

NEOONE VPN AND GLOBAL VPN SERVICE SCHEDULE

Liquid Telecom Offices

Mauritius (Head Office) • Botswana • DRC • Kenya • Lesotho • Rwanda • South Africa • Tanzania • Uganda • Zambia • UAE • UK

1. APPLICABILITY

This Service Schedule is applicable only to the Customer Order Form (COF) for the purchase of NeoOne VPN and Global VPN (GVPN) Services which has been signed by the Customer and Liquid Telecom.

2. DEFINITIONS

2.1 Terms used herein but not otherwise defined shall have the meanings ascribed to them in the Agreement.

2.2 For the purposes of this Schedule, the following expressions shall have the meanings given to them hereunder:

2.2.1 "Business Day" means any day other than Saturday, Sunday or a day which is a public holiday in the country where the Service is provided.

2.2.2 "Business Hours" means any hour from 9am to 5pm on a Business Day.

2.2.3 "Class of Service" or "CoS" means the priority of the IP packets that can be set and sent to Liquid Telecom Network as part of the GVPN Service Class of Service package ordered by the Customer as set out in the Customer Order Form.

CoS values can be a combination of CoS 1, 2, 3 or 4. The different Class of Service determines different prioritization of the VPN traffic on Liquid Telecom Network and hence determines the credits available in the Packet Delivery, Round Trip Delay and Jitter targets.

2.2.4 "Customer Premises Equipment" or "CPE" – shall mean equipment provided by Customer or Liquid Telecom and used in conjunction with the Liquid Telecom Network in order to receive the Service.

2.2.5 "CSRS" means Customer Site requirements specification, which is a document that specifies the requirements that Liquid Telecom has to deliver in relation to the requested Service at a Customer Site.

2.2.6 "Customer Site" means the site owned or leased by the Customer or any other site used to provide the Service.

2.2.7 "Ethernet" means interface conforming to The Institute of Electrical and Electronics Engineers Standards Association (IEEE 802.3- 2002, 802.1Q and 802.1D standards), as amended from time-to-time. The Ethernet TS has a limitation of being carried up to ninety (90) metres for direct Ethernet interconnections.

2.2.8 "GVPN or VPN Port" means a VPN access point to which the Customer is connected to the Liquid Telecom Network via a provider edge router, and which is the Service Access Point for the delivery of Unmanaged Service to the Customer.

2.2.9 "Interface" means physical interface format in which the Customer and/or Liquid Telecom shall deliver the signal to the Network, which in this instance is Ethernet;

- 2.2.10** "IP" means 'Internet Protocol', which means the method or protocol by which data is sent from one computer to another over the Internet.
- 2.2.11** "Jitter" (or inter-packet differential arrival delay) means the variation between packets in their deviation from the ideal instant as they traverse Liquid Telecom Network.
- 2.2.12** "Local Loop" means the 'last mile' access link that connects the Customer Site to the nearest Liquid Telecom Core PoP;
- 2.2.13** "Monthly Recurring Charge" or "MRC" shall mean the monthly recurring charges for the Service as set out in the Customer Order Form.
- 2.2.15** "Network Monitoring" means the monitoring of the Service level targets from Liquid Telecom Network excluding Local Loop and CPE
- 2.2.16** "Non-Recurring Charge" or "NRC" shall mean the one-time non-recurring charges to be made by Liquid Telecom for installing, commissioning and provisioning of the Service as set out in the Customer Order Form.
- 2.2.17** "Packet Delivery" means the successful delivery of accepted IP packets, marked with specified COS, from Liquid Telecom Network to the SAPs.
- 2.2.18** "PoP" in the context of this Service Schedule, means Point of Presence specifically relating to the Liquid Telecom Network;
- 2.2.19** "Planned Maintenance" means any preventative, routine or scheduled maintenance which is performed with regard to the Service, the Network, the off-net Network or any component thereof, reasonably believed to be necessary in order to increase capacity or to prevent or remedy a defect which may affect the Customer's use of or access to the Services;
- 2.2.20** "Round Trip Delay" or "Latency" means the average time taken by a packet to traverse from one Service Access Point to another and back to the first one.
- 2.2.21** "Service Access Point" or "SAP" means the logical or physical element which acts as the demarcation point between the Customer's domain and the Liquid Telecom's domain, representing the point at which Service is available and specific Service level targets are committed and measured.
- 2.2.22** "Service Availability" means the percentage of time Liquid Telecom Network is available for Service at the Service Access Point.
- 2.2.23** "Service Credits" means the credits due to the Customer for unscheduled Service Downtime calculated in accordance with clause 9;
- 2.2.24** "Service Downtime" means the amount of time the Service was unavailable;
- 2.2.25** "Service Level Reports" means the performance reports of various Service level parameters, generated by Liquid Telecom from its performance measurement system
- 2.2.26** "Service Outage" means an instance when the Customer is unable to route traffic to one or more Customer Sites via the Network, which results in Service Downtime; and

2.2.27 “Trouble Ticket“ means the official method used by the Customer to advise Liquid Telecom of a potential Service Outage.

2.2.28 “Universal VPN Access Service” or “uVPN” is a Service for the Customer that establishes a IP VPN connectivity from a Customer Site to a Customer's GVPN network. The IPSec protocol is used to securely tunnel the Customer traffic from the Managed CPE located at the Site to a Service gateway and across the public Internet.

2.2.29 “VPN” means a Virtual Private Network. A network that uses shared infrastructure to provide secure connectivity between Customer Sites.

3. SERVICE DESCRIPTION

This Service Schedule is an addendum to the prevailing Master Service Agreement (MSA) and will be contingent to all terms and conditions therein except where specific SLA criteria are not covered in the MSA or determined to have precedence. For purposes of this Service Schedule, the term “Services” consists of the following, to the extent selected in the relevant COF:

3.1 Global VPN

Global VPN is an international MPLS based IP VPN with the ability to prioritise Customer traffic on a per application basis. Global VPN is a high performance and highly resilient service which is fully supported by Liquid Telecom’s customer care processes and backed by Service Level Agreements in respect of core network performance. The Global VPN Service consists of:

- a. Global VPN port;
- b. Foreign Local Loop per Customer Site;

3.2 NeoOne VPN

The NeoOne Service facilitates the delivery of several other Liquid Telecom services through a single port to the Customer. This includes VPN service, and a national MPLS based IP VPN with the ability to prioritise Customer traffic on a per application basis. NeoOne VPN services support ‘any-to-any’ connectivity for Customer Sites on the same VPN. The NeoOne VPN Service consists of:

- a. Local Loop per Customer Site; and
- b. VPN port per Customer Site.

4. PROVISIONING PARAMETERS

Liquid Telecom’s VPN services provide forwarding guarantees through bandwidth reservation on shared Liquid Telecom IP/ MPLS through classification of the customer’s traffic. Liquid Telecom applies multiple traffic engineering techniques to each CoS in order to assure QoS for the applications. The management of latency and bandwidth in a Customer VPN is done by applying the QoS techniques per CoS on the network, including:

- a. Classification or setting of IP precedence bits/markings;
- b. Traffic policing and traffic shaping;
- c. Queuing mechanisms;

- d. Congestion control; and
- e. Traffic engineering.

Classes of Service are as follows:

- a. CoS 1 – designed for voice: strict priority, low latency, guaranteed delivery.
- b. CoS 2 – designed for premium business applications: high priority, guaranteed delivery, low latency.
- c. CoS 3 – designed for standard business applications: guaranteed delivery.
- d. CoS 4 – designed for best-effort traffic: low priority.

Access mediums include wireline and / or wireless mediums. Next Generation SDH (NGSDH) connectivity shall only be allowed if the connectivity is used as a ‘last mile’ access from the Customer Site to the closest PoP. Hand off to the Customer shall be on a single Ethernet port, unless additional Services are ordered. The Interface options are as follows:

- a. Gigabit Ethernet - electrical / optical.
- b. 100Mbps Ethernet - electrical / optical.

5. SERVICE LEVELS TARGETS AND REMEDIES

The Service Levels and the associated Service Credits are as outlined below.

5.1 Service availability is measured by the Liquid Telecom Incident and Problem management system and includes only the Local Loop and port per Customer Site. Service availability commitments may include the back-up options selected by the Customer pertaining to the Local Loop.

5.2 The service level options offered are Economy, Business and Premium per Customer Site for both GVPN and NeoOne VPN.

5.3 Service availability shall be measured as a percentage of the availability of the Service for a Customer Site in a given month. Service Credit calculation is as follows:

$$\text{Service Availability \%} = \frac{(\text{Service Period} - \text{Service Downtime})}{\text{Service Period}} * 100$$

Service Level	Parameters	Network Redundancy		Building Entry	
	Availability	Local	Core	Single	Dual
Economy	99.0%	No	Yes	Yes	No
Business	99.5%	Yes	Yes	No	Yes
Premium	Customer Specific Solution				

5.4 Liquid Telecom shall calculate, on a monthly basis, the amount of time the Service was unavailable. The duration of such Service Downtime shall be used to determine any Service Credits that the Customer shall be entitled to.

5.5 Service availability shall be measured as a percentage of the availability of the Service for a Customer Site in a given month.

5.6 Service Credit calculation: $\text{Service Availability \%} = (\text{Service Period} - \text{Service Downtime}) / (\text{Service Period})$.

5.6.1 Service Credit with an Economy Service Level

Service Availability	Service Credit (Percentage of MRC)
99.0%	No credit (0%)
98.0%	5%
97.0%	10%
96.0%	15%
95.0%	20%
<95%	25%

5.6.2 Service Credit with a Business Service Level

Service Availability	Service Credit (Percentage of MRC)
99.5%	No credit (0%)
98.5%	5%
97.5%	10%
96.5%	15%
95.5%	20%
>95.5%	25%

5.6.3 Service Credit with a Premium Service Level

The Service Credits for the Premium Service Level shall be specified in the customer specific solution documents.

5.7 Planned works by Liquid Telecom or any underlying incumbent and Supplier in country partners is expressly excluded from the availability/unavailability reporting and statistics and no penalties or credits will be considered in such events. Where possible Liquid Telecom will endeavour to provide 7 (seven) days' notice for such planned works, however Liquid Telecom reserves the right to provide shorter notice depending on the notice from an in country partner or underlying incumbent.

5.8 In those instances, where Liquid Telecom fails to meet the committed Service availability target and a trouble ticket was opened with respect to the Service Downtime, the Customer shall be eligible for Service Credits as described in the table above. The Service Credits shall be given in the form of a credit against the MRC reflected on the Customer invoice.

6. SERVICE PERFORMANCE FOR NeoONE VPN and GVPN

6.1 Liquid Telecom offers the following service level performance measures:

6.1.1 Round Trip Delay

The round-trip delay time (RTD) is defined as the length of time it takes for a signal packet to be sent plus the length of time it takes for an acknowledgement of that signal packet to be received. Round Trip Delay Targets shall be geo – dependant.

Round Trip Delay is measured between SAP pairs as an aggregated average of sample measurements taken during a calendar month.

Round Trip Delay measurements are only available for customer specific requests and shall be specified in the customer specific solution documents.

6.1.2 Jitter

Jitter is defined as the variation in the latency on a packet flow between two systems, when some packets take longer to travel from one system to the other.

Jitter is measured for real time class of service between SAP-SAP pairs as an aggregated average of sample measurements taken during a calendar month.

Jitter measurements are only available for customer specific requests and shall be specified in the customer specific solution documents.

6.1.3 Packet Loss

Packet Delivery Ratio is defined as the average ratio of packets within a specified traffic CoS that are successfully delivered to total packets that are sent over the Liquid Telecom Network in a billing month, excluding packets that are not delivered in whole or part to factors unrelated to Liquid Telecom Network with reference to the SAP at which the measurements are obtained.

Packet Loss measurements are only available for customer specific requests and shall be specified in the customer specific solution documents.

7. EXCHANGE RATE FLUCTUATIONS

- 7.1** For any Charges of any element of the Global VPN Service that is based on a foreign currency, the exchange rate used to calculate the relevant Charges shall be the South African Rand/US Dollar exchange rate as published by Reuters on the date of signature of the relevant COF shall be utilized.
- 7.2** Liquid Telecom shall be entitled to adjust the MRC in question in the event that the variance, when the exchange rate referred to in 6.1 above is compared against the exchange rate as downloaded by Liquid Telecom from Reuters on the morning of the relevant invoice generation date, is greater than 5% (5 percent)

8. EXCLUSIONS

- 8.1** The Customer shall not be entitled to:
- 8.1.1** receive any Credits pursuant to the Customer Site unavailability, or
 - 8.1.2** exercise any right of termination for anything which is caused or is associated with, in whole or in part, the exclusions set out below:
 - 8.1.2.1** Construction of additional facilities which are required in order to connect the Customer Site to the Network and/or the Local Loop(s);
 - 8.1.2.2** Anything which is associated with or caused by Planned Maintenance events or cable cuts on the Network which are not otherwise due to the fault or negligence of Liquid Telecom;
 - 8.1.2.3** Anything attributable to circuits comprising a part of the Service that are provided by a third party, including Local Loops and local access facilities procured by the Customer;
 - 8.1.2.4** Anything which is due to the Customer's use of bandwidth in excess of the committed bandwidth.
- 8.2** Service Downtime shall not include any unavailability resulting from:
- 8.2.1** scheduled downtime for Planned Maintenance;
 - 8.2.2** interruptions or delays resulting from any third party services procured by the Customer;
 - 8.2.3** any supplies, power, equipment or local access facilities provided by the Customer or their suppliers, which is required in the provision of the Services;
 - 8.2.4** any incident that affects the availability during any period when the Customer elects not to allow Planned Maintenance on the Service at the request of Liquid Telecom, acting reasonably;
 - 8.2.5** the Customer's applications, equipment, or facilities;
 - 8.2.6** Interruptions due to the failure of equipment provided by the Customer or other third party on behalf of the Customer;
 - 8.2.7** acts or omissions of the Customer, its agents, contractors or vendors (including the provision of inaccurate information knowingly or unknowingly), or user of the Service or Customer-caused outages or disruptions;
 - 8.2.8** suspensions due to non-payment of any amount payable by the Customer to Liquid Telecom under this Schedule; or
 - 8.2.9** force majeure.

9. FAULT REPORTING

9.1 The Customer shall raise an outage trouble ticket with Liquid Telecom in the event of any Service outage detected at the Customer Site.

9.2 The logging of calls, queries and/or complaints shall be directed to the Enterprise Service Desk using any of the following:

TELEPHONE NO.	E-MAIL
+27 11 585 0652 (outside of South Africa)	EnterpriseService@liquidtelecom.co.za
080 11 11 636 (within South Africa only)	

9.3 Should a call logged in accordance with clause 9.2 not be handled to the reasonable satisfaction of the Customer, the Customer shall be entitled to direct their concerns to service.management@liquidtelecom.co.za, which is managed during Business Hours.

9.4 In addition, the Customer shall be entitled to approach an assigned Liquid Telecom account manager if the feedback or progress on the outage resolution is not satisfactory.

9.5 Liquid Telecom shall use reasonable endeavours to provide a root cause analysis report regarding the cause of the Service Downtime and the preventive measures put in place in an effort to mitigate a reoccurrence thereof. Liquid Telecom shall use reasonable endeavours to perform the following actions and shall provide the reports (as applicable) detailed in the following table:

FAULT MANAGEMENT AND REPORTING	TIME TARGETS
Assignment of Customer Fault Reporting Trouble Ticket	Within 15 minutes of the notification of fault
Root Cause Analysis Report	On Request < Ten (10) business days
Regular problem status update	Dependant on Severity

10. SERVICE CREDIT REQUEST AND SETTLEMENT PROCEDURES

10.1 To initiate a claim for Service Credits with respect to the parameters defined above, the Customer shall submit a request in writing within thirty (30) days after the end of the month during which the event occurred which gave rise to the claim for Service Credit.

10.2 For purposes of calculating the Service Credit, the problem occurrence will be deemed to have commenced when the trouble ticket is lodged by the Customer with Liquid Telecom. If the Customer does not initiate a trouble ticket with Liquid Telecom, Liquid Telecom shall not be obligated to log a trouble ticket, and the Customer shall not be eligible to receive Service Credits for the non-compliance.

10.3 The duration of the Service Outage will be determined by the Parties, acting reasonably, based upon the Parties' internal records and Liquid Telecom's trouble ticket.

10.4 In no event shall the total amount of all Credits issued to the Customer per month exceed the stipulated thresholds above of the MRC invoiced to the Customer for the affected Service for that month.

- 10.5** Credits are calculated after the deduction of all discounts and other special pricing arrangements, and may not be applied to governmental fees, taxes, surcharges, local access charges or any other charges other than MRC.
- 10.6** Service Credits are processed quarterly and are passed as a credit against the Customer's next invoice. If Liquid Telecom approves the claim, Liquid Telecom shall notify the Customer of the value of Service Credits to which the Customer will be entitled.
- 10.7** Any Service Credits calculated on the basis of a month shall be calculated with regard to a month being deemed to begin at 12:00am S.A. Time on the first day of a calendar month, and ending at 11:59pm S.A. Time on the last day of the applicable calendar month.
- 10.8** Liquid Telecom's failure to achieve or maintain the above service objectives set out in this Service Schedule is not a breach of the Agreement, and the award of Service Credits shall be the Customer's sole remedy and Liquid Telecom's sole liability for any such failure or corresponding degradation, interruption or loss of Service.

11. SERVICE PROVISIONING

- 11.1** The Customer shall be responsible for making available, at no cost to Liquid Telecom, accommodation, power, mast space, ducting and other facilities as more fully set out in the CSRS document for each Customer Site, for the Contract Term of the applicable COF, for the purposes of housing Liquid Telecom's transmission equipment required for the provision of the Services to the Customer.
- 11.2** The Customer shall be responsible for obtaining all third party approvals and consents necessary for installation and use of the Services. The Customer shall ensure that the Customer Sites at either end of a Service for which the request has been made are accessible at any reasonable time as may be required by Liquid Telecom to fulfil its obligations in terms hereof.
- 11.3** Within seventy-two (72) hours of completing the installation for the applicable Service, Liquid Telecom will provide a Service Handover Form containing essential information required to configure and use the Service as well as the Service Identity Number (Service ID). The Service ID should be used in all interactions with Liquid Telecom regarding the Service.
- 11.4** The Customer shall then conduct acceptance tests on the newly provided Service for a period of two (2) Business Days following receipt of the Service Handover Form.
- 11.5** Should the Customer detect a fault on the Service during these acceptance tests, then the Customer shall notify Liquid Telecom of such fault in writing.
- 11.6** The Customer may only reject a Service on the basis that the agreed technical specifications as set forth in the Service configuration diagram in the COF for the Service have not been met. If the Customer notifies Liquid Telecom of its non-acceptance, further tests of the Service shall be conducted and a revised Service Handover Form shall be provided to the Customer.
- 11.7** The Service shall be deemed accepted by the Customer if no objection has been raised by the Customer within two (2) Business Days following receipt of the Service Handover Form (SHF).

12. CUSTOMER REQUESTED CHANGES AND PLANNED MAINTENANCE

12.1 Liquid Telecom shall use reasonable endeavours to perform any agreed change as per agreed specifications required for the Customer Site as per the below specified target timelines. The Customer must raise a change request stating the reason for the change, the type of change (Critical/Normal as defined by the Customer) and the impact on its Customer Sites. The change request shall follow the normal change management process as communicated from

Liquid Telecom to the Customer from time to time and the below commitments are applicable only for Class C type changes (as defined in the following table) excluding any impact analysis:

LEVEL OF CHANGE	DESCRIPTION OF CHANGES REQUIRED
Class A	<ul style="list-style-type: none"> • New installation of equipment • New link installation or shifting of circuit to new Customer Site. • Hardware upgrade in existing equipment • Link addition or termination to existing Customer Site.
Class B	<ul style="list-style-type: none"> • Shifting of physical termination point of existing circuit, and does not require new equipment or new circuit installation. • Bandwidth soft up-gradation/down-gradation.
Class C	<ul style="list-style-type: none"> • Changes that are not specified in Class A and Class B.

12.2 The Customer hereby understands and agrees that any change requests mentioned above in Class A and Class B are Service affecting in nature. Hence, the Customer understands and agrees that the Service can be unavailable for a minimum period of two (2) hours during the implementation of any such change requests. The time and date of the Service Downtime shall be discussed between the Parties. In any case, the Service Level targets set out in this Service Schedule shall not be applicable during any such change request implementation and as such, Liquid Telecom cannot be held responsible for any damages or losses which may occur during such implementation time.

12.3 Planned Maintenance which falls outside the scheduled maintenance window will be arranged with the Customer at least forty-eight (48) hours before the Planned Maintenance commences.

12.4 At no time shall Planned Maintenance events which may cause a Service Outage be performed simultaneously on two (2) diverse circuit paths that carry the same Customer Service.

12.5 Liquid Telecom is not responsible for any breach of rights which may be related to any Customer transmitted or received content that has been carried on the Liquid Telecom Network and the Customer agrees that Liquid Telecom can view the content to identify Service related issues.

13. CONTENT REGULATORY COMPLIANCE

- 13.1** The Customer hereby agrees that the relevant permissions, approvals, licenses and/or related consents that may be required by the relevant government authority of the source and/or destination country/ies shall be obtained, as applicable, as per the local laws in such country and a copy of such permissions, approvals, licenses and/or related consents shall be available for inspection by Liquid Telecom prior to the commissioning of the Service.
- 13.2** In the event that the Customer is sourcing content from a third party in relation to the Service, the Customer shall be responsible for providing the permissions, approvals, licenses and/or related consents of such third party. The Customer further indemnifies Liquid Telecom from any costs, damages and/or penalties caused due to any non-compliance with this provision.
- 13.3** The Customer authorizes Liquid Telecom to monitor the Service at Liquid Telecom's Network Operating Centre facilities.

14. SERVICE TERMINATIONS – EARLY TERMINATION COSTS

Notwithstanding any early termination provisions set out in the Agreement, the termination fee for the Terminating Services which are specified as Customer Specific Services in the relevant COF or here the Service either originates from or terminates at an international location shall be calculated as at the Termination Date and shall be equal to 100% of the MRC for the remainder of the Contract Term thereof.