Introduction

Historically, the business model for broadcasting to mobiles has not been attractive

Can broadcasters and mobile industry cooperate to define a new worldwide standard that will benefit both broadcasters and mobile industry?

Benefits for Broadcasters: Maintaining and increasing their reach

Benefits for mobile industry: Cost-effective and spectrum-efficient delivery of most popular tv/video and live events that would otherwise stress their networks
History

Previous trials for broadcasting TV to mobile devices have not been successful in several countries:
- New network expensive
- Customers unwilling to subscribe at necessary tariffs
- Limited availability of suitable *handsets*
  - Not helped by a lack of a global standard for TV broadcasting
- Perhaps consumer not yet ready to view TV on mobile device?
- Perhaps service proposition was not compelling enough?

Today, landscape has shifted:
- Huge growth in ownership of tablets and smartphones
- Huge growth in mobile network traffic related to TV and video material
Is now the time to act?

Broadcast community is currently looking to define a world standard for TV terrestrial broadcasting

- New initiatives: FOBTV, ATSC 3.0
- DVB-T2 (adopted by 57 countries) is ‘the system to beat’
- Target: A system for roof-top reception and mobile reception

Mobile networks are facing forecasts of ever-increasing traffic volumes

- Much of which consists of TV and video content

There is a window of opportunity for broadcasters and mobile industry to bring about a closer alignment between the mobile and broadcast industry sectors

- To develop new broadcast standards for optimum use of spectrum to future benefit of broadcasters and Mobile Industry
User behaviour is changing for TV and video viewing
- On-demand and Catch-up services experiencing high growth

On-demand services come with significant incremental costs for service providers
- Linear relationship between cost and number of IP streams

Proportion of video consumption on tablets and smartphones is growing rapidly
- Often off-loaded to Wi-Fi
- Still capable of stressing mobile network

Traditional terrestrial TV platform remains very popular
- Demand on spectrum also increasing with move to all-HD

Could all parties benefit from innovative, co-operative solutions?
- Infrastructure costs, incremental costs per user, quality of service, reach, convenience, new services, ...
Possible technical approaches (1)

Tower Overlay
- Use traditional (sparse) broadcast network to overlay cellular network
- Provides coverage for mobile reception (outdoor)
- Local signal boosting possible

Fixed and mobile service types can be combined in a single multiplex
- FEF part could be T2-like or LTE-like
- This allows mobile services to be introduced gradually
Possible technical approaches (2)

- Utilise storage in receiver
  - Pre-recorded programmes can be pre-loaded (via broadcast/broadband) and stored
  - Viewing options controlled via mobile network
  - Use spectrum to broadcast live and most popular programmes (‘Fat Tail’)
  - Popular on-demand content viewed from local cache
  - Download in off-peak hours
  - Use Wi-Fi downloading in the home

- Broadcast + Storage could greatly reduce load on mobile network
  - Lower cost of infrastructure for future capacity growth
  - Reduce spectrum requirements
Possible technical approaches (3)

- **Dynamic Broadcasting**
  - Fixed broadband takes some of traffic
  - Via Wi-Fi or pico-cells
  - Freed spectrum made available using White-Space-Like, Geo-location database

- Move towards Low-Power-Low-Tower network for broadcasting (to mobiles)
  - Rather than High-Power-High-Tower
  - Simplifies international coordination of frequencies by reducing overspill into adjacent countries
  - Intensive use of spectrum via SFNs
Summary of Advantages for Mobile Industry

- Cost Reduction for meeting accelerating demand
  - Avoids capital expenditure to increase density of network
  - Reduces expenditure on additional spectrum
  - Capacity requirements based on breadth of content, not on number of active users

- Improved quality of service
  - QoS independent of number of users
  - No necessity to reduce bit-rate or quality during peak demand

- New service propositions and revenue streams
  - Offering premium and live-event content to their customers
Summary of advantages for Broadcasters

- Growing *reach* of their services through distribution to mobile devices
  - Content availability not limited mainly to TV set

- Continuing access to spectrum in a co-ordinated way, rather than in a competitive, mutually-interfering manner

- In the longer term ...
  - Possible co-operative use of distribution infrastructures
  - Easier international coordination of frequency allocations
What might be done?

Identify key players and organisations

Define service concepts and user experience

Towards a worldwide standard - integrating TV/video broadcasting to fixed and mobile devices

Define highly efficient physical-layer standard

Pilot new services

Develop scenarios for introduction

Define signalling layers

So that all MNOs have access to broadcast channel

Enabling premium, as well as FTA, services

ETSI Future Mobile Summit
21 November 2013
Proposals for Next Steps

- Initiate a joint broadcast/mobile industry study activity:
  - To define requirements and to quantify potential benefits for worldwide broadcasting standard (fixed and mobile)
  - Building on work recently done in FOBTV, ...
  - To identify timelines for any subsequent developments
  - To identify key participants in development of broadcast specification
  - Identify an organisational structure within which to do technical specification developments

- Technical specification development
  - Assessing comparative merits of possible technical approaches
  - Development of consensus around single specification

- Business model development
  - Identify and assess possible introduction scenarios and timescales
  - Initiate discussions around compelling mobile content propositions
Summary

Window of opportunity exists now for Mobile Industry and Broadcasters to co-operate
- To contribute to a worldwide standard for broadcasting to mobiles

For MNOs, such a standard would bring future cost savings
- Through reducing demand on point-to-point infrastructure
- Through efficient use of spectrum

For Broadcasters, a common standard also brings advantages
- Broader and maintained reach
- Co-operative rather than competitive use of spectrum

For consumers
- Flexibility of new services on new devices
- Higher quality of service

Next steps identified
- Towards goal of worldwide, efficient and widely-accepted mobile broadcasting standard