



CPCM and Home Networking in DVB

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ETSI, Sophia Antipolis
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20 minutes of your time

- DVB and digital television
 - why you're listening to me
- What our plans are ...
 - Home networking
 - CPCM
- Challenges
- Conclusions

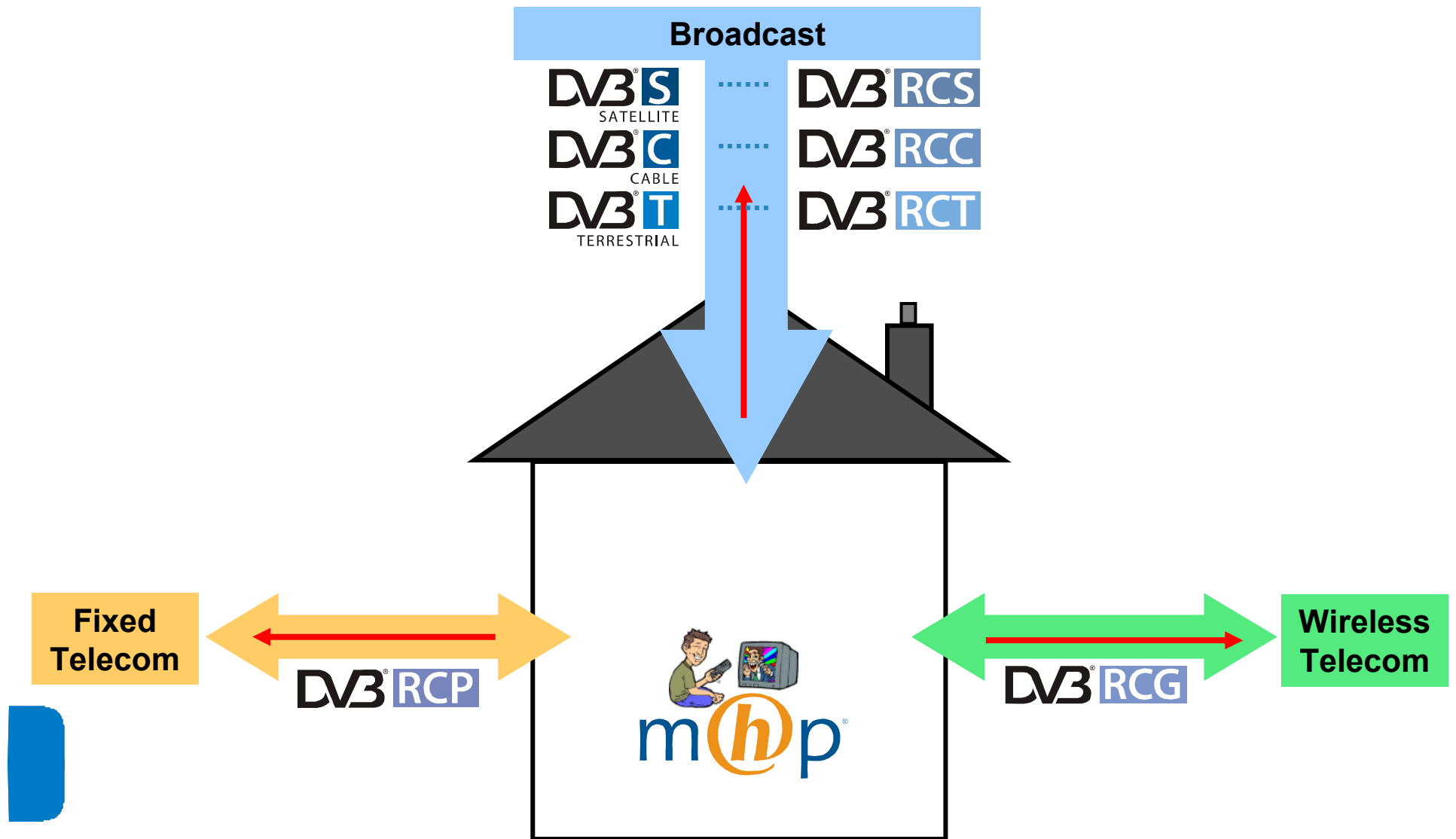
now doesn't that sound exciting!



DVB and ETSI

- DVB is an industry initiative – NOT a standards body
- All DVB outputs are standardised via EBU/ETSI/CENELEC JTC Broadcast
- DVB standards regularly top the list of popular downloads from ETSI's site
- DVB considers there are approx. 100 million DVB receivers in the market
- Members group all sectors of the television industry
- DVB works by consensus based on strict IPR rules

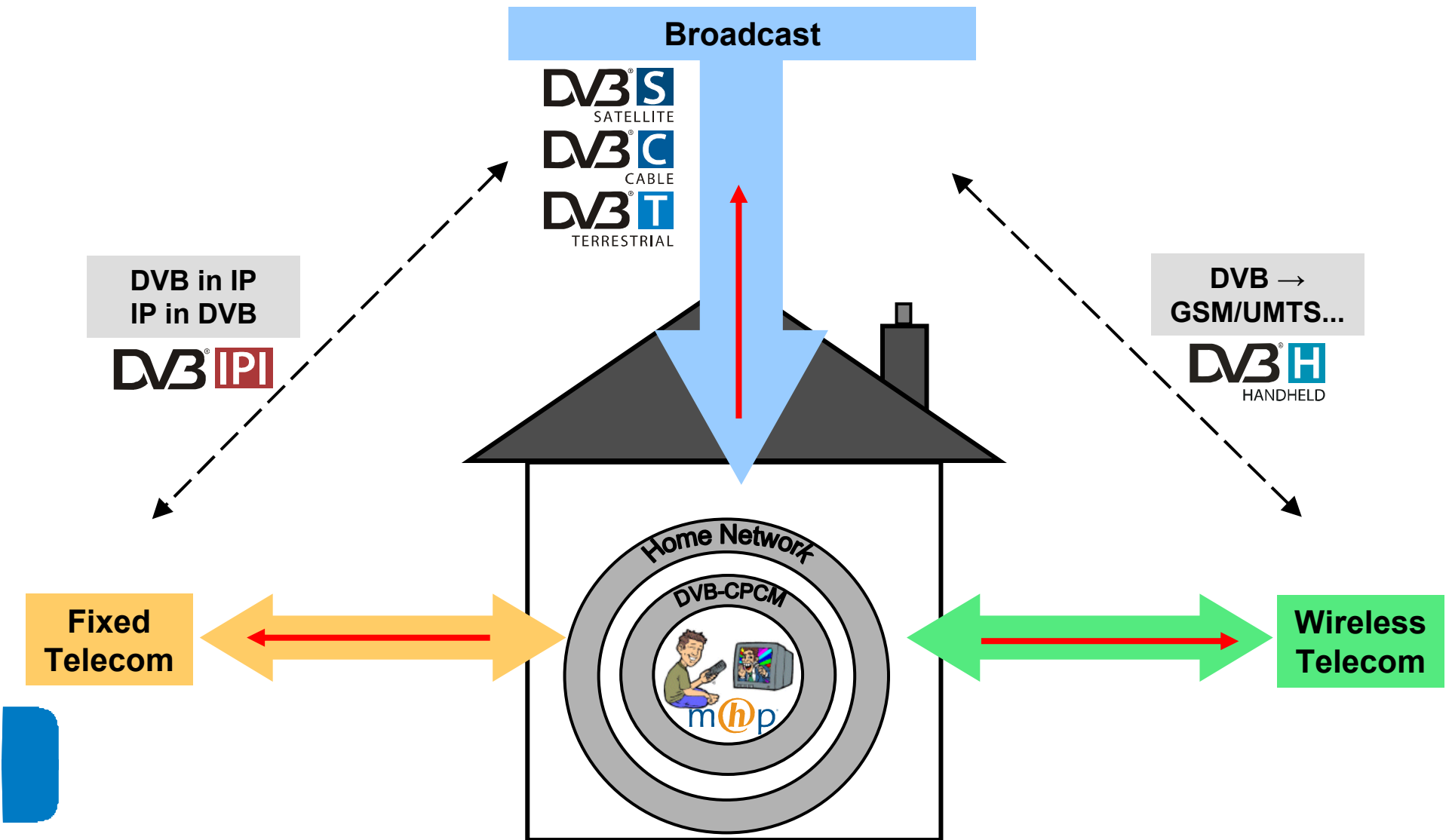
In the beginning



But we're converging

- It has taken a long time to understand what convergence means
- DVB has focused attention of making its services available across any access network
- But there are gaps
 - Home networking is becoming more important
 - A harmonised solution to copy management and content protection is also important
- DVB doesn't have all the answers
 - Close co-operation required with other bodies, e.g. DLNA, OMA, etc.
 - Let's not re-invent the wheel ...

DVB 2.0next steps

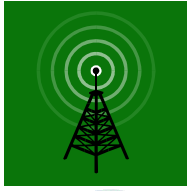


Content Protection Copy Management

- CPCM is “an end-to-end Content Protection & Copy Management system implemented in consumer digital products and networks to enable the authorised usage and redistribution of content (video, audio, text and data)”
- DVB CPCM Looks at how to allow consumers to copy content, rather than preventing it
 - addresses usage cases not covered by existing systems
 - CONTENT may be constrained within an Authorised Domain
 - AUTHORISED USAGE meta-data is tightly bound to the content and is called Usage State Information (USI)

Scope of DVB CPCM

Broadcast



Internet



Packaged Media



Main Home



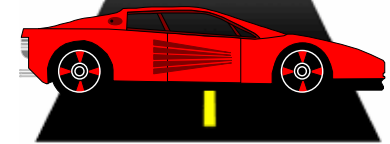
Second Home



Portable Devices



In-Car Devices
& Network



DVB CPCM – the ultimate aim

"CPCM will be specified in terms of a set of technologies, interfaces and USI by which approved implementations will be able to interoperate" and will not be specified in terms of "a single technology".

- Finalise the reference model
- Compliance testing?
- A first phase is due for completion in Q3 '05

Home Networking in DVB

- DVB recognised the importance of Home Networking – particularly “wireless”
- Previous initiatives were dogged by difficulties in reaching consensus between DVB members
- Activities re-started and has become one of monitoring the many efforts of other bodies, e.g. DLNA
- DVB certainly doesn't plan to invent new home networking protocols

Responsible standardisation what we SHOULD be doing

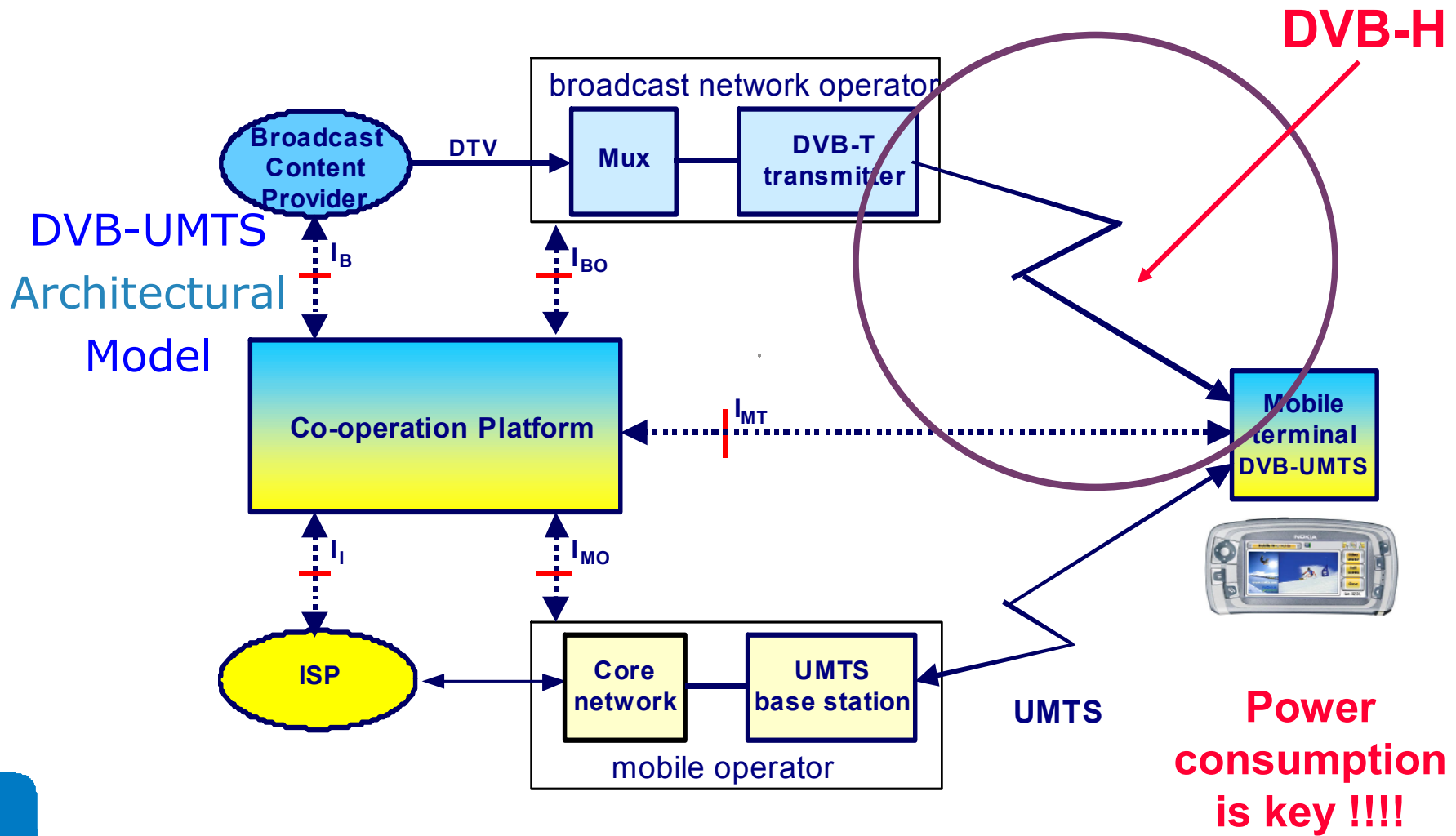
- Standardisation should add value
 - Don't invent a new technique for the sake of it.
- Home networking requires more communication than innovation
 - Lots of work going on, solutions could simply be referencing other's efforts
- Content Protection Copy Management is a big DVB work item
 - It's taken ages to start achieving results
 - Phase I set of specs. expects towards end Q3 '05

I



DVB

DVB-H



Tokyo Pilot Experimental Terminal



mobile terminal

□By Mitsubishi Electric □

A receiver system and its battery is in the bag. Around 2005, we expect the terminal will be the size of a cellular phone.

A liquid crystal display

Upper half: Video screen
Lower half: Data broadcasting content screen
Screen resolution is 320×240 dots

Data broadcasting

In this test, we provided various services to viewers, race result information services, shopping, betting, etc.

A combination of ISDB-T data broadcasting and cellular packet system is an attractive delivery method.

Mobile TV trials in Japan using ISDB-T

This is the battery

Power consumption is one of the biggest problems you must address in any handheld environment

DVB-H has a solution

Work items in the coming year

DVB-H & IPDC



Biggest work area at present in DVB. Finalising all the elements to facilitate DVB-H services:
Service protection and provision
Service discovery and programme guides
IPDC specifications
(Q3 – 2005)

DVB-CPCM

Difficult to achieve consensus in the Content Protection, Copy Management area, but everyone is involved
Results expect toward end Q3 – 2005 ... we hope...

Home Networks

Was a big activity in 2-3 years ago, but little convergence between members. Now a big topic again – close liaison with organisations working in the area required, e.g. DLNA

Maintenance



Continued work finalising:
DVB-S2
DVB-RCS
Validation work on DVB-H

Analogue TV in mobile handsets

**World's first GSM TV
phone
September 2003**



SAMSUNG

- Difficult to reduce handset power consumption, so battery life is short
- Receiver performance in a mobile environment (doppler/multipath) is poor
- Free-to-air services only: unattractive business model for wireless carriers

..... a digital solution is required

TV over 3G networks



- 3G networks (UMTS/WCDMA/CDMA2000) support video services at about 300kbit/s
- But video services consume 10x the capacity of voice services. Pricing for video below about 10c per minute is unattractive for operators, even before content costs are considered
- If people watch about 3 hours of television per day and just 10% of viewing switches to mobile, this would still be over 500 minutes per month
- €50 per month (500 minutes @ 10c/min) is too expensive for most consumers.

..... a cheaper solution is required

What the DVB Project actually looks like...

Technical Group Chairman
Ulrich Reimers (Germany)

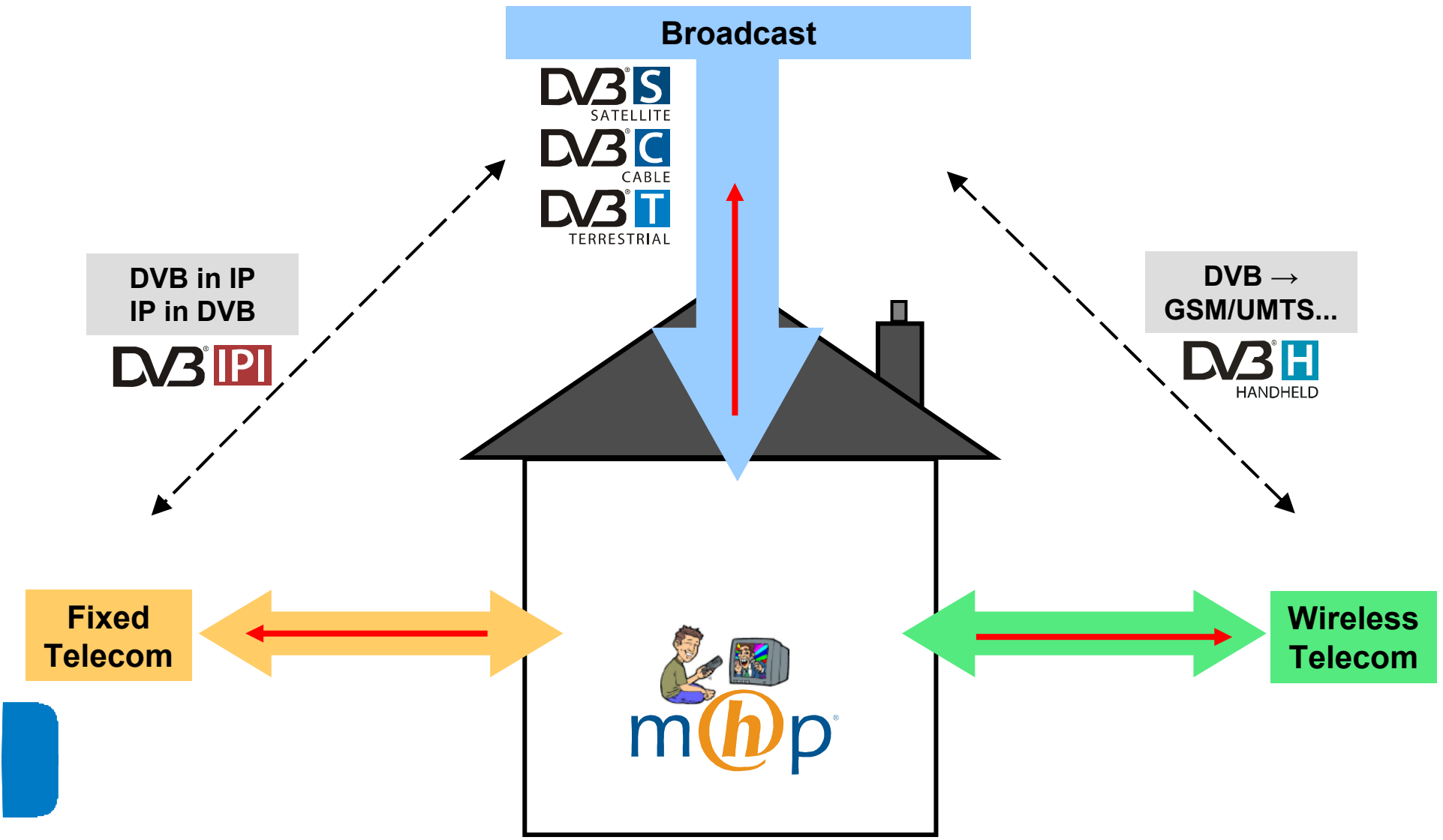
Technical Group Secretary
Peter MacAvock (Ireland)



How we work

- Use existing technologies where possible
 - DVB doesn't want to re-invent the wheel
- Work by consensus
 - All sectors of the industry are in DVB, and the MUST ALL agree on any new DVB specifications
- Intellectual Property Rights
 - DVB must respect the rights of the IPR holders
 - DVB must also insure that its standards can be implemented at reasonable cost
 - IPR safeguards are an important part of DVB, are also important for Chinese industry

DVB 2.0



Abstract Functional Entities

Acquisition Point (AP)	Imports content to CPCM, optionally also binds it to an AD
Storage Entity (SE)	Stores content inside CPCM
Processing Entity (PE)	Performs some operation on content inside CPCM
Consumption Point (CP)	Unbinds content from CPCM for consumption
Export Point (EP)	Unbinds content from CPCM for other purposes

Content, Functional Entities

