Who will meet the UK's broadband USO?

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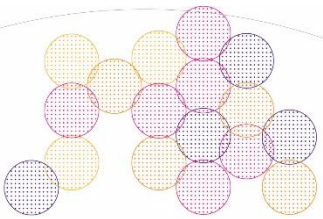

On June 19th Ofcom published a document seeking expressions of interest from telecommunications operators to become providers of the UK's broadband universal service.[i] This note provides a commentary on the document. It is based on the understanding of the challenges of delivering a broadband Universal Service Obligation (USO) which Plum has acquired over the past two years from its extensive work on the subject. This has involved both detailed modelling of the costs of implementing a broadband USO in the UK and two reviews of how other high-income countries around the world are tackling the problem of ensuring everyone has access to decent broadband at an affordable price, regardless of where they live.

The UK's broadband USO in summary

The UK Government has defined the broadband USO following extensive consultation. It has now given Ofcom the job of appointing one or more universal service providers (USPs) to deliver it.

The USO is designed to give everyone in the UK access to a decent broadband service which delivers a minimum download speed of 10 Mbps, a minimum upload speed of 1 Mbps, a minimum data throughput of 100 GB per month, and reasonable latency. It also specifies a network contention level of 50:1 or better and a maximum latency of 200 msec. This last requirement essentially rules out satellite broadband (unlike the USO of Canada, Greece and Sweden).

The obligation requires the USP to deliver such a service to everyone in the UK on demand provided:

- such a service is not already available;
- such a service will not be available within the year from existing BDUK programmes for broadband roll-out[ii]; and
- where the connection cost of doing so does not exceed a threshold of £3400 per eligible property.

Where the cost of connection exceeds this threshold, customers in eligible areas may receive the broadband universal service provided that they pay the excess.

The USO is intended to offer an industry-funded safety net to complement state-funded projects offering higher broadband speeds. These include the BDUK programmes, the Scottish Government's R100 funding and the local full fibre network challenge fund.

The political objective is to make 10 Mbps broadband available to everyone at an affordable price by 2020. In practice, it is unlikely that this objective will be met: some premises will cost significantly more than £3400 to connect.

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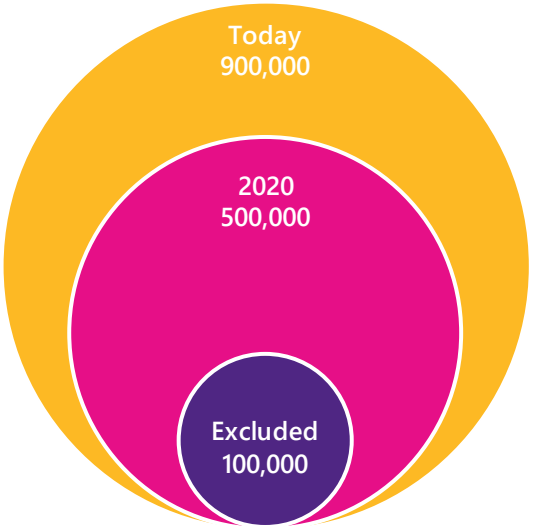
Ofcom estimates that there are currently 900,000 premises which might benefit. We estimate that:

- this number might reduce to around 500,000 after allowing for ongoing BDUK roll-out; and
- of these, 100,000 will remain without access to the broadband universal service because of the £3400 threshold.

Figure1: Eligible premises



The scope of the Ofcom document

Ofcom does not specify a process for appointing one or more USPs to meet the broadband USO. Instead, it seeks expressions of interest from potential USPs so that it can judge who might be interested and how they might meet the obligation in a speedy and cost-effective way.

While it suspects that there might be competition to become the USP in some areas, Ofcom explicitly rules out the use of a competitive bidding process.[iii]

In the document, Ofcom sets out the obligations which a USP should meet and how the costs of provision might be funded. It also seeks information from each candidate USP as to the areas it wishes to supply, the technology it will use, and the services it will offer.

In addition, Ofcom asks for information on the financial and management capabilities of each candidate, and estimates of how quickly it will be able to provide the service.

The document raises a number of questions for interested parties to consider. We discuss six of them below.

What criteria will Ofcom use in designating USPs?

Ofcom does not set out explicit criteria for choosing USPs. But two criteria are implied.

First, the speed of implementation. While Ofcom recognises that roll-out will take time, it is keen to see the broadband universal service made available to everyone as quickly as possible, to meet the Government's requirement that no one should wait more than 12 months.

Second, the cost-effectiveness of the implementation, in order to minimise the total of cost of implementing the broadband USO. To achieve cost efficiency, Ofcom is looking for roll-out which generates economies of scale – in both the urban and rural areas which are eligible.

Clearly there is a trade-off here. Rapid implementation - which involves simultaneous roll-out across wide areas of the UK - will raise the implementation costs when compared with a slower phased rollout.

Who are the likely USPs?

The large UK operators are better placed to meet Ofcom's criteria than the small specialist local operators such as those involved in the BDUK Phase III trials, given their greater economies of scale, resources and existing access networks.

The obvious candidates are Kingston Communications in Kingston upon Hull and BT in the rest of the UK. These operators can deliver the broadband USO using their existing copper access networks.[iv] It is perhaps worth noting here that BT has been much better at delivering a 10 Mbps+ service than Kingston Communications.[v]

Mobile operators or specialist fixed wireless access operators might also bid to become USPs using terrestrial fixed wireless access (FWA) solutions. This option is examined in a recent Plum study.[vi] However, as the study points out, levels of cost efficiency and service performance attainable are contingent on access to appropriate radio spectrum bands. There are major problems here.[vii]

Ofcom's document is silent on who will pay into any industry fund, and on what basis.

Will end users in universal service areas have a choice of broadband supplier?

Ofcom makes clear in its document that *"USO areas will remain open to competition"*. But in the text which follows, Ofcom notes that the USP must be able to directly retail to customers, ruling out wholesale only providers such as Openreach. Nor is there any obligation on the USP to provide other service providers with wholesale access to its broadband connections in USO areas.

Competition is therefore only possible if another operator decides to build its own infrastructure in these areas. This is highly unlikely.

This approach has advantages for the USP. Once it has supplied the USO area it is likely to have customers, and the revenues which they bring, for many years. This is an important factor to take into consideration when calculating the net cost of the USO.

How will the costs of the USO be met?

Drawing on the requirements set out in the EU's Universal Services Directive,[viii] Ofcom indicates that the USP will be compensated for its net costs in meeting the USO through an industry fund. It defines net costs as:

- the incremental costs of rolling out and operating 10 Mbps+ broadband in the universal service areas; *less*
- the incremental benefits of meeting the USO.

These incremental benefits are unlikely to include any additional revenues from existing customers of the USP.[ix] However they will include revenues from customers in the USO area which switch from other broadband service providers when they upgrade to

the broadband universal service. They also include intangible benefits, such as any enhancement to the USP's brand value.

Once these net costs are established Ofcom will decide if they represent an "unfair burden". This process clearly gives Ofcom a lot of discretion to decide on the scale of the net costs and whether they represent an unfair burden.

We have calculated the net cost at up to £500 million or £100 million per annum spread over five years. This compares with BT's operating profits from fixed telecommunications of around £2,500 million per annum.

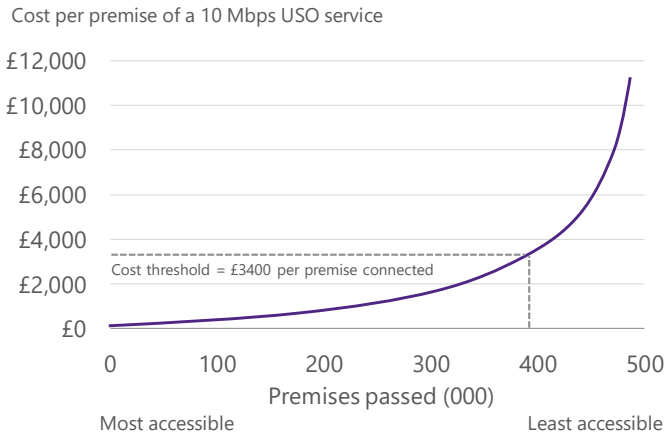
Based on these estimates Ofcom may well be tempted to appoint BT as the national universal service provider (outside of Kingston upon Hull) and determine that the net cost is not an unfair burden. This is what happened with the voice telephony USO.

We also note that the document is silent on who will pay into any industry fund, and on what basis. Previous work suggests that this is an important issue which will have a significant impact on competitive dynamics in the fixed broadband market. Of particular interest is the question of whether the mobile operators should contribute to any industry fund.

How will the £3400 exclusion threshold work?

The USP can refuse to serve premises where the expected connection cost per premises exceeds £3400 and the end-user is not prepared to meet the additional costs. Plum's modelling work has indicated that this will leave around 100,000 premises without access to 10 Mbps broadband.

Figure 2: The effect of the £3400 cost threshold on the number of premises passed



In reality, however, the cost of serving a rural community consists of a large fixed cost for upgrading a USO area for higher speeds, but only a small additional cost per premises.

This means that, if the cost per premises calculation is based on (say) a single premises asking for the broadband universal service, then the average cost per premises connected is likely to greatly exceed the cost threshold.

In such a case, the end user would have to pay the difference in order to be connected – likely many thousands of pounds. The prospects of them doing so are remote.

To deal with this problem Ofcom has suggested that the average cost per premises is calculated on the basis of an assumed long-term take-up rate of 70%. However, this figure is highly uncertain and there will be little evidence on its true, long-term, value for several years.

On the one hand, the overall take-up of fixed broadband in the UK is around 80% of households; on the other many of the premises in the USO area may already receive speeds just below 10 Mbps and thus decide not to switch.

BDUK programmes suggest a five-year take-up of superfast broadband of around 45% (however, there is a price premium for superfast broadband).

There is also a problem in establishing what happens in a USO area where one or more premises agrees to pay the additional connection costs over the £3400 threshold:

- The USP might calculate the average connection cost per premises assuming a 60% take-up at (say) £6000.
- One customer might agree to pay the difference of £2600.
- At this point the 60% take-up assumption is no longer valid. Perhaps only 20% of customers in the area might also be willing to pay the additional £2600 for connection.
- At this level of take-up the average connection cost rises substantially and the additional cost premium which customers need to pay also rises substantially.
- As a result demand declines further and the average connection cost rises again.

The Ofcom document is silent on this matter. One possible way to deal with this problem is for a third party, perhaps the local authority, to act as a demand aggregator.

This party would calculate the premium which end users would have to pay for the USP to roll out the broadband universal service at various levels of demand within the area.

It would then explore with the local community whether there is a willingness to pay this premium, given that the premium will be lowest (and may be zero) if everyone in the community agrees to participate.

Will any operator volunteer to be the USP?

BT offered an alternative to the broadband USO in 2017, in which it undertook to provide 10 Mbps broadband to 99% of UK premises (excluding around 300,000 premises).[x]

The Government declined this offer. The proposed broadband USO is much more demanding in terms of its coverage requirements.

This raises a fundamental question. Will any operator volunteer to become the USP given the problems and uncertainties highlighted above?

The Government's statutory instrument[xi] on broadband universal service does not give it powers to force an operator to become a USP. However, in the event that no operator volunteers as a USP, Ofcom could, almost certainly, find ways of incentivising BT and Kingston Communications to step forward as a USP.

In these circumstances we can expect the debate over the obligations on the USP, the way they are funded, and the designation process to be an interesting one over the next 12 to 18 months.

About Plum

We are a leading independent consulting firm, focused on the telecommunications, media, technology, and adjacent sectors. We apply extensive industry knowledge, consulting experience, and rigorous analysis to address challenges and opportunities across regulatory, radio spectrum, economic, commercial, and technology domains.

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[i] Ofcom (2018), Implementing the broadband universal service obligation, https://www.ofcom.org.uk/consultations-and-statements/category-2/implementing-broadband-uso

[ii] BDUK manages Government-funded programs to supply 24 Mbps+ broadband in high cost areas.

[iii] A competitive bidding process would involve candidates to be the USP bidding to meet the broadband USO at lowest subsidy. It is worth noting that, in contrast to the Ofcom approach, eight other EU member states have used a competitive bidding process in appointing the USP.

[iv] Compared to existing copper access networks, installing fibre generates higher costs. Satellite is ruled out by the USO specification on grounds of high latency.

[v] Connected Nations data show that 2.5% of premises in areas where BT is the fixed incumbent do not currently have access to 10 Mbps+ broadband. These areas include many remote rural areas such as the Scottish islands. In contrast, 19% of premises in areas where Kingston Communications is the fixed incumbent do not have access to 10 Mbps+ broadband, despite the fact that the area served is largely urban or suburban in character.

[vi] Plum for INCA (2018), "*High performance wireless broadband: an opportunity for rural and enterprise 5G*" http://plumconsulting.co.uk/high-performance-wireless-broadband-opportunity-rural-enterprise-5g/

[vii] Ofcom's current approach precludes use of the 3.4-3.8 GHz bands for FWA services. The 3.8-4.2 GHz band could be attractive, but limited availability of equipment for this band precludes economies of scale in the supply chain until the early 2020s. Mobile broadband solutions, such as BT-EE's 4G Home Broadband product, are unlikely to offer acceptable service levels. Ofcom's current licensing regulations constrain FWA operation in the 5 GHz bands to near line of sight (NLOS) operation and uncontrolled levels of interference, which degrade cost efficiency and service quality levels.

[viii] The current EU Universal Services Directive will be superseded by the recently passed European Electronic Communications Code (EECC). This is not due to be transposed into UK law until November 2020, by which time the Government expects the USO to be implemented.

[ix] It is unlikely that the USP will be able to charge more for the broadband universal service than is currently charged for (say) a sub-2 Mbps service offered over ADSL.

[x] See https://www.gov.uk/government/news/universal-broadband-to-reach-every-part-of-the-uk. It is likely that the remaining 1% would have represented the highest-cost premises.

[xi] The electronic communications (universal service broadband) order 2018, 2018 No.445.