

# KECENDERONGAN PEMBAHARUAN-PEMBAHARUAN TEKNOLOGI INFORMASI DI ABAD KE-21 \*

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- \* Dipresentasikan pada Seminar Antariksa Nasional 1995,  
Jakarta, 26 Oktober 1995
  - \*\* Guru Besar ITB.

## MEGA-DEALS

- ★ 2.5 billion, strategic alliances between US West (Baby Bell) and Time Warner (second largest Cable-TV operator).
- ★ 33 billion US\$ merger of Bell Atlantic with Telecommunication Inc (Cable-TV firm).
- ★ 8.4 billion merger of Viacom (Cable-TV firm), with Blockbuster (Video Rental chain)
- ★ . . . . . billion deal merger of A.T. & T. and McCaw (cellular operator)
- ★ Hollywood ..... et cetera.

### **Ray Smith ( Bell Atlantic) :**

"We stand on the verge of a *great flowering of intellectual property, a true renaissance* that will *unleash the creative energies* of investors, entrepreneurs, hackers, artist and dreamers".

### **Bill gates (Microsoft) :**

"I am the launatic fringe of believers in this stuff. It will change everything".

### **Rupert Murdoch & Ted Turner :**

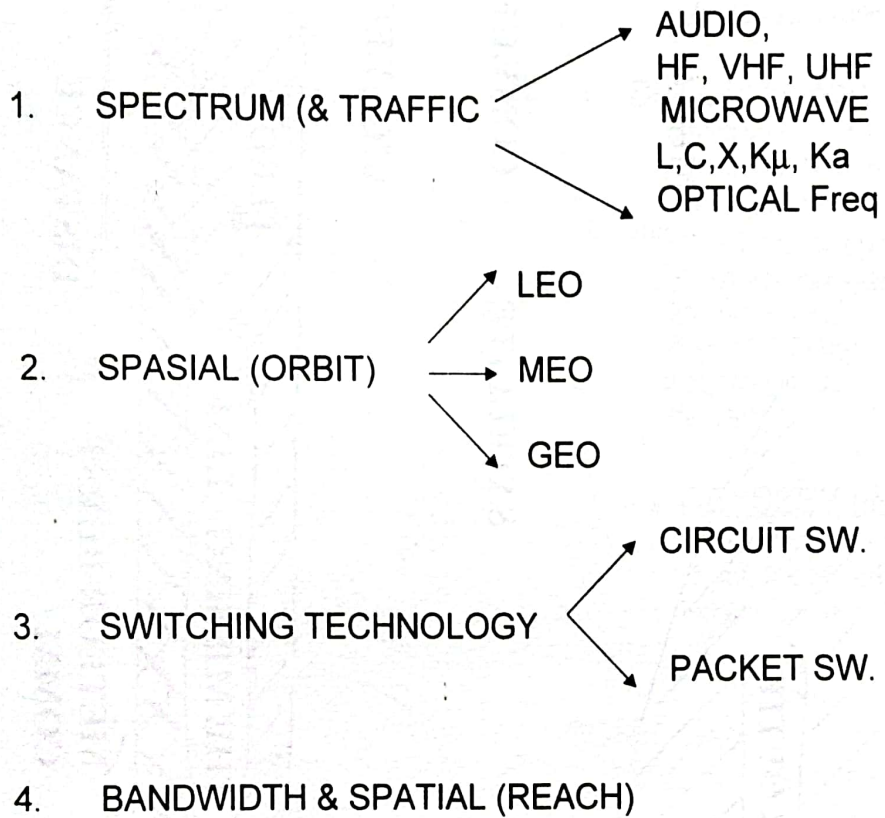
"Every single interactive TV experiment *has failed*; most people want to sit back and *watch-interacting is hard work*".

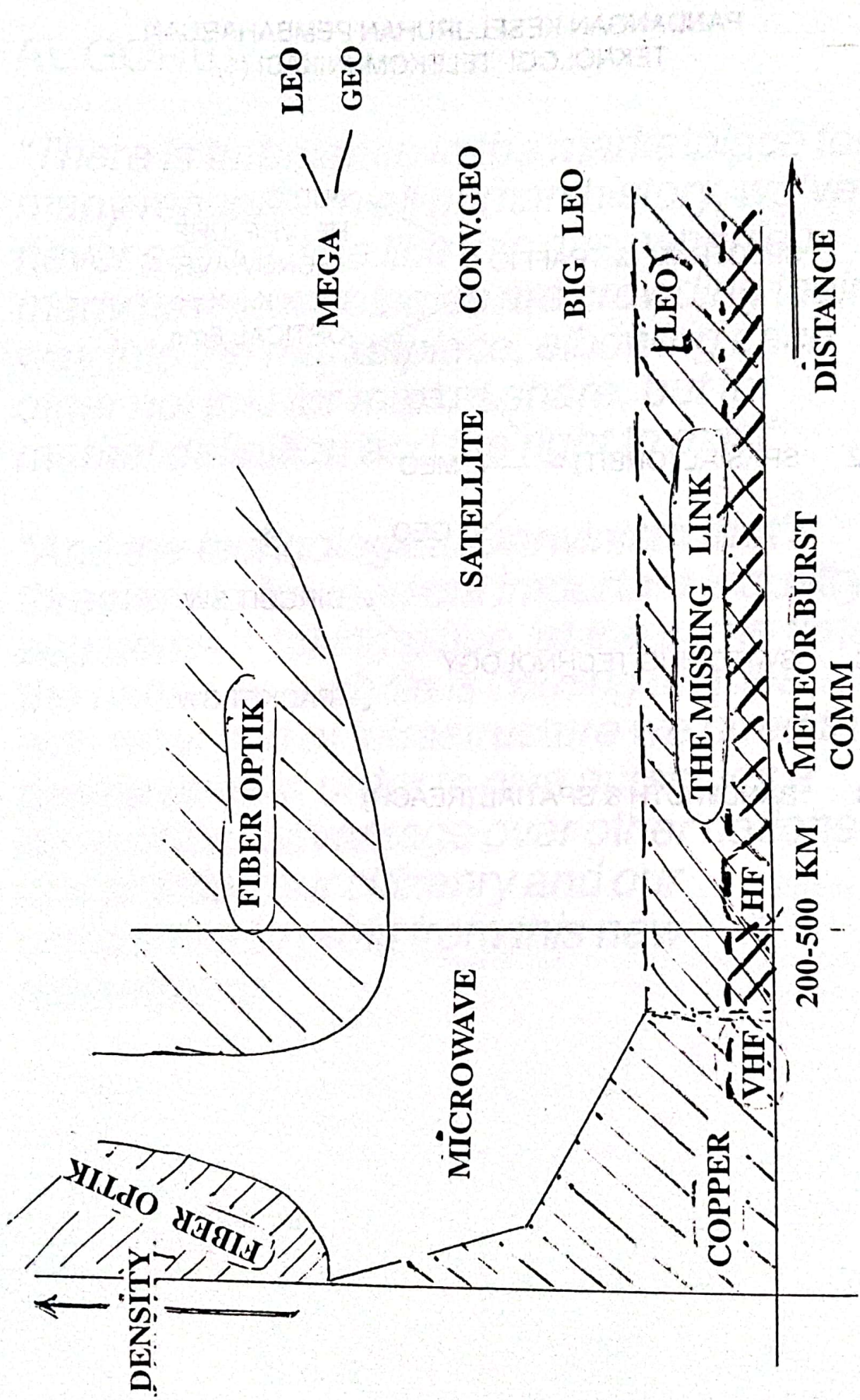
AL GORE:

*“There is turbulence in the marketplace for many reasons. In all human history, we’ve never seen a time like this one, when so many new technologies are crowding their way into the marketplace, elbowing each other not just for market share, but for market definition and the right to exist”*

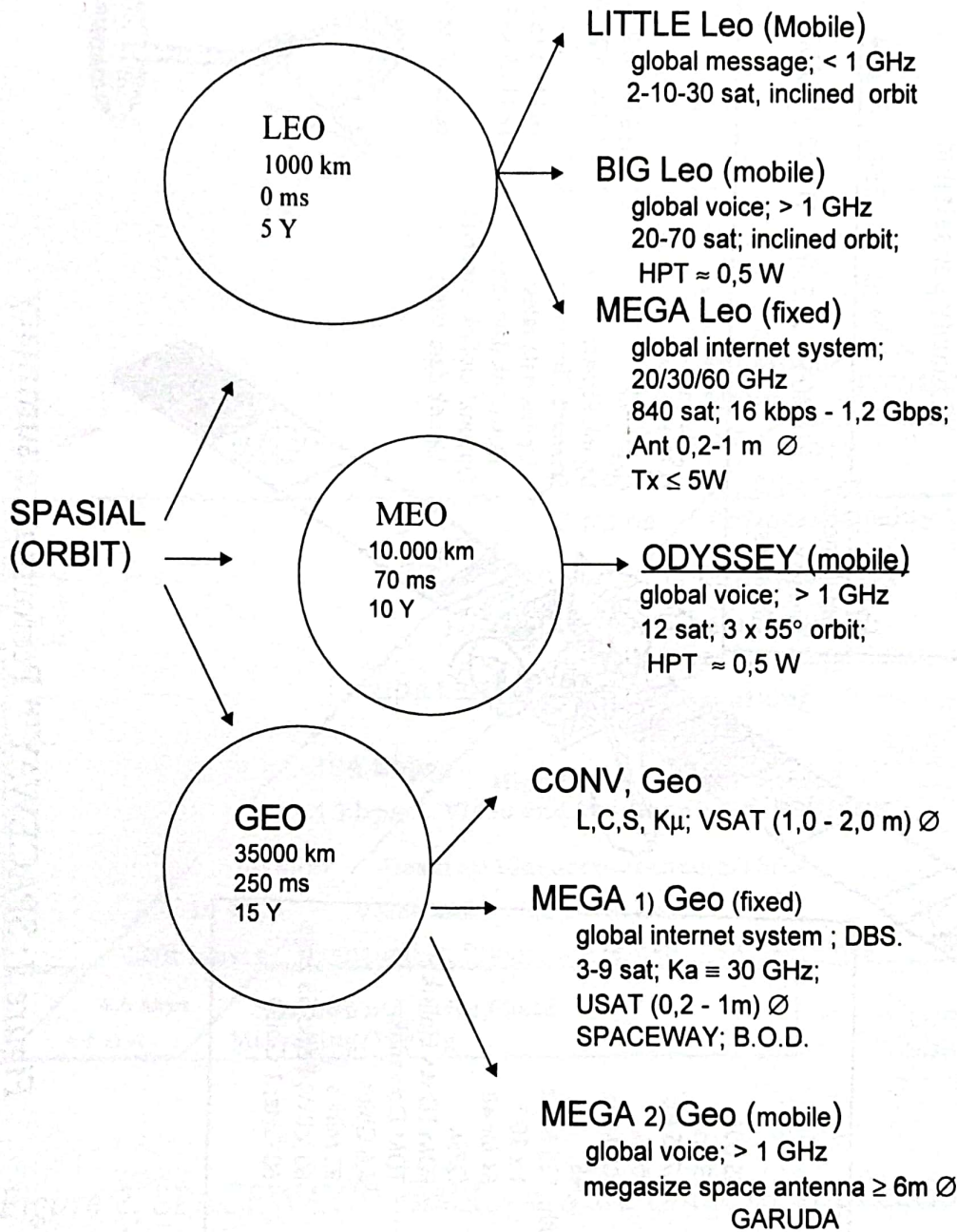
*“And the technological Darwinism that’s threatening to weed out important industry segments is taking place, at the same time the nation as a whole is coming to grips with what sort of infrastructure we need to decide upon in order to give ourselves a competitive advantage over other nations and position our citizenry and our companies to profit from this new marketplace”*

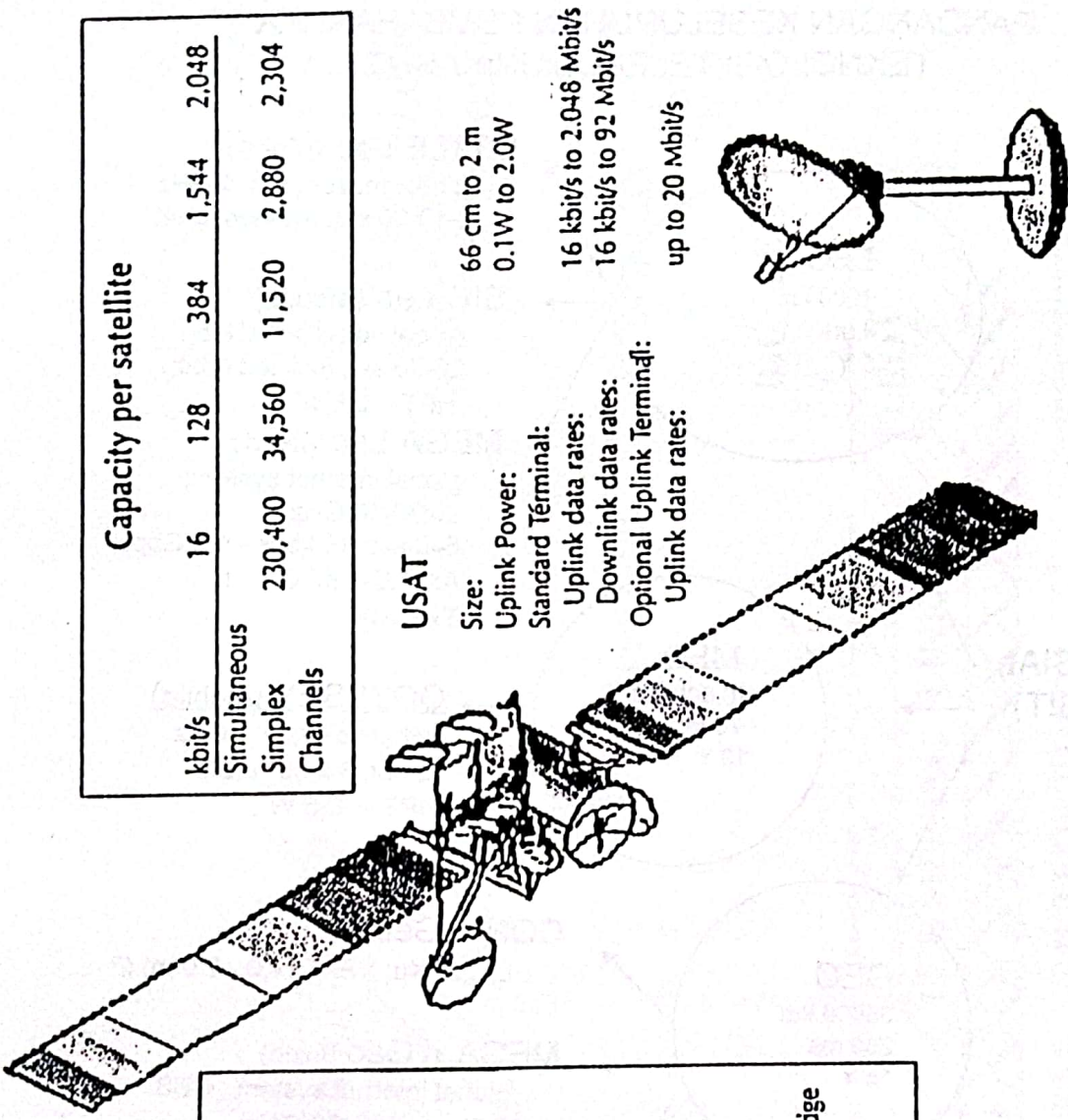
PANDANGAN KESELURUHAN PEMBAHARUAN  
TEKNOLOGI TELEKOMUNIKASI (1)





## PANDANGAN KESELURUHAN PEMBAHARUAN TEKNOLOGI TELEKOMUNIKASI (2)





Capacity per satellite				
kbit/s	16	128	384	2,048
Simultaneous Simplex Channels	230,400	34,560	11,520	2,880
			2,880	2,304

<b>Satellite</b>	HS 601
Type:	15 Yrs
Lifetime:	3,785 lbs
Dry weight:	100%
Eclipse capacity	500 MHz
Bandwidth:	48
No. of communication beams:	125 MHz
Communication beam bandwidth:	$1 \times 10^{-10}$
BER performance:	64 for 48
Transmitter redundancy:	QPSK
Modulation:	FDM/TDMA Uplink
Data stream:	TDM Downlink
	4.6 Gbit/s
Data throughput:	92 Mbit/s
Downlink data rate:	60 (dBW) Peak; 55 Edge
Downlink e.i.r.p.:	60 GHz; 1 Gbit/s
Inter satellite links:	

**USAT**

- Size: 66 cm to 2 m
- Uplink Power: 0.1W to 2.0W
- Standard Terminal: 16 kbit/s to 2.048 Mbit/s
- Uplink data rates: 16 kbit/s to 92 Mbit/s
- Downlink data rates: up to 20 Mbit/s
- Optional Uplink Terminal: up to 20 Mbit/s
- Uplink data rates: up to 20 Mbit/s

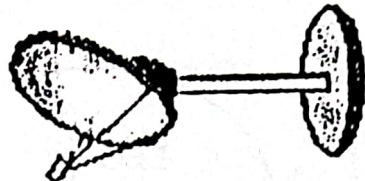


Figure 1: SPACEWAY™ Performance summary

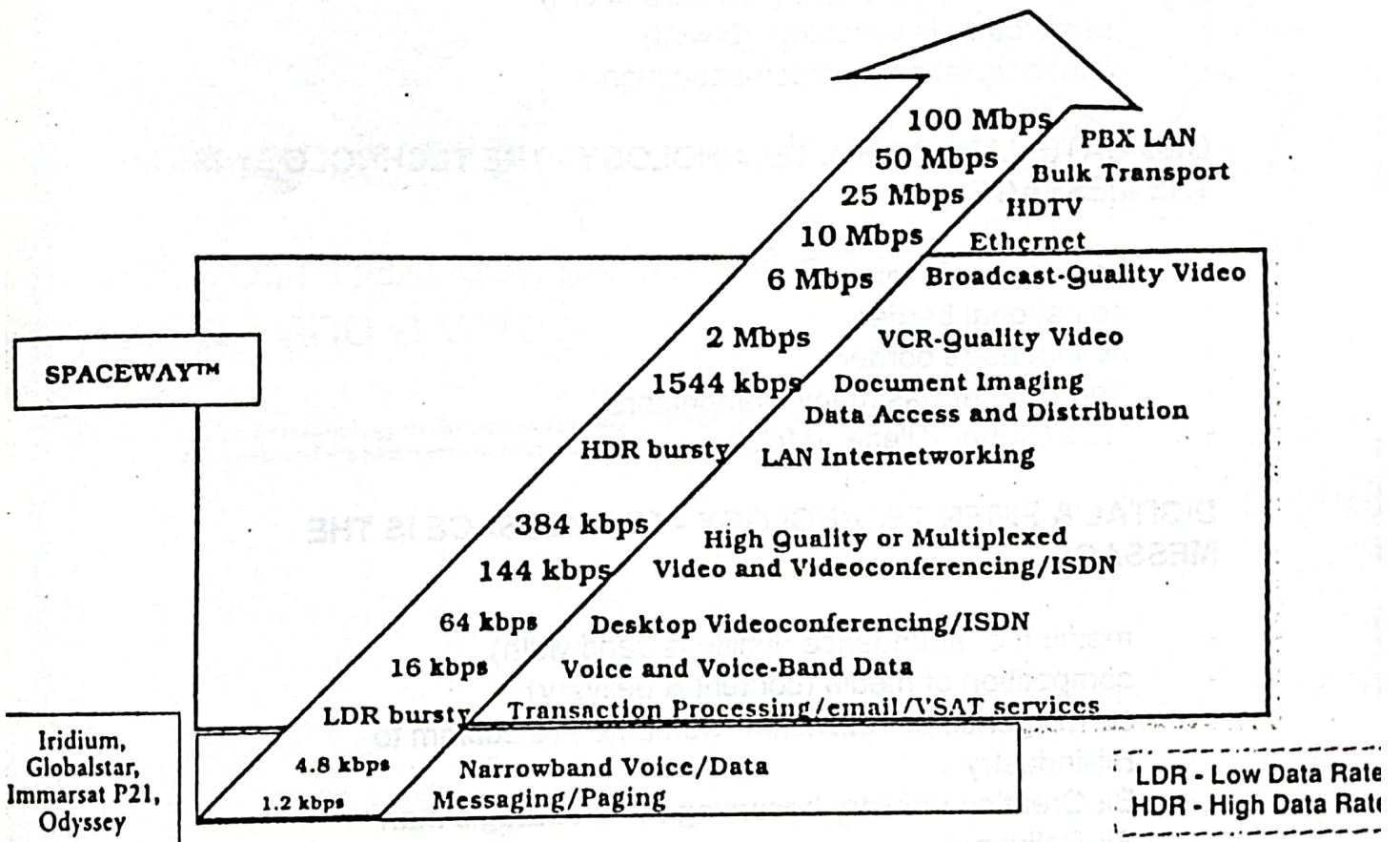


Figure 2: SPACEWAY™ enables a wide range of applications



## THE EVOLUTION OF INFORMATION-TECHNOLOGY AND ITS IMPLICATIONS

### BROADCASTING TECHNOLOGY - THE MEDIA IS THE MESSAGE

- medium of scarcity
- mass-media/-education/-production/-consumption
- monopoly & oligopoly of media
- body count economics ( US \$ 20.000/h)
- "Big Brother is watching" (Orwell)
- democratization by mass-education

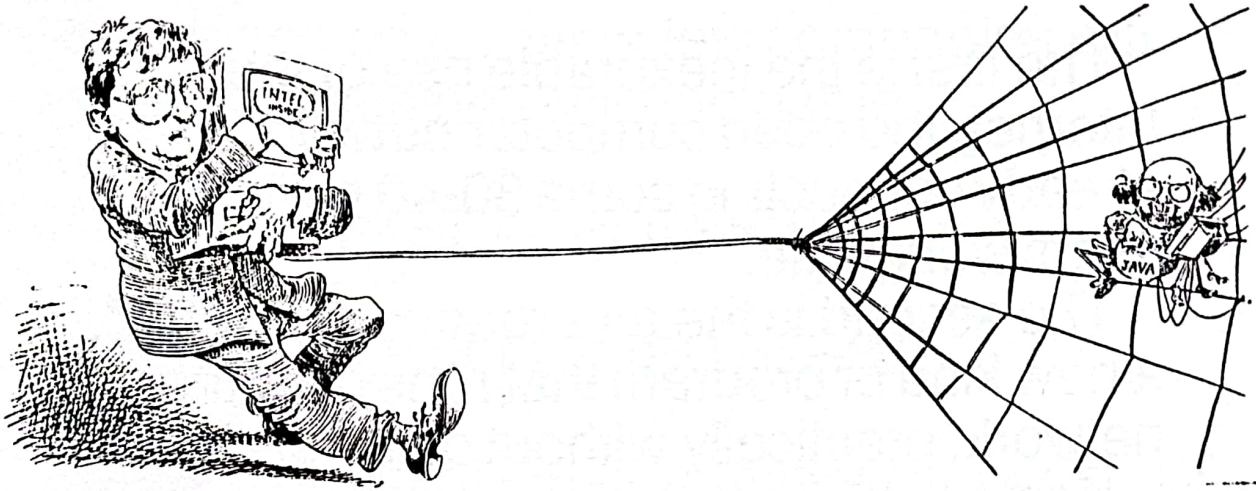
### GEO-SATELLITE-COMM. TECHNOLOGY - THE TECHNOLOGY IS THE MESSAGE

- no distance is far
- no national border
- no language border
- "Big Brother has many Competitors"
- "The Global Village" (McLuhan)

### DIGITAL & FIBER TECHNOLOGY - THE MESSAGE IS THE MESSAGE

- medium of abundance (limitless bandwidth)
- competition of media (content & delivery)
- convergence of Television- Computer-Telecomm to Bit-Industry
- Bit-Creation industry becoming more strategic than Bit-Delivery
- personalization & diversification of programs (demassification), "Prime-Time" becoming "My-Time"
- vertical & horizontal integrated media ownership, mungkin tidak terlalu menakutkan lagi ?
- "Interactgive Global Village" (McLuhan Plus)  
Participation of the Poor info - Poor

# BUSINESS



Will your next computer be a tin can and a wire?

This week's fall in technology stocks was bad enough (see page 105). But what if the Internet destroyed the personal-computer industry . . . ?

## RADICAL CHANGE IS COMING?

The first is the inexorable rise of the Internet, the open computer network already connecting some 30-40 million users worldwide.

The second is the emergence of "JAVA", a new kind of program that runs over the network, practically without delay and cost.

If small efficient programs can arrive speedily from the Internet, who needs a \$2000 PC on their desk?? A ridiculously over-engineered device??

Each time INTEL, a chip maker, launches a faster processor, MICROSOFT, a program writer, releases fancier software that sucks up most of the new power. Diligent users trade up every other year, but their word processor probably runs more slowly than it did in 1985, although it does a lot more.

They have little choice: Microsoft and Intel may be benevolent dictators, but they are still dictators.

ORACLE's and SUN's chief executive:

Sometime next year, a few companies will release machines with the name

“INTERNET APPLIANCES” or

“NETWORK COMPUTERS”

JAVA consist of small software “applets”, many taking up less than 100,000 bytes, and will do a single job well. JAVA thus offers the user the tempting prospect of a virtually infinite supply of “just in time” software--passing the burden of storing it to the network.

THE DEATH OF DISTANCE as a determinant of the cost of communications will probably be the single most important economic force shaping society in the first half of the the century.