BT's response to Ofcom's consultation document:

The UK Communications Infrastructure Report

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BT welcomes comments on the content of this document, which is available electronically at http://www.btplc.com/responses

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Executive Summary

1. In making this response to Ofcom's consultation on the UK Communications Infrastructure BT acknowledges that the Digital Economy Act clearly places a requirement on Ofcom for a report. However, the precise requirements for the data to be captured are ill defined and we look forward to working with Ofcom and industry to bring greater clarity. We will continue to refine our views on how Ofcom could best construct specific data requests and reports – and look forward to presenting our ideas on specific ways Ofcom could do this during the coming weeks/months. Further discussions with Government to refine understanding of the purpose and set expectations, may be necessary to the production of a fit for purpose report which avoids ambiguity and permits industry to engage in a positive manner.

2. We acknowledge and agree Ofcom's plan to use data and metrics which already exist and we fully support Ofcom's stated intention of minimising any extra burden on industry. Even where operators' systems are already set up to identify and collect certain metrics there is nevertheless likely to be a very significant overhead and cost incurred if this is required to be presented in a different way. It is also very important to ensure that data which Ofcom may collect for one purpose is not erroneously used for another purpose resulting in false or misleading conclusions.

3. To this end we believe that it is important for Ofcom explicitly to agree with BT and other potential providers of network data, exactly what data it plans to request, prior to issuing such requests. It is vital that a very clear statement of data requirements is established as early as possible – in order to minimise any additional burden imposed by the collection of the data. In order to meet the exacting timetable facing Ofcom, we feel it is necessary to begin discussions now, to agree specifically which data and metrics Ofcom will seek and how the data can be obtained and presented effectively and accurately. We note that Ofcom acknowledge the likelihood of needing ongoing discussions, possibly right up to the initial requests for data, but would emphasise that even so, it is important Ofcom should not lose sight of the need to minimise the burden on industry.

4. The indication in this consultation would have led us to acknowledge that Ofcom has indeed considered its approach to data gathering in the light of the need to "minimise the burden on operators" (executive summary paragraph 1.4). However, we have received before this consultation even closes, a section 136 request for information relating to broadband speeds and the performance of the fixed network which requires the provision of in excess of 1 billion pieces of data from BT alone. There is an important point about proportionality here which is recognised by

Government in its guidance. Ofcom may already have access to sufficient data to produce the report which Government have asked for without the need to collect more. In any event we urge Ofcom to use restraint in exercising their powers under section 136 of the Communications Act.

5. In addition to Ofcom's intention to use data which is already readily available, minimisation of any burden will also be supported if Ofcom aims to have a stable data set over a series of reports. However, there is also a need to be flexible enough to cope with evolving changes in the data collected for operational reasons. Indeed, we would argue that for these reports to be meaningful, they *must* reflect such changes in industry practice. Any outcome which has the effect of constraining the way in which operators collect operational data due to pre-determined needs of this report would represent a case of 'putting the cart before the horse'.

6. Conversely, while it may appear that repurposing data already collected for other reasons would further limit additional effort on the part of CPs, we believe this could cause inadvertent misinterpretations. We are clear that we will instead wish to agree to repurposing of data already provided, on a case by case basis. We will not be able give blanket permission for any and all data to be used for multiple (unknown) purposes when we submit. Such an approach in our view is necessary to help ensure that information is being interpreted appropriately, used only for its proper purpose and especially where the information requested is very granular, helps to guard against inappropriate use of personal data.

7. It is important to recognise the potentially brand affecting nature of public dissemination of Ofcom's report. We therefore strongly believe that companies participating and/or identified should have the opportunity to comment (and correct) *inadvertent* distortions before any publication even including to the Secretary of State. National and international comparisons will undoubtedly need careful attention, especially as there are not standard detailed data definitions. We note that Ofcom have already acknowledged that some areas of the report (in particular availability and resilience) may contain information relating to detailed metrics, publication of which would be wholly inappropriate.

8. Ofcom refers often to comparability. Primarily Government's request appears to us to be about identifying the overall health of the UK's communications infrastructure. This entails painting an holistic picture, identifying how well the networks integrate and work or interoperate together. Much of what Ofcom plans to concentrate on will indeed support such a report. However, to seek to collect and use the same data to make genuine comparisons between different networks with a view to informing consumers choice, be invalid, dangerously misleading and contrary to the purposes

of the report. There are still places where no choice is available and therefore comparison cannot be valid. There are also issues of scale as well as interdependence to consider. Before Ofcom finalise the detailed data requests, it is vital that a very clear view is developed of the specific purpose and format that each element of the final report will have – and Ofcom should collect the minimum data required to support that.

9. The main body of this response gives BT's answers to specific questions and discussion areas identified by Ofcom. Many of those questions themselves lack detail. We presume this reflects the swiftness with which Ofcom has sought to begin this process. Nevertheless, we have tried to give an appropriate level of detail for each of Ofcom's areas of interest. Even at this early stage, however, we believe it will be important to recognise that looking at some of the massive data-sets which Ofcom have apparently identified does entail acknowledgement that some statistical and/or systematic data errors will inevitably be encountered. Much of the role of a large CP is actually about managing and understanding this type of risk.

10. BT looks forward to further positive dialogue with Ofcom to focus more precisely on the information which is needed to produce a clear and appropriately evidenced report which is fit for the specific purposes set out by Government.

Response to Consultation questions:

Overall Approach

***Question 1**. Have we got the scope right? Is the set of networks, services and operators we propose to report on appropriate and is our approach to data gathering and analysis correct?*

The considerations leading to decisions about the scope are reasonable, but Ofcom appear to be considering multiple purposes. For any given set of data, therefore, clarity regarding what the data is expected to illustrate will be essential to a quality output and report. The use to which the data is intended to be put must also be transparent, at least to individual providers, in order to be confident of validity. So the general scope may be right, but will undoubtedly need to be refined during the year. At the point at which information is requested it will be essential to be clear what the purpose for its collection is.

We are concerned there may be some conflict in the fundamental purpose of the report. Primarily Government's request appears to us to be about identifying the overall health of the UK's communications infrastructure, this entails painting an holistic picture, identifying how well the networks integrate and work or interoperate together. Much of what Ofcom plans to concentrate on will indeed support such a report. However, to seek to collect and use the *same* data to make genuine *comparisons* between different networks with a view to giving consumers information enabling decisions around choice to be made maybe invalid, dangerously misleading and contrary to the purpose of the report.. There are for instance issues of scale as well as interdependence to consider. Furthermore, it is not the role of Ofcom to influence consumers' choice of CP.

The indication in this consultation would have lead us to acknowledge that Ofcom has indeed considered it's approach to data gathering in the light of the need to "minimise the burden on operators" (executive summary paragraph 1.4). However, we have received before this consultation even closes, a request for information relating to broadband speeds and the performance of the fixed network which requires the provision of in excess of 1 billion pieces of data from BT alone. We are concerned therefore that the full magnitude of the data collection activity which Ofcom may be contemplating to complete this report is of a breadth and depth which it will itself find daunting if not impossible to successfully analyse and interpret. Furthermore, the burden on operators such as BT alone could itself adversely affect network and business operations. Such an outcome was neither intended nor would it be regarded as acceptable by any of the stakeholders.

We believe there may be other ways of approaching the need to have a clearer view of the state of the nation's infrastructure. In particular one which perhaps more readily provides an 'aerial view,' better identifies weaknesses and gaps and yet does so in a non-invasive manner. We will be considering this in the coming weeks and hope to be able to discuss with Ofcom as our thinking develops.

***Question 2.** Do you agree with our approach to classifying different types of networks and services? Are there better ways to define them?*

The list in Table 1 provides a recognisable starting point. It is broad enough to permit generic comparisons. Generally it serves to identify what end product or service is being considered. We do however feel there may be a need for greater clarity in dealing with PSTN voice and what is referred to somewhat opaquely as 'voice overlay service'. This is, we suggest, an area for future discussion across industry to understand what metrics to provide and how to make this comparable. Voice overlay service is included in the list of technologies and we recognise this as an emerging service. At the moment though we doubt there are any operators who specifically collect data on this service, with the possible exception of service providers specifically operating in that space.

This is one example where it will be vital to ensure that the information is presented in a way which avoids misleading comparisons to be drawn and which does not lead inadvertently to brand affecting outcomes for any of the participants in this exercise.

Question 3. *Do you agree with our proposal to prioritise 2G mobile coverage and broadband speeds for the first report?*

We understand that Ofcom are already looking at these areas and to that extent assume that a) it is therefore sensible to conclude they are of relevance and interest for this report and b) there is already work underway which may make a report of relevance more practical to deliver in the timescales. We agree they are currently topical and therefore appropriate to consider now, However, given that Ofcom has taken action separately to require metrics related to broadband speeds we will refrain from commenting in this more general consultation in favour of our response and the ongoing discussions and debate specific to that more recent request.

Question 4. *Do you agree with our proposed reference date for the report as a date in June 2011 and are we allowing enough time for the provision of data?*

Since this is the latest reference date possible while remaining legally compliant, we agree that this is the most reasonable date which can be offered. It seems sensible to give as long a period as possible for preparation, in order to agree the questions and data. As indicated above and elsewhere it is important to bear in mind that even where measures are already recorded, there is still an overhead entailed in actually providing such data. So it is critical that we agree what the detailed data is that you will require prior to the actual request, and that we have agreed exactly the form of data transfer. Handling what may turn out, on the current broadband speeds example, to be a huge amount of data, is under any circumstances non-trivial. In some cases it is possible that commercial, personal and security sensitive data will need to be adequately protected too.

A June reference date avoids the potentially harsher winter conditions which can tend to skew the results, but the critical factor is that it is clear what the reference period is and that it is common across all the inputs. Three months appears to us a reasonable period over which to measure the data. However, since the date for the report has no further flexibility, the question of whether enough time is being allowed for provision of data needs to be turned round so that Ofcom instead allows the already mandated timetable to ***dictate*** the granularity of the questions being asked.

Question 5. *How can we improve the comparability of data between different operators?*

It is not totally clear what is driving the need for comparability, there is a need to ensure a meaningful report, but this should entail more the identification of substitutional and interdependence of networks than comparability. Even where direct comparisons might seem to be legitimate, questions of scale, geography, terrain, demographics, density etc may all need to be considered as part of any genuine comparative study. We know that Ofcom is already aware of the importance of such factors from its work in international comparisons. There are very few instances where there are genuinely multiple networks of the same scale and type to compare (except in the mobile space – where we do expect that a range of directly comparable data between the different mobile operators will be both practical and sensible to include in the report).

Use of Electromagnetic Spectrum

Question 6. *Do you agree with our approach for reporting on the use of electromagnetic spectrum?*

BT has no particular comment on this aspect of the report noting that we would agree that Ofcom, as the spectrum management authority, ought to have sufficient data already available to it to be able to provide a sufficiently robust report to government without the need to collect more.

Coverage

Question 7. *Do you agree with our approach to measuring coverage?*

We understand that Ofcom is proposing to gather the following data from BT:

- Premises un-economic to serve for fixed voice service
- Postcode level data on actual premises passed by ADSL for broadband services
- Postcode level data on actual premises passed by ADSL2+ for broadband services
- Postcode level data on actual premises passed by VDSL for broadband services
- Postcode level data on actual premises passed by FTTP for broadband services
- Postcode level data for premises passed for low bandwidth leased lines

We broadly agree with the approach to measuring coverage, although we would emphasise that for some data types the detailed information will be subject to statistical error and may therefore be best collected in some aggregated form. Considering different service categories separately we have the following comments:

Voice

As BT is subjected to a USO, Ofcom rightly highlight that our network potentially extends to all premises except a very small number where the end-user has either not requested fixed telephony services or the costs associated with its provision above the Ofcom threshold have not been acceptable to the end-user. We therefore expect that Ofcom would only be interested in BT supplying the set of data relating to non-viable premises i.e. NOT postcode data related to premises passed.

In fact we don't specifically hold any data pertaining to "Premises uneconomic to serve under the USO" (indeed it is questionable whether this actually identifies a particular category or why there would be any point in BT seeking to collect such a measure since the USO is deliberately and specifically not related to viability per se.) We can however identify those lines where an Excess Construction Charge has been applied (and whether the CP or end-user decided to pay it or not) – and we have data from 2006 for this. It should be noted that similar data prior to 2006 is not available.

Broadband

ADSL and ADSL2+ coverage is defined geographically in terms of exchange areas as the equipment is based in the BT exchange. Data is readily available from BT as to which technology is available from which exchange. Data provided by BT will be for BT Wholesale's broadband service. Other communications providers may not offer the same technology in the same location. Ofcom would therefore need to request the same data from all the LLU-based operators. Some may also be offering SDSL-based services.

As we have previously highlighted to Ofcom, there are significant issues with postcode granularity, especially when it comes to broadband performance. In rural areas postcode 'boundaries' may be quite large leading to very different DSL performance metrics within the same postcode. This may give a slightly mis-leading view especially when it comes to not-spots. This caveat will need to be borne in mind as data is being interpreted, especially when looking at comparability between network offerings.

Coverage data could also provide the required data for BT's NGA roll-out of VDSL (FTTC) and FTTP. As NGA roll-out will occur at sub-exchange level, there will be more statistical or systematic mis-matches associated with reporting this data at postcode granularity. For example, not all premises in a postcode area would be served from a specific cabinet. Despite these 'errors', we do agree that postcode is probably the most appropriate level at which to collect data. Collecting data for individual premises is likely to result in greater errors due to inconsistent datasets and the complexity of dealing with premises that one provider passes but doesn't currently serve. We would also highlight that the definition of what constitutes "passing" a premises will likely be different between different operators. Ofcom need to ensure this is considered before providing any comparison report on a fair basis.

It is unclear from the consultation whether Ofcom intends to collect data on line performance in order to assess the geographic variation in service availability. BT models broadband performance and has a theoretical xDSL broadband speed estimate for all premises on Openreach's copper network. This estimate is based on a certain assumption set including a specific "rate-reach curve". If Ofcom were to request such performance data, prior agreement would need to be made with Ofcom as to which assumptions would be most appropriate to use and accept that any such modelled data has its limitations. At the BT Wholesale level, measured xDSL speeds are available for the lines where BTW currently offer services. Comparable data would need to be collected for the LLU operators which provide broadband services on the lines they serve.

Leased Lines

BT is unclear of the merit in obtaining coverage data for leased lines as this supply-side view is simply a reflection of the demand of these services. Services up to 2Mbit/s can be provided using BT's twisted copper pair infrastructure, and although there are some exchanges which do not have the necessary transmission equipment installed to provide leased lines, these serve areas where the demand is insufficient to justify the required investment. In some cases customers in such exchange areas are served from adjacent exchanges where there is suitable equipment.

Despite these misgivings, it would be possible to identify which exchanges can support low bandwidth leased lines, but as indicated earlier it would be important for us to understand how the data was to be used and for what purpose.

Question 8. *How do you think we should establish an appropriate level of granularity and the right technical assumptions to make the data useful?*

BT agrees that a postcode level of granularity is the most appropriate. To compare data from different sources it is however important that all operators use a consistent postcode data-set. Since postcode data-sets change over time, comparisons between time-periods need to take cognisance of any postcode data changes (i.e. new postcodes, postcode aggregation, postcode split etc.)

There are issues with postcode granularity though. These will be different for different dataset. Network infrastructure boundaries do not align with postcode and so there will be "edge effects" where only a portion of postcodes are served. As noted above, NGA roll-out is at the sub-exchange level which will result in increased impact of "edge effects". There will also be issues with postcode level broadband performance. These will be more evident in rural areas where a single postcode may be quite large and hence premises within that postcode may have very different DSL performance metrics. This can give a mis-leading view especially when it comes to not-spots and may need to be interpreted with considerable care, especially where comparisons are to be attempted.

Infrastructure Sharing

Question 9. *Do you agree our proposed approach will enable us to report adequately on arrangements for infrastructure sharing? Are there reasons why network operators would be unable to provide us with the data we have proposed to collect?*

Ofcom has acknowledged that in fact there is little infrastructure sharing of ducts and poles at this time although, of course there are plans in place to seek to change this where possible and as appropriate. We believe that the most beneficial use of any statistic gathered on this is to set a baseline against which comparisons can be drawn when the next report in the series is available in 3 years time. While it may be that the metric to collect could be miles of duct shared (and BT presumes the duct under consideration would be

limited to duct in the public highway) it seems likely this will be at a very minimal level at the time of the first report, and comparison with the total number of miles of duct available at that stage would not be very meaningful. For networks other than BT's, such comparisons may be interesting and usefully indicate if/where infrastructure sharing has been successfully implemented and/or where additional capacity may be available for rental for third party use. The mobile networks for instance have traditionally shared masts as well as other elements of infrastructure and this report may over time help to identify trends towards and the speed of consolidation of networks.

Systems for recording Duct and Pole shared access in the Openreach network have not yet been developed as we are still working with CPs and other stakeholders towards an initial Physical Infrastructure Access (PIA) draft reference offer in early 2011 and full product launch later that year. However we would reasonably expect to capture the types of information Ofcom is seeking to report on, but without seeing the detail of potential information requests it is not possible to assess the match fully at this stage. It would be useful for Ofcom to share any such ideas at an early stage with us so that where possible we can aim to incorporate such requirements (subject to cost and operational considerations). Also with regard to collecting data on a geographic basis, it does seem to us to have merit, but potentially the most useful form of comparators may be between more aggregated data (eg between different geo-types (urban and rural) or from one region to another). As indicated above since virtually no data of any significance is available historically on this for BT's network and little is anticipated during the next few months we believe that for this measurement it could be helpful to discuss specifically the Ofcom's aims here and to determine the appropriate metric accordingly which could then be recorded going forward. Additionally it could be useful if Ofcom were to consider whether such metrics in networks other than BT's could provide useful information on the extent of sharing arrangements.

If we understand the Ofcom data requirements on co-location correctly and to the extent that co-location is already widely available at BT exchanges, we believe this information is already made available to Ofcom and CPs and we would therefore at this stage suggest that no further information need be provided by BT. Our presumption would be that where appropriate other CPs will be asked to provide comparable information. Also to note, it is not clear at this point whether Ofcom intends such information to include infrastructure sharing with other utilities (e.g. electricity companies) to be included in the data.

Wholesale Network Access

Question 10. Do you agree our proposed approach will enable us to report adequately on the provision of wholesale network access?

We agree that a comprehensive understanding of this is vital in order to identify "weak points," i.e. where a significant number of providers are all reliant on the same underlying infrastructure. However we are NOT convinced that either the approach or the questions

will in fact deliver that information. Therefore we will need much better understanding of exactly what the proposed approach is.

Separately, we believe there is little information about wholesale access which BT can provide which is not already available to Ofcom. BT supplies wholesale network access at two levels, by Openreach and by BT Wholesale. In both cases all the services provided are wholesale services as neither Openreach nor BT Wholesale supply retail products to end users. It seems possible that in order to provide a comprehensive report to Government it may be simpler to address the question from the other viewpoint and seek to identify how much service is provided by other entities which is *not reliant on wholesale access from a 3rd party.*

BT can provide some metrics about wholesale access but may be unable to provide detail about the number of end users supported or proportion of end users supported through wholesale access arrangements except to the extent this is or has already been collected by Ofcom (e.g. in the context of market reviews)

The following is a Summary of KPIs provided by BT Wholesale:

Supplied to the EAO/EAB

Wholesale produces monthly Key Performance Indicators (KPIs) for the EAO/EAB. These are published quarterly on the BT Group web site by BT. The KPIs report on the level of service provided to external versus internal CPs; i.e. they measure discrimination. The products affected are Broadband and Partial Private Circuits for both provision and repair. The details of our reports in this area are also subject to change in line with operational changes and EAO requirements.

Supplied to Ofcom

Narrowband:

We currently send a number of formal KPIs to Ofcom. This requirement results from the various Quality of Service SMP Conditions imposed following Market Reviews which took place in 2003.

We provide quarterly KPIs on:

- Interconnect Circuits provision and repair performance
- Data Management Amendments (DMAs) provision

We provide monthly KPIs on:

- WLR provision and repair performance.

Leased Lines:

- No KPIs are sent for PPCs now, as real time data is available to Customers and Ofcom via the Netview system. Netview contains both provision and repair information. Fault information is also included.

Broadband:

We provide a weekly report containing for 20C:

- WSS (Working System Size)
- new provides received and closed
- ceases
- all orders completed by ODD

We provide a monthly product report for WSS down to individual product.

In addition to these reports we supply to the EU via Ofcom a quarterly report showing wholesale broadband product volumes and SMPF and MPF product volumes.

Capacity

Question 11. *How do you currently measure the capacity of the network?*

BT measures working system size based on numbers of ports for broadband and traditional PSTN service which is one measure of capacity. Additionally, networks are dimensioned on installation to handle the amount of forecast traffic with planning rules that are informed by agreed product performance specification. In life, performance measures and monitoring are in place relevant to the type of network being managed. Capacity triggers are then applied in line with the planning rules to ensure that available capacity is aligned to service demand.

Different approaches to managing capacity are undertaken for packet or circuit switched networks. These are explained below.

Broadband Services

BT actively manages capacity to ensure that service performance of broadband products meets traffic demands. We have a set of utilisation reports and thresholds that trigger capacity adjustment in the broadband infrastructure.

At the Wholesale level Broadband capacity is monitored through performance measures that report on the amount of bandwidth per end user. Capacity triggers are in place to ensure capacity augmentation is delivered before traffic throughput drops below a threshold on an average end user basis, capacity planning rules are invoked for specific networks to augment capacity in the back haul network as necessary.

It should be noted that Communications Providers will further implement their own policies in respect of contention ratios / back haul provisioning dependent upon their commercial positioning and analysis. Communications Providers implement these policies through their own technology solutions, overlaid on services provided by BT Wholesale. Therefore Ofcom will need to agree reporting requirements with Communications Providers against their infrastructure to create the end to end view of telecommunications infrastructure capability.

Voice Services

Traditional PSTN

Traffic measures are in place to monitor the performance of the PSTN to ensure that there is sufficient capacity to handle Busy Hour Call Attempts (BHCA) and traffic.

We monitor BHCA, Spare processing power etc. to ensure we have the capacity to switch calls and traffic. To support this we use our national traffic management centre and we use call gapping to assist in high peaks for events like the Big Brother telephone vote, to limit the effect on customers. These are the measures that are reported to Ofcom:

Measure definition	Measure name
NPM10 Inland BT telephony network performance	NPM10
NPM15 Unsuccessful call ratio for all BT originating inland calls	NPM15
NPM15 I30 Unsuccessful call ratio for all BT originating inland calls from ISDN30 lines	NPM15 I 30
INT5A % of incoming OLO failed calls (all local & trunk exchange OLO routes)	INT 5A
NPM10 Target	NPM10 Limit
NPM15, NPM15I30, INT5A Targets	All Other Limits

We have monthly reports that show working and spare connections for all of the PSTN products.

Question 12. *Do you agree that we should define specific metrics for different types of networks?*

Yes for traffic measures for packet or circuit switched networks as explained above.

In the case of number of ports, then there could be a common measure to e.g. identify utilised / unutilised ports for a PSTN or broadband service.

Availability

Question 13. *Do you agree with the proposed approach of gathering specific reports of outages above a certain threshold, and how do you think such thresholds should be set?*

This is an area where we would strongly encourage Ofcom to look for a high level approach to reporting – and to avoid the risk of getting bogged down in what could turn into a very

detailed operationally complex topic. BT and other operators will undoubtedly monitor and collect a very wide range of detailed data for internal operational needs. Ofcom must avoid the temptation to consider this from a bottom up approach. Instead, BT strongly recommends that Ofcom consider at high level what is required – and gathers only such high level data, aggregated where appropriate, to support the overall purpose.

With that in mind, we broadly agree with the proposed approach of gathering specific reports of outages above a certain threshold subject to:

- Ensuring that we have industry standard definitions for all reporting parameters including: outage criteria, causes, and time of day profile. This will ensure that that there is commonality across industry mapped into an operators' capability to match their existing reporting into these definitions.

- Noting that information is unlikely to be suitable for comparison purposes due to differences in scale & complexity between operator networks

To minimise the impact on BT of new reporting requirements by enabling use of existing reporting capabilities, we propose that a definition of "outage" as a disruption or loss of service to end user service, and that we make the following classification alignment with Ofcom consultation document on UK infrastructure reporting:

- "Major outages" proposed thresholds: A loss of or disruption to service of greater than 1 hour affecting more than 20000 end users

- "Minor outages" for:

    - Broadband, a loss of or disruption to service of greater than 15 minutes affecting greater than 250 end users

    - PSTN voice, a loss of or disruption to service of greater than 5 minutes affecting greater than 500 end users

We would question the benefit of Ofcom collecting data regarding such minor outage except in a high level aggregated form.

PSTN performance reporting

For PSTN performance, BT currently collects operational data using the following definitions against a measure of "Combined AXE10, System X and UXD5 Local Exchange Incident (Isolation + Restriction) Exchange Connection minutes (Downtime) per Exchange Connection per month (Annualised)".

This is the average out of service time daily, weekly or monthly annualised due to AXE10, System X or UXD5 local exchange failures (classified as an Major Service Outage Isolation or

Restricted Service incident) as seen by a typical BT customer connected to these types of exchanges

The classification of incidents for this measure is defined as:

Isolation *: (Isolation, Partial Isolation, Community Isolation, Restart)*

- A total loss of outgoing access to AND/OR incoming access from all other exchanges, this includes
- An inability to make or receive or maintain calls
- One way transmission to all normally available destinations
- The loss of dial tone or ring tone or ringing current.

Restricted Service*:*

- The loss of busy tone or equipment engaged tone or number unobtainable tone
- Total loss of national or international service caused by an own exchange incident
- The loss of access to operator assistance or emergency services caused by an own exchange incident
- Loss of own exchange based network services
- Total loss of access to or from any AFN, national, or international code caused by own exchange incident
- Total loss of access to or from any OLO or other administrations, national, or international codes caused by own

Note that the criteria used to produce this measure will potentially include both what Ofcom call in the consultation document “major” and minor” outages. This metric does not differentiate – it measures end user experience for all failures.

Broadband performance reporting

For Broadband performance, BT uses a Broadband Availability measure to collect operational data on the average amount of Network Unavailability experienced by End User’s each week.

Broadband Availability

Measure - The average amount of Network Unavailability experienced by End User’s each week.

Numerator - Sum of Incident Network Outage Hours (EU Outage Hours)

Denominator - End User Working System Size

Calculation - Minutes Downtime = (Sum for incidents in the period (EU Outage Hours) x 60) / EU Working System Size Source

Question 14. *For smaller outages, which statistical data do you think it is valuable to gather?*

BT collects data on start time, end time, impact, duration, and cause, which are identified in Ofcom's suggested statistics in paragraph 3.68. An aggregated view of smaller outages ["minor" outages as suggested in our response to question 13] is appropriate for the relatively higher volume that will be experienced by a network of the scale of BT's.

Subject to agreeing definition of parameters then it is expected that BT will be able to meet the reporting criteria suggested ion paragraph 3.68 using existing capability.

Question 15. *Is a three-month reporting period sufficient to assess availability performance?*

As noted above in question 13, BT measures average performance on a daily, weekly, and monthly annualised basis.

In the case of "major" and "minor" outage thresholds as indicated to our response in question 13, three months is acceptable subject to confirming definitions and therefore volumes. In line with Ofcom thinking, BT wants to minimise / prevent additional activities to produce the Infrastructure report.

BT collects data on start time, end time, impact, duration, and cause - which are identified in Ofcom's suggested statistics in paragraph 3.68. An aggregated view of smaller outages ["minor" outages as suggested in our response to question 13] is appropriate for the relatively higher volume that will be experienced by a network of the scale of BT's.

Subject to agreeing definition of parameters then it is expected that BT will be able to meet the reporting criteria suggested in paragraph 3.68 using existing capability.

Resilience

Question 16*. Do you agree with our approach to reporting resilience and emergency planning and the list of data we would ideally collect from CPs?*

BT agrees with Ofcom's approach to reporting resilience and emergency planning and the list of data it should ideally collect from CPs. Further BT recognises the importance of resilience and emergency planning in its operation. BT's policies and procedures in respect of this subject match the data Ofcom has suggested collecting.

Question 17. *Do you already provide information to other organisations and government agencies around resilience issues? If so, what are they?*

BT, as a member of the Electronic Communications Resilience and Response Group, (ECRRG) already provides information on resilience issues to the group which comprises Cabinet

Office (Civil Contingency Secretariat) Department for Business Innovation and Skills, (BIS) Ofcom, Centre for Protection of National Infrastructure (CPNI) and CP's as members.

Question 18. *Do you agree that there are additional networks and services which are of sufficient importance to include in the report? If so, what are they?*

BT has no comment on this question at this stage although we agree that Ofcom should explore with Government such further requirements as well as the purpose of any such addition.

International Comparisons

Question 19. *Are there other sources of international data which we should consider? Are we focusing on the right networks and metrics? In particular, have we got the right metric for commenting on next-generation access deployments?*

Ofcom has a great deal of experience of using international comparison data. The difficulties predominantly involve trying to understand and make genuine comparisons on the basis of available data. It can often be a non-trivial exercise trying to ensure that appropriate comparators are identified and that where necessary differing national policies, demographics and market circumstances are exposed and relevant caveats built into reports. Ofcom will need to continue to be vigilant.

In general we believe that the data sources, networks and metrics identified by Ofcom are indeed those which will be of most relevance and interest in this report. However we would urge caution in how these sources are interpreted and used in two particular areas as follows:-

- These source tend to rely on reports of "advertised speed" rather than actual speeds that users obtain when looking at coverage of high speed service e.g. there is no real equivalent in other countries to the Ofcom Broadband speeds report that we are aware of. Sources such as the quarterly Akamai report on measured broadband speeds may prove helpful in this regard (http://www.akamai.com/stateoftheinternet/)

- Additionally these sources do not always distinguish between the different types of fibre based delivery in sufficient detail to allow effective comparisons. For example Fibre to the building/basement of an MDU in densely populated areas e.g. Singapore is typically counted as multiple fibred households whereas FTTC to more distributed households is not, even though they may be functionally equivalent. Thus a country with distributed household better suited to an FTTC solution may score differently to a country with a high incidence of MDU's fed via FTTB.