

# schedule 2e

additional terms for Ethernet services

## 1. SERVICE DESCRIPTION

The Interoute Ethernet Clear and Ethernet Flex Services offer Circuits carrying telecommunications traffic between fixed points within the Interoute Ethernet Network.

## 2. DEFINITIONS

“**Additional Terms**” means this document forming part of the Agreement, which describes the Products and/ or Services to be provided and the relevant service levels;

“**Customer Committed Date**” means the date by which Interoute has agreed to install a Circuit;

“**Fixed Bi-Annual Charge**” means the fixed recurring bi-annual service charge described in clause 4 of this Schedule, payable by the Customer as set out in the Purchase Order and in accordance with Clause 7 of Interoute’s Standard Terms and Conditions;

“**Burst**” means the ability of a Customer to increase the rate of transmission of traffic above the CBR. Burst capacity can not exceed the physical port size set out in the Purchase Order. Charges for Burst traffic are not included in the recurring fixed Annual or Monthly Charges;

“**CBR**” means Committed Base Rate, the constant rate specified in the Purchase Order up to which Interoute agrees to transmit the customer’s Ethernet traffic;

“**Charges**” means the non-recurring Installation Charge, recurring Fixed Monthly Charge and Burst charges described in clause 4 of this Schedule, payable by the Customer as set out in the Purchase Order and in accordance with Clause 7 of Interoute’s Standard Terms and Conditions;

“**Circuit**” means that part of the end-to-end connection between the Customer sites that is carried on Interoute-owned network equipment monitored and managed by the Interoute management systems or carried by Third Party Local Access for the purposes of extending the reach of the service. The Circuit is delineated by Network Termination Points; Third Party Local Access connections, that are not under the direct control and ownership of Interoute. For the avoidance of doubt, such Third Party Local Access connectors are not deemed part of the Interoute Ethernet Clear or Ethernet Flex Services, and this Schedule 2e does not include such connectors as part of its Service availability, unless Interoute is providing Managed Ethernet;

“**Customer Service Centre**” means Interoute’s fault management centre, which operates the Interoute Network Management System;

“**EVC**” means the Ethernet Virtual Circuit which is the end to end path for Ethernet traffic. The rate of flow of traffic is defined by the CBR and/or Burst;

“**Ethernet**” means the framing and formatting of data packets to meet the IEEE 802.3 standard described by the IEEE;

“**Fixed Annual Charge**” means the fixed recurring annual service charge described in clause 4 of this Schedule, payable by the Customer as set out in the Purchase Order and in accordance with Clause 7 of Interoute’s Standard Terms and Conditions;

“**Fixed Monthly Charge**” means the fixed recurring monthly service charge (or 1/12th of the Fixed Annual Charge excluding all non recurring Charges payable) described in clause 4 of this Schedule, payable by the Customer as set out in the Purchase Order and in accordance with Clause 7 of Interoute’s Standard Terms and Conditions;

“**Installation Charge**” means the non-recurring charge or port charge described in clause 4 of this Schedule, payable by the Customer as set out in the Purchase Order and in accordance with Clause 7 of Interoute’s Standard Terms and Conditions;

“**Interoute Core Ethernet Nodes**” means a physical facility that is used to accommodate the Ethernet Network and the various Interoute owned Ethernet routing and switching equipment that comprise the Interoute Ethernet Network;

“**Interoute Ethernet Network**” means the network owned by Interoute for the purpose of transporting customer generated Ethernet traffic;

“**Interoute Network Termination Points**” means the point at which the Interoute Ethernet Network terminates on the Customer-facing side of the Interoute distribution frame;

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**“Managed Ethernet CPE Option”** means the optional Interoute Ethernet product feature which provides performance figures via the Interoute Hub web portal and is implemented using Managed customer premises equipment;

**“Monthly Charge”** means for the purposes of the service credit calculations in clause 5 hereto, either the Fixed Monthly Charge, monthly flat rate or OMEP (excluding all non recurring Charges payable) as applicable to the affected Circuit;

**“Monthly Review Period”** means the calendar monthly periods commencing on the 1st of each month during the Term, over which Service Availability is calculated, provided that the first Monthly Review Period will be calculated from the Ready for Service Date until the last day of the month of the next calendar month;

**“Network Distance”** means the distance between the Interoute Network Termination Points based on an agreed routing.

**“Network Management System”** means Interoute’s network integrated fault management system;

**“One Month Equivalent Price (OMEP)”** means, for the purposes of the service credit calculations in clause 5 hereto, 1/12<sup>th</sup> of the Fixed Annual Charge or 1/6<sup>th</sup> of the Fixed Bi-Annual Charge for applicable Circuit;

**“Port”** means the Customer facing physical presentation point;

**“Protected Circuit”** mean Circuits where every segment of the Circuit including Third Party Local Access is has two alternative paths and is provided with a facility for automatic changeover between primary and back up paths.

**“Rapid Delivery Bandwidth Service”** means the an Agreed Delivery Date of the 10 Gbps Ethernet circuit will be within 10 Working Days from a complete and legible signed Purchase Order received by Interoute, being understood and agreed that such Rapid Delivery Service can only be provided by Interoute between POPs equipped with the relative technology. Interoute shall make the Rapid Delivery Service available only from one Interoute demarcation point to another. For the Rapid Delivery Service Interoute shall not provide any patches, or any other services, including local loop access.

**“Round Trip Packet Delay”, “RTD”** mean the time taken between the first byte being received and the same byte being returned to the same core Ethernet node after having travelled over the full length of the path between: (i) the Interoute core MPLS Ethernet Nodes or core SDH nodes in relation to the Ethernet service being used by the Customer, or (ii) the Customer’s CPE in relation to Managed Ethernet on the Interoute network; For Ethernet Clear it is not possible for Interoute to measure RTD without taking the Circuit out of service as part of a planned outage.

**“Third Party Local Access”, “Local Access” and “Access”** mean short haul physical connections that are provisioned between the Customer’s premises and the nearest feasible Interoute Core Ethernet Node. Third Party Local Access connections, not being under the direct control and ownership of Interoute, are not deemed part of the Interoute Ethernet Clear or Ethernet Flex services, unless Interoute is providing Managed Ethernet;

**“Western European”** is defined as the United Kingdom, France, Belgium, Netherlands, Belgium, Denmark, Germany, Switzerland, Luxembourg, Italy, Austria and Liechtenstein but excludes Scandinavia, Spain and all other European countries.

Other capitalised words have the meanings set out in the Interoute Standard Terms and Conditions.

### 3. ETHERNET SERVICES TERMS

The following terms and conditions shall apply in addition to Interoute’s Standard Terms and Conditions when Interoute provides Ethernet Services to the Customer.

### 4. CHARGES

#### 4.1. Charges payable by the Customer

- Charges for the Ethernet Service shall comprise:
  - (a) a non-recurring Installation Charge;And either:
  - (b) a recurring Fixed Monthly Charge based on the CBR; or

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- (c) a recurring Fixed Monthly Charge based on the CBR with Burst Charges (where applicable) billed on a per Mb (or part thereof) usage rate; or
- (d) for usage products, a usage based charge billed on a usage rate.  
as specified in the Purchase Order.
- Unless otherwise agreed between the Parties in the Purchase Order, Charges for the Ethernet Service and any applicable cancellation charges will be invoiced in accordance with the terms specified in Interoute's Standard Terms and Conditions for the amounts detailed in the Purchase Order or Change Order.
- Interoute may charge for provisioning the Circuit beyond the Interoute Network Termination Points.

## 5. SERVICE CREDITS

Interoute will provide the Customer with service credits, as set out below, for the failure to meet the following targets:

- Service Installation
- Service Availability
- Time to Repair
- Round Trip Packet Delay (RTD)

### 5.1. Service Installation

- Interoute will provide a Customer Committed Date for the installation of Circuits. If Interoute fails to meet the Customer Committed Date, the Customer will be entitled to a service credit in accordance with this clause.
- If only part of an order is delayed, valid credits will be payable only in respect of Circuits that are not delivered by the Customer Committed Date.
- Service credits will be calculated as follows:

The Rapid Delivery Bandwidth Service Credit

- Should Interoute fail to meet the Customer Committed Date for a Rapid Delivery Service, Customer shall be entitled to 100% of the Installation Charge

The standard Installation Service Credit

Number of full Working Days by which Interoute fails to meet Customer Committed Date for Circuit:	Service Credits as % of Installation Charge of affected Circuit:
1 to 5 days	10%
6 to 10 days	20%
11 to 20 days	30%
21 days	50%

### 5.2. Ethernet Circuit Service Availability

#### 5.2.1. General

- A Circuit is "Unavailable" when signals cannot be transmitted over the Circuit in either or both directions.
- An Ethernet Flex service shall be deemed to be unavailable when signals cannot be transmitted over both Circuits in either or both directions for more than one minute. An Ethernet Clear service shall be deemed to be unavailable when there are two (10) consecutive seriously errored seconds.

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- The following equation will be used to calculate Service Availability. References to hours are to the number of hours (rounded to nearest hour) in the applicable Monthly Review Period:

$$\frac{(\text{Total hours} - \text{Total hours Unavailable})}{\text{Total hours}} \times 100$$

### 5.2.2. Protected Service Availability

- Interoute will use reasonable endeavours to ensure that all Protected Circuits are available for 99.95% of the time.
- Where Service Availability falls below the relevant level during any Monthly Review Period, the Customer will be entitled to service credits on the applicable Circuit's Monthly Charge as follows:

Service Availability for On-net Services during Monthly Review Period (Protected)	Credits as % of applicable Monthly Charge
<99.95% to 99.5%	5%
99.49% to 99.0%	10%
98.99% to 98.0%	15%
<98%	30%

### 5.2.3. Unprotected Service Availability

- In the case of non-protected circuits Interoute will use reasonable endeavours to ensure that all unprotected circuits having a Network Distance (d) of less than or equal to 1000km have an availability of 99.5%.
- For circuits where the Network Distance (d) (rounded to the nearest 100km) is greater than 1000km the following equation will derive the Monthly Availability (A) of the service:

$$A = 100 - (d/2000)$$

- Where Service Availability falls below the relevant level during any Monthly Review Period, the Customer will be entitled to service credits on the applicable Circuit's Monthly Charge as follows:

Service Availability for On-net services during monthly review period. (Unprotected)	Credits as % of applicable Monthly Charge
A% to A - 0.5%	2%
<A% - 0.5% and > or = A - 1.5%	5%
<A% - 1.5% and > or = A - 3.5%	10%
< A - 3.5%	20%

### 5.3. Time to Repair Target

- In the event that a circuit is unavailable, Interoute will use all reasonable endeavours to restore service within the Time to Repair target of 4 hours.

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- Faults are considered to be repaired in the event of either a full or temporary repair being implemented, thus allowing continuity of Service.
- Where Interoute fails to meet the Time to Repair target, the Customer will be entitled to service credits on the applicable Circuit's Monthly Charge as follows:

Full Working Hours past Time to Repair Target	Service Credits as % of applicable Monthly Charge
1	2%
2	5%
3	10%
4 +	15%

- Where the fault arises from any Third Party Local Access, Interoute shall endeavour to manage the resolution of the fault by the Third Party Local Access provider as soon as reasonably practicable, except for Managed Ethernet where, Interoute will use all reasonable endeavours to manage the resolution of the fault within the Time to Repair target of 4 hours.

#### 5.4. Round Trip Packet Delay

- Indicative Round Trip Packet Delay the Averaging Period is as follows:
  - Between Western European Ethernet nodes: < 40 ms
  - Between Central European, Scandinavia, Southern Italy and Western European Ethernet nodes < 60 ms
  - Between Transatlantic nodes (i.e. London, Amsterdam, New York, Washington): < 90 ms
  - Between Western European Nodes and New York / Washington <130 ms
  - Between Central European Nodes and New York / Washington < 160 ms
  - Between nearest Interoute node and the remote end of International access circuits - If Managed Ethernet option taken RTD – shall be obtained from international OLO and confirmed to the Customer at time of Purchase Order otherwise the RTD from applicable Interoute core node to Interoute core node applies.
- Exact Round Trip Packet Delay figures guaranteed under the SLA can be provided if required.
- For 2Mbps to 16Mbps Ethernet Clear services the Round Trip Packet Delay times are affected by packet sizes and so it is necessary to add the following times to those shown above:
  - 7ms for 256-512 bytes
  - 9ms for 513-1024 bytes and
  - 16ms for >1024 bytes.
- Where Average Round Trip Packet Delay is exceeded during any Monthly Review Period, the Customer will be entitled to a service credit equivalent to 5% of the affected Circuits Monthly Charge for the relevant Monthly Review Period under consideration.
- Unmanaged Ethernet Flex Round Trip Packet Delay times are averaged across Interoute core network nodes.
- Managed Ethernet Flex Round Trip Packet Delay times are applicable on a per customer circuit bases.
- For protected Ethernet Clear services, Round Trip Packet Delay is not applicable when traffic has switched to the protected path.

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- The Averaging Period for RTD for Ethernet Clear is one second and for Ethernet Flex it is one calendar day.
- For the purposes of this Schedule 2e a packet delay shall be deemed to be equivalent to a frame delay,
- No Service Credits will be due in relation to Round Trip Packet Delay for Managed Ethernet CPE Option in the event that the Customer's use of any EVC exceeds 95 % of the CBR (based on a 15 minute average).

### 5.5. Burst Traffic

Interoute does not guarantee that the Customer will be able to Burst at any given time nor guarantee the RTD.

### 5.6. Calculation of Service Credits

- Where a Monthly Review Period incorporates part of a month, any service credit will apply to a pro-rated Monthly Charge.
- Service Credits will be calculated monthly, aggregated and credited to the Customer on a quarterly basis, for the previous quarter.
- If a Circuit is cancelled during a Monthly Review Period, no Service Credit will be payable in respect of that Circuit for that Monthly Review Period.
- The Customer must claim any Service Credit due to a failure to meet the Service Levels, in writing, within twenty one (21) business days of the date at which the Customer could reasonably be expected to become aware of such failure. The Customer shall not be entitled to any service credits in respect of a claim unless and until Interoute has received notice of the claim in writing. Should Interoute require additional information from the Customer, the Customer shall not be able to claim any service credits until Interoute has received all information it reasonably requests.

### 5.7. Exclusions to Payment of Service Credits

Service Credits will not be payable by Interoute to the Customer for any failure to meet a target where such failure is directly or indirectly caused by any of the following:

- The fault or negligence of the Customer, its employees, agents or contractors;
- The Customer failing to comply with Interoute's Terms and Conditions;
- A fault in, or any other problem associated with, equipment connected on the Customer's side of the Interoute Network Termination Point;
- Any event described in Clause 20 of Interoute's Terms and Conditions (Force Majeure ) including failures caused by sub-sea cable damage;
- A failure by the Customer to give Interoute access to any equipment after being requested to do so by Interoute;
- Maintenance during any Planned Outage.
- Any outages or degradation to existing Service that may be the result of Customer requested Service changes or upgrades.
- Service credits are not applicable for more than one breach of any SLA targets outlined in this document arising from the same occurrence. In respect of any Monthly Review Period the total amount of any service credit payable in relation to an SLA breach shall not exceed 50% of the Monthly Charge for the affected Circuit with the exception of service credits against the Rapid Delivery Bandwidth charge which are not included within this limitation.
- Installation service credits do not apply where Access circuits needed for the Service are not provided and maintained by Interoute. In cases where Access circuits need to be sourced by Interoute from a third party, the Service Commencement Date is subject to access circuit delivery lead-times specified by the third party supplier.
- Service credits are not applicable to any Burst traffic above the Customers CBR.

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## 6. FAULT REPORTING AND MANAGEMENT

### 6.1. Fault Handling

Any suspected faults should be reported to the Interoute Customer Service Centre using the procedures detailed in the Customer Handover Book to be provided to the Customer at the commencement of service. When reporting a fault, the Customer should identify the affected Circuit and provide details of the fault.

### 6.2. Reporting on Repairs

Interoute will provide the Customer with progress updates every two (2) hours, unless otherwise agreed.

### 6.3. Fault Duration

All faults recorded by the Network Management System will be reconciled against the corresponding fault ticket raised by the Customer Service Centre. The exact fault duration will be calculated as the elapsed time between the fault being reported to the Customer Service Centre and the time when service is restored.

## 7. SERVICE LIMITS

	<b>Ethernet Flex</b>	<b>Ethernet Clear</b>
MAC Addresses	Max 32	8000 for Ethernet over SDH Unlimited for Ethernet over wavelength
VLAN transparency	Point-to-point services only	Yes
Layer 2 Protocol Transparency for IEEE 802.1D Spanning Tree Protocol, Cisco VTP, CDP and Type of Service (TOS) field.	Point-to-point services only without Managed Ethernet or direct connection to core routers	Yes
Maximum MTU Packet size at layer 3	1542 for Ethernet Flex via metro 1996 for Ethernet Flex without metro 1510 with Ethernet Reach 34Mbps or 45Mbps	1574 for Ethernet Clear using SDH 1510 with Ethernet Reach 34Mbps or 45Mbps Unlimited for 1Gbps Ethernet Clear over wavelength
Connector/Presentation (MDI)	RJ45, SC/PC (Optical 1Gbps)	RJ45 for 100Mbps or below, SC/PC (Optical) for >100Mbps
Physical Interface Specification	10BaseT, 100BaseTX, 1000base LX/LH/SX/ZX/T	10BaseT, 100BaseTX, 1000base LX/LH/SX/ZX/T, 10Gb Base LR
10Gbps Physical Layer	Not applicable	LAN PHY or WAN PHY
Restoration	Typically 0.5s	< 50ms on protected services
Framing Format	IEEE 802.3	IEEE 802.3