Technical guide to using live sync speeds

Annex 6 to the Voluntary Codes of Practice (Residential and Business) on Better Broadband Speeds Information

1. Background and introduction

1.1 Broadband is an essential service for people and businesses, who increasingly rely on the internet for a wide range of activities.

1.2 The speed at which a broadband connection downloads data is an important factor when customers buy a broadband service. Customers therefore need realistic information, both at the point of sale and in their contract, about the broadband speeds they can expect to experience.

1.3 In April 2018 Ofcom published revised Voluntary Codes of Practice on Residential and Business Broadband Speeds (the 'Codes'), which came into force in March 2019. The Codes require signatories to provide customers with the estimated speeds they are likely to experience at busy times of the day. In addition, they give customers the right to exit their contracts, without penalty, if their download speed falls below the minimum level.

1.4 At that time, we set out our intention to strengthen the accuracy of broadband speeds information further, by requiring signatories to provide live sync speed information for certain individual lines or premises served by Openreach.[1]

1.5 This document sets out our decisions on changes to the Codes in relation to the use of live sync speeds, which will come into force by 15 November 2020. These changes will mean people and businesses receive more accurate information about the capabilities of individual lines. This will help improve their understanding of the speeds they are likely to receive and enable them to make a more informed decision about the type of service they purchase.

1.6 This document is a technical annex to the Codes and should be read alongside them.

Pre-existing rules

1.7 On lines where there is no speed cap in place, a live sync speed is the maximum speed a customer will be able to experience on their individual line.

1.8 Under the current Codes, signatories on Openreach's network base their point-of-sale speed estimates on similar lines. In practice, this estimate may not entirely reflect the capabilities of some lines.

1.9 As outlined in paragraphs 2.24-2.26 of the Residential and Business Codes, where infrastructure providers or wholesalers make the live sync speed of an individual line available to internet service providers (ISPs), ISPs must use this as the basis for speed estimates if they use the same infrastructure and access technology to provide their service.

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[1] Live sync speed is the speed of the data connection between the broadband modem and the local exchange or cable head end.

1.10   This means some customers will receive a more personalised speed estimate, because it would be based on the observed access speed of their specific line, rather than estimated.

1.11   These changes will be subject to ongoing review as we gather more information on how they impact people and businesses.

2. Scope, methodology and implementation

Scope

2.1   The new approach on live sync speeds will apply to active lines that are currently receiving a service via fibre-to-the-cabinet (FTTC)/ very high speed digital subscriber line (VDSL) or G.fast technology.[2] On Openreach's network, lines are considered active if there is a generic ethernet access (GEA)[3] service provisioned on the line.

Information available on active lines

2.2   Currently, Openreach carries out daily tests to check the live sync speed of all active lines and provides this data to ISPs with a timestamp on its enhanced Managed Line Characteristics Dialogue Service.[4] Openreach does not currently update the timestamp that records when the last test was carried out unless there has been a change to the live sync speed. Now, ISPs have agreed to use the most recent available live sync speeds as the basis for speed estimates for all active lines, regardless of timestamp, provided they propose to use the same infrastructure and access technology to provide their service.

Exclusion of non-active lines

2.3   We consider that disconnected or disused lines on Openreach's network should be out of scope. ISPs cannot be certain about how recently tests were conducted on non-active lines and, as speeds can change over time due to environmental or other factors, they may be unable to rely on any live sync speed data available.

2.4   However, Ofcom will gather information on how the exclusion of non-active lines impacts people and businesses and may work with signatories to review this approach.

Technologies

2.5   In our March 2018 statement that updated the Codes[5] we set out that, where available, ISPs must use the customer's live sync speed as the basis for the estimates provided at the point of sale for all xDSL[6] and G.fast products.

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[2] FTTC refers to the architecture of deploying active (powered) equipment in the street with fibre connections to the local exchange. VDSL refers to the technology used over the telephone wire to the premises. Historically, these terms have been used interchangeably, but with the introduction of other technologies using the same FTTC architecture/infrastructure, to avoid ambiguity we shall refer to the relevant technology in this document (e.g. VDSL). Openreach's services using VDSL technology currently offer download speeds of up to 80Mbit/s and upload speeds of up to 20Mbit/s. G.fast is a broadband transmission standard that increases the speeds possible over short distances on copper lines.

[3] Generic ethernet access (GEA) is a bandwidth configurable 'layer 2' active bitstream fast access product that uses fibre-to-the-premises (FTTP) or fibre to the cabinet (FTTC).

[4] The enhanced Managed Line Characteristics Dialogue Service is an online support system that Openreach provides to ISPs to place orders and service assurance enquiries using the Openreach Equivalence Management Platform.

[5] Ofcom, March 2018. Statement: Better Broadband Speeds Information - Voluntary Codes of Practice.

[6] xDSL is a group of technologies used to provide a broadband service over the copper access line to the premises.

2.6 Following discussions with industry, we have excluded asymmetric digital subscriber line (ADSL) technology from the scope of these agreements. This is because Openreach holds live sync data for VDSL lines only and it would require very significant systems changes to make live sync data for ADSL available. Openreach would need to collect this data from ISPs directly and provide to enquiring ISPs on a line-by-line basis.

2.7 The revised methodology is not relevant to fibre-to-the-premises (FTTP)[7] and cable[8] networks, as their access line speeds do not degrade with distance.

2.8 ISPs have previously indicated a preference for the infrastructure provider or wholesaler to present VDSL and G.fast sync speeds as a range. The observed sync speed will be presented as the upper end of the range (the upper live sync speed) and that value minus 2Mbit/s will be the bottom end of the range. On particularly slow lines, the bottom end of the speed range could be less than 0Mbit/s if 2Mbit/s were deducted, and the infrastructure provider or wholesaler will cap the bottom end of the range at 0.1Mbit/s where this is the case.[9]

2.9 Where a line is capped, the infrastructure provider or wholesaler will estimate the likely uncapped sync speed based on the performance of other (uncapped) lines with the same maximum attainable line rate (MALR) and present this to ISPs as the top of the range.

Calculating the normally available speed

2.10 Under the existing Codes, the normally available speed for VDSL services is presented as a range, taking its upper and lower ends from the access line speeds of the 20th and 80th percentiles of lines similar to the customer's. This range is adjusted for the effects of peak-time congestion.

2.11 Under the new approach, when using live sync speeds for VDSL and G.fast services, ISPs will continue to present the normally available speed estimate to customers as a range. To set that range, ISPs will:

a) Take the upper live sync speed presented by the infrastructure provider or wholesaler as the top end of the range;

b) Take ten per cent off the upper live sync speed to give the bottom end of the range; and

c) Apply its congestion coefficients[10] to the top and bottom ends of the range, presenting the resulting estimates to its customers as the normally available speed range.

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[7] Fibre to the premises (FTTP) is an access network structure in which the optical fibre network runs from the local exchange to the customer's house or business premises. Sometimes also referred to as fibre-to-the-home (FTTH) or full fibre.

[8] Cable or Hybrid Fibre Coaxial (HFC) networks are cable networks that combine optical fibre and coaxial cable (a cable made up of a conductor and a tubular insulating layer) to carry TV and broadband signals to end-users.

[9] An observed speed range of ~2Mbit/s is unlikely to occur in practice, but we consider it here for completeness.

[10] This is the amount that factors in average network congestion.

> **Worked example**
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> - Infrastructure provider or wholesaler provides ISP with an upper live sync speed of **54Mbit/s** for a line.
> - ISP would apply a 10% coefficient to this figure to produce a range: 48.6Mbit/s - 54Mbit/s.
> - ISPs would apply their own congestion coefficients to this range. For example, if an ISP has a congestion coefficient of 0.95, the normally available speed estimate provided to customers at the point-of-sale would be **46.2Mbit/s-51.3Mbit/s**.

2.12   In setting this approach of taking ten per cent off the upper live sync speed to set the bottom of the normally available speed range, we have taken two key factors into consideration. Firstly, any new methodology must take into account the potential for some normal variation in a line's live sync speed, at the start of the service and over the contractual period. Secondly, any new methodology should produce a normally available speed range that is easy to understand.

2.13   We recognise that, as the new approach is implemented, new data may become available that better illustrates line performance and speed variations over the contractual period. Should this enable further improvements in how industry calculates the normally available speed range, we will work with signatories of the Codes to refine the approach.

Calculating the minimum guaranteed speed

VDSL services

2.14   Under the existing Codes, the minimum guaranteed speed for VDSL services is the tenth percentile of the speed of similar lines to the customer's. This equates to the speed of the slowest ten per cent of lines.

2.15   Under the new agreements, for VDSL services, ISPs will take a fixed percentage, not exceeding ten per cent, off the bottom end of the normally available speed range provided to its customers to derive the minimum guaranteed speed. ISPs can choose to differentiate by offering a higher minimum guaranteed speed.

> **Worked example**
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> - ISP presents its customer with a normally available speed range of **46.2Mbit/s-51.3Mbit/s** at the point-of-sale.
> - ISP chooses to apply an 8% coefficient to the bottom end of this range to calculate the minimum guaranteed speed (cannot be more than 10%).
> - ISP would provide a minimum guaranteed speed of **41.6Mbit/s** to its customer at the point-of-sale.

G.fast services

2.16   For G.fast services, ISPs will set their minimum guaranteed speed at 50% of the advertised speed of a service.

2.17   This approach has been developed taking into account that G.fast products make use of Seamless & Fast Rate Adaption (S/FRA) technology. S/FRA helps to manage noise and interference and, instead of allowing disconnections, can temporarily reduce a line's speed to maintain a connection.

2.18   It is also noted that G.fast technology is in its infancy and there is limited data available on line speed variation and speed performance over a contractual period. We will review this approach with signatories to the Codes in future as more data becomes available.

Implementation

Conditions affecting lines

2.19   Live sync speeds may reflect conditions such as noise and interference on an individual line. Under the existing Codes, ISPs would offer point-of-sale speed estimates based on the characteristics of similar lines, which might have been higher than a line affected by noise or interference could deliver.

2.20   So that people and businesses benefit from more accurate information about the capabilities of their line, ISPs will use live sync speeds at the point of sale, including where such conditions affect lines or where speeds might be improved. In some circumstances, ISPs may be able to identify such lines and advise their customers about whether improvements may be possible.

No live sync data available

2.21   In the event that ISPs do not have access to live sync speed data for relevant lines, we would expect them to make best efforts to get this information from the infrastructure provider or wholesaler. If it is not possible to access the data, the ISP should contract the customer on the basis of the pre-existing methodology, using an estimate based on similar lines. For audit purposes, the ISP should keep a record of the specific lines on which this approach has been adopted.

Re-contracting existing customers

2.22   The intention is for the introduction of live sync speeds to provide people and businesses with more accurate information about the speeds they are likely to receive on their line, which may change over time. As such, we consider it appropriate that re-contracting customers should receive speed estimates based on live sync speeds.

Timings

2.23   Signatories to the Codes have agreed to implement the changes set out above by 15 November 2020. Some ISPs have indicated that they may implement up to a month earlier.