



Vodafone Non Confidential Version

July 2015

Response to Ofcom's Consultation:

Business Connectivity Market Review



Foreword

As a leading provider of connectivity services Vodafone is a key stakeholder in this crucial £2Bn+ market; a market which acts as the circulatory system for UK commerce and government, underpinning the economic wellbeing of the nation. The services in this market are at the heart of our business: they allow us to connect our own mobile cell sites delivering 4G services to consumers; and they provide the connections that enable us to serve the United Kingdom's top companies, key public sector institutions and many other communications providers.

As we endeavor to deliver for all our customers we look to Ofcom in this market review to address the consequences of market failure that stem from the enduring economic bottlenecks in connectivity access. Without the right regulatory approach we cannot meet the needs of our customers, nor can we compete effectively, with a resulting consumer welfare loss. While UK end-consumers have little direct interest in the dynamics of this important market, being one step removed from its operation, they ultimately pay the price if the regulatory remedies imposed aren't delivering. Ofcom needs to regulate effectively for these consumers as well as for the businesses who directly rely upon affordable and evolving connectivity solutions in the UK to compete in increasingly competitive global markets.

As a result we believe that Ofcom should:

- tighten the incentives to perform beyond the regulated QoS requirements by assessing compliance quarterly and imposing automatic sanctions;
- introduce a dark fibre product which can be used for all bandwidths by UK communications providers to innovate for the benefit of their customers;
- address the issue of migrations to newer technology and cease the exploitation of buyers with limited or difficult migration paths

In recent years we've witnessed BT enjoy ever greater returns from business connectivity, these excess returns amount to over £1.5Bn over the last three reported years. Much of this excess profitability has been earned not through merit and the skillful management of cost and services, rather it has been earned as a result of a regulatory approach that has shielded BT from many of the commercial realities that it would face in a competitive market. The ongoing Quality of Service crisis in Ethernet products is entirely of Openreach's making and has had a very detrimental impact on service performance and the provisioning of new circuits in particular, with customers waiting over a year for circuits delivery. Astonishingly in this time BT's order book has grown. This isn't an exceptional display of brand loyalty, rather it is the practical reality of market failure. In a competitive market buyers would have voted with their feet long ago and gone elsewhere but BT is very often the only supplier available. As our customers wait, enduring the frustration that is Openreach ordering today, we must, through regulation, introduce remedies that better replicate competitive market outcomes, giving strong incentives around price and performance. This means BT shouldn't see the charge control as a



means of funding SLG payments or to fix staff resourcing issues caused by mismanagement in earlier financial years.

While we welcome Ofcom's decision to introduce immediate starting charge adjustments and a negative pricing glide path, this does not go far enough to eliminate BT's excessive profitability in these regulated markets. We believe Ofcom needs to go further. Long term under-recovery is clearly undesirable, however the risk of it occurring are small, with the checks and balances in the regulatory system ensuring that such an outcome is very unlikely (with any shortfall occurring part way through a control being remedied at the start of a subsequent control). The risk of under-recovery as a result of the regulatory regime is overstated; this has resulted in an overly cautious approach that results in decisions that lead to higher prices at every stage of charge control setting (from efficiency assumptions, through to setting the cost of capital). Instead the industry and consumers are dealing with not just higher prices, but fundamental distortions of competition which accompany long term over-recovery for one operator in the market as a result of an overly cautious regulatory regime .

We commend Ofcom for the work already undertaken in this BCMR, through the charge control proposals and in the review of regulatory accounting attribution, however we would urge Ofcom to be bolder when setting a new charge control, taking a truly balanced approach where the fear of under-recovery is put in context and the much more present danger of over-recovery is tackled head on. It is important for charge controls to create the right incentives and deliver an opportunity to out-perform them, with the ability to retain those additional returns. However, additional returns need to be earned through genuine efficiency savings and careful cost management, they shouldn't be achievable in the steady state because the price control framework isn't challenging enough. Indeed if the charge control framework doesn't deliver a challenge that tries to mimic competitive outcomes, then the overriding incentive effects it seeks to promote is muted, as a business already making a healthy return is less hungry to optimise than one that needs to remain competitive to survive.

Dark fibre is an important new remedy that has the potential to transform the UK business connectivity market from the rigid supplier orientated market of today where consumers of connectivity have terms dictated to them directly or indirectly by an SMP provider, to one that is far more customer centric, adapting to the needs of individual businesses and their locations, freeing them from a BT topology designed in the last century to something designed around efficient routing principles. A new service that is far more adaptable and puts control in the hand of the customers, avoiding the need to confront many of the problems associated with today's market such as migration and platform closure. There is however a real danger that with a pricing approach that is focused around the needs of the current generation of products rather than one which is sustainable in the future and reflects dark fibre itself, demand will be suppressed at all but the very highest bandwidths. We would urge Ofcom to be bolder in its pricing approach, making the new remedy as accessible to as wide a range of customers as possible, ensuring that real transformation occurs on the back of dark fibre availability, delivering customer centric connectivity for all levels of UK enterprise.

As one of BT largest external customer for TI services we consider that it is particularly important that we highlight the importance of TI services to particular customers. Although clearly Ethernet forms the majority of future demand, TI services are, and will continue to be so for the period of this review and beyond, of



significant importance for many customers, and form a substantial part of the installed base of Business Connectivity lines. For some customers the unique performance characteristics of TI services mean that finding alternatives is particularly difficult, for others the change away from TI has massive knock on impact on cost that means it will be many years before such changes can be implemented. Customers know that eventually they must move away, particularly from sub 2Mbit/s services which will no longer be available after 2020, but even in the medium term many have no realistic alternative but to continue to purchase these services. It is vital that Ofcom continues to give these end users pricing protection, recognising that assets used to deliver these services have long since been written down. Ofcom should not permit BT to use pricing as the sole mechanism to force migration, when either through the lack of alternatives available, or concerns around the provision of new circuits it will not incentivise migration at all. Instead it will allow BT to exploit consumers who have limited options and little support to transition their services and may be reluctant to migrate at time when confidence in Openreach's ability to deliver new services is at an all-time low.



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1. Executive Summary

BCMR 2015 is well timed to address an exploding market for fibre-based connectivity, that has for the last 2-3 years been under-served by BT's regulated products. BT's prices are substantially above costs and poor service characterises the customer experience. BT has failed to address increasing customer demand, therefore it has been a challenging experience for BT's wholesale customers. Commercial discussions have failed to improve the experience; our hope is that regulatory pressure will address these shortcomings. Key areas for action include:

Excess Profits

Since the last review we have undertaken analysis to understand BT's profitability. Our 2013 review has highlighted that BT has made £4.9 Billion excess profits across its regulated services between the years 2005/6 and 2012/13. Approximately half of this excess comes from the supply of corporate products. When repeated in 2014 to add the year 2013/14 the excessive returns continued to be evident with the year 2013/14 alone showing over £600 Million excess overall and £500 Million for corporate products¹. Excessive returns in SMP markets have a number of recognised detrimental effects upon the market. In particular inappropriate over-recovery by BT can skew downstream competition, create false investment signals, both of which create long term detriment to the proper functioning of the market. In the run up to this review we have provided Ofcom the detail of our findings and provided LLCC recommendations on how this could be avoided in the future.

BT's excess profits are an important background story to the impact of BT's SMP and the package of measures that Ofcom proposes. We believe that the proposals make inroads to this but further improvements should be made which we discuss in our response to the LLCC.

Regulating quality

We applaud Ofcom's proposals to put in place backstop minimum service standards for quality of service. Minimum standards should represent the lowest level of service we might encounter and consequently BT must rise to the challenge of keeping service levels well above these minimum levels.

We recommend that the breadth of service covered by the proposals be extended to include higher bandwidth services, dark fibre and accommodation and interconnection services. All of these services are just as important to the customers purchasing them and BT should maintain high service standards for all of its products.

CPs suffer reputational damage from BT's inability to meet its service promises and therefore it is key that BT's KPIs are public and published regularly so failings by BT can be clearly identified and that any reputational damage is squarely passed to BT. We consider that compliance should be measured on a quarterly basis. Failure to meet targets should be dealt with via automatic fines rather than drawn out reviews. We further recommend that there is a link between penalties and the level of profits which BT

¹ Post submission of our confidential version BT has released its 2014/15 RFS which show a continuing trend in excess profits and brings the total excess over the period 2005/6 to 2014/15 to £7.9 Billion



is permitted to make as is in the case in other regulated sectors. Linking performance with permitted returns will eliminate short term cost cutting that has long term lasting damage to service.

These proposals will provide a vastly improved framework. It remains important that the finer detail is crystal clear to prevent gaming and the Ofcom remains on the ready to intervene in this highly contentious area.

Passive access

We support Ofcom's proposals to put in place a new dark fibre remedy. We consider that this remedy is essential for ensuring availability of bandwidth services required to deliver the backhaul for mobile broadband and for the increasing bandwidth demand of enterprise users. Ofcom finds the Ethernet market is set to grow by circa 25% over the period with 100Mbit/s being the key bandwidth^[1]. This period will therefore be an important period for establishing competition and it is disappointing that the bulk of installations won't be able to enjoy the benefit of dark fibre.

We consider that dark fibre represents the same opportunity for competition and service innovation that occurred when dark copper (LLU) was made available.

Vodafone sees BT dark fibre as complementary to its existing network infrastructure. With dark fibre we will be able to extend and further invest in our infrastructure.

Dark fibre will be the first significant product launched by BT since EAD and this is an ideal opportunity for Ofcom to level the playing field. By ensuring EAD type constraints are not applied to dark fibre, CPs can invest in network infrastructure without having to align it to BT's footprint thereby reducing inefficient investment and continuing to perpetuate BT's SMP status. A passive remedy without these restrictions will also ensure BT lines of business are not unfairly advantaged when consuming the service.

Dark fibre pricing must be set so that the resulting products do not merely substitute EAD, therefore dark fibre should include options:

- of per metre pricing for situations where the service taken is far removed from EAD;
- of either a single or a pair of fibres for a similar price (not 2 fibres for almost twice the EAD rate)
- to connect to the fibre without any need to route via a BT exchange. The key benefit of dark fibre is that it can be broken out at any jointing box and there is no need to impose BT's network architecture on competing providers.
- of using dark fibre for a range of distance limits which loosely match the capabilities of all types of equipment

We fully support the requirement of this remedy which is needed to propel services to greater competition and enable genuine scope for innovation. We consider the proposals we make work within, and improve, the proposals.

^[1] As shown by Ofcom's forecast projections Ethernet grows from circa 160,000 circuits to circa 210,000 circuits by the end of the control (Figure 8.26 LLCC)



Migration

Customers who are using legacy platforms at end of life are subject to market failure due to the inadequate support provided by BT to migrate to a new platform. Attention to end of platform customer migration (as a result of decision that BT has taken) is required in order that processes and support is comparable to that of a competitive market².

It is clear that BT continues to exert its market dominance to the migration process, failing entirely to deal with migrations in a customer focused manner.

We are currently in the midst of WES to EAD migration, Ofcom has identified the issue of sub 2Mbit/s migration and it is likely we will eventually be faced with higher bandwidth migration. Indeed, Openreach has now signaled the end of TDM-Access, which was introduced to handle migration off WES155/622.

It has become evident that any migration policy which relies upon the increase of prices to incentivise migration only serves to benefit BT's profitability. We consequently support Ofcom's proposals to put in place one off price reductions and ongoing CPI minus controls for these services to protect remaining users from excessive pricing.

Further regulation is required to ensure that BT treats migrating customers in a competitive market manner. For instance:

- It is necessary to introduce an obligation to require BT to supply an efficient managed migration service for all leased line products;
- Charge controls are designed with a presumption that the efficiently incurred costs of migration are to be included in the costs of the new service, rather than being passed on to existing customers. This would encourage BT to undertake minor product updates, such as the move from WES to EAD, as an internal technology upgrade;
- Positive incentives are required for BT to help customers who face significant costs adapting internal systems to the new product.
- No restrictions should be placed on the in-life product to be migrated to. For example with the current WES to EAD migration a CP cannot migrate from a WES to an EAD LA service and this would disproportionately favour BT lines of business. This is because BT lines of business will have closely followed Openreach's network roll out and would have many more like for like migrations (e.g. WES LA to EAD LA) than other CPs.

Geographic regulation

Ofcom proposes to deregulate Ethernet in the Central London Area despite finding that BT has 55% market share at the primary market bandwidth and a number of other indicators that demonstrate its market wide SMP.

We disagree with the proposals for the CLA, both the proposals defining the CLA and the proposal to deregulate CI services within the CLA:

² The report at Annex 1 illustrates that in a competitive market a customer is largely unaware of change to service as the they are simply notified of down time



Defining CLA

It is true that there is more alternative network infrastructure in some central London locations than elsewhere in UK. However network presence alone does not create a competitive market, it is in fact an interlinked set of circumstances which result in a competitive market. Where Ofcom focuses upon the existence of alternative network this must be the presence of the network at, or very, very close to, the customer premise. Indeed, in the case of business services it is necessary to be present or very close to the *list* of sites the customer wishes to connect to.

It is clear to us that incumbency at a premise is critical to the winning of a wholesale or retail customer contract. BT are at most buildings and the high cost of digging renders business cases a challenge unless we are outside the door of the building. In most cases prices are already at a level that make business cases a challenge. The charge control for this market review removes more of BT excessive returns and therefore decreases further the margin between the cost of digging, the time period over which it is taken to recoup the costs, and the returns achievable. Any analysis of dig distance must consider the forward pricing framework of the 2015 LLCC proposals.

SMP in CLA

We do not agree with Ofcom that BT does not have SMP for CI services in the CLA area.

Ofcom finds that the competitive conditions for the supply of CI services are the same regardless of bandwidth. BT's excessive returns for CI services, including in the proposed CLA, indicates that competition is an insufficient constraint upon pricing. BT has high market shares across the board:

- In aggregate across the CLA for CI services market share is 44%,
- for the main product by volumes sold, 100Mbit/s it is 55%,
- for mobile backhaul it is 89%,
- at 1Gbit/s the share is 34% and
- for the low volume emerging 2.5 to 10Gbit/s bandwidth it is 11%.

In light of the fact that the key bandwidth is 100Mbit/s, we consider greater prominence should be given to competitive conditions and market shares at this bandwidth

Medium bandwidth PPC regulation

We do not agree with Ofcom that 34/45/155Mbit/s PPCs should be deregulated. Largely these services are installed circuits, there are few new circuits supplied at these speeds. It is important that Ofcom protects these customers, who made purchasing decisions, in some cases, years ago. It would be wrong to penalise their perfectly acceptable choice of service, just because there are alternatives on the market today. We should be clear, this market is not competitive, and there has been no change to competitiveness since the last review. Ofcom has simply decided it doesn't need to protect these customers any more. We consider the decision is wrong and additionally find it a curious anomaly to propose to deregulate bandwidths that sit between regulated CI bandwidth services. If there are competitive constraints for the provision of 100Mbit/s and 1Gbit/s with BT having SMP the same holds true for the intermediary PPC bandwidths. We believe that BT has ongoing SMP in providing these services.



2. Introduction

Ofcom's Business Connectivity Market Review will determine the effectiveness of competition in the supply of telecommunications services to business customers over the next three years. We're experiencing market failure in the supply of wholesale access products and as a result poor quality of service, inadequate migration solutions and excessive prices that would not be witnessed in a more competitive market.

Ofcom has rightly addressed quality of service; the introduction of dark fibre remedy and a stringent charge control to address historical and current pricing issues. Of further concern to Vodafone is the need for regulatory policy and remedies to address the closure of BT's platforms and the removal of regulatory redress for existing and new customers where we continue to see BT have SMP.

Our response follows the structure of the Ofcom consultation document in the following format:

We start with an overall summary of our key points and concerns.

We then answer the specific questions Ofcom has raised.

Section 3. Market definition for the proposed CI market

Section 4. SMP analysis for the CI market

Section 5. Geographic markets

Section 6. SMP analysis in CLA

Section 7. Core conveyance proposals

Section 8. Migration

Section 9. Market definition – Tradition Interface

Section 10. SMP analysis for TI services

Section 11. Hull Market Analysis

Section 12. Passive remedies

Section 13. Remedies

Section 14. Quality of service

Our response is supplemented with a number of Annexes:

Annex 1: a report on the requirement for a migration policy / change to existing policy by Tower House,

Annex 2: a case study review of QoS in other sectors and how we can improve our regime by adopting some of the characteristic deployed by other regulators by Frontier,

Annex 3: a dark fibre requirements document by Vodafone UK Technology.

Annex 4: OTA summary document of CP requires for Ethernet SLA/Gs

Annex 5: sample rules to resolve the issues of deemed consent



Vodafone is a member of PAG and additionally we rely on the PAG reports:

Annex 6: geographic markets by Tower House,

Annex 7: dark fibre pricing report by Frontier



3. Market definition for the proposed CI market

We agree that customer take up of bandwidths is now more fluid, removing the bandwidth and technology breaks in the market that were evidenced in the past.

In the majority of cases, customers simply use the bandwidth needed to support their applications and this decision is made in conjunction with their budget.

We agree a wide market definition reflects the market characteristics.

We agree with Ofcom's assessment that the product and bandwidth specific boundaries are now removed and that a single bandwidth market is in evidence. Changes in market pricing have made progression up the bandwidth chain more economically viable and have also extended the viable bandwidth range. The chain of substitution has consequently resulted in an ongoing chain only restricted by the progress of the customers' needs rather than a firm cut off between bandwidth markets.

As an example we have recently received a customer order to change out a 64kbit/s network for a 100Mbit/s network! A jump of this magnitude would not have been conceivable in the past³³. Given the commercial pricing structure of 10 and 100Mbit/s, Ethernet 100Mbit/s has now become the Ethernet entry product, which our customer proposes to move to. The customer is able to continue to run its existing applications and add additional capabilities over the greater capacity of the new 100Mbit/s circuit.

All CI services rely on the availability of fibre to a customer premise. BT's network ubiquity, gained in the period of market monopoly continues to be leveraged to BT's competitive advantage. Only BT has nationwide duct access. It is the duct access resulting from being the former monopoly communications provider which makes upgrading customers from copper access or installing new and incremental fibre so much cheaper for BT than its competitors. It is our understanding that TI services had circa 40% of services provided over fibre. This meant when the market transitioned to Ethernet, BT started with at least 40% of its fibre requirements already in the ground. It is undeniable that a CP with existing network connectivity to a premise has a cost advantage that cannot be met or matched with dig distances of more than a few meters. In conclusion we regard that competition in the provision of CI services is greatly predicated by the extent of network already in the ground and more importantly the existing connectivity direct to the customer premise to be served. We consider that this view of competition holds across the CI market with BT having SMP overall throughout the UK.

There are of course distinct sectors in this wider CI market. For instance mobile backhaul has particular characteristic of requiring services to unserved premises on a national basis, a high volume of circuits

³³ In knowledge of the 64kbit/s platform closure our customer is moving to more modern technology as his existing contract runs to a close



provided on a longer term basis and requiring specific technical characteristics such as synchronisation. There is no doubt that BT has little if any competition in mobile backhaul.

Question 4.1 Do you agree with our approach to wholesale product market definition and our proposed wholesale market definitions in relation to services provided using contemporary interfaces? In particular do you agree with our proposal to define a single product market for CISBO services? If not what alternative would you propose and why?

Yes, we agree with Ofcom that there are no longer distinctions within the "CI" market, and that separate AI and MI bandwidth markets do not exist.

A bandwidth break in substitution no longer exists between 1Gbit/s and higher bandwidth services, this is a result of;

- user demand continuing up the bandwidth hierarchy
- the reduction in price differential between bandwidths and the capability to obtain stepping stone bandwidths at the retail layer e.g. increments of 1Gbit/s, and
- overlapping bandwidth capability of technical solutions.

We agree that Ofcom is correct to move away from the AI and MI market distinction and that a single market CI can be used, if all demand side requirements are factored into remedies.

EFM

We consider that the competitive conditions for EFM as part of the CI market are not adequately explored. Ofcom provides no data on EFM market shares. We consider that EFM is of high risk of being monopolised by BT and a high risk of inadequate regulation applying as it falls in a gap between two markets.

EFM is provided by using legacy LLU equipment in BT exchanges. It requires the provision of multiple pairs of copper in order to provide the bandwidth. EFM is a substitute for low bandwidth Ethernet, it is a poor substitute, and is used primarily because it is cheaper to provide EFM Ethernet rather than fibre Ethernet. Given that this effectively reduces the number of 10Mbit/s Ethernet circuits that would otherwise be bought, we believe that it is necessary to add the volumes of these EFM self-provided circuits in as a virtual count, into the Openreach Ethernet volumes. Recent data shows that BT Wholesale has completed an extensive rollout of an additional 900 EFM nodes between July 2014 and June 2015 and has now surpassed 1775 live EFM nodes. [8<] Vodafone is investing in NGA rather than legacy MPF for its consumer broadband proposition. We therefore disagree that Ofcom has sufficiently examined the provision of EFM and has falsely concluded that its supply is competitively supported by LLU/MPF.



4. SMP analysis for the CI market

It is our view that BT's network ubiquity, gained in the period of market monopoly continues to be leveraged to BT's competitive advantage.

100Mbit/s is the mass market product for this review period. Market conditions at this bandwidth should carry additional weight when concluding whether SMP is in evidence.

Question 4.2 Do you agree with our assessment of competitive conditions for very high CISBO services. If not, what alternative would you propose?

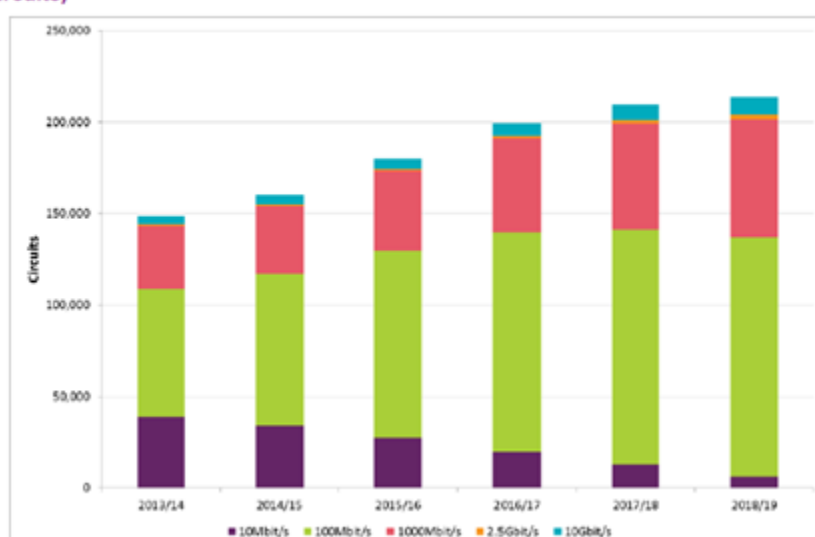
Yes, we agree that competitive conditions for very high CI bandwidths are similar to other CI bandwidths.

Although total volumes remain low overall they are expected to rise to 10% of the market. We see this both from the demand of our customers and also from our own requirements for mobile and fixed backhaul. We expect that over the course of the coming market review period more users will "step up" a bandwidth from their current demand. This is evidenced by the volume forecasts shown in the LLCC Figure A8.26.

Ofcom's volume forecast (replicated below) shows that by the end of the review period:

- a decline in 10Mbit/s services
- growth in all other bandwidth categories
 - growth especially at 100Mbit/s (which is the real market volume product for the period)
 - steady growth of 1Gbit/s and higher bandwidths

Figure A8.26: Ofcom forecast volumes for Ethernet and WDM services (number of circuits)



Source: Ofcom LLCC

It is evident that users do progress up the bandwidth chain and that pricing has a huge influence on the pace of this progression. For example the decline in 10Mbit/s is attributable to BT's decision to price both 10Mb/s and 100Mbit/s comparatively and take up of EFM.



All CI services rely on the availability of fibre to a customer premise. It is our view that BT's network ubiquity and SMP in TI services, gained in the period of market monopoly, continues to be leveraged to BT's competitive advantage. Only BT has nationwide duct access. It is the ex-monopoly duct access which makes upgrading customers from copper access or installing new and incremental fibre so much cheaper for BT than its competitors.

We agree with Ofcom that the competitive conditions for the supply of very high bandwidth CI are similar to lower bandwidth CI.



5. Geographic markets

While we support Ofcom's proposals to make changes to the geographic market analysis approach, compared to the last BCMR, we consider the adjustments fall short and will lead to an incorrect picture of potential competition. The dig distance used in the analysis (100m) over-estimates a CPs ability to economically compete and takes no account of further price reductions proposed in the LLCC. Further, Ofcom has chosen not to use the 'principle operator' methodology used in other Market Reviews with curious results.

Ofcom proposes to define a geographic market of the central London area (CLA) as it believes that the higher levels of alternative network infrastructure should mean higher levels of competition. The data and analysis do not however agree with Ofcom's proposals.

The alternative networks are not new. The evidence shows that BT has sustained market share at levels above the SMP threshold for the last three market review periods. For the 100Mbit/s bandwidth, which is the main bandwidth service sold in the market; BT has a market share of 55%. For mobile backhaul, BT has a market share of 89%.

Alternative CPs have provided data to demonstrate that in 2013, dig distances in the CLA were very short, with only the odd outlier. Of Vodafone's [8] London digs just 3 were at or over 100m. Even though Ofcom has reduced the distance of dig it assumes is economically viable, our data demonstrates that this is not being borne out in the market where digs of 40m and less make up 70% of our construction activity. BT has been able to sustain market shares above the level of the SMP threshold and well above regulated rates of return despite the greater extent of alternative networks in the CLA. We do not consider the evidence of competition and the prospect for new network build warrant deregulation of BT in CLA.

Question 4.3 Do you agree with our approach to geographic market definition and our proposed geographic market definitions? In particular do you agree with our proposal to define the CLA and the LP as separate geographic markets? If not, what alternative would you propose and why?

No, we do not agree with the approach to geographic market definition. Further analysis and reasoning is set out in the PAG geographic markets submission (found in Annex 6) in response to this question.

When evaluating the market Ofcom considers:

The presence of alternative networks

We consider that the principal operator concept should be employed and that two principal operators and BT need to be present in the proposed geography. A principal operator would be a wholesaler of services.

As it does with access competition for the competitive core, Ofcom should exclude from the analysis smaller operators unlikely to impose a material constraint overall.

Place greater emphasis on connected buildings

We consider that the market analysis is overly reliant on the prospect of new network build occurring and pays insufficient weight to the existence of connected buildings. Ofcom should evaluate the connected buildings of the principal operators and BT. Where a CP is already incumbent at a site, any subsequent CPs need to have very low connection costs in order to compete against that incumbency.



Dig distances

The dig distances that Ofcom takes into account to connect a new site should be very short (our, and industry evidence suggest that this is little more than a few metres) and should be specific to the data that applies to the CLA. As shown below of our [8<] London digs in 2013, just 3 were at or over 100m. 70% where of either 40m or less. Ofcom appears to have taken a nationwide measure of dig distances which isn't reflective of the economics and practicalities of digging the road in CLA. We show in the second chart that a nationwide view can be very different to a London view. We consider CLA specific data is necessary for this decision. Ofcom does not appear to take account of the potential for dig distances to fall as a result of lower market prices for wholesale and retail services following the LLCC proposals to reduce BT's service charges by circa 40% over the review period.

[8<]

[8<]

In conclusion we do not consider that Ofcom has taken account of all of the facts or given due prominence to the key facts. There is little new network competition in London and BT's market share has sustained itself over long periods.

6. SMP analysis in CLA

Ofcom proposes to deregulate Ethernet in the Central London Area despite finding that BT has 55% market share at the primary market bandwidth and a number of other indicators of SMP such as excessive pricing are apparent.

Premature removal of SMP in the CLA will lead to higher prices for existing customers, who have no regulatory protection on circuits already purchased. With price publication and equivalence obligations removed, the outcome for existing customers is bleak.

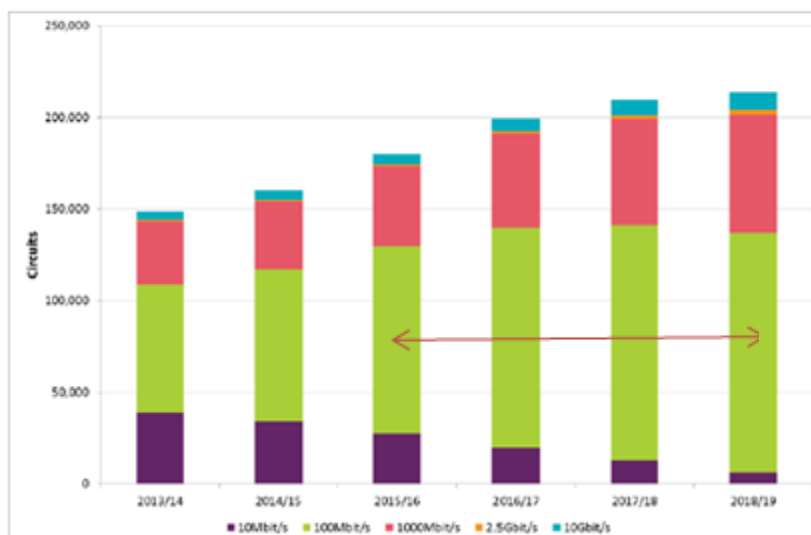
Question 4.4 Do you agree with our approach to SMP assessment? In particular, do you agree with our proposal to find no CP to have SMP in the market for CISBO services in CLA, and to find BT to have SMP in the markets for CISBO in the LP and the Rest of the UK. If not, what alternative would you propose?

No, we do not agree that BT does not have SMP in the CI market in the CLA. The views expressed below echo those of the PAG Geographic markets report found in Annex 5.

Competition at 100Mbit/s should be given higher weighting in decision making

We consider that Ofcom's analysis is flawed. The BCM and LLCC documents clearly show that 100Mbit/s is the main bandwidth service being sold during the review period. We illustrate this below using Ofcom's volume forecasts.

Figure A8.26: Ofcom forecast volumes for Ethernet and WDM services (number of circuits)



Source: Ofcom LLCC

It is our view that Ofcom should take greater consideration of the competitive indicators at 100Mbit/s which we discuss below.



Bandwidth market share evidence

As a primary indicator, using the market share at 100Mbit/s is a way of assessing SMP. However overall market share indicates that BT has SMP in the CI overall (which we discuss fully below). In aggregate across the CLA for CI services, BT has high market share of 44% by total volume.

That aggregate market share number varies when split into bandwidth categories. Importantly BT has 55% market share at low CI bandwidths - 10 and 100Mbit/s. BT also has 89% market share in WECLA for mobile backhaul. Only in the very high bandwidth area does BT have market share below SMP levels. These facts call into serious doubt a finding of no SMP.

A logical analysis of competitive indicators

We consider that Ofcom's analysis should incorporate the following competitive considerations:

- Ofcom does not review the trend in market share for the WECLA / CLA. We find that BT has held the same levels of market share for a continuous time period (2007 to 2014). In aggregate (i.e. at the level that the market has been defined) these levels are above the SMP threshold and for most individual categories of service the market shares are also well above the SMP threshold.
- Ofcom does not consider how changes in market pricing impact upon the distance of digs that will be considered by CPs. BT's high service profitability will potentially have led to past inefficient network build based upon false pricing signals. The LLCC proposes one off price reductions and then annual price reduction which over the course of the review period will reduce service prices by an average 40%. This price reduction will have a knock on effect on alternative build economics and viable dig distances. It is not evident that this has been taken into account.
- Although removing smaller operators when reviewing competition for core sites, Ofcom does not make a similar adjustment in the CLA analysis. We find that Ofcom includes all networks in the CLA analysis. It makes no distinction as to whether they are principal operators as is the case in the WBA geographic market analysis. By including all network operators regardless of wholesale services they offer, again exaggerates the impact on competition of individual networks. Business Connectivity services are usually multi-site and therefore not being able to access one particular site, can preclude a supplier from the bidding process.
- Ofcom has not analysed how often CP are successful in customer bids when new network infrastructure is required. There is an implicit assumption that the potential to supply (based on Ofcom's view of the correct criteria) is equivalent to a competitive constraint.
- Elsewhere Ofcom says caution over prospective build is required (A13.101). Yet in the CLA decision this caution is not present.



- Ofcom acknowledges there is an argument for deploying a shorter dig distance of between 50m and 100m^[2]. We believe that the dig distances which resulted in Ofcom selecting 100m represents a UK wide average rather than a London average. London has known higher costs per metre and it is more difficult to dig in London due to the impact on traffic. Ofcom does not provide data on London specific dig distances which we consider is necessary.
- Customers often distinguish between operators on the basis of factors relating to the supplier's scale outside the CLA. For example, in relation to LLU and MNO backhaul, there is a preference for suppliers who can offer connectivity across a wide geographic area. Ofcom does not take account the potential for leverage from uncompetitive geographies into the CLA.
- We consider that this leverage is in evidence for mobile backhaul within the CLA. Even though there is evidence of greater alternative network in CLA, BT has a market share of 89% for mobile backhaul. As a purchaser of mobile backhaul we are aware that even when alternatives to BT do exist in CLA we do not use them. This is simply because of our UK wide requirement and the structure of BT's UK wide discount options. Many corporations have sites UK-wide and therefore the leverage effect is an important consideration.
- Ofcom does not consider its data on customer contracts which shows that 60% of customers have contracts of 2 years or less. Only a subset of the 40% of (longer contract duration) customers would have contracts long enough to *potentially* justify build pay back, making the prospect for competition from new build a small sub set of the customer base. Ofcom has not considered the higher barriers to switching in its SMP analysis. For an existing customer to switch away from BT's network entirely to an alternative network there will be ECCs as well as the standard connection charges. Changes to BT's market share as a result of competition are likely to be far slower in the business connectivity markets as customers are more sticky and likely to await a major event such as a technology change before contemplating investing in an entirely network connection. Ofcom does not consider the likely speed of change to BT's market share over the review period.

The extent of deregulation proposed is unprecedented. The deregulation amounts to full deregulation of an entire product market on the basis of effective facilities based competition. In the region of 30,000^[3] customer circuits will no longer be subject to Ofcom's regulatory protection. We find this an incredible state of affairs, given that the customer will perceive no difference in his circumstances between 31 March 2016 and 1 April 2016, apart from potential price rises. Ofcom has deregulated many markets before, but these have either been underpinned by regulated access to BT's network in upstream markets (e.g. market B in the WBA market review), or relate to a small product niche (e.g. MISBO in the WECLA).

Overall we consider that Ofcom has placed far too much emphasis in its analysis on the theory that a greater presence of alternative network must translate into greater competition. We consider that a key number of facts are not addressed during the SMP analysis. When considering each additional fact we are of the view that Ofcom would find BT to have SMP in CLA and certainly when consider all the facts in aggregate.

^[2] Footnote 104 BCMR 2015

^[3] Number of CLA circuits taken from Table 4.4



Ofcom should take a balanced approach, giving greater weight to:

- evidence on fibre connected buildings and its effect on switching costs; and
- Benefits of extensive network reach
- Changes in economics post LLCC
- Competitive conditions for the 100Mbit/s bandwidth

The PAG Towerhouse report also reviews the geographic market analysis for CLA. We are in agreement with those findings which cast into doubt a decision not to designate BT as SMP in CLA or LP. Towerhouse recommend that Ofcom revisit the analysis and:

- Distinguish between operators in the analysis for both market definition and competition assessment on the basis of differences in the impact that each operator has on competition;
- Include the location of existing demand in the modelling of potential demand; and
- Reassess all market boundaries using the latest available evidence and latest agreed assumptions.

We consider that these recommendations still well with our own and are not insurmountable for Ofcom to contemplate. Ofcom will already hold all of the information required to add the further steps to its analysis.



7. Core conveyance proposals

Question 4.5 Do you agree with our approach to product and geographic market definition for wholesale CI core conveyance services and do you agree with our proposed market definitions for wholesale CI core? If not, what alternative would you propose and why?

Connectivity from the core sites that Ofcom discusses in this section is used to provide essential backhaul services which in turn serve many markets. These services are critical and therefore removal of regulation must follow only after rigorous analysis to ensure that the data used to designate competitive locations is correct.

Ofcom proposes that sites at which there are two or more CPs in addition to BT, plus where that CP is proven to have its own network less than 200m away will lead to a designation of competitiveness. We consider that Ofcom should only designate actually connected sites and exclude those that are not connected but within 200m. Without explanation as to why these are not connected sites already we must presume this is for good economic / operational reason and will not change merely in response to regulatory change.

The appropriate analysis approach

We consider that a comparable approach to analysing geographic markets for the CLA and LP should be employed:

When evaluating the market Ofcom needs to consider the following⁴:

The presence of alternative networks

We consider that the principal operator concept should be employed and that two principal operators and BT need to be present. A principal operator would be a wholesaler of services.

We agree that Ofcom should exclude from the analysis smaller operators unlikely to impose a material constraint overall.

Place greatest emphasis on connected locations

We consider that Ofcom should only base its decision on the sites which presently have the prerequisite of alternative network operators present. There will be good economic or operational reasons as to why nearby CPs have not already connected up an exchange. In addition the outcome of Ofcom's decision on the EAD differential will have a bearing on whether additional exchanges will be connected up in the future. Ofcom does not appear to take this into consideration.

Dig distances

Dig distances to connect a new site should be short. Ofcom does not attempt to discover the reasons behind CPs not connecting at locations. Ofcom does not appear to consider the prospective dig distances in light of lower market prices for wholesale and retail services following the LLCC proposals to reduce service charges by circa 40% over the review period. Ofcom must assure itself that locations to be deregulated have the capacity for external cable links to be ordered. We highlight in response to question 11 the problems for accommodation and interconnection services.

⁴ this list is consistent with the analysis approach to defining the CLA



In conclusion we consider that the competitive core is smaller than Ofcom proposes.

Question 4.6 Do you consider that our list of candidate competitive exchanges and data centre locations are correct?

Yes, Ofcom data about Vodafone appears correct.

With respect to the data centres on the list provided by Ofcom for the information request, we confirm we have onnet circuits at all locations with the exception of [8].

Question 4.7 Do you agree with our assessment that connectivity between candidate nodes and data centre locations are competitive?

We discuss above our views on how the analysis should be undertaken. Where locations meet our criteria we agree with the competitiveness assessment.



8. Migration

Ofcom identifies the migration from legacy platforms will need to occur during the review period. Legacy services continue to make up over 45%⁵ of the business connectivity market. Users of these services either continue to value the service provided or have other operational reasons for remaining with the legacy service.

The failure by BT to appropriately support the migration of customers is a reflection of its Significant Market Power. Ofcom forecasts that during this review period at least 75,000 circuits will need to migrate⁶. In a competitive market the supplier would incur the costs and management to avoid losing the customer. BT is able to make migration complicated and costly because it profits from the delay, it can charge again for the new connection as it can expect the customer to migrate to another of its SMP services.

Historically migrations have been encouraged by raising prices of legacy services. We consider that higher service pricing has simply contributed to BT's excess profits, and totally failed to support customers to migrate. We consider that migration policy needs a fundamental rethink with obligations placed upon BT to facilitate the cost and process of migration. It is a regulatory failing to only protect the adopters of the newest service. We consider migration to be an unresolved void in the set of remedies which we recommend is dealt within this review.

Migration policy

BT's pan-market SMP has resulted in a substandard approach to supporting customers through platform closure. In a more competitive market migration would be handled very differently, as the competitive supplier would want to ensure no loss of customers as a result of the transition.

Compare BT's stance of raising prices at the end of life of a product with its proposals to migrate customers, some 10 years ago under 21CN, where BT Wholesale proactively offered compensation and other help for CPs in order to smooth through its proposals.

We recommend that more consideration is placed upon end of platform migration policy, such that BT could be incentivised to better mimic the functioning of competitive markets. There is a failure within the market and the current regulatory framework to put in place adequate and appropriate migration / switching options. For instance by requiring BT to continue to provide the service required until it has supported the customer through a migration path. The cease and reprovide migration scenarios on offer from BT simply could not be sustained in a competitive market.

The current SMP framework remedies do not adequately mimic the outcomes that would occur in a competitive market. In a competitive market a supplier would not wish to give the end customer the opportunity to rethink its service supply options and risk the loss of the customer, therefore the supplier would do all he could to ease the transition for the customer.

⁵ This shows only TI and WES would add to that count. Data on WES circuits remaining is not available. Ofcom does not split the forecast to show this and the BT RFS only show non WECLA. Therefore this number is conservative.

⁶ LLCC TI forecast Table A8.8



BT has SMP in all the relevant access markets; the markets that customers are migrating from and the markets they are migration to. As a result of this, BT does not treat the migrating customer in a manner comparable to a competitive market as the risk of losing customers is markedly reduced, if indeed, at all present.

To date Ofcom has permitted BT to raise prices on legacy services. For some end customers this has prompted proactive migration. For the remaining customers increased prices do not and will not act as an incentive to promote migration. The result is simply higher profits for BT for the ongoing life of the service and a postponed migration headache.

Migration proposals

BT has notified that the platform that supports sub 2Mbit/s circuits, will close in 2020. This creates an enormous overhead for CPs, and yet at the same time, BT is allowed to recover more than its costs⁷, in the same time period. This feels like an imbalance of risk and reward. The number of circuits that will be required to be migrated before this date is substantial. Ofcom shows that T1 volumes will reduce by 75,000 over the review period! Ofcom proposes that BT must give a period of no less than 12 months' notice of platform closure. This would be fatal for a number of customers if a period this short was to be implemented. Customers will plan ahead capital expenditure, project management and systems development months if not years ahead. 1 year notice from beginning to end would give customers (at current delivery rates of 60 days delivery) approx. 9 months to order an alternative circuit such as EAD (and that assumes that BT could deliver such a volume in a short time scale, which given current performance is high risk). The time frame fails to reflect the need to swap out the equipment in the customer's network and the sheer volume of orders that BT would need to manage if it really only gave 1 year of notice. Indeed, Ofcom itself notes that many critical infrastructure customers who use these services have long, regulated investment cycles. We urge Ofcom to reconsider this proposal and set the minimum notice period to be at least 3 years. Customers can plan, if they have certainty; 1 years notice does not give them any certainty and in fact leaves them with little room to react usefully.

As set out in the report commissioned by Vodafone and attached at Annex 1, we consider that new regulatory obligations for migration are necessary. BT should be required to support the migration of customers to newer and more efficient technology (where it is choosing to close platforms) by way of managed down time at BT's cost in the same way that alternative network providers do (this would be the case in straight WES to EAD migration). In more complicated situations BT should again undertake the management (and cost) of transition to a replacement service. In the later situation where end user on site technology refresh is required it will be necessary to fit plans with the end users own deployment program.

⁷ As charges glide during the charge control toward their FAC cost



9. Market definition – Traditional Interface

Ofcom has recognised that the characteristics of the low TI market have not changed since the last market review. BT retains the largest market share across all bandwidths, primarily due to the large installed base, rather than any significant volumes of new supply (across any bandwidth). For this very reason, Ofcom should not withdraw from regulation of medium speed PPCs, as it is existing customers, not customers in a forward looking market that will suffer.

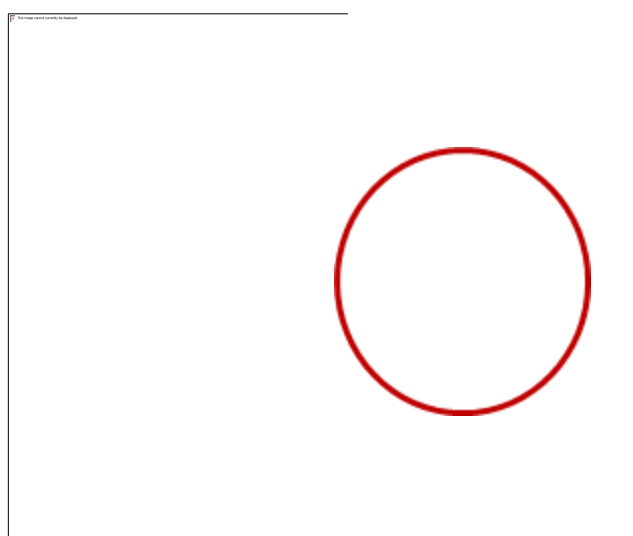
BT is proposing to close down a subset of the PPC portfolio (sub 2Mbit/s circuits), which sits on a separate platform. PPCs are a mature product with a substantial, nationwide installed base using a well understood and ubiquitous service.

This installed base, which totals approximately 45% of all business connectivity connections requires the same level of regulatory support as a new or emerging products or markets. Ofcom's current policy of allowing BT to raise prices towards the end-of-life of a product or platform, with no other customer support, abandons customers when they are most at risk from an incumbent supplier.

Ofcom's LLCC charge proposals for PPCs recognises the over-recovery of the previous market review. The price reductions improve incentives upon BT to be more proactive about offering decent migration paths to avoid a high number of circuits remaining towards the low bandwidth platform closure date. However there remains a need to address the practical issues associated with migration from a platform closure, for instance requiring BT to provide a greater level of project and process support.

TI leased lines continue to make up a substantial part of the business connectivity market, presently circa 45% of the installed base are TI circuits. TI is a mature technology, users continue to value the bandwidth and technical characteristics that it offers.

Excess Returns from TI Products



Source: Frontier Economics



Increase in WACC	2006	2007	2008	2009	2010	2011	2012	2013
TISBO up to and inc 8Mbit/s	4.3%	1.3%	9.2%	7.6%	11.8%	21.6%	28.8%	43.4%
TISBO above 8Mbit/s up to and inc 155Mbit/s	0.1%	15.9%	8.2%	8.9%	18.6%	20.7%	41.2%	31.3%

Source: Frontier Economics

Question 5.1 Do you agree with our proposal to identify a single product market for TISBO services at low bandwidth with a single geographic market for the UK? If not what alternative do you propose.

Yes, we agree that the TI low bandwidth market continues to exist. Ofcom has identified that BT continues to have 89% market share in this market segment.

We equally consider it to be appropriate for Ofcom to designate a wider bandwidth market which includes sub 2Mbit/s through to and including 155Mbit/s services. We consider that all the characteristics that warrant the designation of a low bandwidth market apply equally to the higher bandwidth services. This is discussed in response to the following question.

Question 5.2 Do you agree with our proposal not to identify any other TI services above 2Mbit/s. If not, what alternative would you propose and why?

No, we do not agree. Ofcom's assessment of the three criteria test appears not to take account of all the factors at play in the market today:

Criteria 1: The presence of high and non-transitory structural, legal or regulatory barriers to entry

It is notable that BT is only choosing to close the sub 2Mbit/s PPC platform. Other PPC bandwidths 2/34/45 and 155Mbit/s are unaffected by this closure. BT's continued plans to supply new and existing customers at other PPC bandwidths will be in direct response to

- customer requirements / ongoing demand for the service
- its ability to serve the market profitability

The table below illustrates BT's high market shares, one of the indicators of market power, across each TI bandwidth.

BT's market power across all TI bandwidths:

Bandwidth	BT market share exc WECLA	BT market share estimate inc WECLA
<=8Mbit/s	89%	89%
>8 <=45Mbit/s	76%	52 – 60%
>45 <=155Mbit/s	70%	46% to 54%

Source Vodafone using Ofcom data



In 2013, Ofcom identified the reduced levels of market share for 140/155Mbit/s as a result of customers capable and willing to switch to Ethernet having done so⁸. We consider the remaining customer of the 34/45/155Mbit/s bandwidths retain PPCs as they value and require that particular service and as such market share will change going forward.

We have sampled a number of our customers' connections to understand why they remain with medium bandwidth PPCs. The findings show that for some connections:

- EAD is unavailable due to the distance limits of the service (PPC are offered over any distance)
- The high cost of replacing systems using cryptos
- The inability to use Ethernet in conjunction with the internal network
- Long lead times for new fibre
- The EAD service crisis is a disincentive

Customers who value their medium bandwidth PPCs should not be penalised as a result of a different set of customers who are buying a different (Ethernet) service.

Criteria 2: A market structure which does not tend toward effective competition within the relevant time horizon, having regard to the state of infrastructure based and other competition behind the barriers to entry

It is recognised that alternative providers are not investing in the provision of TI services therefore it is clear that competition for TI services will not increase. We disagree that the requirements of higher bandwidth TI users will be met by CI services. It appears anomalous to regulate bandwidths either side of 35/45/155Mbit/s but not these bandwidths (Ofcom proposes to regulate 10/100/1000Mbit/s) while abandoning these TI users.

Criteria 3: Competition law alone is insufficient to adequately address the identified market failures

Competition law is wholly inadequate to address the supply of these services. We cannot wait for prices to increase or BT to refuse to help to migrate customers onto a new platform in order to use Competition Law to take action. It is evident that the lack of competition over the last years has enabled BT to tighten its grip on the market and despite falling volumes, revenues above WACC have escalated as shown in the table below. This would indicate that customers are willing to continue to use medium bandwidth PPCS despite price increases in the current charge control.

Therefore we cannot agree with Ofcom's conclusions that the medium bandwidth TI market should not be regulated.

⁸ "there were some apparent differences in the rest of the UK, reflected in BT having 74% share at 34/45Mbit/s and 49% share at 140/155Mbit/s. So it appeared that CPs had, in some cases, been able to overcome the high barriers to entry and expansion for 140/155Mbit/s. On this basis we considered that it remained appropriate to identify a break in the market between 34/45 and 140/155Mbit/s services"



PPC returns above WACC

	2006	2007	2008	2009	2010	2011	2012	2013
TISBO up to and inc 8Mbit/s	4.3%	1.3%	9.2%	7.6%	11.8%	21.6%	28.8%	43.4%
TISBO above 8Mbit/s up to and inc 155Mbit/s	0.1%	15.9%	8.2%	8.9%	18.6%	20.7%	41.2%	31.3%

Source: Frontier Economics

In addition, further indicators would suggest that BT still has SMP in medium bandwidth PPCs:

Customers continue to demand these services

Vodafone continues to use some [8<] medium (34 – 155Mbit/s) bandwidth PPC circuits^[5] with a wholesale value to BT of £[8<]M⁹. The customers that continue to purchase these circuits from us are a mixture of banks, CPs, utilities and local police forces. We consider that these customers value the unique TI characteristics in the same manner as lower bandwidth users.

Where customers might consider change to Ethernet a pertinent question to consider is whether BT has the capacity to replace existing TI services for CI services upon customer request. It is evident that BT has not planned its network capacity with PPC migration in mind. In response to the sub 2Mbit/s platform closure one of our customers is opting to move to 100Mbit/s Ethernet (we discussed this in more detail in Section Three of this response). Despite having ordered 67 circuits in May 2014 only 23 circuits have been delivered 12 months later. BT has insufficient spine network in the requested locations to meet the customer's request. For these higher bandwidth services it is more likely that the remaining customers are the ones with circuits beyond the distance constraints of Ethernet and those that have attempted to move previously but found that fibre issues in the network have prevent this.

We consider that some practical checks and balances are required. BT should confirm that each circuit to be deregulated can in fact meet the criteria to switch to Ethernet and that existing fibre is available to meet that demand. Where fibre is not available regulation should remain in place until it is. Where the service cannot be offered as Ethernet due to distance limits the service should remain regulated. BT should face the full costs of the migration activity, it has long enjoyed the profits.

Ongoing need for protection for medium bandwidth PPCs

Ofcom is declining to regulate *not* because competitive conditions have improved (alternative suppliers have not entered the market) *or* because BT wishes to close the platform. Ofcom is declining to regulate because customers should have, in Ofcom's view, migrated from one BT SMP product – the legacy one, to another BT SMP product – the modern efficient one.

We cannot support proposals to remove regulation from 35/45/155Mbit/s services and essentially leave a tranche of customers stranded. Ofcom would be failing in its Duties to take such a position.

The appropriate action is an obligation to aid migration in addition to ongoing regulatory protection for remaining users by designating the standard range of SMP remedies.

^[5] We note that this number appears to be at odds with the number presented in table A13.1 which shows external volumes of 292 and it could be that the inclusion of WECLA circuits would reconcile the count.

⁹ Based on current prices



The proposal to remove regulatory safeguards from 1 April 2016 gives customers even less time to react (even if they could) than if BT was switching off the platform. We propose a three year notice period for connectivity services being forced to migrate.



10.SMP analysis for TI services

Question 5.3 Do you agree with our SMP assessment with respect to the low bandwidth TI services? If not, what alternative would you propose and why?

Yes, we agree with Ofcom that BT has SMP UK wide for the provision of low bandwidth PPCs.

BT has 89% market share of low bandwidth TI services and in excess of 40% for medium bandwidth services.

BT continues to extract monopoly profits from the supply of these services which we show in the table below.

PPC returns above WACC

	2006	2007	2008	2009	2010	2011	2012	2013
TISBO up to and inc 8Mbit/s	4.3%	1.3%	9.2%	7.6%	11.8%	21.6%	28.8%	43.4%

Source: Frontier Economics

Alternative suppliers will not enter the market at this late life cycle stage. All of these factors combine to a conclusion that BT has SMP.

SMP is also in evidence for above 8Mbit/s services. BT is very profitable while serving these customers. Excess returns for the above 8Mbit/s markets have risen to 31% above WACC in 2013. BT's market share remains above the SMP threshold. We consider the market exhibits clear SMP.

Question 5.4: Do you agree with our approach to, and proposed product and geographic market definition for, wholesale TI trunk, including our proposal to treat 'regional trunk' segments as part of the TISBO market? If not, what alternative would you propose and why?

We agree that the regional trunk segments will have competitive conditions that are the same as terminating segments and that there is no competitive harm to designating a single product market to cover both service elements.



11.Hull Market Analysis

Question 6.1: Do you agree with our approach to (wholesale and retail) market definition in the Hull Area? If not, what alternative would you propose and why?

We have no objections to this.

Question 6.2: Do you agree with our assessment of SMP to the markets for low bandwidth TISBO and CISBO services in the Hull Area? If not, what alternative would you propose and why?

This assessment seems fair.

Question 6.3: Do you agree with our assessment of SMP for the markets for low bandwidth TI and CI services in the Hull Area? If not, what alternative would you propose and why?

This assessment seems fair.

Question 6.4: Do you agree with our assessment of wholesale remedies not being sufficient to sustain effective competition in retail markets in the Hull Area? If not, what alternative would you propose and why?

Yes, we agree.

Question 6.5: Do you agree with our finding that the three criteria test is met when applied to the retail markets in the Hull Area?

No comment.

Question 7.1: Do you agree with our approach to assessing what remedies are appropriate to address the competition problems we have identified in the markets in which we propose to find that BT and KCOM have SMP? If not, please explain why, and what alternative approach you consider we should take.

We agree with Ofcom's market definition and SMP findings in Hull.

We consider that the current pricing remedies on KCOM are not working effectively and require modification.

Service pricing in Hull is in excess of the prices for the rest of the UK. Customers in Hull appear to be badly served by KCOM's current offer. For example Openreach EAD LA product 100Mbit/s Ethernet is £1,605 annual rental and KCOM pricing for this service is circa £15,000 annual rental.

KCOM should have a remedy which forces pricing in Hull into line with the rest of the UK.



12. Passive remedies

Ofcom proposes that BT should offer a dark fibre remedy. We fully support the requirement of this remedy which is needed:

- to propel services to greater competition and
- enable genuine scope for innovation.

The remedy needs to be properly designed to work effectively. The dark fibre product should do more than just replicate BT's active product as this limits scope for innovation and differentiation.

By ensuring EAD type constraints are not applied to dark fibre, CPs can invest in network infrastructure without having to align it to BT's footprint. This avoids duplication and unnecessarily inefficient investment and is less likely to unduly favour BT.

The dark fibre product should be offered as follows:

- with the option of a two fibre solution,
 - whilst Ofcom uses an Active Minus pricing structure, a dual fibre solution should not recover twice the notional costs of a single fibre solution, where the dark fibre purchased is of a distance less than an EAD LA service there should be the option of a per meter charge,
 - distance limitations should not be set on the basis of EAD which has shorter distance limitation than OSA. A varying distance limit which relates to current equipment capabilities is more appropriate.
 - connection option of inspan handover as well at exchange or PoP locations
-

Vodafone is a proven investor in infrastructure

In 2012 Vodafone purchased Cable & Wireless Worldwide (CWW) and its existing network infrastructure. Vodafone continues to invest in and extend the ex CWW network. We have recently invested in the deployment of substantial increases to our EAD LA points of presence. We have invested to increase our backhaul to support the EAD LA roll out and our newly launched consumer broadband services^[6]. Our network extends across the much of the core of the UK, and into some towns and cities. However, our own network in some geographies is more limited than BT and overall customer premises connected is far more limited than BT creating significant barriers to effective competition. BT continues to leverage competitive advantage from the duct assets gained when it was a monopoly and we hope that dark fibre will address this.

Passive access enables us to invest more

Vodafone supports the introduction of passive access remedies. Passive remedies are seen as a complement to our own access capabilities in order to compete effectively and innovatively in a range of markets. In previous submissions we have discussed our investment in passive access to rollout networks in other European jurisdictions. Dark fibre allows us to act similarly in the UK.

^[6] we have to follow the circa 984 NGA Parent Handover sites deployment by Openreach for full NGA coverage



Enterprise customers

We envisage that dark fibre can be used to offer new solutions (eg services levels, pricing and functionality) for enterprise customers. We would want to maximise our network configuration to improve innovation and efficiency.

Mobile backhaul

We envisage that dark fibre can be used to better connect and hub mobile base stations. Dark fibre opens up the opportunity for Vodafone's network structure to be used rather than based on BT's network structure.

Network extension

We envisage that dark fibre will be used, in a mesh with our own existing network and new network that we build, to ensure that future network extension is of optimal efficiency. A mixed economy of network fibre including our own and BT's can work together to open up competition at business park locations.

The optimal remedy design

An appropriately specified dark fibre product is at the heart of underpinning successful competition, encourage efficient investment and innovation and as such improve downstream markets in the same way that we witnessed LLU rewrite competition in broadband markets. The key characteristics of dark fibre include:

- Dark fibre should be offered as the option of a two fibre solution, but not by charging EAD minus x2.
- Where the dark fibre purchased is physically less than an EAD service there should be the option of a per meter charge.
- Distance limitations should not be set on the basis of EAD which has shorter distances than OSA. A limit which relates to current equipment capabilities is more appropriate.
- Connection option of inspan handover as well at exchange or PoP locations

A full product specification is attached at Annex 3.

Pricing framework

We believe that the optimal pricing solution is a cost based one. A cost based approach provides for unambiguous pricing and would enable the remedy to be used for all bandwidths in the CI market. The PAG commissioned Frontier Economics to review the pricing approach which we include at Annex 7. Frontier too identifies the superior benefits of cost based pricing over active minus pricing and reassesses Ofcom's criteria taking into account wider evidence.

Frontier concludes that a cost based pricing approach is superior to an active minus one on three counts:

1. Active-minus pricing based on a single reference product would result in only a small part of the market being contestable, as the dark fibre remedy would not be a commercially viable option for much of the market
2. Active-minus lacks predictability compared to a forward looking cost based charge control
3. To the extent there are and benefits from allowing Openreach to set the structure of prices, these are unlikely to be realised under Ofcom's proposals.



Frontier revisits Ofcom’s assessment framework and comes to the conclusion on appropriate analysis that cost based pricing ranks more highly. We replicate the summary conclusion below and refer Ofcom to the full report.

Criterion	Ofcom’s assessment		Frontier’s assessment	
	Cost based	Active minus	Cost based	Active minus
Allocative	0	2	0	1
Productive	4	2	4	2
Dynamic – Active	4	2	4	2
Dynamic – Infra	0	2	3	2
Active compatibility	0	2	3	1
Gaming Risk	4	2	4	2
Ease of implementation	2 ¹⁰	4	4	3

Source: Adapted from Table A26.8, BCMR May 2015

On this basis, active minus pricing doesn’t look appropriate. Cost orientation is the most appropriate pricing structure. In addition to the policy flaws of an Active Minus approach there are also implementation problems:

Current proposals limit usage

Ofcom appears of the view that the scope for innovation using dark fibre is likely to be for bandwidths at and above 1Gbit/s. We disagree with this view. It may have appeared during the earlier consultation processes that CPs requirement for dark fibre were primarily at higher bandwidths. We acknowledge that the examples of the divergence of price between active services and a potential dark fibre price concentrated on high bandwidths. This was however a simple illustration rather than a deliberate proposal by CPs to limit the usefulness of dark fibre.

By tying the charge to 1Gbit/s Ofcom ring fences bandwidths below 1Gbit/s and ensures they cannot be provided using dark fibre. This unnecessarily limits the number of circuits CPs can address with dark fibre and reduces economies of scale dramatically for product development costs and network investment costs. Ofcom identifies that the mass market product for the coming Market Review is 100Mbit/s. Therefore the user connections demanded are likely to be 100Mbit/s for 70% of installations. BT itself will not face the issue of needing different inputs to serve different bandwidths and therefore will not suffer the consequences on economies of scale.

¹⁰ Assuming a bottom up modelling approach. Ofcom indicates that a top down modelling approach would lead to a similar score to the active minus approach.



Where dark fibre can be used to provide 1Gbit/s services

We consider that the dark fibre solution, as proposed, could be used where we would have otherwise provisioned our own service over the top of the Openreach Ethernet service. Ofcom is aware that CPs cannot remotely manage the EAD service; we have to additionally use extra equipment (that replicated the equipment already provided by Openreach) in order to do so. Dark fibre is clearly a more efficient solution than a dually managed Active Service.

The current proposals create a margin squeeze

For 1Gbit/s services for which we do not add additional equipment (replicating BT's) for service management it is likely that the active minus approach will not represent sufficient cost savings. As Ofcom only removes BT's LRIC of these costs our overall costs might be higher, because BT has SMP they can enjoy scale efficiencies that are beyond those of a hypothetically efficient (e.g. 25% market share) carrier. The risk is that active minus pricing proposal creates a margin squeeze for some 1Gbit/s usage scenarios and for use below 1Gbit/s.

Forward look

In the event that cost based pricing is not the pricing remedy that is implemented in this review timeframe it should be clearly signaled as an option for the subsequent review.

Question 7.2: Do you agree with our assessment of the benefits that a package of passive and active remedies can offer relative to a package of active remedies only? If not, please explain why, giving your views on our assessment of these benefits, and providing any relevant evidence in support.

We agree with Ofcom's assessment that passive remedies will provide a marked improvement to competition and market outcomes via:

- faster to market new product variants;
- more vigorous alternative network and retail competition; and
- lower cost bandwidth for end users.

Dark fibre enables us to offer services based on our network topology

Vodafone has its own fixed network infrastructure^[7] already connecting many locations (Vodafone POPs, BT exchanges and customer premises). Depending upon whether connectivity is required for mobile / fixed backhaul or enterprise connectivity we are able to self-supply with on-net connectivity (or augment to achieve on-net connectivity) in excess of [8] % of cases.

Although having invested and continuing to invest in network extension and deployment this investment, focused around BT's network architecture, simply allows us to use Openreach's EAD products.

Dark fibre would allow a more sophisticated level of investment. We can move from being shackled to BT Openreach inputs as the lowest common denominator. It allows us scale to develop products for our customers across the whole country, not just where we have our own ducts and fibre.

^[7] Ex CWW, THUS, Energis, Bulldog and Your Comms networks



Current network competition has failed to alter the competitiveness of markets

Our existing on-net connectivity is insufficiently dense in the access layer to compete effectively with BT. Despite relative levels of alternative infrastructure it is clear from BT's sustained high levels of market share (above the SMP threshold) that numerous separate infrastructure owners are unable to compete effectively with a ubiquitous BT infrastructure.

Dark copper (LLU) has transformed the FAM and it is apparent that dark fibre could (if fully permitted) enable the same opportunity to increase competition and service / product choice.

Question 7.3: Do you agree with our assessment of the risks associated with imposing passive remedies? If not, please explain why, giving your views on our assessment of these risks, and providing any relevant evidence in support.

We do not agree with Ofcom that the risks are as stark and as unmanageable as presented. Taking Ofcom's concerns under the risk types identified we provide comment to each concern:

Ofcom 1: A new upstream remedy could reduce investment incentives upon BT and other investors in infrastructure relative to an active only regime, although passive access could result in investment in the use of passive access.

Regulation should only incentivise efficient network entry. Today it is possible that some inefficient alternative network entry is occurring in response to both BT's excess profitability for Ethernet services and as a result of BT's decision to apply a bandwidth tariff gradient and recovering more of its common costs from the highest bandwidth services. Taken together these factors create an artificial and unsustainable margin in some active products, encouraging network investment on a false premise.

Vodafone is an investor in networks yet sees the complementary benefits that dark fibre can bring to its existing investment and future investments. Ofcom is correct to consider that some future investments are likely to be altered to investment in passive access. This is not weaker investment but more likely more efficient investment and use of resources.

Vodafone agrees that the imposition of dark fibre is likely to require some change in Openreach but does not agree that BT's incentives to invest will be lessened. Despite vigorous competition in FAM BT has responded and adapted. Overall consumers have benefitted greatly from the more upstream regulatory intervention.

Ofcom 2: Passive remedies are likely to result in some price rebalancing of active prices raising distributional concerns over winning and losing customers

The introduction of passive access is not the only factor that is driving price rebalancing. Ofcom has proposed charge controls that seek to reduce active service pricing and address BT's excessive over recovery on active services.

Ofcom has seen fit in the charge control to remove a number of BT Group costs from the Openreach cost base reducing the overall cost base to be recovered.

BT's latest price changes in the current review period contain rebalancing actions presumably to react to competition focussed at higher bandwidths and in light of weaker competition at 100Mbit/s.



We consider that in response to general competition, as well as dark fibre and as the bandwidth profile changes over time BT would seek to rebalance of its own accord.

Ofcom 3: The coexistence of passive and active remedies could distort investment signals.

Due to the issues with active service pricing, which Ofcom identifies and seeks to address in the LLCC, distorted investment signals are already an issue. It is clear from the response to the previous consultation that some investors require Ofcom to keep in place BT's excess returns and the bandwidth tariff gradient in order for investment business cases to remain relevant. This is not sustainable. Network investment must be justified on longer term grounds and not premised on short term arbitrage.

We believe that the current pricing proposals for dark fibre send distorted signals to the market. An investment case for dark fibre must allow for full use of the product, not having to also invest in EAD for lower speed circuits.

We consider that investment signals are best provided by a properly cost based dark fibre product.

Ofcom 4: Whether passive access will alter market structures to the detriment of smaller operators

It is unlikely that passive access will bring about any new issues around economies of scale that do not already exist today.

We consider that dark fibre may only be detrimental to smaller players if passive remedy is only possible with significant investment in BT's footprint. If Ofcom ensure there are no such restrictions this will enable smaller CPs to invest efficiently. In our view this is best addressed by ensuring that dark fibre has a cost per metre and that handover and handoffs are where the CP needs these activities without any need to collocate or route via the BT exchange.

If dark fibre is to be a truly effective remedy, then there should be no restrictions that would limit its use, though product specification, pricing or network topology.

Ofcom 5: The costs of implementation

There will be costs to implement, but no more so that the costs that we, a customer, are incurring with poor service from the current EAD processes. We suggest that BT uses this opportunity to overhaul all its fibre based product processes. It gives us both a capability to support new and upcoming services based purely on dark fibre inputs from BT, and implementation need be done just once.

In addition we have recognised a number of other potential risks:

Charge control over recovery

Within the charge control assumptions we consider that Ofcom makes overly optimistic assumptions about adoption and take up. It is not yet certain whether dark fibre will be a substitute for all 1Gbit/s active services. However given the Ofcom pricing structure proposals, the likelihood of this solution being



economical in all circumstances for circuits at 1Gbit/s is unclear. Therefore we would urge caution in assuming full substitution at 1Gbit/s and above.

Migration

Ofcom does not facilitate within its proposals migration from active services to passive access. We consider that this is inefficient in the longer term and that migration should be required as an option. We do not consider that BT should be fearful of migration from active services to passive services as historical evidence shows that migration is a slow and drawn out process. EAD was introduced in 2009 and today there are still substantial WES (the predecessor product) volumes in service today.

Question 7.4: Do you agree that our proposal of a dark fibre remedy priced and designed in the way we have described in this consultation provides the best balance between the benefits and risks that we have identified? If not, please explain why, providing any relevant evidence in support, referencing specific aspects of our proposed remedy design where appropriate, and taking into account any comments you have made in response to questions 7.2 and 7.3.

Vodafone understands the rationale behind Ofcom's pricing proposal but we do not agree with it. There is considerable risk that the outcome is a particularly small take up of the dark fibre product in this review period.

Suitability of the remedy to serve the market

Ofcom has shown throughout the market review document that BT has SMP in the CI market and that SMP has been sustained via constant and high market share. BT achieves excess returns and provides (and getting away with providing) wholly inadequate levels of service. Dark fibre as proposed can only increase competition for a very small subset of the overall CI market.

100Mb/s

Ofcom shows that presently and for the review period that 100Mbit/s is the main product within the CI market. The dark fibre remedy has however been tailored to be unusable for 100Mbit/s as it is priced in excess of the market price for this bandwidth. This excludes 70% of the market from using dark fibre.

1Gbit/s

A further 20% of the market sits at 1Gbit/s. The outlook for competition at this bandwidth via dark fibre is two tiered. For some customer installations the proposals make a marked improvement on the cost base and efficiency of service provision. The removal of the BT equipment opens the doors to the service innovation we seek.

However to serve some 1Gbit/s customers the proposal will create a margin squeeze. This is in the situation where the customer application did not warrant the 2 box configuration^[8] and the removal of just LRIC costs is too small to enable competition against BT's active service to occur. In this situation we are reliant upon the customer to value the innovation that the CP can apply to the service to warrant paying more for the equivalent bandwidth. We consider this is a risky strategy.

We are unable to quantify the numbers of customers which sit within each of the above categories.

^[8] Where the CP adds a box in front of the BT EAD box in order to directly manage the service offered to the customer



Above 1Gbit/s

The proposals will work well to serve this market which represents 10% of the total market. Above 1Gbit/s services are used for our critical backhaul requirements for our mobile base stations and increasing for our consumer broadband proposition. We do believe the proposals for this niche of services will act in a positive way to improve bandwidth costs that are needed to support mobile data growth which we have discussed at length in previous submissions.

We are keen to see a wider application of dark fibre, as the more widely it can be used the greater prospect there is for investment in service innovation.

Dark fibre enables innovation in service and network design

Vodafone identifies it would use dark fibre in three scenarios:

- a) to offer new solutions for enterprise customers and for us to change our network configuration to access these customers more cleverly and efficiently. For customers dark fibre enables us to offer more flexible pricing structure, differentiated SLAs and customer experience
- b) to better connect our mobile base stations.
- c) to create future network extension of optimal efficiency by meshing with our own existing network and new network that we build and dark fibre. A patchwork of network capabilities can open up competition at business park locations in the way.

This is why we believe an appropriately specified dark fibre product is at the heart of changing the competitive face of BCM. It could underpin successful competition, encourage efficient investment and innovation and as such improve downstream markets in the same way that we witnessed LLU rewrite competition in broadband markets.

For us the key characteristics of the dark fibre include:

- Dark fibre should be offered as the option of a two fibre solution. This is important as the highest bandwidth services use two fibres in their provision as standard. We are all in agreement that dark fibre will work for these higher bandwidth services.
- Where each fibre is charged for this should not be on an EAD times two basis. BT is (to our understanding) unique in its move to single fibre working. Other CPs continue to use 2 fibre provision. The proposal therefore unduly favours BT.
- Where the dark fibre purchased is less than an EAD (LA) service (very short distance) there should be the option of a per meter charge. Our network mesh of different solutions (our existing network, our new build and BT's dark fibre) doesn't conform to and isn't planned to copy BT's topology. There are no technical limitations to dark fibre which require the fibre to transmit to or via a BT exchange. It is entirely possible via dark fibre (and our own network presence) to break free of BT's network design. The current pricing proposals however continue to enforce BT's network design into the future.
- Connection option of in-span handover as well at exchange or PoP locations. It is the ability to connect in-span at an agreed chamber for fibre jointing which enables the smarter and more efficient network design.



- Distance limitations should not be set on the basis of EAD which has shorter distances than OSA. A loose limit which relates to current equipment capabilities is more appropriate.

A Cost based Pricing Structure

Overall we consider that dark fibre available on cost based terms would be the optimal pricing structure. We consider that a cost based structure would a) remove doubt over economic use at 1Gbit/s and ultimately b) make the entire market of bandwidths contestable with dark fibre.

Both a cost based and an active minus pricing structure are enhanced by the ability to purchase only the service components required.

Any pricing structure should ensure that competition is achievable on a fair and efficient footing as a consequence we propose the following which are relevant to cost based and active minus price proposals.

Price of a second fibre

It is debatable whether BT's single fibre working is the most efficient deployment for active services. Lower fibre costs are traded for higher equipment costs. It is clear that the cost of two fibres is not equivalent to 2 times EAD (on an active minus basis) and that a proposal to price in the manner unduly favours BT's downstream approach. CPs would have to invest in single fibre work (a change to on-net practises today) and the LRIC difference offered via the active minus will be insufficient to enable such investment. We consider a middle ground which does not favour either BT or a CP is required. This would see the provision of the second fibre (where required) is offered at a far lower cost than EAD x2.

Pay only for what is provided

Ofcom makes proposals to allow in-span handover of dark fibre, for connection at places other than the customer site and the BT exchange. The pricing proposals however do not reflect that scope for deviation from the EAD product set. We consider that Ofcom has overlooked the fact the under dark fibre it is not essentially necessary for a fibre to traverse the BT exchange. Where the dark fibre is used over very short distances, we consider this should be reflected via a per meter charge. Ofcom should require BT to offer this.

Question 7.5: Do you agree with our assessment of passive remedies, and our proposal to include dark fibre in the package of remedies we propose to impose on BT? If not, please explain why.

Yes, we agree that passive access remedies will have a beneficial impact to the market. It gets to the heart of the bottleneck and provides the market with a more flexible remedy in or to innovate and differentiate.



13. Remedies

Question 8.1: Do you agree with the general remedies that we propose for BT in the wholesale TISBO and CISBO markets? If not, what alternative remedies would you propose and why?

Provisioning QoS

Ofcom proposes to adopt the standard set of remedies in response to finding BT to have SMP in these markets. We agree with the imposition of this set of remedies.

Ofcom in addition adds a new remedy for quality of service. Ofcom proposes to impose the QoS remedy for a sub set of the products within the market.

We consider that the QoS provisioning remedy should cover:

- EAD provisioning
- higher bandwidth EAD/OSA provisioning
- dark fibre provisioning
- accommodation space provisioning

Repair QoS

We consider that repair performance is being calculated in a manner which masks actual repair performance as Right When Tested is included in the metric calculation. We consider that this review should address the minimum repair levels required and the preparation of the metrics which show compliance with the minimum service levels. Clarification of the types of fault clears that should be included in the fault repair metric is required.

Migration

We see a growing requirement for migration to be explicitly dealt with by Ofcom. We consider that past policy has not evaluated how migration would occur in a competitive market structure. It has been assumed that allowing higher service pricing will encourage any required migration.

In a competitive leased line market, suppliers would have strong incentives to minimise the cost and disruption to customers associated with product migrations, tending to avoid passing these costs on to the customer. These incentives result from the risk of losing customers. If a customer perceives the cost and disruption to be equivalent to switching supplier, then they are likely to see product migration as an opportunity to consider alternative suppliers.

BT has SMP in wholesale leased line markets. Its incentives to ensure a smooth and efficient migration process from legacy platforms to newer platforms are weakened by the lack of effective competition. It is not surprising, therefore, that BT's migration processes are often poor, or even non-existent, in which case the customer is required to cancel their existing service and order the new product as if they were a new customer.^[9]

^[9] That is, to cease and re-provide.



BT also maintains a larger number of products than we would expect to find in a competitive market, and this creates unnecessary product migrations. A case in point is the relatively minor difference between EAD and WES^[10]. Competitors to BT, and any supplier in a competitive market, would most likely present such a change as an internal technology upgrade – at the expense of, and coordinated by, the supplier.

Ofcom's current approach to product platform closure has emphasised the use of price signals to encourage customers to change services. We find that this will be ineffective for a significant minority of customers for whom the costs of adapting internal systems and processes to use a new product far outweigh the price of a leased line^[11].

These are material issues for consumers, and this justifies changes in regulation including specific obligations regarding product migration. The paper prepared by Tower House and attached at Annex 1 discusses this in more detail. Specifically a number of regulatory interventions are needed:

- A requirement for BT to supply an efficient managed migration service, as opposed to customer led cease and re-provide, between all leased line products. This should include, in particular, the ability to migrate to the proposed dark fibre service.
- A presumption that the efficiently incurred costs of migration are included in the costs of the new service, rather than being passed on to existing customers. This would encourage BT to undertake minor product updates, such as the move from WES to EAD, as an internal technology upgrade.
- BT should be positively incentivised to provide help to customers who face significant costs adapting internal systems to the new product¹¹.
- Ofcom should no longer allow significant increases in price as a product approaches end of life. The customers who continue to use the legacy service will inevitably be those facing the highest costs to migrate. As such, they are the least likely to respond to price signals. Higher prices therefore simply add to BT's margins and further dampen its incentives to encourage an efficient migration.

We would urge Ofcom to investigate leased line product withdrawals and incentives to migrate as part of the ongoing BCMR. BT is planning to withdraw both WES/BES and very low bandwidth services over the next few years. This is likely to be followed by the removal of PPCs. This is the right time to develop a set of policies that will address the market failure that exists in relation to product migration, and to be able to implement any necessary changes in regulation to ensure that customers are afforded sufficient protection through these planned and expected product withdrawals.

^[10] When WES cards became obsolete BT could have adopted a far simpler approach to change the product and not introduced an entirely new product.

^[11] For example, if the customer operates a large and complex system which uses leased lines as an input and relies on the specific technical interface or performance characteristics of the current service. If the modern equivalent leased line does not replicate this interface or characteristics, the customer may need to rebuild its entire system to accommodate the new leased line service.

¹¹ For example, it may be appropriate to allow BT to retain the specific additional margin on the new platform created by increases in volume that result from migrating this set of customers.



Question 9.1: Do you agree with our proposals in relation to the dark fibre remedy? If not, what alternative dark fibre remedy would you propose and why?

There are a number of changes we regard as being necessary to making the dark fibre product successful:

The ordering process is designed with maximum flexibility for the product to be ordered

There are considerable risks that the dark fibre product as presently described limits its use to being an EAD substitute. Although Ofcom proposes to permit pick up and hand off at common locations in addition to those typical of the EAD product, the link to EAD pricing will most likely restrict this from occurring.

The product is offered with the option of two fibres

A dark fibre product should have the option for a CP to take a second fibre and relatively low additional cost to the first fibre. A remedy which requires CPs to pay a fully active minus price for a second fibre only serves to favour BT. BT is the only operator (to our knowledge) which fully deploys single fibre working. Other CPs generally use two fibres to provide their services. The usual trade off is the difference in cost between the 2 fibres versus the higher cost equipment needed to operate on a single fibre basis. We consider that it is inappropriate to embed BT's way of doing things into a new remedy which should be upstream of BT's active solutions.

Dark fibre is provided on a fully EOI basis

We consider that BT should use the dark fibre product on an EOI basis for its active services. We are sure that development of the dark fibre product will be far smoother and the result fit for purpose if BT were also to consume it. We are content for the installed base to remain non EOI but all new installations must be on an EOI basis.

Distance limits are limited and reflect the capability of the equipment which change over time

We consider that the distance limit should not be confined to 50km or tied to specific crow-flies measurement. We consider that the distance that BT's active services provide is the appropriate reference point. BT's OSA services have capabilities beyond 50km crow flies – OSA can go as far as 104km on a pair of fibres.

Question 9.2: Do you agree with our proposals in relation to the pricing of dark fibre? If not, please explain why, and what alternative approach you consider we should take.

No, we do not agree with the proposal to price dark fibre on the basis of 1Gbit/s active minus.

The pricing proposals will unfortunately restrict the benefits that can be gained to a very small user set which we find regretful. It is not certain that dark fibre will be useable in all 1Gbit/s applications and whether it will only be economical for above 1Gbit/s services. This is because the "minus" will only be sufficient in the situation where a CP was already providing duplicate equipment to the EAD in its end service configuration.

Ofcom's volume forecasts show that the largest proportion of the market will sit with a bandwidth demand of 100Mbit/s. Users of 100Mbit/s bandwidth are likely to face the least amount of alternative network competitive yet the remedy is deliberately targeted to exclude them. We disagree with this approach. We



consider that Ofcom may be under a false impression that Vodafone would not want to use dark fibre for services below 1Gbit/s. We consider that Ofcom may also be under a misunderstanding that services below 1Gbit/s would not include scope for innovation. This is certainly not the case. No service provider would deliberately reduce the economies of scope of their service by restricting the size of the market that can be served. By limiting the addressable market Ofcom is raising the costs of innovation, reducing the scope to recoup investment in innovation and raising CPs costs compared to BT who does not face the same restrictions in competing for the mass market 100Mbit/s bandwidth.

Vodafone advocates that dark fibre should be charged in line with costs rather than on an active minus basis. We consider that a cost base price will enable more customers to benefit from the dark fibre option. We also consider that cost plus pricing limits scope for gaming and provides the most secure and inviting environment for CP investment in the product.

In the event that Ofcom finds itself unable to progress to a cost base regime, Ofcom must clearly signal this is an option for the next market review.

Question 10.1: Do you agree with the specific active remedies that we propose for BT in the wholesale CISBO markets? If not, what alternative active remedies would you propose and why?

We do not support the detailed proposals for the changes to local access differential. Ofcom has proposed a condition requiring BT to ensure that the differences between EAD and EAD Local Access services reflect only the differences in long-run incremental costs. Whilst we understand the theory behind these proposals, the proposals ignore the investments made by CPs to address the differential. Since the last review CPs have invested in EAD LA presence, and this investment remains to be recouped.

Whilst we support the need for cost orientated prices in order to send appropriate investment signals, we are surprised that Ofcom has without warning proposed to impose this specific obligation in the one area where CPs have invested. The problem merits more investigation, than simply to impose a cost orientation obligation between the two products without notice. Given the uncertainty (will prices go up or down?) that this brings to EAD and EAD LA Pricing and the impact it will have on Dark Fibre (which is pegged to EAD and EAD LA pricing), a full impact analysis of the solution should be carried out. This should take account of the likely shift in BT's pricing, the impact on already sunk investments and the likelihood of enabling further investments.

Of course we do recognise the problem which Ofcom identifies:

While we have invested significantly to catch up, BT can always go further. Its scale and existing network will give it the advantage. For example a recent BT briefing shows that there are currently 1318 Ethernet fibre nodes rolled out in the UK and that BT Wholesale is rolling out an additional 650 fibre access nodes increasing both geographic coverage and that of local access coverage across the UK including Northern Ireland. The rollout programme has commenced in May 2015 and will continue over the next 18 months.

The technical constraints of fibre are far less significant than for copper and that means there is no need to push competing operators to build out to the vast majority of BT's 5500 local exchanges in order to take service. In less densely populated areas it is sensible to allow the lowest cost regulated input to be routed over a longer distance in order to drive consolidate demand into fewer handover locations. Where operators have an LLU presence in an exchange they can use this space for Ethernet, however the mainly residential footprint of LLU doesn't necessarily tie up with Ethernet demand. This is why during the last market review we proposed a cap on the number of local exchanges at which LA access was available. The cap would



reflect that of a business CP of reasonable scale and market share. This solution takes account of the accommodation and interconnection costs incurred and the costs and implications of the need for scale in the backhaul network. This proposal does not undermine the network investment made and continues to reward deeper investment in the network. Indeed the investment in local access service is the likely cause of improved competition for a larger amount of the competitive core. Changes to the local access regime will lead to changes for the prospect for the competitive core and would likely undermine Ofcom's assumption that nearby CPs will dig to core sites that are in a reasonably short distance for existing network.

In proposing this differential, Ofcom need to be mindful of two key considerations:

At the heart of this issue is the importance of CPs having equal opportunity to achieve optimal economies of scope and scale. The cost of backhaul is a key consideration, as once a BT exchange is set up to deliver LA circuits then backhaul costs to that exchanged are spread over those LA circuits ordered and any other services that can share that backhaul. If BT has more market share in LA circuits, it can then take advantage of those lower backhaul costs. This advantage is particularly pronounced when you take into account the very high bandwidth backhaul services which are unregulated. It is acknowledged that incremental wavelengths on WDM equipment have low incremental cost. Therefore the cost and price margin between say 1Gbit/s and 10Gbit/s is not 1x10, similarly between 10Gbit/s and 40Gbit/s. This means economies of scale can accelerate as volumes climb. BT is also able to share backhaul between regulated products (eg. Between LLU and Ethernet) in a way that many other enterprise focused CPs can't (or at least without the scale to make an impact).

Consideration has to be given to the investment already undertaken by competing CPs to compete with BT in the provision of local access circuits. Over the past three years CPs wishing to compete in this market have had no choice but to invest in LA capability and it is important that investment is not compromised, even if it falls short of matching BT's ability to offer Local Access services. What is key here is the run rate of circuits being provisioned, not the percentages of circuits in situ. We consider that the data presented by Ofcom does not show an accurate picture of LA services in the market. For Vodafone the picture is as follows:

We have used LA for new EAD installs only

Our WES base does not have any LA circuits, this is because of the inability to migrate from WES to EAD LA. Ofcom help to address this would be more beneficial than the proposed differential.

For new installations EAD LA presently makes up [8<] % of circuits on our order book and we expect this to rise to [8<] %.

So while a historic view shows that BT's proportion of LA circuits to be significantly more than external CPs, the reality for new circuits is very different as external CPs reap the rewards of that recent investment.

Ofcom needs to balance these key issues, acknowledging that BT can reach levels of economies of scope and scale that are difficult for others to reach, but not do anything that compromises the investment made by CPs thus far. The current Ofcom proposal doesn't strike that balance, as while it seeks to limit the commercial advantage of BT, it also reduces the benefits of recent investment undertaken by external CPs and therefore raising distributional concerns over winning / losing customers.

Once the analysis has been concluded, further refinement (possible some or all of those set out below) could be use to mitigate unintended consequences:



Option 1 – do nothing

There is the option to do nothing. We do consider that Ofcom's concern is borne out of issues that have changed since the last market review.

CPs take up to LA is impacted by being later to market – which is as a result of the more complicated nature to create a LA point of presence compared to the activity BT needs to undertake.

CPs take up is also impacted by the lack of suitable migration for WES to EAD LA. Our legacy service base remains as full WES variants rather than WES LA. It is our understanding this is not the case for BT.

Option 2 – set a cap of where LA can be ordered or an average charge following connection at an optimal number of exchanges

Ofcom could consider looking at capping the maximum number of sites a CP has to connect to, to achieve universal LA pricing as we proposed in 2012 in the last BCMR policy consultation. This cap should be based on the level of investment undertaken thus far. With universal LA pricing becoming an assailable target for CPs willing to undertake investment (in a similar way to Ofcom's NCD formula for calculating NTS termination rates pre-2006, where the number of exchange connections determined the level of out payments, with a 100% rate achievable without needing to connect to all exchanges).

Vodafone believes there are strong policy reasons for limiting the number of locations that Communications Providers must interconnect at in order to get access to the lowest cost regulated inputs. If this is done correctly it will encourage investment in the CI market and drive stronger competition to the benefit of end users; without it we risk competition problems in downstream markets requiring further regulation. We also believe this should be done in a way that ensures the same locations are used for VULA and EAD LA.

Option 3 – glide to the differential

In order for CPs investments to be given time to repay and for adequate signaling for the change Ofcom could propose a glide path into the differential with a differential price reduction starting from March 2019.

In any event, Ofcom's proposals to change the shape of investment and undermine existing investment of capacity in and to BT's exchanges should be cautiously advanced without a full assessment of the impact on existing and future services, costs, investment and indeed policy.

Question 11.1: Do you agree with the PPC Direction that we propose for BT in the wholesale TISBO market? If not, what alternative would you propose and why?

It is our understanding that Ofcom has not changed the PPC Direction, but simply intends to maintain the existing Direction. We highlight two potential changes, clarifications:

Notice periods

Although BT has notified sub 2Mbit/s platform closure for 2020, BT's firm commitment to such action does not have a solid history. Indeed, some of our end customers now treat any discussions that we may have with them as 'crying wolf'. As BT has a revised closure dates so many times, dates cannot be trusted. The current plan is at least the 3rd revision to the closure date (with the initial plan setting out a closure before 2012). It is therefore important that in the run up to the definitive closure date that BT is solid about its plans. Given the large volume of users remaining on this platform we consider it reasonable from BT to provide 3 years notice of its final platform closure date. Therefore assuming the 2020 date does not get



further revised in 2017 such notice should be provided. We discuss elsewhere our views on how this migration should be handled.

We are responding separately to the consultation concerning retail private circuits, however it is important to note that many RPC are purchased by CPs and onward sold to end customers (partly for legacy reasons and partly because some RPCs do not have wholesale inputs). We consider it entirely wrong for PPCs to be regulated with CPI minus charge controls while RPCs are only subject to a voluntary commitment to not raise charges by more than 8%.

1 minute rule

The PPC direction requires

“Availability of services

49. When total loss of service (i.e. total loss of service for one minute or longer) occurs three or more times, within a 12 month period, to a Partial Private Circuit, the Third Party shall not be liable to the Dominant Provider for the monthly rental in any subsequent month where total loss of failure occurs to the Partial Private Circuit, until such time as 12 months have passed and the Partial Private Circuit has not suffered total loss of service. Occurrences of total loss of service which result in the Dominant Provider being liable to pay fixed individual compensation pursuant to paragraphs 62, 63 and 64 of this Direction, shall not be considered as an occurrence of a total loss of service for the purposes of this paragraph.”

This is backed up by the PPC contract, which says in Annex E that fault conditions exist when non-availability exceeds a total of one minute in one day i.e. that multiple short outages count as a fault as soon as the total is more than one minute. However in practise BT does not comply with the requirement of the contract and through their validation rules (which have no contractual force) all faults where loss of service is intermittent faults are treated as having a total out of service time of one minute, irrespective of the cumulative length of time for which the circuit is not available.

This failure to seek to acknowledge or fix this type of fault in a timely manner (and offer SLG rebates for failure to resolve within 5 hours, in line with the contract and direction) has been raised with BT by Vodafone but remains unresolved. These faults are described as “flapping” i.e. the circuit is up and down rapidly. Although the circuit may not be down for more than one continuous minute at any point in the incident, these faults typically involve repeated drops in service so that the impact on the customer is much more severe than a single outage of a few seconds. We consider this is an important customer impacting issue which requires Ofcom intervention to aid resolution.

We have revisited the contract text and in particular annex E which sets out the SLA. It would seem to Vodafone that a blanket adoption of a definition of a fault as being an outage of 1 minute or more is simply not supported by the contract text:

Paragraph 4 governs repair and within that 4.2 defines a fault as follows:-

“4.2 For the purposes of this paragraph 4, a fault shall be a reported fault which causes a total loss of service (i.e. no transmission of signals in one or both directions).”

There is no qualification of this in terms of a minimum duration of the outage. An outage of any length is a fault for the purposes of the repair provisions.



The following sub paragraphs then go on to set out various standards of repair for RegularCare and EnhancedCare circuits. Again there is no minimum outage time required for faults on these circuits. For both Regular Care and EnhancedCare the standard is the same, any outage is a qualifying fault.

Both standards of care require BT to pay compensation if the service levels for response, repair etc are not met. The levels are set out in great detail in paragraphs 4.3 and 4.4

Paragraph 4.7 then sets out an additional level of compensation where there are repeated instances of faults, namely three or more total losses of service in a three month period. Where this occurs the monthly rental charge is waived until the circuit has been free of further faults for a period of 12 months. This remedy though is qualified, for the purposes of this calculation by paragraphs 4.7.1 and 4.7.2 in that only losses of service for one minute or more qualify for this additional remedy. (Paragraph 4.7.2)

It seems clear that the definition of "total loss of service" contained at 4.7.2 applies only in relation to the waiver of the monthly circuit rental and that the definition of fault at 4.2 is the appropriate definition to be applied to the remainder of paragraph 4. This is clear from the text which states " For the purposes of this paragraph 4, a fault shall be a reported fault which causes a total loss of service (i.e. no transmission of signals in one or both directions)"

The contract goes on to specify (in Appendix 1 to Annex E) that in relation to intermittent breaks of service these are regarded cumulatively when measuring service performance -

"Fault Conditions These will be considered to exist (or have existed) when the circuit non-availability, as defined above, has exceeded a total of 1 minute in a day."

It would appear to Vodafone therefore that the operational practice of disregarding any outage of less than one minute (i.e. not treating it as a fault when assessing SLA performance, compensation etc.) is not grounded in the contract.

We would therefore request that BT revise its Fault Validation Rules to make them compliant with the terms of the published contract. Four case studies are given at the end of this document.

Question 12.1: Do you agree with the interconnection and accommodation remedies that we propose for BT in the wholesale TISBO and CISBO markets? If not, what alternative remedies would you propose and why?

Yes, we agree that BT should provide the interconnection and accommodation services that CPs need in order to take up BCM services. In making decisions on the remedies it is important that Ofcom is alive to the fact that interconnection and accommodation products are purchased by CPs only and not used by BT – they are not provided on an EoI basis. There is considerable risk that these services are subject to terms and conditions which adversely affect competition.

Excessive pricing for interconnection and accommodation services

Given that these services are additional and specific to the CP cost base it is of higher importance that charges are not excessive. While we welcome the introduction of a sub-basket constraint of CPI-13.75% on interconnection services and the continuation of the charge control on Accommodation services via the FAMR charge control, we believe that the starting charge adjustment proposed should seek to remedy over-recovery and not just correct for regulatory accounting anomalies. There is no justification for creating a mechanism that allows BT to retain over-recovery for services it only charges to competitors who are required to buy these services not through choice but necessity.



Poor and discriminatory levels of service for accommodation and interconnection services

We also have competition-impacting service issues for interconnection and accommodation services. BT is providing poor and discriminatory levels of service. Often when we wish to extend our network presence to a new exchange space we find that SLAs are extended by stop the clock processes owing to issues within BT's domain such as exchange space being full or the finding of asbestos. Not only are timescales to complete an order then unclear and extensive but we are subsequently penalised when we alter plans to ensure alternative colocation space by having to forfeit our survey fees.

We propose that interconnection and accommodation services are also subject to minimum service standards and the publication of KPIs. We propose the following standards and the following changes to processes:

- a set of SLAs for the entire accommodation ordering process. BT's SLA presently only covers up to the survey,
- biting SLGs for failure to meet iCDD for internal and external cable link provisioning services,
- a requirement to proactively upgrade exchanges for accommodation services

BT publishes a list of locations at which delay can be expected. This is useful when a CP has a range of options of where to connect to, or can reprioritise a rollout programme. As a general principle however a location's availability should be addressed within a set time frame and obligations of proactivity for this. BT should be proactively upgrading their exchanges, especially if they are OHP or NGA parents. They should not be waiting for CPs to place an order. OHPs and NGA handovers are where BT have chosen they want CPs to enter so they should be providing capacity accordingly.

QoS standards for interconnection service

Vodafone consistently experiences poor service on interconnect faults with BT. There is no contractual SLA to resolve these faults and as a consequence Vodafone routinely experiences faults which drift for several weeks without any progression or updates. Although BT offers an escalation chain through its Customer Service Plan it's not clear why; when CPs escalate they are told that BT cannot guarantee any improvement in progression because there are no repair SLAs.

BT is also not prepared to give any guidance on how frequently CPs should expect updates and when it would be reasonable to escalate. It is not possible to assess BT's current interconnect repair performance as BT's WCR system only captures performance on link interconnect faults and not network interconnect faults, but Vodafone feels that there should be QoS standards for interconnect as there are for other BT products, and that there should be clear guidelines on how the service is operationally managed when those standards are not met.



14. Quality of service

We agree that detailed quality of service obligations must be placed upon BT. We consider that detailed quality of service measures need to be put in place for a wider range of products including higher bandwidth CI services, dark fibre and accommodation and interconnection services.

We support Ofcom’s proposals to put in place minimum standards for service levels. Our expectation is that BT’s operational targets will be well in excess of the minimum standard.

We believe that failure to meet and exceed the minimum standards should be dealt with stringently and automatically. Compliance should be reviewed on a quarterly basis and fines or other sanctions automatically applied.

Ofcom should consider a range of penalties including linkage to the change control permitted rate of return.

Existing regulation of business connectivity has focused upon access to services and the pricing of those services. A missing link from the regulatory regime for business connectivity services is a properly working service incentive.

Ofcom has previously looked at the importance of service issues for regulated services and subsequently imposed the SLG Direction first in 2008. The service problem has increased and evolved since the time of that direction and whilst the themes of appropriate and timely SLGs remain important there is a requirement now for greater involvement from Ofcom in the service provision and repair process and firmed incentives upon BT to provide service at good levels on a continuous basis.

Our outlook on QoS is directly influenced by the shocking customer experience of delivery of new circuits during the last 3 years. The table below sets out the chronology of events:

Time period	Issues
Spring 2012:	High-level decisions taken within BT to reorganise Openreach centralising planning and reducing headcount to deliver 'efficiency' savings ¹²
Summer 2012:	Openreach planning & headcount changes introduced and service crisis ensues
Autumn 2012:	Industry is slow to react, assured by Openreach that problems are temporary and will be resolved quickly
Spring 2013:	Openreach continues to struggle with lack of resource, growing order-book and the additional strain on NGA delivery. Get well plans are introduced, but without additional resourcing or unwinding of previous changes, they fail.

¹² Slide 9:

http://www.btplc.com/Sharesandperformance/Quarterlyresults/PDFdownloads/q413_slides_update_part2.pdf £39M of cost saving where made with huge knock impact for service for years to come



Summer 2013:	Growing industry disquiet at length of service crisis. CPs facing the wrath of their customers are escalating issues to Openreach, but still no senior management ownership of the issue.
Autumn 2013	CPs escalate concerns to Ofcom, who are being informed simultaneously by Openreach that things are under control. Recovery plans continue to fail and Ofcom (informed by direct industry feedback) begin asking Openreach management tough questions. This results in Openreach senior team acknowledging for the first time that there is a wider problem that needs to be resolved.
Winter 2013/14:	Openreach trumpets EMP upgrade as the solution to the problem, asking CPs to get behind it. CP concern that EMP is too far away and too big a leap – request to focus on fixing current processes.
Spring 2014:	With OTA oversight there is continuing tension between Openreach and Industry around EMP Vs. fixing current processes. Eventually Openreach commit to do both, with DoJ the solution proposed by Openreach, after request to re-order SLG payments is proposed by industry (but then rejected by Openreach). Recovery plans continue to fail. New Openreach CEO takes criticism on the chin and acknowledges failures and promises new resources (unwinding previous cuts).
Summer 2014:	Tensions high, with DoJ Openreach team unpicking what is required and where things appear to be going wrong. Very apparent that Openreach have underestimated the scale of the task. Innovations like Clarity are delayed and EMP work stack takes a back seat for the first time.
Autumn 2014:	Further recovery plans have failed DoJ trial delayed. Scale of Deemed Consent / date management issues significant. It becomes apparent that despite the good intention of the Openreach team, the lack of a clearly understood internal processes, lack of jointed up delivery within various Openreach teams and the limitations resulting from the use of third party contractors limits the ability of Openreach to make positive change.
Winter 2014/5:	DoJ trial delayed further as full extent of the task becomes apparent. Trial scope is modified to make it more achievable to deliver. EMP is no longer on the agenda as DoJ and date management discussions dominate. Clarity is available but only in pull format.
Spring 2015:	Scaled back trial finally commences in April 2015. Deemed Consent usage rules still not fully agreed. New Openreach resource is finally coming through, but service crisis continues. April 2015 – Collaborative Service Improvement Eight Point Plan – further recovery initiative to focus on main points of inefficiency and improve delivery.

Source: Vodafone

In light of the above chronology regulatory action to incentivise improved service is overdue.



Our objectives to reform the provisioning process in order to make it fit for purpose are:

- a) date certainty, but not at the expense of extreme, long lead-times
- b) clear, timely and quality information flows throughout the process, and
- c) clear processes for circuit delivery recovery when problems occur – jeopardy management
- d) fair use of deemed consent and a transparent agreed process

Ofcom's proposals are likely to deliver the wider framework in order for these objective to be delivered. We consider that the current OTA monitored Ethernet SLA/G discussions will ensure that that detail is in place to ensure the practical application of our objective (b) and (c). However, given the proposed delays to DoJ and the very real increasing work stack facing Openreach, any material increase in performance from BT seems unlikely in the short term.

A process that works and a business that can deliver the throughput is a the essential starting point for meeting the performance targets set out by Ofcom and in our contracts. Whilst we understand that Ofcom is nervous about getting involved in the detail of provisioning processes or system notifications, a framework in which BT is incentivised to deliver is required. Processes that work; deemed consent clearly defined (see Annex 5), jeopardy and escalation processes committed and contractual reinforcement (see Annex 4) are all required to turn the Ofcom vision of improved service into reality for customers.

Provisioning

In the first 5 months of 2015, Openreach delivered 53%¹³ of Vodafone's circuits on time. A significant part of this failure was due to the fact that Openreach was using a different statistics, delivery against a final delivery date. For Vodafone, in the same time period, this falsely shows 97%¹⁴ on time delivery. Openreach has convinced itself that it is performing well and as a result has failed to address the problem. Customers want delivery against the initially agreed date, not a date which has been set subsequently and unilaterally by BT. The date management that BT has carried out in order to mask poor performance and managed SLGs has resulted in fundamental problems with the delivery process being swept under carpet. Ofcom has rightly recognised that this problem cannot be allowed to perpetuate.

We believe that Ofcom's proposals deliver the wider framework for our objective to be realised. We consider that the OTA monitored SLA/G discussions that have been started in June 2015 will ensure that that the detail of our agreements and expectation is in place.

Automatic sanctions

Ofcom itself has recently imposed minimum service standard regulation in the FAMR. Failure of FAMR standards results in a penalty fine, although Ofcom has not had to use this yet.

We proposed that automatic sanctions for breaches of the standard are applied.

¹³ Openreach data

¹⁴ Openreach data



A link between performance and profits

In the Leased Line Charge control that accompanies this BCMR, Ofcom includes within the charge control calculation the cost of SLGs and the appropriate level of staffing to maintain services levels. It might be more appropriate to link the failure to meet an SLA with the outcome of the charge control, in the same way that the Charge Control has been set up to allow BT to meet the SLA.

Ofcom proposes to use separate processes to impose fines in the event of a breach of the minimum service standards. Whereas in water markets, Ofwat has created an automatically triggered linkage between the level of quality and the charge control formula: where sub-standard services / failure to meet quality standard leads to a lower rate of return being permitted for charges in the period. It would be appropriate for Ofcom to consider both (1) automatic fines and (2) charge control linkage formula as sanctions against failure of the QoS regime. Given the charge control allows the costs of SLGs and staffing it seems appropriate it would contain the counter balance in the event of failure. We have commissioned Frontier to report on the manner in which Ofwat has linked performance to profit, this can be found at Annex 2. For us the Ofwat system provides a fully functional solution which prescribes the regulatory requirement and addresses the consequences of failure clearly up front.

Scope of QoS measures

Ofcom proposes only to regulate QoS for EAD services. Provisioning quality is essential for the range of services offered by BT. We consider that the proposals require extension to cover the wider CI set of services including OSA and dark fibre. For the provision of EAD LA and dark fibre LA services CPs require interconnection and accommodation services. These services also have a range of provisioning issues which raise wider competition and EOI concerns as BT does not consume these products. Access to BT's exchange space has limited SLAs that cover only the site survey process but do not address the timely provision or proactive management of exchange space by BT. We discuss the changes required to the product processes earlier. These should be backed up by minimum standard principles imposed by Ofcom.

Limiting regulation to certain products leads to a greater likelihood that in periods of crisis the less well regulated services will be deprioritised. Ofcom must put in place adequate measures to protect against this.

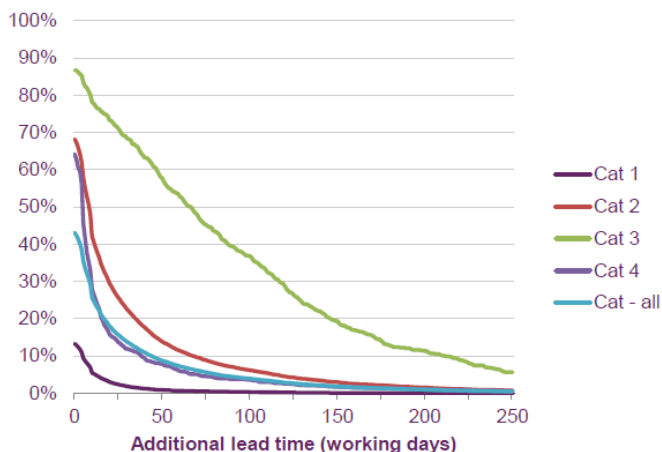
Repair Processes

Ofcom notes that CPs have not complained about repair services as much as provisioning and that repair has performed largely at its target. We agree that repair has not been as disastrous as provisioning, however we believe this is in part to the way in which the statistic is generated and the inclusion of statistics of faults raised but not accepted. CPs raise faults with BT which are assessed by the fault desk but then immediately handed back as not being a fault, in BT's view, this is Right When Tested, If BT does not believe this category of faults are indeed faults, then they should also not be included in the fault repair statics as no repair has occurred.

Question 13.1: Do you agree with our assessment of Openreach's Ethernet provisioning process, how it has been working in practice, the root causes of performance deterioration and process developments? Does our assessment reflect your experiences and understanding of Openreach's wholesale Ethernet provisioning performance? If not, please explain why and provide us with any supporting evidence.

Yes, we find that Ofcom has undertaken a robust review of the problems with the provisioning process. Ofcom's Figures A17.17 and A17.19 below are illustrative of the delays to orders that have been routinely occurring.

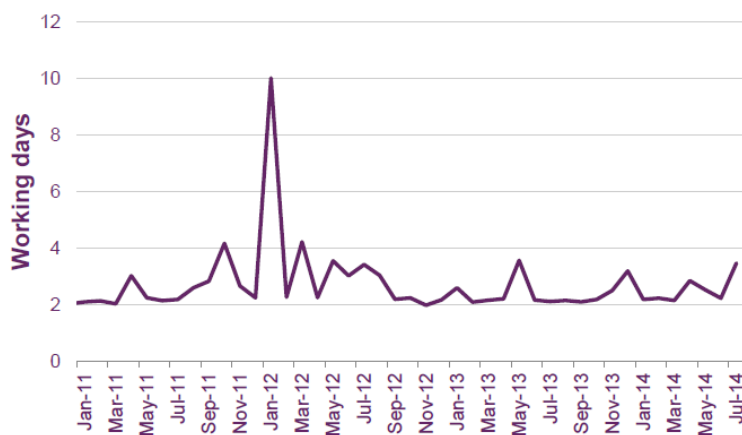
Figure A17.19: Percentage of orders experiencing more than a given level of change in lead time, i.e. delay (2014, excluding customer caused changes)



Source: Ofcom BCMR 2015

We agree with Ofcom that there is clearly a problem with the use of stop the clock by BT, in order to effectively buy itself more time to provision a circuit and therefore avoid SLGs. The data shows that at July 2014 when more than 90% of orders had delayed validation that the delay to valid was 3 working days, thus adding an additional 3 day lead time to order categories.

Figure A17.7: Average delay (working days) until validation, for orders not validated by 5pm the next working day



Source: Ofcom BCMR 2015

At the same time the numerous changes to CDD per order would suggest that there is a high performance against final CDD. A better metric shows the performance additionally against the initial CDD. We show a chart below that presents both achievement against CDD and initial CDD. There is a stark difference. We consider that Ofcom is correct to identify the disparity between the initial CDD and the final performance.



Under the current regime BT is able to change delivery dates in order to give it more time to deliver a service, but this is without penalty if it can use "Deemed Consent" to the date change. We are delighted that Ofcom has recognised:

- a) the importance of having reasonable lead times (average minimum levels)
- b) that BT must keep its promises (importance of first CDD) and
- c) that BT is to take the responsibility of managing its suppliers and processes and that the clock cannot be stopped for BT issues.

This chart below sets out the SLG payments to Vodafone in the last two financial years. In a back drop of volume increases, and service crisis, it is odd that actual SLGs paid have fallen. This suggests to us that Deemed Consent has been used in the latter year to reduce SLG commitments.

[8<]

Source: Vodafone

Question 13.2: Do you agree with our provisional conclusions on Openreach's performance? If not, please explain why, and provide us with any further supporting evidence.

Yes we do agree with Ofcom's conclusions. Analysis of performance standards based upon the Openreach statistics is misleading. This is because Openreach incorporates within their statistics the performance achieved as a result of managing the outcome of the process eg deemed consent periods are excluded and delays in order validation are not shown. However even with the inclusion of these "preferred" statistics it is evident that performance is still below expectation. BT has recently provided information about performance to initial CDD. This is the most revealing statistic of the issues that underlie provisioning. It is shown in the chart below and only has been available since 2015.

[8<]

Source: Vodafone



Question 13.3: Have we accurately captured the reported impact of poor performance? If not, please explain why and provide us with any further supporting evidence.

Yes, Ofcom has captured the impact of poor performance.

We would categorise poor performance as follows:

1. Failure to deliver circuits as promised (missed / delayed CDD)
2. Extension of order category lead times
3. Failure to communicate effectively and informatively during the provisioning process
4. Failure to put in place jeopardy management for circuits where provisioning aspects have gone wrong
5. Misuse of the order acceptance process stopping the clock from starting by delaying order validation (as evidenced by Ofcom in Figures A17.6 and A17.7)
6. Misuse of the deemed consent contract clause to stop the clock on the ordering CP side to avoid SLG payments in the event of missed CDD
7. False application of deemed consent contract clause via applying stop the clock on the ordering CP side via false classification of issues as ordering CP issues
8. Failure to proactively pay SLGs when challenged on false application of deemed consent

It is clear to all that BT has been successful in masking its poor performance by using preferred statistics that do not expose the use of Deemed Consent or other such date management tools such as delaying the clock to start the countdown to CDD i.e. failing to validate orders in a timely manner. Presently industry is experiencing delayed order validation and the clock starting, which presumably gives BT more time in the provisioning process. Clearly this loophole cannot be allowed to remain. CPs have proposed as part of the SLA/G negotiations (see Annex 4) that where BT does not validate an order by end of the next working day as is required by SLA then the clock is deemed to have started from that time regardless of when the order is eventually validated. Order validation by end of the next working day as is required by SLA that the clock is deemed to have started from that time regardless of when the order is eventually validated.

Question 13.4: Do you agree with our assessment of Openreach's incentives to deliver acceptable Ethernet provisioning quality of service? If not, please explain why and provide us with any further supporting evidence.

Yes, we agree that the current SLGs and postponement of service revenues do not act as a sufficient incentive upon BT to achieve appropriate levels of quality of service for provisioning. Provisioning quality of service first arose as an issue in the 2009 – 2012 period. During the current market review provisioning has been in crisis since late 2012. It is clear that the obligations to:

- a) provide a reference offer,
- b) offer service on an EoI basis,
- c) publish KPIs and the
- d) SLA/SLG frameworks

in place today have not created sufficient incentives upon Openreach / BT to deliver acceptable Ethernet provisioning quality of service. Openreach have simply invested time and energy in SLG avoidance by Deemed Consent. SLGs for FY 2014-15 were 50% down on FY 2013-14 with no significant change in performance of Ethernet delivery.



The cycle of repeated periods of failure must be tackled. Openreach's incentives to attend to the root causes and fix the problems must be addressed. SLGs though regarded at headline level as appropriately compensatory and sufficiently high to motivate good behaviour have alone not delivered the behaviour expected, and in any case were intended to reflect the late delivery of specific circuits in non-standard circumstances. Instead we are faced with systematic failure to deliver circuits as a result of under-resourcing and non-performing processes.

We see that resources within BT are used to manage date changes in order to reduce the SLG burden, rather than focusing on circuit delivery.

Ofcom's NPV calculation within Table 13.9 is illustrative of how quality of service failure is less harmful to BT than a competing supplier owing to its SMP operating conditions. In a competitive market, failure of this scale would lead to customers seeking alternative suppliers. In this market BT is confident in the knowledge that customers have no alternative supplier.

We consider that the incentives require enhancement and agree this is best achieved in the way in which Ofcom proposes – the setting of thresholds for performance. Where performance is not above the threshold a clear conclusion of failure and breach can be identified. BT should be incentivised to perform above the threshold, with the threshold acting as the final backstop.

Question 13.5: Do you agree that it is appropriate to exclude customer caused delays from the minimum standard performance measures for provision activities? If not, please explain why.

Yes it's unfair to expect Openreach to eat in their lead-time genuine customer caused delays. However the appropriate level of evidence must be provided where these delays are incurred.

Question 13.6: Do you agree that it is appropriate to include the "non-customer" delays (also including Third Party delay in Openreach data) in the minimum standard performance measures for provision activities? If not, please explain why.

Yes we agree. It is essential that only genuine delays which are directly caused by the ordering CP or the end customer result in the provisioning clock being stopped. Any other service aspects which cause delay should be counted and not excluded.

The issue of whose clock bears delay has been hotly contentious over the past review period. Ofcom has rightly concluded that it is necessary to specify which activities may or may not be allocated to the ordering CP's clock.

Matters of network build, BT's contractor issues, road traffic management requests and way leaves are all matters for BT and not applicable to extending / stopping the clock of the ordering CP. We presume that the incentive of publishing performance without these allowances will indeed mean that BT will stop using these excuses, however it is no means certain that BT will agree to modify its contract with us in order to do so. It would be useful if, as a minimum, Ofcom could set out its expectations for BT's behaviour as a result of the new publication and service standards.

Vodafone believes it is essential for Openreach to provide contractual change proposals within 3 months of the BCMR to ensure that these Deemed Consent changes are formalised.



Question 13.7: Do you agree that it is appropriate to include delays due to events covered by MBORC declarations in the minimum standard performance measures for provision and repair activities? If not, please explain why.

Yes.

Question 13.8: Do you agree that it is appropriate to apply the minimum standards nationally? If not, please explain why.

Yes

Question 13.9: Do you agree with our proposals regarding the application of minimum standards over the three year period of this review? If not, please set out your reasons and alternative proposals.

Yes, as long as it is clear that the minimum standards are backstop standards. It must be clear that desired levels of services should be higher and contractual obligations can / should be more ambitious. Minimum standards are not THE standard.

In table 13.6 Ofcom reports on provisioning timescales which exclude customer caused delay. It would be useful to understand the definition of 'customer caused delay' as the removal of these delays leads Ofcom to determine the average provisioning timescale for each period. Our support of Ofcom's minimum thresholds is predicated on them being a genuine reflection of average capability. We provide in Annex 5 an outline proposal.

We must reiterate our objective is improved service delivery from Openreach, extended regulation is a necessary to get there, not an end in its own right. Vodafone is concerned that Openreach are directionally moving towards rolling out the DOJ trial nationally based on EMP only. Given the release schedule on EMP this is likely to take at least 12 months before CPs will feel the benefits of the revised process. Vodafone therefore struggle to see how Openreach will meet these targets within the timescales specified given DOJ has been touted as the game-changer to enable performance improvements against their metrics, especially iCDD.

Question 13.10: Do you agree that it is appropriate to use a combination of initial CDD and TTP as the basis around which to set the new delivery date certainty minimum standards? Please provide reasoning for your answer. If you do not agree, please also give your proposed alternative including reasoning.

Yes, we agree that both CDD and TTP are critical to determining an appropriate compliance system. Without TTP compliance to CDD can simply be achieved by offering extensively long CDD targets. However, together with a TTP measure with separate compliance obligations the incentive to provide extended CDDs is removed.

It is imperative that Openreach do not unduly extend the timescale to provide the CDD such that it is so long as to be practically next to the CDD to ensure it can be met. However, what we really seek is real improvement in the level of service delivery that we experience. However, given the above mentioned concerns with a nationwide rollout of DOJ and the lack of clarity over whether the 3rd party and Openreach Deemed Consent reasons can still be used or not, Vodafone is concerned that Openreach will continue with the existing process. This process is fraught with issues where planning is handed over to Test Rod & Tube work with the attendant issues over traffic management and council delays. The process just to apply for



permits to work is lengthy and convoluted and historically an area where Openreach has "hidden" a multitude of sins under the reasoning of '3rd party delay'.

CDD is the measure we use to make *our* promise to *our* customer. Where CDD changes or fails we need to engage with our customer to rearrange plans and manage relations / expectations leading to a sense that Vodafone has failed.

Time to provide against CDD is very important as it retains the focus upon maintaining urgency and improving delivery times and processes and extends the regime beyond date certainty to also achieving good business outcomes via forward planning of networks and resources in order to achieve timely delivery.

Question 13.11: Do you agree that it is appropriate to set the metrics for the delivery time certainty minimum standard to the initial value of 80% and final value of 90%? Please provide reasoning for your answer. If you do not agree, please also give your proposed alternative.

Yes, we agree with these values as back stop **Minimum Standards**. It is important to recognise that these are minimum standards and of course our ambition for quality of service levels is much higher. Our expectation is that BT would seek to operate to achieve a higher standard than the minimum value. As backstop minimum standards these are appropriate.

Question 13.12: Do you agree that it is appropriate to apply limits to mean TTP and upper (97%) and lower (40%) percentiles as the basis for the lead time minimum standard? Please provide reasoning for your answer. If you do not agree, please also give your proposed alternative.

We agree with the package of measures that jointly create a quality of service minimum standard regime. The additional upper and lower centiles seek to address gaming within the wider obligation and we support these.

Question 13.13: Do you agree that it is appropriate to set the upper percentile initial and final values to 159 and 118 working days and the lower percentile initial and final values to 30 and 29 working days for the lead time minimum standard to the values? Please provide reasoning for your answer. If you do not agree, please also give your proposed alternative.

Yes, we agree with the package of measures that jointly create a quality of service minimum standard regime. The additional upper and lower centiles seek to address gaming within the wider obligation and we support these. KPI reporting on actual average lead times for each order category will ensure that BT are not favouring one order types above another to meet the minimum target.

We note in Table 13.5 6% of orders are missing. It is not clear what these orders are and the impact they have on ability to meet timescales.

There is a fear here that Openreach could radically improve Cat 1 delivery based on the quick win process to meet these targets at the expense of Cat 2.2 lead times: a situation where we have quick wins at one end balancing out long painful Cat 2.2 deliveries at the other end of the spectrum. An in life monitoring activity will be necessary to ensure no statistical offsetting.



Question 13.14: Do you agree that it is appropriate to set the repair time minimum standard to 94%? Please provide reasoning for your answer. If you do not agree, please also give your proposed alternative.

We disagree and feel this needs further consideration.

Openreach's current performance at around 94% does not reflect CP or end user experience because it is bolstered by a very high rate of what Openreach terms Right When Tested i.e. faults which come in to Openreach's Customer Management Centre and are turned around without any action being taken and without an engineering visit. Once these are excluded Openreach's performance is in the 70s rather than at 90%.

The graph below shows the variance on Vodafone circuits between the repair performance which includes Right When Tested and the performance to SLA once Right When Tested is removed.

[8<]

Source: Vodafone

We feel this should be the measure used to set any minimum standard i.e. genuine Openreach faults, generally requiring an engineer visit. Targets should incentivise an improvement from the existing performance.

Question 13.15: Do you agree with our proposal to set a new SMP services condition which provides for Ofcom to direct BT to comply with all such quality of service requirements in relation to network access provided by BT pursuant to our proposed general and specific network access requirements? If not, please explain why.

Yes, a quality of service obligation is essential and we fully support a new SMP condition. The proposed condition allows Ofcom to step-in during the life of the market review to make and modify directions in relation to quality of service. This is essential as we have found that during this market review period Ofcom has lacked the capability to step-in in this manner, despite clear failings being evident. Market issues occurring a result of BT's SMP do not make themselves evident only at times of review and Ofcom does need to be able to take action whenever is necessary.



Question 13.16: Do you agree that it is appropriate to assess compliance with the proposed minimum standards on an annual basis? If not, please explain why.

No, we do not agree with proposals to assess compliance at the end of the year and therefore assessing compliance as an average overall.

The purpose of annual assessment is so that short term peaks and troughs in demand and resourcing can be accommodated. Vodafone considers that troughs and peaks are only an issue in the event that BT attempts to resource only to meet the minimum standards. We note throughout this section that it is important to stress that the minimum standard is not the attainment level expected or to be strived for. By allowing compliance to be averaged across the year a less onerous test against the minimum standard is applied. We do not agree with this approach.

It is our view that assessment should be on quarterly basis. This approach is appropriate to the goal of setting backstop minimum targets. If more stringent targets had been set, then a longer run approach might be appropriate, however given these Minimum Performance Standards, a quarterly review of performance is right, and most probably in line with internal target setting around its financial and other management metrics. It could be offset by an annual review that assessed trend (is performance steadily, increasing, stable or reducing, which might go some way to offset penalties) or a particular harsh winter may need to be taken into account when looking at particular quarter's set of results. Given the nature and importance of the problem, it feels wrong that we would not review it until April 2017.

Question 13.17: Do you agree with our proposals to direct BT to comply with minimum performance standards for setting initial contractual delivery dates, delivery against initial contractual delivery dates, fault repair performance and overall mean time to provide? If not, please explain why, and set out your proposed alternative.

Yes, we agree that Ofcom has set an appropriate framework for the minimum performance standards for both provisioning and repair. The reference points Ofcom proposes to measure are the key points within the process.

These minimum standards represent the worst case scenario for performance rather than the expected standard for performance. It is right that contractual obligations contain higher targets, with the regulatory obligations providing the safety blanket in the event that contractual obligations and associated SLGs fail to ensure provisioning of appropriate standards.

Ofcom must be clear with BT that the minimum standards represent the lowest point to achievement and that the minimum levels are not the expected standard levels of attainment. BT's ambition and operational plans should be for levels in excess of the minimum.

It is important that the deemed consent changes imposed by the BCMR are reflected in the contract within a minimal period (we suggest 3 months).



Question 13.18: Do you agree with our proposals to direct BT to provide the KPIs we have specified? If not, please explain why, and set out your proposed alternative.

Yes, we do agree with the need for BT to provide specific KPIs.

We consider the following KPIs should be added or amended:

- **Monitoring the tail.**
The present measure just asks for age of the tail rather than volume and percentage of WIP, we consider that these two additional metrics are necessary.
- **Order validation & performance to issuing CDDs**
At present this only asks for how completed orders performed. We would need this to be monitored in real time otherwise an order would only show up as a failure for one of these metrics once it completes the relevant milestone. This would ensure that building performance issues in these areas can be identified early and not after they have already happened.
- **Average number of changes to CDD**
We don't believe this constitutes actual Deemed Consent monitoring. We propose that Ofcom additionally measures minimum and maximum number of date changes per order.
- **KPI update frequency post KCI 3**
We require reporting statistics on all key customer information (KCIs) stages in any existing process. While more than one process exists reporting must be shown per process.
- **Repeat fault rates**
We require statistics on repeat fault rates i.e. the number of circuits going faulty a second time within 28 days expressed as a percentage of all circuits suffering a fault during that period, such measures to be provided on a monthly basis.
- **DOA rates**
We require statistics on dead on arrival faults i.e. the number of DOA faults raised per month and per year expressed as a percentage of all installations over that period.
- **MTTR**
There should be KPI around mean time to repair i.e. the average out of service time on all genuine Openreach faults (i.e. excluding customer clears) on a monthly basis.
- **Fault rate**
There should be a KPI around fault rate i.e. the percentage of the install base experiencing a fault on a monthly basis.
- **Repairs impacted by MBORC**
We require statistics on the number of faults each month where MBORC has been declared.

As part of the SLA/G negotiations CPs have proposed that instead of SLGs for circuits that go into Jeopardy Management that we instead have KPIs to identify how well BT is at managing circuits where things have



gone wrong (Jeopardy circuits) and the time taken to get circuits back on track. We propose that these additional KPI measures are added to the general list of KPIs for simplicity.

They are:

- Number and % of orders receiving the jeopardy KCI (KCI4.1 in DOJ parlance) and Number and % of orders which then failed to meet the "committed date" where a jeopardy KCI was received
- Number and % of orders receiving multiple the jeopardy KCI (and the spread of these)
- Number and % of orders that miss CDD where no jeopardy KCI was sent
- For orders that receive the jeopardy KCI, the spread of duration to receiving the resolution KCI (KCI4.2 in DOJ parlance)
- % of orders that where a jeopardy KCI was sent and where a re-plan was required (i.e. returned to KCI2 in DOJ parlance) plus the % achieved within the 8 days

Question 13.19: Do you agree with our proposals to maintain the existing SLG Direction? If not, please explain why, and set out your proposed alternative.

Yes, in the event that CPs and BT have failed to agree a new SLA / G approach in time for the market review statement it is essential to keep in place the existing SLG direction.

It should also be recognised that the direction may be important for the full range of services within the BCM. At present discussions between CPs/BT and OTA are centred upon the EAD provisioning process. A backstop direction could remain relevant for OSA, dark fibre, accommodation and interconnection services and repair for all services.

Question 13.20: Do you agree with our proposals regarding the conduct of, and principles and criteria to be applied from now on, to contractual negotiations concerning SLAs/SLGs for the provision of Ethernet services? If not, please explain why, and set out your proposed alternative.

We agree with the framework of agreeing changes to SLAs and SLGs for BCM services during the life of the market review. SLA/G regimes apply to both provisioning and repair for the BCM service set therefore having a clear and agreed framework for changes to be proposed and adopted is helpful.

In the context of the SLA/G regime for EAD the process has already been kicked off. By the time of the final statement this matter should either, have been agreed and closed down, or the areas of disagreement be fully documented for Ofcom resolution. Wherever possible we would encourage Ofcom to ensure the new review period commences with as many issues closed down as possible. It is possible that Ofcom will be able to document the new principles for EAD which industry have drafted deliberately process neutral so that any agreement is easily applied to any process (given that we presently have 3 different processes this is important).

The new KPIs and minimum standards should be reflected through new contracts with Openreach. Historically, Openreach has been very resistant to any changes to contractual terms and conditions related to quality of service. It would be beneficial for Ofcom to set expectations about contractual certainty that new processes or SLA might provide. It would be faintly ridiculous if BT has one set of KPIs agreed with Ofcom and another set in contracts with no linkage between the two (it would be possible to see reasons for



differences, for instance an SLG may be payable due to a contractual trigger on a particular order (e.g. late delivery), but because the regulated KPIs look at the whole industry order set, it might be within its performance parameters for a particular time period and therefore appear not to be in breach of contractual SLAs). However these differences should be recognised and planned in, and not as a result of a separate structure for the contract that bears no linkage to the regulatory framework. It is more than likely that assistance will be required from Ofcom or the OTA to support the update of the contract to avoid the list of 'agree to disagree' points from any contractual negotiation.

Ofcom has identified the misuse of deemed consent. Deemed consent is a process of deviating from agreed SLAs and is a way of getting agreement from a CP to longer lead times that potentially breach the SLA but do not incur SLG payments as a result. We consider that Ofcom must apply clear guidance on when an activity can be attributed to the purchaser of the service and therefore when the provisioning clock can be stopped. Our understanding from the consultation document is that BT is only permitted to stop the clock / apply deemed consent as a result of issues from the purchaser / end customer e.g. inability to gain access. BT is not permitted to stop the clock / apply deemed consent in relation to issues concerning its contractors, traffic management request and way leaves. It is essential that the guidance for this is unambiguous. The appropriate designation of these activities will impact the data and statistics for both the KPIs and the compliance with the minimum standards. We set out in the Annex how Ofcom might give clarity to its proposals.



15. Hull remedies

Question 14.1: Do you agree with the remedies that we propose for KCOM in the retail TI and AI markets? If not, what alternative remedies would you propose and why?

Question 14.2: Do you agree with the remedies that we propose for KCOM in the wholesale TISBO and CISBO markets? If not, what alternative remedies would you propose and why?

It is our view that the lack of competition within Hull has enabled KCOM to charge in excess of rates found in the rest of the UK for its services.

We consider that the remedies should include a requirement for KCOM to have services prices that are equivalent to BT.

Service pricing in Hull is in excess of the prices for the rest of the UK. Customers in Hull appear to be badly served by KCOM's current offer. For example Openreach EAD LA product 100Mbit/s Ethernet is £1,605 annual rental and KCOM pricing for this service is circa £15,000 annual rental. KCOM should have a remedy which forces pricing in Hull into line with the rest of the UK.

As with BT we consider that a 3 year notice period is required for platform closure for legacy services. Our comments on migration issues and the lack of options that mimic an effectively competitive market apply equally in Hull.



16. Other issues

Project services

Ofcom responds to CPs concerns about the role of project services. Ofcom has sought to analyse the outcomes of circuits which use project services during the provisioning process. This review has concluded that circuits using the process do not particularly benefit from the process, although Ofcom indicates that the outcomes noted do not highlight the impact on complex orders / projects for which provisioning will likely have encountered problems on route.

The EAB takes a contrary position¹⁵, suggesting that Openreach's improved service to downstream BT is a direct result of the use of Project services. We understand that project services is a regulated ancillary service – yet its pricing is not set under the charge control nor is its performance monitored. The Project Services function allows the customer to obtain more information about the order journey than is typically provided to CPs during their standard engagement with Openreach, and as the EAB has found also drives up process performance.

As part of this market review we consider it is essential that a detailed analysis of what Project Services has actually provided and how it has improved performance (as per the EAB's analysis) takes place. Ofcom to understand the capability a project services manager has access to and how this is different / above and beyond the standard provisioning process.

In both an active and a passive environment we want the capability to upgrade an order to a premium ordering proposition. At present project services is the function offered by BT that meets this brief, however it offers to commitments, and yet on the other side appears to have a great impact. We urge Ofcom to carry out a full investigation into the effect of Project Services on the market and in particular identify any areas where discrimination may occur. We believe that Project Services must be put on a clearer regulatory footing, such that EoI, and its performance can be measured and monitored. Given the uncertain and poor performance of Openreach's delivery performance, it might even be necessary for Openreach to go so far as to provide all its QoS KPIs separately for circuits where Project Services is used (split by internal and external orders), in order to expose the underlying performance of products and processes.

¹⁵ "The use of project services removes some of the reasons for order failure and this has had the effect of improving BT CP performance."

[https://www.btplc.com/Thegroup/Ourcompany/Theboard/Boardcommittees/EqualityofAccessBoard/Publications/EAB Annual Report 2015.pdf](https://www.btplc.com/Thegroup/Ourcompany/Theboard/Boardcommittees/EqualityofAccessBoard/Publications/EAB%20Annual%20Report%202015.pdf).



Annex 1 Migration report



Annex 2 Review of QoS in water and energy sectors



Annex 3 dark fibre product requirements



Annex 4 CP SLA/G requirements proposal



Annex 5 Outline for “deemed consent” type rules



Annex 6 Towerhouse Geographic market analysis approach report for PAG



Annex 7 Frontier dark fibre pricing report for PAG