

## THE NEW DIGITAL DIVISION – IS BRITAIN LAGGING BEHIND?

Good morning ladies and gentlemen.

Thank you very much to the CMA for inviting me to speak this morning.

I'm very aware – some sixth sense – that I am not Shriti Vadera. That's the bad news, as the old joke has it. I'm not sure exactly what the good news is – maybe I'll find some later.

I'm talking today about next generation access – its relative absence in the UK, whether this matters, whether we should do something extra about it. I'm told NGA was raised a couple of times at the conference yesterday and I hope you will be interested. My authority to speak on NGA, so far as I have any, derives from the fact that I am Chair of the Broadband Stakeholder Group. This is a body set up at the time that the UK was in danger of lagging behind in the implementation of first generation broadband – its creation was catalysed by government at the time, its job is to advise government on broadband issues and, because it is a stakeholder organisation, it has inevitably begun to range more

widely, responding (for example) to the Ofcom consultation on NGA. We look at other issues aside from NGA – content regulation and self-regulation in a broadband world, for example, but this year for sure our priority is next generation access.

Enough background. Let me talk a little about the demand side of the NGA question. Despite being chair of the BSG, I often feel unconvincing on this topic. I can cite the fact that the BSG itself did some work that predicted demand for bandwidth would grow from current levels – to 23 megabits per second downstream and 14 upstream by 2012. I can talk about new, speculative, bandwidth-hungry applications – file sharing, video-rich gaming etc. But, in truth, my predilection has always been caution rather thanchutzpah and so let me instead quote two futurologists to give you some idea of what they see happening – and who have no difficulty withchutzpah.

First of all, Swanson and Gilder, talking about what they call the ‘exaflood’ – the vast additional demands placed on the US internet by new applications. To place this in context – the unit they use to denote

the levels of demand is the Exabyte – a gigabyte squared or equivalent to 50,000 Libraries of Congress. Their view is that by 2015 – seven years from now – internet traffic in the US by application could be as follows:

- movie downloads and P2P file sharing could be 100 exabytes (5 million LOCs)
- video calling and virtual windows could generate 400 exabytes
- “cloud” computing and remote backup could total 50 exabytes
- Internet video, gaming, and virtual worlds could produce 200 exabytes
- non-Internet “IPTV” could reach 100 exabytes, and possibly much more
- business IP traffic will generate some 100 exabytes
- other applications (phone, Web, e-mail, photos, music) could be 50 exabytes

If true, this would mean that traffic on the US internet would equate to 50 million LOCs and the internet would need to be at least 50 times

larger than it was in 2006 - with massive implications for in Swanson's and Gilder's words 'bandwidth, storage and traffic management capabilities in core, edge, metro and access networks'. Park for a second whether we think this is right or not.

Let's look at another writer on these topics, Charles Stross, who speculates specifically about storage - we all know that storage is becoming cheaper but, with nanotechnology, it is conceivable that all the US internet traffic Swanson and Gilder projected for 2015 could be stored on a single gram of memory. Ignore whether this is correct in detail - storage and memory is going to become more or less free. The implications may be very significant. To quote Stross -

*'We're only a few years away from the cost of data storage dropping so far that we can record "everything" that happens to us: our location at any given time, what we are hearing, what we are seeing, and what we are saying or doing.'*

*With your phone converting all the speech it hears to text and storing that, too, and indexing it by time and location it becomes possible to search it all - like having Google for your memory.*

*You don't ever need to forget a conversation again, even if all you can recall about it is that it was with a stranger you met in a given pub about two months ago and someone mentioned the word "fishhooks".*

*If you're a police officer, it means never forgetting a face and always logging all your interactions with the public.*

*If you're suffering from the early stages of dementia, or if you're simply over-worked and expected to keep track of too many tasks at the office, it means you've got a memory prosthesis to help you keep track of things.*

*And if you're a student, it means you can concentrate on understanding your lecturer, and worry about making notes later.*

*This technology is available now – some researchers are using it - in a few years' time, it's going to be as cheap as owning a mobile phone, and a few years later it'll be just an extra feature of your mobile phone.'*

So Swanson and Gilder suggest a massive increase in internet traffic in which extra demand for storage is an **outcome** of new applications driving demand. Stross suggests that the drop in storage costs will create new applications which will create new types of traffic which Swanson and Gilder haven't anticipated – an additional **input**, if you like, driving up the forecast traffic increase even higher. Both separate strands of thinking, if true, would have massive implications for our telecoms infrastructure and perhaps particularly for our good old copper local access which, experts seem to agree, have physical bandwidth constraints which could not begin to cope with the types of demands our futurologists are speculating about. I'm told that ADSL2+ squeezes about as much speed out of copper as is feasible – a median downstream speed of 10 megabits a second, upstream of less than one.

That's the bullish view. Contrast it with the facts as they stand now. Ofcom's consultation document from last year is full of caution about demand for NGA and in truth the capacity issues today are more in the backhaul network than in local access. With the partial exception of Virgin, neither BT nor anyone else is rushing to lay fibre anywhere except greenfield sites such as Ebbsfleet – investors therefore aren't yet convinced on the demand issues by our futurologists. The BBC's iPlayer take-up is substantial in its early phases, but the scale of demand for much higher bandwidths, the eventual driver of NGA investment is not yet known.

This is a classic situation which the last two decades have made us familiar with. Looking at technology, pundits observe that the impact of technology change is overestimated in the short term, underestimated in the long term. We're now in that uncomfortable space – are we in the short-term? Swanson and Gilder's study that I've quoted from is dated January 2008. Or are we in the long term? George Gilder began banging on about these themes in the 1990's and maybe his time has come.

One thing that is unchallengeable is that we are behind some of our peer group internationally. As a percent of broadband connections, fibre is negligible in the UK – whereas 3<sup>rd</sup> quarter 2007 numbers for Japan and Korea are 38% and 32% respectively. The Baltic states, Estonia and Lithuania, benefitting from the technology leapfrog phenomenon, have fibre penetrations of 14% and 18% and, although the absolute numbers are tiny, they are roughly ten times less tiny than the UK's. China has a penetration of 22% or nearly a staggering 14 million fibre connections in absolute numbers. The US has 2 million fibre connections, or 3%. We're behind and there is particular hand-wringing because the market in France is showing signs of activity – with both Iliad and France Telecom signalling investment.

In these circumstances, the scenario we worry about is this. The demand for bandwidth does pick up over the next five years and, even if it does so much less dramatically than predicted by the bandwidth believers, demand is constrained by the local loop's capacity. At the same time a combination of supply-side and demand-side complexities and

information gaps in the UK make it difficult to make progress in delivering NGA fast enough to avoid compromising the UK's competitiveness. UK consumers miss out but in addition the new wave of companies setting out to exploit super high bandwidths site their operations in Stockholm, Tallinn, Beijing, Chicago, Paris even – anywhere but London or Manchester or Edinburgh.

My colleagues in Ofcom have a contrary worry. This is that we panic too early about the scenario I've just described and the government or public sector seeks to emulate Singapore for example and pours Northern Rock style amounts of tax payers' money into laying fibre, with potentially very damaging effects on competition, misdirection of public assets and deterrence of private investment.

I characterise this as Ofcom's worry – but to make my position and the BSG's position clear, we share their worry too. The Scylla and Charybdis we have to steer between is investment too late and investment too early – and particularly too early investment by the public sector.

This feat of navigation is achievable but complicated. Let me talk about some of the supply-side and demand side challenges we face. I'm going to rattle through them quite quickly and without too much elaboration. The most fundamental challenge is information on demand – we don't know whether Gilder is right or wrong. Another problem is more complicated – is the market capable of allocating investment and value in an appropriate way? An example – if a private health service is able to cut treatment costs if someone has NGA to their home, how does the infrastructure provider get reimbursed for that? The example was intentionally a private health service – but if you assume that NGA creates public value in a variety of ways, how should this public value be given the chance to influence the direction and timing of expenditure? To get more prosaic – how can we move away from flat-rate broadband pricing, such that those consumers who want better, faster broadband can get it and providers are incentivised to invest? Even more prosaic, how can the non-domestic rating system be made more congruent with investment decisions? What regulatory approach would work best? Should we assume that a single provider of NGA is the most economic solution and that a public utility should provide NGA on an equivalent

basis to all service providers? But how would BT feel about that – the most obvious likely provider of fibre. But, if BT doesn't like that model, what model would work for BT's competitors? What about some technical issues? FTTH? – or is FTTC a good staging post?

I could go on and on, but I won't. The point is this. The time when we are lagging behind our competitors but the demand for NGA isn't definitively there anyway is the perfect time to figure all this stuff out. In April 2007, the BSG published its Pipe Dreams report which discussed these issues in more detail and it suggested that the UK has two years to come up with some answers. We have been progressing our work programme since. We divided the issues into categories. The first was policy and within this we commissioned a study to identify the social and economic value of NGA which should be completed shortly. The second area was business models – how the industry should extricate itself from flat rate pricing and how it should deal with the obverse issue of net neutrality. The BSG plays a catalytic role here – the industry will have to evolve the appropriate models. The third area was regulation – we are working to support Ofcom in the difficult task of balancing the

need to provide regulatory certainty against being too prescriptive too early. And the final area relates to public intervention – is there any form where it would be appropriate? What can we learn from elsewhere?

The BSG plans to hold some type of event in June that summarises the results of our work and, I would hope, provides some solutions or proposals. During the course of the year, other areas of work have grown in salience and importance. Two examples – the trade-off between FTTH and FTTC and the linked issue of whether it makes any sense at all to have parallel infrastructures, copper and fibre (competition thinking might say ‘yes’, cost saving considerations might say ‘no’). But my main reflection during my tenure as Chair of the BSG is that NGA is one of those big challenges which face an industry or a nation which is unlikely to fit into a neat policy-making box. The structure which I am ideologically attracted to – let the market operate – may not be sufficient. Equally, there is no evidence of market failure, as yet. My hunch is that the need for government funding is far from the top of the list of priorities – such funding may prove to be vital for rural

or impoverished areas and government can decide in due course whether this is money well spent or not. But meanwhile government can play a vital leadership role. Broadband over the last five years has been a big success story in which BT, the government and latterly Ofcom played important parts plus, of course, a range of enterprising investors setting out to compete with BT. NGA is tougher. The legacy of first generation broadband needs to be dealt with and the complexities of balancing the economical use of resources and competition issues are immense. The BSG can play a role in this, but judicious – not too intrusive – government leadership will be vital. My guess is that NGA is as complex a challenge as digital switchover – government and Ofcom leadership have been crucial to DSO and they will be for NGA too.

So – I half promised you some good news at the beginning of this talk. It's old news now, of course, but Shriti Vadera's announcement of a review into next generation broadband is, I hope, a signal that the government is ready to provide the necessary leadership. The review focuses on issues which government can influence – and again I

welcome this self-restraint. We're lagging behind our competitors in deployment of next generation access. So far, we have no reason to think we're lagging behind in any way that matters – so long as we use this period of reflection to come up with a good way forward.

Thank you.