Cisco response to the European Commission consultation on the digital dividend

Introduction

Cisco welcomes the proposals for European co-ordination of the digital dividend, including the proposed Roadmap and Decision harmonising the technical conditions of the 800MHz band.

As the intense debate surrounding it implies, the digital dividend is of great importance for spectrum users across Europe due to its excellent propagation characteristics. The fixed/mobile broadband community has a particular interest and making part of the dividend available to them will be of great benefit to Europe. Widespread access to broadband connections is an essential component of our economic and social future.

In terms of boosting the economic recovery, a recent study indicated that an adoption rate of broadband at the speed of the most advanced countries in Europe would be worth an extra 2.1 million jobs from 2006 – 2015, whereas adopting it at the rate of the slowest countries, while still beneficial, would create just 345,000 jobs.[1] Companies adopting broadband-based processes improve their employees' labour productivity on average by 5% in the manufacturing sector and by 10% in the services sector.

In social terms, making the digital dividend available for broadband, alongside spectrum in other bands, can help close the digital divide. Such access is increasingly important as broadband becomes entwined with our daily need and desires. The social benefits include e-commerce, e-government, education and entertainment. Moreover, as we move into the Internet of things, home sensors will be used for everything from helping our ageing population to maintain independence to reducing our energy consumption.

Without freeing spectrum resources to enable the development of broadband networks, we are in danger of being under prepared for tomorrow's applications and services. Traffic continues to grow at a tremendous pace. Overall, the Internet will be nearly four times larger in 2013 than in 2009, while mobile data and Internet traffic will more than double every year in Europe – making it 61 times greater in 2013 compared with 2008 in West Europe and 89 times larger in Central Eastern Europe.[2]

[1] 'The Impact of Broadband on Growth and Productivity'; MICUS; 2008
[2] 'Cisco Visual Networking Index'; Cisco; 2009

Having outlined the need for the digital dividend to be made available to wireless broadband, please find below our comments in relation to the consultation.

A European Roadmap for the Digital Dividend

1. Increase minimum standards for digital compression capacity on terrestrial TV platform

Cisco supports the Commission's proposal for all DTT receivers sold after 1 January 2012 to include compression standard at least as efficient as H264/ MPEG-4. Use of such compression standards increases spectral efficiency and is likely to ease the transition of the 800MHz band to wireless broadband use. Furthermore, such a requirement is likely to increase legal certainty for manufacturers and may lead to benefits of economies of scale.

As twelve Member States already use MPEG-4, there is substantial momentum in this direction. That being said, we appreciate the indication of technology neutrality in that the Commission indicates the compression standard in question should be at least as efficient as H264/ MPEG-4. In other words, it does not rule out the future development of other standards that may also be spectrally efficient.

2. Make the 800MHz band available for electronic communications networks under harmonised technical conditions, respecting the principles of tech/service neutrality

a) Commission Decision on the 800MHz band

Cisco welcomes the intention of the Commission to publish a Decision harmonising the technical conditions for the 800MHz band. The digital dividend from the switch from analogue to digital broadcasting is beginning to be realised across Europe. The Netherlands, Finland, Luxembourg and Sweden have already made the switch; Denmark will do so in September; while parts of Germany, the UK and Belgium have also done so. The majority of Member States intend to do so by 2012. It is beneficial for both industry and consumers for the dividend to be allocated as soon as feasible. While some individual Member States are advanced in their preparations for allocation of the dividend, others are in danger of falling behind. Given that the US has already conducted its equivalent 700MHz auction we would hope that all Member States can see the need for urgency. Given the pressing need to act on the digital dividend and to co-ordinate its use at the European level, we appreciate the efforts to bring this forward as an urgent action, in line with the call in the RSPG Opinion on the Digital Dividend.[3]

b) Mandatory deadlines

[3] Radio Spectrum Policy Group Opinion on the Digital Dividend; RSPG; 2009; p12

We agree with the proposal that any Member States developing plans beyond the current broadcasting use should do so in accordance with the technical parameters Decision. This would not be to say that the 800MHz band is designated for fixed/mobile broadband as such but that Member States should make the band available for fixed/mobile broadband, with the market then determining the actual use. While it may be that enough momentum builds for fixed/mobile broadband in the 800MHz band to be applied across Europe, we would also suggest that introducing a deadline for applying the Decision would be appropriate.

Such a mandatory deadline has several advantages. Firstly, it provides clarity to pan-European operators so that they can plan their networks. Secondly, it encourages Member States that might otherwise miss out on the benefits of an aligned approach. These include attracting operators to provide advanced services to their citizens, given the economies of scale they can achieve from a significant geographical area and avoidance of roaming problems that would be to the detriment of the consumer. Thirdly, it could potentially hasten the decision making of Member States that are lagging in the decision-making process. Thirteen Member States have yet to start serious discussions about how the digital dividend will be used. The final advantage is in terms of negotiations with third countries which border Europe, as it allows Europe to present a united front.

Given the need to give clear direction to the market, we would prefer such a deadline to be apparent as soon as possible. Ideally, it would be in the Decision itself, but given the current sensitivities and desire for political debate, we welcome the intention to include a proposal for such a deadline to be included in the multi-annual spectrum policy programme.

c) Technology and service neutrality

We agree that the 800MHz should be made available on a technology and service neutral basis. The key principle is for the market to decide. Technology neutrality is not 'anything goes', it is a principle that governments will not select a technology winner, and will impose only the minimum rules required to avoid interference. Regulators should establish spectrum allocations with a minimal technical prescription which ensures a technical coexistence with other users (e.g. radio emission masks that ensure signals do not spill over into others' frequencies, adjusting power levels to the minimum needed to support the service). Within those broad technical parameters, licensees should be able to pick the technology that they want to use or that they will allow sub-licensees to use. As technology evolves, new systems can be introduced in an allocation provided their operation is consistent with the overall technical rules. Likewise, service neutrality is a dimension of a flexible approach which is a source of innovation, notably where it enables the development of convergent services. Choosing particular technologies and services brings with it the risk of locking spectrum into obsolete uses.

The key to allocating the 800MHz band, and indeed other frequencies within the digital dividend, will be to make the sub-band available to fixed/mobile broadband rather than

allotting it per se to fixed/mobile broadband, or narrowly defined services and technologies.

In terms of the channelisation arrangements suggested by CEPT, we agree with the initial analysis by Analysys Mason that spectrum winners should be able to implement the CEPT band plan options.[4] That being said, we question the flexibility of a fixed approach should additional spectrum below 790MHz eventually be released. Flexibility may be best served through the adoption of combinatorial auctions to select both the band plan and the assignments. Such an approach would still necessitate some restrictions of use in order to avoid wasteful guardbands.

d) Geographic clusters

In order to maintain the benefits in terms of economies of scale and roaming should the neutral auction approach suggested in the section above be applied, we support the idea floated in the RSPG Opinion to have geographic clusters.[5] This would give transparency to market players when considering their bids and improve the likelihood of a consistent and co-ordinated approach.

Ideally, switch off and assignment procedures would have occurred at the same time across Europe, to allow the development of true pan-European networks. Bearing in mind the European reality, however, whereby certain Member States are prepared to make allocations several years before other ones, the geographic clustering idea is a useful compromise. It allows larger geographic areas to co-ordinate the release of spectrum while progressive Member States will not be overly delayed in their release.

When considering such clusters, Member States and regulators should take into account that the timing of auctions or other allocation methods can be decoupled from the timing of switch-off to a certain extent. This is evidenced by the Netherlands having yet to finish the process despite switching off three years ago, while the UK is planning to hold auctions prior to final switch off in all its regions. This flexibility should increase the ability of Member States to co-ordinate the timing of their spectrum awards in significant geographical clusters.

e) ITU Radio Regulations footnote

We also support the proposal for Member States to be associated with the ITU Radio Regulations footnote on co-primary allocation of the 800MHz band for broadband in WRC-11. Under the current WRC, the timeline for co-primary allocation of broadcasting and mobile services in the 800MHz sub-band is from 2015. Via footnotes in the ITU Radio Regulations or via bilateral negotiations, some countries can open up the use of this sub-band before that date; subject to technical co-ordination with other countries (e.g. under Geneva Agreement 06). However, there remain a number of countries outside of

[4] 'Exploiting the Digital Dividend: Second Member States' Workshop'; Analysys Mason et al; June 2009
[5] RSPG, *op. cit.*

the footnote and it is advantageous for the 800MHz band to be opened up as soon as possible, rather than waiting till 2015 or beyond.

f) Interference issues

In opening up the 800MHz band to fixed/mobile broadband, it is possible that there will be potential issues with regards interference with other users. The cable industry in Europe has flagged a potential issue. Any evidence which is brought forward by them or other users needs to be taken seriously and carefully reviewed by regulators, who should resolve the interference issue on its merits, taking into account the EU's goals for electronic communications overall.

3. Common position on white spaces

The Commission proposes the development of a common position in Europe as to the use of so-called 'white spaces' in the broadcasting spectrum. This refers to the use of unlicensed radio transmitters in locations where the spectrum is not being used by licensed services. It is a sensible idea to undertake such an assessment, especially given the FCC has authorised such use in the US since March 2009, subject to safeguards to protect incumbent communication services from harmful interference.[6]

In undertaking the assessment the Commission and Member States need to be mindful that in any transition involving spectrum, there will be potential issues associated with various types of interference. As with potential issues in the 800MHz band, those with concerns should bring forward evidence of their claim. This should be thoroughly evaluated by regulators, while keeping in mind the EU's broader aims for electronic communication deployment.

4. Negotiations with non-EU countries

We support the idea of the Commission playing a facilitating role in negotiations with non-EU countries that will enable the acceleration of the deployment of the 800MHz band.

The largest problem of this nature in Europe is that several countries are bound by footnote 5.312 in the ITU Radio Regulations which allows the Russia Federation and Belarus to allocate 645-862MHz band to aeronautical radio-navigation services (ARNS) on a primary basis, and neighbouring countries wishing to use this band for mobile must first reach agreement with the two countries. The Ukraine also uses this sub-band for ARNS services. This problem affects Estonia, Finland, Latvia, Lithuania and Poland. Malta has an unrelated issue with using the 800MHz sub-band for applications other than broadcasting thanks to GE06 agreement on using DTT in channel 66. Spain has also indicated that it has to undertake negotiations with third countries in order to clear the 800MHz band.

[6] FCC 08-260; November 2008

While individual Member States have played a positive role in finding agreement with third countries, the process so far has been somewhat deadlocked. The EU could potentially have more weight with accession and partner countries.

5. Mechanism for addressing future external developments

Cisco supports the idea of a mechanism for addressing future external developments affecting the Roadmap on a regular basis. Such an approach could assess the take up of particular services for which spectrum has been allocated, bottlenecks, new uses for spectrum and advances in compression standards.

This would be particularly useful in determining whether a second sub-band should be cleared within the 470-862MHz band. Initial findings from Analysys Mason indicate that in scenarios even where demand for DTT is high, there could be a further €17bn in private value from clearing a second sub-band if demand for wireless broadband is also high, and €30bn in private value if new uses emerge for such spectrum.[7]

It should be noted that in both Region 2 (the Americas) and Region 3 (Asia-Pacific) the Digital Dividend comprises the entire 690 – 806 MHz, band; a full 36 MHz more spectrum than currently foreseen in Europe. From the outset this seems to put Europe in a disadvantaged situation.

Analogue Switch-Off

Cisco believes it is imperative for Member States to reconfirm their commitment to analogue switch off by 1 January 2012 and agrees with the Commission that this should be stated in national law.

This should be matched by a commitment to hold auctions for the 800MHz band prior to switch off in order to facilitate the earliest possible reassignment of that band. There is a growing recognition among Member States that this part of the dividend should be made available to fixed/mobile broadband. Austria, Czech Republic, Finland, France, Germany, Spain, the UK, Ireland, Denmark, Sweden and the Netherlands have all acknowledged this need. It is important that all Member States take steps to accelerate the switch-off of analogue broadcasting in order to enable the market to determine use of this sub-band.

The early findings by Analysys Mason quote studies to the effect that a one year delay in the use of the 800MHz band would lead to a 10% decrease in its value.[8] This amounts to €10.7bn, should the demand for wireless broadband be high. In the US, the equivalent 700MHz auction was completed in April 2008 and the band is already in use. One of the interesting developments is that Verizon Wireless is opening up its networks in a mode resembling a more Internet-like structure, with open applications and open devices. This is having a knock-on impact in developing the Internet of things, with 90% of the devices

[7] Analysys Mason, *op.cit.*
[8] *Ibid.*

in their process certification being for machine-to-machine communication. These include items such as sensors, tracking devices and temperature monitors that are having an important impact on transportation, retail and the supply chain. Another innovative development is the use of the band for Smart Grid solutions, improving the efficiency of the electricity network and thus helping towards energy security and climate change goals.

Europe is being somewhat left behind by other regions and it is essential that we do what ever in our power to catch up.

Multi-Annual Radio Spectrum Policy Programme

Cisco supports the initiative to instigate a multi-annual radio spectrum policy programme in order to garner political endorsement for the strategic elements of the roadmap. First raised by the Parliament in the context of the Telecom Review, it will help ensure recognition of the importance of spectrum and facilitate buy in from policy makers in Europe and national capitals. It is important, however, that the programme is so designed that the implementation of spectrum policy is not delayed, to the detriment of European consumers and industry.

Size of Spectrum Blocks

One issue not directly addressed by the consultation is the size of spectrum blocks made available to spectrum winners in order to roll-out their networks. Regulators should recognise the need for substantial blocks of spectrum to deliver advanced speeds and services. Cutting edge mobile broadband technologies will require a minimum of 5 MHz channelisation, and service providers may choose equipment that requires 10 MHz or even 20 MHz channelisation. In order to achieve the necessary size, operators should be able to bid for the basic blocks on a contiguous basis. These broadband channel arrangements are essential for accommodating the mix of video, data and voice applications that will be required. Taking into account channel re-use patterns common to all cellular systems, it is no surprise that the WiMAX Forum recommends a minimum of 30 MHz for a robust urban network. In fact, many fixed/mobile broadband networks globally operate on far larger spectrum blocks.[9] Enabling such an approach will provide an incentive for the market to adopt an open applications and devices approach, which is more difficult with smaller blocks.

In preparing for large blocks of spectrum to be made available to operators, we would also like to highlight the need for the spectrum to be allocated in multiples of 5MHz (as suggested by CEPT) as opposed to 8MHz, as envisaged in some circles. The profiles which have been created for the technologies likely to be used in the available spectrum

[9] Danske Telecom – Denmark is licensed for 112 MHz at 3.5 GHz; Clearwire – US has access to up to 55 MHz of spectrum in US cities; Iberbanda – Spain has 40 MHz of spectrum at 3.5 GHz; Yota – (Moscow, St. Petersburg) Russia has 120 MHz at 2.5 GHz.

have been developed based on 5MHz or 10MHz sub-blocks. Basing allocation on 8MHz could slow the time to market of such technologies without adding any benefits.

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