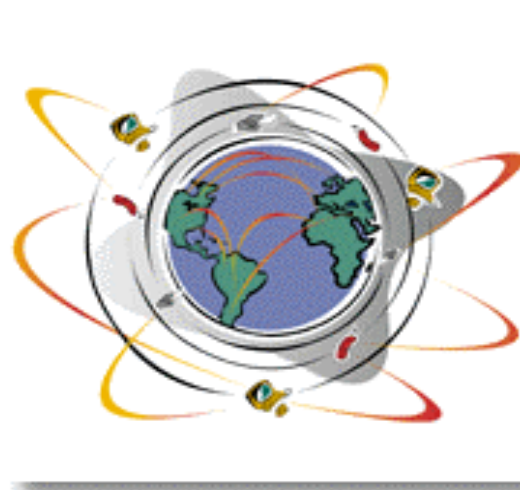# Next Generation Wireless:
Business Drivers for an All-IP network

Willem Koelewijn
Director of Marketing Strategy, Lucent GSM/UMTS
3GPP Workshop
Nice, February 7-9, 2000

Lucent Technologies
Bell Labs Innovations

Today's topics

- **Key Trends in Mobile**
- Requirement for next generation wireless network

Lucent Technologies
Bell Labs Innovations

Growth

- 1 Bn subscribers by 2003

KEY TRENDS IN MOBILE

Contrary to earlier forecast 1 Billion Mark reached in 2003 !!!

Lucent Technologies
Bell Labs Innovations

Millions of Subscribers

Legend:
- EMC
- Nokia Press Release
- Ericsson
- Earlier Forecasts
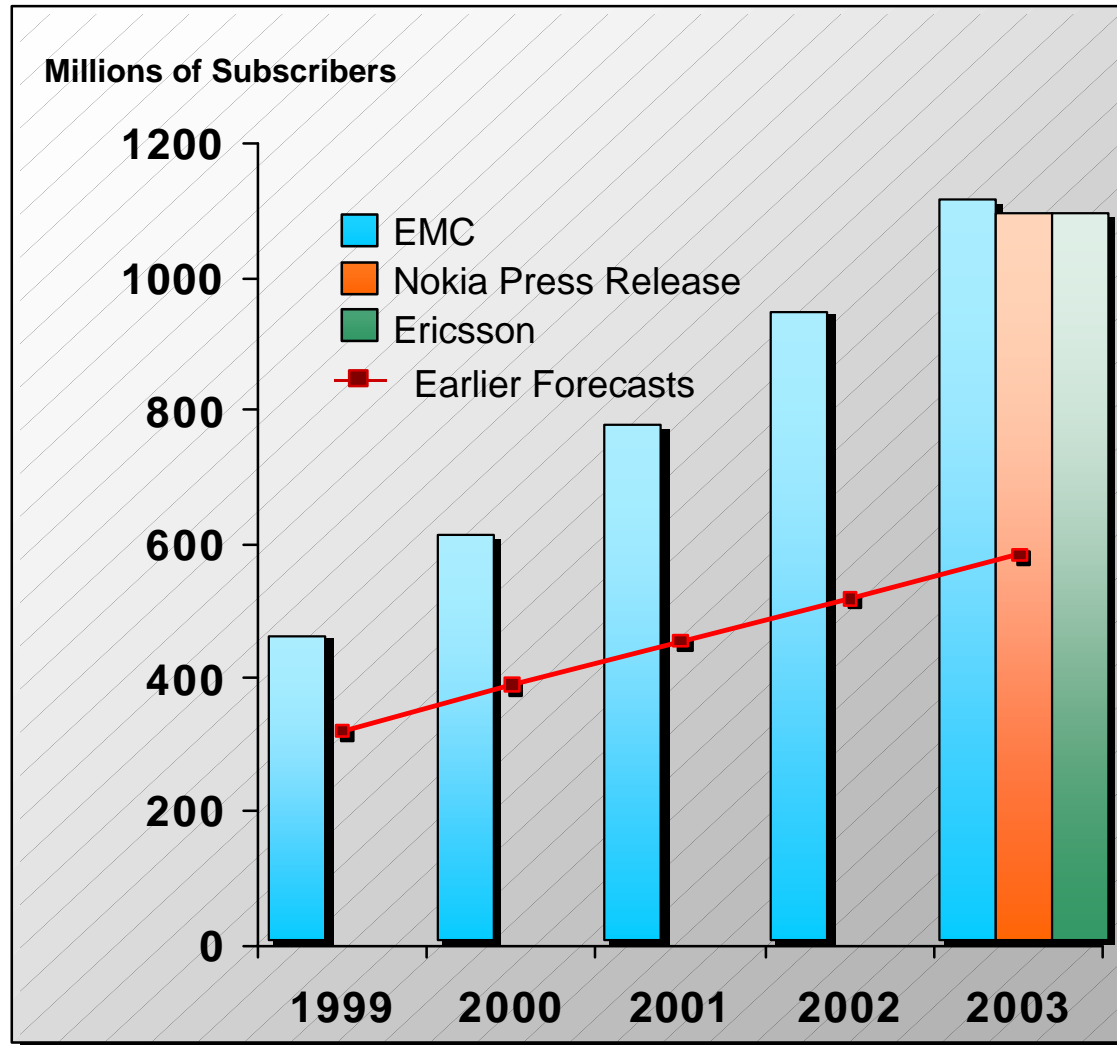
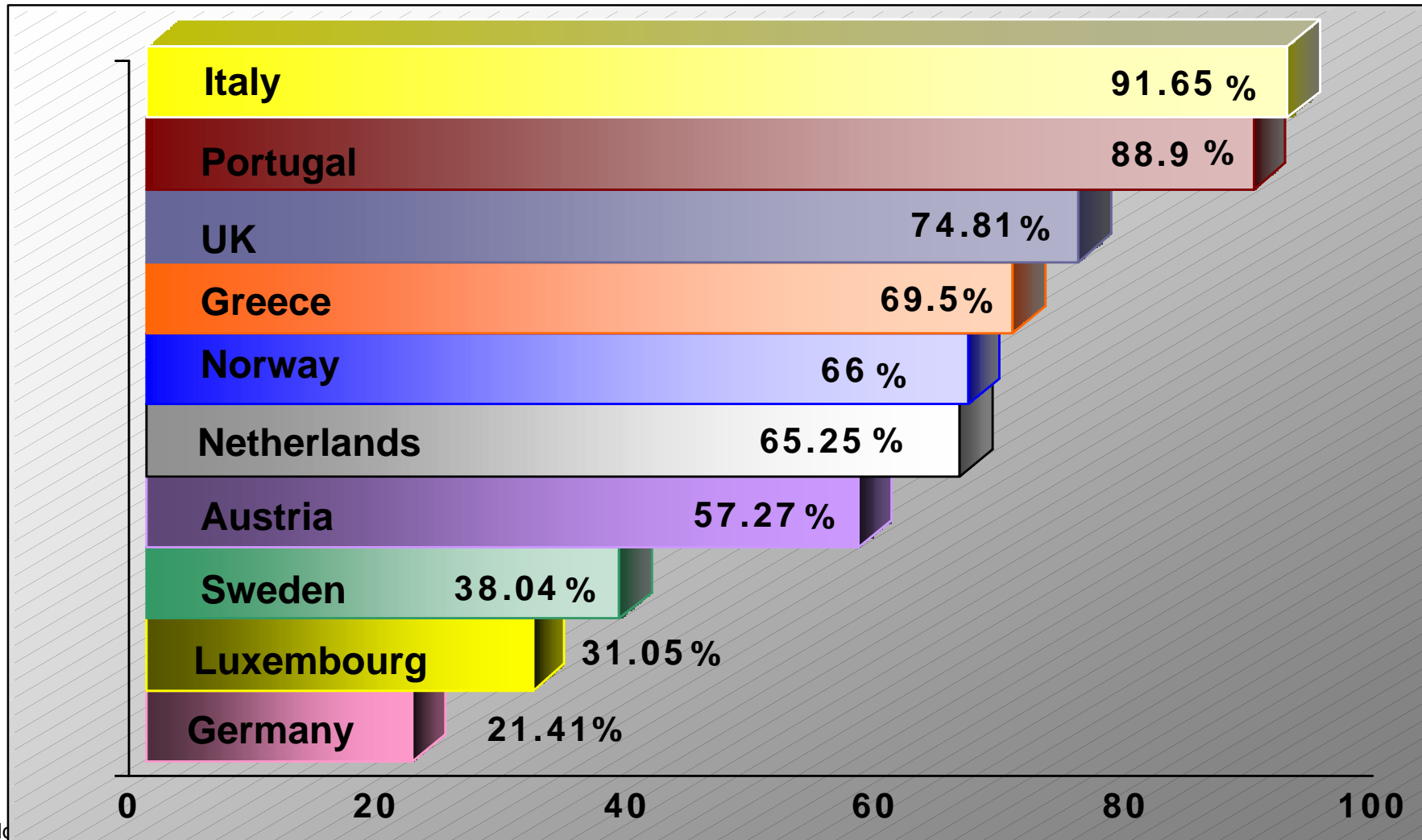**Earlier forecasts are from Ovum, Analysis, Merrill Lynch & ADL**

Prepaid has been the major stimulus for growth in Western Europe

Lucent Technologies
Bell Labs Innovations

Prepaid New Subscribers as % of total new adds in 4Q98

Country	Percentage
Italy	91.65 %
Portugal	88.9 %
UK	74.81 %
Greece	69.5%
Norway	66 %
Netherlands	65.25 %
Austria	57.27 %
Sweden	38.04 %
Luxembourg	31.05 %
Germany	21.41%

Business Plans of the most advanced operators show an increase in ARPU in the years to come

ARPU

Sonera's Domestic Cellular Business (EUR m)											
Year Ended December	1997	1998	1999F	2000F	2001F	2002F	2003F	2004F	2005F	2006F	2007F
Sonera Cellular Revenues											
Subscriber ARPU per Month (EUR)	34.6	36.5	37.5	39.5	41.0	42.5	44.0	45.0	46.0	47.0	48.0
Subscriber ARPU per Month (US$)	39.2	41.2	42.4	44.6	46.3	48.0	49.7	50.9	52.0	53.1	54.2
Total Subscriber Revenues	606	799	951	1,088	1,200	1,301	1,395	1,466	1,532	1,600	1,669
Annual Application ARPU (EUR)	0	0	0	106	106	106	106	106	106	106	106
Annual Application ARPU (US $)	0	0	0	120	120	120	120	120	120	120	120
Total Application Revenues	0	0	0	10	31	53	75	96	118	139	161
Total Revenues	606	799	951	1,098	1,232	1,354	1,469	1,563	1,650	1,739	1,830
Growth	34%	32%	19%	15%	12%	10%	9%	6%	6%	5%	5%
Monthly ARPU per Unit (EUR)	34	38	39	39	38	37	37	36	36	35	35
Monthly ARPU per Unit (US $)	39	43	44	44	43	42	42	41	40	40	39

Growth

- **1 Bn subscribers by 2003**
- **Pre-Paid driving**
- **ARPU stabilizing**

KEY TRENDS IN MOBILE

Internet/Data services

- **1 Bn subscribers by 2005**

Growing Worldwide Internet Users

Lucent Technologies
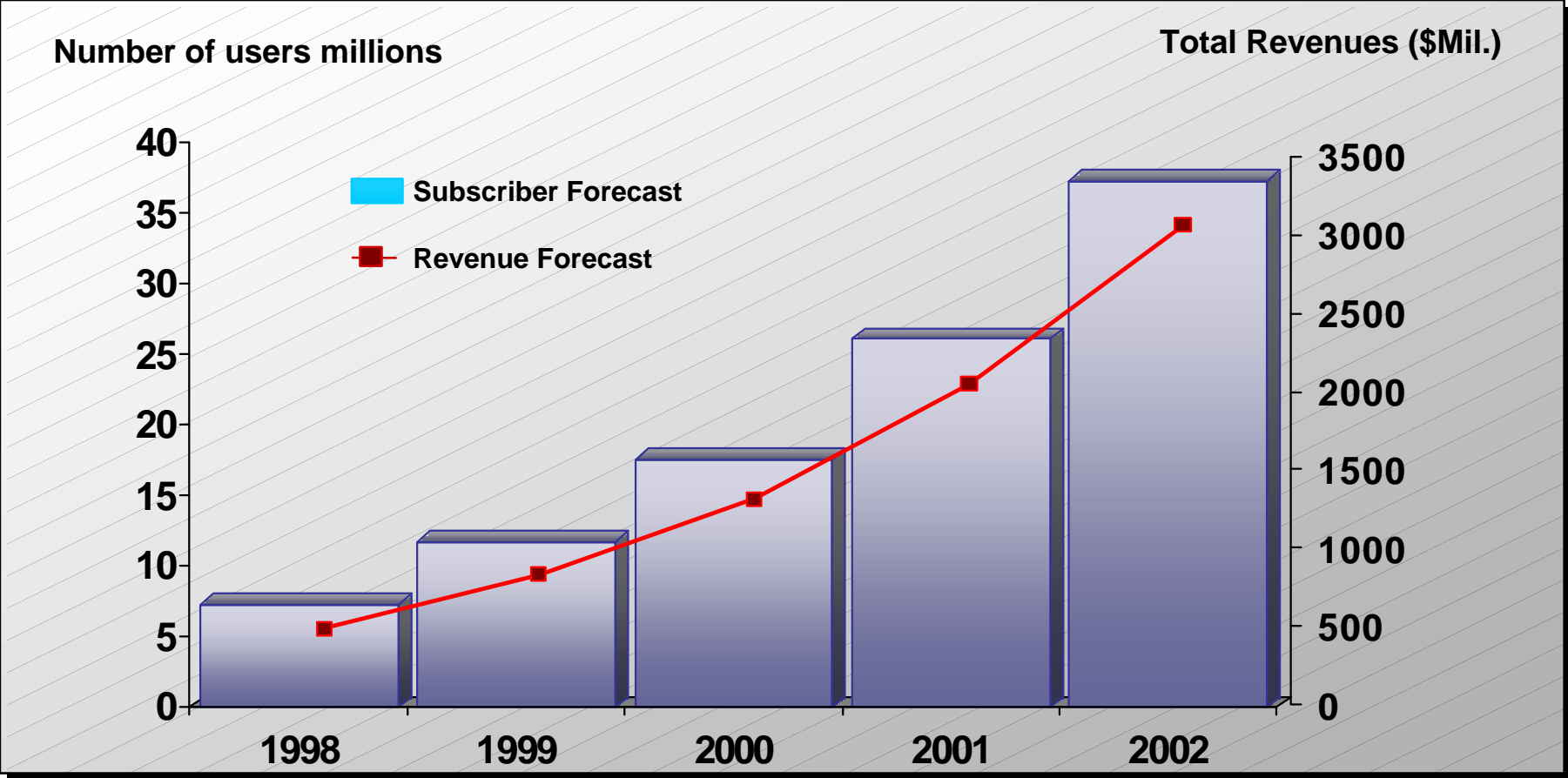Bell Labs Innovations

- Internet subscribers grew from 62 m in 1996 to more than 170 m in 1999.

- Traffic on the Internet has been doubling every 100 days.

- According to *the emerging digital economy*, a USDC 1998 report:
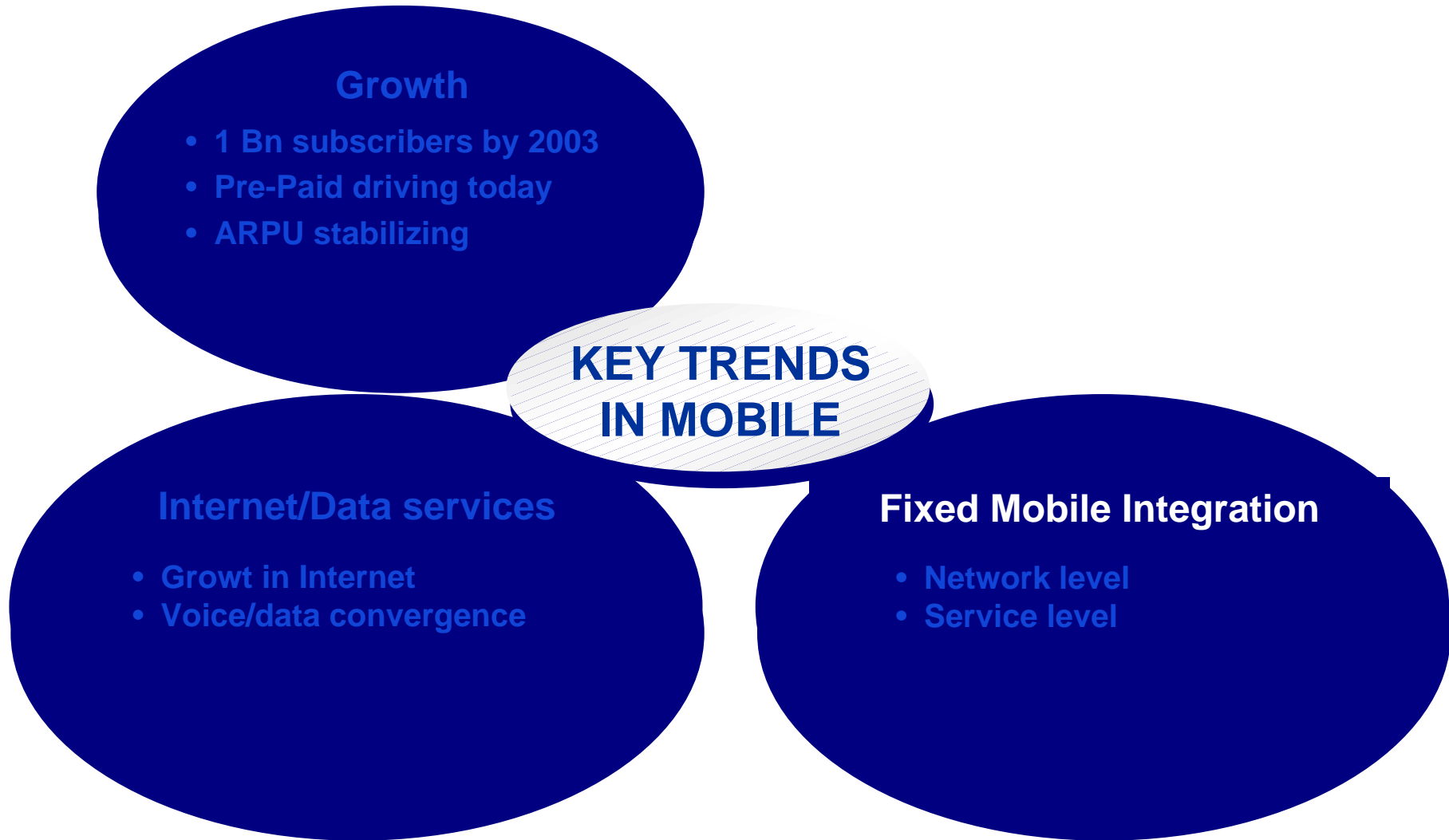 - Over one billion people are expected to be online by 2005.

Worldwide Internet Users (m)

Year	Users
1995	39
1996	62
1997	95
1998	145
1999	190
2000	280
2001	350
2002	450
2003	585
2004	730
2005	900
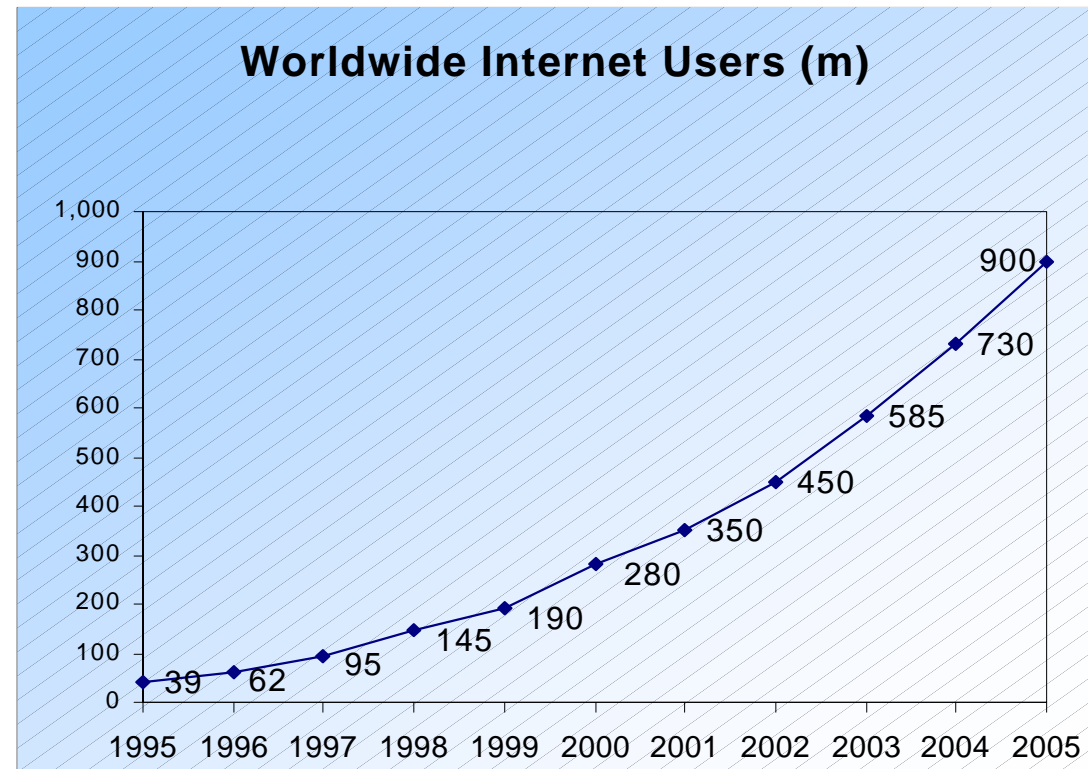
SMS is becoming a major driver for several traffic generation operators

Volumes of SMS messages sent in W. Eur. Has doubled in last six months and now tops 1 bil./mo. Mark (excluding voice mail notification messages)
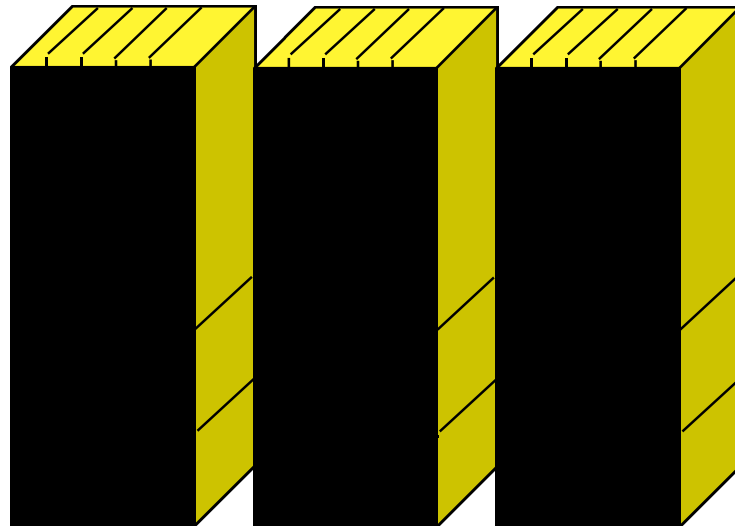
Lucent Technologies
Bell Labs Innovations

Growth

- **1 Bn subscribers by 2003**
- **Pre-Paid driving today**
- **ARPU stabilizing**

KEY TRENDS IN MOBILE

Internet/Data services

- **Growt in Internet**
- **Voice/data convergence**

Fixed Mobile Integration

- **Network level**
- **Service level**

Transformation to Seamless Services

Today's Business Environment

Next Generation Communications Networks

intelligent sub mgmt	unified message	central security	central billing	network admin

Internet / packet network (ATM / IP)

wireless

wired

data

- Replication of services
- Network-specific content
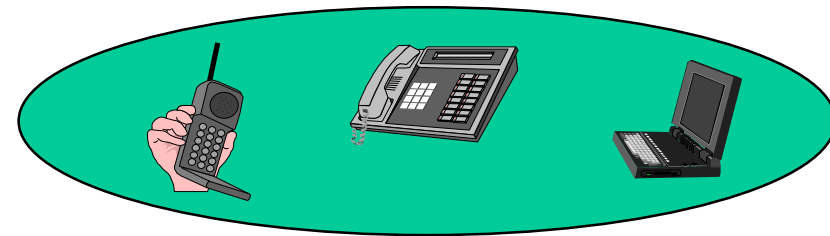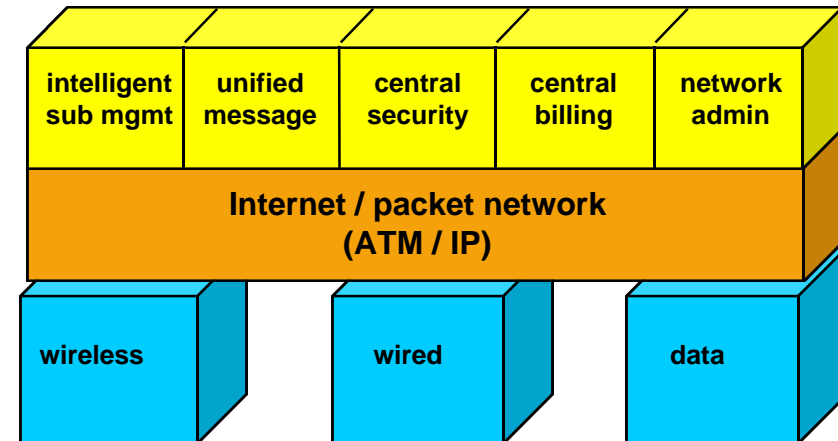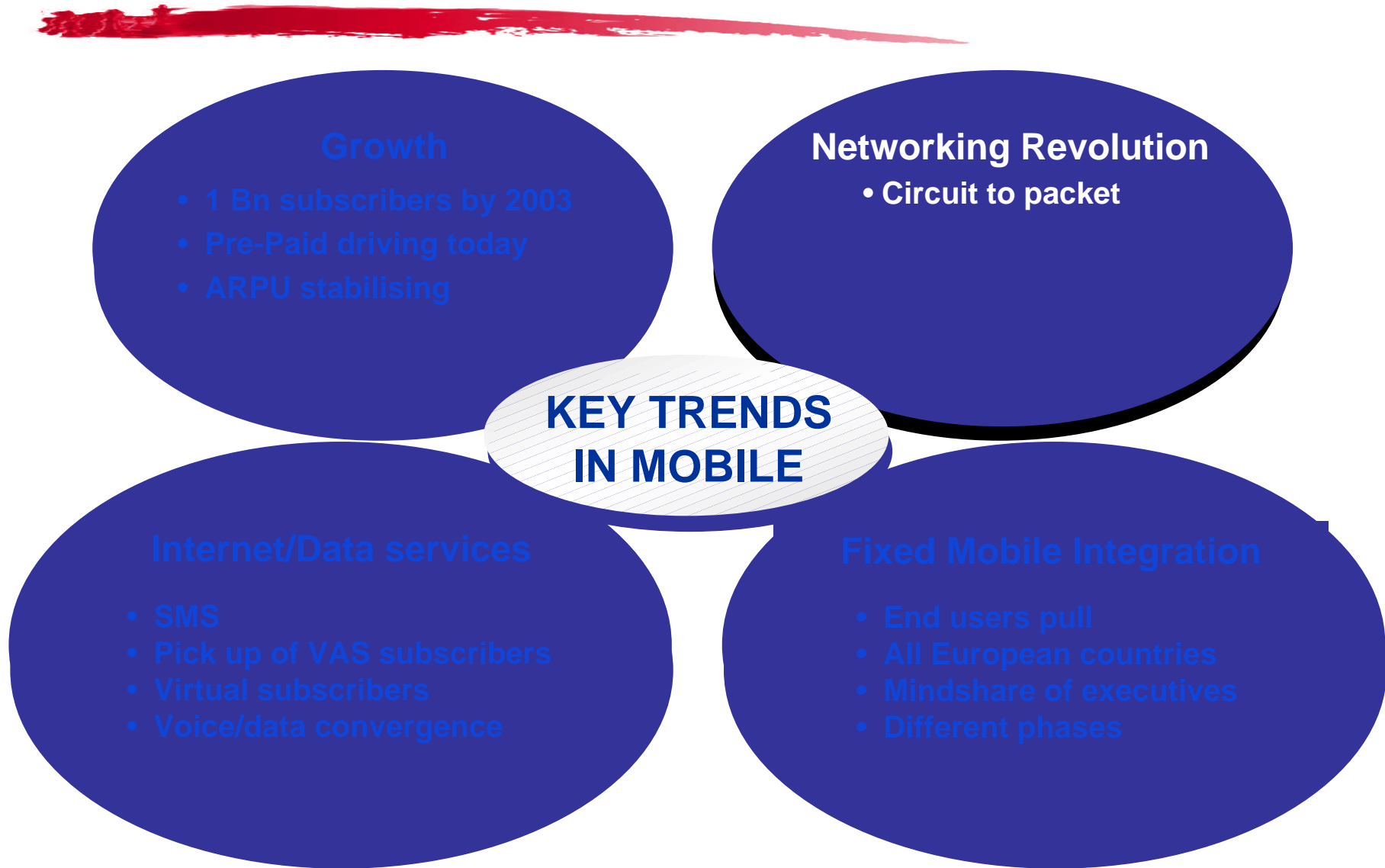
- Content-driven environments
- Seamless, integrated service
- Access distinctions minimized
  wireless and wireline
  voice and data

Growth

- 1 Bn subscribers by 2003
- Pre-Paid driving today…
- ….In Building tomorrow?
- ARPU stabilising

Networking Revolution

KEY TRENDS IN MOBILE

Internet/Data services

- SMS
- Voice/data convergence

Fixed Mobile Integration

- Network level
- Service level

Lucent Technologies
Bell Labs Innovations

Growth
- 1 Bn subscribers by 2003
- Pre-Paid driving today
- ARPU stabilising

Networking Revolution
- Circuit to packet

KEY TRENDS IN MOBILE

Internet/Data services
- SMS
- Pick up of VAS subscribers
- Virtual subscribers
- Voice/data convergence

Fixed Mobile Integration
- End users pull
- All European countries
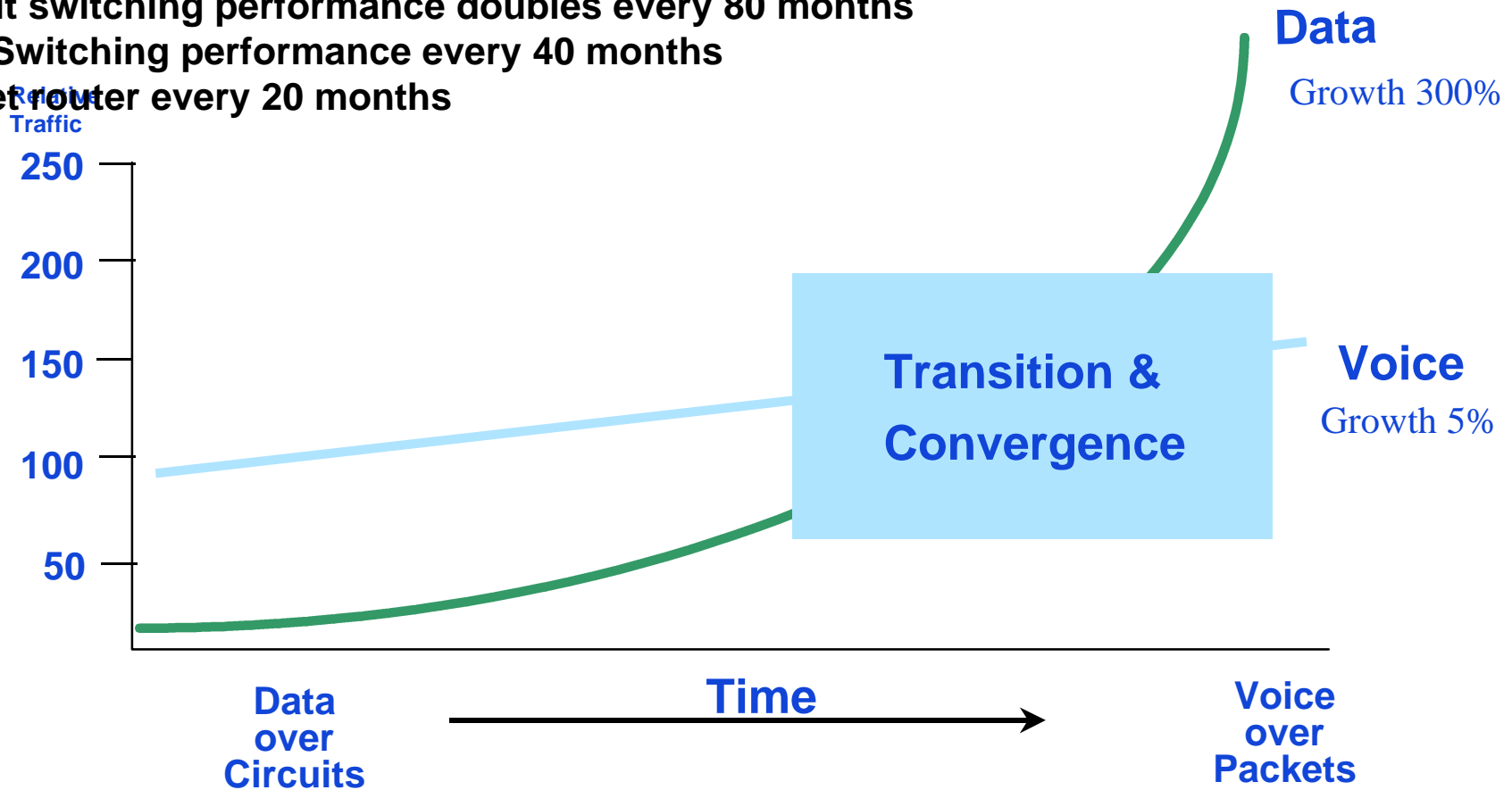- Mindshare of executives
- Different phases

Changing Traffic Mix Networks

The explosion of data traffic was caused by/has led to a significant improvement in the cost/performance of packet switched technologies:
- Circuit switching performance doubles every 80 months
- ATM Switching performance every 40 months
- Packet router every 20 months

Data

Growth 300%

Transition & Convergence

Voice

Growth 5%

Route Traffic

250

200

150

100

50

Data over Circuits

Time

Voice over Packets

Source: Vint Cerf, MCI

Today's topics

- Key Trends in Mobile

- **Requirement for next generation wireless network**

Requirement for the Next Generation Core Network

The next generation core network should:

- Allow for rapid creation of new services (voice/data/multimedia) leveraging the creativity of independent software vendors to the fullest
- Be based on a technology with the best cost/performance curve
- Allow voice and data traffic to be combined into one network, with all the associated operation benefits
- Be "access-agnostic"