#### ETHERNET VPN AND ETHERNET WIRELINE SERVICE TERMS

These Service Terms are current as of November 6th, 2018.

#### GENERAL

- 1.1 Service Summary: Vodafone Ethernet VPN and Vodafone Ethernet Wireline services ("EVPN" and "EWL" respectively) are independent solutions that provide high-speed connectivity between Customer Sites via the Vodafone MPLS Core Network, combining the benefits of Ethernet and MPLS. The term "Service" means either or both of EVPN and EWL ordered by Customer. EVPN is a virtual private LAN service that provides multi-point to multi-point connectivity. EWL is a virtual private wire service which provides high-speed connectivity between two or more Customer Sites in a point-to-point or point to multipoint fashion. These Services enable network sites (which could be in geographically diverse locations) to communicate with each other as if they were directly attached to each other. In connection with the Service, Customer may purchase performance monitoring as an Optional Service Element. The term "Service" includes each Service Element.
- **1.2 Structure:** These Service Terms apply to the Service and include or are governed by the following documents: (a) each Order, if relevant; (b) the Customer Agreement; (c) the General Terms; and (d) any other documents referenced as incorporated in these Service Terms.
- **1.3 Precedence:** Notwithstanding any terms in any framework agreement between the Parties, if there are any conflicting terms in these Service Terms, the following order of precedence applies (highest level of precedence first): (a) the Customer Agreement; (b) the Service Terms; and (c) the General Terms or other framework agreement.

#### 2. CONDITIONS OF USE

- **2.1 Site Survey:** Vodafone may require a Site Survey prior to delivery of a Service Element. Customer will permit Vodafone or its subcontractors to conduct Site Surveys as necessary and Customer will complete the required preparatory work as detailed in the Site Survey report.
- 2.2 Third Party Providers: The following terms apply to Service Elements (e.g., Access Circuits) provided by a Third Party Provider: 2.2.1 If a Third Party Provider terminates Customer's right to use the Service Element, Vodafone will be excused from liability related to failure to deliver the relevant Service. Vodafone will use a Third Party Provider or Vodafone Group Company that has the necessary authority to provide a Service Element where required by Applicable Law. Vodafone may novate any Customer Agreements as required in order to comply with Applicable Law.
- 2.2.2 Vodafone will use reasonable endeavours to procure Access Circuits which offer similar performance to the Service Levels targets; however, due to the wide range of technology solutions used in the market to offer Ethernet Access Circuits, Vodafone does not guarantee a minimum specification of third party Access Circuit.
- 2.2.3 Any minimum requirements for Access Circuits (for example, a minimum MTU) are set out in the Order.
- 2.2.4 **Incumbent Providers** In certain locations Vodafone is required to use an Incumbent Provider to deliver a Service Element (e.g., the last mile access provider). If an Incumbent Provider is unable, declines, or ceases to provide the required Service Element, Vodafone will terminate the affected Service Element(s) and neither Party will be liable to the other as a result of this termination. Vodafone is not responsible for delays caused by Incumbent Providers.
- 2.2.5 **Third Party Agreement:** If required in a given location, a Third Party Provider may require a direct contract to deliver a Service Element. Third Party Provider terms will be set out in a separate agreement directly between Customer and the Third Party Provider (including, if relevant, shrink-wrap or click through agreements). If Customer fails to accept the Third Party's terms and conditions, Customer will not be able to access the affected Service Elements and Vodafone is excused from liability for failure to deliver. Customer may request Vodafone to act as its agent for the purposes of managing the Third Party Provider, including for placing orders, reporting Incidents, receiving invoices from, and making payments to, a Third Party Provider.
- 2.2.6 **Ethernet Access Limitations**: 100Mbps Ethernet Access Circuit bandwidths may be reduced by 3Mbps in some circumstances due to the underlying technology used to deliver the Service. The experienced throughput of the Service may vary from

- the stated CIR, PIR, EIR or Access Circuit speed due to packet overheads..
- **2.3 UK Limitations:** FTTC and FTTP Access Circuits in the UK are subject to the following terms:
- 2.3.1 If the EVC bandwidth is greater than the available Access Circuit bandwidth then Ethernet frames may be dropped.
- 2.3.2 For FTTC, the Access Circuit bandwidth available in both the downstream and upstream directions is subject to the length and quality of the copper circuit employed between the Customer Site and the BT Openreach street cabinet. The Access Circuit bandwidth available is subject to the Prioritisation Rate applied by BT Openreach.
- 2.3.3 For FTTP, the Access Circuit bandwidth available in both the downstream and upstream directions is subject to the restrictions imposed by BT Openreach on FTTP which may include (but are not limited to) the Prioritisation Rate applied by BT Openreach.
- 2.4 PSTN and IP Voice / Video services: Customer acknowledges that the Service is not a public voice service. Customer and its Users shall not connect or seek to connect the Service to any public voice service, including the public switched telecommunications network (PSTN) or other voice or video services (e.g. voice over IP) unless Customer purchases such services from Vodafone or Customer is permitted to connect the Service to a PSTN in accordance with Applicable Law.
- 2.5 Public Internet service: Customer acknowledges that the Service is not a public Internet service. Customer and its Users shall not connect or seek to connect the Service to a public Internet service and/or enable the use of public Internet for any voice or video communication service (e.g. voice over IP), unless Customer purchases public internet service from Vodafone or Customer is permitted to connect the Service to a public internet service in accordance with Applicable Law.
- 2.6 Customer Sites Customer Obligations: For the purposes of preparing for and delivery of the Service, Customer agrees to: (a) have in place (or assist Vodafone to do so at Customer's cost) all third party consents necessary to allow Vodafone or its subcontractors to: (i) access Customer Sites, Equipment, and third party property; and (ii) install, configure or maintain Equipment on Customer Sites or third party property; (b) provide secure storage for Equipment sent to Customer Sites; (c) prepare Customer Sites in accordance with Vodafone's instructions; and (d) ensure that Customer Sites are safe and represent a suitable working environment; and (e) when possible, give Vodafone 10 Working Days' notice of any event (such as power disconnection) that will disrupt the Service or affect the Equipment.
- 2.7 Customer Sites Vodafone obligations: Vodafone will: (a) comply with any reasonable Customer Site access and security procedures disclosed to Vodafone in advance; and (b) deliver installation and maintenance work: (i) during Working Hours, when the work does not involve any suspension of the Service; or (ii) subject to additional charge notified to Customer in advance, outside of Working Hours if requested by Customer or if Vodafone is unable to deliver the works during Working Hours for reasons outside of Vodafone's control.
- **2.8 Security Obligations:** Customer will: (a) design, implement, manage, and archive configuration of internal IP protocols, LAN information, and access lists; (b) provide reasonable security on the Equipment and Customer's private networks to limit misuse of or threat to the Service, Equipment, or Network; and (c) address any misuse or threat identified by Vodafone through the implementation of appropriate security or user controls.
- 2.9 Authorised Users: Access by Customer to the Service and Equipment is limited to authorised Users. Vodafone will provide each authorised User with a user name, password, or other access information ("User Details"). Customer is responsible for: (a) the security of the User Details; (b) providing Vodafone with the identity of the authorized Users and keeping that information current; and (c) authorised Users' compliance with the Agreement. Vodafone accepts no liability for any unauthorised or improper use or disclosure of any User Details. Customer is liable for all acts and omissions conducted using the User Details.
- **2.10 Freeze Period:** Vodafone may delay the delivery of a Service Element during a Freeze Period. "Freeze Period" means: (i) the period generally from 1 December to 15 January each year; and (ii) any period involving a significant spike in Network usage.

- 2.11 Applicable Laws: Vodafone and Customer shall respectively comply with all Applicable Law.
- 2.12 AUP: Customer agrees to comply with Vodafone's Acceptable Use Policy available at https://www.vodafone.com/business/AcceptableUsePolicy.

### 3. EQUIPMENT

- **3.1 Equipment:** Customer must have either Vodafone or Third Party Equipment on the Customer Site to use the Service. The Equipment Terms apply to Vodafone Equipment.
- **3.2** Vodafone will support, maintain, upgrade and/or replace Equipment as required for Service performance ("**Maintenance**"). Vodafone will provide Customer with reasonable advance notice of any Maintenance activities that will require Customer cooperation or access to a Customer Site. Customer agrees to cooperate with Vodafone in its performance of Maintenance. If Customer fails to do so, Vodafone is not responsible for Service performance related to Equipment that requires Maintenance.

#### 4. DATA PROTECTION

**4.1** Vodafone is the Data Controller for this Service. Vodafone's Data Protection Terms when Vodafone is Data Controller apply.

#### 5. SUPPORT AND DELIVERY SERVICES

- **5.1 Support Service**: Vodafone will provide Customer with Support Service for the Service Elements ordered by Customer.
- **5.2** Support Parameters: Support Service is available in English only. Support Service is available as shown below:

Support Service	Service Cover Period
Incident Management for Priority 1 & 2 Incidents	24/7
Incident Management for Priority 3 & 4 Incidents	Working Hours
Service Request Fulfilment	Working Hours

Incidents may be reported at any time during the Service Cover Period; however, Incident Resolution will only occur during Working Hours for Priority Level 3 and 4 Incidents.

- **5.3 Contact**: Customer must appoint primary and secondary points of contact responsible for accessing the Support Service and communicating with Vodafone during the relevant Service Cover Period. Customer will inform Vodafone, and keep Vodafone up-to-date with the appointed individuals' identity and level of access.
- **5.4 Conditions**: Customer will: (a) reimburse Vodafone for reasonable expenses associated with a Customer Site visit or for other actions taken when Customer has reported an Incident caused by an Excluded Event; and (b) permit Vodafone to interrupt the Service at the Customer Site to resolve a Priority Level 1 or 2 Incident (or the Incident will be downgraded to a Priority Level 3 Incident).
- **5.5 Planned Works**: Vodafone may temporarily interrupt the Service to carry out Planned Works. Vodafone will notify Customer in advance of any Planned Works. "**Planned Works**" means planned Vodafone-initiated changes to the Service or Equipment (for example, to carry out essential maintenance or upgrades).
- 5.6 Agreed Delivery Date: Vodafone will provide Customer with the delivery date of a Service Element ("Agreed Delivery Date") and use reasonable endeavours to deliver the Service Element by the Agreed Delivery Date. If Customer requests a change before delivery of the Service Element, Vodafone will either adjust or cancel the applicable Order subject to any Recovery Charge and/or amend the Agreed Delivery Date, as applicable.
- **5.7 Service Commencement Date:** Vodafone will perform its standard testing procedure for the Service. When Vodafone considers that the standard testing criteria have been met, Vodafone will make the Service available to Customer or notify Customer that the Service is ready for use ("Service Commencement Date").
- **5.8 Correction:** Customer must notify Vodafone within 5 Working Days of the Service Commencement Date if the Service and provide sufficient supporting details. Upon receipt of notification, Vodafone will take reasonable action to meet the standard testing criteria.
- **5.9 Expedited Delivery:** When requested by Customer, Vodafone will use reasonable efforts to meet an expedited Agreed Delivery Date (subject to additional Charges). Service Levels do not apply to an expedited delivery date.
- **5.10 Customer Delays:** If a Customer's act or omission delays the Service Commencement Date, then Vodafone may start billing monthly recurring charges from the original Agreed Delivery Date and charge Customer for its reasonable costs (including Third Party Provider costs that result from the delay. Examples of Customer delays are Customer's failure to: (a) provide complete or accurate information, access, or assistance as reasonably required, and (b) complete necessary works resulting from a Site Survey. If the delay

extends 60 Working Days beyond the original Agreed Delivery Date, Vodafone may terminate the Order and apply a Recovery Charge. If appropriate, Vodafone will set a new Agreed Delivery Date.

#### 6. SERVICE LEVEL TERMS

- **6.1 Applicability**: Service Levels and Service Credit terms apply from the Service Commencement Date for the applicable Customer Site depending on the Service Level measure, unless stated otherwise.
- **6.2 Excluded Events:** Vodafone is not responsible for failure to meet Service Level Targets if the Service Level is affected by an Excluded Event.
- **6.3 Coverage Bands:** Coverage Bands are listed below, subject to Vodafone's confirmation in writing to Customer of Service availability on a case by case basis. The Frame Delay target Service Levels do not constitute a formal offer for Services within a geography.

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Coverage Bands	Locations
UK	All UK & NI locations with the exclusion of: The Isle of Man, Guernsey, Jersey & the Channel Islands
A	Australia (Melbourne, Sydney, Perth, Adelaide, Brisbane), Belgium, Czech Republic, Denmark, France, Hong Kong, Hungary, Japan, Luxembourg, Netherlands, Poland, Singapore, South Korea (Seoul & Busan), Spain, Switzerland, Taiwan
В	Albania, Austria, Belarus, Bosnia, Bulgaria, China (Beijing, Shanghai, Guangzhou, Shen Zhen), Croatia, Cyprus, Finland, Georgia, Germany, Greece, India, Indonesia (Jakarta), Ireland, Italy, Lithuania, Lithuania, Macedonia, Malaysia (KL), Moldova, Montenegro, New Zealand (Auckland), Philippines, Portugal, Romania, Russia, Russia (Moscow), Serbia, Slovakia, Slovenia, Sweden, Thailand (Bangkok), Turkey, Ukraine, USA, Vietnam (Ho Chi Minh & Hanoi)
С	Australia (other), Bahrain, Bermuda, Canada, Channel Isles, China (other), Estonia, Malaysia (other), Norway, Thailand (other), Vietnam (other)
D	Azerbaijan, Bangladesh, Belarus, Brunei, Cambodia, Indonesia (other), Isle of Man, Kazakhstan, Laos, Latvia, Mongolia, Myanmar, New Caledonia, New Zealand (other), Pakistan, Papua New Guinea, Russia (other), South Africa, South Korea (other), Sri Lanka, UAE, Ukraine, Uzbekistan
Reasonable Enceavors	Angola, Cameroon, Côte d'Ivoire, Egypt, Ghana, Iran, Jordan, Kenya, Kuwait, Kyrgyzstan, Madagascar, Mauritius, Mozambique, Nigeria, Oman, Qatar, Saudi Arabia, Senegal, Tanzania, Turks & Caicos

#### 7. SERVICE COMMENCEMENT

**7.1 Service Level Target:** The Service Commencement Date for a Service Element will be on or before the Agreed Delivery Date unless Customer requests a change in Services prior to the Agreed Delivery Date.

# 8. SERVICE AVAILABILITY

**8.1 Calculation:** Percentage Availability is calculated as: (A – B)/A x 100. "A" equals the number of whole minutes in the Annual Measurement Period. "B" equals the number of whole minutes when the Service is Unavailable in the Annual Measurement Period. **8.2 Service Levels:** The following Availability Service Levels apply based upon the Coverage Band and UK Access Type:

Coverage Band	Service Level Target
Α	99.85%
В	99.6%
С	99.4%
D	99.0%
UK Access Type	
EFM	99.8%
FTTC/FTTP	99.8%
Fibre	99.87%

# 9. PRIORITY OF INCIDENTS

9.1 The following Priority Level definitions apply to the Service:

	Priority Level definitions
1	A total loss of the Service at one Customer Site or

	multiple Customer Sites.
2	Partial loss of the Service at one Customer Site or multiple Customer Sites which has a significant detrimental effect on the Customer's ability to perform normal communications but which does not represent a total loss of the Service.
3	Degradation of the Service performance (for example, a low number of Users affected with minimum impact) or a Priority 1 or 2 Incident downgraded in accordance with clause 5.4 above.
4	A non-Service affecting Incident or Incidents not classed as a Priority 1, 2, or 3 Incident, including Incidents with performance reporting.

#### 10. INCIDENT RESOLUTION TIMES

**10.1** For Priority Level 1 and 2 Incidents, the Incident Resolution Time is calculated as the number of whole hours between the time Vodafone issues a Trouble Ticket and the time Vodafone confirms to Customer that the Incident is resolved. Service Level Targets apply to each Access Circuit only at Customer Sites located in a Coverage Band.

Coverage Band	Service Level Target
Α	4 hours
В	6 hours
С	12 hours
D	24 hours
UK Access Type	
EFM/ FTTC/FTTP	7 hours
Fibre	5 hours

#### 11. SERVICE DEGRADATION

- 11.1 Service degradation service levels: (a) meaure the average performance between the MPLS switches located within the Vodafone MPLS Core Network nodes under normal working conditions; (b) only apply to traffic within CIR and not to any traffic bursting beyond the CIR; (c) apply from the most recent Service Commencement Date for the relevant Customer Site; (d) do not apply to Severity Level 1 or 2 Incidents.
- 11.2 Frame Delay (latency performance): "Frame Delay" is the time taken by an Ethernet frame to be transmitted across the Vodafone MPLS Core Network, and is measured as an average round trip value for an Ethernet frame between the ingress and egress MPLS switches located with the Vodafone MPLS Core Network nodes. Frame Delay performance may vary from time to time as a result of resilience mechanisms aimed at maximising end-to-end service availability which are present on the global meshed Vodafone MPLS Core Network.
- **11.3** The target Service degradation Service Levels for Frame Delay are set out in the section "Coverage Bands and Frame Delay Service Degradation" below.
- **11.4 Frame Delay Variation: "Frame Delay Variation"** is the variation of the inter-Frame Delay and is measured as the absolute variance between the Frame Delay seen on individual Ethernet frames and the average Frame Delay between the ingress and egress MPLS switches located within the Vodafone MPLS Core Network.
- **11.5** The Frame Delay Variation target Service Level for circuits routes across the Vodafone MPLS Core Network is 5 milliseconds for Premium CoS. There is no Frame Delay Service level target for Enhanced Cos or Standard Cos.
- **11.6 Frame Loss: "Frame Loss"** is the percentage of Ethernet frames lost between MPLS switches located within the Vodafone MPLS Core Network.
- **11.7** The Service degradation Frame Loss target Service Levels for circuits routed across the Vodafone MPLS Core Network are:

CoS	Service Level Target
Premium CoS	0.04%
Enhanced CoS and Standard CoS	0.06%

#### 12. SERVICE CREDIT

#### 12.1 Service Credit for delay

12.1.1 Customer is entitled to a Service Credit if the Service Commencement Date of a new Service Element or Regrade is delayed beyond the Agreed Delivery Date due to Vodafone's act or omission. Where there are at least two Service Demarcation Points for each EVC, the Service credit is calculated based on the Working Days past the Agreed Delivery Date for the last Customer Site of the two Service Demarcation Points to be installed.

Number of whole Working Days beyond Agreed Delivery Date	Service Credit (% of the Installation/Regrade Charge)
1 to 10 days	5%

11 to 20 days	15%
>20 days	25%

12.1.2 A Service Credit cap of 25% of the Installation or Regrade Charge for affected Service Element applies to the Service Credit Customer may claim for this Service Level. An Installation Charge does not include additional charges due to Customer Site requiremenets (e.g., construction charges).

#### 12.2 Service Credit for Availability

12.2.1 The Service Credit is a percentage of the Monthly Recurring Charge for the affected EVC x 12 during the Measurement Period. The following Service Credit applies to the Availability Service Levels:

% of Availability below Service Level	Service Credit
Target	Percentage
>0%-0.1%	3%
>0.1-0.2%	5%
>0.2-0.35%	10%
>0.35%	15%

12.2.2 A Service Credit cap of 10% of the monthly recurring Charge x 12 for the affected Customer Site applies to the Service Credits Customer may claim for the Availability Service Levels each annual Measurement Period.

#### 12.3 Service Credit for Incident resolution

12.3.1 The Service Credit is a percentage of the Monthly Recurring Charge for the affected EVC during the Monthly Measurement Period. The following Service Credit applies to the Priority 1 and 2 Incidents on that affected EVC not resolved within the mean Incident Resolution Service Levels during the Monthly Measurement Period:

Number of Incidents not resolved in the mean target Incident Resolution Time	Service Credit Percentage
1	10%
2	25%
3	35%
4 or more	50%

**12.4** A Service Credit cap of 50% of the monthly Charge for the affected Customer Site applies to the Service Credit Customer may claim for this Service Level, in aggregate, during the Monthly Measurement Period. **Service Credit for Service degradation** 

12.4.1 If a Priority 3 Incident arises because the average Frame Delay, Frame Delay Variation or Frame Loss has not met the Service degradation Service Levels, Customer may claim a Service Credit calculated as 20% of the pro-rata Monthly Recurring Charge for the affected EVC for the period that the applicable Service degradation Service Level has not been met for that EVC. The period during which the targets are not met is measured from the date Vodafone acknowledges an Incident for a Service degradation Service Level failure to the date that the Service falls within the affected Service degradation Service Level.

12.4.2 Vodafone's total liability for Service Credits for a failure to meet Service degradation Service Levels for Frame Delay, Frame Delay Variation and Frame Loss in a single calendar month shall not exceed 20% of the Recurring Charges for the affected EVC.

# 12.5 Service Credit Terms

- 12.5.1 Customer must claim Service Credit via its Vodafone account manager within 30 days of the end of the relevant Measurement Period. Service Credit will be applied to Customer's next bill after agreement that Service Credit is due.
- 12.5.2 Service Credits do not apply to any Incident connected to: (a) any Excluded Event and/or (b) interupptions or maintenance activities agreed with Customer.
- 12.5.3 If one Incident causes a failure of two or more Service Levels, only the greater Service Credit amount of the Service Levels is payable.
- 12.5.4 The Service Credits as set out in these Service Terms are Customer's sole and exclusive remedy against Vodafone for any failure in Service performance. Service Credits have been calculated as, and are, a genuine pre-estimate of the loss likely to be suffered by the Customer for failure in Service performance. Service Credit may only be applied to Charges for the Service and have no cash value.

#### 13. DEFINITIONS

- **13.1 Access Circuit** means the network connection provided between the Service Demarcation Point at the Customer Site and the ingress/egress port of the Vodafone MPLS Core Network.
- **13.2** Annual Measurement Period means the period of twelve months from the Service Commencement Date or each anniversary of the Service Commencement Date thereafter (or a period of twelve months as otherwise agreed between the parties).

- **13.3 Applicable Law** means law, regulation, binding code of practice, rule, order, or requirement of any relevant government or governmental agency, professional or regulatory Authority, each as relevant to (i) Vodafone in the provision of the Service and/or (ii) Customer in receipt of the Service or carrying out of its business.
- **13.4 Availability** means the percentage of time the Service is available for use at each Customer Site in an Annual Measurement Period calculated as set out the Service Availability Service Level.
- **13.5 Authority** means those governments, agencies, and professional and regulatory authorities that supervise, regulate, investigate, or enforce Applicable Law.
- **13.6 Charges** means the charges or fees set out in the Customer Agreement, the Order or Price Lists.
- **13.7 Committed Information Rate** or **CIR** means the guaranteed amount of bandwidth that can be transmitted across an Ethernet Virtual Circuit.
- **13.8 Customer** means the Party receiving Service under the Customer Agreement who is a member of the Customer Group.
- **13.9 Customer Agreement** means an agreement for purchase of Services signed by both Parties, including Local Agreements.
- 13.10 Customer Group means the Customer and any company that Customer has the beneficial ownership of more than 50% of the issued share capital, or the legal power to direct the general management of the company in question, either at or after the date of the Customer Agreement (and Customer Group Company/Customer Group Companies has a corresponding meaning).
- **13.11** Customer Site(s) means the Customer's premises that Vodafone must access to provide the Service or the location where the Service is to be provided.
- **13.12 Data Protection Terms** means the terms regarding data protection in the General Terms.1.0 or later, or if those General Terms are not applicable, the Data Protection Terms found at <a href="http://www.vodafone.com/business/vgeqeneralterms">http://www.vodafone.com/business/vgeqeneralterms</a>.
- **13.13 Equipment** means the hardware and related software Customer must have to use the Service.
- **13.14 Equipment Terms** means the terms regarding Equipment in the General Terms.1.0 or later, or if those General Terms are not applicable, the Equipment Terms found at <a href="http://www.vodafone.com/business/vgegeneralterms">http://www.vodafone.com/business/vgegeneralterms</a>.
- **13.15** Enhanced CoS means Ethernet VPN Wireline using IEEE 802.1q defined priority bit (IEEE802.1p P-bit, traffic market with a Pbit value of 3 is classed as Enhanced CoS
- **13.16** Ethernet First Mile or EFM means the Ethernet access circuit is delivered using bonded copper pairs.
- **13.17 Ethernet Virtual Circuit** or **EVC** means a point to point logical connection provided by Vodafone across the Vodafone MPLS Core Network which associates two Service Demarcation Points with each other.
- 13.18 Excluded Event means any of the following: (a) an Incident with another Vodafone service purchased under a separate Customer Agreement; (b) an Incident associated with non-Vodafone-supplied power, Customer Equipment, non-maintained structured cabling or other systems or networks not operated or provided by Vodafone (including an Incident relating to consumption of services over the internet); (c) an Incident caused by the negligence, act, or omission of Customer or a third-party not within Vodafone's direct control; (d) Customer's delay or non-performance of any of Customer obligations set out in the Customer Agreement; (e) an Incident or delay resulting from a request by Customer for expedited delivery of the Service; (f) Customer's request to modify or test a Service Element; (g) a Force Majeure event or Service suspension that is permitted under the Customer Agreement; (h) the inability or refusal by a Third Party Provider to provide the Access Circuit at a Customer Site]; (i) a change during implementation; and (j) an Incident caused by service failure at any other Customer Site.
- **13.19 Extended Information Rate or ÉIR** means the nonguaranteed amount of bandwidth that can be transmitted across the Customer-facing port on the Equipment.
- **13.20 Force Majeure** means any circumstances, events, omissions, or accidents beyond the reasonable control of a Party, and that could not have been avoided by due diligence, that prevent that Party from performing any or all of its obligations.
- **13.21 General Terms** means the General Terms or master agreement identified in the Customer Agreement.
- **13.22** Frame Delay means the time taken by an Ethernet frame to be transmitted across the Vodafone MPLS Core Network, and is measured as an average round trip value for an Ethernet frame between the ingress and egress MPLS switches located with the Vodafone MPLS Core Network nodes.

- **13.23** Frame Delay Variation means the variation of the inter-Frame Delay and will be measured as the absolute variance between the Frame Delay seen on the individual Ethernet frames and the average Frame Delay between the ingress and the egress MPLS switches located within the Vodafone MPLS Core Network.
- **13.24** Frame Loss means the percentage of Ethernet frames lost between the MPLS switches located within the Vodafone MPLS Core Network.
- **13.25 FTTC** means Fibre to the Cabinet and is an access circuit supplied by BT Openreach in the UK, and comprises the fibre circuit between the BT Local Exchange and the BT Street Cabinet and a circuit between the Street Cabinet and the Customer Site.
- **13.26 FTTP** means Fibre to the Premises and is an access circuit supplied by Vodafone and other third parties in the UK, and comprises the fibre circuit between the local exchange or other point of presence ("PoP") and the Customer Site.
- **13.27 Incident** means an unplanned interruption to the Service, a reduction in the quality of a Service, or a failure of a Service configuration item.
- **13.28** Incident Management means the end-to-end management of Incidents by Vodafone.
- **13.29 Incumbent Provider** means the regulated operator who is authorised to provide a Service Element in a given country. An Incumbent Provicer is also a Third Party Provider.
- **13.30 Initial Term** means the term of the individual Service Element as set out in the Order or Customer Agreement.
- **13.31 MPLS Core** means the MPLS network operated by Vodafone.
- **13.32** MTU means the maximum transmission unit and is the maximum transmittable packet size that can be used.
- **13.33 Network** means the communications network and the equipment and premises that are connected to the network that are used by Vodafone and Vodafone Group Companies.
- 13.34 Order is defined in the relevant Customer Agreement.
- **13.35** Party or Parties means the parties to the Customer Agreement.
- **13.36** Peak Information Rate (PIR) means the maximum traffic rate available for a particular EVC.
- **13.37 Premium CoS** means Ethernet VPN Wireline using IEEE 802.1q defined priority bit (IEEE802.1p P-bit, traffic market with a Pbit value of 5 is classed as Premium CoS
- **13.38 Price List** means Vodafone's standard pricing in the relevant territory at the applicable time.
- **13.39 Prioritisation Rate** means the parameter controlled by BT Openreach in the Openreach network for FTTC and FTTP in which packets will be discarded above the prioritisation rate.
- **13.40 Recovery Charge** means any amount payable by Customer for early termination or failure to meet commercial commitments as set out in the Customer Agreement.
- **13.41** Regrade means the increase of the Committed Information Rate of an EVC or Access Circuit.
- **13.42 Service Credit(s)** means the service credit payable by Vodafone to Customer in accordance with these Service Terms.
- **13.43** Service Demarcation Point means the handoff between the Customer and Vodafone at the Customer Site and is the Customer-facing port on the Equipment.
- **13.44 Service Element** means the individual components of the Service including optional services if applicable and configuration changes.
- **13.45** Service Level(s) means the service levels that apply to the provision of the Service as set out in these Service Terms.
- **13.46 Site Survey** means a survey of a Customer Site to assess whether (in Vodafone's opinion) the existing infrastructure is sufficient to provide the Service at that Customer Site.
- 13.47 Standard CoS Ethernet VPN Wireline uses IEEE 802.1q defined priority bit (IEEE802.1p P-bit, traffic market with a Pbit value of 1 is classed as Standard CoSThird Party Provider means a third party contracted by either Vodafone or Customer that provides a Service Element or that provides service that connects to the Service. Third Party Providers may include members of the Vodafone Group.
- **13.48** Trouble Ticket means a record of an Incident with a unique reference allocated to it that is used for all subsequent updates and communications.
- **13.49** Unavailable or Unavailability means the Ethernet Virtual Circuit cannot transmit data I none or both directions as a result of a Priority 1 or 2 Incident for reasons other than an Excluded Event.
- **13.50** User means an end user of the Services who must be a permanent or temporary employee or sub-contractor of Customer.
- **13.51 Vodafone** means the member of the Vodafone Group that is a Party to the Customer Agreement.
- 13.52 Vodafone Equipment means Equipment supplied by

Vodafone for Customer's use.

13.53 Vodafone Group means: (i) Vodafone Group Plc, Vodafone and any company that Vodafone Group Plc owns (directly or indirectly) 15% or more of the issued share capital; and (ii) any partner market listed on the "Where we are" " page in the "Who we are" section at <a href="https://www.vodafone.com">www.vodafone.com</a> (and Vodafone Group Company/Vodafone Group Companies has a corresponding meaning) meaning).

- **13.54 Working Day** means on Monday to Friday inclusive, but excluding public holidays in the country where the Service are being
- provided.

  13.55 Working Hours means the hours between 0900 and 1700 (local time) on a W\orking Day.

# **ROUND TRIP DELAY TARGETS**

**NOTE:** All RTD is measured with IP packets and hence the trables below refer to IP RTD trarets. **Section 1 - IP Backbone Core RTD Targets in Milliseconds (ms)** 

Round Trip Delay Service Level Targets between two IP

Backbone Core Routers in milliseconds.

The Round Trip Delay Service Levels for the IP Backbone Core is calculated as the applicable IP Backbone Core RTD Target in the tables in Section 1 in this document x 1.2

Section 1 in this doc	2																																	
Row Labels	Argentina - Buenos	Australia - Melbourne	Australia - Perth	Australia - Sydney	Bahrain - Bahrain	Belgium - Brussels	Brazil - Rio de Janeiro	Brazil - Sao Paolo	Canada - Toronto	China - Beijing	China - GuangZhou	China - Shanghai	Czech Republic -	Denmark - Copenhagen	Egypt - Cairo	France - Marseille	France - Paris	Germany - Dusseldorf	Germany - Frankfurt	Germany - Hamburg	Hong Kong - Hong Kong	Hungary - Budapest	India - Bangalore	India - Chennai	India - Delhi	India - Mumbai	Indonesia - Jakarta	Ireland - Dublin	Israel - Rosh Haayin	Italy - Milan	Japan - Osaka	Japan - Tokyo	Korea - Seoul	Kuwait - Kuwait
Argentina - Buenos Aires		367	406	355	353	227	257	266	158	361	365	341	234	232	269	236	221	224	221	229		234	349	353	365	328	385		289	229	311	306	349	353
Australia - Melbourne	367		42	15	178		345	337		169	131	156	287	286	312	276	266	278	274	282	128	288	149	121	188	147	103		340	282	136	129		
Australia - Perth	406	42		54	139	233	385	377	264	121	83	108	248	246	273	237	227	238	235	243	80	249	110	82	148	108	63		301	243	125	117	116	143
Australia - Sydney	355	15	54	2	191	279	334	327	213	157	118	143	285	283	333	288	278	274	284	279	115	298	159	134	200	160	115		347	292	125	125	151	195
Bahrain - Bahrain	353		139	191		151	332	377	233	165	126		146	145	182		145	137	133	145	126	147	141	128	189	152	105		196	141	166	159		43
Belgium - Brussels	227		233		_	2	209	224	109	223	188		26	24	55	19	9	16	16	20	185	29		146	159	120			81	23	176	169	_	_
Brazil - Rio de Janeiro	257	345		334	332	209		18			343	324	218	213		218	203	205	202	214	340	216	332	333	343	309			264		290	294		335
Brazil - Sao Paolo	266	337	377	327	377	224	18	4.40	148		336	324	232	230	266	229	220	221	211	228	333	225	356	396	353	321	376		285	219	283	288		353
Canada - Toronto	158 361	224		213 157		109 223	139 346	148	215	215	223 41	195 23	116 226	114	151 263	119	103	106	102	111 221	219	116 228		234	247 177	209 137	238 92		171 276	110 222	169	160 58		236 168
China - Beijing China - GuangZhou	365	131	121		165 126	188	343	336	223	41	41	28		225 189	203	230 194	186	217 181	214 177	187	45 7		139 100	114 76	139	99	54		239	185	66 46	63	_	130
China - Guangzhou China - Shanghai	341		108	143			324	324	195	23	28	20	206	204		211	201	195	198	199	31	211		100	165	124	78		262	205	45	38	_	157
Czech Republic - Prague	234				146	26	218	232	116		190	206	200	23	65		25	20	18	23	188	15		149	161	125			79	24	180	173		149
Denmark - Copenhagen	232	286			145	24	213	230	114	225	189		23	2	64		24	12	16	21	187	29		147	160	123			77	23	178	171		148
Egypt - Cairo	269				182	55		266	151	263	226		65	64	<u> </u>	60		56	52		223		185	183	196	158			114	59	223	217	_	183
France - Marseille	236		237	288	151		218	229	119		194		33	31	60		13	23	19		191		149		163	123			82		185			147
France - Paris	221	266		278			203	220	103	222	186		25	24	50		3	15	12		183			140		114			74	19	175		_	137
Germany - Dusseldorf	224		238			16		221		217	181	195	20	12	56		15	2	7		178			139	152	115			69		168	162	_	140
Germany - Frankfurt	221	274	235	284	133	16	202	211	102	214	177	198	18	16	52		12	7	2	16	175	17	133	135	148	111	199		65	11	172	166	206	136
Germany - Hamburg	229	282	243	279	145	20	214	228	111	221	187	199	23	21	67	30	20	12	16		190	29	145	148	162	123	207		81	23	173	166	207	151
Hong Kong - Hong Kong	362	128	80	115	126	185	340	333	219	45	7	31	188	187	223	191	183	178	175	190	3	188	97	73	136	96	51		237	183	45	69	40	129
Hungary - Budapest	234	288	249	298	147	29	216	225	116	228	191	211	15	29	66	34	26	21	17	29	188		147	149	162	125	213		79	25	185	178		150
India - Bangalore	349		110			145	332	356	231	139	100		147	145	185		139	137	133	145		147	5	27	65	29	65		196	140	132	130	_	156
India - Chennai	353	121		134	128	146	333	396	234		76	100	149	147	183		140	139	135	148	73	149		3	70	30	51		204	143	110	102	109	
India - Delhi	365		148	200	189	159	343	353	247	177	139		161	160	196		154	152	148	162	136	162	65	70		43	118		210	156	179	169	_	192
India - Mumbai	328		108			120	309	321	209		99			123		123		115	111	123	96	125	29	30	43	5	77		173	118	138	128		156
Indonesia - Jakarta	385	103	63	115	105	197	378	376	238	92	54	78	213	211	238	201	191	203	199	207	51	213	65	51	118	77			266	207	89	81	87	109
Ireland - Dublin	200	240	201	247	106	01	264	217 285	171	276	220	262	70	77	111	02	74	60	GE	01	227	70	106	204	210	172	266			72	220	225	274	100
Israel - Rosh Haayin Italy - Milan	289 229	340 282		347 292	196 141	81 23	264	219		276 222	239 185		79 24	77 23	114 59	82 27	74 19	69 15	65 11	81 23	237 183	79 25		204	210 156	173 118			73	73	239 180	235 173	274 217	
Japan - Osaka	311		125	125	166	176	290		169	66	46	45	180	178	223	185	175	168	172	173	45	185		110	179	138	89		239	180	100	10	_	170
Japan - Tokyo	306		117		159	169		288	160		63		173	171	217	178	168	162	166	166	69		130		169	128			235	173	10	2		166
Korea - Seoul	349		116		159	209	333	331	202	81	43	68	213	211	255	218	209	202	206	207	40	220		109	172	132	87		274	217	53	46		163
Kuwait - Kuwait	353		143		43	142	335	353		168	130		149	148	183		137		136				156	_		156					170		_	
Malaysia - Johor Bahru	374	90		103	93	187	366	358		77	38	65	202	201	228	191	181	193	189	197	36	203		36	102	62	17		255	197	78	70	71	98
Malaysia - Kuala Lumpur	382	99		112	102	194	374	366	236	79	41	66	210	208	234	198	188	200	196	204	38	210		48	115	74	24		263	204	86	81	74	105
Mexico - Mexico City	254	211	250	200	324	196	233	226	112	218	209	199	208	206	238	201	190	197	199	202	207	213	281	272	333	291	244		259	207	156	163	206	326
Mexico - Monterrey	210	257	297	248		149	166	157	88	265	255	245	160	158	189	153	143	149	153	153	253	165	299	318		254	295		214		203	209		290
Morocco - Rabat	270		287	330	201	67	250	266	152	273	242	253	77	75	110		64	67	69	71	239	82	198	199	213	175	251		129	76	226			197
Netherlands - Amsterdam	224	281		278		13	207	221	106	219	187	192	18	16	58	24	13	7	11	10	184	23	140	142	154	117	207		80	17	165	159	206	143
New Zealand - Auckland	333	39		27	214	275	312	304	191		143		287	285	317		_	276	280	281	140	292	183	157	223	183	138		339	287	149	142	176	_
Oman - Wattaya	333		122		26	126	315	335	005	148	109		129	128		132	121	120		128	108	130		111	172	135	88		179		149	142	142	29
Philippines - Manila	380 242	121	82 257	132 300	123	203 35	357 223	349 233	235	61 235	23 199		203	202		207	199	194		202	20 196	204		67	134 170	93	48 221		255 87	198	78 188	74 181		128
Poland - Warsaw Romania - Bucharest	260	290	237	300	155 172	52	241	260	142	233	199	213	33 48	32 47	74 91	41 59	34 52	22 38	25 43	32 46	190	39	155 171	157 174	187	133 150	221		105	33 51	100	101		158 176
Russia - Moscow	268	310	279	315		57	251	268	150	256	227	236	61	59	102	66	57	50	54	55	225	67	185	185	197	160	244		120		210	203	_	186
Singapore - Singapore	373					186			226		38		202	200	227	190		192	191	197	36	202	63	39	105	64			255	196	77	71	73	97
Spain - Barcelona	247		253					237		241	203		43	41	78		30	33	29	41	201				174	137	218		92	37	198		235	_
Spain - Madrid	000	004	0.45	000	450	~-	004	200	400	040	004	040	40		-00	31	~ .	٠,	~~	~~	004		450	450	470	400	000		92	00	400	400	226	455
Sweden - Stockholm																39																	225	
Taiwan - Taipei	356	161	102	149	146	213	358	353	209	90	29	70	212	210	251	215	207	202	198	211	26	212	120	95	158	118	73						78	
Thailand - Bangkok			80													225									139				286	232	95	100	93	127
Thailand - Nonthaburi	411	120	81	133	122	221	393	383	268	97	61	86	234	232	260	225	216	224	220	228	58	234	102	68	139	93	46		284	228	101	101	94	127
Turkey - Istanbul								265																								208		
UAE - Dubai																126																	151	
UK - Bracknell			238													24					192				163				79				210	
UK - London			234			15	189	211	97	218	189	198	24	22	57	21		13			186				159				77				206	
USA - Chicago																120																	193	
USA - Dallas USA - Los Angeles	1/6	162	201	150	3U8	118	125	170	32 6F	∠U1 17∩	192	1/10	160	150	104	123 155	1/15	119	154	123	157	167	222	224	286 286	2/10	200						188 156	
USA - Los Angeles USA - New York			270													100																	213	
USA - New York USA - San Francisco																166																	147	
Vietnam - Hanoi																210																	59	
Vietnam - Ho Chi Minh																217														210			67	
	000	1.70		1.73	1.72	213	550	555	273	, , <del>,</del> +	J-1	- 55	ı <u>←</u> 1 →	213	73	-11	_00	200	201	210	J.	-13	100	55	102		31		_00	£ 10	12	50	- 51	. 40

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Row Labels	/sia - K umpur	Mexico - Mexico	Mexico -	o - Ra	Netherlands Amsterdam	w Zealand Auckland	Wattay	Philippines Manila	War	ania - iarest	Mos	Singapore Singapore	arce	Spain - Madrid	Sweden - Stockholm	- Tai	Thailand - Banakok Thailand -	urkey - Istanbul	- Dubai	acknell	- London	USA - Chicago	USA - Dallas	- Los eles	- New Y	USA - San Francisco	- Ha	ietnam - Ho Minh
ow L	aysia - Lumbi	- ooi	Mexi	Morocco	lether Amst	ew Zeal Auckla		ilip Ma		Romania Buchares	sia -	inga	n - B	ain -	Swe	Taiwan	Thailand Bangkok Thailand	ey -	UAE -	- Br	7 - V	A - C	SA -	USA	N -	USA	etnam	nam Mi
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Argentina - Buenos Aires		254		270			333	380	242	260	268	373	247	239	240	356	411 411		342	220	214	159	176	208	140		381	388
Australia - Melbourne Australia - Perth	99 61	211 250	257 297	326 287	281 242	39 78	161 122	121 82	296 257		319 279	90 51	293 253	284 245	293 254	161 102	120 120 80 81		171 131	276 238	273 234	215 254	194 233	162 201	231 270	171 210	147 99	140 99
Australia - Sydney	112	200		330	278		174	132	300	470	315	103		296	303	149	132 133		183	281	277	203	183	150	219	159	136	143
Bahrain - Bahrain Belgium - Brussels	102 194	324 196		201 67	139 13		26 126	123 203	155 35	172 52	183 57	93 186		158 27	153 35	146 213	121 122 221 221		35 122	156 19	151 15	304 110	308 118	277 150	213 90	286 158	143 205	142 213
Brazil - Rio de Janeiro	374	233		250			315	357	223	241	251	370		221	222	358	392 393		324	197	189	140	155	186	121		359	366
Brazil - Sao Paolo	366	226		266			335	349	233	260	268	364		236	231	353	383 383		333	217	211	154	147	179	130		353	359
Canada - Toronto China - Beijing	236 79	112 218		152 273	106 219		148	235 61	235	142	150 256	226 76		122 240	122 234	209 90	268 268 97 97		224 156	102 222	97 218	12 206	32 201	65 170	21 225	59 159	239 64	245 74
China - GuangZhou	41	209		242		143	109	23	199		227	38		204	197	29	60 61		118	194	189	214	192	161	229	169	26	34
China - Shanghai	66	199		253			136	48	215		236	65		219	217	70	85 86		143	203	198	186	181	149	205	139	51	59
Czech Republic - Prague				77	18		129	203	33	48	61	202		43	36	212	236 234		139	28	24	117	130	162	97		207	214
Denmark - Copenhagen Egypt - Cairo	208 234	206 238		75 110	16 58		128 165	202 240	32 74	47 91	59 102	200	41 78	41 68	24 72	210 251	236 232 260 260		137 163	26 61	22 57	115 152	127 159	159 191	95 132		205 243	213 249
France - Marseille	198	201		74	24		132	207	41	59	66	190		31	39	215	225 225		126	24	21	120	123	155	100		210	217
France - Paris	188	190		64	13			199	34	52	57	182		21	31	207	216 216		116	14	11	104	113	145	85		202	209
Germany - Dusseldorf Germany - Frankfurt	200 196	197 199		67 69	7 11			194 190	22 25	38 43	50 54	192 191	33 29	34 30	26 22	202 198	228 224 224 220		129 125	17 21	13 17	107 103	119 122	151 154	88 84		197 193	205
Germany - Hamburg	204	202		71	10		128	202	32	46	55	197		37	34	211	231 228		137	22	17	112	123	155	93	163	203	210
Hong Kong - Hong Kong	38	207	253	239	184	140	108	20	196		225	36	201	201	194	26	57 58		119	192	186	210	189	157	226	166	23	31
Hungary - Budapest	210			82			130		39	56	67	202		44	37	212	238 234		139	34	30	117	135	167	98		207	215
India - Bangalore India - Chennai	72 48	281 272	299	198 199			127 111	95 67	155 157	171 174	185 185	63 39		158 158	153 156	120 95	101 102 65 68		134 120	147 150	143 146	243 250	263 256	233	216 216	229	117 92	109 85
India - Delhi	115	333		213			172	134	170	187	197	105		172	168	158	139 139		181	163	159	248	289	286	228	278	156	152
India - Mumbai	74	291	254	175		183	135	93	133	150	160	64		132	131	118	93 93		144	124	121	210	226	248	191	232	116	111
Indonesia - Jakarta	24	244	295	251	207	138	88	48	221		244	16	218	209	219	73	46 46	i	98	202	198	229	233	200	248	182	70	67
Ireland - Dublin Israel - Rosh Haayin	263	259	214	129	80	339	179	255	87	105	120	255	92	92	86	268	286 284		188	79	77	172	181	214	152	220	257	269
Italy - Milan	204	207	160	76		287	124	198	33	51	61	196		38	31	207	232 228		133	28	24	111	129	161	92		201	210
Japan - Osaka	86	156		226		149	149	78	188		210	77		193	191	50	95 101		159	176	172	160	140	107	176	115	64	72
Japan - Tokyo Korea - Seoul	81 74	163 206		219 259			142 142	74 57	181 222		203 243	71 73		186 226	185 225	47 78	100 101 93 94		151 151	170 210	165 206	151 193	145 188	113 156	170 213	104 147	68 59	98 67
Kuwait - Kuwait	105	326		197	143		29	128	158	176	186	97		155	157	149	127 127		38	148	144	308	312	281	217	292	147	145
Malaysia - Johor Bahru	14	230		241	190			35	040		234	5		199	208	58	34 34		85	192	188	219	215	182	243	193	55	57
Malaysia - Kuala Lumpur Mexico - Mexico City	240	240	287 78	248 240	204 195		85 303	45 225	218 217	232	241 239	13 235		206 209	216 219	60 227	45 45 260 260		94 312	199 191	196 187	227 103	224 83	192 52	249 118	200 139	58 226	61 230
Mexico - Monterrey	287	78		192			271	270	168	183	190	282		161	171	274	303 304		267	142	138	89	68	100	70		272	279
Morocco - Rabat	248	240	192		66	321	181	256	86	102	108	241	94	81	88	264	275 275	i	176	62	58	153	162	194	133	203	258	266
Netherlands -	204	105	146	66	3	281	122	202	26	46	47	106	26	21	20	200	231 228		127	11	10	107	116	148	07	156	203	211
Amsterdam New Zealand - Auckland	135	195 177		321	281	4	122 197	203 157	26 296	46	317	196 126		31 288	29 298	209 174	231 228 155 156		137 206	14 270	10 265	107 182	116 161	129	87 197		160	168
Oman - Wattaya	85	303	271	181	122	197		106		155	166	76	142	139	135	129	104 105		19	132	128	287	291	260	196		126	125
Philippines - Manila	45	225		256			106	3	212		241	35		217	211	44	65 65		116	208	204	226	206	174	243	183	40	52
Poland - Warsaw Romania - Bucharest	218	217		86 102			155	212	57	57	70 85	210	51 69	51 69	44 62	217	246 242		147	37 52	33 48	125 143	138 153	170 185	106 123	174 193	215	223
Russia - Moscow	241	239		108	47		166	241	70	85	- 00	233		74	73	248	268 265	i	175	58	56	151	160	192	131		243	251
Singapore - Singapore	13	235		241	196		76	35	210		233	4		198	208	60	34 34		85	191	188	217	221	189	242	195	57	53
Spain - Barcelona Spain - Madrid	216 206	218		94 81	36 31	297 288	142 139	217 217	51 51	69 69	79 74	207 198		13 2	49 49	225 225	243 240 234 234		151 134	42 32	38 29	130 123	140	172 163	110 102		219	227
Sweden - Stockholm	216	219		88	29	298	135	211	44	62	73	208		49	2	218	244 240		145	39	36	123	141	172	103		213	220
Taiwan - Taipei	60	227	274	264	209		129	44	217		248	60		225	218	3	79 80		137	215	210	200	212	180	218	171	46	53
Thailand - Bangkok	45			275		155	104	65	246		268	34		234	244	79	3	8	116	226	222	259	242	210	275	215	77	81
Thailand - Nonthaburi Turkey - Istanbul	45	260	304	2/5	228	156	105	65	242		265	34	240	234	240	80	3		116	226	222	259	243	211	275	216	77	83
UAE - Dubai	94	312	267	176	137	206	19	116	147		175	85	151	134	145	137	116 116	i		127	124	298	301	269	206	278	135	134
UK - Bracknell	199			62					37	52	58	191		32		215	226 226		127	_	6	103		144	83			
UK - London USA - Chicago	196 227	187 103		58 153					33 125	48 143	56 151	188 217		29 123		210			124 298	6 103	97	97 2		140 56	79 33	148	206	
USA - Dallas	224	83		162					138		160			131		212			301	112		23	23	36	40			
USA - Los Angeles	192	52	100	194	148	129	260	174	170	185	192	189	172	163	172	180	210 211		269	144	140	56		2	72	12	177	183
USA - New York	249			133					106		131			102		218			206	83	79	33		72	3		245	252
USA - San Francisco	200 58			203 258					215	193	199 243	195 57		171 220	170 213	171 46	215 216 77 77		278 135	152 210		50 230		12 177	69 245	2 186	186	192 30
Vietnam - Hanoi																												

IP Backbone Core	RTD	Targe	ets in	Milli	seco	nds	(ms)	- Afı	rica			ΙP	Back	kbon	e Co	re R	TD T	arge	ts in	Milli	seco	nds	(ms)	<u>– UK</u>
RTD Matrix	Angola	Botswana	Ivory Coast	Cameroon	Djibouti	DRC	Ghana	Equatorial Guinea	Kenya	Lesotho	Mauritus	Madagascar	Mozambique	South Africa	Malawi	Namibia	Nigeria	Senegal	Swaziland	Tanzania	Uganda	Zambia	Zimbabwe	UK
Angola		90	270	390	360	270	270	360		225		150	95		145	120	220		130		270	110		170
Botswana			310		190	130	300	400	90	40	70	85	40	20	100	60	120	330	80	75	105	55	45	210
Ivory Coast				280		310	220		305	315		365		300	350									
Cameroon					460	390	130		375	385				370	420									180
Djibouti						380	390	510	115	190	230	255	160	175	230	225	335			120		215		325
DRC							325	410	280	140	160	170	125	125	220	155	315	340	160	340	310	170	145	220
Ghana								310	240	230	270	280	245	125	270	260	30	240	265	290	255	155	235	115
Equatorial Guinea									400	410	450	460	440	400	450	420	310	325	450	395	415	430	410	200
Kenya										90	130	135	60	75	170	125	230	335	125	30	30	120	100	220
Lesotho											70	80	45	30	110	65	120	335	105	75	110	60	45	210
Mauritius												120	75	55	140	95	150	375	120	115	145	95	70	250
Madagascar													130	95	155	160			180	150	175	145	105	260
Mozambique														40	95	70	125		80	65	80	60	45	270
South Africa															70	55	105		50	65	95	50	30	195
Malawi																115		405	155	135	165	105	90	275
Namibia																	130		120	120	140	85	60	220
Nigeria																		240	150	280	270	140	120	115
Senegal																			380		340	350	340	130
Swaziland																				120	175	90	105	270
Tanzania																					45	105	80	200
Uganda																						130	115	225
Zambia																							60	240
Zimbabwe																								215
UK																								

6	UK - Aberdeen	UK - Addlestone	UK - Bedford	UK - Birmingham	UK - Bracknell	UK - Brighton	UK - Bristol	UK - Edinburgh	UK - Glasgow	UK - Inverness	NK - Leeds	UK - Livingston	UK - London	UK - Manchester	UK - Milton Keynes	UK - Newcastle	UK - Sheffield	UK - Swindon	UK - Tingley	UK - Warrington	UK - Watford
UK - Aberdeen	3	24	20	18	24	23	29	7	22	14	28	10	23	16	24	18	17	19	16	15	19
UK - Addlestone	24		16	10	13	16	16	19	23	22	14	18	15	13	20	16	13	12	13	12	
UK - Bedford	20	16		10	8	6	14	11	20	18	20	12	8	9	7	9	8	7	8	8	3
UK - Birmingham	18	10	10	4	7	10	10	12	20	16	14	12	8	6	15	9	7	6	6	6	8
UK - Bracknell	24	13	8	7	3	7	10	16	17	22	17	17	5	13	12	15	13	4	10	11	5
UK - Brighton	23	16	6	10	7		13	15	17	22	20	18	7	12	11	13	12	7	9	11	4
	29	16	14	10	10	13	10	20	23	24	20	20	11	17	18	17	16	9	14	18	9
UK - Edinburgh	7	19	11	12	16	15	20		13	9	18	3	17	10	16	10	8	14	7	10	11
UK - Glasgow	22	23	20	20	17	17	23	13	16	20	27	17	18	11	23	14	13	17	11	10	14
UK - Inverness	14	22	18	16	22	22	24	9	20		26	9	21	14	22	16	15	17	14	14	18
	28	14	20	14	17	20	20	18	27	26	18	22	18	17	24	19	17	16	16	16	7
- 9	10	18	12	12	17	18	20	3	17	9	22		17	10	16	10	9	13	10	10	14
	23	15	8	8	5	7	11	17	18	21	18	17	6	11	11	14	13	6	11	11	3
	16	13	9	6	13	12	17	10	11	14	17	10	11	3	13	7	6	8	4	4	8
UK - Milton	0.4	20	7	4.5	40	44	40	4.0	22	00	0.4	40	44	40			40	44	40	40	_
-,	24	20		15	12	11	18	16	23	22	24	16	11	13 7	4.4	14	12	11	12	13 7	7
	18 17	16 13	9	9 7	15	13	17	10	14	16	19 17	10	14 13		14 12		6	11	6		9 7
0.1.0	19	12	8 7	6	13	12 7	16 9	<u>8</u> 14	17	15 17	16	9 13	6	6 8	11	6 11	9	9	3 8	5 7	5
	16	13	8	6	10	9	14	7	11	14	16	10	11	4	12	6	3	8	0	4	6
<u> </u>	15	12	8	6	11	11	18	10	10	14	16	10	11	4	13	7	<u> </u>	7	4	4	7
	19	12	3	8	5	4	9	11	14	18	7	14	3	8	7	9	7	5	6	7	

### Section 2 - Round Trip Delay Service Level Targets - Extended Access

The following targets are indicative only.

1. Round Trip Delays in Milliseconds (ms) for Cable & Wireless Communications (Caribbean):

	Antigua	Barbados	BVI	Cayman	Dominica	Grenada	Jamaica	St. Kitts	St. Lucia	Miami NNI	NY NNI
Antigua		<b>m</b> 8	5	52	3	12	59	8	5	<b>≥</b> 28	58
Barbados	13		13	60	8	17	68	17	3	36	66
BVI	5	13		47	8	17	53	4	10	23	53
Cayman	52	60	47		55	64	54	50	57	23	53
Dominica	3	11	8	55		9	8	11	7	31	61
Grenada	12	20	17	64	9		63	20	8	40	70
Jamaica	58	68	53	8	63	70		57	63	30	60
St. Kitts	8	17	3	50	11	20	57		13	27	56
St. Lucia	5	13	10	57	8	7	63	13		33	63
Miami NNI	28	37	24	24	32	41	32	28	33		30
NY NNI	59	65	53	54	62	71	63	56	63	30	

2. Round Trip Delays in Milliseconds (ms) for Telefonica (Latin America):

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	Bogota	Buenos Aries	Lima	Miami	Mexico	Sao Paulo	Chile	London
Bogota		265	184	108	166	264	237	270
Buenos Aries	265		110	187	261	50	57	332
Lima	184	110		101	171	165	59	249
Miami NNI	108	187	101		73	163	144	59
Mexico	166	261	171	73		237	333	188
Sao Paulo	264	50	165	163	237		105	308
Chile	237	57	59	144	333	105		297
London NNI	270	332	249	59	188	308	297	

3. Round Trip Delay in Milliseconds (ms) for China Telecom (China)

	East China	Central China	West China
East China	120	200	320
Central China	200	200	320
West China	320	320	320

4. Round Trip Delay in Milliseconds (ms) for Telekom (Malaysia)

t. Round Imp					, ,					
	Malaysia	Singapore	Indonesia	Hong Kong	Egypt	Bahrain	London	New York	Los Angeles	Sri Lanka
Malaysia		25	40	60	170	170	250	310	250	85
Singapore	25		50	80	180	180	250	310	250	95
Indonesia	40	50		90	200	200	270	340	280	105
Hong Kong	60	80	90		230	230	300	370	270	130
Egypt	170	180	200	230		180	410	480	380	250
Bahrain	170	180	200	230	180		410	480	380	250
London	250	250	270	300	410	410		90	170	300
New York	310	310	340	370	480	480	90		90	370
Los Angeles	250	250	280	270	380	380	170	90		270
Sri Lanka	85	95	105	130	250	250	300	370	270	

5. Round Trip Delay in Milliseconds (ms) for Batelco (Middle East)

Region	Real time	Mission critical	Standard data
Gulf region	<=35 ms	<=40 ms	<=50 ms
Middle East region	<=45 ms	<=50 ms	<=55 ms

6. Round Trip Delay in Milliseconds (ms) for other carriers

. Round Trip belay in willingeconds (ins) for other carriers											
Carrier	Countries	Round Trip Delay									
Telecom Italia Sparkle (Italy)	Italy	60 ms									
Softbank Telecom (Japan)	Intra-Japan	35 ms									
Telus (Canada)	Intra-Canada:	70 ms									
	Canada-NY & LA NNIs	120ms									
Tawasul (Middle East)	Between Kuwait; Oman; Qatar; & Saudi Arabia	60ms									

<sup>7.</sup> Vodafone will make available to the Customer Extended Access RTD Service Levels for countries not listed in this document upon request.