Designing the broadband universal service obligation

Specifying the minimum technical performance

Latency. The call for inputs (section 1.3) uses the phrase "decent broadband service" and I would suggest that one of the criteria for "decent service" should be a latency of less than 100 ms. I realise that this rules out satellite and I think this is a valid consequence. Having spoken to several people who have tried so-called satellite broadband, and read comments from many more, I do not believe that satellite can provide a "decent broadband service", mainly because of the latency problem.

When web pages were very simple (quite a long time ago now) latency was less of a problem. But the loading of a web page these days is typically a process that consists of many steps, which have to take place in a sequential manner. In particular the widespread use of asynchronous javascript (ajax) and css (both of which are fundamental to the modern web experience) means that the latency is multiplied many times when loading a web page.

Caps, throttling etc To be regarded as a "decent broadband service" there should either be no cap, throttling etc or the limits should be set very high indeed (in which case they would in fact be unnecessary).

Pulling these thoughts together, it seems to me that there needs to be a sophisticated definition of "speed" that takes into account all the factors affecting whether the service is experienced as "decent". For example a "speed test" often involves uploading and downloading a single file. But this can be highly misleading as it does not mimic the way in which the internet is used in practice. So you could easily have an internet connection which could pass a 10Mbps "speed test" based on file upload/download, but which gave an anything but decent user experience when used in practice.

I therefore envisage some kind of "speed test suite" that takes into account all the factors affecting user experience, including bandwidth, latency, jitter, throttling, capping, and filtering (ie the prioritization of one kind of traffic over another). To pass a "speed test" a connection would need to meet minimum criteria on each of these measures, and would need to do so for say 99.9% of the time, measured separately during normal working hours, evenings and all other times (for example if a service achieved 99.9% during working hours but only 98% during evenings, it would fail the test). Also the speed test suite would take into account all modes of internet usage, meaning not only web browsing, email and file downloads, but other modes that are key for business use, for example ssh, VoIP and teleconferencing, and emerging uses such as IoT.

I have spelled this out a bit because I think that there is a strong temptation for suppliers to "cheat" if a too-simple measure of speed is adopted. Indeed one can see

this now, with the confusion (even from people who should know better) between the concepts of "speed" and "bandwidth".

Furthermore, Ofcom should have the ability to revise the speed test suite at regular intervals on giving (say) 6 months' notice. As an analogy, consider emissions testing and mpg claims in the car industry. Even setting aside the deliberate cheating, there is a huge discrepancy between the test results and the real-world experience of car users, for both mpg and emissions claims. The imposition of a USO will put pressure on suppliers to focus on "speed" - and the car industry analogy shows that the regulators need to have strong powers to ensure that suppliers don't give in to the temptation to "game" the tests.

Affordability and universality

Will it be truly universal, and what about the cost? I think these questions are so closely related that I have taken them together.

The original paradigm for the "universal service" is probably the Uniform Penny Post introduced by Rowland Hill in 1840. The success of this - later imitated all over the world - came from the fact that it was truly universal and flat rate. There seems to be a danger with the broadband USO that while using the name "universal service", it will be neither universal nor flat rate.

To ensure that the service providers do not slide out of the obligation through differential pricing, I propose that they should be obliged to provide the same service for the same price to all their customers irrespective of geography. That is to say, a given service provider should not be allowed to charge one price to one customer for a 10Mbps service and a different price to another customer for the same service.

And, again by analogy with the penny post, the service must be truly universal, or as close to it as it is physically possible to be. The currently proposed exceptions and qualifications are far too wide, and make a mockery of the word "universal".

Of course, delivering a broadband service is not quite the same as delivering a letter. There may be a few premises - deeply buried in caves, perhaps, or perched precariously on the top of cliffs - that are genuinely unreachable.

But such exceptions would be very rare - a few hundreds of premises across the country at most. At present, the term "hard to reach" - which is essentially a propaganda term rather than an objective description - is applied to properties in settled areas of the country which can't fairly be described as hard to reach at all.

I propose a simple test. If a property currently benefits from an on-grid electricity connection, or a fixed-line telephone service, or a water supply from a regional water company, then it must be deemed to be reachable ("what man has done, man can do"), and must be within the scope of the universal obligation.

It is easy to overlook the fact that metre for metre, fibre optic cable is actually quite a lot cheaper than copper cable.

Where should the costs fall?

The cost of the USO should fall on industry rather than the Government. The reason for saying that is that it will force the companies to find creative and cost-effective solutions. The effect of the existing BDUK contracts has been the exact opposite. The existing contracts under the BDUK framework are basically "cost plus" or "time and materials" contracts, basically contracts on which BT-Openreach are guaranteed to make a profit. There is some monitoring of the costs, but absolutely no incentive to find alternative cost-effective solutions..

BT-Openreach still seem to have the attitude that they will not invest money unless it can be proved in advance that they will make a profit. Of course all businesses want to make a profit but they can't rely on getting an upfront guarantee. The fact is that, still today, BT-Openreach have a de facto monopoly over the final delivery circuits. The quid pro quo for this monopoly should be the acceptance of obligations to provide a service even where the cost of provision outweighs the likely income.

Likely demand and take-up

Take-up. I regard the existing take-up figures with some suspicion. Taking my own situation as an example, I figure among those who the statistics say have not taken up an FTTC service, even though it is available to me. In actual fact I would switch to a faster broadband service tomorrow if I can get it. The reason I do not is that service providers have advised me that the FTTC service to my premises would be unlikely in practice to be any better than my existing ADSL service. So effectively I distort the statistics, making it look as if I have not taken up FTTC because I am not interested in faster service when this is not the case at all. I am sure I am not alone in this, so I suspect that the take-up rate is much higher than it appears - that is to say the take up rate when a genuinely faster service is available.

If we extrapolate this and ask: what would be the take up rate for 10Mbps among people who currently get <2Mpbs, the answer is obvious: it would be almost universal.

One is reminded of the early days of ADSL, when BT only provided ADSL to an exchange after enough people on an exchange "voted" that they would take it up if offered. Much community effort was spent trying to get people to request ADSL, until eventually it became obvious, even to BT, that everyone wanted and they abandoned the voting idea and simply installed it in every exchange.

Another thing to bear in mind is that the existing BDUK framework, with BT-Openreach as its sole supplier, provides a perverse incentive for BT-Openreach to underestimate demand. It is true that money can be clawed back from BT-Openreach if demand exceeds the projected level. But this merely provides BT-Openreach with a one-way bet: they have nothing to lose by erring on the low side in projecting demand, and it should be no surprise that this is what has happened.