

Cooperation between Broadcasting and Mobile Services

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



Make Terrestrial Broadcasting and Mobile networks work together to provide interactive multimedia services to portable or mobile devices.

Why ?



Broadcasters and IMT community have common objectives

-  Serve users/customers in a best possible way
-  Enhance existing services
-  Provide attractive new services - multimedia
-  Increase service quality
-  Emphasise importance of mobility and seamlessness
-  Reduce overall cost of production and distribution
-  Establish mass market
-  Ensure access to everyone
-  Spectrum efficiency



3rd generation mobile networks (IMT 2000) will not provide sufficient bit rate, at reasonable cost, to provide some of the multimedia services to mobile users or to large audiences



UMTS (first version, release 99)

384 Kbps maximal bit rate per user in reduced mobility
Simultaneous number of users at 384 Kbps : 4 to 5 per cell



UMTS (second version, release 00)

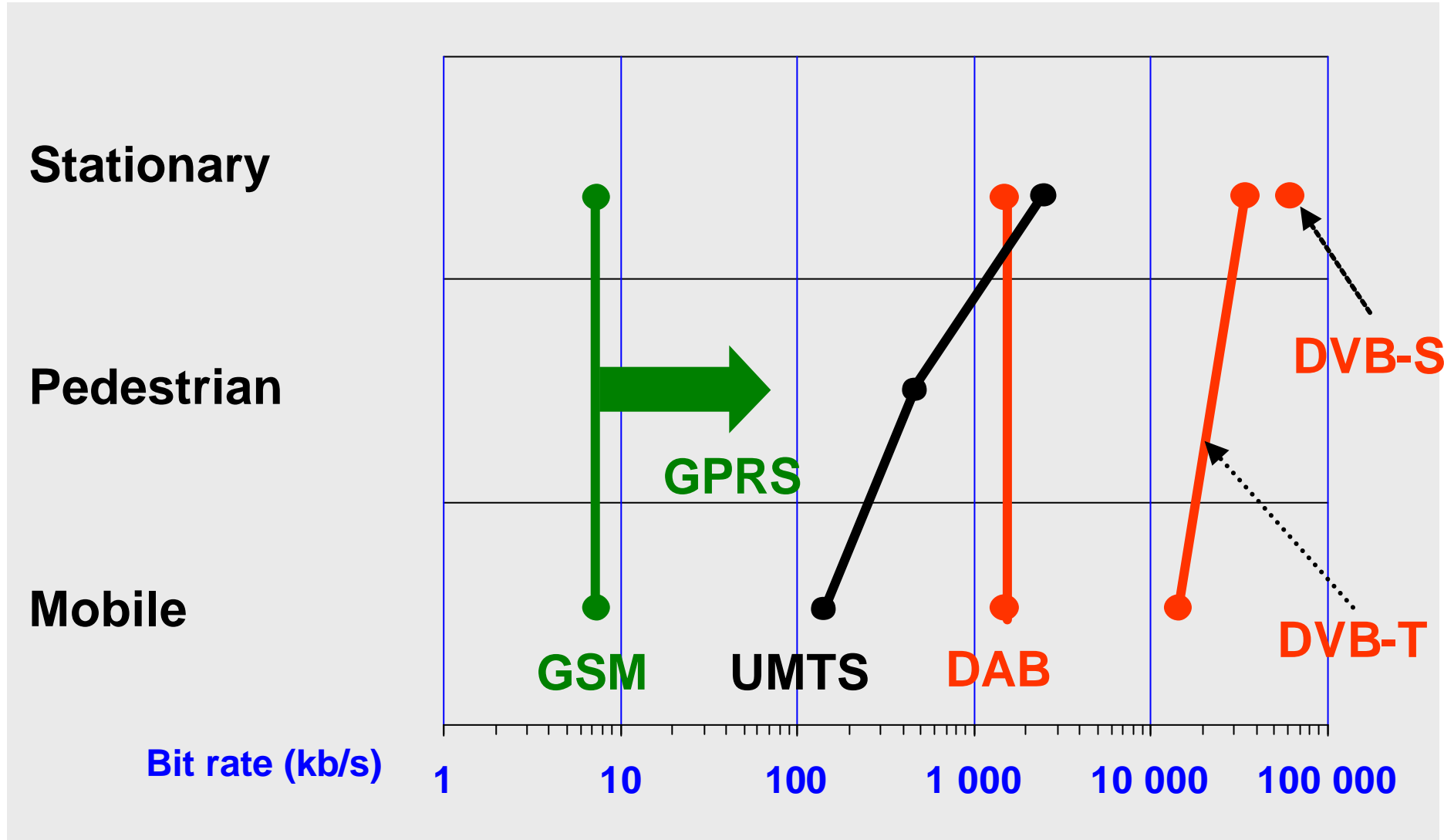
Small coverage in fixed reception mode (“Hot Spots”) will offer 2 Mbps
Not available before 2005 at best

What do we get with 384 Kbps ?

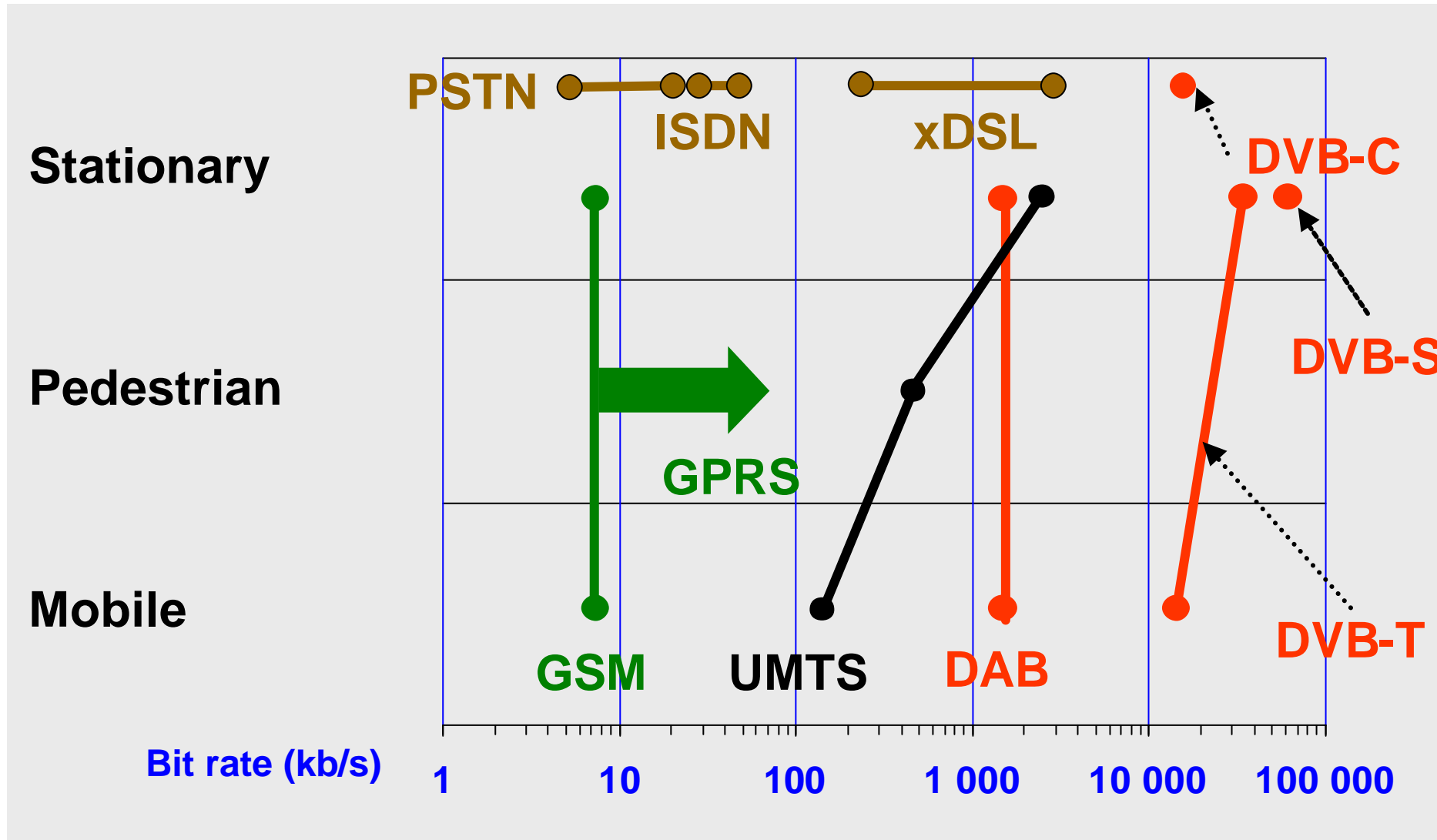
Bit rate examples for a quality allowing long duration watching of an MPEG4 video program

Display size (Diagonal, cm)	Image frequency (Hz)	Image net bit rate (Kb/s)	Sound net bit rate (Kb/s)	Total net bit rate (Kb/s)
5.3	15	60 - 80	20	80 - 100
8.5	15	130 - 190	30	160 - 220
11	15	150 - 280	30	180 - 310
17	15	180 - 350	50	330 - 400

DAB and DVB-T offer more



Comparison with fixed systems





Broadcasters defend their UHF spectrum

See results of WRC 2000

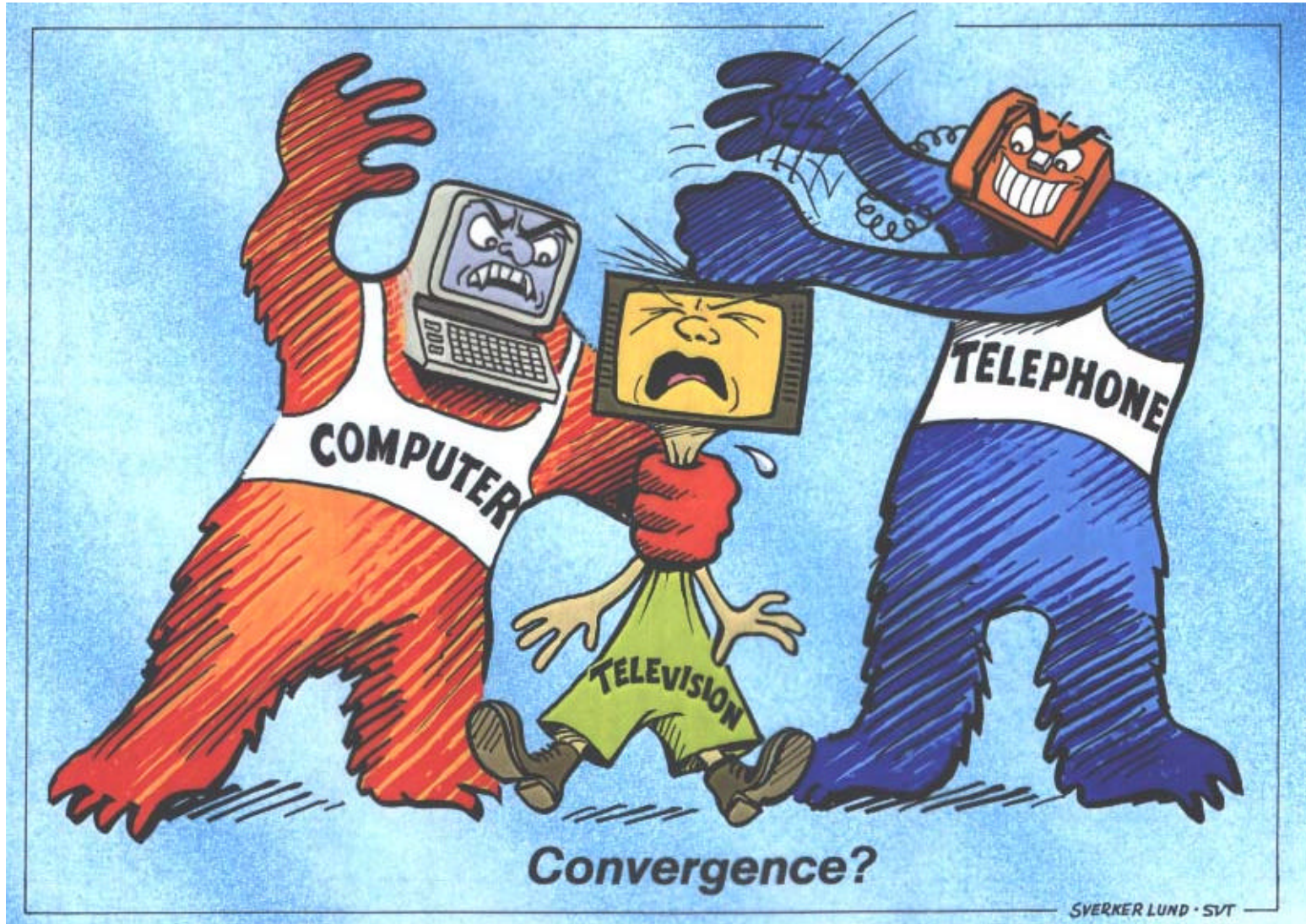


The Mobile Community is mainly devoted to UMTS Release 99 and 00 development

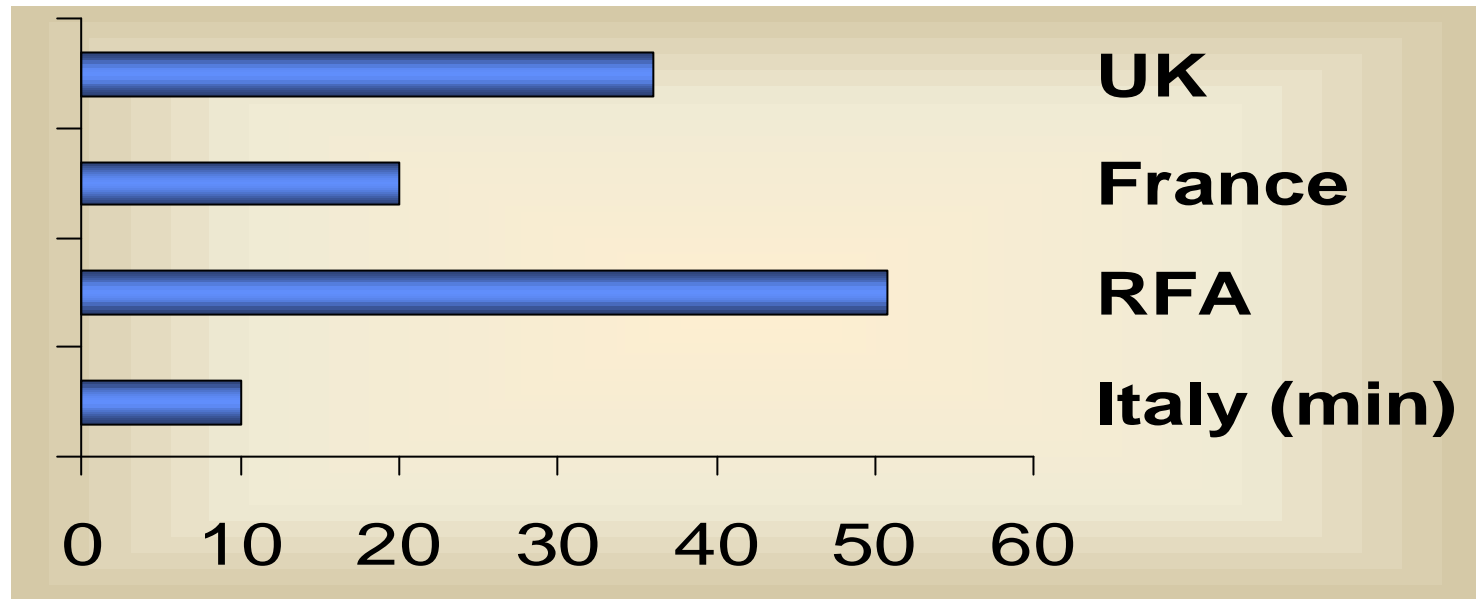
... Not really !

So, why should we study the question ?

There is perhaps no choice ...



Billion \$



...which makes the MHz cost about between 0.2 and 1 billion \$

Broadcasting ~~or~~ Mobile

and



The pressure on broadcasters to give up part of the UHF spectrum will increase



A way to limit such a pressure might be cooperation between Broadcasting and IMT mobile systems



Be able, anywhere, anytime, to select the appropriate combination of networks to provide the desired service at the best cost.

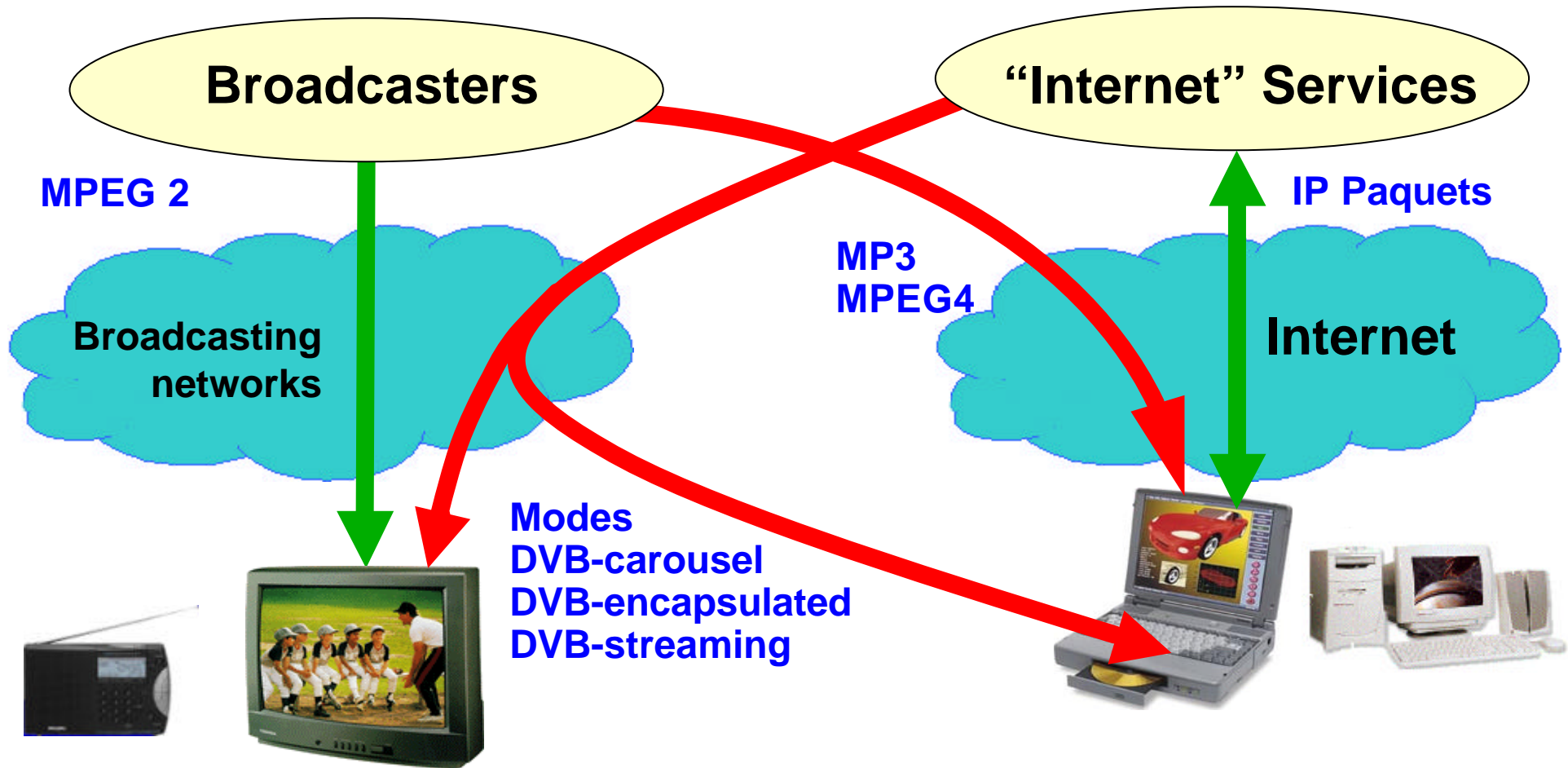


It is the network face of TV and Internet convergence towards Multimedia.

Cooperation is possible



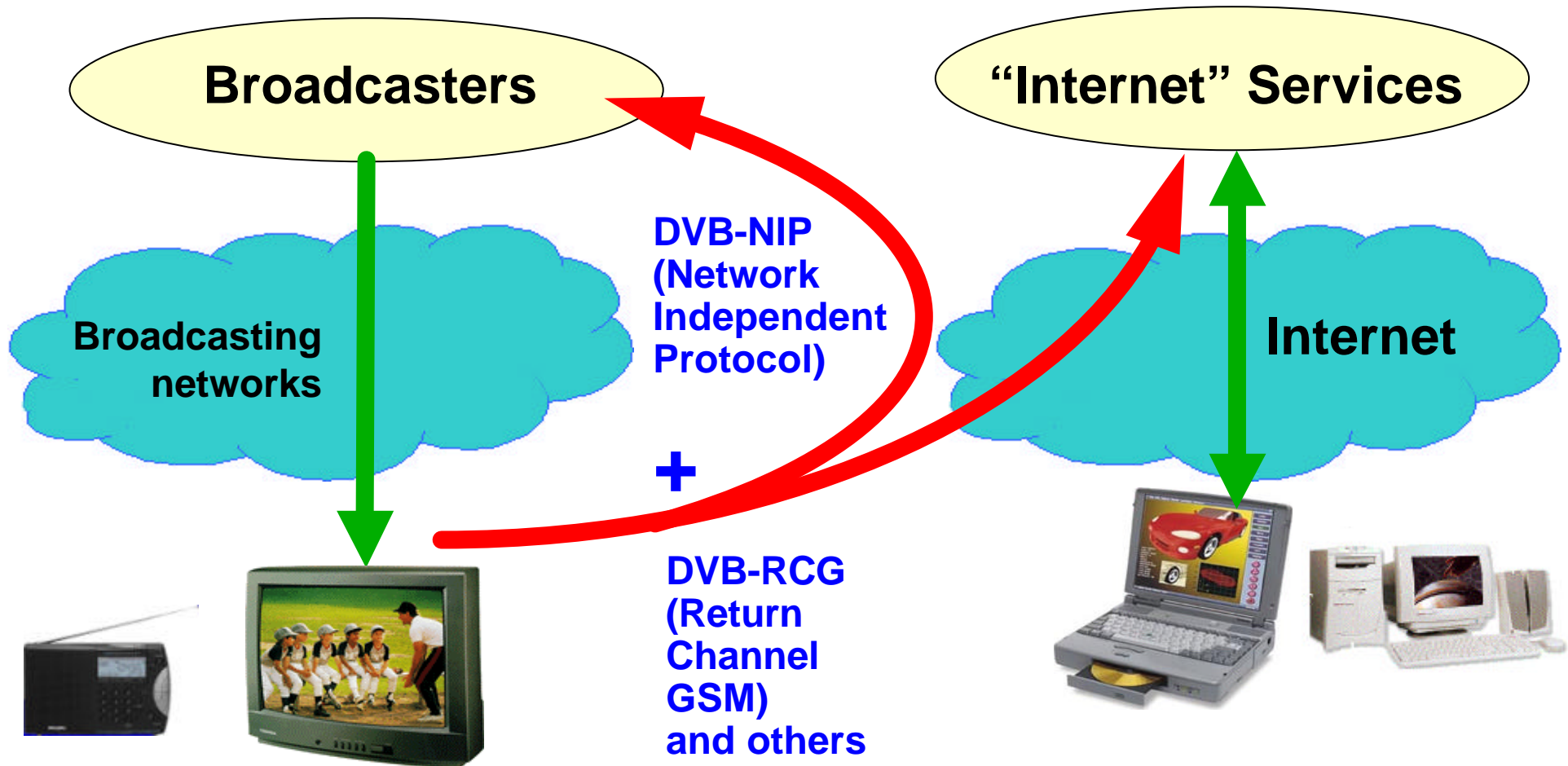
Transport protocols are defined (DVB example) :



Cooperation is possible



Return protocols are defined (DVB example) :





No major difficulty



Soon on the market

TV (Set Top Boxes) with modem, interactivity engine, MHP, disk storage...

Portables become « organisers » with larger displays

Mobile sets dedicated to Internet arrive

Cars integrate more and more electronics, displays...

...

Mainly around two domains :



Interactive TV



Traffic and travel



Interactive TV

e-commerce

simplified Internet access (On-Digital, Quiero TV)

e-mail



IMT would provide

reliable and high-quality mobile return path

no dialing (direct access to programme provider)



Telephone
E-mail, SMS
Video phone

Communication



Plan a route for me
Guide me to a place

Getting
somewhere

News
Traffic situation
Tourism
Finance
Points of interest

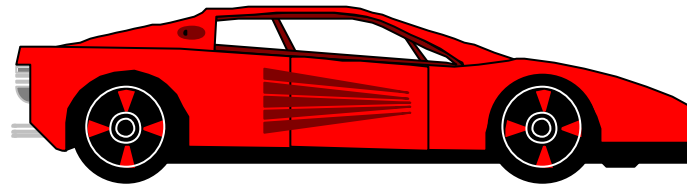


Being informed



Care maintenance

Getting car info
Safety reports



Commerce



Having fun

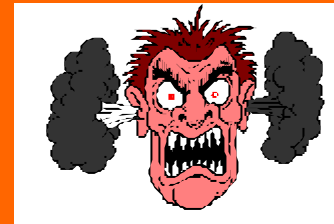
Music
Watching video
Playing games
Surfing in internet

Feeling
comfortable

Climate
Sound



Emergency



Shopping
Charging toll
Parking fees
Booking tickets



Networks exist,



Receivers are almost here,



Services emerge,



...but nothing is simple



Make network cooperation effective



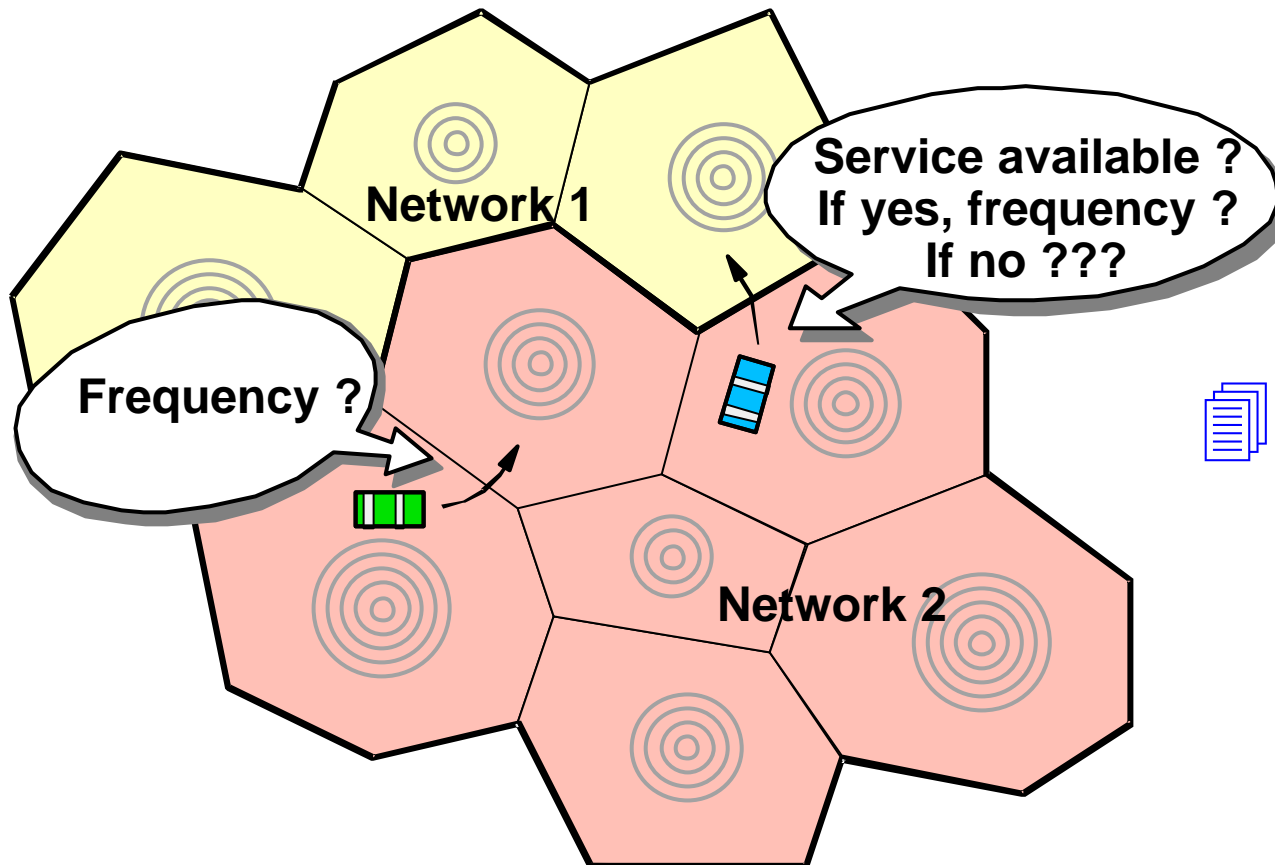
Complete protocols



Make data, services and servers able to auto adapt to networks



Regulatory aspects



Has been specified by DVB in the last version of DVB-T spec.

but...



Hand over difficulty is doubled

Mobile networks have their own method

DVB-T has standardised its method

It was already done for DAB and FM



Is further more complicated by the fact that broadcasting does not know how to make retransmission on reception error



Broadcasting and Mobile networks have each one their own management and supervision systems



These have to be linked to ensure control of the final global service



Coverage of both networks must be coherent

This does not imply necessarily that network topologies must be the same...



...but this would be eased if DVB-T networks become more cellular type



Propagation characteristics (echoes, indoor penetration...) may impair such a converging process



Network specific protocols exist

but Broadcasters are not necessarily familiar with mobile protocols use and knowledge



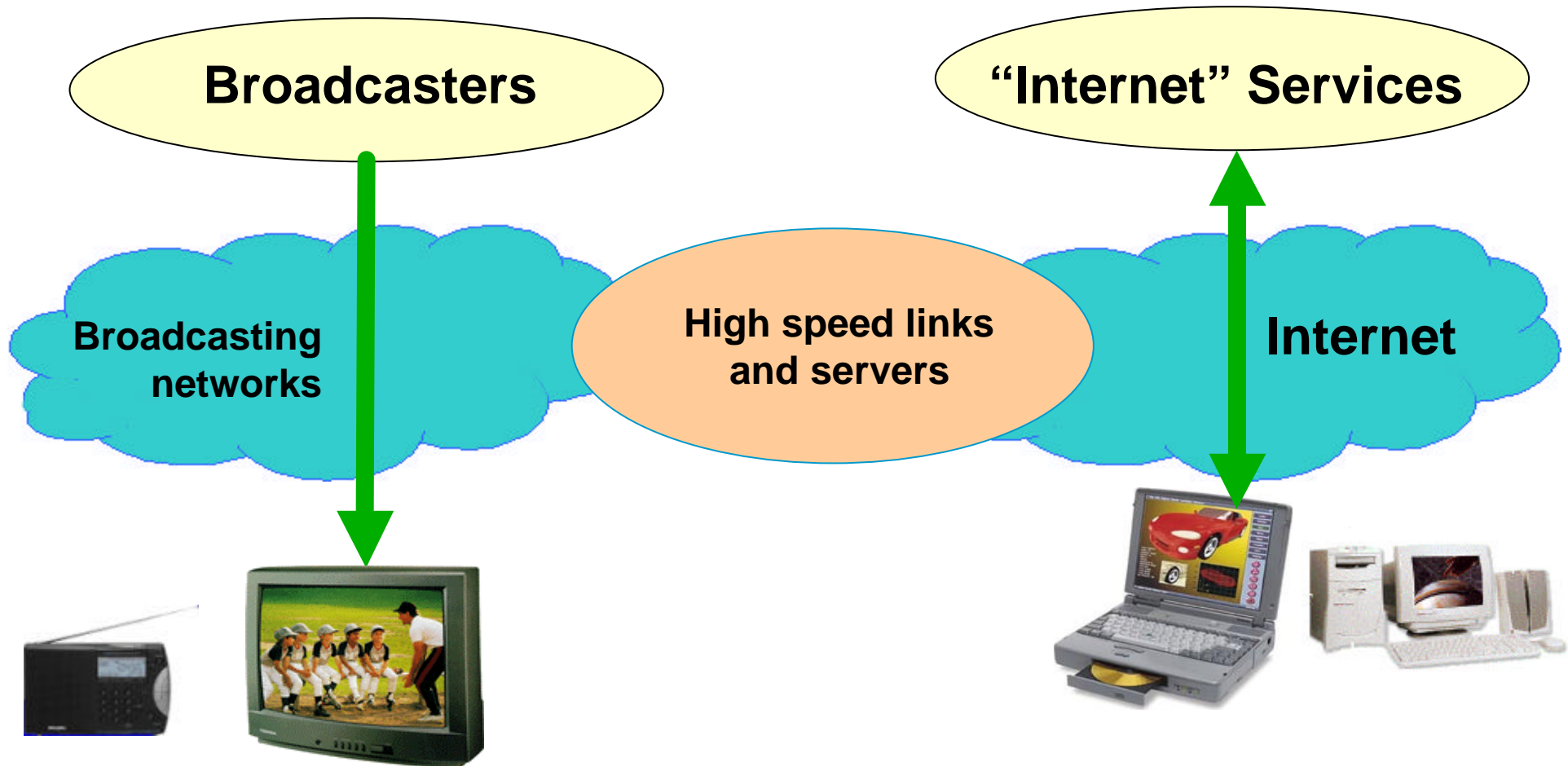
Is there a need of additional “metaprotocols” to aggregate various data needed by co-operative networks and services ?

Several European projects in this area

Adapt servers and data (1)



High speed links and bridges to be built to connect networks





Content formats

How can content adapt more or less itself to download on either network and with appropriate quality of service ?



Route choice

How to choose between one network or the other to reach the receiver ?



Long term allocation of UHF spectrum

In the long term (all digital), how much spectrum is needed by Broadcasting ?

Prerequisite before ITU replanning of Stockholm 61 frequency plan (2005/2006)

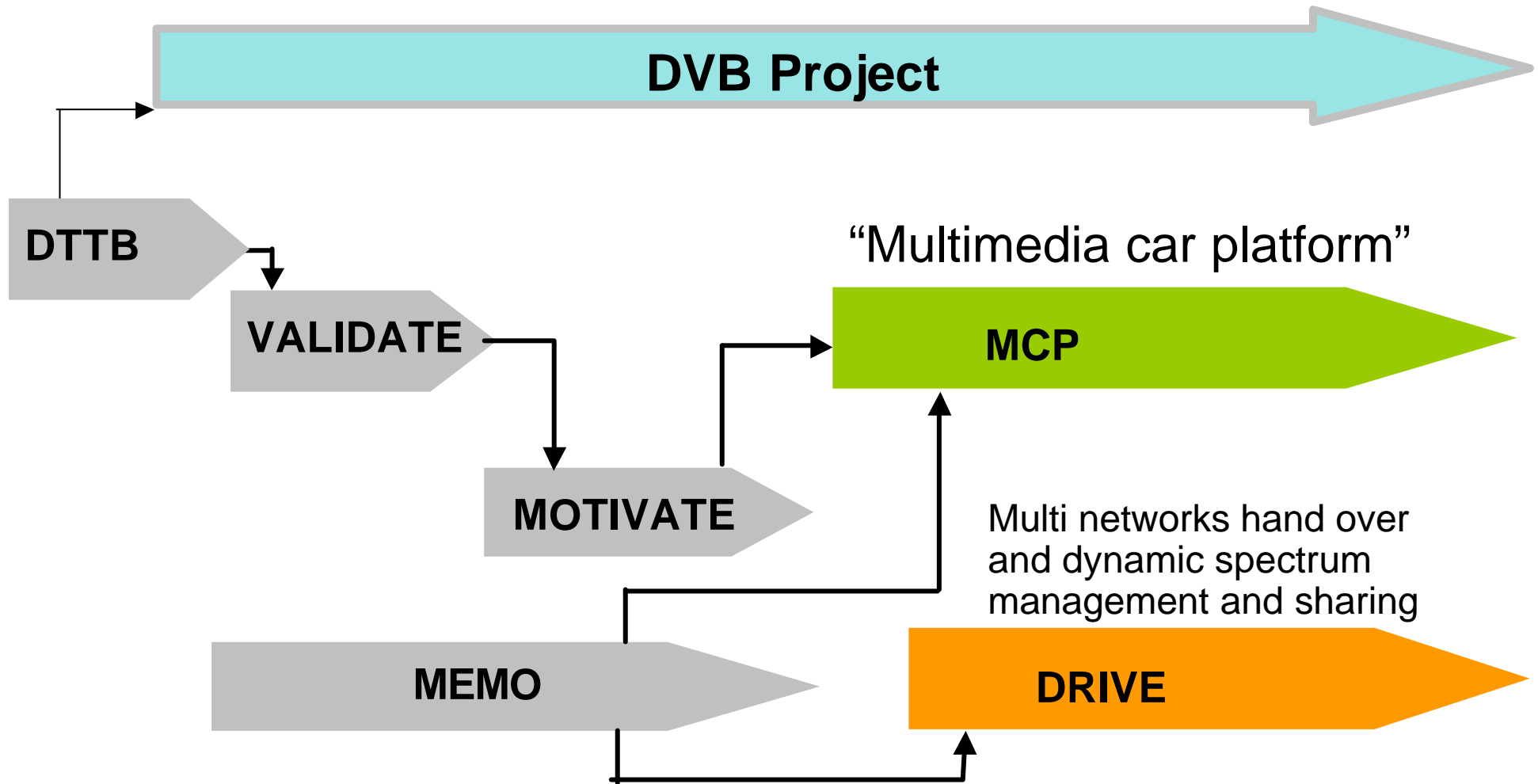
TVHD ?

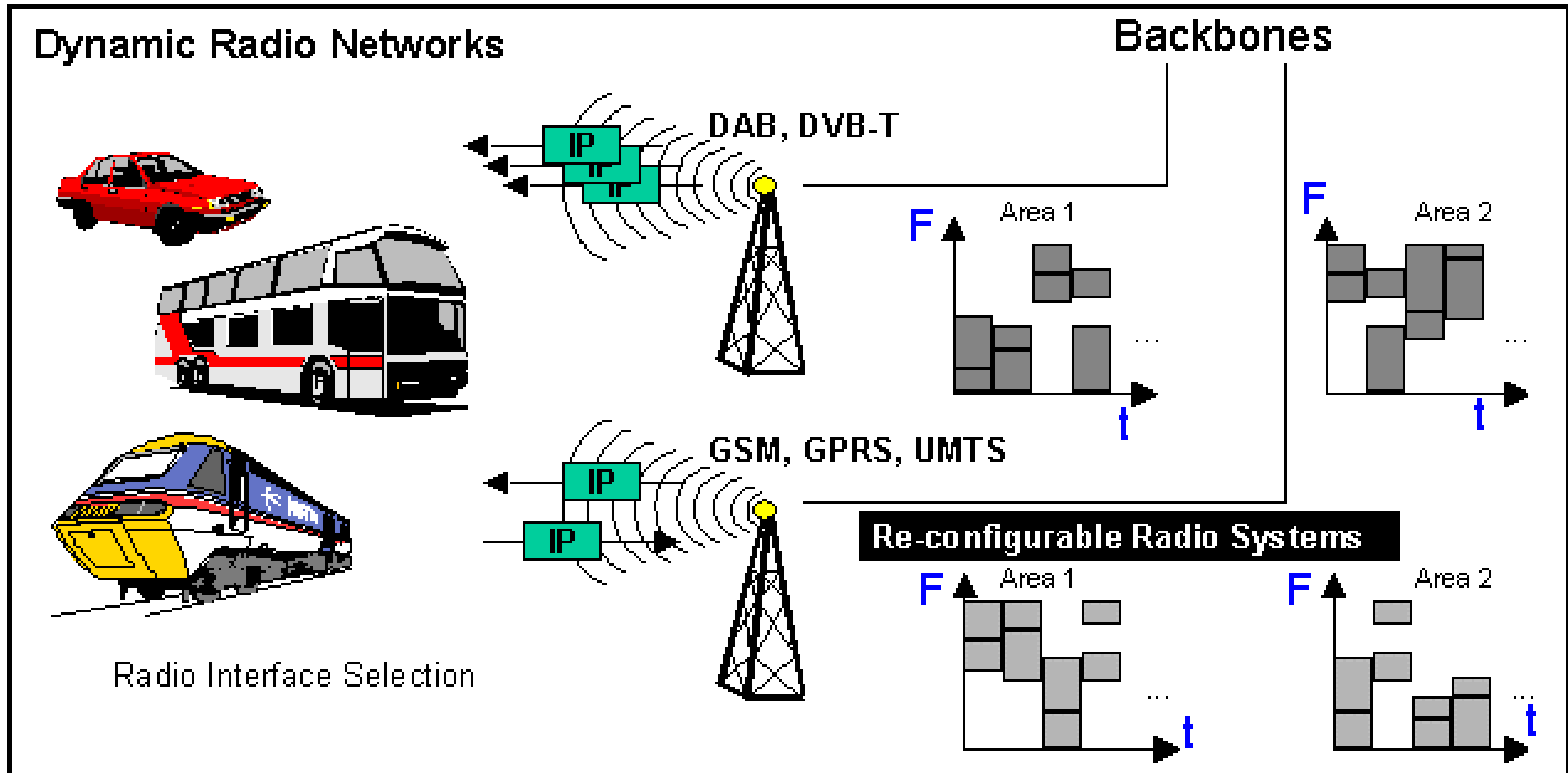



Can mobile and Broadcasting share spectrum ?


Possible topic for WRC 2003


European research projects





-  **October 2000** : MCP Draft Specifications for network integration, services and applications as well as the automotive terminal

-  **" First milestone" : 2002** – Hybrid networks with fixed spectrum assignments (e.g. DVB-T/DAB/GSM) and 1 G Car Terminals

-  **" Second milestone": >2005** – Hybrid networks with dynamic spectrum allocation



Possible synergies

- a) Enhance broadcast systems by IMT “return” channel
- b) Enhance IMT by using broadcast channel as a “forward” channel



a) provides an extension of interactive TV to mobiles receivers



b) allows IMT systems to reach many people at the same time, with same contents, with excellent service quality



Do we really need such wide band multimedia services, especially in our cars ?



Is it a no market, a niche market or a wide market ?

And thank you for your attention !