

NET 2015
NBTC EXPO THAILAND

The Future Trend in Digital World
6-9 August 2015, Bangkok, Thailand



NBTC
National Broadcasting and
Telecommunications Commission

eMBMS Delivers Mobile Video To The Mass Audience

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20150808



Content

- eMBMS Overview
- Use Cases

Mobile Video Traffic Is Growing Fast



Large
screen
and hi res
mobile
devices

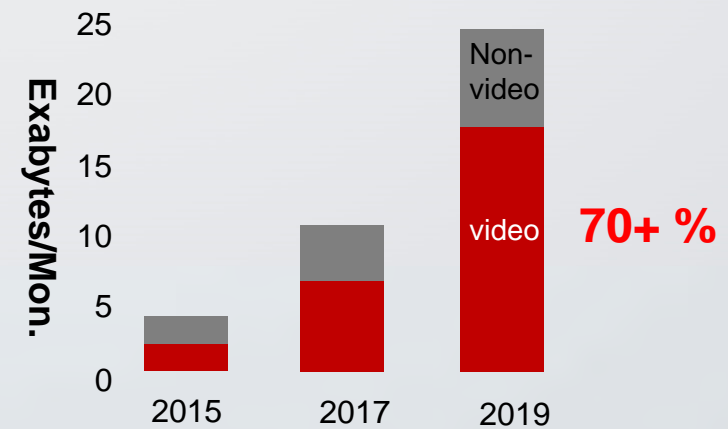


Abundant
content



Hi Speed,
lo latency
network

Global Mobile Data Traffic

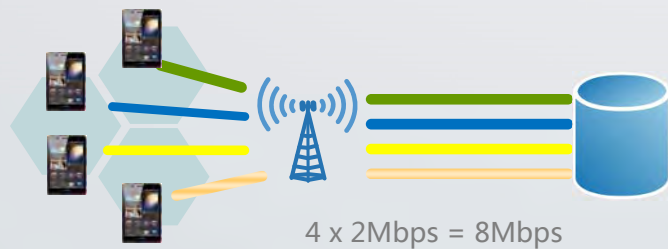


Source: Huawei VE Lab 2015

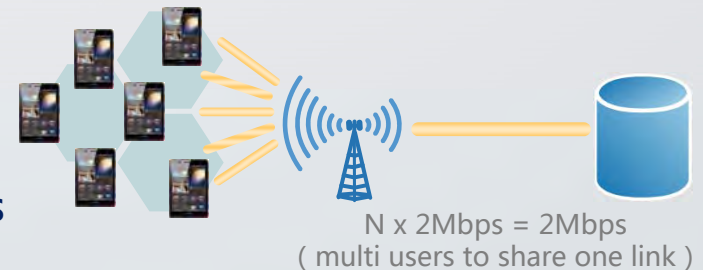
How to improve network efficiency and monetization video in LTE era?

eMBMS Enhances Efficiency

- eMBMS - evolved Multimedia Broadcast and Multicast Service
- Based on LTE (3GPP Rel.9 onwards)
- Saves on air interface spectrum resource and network transmission resource
- Key Features: bandwidth sharing with existing unicast LTE, MBSFN, SYNC, Mood



**Resource
Unicast VS eMBMS**



MBSFN
SYNC
MooD

- Multicast/Broadcast single frequency network
- phase-synchronized network
- Multicast operation on demand

Highly efficient in delivering popular content to mass number of users

eMBMS Overview

Use existing LTE spectrum: allocated BW to broadcast as needed

Spectrum Bandwidth Sharing

LTE-TDD

0~50
%



■ Unicast
■ Broadcast

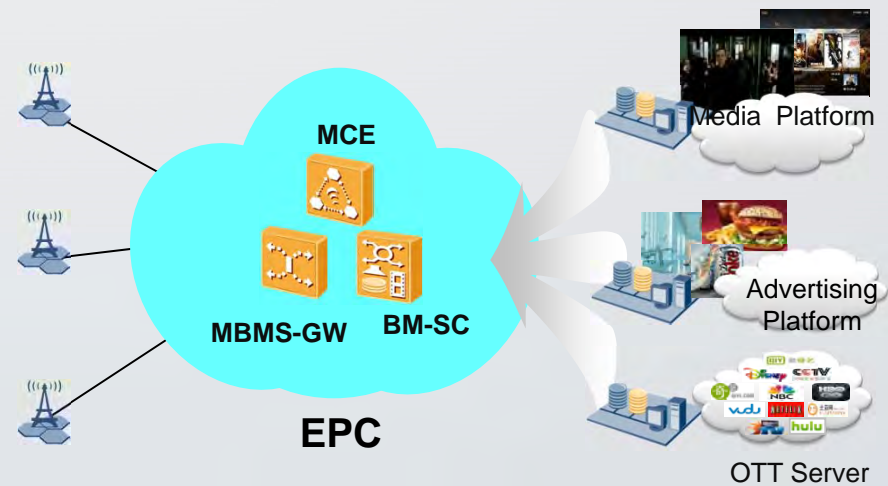
LTE-FDD

0~60
%



Broadcast bandwidth allocated according to demand

Add 3 new network elements to existing LTE core network

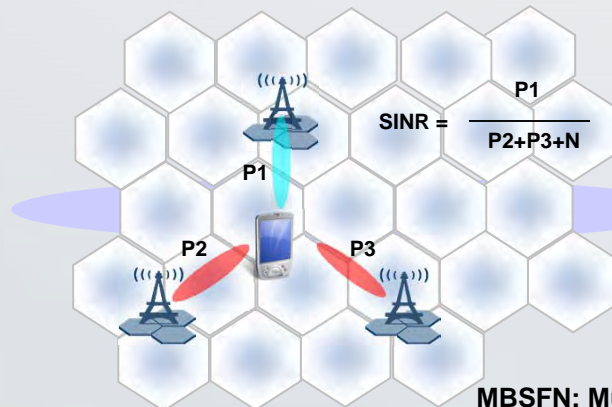


- MCE : Multi-Cell/Multicast Coordination Entity
- MBMS GW: MBMS Gateway
- BM-SC : Broadcast-Multicast Service Centre

MBSFN Gain

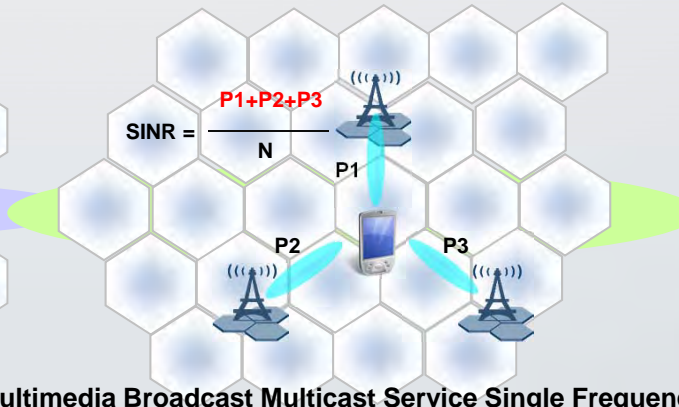
Unicast transmission

The signal of neighbor cells (P2, P3) and noise(N) can be interference sources to the useful signal(P1).



MBSFN transmission

The UE combines signals of neighbor cells (P2, P3) and serving cell (P1), thus getting a higher SINR gain compared with unicast.

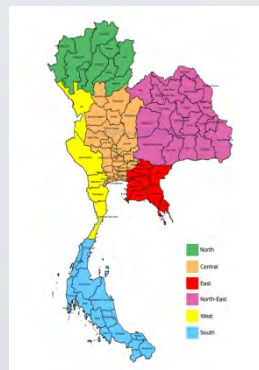
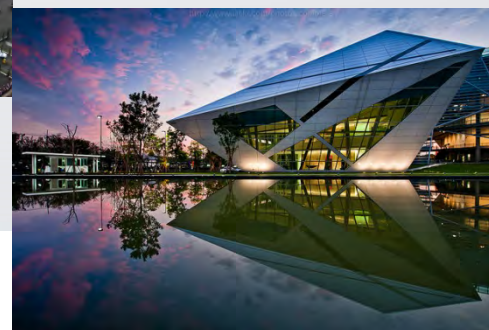


MBSFN: Multimedia Broadcast Multicast Service Single Frequency Network

eNBs in the same MBSFN area need to be phase-synchronized

Examples Of Coverage

- Venue-specific broadcast
 - sports arena, exhibition grounds
- Regional broadcast
 - e.g. campus-wide or city-wide
 - local events, news, Live TV, VoD, push service, education
- Nation-wide broadcast
 - Live TV, national news, VoD, push service
 - World Cup and Olympic Games



eMBMS enables the operator to control the service area to match audience

Flexible Bandwidth Allocation

- bandwidth partitioning needs to be pre-programmed according to time of day



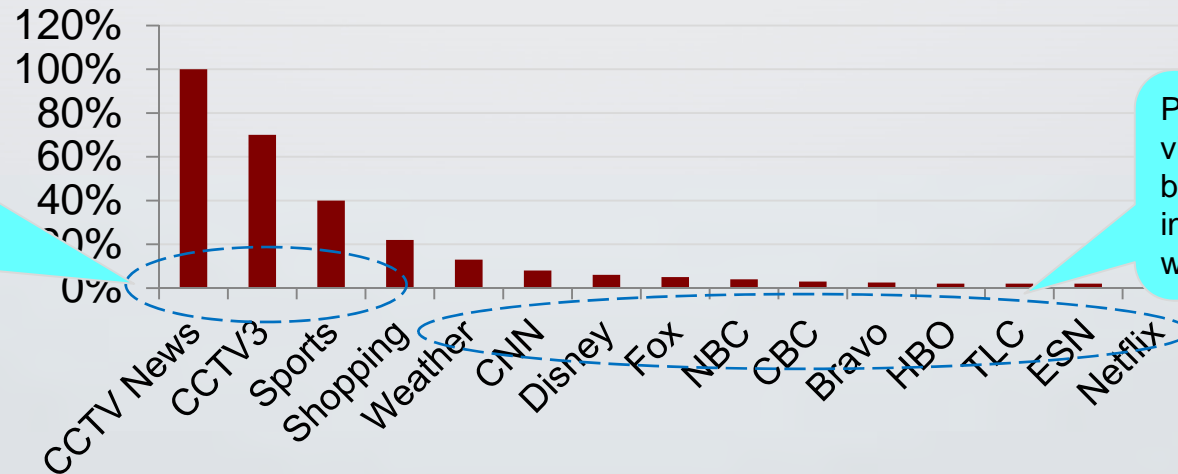
Spectrum bandwidth is only allocated to broadcast as needed

MooD – Automatic Bandwidth Partitioning Between Unicast & Broadcast

- available in 3GPP Rel.10 onwards

Normalized No. of Subscribers

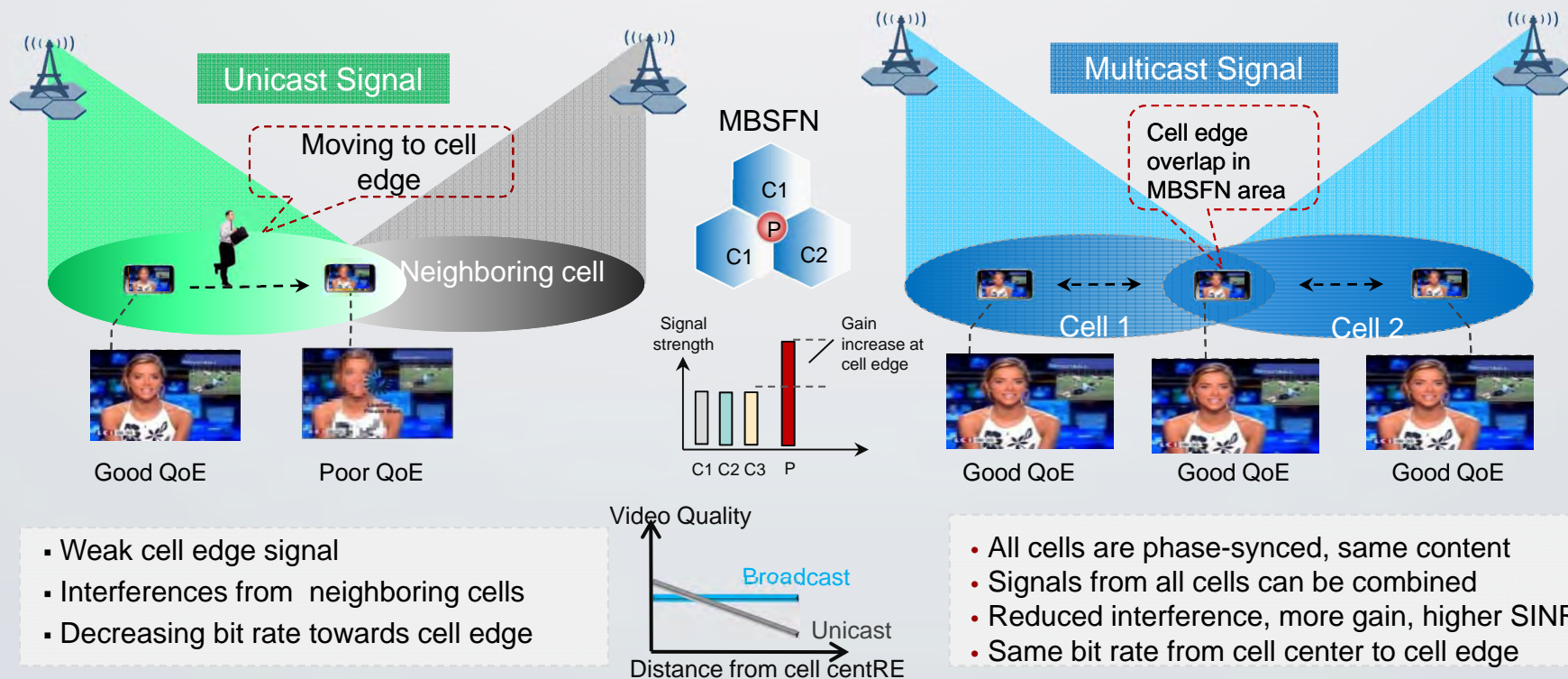
Popular video content can be delivered to a large number of users more efficiently with broadcast



Personalized video content can be delivered to individual users with unicast

Optimizes air interface spectrum usage

“No Edge” User Experience



Enhanced QoE independent of user location

eMBMTrials & Commercial Plans

25+ trials globally

Country	Trial Operator	Trial Network Vendor
China	CMCC	 HUAWEI
China	CTC	
Germany	Vodafone	
Germany	T-Mobile	
Spain	Vodafone	
Italy	Telecom Italia	
Philippines	Smart	
Philippines	Globe	
Portugal	Meo	
UK	EE (with BBC)	
Malaysia	Non-disclosed	
Russia	MegaFon	

Country	Trial Operator	Trial Network Vendor
Australia	Telstra	 ERICSSON
Germany	Vodafone	
Netherlands	KPN	
Poland	Plus/Polkomtel	
Singapore	SingTel	
UAE	Etisalat	
USA	AT&T	
USA	Verizon	 Alcatel-Lucent
France	Orange	
USA	AT&T	
USA	Verizon	 SAMSUNG
India	RJIL (unconfirmed)	
UK	3 UK (unconfirmed)	 Nokia Networks
South Korea	KT	
Germany	Bayerischer Rundfunk	

Already In Service



started in Jan 2014

Commercial Service Planned For 2015



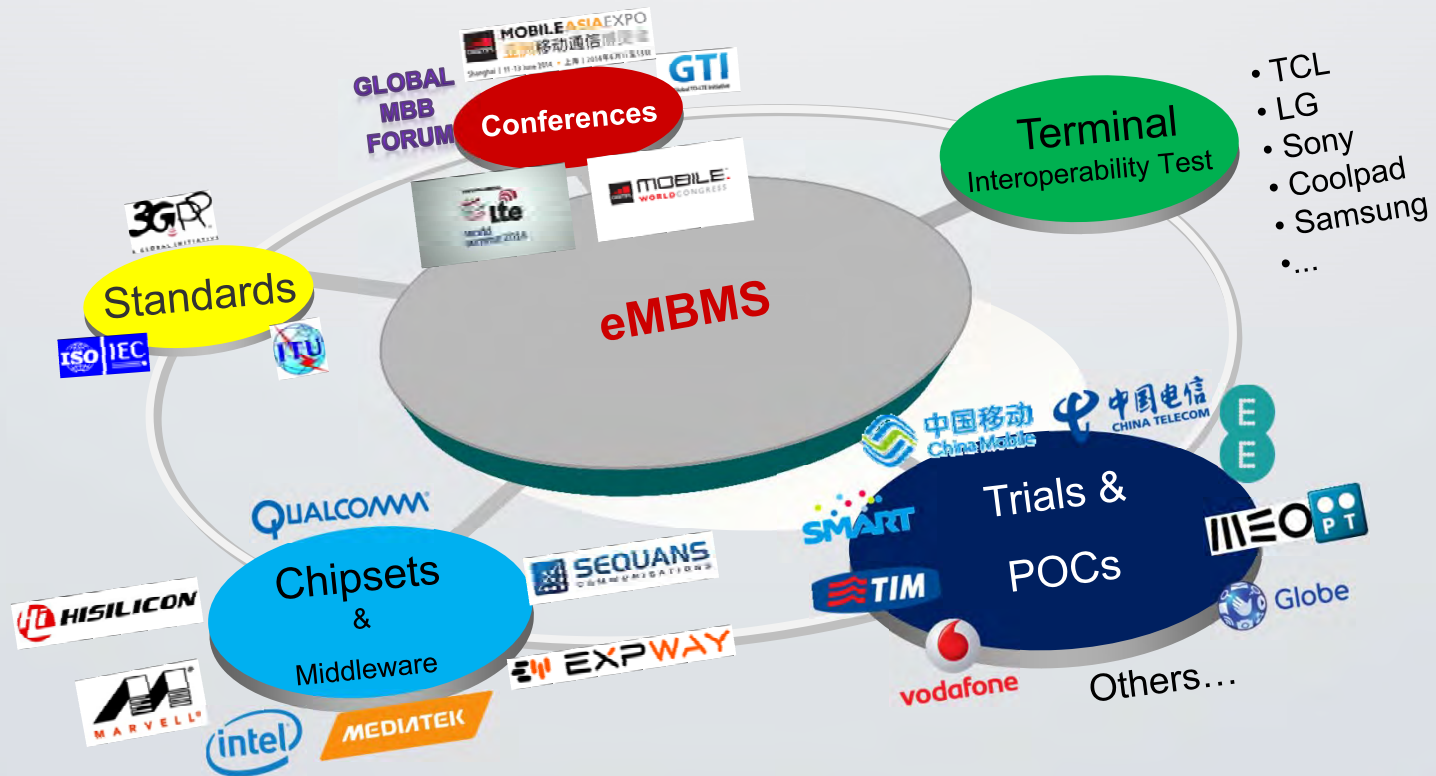
Sample of Huawei Experiences in eMBMS



10+ trials/PoCs globally and more new requests

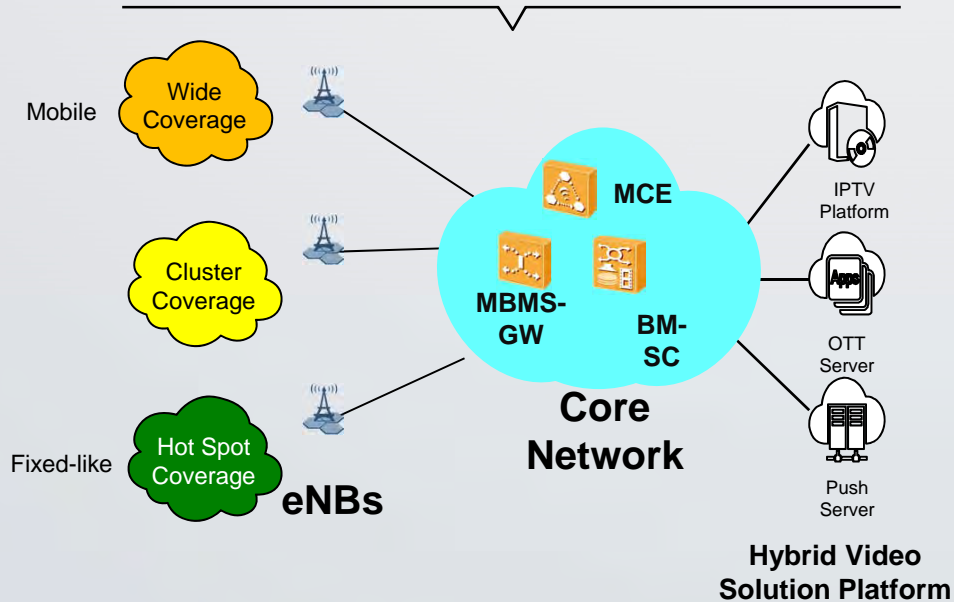
Ecosystem Development

Huawei Partnerships and Contributions



Ecosystem is Taking Off

Huawei LTE eMBMS Solution



LTE eMBMS Ecosystem is Taking off



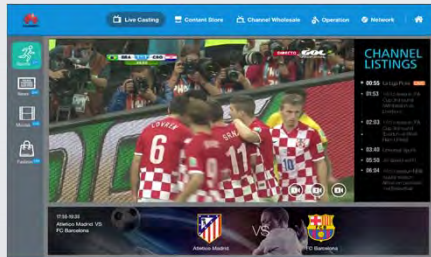
Unique E2E in industry: chipsets, devices, network & content platforms

Content

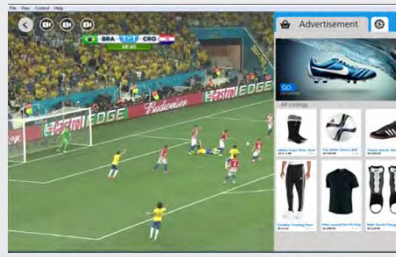
- eMBMS Overview
- Use Cases

Innovative Use Cases

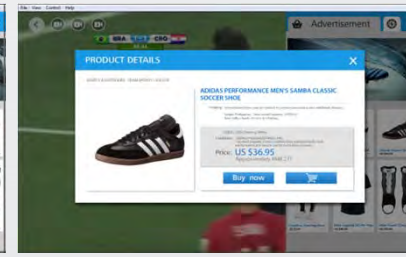
1. Live Video



Home Screen



In-Video Ad



Add Details

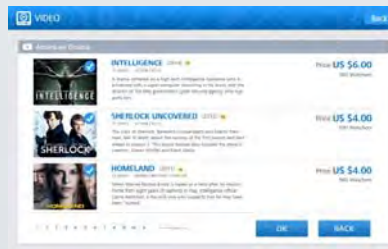
2. E-commerce

3. Broadcast & unicast Synergy

4. Pre-Loaded Contents



App Screen



Content Selection



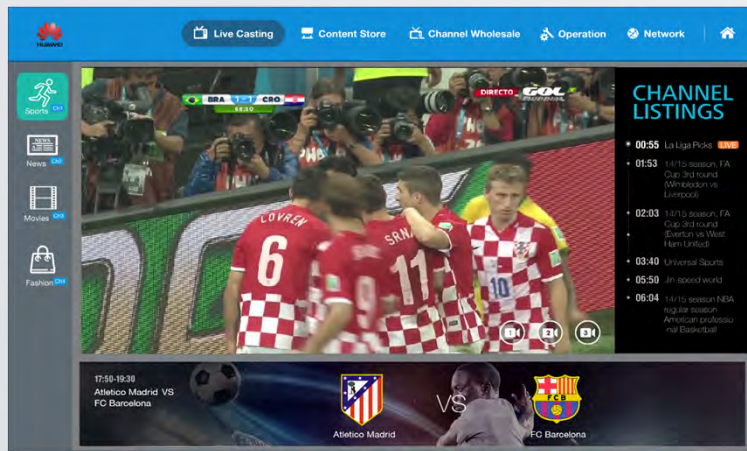
Booking

5. Ad, Sponsored Data

eMBMS unleashes new business potentials

Use Case 1: Venue Casting

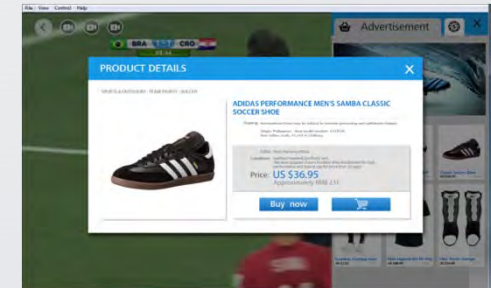
For tablets and smartphones



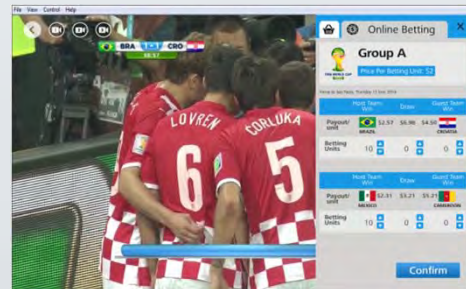
Live event broadcast
– channels only assigned for
event duration



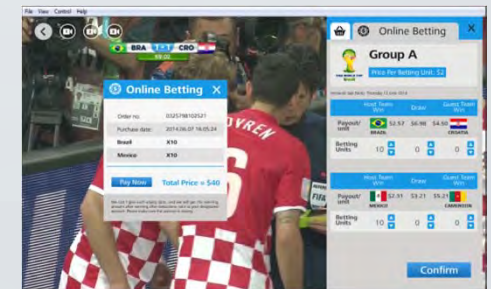
In-video ad menu
(user initiated)



User-selected ad



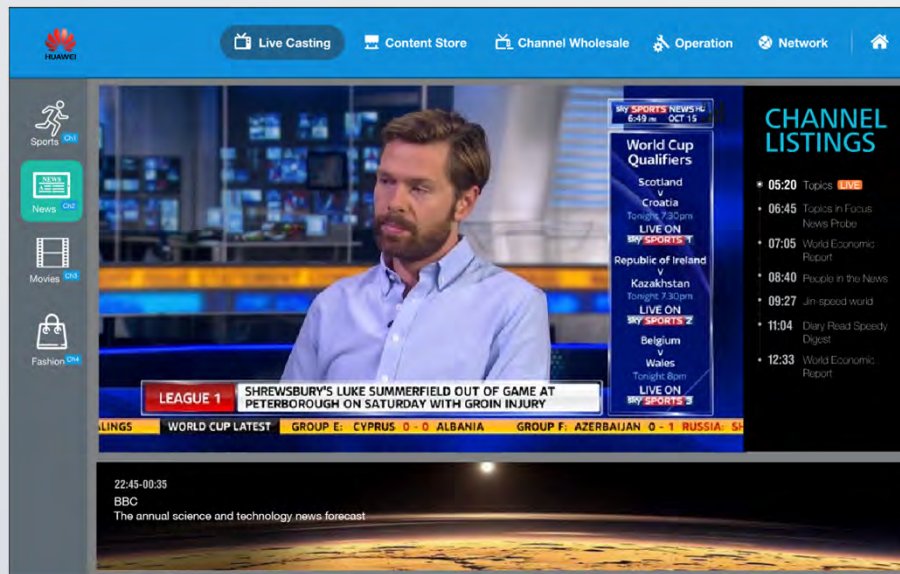
Online Betting
(user initiated)



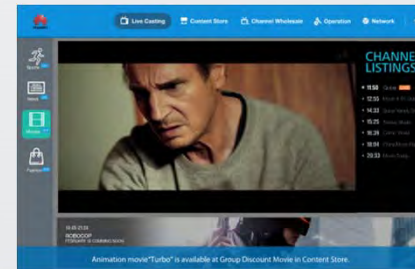
User-selected bet

Use Case 2: Mobile TV

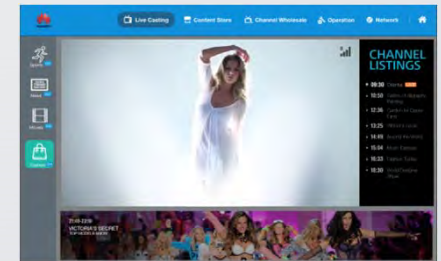
For tablets and smartphones



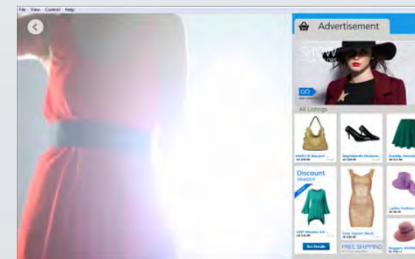
News Channel
- Channels assigned for all day



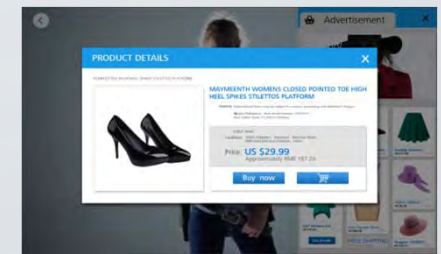
Movies Channel



Fashion Channel



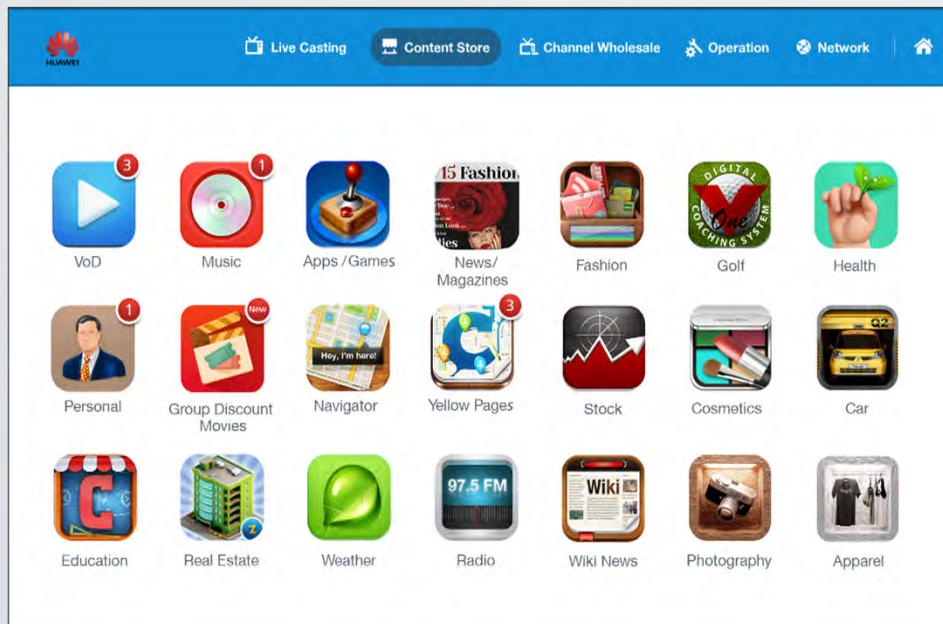
In-video ad menu
(user initiated)



User-selected ad

Use Case 3: Pre-Loaded Content

For tablets and smartphones



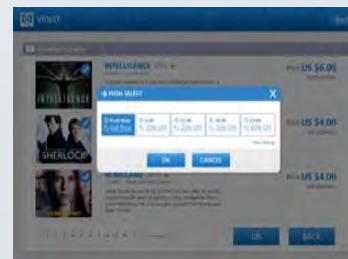
Home Menu
- User-selected push time



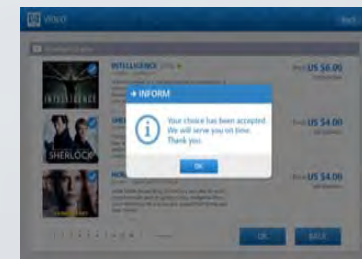
VoD



Music



Push time selection
- Tariff discounts during network non-busy hours



Order confirmation

Use Case 4: Home TV

SD & HD for regular TV



LTE eMBMS network



TV Channels

- Channels assigned during viewing hours

Benefits:

- LTE to reduce last mile costs: lack of access fiber/copper
- TV + MBB + voice services through LTE
- TTM



Electronic Program Guide



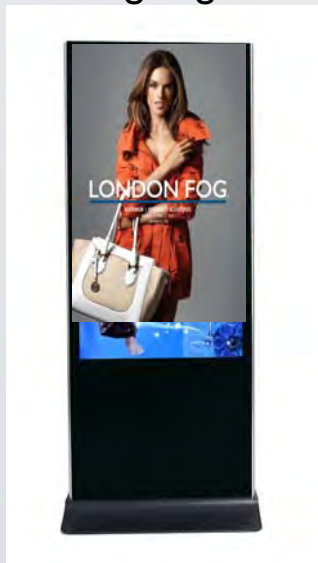
Shopping Channel



Online Betting

Use Case 5: Push Advertisement

Digital
Signage

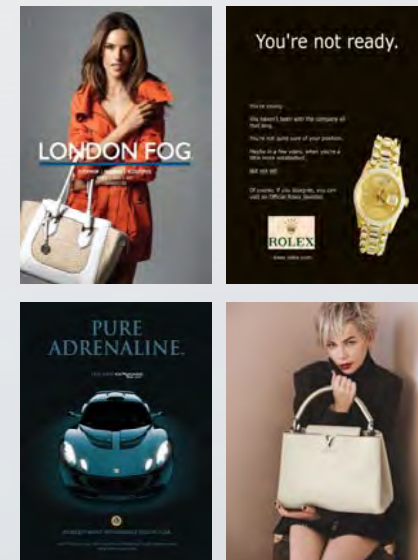


Video usually pushed
during off-peak hours

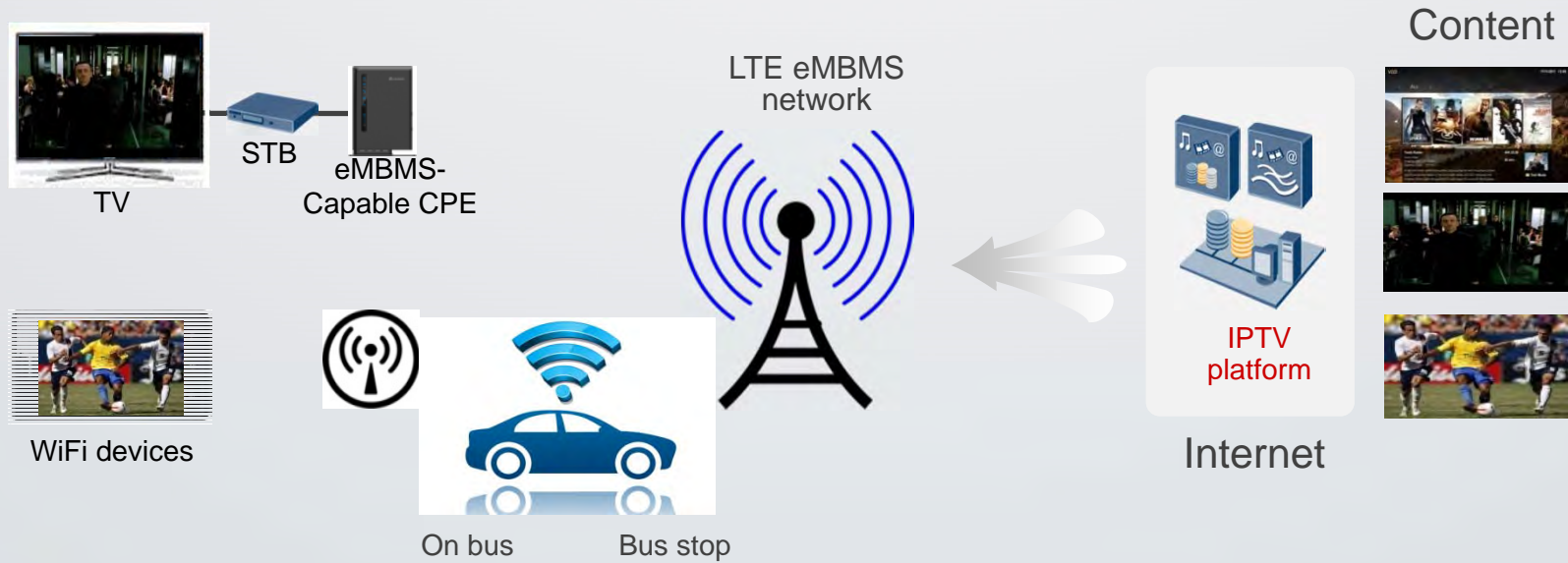
LTE eMBMS
network



Advertisements



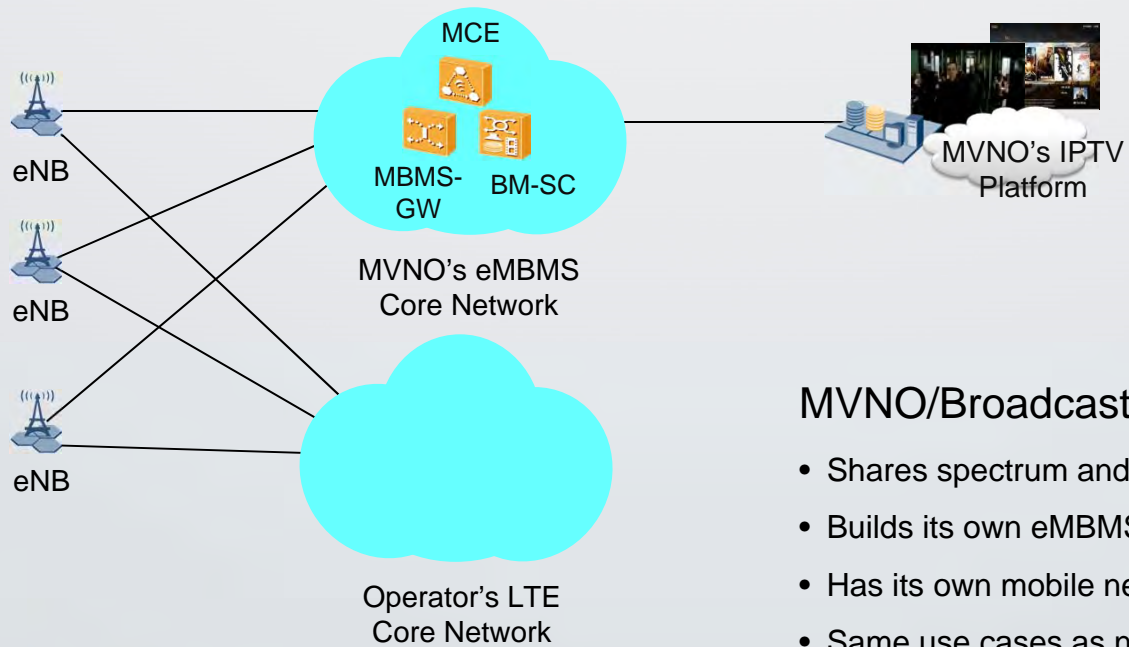
Use Case 6: Connected Cars/Buses



Trial in China:

- Tourist bus route
- Ad, bus schedule & route info and WiFi access at bus stops
- Mobile TV, advertisements and WiFi access on buses

Use Case 7: MVNO/Channel Wholesale/Traditional Broadcasters



MVNO/Broadcasters

- Shares spectrum and eNBs with operator
- Builds its own eMBMS core network
- Has its own mobile network
- Same use cases as normal operator

Use Case 8: Push-To-Talk



Smartphones
with PTT App



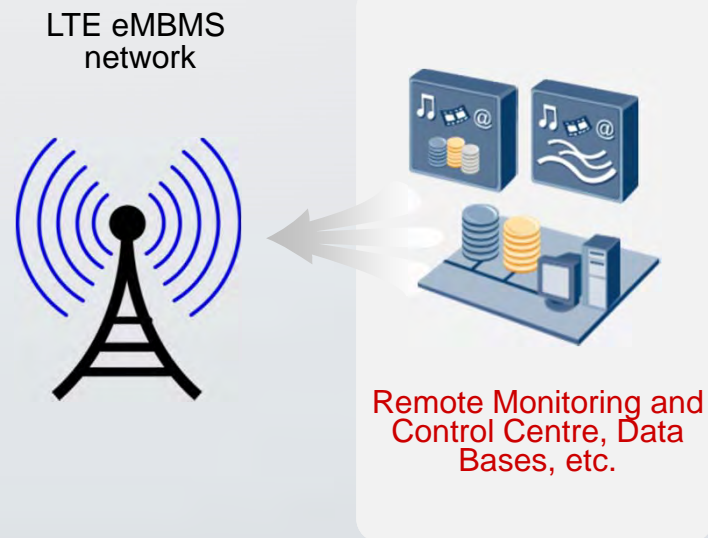
Use Case 9: Radio Over eMBMS



LTE eMBMS
network

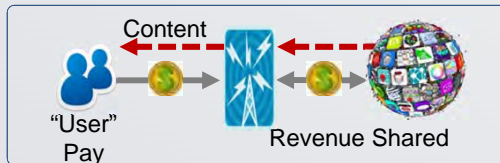


Use Case 10: Public Safety



Business Models

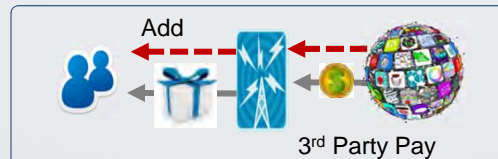
Revenue Sharing



Use Cases:

- Venue Casting
- Mobile TV
- Home TV
- Connected Cars/Buses

Sponsored Data



Use Cases:

- Push Ad
- Pre-Loaded Content
- Connected Cars/Buses
- Public Safety

Hybrid



Use Cases:

- All

LTE eMBMS enables endless possibilities in B2C or B2B2C scenarios

Promising Estimations of New Revenues

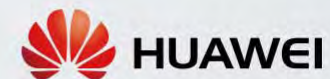
Additional broadcast service revenues as % of total data revenue		Year 1~5
Forward	Live TV	+ 06%
	Booked Video	
	Newspaper	
	Datacard Live TV	
	MiFi Live TV	
Backward	Ad/Leased	+ 14%
Total		+ 20%

+20%



- Reference: one city in Asia, joint study of case with operator
- LTE adoption similar to 3G curve

eMBMS can improve data revenue by ~20% over 5 years



THANK YOU

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