Digital Britain – Towards a Comprehensive Universal Service Commitment

Background

In developing plans for a Universal Service Commitment (USC), I would urge the Digital Britain team to look closely at some of the gaps in current legislation and protection for the End User (EU) in the case of access to broadband services.

The present arrangements allow an individual EU to raise a complaint against their internet service provider (ISP) and, if this fails to achieve a mutually agreed outcome, the EU can raise the case to one of the independent arbitration services – eg OTELO.

However, if the fault lies with the infrastructure provider (eg BT Wholesale or BT Openreach) rather than the ISP, an individual EU cannot raise a complaint directly against the infrastructure provider, as the EU's contract for broadband services is with the ISP. As a consequence of this, the infrastructure provider can decide not to maintain damaged infrastructure, or repair faults, on "economic grounds" with there being no possibility of this being independently challenged by an EU and little realistic chance of it being challenged by an ISP.

This issue becomes even more problematic in a situation where EU's in a local area, with multiple ISPs, experience a common infrastructure fault. There is currently no mechanism to allow a collective complaint about a single infrastructure fault. OTELO only deal with single EU complaints and OFCOM seem loathe to take on such group issues. It is further complicated by the difficulties individual EU's face in convincing their ISPs that there is an infrastructure fault in the first place, even when they achieve this, persuading their ISPs to discuss the issues with other ISPs, or the infrastructure provider is next to impossible. Consequently, wide-area infrastructure faults are not being corrected because they are not being recognised as such by individual ISPs – and groups of ISPs are not be given the opportunity to contest the use of the "economic grounds" rationale for failure to repair the infrastructure because there is no incentive for the infrastructure provider to tell the ISPs that such a wide-area issue exists.

Recommendation

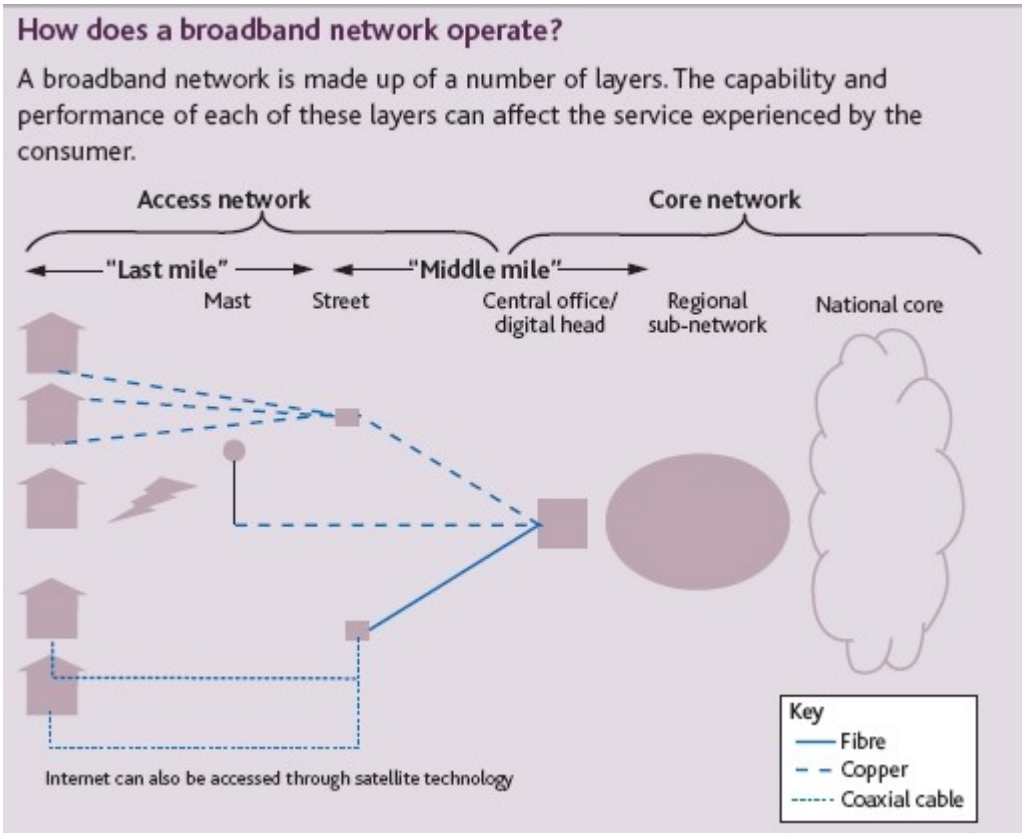
Any future USC should have network maintenance conditions explicitly built into it. Furthermore, an independent ombudsman (perhaps OFCOM?) should be mandated to deal with multiple EU complaints relating to what might be a single infrastructure fault or maintenance issue.

The ombudsman should be allowed to challenge the "economic grounds" rationale if it does not meet either the maintenance conditions and standards alluded to above, or the more general broadband provisioning conditions of the USC. The USC conditions should be written in such a way as to prevent parts of the network being deliberately run down.

Alternative Solutions to the Telecommunications Architecture and Infrastructure for Rural Areas and other "Not Spots" and "Not So Hot Spots"

Background

1. Page 16 of the Digital Britain interim report carries the following schematic of the UK broadband infrastructure and how it operates:



2. Whilst this may be a reasonable representation of the major parts of the network, it omits other solutions already available, or close to market, and as a consequence, fails to consider them in the discussion of opportunities and solutions for the future. I believe the example of my own village illustrates the problems already faced by many rural communities and other "not so hot spots" around the country.

3. Winterbourne Stoke is a small village in rural Wiltshire, with under 100 homes in the core of the village and with a broadband uptake of 30-40% of homes. Several small businesses already rely on broadband for commerce and are suffering because of the poor broadband speeds, unreliability and, in some cases, a degrading voice telephony service. Broadband speeds range from 135kbps to 1400kbps, with speeds being unrelated to the ISP or the "last mile" distance from the one street cabinet that supplies the village.

4. The “middle mile” is a 3.4km stretch of 100/0.5 aluminium (not copper) cable. The first 1.4km is carried in a duct, but the final 2km is simply buried in the ground. Being aluminium, the cable is subject to much greater attenuation (around 68dB) and line losses than copper, and it is also very prone to random electrical impulse noise (REIN) at night and also during wet or damp weather. BT Openreach admit that it would need to be replaced with 100/0.9 copper to gain the 10dB drop in attenuation that would bring the service to an acceptable level for broadband. In essence, the middle mile is already performing out of limits.

5. BT Openreach assess the cost of replacing the aluminium cable with copper would be in the region of £180,000 – a cost BT Openreach are unwilling to meet on business grounds and one which a small village could never hope to meet from within the community. Replacement of the aluminium with fibre was deemed not even worthy of consideration. The irony here is that one of the UK’s main dark fibre trunks runs straight through the middle of the village.

6. I would suggest that this one example is fairly typical of the situation already facing many rural communities, and at the heart of the current problems the Digital Britain initiative will need to address if rural communities and other “not spots” and “not so hot spots” are to be kept from slipping further into the digital divide that is rapidly widening.

Suggestions

7. The Digital Britain network map needs to be redrawn to reflect the fact that significant parts of the “middle mile” infrastructure, often in rural areas, are already of a much poorer quality (aluminium) than others (copper). This disparity warrants further discussion and should be considered when it comes to prioritisation of infrastructure upgrades and replacements.

8. Attention has already been paid within the report to “last mile” solutions that would provide enhanced speeds to consumers. However, there seems to have been relatively little comparable thinking applied to the “middle mile” infrastructure which may already be having a much greater impact on services.

9. The “middle mile” architecture shown above identifies only copper, or fibre, as solutions. This may reflect the fact that these are the preferred options of the providers, but they are not the only ones available and should not be the only ones considered for the future Digital Britain.

10. Wireless systems can (and already have) been used to provide “last mile” connectivity, but high bandwidth wireless solutions are already available that could provide an alternative, high bandwidth, “middle mile” architecture. This could be achieved in at least two ways:

- the use of wireless technology to provide broadband at all stages from the local exchange to the home.

- the use of wireless technology (or possibly microwave) to provide the "middle mile" backhaul link between the local exchange and the street cabinet.

11. The first of these options might be the most attractive for providing broadband to single locations, or for community broadband schemes where the community is prepared to deal with a single ISP, or themselves become the ISP. The potential downside of this would be if each ISP was to be allowed to install its own wireless equipment at the exchange and the wireless transmission network itself proliferated.

12. It seems likely that the second of these possibilities might prove the more attractive, both for the "middle mile" provider and for ISP's. Local loop unbundling (LLU) at the exchange level would be largely unaffected, leaving consumers with the same choice of ISP as at present. It may even encourage more LLU at minor exchanges because top-end services would now be available to a larger customer base, making the investment more attractive. The cabinet to consumer "last mile" would be as illustrated in the Digital Britain diagram above - fibre, Wi-Fi, copper or coaxial cable.

13. The "middle mile" provider would benefit from the substantially reduced costs associated with the use of wireless backhaul, as compared to either copper or fibre infrastructure. Indeed, I am led to believe that wireless backhaul might only cost 10%-20% of the copper or fibre alternative. Consequently, more "not spots" and "not so hot spots" could be given better broadband access for the same level of capital investment.

14. The costs of installation and maintenance of a wireless "middle mile" backhaul would be less than for either copper or wireless and there would be considerably less disruption to roads and other elements of the national infrastructure than using the conventional approach. The installation time, both for individual schemes and for the whole national infrastructure would be considerably reduced.

15. For the consumer, the effects of wireless backhaul would be considerable:

- high speed broadband could be made available to all current "not spots" and "not so hot spots"
- consumers in rural locations could have these services sooner than it could be accomplished by any other means
- they would retain the choice of ISP
- the digital divide between rural and urban consumers would be narrowed.

16. I hope the Digital Britain team will give these suggestions their attention.