Present

Size

- ~10^6 hosts
- ~10^4 nets
- ~5×10^6 users (?)
- ~10^4 routers
- ~$10^2 – 10^3$ (?) service providers

Services

- Interactive Computing
  Scroll, Screen, X-Windows
- File Transfer
- Electronic Mail
- Database Access — Text, Data, Images
- Voice
- Video

Voice + Video > Teleconference

Users

- Academic/Research
- Government
- Business

Someone gets

Future (Technical)

Someone gets to sell these!

Size (2000 AD)

	Conventional	Ubiquitous Computing
	~10^8 hosts	~10^{10} hosts
	~3 x 10^6 nets	~10^8 nets
	~10^9 users	~10^9 hosts
	~3 x 10^6 routers	~10^8 routers
	~10^3 – 10^4 service providers	

Many Challenges

- Mobile Hosts & Nets
- TOS/QOS Support
- Security, Privacy, Access Control
- Accounting
- Large Scale Net Management
- Large Scale Routing
- Multiprotocol Support

Architected for ~10^9 nets

Future (Services)

- Remote Access
- Voice, Video, W/S Teleconferencing
- Digital Libraries/Publishing
- Multi-Computer Computation
- Knowbotic (Autonomous) Services
- Multimedia EMail (MIME/PEM)
- CAD/CAM
- Networked Manufacturing
- Business Transactions (EDI, EFT)
- Public/Commercial Information Services
- Distributed Games
- Mobile Personal Communication
- Toasternet
- Pre-Programmed, Dedicated Hosts!
  (like pre-recorded videos)

Future (Network Service Provision)

- Increasing Commercial Service < bus. / res.
- Mission-Specific Networks
  (gigabits…terabits)
- Mobile Service
  LEO, Digital Radio
- N-ISDN – Residential [SMDS?]
- B-ISDN – Business/WANs

Must!

- More Global Coordination
  - Name/Addr Assignment
  - Facilities Planning
  - Operational Cooperation

Summary

- DIVERSITY!
- Demand for Interoperability