Service Description –
Optimal Voice

connectivity voice mobile data centre cloud connectivity

m:business

SERVICE OVERVIEW

I.I Optimal Voice Supported Features

- Native SIP protocol support

Number Transfer & Porting – carry your existing numbers across to Optimal Voice SIP Trunks from other MT and/or Other Licensed Operator (OLO) products.

- PSTN break-in – receive calls from Public Switched Telephone Networks (national, mobile, and international).
- PSTN break-out – make calls to destinations normally reachable over the Public Switched Telephone Network (national, mobile and international), including short numbers and premium number services).
- Deliver Calling Line Identity of the caller onto your IP PBX.
- Trunk level Call Admission Control – specify the maximum number of simultaneous calls a particular Trunk Group may handle, ensuring call quality (may not apply when using SIP-to-ISDN conversion)
- Trunk Group level Call Admission Control – specify the overall maximum number of simultaneous calls the platform needs to cater for your complete estate. (multiple customer sites; does not apply when using SIP-to-ISDN conversion).
- Channel aggregation across sites – buy only the aggregated capacity.
- Deliver Round Robin Trunk call distribution – load share telephony across multiple sites evenly.
- Priority Based Trunk call distribution – enables you to specify a main site and backup/overflow sites should the main site fail or become unavailable.
- Business Continuity – turn on an alternate dial plan for all numbers in case of inaccessibility to the primary answering location.
- Emergency Call Handling – ensures that 999 calls are treated correctly, and the appropriate address information is displayed to the emergency operator.
- The ability to flex your call capacity up and down so you don't pay all year for unused capacity, just for peak periods

Optimal Voice is designed to be a public telephony SIP Trunk service. Customers will need a suitable WAN/data network that supports SIP Trunks, this includes MT Broadband services and Carrier Ethernet connectivity services.

Public telephony trunking implies Optimal Voice can be used instead of another telephony trunk line service (like ISDN) but also that the service does not connect any end-users directly. The end-user functionality is expected to be provided either by the PBX that consumes the trunking service or by the hosted/network platform that may be integrated to the Optimal Voice service.

2 Optimal Voice Product Elements

2.1 IP Network

Optimal Voice requires a customer to have – in advance – a suitable IP data network connection. There are currently two Access Circuit product groups that are supported; MT Broadband services and MT Carrier Ethernet service. Note that the Access Circuit is subject to a separate dedicated Service Description and Service Order Form.

2.2 The Optimal Voice SIP Trunk Definition

A SIP Trunk in the context of this Service is defined as the connection between one routable IP address at the Customer Premises Equipment (CPE) and a routable IP address in the Optimal Voice network. This connection will be configured to support a predefined number of simultaneous SIP sessions (eg telephone calls).
In normal circumstances a PBX will map to one SIP Trunk and all traffic to/from the PBX will be carried over that single Trunk. In case traffic needs to be separated over multiple Trunks and Access Circuits, then the PBX should have the capability to connect to more than one CPE.

2.3 Customer Premises Equipment (CPE)

Optimal Voice is delivered via equipment located at the Customer's premises on which the Access Circuit terminates, forming the demarcation between the Service and your communications equipment. The CPE can be configured either as an ISDN-to-SIP convertor (known as Gateway mode) or used to provide SIP signalling to the Customer equipment.

2.4 Optimal Voice Hierarchy

To enable flexibility, Optimal Voice introduces the concept of Channels, Trunks and Trunk Groups, which the customer can dimension.
A Channel in the context of this Service is the capacity needed to carry a single SIP session (eg a telephone call) and is an attribute of both a Trunk and a Trunk Group. The number of Channels required determines the size of a Trunk or Trunk Group.
A Trunk in the context of this service, is a logical a connection between one CPE and Manx Telecom's two Core A-SBCs. Each Trunk may have a designated number of Channels.
A Trunk Group in the context of this service is a logical grouping of two (or multiples of two) Trunks. Each Trunk Group also has a designated number of channels.

Customers therefore, have the opportunity to specify the capacity both of each individual Trunk in addition to that for the overarching Trunk Group(s) and the mapping between Trunks and Trunk Groups, providing them with flexibility to effectively manage their aggregated telephony traffic.
A Customer's equipment, such as a PBX, would be served by at least one Trunk (allowing a certain site-level Channel capacity), and multiple Trunks can be grouped together in a Trunk Group (allowing a certain overall Channel capacity). This way, it is possible to specify the behaviour of the call delivery to match the capacity at each site and offer the features described further in this document.

Channels are purchased at the Trunk Group Level and Call Admission Control applies equally to the inbound and outbound directions.

In all cases, the number of channels configured will be limited by the available bandwidth defined on the Access Circuit to each site, which needs to be engineered in advance. It is not possible to dynamically burst outside the defined number of Channels.

3 The Optimal Voice Service

3.1 Regulatory

Optimal Voice is a genuine Public Telephony service. This means that the service allows Customers to make/receive calls to/from other public telephony services (the worldwide telephony network). In addition, being a service offered in the Isle of Man, the service must conform to the regulatory requirements dictated by the Isle of Man Communications Commission and Ofcom for such services. These include:

- Proper and Effective Functioning of the Network (network integrity & service reliability) – MT must take all reasonably practicable steps to maintain, to the greatest extent possible, network integrity and service reliability but only for the aspects of the network that they control.
- Emergency Call – MT must offer access through 999 and 112 short numbers to the emergency services.
- In support of Operator Assistance, Directories and Directory Enquiry Facilities and the Provision of Directory Information responsibilities, the service ensures that the numbers used are listed in MT's (and therefore other Communications Providers') Directories and Operator Assistance and Directory Enquiry facilities.
- Transparency and Publication of Information – MT shall ensure that clear and up to date information on its applicable prices and tariffs (which for the avoidance of doubt this shall not include bespoke or individual prices and tariffs), and on its standard terms and conditions, in respect of access to, and use by, end users is published, in accordance with the requirements of this condition. Typically, MT meets this obligation by publishing standard prices in the public price list and by referring to its standard terms and conditions. This requirement does not prevent MT from agreeing bespoke prices and conditions and these do not require publication.

- Metering and Billing – MT must ensure that the amounts stated in their bills represents and does not exceed the true extent of any such service provided to the end user in question.
- Non-Payment of Bills – MT must ensure any measures taken by it, the communications provider, to effect payment or disconnection shall be proportionate and reasonable and notified in advance.
- Allocation, adoption and use of telephone numbers, also Number Portability are provided as soon as it is reasonably practicable on reasonable terms, including charges, to any of Our end-users who so requests.

3.2 Emergency Services

Optimal Voice offers access to Emergency services in compliance with the Isle of Man Communications Commission and Ofcom General Condition 4.
The access to emergency services consists of two services. Firstly, the possibility to dial the emergency services numbers (999 and 112), secondly the provision of sufficient information to the Emergency Services Joint Control Room so that even in the event of a silent call, the emergency responders can be dispatched to the right location.
To provide location information a location will be linked to a telephone number entry as part of every telephone number range that is provided for a customer. This telephone number, when used as a calling line identity during an emergency call will then allow the Emergency Services Joint Control Room to look up the location registered for that number.
The emergency location information that can be stored is thus static and pre-provisioned. It is not possible to dynamically provide location information, nor does the SIP protocol currently have an agreed way to convey dynamic (user provided) location information.
As in VOIP, the IP PBX can offer mobility services. It is therefore important to note that it is up to the Customer to ensure that in the event of a call to an emergency service number the right calling line number is used that corresponds to the location of the caller.
In the simplest cases, this would be the telephone number normally used by the caller.

4 Resilience and Call Management

4.1 SIP Trunks Resiliency

In contrast to ISDN technology that switches calls using the actual telephone numbers as addresses, Optimal Voice routes calls using IP addressing to which telephone numbers are mapped.
Core A-SBC resiliency is available to customers with both MSBR and ESBC CPE configurations as the Access Circuit is logically co-connected to both A-SBCs.

4.2 Active/Active Trunk Resiliency Mode

Active/active Trunk configuration is when SIP Channels are purchased and run simultaneously over two or more Trunks. When multiple Trunks have been configured in an active/active configuration and one Trunk becomes unreachable, all calls that would primarily route over the failed circuit will route over another Trunk within the Trunk Group.

4.3 Active/Standby Trunk Resiliency Mode

Active/standby Trunk configuration is when SIP Channels are purchased and run over a primary Trunk, with capacity for the same number of Channels being purchased for a backup circuit in case the primary Trunk becomes unreachable. When two Trunks have been configured in an active/standby configuration and the primary circuit or Trunk becomes unreachable, all calls will route over the backup Trunk within the Trunk Group. The capacity reserved in the backup Trunk must be the same as that purchased in the primary trunk.

4.4 CPE Security

Optimal Voice is secured in several ways, depending on the set of decisions taken around connectivity as described above.

- Traffic segmentation and Isolation: Optimal Voice is segmented and isolated away from other flows containing riskier traffic, using VPN technology, at the transport layer, reducing the footprint and opportunity for network exploitation. This is only available over private connectivity

- IP Level Validation: For each Optimal Voice service the core A-SBC and the customer CPE will validate and restrict communication to a pre-defined set of values. Messages that arrive from un-defined IP addresses will be discarded.

- Encryption: The SIP messaging and Real Time Media streams can be encrypted using TLS and SRTP respectively. This is mandatory for Optimal Voice services running over public connectivity services.

- SIP Level Domain Based Routing Validation: For each Optimal Voice service the core A-SBC and the customer CPE will validate and restrict communication to a pre-defined set of values within the SIP messages themselves. Messages that arrive from un-known domains will be rejected.

Security options are summarised in Table 1.

Deployment Model	Flow Segmentation and Isolation (VPN)*	IP Level Validation	SIP Domain Validation	Encryption
MGW Mode over Public Connectivity	No	Included	Included	Mandatory
MGW Mode over Private Connectivity	Yes	Included	Included	Optional
eSBC Mode over Public Connectivity	No	Included	Included	Mandatory
eSBC Mode over Private Connectivity	Yes	Included	Included	Optional

Table 1. Optimal Voice Security Options

**Flow Segmentation is a function of the underlying IP Access Layer, not of the Optimal Voice service, but is shown here to illustrate why encryption is optional for the Optimal Voice service over private connectivity.*

Call Admission Control

The Optimal Voice service has Call Admission Control applied at Trunk Group level.
Call Admission Control is applied to ensure that the total offered voice calls do not exceed the total number of channels purchased.
The Call Admission Control feature in Optimal Voice is not directional, this means that there is only one setting and it applies across both incoming and outgoing calls.

4.6 Incoming Call Routing Options

Trunks forming a Trunk Group can be configured to route incoming calls to the customer in two ways, either Priority Based or Round Robin.
Priority Based, also known as Overflow Call Distribution means that the subsequent Trunk in a Trunk Group is only used when the first Trunk has reached the maximum call admission as specified by the customer for that Trunk.

Round Robin, or load share, call distribution means that the calls are alternating between each of the Trunks within that Trunk Group.

In specifying the incoming call routing options for each Trunk Group, customers can define in detail how

telephone calls should arrive to their estate.
Note that in that case only SIP Trunks can be part of the hunting. Overflow to non-SIP Trunk destinations is not supported.
For clarity, Trunks that are inactive or out of service will be skipped by the Trunk hunting.

4.7 PSTN Break Out

All calls made over Optimal Voice to the PSTN break out to the PSTN within the MT network on the Isle of Man, regardless of the geographic location of the calling device, and are charged for by Manx Telecom in accordance with the relevant call plan.

4.8 Supported Codecs

Optimal Voice is a VOIP service, which implies that the voice signal is digitally encoded for transport over the IP network. This encoding is done using codecs. There are many codecs available in the telecommunications market.
For on-net traffic between a Customer's sites as well as for traffic between different customers on the Optimal Voice network, the SIP platform will allow the end-points to both use the G.711A-Law codec.

Accordingly, for all Optimal Voice customers to be able to talk to any other customer on the platform and break out to the PSTN, at the minimum the PBX and connected phones need to support the G.711A-Law codec. For the calls handed from/towards the IOM, both the calling and called parties must use G.711A-Law.

4.9 Fax Support

The Optimal Voice service supports the following in dealing with fax:

G.711 pass-through; in which case the Optimal Voice platform expects from the Customer equipment support for G.711 pass through of fax modem signals, with the ability to disable echo cancellation and dynamic jitter buffers on a per-call basis.

4.10 Bandwidth Calculations

For dimensioning purposes, the G.711A-Law codec uses 100 kbps.

4.11 Codecs and Voice Quality

Voice quality is something that is experienced fully end-to-end: from the user in one location to the user in

another location. Many elements therefore influence voice quality, most are out of the control of the Optimal service, such as packet loss/jitter on the LAN or on the WAN or transmission issues in the PSTN at the distant end. Voice quality is expressed by Mean Opinion Score or MOS. MOS tests for voice are specified by ITU-T Recommendation P.800.

The MOS rating is generated by averaging the results of a standardised set of subjective tests where several listeners rate the heard audio quality of test sentences read aloud by both male and female speakers over the communications medium being tested. A listener is required to give each sentence a rating using the following rating scheme (Table 2):

Mean opinion score (MOS)		
MOS	**Quality**	**Impairment**
5	Excellent	Imperceptible
4	Good	Perceptible but not annoying
3	Fair	Slightly annoying
2	Poor	Annoying
1	Bad	Very annoying

Table 2. MOS rating definitions

The MOS is the arithmetic mean of all the individual scores, and can range from 1 (worst) to 5 (best). Compressor/decompressor (codec) systems and digital signal processing (DSP) are commonly used in voice communications, and can be configured to conserve bandwidth, but there is a trade-off between voice quality and bandwidth conservation. The best codecs provide the most bandwidth conservation while producing the least degradation of voice quality. Bandwidth can be measured quantitatively, but voice quality requires human interpretation, although estimates of voice quality can be made by automatic test systems.

As an example, the following are Mean Opinion Scores for SIP implementation of different codecs (Table 3):

Codec	**Mean Opinion Score (MOS)**
G.711	4.30
iLBC	Untested
G.726	Untested
G.729a	3.7
GSM FR	Untested

Table 3. Supported codecs by MOS rating

Note actual MOS experienced in the network may be different from the table as it depends on the implementation of the codec and the material used end to end. However, it gives a relative position of how the codecs compare with each other.
When deployed in Gateway mode the CPE will use G.711A-Law only.

Telephone Numbers

5.1 **Numbering**

Optimal Voice numbers could be existing working numbers that have been transferred from another service but also new numbers out of MT's pool of spare geographic and non-geographic telephone number ranges. When commencing the ordering process for Optimal Voice services, the customer must ensure they make the necessary arrangements for the telephone numbers they need to use.
There are two ways to obtain telephone numbers:

- Allocation of new numbers by MT
- Bringing over (porting or transferring) existing Telephone numbers from OLO's (Other Licensed Operators) or other MT services (e.g. ISDN).

5.2 **New Number Provides**

The Optimal Voice service supports the supply of new numbers out of MT's total pool of available telephone numbers. New numbers can be obtained via your MT Corporate Account Manager or by contacting our Business Sales Desk on 01624 636 636.
For new number provides, the number range is routed via the SIP platform in advance of the Trunk services being built. The lead times for new number provides are therefore shorter and simpler than in the case of porting or transferring over existing numbers from other services or providers.

5.3 **Number Block Transfer**

Customers with existing number blocks can have those blocks brought over in their entirety. This relocates the number block to the Optimal Voice network.

5.4 **Fixed Number Porting (FNP)**

Fixed Number Porting (FNP) is the process by which an agreement is made between Isle of Man Licensed Operators to hand over the use of telephone numbers from one Operator to the other. To initiate a fixed

number port to MT an Authorised Contact for the Customer is required to make the request via either your Manx Telecom Corporate Account Manager or our Business Sales Desk on 01624 636 636.

5.5 Number Portability and Number Transfer

Whilst this Service Description makes the distinction between bringing numbers into MT from other operators (Number Portability) and pointing numbers to a different service inside MT (Number Transfer), from the point of view of the customer, this is the same experience of being able to retain an existing number whilst signing up for Optimal Voice services.

5.6 Directory Listing

All numbers may have an entry, and maintained, in MT's online and physical telephone directory.

6 ISDN Equivalence

6.1 DDI (Direct Dialling In)

Optimal Voice will support DDI functionality, equivalent to ISDN30, allowing external callers to directly call an extension on a PBX. When DDI is activated in the Service, the full E164 number (eg +441624123456) is forwarded to the CPE, whether configured to forward SIP signalling or convert to ISDN (Gateway mode). In the case of the former, the whole E164 number is forwarded to the PBX where it is expected that the PBX strips the necessary digits and routes. In the case of Gateway deployment, the CPE will be configured to strip and forward up to the last 6 digits as specified and as required by the PBX to perform internal routing to individual end users.

6.2 Supported SIP Trunk Voice Features

While it is expected that the customer PBX will provide all voice features required, the Optimal Voice service can provide the following upon request and charged at the prevailing rate (see Table 4):

Call Forwarding on Busy
Call Forwarding on No Reply
Call Forward Unconditional
Calling Line Identification Presentation
Calling Line Identification Restricted
Calling Line Identification Restricted Override
Connected Line Presentation
Connected Line Restricted
Variable number of digits sent to PBX

Table 4. Supported Trunk Voice Features

Service Assurance Over Contended Access Circuits

7.1 **Dimensioning**

The Optimal Voice service is available over contended Access Circuits like Ultima and Ultima Plus (which use VDSL broadband technology) and Optimal Fibre (which uses FTTP broadband technology). When recommending a contended circuit for the use of SIP Trunks Manx Telecom will, where possible, specify a product with a considerably greater bandwidth specification than that required for the requested number of SIP Channels to make allowances for network contention, reduced available bandwidth due to line length or both.

7.2 **Disclaimer**

Manx Telecom offers no guarantee regarding voice quality in the Optimal Voice service when delivered over a contended Access Circuit. If the Customer experiences voice quality issues with the Optimal Voice service under such circumstances and the Access Circuit has been deemed fault-free by Manx Telecom having been tested using Our diagnostic tools and methodology, the Customer may be advised to purchase either an additional Access Circuit and CPE for load sharing purposes or, if available, a replacement Access Circuit with a higher bandwidth specification.

8 Support

8.1 Service Options

Optimal Voice customers will by default be provided with a Service Care level of support for the Service. Customers may choose a higher service level for this service for an additional charge. The services delivered are:

8.1.1 Optimal Voice over Broadband, Standard Support- Service Care Level 4 (default):

Fault Reporting - Following a customer report, faults will be cleared by 0000hrs five working days after the day reported. Service Care Level 4 operates between the hours of 0900hrs and 1700hrs Monday to Friday, excluding Isle of Man Public Holidays. Out of hours engineering attendance is not available.

8.1.2 Optimal Voice over Broadband, Enhanced Support – Service Care Level 2:

Following a customer report, faults will be cleared by 1700hrs on the next working day. SCL2 operates between the hours of 0800hrs and 1800hrs Monday to Saturday, including Isle of Man Public Holidays. Out of hours engineering attendance is available upon request and charged in accordance with our Fees List

8.1.3 Optimal Voice over Carrier Ethernet, Standard Support – Service Care Level 2 (default):

Following a customer report, faults will be cleared by 1700hrs on the next working day. SCL2 operates between the hours of 0800hrs and 1800hrs Monday to Saturday, including Isle of Man Public Holidays. Out of hours engineering attendance is available upon request and charged in accordance with our Fees List

8.1.4 Optimal Voice over Carrier Ethernet, Enhanced Support – Service care Level 1:

Fault Reporting - Following a customer report, faults will be cleared within 6 hours. SCL1 operates on a 24 hour, 7 days a week, 365 days a year basis, and
includes out of hours engineering attendance

The ability to deliver calls using this service is always limited to the constraints of the Broadband or Carrier Ethernet access capacity the customer has installed.

All channels in a SIP Trunk, the Access Circuit and CPE will be subject to the same Service Care Level, and charged for according to the relevant fees detailed in the associated MT Service Order Forms.

8.2 Customer Requests for Works

A request for an increase or decrease in the number of channels within a Trunk or Trunk Group:

Customers who anticipate the temporary requirement for an increase in the number of channels in a SIP Trunk or Trunk Group while within the Minimum Period may request this via their MT Corporate Account Manager or Corporate Sales Desk. We require a minimum of ten working days from receipt of request to completion of works.

Customers may also request a reduction in the number of SIP channels while within the Minimum Period but are not permitted to go below the originally contracted number of channels in the SIP Trunk or Trunk Group as detailed in the associated Service Order Form.
Customers may not request a subsequent increase or reduction in the number of SIP channels for actioning within one month of a previous request to increase or reduce the number of SIP channels within the same Trunk or Trunk Group.

8.3 Service Centre

MT's Incident Management process incorporates the following:

- Incident Management
- Problem Management
- Known Error tracking
- Resolution

MT will keep the Customer informed of the progress of the fault investigation.
The MT Help Desk will retain overall ownership of all incidents until the incident is cleared and service is restored.

8.3.1 Customer Helpdesk

At the discretion of the Customer it is recommended that internal fault reporting is available for the service hours the Customer wants to offer its end-users and would need to be:

- Familiar with the Customer's telephony and IP Data network estate.
- The first point of contact for all its users.
- Responsible for dealing with day to day management queries relating to users.
- Responsible for first diagnostics before dispatching incident to second line (the MT Helpdesk).

The Customer will provide MT with contact details for a minimum of 2 personnel (and a maximum of 4) who will be authorised to contact MT on behalf of the Customer.

8.3.2 MT Helpdesk

MT's established fault reporting helpdesk serving Optimal Voice customers will deal with fault reception and log service calls which will be handled in accordance with the Service Care Level purchased.
The MT NOC and Customer Experience team will try to classify within which domain the fault lies and if the fault is deemed to be with an Optimal Voice Trunk, they will hand off the case off to an Optimal Voice specific 2nd line support team.
During the period that MT are working towards a resolution to a fault we will advise the Customer of the progress being made via the registered contact. If the Customer does not have Service Care Level 1 associated with their Optimal Voice service and depending on staff availability MT may, at the Customer's request, continue to work on a fault reported under Service Care Level 1 conditions outside working hours without a

break. For this service MT would make additional charges, calculated at the prevailing rate. The MT Helpdesk will:

- Provide support to the Customer's nominated personnel.
- Deal with faults reported by the Customer.
- At MT's discretion, escalate any unresolved issues or faults to its own 2nd line support desk and 3rd line technical support team where necessary. These helpdesks may request support from equipment suppliers.
- Handle general enquiries from the Customer's nominated personnel including enquiries for planned work, requests for information, billing and orders.

8.3.3 **Planned Maintenance**

From time to time, MT may schedule Planned Maintenance work, to be carried out by Us or on Our behalf that may cause the Service to be interrupted or suspended. Where possible, and at MT's sole discretion Planned Maintenance will be accommodated during low usage periods and/or outside of Working Hours.

Before doing so MT will give the Customer as much notice as is possible, and whenever practicable will agree with the Customer when the Service will be suspended. This also applies to any Planned Maintenance by 3rd party suppliers.

Emergency Maintenance, updates, and other procedures will be scheduled by MT on a case-by-case basis, and notice will be given to the Customer where practicable. MT will maintain a rollback procedure as standard for all MT owned network and platform hardware identified in any Planned Maintenance activity, the Customer will be expected to maintain a rollback procedure for their own estate hardware.

8.3.4 **Service Management**

All MT devices within the Optimal Voice service are connected to MT's dedicated management network and will be reactively monitored by MT using its standard set of tools and techniques in response to fault reports from Customers, unless supported by 24-hour Proactive Remote Monitoring. MT will provide 24-hour in-band monitoring of core server hardware, and network infrastructure and will take necessary actions if a fault is identified.

8.3.5 **24-hour Proactive Remote Monitoring**

Customers choosing to have their Optimal Voice service supported under Service Care Level 1 are offered 24-hour Proactive Remote Monitoring. This additional service entitles the Customer to have an Authorised Contact alerted by telephone whenever Our management network detects the Customer's SIP Trunk as being in a Non-Operational Condition. If the MT service desk deems that a site visit is necessary to pursue the rectification of such a fault under the terms of Service Care Level 1 the Authorised Contact will be requested to arrange Site access as required by MT. If the Authorised Contact(s) cannot be contacted after We have made all reasonable efforts to do so the 6-hour Service Care Level 1 time-to-fix target will not be considered as being in effect until contact has been made and Site access confirmed. 24-hour Proactive Remote Monitoring as a service is supplemental to, and should not be considered as a replacement for, the process of the Customer

reporting any fault condition experienced with the Optimal Voice service.

8.4 Billing

8.4.1 The Optimal Voice Bill

The customer's first bill will include set up charges that may apply for Trunk and Channel configurations, and the first month's charges for the service, in line with those agreed with the customer when the contract was completed.

Subsequently the customer will be provided with a bill for the service(s) purchased from this service in accordance to its contracted bill frequency.

If the customer has any existing services from MT, these charges together with the Optimal Voice charges can be added to an existing monthly bill.

All calls made over Optimal Voice to the PSTN break out to the PSTN within the MT network and are charged by Manx Telecom in accordance with the relevant call plan, regardless of the geographic location of the calling device.

8.4.2 MT Billing Analyst Coverage

The MT itemised bill will contain Optimal Voice information where the Customer and MT staff (if required) can review the spend on the bill to the granularity of an individual call. An itemised bill is available for the fee as advertised by Manx Telecom. Customers who have registered with myMT may receive an itemised bill free of charge.

8.4.3 Late Billing of Calls

Any chargeable events the details of which are not to hand when the bill is prepared shall be included in a bill no later than the fourth monthly bill after the chargeable events occurred, unless a previous agreement has been reached with you, or with the express consent of the Communications Commission in writing.

8.5 Service Level Management

8.5.1 Alignment of Service Care Levels

It is highly recommended that the Service Care Level for the Optimal Voice service matches that of the Access Circuit over which it is delivered. If, in the event of a failover of the SIP Trunk(s) to a backup Access Circuit the Service will be subject to the Service Care Level applied to the backup circuit and as stated in the associated MT Service Order Form when that backup circuit was purchased.

If a Customer utilises more than one Access Circuit as the primary means of delivering the Optimal Voice

service, i.e. all circuits have been preconfigured as active/active to carry SIP Trunks and are not intended purely as backup, then it is highly recommended that all circuits are supported by the same Service Care Level.
If a Broadband Access Circuit is being used to deliver the Optimal Voice service, whether as a Primary Circuit or as a Backup Circuit, the Service Care Level of the fixed line over which the Broadband service is delivered must match that of the Broadband service.

8.6 Provisioning Lead Times

Optimal Voice is an application delivered over an IP infrastructure. The timelines below assume the IP connectivity network serving the customer has sufficient bandwidth to support the new or changed SIP requirement. Any upgrades on IP connectivity should have been completed before the Optimal Voice order can be completed.

- For adding Access Circuits, the lead time is dependent on the installation lead time for the circuit selected.
- For adding or deleting SIP Trunks within an existing Access Circuit, We endeavour to complete the order within 10 working days
- For adding or deleting SIP channels within an existing Trunk or Trunk Group, We endeavour to complete the order within 10 working days
- For adding or deleting DDI number ranges, We endeavour to complete the order within 10 working days
- For transferring in additional numbers from other MT services, We endeavour to complete the order within 10 working days
- For adding a hitherto unsupported IP PBX, the lead time will be decided by advance agreement between the customer, their MT Account Team and MT Product Management, and will depend on the amount of effort required to test and certify the IP PBX for Optimal Voice support.

8.7 Other Service Considerations

MT strongly recommends that specific consideration be given to Security Plans, Business Continuity and Exit Management and this section clarifies the scope of such support in the context of this Service.

8.7.1 Security

The production of a security plan is dependent on the specific policies of the customer procuring such service, and as such it is highly variable and cannot be included as a standard item within the Optimal Voice offering. In the event of a Customer requesting MT to develop such security documentation then MT, working with the customer, will determine the number of additional professional service days required to produce the required

artefacts. The security requirements, and any associated costs, shall be included within the appropriate MT Service Order Form.

8.7.2 Business Continuity/Disaster Recovery

Due to the commodity nature of the service, the only data storage, business continuity and disaster recovery services provided are those included in the above service description and associated terms. For the avoidance of doubt, no other business continuity plans or recovery services are provided within MT's standard Optimal Voice product offer of service.

8.7.3 Exit Management

Exit Management is the support provided to users when services come to the end of their contract period, or are terminated in advance, will be in accordance with the terms detailed in the terms associated above for this product offering. Due to the commodity nature of the service, no additional exit management services can be provided at this time.

9 Termination by Notice

9.1 Termination by Customer Outside the Minimum Period

At any time after the expiry of the Minimum Period, the Services Order Form can be terminated by the Customer by giving Manx Telecom ninety (90) days written notice or as stated on the Services Order Form.

9.2 Termination by Customer During the Minimum Period

If the Customer terminates the Services Order Form and this Services Description during the Minimum Period, then the customer must pay Manx Telecom all outstanding fees owed for the remainder of the contract in accordance with the Services Order Form.

9.3 Termination by Manx Telecom

The Services Order Form and/or this Services Description can be terminated by Manx Telecom at any time by giving the Customer ninety (90) days written notice.

10 Definitions and Interpretation

10.1 Definitions and Interpretation

Unless the context otherwise requires, terms and phrases defined in the Terms and Conditions and the associated Service Order Form will have the same meaning when used in this Service Description.

"**Access Circuit**" means the IP link between the MT Core and each CPE that facilitates the Optimal Voice service at each Site;

"**A-SBC**", "**SBC**" means an Access Session Border Controller. An SBC connects an Access Circuit into the MT core network and acts as a firewall offering access control;

"**Authorised Contact**" means a person, authorised by the Customer and formally notified in advance to Manx Telecom by the completion and submission of Manx Telecom form RF/C5/030 "adding/changing your authorised contacts", who has been approved to act upon behalf of the Customer in a commercial and/or technical capacity. An Authorised Contact may be contacted by Manx Telecom outside of Normal Working Hours as a result of 24-hour Proactive Remote Monitoring.

"**Backup Circuit**" means the Access Circuit configured to carry a SIP Trunk and Channels and used in the event of its failure;

"**Channel**" means a single SIP Channel capable of carrying a single SIP session, such as a voice call;

"**CPE**" means Customer Premises Equipment, installed by Manx Telecom or an approved agent of Manx Telecom as part of the SIP Voice Service and terminates the Access Circuit;

"**Customer**" means a customer of Manx Telecom Trading Limited;

"**Call Admission Control**" means the logical configuration of a limit to the number of concurrent calls permitted on a SIP Trunk for the preservation of call quality;

"**Emergency Maintenance**" means unplanned but essential work by Manx Telecom or an authorised 3rd Party to either rectify a fault condition within the Service or

prevent the imminent occurrence of such;

"**ESBC**" means Enterprise Session Border Controller, which is a function of the CPE that can terminate a point to point Access Circuit and provide either SIP Trunk or ISDN functionality to the Customer equipment, such as a PBX;

"**Grade of Service**" means the probability of a call being blocked or delayed more than a specified interval, expressed as a decimal fraction;

"**High Availability**" means the configuration of two similar elements within the Optimal Voice service, such as the dual CPE, enabling one device to adopt the function of the other in the event of a failure in one of the devices;

"**Internet Protocol**" means a set of rules governing the format of data sent over the Internet or other network.

"**IP**" means an abbreviation for Internet Protocol;

"**IP Address**" means the unique string of numbers that identifies an address on the Internet;

"**Minimum Period**" means thirty-six (36) months from the Service Commencement Date, or any other Minimum Period agreed on by the Parties from time to time;

"**MSBR**" means Multi-Service Business Router, which is a type of CPE connected to a SIP Voice Access Circuit delivered over an Internet circuit such as broadband;

"**MT**", "**Us**", "**Our**", "We" means Manx Telecom Trading Limited or belonging to;

"**NOC**" means Manx Telecom's Network Operations Centre, staffed 24 hours a day, 7 days a week;

"**Non-Operational Condition**" means that the operational status of a SIP Trunk is such that it is not possible for any SIP session to be initiated across the Trunk and consequently, no voice or data calls can be made. Non-Operational Condition does not mean any other reduction in Service or call quality;

"**Normal Working Hours**" means 0800hrs to 1700hrs Monday to Friday, excluding public holidays as defined by the Isle of Man Government.

"**Operator**" means a telecommunications provider in the Isle of Man, fully licensed as such by the Isle of Man Communications Commission;

"**PBX**" means Private Branch Exchange, which is a telephone system within an enterprise that switches calls between users on local extensions while allowing users to share a certain number of external phone lines;

"**Planned Maintenance**" means work by Manx Telecom or an authorised 3rd party, carried out according to a fixed plan, that may cause an interruption to the Service;

"**Primary Circuit**" means the Access Circuit carrying a SIP Trunk and Channels, selected by default as the main circuit in a configuration that includes a Backup circuit;

"**PSTN**" means Public Switched Telephone Network;

"**SBC**" means Session Border Controller. An SBC connects an Access Circuit into the MT core network and acts as a firewall offering access control;

"**Service**" or "**Services**" means each of the services listed on the Optimal Voice Services Order Form;

"**Service Commencement Date**" means the date from which the relevant Services Order Form comes into effect;

"**Service Boundary**" means the demarcation point of the Optimal Voice service, being the LAN port(s) of the associated CPE;

"**Site**" means each location detailed on the Services Order Form that accesses the Services by means of an Access Circuit;

"**Trunk**" means a logical group of SIP Channels carrying multiple concurrent calls;

"**Trunk Group**" means a group of SIP Trunks usually over several Access Circuits, all carrying multiple concurrent calls;

"**VOIP**" means Voice Over Internet Protocol;

"**VRRP**" means Virtual Router Redundancy protocol;

"**Working Days**" means Monday to Friday, excluding public holidays as defined by

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