



Jonathan Oxley  
Group Director, Competition  
Ofcom  
Riverside House  
2a Southwark Bridge Road  
London SE1 9HA

24 September 2015

Dear Jonathan,

**UNDERTAKINGS OF 22 SEPTEMBER 2005 GIVEN TO OFCOM PURSUANT TO THE ENTERPRISE ACT 2002 – “The Undertakings”**

**Request for agreement to allow BT to temporarily use shared computer systems for specified Openreach Operational Support Systems**

**1. Overview**

Section 5.44.2(a) of the Undertakings requires BT to run the Operational Support Systems (OSS) used by Openreach (other than those listed in Annex 6 of the Undertakings) physically separately from those OSS used by the rest of BT, “when reasonably practicable and proportionate, unless otherwise agreed between BT and Ofcom”.

There are a small number of Openreach OSS that, for operational and customer-focussed reasons, BT wishes to temporarily run on a computing platform physically shared with other parts of BT. While running these OSS on the shared hardware there will be highly secure separation of the Openreach applications and data, meeting at least Level 2 separation. BT will build a physically separate Openreach-only computing platform and by 31 December 2015 will move the OSS that are subject to this request to that Openreach-only platform.

**2. Why this request has been made**

The five OSS in question (described in more detail in section 4) are existing Openreach OSS that are currently running on legacy Openreach-only hardware and software platforms. Enhanced versions of these OSS have been erroneously developed to be run live on an existing computing platform called BT Enterprise Cloud (BTEC) which is shared across the whole of BT, and which we have described in detail to Ofcom. In all five cases as soon as these development errors were discovered all migration plans were halted (in January 2015).

Three of these OSS (ESB, BTB and Portal) were incorrectly categorised as being currently Level 2 separated (i.e. the applications and data were separated from the rest of BT, but there was no physical separation), and that it would therefore be permissible under the Undertakings to migrate them to BTEC, where they would continue to be at least Level 2 separated. The original versions of these Openreach OSS were hosted on shared Virtual Data Centres (VDCs), which met Level 2 separation. VDCs were originally shared across BT’s lines of business, but these OSS were subsequently hosted on an Openreach dedicated VDC. This fact was not reflected in the records of

**Mark Shurmer**  
Group Director Regulatory Affairs

**BT Group**  
BT Centre  
81 Newgate Street  
London EC1A 7AJ

Tel: +44 (0)20 7356 8213  
Mob: +44 (0) 7730 908553  
Email: [mark.2.shurmer@bt.com](mailto:mark.2.shurmer@bt.com)

**British Telecommunications plc**  
Registered office:  
81 Newgate Street  
London EC1A 7AJ  
Registered in England No 1800000  
[www.bt.com](http://www.bt.com)

Openreach OSS that this made the three systems physically separate. The other two OSS (Service Flow and OR SMARTS) were inappropriately targeted to run on BTEC because they needed additional computing resource that could not be added to their existing platforms (see below).

There is nothing in the Undertakings that explicitly precludes a physically separated system being moved back to Level 2 separation temporarily. We consider this, however, to be against the intended direction of travel, hence we are seeking Ofcom's agreement for this temporary reversion to Level 2 separation.

Developments being made to all five of these OSS are essential to meeting CP requirements and to improve customer experience. The increased volume of transactions running through these OSS is such that existing platforms cannot deliver acceptable levels of service, so additional computing capacity is needed. In addition, the legacy hardware/software has reached, or is about to reach, end of service life, meaning that ongoing vendor support is no longer available. Openreach does not want to run OSS on unsupported platforms, and thus alternative platforms are needed for these OSS. The end of service life status of the legacy platforms prevents Openreach from simply adding new capacity and this also means that an alternative computing platform, with sufficient and fully scalable capacity and performance, is needed.

We discovered plans to put these OSS on BTEC, in potential breach of the physical separation commitment, due to internal compliance checks. Plans to launch the OSS on BTEC were immediately suspended (in January 2015), and none of these OSS went live on BTEC and all five OSS continued to be run on physically separate systems. As a consequence of the errors made as described above, alternative physically separated Openreach platforms have not been built for these OSS. The mistakes that resulted in this problem were not intentional, but were the result of regrettable lapses in internal governance arrangements and errors made in categorising existing Openreach computer systems as to whether they could be implemented on shared hardware. Corrective action is being taken to improve governance, implement enhanced internal controls, and validate the internal analysis of all Openreach OSS.

We initially raised the issue of these OSS with Ofcom in May 2015. We investigated all reasonably practicable options to resolve this issue in accordance with the Undertakings requirements, and concluded that it is not operationally feasible to use existing computing platforms, nor it is possible to purchase, build and test an Openreach-only physically separate platform sufficiently quickly to avoid significant adverse impacts on customer experience.

### **3. Details of BT's request**

We request Ofcom's agreement to these five OSS, as described in section 4 below, being run on shared hardware until 31 December 2015, since it would not be practicable to physically separate these systems in time for their launch between September and November 2015 for the use and benefit of CPs.

It should be noted that if the OSS were to be run as live systems on this shared hardware they would run in virtualised computing environments, as described in detail to Ofcom<sup>1</sup>, that would ensure that both the applications and the data would be separated from any other non-Openreach systems also running on the same shared hardware (i.e. this would be, in Undertakings terms, at least Level 2 separation).

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<sup>1</sup> The design and operation of BT's enterprise cloud environment is commercially confidential. It has been discussed in detail with Ofcom.

We believe that it would be appropriate for Ofcom to agree to this request on the basis that:

1. If it was not possible to run these OSS on the shared hardware there would be significant adverse impacts on CPs and their customers, as it would not be possible to deliver the level of service that these OSS can only deliver on either the shared hardware or on the yet to be built Openreach-only platform.
2. There would be no adverse consequences for competition, on Openreach CP customers or their end user customers as a result of running these OSS on shared hardware.
3. While we accept that errors were made by BT in developing these OSS to run on BTEC rather than Openreach-only computing platforms, it would not be practicable to physically separate these OSS prior to the intended construction of new separate Openreach-only hardware, since existing physically separate Openreach computer systems do not have the necessary capacity or performance characteristics to ensure acceptable levels of customer experience.
4. This would be a strictly temporary arrangement, and by 31 December all these Openreach OSS will be run on new physically separate Openreach-only hardware – the same platform that is being built to address the breaches described in section 6 below.
5. While running these OSS on the shared hardware there will be highly secure separation of the applications and data, meeting at least Level 2 separation. While these OSS are run on shared hardware there is, because of the computing architecture used, no possibility of inappropriate access to the Openreach information held in these systems by people from other parts of BT who do not have authority to do so. Overall, these controls deliver the same safeguards as physical separation.

#### **4. The five Openreach OSS**

We are seeking agreement that these OSS can be launched on BTEC to avoid delivery slippage or production continuity issues. These five OSS would be migrated to dedicated Openreach-only hardware when it becomes available, this migration to be completed by 31 December 2015 at the latest. Further information about each system has been shared with Ofcom<sup>2</sup>.

The five Openreach OSS that BT wishes to run temporarily on BTEC are:

##### **ESB, BTB and Portal:**

These are key to an initiative called View My Engineer, which will enable CPs to monitor the physical location of Openreach engineers scheduled to handle jobs relating to their customers. View My Engineer has been run in pilot on legacy hardware, involving a number of CPs. Commitment to launch in the second half of this year has been given to CPs by Openreach. The current platforms cannot support the expected volume of transactions in live operation.

Key benefits of View My Engineer include - visibility of Job progress to end-customers and CPs, reduction in the number of missed appointments, significantly increased customer

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<sup>2</sup> More detailed descriptions of these OSS such as configuration, volumes and operational arrangements are commercially confidential. These have been discussed in detail with Ofcom.

satisfaction for both CPs and their end customers and reduction in customer complaints received by both Openreach and CPs.

#### **Service Flow:**

This enables Openreach to ensure compliance with Ofcom requirements for Service Level Guarantee (SLG) credit payments for service repair, service provision, Missed Appointments (MA) and Dead-On-Arrival (DOA) Service Level Agreements (SLAs). The current operating system and database software are going out of support, and the database cannot be upgraded in-situ.

Key benefits of being able to run this on BTEC include: Improved performance (current system suffering considerable performance issues due to inadequate capacity), ensures timely and/or accurate payment of SLGs for missed SLAs, improved system reliability and security.

#### **OR SMARTS:**

This is the Fault Management system for Openreach Next Generation Access (NGA) products Fibre to the Cabinet and Fibre to the Premises, and for Ethernet Access Direct and Optical Spectrum products. Additional capacity is required to support significant volume increases in line with Openreach's NGA rollout programme. The current database, operating system and hardware are all out of vendor support.

Key benefits of being able to run this on BTEC include: Effective fault/alarm monitoring of new NGA cabinets and improved system reliability and security.

### **5. Monitoring and reporting**

To provide assurance that these Openreach OSS have in fact been migrated to the physically separated Openreach-only platform that we commit to constructing, we will notify Ofcom when this new physically separated platform has been built, when migration of the five OSS has started, and when we have completed the migration of the OSS off the shared hardware. In addition we will ask the EAO to validate that this has been completed, and to confirm to Ofcom that the platform to which the five OSS have been migrated to is physically separated.

### **6. Other breaches discovered in 2015**

It should be noted that earlier in 2015 five other Openreach OSS were inadvertently deployed and are live on BTEC, and that BT self-declared these to be breaches of the Undertakings obligation to run Openreach OSS physically separately from the rest of BT. The breaches were notified to the EAB and discussed in detail with Ofcom.

Detailed compliance assessment found that two of these OSS had previously been physically separated, but had been incorrectly categorised as Level 2 separated. As described above, there is nothing in the Undertakings that explicitly precludes temporary reversion from physical separation to Level 2 separation, but BT considered these cases to be against the expected direction of travel, and decided to self-declare these OSS as being in breach of the Undertakings requirement. The other three Openreach OSS deployed on BTEC were Openreach-only instances of existing OSS that had previously been used by other parts of BT, and inadvertently launched on BTEC in the belief that these instances were not new OSS being designed specifically for Openreach. BT considered these to be against the intention of the Undertakings, which require all Openreach OSS to be designed

with separation in mind, and these were also self-declared as being in breach of the Undertakings requirement. These breaches are described in the EAB's Annual Report for 2014/15.

It should be noted that no inappropriate sharing of Openreach Customer Confidential or Commercial Information occurred as a result of these breaches. Existing tight user access controls and the secure virtualisation architecture used in BTEC ensured that no-one had access to Openreach information that they were not entitled to. No customer or Communications Provider was adversely impacted at any time.

BT has undertaken detailed root cause analysis, which has been reviewed by the Equivalence of Access Office (EAO). The EAO investigated the breaches in detail and reported its conclusions and recommendations to the EAB. BT is building an Openreach-only physically separated platform and will be migrating these five OSS onto the new platform by the end of 2015. It is to this new platform that BT will move the five OSS subject to this request by the end of December 2015. Other remedial action being taken by BT includes action to improve internal governance and approval arrangements for systems development and re-platforming, and to refresh compliance training programmes to ensure systems designers and architects fully understand the Undertakings requirements for physical separation of Openreach OSS.

These breaches were regrettable, and as a result BT undertook a comprehensive review of its systems development plans to ensure planned system deployments were not going to cause breaches for similar reasons. The five OSS subject to this request were identified and development activities were put on hold pending the outcome of this request.

## 7. Conclusions

BT accepts that it made mistakes in developing these Openreach OSS with the expectation that they would go live on the shared BTEC platform rather than on an Openreach-only physically separated platform. Root cause analysis has been undertaken, and remedial action being taken in BT is addressing governance and internal controls, so as to avoid such mistakes re-occurring. In relation to the five OSS described in Section 4 above it is vitally important that the service commitments that Openreach has given to its CP customers are met, and that the end users' experience is assured.

As explained above, it is not practicable at this time to run these five OSS physically separately. BT is committed to moving these five OSS to physically separated hardware as soon as possible, and in any case by the end of December 2015. BT therefore believes that allowing these OSS to be run for a short term (i.e. at the latest until 31 December 2015) on shared hardware – which would ensure Level 2 Separation - would ensure that both BT's CPs customers' and end-users' experience is not compromised pending the availability of the new Openreach-only platform.

We therefore ask Ofcom to agree to our proposal that these specific five Openreach OSS can be run on the shared hardware, on the BTEC platform, for a strictly time-limited period and for no longer than until 31 December 2015, by which time they will have been moved to physically separated Openreach-only hardware.

Yours sincerely,



Mark Shurmer  
Group Director Regulatory Affairs  
BT Group plc