Information Superhighway
Internet's View

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Information Superhighway

- ● **Definition**
  - - Communication of any type, anytime, anywhere
  - - A material interactive, multimedia highway that is open, interconnected, and accessible to all -- a "netework of networks"
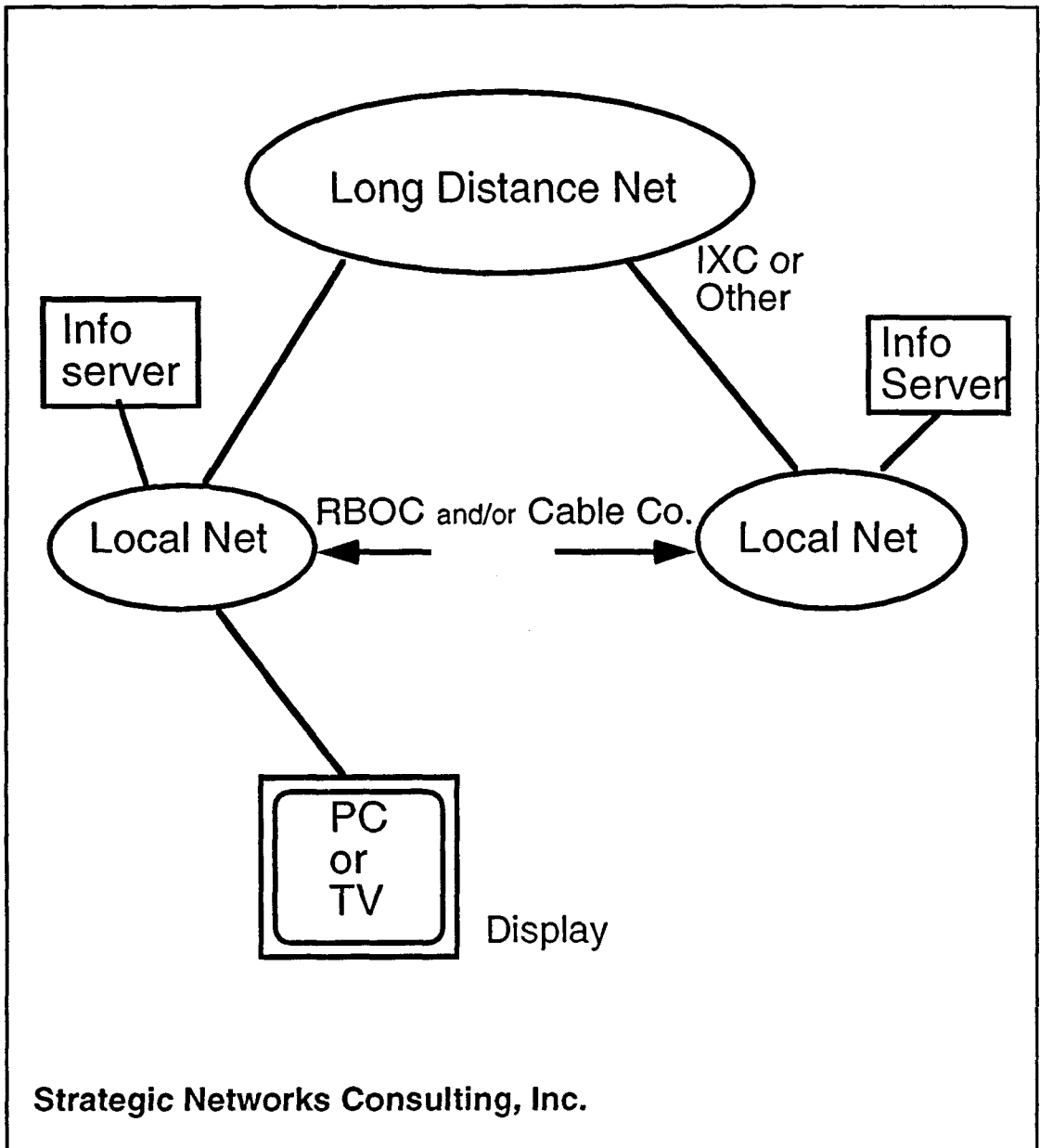
- ● **Key Principles**
  - ○ "network of networks"
  - ○ customer choice throught competition
  - ○ fair and open access
  - ○ open standard

Superhighway Topology
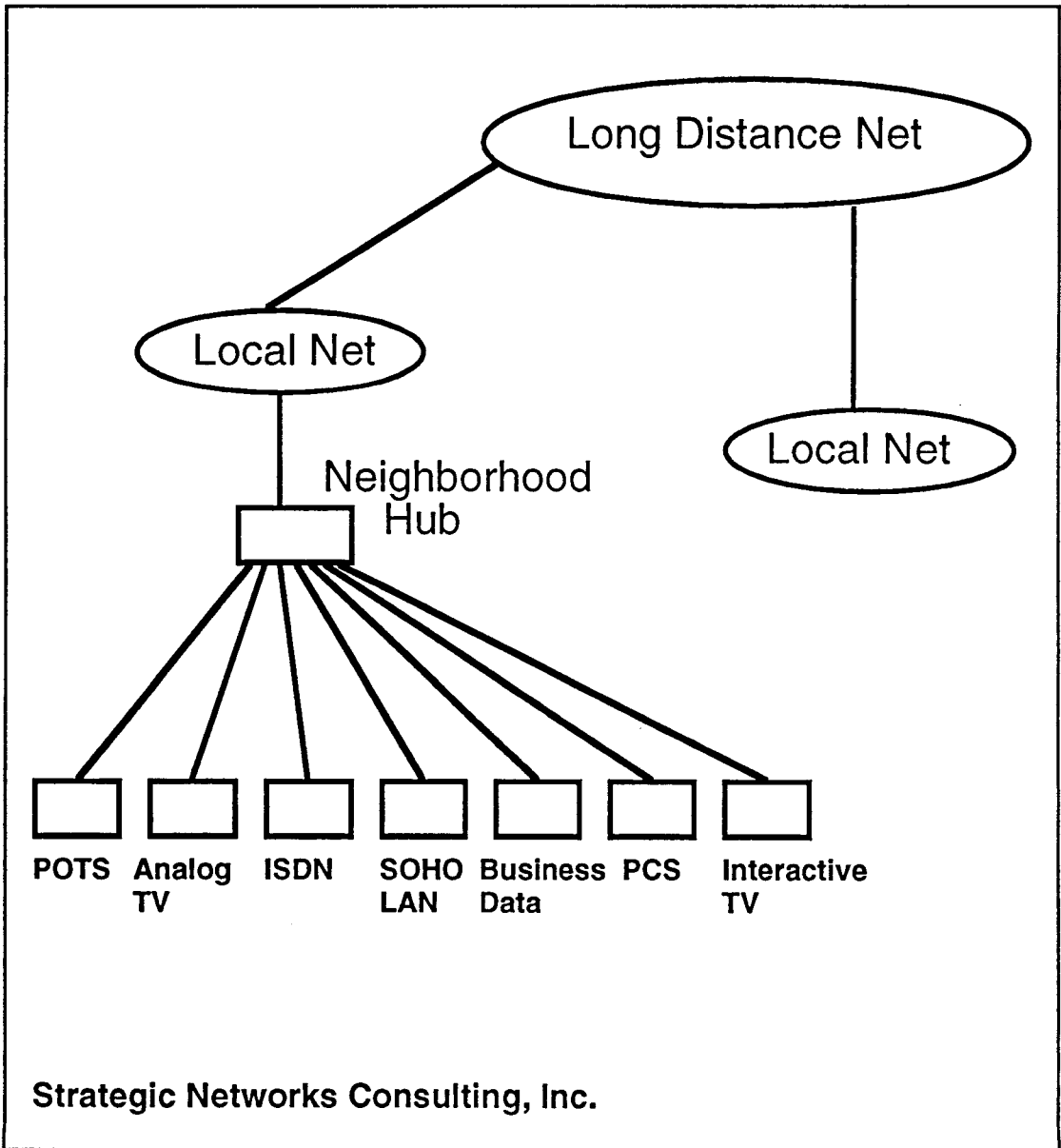## A Physical View

Strategic Networks Consulting, Inc.

Superhighway Topology
A Full service Network

POTS Analog ISDN SOHO Business PCS Interactive
      TV   LAN   Data   TV

Strategic Networks Consulting, Inc.

● **Information ==> Digital Form**
  (Digitization Becomes Universal)

  ○ **Common Processing**

  ○ **Common Presentation**

  ○ **Common Communication Media**

  ○ **Common Storage Media**

Applications

o Electronic Mail   o Teleconferencing

o Video Server   o Financial Services

o Audio Server   o Image Server

o Remote login   o Interactive Education

Middleware Services

o File systems   o Name Servers

o Security   o Storage Repositories

o Privacy   o Service Directories

Network Technology

o LANs   o Wireless

o Point-to-point Circuit   o ATM

o Frame Relay   o Dial-up Modem

o ISDN   o Direct Broadcast Satellite

o ADSL, HDSL

	Telcos	**Internet**	**Cable**
Appliance	Telephone	Computer	Television
Application	Voice Call	E-mail	T.V. Channel
Network	Switched	Routing	Broadcast
	Circuit	Hierachy	"Islands"
Business	Private Monopoly	Volunteer Organization	Enterpr'n
Planning	Closed-Centralized	Open-Decentralized	Closed-Decentralized
Customer	Home/ Business	Universities/ Research Inst.	Home
Allies	Gov'ts	Schools/ Communities	Information Industries
Information Highway Goal	Carrier of wide range of info. services	A universal peer-to-peer network	A "500" Channel universe

Information Highway Property	Closest Current Prototype
Local Ubiquity:	Telcos
Global Reach:	Telcos / Internet
Open Architecture:	Internet
Ease-of-use:	Telcos / Cable
Capacity/bandwidth:	Cable(one-way)
Intelligent Appliances:	Intenet
Interactivity:	Telcos / Internet
Affordability:	Telcos
Diversity of Applications:	Internet
Flexibility:	Internet
Business Organization:	Telcos

NII Technologies and Major Nations

NII Technology	U.S.A	U.K	Ger-many	Japan	Korea
Content	+++	+	-	-	-
Mutimedia Production	+++	+	-	++	-
DB Handling	+++	++	+	+	-
SW Development	+++	+	+	-	-
Media server Technology	+++	+	-	-	-
Communication Technology	++	+	-	++	-
Internet Technology	+++	-	-	-	-
Advanced TV	+	-	-	++	-
PC Deployment	++	+	++	++	+
Fiber Deployment	++	-	++	+	-

Internet

● **Architecture**
- **Backbone : T3(45Mbps) ==> 155Mbps('95)**
- **Local Access : via telephone network**
- **Topology : mesh with sessional star**

● **Size/Growth : 3.2 million hosts, 30 million users, plus 1 million/month**

● **Linkage of public / private e-mail systems**

● **Source of network innovation (e.g. navigation)**

● **Challanges**
   develop "user-friendly" interfaces
   define next step after TCP/IP
   develop security mechanism
   ensure availabilty of inexpensive rural access

● **Develop / Market Value - added info. services**

● **Complete shift to non-volunteer model**

Superhighway Testbed = Internet

- Electronic Store & catalogs

- Info Navigation
  - Gopher, Archie, Mosaic

- Delivery mechanism for info. services & publishing

- User population increased drastically

  Research Group

    ==> Library communities

    ==> Elementary, high schools, community colleagues

    ==> All sectors of the economy and society

Future Internet

- Internet $\neq$ Superhighway
  - Adjunct of the superhighway
  - A larger, faster Internet
  - Superhighway project has higher priority

- Internet $=$ Superhighway
  - The Internet is the superhighway
  - More professional management
  - Extensive content is added
  - As commerce comes to the Internet, infrastructure investment may follow

Relationship Between NREN, Internet, and National Information Infrastructure

National informational infrastructure

Internet

NREN program

Agency networks
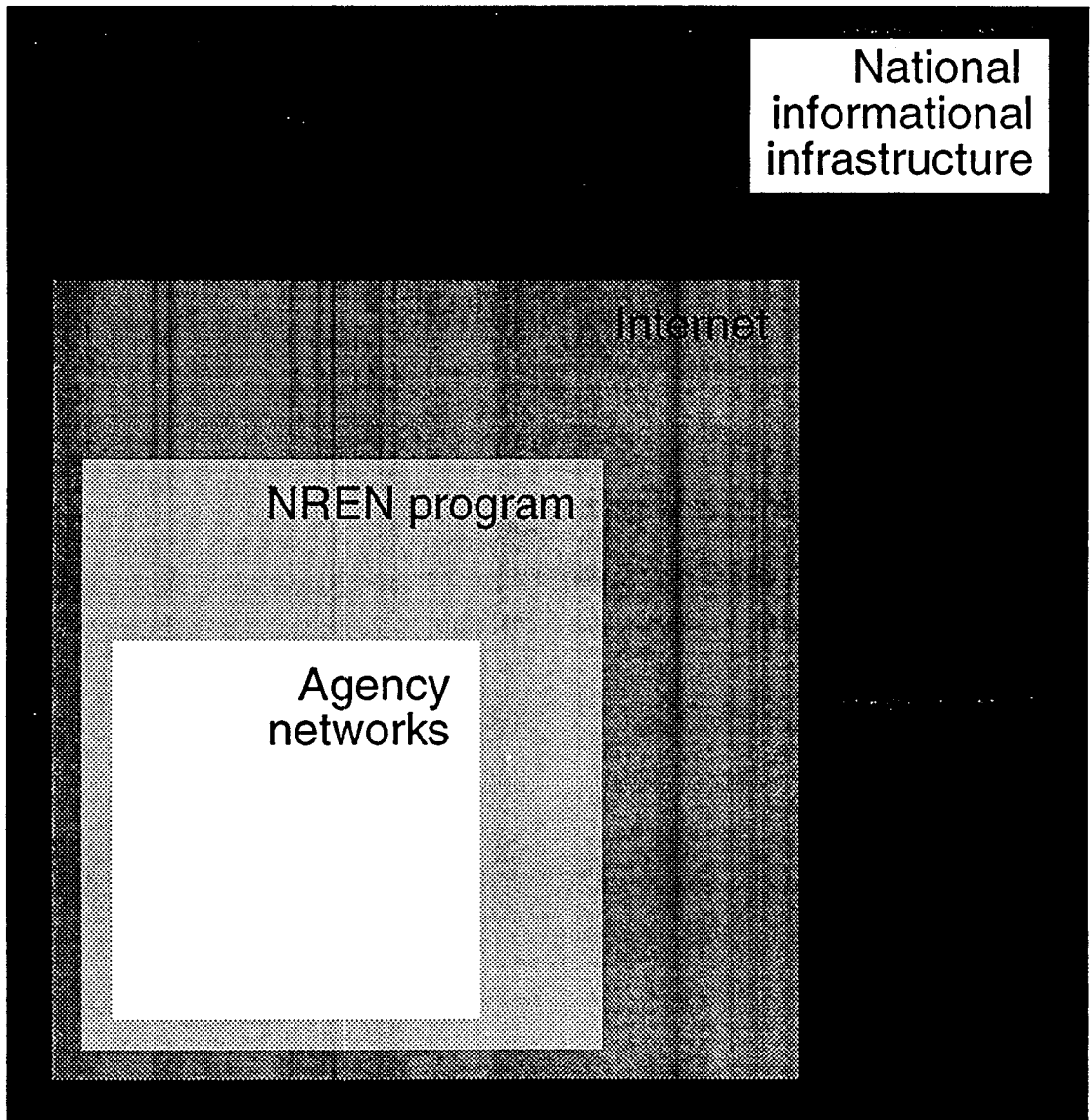
Source : Office of Technology Assessment, 1993

References

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3. "High Speed Networks - The Road to Building a Global Information and Economic Infrastructure", Nicholos J. Lipps, Eric Hindin and Rolf McClellan, Networld+Interop94, May 94