

UMTS and DVB-T

Service Convergence for interactive delivery services

Bosco Eduardo Fernandes

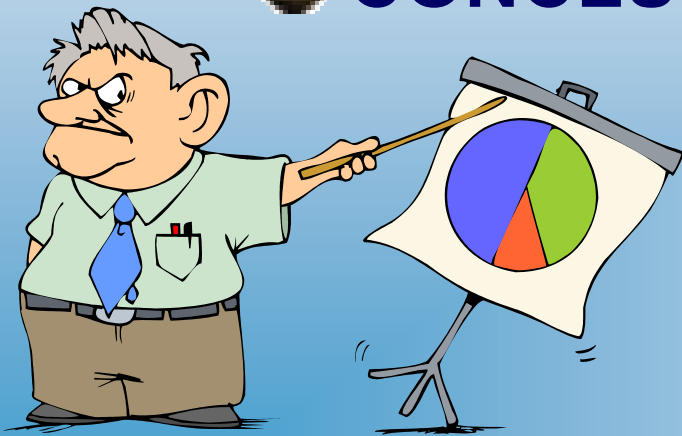
**Chair ICTG (IT-Media) and Manufacturers
Sector Group UMTS Forum**

www.umts-forum.org

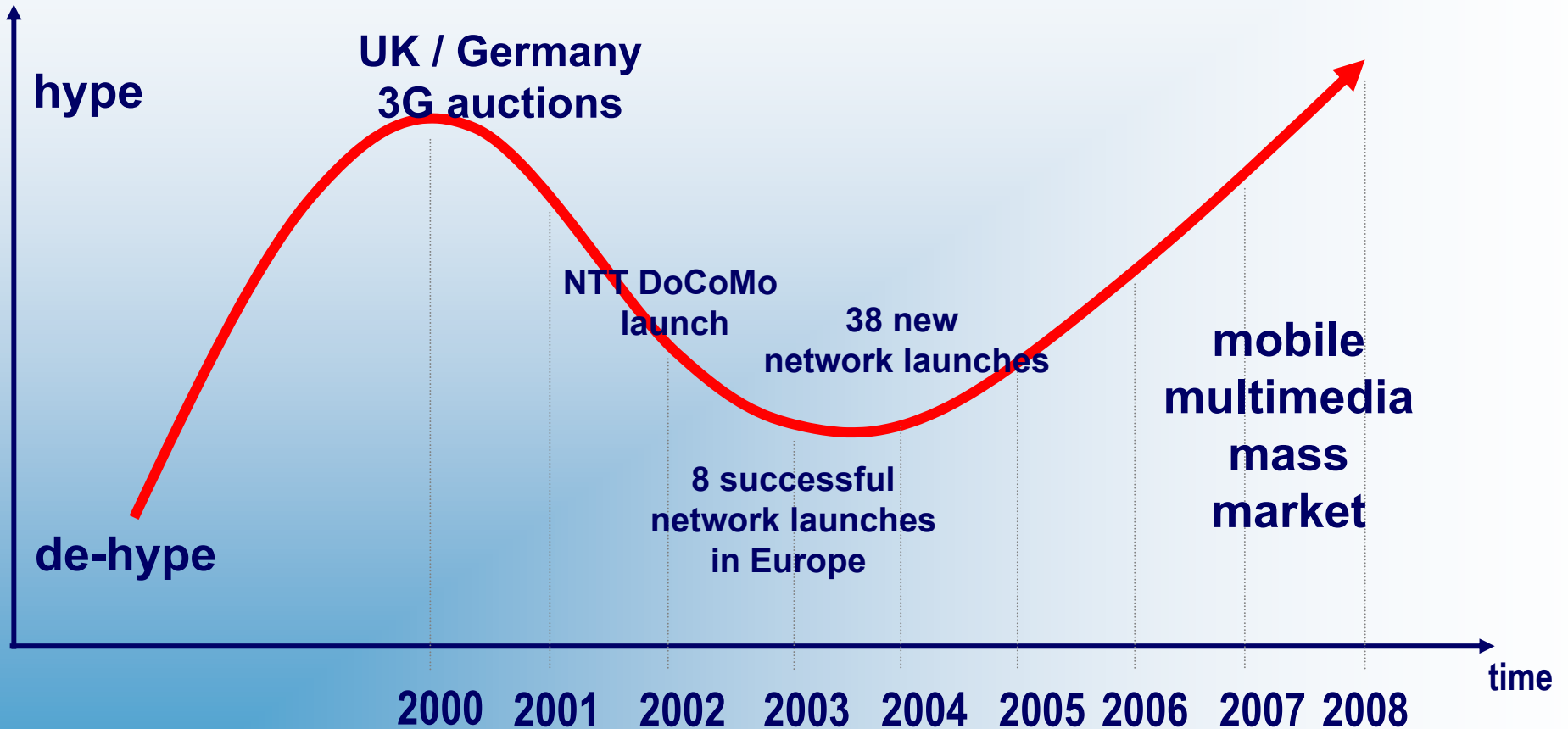


OVERVIEW

- INTRODUCTION & CURRENT STATUS
- WHAT IS CONVERGENCE?
- MULTIPLATFORMS & SYNERGIES
- CONCLUDE



Yesterday-Tomorrow



Current Status

- **3G/UMTS Users already exceed 4 mio.globally**
 - NTT DoCoMo FOMA:2mio-3mio within a couple of months
 - Vodafone KK:0.2 mio. approx.
 - Europe Hutchison: 1 mio. approx.
- **15 3G/UMTS Networks commercial launched,**
- **On-going Testing via Data Cards,**
- **Successful migration of 2G/ Customer base towards W-CDMA,**
- **Approx. 12-15 million User's forecasted until end 2004.**

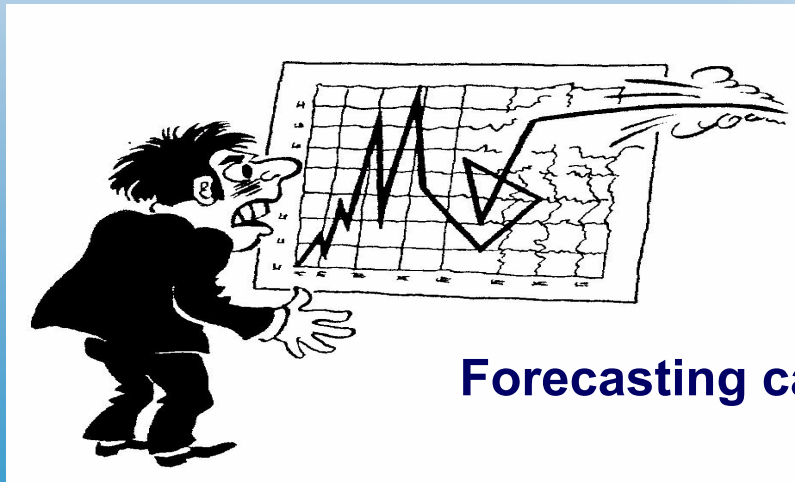
Almost 119 operators worldwide have selected

W-CDMA

How will we know when we will have got to 3G?

Famous last words

„The telephone would be used only to inform people of the arrival of telegrams.“

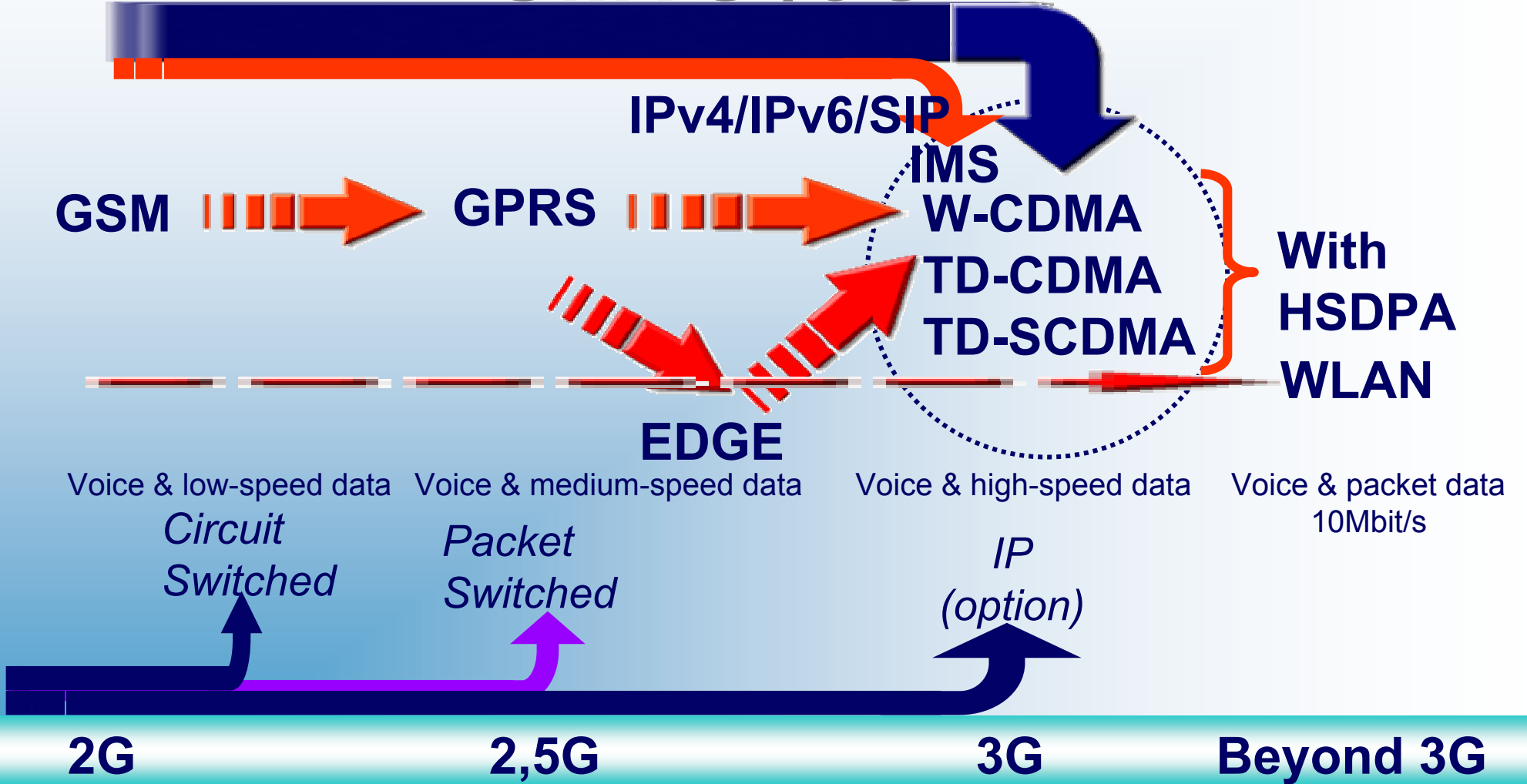


Forecasting can have unpredictable results

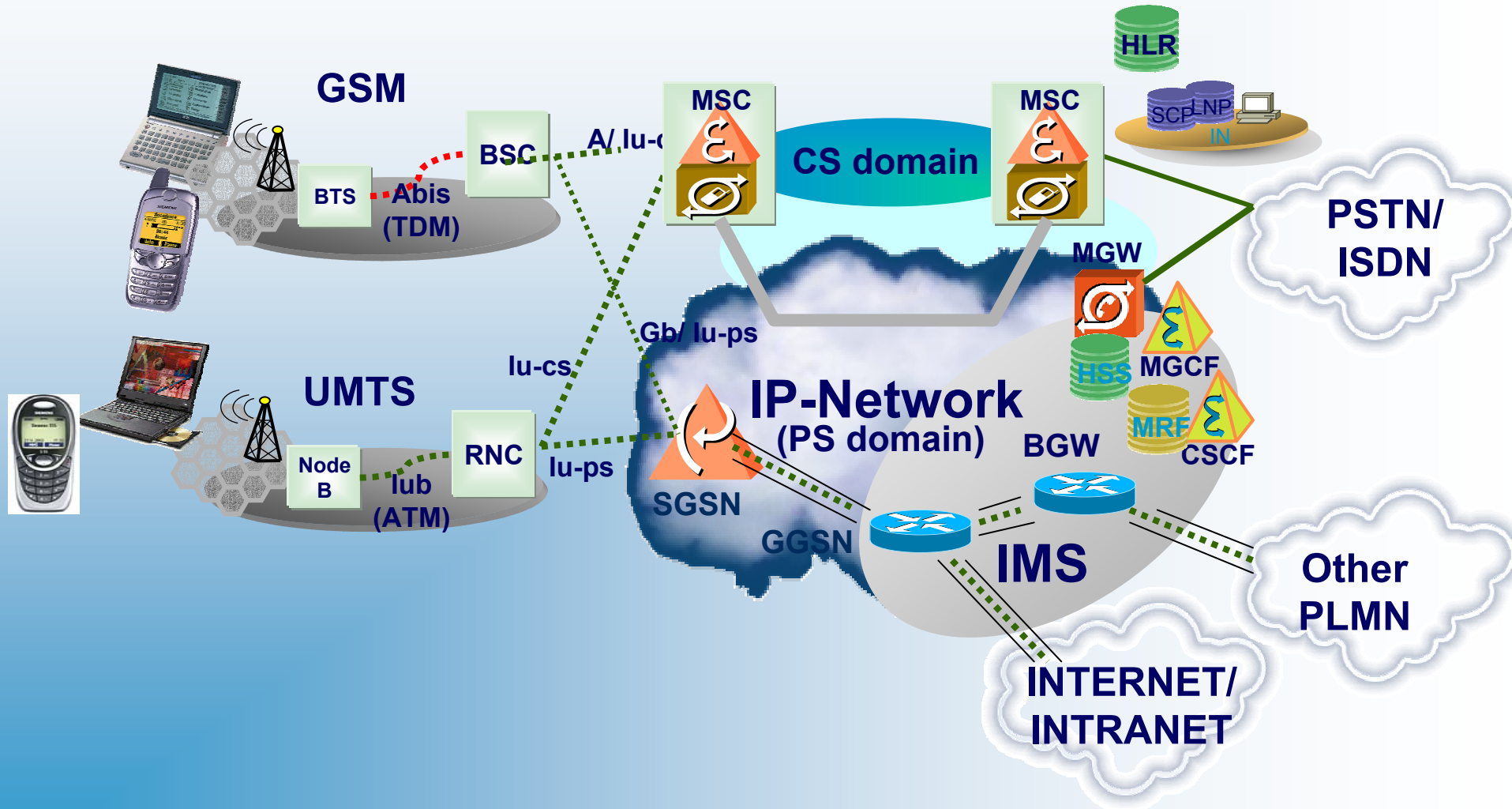
1876 Alexander G. Bell invents the phone



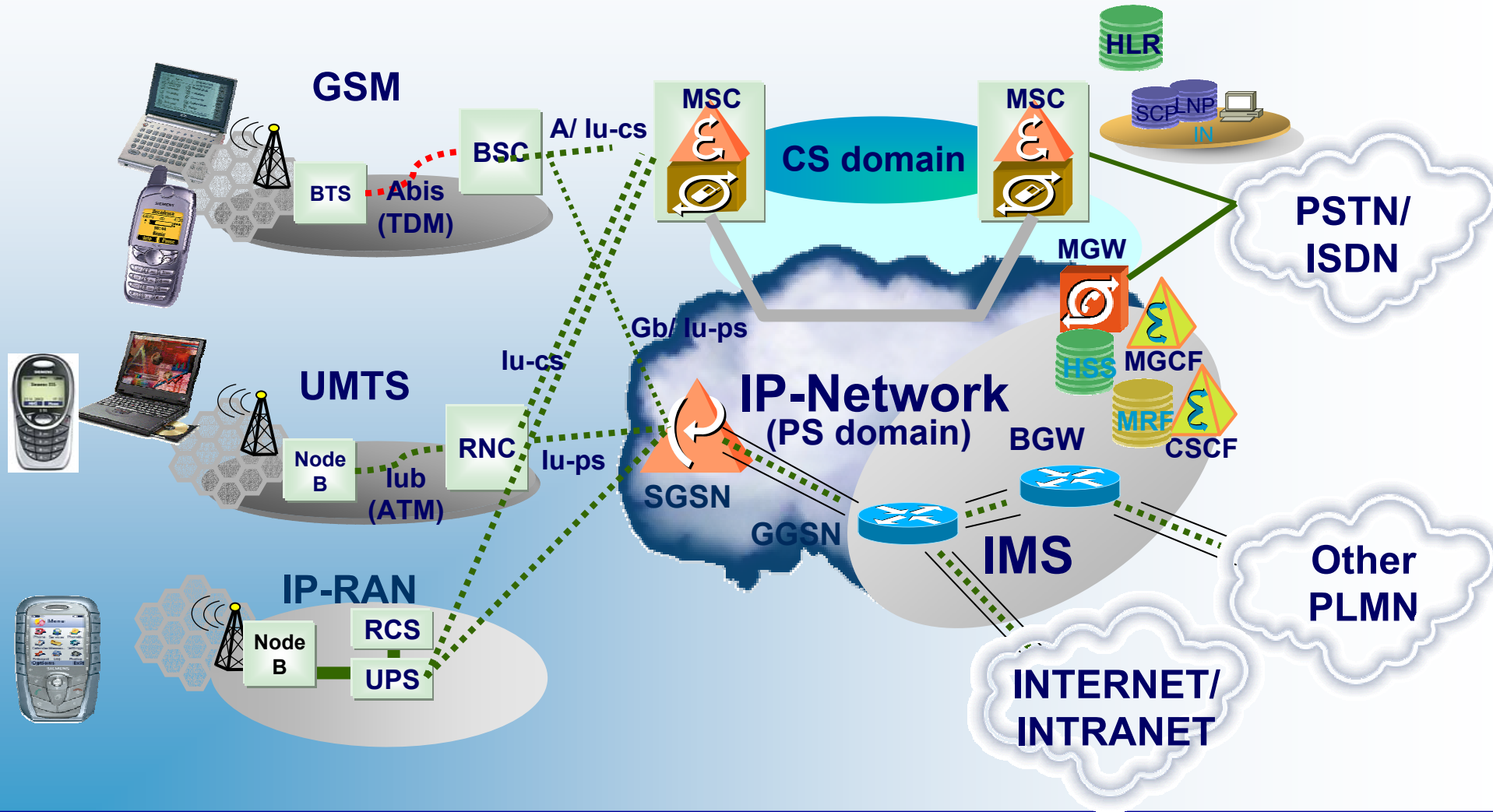
Operator evolution path to UMTS /3G



IP-Transport for CS-Domain



Multiple Radio Access



What does HSDPA provide?

- **HSDPA (High Speed Downlink Packet Access):**
 - Supports services requiring instantaneous high data rates in the downlink
 - e.g. Internet browsing; video on demand
 - May be deployed in both Frequency Division Duplex (FDD) and Time Division Duplex (TDD) modes (both high and low chip rates)
 - Various configurations defined, offering data rates of up to 10Mbit/s



Release 6 and beyond

- **New features and enhancements (continued)...**
 - **Fast uplink**
 - **Push to talk over Cellular**
 - **New radio modulation techniques**
 - **Multimedia Broadcast/Multicast Service (MBMS)**
 - **MMS enhancements**
 - **Packet switched streaming services**
 - **USIM/UICC enhancements**
 - ...
 -

New Services

● Enhanced MMS

-Multimedia messaging service for sending and receiving video, audio and image messages

● INFOTAINMENT

-Download of standalone and interactive gaming, including player community management

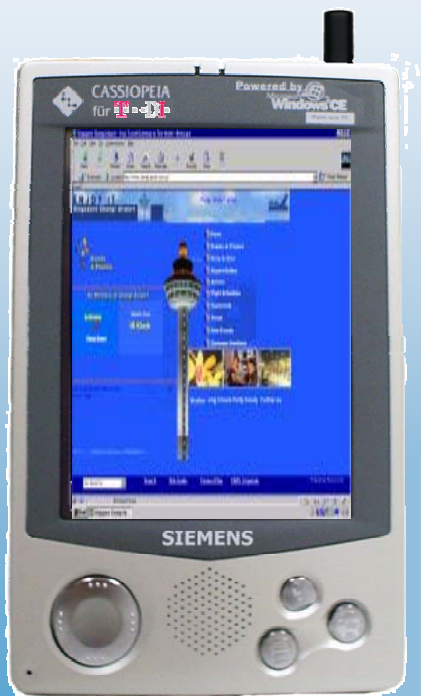
● Enhanced Services

-View & listen to News, Sports, Video Clips, Music, Weather



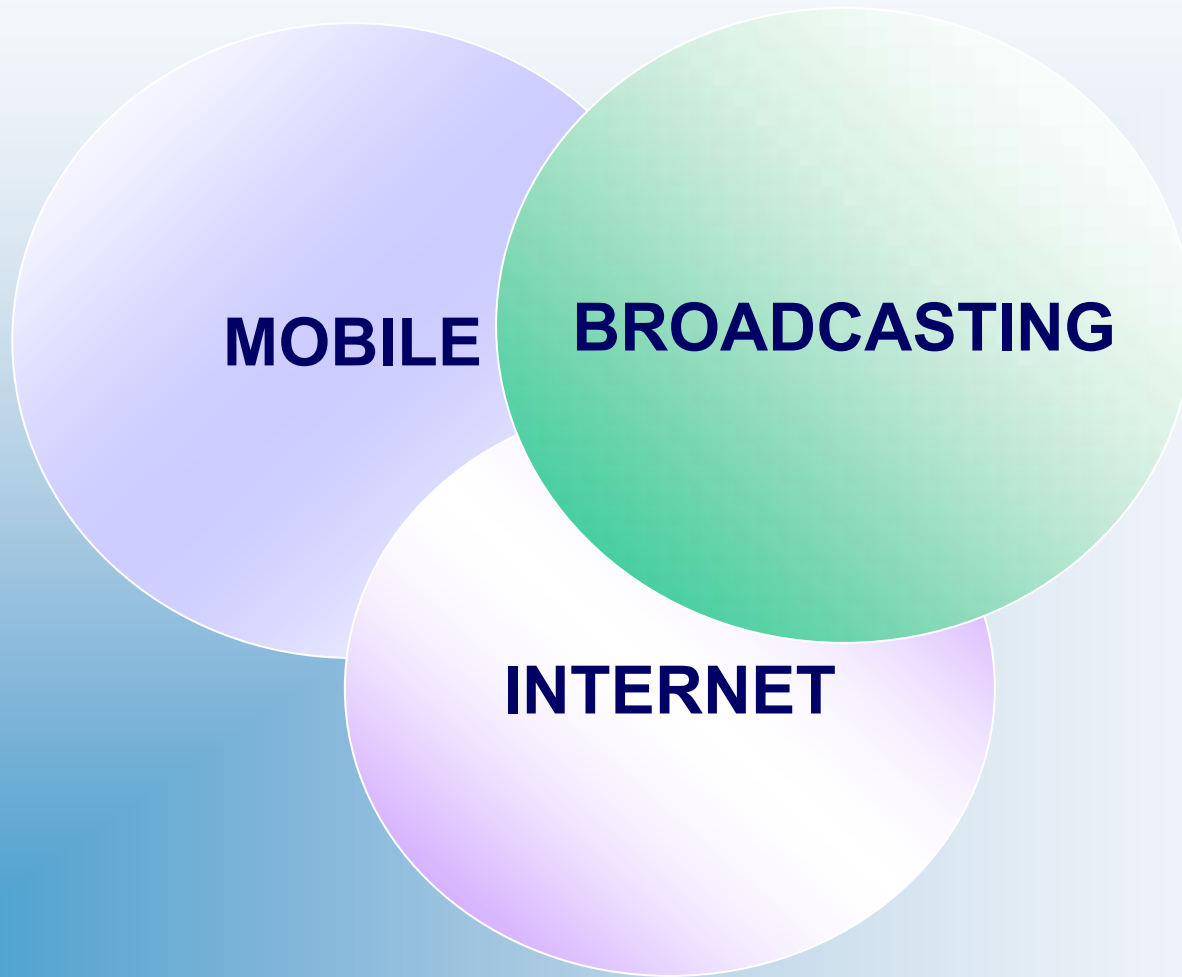
NETWORK EFFICIENCY

Downloading a typical web page (100 KB)



GSM	85 s
GPRS	16 s
EDGE	7 s
UMTS	2 s

What is Convergence?



Types of Convergence?

- Different types:
 - Content
 - Transport
 - Spectrum Utilization



Most important is Convergence between Different ITU services



Impact of Convergence?

- **Convergence impacts different areas:**
 - **Policy and Regulation**
 - **Services and Markets**
 - **Industry alliances and mergers**
 - **Technology and Network Platforms**
 - **Standards**



Need for Convergence?

- **Necessity to provide a product or service that differentiates between services that already exist.**
- **Broadcasters would like to enable interactive/data services on mobile terminals and hence need a return channel.**
- **Mobile Operators would like to enable high value services with minimum infrastructure investment.**



Mobile Broadcast (MBMS)

- **Multimedia Broadcast and Multicast Service enables services via GSM and UMTS over IP**
- **Consists of MBMS Service Center (AS), PO support (multicasting), Radio support (efficient handling of broadcasting over GSM/UMTS)**
- **MBMS is complementary to DVB-T/Cellular and seen as a hybrid service offering Platform**



Broadcast examples

- **Announcement of available (MBMS) services (advertisement)**
- **Showing samples to attract users for Multicast or other services**
- **Advertisement of new PLMN services to users**
- **Advertisement channel in a shopping centre**
- **Emergency information (e.g. weather warnings)**



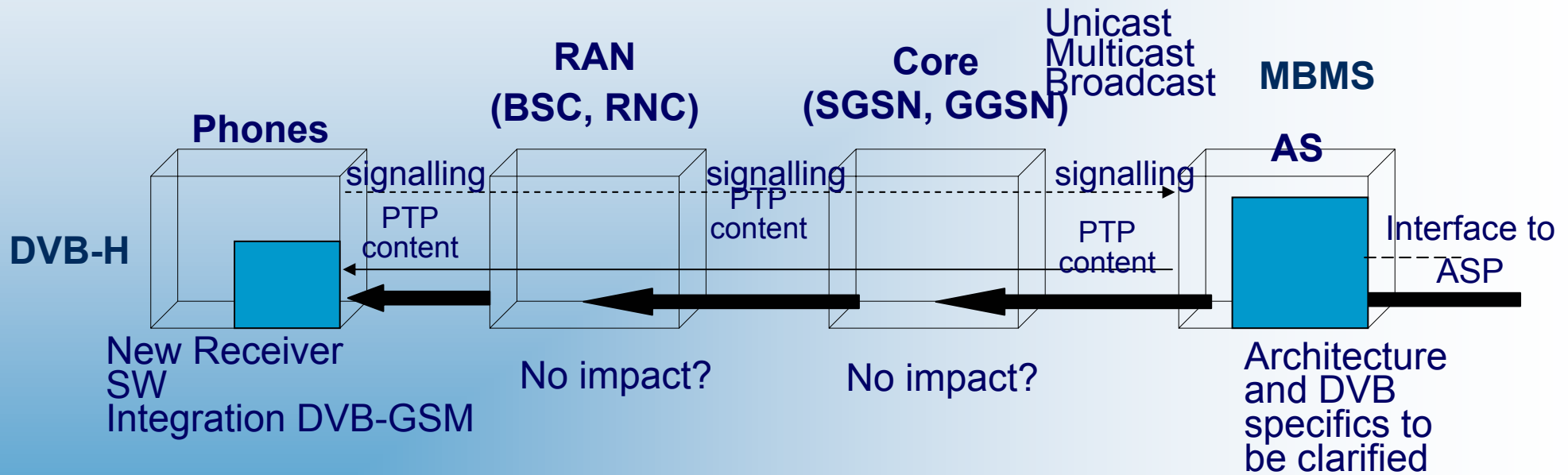
Multicast examples

- News services (events, sports, weather, ...)
- Traffic information (global or localised)
- Entertainment (songs, video, adult services, ...)
- Corporate information channel
- Conferencing bearer

Not well suited for applications which require very low transmission error rates (e.g. download of software)



Architectural overview of MBMS and DVB-H, impact on mobile networks



Status of Terrestrial Digital Television

DVB

Sweden/Spain
Belgium
Croatia
Czech Republic
Denmark
Finland
Germany
Greece
Hungary
Ireland
Italy
Lithuania
The Netherlands
Norway
Switzerland
France

DVB

Ukraine
United Kingdom
Portugal
Poland
Romania
Slovenia
Russia
Nigeria
South Africa
Hong Kong
India
Singapore
Thailand
Australia
New Zealand
Brazil

8-VSB

United States
Canada
Mexico
Argentina
The Philippines

ISDB

Japan

Multiplatform for the Information Society

Digital TV



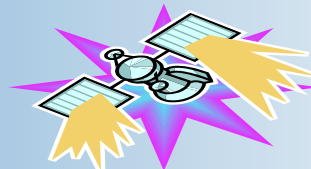
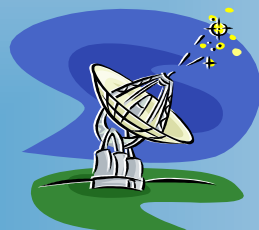
3G



Information Society



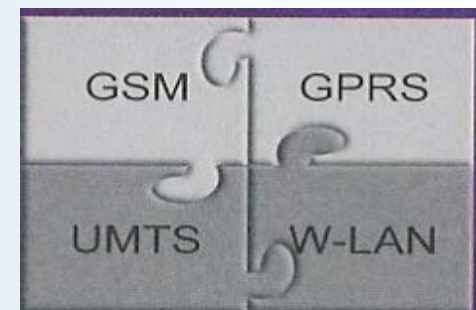
Other Delivery and Distribution Networks



TV & Radio, Cellular,
Satellite

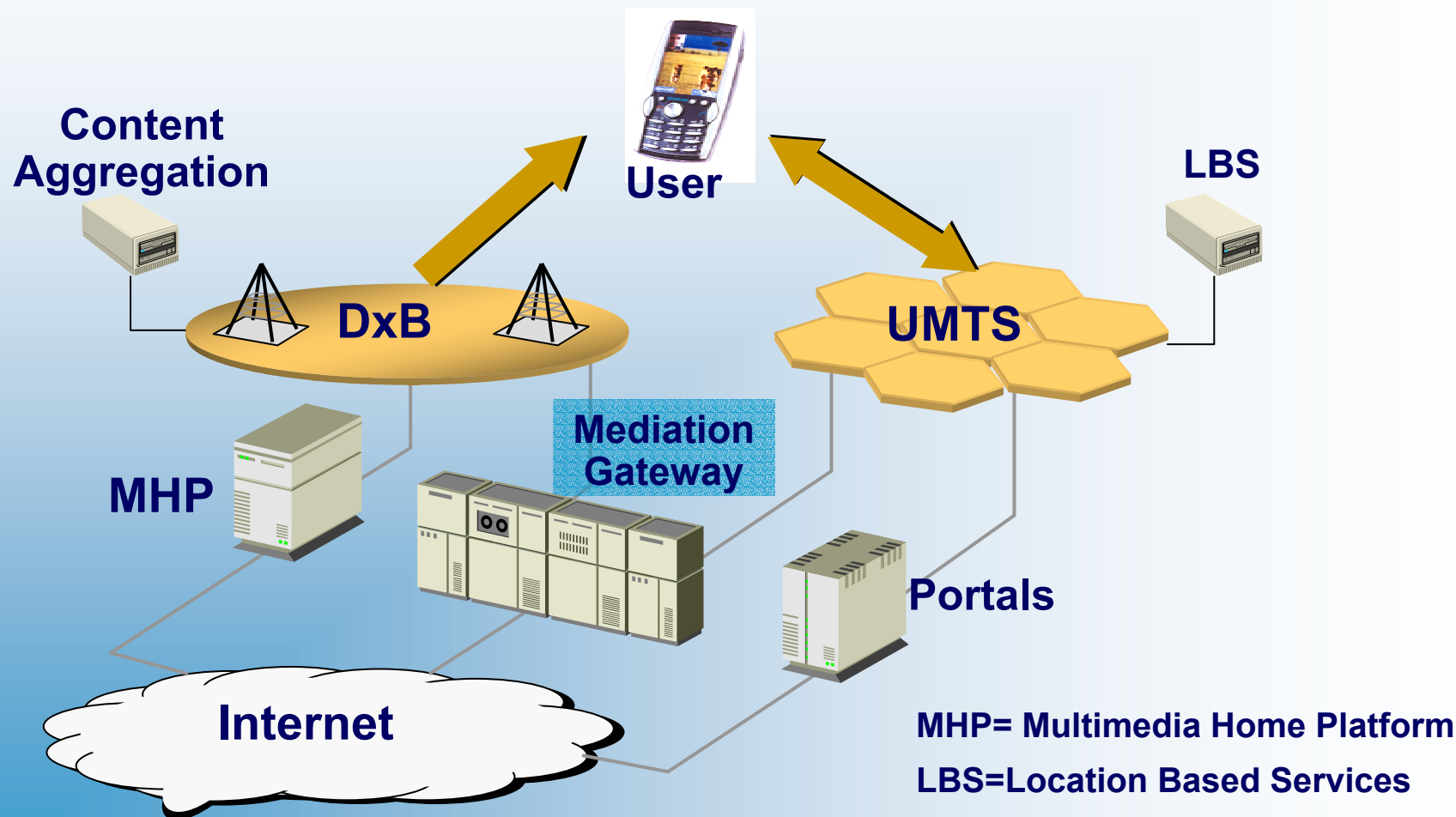
Infrastructure

Current Mobile Networks

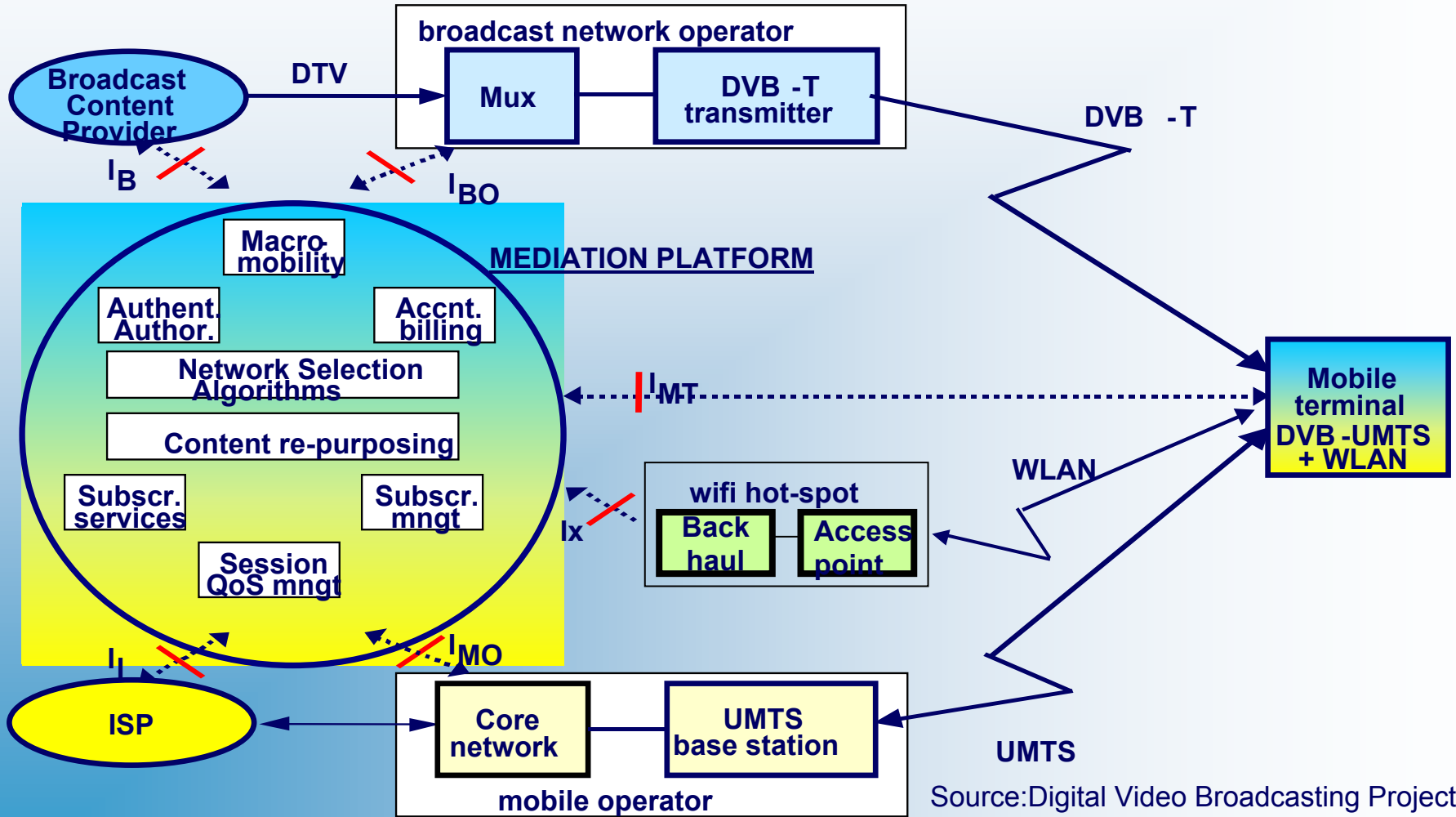


Promoting the global success of
third generation mobile

CONCEPT REFERENCE MODEL



INTERFACES



Source: Digital Video Broadcasting Project DVB

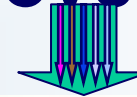
DVB-T as a Multimedia delivery System

MPEG-2 over DVB-T



3 – 4 TV programs for large screen

IP over DVB-T

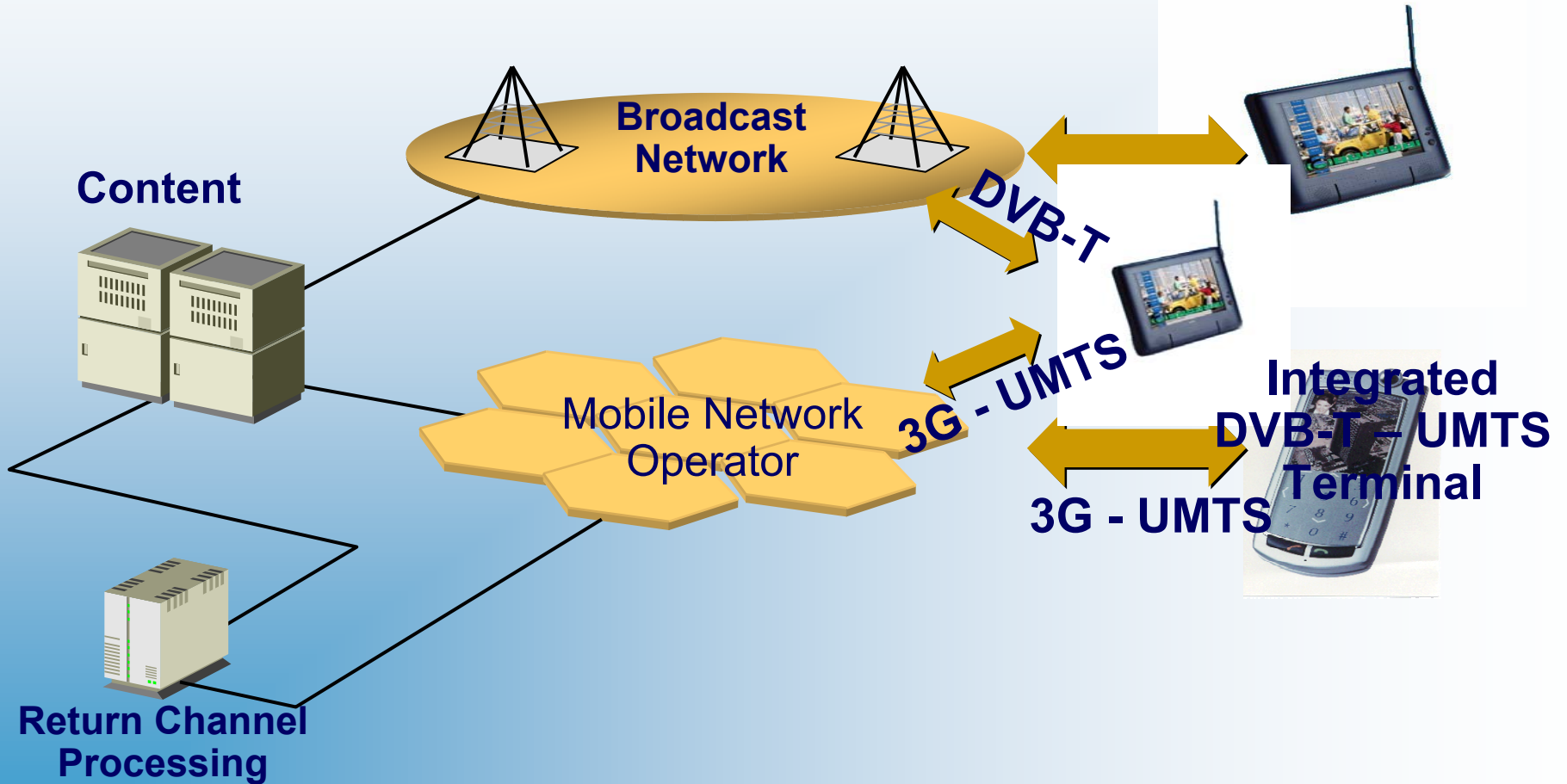


Mobile MUX
11 Mbps

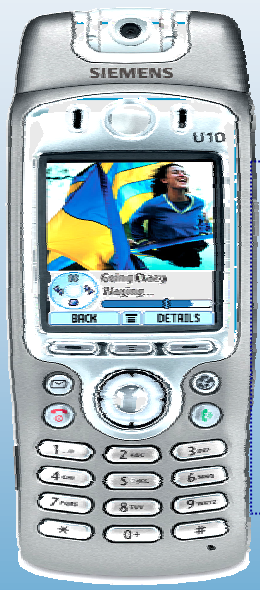


- 50 – 80 video streams for small screen and/or
- 5 - 11 Mbits/s data containing music, web pages, software, etc
- encryption of content (keys delivered over GPRS or similar)

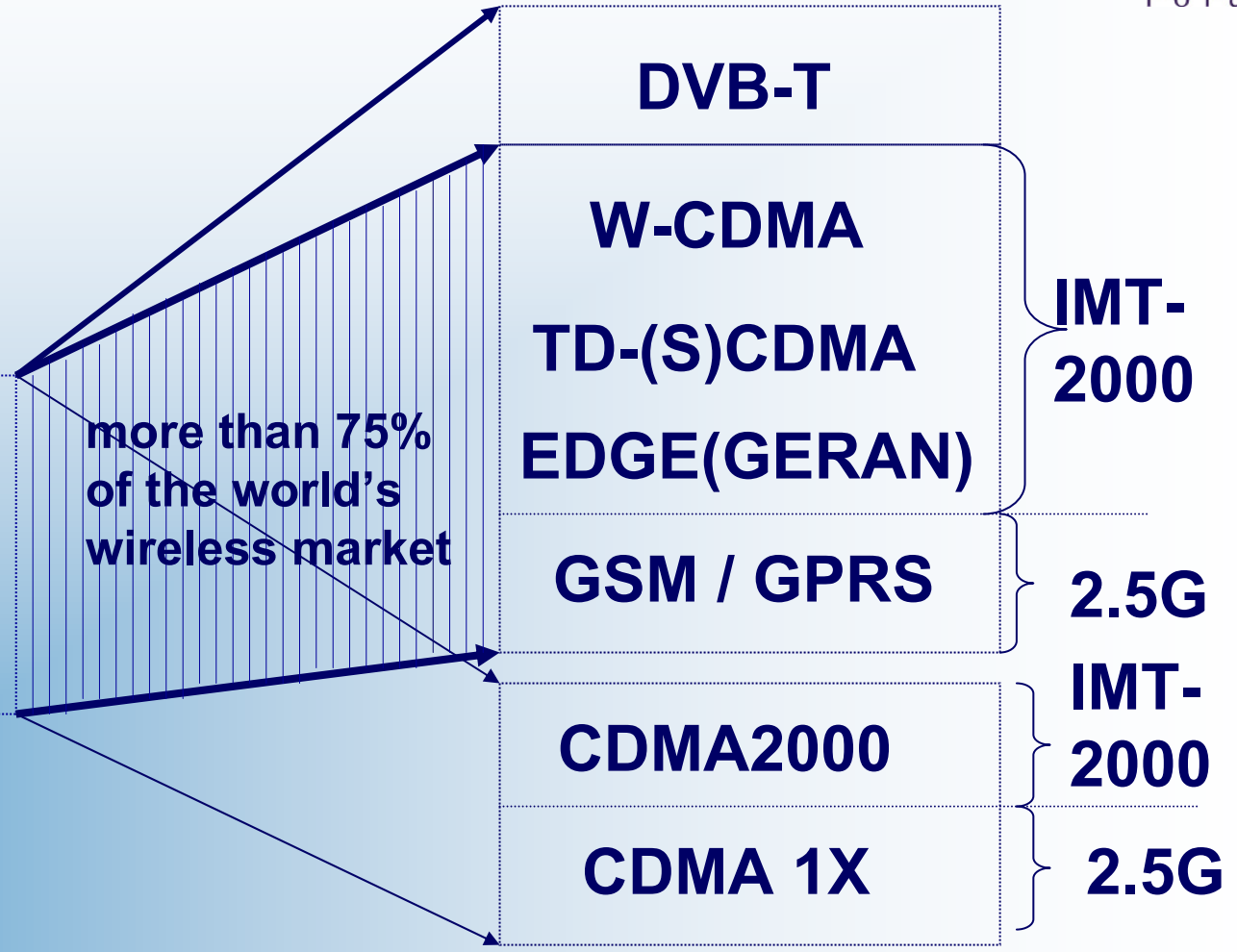
USER PERSPECTIVE



Handset Challenge



**Multi-
Modes
Frequencies
Standards**



DVB / UMTS Framework

Broadcast world

MHP

MPEG-TS

DVB-T/C/S

Telecom world

OMA

MBMS

Cellular

MHP ext

IP Datacast

MPEG-TS

DVB-T/-X

DVB

UMTS

Source: Digital Video Broadcasting Project DVB



SYNERGIES

- **UMTS return channel for DVB**
- **UMTS delivery path of Content for DVB**
- **DVB will be a useful multicast extension for UMTS**
- **UMTS will carry videos, so DVB is not only the video extension of UMTS**
- **UMTS and DVB will complement each other
Offering a mass unique market opportunities**



Conclusions

- Release 5 and 6 provide compelling new features...
- The emphasis is now placed on developing innovative and revenue creating 3G/UMTS Services.
- The Combination of UMTS/DVB-T Services offers:
 - More attractive Audio and Video streaming and clips
 - More interactive Local and remote interaction
 - Increased customer base
 - Develop end-to-end system that enables the creation, delivery and consumption of converged services

Yes, UMTS/3G will be a success...it's only a matter of how and when!!!

Questions?????

**Thank you
for your
attention!!**

