



Multimedia Networks: Strategic Outlook

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Multimedia Networks**

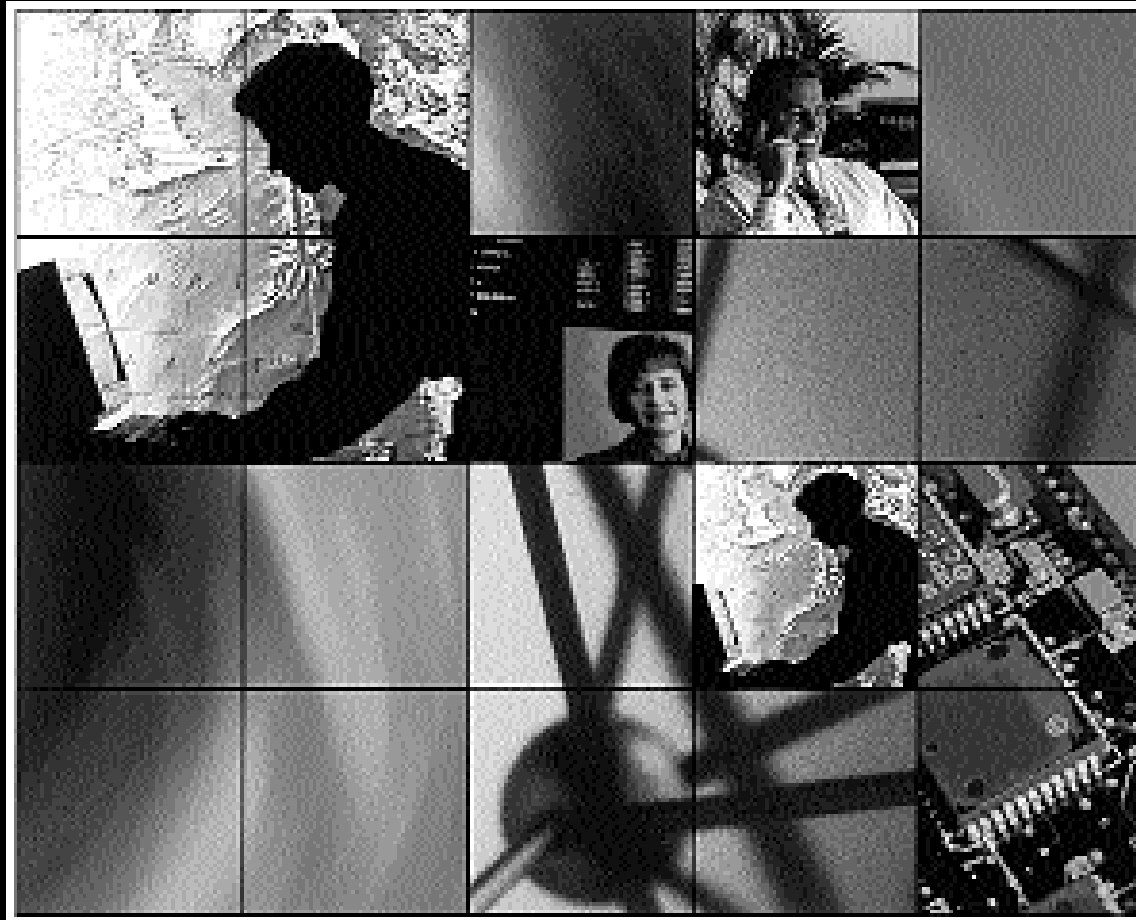
Agenda

- **The Changing Environment**
- **A Look into the Future**
- **Nortel's Strategy**
- **Nortel Customer Partnerships**

Multimedia & Networks

- **Many media in ONE application**
- **Many applications on ONE network**
- **Many networks over ONE medium**

The Changing Environment



Technology evolution. Business revolution

Business Manager's Challenge

The only constant in our enterprise is **change**. That is, perhaps, our biggest challenge:

- improve customer service
- enhance competitiveness
- control costs
- increase revenues



IT Manager's Challenge

- **Meet and exceed User Expectations**
- **Respond to Business Pressures Today**
- **Position the Network Infrastructure for the Future**



IT is strategic
to our business

Challenges for Our Customers

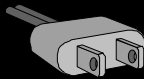


Healthcare

- Bassett Healthcare
- Kaiser Permanente

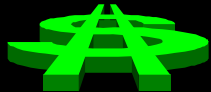
Utilities

- Hydro-Quebec
- YPF
- Ashland Inc.



Finance

- Bear Sterns
- CIBC
- Fuji Bank Ltd.
- General Accident
- Groupe Desjardins
- La Caixa
- Royal Bank
- S.W.I.F.T.



Service Providers

- AT&T
- Bell Canada
- C&W
- Deutsche Telekom
- EMBRATEL
- Hong Kong Tel
- MCI
- MFS Datanet
- Sprint
- Telefonica
- Telstra
- Unisource



Distribution

- FedEx
- United Parcel Service

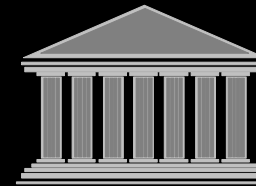
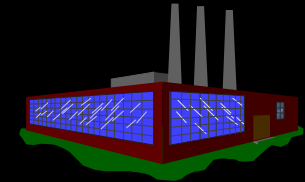


Transportation

- American Airlines
- SITA
- Swiss Rail

Manufacturing

- Mitsubishi
- Sanyo Electric

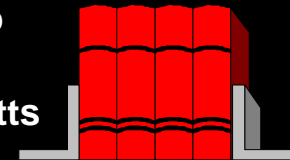


Government

- Australian DoD
- Canadian DoD
- Shen Yang City

Academic/Research

- Argonne Lab
- University of Massachusetts
- Yamagata University



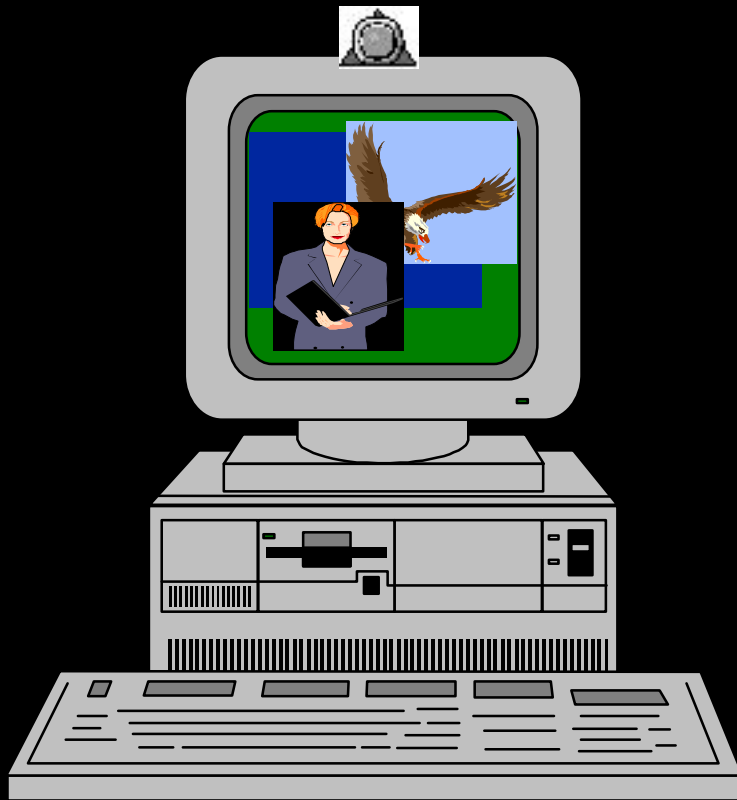
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Technology Trends

- I-TV
- Web TV
- CD-ROM and DVD-ROM on-line
- The “embedded Internet”
- Smartcards
- ATM

On Desktop Multimedia



- **Forms of multimedia**
 - mixed media documents
 - near real-time streaming
 - interactive voice and video
- **PC multimedia being built in**
 - H323 video and voice
 - APIs with COS
- **Application drivers**
 - end user
 - business driven

Desktop availability
– but what's the right architecture?

Changing How We Work, Play, . . .

- **Interactive**
- **Hypertextual**
- **Decentralized (e.g. print-on-demand)**
- **Targeted**

New Opportunities

- **New marketing strategies (V-Malls)**
- **New education opportunities (V-University)**
- **New services delivery (Pointcast)**
- **New forms of entertainment (alphaworlds)**
- **New form of doing business - Coopetition:**

**The potential for new uses for communications
is staggering**

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Enterprise WAN Requirements

Demands on the Network

- explosive demand for data/Internet
- new multimedia applications
- cost containment
- faster response to the competition

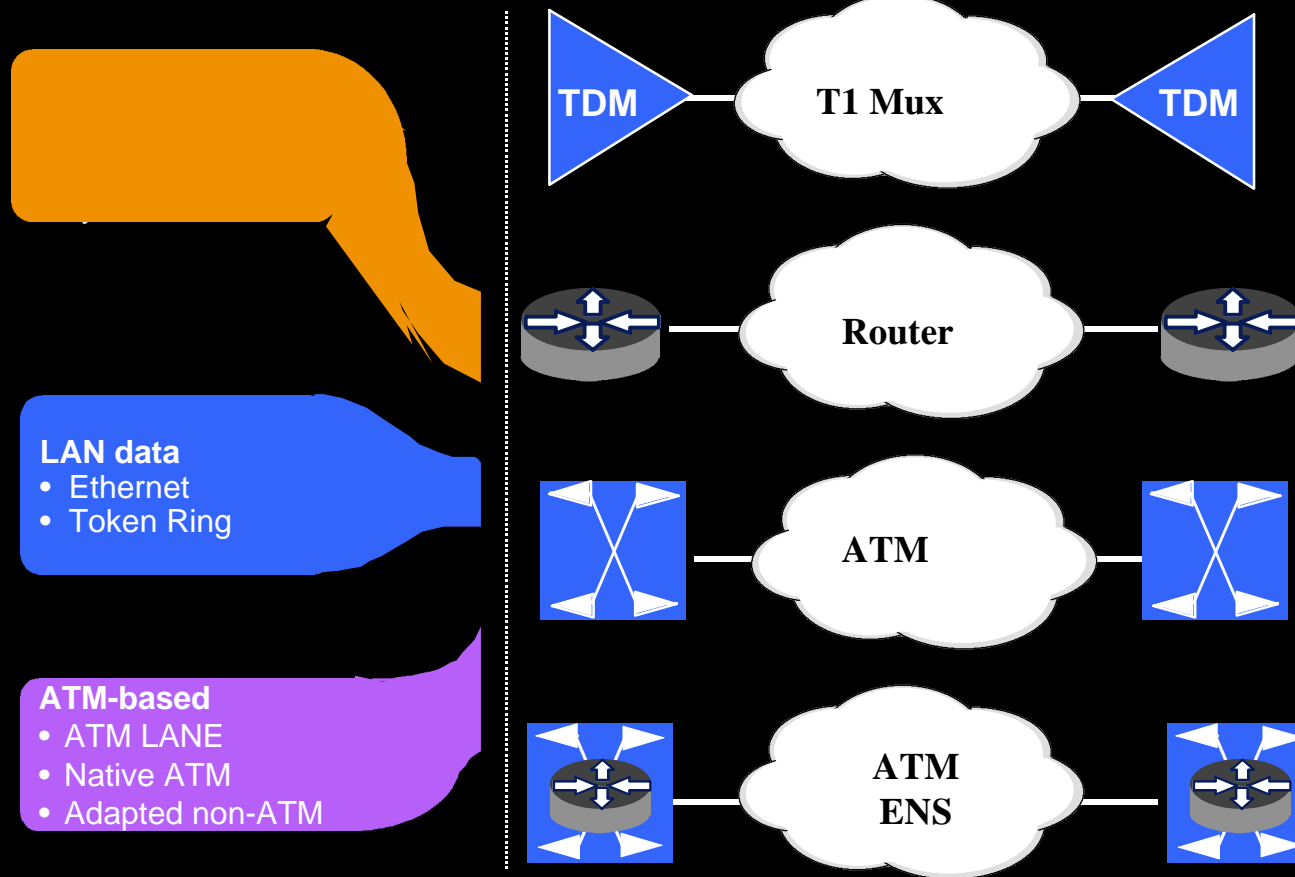
Current Networking Environment

- multiple networks
- overlapping technologies & staff
- high cost & inefficiencies
- barriers to change

The challenge
for the
network manager

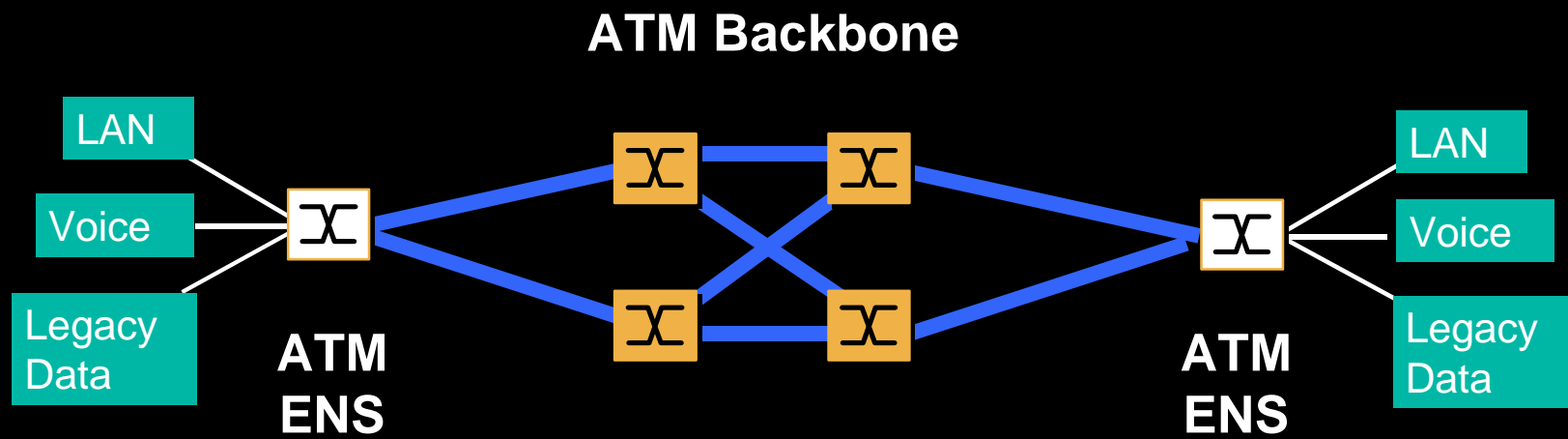
Network architecture is key

Competing WAN Architectures



ATM ENS: the choice of champions

Enterprise Target Architecture



Delivering flexibility & cost-effectiveness

Challenges for Service Providers

- Regulatory change**
- new market entrants
 - interconnection between new & incumbent carriers



**Service
Provider**

- Competitive pressures**
- faster service delivery
 - managing risk
 - price/performance
 - service differentiation

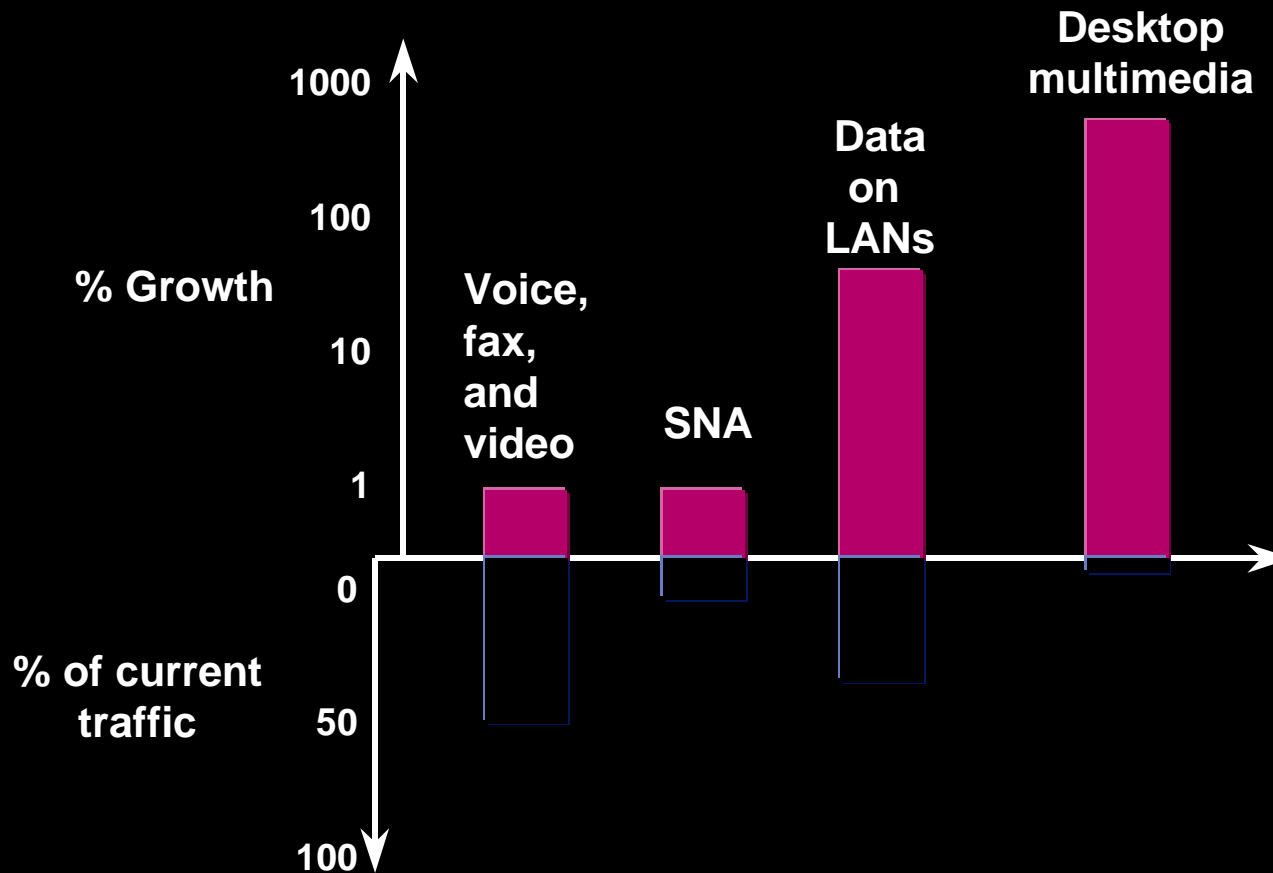


- Market requirements**
- frame relay & Internet traffic
 - real time multimedia apps
 - managed services
 - cost effectiveness



ATM migration enables business success

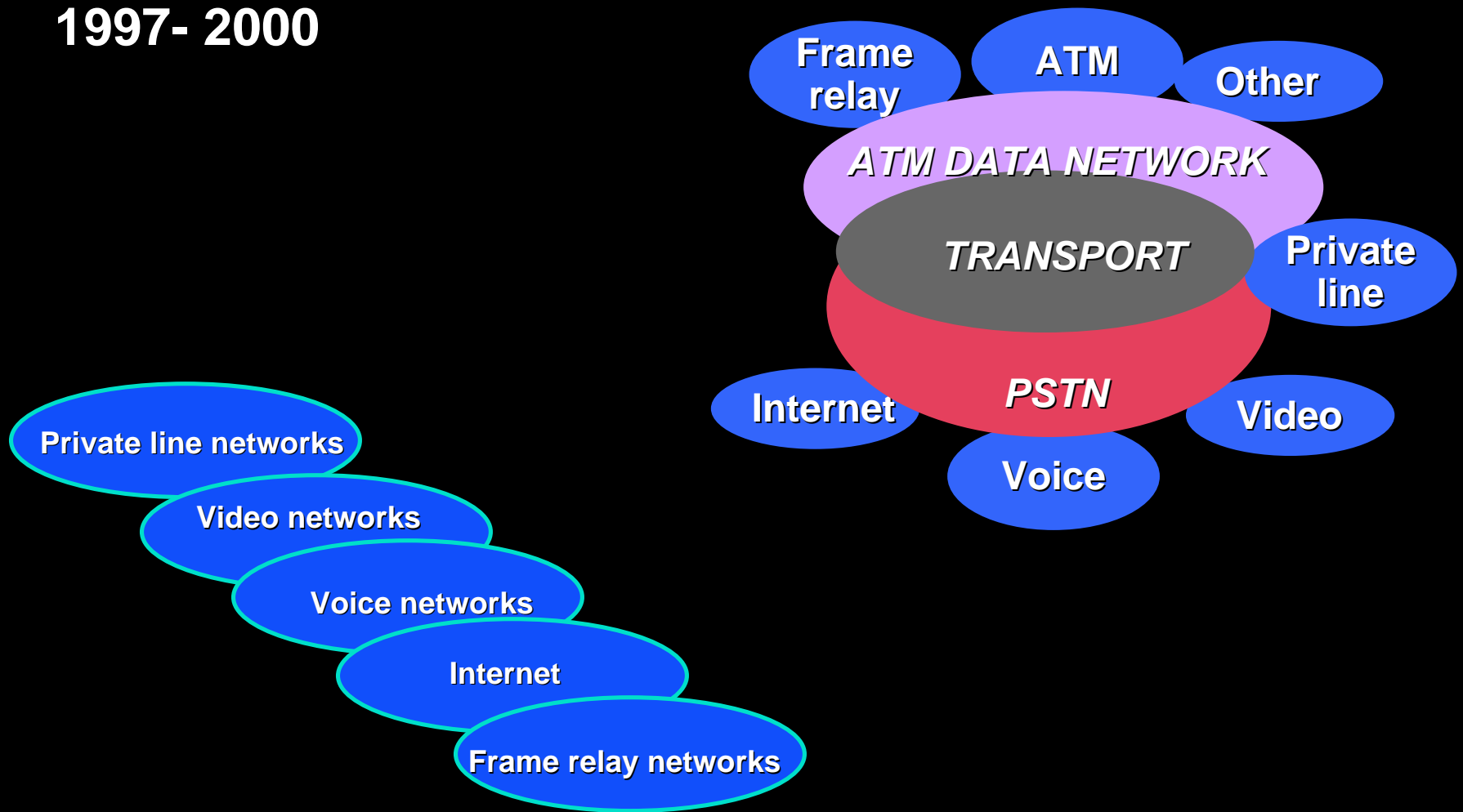
Application Traffic Growth



What's the prognosis for desktop multimedia?

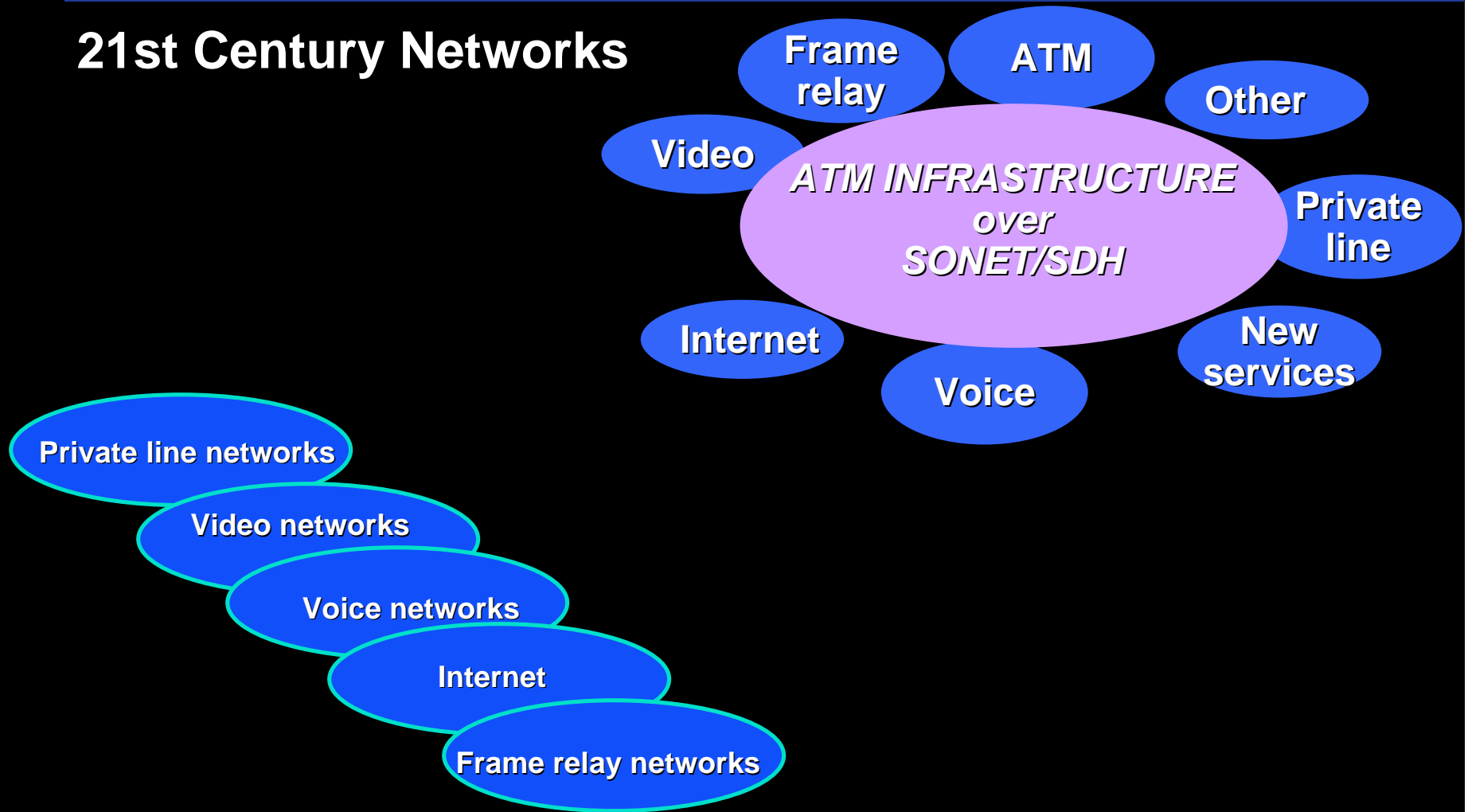
Evolution to ATM

1997- 2000

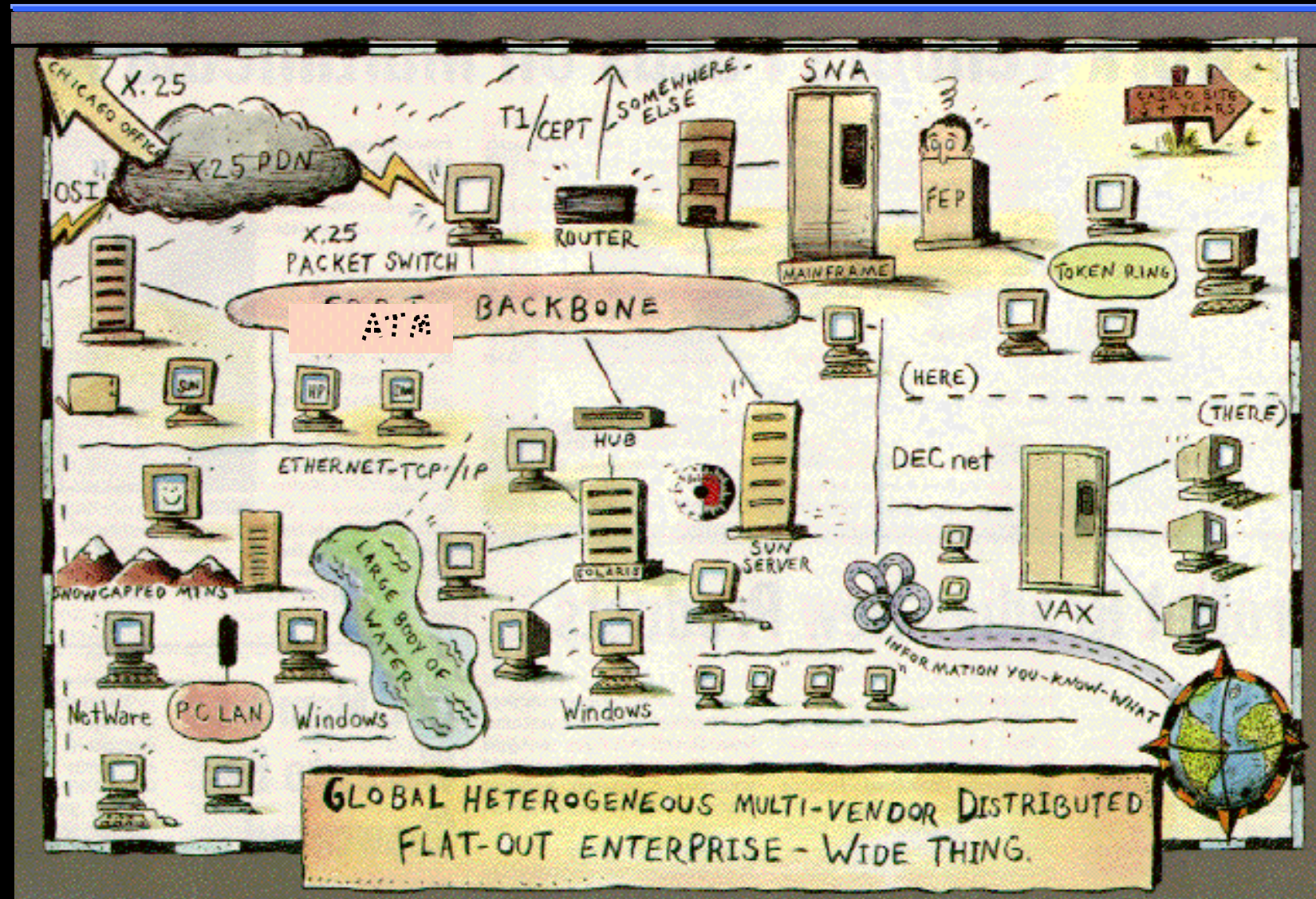


Evolution to ATM

21st Century Networks



Meeting the Needs of Network Users



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Delivering Customer Value

Customer Requirements			
Enterprise	Service providers		
Network consolidation	Enterprise managed service	Public services frame & ATM	Infrastructure

- **Customer sets have different business drivers**
- **Customer sets have unique mix of requirements**
- **Magellan delivers value for each customer set**

Value = product + service + relationship

Delivering Customer Value

Network Characteristics			
Enterprise	Service provider		
Network consolidation	Enterprise managed service	Public services frame & ATM	Infrastructure

- **Superior network performance**
- **Service velocity and flexibility**
- **Solid financial return**
- **Investment protection**
- **Comprehensive product portfolio**
- **Open network management**

High Velocity Finance

**BEAR
STEARNS**

- **Bear Stearns Inc.**
 - leading global brokerage company
 - highly competitive business environment
 - timely information delivery = \$\$\$
- **Customer needs:**
 - high bandwidth for multimedia applications
 - flexibility for multivendor network
 - global service and support
 - fast service provisioning

Goal: Offer wide spectrum of sophisticated services to outpace competitors

Delivering Customer Value

Network Characteristics			
Enterprise	Service provider		
Network consolidation	Enterprise managed service	Public services frame & ATM	Infrastructure

- **Best network economics**
- **Multiple service offerings**
- **Rapid service deployment**
- **Network reliability and robustness**
- **Network and service management**
- **Product portfolio**

One to Watch – NTT Data Communications



- **Largest VAN provider and system integrator in Japan**
- **Major new Magellan backbone under construction**
- **System integration for innovative network solutions to the financial industry**

A “real world” network success story as we speak!

Delivering Customer Value

Network Characteristics			
Enterprise	Service provider		
Network consolidation	Enterprise managed service	Public services frame & ATM	Infrastructure

- **Best lifecycle economics**
- **High performance and scalability**
- **Service differentiation**
- **Network management options**
- **Network reliability/robustness**
- **Magellan portfolio synergy**

Unified Mission



- **AT&T-Unisource**
 - consortium of leading service providers - AT&T and four European PTTs
- **Customer needs:**
 - unite members' enterprise service networks
 - implement best network economics
 - provide platform for future growth
- **Solution**
 - Partner with Nortel - business case, network planning
 - Nortel is strategic network supplier



Goal: superior service offerings at the lowest possible cost

Delivering Customer Value

Network Characteristics			
Enterprise	Service provider		
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- **Optimized network engineering**
- **Bandwidth cost optimization**
- **Global support**
- **Multiservice evolution**
- **Magellan portfolio synergy**

Infrastructure Innovation

- **Local exchange carriers**
 - residential modem use for Internet and corporate intranet access exploding
 - connections result in long call hold times
 - PSTNs engineered for five minutes per subscriber per hour
 - long data call hold times creating engineering problems for voice network
- **Customer need**
 - simple method of identifying data calls and routing them to a data network before they enter the PSTN

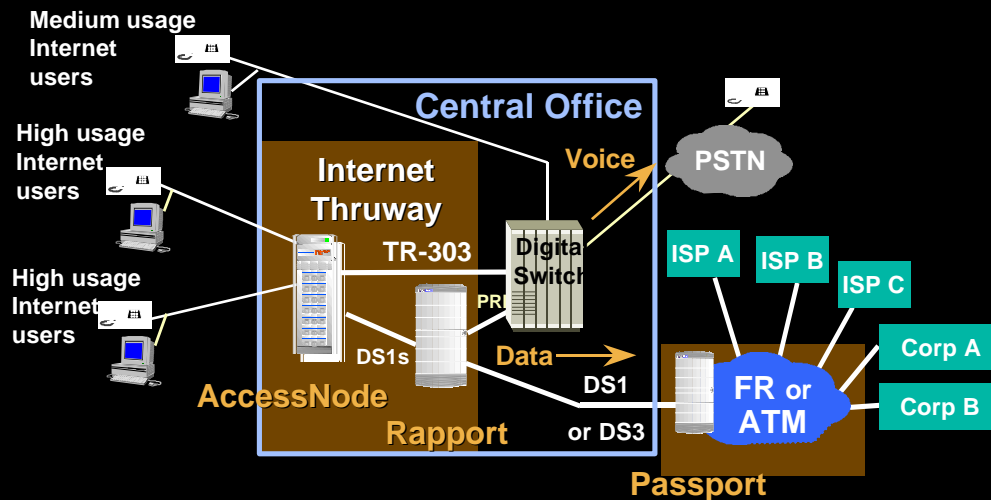
Internet's success is at the expense of the public voice network!



Internet Thruway

Drivers:

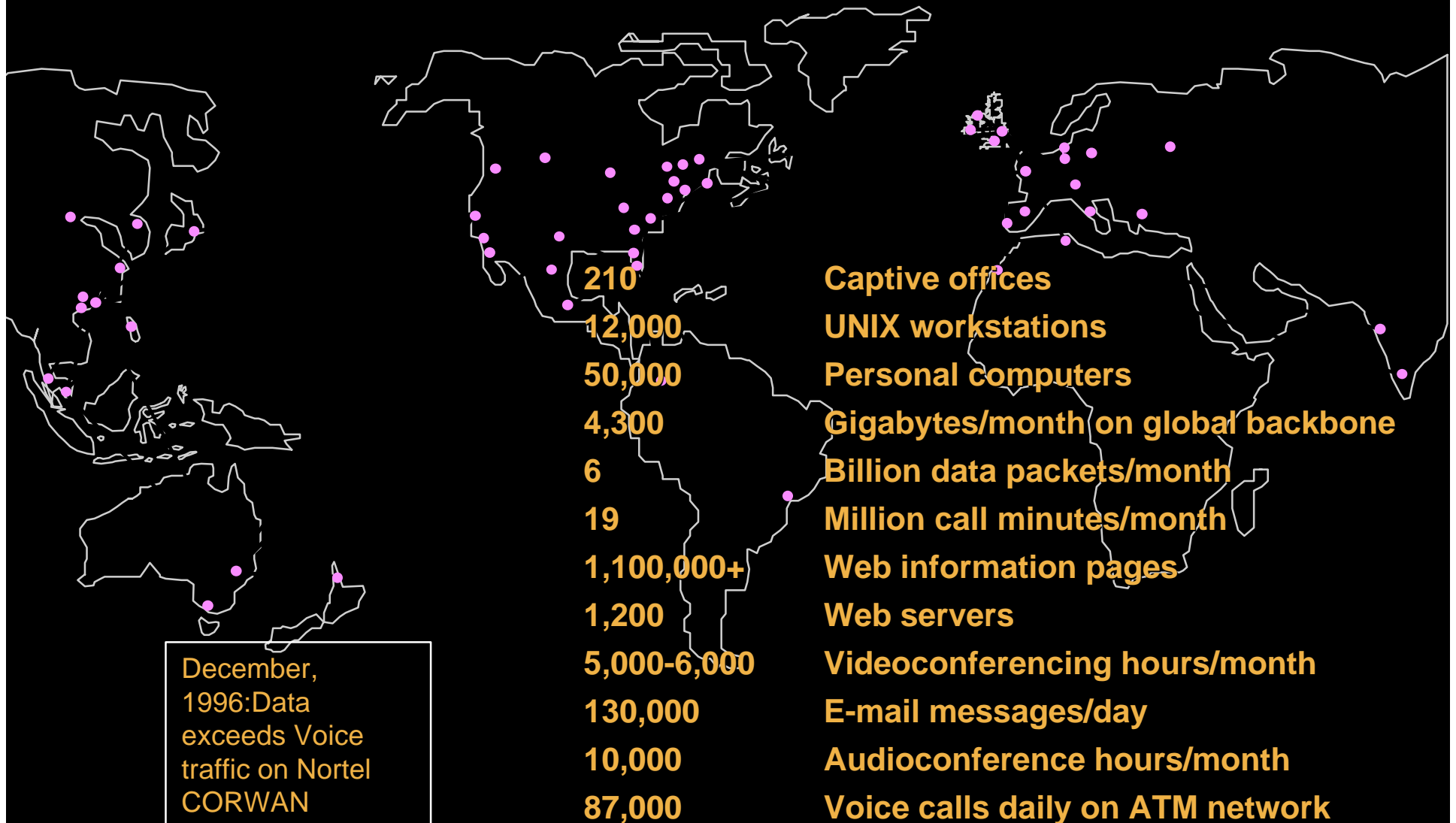
- End user: Performance, support, data integrity, cost
- LEC: Data segregation, develop new tariffed services
- ISP: Service differentiation, cost, performance, reach
- Enterprise: Cost, security, technical support, performance



Solution:

- Nortel Internet Thruway
- Planning and implementation services

Nortel Global Corporate Network



B. Callaghan

Feedback From the Industry



WINNER

Data
Communication
LAN Times

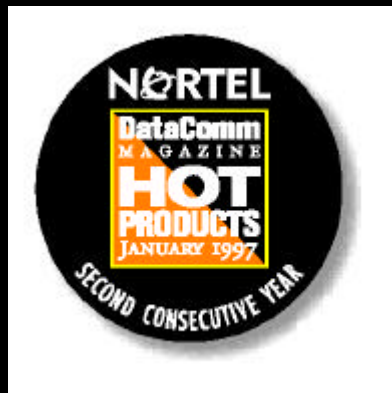
BEST

OF SHOW
1996

INTEROP '95
NETWORKING
NI+

The McGraw Hill Companies

PARIS



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Communications News

USERS Choice
A • W • A • R • D

NetRunner



R A P P O R T

DataComm
MAGAZINE
TESTER'S CHOICE
WINNERS 1996

NORTEL
NORTHAM TELECOM

Dialup Switch
High Performance Leader

The Future of Multimedia

A new network somewhere in the world every four minutes

80 million Internet users by 1999

**Technology evolution. . .
. . . Business revolution**

IT will be the world's largest industry by 2000

Voice will constitute less than 20% of traffic on the
world's networks by 2000