



Independent Expert Industry Group

- Independent report to DTG and DVB
- Views expressed are those of authors
- Study initiated May 2006
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Background

- Ongoing “digital dividend” debate
 - often presented as “HDTV **or** mobile TV or..”
 - but is the confrontation approach the best one here?
 - “picking winners” vs. technology neutrality?
- Expert TV/telco industry group formed 2006
 - proposals for enhancing spectrum efficiency
 - HDTV **and** mobile TV in released spectrum
- Industry response encouraging
 - key factor driving DVB-T2 specification

The challenge

- Technical work nearing completion
- Market and broadcasting opportunity
- What should UK plc **do**?
 - coherent clear national strategy to avoid market confusion, give maximum notice for consumers, manufacturers and infrastructure providers



The stakeholders

- All stakeholders must benefit for viable strategy:
 - consumers want quality HD channels
 - manufacturers want dynamic UK & export markets
 - broadcasters want all-HD era in due course
 - regulators want more services & spectrum efficiency
 - HMG needs auction income **AND** dynamic industries minimising viewer discontent

Analysis

- Ofcom HD proposals:
 - MPEG4 and DVB-T2 essential for FTA HDTV
 - combined introduction for a one-step change
- But needs additional measures to
 - enhance consumer offer
 - create a clear migration path

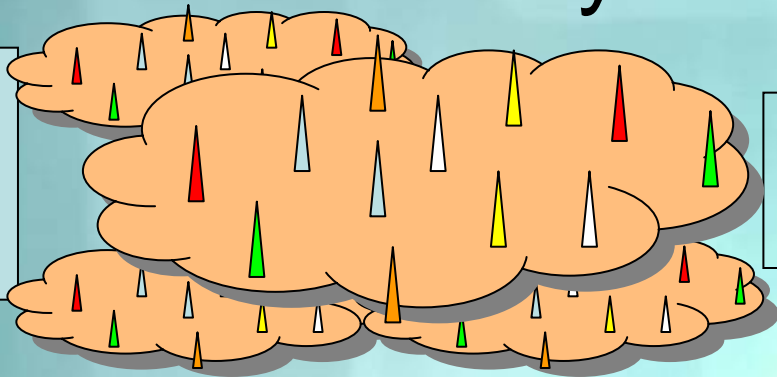
✓ ✓

A way ahead

- Use SFNs to improve spectrum efficiency *and* the number of HD & SD services
- Create a balanced compromise:
 - broadcasters provide regional variations in a more planned way, but gain greater opportunities for HD ✓
 - regulators need to allocate some released spectrum, but gain more released spectrum in the long term ✓
 - government facilitates dynamic response from UK industries and satisfied consumers ✓

Spectrum efficiency – SFNs vs MFNs

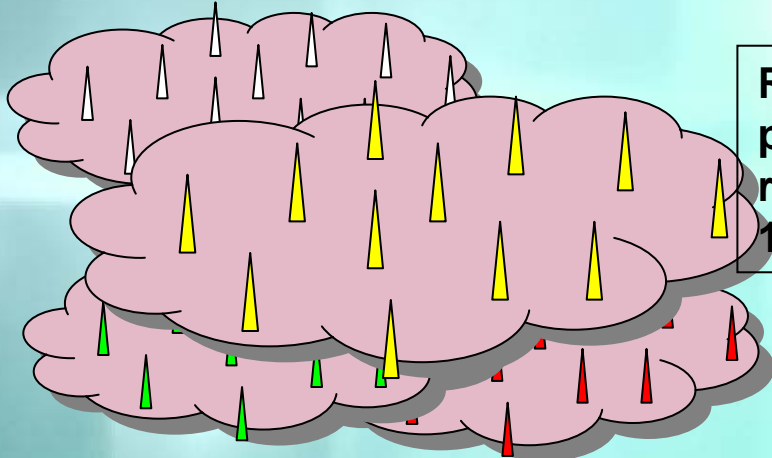
Multi-Frequency Networks (today)



Regional MFN uses several frequencies to carry one multiplex, re-used by adjacent regions

average of 5.3 frequencies to cover UK with 1 mux per region

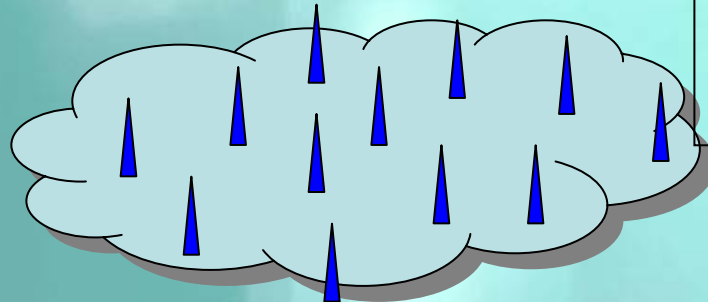
Regional Single-Frequency Network



Regional SFN uses one frequency per region, not re-used by adjacent regions, av. 4 freq. to cover UK with 1 mux per region

4 frequencies to cover UK with 1 mux per region

National Single-Frequency Network



National SFN uses one frequency for whole of UK, av. 1 freq. to cover UK with 1 mux

1 frequency to cover UK

Why DVB-T2?

- High data rates AND big SFNS:
 - 28 Mb/s nationwide
 - with only ONE frequency
- A mixed SFN/MFN network portfolio:
 - regional PSB TV with 98% coverage via MFN
 - national TV services via SFN network
 - most efficient spectrum utilisation

HDTV roadmap

- Ofcom plan will give 4 HDTV services
 - with regional capability and good coverage
- Add two national SFN's from 2012/2013 (post DSO):
 - 8 additional HDTV services
 - approx 70% coverage to existing aerials
 - other areas will need wideband aerials



Longer term

- Advanced digital TV once HD takeup assured:
 - MFN's retained for regional PSB services
 - remainder of services migrated to 6 national SFN's
- Up to 40 HDTV services:
 - using ONLY 22 frequencies (vs. 32 at DSO)



Portable and Mobile TV roadmap

- 1 national SFN for mobile and portable services
 - MIMO DVB-H(2) is slickest solution
 - using broadcast and cellular masts
 - system parameters chosen for optimum ruggedness
 - pilot for 2012 Olympics?
 - availability of mobile services enhances switchover coverage to portable indoor receivers

Next steps

- Radical proposals :
 - illustrative examples to initiate discussion and debate
 - preserve HD platform competition, UK FTA TV, etc..
 - spectrally very efficient.
 - substantial analysis needed (frequency plans, coordination, services, risk, rollout, etc)
 - advanced digital economics require validation
 - retention of global digital leadership