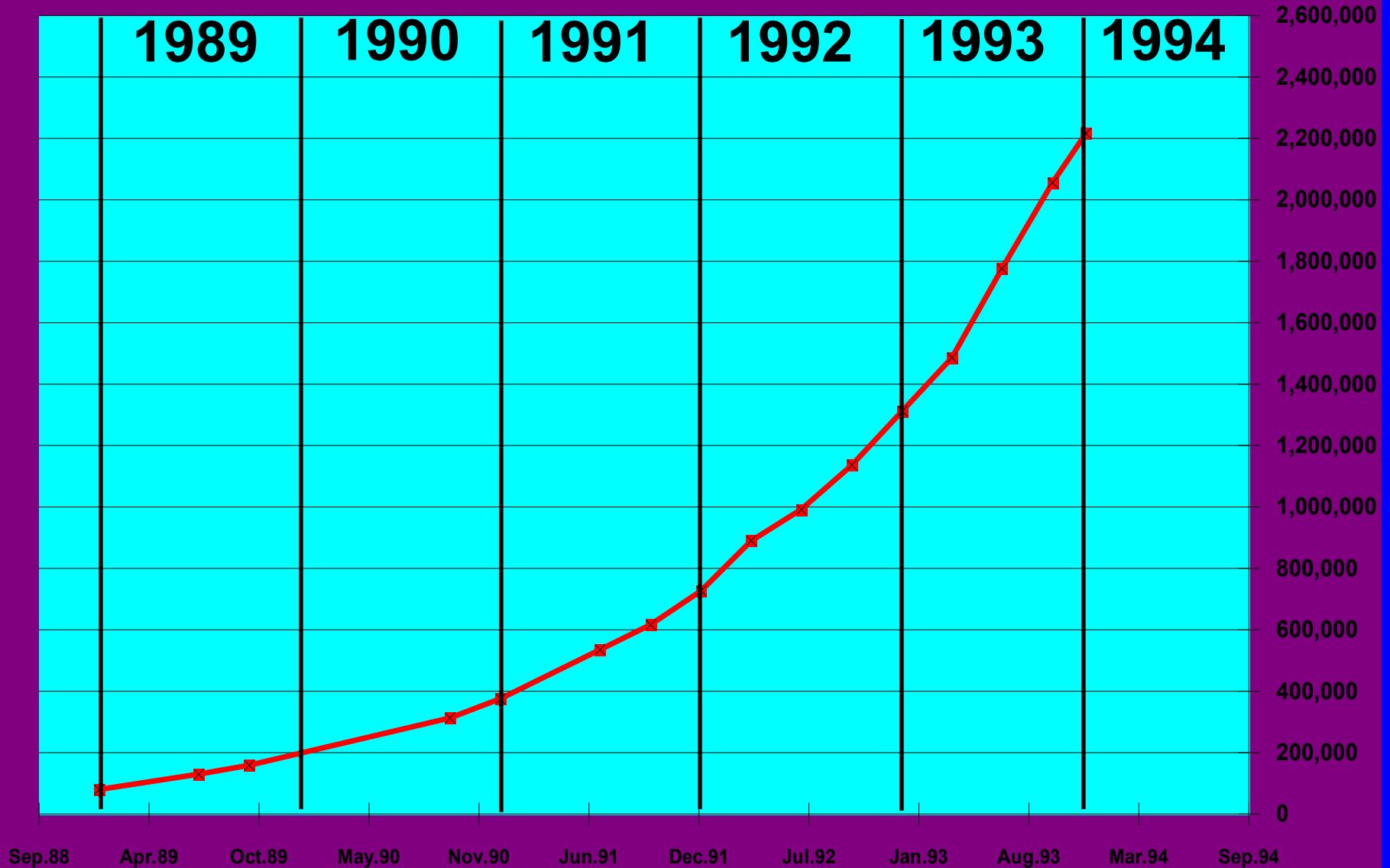
Only Total Available



Above base of 34,040 networks

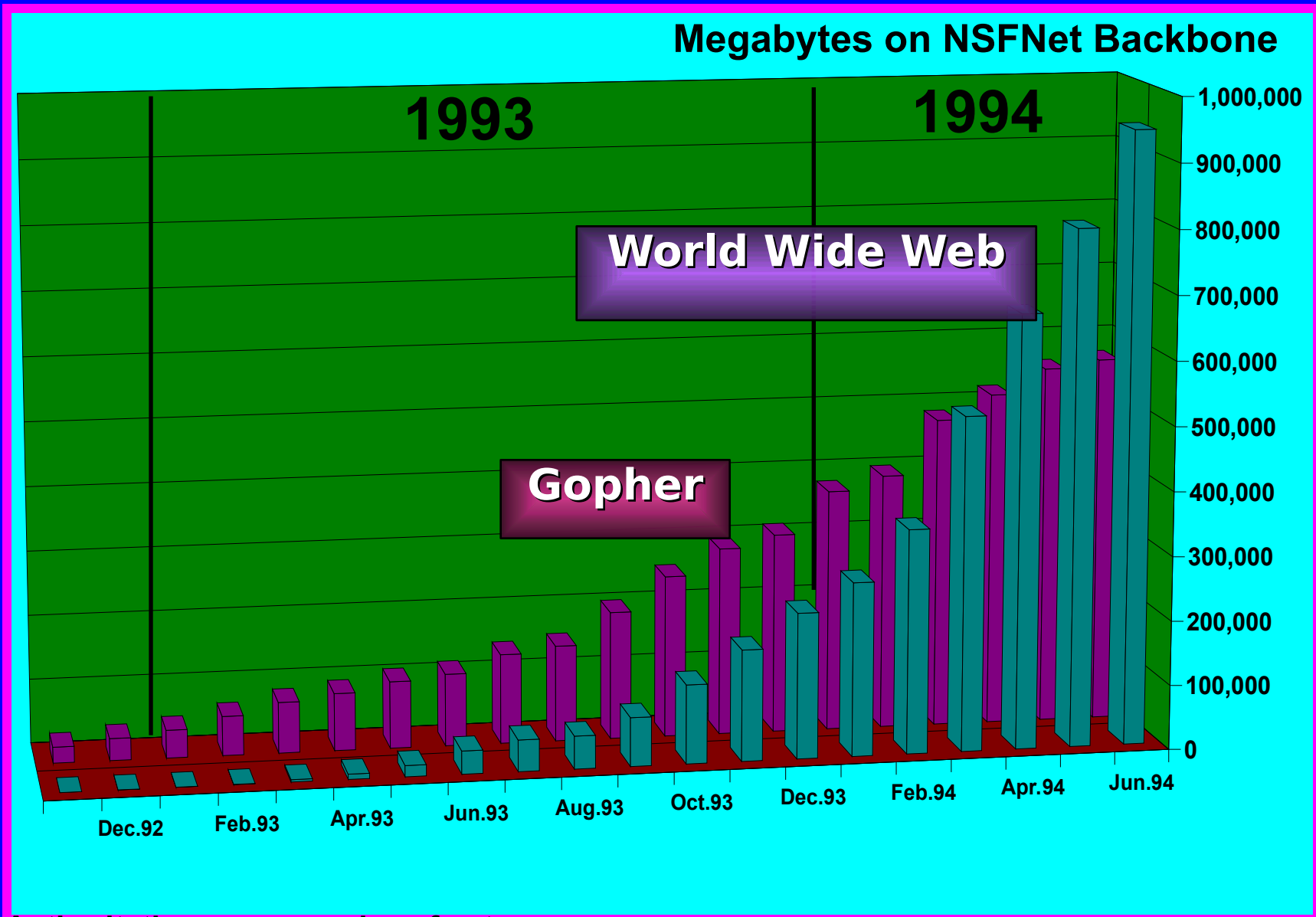
# Internet Hosts Reachable 1989-1993

Measured Hosts Reachable





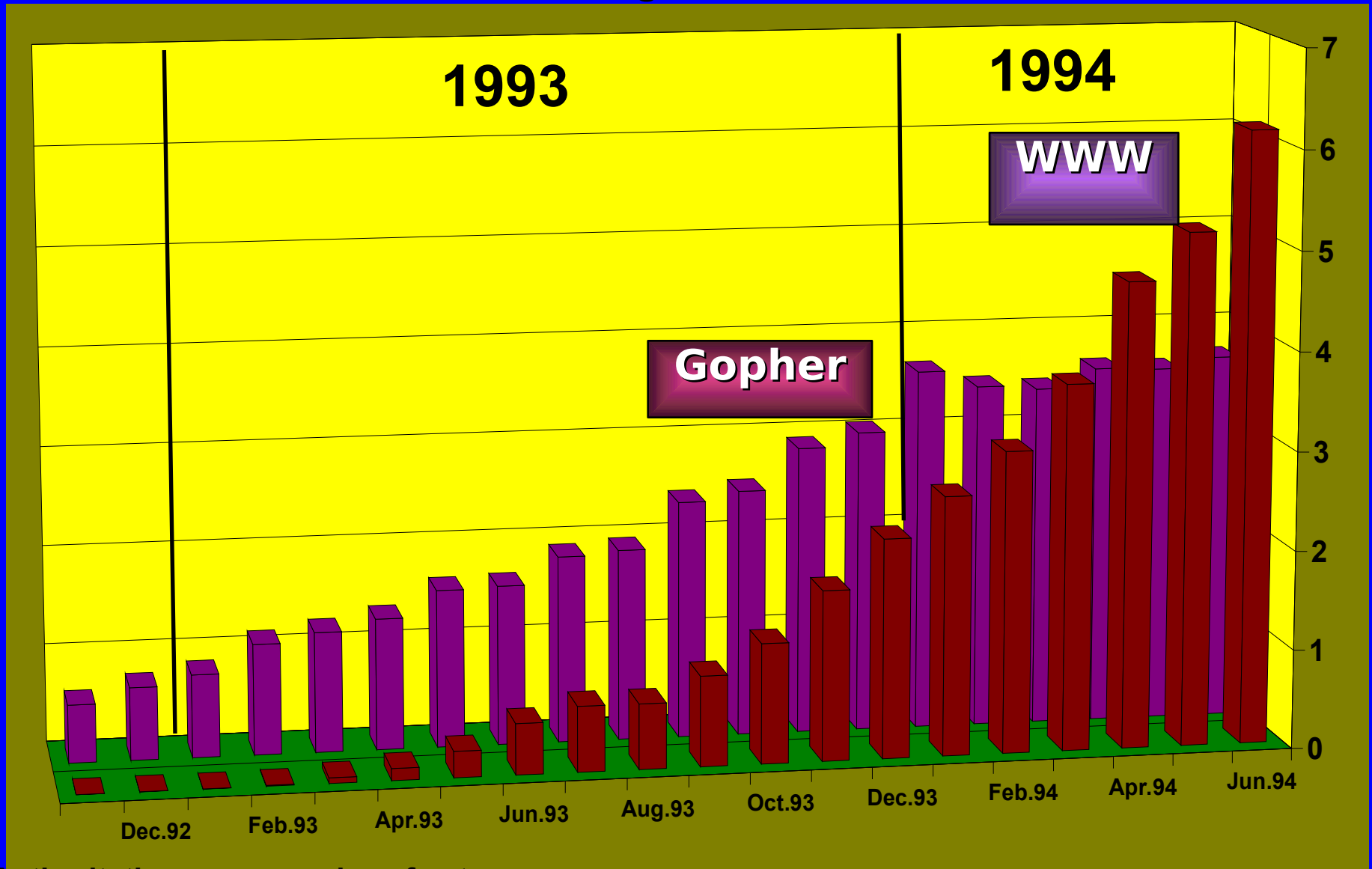
# Growth of Internet Browsing Services



Authoritative source: <nis.nsf.net>

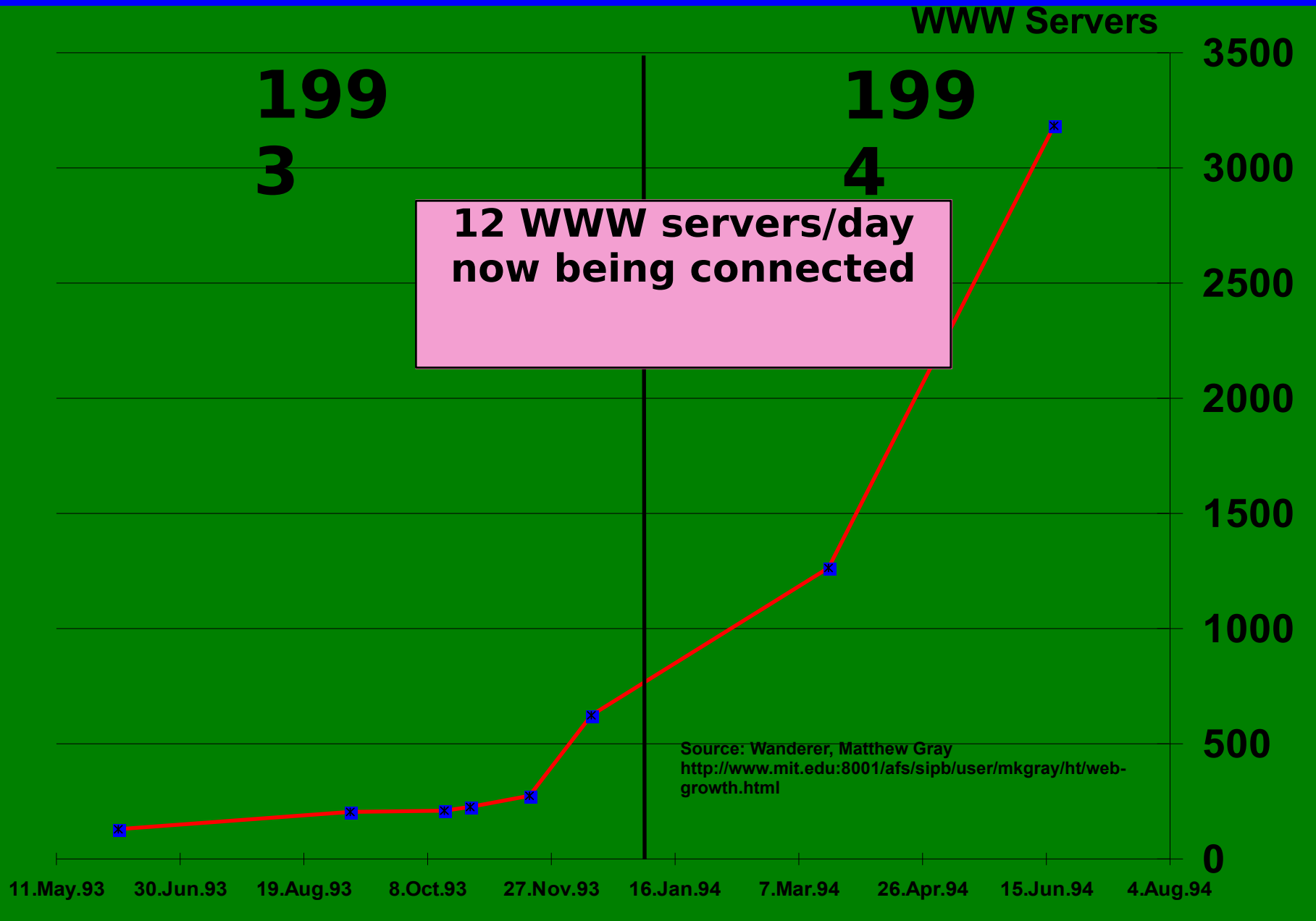
# Growth of Internet Browsing Services

Percentage of Total Traffic on NSFNet Backbone



Authoritative source: <nis.nsf.net>

# WWW Server Growth





# Open Collaboration & Development

## u Internet supports mesh among

- Up to 4 billion computers
- 64,000 process ports
- tens of millions of people

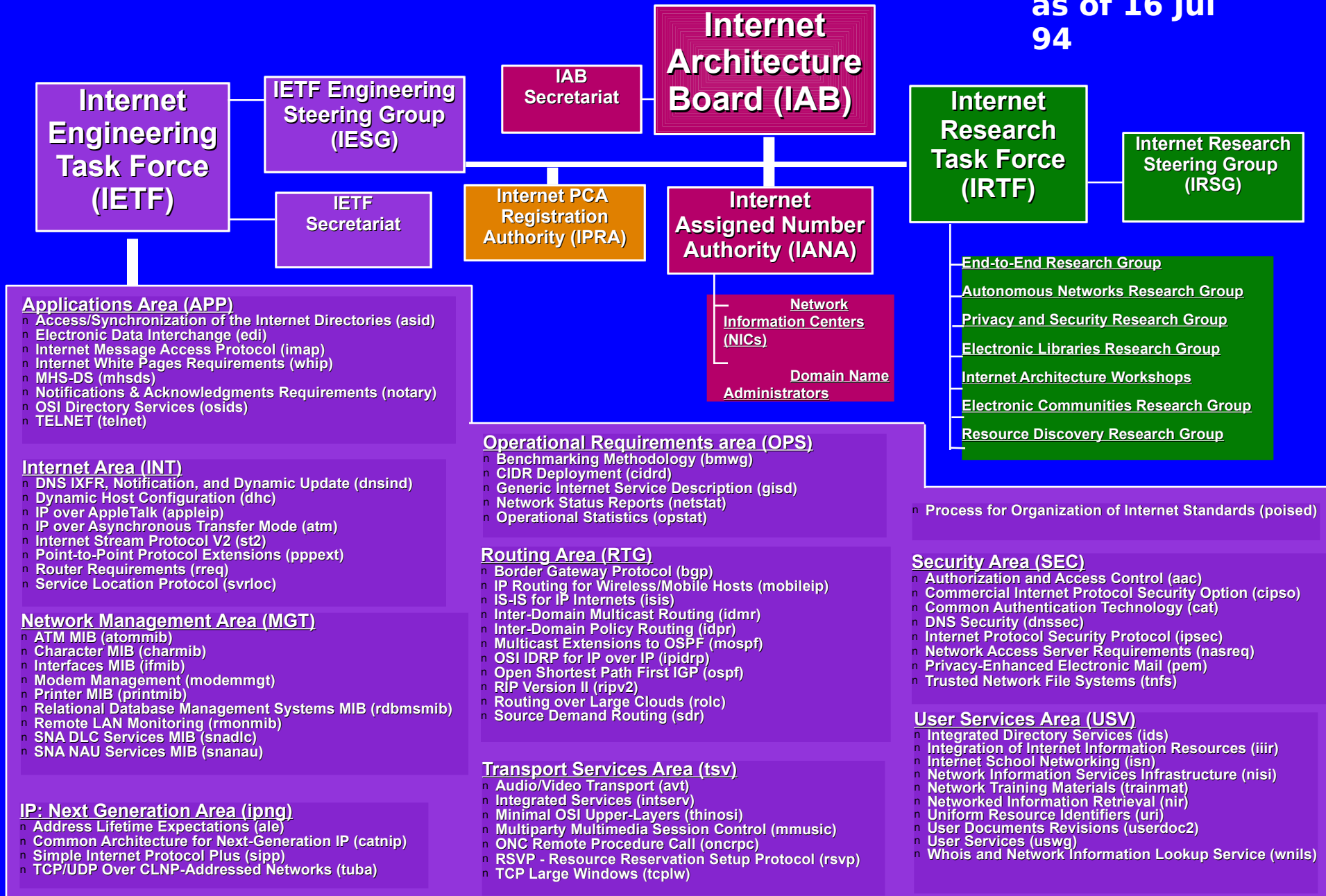
## u Technology transfer mechanism

- Network techniques and applications
- user populations

## u Promotes rapid development of user applications through Internet standards process and network distribution

# Internet Standards and Research Infrastructure

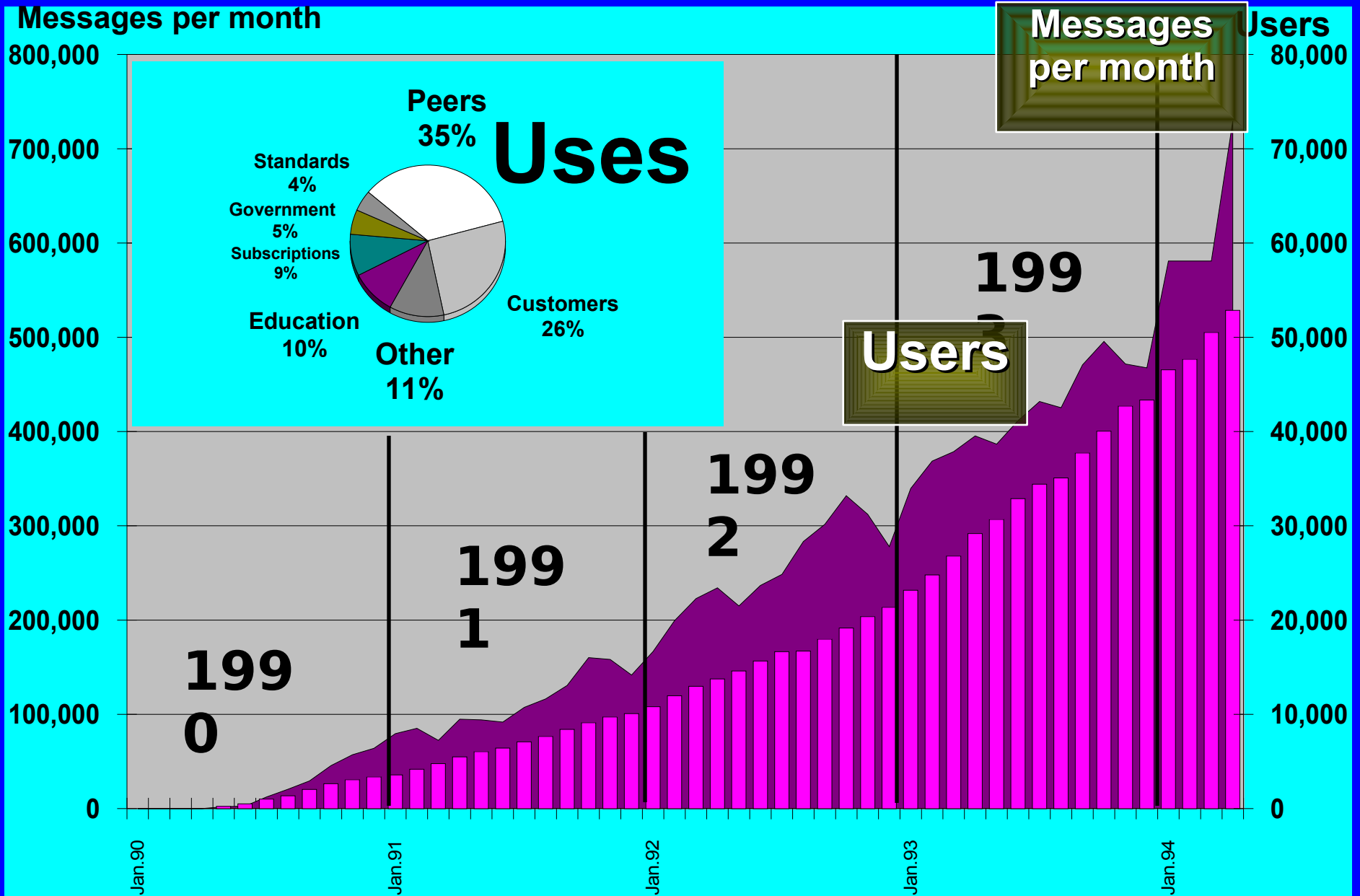
as of 16 Jul 94



# Transforming

- u Needed change in old enterprises
- u Bundled with new enterprises
- u Reinventing government
- u Creating new distributed networking field
- u Being introduced at K12 level

# IBM Corporate-Internet Gateway Profile



# Huge Market Sector

- u**Ideal market population
- u**Low-cost access
- u**Opportunities include sales, sampling, product development, and follow-ons
- u**Caveat: market is very sensitive to misconduct

# The Future

**u Computer internetworking will continue scaling and developing indefinitely**

**u Major human historical landmark**

**u Near-term indicators include:**

**Business on the network**

**Monetary transactions**

**EDI forms**

**Massive connectivity by major business, government and professionals**

**Stunning growth in WWW-Mosaic multimedia browsing**

**Ubiquity**

**People**

**Geography**

**Media**

# What Promotes Internet Diffusion ?

- u Available investment capital
- u Minimal government impediments to service provisioning
- u Freedom from government restrictions on operational agreements
- u Motivated internet and computer experts
- u Commitment to GATS provisions to allow competition in public Internet services and access to underlying transport services
- u Cost-oriented leased lines
- u No restrictions on or taxation of modems or computer equipment



# Challenges and Promises

- u Massive growth over the next 2 orders of magnitude is a challenge
- u Addressing, security problems, and operations appear manageable
- u Ultimate limits determined by computers, access methods, and bandwidth in remote areas
- u Human and institutional aspects pose biggest unknowns

- u A world of shared minds transcends accidental boundaries, geography, institutions, and time
- u ...potentially filled with discovery, fulfillment and fascination for everyone



# What is the Internet Society?

- u The global international organization for open systems internetworking and the *Internet*
- u A common mechanism for:
  - u standards making
  - u operational administration and coordination
  - u research coordination and education
  - u global cooperation among national, regional, and other international bodies
- u An international means for sharing information and encouraging development of internet-related infrastructure and use around the world
- u Members consists of individuals and organizations - commercial, governmental, and non-profit
- u Contact <[isoc@isoc.org](mailto:isoc@isoc.org)>  
+1 703 648 9888

