



CPCM and Home Networking in DVB

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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

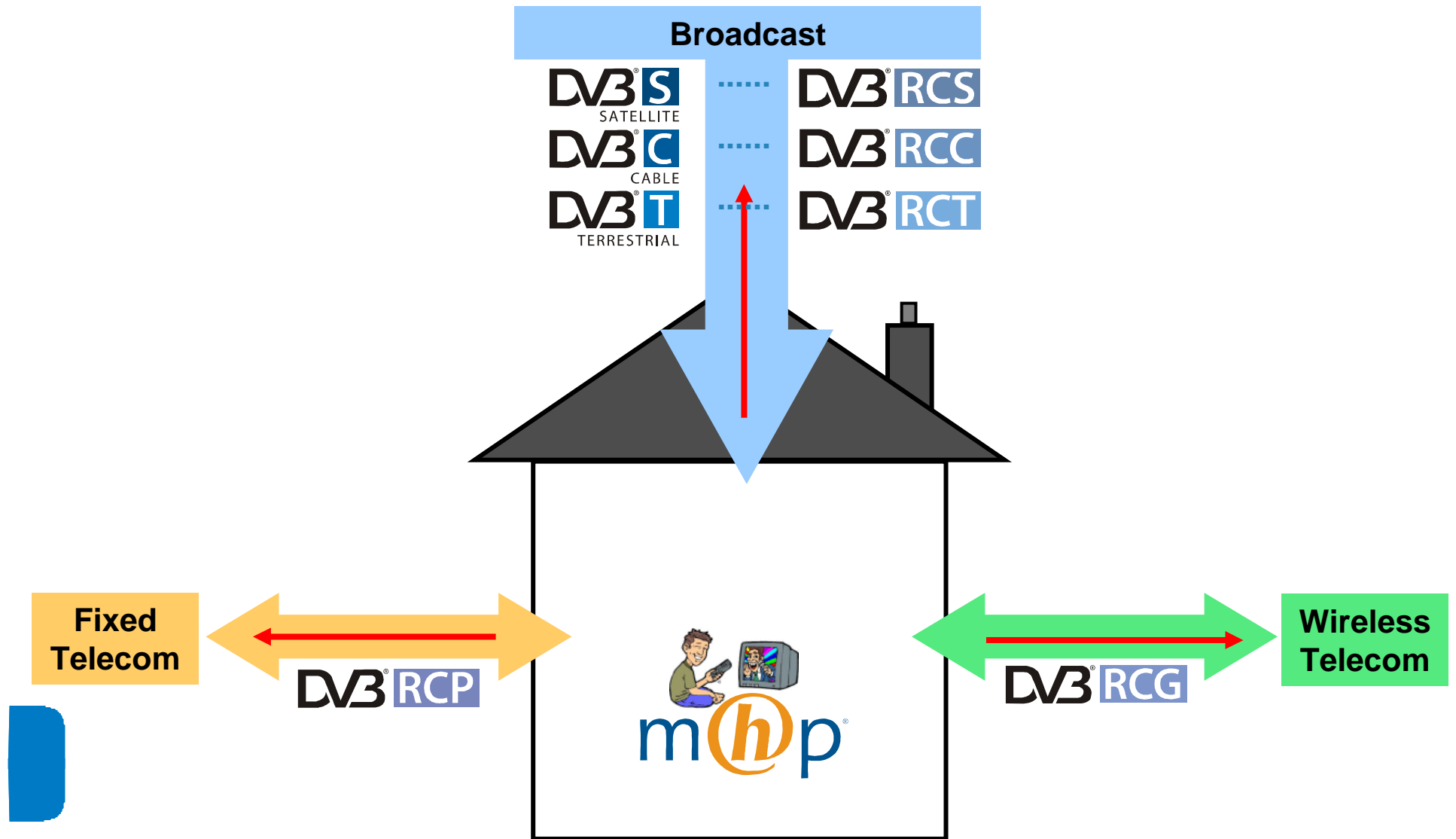
now doesn't that sound exciting!



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

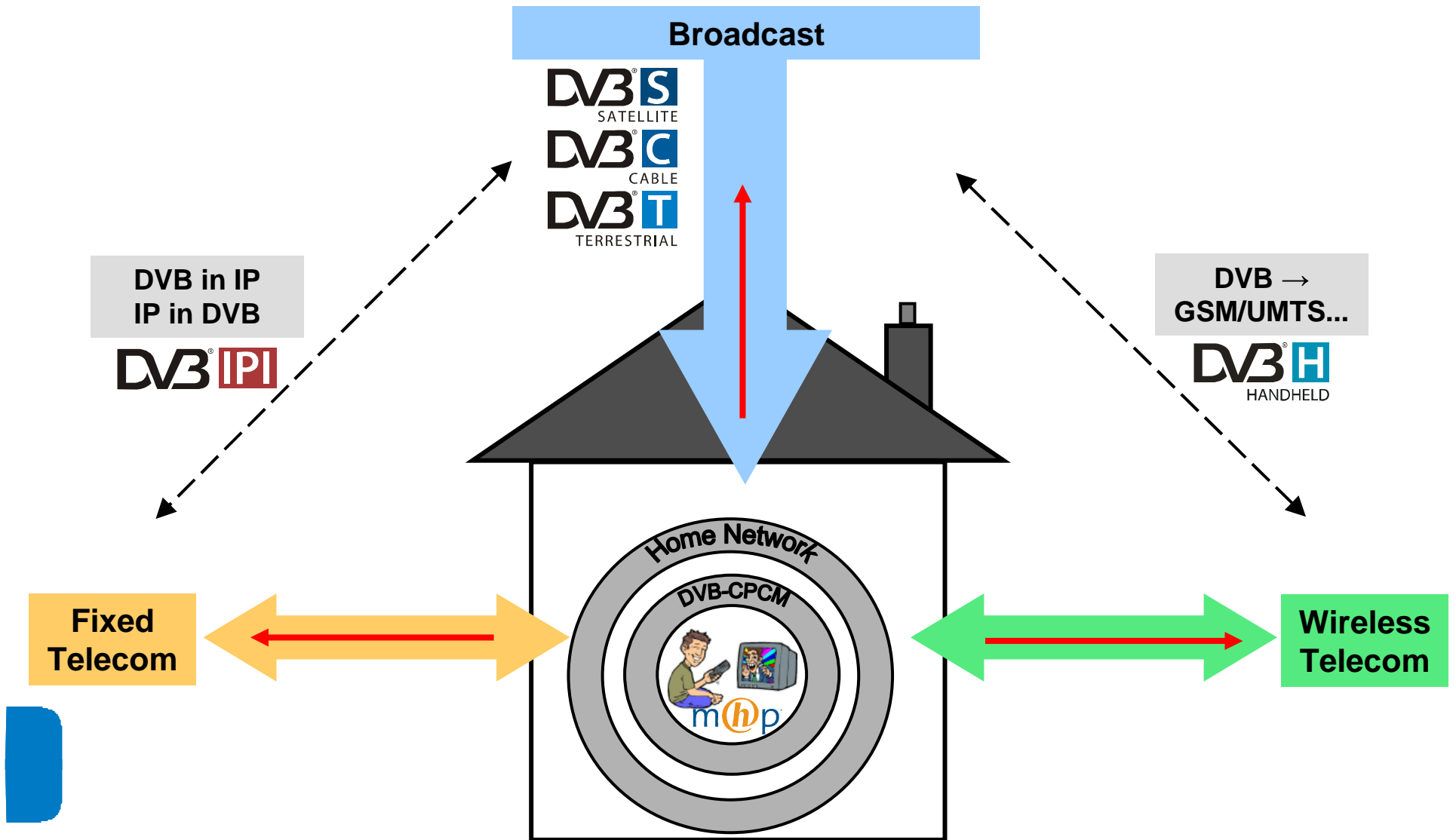
In the beginning



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 ...

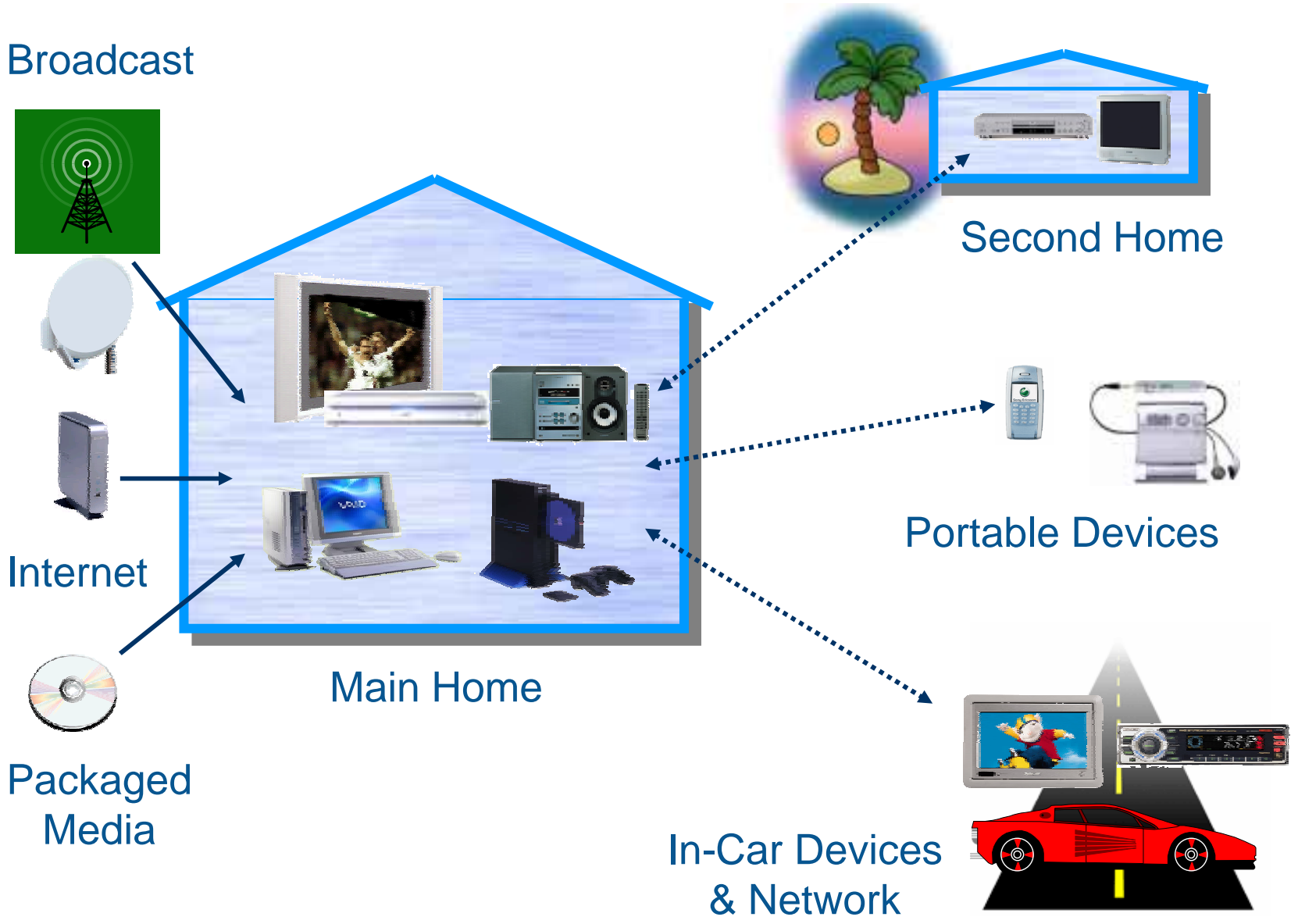
DVB 2.0next steps



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



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

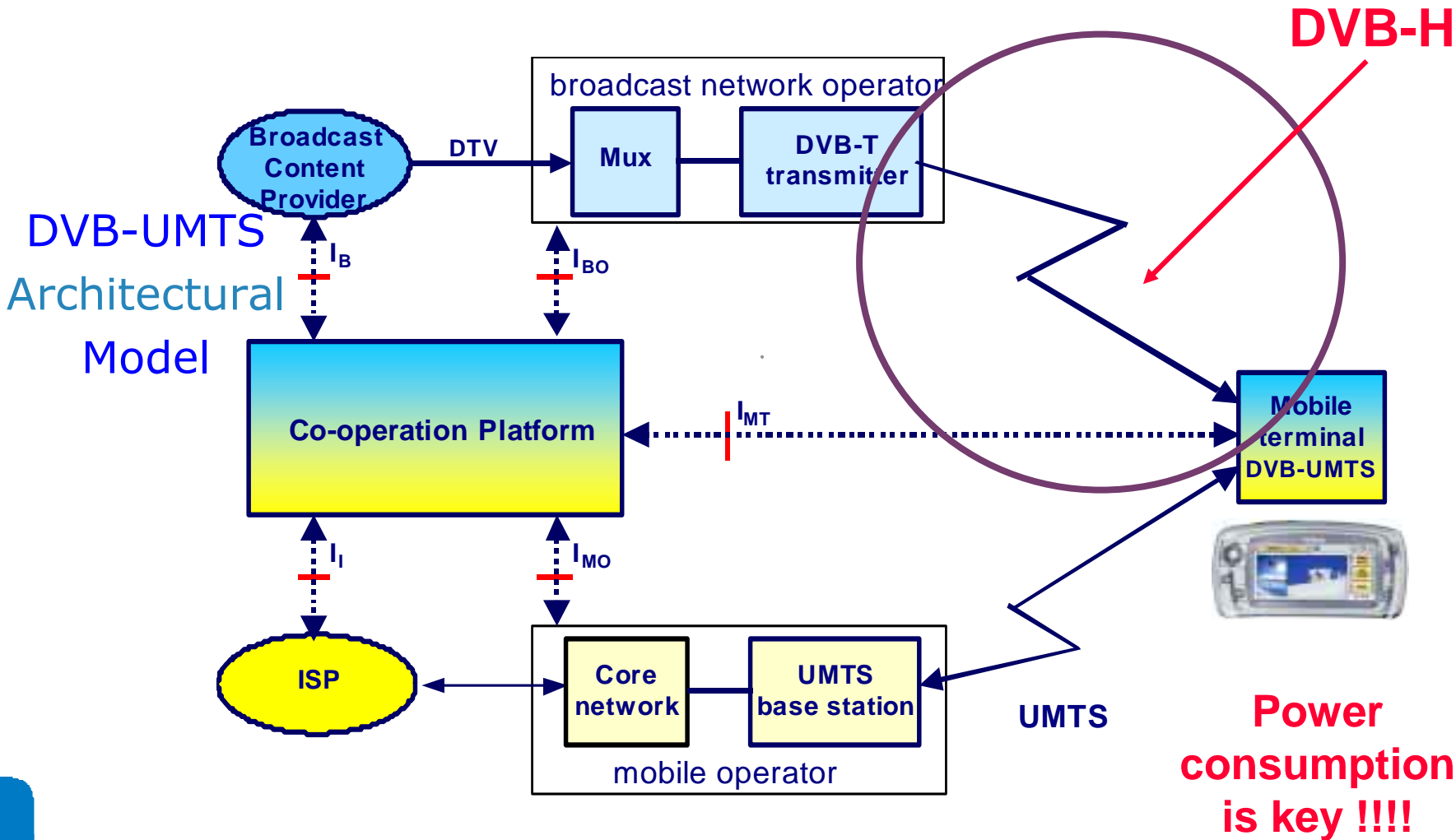
- DVB recognised the importance of Home Networking – particularly “wireless”
- Previous initiatives were dogged by difficulties in reaching consensus between DVB members
- Activities re-started and has become one of monitoring the many efforts of other bodies, e.g. DLNA
- DVB certainly doesn't plan to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

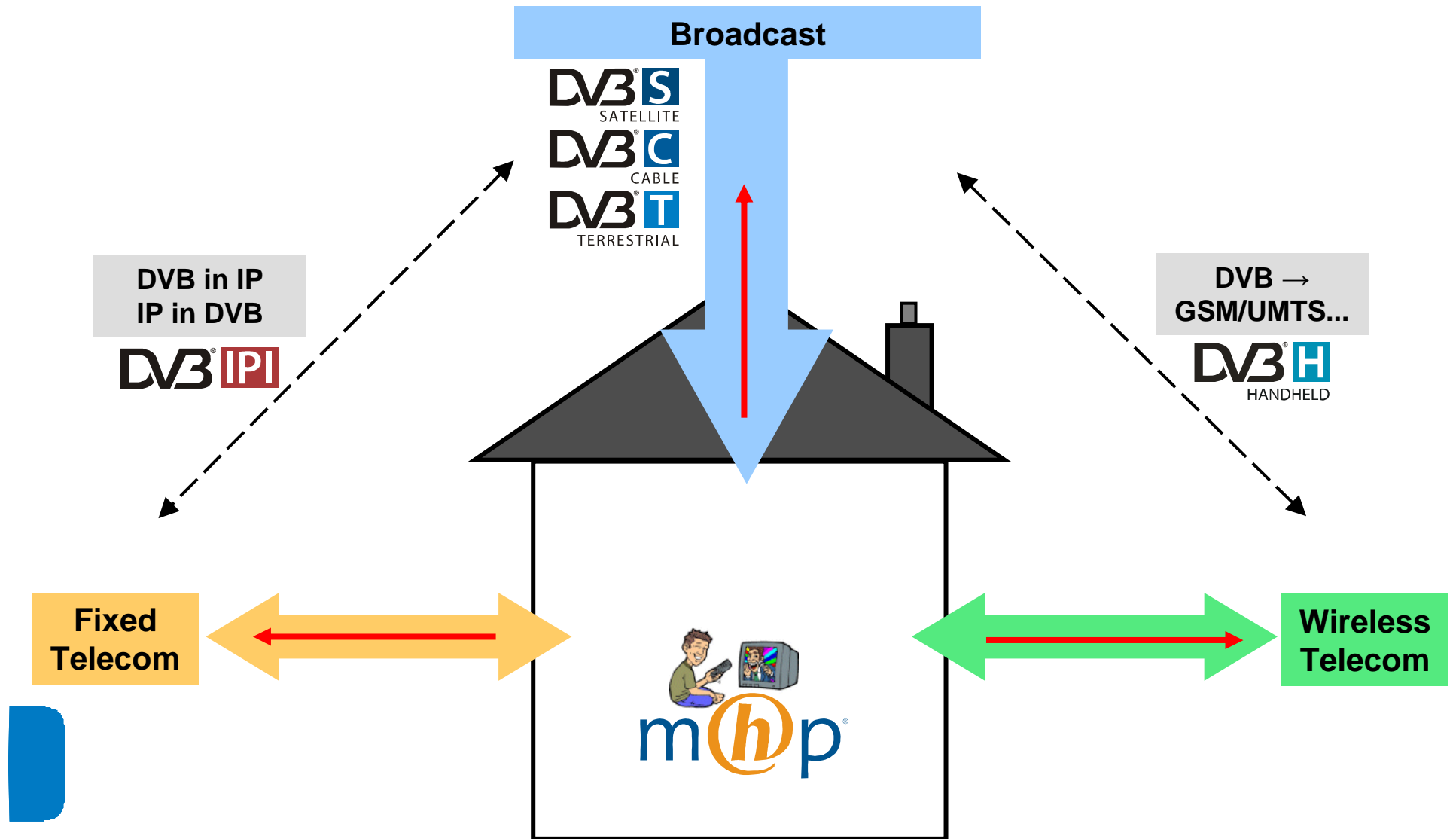
Technical Group Secretary
Peter MacAvock (Ireland)



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

