Business Models & Opportunities

DVB-H in Spain

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Mobile TV – Technology and Information of the Future Program

9th JULY – AVEIRO

July, 2007

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1. Introduction
2. DVB-H Pilots Experience
3. Key Questions
4. Business Models
5. Conclusions

Company overview

abertis telecom

abertis telecom — Abertis 100%

retevisión abertis	tradia abertis	overon	eutelsat communications
100%	100%	51%	32 %

Leader in European Satellite Market

- 23 Satellites

Leader in Spanish Broadcasting Market

- **61%** share of total broadcasting market
- **89%** share of TV broadcasting market
- **>99%** Analogue TV coverage
- 80% **DTT** coverage

Main Activities

- Digital and analogue TV broadcasting
- Digital and analogue radio broadcasting
- Transportation
- Wholesale
- Occasional Contribution

Sites

- More than 3,200 operative sites throughout the country that allows us to offer national wide broadcasting services, collocation services, O&M services and leased transport capacity.
- National Transport Network
- More than 80% of sites are multiservice -multioperator

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Delivering TV on the move @ 3GSM

3GSM 2007

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"Official Mobile TV Network Partner"

	PARTNERS	CONTENT	TECHNICAL DETAILS
DVB-H	NOKIA, abertis telecom, 3GSM World Congress	11 channels (2 encrypted)	RF freq: ch.22 (482 MHz) Platform NOKIA 3.1
DVB-H	SIEMENS, abertis telecom, 3GSM World Congress	8 channels (3interactive TV)	RF freq: ch.42 (642 MHz) Platform IPDC-CBMS
DVB-H	THOMSON, abertis telecom, 3GSM World Congress	6 channels (1 multicast symulcript)	RF freq: ch.28 (530 MHz) Platform IPDC-CBMS
DVB-H	SIDSA, abertis telecom, 3GSM World Congress	11 channels (1 encrypted)	RF freq: ch.30 (546 MHz) Platform IPDC-CBMS
MediaFLO™	QUALCOMM, abertis telecom	20 channels Local + International	RF freq: ch.50 (MHz) Media FLO
DVB-SH	Alcatel·Lucent, abertis telecom, 3GSM World Congress	3-7 channels	RF freq: 3 slots de 5MHz 2172,5 MHz - 2177,5 MHz - 2182,5 MHz
DAB-IP DMB-T	World DAB Forum, abertis telecom, 3GSM World Congress	5 channels	RF freq: 9D - 11C Platform DAB

Abertis Telecom leading Spanish trials

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PHASE 1

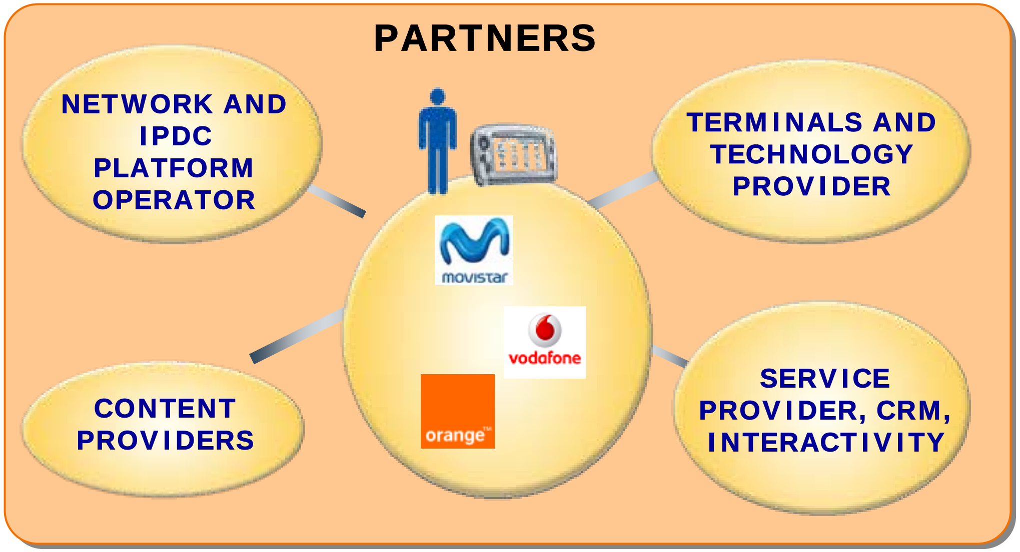
Sep 2005 – Oct 2006

3 Spanish DVB-H trials with each MNO by their own and all the broadcasters.

PHASE 2

May 2006 – Feb 2007

1 Collaborative Model Trial with all MNO's together.



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movistar orange vodafone

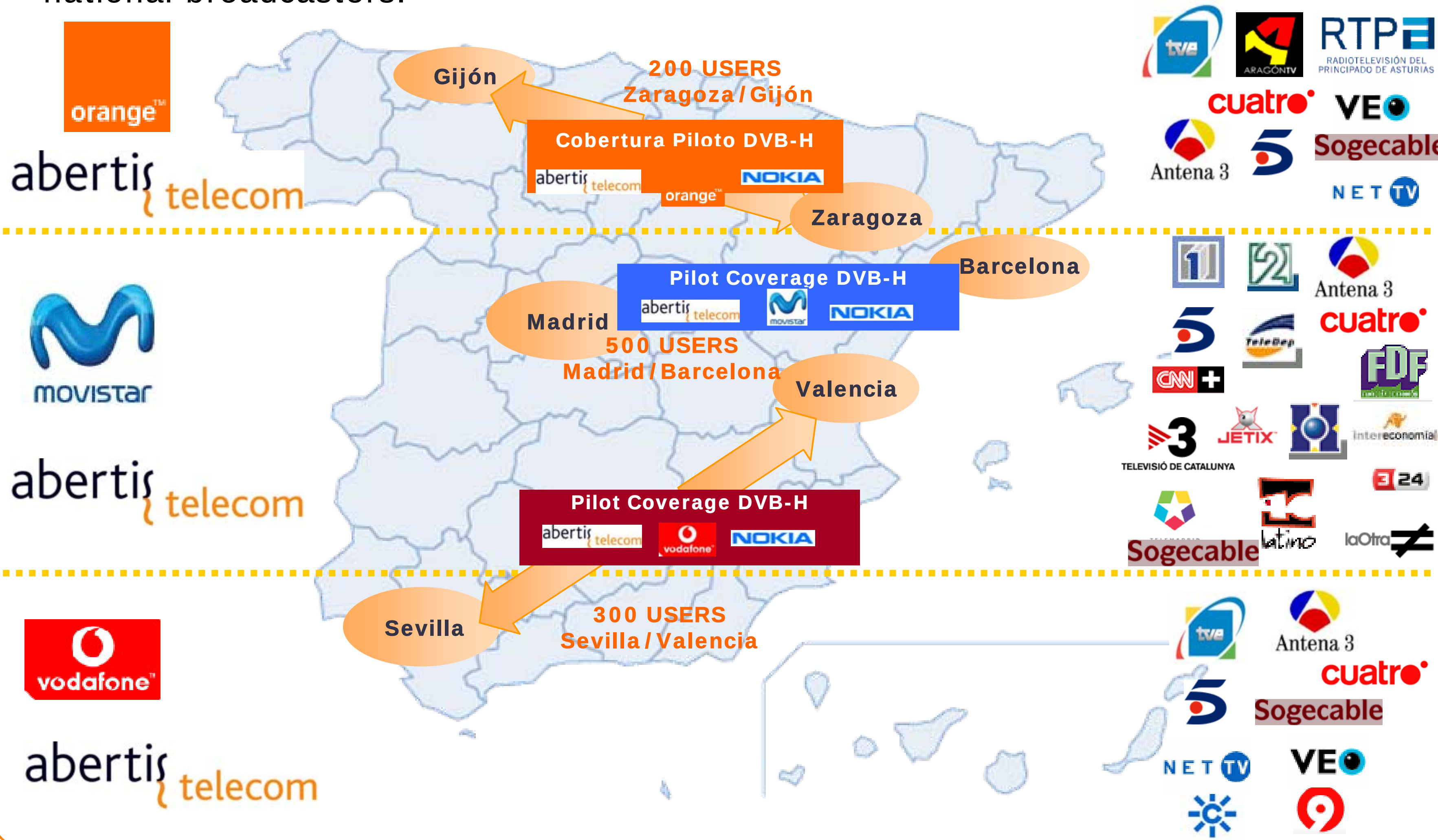
With the objective to test

- Technology
- Content / demand / usage
- Commercial & business model

DVB-H Pilots : Phase 1

ROLL-OUT EXPERIENCE

Abertis sponsored Mobile TV trials with all mobile operators in Spain involving all national broadcasters.



DVB-H Pilots : Phase 1

TRIAL RESULTS

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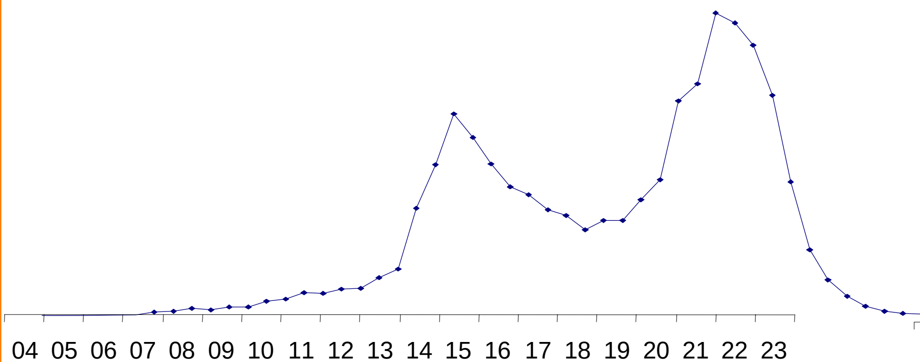
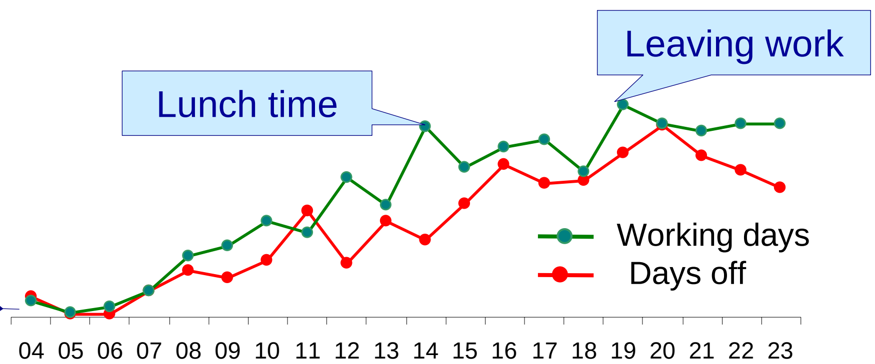
	movistar	vodafone
Average daily usage	16 minutes	20-25 minutes
Users liked the service	Almost 75% of the customers would recommend the service	80% of the customers would recommend the service.
Favorite programs	Conventional TV and music programs (TV as a personal music device).	TV news, serials and magazines



Conventional TV audience in Spain



Trial audience

DVB-H Pilots: Phase 2

THE COLLABORATIVE MODEL

Spanish government granted temporarily frequencies for a second phase pilot period to validate a collaborative model framework.

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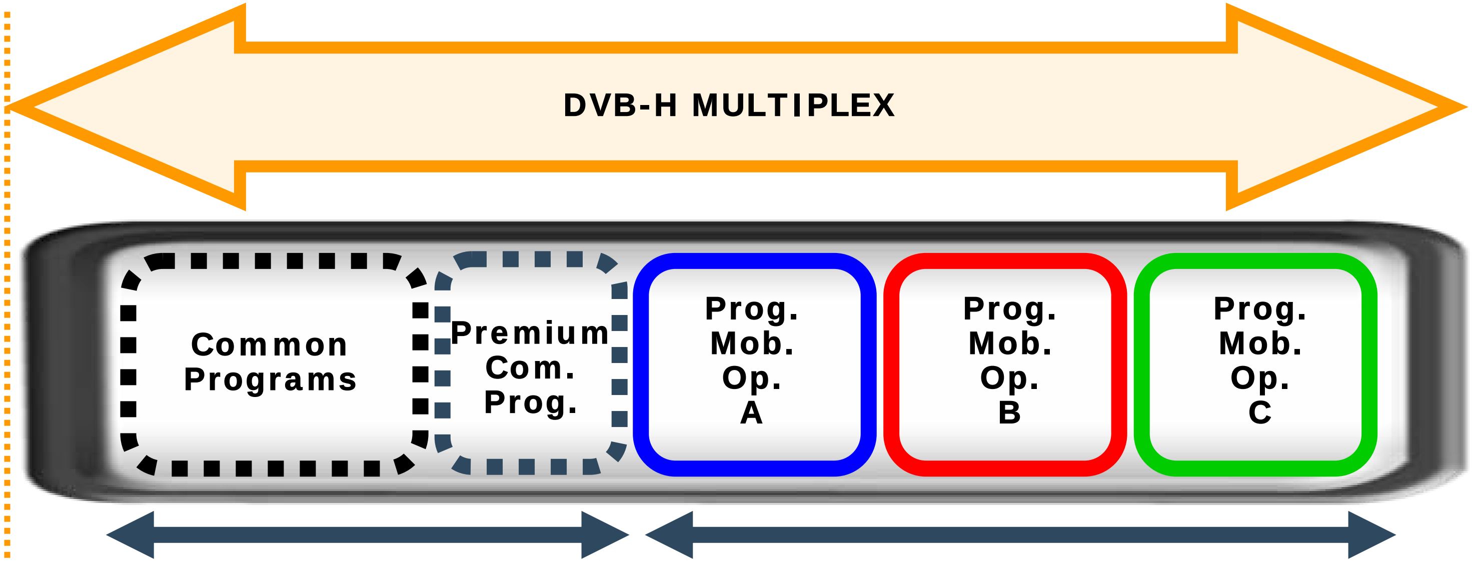
Such a collaborative pilot has been on air until February 2007 with the main target of validating the technology that can enable the collaborative model.

Collaborative model

The collaborative model can be achieved with the presence of a wholesaler of the service acting as Datacast Operator.



Licensing flexibility is highly required and a a wholesale approach should allow a content offer adaptable to the market requirements that may change during lifetime.

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9 Key Questions

What can be offered to viewers?

What do viewers want?

Who can develop appealing content?

Who has access to the necessary resources (spectrum content, networks)?

DVB-H vs. 3G ?

What are the investment capabilities of the partners?

What billing mechanism – if any – will be used to generate income?

Who inserts advertising? New Ads model?

Who manages the end-relationship with the viewer and can market the offering?

Which is the targeted platform? Mobile phones only?

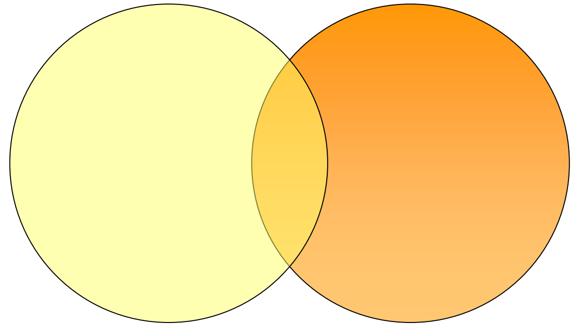
?

Broadcasters and telecom operators may need to work together

Convergence between MNO & BCAST

MAIN ACTORS

Mobile Operators



Broadcasters

Mobile Operators	Broadcasters
Mobility	Content, content, content
Secure personal interaction	High brand awareness
One-to-one relationship with end user	One-to-many scalability
Investment capabilities	High transmission bandwidth

But need a suitable business model

Implications for Broadcasters

MAIN ACTORS

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① Importance of content:
- gives broadcasters an advantage
- Screen-size

② Alternative use of broadcast Spectrum

③ The evening prime time can be reached at other day times

New revenue opportunities

- Viewer availability
- Interactivity

What role do broadcasters want?

Implications for Mobile Operators

MAIN ACTORS

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① Direct billing relationship with viewers

② New service offering; increased ARPU

New opportunities for leveraging on-demand (3G) services

What role do mobile operators want?

Implications for Network Operators

MAIN ACTORS

① Existing broadcast infrastructure can be re-used

② New role in the value chain
- content aggregator
- service provider

Opportunities for new revenue streams

What role do network operators want?

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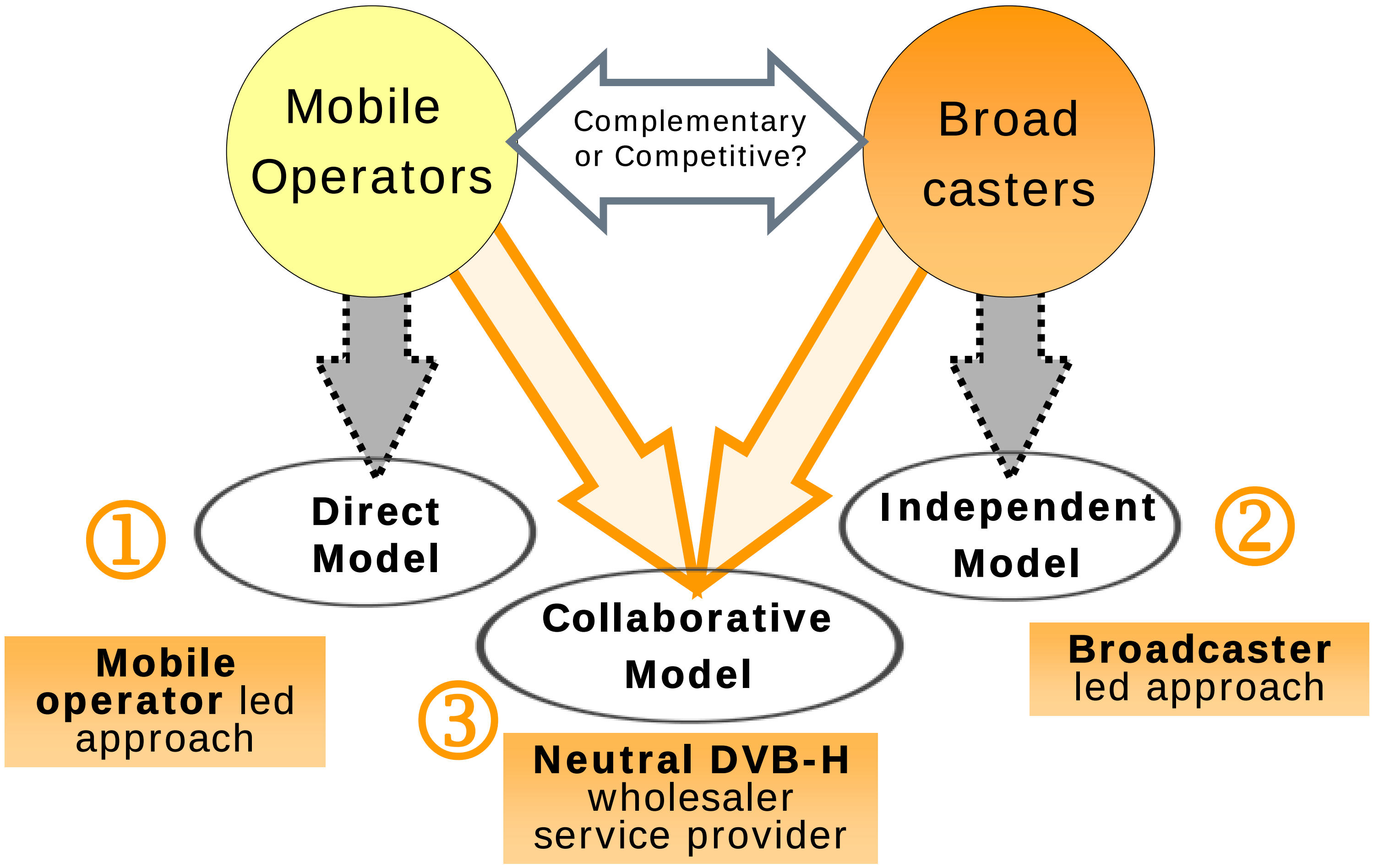
Mobile Tv Business Models



Source DigiTAG

Mobile Operator led approach

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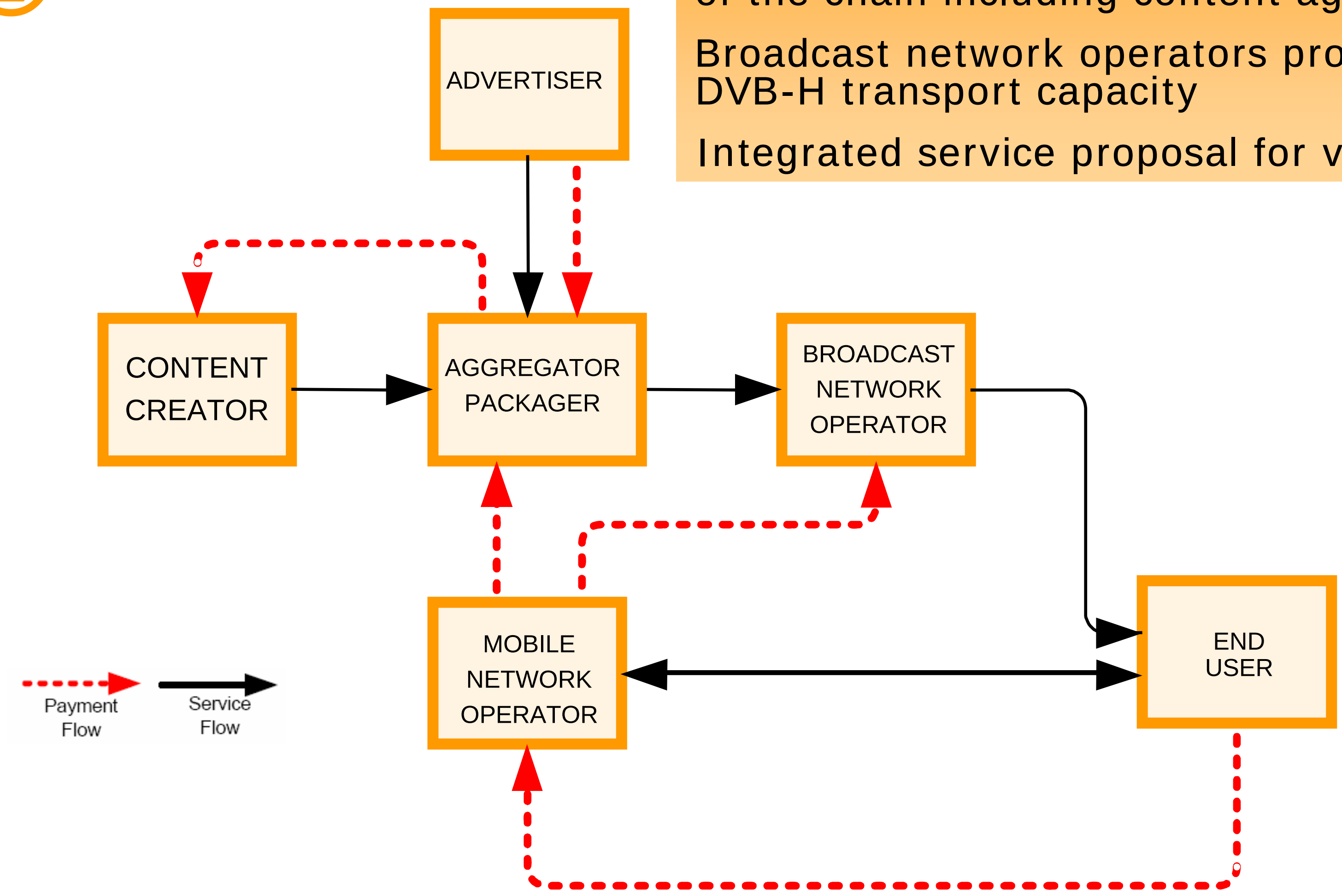
① Direct Model

- Mobile operator responsible for all aspects of the chain including content aggregation
- Broadcast network operators provide the DVB-H transport capacity
- Integrated service proposal for viewers



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Broadcast led approach

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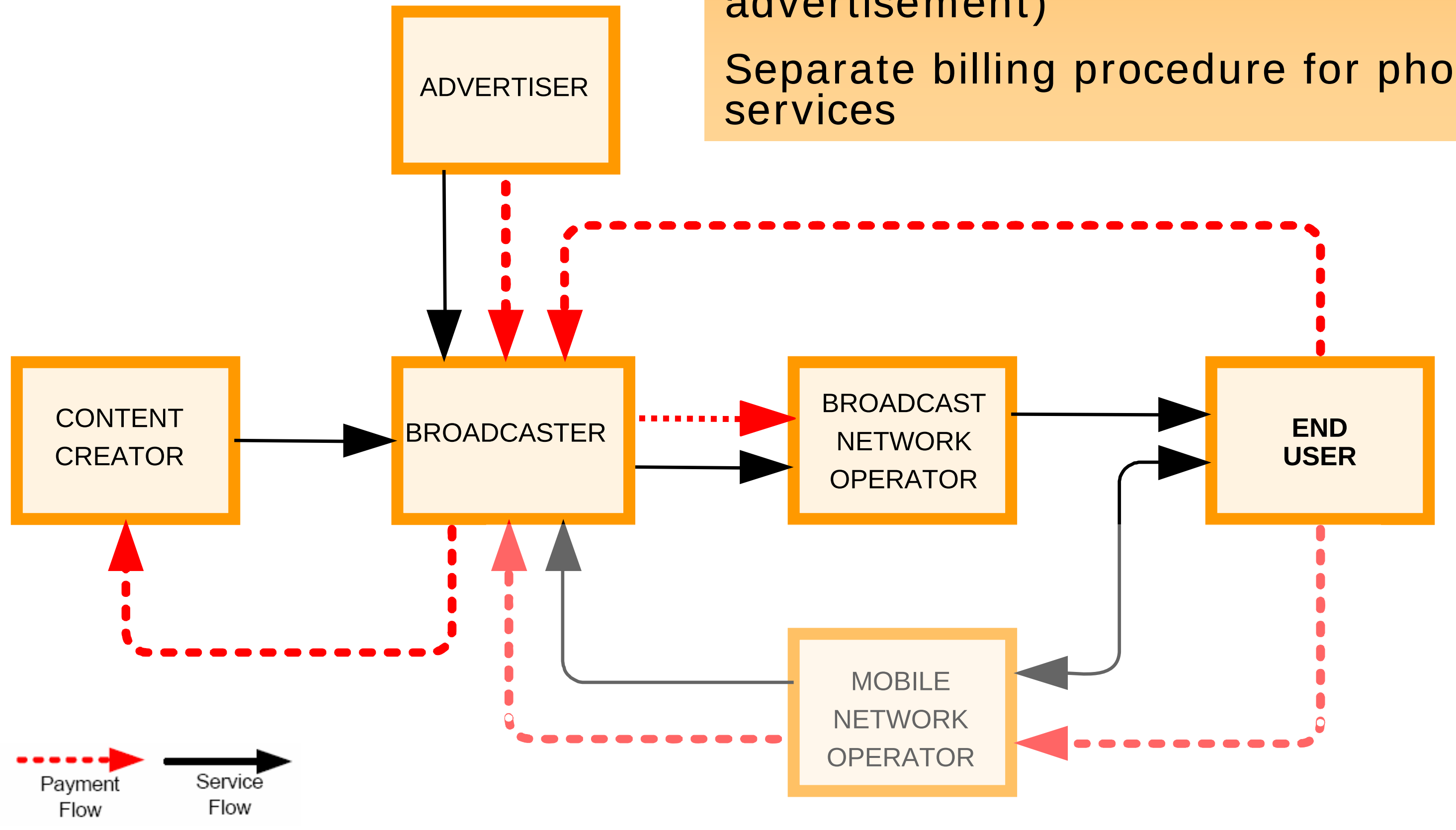
② Independent Model

Broadcasters manage end relationship with viewers

Broadcaster receives payment for services (pay services, licence fee, advertisement)

Separate billing procedure for phone services



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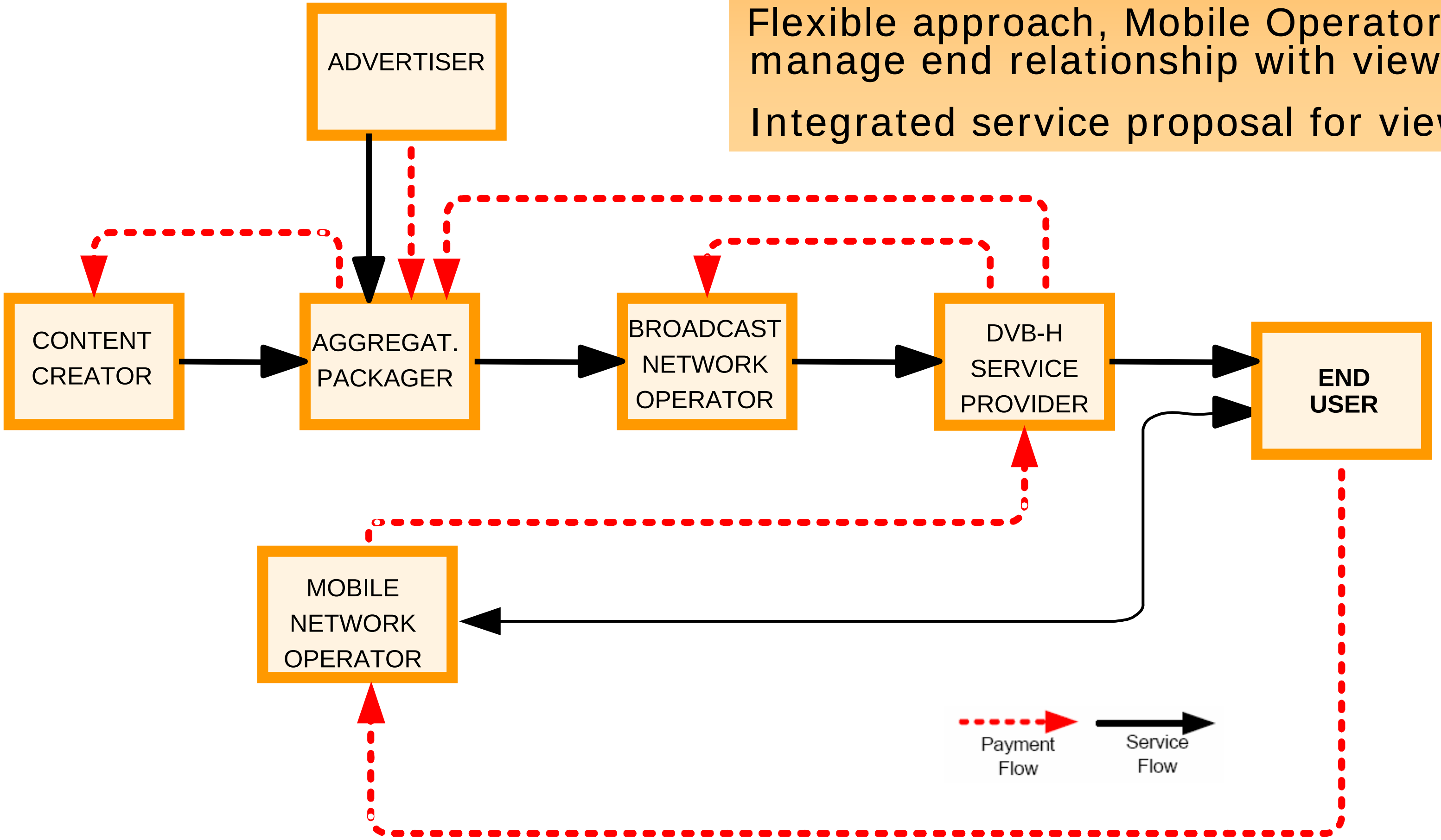
Neutral DVB-H Wholesaler

③ Collaborative Model

Independent service provider acts as wholesale facilitator for content aggregation and use of spectrum

Flexible approach, Mobile Operator can manage end relationship with viewers

Integrated service proposal for viewers



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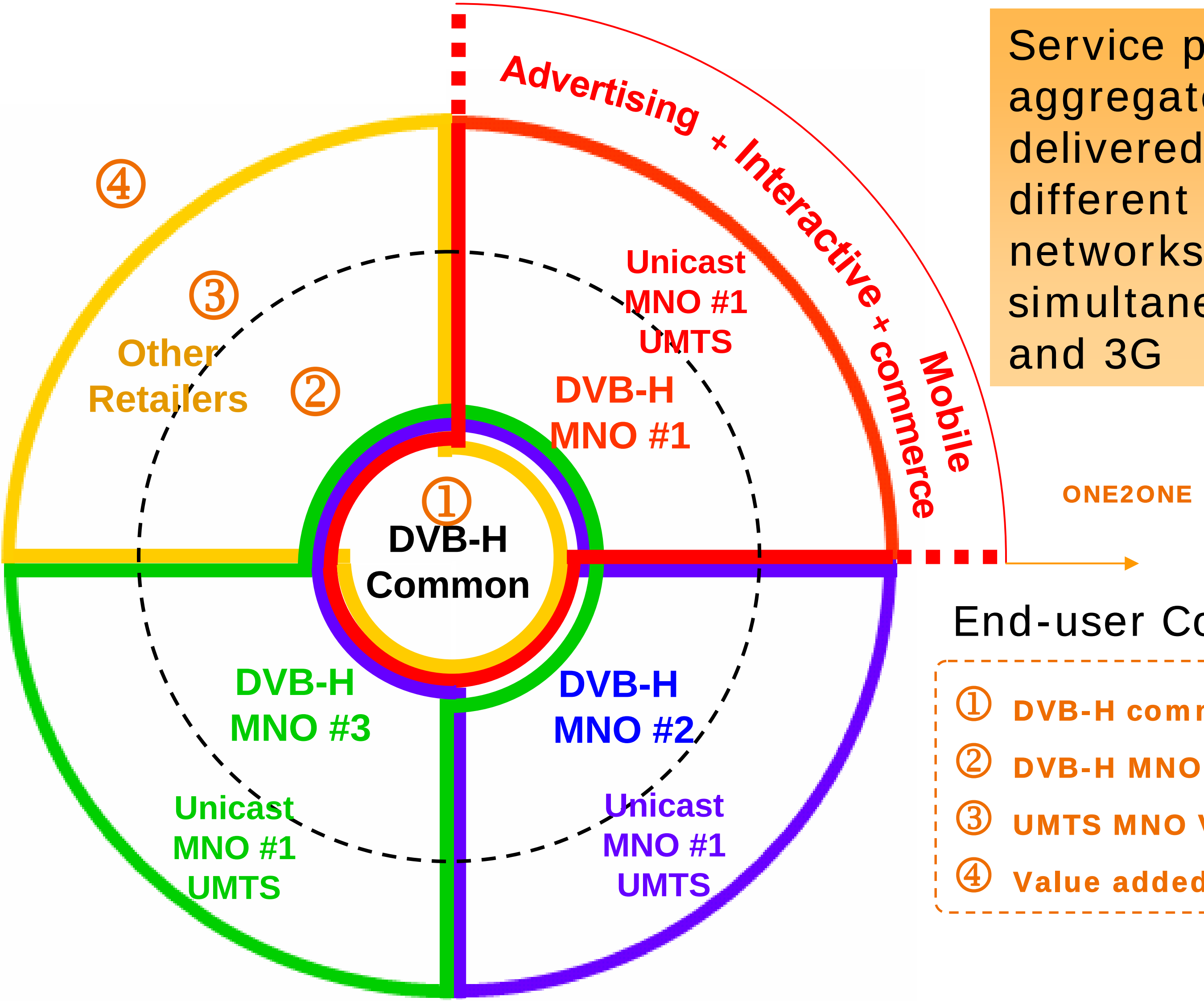
Collaborative coexistence



Service providers can aggregate contents delivered through different type of networks simultaneously, DVB-H and 3G

End-user Content Offer

- ① DVB-H common content
- ② DVB-H MNO specific content
- ③ UMTS MNO VOD content
- ④ Value added content

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Conclusions

- User demand is there now
- DVB-H at UHF Band fulfills the commercial requirements
- Flexible solutions and models required, an oriented wholesale approach leaves potential retailers (Broadcasters and Mobile Operators) negotiate a sustainable business case

However there are some issues yet to be resolved at European level and to be considered:

- Harmonized bands: Frequency availability and planning approach.
- Interoperability: Content protection standards fragmentation.
- It's Linear TV: Content rights in accordance with Terrestrial TV distribution.

Opportunities ahead!

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Many Thanks

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